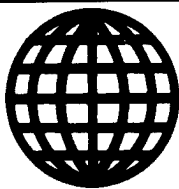


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JPRS-TTP-88-012
28 SEPTEMBER 1988



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JPRS Report

Telecommunications

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CONTENTS

28 SEPTEMBER 1988

CANADA

- Mitel Reports Agreement on GX5000 Central Office Switch
[Toronto THE GLOBE AND MAIL 27 Jul 88] 1

CHINA

- U.S. Seeks Approval for Space Launchings by China [Beijing XINHUA 10 Sep 88] 2
Satellites' Safety Assured [Beijing XINHUA 10 Sep 88] 2
U.S. Approves Chinese Rockets in Space Launches [Hong Kong TA KUNG PAO 14 Sep 88] 2
6 'Long March' Rockets for Sale on World Market [Hong Kong HONGKONG STANDARD 16 Sep 88] 3
Meteorological Satellite Launched From Open Site [Beijing ZHONGGUO XINWEN SHE 7 Sep 88] 4
Song Jian, Liu Huaqing Observe Launch [Shi Qixin; Beijing Domestic Service 7 Sep 88] 4
Description of Satellite [Beijing ZHONGGUO XINWEN SHE 7 Sep 88] 5
Capability of Satellite [Beijing XINHUA 7 Sep 88] 5
Information on Rocket, Launching Site [Beijing ZHONGGUO XINWEN SHE 7 Sep 88] 5
More on Launching [Beijing ZHONGGUO XINWEN SHE 7 Sep 88] 6
Staff Congratulated on Launch [Beijing XINHUA Domestic Service 7 Sep 88] 6
Weather Satellite Transmits Cloud Chart Picture [Beijing XINHUA 7 Sep 88] 7
Hangzhou 'Fengyun I' Ground Station Works Well [Beijing ZHONGGUO XINWEN SHE 8 Sep 88] 7
Geodetic Satellite Research Improves Precision [Shanghai WEN HUI BAO 21 Aug 88] 7
Paging Phones to Shanghai From Ericsson Radio [Stockholm DAGENS NYHETER 20 Aug 88] 8

EAST ASIA

NORTH KOREA

- Telecommunications Ministers Conference Scheduled [Pyongyang KCNA 20 Sep 88] 9

LATIN AMERICA

BOLIVIA

- COTEL, COTAS Expand Telephone Service 10
COTEL Program [Santa Cruz EL DIARIO 10 Jul 88] 10
COTAS Santa Cruz Network [Santa Cruz EL DIARIO 12 Jul 88] 11

MEXICO

- Ericsson Gets Order for Expanding Phone Net [Stockholm DAGENS NYHETER 7 Sep 88] 11

NEAR EAST & SOUTH ASIA

INTERNATIONAL

- Ericsson AXE Switching Equipment To Algeria, Tunisia
[Stockholm DAGENS NYHETER 16 Aug 88] 13

IRAN

- Izeh Relay Station Becomes Operational [Tehran Domestic Service 12 Sep 88] 13
Nur Microwave Operational [Tehran Domestic Service 12 Sep 88] 13

WEST EUROPE

EUROPEAN AFFAIRS

- ECC Proposes Common Telecommunications Market
[*Bonn TECHNOLOGIE NACHRICHTEN PROGRAMM INFORMATIONEN 20 May 88*] 14
- EC Commission Approves Liberalization for Telecom Equipment
[*Bonn TECHNOLOGIE NACHRICHTEN-MANAGEMENT INFORMATIONEN 13 Jun 88*] 24

FEDERAL REPUBLIC OF GERMANY

- Major Order From Uzbekistan [*Munich SUEDEDEUTSCHE ZEITUNG 9 Sep 88*] 25

FINLAND

- NOKIA-MOBIRA Making Export Gains in North America
[*Helsinki HELSINGIN SANOMAT 25 Aug 88*] 25

FRANCE

- Telecom Entering Satellite Multimedia Field
[*Jacques Jublin; Paris LA TRIBUNE DE L'EXPANSION 26 Jul 88*] 25

ITALY

- CSELT Achievements in Telecommunications Reported 26
 - Three-Frequency Feed for Quasat Antenna
[*Giuseppe Figlia et al.; Turin CSELT TECHNICAL REPORTS Jun 88*] 26
 - Fluorine Doping in MCVD Optical Fibers
[*Giuseppe Cocito et al.; Turin CSELT TECHNICAL REPORTS Jun 88*] 27
 - An Expert System Builder
[*Alessandro Dionisi Vici; Turin CSELT TECHNICAL REPORTS Jun 88*] 27
 - From Structural RT-Description to Floor-Plan for VLSI
[*Antonio Bonomo et al.; Turin CSELT TECHNICAL REPORTS Jun 88*] 27

SPAIN

- RNE, RCE Radio Stations Merged [*Madrid Domestic Service 6 Aug 88*] 27

UNITED KINGDOM

- Approval Given for Fifth Television Channel
[*Jane Thynne; London THE DAILY TELEGRAPH 29 Jul 88*] 27
- British Microwave TV Distribution Proposed [*Paris CPE BULLETIN Jan 88*] 28

Mitel Reports Agreement on GX5000 Central Office Switch

55200055 Toronto *THE GLOBE AND MAIL* in English 27 Jul 88 p B6

[Excerpts] Ottawa—Mitel Corp has announced an international distribution agreement for its most recent product—the GX5000 central office switch.

The GX5000 is designed to provide cheap, reliable telephone service to small communities with some extra frills such as speed dialing and conference calling.

It is Mitel's major marketing hope to get back to profitability after five years of red ink, company president John Jarvis told shareholders at yesterday's annual meeting.

The new switching station is no bigger than an office cabinet and will replace a wall full of old-fashioned electro-mechanical circuitry controlling a rural telephone system.

The marketing agreement is with Mitel's corporate parent since 1986, British Telecom PLC. British Telecom's overseas division has been selling telecommunications equipment to 80 countries and will market the Mitel product in Africa, Asia, the Middle East and Latin America.

Mr Jarvis said the British company sees a sales potential of \$120-million over the next five years for the new product.

Mitel, which is based in Kanata, Ont., will handle North American sales.

The GX5000 system, which can accommodate everything from advanced custom-calling demands of businesses to coin-operated telephones, has been field tested near Cornwall, Ont., in the farming community of Moose Creek, serving the 500 customers of Roxborough Telephone Co., Mr Jarvis said.

One cabinet two metres high will accommodate up to 500 telephone lines and can be adapted to local needs.

Mitel posted a loss of \$24.3-million in the pst fiscal year ended in March on sales of \$419.2-million, compared with a loss of \$80.5-million on sales of \$453.4-million the previous year.

Meanwhile, this month Mitel bought the 30 per cent of Kanata-based Trillium Telephone Systems Inc. it didn't already own. To save money, it will fold the manufacturer of small telephone systems into its main product lines.

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U.S. Seeks Approval for Space Launchings by China

*OW1009025088 Beijing XINHUA in English
0019 GMT 10 Sep 88*

[Text] Washington, September 9 (XINHUA)—The U.S. State Department announced today that it will notify the Congress and its COCOM (Coordinating Committee for Export Control) allies of the administration's intent to approve export license applications for the launch of three U.S.-made satellites on Chinese launch vehicles.

State Department spokesman Charles Redman said in a statement that one license application was submitted by Hughes Aircraft Company for the launch of two of its satellites, which have been ordered by the Australian entity AUSSAT.

Redman said that the U.S. Administration has also decided to approve, subject to conditions, a license for the launch of a third U.S.-made satellite, known as ASIAT, which will be launched on behalf of a Hong Kong-based consortium, with Chinese and British ownership.

He said that the U.S. Administration will seek the approval of the Congress and the COCOM for such moves.

The projected launch dates have been set for late 1989 for the ASIAT satellite and 1991 and 1992 for the two AUSSAT satellites.

"The United States and the People's Republic of China will establish a government-to-government regime to safeguard the technology from possible misuse or diversion and obtain a government-to-government commitment that China will accept adequate responsibility for potential liability for damages resulting from accident," the statement said.

It added that there will be an agreement "to prevent possible unfair Chinese pricing or trade practices related to launch competitions." These agreements will be concluded before the licenses are issued.

"The positive outcome in these cases reflects our continuing interest in expanding relations with China in ways which are mutually beneficial," Redman said.

"In reaching this decision," he explained, "the administration is determined to protect legitimate U.S. national security interests and assure the ability of the U.S. commercial launch industry to compete on an equal footing with launches from a nonmarket economy, while continuing to promote increased U.S.-China trade."

Observers here noted that since the U.S. space shuttle Challenger disaster nearly 3 years ago, companies in some countries have turned to a Chinese company for help to launch their satellites on Chinese rockets. China has a good record on launch satellites and the price it charges is cheaper.

It was said that some U.S. rocket making corporations as well as a certain departments within the U.S. Administration opposed the idea on grounds that the using of Chinese launch vehicles will present U.S. firms with unfair competition and that it will involve the risk of transferring technology.

Satellites' Safety Assured

*OW1009140188 Beijing XINHUA in English
1335 GMT 10 Sep 88*

[Text] Beijing, September 10 (XINHUA)—China has made repeated statements that it pledges the safety of foreign clients' satellites launched by China, a Chinese Foreign Ministry spokesman said here today.

The spokesman made this remark in reply to the question by a reporter: "The U.S. State Department spokesman said that the U.S. Government has approved the launching of U.S.-made satellites on Chinese launch vehicles. But the final approval will be subject to whether China and the U.S. can reach agreement on a Chinese pledge to safeguard the technology and offer a reasonable launching price. What is China's reaction to this?"

The spokesman said, "We have noticed the speech [as received] of the U.S. State Department spokesman. We appreciate the U.S. Government's support for China's satellite launching services for foreign clients."

He explained that the reason China charges relatively cheaper prices for launching satellites for overseas clients is due to several factors, namely: practical and reliable rocket design; comparatively higher rate of successful launching; using entirely Chinese-made materials and devices; relatively cheaper labor and the fact that the China Great Wall Industrial Corporation doesn't seek hefty profits, among others. It complies with international practice to offer favorable services at the initial stage of the Chinese carrier rockets' entry into the international market.

He said that, naturally, the price of launching services will not remain unchanged, adding that readjustment of prices is possible in future.

U.S. Approves Chinese Rockets in Space Launches

*HK1409033688 Hong Kong TA KUNG PAO in Chinese
14 Sep 88 p 2*

["Political Talk" column by Shih Chun-yu (2457 0689 3768): "The U.S. Government Approves China Launching Satellites on Behalf of the United States"]

[Text] The U.S. Department of State announced on 9 September that the U.S. Government had formally permitted the U.S. Hughes Corporation and other enterprises to use Chinese rockets for launching three U.S.

communications satellites. The first communications satellite is for use in the Asian region and will be launched next year. The other two are for use in the Oceanian region and will be launched in 1991 and 1992 respectively.

The world has a high opinion on China's manufacture of rockets, the functions of its rockets, as well as its launching technology. Recently, the Taiyuan launching center successfully launched into space a polar track meteorological satellite named "Fengyun No 1" by means of the "Changzheng No 4," a new-type rocket with a stronger propelling force. The satellite is operating well in synchrony with the sun. This indicates that China has acquired high accuracy and reliability in rocket and space flight technology.

Over the past few years, foreign enterprises have discussed with China the problem of China launching satellites on their behalf. They include U.S. and West European enterprises. They know very well that the design of Chinese rockets is practical and reliable, that the successful launching rate is high, and that the costs are low. These three conditions are very important, particularly quality and technology. Low costs alone are not of much help.

Recently, some U.S. protectionists and enterprises advised some senators to raise a motion in Congress to oppose China's launching satellites for U.S. enterprises because, as they asserted, this will affect the profits of U.S. enterprises. The U.S. Government, however, pointed out the necessity of assisting Sino-U.S. cooperation. This decision corresponds to the spirit of international cooperation. Naturally, if China's space flight technology had not reached an advanced world level, it would have been impossible for its carrier rockets to enter the international market.

