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Office of the White House Press Secretary (San Clemente, California)

THE WHITE HOUSE

The President today signed an Executive Order, "Assigning Telecommunications Functions," which establishes the responsibilities and authority of the new Office of Telecommunications Policy in the Executive Office of the President.

The President also announced his intention to nominate Dr. George F. Mansur, Jr., to be Deputy Director of the Office of Telecommunications. Dr. Clay T. Whitehead, whose nomination to be Director of the Office has been confirmed by the Senate, will be sworn in at a White House ceremony after the President returns from San Clemente.

Dr. Mansur, 42, is a graduate of the University of Missouri, where he received both his Bachelor of Science and Master of Science degrees. He earned his Doctorate in electrical engineering from Iowa State University in 1963. His professional career spans twenty years; except for a two-year period of Army service, he has been associated with industry in positions oriented both to military and civil communications. His most recent position was Director of the Microwave and Space Systems Division of Collins Rudio Company which he joined in 1953.

In 1969 Dr. Mansur was the recipient of NASA's Public Service Award which cited him "for his outstanding contributions ... which made possible the exceptional success of the APOLLO program. He is a member of the Institute of Electrical and Electronic Engineers, holds several classified patents, and has authored a number of technical papers.

A resident of Dallas, Texas, Dr. Mansur is married to the former Mary Lu Jones. They have two children.

E.O. 11556 signed Sept. 4, 1970

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ASSIGNING TELECOMMUNICATIONS FUNCTIONS

By virtue of the authority vested in me by section 301 of title 3 of the United States Code, and as President of the United States, and in consonance with the intention expressed in my message to the Congress transmitting Reorganization Plan No. 1 of 1970, it is hereby ordered as follows:

SECTION 1. <u>Amended and superseded orders</u>. Executive Orders Nos. 10705 of April 17, 1957, 11051 of September 27, 1962, 11191 of January 4, 1965, and 11490 of October 28, 1969, and the President's Memorandum of August 21, 1963, headed "Establishment of the National Communications System" (28 F.R. 9413) are amended as provided herein. Executive Orders Nos. 10695-A of January 16, 1957, 10995 of February 16, 1962, and 11084 of February 15, 1963, to the extent not.heretofore made inapplicable, are hereby revoked.

SEC. 2. <u>General functions</u>. Subject to the authority and control of the President, the Director of the Office of Telecommunications Policy (hereinafter referred to as the Director) shall:

(a) Serve as the President's principal adviser on telecommunications.

(b) Develop and set forth plans, policies, and programs with respect to telecommunications that will promote the public interest, support national security, sustain and contribute to the full development of the economy and world trade, strengthen the position and serve the best interests of the United States in negotiations with foreign nations, and promote effective and innovative use of telecommunications technology, resources, and services. Agencies shall consult with the Director to insure that their conduct of telecommunications activities is consistent with the Director's policies and standards.

(c) Assure that the executive branch views are effectively presented to the Congress and the Federal Communications Commission on telecommunications policy matters.

(d) Coordinate those interdepartmental and national activities which are conducted in preparation for U.S. participation in international telecommunications conferences and negotiations, and provide to the Secretary of State advice and assistance with respect to telecommunications in support of the Secretary's responsibilities for the conduct of foreign affairs.

(e) Coordinate the telecommunications activities of the executive branch and formulate policies and

standards therefor, including but not limited to considerations of interoperability, privacy, security, spectrum use and emergency readiness.

(f) Evaluate by appropriate means, including suitable tests, the capability of existing and planned telecommunications systems to meet national security and emergency preparedness requirements, and report the results and any recommended remedial actions to the President and the National Security Council.

(g) Review telecommunications research and development, system improvement and expansion programs, and programs for the testing, operation, and use of telecommunications systems by Federal agencies. Identify competing, overlapping, duplicative or inefficient programs, and make recommendations to appropriate agency officials and to the Director of the Office of Management and Budget concerning the scope and funding of telecommunications programs.

(h) Coordinate the development of policy, plans, programs, and standards for the mobilization and use of the Nation's telecommunications resources in any emergency, and be prepared to administer such resources in any emergency under the overall policy direction and planning assumptions of the Director of the Office of Emergency Preparedness.

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(i) Develop, in cooperation with the Federal Communications Commission, a comprehensive long-range plan for improved management of all electromagnetic spectrum resources.

(j) Conduct and coordinate economic, technical, and systems analyses of telecommunications policies, activities, and opportunities in support of assigned responsibilities.

(k) Conduct studies and analyses to evaluate the impact of the convergence of computer and communications technologies, and recommend needed actions to the President and to the departments and agencies.

(1) Coordinate Federal assistance to State and local governments in the telecommunications area.

(m) Contract for studies and reports related to any aspect of his responsibilities.

SEC. 3. Frequency assignments. The functions transferred to the Director by section 1 of Reorganization Plan No. 1 of 1970 include the functions of amending, modifying, and revoking frequency assignments for radio stations belonging to and operated by the United States, or to classes thereof, which have heretofore been made or which may be made hereafter.

SEC. 4. War powers. Executive Order No. 10705 of April 17, 1957, headed "Delegating Certain Authority of

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the second

the President Relating to Radio Stations and Communications", as amended, is further amended by:

(a) Substituting for subsection (a) of section 1 the following: "(a) Subject to the provisions of this order, the authority vested in the President by subsections 606(a), (c), and (d) of the Communications Act of 1934, as amended (47 U.S.C. 606(a), (c) and (d)), is delegated to the Director of the Office of Telecommunications Policy (hereinafter referred to as the Director). That authority shall be exercised under the overall policy direction of the Director of the Office of Emergency Preparedness."

(b) Substituting for the text "subsections 305(a) and 606(a)" in subsection (b) of section 1 the following: "subsection 606(a)".

SEC. 5. Foreign government radio stations. The authority to authorize a foreign government to construct and operate a radio station at the seat of government vested in the President by subsection 305(d) of the Communications Act of 1934, as amended (47 U.S.C. 305(d)), is hereby delegated to the Director. Authorization for the construction and operation of a radio station pursuant to this subsection and the assignment of a frequency for its use shall be made only upon recommendation of the

Secretary of State and after consultation with the Attorney General and the Chairman of the Federal Communications Commission.

SEC. 6. Office of Emergency Preparedness. (a) Executive Order No. 11051 of September 27, 1962, headed "Prescribing Responsibilities of the Office of Emergency Planning in the Executive Office of the President", as amended, is further amended by:

(1) Deleting subsection 301(4) and renumbering subsection 301(5) as subsection 301(4).

(2) Substituting for section 306 the following:

"Sec. 306. <u>Emergency telecommunication</u>. The Director shall be responsible for providing overall policy guidance to the Director of the Office of Telecommunications Policy in planning for the mobilization of the Nation's telecommunications resources in time of national emergency."

(3) Deleting section 406.

SEC. 7. Emergency preparedness. Executive Order No. 11490 of October 28, 1969, headed "Assigning emergency preparedness functions to Federal departments and agencies," as amended, is hereby further amended (1) by substituting "Policy (35 F.R. 6421)" for "Management (OEP)" in section 401(27), and (2) by substituting the number of this order for "10995" in section 1802 and in section 2002(3).

SEC. 8. <u>National Communications System</u>. The President's Memorandum of August 21, 1963, headed "Establishment of the National Communications System" (28 F.R. 9413), is amended by:

(a) Substituting the following for the first paragraph after the heading "Executive Office Responsibilities":

"The Director of the Office of Telecommunications Policy shall be responsible for policy direction of the development and operation of the National Communications System and shall:"

(b) Substituting the term "Director of the Office of Telecommunications Policy" for the term "Special Assistant to the President for Telecommunications" whereever it appears in said memorandum.

SEC. 9. <u>Communications Satellite Act of 1962</u>. Executive Order No. 11191 of January 4, 1965, headed "Providing for the Carrying Out of Certain Provisions of the Communications Satellite Act of 1962", is amended by:

(a) Substituting the following for subsection (c) of section 1:

"(c) The term 'the Director' means the Director of the Office of Telecommunications Policy.", and

(b) Substituting the following for the catchline of section 2: "<u>Director of the Office of Telecommuni</u>cations Policy."

SEC. 10. <u>Advisory committees</u>. As may be permitted by law, the Director shall establish such interagency advisory committees and working groups composed of representatives of interested agencies and consult with such departments and agencies as may be necessary for the most effective performance of his functions. To the extent he deems it necessary to continue the Interdepartment Radio Advisory Committee, that Committee shall serve in an advisory capacity to the Director. As may be permitted by law, the Director also shall establish one or more telecommunications advisory committees composed of experts in the telecommunications area outside the Government.

SEC. 11. <u>Rules and regulations</u>. The Director shall issue such rules and regulations as may be necessary to carry out the duties and responsibilities delegated to or vested in him by this order.

SEC. 12. Agency assistance. All executive departments and agencies of the Federal Government are authorized and directed to cooperate with the Director and to furnish him such information, support and assistance, not inconsistent with law, as he may require in the performance of his duties.

SEC. 13. <u>Functions of the Secretary of Commerce</u>. The Secretary of Commerce shall support the Director in the performance of his functions, shall be a primary source

of technical research and analysis and, operating under the policy guidance and direction of the Director, shall:

(a) Perform analysis, engineering and administrative functions, including the maintenance of necessary files and data bases, responsive to the needs of the Director in the performance of his responsibilities for the management of the radio spectrum.

(b) Conduct technical and economic research upon request to provide information and alternatives required by the Director.

(c) Conduct research and analysis on radio propagation, radio systems characteristics, and operating techniques affecting the utilization of the radio spectrum in coordination with specialized, related research and analysis performed by other Federal agencies in their areas of responsibility.

(d) Conduct research and analysis in the general field of telecommunication sciences in support of other Government agencies as required and in response to specific requests from the Director.

(e) Conduct such other activities as may be required by the Director to support him in the performance of his functions.

SEC. 14. <u>Retention of existing authority</u>. (a) Nothing.contained in this order shall be deemed to impair any existing authority or jurisdiction of the Federal Communications Commission. In carrying out his functions under this order, the Director shall coordinate his activities as appropriate with the Federal Communications Commission and make appropriate recommendations to it as the regulator of the private sector.