This situation suggests that transactions can be concluded only on the basis of mutual needs and mutual benefit. Undoubtedly, the Chinese should be proud of the fact that their carrier rockets have entered the international market. Needless to say, this will increase the country's foreign exchange earnings, but what is more important is that it has boosted the morale of the Chinese people and encouraged them to continue their march toward advanced science and technology.

Hu Chiu-yuan, member of the Taiwan Legislative Yuan and distributor of the CHUNGHUA magazine, pointed out upon his arrival in Beijing that the CPC has strength, and gave examples of its achievements in nuclear science and technology. Evidently, achievements made since the founding of New China are unerasable. He added that Taiwan has also made achievements and has become one of the "four small dragons" in Asia because of its economic successes. Of the "four small dragons," the citizens of Taiwan and Hong Kong are Chinese, and 75 percent of the citizens in Singapore are Chinese descendants. So it is obvious that Chinese are industrious, can use their brains, and are "quick-witted" in making

money. But because the Chinese mainland pursued a wrong line for as long as 20 years, its culture and economy have not been able to develop to the required level. Now it has to make up for the losses by reform and opening up to the world and by the theory on the "initial stage of socialism." First it has to devote great efforts to catching up with the "four small dragons," otherwise it will find it difficult to explain what it has done.

It should take an honest attitude. If you can, you can; if you cannot, say you cannot. Yesterday Zhao Ziyang said to the author of the "Third Wave": "In the course of reform and opening up to the world, China will make great efforts to develop science and technology and will pursue the high technology of developed countries so that it will be able to apply their achievements in the next century." He pointed out: "For China, the new technological revolution is both an opportunity and a challenge. If it does not do well, the gap between China and developed countries will be bigger." These are the actual conditions in China today.

China's rockets and satellites have reached world levels. This successful experience should be summed up and applied to other scientific and technological fields. Thoughts should be given to developing production by means of science and technology and to developing China's economy by means of Western experience. Once a correct line is formulated, the road to prosperity will certainly be found out.

6 'Long March' Rockets for Sale on World Market

HK1609072388 Hong Kong HONGKONG STANDARD in English 16 Sep 88 p 6

[By Tammy Tam]

[Text] China is to put about six carrier rockets on the world market in a bid to take up the slack in commercial satellite launches.

According to Mr Ji Shunyi, an official of China Great Wall Industry Corporation, the Long March rockets would help overcome the "rocket shortage" in the world.

Recently returned from the Britain's Farnborough Airshow and preparing for the Aviation Expo/China '89, Mr Ji said the Long March rockets were attracting more Western countries because of their safer, more practical design and good quality.

"The success rate of Long March launches is very high; not a single serious accident has occurred so far," Mr Ji said.

"Western countries, especially the U.S., are now in a great need of launching services for their satellites because of the American shuttle disaster two years ago. And China-made rockets meet their needs in every respects."

China Great Wall, an arm of the Ministry of Aeronautics and Astronautics, will promote sales.

The Company also develops satellites and is looking for foreign partners.

But reaching out into the international market for rocket launches is its priority.

"We began this service for foreign countries in 1986. Last year we had France as our client, this year it is West Germany. We average four commercial launches a year," he said.

"At \$23.4 billion a launch, we are about 40 percent cheaper than the U.S."

Last Friday, the White House announced that the U.S. Government had agreed to allow Hughes Aircraft Company to use Chinese rockets for the launching of three communication satellites in spite of stiff opposition.

Mr Ji is confident the Long March rocket will gradually march into the world market. The American decision is seen as a good starting point.

The first of these three satellites, Asiasat, is for communications in Asia and will be launched next year. It is the result of a Hong Kong, British and Chinese venture.

The other two will cover the Pacific area and are due to be launched in 1991 and 1992.

To better exploit the market, China Great Wall is revamping its management system.

"We are discussing the separation of administration and enterprises. It is expected that by the end of this year, China Great Wall will separate from the Ministry of Aeronautics and Astronautics to be financially independent enterprise," Mr Ji said.

"The government does not and will not give our company and subsidies, and we have to hand over a certain amount to the government every year.

"We are doing other businesses, too, such as labour export and the production of other electric appliances. We also have a joint venture electronic factory, the Hua Chang Electronic Company Limited, here in Hong Kong."

Meteorological Satellite Launched From Open Site

HK0709041688 Beijing ZHONGGUO XINWEN SHE
in Chinese 0319 GMT 7 Sep 88

[Text] Taiyuan, 7 Sep (ZHONGGUO XINWEN SHE)—China successfully launched an experimental meteorological satellite "Fengyun I" at 0530 this morning.

This satellite was launched by the newly made "Long March IV" rocket to geostationary solar orbit [jin yuan xing tai yang 6602 0955 1748 1132 7122].

The Taiyuan Satellite Launching Center, where the satellite was launched, has been open to the public for the first time.

By 1000 this morning, the apparatus of the satellite was operating normally.

Not long after the satellite entered the predetermined orbit, China's meteorological ground satellite station received meteorological information sent by the satellite. This indicates that the days when China had to purchase meteorological satellite information from other countries are gone forever.

Personages here believe that the successful launching of this satellite will provide valuable information for agricultural production and weather forecasts.

Song Jian, Liu Huaqing Observe Launch

OW0709035388 Beijing Domestic Service in Mandarin
0200 GMT 7 Sep 88

[By reporter Shi Qixin]

[Text] China successfully launched its first solar synchronous weather satellite with the No IV Changzheng [Long March] Carrier Rocket from the Taiyuan satellite launch center at 0530 [2030 GMT] on 7 September. The satellite entered the prescribed orbit smoothly, and the instruments on the satellite are functioning normally.

Shortly after the satellite entered its orbit, China's ground weather satellite station received meteorological data transmitted from the satellite. Currently, the Xian satellite tracking and control center and the State Meteorological Administration are tracking and testing the satellite in orbit according to schedule.

Song Jian, state councillor, Liu Huaqing, deputy secretary general of the Central Military Commission, and other leading comrades observed the satellite launch respectively at the Beijing Command Post of the Commission for National Defense Science, Technology, and Industry and at the Taiyuan satellite launch center.

After the satellite was successfully launched, the State Council and the Central Military Commission sent congratulatory messages to all the participants involved in the launch.

The weather satellite, named Fengyun [Winds and Clouds] No 1, is the first (?polar) orbit meteorological satellite ever designed and launched by China. It is equipped with two very high resolution scanner radiators which have five tracking channels for day and night surveying, mapping and taking pictures of clouds, earth surface, ocean color, water boundary, ocean surface

temperature, ice and snow surface, and polar vegetation. The main task of the satellite is to obtain global weather data and to transmit it to ground weather stations all over the world. The satellite is also capable of detecting the composition of particles in the air for space physics study.

Description of Satellite

HK0709111388 Beijing ZHONGGUO XINWEN SHE
in Chinese 0918 GMT 7 Sep 88

[Text] Taiyuan 7 Sep (ZHONGGUO XINWEN SHE)—The meteorological satellite “Fengyun [Winds and Clouds] I” China has launched on 7 September is a solar synchronous meteorological satellite.

A solar synchronous satellite is different from a geostationary telecommunications satellite. It flies vertically in space above the two poles of the earth. Because its velocity is equal to the earth’s revolution it passes the same point at the same time every day, thus being synchronous with the sun.

Because of these characteristics a meteorological satellite can obtain the satellite cloud map of a certain point at the same time every day by moving along an orbit synchronous to the sun, thus obtaining comparable meteorological data.

A meteorological satellite is the offspring of a series of high technologies, including space, remote sensing, computer, and telecommunication technology. When a meteorological satellite moves along a certain orbit in space it will observe the earth from a commanding position through its remote sensing system, and will obtain data quite beyond regular observation means, while transmitting various meteorological data to ground receiving stations. This demonstrates the great advantages of a meteorological satellite. For example, when a typhoon is beginning to take shape the meteorological satellite will spot its existence, have a good view of its outward characteristics, ascertain its position and intensity, and track its route and direction of movement.

China has now become, after the United States and the Soviet Union, the third nation to launch a solar synchronous meteorological satellite.

Capability of Satellite

OW0709112788 Beijing XINHUA in English
1111 GMT 7 Sep 88

[Text] Beijing, September 7 (XINHUA)—China launched its first experimental meteorological satellite from a satellite-launching center in Taiyuan, Shanxi Province, at 5:30 (Beijing summer time) today.

The satellite, “Fengyuan (Wind and Cloud) No 1”, has entered the solar-synchronous orbit, with all meters and instruments functioning normally.

A satellite ground station has received meteorological information from the satellite, launched by a “Long March IV” Carrier Rocket.

The Xian Satellite Telemetry Center and the State Meteorological Bureau are testing the satellite according to plan.

The satellite is capable of surveying cloud charts in daytime and at night, earth’s surface pictures, marine water color pictures, growth of vegetation, temperatures of the ocean surface, and coverage of ice and snow.

It is also capable of surveying the composition of particles in space.

It is designed primarily to gather global meteorological information and transmit the data to satellite ground stations worldwide.

In a message today, the State Council and the Central Military Commission extended congratulations to scientists, engineers, workers, officials, and officers and men of the People’s Liberation Army, all of whom participated in developing and testing the satellite.

The successful launching of the satellite marks “fresh progress” made by China in space and meteorological satellite technology, the message said.

“This success is of great importance to promoting China’s national economic growth and serves as an encouragement to people of all nationalities,” it noted.

Information on Rocket, Launching Site

HK0709115288 Beijing ZHONGGUO XINWEN SHE
in Chinese 0914 GMT 7 Sep 88

[“Information: ‘Changzheng IV’ Rockets and the Taiyuan Satellite Launching Center”]

[Text] Taiyuan, 7 Sep (ZHONGGUO XINWEN SHE)—The “Changzheng [Long March] No IV” rocket, with which China today launched a meteorological satellite, and the Taiyuan Launching Center, have both been used and made known to the world for the first time.

“Changzheng IV” rockets are a new type of rocket built by China after its “Changzheng I,” “Changzheng II,” and “Changzheng III” rockets. They are three-stage rockets that consume conventional propellants. Therefore, they are different from both the two-stage “Changzheng II” rockets and the “Changzheng III” rockets, which consume low-temperature fuels. “Changzheng IV” rockets can reach higher altitudes than rockets of the “Changzheng II” class and can be used to launch large satellites designed for medium-altitude [zhong gui dao 0022 6510 6670] and low-altitude orbits [di gui dao 0144 6510 6670]. The “Changzheng IV” rockets have been developed by the Shanghai Astronautics Administration.

The Taiyuan Satellite Launching Center was built in the 1960's and is situated northwest of Shanxi's Taiyuan City. It is the third satellite launching center China has openly put into use since its Jiuquan Satellite Launching Center and Xichang Satellite Launching Center. Taiyuan has been selected as a place for launching meteorological satellites because it will enable China to use the South-North satellite tracking and control network, which includes the Xian Satellite Tracking and Control Center, to effectively monitor and control satellites.

More on Launching

HK0709121488 Beijing ZHONGGUO XINWEN SHE
in Chinese 0916 GMT 7 Sep 88

[Report by Zhu Daqiang (2612 1129 1730): "China Successfully Launches Its First Meteorological Satellite With a 'Long March IV' Rocket"]

[Text] Taiyuan, 7 Sep (ZHONGGUO XINWEN SHE)—China launched its first solar synchronous [tai yang tong bu 1132 7122 0681 2975] meteorological satellite from the Taiyuan Satellite Launching Center in Shanxi, at 0530 Beijing summer time today, with a newly developed "Changzheng IV" [Long March IV] Carrier Rocket.

This meteorological satellite, named "Fengyun 1," with a weight of 750 kilograms and in the shape of a hexahedron, is the first polar orbit [ji di gui dao 2817 0966 6510 6670] meteorological satellite developed and launched by China on its own.