(b) Except as specifically provided herein, nothing in this order shall be deemed to derogate from any existing assignment of functions to any other department or agency or officer thereof made by statute, Executive order, or other Presidential directives.

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THE WHITE HOUSE,

September 4, 1970

Attendance at OTP Ceremony

1. The Presidents or Chief Executive Officers of: AT&T - Ben Gilmer General Telephone and Electronics - Leslie Warner - Russell W. mc Fall Western Union Tuleungh Co. 7 Ulabal com. RCA - Howard Hewking International Telephone and Telegraph - Den. James me rutt Western Union International - Edward A. Gallagher Comsat - Joseph Changk NBC - Julian Hondman CBS -Frank Stanton ABC - Leonard Goldenson - IBM Those J. Water J. University Computing Corporation - Clarles Wyly Communications Workers of America - Joseph A. Beine (14)2. Association Presidents: U.S. Independent Telephone Association National Association of Railway and Utility Commissioners National Association of Broadcasters - Vincent T. Wasilewski

National Cable Television Association - Frederick W. Fod Armed Forces Communications and Electronics Association Ben Oliver Electronics Industries Association - Derge Butler National Academy of Engineering Claume + Linder (7)

3. Government Officials:

Chairman of the FCC Secretary of State Secretary of Defense Secretary of Commerce Postmaster General Science Adviser to the President Director of U.S. Information Agency Administrator of GSA Ambassador to INTELSAT Deputy Director-designate of OTP

(10)(31)Total

OTP

Background

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THE WHITE HOUSE

WASHINGTON

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August 31, 1970

Bulger

MEMORANDUM FOR DWIGHT CHAPIN

Although the postponement of the OTP inauguration/swearing-in ceremony causes us some problems, it does permit us to do the job right. In discussions with Frank Shakespeare, Charlie McWhorter, Herb Klein, and Pete Flanigan, the following concept has emerged:

(1) A brief opportunity for the President to meet and shake hands with the chief executive officers of the top 10 - 15 communications companies and about 10 officials from government, perhaps in the Roosevelt Room or in his office. (Optionally, as long as we have these leaders of the communications industry together, the President could just as well have a half-hour discussion meeting with them in the cabinet room. This probably should be the President's choice.) I should meet with the President beforehand.

(2) A formal swearing-in ceremony, probably in the Rose Garden, with press coverage and attended by another 30 - 40 important officials from government and industry.

(3) Brief remarks by the President that will identify him with (a) the exciting and beneficial future potential of communications in our society and in the world, and (b) the initiative of establishing OTP to take leadership in bringing this about. Brief remarks by myself, basically reinforcing the President's remarks and expressing the philosophy of the Office.

Attached is a tentative list of those who would be invited to meet the President. I am checking with Bill Timmons about possible attendance by Congressional leaders in this area, but it probably would be inappropriate. I expect to have a luncheon for the top industry officials after the ceremony. We should have enough advance notice as possible on timing to ease the problems in getting these people together.

I have been working with Keogh's office on remarks and can supply an agenda and brief when needed.

> Clay T. Whitehead Special Assistant to the President

Attachment

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cc: Mr. Klein Mr. Bull Mr. Sloan Mr. Whitehead Central Files CTWhitehead:jm

10.24

1. The Presidents or Chief Executive Officers of:

AT&T

General Telephone and Electronics Western Union RCA International Telephone and Telegraph Western Union International Comsat NBC CBS ABC Corporation for Public Broadcasting IBM University Computing Corporation Communications Workers of America

(14)

(7)

2. Association Presidents:

U.S. Independent Telephone Association National Association of Railway and Utility Commissioners National Association of Broadcasters National Cable Television Association Armed Forces Communications and Electronics Association Electronics Industries Association National Academy of Engineering

3. Government Officials:

Chairman of the FCC Secretary of State Secretary of Defense Secretary of Commerce Postmaster General Science Adviser to the President Director of U.S. Information Agency Administrator of GSA Ambassador to INTELSAT Deputy Director-designate of OTP

> (10) (31) Total

EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS MANAGEMENT WASHINGTON, D.C. 20504 OFM

July 15, 1970

Mr. Bertram Rein Deputy Assistant Secretary for Transportation and Telecommunications Bureau of Economic Affairs Department of State Washington, D. C. 20520

Dear Mr. Rein:

The enclosed Staff Study on Broadcasting Satellites is for your information.

The Study was prepared by a panel of representatives from agencies having responsibilities in the field, under the chairmanship of this office. Participants in the work of the panel are given in an attachment to this letter. It is emphasized that while this study has the unanimous agreement of the participants, this does not necessarily imply that each agency endorses all of the statements therein. It should also be noted that some representatives participated in the work of the panel for only a portion of the time it met. Its chief value is that it represents the considered, joint views of those individuals working in this area and skilled in the subject.

Sincerely,

928 Elummer

W. E. Plummer Acting

Encl.

Dr. Whitehead

FCC

Harry Fine Robert L. Cutts Daniel R. Ohlbaum W. H. Watkins James O. Juntilla

FAA

Frank L. Frisbie W. B. Hawthorne

NASA

W. A. Radius Donald R. Morris O. A. Thibideau R. B. Marsten

USIA

Edgar T. Martin George Jacobs

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Robert Hadl

HEW

Timothy W. Wirth

GSA

T. W. Snyder

NASC

W. E. Berg

STATE

Richard G. Brown Ward P. Allen T. E. Nelson Lowell Doud M. K. Berry

OSD-DOD

Vernon L. Kemp

OTM

John J. O'Malley W. Dean, Jr. Ralph Clark W. E. Plummer R. G. Gould

SATELLITE BROADCASTING

A STAFF STUDY

I. PURPOSE AND SCOPE

This interagency study has been conducted for the purpose of projecting national policies relating to the use of satellites for international broadcasting. The study includes general consideration of the technical, economic, legal, political and other aspects of this type of broadcasting. It should be emphasized that this study does not deal with the use of such satellites for domestic broadcasting in the United States.

The formulation of United States policy on this subject at this time must take into account matters of both immediate and long-range significance. Of immediate importance are U. S. preparations for the 1971 World Administrative Radio Conference for Space Telecommunications which will, by its actions with respect to frequency allocations, determine to a considerable extent the possibility of future use of space technology for broadcasting purposes. Conclusions drawn from this study can also be of assistance to U. S. participants in other international bodies such as the U. N. Space Committee (and its Working Group on Direct Broadcast Satellites) and UNESCO. In an attempt to guide the course of Executive Branch policies and programs, the Office of Telecommunications Policy convened a panel comprising representatives from the FCC and from other government agencies having responsibilities relating to satellite broadcasting.

II. CONCLUSIONS

Broadcasting satellites hold the promise of improved communications to large numbers of people all over the world. The advent of satellite technology capable of transmitting TV program material to community receivers by the mid-1970's, could aid those developing nations which have not yet acquired an extensive infrastructure of telecommunications using conventional techniques, and could contribute to national integration and development by linking isolated communities with national centers.

Space systems that would permit reception of TV programs by conventional home receivers may be at least 15 years off and it could take five years longer to establish operational systems.

A number of nations have expressed concern over the possibility of unwanted broadcasts from satellites to areas within their boundaries. The Panel believes that community reception systems,

- 2 -

offer effective protection against that possibility because these receiving installations lend themselves to national control.

At this time, an assessment of broadcasting satellite problems, costs and potentials is complicated by a number of unknown elements and it is not possible to make any conclusive judgments now on the practicality or desirability of U. S. use of broadcasting satellites for international purposes in fields such as education, instruction, information and entertainment. For example, it is not known how the cost-effectiveness of existing and future terrestrial communication systems for instruction, entertainment, and information will compare with satellites; nor is it known whether international political, technical, or other constraints will adversely affect the development of satellite broadcasting.

It is assumed that the United States will continue its policy to help under-developed countries improve their national level of education, increase their agricultural productivity, and raise their general standards of living and health, as well as to support the free flow of information. Since broadcasting satellites appear to have potential usefulness for these purposes, the U. S. should work for political arrangements that would make them possible.

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At present, there are no allocations of frequencies for the broadcasting-satellite service. The frequency requirements for this service will be considered by the ITU at the forthcoming World Administrative Radio Conference (WARC-ST, 1971). If broadcasting from satellites is to be accommodated on an operational basis in the next decade, an adequate radio frequency allocation must be established by the WARC in 1971.

Recommendations

At the 1971 WARC, spectrum provisions should be sought to permit the evolution of the broadcasting-satellite service.

To bring about the evolutionary use of broadcasting satellites consistent with the traditional U. S. policy of freedom of information, the United States should (1) work in relevant international forums for arrangements that will promote the evolution of acceptable political arrangements for the operational use of satellite broadcasting in future years; and (2) seek to retain the broadest possible freedom for the use of this technology.

The U. S. should also: (1) pursue economic and other studies, wherever acceptable through programs of international cooperation to determine the feasibility and utility of satellite broadcasting for specific international applications; (2) continue the study and

- 4 -

development of technology which may be used in satellite broadcasting; (3) support international experimentation and planning efforts to use satellites effectively, particularly in the fields of education, instruction and information dissemination; and (4) continue the conduct of experiments and demonstrations of broadcasting satellites in concert with other nations and groups of nations.

Social, cultural, legal, political and organizational issues which may be raised by satellite broadcasting are under consideration in several international forums. Development of U. S. policy in this area should take these deliberations into account.

III. DISCUSSION

The International Telecommunication Union and CCIR Definitions

The first international recognition of the broadcastingsatellite service is embodied in the Radio Regulations of the International Telecommunication Union (the ITU) adopted in 1963. Here, the service is defined:

Broadcasting-Satellite Service:

A space service in which signals transmitted or retransmitted by space stations, or retransmitted by reflection from objects in orbit around the earth, are intended for direct reception by the general public.

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Recently, the International Radio Consultative Committee (CCIR) a body of the ITU, adopted two definitions describing methods of reception within this broadcasting-satellite service.

Community Reception

The reception of emissions from a broadcastingsatellite space station by receiving equipment which in some cases may be a large installation and have large antennae, intended for use by a group of the general public at one location or through a distribution system covering a limited area. Individual Reception

The reception of emissions from a broadcastingsatellite space station by simple domestic installations and in particular those possessing small antennae.