The "Changzheng IV" Carrier Rocket is a new-type, three-stage carrier rocket using conventional propellants. Compared with other rockets in the "Changzheng" series, this carrier rocket has incorporated some new technological breakthroughs. It will mainly be used to launch large satellites of various purposes into orbits at medium or low altitudes.

The Taiyuan Satellite Launching Center, which launched this meteorological satellite, is the third satellite launching field that has been put into operation in China. The Jiuquan Satellite Launching Center, which specializes in launching satellites into near-earth orbits [jin di gui dao 6602 0966 6510 6670], the Xichang Satellite Launching Center, which specializes in launching geostationary [jing di gui dao 7234 0966 6510 6670] satellites, and the Taiyuan Satellite Launching Center together form a full range of satellite launching fields in China.

The above-mentioned satellite has smoothly entered an approximately round solar-synchronous orbit [jin yuan xing tai yang tong bu gui dao 6602 0955 1748 1132 7122 0681 2975 6510 6670]. All the instruments installed in the satellite are functioning normally. China's meteorological satellite ground stations received meteorological data sent back by the satellite soon after it entered the prescribed orbit.

Meteorological satellite "Fengyun 1" is equipped with two very-high-resolution [shen gao fen bian 3928 7559 0433 6587] scanning radiometers. With five detecting channels, these scanning radiometers can produce cloud charts, earth surface charts [di biao tu xiang 0966 5903 0956 6272], and marine water color charts [hai yang shui se tu xiang 3189 3152 3055 5331 0956 6272], and show the border of a body of water [shui ti bian jie 3055 7555 6708 3954], ocean surface temperature, ice cover [bing xue fu gai 0393 7185 6010 5556], and vegetation cover [zhi bei sheng zhang 2784 5926 3932 7022], both in the day and at night. The satellite's major tasks are to collect meteorological data over China and around the world and to dispatch to all meteorological satellite ground stations all over the world digital cloud charts [shu zi liang yun tu 2422 1316 6852 0061 0956] with a sub-satellite point resolution [xing xia dian fen bian lu 2502 0007 7820 0433 6587 3764] of 1.08 km in the HRPT form and analog cloud charts [mo ni liang yun tu 2875 2362 6852 0061 0956] with a resolution of 4 km in the APT form. In addition, this satellite can also detect the composition of particles in the sky, and thus provide data for the study in space physics.

According to meteorological experts who took part in the launching operation, this meteorological satellite, after being officially put into operation, will play an important role in enhancing China's weather forecasting ability, especially its ability to monitor and forecast disastrous weather.

Staff Congratulated on Launch

OW0709121488 Beijing XINHUA Domestic Service in Chinese 0814 GMT 7 Sep 88

[Text] Beijing, 7 Sep (XINHUA)—Today the State Council and the Central Military Commission cabled the entire staff who participated in China's weather satellite research and testing, congratulating them for the successful launch of China's first weather satellite. The following is the text of the message:

To all comrades who participated in our nation's research and testing of weather satellite:

With the approach of our 39th national day celebration, China has successfully launched its first polar-orbiting weather satellite, developed entirely on its own. This is the result of your vigorous cooperation and united struggle in implementing the policy of independence and self-reliance under the guidance of the party's basic line since the 3d Plenary Session of the 11th CPC Central Committee. The State Council and the Central Military Commission extend the warmest congratulations and solicitude to all the scientists, engineers, workers, cadres, and officers and men of the PLA who have participated in developing and testing the satellite.

The successful launch of this satellite has filled a blank page regarding applied weather satellites in China, symbolizing a new step forward in China's space and weather

satellite technology. It has significant importance in promoting the growth of our national economy, and serves as encouragement to people of all nationalities throughout the nation.

We hope you will be modest and prudent, and strive to make greater contributions towards the four modernizations of China.

The State Council and the Central Military Commission

7 Sep 1988

Weather Satellite Transmits Cloud Chart Picture
OW0709141988 Beijing XINHUA in English
1359 GMT 7 Sep 88

[Text] Beijing, September 7 (XINHUA)—China's first meteorological satellite transmitted its first cloud chart picture at 7:09 today, one hour and 30 minutes following its launching.

The picture of the chart of clouds over the Soviet Union and Asia is clear, said experts at the Beijing-based satellite meteorological center affiliated with the State Meteorological Bureau.

The satellite, "Fengyun (Wind and Cloud) No 1", began transmitting information about 15 minutes after it was launched at the satellite-launching center in Taiyuan, the capital of Shanxi Province.

It flew over Vietnam, Laos, Thailand, Kampuchea, Malaysia, Indonesia, the Indian Ocean, the Antarctic, the Eastern Pacific, Canada, the North Pole and the Soviet Union, said a leading official at the center.

It completed its first single orbit at 7:09. Then it took a picture of a cloud chart in which the sun had just risen above the horizon.

It has begun transmitting meteorological information worldwide, he said.

Three meteorological satellite ground stations in Beijing, Guangzhou and Urumqi, respectively, are capable of receiving data from the satellite every day.

The official said his center processes the data into pictures of cloud charts and cloud analysis charts, and provides them to provincial meteorological bureaus and clients.

Meanwhile, China can receive via the satellite remote-sensing data for other parts of the world.

Hangzhou 'Fengyun I' Ground Station Works Well

HK0809141588 Beijing ZHONGGUO XINWEN SHE
in Chinese 1211 GMT 8 Sep 88

[Report: "Completion of Ground Station in Hangzhou for Receiving Signals From Satellite 'Fengyun I'"]

[Text] Hangzhou, 8 Sep (ZHONGGUO XINWEN SHE)—The ground receiving station for the satellite "Fengyun I" in Hangzhou received distinct signals from the satellite when it passed overhead at 1514 (Beijing time) yesterday. The station is in the Second Oceanography Research Institute under the State Oceanography Bureau in Hangzhou.

The "Fengyun I" satellite is carrying a five-channel scanner for visible infrared rays, used chiefly in meteorological observation, while two of the channels are being used for oceanographic observation. The ground receiving station in Hangzhou receives data from over a vast area, south to the Philippines, north to Mo He, east to the east of Japan, and west to Lhasa. These data are automatically recorded on tapes. Twenty minutes after the satellite passes overhead, photos measuring 20 by 20 inches from the satellite can be obtained. Scientists and technicians utilize the data on sea surface temperatures, water color, and mud on the surface as well as density of chlorophyll obtained from satellite surveys to study hydrology as well as kinetics and to survey areas for ocean fish farming.

The control, receiving, and picture processing equipment of the ground receiving station in Hangzhou were all made in China.

Geodetic Satellite Research Improves Precision
WA40080004 Shanghai WEN HUI BAO in Chinese
21 Aug 88 p 3

[Article by Zou Guoliang (6760 0948 5328) and Gu Longyou (7357 7893 0645): "Satellite Orbital Determination Precision Reaches Meter Level—China's Dynamic Geodetic Satellite Research Ranks Among the World's Most Advanced"]

[Text] Nanjing (Special Report)—China's first dynamic geodetic satellite project—a concerted joint effort by 14 organizations including the Chinese Academy of Sciences, the General Staff's Surveying Bureau, the Commission of Science, Technology and Industry for National Defense, and the Head Office of the State Bureau of Surveying and Cartography—has resulted in improving the precision with which a satellite's trajectory is determined from the original kilometer level to the meter level. In addition, China's first high-precision WDC terrestrial coordinate system has been set up. This research achievement has reached the state-of-the-art.

Dynamic satellite geodesy takes for its main topics of study precision observation methods and motion theory; its main objectives are precise measurement of the earth's form [i.e., size and shape] and gravitational field. Previously only a small number of nations including the U.S., the FRG and France have successfully tackled this key problem. The U.S. Defense Mapping Agency's meridian instrument precision satellite ephemeris and the coordinate measurements based on it are the highest standards in the world for a satellite Doppler geodetic system. Over a period of 5 years, Chinese astronomical and measurement scientists and technicians at 14 observatories and artificial satellite observation stations nationwide separately carried out observations of five meridian instrument satellites launched by the U.S.; they acquired [in the process] over 5 million pieces of observational data. In order to join the geodetic coordinates, they travelled across mountains and rivers for over a year, making measurements at nearly 80 points necessary to develop them [into a system] with first-class astronomical geodetic precision.

China's dynamic satellite geodetic research not only solves the problem of accurate determination of satellite

orbits for domestic satellite networks, but also solves special problems of determining paths and fixing coordinates in local area networks. The establishment of the high-precision WDC terrestrial coordinate system is a first for China. Moreover, the WDC coordinates and China's astronomical geodetic network are now linked with various world coordinate systems; precision is better than plus or minus one meter.

Paging Phones to Shanghai From Ericsson Radio
55002481 Stockholm DAGENS NYHETER in Swedish
20 Aug 88 p 12

[Text] Ericsson Radio Systems will deliver mobile phones and an AXE switching station to Shanghai in China. The order is worth 35 million kronor. The system will go into operation in 1989, and will make it possible for phone users in the Shanghai area to use both paging phones and vehicle-installed mobile phones. The mobile phones will even be able to be used onboard Shanghai's famous riverboats.

NORTH KOREA

**Telecommunications Ministers Conference
Scheduled**

*SK2009103088 Pyongyang KCNA in English
1026 GMT 20 Sep 88*

[Text] Pyongyang September 20 (KCNA)—The 16th conference of ministers of telecommunications of the organisation for cooperation of socialist countries in the

domain of postal and telecommunications will be held in Pyongyang from September 23 to 28.

The conference will sum up the implementation of the decisions of the conference of ministers of telecommunications of socialist countries held in 1986 and discuss matters of developing exchange and cooperation among the socialist countries in the telecommunications [field] including radio broadcasting, news service, and postal service.

BOLIVIA

COTEL, COTAS Expand Telephone Service

COTEL Program

55002005 Santa Cruz EL DIARIO in Spanish
10 Jul 88 p 6

[Text] Construction work is to start within 3 months on the COTEL [La Paz Automatic Telephones Cooperative] plan to install rural telephone service in different population centers of the Department of La Paz.

This information was confirmed to EL DIARIO by Dr Jhonny Alvaro Burgoa, general manager of COTEL, who provided details and the objectives of this major program, which will bring communications to populated areas in the La Paz provinces and to the residents of the city of La Paz.

The COTEL executive stated that the board of directors had instructed the general management, and provided it with all the necessary support, to proceed with implementation of the program forthwith. The program will require an investment of approximately \$2.5 million over a period of 3 years.

He said the sum to be invested will be covered by a monthly assessment of 1.80 bolivianos to be paid by each of COTEL's 67,000 shareholder-subscribers, and that this assessment will appear on billings for service beginning in June under the item "Development of Rural Telephone Service."

Dr Burgoa pointed out that the assessment to be paid by COTEL's shareholders cannot be made into a rate increase, since the law stipulates that tariffed rates are to be based on covering the cost of maintaining the system, and therefore cannot be applied to investments of any kind. He emphasized that in the present case, this assessment will be applied exclusively and independently to the rural telephone service program over the 3-year period.

He stated that the stipulated assessment over the planned period will cover the cost of the project, but that in the event of a cost overrun beyond the sum of \$2.5 billion, the excess will be covered by COTEL.

Program Objectives

Referring to the objectives of the program, Dr Burgoa pointed out that one of them is to develop communications in the Department of La Paz and to expand this important service, as a "positive and historic achievement" that will remain for a long time and for the future a fundamental contribution to true departmental integration.

The general manager of COTEL digressed slightly to reaffirm and reemphasize the importance of this service and the benefits it will bring, not only with respect to carrying on

daily activities but also to resolving, by way of the telephone, the many problems that arise in cases of emergency.