In addition, the CCIR approved the following definitions for satellite distribution systems in the communication-satellite service:

Direct Distribution

Use of a communication-satellite service to relay broadcasting programs from one or more points of origin for direct distribution to terrestrial broadcasting stations and, possibly, other signals necessary for their operation. Indirect Distribution

Use of a communication-satellite service to relay broadcasting programs from one or more points of origin to various earth stations for further distribution to the terrestrial broadcasting stations and possibly other signals necessary for their operation.

While the CCIR definitions must be approved by an ITU World Administrative Radio Conference (WARC) before they will appear in the Radio Regulations, approval by the CCIR indicates a considerable measure of international support.

The Communication-Satellite Service

Communication satellites now provide point-to-point telephone, telegraph, data, TV and facsimile service between more than fifty earth stations connecting all continents. The present low-power satellites require large, complicated and, hence, expensive earth stations. These stations and satellites comprise INTELSAT's global commercial system. Since there are generally only one or a few stations in each country, TV and sound channels received by these earth stations are distributed by conventional means such

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as microwave relay and co-axial cable for subsequent broadcast by terrestrial broadcasting stations. This service is now well-established in international and domestic commercial operation. The increase in the capacity of satellites developed since 1965 by INTELSAT has brought about an increase in international relay of television programs.

The Broadcasting-Satellite Service

Television Broadcasting

We are now developing satellites having much higher power and much narrower transmitting antenna beams than available hitherto. Consequently, it should soon be possible to broadcast TV programs to an intentionally limited geographic region, directly from a satellite to earth stations considerably less expensive than those now used in the communication satellite service. Initially, even with these narrow beam antennas to concentrate the transmitted power, receiving installations would still have to be relatively sensitive and rely on specially designed signals such as wide band FM because of the limited satellite transmitter power available. Being expensive, these stations would logically be used

- ,8 -

for community reception. Later, as satellite transmitting power increases, the receiving installations could be less sensitive. Hence, they would be less expensive, and eventually come within the cost range of individual reception with only slight augmentation in the form of an efficient outdoor directional antenna and an amplifier/converter.

However, individual TV reception at home receivers will require many times the satellite transmitting power required for community reception, the exact amount depending on the extent of augmentation. Because of technological limitations, including the generation of high power space and the high cost, space systems for individual reception are probably at least 15 years off. (Annex A).

Sound Broadcasting

In 1967, NASA completed a study on the feasibility of a sound broadcasting satellite for individual reception and found that such a satellite operating in the high frequency (H.F.) broadcast bands would be technically impractical. However, the study did show that it would be technically feasible to develop an FM sound broadcasting satellite for the VHF band within the next few years. Such a satellite could provide a single voice channel to an area the size of Brazil, for up to twenty-four hours a day with poor to good quality reception

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by typical FM receivers employing simple, outdoor antennas.* However, the estimated annual cost would be between \$40 and \$50 million. By comparison, the VOA is presently reaching the entire Western Hemisphere with a consistently good signal many hours a day for approximately \$1.5 million a year using terrestrial H. F. transmitters for as many as three different programs simultaneously. Because of the high cost, such sound broadcasting satellites for individual reception do not appear to be attractive at this time.

Economics of Broadcasting-Satellite Systems

Even when technically feasible, the cost differences between satellites for community and for individual reception will be great. Present indications are that a satellite for individual reception might cost many times as much as one for community reception. Detailed studies are necessary to determine if total system cost for service to a given area will be less using 1) home receivers and a very expensive satellite, or 2) a much less expensive satellite working to community receiving installations, each of which is

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^{*} The variation in received quality would be caused by different ambient noise conditions; quality would be poor in urban areas, and good in rural ones where there is little man-made noise.

fitted with, say, a 10-15 foot antenna and a low noise first stage amplifier. The economic and sociological development of a country will have a large influence on the choice of a system. When a national interest is identified, studies must take into account the conditions peculiar to each country or region. (Annex B)

While broadcasting satellites are a new means for bringing audio-visual information to mass audiences as well as to smaller specialized groups, their costs will have to be compared with terrestrial TV broadcasting systems and distribution networks as alternative or supplementary methods of providing these services.

The needs of a country for broadcasting services, whether by terrestrial means or from space, may be grouped into several major categories such as: news, public affairs, entertainment, education (including formal instruction in schools), health, family planning and medical information, agricultural assistance, weather reporting, market and commercial reporting. The role that a broadcasting satellite can play in meeting identifiable service needs will depend upon such factors as the extent and economics of conventional communication systems, including terrestrial broadcasting facilities: the national resouxces and priorities for the development of the country's communications and broadcasting system; the area

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to be covered; the groups of people to be reached; and the relative cost effectiveness of satellite vs. terrestrial facilities. These are complex factors which will vary from country to country, and can only be evaluated on a case-by-case basis.

The effectiveness of TV as an educational tool, and its priority in filling educational deficiencies in a given country or region must be explored. At this time, educators are not in agreement that instructional television (ITV) will produce greater benefits per dollar in some countries than the same amount spent on other programs, e.g., for teacher training or salaries, for classrooms and text books.

Another aspect requiring consideration is that of copyright. This subject is treated briefly in Annex C.

Characteristics of Community and Individual Reception

Community Reception

The nature of community reception is such that it is essentially a "closed" information system. The relatively large receiving facilities are, by their nature, easily subject to regulation by the government of a country in which they are located, thus precluding the possibility of one country broadcasting to another via community receivers without the permission of the recipient government. For the most part, countries will be broadcasting to areas within their own national boundaries.

International agreements may provide a basis for the shared use of a broadcasting satellite for such purposes, with each cooperating country providing programming material intended for broadcast to its territory. Space technology currently under development will enable experimental satellite broadcasting into community receivers at UHF frequencies. Under a cooperative arrangement between the United States and India, the Indians will use an Applications Technology Satellite (ATS) to demonstrate the effectiveness of instructional television at the community level for a period of a year beginning about the end of 1973.

Individual Reception

A high-power broadcasting satellite would be capable of transmitting either sound or television programs directly into simply augmented receivers in the homes of a mass audience in one or more countries. This raises the possibility that some of these transmissions could be received without the consent or control of a receiving country. Such broadcasts would thus be similar in effect to terrestrial H. F. voice broadcasting; a service used

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extensively today by many countries. Fear of political and/or commercial abuse of such techniques is leading many countries to seek international controls or agreements over the program content of television broadcasting via satellite.* Studies conducted by NASA rule out for the next 15 years or so the feasibility of individual reception of television transmissions from a broadcasting satellite.

The first report of the Working Group on Direct Broadcast Satellites of the U. N. Committee on the Peaceful Uses of Outer Space recently came to a similar conclusion:

"While it is considered that satellite technology has reached the stage at which it is possible to contemplate the future development of satellites capable of direct broadcasting to the public at large, direct broadcasting television signals into existing, unaugmented home receivers on an operational basis is not foreseen for the period 1970-1985. This reflects the lack of technological means to transmit signals of sufficient strength from satellites." (Page 3 of Reference 1A).

* International control over program content is advocated by countries without regard to the distinction between the ability to control community reception and the ability to control
individual reception.

Frequency Allocations

Although the Conference in 1963 adopted a definition of the Broadcasting-Satellite Service, and in 1970 the CCIR adopted the new definitions referred to previously, no frequencies have yet been allocated to the service. The international mechanism by which allocations are made is described in Annex D. This Annex concludes that it is likely the Broadcasting-Satellite Service will be allocated some frequencies above 10 GHz at the Conference in 1971. These frequencies probably would not be useful for individual reception until high power satellites low cost receivers are available. United States Interests

It is possible that if and when broadcasting satellites capable of providing individual reception become practical the interests of the U. S. could be substantial. For example, provided frequencies were available, the government and non-government interests could use satellites for international television broadcasting or other purposes in much the same manner that terrestrial transmitters are used for international broadcasting. Such uses, however, might raise legal, social, cultural and political issues.

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Freedom of Information v. Unwanted Programs

The technical and economic resources required to develop and place a broadcasting satellite in orbit can be provided by only a few countries in the foreseeable future. This has given rise to expressions of fear that some countries might use broadcast satellites, particularly television satellites, as a means of "intruding" into the domestic or internal affairs of other countries. Some countries have expressed concern that television programs from broadcasting satellites might be used for political propaganda; to spread false news on an immense scale; to misguide public opinion throughout entire regions; to advertise products or portray matters forbidden by national law or custom in a recipient country; to turn people of a country against its government; to incite, cause or support war; or to impose different cultures, political or social systems on others, etc.

It has been urged by the USSR, France, several Latin American and other countries participating in the Working Group on Direct Broadcast Satellites of the U. N. Committee on the Peaceful Uses of Outer Space and in other international arenas that steps be taken to prevent the misuse of broadcasting satellites. France, at the

- 16 -

1963 Space Conference, suggested a complete prohibition of broadcasting from satellites in the same manner that the Radio Regulations of the ITU presently prohibit broadcasting from ships, aircraft, or other floating or airborne objects outside national territories; however, France has also recently suggested a detailed code governing program content. Other suggestions include the prohibition of international satellite broadcasting without the explicit prior consent of the recipient governments and the formation of a new international regulatory body.

The United States, of course, has long been committed to the principle of the free flow of information among nations. This principle, which covers the right of persons both to disseminate and receive information, is embodied in the Constitution of the United States and in the organic law of many other countries. It is also contained in the Declaration of Human Rights of the United Nations, and in several other major U. N. recommendations and resolutions which encourage this freedom on a worldwide basis.

Restrictions on the content of satellite broadcasting run counter to the free flow of information among nations. Agreement by the United States to restrict the transmissions of its citizens would also raise substantial constitutional issues. (see Annex E) A decision

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to limit the free flow of information would thus require a drastic change in the traditional U. S. position with respect to international freedoms. Moreover, we would not want to see satellite broadcasting used as the precipitating factor for similar restrictions in other areas. In view of these considerations and our belief that satellite broadcasting to individual television receivers is not imminent,* the United States has opposed steps looking toward international agreements which would restrict the content of satellite broadcasting.

The demand for controls on the use of broadcasting satellites may be expected to become more substantial, particularly as technology develops which will permit individual reception. Our experience to date does not indicate that the fears of other countries

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^{*} Satellite broadcasting through the mid-1980's, and possibly beyond that date, will be for community reception. In community reception, the technical system requiring the production or importation and installation of new equipment enables a government which wishes to impose importation, licensing, or other restrictions, to control the use or at least the acquisition of the equipment by its citizens. Nevertheless, some countries have not been persuaded that there is any significant difference between community and individual reception as far as legal, political, social and cultural implications are concerned.

concerning the reception of unwanted transmissions by satellite can effectively be allayed by reference to the existing international agreements that may be said to protect nations from abuse of the principle of freedom of information, i.e., the recognition in the United Nations Charter of the principle of sovereign equality of states and the obligations of governments not to interfere in the domestic affairs of other states.* Difficulties would arise in any event in deriving from existing agreements generally agreed principles applicable to specific cases or to private parties. The reports of the second and third sessions of the U. N. Working Group on Direct Broadcast Satellites recognize these difficulties.

During the period when community systems are operational, we will have an opportunity to observe how they function, how they are employed and, most important, how they are accepted by

^{*} Various resolutions of the U. N. General Assembly condemn propaganda that undermines friendship and understanding between nations. Perhaps the most important of these is Resolution 110 (II) of the UNGA dated November 3, 1947, which is referred to in in the Preamble of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies. The resolution, which the United States supported, condemns propaganda designed or likely to provoke or encourage any threat to peace, breach of peace or act of aggression.
the countries that are now concerned about all broadcastingsatellite systems. Community systems might achieve wide favor without the imposition of controls beyond those that now govern the relations among nations. But, in view of the already expressed fears of a number of other countries, the time factor may not be adequate to prevent the issue of program control from being pressed, and the United States must be prepared to advance its position in favor of the free flow of information.

References

1.	Reports	of	the	U.	N.	Working	Group	on	Direct
	Broadcast Satellites								

- a. U. N. Doc A/AC.105/51 February 26, 1969
- b. U. N. Doc A/AC 105/66 August 12, 1969 plus Corrigendum, August 29, 1969
- c. U. N. Doc A/AC 105/83 May 25, 1970

ANNEX A

Technical Feasibility of Broadcast Satellite Systems

I. Broadcast Satellite Systems

Broadcast satellites provide simultaneous transmission of a common signal or group of signals to large numbers of receivers having wide geographic distribution. Two classes of broadcast satellite services are generally recognized: individual and community reception. A third class, distribution, has been defined by the CCIR Plenary Assembly of January 1970 as belonging to the Communication-Satellite service and having "direct" and "indirect" 1/ subclasses. The "direct distribution" subclass works a relatively modest satellite into relatively large (20-to 30-foot antennas) ground receivers, each receiver being connected with a terrestrial (re) broadcasting station which provides program material to conventional receivers within its assigned coverage area. The "indirect distribution" subclass relays programming material between conventional, heavy-trunking ground stations for distribution to terrestrial broadcast stations. Distributionclass broadcast satellites utilize technology similar to that used

^{1/} Document IV/1064E, Terminology Relative to the Use of Space

Communication Techniques for Broadcasting; 19 Nov. 1969. CCIR XII Plenary Assembly, New Delhi, India, January 1970.

in the commercial communication satellite service, but are thought of for multiple-channel networking as distinct from heavy-traffic, point-to-point (voice) service. No new technology needs to be developed for the distribution class of service.

Community broadcast satellite systems are intended for service to developing areas where little or no broadcast coverage exists but may well be extended to provide specialized services to widely dispersed groups in developed areas.

Community-broadcasting satellite systems might employ receiving antennas of modest size, say 10 foot diameter dishes. The receiver could provide program output to numerous video displays or audio transducers by cable systems, or may simply drive one relatively large-sized display for community viewing. Such systems would work with satellites of somewhat larger size than the present distribution types. If several video channels were to be broadcast together, the required satellite transmitter power could reach kilowatt levels, requiring multi-kilowatt power subsystems. These technologies can be attained by the mid-1970's. Even at these power levels the systems would probably rely on specially designed signals such as wideband FM to overcome basic power limit ation and the receivers would contain modulation converters to transform the FM signals to the standard TV broadcast form.

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Direct-to-home broadcasting, using receivers augmented by special antennas and low-noise booster preamplifiers, would require several kilowatts of satellite transmitting power for each TV channel. The technology of large, highly efficient multikilowatt power tubes for space operation and the associated technologies of the even high-power spacecraft required to support them will probably not be available before the mid-1980's.

Broadcasting from satellites to prescribed geographical areas of irregular shapes result in illumination by the satellite antenna beams of territory outside the prescribed coverage boundaries. This radiation "spillover"problem might require international arrangements to permit and regulate such operation. Shaping the satellite antenna beam to conform to political boundaries is an extremely, if not impossible, technical problem. In the event that sub-divided areas within a geographical boundary have different channel requirements, multiple beams might be needed in the satellite. Irrespective of system class, the technology of multiple, shaped beams is desirable (though not essential) to broadcasting-satellite systems. It could be attained in the late -1970's.

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Four major technological requirements affect the feasibility of broadcasting-satellite systems: (a) the generation and handling of high DC and RF power, (b) the deployment and orientation of large flexible structures, (c) the adequate dissipation and control of heat generated as losses, and (d) long operating life.

a. Power

Except for RF transmitter high power amplifiers, communications subsystems for community reception TV broadcasting satellites can be built with the technology used in those communication satellites presently in operation. The present state-of-the-art in spaceborne RF output devices is of the order of a few hundred watts. For higher output levels further development is necessary. Technological advances are essential to achieve high efficiency devices having long life expectancies in the space

The technology for long-life, spaceborne power supplies is known up to DC output levels of approximately one kilowatt.

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The technical feasibility of high-power, high-voltage supplies in the vacuum of space has yet to be demonstrated. This is also the case for high-power DC rotary joints used in transferring the "raw" DC power from the solar cell arrays to the spacecraft.

b. Deployment of Structures

Deployment of 400-watt solar arrays and long life operation of solar tracking mechanisms on past space programs attest to the feasibility and potential performance of large solar arrays. It is generally recognized that solar arrays would have to be used to provide the large power requirements associated with broadcast satellites until the 1980's because nuclear systems will probably not be available, cost effective or weight effective in multi-kilowatt sizes until then. Fabrication of a 3-kilowatt array design with a 1.5 kilowatt capability is underway and there are plans to test it in space toward the end of 1971. Most solar array systems deliver power at an output voltage of 28 volts, and these are adequate for relatively low-power applications. Array currents in the kiloampere range could result if such

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low voltages are utilized for future high power applications. The development of high voltage arrays is required to reduce the currents, and diminish problems in the power supplies with a commensurate reduction in cost and weight.

Parabolic-reflector spacecraft antennas with diameters up to 30 feet are being developed which are capable of operation from UHF to 10 GHz. The ATS 30-foot, spacedeployable parabola has already been successfully erected in ground tests, and surface tolerance measurements and launch vibration tests have been performed. Antenna feed systems for use in space have not been adequately developed with respect to feed interaction, control of side lobes, and high power operation. Development is required to achieve illumination patterns for low sidelobe levels and pattern shaping to avoid spillover and promote efficient use of the spectrum, and for power handling capability up to 10 kilowatts. The power handling problems for these antennas are complicated by the feeds required for multibeam pattern generation.

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Additional research is required to advance the stateof-the-art in shaped-beam, high-power reflector antennas so they would be available in the mid-1970's.

c. Thermal Consideration

Thermal control systems necessary to maintaining structural integrity of large spacecraft antennas beyond ATS F&G technology and for dissipation of heat losses in high-power transmitters are not within the state-ofthe-art. Heat pipes offer the best potential for efficient thermal control due to their inherently higher reliability and operation without electrical power. The major problems identified in the design of heat pipes for broadcast satellites involve a lack of specific information on evaporators and the problems associated with electrical and mechanical interfaces between heat pipes and high power RF output devices. Enhancement of efficiency in RF output devices and improved efficiency of transmitter circuits would significantly relax requirements on the design of thermal control systems and on large solar arrays.

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d. Longevity

Successful technical accomplishment in the first three problem areas will put us in a position to address the problems of long operating life.

NASA expects that the technology for community broadcasting satellites will be available in the late 1970's. NASA does not expect satellites capable of supplying individual reception before the mid to late 1980's.

ANNEX B

COST EFFECTIVENESS

The importance of satellite TV broadcasting vis-a-vis alternate means of distribution depends on the existing level of communications infrastructure in any given country. In countries lacking any TV infrastructure such as India, mixed distribution and community broadcasting from a satellite may be the most economic way of supplying such service. The relative economy of the application depends upon the actual circumstances of the particular country considering it. These circumstances would govern the costs of constructing necessary conventional facilities and include possibility of sharing with others the cost of the satellites.

In countries with highly developed communications infrastructure, satellite broadcasting would represent an incremental expense for a supplemental system; it would cause traffic and revenue losses in conventional systems to the extent that it displaces them. However, various considerations might conceivably justify some application for satellite broadcasting even where there is an existing infrastructure. For instance, given the highly mountainous nature of terrain of the Rocky Mountain States, the large area involved and the sparsely settled nature of that region, satellite broadcasting might prove more effective and more economical there than land line, microwave, distribution and terrestrial broadcast stations. Here, it would be possible to use existing CATV and repeater-translator facilities in conjunction with community reception stations.

The most detailed cost-comparison study to date has been done in connection with the Indian ITV broadcast experiment. As part of their evaluation of the economic and technical feasibility of undertaking a community ITV broadcast satellite experiment, NASA and the Indian Space Research Organization (ISRO) have developed cost comparisons for both terrestrial and space-borne ITV systems. They concluded that such a satellite system for India would be cost effective. The table below summarizes the cost-comparison results for India:

	ITV Systems	Capital Costs	Annual Costs		
	·	(\$ Millions)			
Α.	Conventional rebroadcast stations with conventional microwave inter-connection	393.6	26.7		
в.	Conventional rebroadcast stations with satellite inter- connection	345.9	21.8		
С.	Satellite broadcasting exclusively	233.3	8.9		

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These figures require qualification. The costs in A for microwave interconnection should not be charged wholly against the satellite system. Such microwave systems almost invariably provide telephone circuits in addition to TV channels. Thus, only a portion of the total microwave system cost should be included in the comparison of distribution methods.