With a natural air to his gestures, Dr Burgoa tightened his fists to lend emphasis to his words, reiterating the need to "realize the importance and utility of this service." He said, by way of example, that this means of instant communication will make it possible, a thousand and one times, to resolve public health problems. He cited other examples and underscored the importance of the service when emergencies arise and lives must be saved in high-risk situations such as those of natural disasters, whether they be floods, forest fires, agricultural plagues, livestock epidemics, or traffic accidents.

Turning to the importance of rural telephone service as regards residents of the city of La Paz, he said that thousands of persons travel to different populated rural areas daily, especially during weekends, and added that these people are unable to communicate with their families in those localities to advise them of their coming, and that the same thing happens going back, when, having possibly suffered a mishap or a delay, they are unable to communicate with La Paz, owing to the nonexistence of this service.

Phases of the Program

Reiterating that the program will commence within 3 months, and that the installation throughout the Department will be completed in 3 years, Dr Burgoa said that the first phase will begin in the villages of Laja, Pucarani, Huarina, Batallas, and Chua, ending in the Tiquina area.

He said the second phase will cover 17 populated areas in the central high plateau and 14 areas in the Rio Abajo region.

Continuing the chronology of the project, the third phase calls for the installation of telephone service in the Yungas region, beginning with the Chulumani, Irupana, Coroico, and Caranavi areas as a base, from which the program will then proceed towards the northern area of La Paz until it reaches the San Buenaventura zone.

He repeated that within 3 years, and owing to a technological change, the project will be completed throughout the rest of the Department.

Dr Burgoa pointed out that without the contribution being required from the shareholder-subscribers, it will be impossible to carry out the program.

In conclusion, Dr Burgoa, expressing his optimism and faith in joint effort, called upon the entire population of La Paz, and in particular upon COTEL subscribers, for their decisive support of the project, assuring them that the funds that are to be invested in it will be devoted to this purpose exclusively.

COTAS Santa Cruz Network

55002005 Santa Cruz *EL DIARIO* in Spanish
12 Jul 88 p 9

[Text] Santa Cruz (EL DIARIO)—The Santa Cruz departmental telephone network, operated by COTAS Ltd, currently comprises approximately 30,000 lines and telephone sets. COTAS is presently expanding its urban network with 50,000 additional lines scheduled to go into service beginning in 1991. Owing to the facilities being provided by COTAS, Santa Cruz is the country's most integrated Department from the standpoint of telephone service, in that many of its rural population centers have or will have their own telephone network.

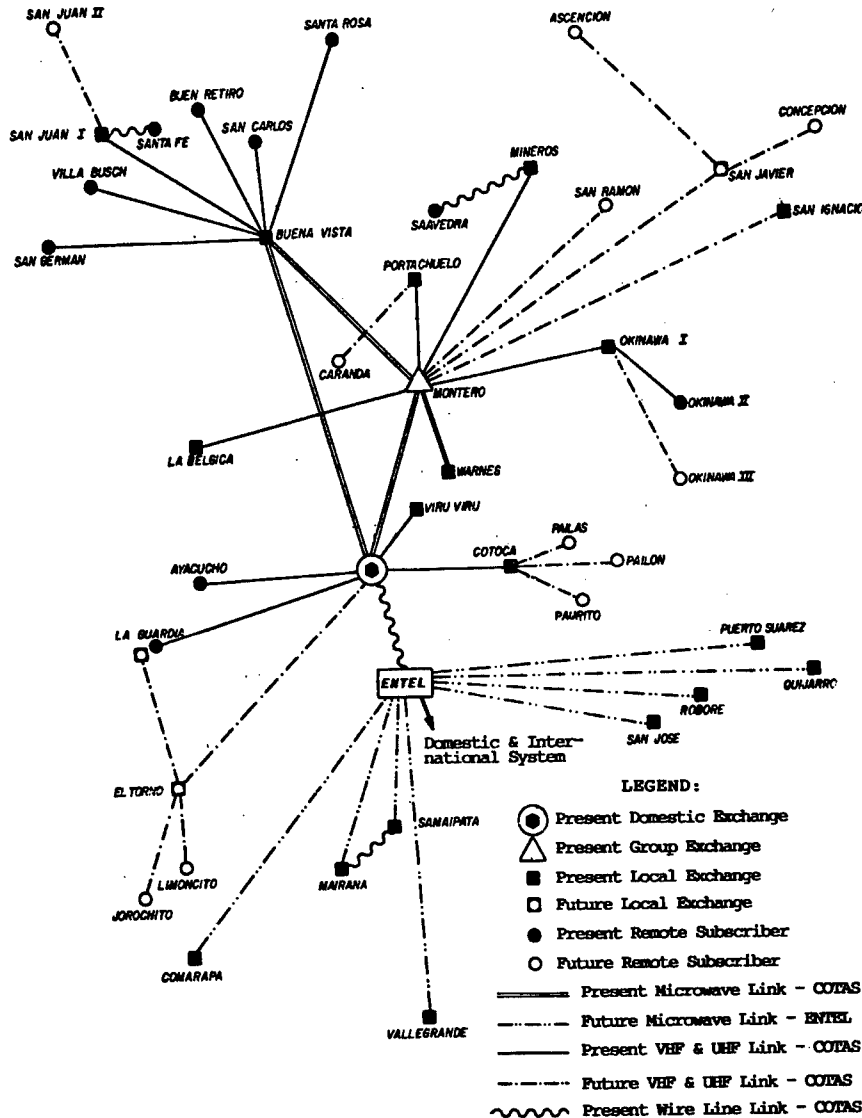
9399

MEXICO

Ericsson Gets Order for Expanding Phone Net
55002483 Stockholm *DAGENS NYHETER* in Swedish
7 Sep 88 p 12

[Text] Ericsson has received the largest Mexican telecommunications contract ever—an order worth 1.5 billion kronor from the Mexican telecommunications authority.

The new order is part of the expansion program of the 1990's for Mexico's telephone net. The deal is for Ericsson's AXE system, and includes both analogue and digital phone systems. With this order, Ericsson has solidified its dominant position in Mexico, where the



The COTAS Santa Cruz departmental telephone network

company now controls 60 percent of the telephone market. Ericsson's market share has grown powerfully since the beginning of the decade of the 1980's.

"Our goal is to maintain a market share of 60 percent. You shouldn't become too big in a country; monopolies are not viewed positively," said Lars Skold, director of Ericsson Telecom for Latin America.

The telecommunications net in Mexico currently has a limited coverage. But there are large expansion plans. These include increasing the net by 10 percent each year.

"Expansion in telecommunications is a strategic element of Mexico's policy. We hope to be able to maintain our market share at 60 percent even in a growing market, said Skold.

The components in the new order will be assembled in Ericsson's subsidiary company, which with 2,500 employees is one of the corporation's largest industries. From its subsidiary company, Ericsson exports to El Salvador and other countries in Central America.

The leading competitor for the Mexican order was Alcatel (ITT).

INTERNATIONAL

**Ericsson AXE Switching Equipment To Algeria,
Tunisia**

*55002480 Stockholm DAGENS NYHETER in Swedish
16 Aug 88 p 12*

[Text] Ericsson has signed contracts valued at a total of 123 million kronor with Algeria and Tunisia for delivery of AXE switches and other telecommunications equipment. Deliveries and installations are scheduled for 1989. All equipment is to be manufactured in Sweden. Algeria is ordering delivery and complete installation of 20,000 local AXE lines and operating equipment. The cost is 82 million kronor. Tunisia has previously installed the AXE system, and is now buying another 20,000 lines for 41 million kronor.

IRAN

Izeh Relay Station Becomes Operational

*NC1209155388 Tehran Domestic Service in Persian
0430 GMT 12 Sep 88*

[Text] A radio relay station with a strength of 1 kilowatt has begun functioning. With this relay station, the residents of Izeh will be able to receive the Voice of the Islamic Republic of Iran from 0700 hours [0330 GMT—FBIS] until the end of the 2000 hours [1630 GMT—FBIS] newscast on the frequency of 1485 KHZ within a radius of 50 km with good reception.

Nur Microwave Operational

*NC1209151888 Tehran Domestic Service in Persian
0430 GMT 12 Sep 88*

[Summary] The center for a microwave system and an automatic telephone exchange became operational in Nur District yesterday. This system is linked to various parts of the country and was established at a cost of 380 million rials.

EUROPEAN AFFAIRS

ECC Proposes Common Telecommunications Market

5500m405 Bonn *TECHNOLOGIE NACHRICHTEN-PROGRAMM INFORMATIONEN* in German No 424, 20 May 88 pp 2-17

[Text]

I. Introduction

On 30 Jun 1987, the commission published a Green Book on the future development of the telecommunication sector ("Towards a Dynamic European Economy - Green Book Regarding the Development of the Common Market for Telecommunication Services and Telecommunication Devices," KOM(87)290, subsequently called Green Book).

In the introduction to the Green Book, the commission explained its basic motivation. It emphasizes that "strengthening the telecommunications sector in the Community constitutes one of the most important prerequisites for promoting a harmonious development of the economic viability and a competitive market in the Community and for completing the EEC-wide market for goods and services by 1992").

The commission continues: "Information, the exchange of knowledge and communication play an essential part for future national economies and the future worldwide distribution of forces. In this respect, telecommunications are the most crucial area, which can affect this "nervous system" of modern society. Therefore, optimum conditions must be created for the development of telecommunications.

Today, the compatibility of telecommunications, data processing, and the applications of microelectronics in general allow the development of a large number of new services. The traditional political and regulatory framework for telecommunications does not allow full utilization of this growth potential. Therefore, a change of the regulatory and political framework seems necessary.

Such a change should provide for full utilization of the growth potential and the creation of a large, open, and dynamic market in this area by liberalizing the supply of services and devices of this industry. National borders, in particular, must not be an obstacle to the existence of a uniform communications system within the European Community."

Today, telecommunications must be viewed as an essential part of a worldwide overall concept which consists of information processing and communications and which today constitutes a world market with a total value the equivalent of over 500 billion ECU. In 1986, the world market for telecommunications devices amounted to almost 90 billion ECU; of these, the market of the

European Community accounted for 17.5 billion ECU. In 1985, sales of telecommunication services worldwide amounted to almost 300 billion ECU, with the Community accounting for 62.5 ECU.

It is predicted that by the end of this century up to 7 percent of the gross national product of the Community will depend on the telecommunications field and directly related areas, compared to slightly more than 2 percent at present. Due to the key role of information technologies in general, in the year 2000 more than 60 percent of jobs within the Community will be largely dependent on telecommunications.

The situation within the European Community is characterized by dynamic change. All member countries are in the process of planning and discussing the necessary adaptation of the regulatory and political conditions with a view to the requirements of the future. Meeting this challenge together will be essential for realizing the domestic market, improving the competitiveness of the European economy and strengthening the cohesion of the Community.

As described in detail in the Green Book, the necessary definition of common regulatory and political goals can continue on the basis of the positive results which have been achieved in the telecommunication policy of the community, and on the basis of the program which was adopted by the Council on 17 Dec 1984, and statements which were issued on this topic by the European Parliament and the Economic and Social Committee of the Community. The adaptation of the telecommunication market of the Community entails a far-reaching change and should only be done on a broad basis.

The Green Book strongly emphasizes the fact that "regulatory and political changes in the telecommunications area must take into account the considerations of all parties concerned, in particular private and business users, telecommunication authorities, the employees of the authorities, other applicants, and the telecommunication and data processing industry."

With this in mind, the commission has been engaged in intensive consultations regarding the Green Book since June 1987. By now, the commission has received a wide range of comments from the broad spectrum of the various interest groups. At the same time, intensive discussions were held with the group of high officials "Telecommunications" (SOG-T), with the managing directors of the telecommunication authorities and with the European Committee of the Postal, Telegraph, and Telephone Unions.

Therefore, the commission considers it now appropriate to draw preliminary conclusions from the results of these broad-based consultations. This is the objective of this report.

The report is intended to facilitate further discussion of the Green Book in the Council, in the European Parliament, and in the Economic and Social Committee of the European Community. It reviews the suggestions in the Green Book against the background of the comments received so far, sets priorities, and suggests definite target dates for their implementation.