It should be noted in general that, as the area to be served is reduced, costs for terrestrial systems can be expected to become more competitive. Where there is an existing communications infrastructure, the cost tradeoffs become more complex and the services that could be provided by satellites become more limited in scope.

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ANNEX C

Protection Against Unauthorized Uses

Another aspect of the problem is the need for protection, against unauthorized use, of television programs broadcast by satellite. Such a need exists with respect to copyrighted works, including educational programs now in preparatory or planning stages, as well as sporting events, and news and special events. Because of the vast areas which can be covered by a single satellite, it may be possible for recipient countries, not authorized by the originating body, to receive programs broadcast by satellite. Without some basis for guaranteeing that these broadcasts will be received only in authorized areas, broadcasters may either have to pay larger fees for the rights in the programs or abandon the broadcasts. In the case of educational programs, larger fees would be particularly detrimental considering the limited budgets normally associated with educational broadcasting.

This problem was discussed by a Working Group at the Meeting of Governmental Experts on International Arrangements in the Space Communications Field, convened by UNESCO at Paris from December 2-9, 1969. The meeting was attended by experts from sixty-one countries including the United States and observers from intergovernmental, international and regional organizations. The meeting recognized that there was an urgent need for international arrangements to protect broadcasting signals transmitted by satellite against uses not authorized by the originating body. It was also emphasized that such protection, to be effective, should be universally applicable.

Two possible methods of solving the problem emerged from the discussions at the Meeting of Experts. The first envisaged a revision of the International Telecommunications Convention and Radio Regulations or the addition of a protocol to the regulations. The second envisaged the adoption of a new Convention. At the present time, it is foreseen that UNESCO, in collaboration with WIPO (World Intellectual Property Organization), will convene a Committee of Experts in 1971 to examine these solutions and to make recommendations.

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ANNEX D

Frequency Allocations

Internationally, frequencies are allocated to various radio services at Administrative Radio Conferences* convened under the auspices of the International Telecommunication Union (ITU). Such conferences are held as necessary, the next one being scheduled for June 1971. The agreements reached at these conferences comprise the Radio Regulations. Following ratification by a country, these Regulations have the force of a treaty to which each signatory is bound.

The Radio Regulations define specific services; for example, the Communication-Satellite Service, and Broadcasting-Satellite Service. At present frequencies have been allocated to the first, but not to the second service. (However, an Administration may use any frequency where there is no interference to stations operating in accordance with the Radio Regulations. For example, the current MOLNIYA satellites of the USSR use frequencies not allocated to the Communication-Satellite Service.)

* That is, a conference of Administrations (Governments).

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At this time, the thinking of the United States as reflected in its preliminary views for the World Administrative Radio Conference for Space Telecommunications (WARC), dated August 1969, includes proposals for FM sound broadcasting from space in the band 88-100 MHz (now allocated for terrestrial broadcasting) by the addition of a footnote. This note provides that sound broadcasting satellites may also be authorized in that band subject to agreement among Administrations concerned and having services which may be affected by such transmissions.

The Preliminary Views also propose television broadcasting from space in the band 614-890 MHz (now allocated for terrestrial broadcasting) likewise on a "footnote" basis.

Providing channels could be cleared over a desired coverage region, the use of these two bands for FM sound and TV broadcasting respectively appear to be desirable in those areas where receivers are already available. However, antennas and RF amplifiers better than those now typically employed for the reception of terrestrial broadcasting signals would have to be added to these receivers. Ultimately, as satellite powers increase, transmissions could be received by simpler receivers, however, this would imply either the exclusive allocation of frequencies for space broadcasting in existing terrestrial broadcast bands, or new allocations.

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If broadcasting satellites were to use a frequency band now allocated for terrestrial broadcasting they would either have to be provided with exclusive channels or share the channels on a regional basis. If the bands were to be shared, "clear" (interference free) channels would still be required in the areas served. Since sharing within a region would require limitations on satellite power to prevent interference to terrestrial operations more sensitive, and hence more expensive, receivers would be needed. Problems notwithstanding, if our proposals for the UHF band are adopted, it would be technically possible to use selected frequencies in the band to cover certain limited areas; particularly for community reception following coordination with the countries directly affected.

Preliminary reactions, however, from other Administrations indicate that the U. S. proposals to footnote the VHF -FM and UHF-TV bands will not find general acceptance.

We now also propose allocation of the band 11.7 to 12.2 GHz for sharing between the Communication-Satellite Service and the Broadcasting-Satellite Service. International acceptance of an allocation at this order of frequency appears more likely. At

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present, few broadcast receivers are in service for those frequencies and, in any event, they are more complex and, hence, more expensive than those for UHF or VHF reception. At least, initially, these frequencies would be suitable primarily for community reception.

If satellite broadcasting is to be made economically attractive, in the 11-7 - 12.2 GHz band low cost receiving equipment would have to be developed. Some preliminary development of receiving front ends and antennas for such service is already under way.

Further, the requirements of the educational community in the United States should be taken into account. In a recent series of FCC hearings on the sixth notice of inquiry on Docket No. 18294 to help develop the U. S. position for WARC, the groups representing many educational interests in this country recommended that the frequency band 2500-2690 MHz be reserved for educational and noncommercial communications coequally for space and terrestrial transmissions. Among the services that could be supplied for educational purposes are radio, television, telephone, facsimile and computer-data etc.

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It should be noted though that this band is used for both line-of-sight radio relay systems and tropospheric scatter systems in various parts of the world. Use of this band for broadcasting satellite services might be possible only in areas where there would be no harmful interference to any of the services using the band.

Thus, in summary, spectrum provisions should be sought to permit the evolution of the Broadcasting-Satellite Service.

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ANNEX E

THE CONSTRUCTIONALITY OF DESTRUCTIONS ON THE CONSTRUCT / OF PRIVATE INTERNATIONAL BROADCASTING

The possibility of direct international television broadcasting by satellite to ordinary home receivers, while it is some fifteen years away according to the consensus of expert opinion, has given rise to demands by some countries for recognition of a right in recipient countries to control what their people receive. 1/ A recipient country would always be free to prevent the reception of unwanted broadcasts by jamming them, penalizing listening or watching, or other internal means. The anticipated inadequacy of such means has led to demands that the broadcasts be restricted at their source.

While the demands for recipient protection are somewhat unformed at this stage, they generally are couched in terms of international agreements 2/ under which the transmitting country will not broadcast, or permit its people to broadcast, certain types of undesirable material, e.g., material which will stir up internal dissension, conflict with domestic culture, or propagate the idea of war. Continuing demands for such an agreement raise the question of the extent to which the United States might constitutionally enter into a treaty under which it undertook to restrict the content of international broadcasts by satellite.

The question is one of first impression, 3/ A definitive answer is not possible, in view of the variables as to the then-current international situation, the form and nature of the restriction, and possible developments in our constitutional law. It is clear, however, that any limitation of the type envisioned would raise a grave First Amendment question. Upon a review of available authority, it appears most likely that the United States can license international broadcasting to serve some public interest to the confines of which the transmissions may reasonably be limited, that it could prohibit direct calls for war, and that it probably could not, at least in the absence of a clear and present danger, censor broadcasts under a loosely worded standard such as those mentioned above.

1/ Although aural international broadcasting exists today without the use of satellites, it is satellites which will make international television broadcasting possible for the first time. Television presumably will have a greater impact than aural broadcasting, and this has given rise to the fears of unwanted transmissions and the demands for recipient protection.

2/ Thus, there could be bilateral or multilateral treaties enforced through prior consorship, or through criminal and/or administrative sanctions. Some form of international body to administer agreed-upon standards is also conceivable.

[Footnote 3 on following page.]

It is undisputed that the First Amendment applies to broadcasting. Because of the peculiar nature of the medium---its intrinsic scarcity--it is also undisputable today that the use of radio may be regulated under a reasonable public interest standard.

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Freedom of utterance is abridged to many who wish to use the limited facilities or radio. Unlike other modes of expression, radio inherently is not available to all. That is its unique characteristic, and that is why, unlike other modes of expression, it is subject to governmental regulation. Because it cannot be used by all some who wish to use it must be denied. (National Broadcasting Co. v. United States, 319 U.S. 190, 226-227.)

The Supreme Court has accordingly stated with respect to the application of the First Amendment to the licensing scheme of the Communications Act in <u>National Broadcesting Co., Supra</u>, 319 U.S. 190, 226:

The question here is simply whether the Commission, by announcing that it will refuse licenses to persons who engage in specified network practices (a basis for choice which we hold is comprehended within the statutory criterion of "public interest"), is thereby denying such persons the constitutional right of free speech. The right of free speech does not include, however, the right to use the facilities of radio without a license. The licensing system established by Congress in the Communications Act of 1934 was a proper exercise of its power over commerce. The standard it provided for the licensing of stations was the "public interest, convenience, or necessity." Denial of a station license on that ground, if valid under the Act, is not a denial of free speech.

3/ The Commission's rules now require international broadcast stations to render a service which "will reflect the culture of this country and which will promote international goodwill, understanding, and cooperation." 47 CFR 73.788. The validity of this requirement has not been judicially reviewed. Nor has the prohibition in 18 U.S.C. \$953 against communications to foreign governments intended to influence their relations with the United States.

In view of the special situation of radio, and the fact that not every medium of speech is "necessarily subject to the precise rules governing any other particular method of expression," Burstyn v. Wilson, 343 U.S. 495, 502-503, the courts have permitted a degree of control over program content that might well be invalid if applied to other media. In the use of radio domestically, the public interest which the United States may protect is "the interest of the listening public," National Econdeasting Company, supra, 319 U.S. 190, 215, Federal Communications Commission v. Sandars Brothers Radio Station, 309 U.S. 470, 475. Such protection may extend not only to prohibitions against such speech as is plainly beyond the protection of the First Amendment--obscenity and indecency, 18 U.S.C. \$1464; lotteries, 18 U.S.C. \$1304; 4/ rigged contests, 47 U.S.C. \$509(a) --- but also to requirements of fair treatment of political candidates and controversial issues of public importance. 47 U.S.C. \$315, Red Lion Broadcacting Co. v. Federal Communications Commission, 395 U.S. 367. To insure fairness and protect the public health, the Commission may also require broadcast licensees to carry anti-smoking material, Banzhaf v. Federal Communications Commission, 405 F.2d 1082 (C.A.D.C., 1968), cert. den., U.S. 90 S.Ct. 50. It may also classify stations for particular uses, and limit transmissions accordingly. See Lafayette Radio Electronics Corp. V. United States, 345 F.2d 278 (C.A. 2, 1965); California Citizens Band Association, Inc. v. United States, 375 F.2d 43 (C.A. 9, 1967), cort. den, 389 U.S. 844, 5/

Nowever, as the court of appeals stated in Benzhaf, the power to look at content in the broadcast field can be carried too far in the direction of forbidden censorship. And the courts have stated more than once that the Commission's proper concern is not with the political, economic or social views of an applicant, <u>National Broadcasting Co.</u> v. <u>United States</u>, 319 U.S. 190, 226; <u>Johnston Broadcasting Co.</u> v. Federal Communications Commission, 175 F.2d 351, 359 (C.A.D.C., 1949).

4/ See Federal Communications Commission v. American Broadcasting Co., 347 U.S. 284; New York State Broadcasters Association v. United States, 414 F.2d 990 (C.A. 2, 1969).

5/ This classification authority has not been invoked to limit broadcast stations beyond the requirement of a public purpose. However, for the wide extent of permissible Commission interest under the Communications Act in program service, see <u>Johnston Broadcasting Co. v. Federal</u> <u>Communications Commission</u>, 175 F.2d 351 (C.A.D.C., 1949) (consideration of programming in comparative hearing); <u>Bay State Beacon</u>, <u>Inc. v.</u> <u>Federal Communications Commission</u>, 171 F.2d 826 (C.A.D.C., 1948) (consideration of programming in comparative hearing); <u>Simmons v.</u> <u>Federal Communications Commission</u>, 169 F.2d 670 (C.A.D.C., 1948), <u>cert.</u> <u>den. 335 U.S. 846 (denial of license where applicant proposed indiscriminately to take all network programs offered).</u> This would clearly appear to be a constitutional limitation as well as one flowing from the Communications Act, and it is also clear that the type of limitation or prohibition which has been suggested by some countries would be constitutionally invalid if applied to domestic radio. For despite the fairly wide scope of legitimate governmental concern with the use made of radio facilities, demonstrated by the cases cited above, it has never been suggested that this concern, in radio more than in any other field, would extend to the prohibition of social and political material on the ground that it might stir dissatisfaction or dissension, or conflict with national policy. The constitutionally protected interest in robust discussion of public affairs, see Terminiello v. Chicago, 337 U.S. 1 (striking down a statute which punished speech stirring people to anger, inviting public dispute, or bring about a condition of unrest); New York Times Co. v. Sullivan, 376 U.S. 254 (protecting false defamatory statements made against public officials where actual malice was not shown); Stromberg v. California, 283 U.S. 359, would be sufficient to preclude any such general restrictions on the use of radio. 6/ Indeed, even where the prohibition of conduct has only an indirect impact upon speech, it must be narrowly drawn to accomplish its purpose with as little effect as possible upon free speech. Winters v. New York, 333 U.S. 507; Ashten v. Kentucky, 384 U.S. 195. And, of course, the constitutional protection does not Copend upon an evaluation of the popularity or social utility of the ideas offered. N.A.A.C.P. v. Button, 371 U.S. 415, 445.

6/ It is recognized that in <u>KFKB Broadcasting Association v. Federal</u> <u>Radio Commission</u>, 47 F.2d 670 (C.A.D.C., 1931), the Commission was sustained in denying a renewal of license to a station regularly carrying diagnoses and prescriptions of medicine (sold by the station owner) fer ills described to the station only by mail, and in <u>Trinity</u> <u>Methodist Church South v. Federal Redio Commission</u>, 62 F.2d 850 (C.A.D.C., 1932), <u>cert. den</u>. 284 U.S. 695, 268 U.S. 599, a renewal was denied where the station continually engaged in defamatory attacks on public figures and religious groups. However, the first of these cases went on the grounds of the public health and use of a station for private, rather than a public, purpose, and the validity of the second is cast in doubt by subsequent decisions emphasizing the value of robust public debate. See, e.g., <u>New York Times Co. v. Sullivan</u>, 376 U.S. 254; <u>Anti-Defamation League v. Federal Communications Commis-</u> sion, 403 F.2d 169 (C.A.D.C., 1968), <u>cert. den</u>. 394 U.S. 930.

The question then is whether the international character of the speech would affect the validity of an attempted restriction. 7/ This question, as noted at the outset, does not admit of a precise answer. The power of the United States to conduct its foreign affairs is plenary. It extends to "matters of the sharpest exigency for the national well being that an act of Congress [alone] could not deal with," Missouri v. Molland, 252 U.S. 416. 8/ It thus has been held sufficient to sustain a general restriction against travel to certain areas, Zemel v. Rusk, 381 U.S. 1, despite the First Amendment implications. It also appears, however, that a treaty in conflict with a specific constitutional limitation upon the power of the government cannot stand. Thus, in Reid v. Covert, 354 U.S. 1, it was held unconstitutional for dependents of military personnel overseas to have been tried for murder under the court-martial procedures of the Uniform Code of Military Justice, although such trials had been held in accordance with executive agreements between the United States and Great Britain and Japan. The court-martial proceedings did not include safeguards to which it was recognized the defendants would have been constitutionally entitled had they been tried in the United States, but the government contended that this practice was necessary to carry out the United States' obligations. The Court stated:

> The obvious and decisive answer to this, of course, is that no agreement with a foreign mation can confer power on the Congress, or on any other branch of Government, which is free from the restraints of the Constitution. (354 U.S. 1, 16.)

The Court also stated:

If our foreign commitments become of such nature that the Government can no longer satisfactorily operate within the bounds laid down by the Constitution, that instrument can be emended by the method which it prescribes. But we have no authority, or inclination, to read exceptions into it which are not there. (354 U.S. 1, 14.)

7/ The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestrial Bodies, signed on January 27, 1967, requires activities in space to be in accord with the charter of the United Nations.

8/ See also United States v. Curtiss-Wright Corp., 299 U.S. 304.

In a more recent, non-capital case, this principle was applied to hold improper the dismissal of an armed forces civilian employee because an unconstitutional search of his living quarters, authorized under a treaty between the United States and Japan, had led to his discharge, <u>Powell</u> v. <u>Zuckert</u>, 366 F.2d 634 (C.A.D.C., 1966). <u>9</u>/

The resolution of a conflict between an assertion of the treaty making power and an assertion of the right of free speech would undoubtedly depend upon the precise nature of the restriction upon speech and the context of the existing international situation. Since the purpose of licensing an international service in the first place would differ from the purpose in licensing a domestic service 10/ i.e., the listening and viewing public would be not the public of the United States but rather of a foreign country, the basis of regulation would also be shifted, presumably to our relations with the country or countries involved. That this is so is indicated by the Commission rule relating to international stations now in effect. The licensing of international stations for specific purposes consistent with our national interests abroad may raise no serious constitutional issue.

9/ See also Downes v. Bidwell, 182 U.S. 244, 277, which held that shipments from Fuerto Rico could be subject to duties even though such duties are prohibited between states, but that:

> There is a clear distinction between such prohibitions as go to the root of the power of Congress to act at all, irrespective of time or place, and such as are operative only "throughout the United States" or among the several states.

Thus, when the Constitution declares that "no bill of attainder or expost facto laws shall be passed," and 'that "no title of nobility shall be granted by the United States," it goes to the competency of Congress to pass a bill of that description. Perhaps, the same remark may apply to the First Amendment . . .

10/ It is interesting to note that in <u>Mrather-Alvarez Broadcast</u> v. <u>Federal Communications Commission</u>, 248 F.2d 646 (C.A.D.C., 1957), the court held that in applying 47 U.S.C. §325, which requires Commission consent for the transmission of a program to a foreign station for rebroadcast into the United States, the Commission should consider the character of the foreign station's programming before authorizing an American network to send its programs. No free speech issue was raised there. However, the attempt, once the service is authorized, to proscribe somewhat vaguely defined categories of programs, raises a more serious question. It is doubtful whether the shift to the international forum would work a significant change in the impact of the First Amendment so as to permit broad restrictions upon the right of Americans to express their ideas freely, at least in the absence of some serious international situation. If the safety of the United States were endangered there might well be an adequate basis for stopping all international broadcasting to certain countries or some more particularized action. See Zemel v. Rusk, 381 U.S. 1; Communications Association of America v. Douds, 339 U. S. 382, 399-400; Schenck v. United States, 249 U. S. 47, 52; see also Hirabayashi v. United States, 320 U. S. 81; Korematsu v. United States, 323 U. S. 214.

Thus, in sum the constitutionality of any limitation upon the content of international broadcasts would have to be determined in the context of the international situation at the time and the nature of the limitation. Absent special considerations, it appears that a broad prohibition in the kind of terms already suggested by several other countries would raise the most serious constitutional questions and would probably not be sustained.

Two points made above should be emphasized:

(1) That "a treaty in conflict with a specific constitutional limitation upon the power of the government cannot stand" (p. 5), and
(2) that the impact of the international context upon the power to regulate specific content or to "proscribe...categories of programs" may not work significant changes in the strictures of the First Amendment except in extreme cases where the security of the United States is endangered (p. 7).