All comments indicate that it must be the general goal "to develop market conditions which guarantee the European user more varied, better quality, and lower cost telecommunication services to allow Europe to share the advantages—both internally and externally—of a strong telecommunications sector" and to ensure "the development of a strong telecommunications infrastructure and efficient services in the community" in order to reach this goal.

This includes realization of the advantages offered by the EC-Treaty in this respect: full implementation of free movement of goods and services; development of a competitive environment, and strengthening the cohesion of the Community.

II. The Procedure on Which the Green Book Is Based

The consultation process and the comments which have been received must be viewed in light of the positions which are laid out in the Green Book.

The goals described in the Green Book correspond to the three major problem areas which must be dealt with on a European level:

- The technological change irreversibly penetrates both the European and the world market and requires an adaptation of market conditions. During the past few years, the speed of technological diversification (digitalization, fiber optics cable, cellular mobile radio, satellites, etc.) has increased dramatically;
- Digitalization—the transmission of information in the form of "bits", the data processing language, and thus the best measure for the compatibility of telecommunications and computer technology—will be an economic fact in the Community by the end of this decade. By 1990, approximately 70 percent of the long-distance network, approximately 50 percent of the exchange equipment in the long-distance network, and approximately 30 percent of the exchange equipment for local networks in the Community will be digitalized.
- The simple fact that those connected to the network can conduct many more activities via this network will have a major effect on the technological and market development in the regulatory and political area. This brings up the basic problem how to handle current restrictions on the use of these new possibilities in the future.

—The current change in the technological and market conditions causes all member countries to make or consider changes in the regulatory and political framework. As explained in the Green Book, the Community must make sure that "the required European dimension will be introduced into the present process of change; that no new barriers will be erected when adapting the regulatory and political framework, and that existing obstacles must be gradually removed in the course of this adaptation process".

—The commitment to complete the common domestic market by 1992 laid down in the EC-Treaty requires a definite time plan for the full implementation of the EC-Treaty in this area. Because of the constant changes, the telecommunications sector will play an increasingly important part in the technology and services markets of the Community as a whole. Today, services already account for almost two thirds of the gross national product and employment of the Community. The future importance of telecommunications for the economic development and overall growth necessitates an EC-wide market in this area if we want to reach the goal of creating a general common internal market by 1992. This includes the quick and complete utilization of chances and commitments which result from the EC-Treaty for this sector: free movement of goods, free movement of services, laws regarding competition, common trade policy.

In the Green Book:

- the commission strongly supports a full recognition of the new technological market trends—and utilization of their potential.
- it fully recognizes the traditional public service tasks of the telecommunication authorities. It accepts protective measures to ensure their ability to develop networks and services, and provides for their full participation in the developing markets in the area of services and terminals.
- the commission emphasizes, however, that any service monopoly that still exists can result in restrictions on the activities of those who are connected to the network or are using the network infrastructure. Still existing justifications for maintaining and granting exclusive rights for the supply and operation must be carefully weighed against the restrictions, which might result for those connected to the network with regard to present and future applications for their own use, for joint use with other participants, or for services for third parties.

The Green Book concludes that - looking towards the year 1992 and the full development of new economic activities with the related potential for new employment opportunities - a liberal and more flexible, competitive environment for telecommunication services and devices is essential for the overall development of the technology and service markets of the Community.

At the same time, it recognizes the continuing central role of the telecommunication authorities for the long-term compatibility and integrity of the network infrastructure and for ensuring a broad-based supply of services within the Community.

With the Green Book, the commission tried diligently to create a balance between these two objectives:

"The Green Book takes into account the differences in the initial situation and the multitude of possible developments. It basically suggests a "hard core" of positions with the objective of reaching uniformity in the Community in the area of telecommunications. The process suggested is iterative. It allows for modifications whose aspects cannot yet be fully described today.

The orientations suggested basically aim at initiating a dynamic process which should enable those affected and responsible in politics, economics and society to develop their own interests and objectives within the framework of the Community."

III. Status of Discussion

From the above considerations, the Green Book derives ten detailed "Suggested Positions" and a number of "Suggested Lines of Action" to support the adaptation process. The comments received focussed on these positions and lines of action. They are shown in table I (see page 18). For more detailed explanations see the Green Book.

As already explained in the introduction to the Green Book, the Green Book was submitted, "in order to initiate a broad-based dialog with all concerned." The commission announced that it would draw preliminary conclusions at the end of 1987, to focus the discussion and to facilitate their consideration in the Council, in the European Parliament, and in the Economic and Social Committee of the European Community (In its session on 18 Nov, 1987 the Economic and Social Committee of the EC issued a first comment on the Green Book (AB1 No. C. 356, 12-31-87). It announced that it reserves itself the right to reexamine specific problems as soon as the commission has submitted its proposals for reaching the goals of the Green Book.

Since June 1987, the Green Book has received a good response from users, the telecommunications and data processing industry and other concerned parties. More than 45 organizations representing the different interests in this area both on a Community level and on a national scale made formal statements. The complete text of the individual statements is available on request.

As already mentioned, at the same time intensive discussions were held with the group of high officials "Telecommunications" (SOG-T), with the managing directors of the telecommunication authorities, and with the employees' organizations active in this area.

While reference has to be made to the complete text of the comments for details, the following can be summarized:

- The consultation process was a major success. It was the first time that everybody who determines the future of this sector participated in a broad-based discussion within the Community.
- The consultation process proved that a broad consensus can be developed in this area within the community while at the same time respecting the different national special situations and opinions.
- The discussion and consultation process revealed a clear intention on the part of all concerned to achieve common regulatory and political goals in this sector.

As to the response to the proposals as they are shown in Tables I and II, the situation seems to be as follows - bearing in mind that there are different nuances in the individual wordings:

- A broad consensus regarding full liberalization of the market for terminals, allowing for an adequate transition period.
- A broad consensus regarding the liberalization of the value-added services offered, the upper part of the total spectrum of telecommunications services, for which open competition was suggested according to Table I.
- Complete, fundamental support for the principle of separation of governmental and operational activities of the telecommunication authorities.
- General recognition of the fact that the fee structure should follow the general development of costs.
- Basic strong support for standards to ensure or establish EC and worldwide interoperability while at the same time ensuring the ability to innovate. Strong support for a clear definition of the general conditions which are imposed on the suppliers of competitive services and other users (ONP - offer of open network access) by the telecommunication authorities for use of the network.
- Broad acceptance of the fact that the telecommunication authorities should be able to participate on an equal basis in the sectors which were opened to competition.
- General acceptance of the necessity to apply the general rules of the law governing competition to the operational activities both of the telecommunication authorities and the private suppliers in a symmetrical manner. Support of the Green Book line that while this necessitates on the one hand clear requirements with regard to the openness in operational activities,

in particular with regard to cross-subsidies and procurement procedures for telecommunication devices, it should on the other hand include a loosening of the organizational and financial restrictions imposed on the telecommunication authorities which could hinder their competitiveness.

- General support of current programs. Actions and proposals of the Community aimed at strengthening the long-term compatibility and integrity of the network infrastructure within the Community. This applies in particular to the development of the integrated broad-band communication (IBC) (RACE-programs); the integrated services digital telecommunications network (ISDN); and the introduction of digital mobile radio communication.

A second category of positions also found general support, while at the same time criticism was raised from two different directions: on the one hand, some considered them too far-reaching, others as not far-reaching enough.

This applies in particular to:

- Agreement that the principle of awarding exclusive rights for offering, supplying, and operating the network infrastructure should be maintained. Most comments generally agreed with this, there were a few criticisms from opposing viewpoints;
- Opening non-value added services to competition. Here, there is general agreement to accept the exclusive provision of the telephone (voice) service, as long as this service is defined as a switched telephone (voice) service which is intended for general public use and also long as this will be reviewed at an appropriate time.

A certain number of comments noted that other services required either special concessions or the exclusive provision, in particular the telex service and the switching data services intended for general public use. Special concessions were suggested as a possible option for opening the market in this area.

In general, the comments expressed broad support for ensuring a large supply of efficient European and world-wide communications services for general public use.

For the time being, no consensus on opening satellite communication to competition seems possible. In this respect, there seems to be only a general readiness to open receive-only satellite antenna systems to competition as long as they are not connected to the public network.

Other important issues require further discussion and definition. This applies in particular to:

- Development of a coherent European position on satellite communications to create or strengthen the consensus with regard to this technological key area.

- Rapid promotion of European-wide services and the development of specific concepts for a market-oriented development of a general fee structure for these services.

- Development of a common position in the Community regarding its relationship with third countries and international problems, in particular on a multilateral level.

There was obvious concern about the future discussion of the internationally applicable regulatory and political rules at the World Administrative Telegraph and Telephone Conference - WATT-C) of the International Telecommunication Union in 1988, in particular with regard to ensuring a future open international market environment.

There was broad-based support for the principle of close coordination in the preparation for the new round of GATT-talks. In particular, the comments requested an opening of the services and device markets of third countries to Community suppliers as a related measure for liberalizing the EC-market.

- Increased utilization of sophisticated telecommunication systems for developing the disadvantaged regions of the Community, based on the STAR-program and considering the special problems of the border regions of the Community.
- Continued encouragement of social dialog and the discussion of effective means to meet the requirements for education and continued vocational training in this area.

The discussion should be broadened so that a general, social consensus in this area can be reached, in particular with regard to ensuring privacy and data protection, and with regard to the general long-term social effects of the various options on the configuration of the telecommunication systems within the Community.

IV. Action Program: Step-by-Step Implementation of a Competitive EC- Market by 1992

The comments received and the broad consensus they revealed seem to provide a sufficiently firm basis on which a policy for developing the telecommunications market of the Community to be energetically pursued can be defined with the primary goal of creating an open, competitive market comprising all EC-countries by 1992.

As explained in the Green Book, "in view of their importance and far-reaching effect, regulatory and political changes in the area of telecommunications can only

be introduced gradually. An adequate period of adaptation for the current structures which have developed over time, must be ensured."

It therefore seems appropriate to define three areas for future action:

- areas where the development of specific actions is possible today;
- areas where a broad consensus must still be reached;
- areas where already existing policies must be confirmed/strengthened.

IV.1 Areas Where Specific Actions Can Be Developed Now

In a number of areas, the development of a consensus seems to be sufficiently far advanced, and at the same time the necessity for quick action is quite obvious.

The comprehensive goal of completing the EC-market by 31 Dec 1992, the commitment to unconditionally fulfill the terms of the Treaty in this area, and the broad-based consultation process are now providing a firm basis for opening the telecommunication market within the Community and to adhere to firm deadlines and implement the following measures:

—*Rapid and complete opening of the terminal market to competition*

The EC-region should have completed the opening of its terminal markets no later than Dec 31, 1992. This should guarantee a sufficient adaptation period for all devices including the first (conventional) telephone.

This opening must ensure a free (unrestricted) supply of terminals within the member countries and between the member countries (in competition with the telecommunication authorities) provided that the device approval is consistent with the terms of the Treaty and the adopted guidelines.

Appropriate approval procedures must include full publication of the applicable approval procedures as well as reasonable expenses and duration for implementing the actions required for the procedures. A network endpoint suitable for the connection of terminals must be available if requested by the subscriber.

By the end of March, the commission will publish a guideline pursuant to article 90 (3) regarding the liberalization of the terminal market.

At the same time, in the near future—by the end of 1988—the commission will suggest a guideline for the introduction of a complete, mutual recognition of the approval procedures based on the step-by-step introduction of NETs (see page 11).

—*Step-by-step opening of the telecommunication services market to competition starting in 1990.*

Exclusive or special rights for the telecommunication authorities with regard to the offer, supply and operation of the network infrastructure and, in the present phase, the telephone voice service, will be accepted.

All other services should be opened to competition by 31 Dec 1989.

However, the telex service and the packet- and line-switched data services which are intended for use by the general public merit special consideration. A reasonable transition period still to be determined should be scheduled to ensure the development of regulations for safeguarding the future supply of services for these areas which will be used by the general public.