That a treaty may not stand against a specific constitutional limitation could hardly be more explicitly stated than in the passage from <u>Reid v. Covert</u>, 354 U. S. 1, 16-18 (1957), quoted above. Neither a general power to conduct foreign affairs nor an implied power associated with some other power could override the First Amendment. Cf. <u>Afroyim v. Rusk</u>, 387 U. S. 253, 257, 263. "The very nature of our free government makes it completely incongruous to have a rule of law under which a group of citizens temporarily in office can deprive another group of citizens" (id, at 268) of fundamental constitutional rights by negotiating treaties to accomplish what could not be accomplished by legislation. The question then is the second one set forth above, that is, the extent to which foreign affairs considerations and problems arising from the content of international satellite direct broadcasting interact so as to permit regulation of the latter by treaty or otherwise consistently with the First Amendment. $\frac{11}{}$

Consideration of this question should proceed from several hypotheses: (1) it is only the "scarcity" of broadcasting that permits the existing scope of its regulation (see pp. 2-4 of this Annex); (2) Americans will be subject to the regulatory jurisdiction of the United States and protected by its Constitution even though they broadcast through devices in outer space beyond United States jurisdiction; (Reid v. <u>Cover</u>, supra) and (3) courts will make an independent evaluation of the impact of such broadcasting upon foreign affairs problems without regarding existing international agreements or the advice of the executive pro or con as conclusive (see <u>Reid v. Covert</u>, supra: ICC v. New York, N.H. & H.R. Co. 372 U. S. 744, 763-64 (1963); Cf. Zschernig v. Miller, 389 U. S. 429, 434-41; Id. at 443 (1968) (concurring opinion of Stewart, J.)).

It is entirely possible, indeed probable, that the Courts will assess the impact of the First Amendment upon the range of regulatory measures that may legally be applied to international direct broadcasting from satellites by almost exactly the same standards as they apply in purely domestic cases. A number of recent cases suggest that the Courts are tending toward the view that in a world that technology is shrinking in size and making more interdependent economically and politically, what happens in the "international" sphere can have just as great an impact upon United States citizens as what happens in the "domestic" sphere, and therefore should be judged by the same standards so far as United States governmental action is concerned other than in exceptional circumstances. In addition to the cases cited above, see Baker v. Carr. 369 U. S. 186, 211 (1962); and U. S. v. First National City Bank, 379 U. S. 378, 384-85 (1965); and Zemel v. Rusk, 381 U. S. 1, 17 (1965). Thus, the Courts could decide that the power of regulation created by "scarcity" is no broader when Americans are broadcasting to foreigners than when they are broadcasting to other Americans. A judicial approach of this kind might easily be prompted by some international act prohibiting or limiting in some objectionable way whole categories of broadcasts such as political commentary or the excrescences of popular culture. Narrow

11/ Obviously precedents for regulating obscene speech or other "unprotected" activities should be put aside in considering the central problem. kinds of limitations might, of course, create greater prospects that Courts would consider the foreign "public interest" in permitting different kinds of regulation. But regardless of the kinds of limitations in an international act, and assuming that serious foreign relations problems short of war could be credibly demonstrated to Courts, Courts would seem to have little motive to empower the Executive or Congress to narrow First Amendment rights. They are much more likely to leave restrictions to the options open to the foreign countries themselves to control what their people receive by jamming or by regulating the capacity and use of community and home receivers. Cf. Shelton v. Tucker, 364 U. S. 479, 488: "In a series of decisions this Court has held that, even though the governmental purpose be legitimate and substantial, that purpose cannot be pursued by means that broadly stifle fundamental liberties when the end can be more narrowly achieved."

Whatever judicial result might ultimately be reached, we should recognize there is high risk for the constitutionality of international obligations to impose restrictions upon program content. Observing such obligations is a matter of primary importance to the United States both as a self-interested party to far more international agreements than any other country and as a supporter of a strong peaceful system of international order. It would be far more damaging to the United States to make invalid undertakings in this emotional area than to refuse to make such undertakings in the first place.

August 12, 1970

alesommenton

Dear Frade:

Thank you for your kind note of August 5th and your thoughtful congratulations. I also enjoyed chatting with you on the phone after your return from Norway.

As I indicated, I will continue to follow the maritime area for a while in my official responsibilities and will, of course, retain an interest in it personally for some time in view of my role over the last year. I am glad that your responsibilities also include the telecommunications area so that we can continue to work together. Of course, I would hope that we do not need an official reason to continue our contacts. Welcome back, and I look forward to seeing you before too long.

Sincerely,

Clay T. Whitehead Special Assistant to the President

Mr. Frode Nilsen Counselor Royal Norweglan Embassy 3401 Massachusetts Avenue, N. W. Washington, D. C. 20007 cc: Mr. Whitehead Central Files

CTWhitehead: 8/12/70 ed

EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS MANAGEMENT WASHINGTON, D.C. 20504

orm

OFFICE OF THE DIRECTOR

August 11, 1970

Honorable Dean Burch Chairman Federal Communications Commission Washington, D. C. 20554

Dear Mr. Chairman:

This is with reference to the request of the Communications Satellite Corporation for continuation of certain direct contractual relationships between the National Aeronautics and Space Administration and the Corporation for communications supporting the Apollo project.

The Commission's opinion of July 20, 1966, as amended February 1, 1967, concerning the so-called authorized user matter cited this service as an example of a situation "where the requirement for satellite service is of such an exceptional or unique nature that the service must be tailored to the peculiar needs of the customers and, therefore, cannot be provided within the terms and conditions of a general public tariff offering."

NASA and this office have been examining these arrangements as they may affect the future provision of services in support of Apollo. It has now been concluded that the services to Carnarvon in Australia and to the ground station in the Canary Islands can be provided by regular commercial arrangements under the terms and conditions of a general public tariff offering; and, therefore, it is not considered to be necessary in the national interest to continue the unique service directly with the Communications Satellite Corporation.

However, it has been found to be in the national interest and it is, therefore, requested that the Federal Communications Commission authorize the Communications Satellite Corporation to provide direct service for a period of one year to NASA to satisfy NASA's service requirement to the Ascension Island tracking station. During that period, the question of the specification by NASA of 44 dB service to Ascension will be reexamined to determine whether it should be continued. It has also been found to be in the national interest that Comsat provide direct service to the one remaining ship -- the USS Vanguard -- for a nine-month period from October 1, 1970, with an option providing for an extension of service for an additional three-month period. It is, therefore, requested that the FCC issue the necessary authorizations to the Communications Satellite Corporation to provide service directly to the USS Vanguard for a ninemonth period commencing October 1, 1970, with a provision for the extension of service for an additional three-month period to September 30, 1971.

Sincerely, :

malfummer

W. E. Plummer Acting

August 7, 1970

Dear Congressman Staggers:

I very much appreciated the opportunity to talk with you last week about my new position as Director of the Office of Telecommunications Policy. The role of the Congress in telecommunications is especially important, and I will look forward to keeping your office informed.

Let me reiterate my offer to visit with you at your convenience should you ever have any questions or if we can be of help at any time in the future.

Sincerely,

Clay T. V. hitchead Special Assistant to the President

Honorable Harley C. Staggers House of Representatives Washington, D. C.

cc: Mr. Whitehead Central Files

CTWhitehead:jm

August 7, 1970

Dear Congressman Springer:

I very much appreciated the opportunity to talk with you last week about my new position as Director of the Office of Telecommunications Policy. The role of the Congress in telecommunications is especially important, and I will look forward to keeping your office informed.

Let me reiterate my offer to visit with you at your convenience should you ever have any questions or if we can be of help at any time in the future.

Sincerely,

Clay T. Whitehead Special Assistant to the President

Honorable William L. Springer House of Representatives V. ashington, D. C.

cc: Mr. Whitehead Central Files

CTV. hitchead:jm

EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF EMERGENCY PREPAREDNESS OFFICE OF TELECOMMUNICATIONS MANAGEMENT

Date: ang. 4, 1970 Subject: Artinagency Condination To: Dr. Whitehead

For information.

The results oftained by Bob Raish are well deserved.

Be

From: W. E. Plummer Acting



OFFICE OF THE SECRETARY OF DEFENSE WASHINGTON, D.C. 20301

3 AUG 1970

Mr. L.R. Raish Office of Telecommunications Management 18th & G Street, N.W. Washington, D.C. 20504

Dear Mr. Raish:

This is in response to your request for concurrence and/or comment with respect to Part IV, Recommendations and Appendix C, Data Elements for the Basic Frequency Management Data Base.

The DoD concurs with the Recommendation at paragraphs #70 and #71 on page 48 of the study. We also agree that the Data Elements as listed in Annex C may be used for guidance and planning purposes to the IRAC for further consideration. I am sure that we are all in substantial agreement that a detailed study and review will be required with regard to the resolving definition and implementation of the Elements now identified in Annex C.

We very much appreciate the manner in which you have chaired this productive study and will look forward to our continued participation when the recommendations are approved and scheduled for study by the IRAC.

LOUIS A. deROSA Assistant to The Secretary of Defense (Telecommunications)

July 31, 1970

Dear Senator Curtis:

I appreciated your call yesterday and your kind words of congratulations. The job certainly is a real challenge as you indicated, and I am looking forward to it greatly.

As I mentioned, I did have the opportunity to talk with Dr. Frederick, and I do believe that he can make a very useful contribution to the Office. After considering all factors, I have decided, however, that someone with a somewhat different mix of abilities was necessary for the deputy director position. As soon as we get some organization in the administrative structure of the new Office. I will be talking with Dr. Frederick again about how his abilities in the area of electronognetic compatibility can kest be utilized.

I thank you for your interest, and I hope you will call on me if there is ever anything we can do.

Sincerely,

Clay T. Whitehead Special Assistant to the President

Honorable Carl T. Curtis United Links Senate Mathiryton, D. C.

cc: Mr. hitehead Central Files

CTWhitehead:jm
August 1, 1970

Dear Dr. Frederick:

I appreciated the opportunity to talk with you earlier in the month and to learn of your interest in the general area of telecommunications and in electromagnetic compatibility studies in particular.

After carefully considering the nature of the new Office and the kind of abilities that I felt were important for the deputy, I have made a selection for that position that I expect to be announced shortly. However, as you indicated, you are more concerned with the opportunity to make a contribution to this area of the new Glicole responsibilities put I am hopeful that we can work out a mainfully agreentice wey to being that should

As need as we have come could have as all distributions we before in the point of the point in the test of the bid year institut we can be how we analyze prove the fit of the Euclidy's difference of the to take with you and look for ound to scaling you again.