This opening process must ensure the free (unrestricted) supply of services within the member countries and between the member countries (in competition with the telecommunication authorities), for their own use, for joint use with other subscribers, or for services for third parties subject to reasonable network access conditions, and must guarantee the lifting of restrictions on use and combination of circuits where applicable.

To avoid great differences between the monopoly areas in the member countries the implementation of these principles will require a narrow definition of the limits of the service monopoly of the telecommunication authorities as well as the definition of principles regarding access to and use of the network infrastructure (see Open Network Provision (ONP), P. 10 below).

By 1 Jan 1992, all exclusive rights to the offering of services still existing at the time must be reviewed, "taking into consideration the technological development and in particular the development towards a digital infrastructure". The development of trade must not be adversely affected to an extent which would counteract the interests of the Community.

—*Complete opening of the Market to Receive-Only Earth Stations," (ROES)*

unless they are connected to the public network, by 31 Dec 1989. Since there are no substantial obstacles, it can be assumed that liberalization of this specific device area can progress rapidly.

—*Step-by-step implementation of the general principle that fees should be in line with the general development of costs.*

If no reasonable fee schedule based on cost has been achieved by 1 Jan 1992, the whole process must be reevaluated with regard to the future development of the telecommunication area.

—*Initiating a number of related measures,* which are necessary for functional competition and to ensure that everybody can share in the market under

reasonable conditions. At present, this applies in particular to:

1. A clear separation between the governmental and operational activities to avoid abuse of a dominating market position through the approval of services, etc. caused by the fact that telecommunication authorities act both as governmental entities and as competitors.

2. Definition of principles for Open Network Provision - (ONP). The clear definition on a Community level of the restrictions imposed by the telecommunication authorities on the suppliers of services offered on a competitive basis for the use of the telecommunications network was generally recognized to be an essential item for the future functioning of a competitive market. In the meantime, the GAP group (Group for Analyses and Prognoses, SOG-T Subgroup) started to address this concept.

To ensure a timely contribution to the definition on a Community-level regarding a reasonable period of time and reasonable use requirements it is suggested to focus the efforts on problem areas which are most critical to suppliers of competing services and to a competitive environment, and to proceed under a tight schedule:

- Analysis of the requirements for open access to leased lines should be completed by the middle of 1988;
- Analysis of the requirements for open access to the general public data networks should be completed by the end of 1988;
- Analysis of the requirements for open access to the future integrated services digital telecommunication network (ISDN) should be completed by the middle of 1989.

The requirements for access to frequencies could be an appropriate subject for a final study period.

The analyses should cover technical interfaces, fee structure and use requirements. If necessary, they should also include a clear definition of the network termination points.

Giving all concerned—including users, industry, and potential suppliers of services—the opportunity to comment must be an essential factor when looking for a general consensus.

3. Establishment of a European Institute for Telecommunication Standards to accelerate work in this area. In September 1987, the CEPT arrived at a decision of general principle to establish such an institute by April 1988. Details are currently being worked out.

In the Green Book, the commission emphasizes that "this action should be based on the current policy of the Community in the area of telecommunication and information technology standards and should supplement them", in view of the fact that the Community in general promotes open, international standards.

The comments received reveal a broad-based conviction that a substantial increase in the resources used for standardization is an essential requirement for a truly open market.

The planned institute will best be able to serve these goals if it is open to both the telecommunication and the information technology area and allows for participation of industry and users.

The commission expresses its hope that as a result of the efforts currently undertaken to create this institute such an institute will be able to prepare specifications having the status of standards with the participation of all interested parties, in full agreement with the principles of the Community regarding technical standardization and in sufficient contact with the existing European standardization organizations.

4. Rapid introduction of the complete, mutual recognition of approval procedures for terminals. Full, mutual recognition of approval procedures is a necessary related measure for an effective opening of the market to terminals on a Community level. The suggestion in the Green Book calling for a rapid expansion of current Guideline 86/31/EWG for the complete and mutual recognition of the approval procedures met with general approval.

Therefore, the commission intends to submit a draft guideline for the full mutual recognition of approval procedures by the end of 1988.

5. Openness in financial relations between the governments of the member countries and the telecommunication authorities as well as creation of a tax environment in which the telecommunication authorities will be able to participate in a competitive market under reasonable conditions.

As stated in the Green Book, "participation in a competitive market provides the telecommunication authorities with new opportunities if the organizational and financial restrictions to which they are subject are loosened at the same time".

Participation in the markets which are open to competition requires a stable financial environment for the telecommunication authorities.

The commission plans for the full implementation of Guideline 80/723/EWG (supplemented for telecommunications by Guideline 85/413/EWG) which requires openness in financial relations between the governments of the member countries and their public enterprises in this area.

The removal of tax boundaries and the objective to create equal opportunities for competition in this area makes it necessary that the telecommunication authorities adapt their tax requirements to the new competitive environment.

In a number of member countries of the Community the public telecommunications network is still exempt from the value-added tax requirement. On 17 Jun 1987, the commission submitted an amended proposal for the 18th value-added tax guideline which provides for imposing a value-added tax for such services starting 1 Jan 1990.

6. Ensuring adequate conditions for competition

Ensuring a market which is open to free competition requires continuous monitoring of the telecommunications area. The commission intends to issue guidelines regarding the application of competitive rules to the telecommunication area and the manner in which monitoring is to take place.

7. Ensuring independence in procurement decisions as well as opening public procurement procedures.

In the Green Book, the commission announced that the results of the voluntary and partial opening of the procurement procedures of the telecommunication authorities implemented according to Guideline 84/550/EWG are still being studied. The commission also announced that it would take appropriate action to extend open procurement procedures to those areas which are not yet covered by existing guidelines.

It will be the primary objective to ensure open procurement without discrimination in the telecommunications area, based on commercial criteria and free of inadmissible influences to make possible a fair, open procurement.

Currently, the commission is discussing various possibilities how this goal can be reached most effectively. Detailed analyses are required to fully recognize the specific characteristics of this area. The comments pointed out particularly the effect of the competitive environment in which the telecommunication authorities operate on procurement procedures.

While the Community-wide opening of the terminal market to competition intends to quickly ensure open procurement procedures under the best possible commercial conditions—under the pressure of a competitive market—special measures will be necessary to ensure adequate Community-wide procurement procedures in the area of network facilities or for those areas of the terminal market for which the telecommunication authorities currently still have exclusive or special rights.

These measures should be directed towards ensuring open bids for telecommunication device suppliers within the Community according to applicable bid procedures as well as towards the initiation of corresponding monitoring procedures. In March 1988, the commission will suggest appropriate measures.

Suggested Procedure

As stated, the commission will decide on a guideline according to article 90 (3) for liberalizing the telecommunication device market by the end of March 1988.

The step-by-step opening of telecommunication services starting in 1989 as well as the problem of separating government and operational functions will be dealt with in a guideline which the Commission intends to submit and decide on before the end of 1988.

As stated, the Commission will also submit to the Council a proposal regarding a guideline for the full, mutual recognition of terminal approvals by the end of 1988. As to the Community-wide opening of public procurement procedures, the Commission will propose appropriate measures in March 1988.

As to the value-added tax, the Council is currently reviewing the amended recommendation for an 18th value added tax guideline which was submitted by the Commission and which will make taxation of telecommunications obligatory.

In addition, as the development of definitions progresses, the Commission will submit one (several) guideline(s) for an open network provision - ONP.

IV.2 Areas Where Broad-Based Consensus Still Needs To Be Developed

During consultations, a number of areas were identified where the discussions have not progressed sufficiently, but which—as everybody agrees—concern crucial issues. For these areas, the Commission recommends that continued discussions to determine joint policy should take place before the end of 1988. This applies in particular to:

- A common European position regarding future regulatory and political arrangements and the development of satellite communications in the Community.

The discussions confirmed the importance of developing common positions regarding:

- future policies and regulations for two-way satellite communication;
- the development of a market for satellite antennas (earth stations) in Europe, in particular with regard to common standards;
- the future development of satellite connections (space-segment) in particular the relationship between EUTELSAT, national and private systems, as well as unrestricted use of the technological potential of the European Space Organization (ESA);
- the development of international satellite communication, in particular with regard to INTELSAT and INMARSAT.

- An active concept for the promotion of European services based on a market-oriented approach as well as the definition of common principles.

The consultations revealed full support for the development of compatibility and interoperability of the telecommunication services within Europe, which are necessary both for business and private sector communications.

In addition to efficient telephone and telex services, new services such as package and line-switched data services, videotex, services offered via ISDN according to Recommendation 86/659/EWG, as well as the future digital mobile radio communication according to Recommendation 87/371/EWG and Guideline 87/372/EWG should be universally available throughout Europe.

To the extent this is compatible with the rules of competition in the Community, this should include services offered and joint network planning throughout the Community.

The memorandum on the joint introduction of digital mobile radio communication in Europe which was signed by the telecommunication authorities can serve as an example. Development of principles for a common fee structure, to the extent this is compatible with a market-oriented approach, with a view to bringing the fee structures closer together.

The supply of switched services and leased services at reasonable rates must be one of the most important characteristics of an open network access.

Full utilization of the programs throughout the Community to stimulate private and public initiatives for the development of value-added and information services throughout Europe. This applies in particular to the TEDIS-program for the electronic data exchange and the program for the development of an information market throughout the Community.

In addition, new initiatives should be considered in view of the expansion of technological possibilities, in order to be able to make new advanced services quickly available to European users.

To this end, the Commission will submit shortly a memorandum concerning the introduction of advanced broad-band services for business communications throughout Europe, making full use of the technologies which are being developed under the RACE-program.

This initiative is based on the analysis by the group of high officials "Telecommunications" SOG-T regarding the coordinated introduction of broad-band services in the European Community.

—Definition of a European position on the major international issues of telecommunications.

In the discussions, there was general agreement on a joint definition of a consistent concept for telecommunication services and devices regarding the relations of the Community to third countries. As stated in the Green Book, this applies in particular to:

Multilateral Issues:

The preparation for the new GATT-round and future relations to international organizations such as the International Telecommunication Union.

Although further discussions are still necessary, the comments emphasized the importance of the next worldwide World Administrative Telegraph & Telephone Conference-WATT-C) in December 1988 which will review the international regulatory and political arrangements for telecommunications. The establishment of a joint position which was developed in agreement with the regulatory and political consensus of the Community should be one of the primary objectives of such a discussion during 1988.

Future international regulations should be flexible enough to make it possible to implement the domestic market in the Community in this area and to arrive at definitions for an adequate open trade environment both for telecommunication devices and services as part of the new GATT-round.

The Commission will have to develop the necessary international relations in order to have available the necessary basis and information which are needed for developing such positions.

Bilateral Issues:

In particular with regard to the developing relations in this area with:

- the EFTA countries
- The United States and Japan,
- and the Third World.

Promoting Social Dialog and Full Recognition of Social Aspects

During the discussion, the necessity of a joint analysis of the social effects and conditions for a smooth transition emerged as the most important issue.

There is general consensus that this is an essential long-term factor for the future development of the telecommunications and information technology sector both on a national and Community level. In particular, positions need to be developed with regard to:

- The best ways to intensify the social dialog, based on joint analyses and on information derived from previous discussions.

—A clear analysis of required future professional qualifications and the effect on education and continuing education, to handle technological change and to expand employment in the new services. The analyses should lead to specific proposals as to how the tools available could best be used to facilitate the change on an international and Community level. —The expansion of debates to include an examination of the conditions for the acceptability of new services and activities both in the business and private sector. Particular attention should be given to the development of a joint position regarding the protection of personal data. This issue will be discussed as part of the Community policy for the development of the information services market.

At present, the Commission is conducting an intensive dialog with the employees' organizations. A first joint study including an employment analysis, future qualification requirements as well as education and continuing education requirements will be commissioned.

IV.3. Areas Where Existing Policies Must Be Confirmed or Strengthened

- Safeguarding the long-term compatibility and integrity of network infrastructure in the Community

Ensuring long-term compatibility and integrity of the network infrastructure in the Community, the primary objective of the telecommunications policy of the Community since 1984, was generally confirmed. In this context, the RACE-program is of considerable importance since it forms the cornerstone for the European telecommunications infrastructure of the nineties.

Rapid implementation of the RACE-program which was approved a short time ago should be the most important goal in this sector. Other key objectives should be the unqualified implementation of Recommendation 86/659/EWG on the coordinated introduction of the integrated services digital network (ISDN) as well as the unqualified implementation of Recommendation 97/371/EWG regarding the coordinated introduction of public, pan-European digital mobile radio communications in the Community, supplemented by Guideline 87/372/EWG regarding the frequency ranges reserved for these services.

Further, rapid progress should be made with the start-up of infrastructure projects of interest for the whole Community according to the work program approved by the Council of Ministers during its session on 17 Dec 1984. This should apply in particular to the step-by-step introduction of broad-band communications for business use through the Community.

- Encouragement of a strong European presence both in services and industry.

The Green Book states that "the intensified industrial cooperation on the Community must ensure that the opening of this market will fully benefit European industry."

More than 100 companies submitted proposals for the primary Race program. Thus, this program becomes an important factor in the shaping of the future industrial and research structure in this area in the Community. This will become fully effective with the rapid start-up of this program.

As to the services sector, Community programs are underway or are being introduced which can form the basis for major initiatives. This applies in particular to the TEDIS-initiative which was approved by the Council on 5 Oct 1987 which creates major incentives for a European cooperation in the important field of electronic data exchange.

In related areas, the Community programs INSIS and CADDIA are beginning to show their full effect as a precursor for the development of a Community-wide cooperation in data communications, electronic mail, electronic messaging, and the connection of complex, large databases.

In a broader context, the ESPRIT-program in the field of information technologies on the one hand, and the program for the development of an information market on the other hand create a favorable environment which Europe requires for its entry into the information age ("The implementation of a policy on a Community-level and a plan of prioritized actions to develop a market for information services", COM(87)360, submitted to the Council on 24 Jul 1987).

- Ensuring full participation, under equal conditions, of the disadvantaged regions of the Community in the new Community-wide markets.

During the discussion, constant emphasis was placed on the important role which the telecommunication infrastructure, services, and market will play in the future for strengthening the cohesion of the Community. Emphasis was also placed on the necessity to ensure the unrestricted participation of the less favored regions of the Community in the new growth potential and to take into account the specific problems of these regions.

As stated in the Green Book, the telecommunications policy of the Community, in particular the initiation of the STAR-program which is aimed at regional development and is financed by the European regional fund, has already emphasized that this key aspect must be fully taken into account. The development of a Community-wide competitive market for telecommunication services and devices constitutes a particular future growth potential for these regions on the one hand, and a special challenge on the other hand.

In-depth discussions will be required, in particular with regard to the following issues:

- how to ensure that these regions will be integrated into the new markets fully and on an equal basis;
- how to ensure that the growth potential will be put to the best possible use, so that the economic gap between these areas and the more developed parts of the Community can be narrowed.

The creation of a Community-wide market for telecommunication services and devices offers the border regions a new opportunity to better integrate into a future-oriented Community-wide, information-based economy. It can be assumed that the experience gained from the activities in connection with the STAR program will be a helpful basis for future discussions.

V. Conclusions

The Commission believes that the broad-based consultations of the past six months regarding the Green Book made possible the identification of a broad consensus on essential regulatory and political basic concepts in this sector as well as clear definitions for a step-by-step approach which should lead to a full opening of the market by 1992.

The proposals concentrate on priority problems which must be solved on a Community level for all member countries. According to the approach suggested in the Green Book they "disregard questions, which are important, but must be solved on a national level, such as the status most appropriate for telecommunication authorities in order to successfully compete in the developing open-competition market as well as related questions of financing, organization and employment conditions". This policy of the Community can and should support and supplement current change.

At present, the proposals focus on the utilization of the central infrastructure. As stated in the Green Book, a number of adjacent infrastructures or services must be viewed separately. "This applies in particular to satellite communications, mobile radio communications and the TV-cable networks. Of these, satellite communications were identified as the area in which a common position should be developed as quickly as possible.

The commission believes that implementation of the goals and proposals within the existing institutional framework can be started by full implementation of the competitive rules of the Treaty, by submitting proposals to the Council, as needed, as well as by using the Community as a common basis for the development of appropriate goals.

The comments highlighted the necessity of a broad-based inclusion of users, industry and trade unions in the process of formulating the desired policy. The commission will submit appropriate proposals in this respect.

The future development of a Community-wide market for telecommunication services and devices which is open to competition is one of the basic prerequisites for creating a Community-wide market for goods and services overall by 1992. Rapid progress towards a Community-wide market is a necessary prerequisite for the development of just and balanced agreements between the Community and third countries in this field.

The commission will pursue these goals vigorously. It submits this memorandum to the Council, the European Parliament, and the Economic and Social Committee, to facilitate discussion of the Green Book and the future policy of the Community in the telecommunication sector.

Table 1: Proposed Positions

A) Agreement that the principle of granting exclusive or special rights to telecommunication authorities regarding the offer, provision, and operation of the network infrastructure should be maintained. If a member country chooses a liberal system either for the whole network or for parts of it, the short- and long-term integrity of the general infrastructure should be ensured.

The carefully monitored competitive offering of two-way satellite communications should be the subject of further analyses. It should be permitted in certain cases—if necessary—to develop services for all of Europe, and if the effect on the financial viability of the main operator(s) of the network infrastructure is insignificant.

Joint definitions regarding provision of the network infrastructure and E) should be developed.

B) Agreement that the principle of granting exclusive or special rights for the telecommunication authorities regarding the provision of a limited number of basic services should be maintained provided that the sole responsibility for these services can presently be considered to be essential for safeguarding the goals for the benefit of the public.

The principle of granting exclusive rights must be interpreted in a restrictive manner and must be reviewed regularly, and the technological development, and in particular the development towards a digital infrastructure, must receive special attention. "Reserved" services must not be defined in a way which would extend the monopoly of the telecommunication authority in a manner which is incompatible with the Treaty. At present, the Community agrees that the telephone voice service seems to be the only candidate under discussion.

C) The free (unrestricted) offering of all other services ("competitive services") which should include particularly the added-value services in the member countries and among the member countries (in competition with the telecommunication authorities) for their own use, for

joint use with other subscribers, or for services for third parties—subject to the terms and conditions for using the network infrastructure which have to be defined under E).

“Competitive services” would include all services with the exception of those basic services which are explicitly reserved for the telecommunication authorities (see B).

D) Strict conditions regarding the standards for the network infrastructure and the services which are being offered by the telecommunication authorities or suppliers of services of comparable significance to obtain or to create a Community-wide communications capability and interoperability. These conditions must be based in particular on Guidelines 83/189/EWG and 86/361/EWG, resolution 87/95/EWG, and Recommendation 86/659/EWG.

The member countries and the Community should ensure and support the supply of efficient communication services covering all of Europe by the telecommunication authorities, in particular with regard to the services (reserved or in a competitive environment) that should preferably be offered for the whole Community, such as the services defined in Recommendation 86/659/EWG.

E) Clear definitions, by means of a community guideline, of the general conditions which will be determined by the telecommunication authorities for network utilization by the suppliers of competitive services, including definitions regarding the provision of the network infrastructure.

This includes clear commitments on the part of the telecommunication authorities regarding connection and access to the network for suppliers of services across borders to prevent Treaty violations.

An agreement must be reached on the standards, frequencies, and basic fee structure in order to define the general terms which can be imposed on the competitive suppliers of services. Details of this guideline regarding open network provision (ONP) should be prepared in consultation with the member countries, the telecommunication authorities, and others affected in the Group of High Officials “Telecommunication” (SOGT).

F) A free (unrestricted) offering of terminals within the member countries and among the member countries (in competition with the telecommunication authorities) subject to device approval, in accordance with the obligations imposed by the Treaty and the Guidelines adopted. For an interim period, the provision of the first (conventional) telephone could be exempted from the principle of an unrestricted competitive provision.

Receive-only-earth-stations (ROES) should be treated the same way as terminals and should only be subject to device approval;

G) Separation of governmental and operational activities of the telecommunication authorities. Governmental activities include in particular the approval of services, control of device approval and interface specifications, assignment of frequencies and general monitoring of the basic terms for utilizing the network;

H) Strict, continuous monitoring of entrepreneurial (commercial) activities of the telecommunication authorities according to articles 85, 86, and 90 of the EC-Treaty. This applies in particular to practices of cross-subsidies for activities in the sectors which are open to competition and for device manufacturing activities;

I) Strict, continuous monitoring of all private suppliers in the newly opened areas according to articles 85 and 86, in order to prevent the misuse of dominant market positions;

J) Application of the common trade policy of the Community to telecommunications. Announcement of all agreements between the telecommunication authorities or with third countries which could affect competition in the Community, according to Rule 17/62. Making available information to the extent required by the Community, in order to develop a coordinated Community position for the GATT negotiations and relations with third countries.

12831

EC Commission Approves Liberalization for Telecom Equipment

5500M471 Bonn *TECHNOLOGIE*

NACHRICHTEN-MANAGEMENT

INFORMATIONEN in German No 481, 13 Jun 88 p 11

[Article: “Telecommunications: Liberalization of EC Market for Terminal Equipment”]

[Text] The EC commission has just adopted a new guideline for the telecommunications sector. Up to now in most of the member nations, only the national PTT's (Post, Telephone and Telegraph Administrations) have been allowed to import and market terminal equipment—specifically, telephone sets for private branch exchanges, modems or telex machines. In the future, however, European manufacturers will be able to offer their terminal equipment throughout the EC.

During the past few years the market for terminal equipment has changed greatly due to a number of technical innovations and to increasing sales. Annual sales in this sector currently total 9.5 billion ECU (1 ECU = approximately DM 2.07). Following removal of the existing trade restrictions between the member nations, the commission expects annual growth rates of 6 to 7 percent.

The individual national markets have been largely sealed off from one another due to the monopolistic hold of the PTT's. The PTT administrations usually obtain their terminal equipment from a single domestic manufacturer. By doing away with these privileges Brussels now wants to set the stage for creating what is hoped will be a single internal market in this sector by the end of 1992.

This will require the elimination of not only legal but also technical barriers. At present the technical network features of the twelve member nations differ substantially from one another. There are also corresponding differences in the technical specifications which the added terminal equipment must meet in order not to disrupt proper operation of the network. Therefore, the commission wants to require the member nations to publish all pertinent technical specifications so that the manufacturers can adapt their terminal equipment to the specific features of the various telecommunications networks.

Apart from the advantages provided to European industry, the consumer will also profit from this planned liberalization. In the future he will be able to choose from among several offerings the unit which best meets his needs at the lowest possible cost. It will also be possible for the user to connect his terminal equipment without approval from the national PTT. In addition, the new guideline provides for the option of cancelling long-term contracts which the customer frequently must conclude with the PTT as sole provider in order to obtain his terminal equipment.

Faced with the delays in the Council of Ministers, the EC commission, in adopting the new guideline, presented the governments of the member nations with an accomplished fact: According to information supplied by Peter Sutherland, the EC commissioner responsible for competitive trade, it is based on the precedent of Article 90 of the Treaty of Rome. According to this treaty, no special company rights which violate the EEC Treaty may be granted or maintained by the member nations.

At the latest informal meeting of the EC ministers in Berlin some member nations protested against the actions of the commission and threatened to file a complaint with the European Court of Justice in Luxembourg. In particular, they fear that this action will only serve as an example and that in the future the EC commission will also be able to make decisions which bypass the Council of Ministers in other cases. In reply Commissioner Sutherland pointed out the duty of the commission to uphold EC regulations on competitive trade. The new guideline, he said, was the first concrete step toward realizing the program which the commission outlined in its Green Book on telecommunications. Mr Sutherland gave notice that the commission in Brussels is committed to following its plan.

The commission guideline regarding competition in the telecommunications terminal equipment market has been published in the Official Journal of the European

Community (Edition L 131/88) and can be obtained free of charge from the editorial offices of TECHNOLOGIE-NACHRICHTEN.

12552

FEDERAL REPUBLIC OF GERMANY

Major Order From Uzbekistan

AU099152088 Munich SUEDEDEUTSCHE ZEITUNG
9 Sep 88 p 30

[Summary] Berlin—The Krone Company in Berlin has received a pilot order, worth DM1 billion, to modernize the telephone network in Uzbekistan. It is the first Soviet order of this kind. If the telecommunications producer carries it out successfully, many additional Soviet orders might follow.

FINLAND

NOKIA-MOBIRA Making Export Gains in North America

55002482 Helsinki HELSINGIN SANOMAT in Finnish
25 Aug 88 p 26

[Text] Nokia-Mobira's sale of mobile phones grew during the first six months of this year by nearly 60 percent over the figure for the corresponding period last year. During this latest period, sales totaled 575 million markkas. Sales of mobile phones grew especially in the North American market, where Nokia-Mobira recently introduced its new mobile phone model. The North American market already has over 1.5 million mobile phones and it is growing by some 65,000 orders a month. Nokia-Mobira's market share in North America is around 14 percent.

According to Industry Group Director Timo Louhenkilvi, the company is now the world's leading manufacturer of mobile phones. The world market share for mobile phones has steadily grown, and it is now 13.7 percent. There are currently 3 million mobile phones. Nokira-Mobira is the only company in the world that makes phones for all the most important mobile phone systems.

FRANCE

Telecom Entering Satellite Multimedia Field

55002476 Paris LA TRIBUNE DE L'EXPANSION in French
26 Jul 88 pp 1, 27

[Article by Jacques Jublin]

[Text] The government wants to set up a coherent French network, with everything from audiovisual production to reception, including transmission. Hence, satellites and active support for Thomson for high-resolution television.

France is getting ready to hurl itself resolutely into the battle of television by satellite. TDF-1 and TDF-2 will be placed in orbit by the Ariane rocket. And France Telecom (formerly the general board of directors of telecommunications) should become the big national operator. For the last several weeks, the government has been busy with this "poisoned" issue. For Michel Rocard, it is even the priority of all industrial priorities, because TDF-1 is theoretically supposed to be launched into space from Kourou, in French Guiana, in October.

An official decision should be announced toward the end of the month, or by mid-August at the latest. Already, it clearly seems that France will not be absent from a field that is considered to be vital as much because of its national sovereignty aspects (presence and influence of identity and culture) as for its industrial consequences: positioning in a vital market at a time when the Japanese are preparing high-resolution television with a picture quality worthy of 35-mm film.

Conscious of the stakes after an in-depth study of the matter, the government is therefore going to request that the TDF-1 and TDF-2 programs be completed, but with a considerable innovation. In order to put an end to the Franco-French argument between TDF and the PTT, and, thinking ahead to Europe in 1992, the responsibility of financing, and especially of managing the television satellites would fall to France Telecom.

Because for those who are in charge of this project, one thing stands out clearly in the face of worldwide competition, whether it be Anglo-Saxon today or Japanese tomorrow: France needs a world-class operator with broad financial backing, with strong technological resources, and one that has several satellites under its control, for economic reasons and at the same time for security reasons. Otherwise, competing with Intelsat, Murdoch, Astra (a private satellite from Luxembourg), Eutelsat, and the Bundespost (although its first TVSAT-1 satellite broke down during launch) will not be easy.

France Telecom would thus become a multimedia operator with heavy satellites, TDF-1 and TDF-2, and light Telecom-type satellites.

As a side benefit, this measure will make it possible to put an end to the in-house quarrels among technicians, some of whom claim that the transmission of broadcasts on a D2MAC standard (intermediate between current television and high-resolution television) is possible only on TDF, while the others loudly proclaim that it is possible on Telecom satellites.

From Picture Production to Reception

The government's intention is to put in place a coherent network covering everything from audiovisual production to reception, including transmission. Hence the repeated appeals of Francois Mitterrand during the latest European summit to fill in the gaps of European creation

through an audiovisual "Eureka." Hence the desire to support Thomson in its technological effort and its drive to internationalize (buying RCA and negotiating to take over another American company, Zenith.)

There should be a consistent policy for satellites, even if it costs between 3 and 4 billion francs, because the first developments on TDF-1 go back to 1978.

The State would be so resolute that, contrary to the preliminary studies, the nation's manufacturers might not be solicited for the financing of TDF-2, with the PTT providing the financial backing for its responsibility in its new role as national multimedia operator, even if it means negotiating with Bundespost to offer it supplementary channels on the French satellites. This is a vocation which could well come about through a structural rapprochement between TDF and France Telecom, which already existed during the 1970's. That seems to be completely logical to some members of the government, who point out that TDF and the PTT are already affiliated for future research in a common center (CCETT) located in Rennes.

9895

ITALY

CSELT Achievements in Telecommunications Reported

Three-Frequency Feed for Quasat Antenna
5500m479 Turin CSELT TECHNICAL REPORTS in English No 4, Jun 88 pp 357-364

[Article by Eng Giuseppe Figlia, Eng Dario Savini, CSELT, Torino; Dr Kees van't Klooster, ESA, Estec, Noordwijk]

[Abstract] The paper deals with a high performance coaxial feed designed, manufactured and optimized for the QUASAT radio telescope antenna (front-fed parabolic reflector). The main new feature of the feed is the simultaneous operation, with two orthogonal linearly polarized signals, at three frequency bands (1.6, 5 and 22 GHz) having an extent between 15 percent and 20 percent. At each frequency band good pattern symmetry is obtained as well as a satisfactory VSWR performance is achieved by means of a new powerful synthesis procedure of waveguide matching networks. The feasibility study of the feed, the definition of an optimum reflector geometry and the optimization of the feed for the candidate configuration have been carried out within the framework of the ESTEC Contract No 6242/85.

Fluorine Doping in MCVD Optical Fibers

5500m479 Turin CSELT TECHNICAL REPORTS in English No 4, Jun 88 pp 369-372

[Article by Dr Giuseppe Cocito, Dr Livio Cognolato, Dr Eros Modone, Dr Giuseppe Parisi, CSELT, Turin]

[Abstract] Fluorine incorporation in silica glass network has been already investigated using CCl_2F_2 (Freon-12) as a source. Considerations on the stoichiometry of the reactions involved in CVD processes and experimental results on the refractive index are detailed. The data are collected in a ternary diagram that is proposed as a useful graphic representation in order to identify iso-index curves. A value of 4.9×10^{-3} for the refractive index difference has been obtained. This value has been achieved with a flow composition very far from usual CVD conditions.

An Expert System Builder

5500m479 Turin CSELT TECHNICAL REPORTS in English No 4, Jun 88 pp 373-382

[Article by Dr Alessandro Dionisi Vici, CSELT, Turin; Dr Finn R Jensen, Soren T., Lyngso A/S, Horsholm, Denmark]

[Abstract] This paper describes a software tool, ESB, supporting the development of Expert Systems (ESs). ESB improves the process of building ESs by offering modeling and architectural facilities not available in advanced commercial tools. ESB allows experts in the application domain to express knowledge in a familiar framework, decreasing the formalization effort; furthermore ESB reasoning mechanisms provide the main techniques known by experts in AI, in order to cover a broad range of applications.

From Structural RT-Description to Floor-Plan for VLSI

5500m479 Turin CSELT TECHNICAL REPORTS in English No 4, Jun 88 pp 397-403

[Article by Dr Antonio Bonomo, Dr Giuseppe Busso-lino, Eng. Guglielmo Girardi, Dr Margherita Italiano, CSELT, Turin]

[Abstract] A complete implementation of software sub-system at architectural level is presented. The proposed design methodology is to allow the designer to study the floor plan of an RT level description of a circuit. This is entered via a graphic editor ABLED, implementation of a graphic language ANL, being the graphic counter-part of the KARL structural RT language and allowing the activation of the entire KARL system through a translator interface. The correspondencies between the RT basic objects (hierarchy, pin/port/component placement, etc...) and the floor plan characteristics are studied using ARIANNA, a floor plan editor, able to display the functional (assumed as input) and the symbolic layout views at the same time, holding close correspondence between the two, offering the user the capability to clearly understand which function (RT view) is

implemented on the layout (physical view) and vice-versa. In the present paper, after a short introduction to RT and floor-plan concepts, we will explain the algorithms for the transformation of the RT description into a physical one and the evaluation mechanism, based on a library concept, used by the floor planner.

08800

SPAIN

RNE, RCE Radio Stations Merged

LD0608235988 Madrid Domestic Service in Spanish 0700 GMT 6 Aug 88

[Text] The official state gazette today carries the royal decree which merges Radio Nacional de Espana [RNE] and Radiocadena Espanola [RCE]. The royal decree provides for a system of financing for public radio based on subsidies from the general state budget and advertising on some of the channels belonging to RNE. Within 6 months the merger of RNE and RCE will result in a new alternative public radio service with five broadcasting channels, two medium wave and three frequency modulated.

UNITED KINGDOM

Approval Given for Fifth Television Channel

55500157 London THE DAILY TELEGRAPH in English 29 Jul 88 p 1

[Article by Jane Thynne]

[Text] A fifth television channel, broadcasting to two thirds of the country from 1992, was given a green light yesterday by the Department of Trade and Industry.

Reporting on a feasibility study into fifth and sixth channels, Lord Young, Trade and Industry Secretary, said a national network, or a series of regional networks, covering 65-70 per cent of United Kingdom households, was technically possible.

The fifth channel is expected to take the form of a commercial, advertising-backed service, with lighter restrictions than ITV usually imposes on public service broadcasting.

The Government is understood to favour the idea of a series of services aimed at individual cities to encourage smaller advertisers to use it.

But due to interference from existing television services, most households will need new aerials, and the majority of video recorders will also need to be retuned, Lord Young said.

The cost of a new aerial is likely to be between L30 and L50, and professional retuning of video recorders and some home computers would cost between L15 and L20, according to Trade Department estimates.

A sixth channel, transmitting to 20 per cent of the country, was also possible, department engineers concluded.

Yesterday's statement from Lord Young follows a top-level Home Office seminar earlier this week in which advertisers, broadcasters and economists expressed unanimous support for the financial viability of an advertising-backed fifth channel.

Lord Young said: "If the Government decides to introduce a fifth channel, it will seek to discuss the implications with those most closely affected."

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British Microwave TV Distribution Proposed
5500A044 Paris CPE BULLETIN in French
Jan 88 p 16

[Article signed JCP: "British Projects for TV Channel Distribution via Microwaves"]

[Text] A new system of TV channel distribution by hertzian waves is currently being discussed in the UK. Under consideration is microwave distribution of 8 to 12 channels in

one case, and of 30 channels in another. The system is designated by the acronym MMDS [Microwave Multipoint Distribution Service]. The MMDS file has been submitted to the government, first of all by British Telecom, which is developing MMDS technology in its research laboratories at Martlesham Heath and which has been authorized to carry out tests for 2 years in the town of Saxmundham. This operation started in October 1987. British Telecom's work is said to focus on the use of a 30-gigahertz frequency band for the distribution of 30 TV channels, the objective being to cover small- and medium-sized towns unlikely to receive cable television.

The cable television companies, for their part, in particular CTA, hope to be able to use MMDS distribution in their franchise areas to foreshadow cable, which would allow the rapid collection of subscription fees which would offset the initial capital or loans necessary to set up a cable network. The cable TV vendors would like to use frequency bands higher than those of U.S. companies—between 2 and 3 gigahertz, and probably 2.7 gigahertz, as is planned in Ireland.

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