Sincorcly,

Chry 2. Albedand Special Achievant to the President

Liz, Geal Michaelowick 9621 - Michaelowick 1865 - Marchaelowick 1865 - Marchaelowick

cc: Mr. Whitehead Central Files

GTWhitehoadtjin

July 27, 1970

To:

Betty Swenson Senate Commerce Committee 5202 New Senate Office Building Washington, D. C. 20510

From: Eva Daughtrey Administrative Assistant to Dr. Clay T. Whitehead

In accordance with our phone conversation, I am attaching the list of changes Dr. Whitehead would like made in the transcript of his testimony before your Committee on July 16, 1070, in connection with his nomination to be Director, Office of Telecommunications Policy.

Attachment

cc: Mr. Whitehead Central Files

CTWhitehead:ed

Page 4	Line 2	engineering and scientific honorary societies
Page 6	Line 4	Dole
Page 14	Line 12	O'Connell President
Page 15	Line 15	attitude
Page 16	Line 25	process that can respond
Page 17	Line 21	existing spectrum allocations.
Page 18	Line 5	spectrum, or we in fact will have a true crisis on our hands.
Page 20	Line 17	30 professional positions this fiscal year

July 16; 1970

Testimony before the Senate Commerce Committee in connection with Dr. Clay T. Whitehead's nomination to be Director of the Office of Telecommunications Policy.

July 27, 1970

Corrections for the transcript of testimony returned to:

Betty Swenson Senate Commerce Committee 5202 New Senate Office Building Washington, D. C. 20510 225-5115

for --

James B. Olsen, Editorial Assistant Senate Commerce Committee

Asked if we could keep the transcript since we were unable to make a xerox copy; Miss Swenson advised it would be all right.

Dear Senator Long:

I enjoyed the opportunity to meet you briefly prior to the Commerce Committee hearing concerning my nomination to be Director of the Office of Telecommunications Policy. I think it is important this new office keep in touch with the Congress in view of its important role in telecommunications policy, and I look forward to keeping your office informed of our activities.

Should you have any questions or problems. I would be pleased to visit with you at any time in the future at your convenience.

Sincorely,

Clay T. Whitehead Special Assistant to the President

Honorable Russell B. Long United States Senate Washington, D. C.

cc: Mr. Whitehead Central Files

CTWhithead:jm

July 23, 1970

Dear Senator Inouye:

I enjoyed the opportunity to meet briefly with Mr. Ravnholt of your office concerning my recent nomination to be Director of the Office of Telecommunications Policy. I think that it is important that this new office keep Congress informed, and I would appreciate the opportunity to keep your office apprised of our activities.

1. A marker to a second second to the

Should you have any questions or any problems. I would be pleased to visit with you at your convenience.

Sincerely,

Clay T. Whitehead Special Assistant to the President

Honorable Daniel K. Incuye United States Senate Washington, D. C.

cc: Mr. Whitehead Central Files

CTWhitehead:jm

July 16, 1970

Dear Congressman Jonas:

Attached is a copy of a letter I sent to Chairman Evins. I regret that I did not have a chance to talk with you before Mr. Evins spoke with me and I prepared this letter.

I would appreciate the opportunity to discuss, this area with you in the near future.

Sincerely.

Clay T. Whitehead Special Assistant to the President

Honorable Charles Raper Jonas House of Representatives Washington, D. G.

Enclosure

cc: Mr. Whitehead Central Files

CTWhitheead:jm

July 19, 1970.

Contro

Deay Mr. Chalrenan;

I very much appreciated your taking the Name today to most with me and to discuss how I nee the role of the new Office of Telecommunications Folicy in the Executive Office of the President. The Senate Commarce Committee holds bearings temperate on my nomination to be Director of that Office, and I look forward to getting our new activities underway.

As you know, our FY 71 budget recommondations for the Office of Telecommonleations Management anticipated both Recrystillation Plan No. 1 of 1970 and the greatly expanded role and vigor foreseen for the new Office of Telecommunications Delicy. New that the Congress has allowed this Plan to go into effect, the Administration has been reviewing these budget recommondations and the recent actions by the House and Senate. As this makes goes to Conference, I want to be sure that the relative priorities of this Administration in this program are available to the Congress.

The President's budget recommendations for telecommunications policy requested 33.3 million, a significant percentage increase above the 1970 budget of \$1.6 million. I wish to emphasize that we still consider the full funding of \$3.3 million is vitally important to the development of an effective telecommunications policy program during the forthcoming year.

As you know, the House action contemplates no increased funding above the 1970 lovel for the old Office of Telecommunications Management. I understand that part of this reduction (\$906,000) was attributed to consern over the establishment of a new National Electromagnetic Compatibility Analysis Facility without legislative authorization. The remaining reduction would sharply curtail one plans to initiate urgently needed studios of a broad range of feldecommunications policy issues not heretofore considered by the OTM. Recent pay raises would in fact lower the effective resources available to the new office if the House proposals were adopted.

As I mentioned in our discussion, I feel that communications has a vast potential for good in our society and our economy. But we must have government policies and programs that promote, rather than filmer, that polantial. The new staff and contract support needed for telecommunications policy analysis is of the highest priority and absolutely or southal to expansion of the role and capabilition of the new Office of Telecommunications Folley beyond that of its preducennes. The 1970 funding for studies covered only frequency comagement subjects. The additional funds requested in 1971 are noticed to address a number of problems concerning inter-Entional agreements and spectrum allocations, data communications, defense and omergency preparedness meeds, the efficiency of Federal puper different and procerement for communications nervices, and other happenent policy issues that have not received adequate policy atientics. The present OTM staff and funding levels allow for no such policy studies.

With respect to the electromagnetic compatibility analysis effort, it is not our intestion to establish any new facility or organization which would require tegislative authorization. Rather, we intend to task the Department of Commerce to develop the necessary analytic techniques, data base, and processing capabilities to provide the Office of Telecommunications' Policy the information necessary to more efficient use of the spectrum.

The \$1.5 million reduction proposed by the House would make impossible the following three entropesies of work that are important to achieving the objectives of the new offices: (1) \$539,000 for 10 new stall members and for contract studies of the Office of Telecommunications Policy to deal with bread telecommunications subjects not previously underinken by the old Office of Telecommunications Leanagement, (2) \$560,000 for additional staff to develop the concepts, techniques, and data bases for modernized electromagnetic compatibility analysis to achieve more efficient use of our spectrum resources and to meet the increasing workload of inequality analysis; (3) \$406,000 for header and races rapid application of electromagnetic compatibility analyses. However, should the Congress feel that some budgetary reductions below the \$3.3 million requested must be made, despite its own and the Administration's strongly expressed interest in developing a more effective telecommunications policy capability, some reduction in the \$496,000 category just mentioned would be less detrimental to the overall effort than would other reductions.

Sincevely,

Clay T. Whitehead Special Assistant to the President

Honorable Joe L. Evins Chairman Subcommittee on Independent Offices Committee on Appropriations House of Representatives Washington, D. C.

cc: Mr. Whitehead Central Files Dick Cook George Shultz CTWPater Flanigan

CTWhitehead:cd



Wednesday 7/15/70

8:40 Thought you might want to refresh your memory of this phone call.

THE WHITE HOUSE

WASHINGTON

April 24, 1970

MEMORANDUM FOR BILL TIMMONS

I received a telephone call from Senator Cotton this morning in regard to the information I had passed yesterday to Art Pankopf that William A. Niskanen is expected to be our nomination for Director of the Office of Telecommunications Policy. Cotton made the following points:

1. He noted that Niskanen had been Deputy Assistant Secretary of Defense under McNamara and, therefore, was suspect as one of the people who, under McNamara, forced the closing of many defense installations. He did not directly allege that Niskanen was associated with this activity, but wanted reassurance and reiterated that burden of proof would be with us that Niskanen was not one of the unsavory McNamara types even though he is a Republican.

2. He cited, partly as an example and partly, 1 gather, out of pique, that the Portsmouth Naval Shipyard was "being choked to death." He indicated that he was extremely unhappy about this kind of thing and would want to know how Niskanen was involved.

3. He indicated that he was "at the end of my rope with this Administration" and that no further cooperation will be coming from him until some attention was given to matters he was concerned with.

4. He pointedly noted that he was not going to support ABM and that, after 24 years of being a statesman, his patience was at an end and that he was "small enough at last to filibuster till Hell freezes over" about the Niskanen appointment unless he received more consideration of the things he felt were important to him.

5. He indicated that this is only one of the many things he was going to do and that we should be prepared for trouble. He asked that I pass this along to the appropriate people. I think it is clear that Cotton has no personal grief against Niskanen although he does feel rather strongly about McNamara and would have to be shown that Niskanen is a legitimate Republican. (I don't think that is a problem.) However, he clearly has other things on his mind, of which I am not aware.

I thought you would want to be aware of this phone call. I would appreciate your views as to how we might plan our strategy in getting Niskanen confirmed.

> Clay T. Whitehead Special Assistant to the President

cc: Mr. Flanigan Mr. Whitehead Central Files

CTWhitehead:ed

OFFICE OF TELECOMMUNICATIONS MANAGEMENT WASHINGTON, D.C. 20504

OFFICE OF THE DIRECTOR

July 17, 1970

Honorable Dean Burch Chairman Federal Communications Commission Washington, D. C. 20554

Dear Mr. Chairman:

It has been the practice in the United States for many years to avoid use of the aeronautical mobile (R) high frequency bands for domestic air traffic control and to rely on the VHF and UHF bands instead. As a consequence, the high frequency (R) bands are relatively unused in the conterminous United States.

With congestion increasing generally in other portions of the high frequency spectrum, certain interests with unfulfilled aeronautical requirements have looked to the (R) bands for satisfaction. The FCC, for example, has authorized use of some 16 channels in support of such activities as flight testing and off-shore drilling operations. More recently, several Government agencies have stated requirements, including radiological research, flight inspection and severe storm tracking which cannot be accommodated elsewhere satisfactorily. In June of 1970 this latter requirement prompted a temporary six month frequency assignment pending a review of the problem, and possible development of criteria regarding the future use of these bands.

To this end, and in coordination with the Interdepartment Radio Advisory Committee, this office has developed a study on the intended, actual, and proposed uses of the aeronautical mobile (R) high frequency bands, with recommendations (see enclosure).

Your views are solicited looking to the establishment of national criteria by means of which certain categories of operations would have access to the foregoing frequency bands in a manner which would not be detrimental to primary international use. In light of the urgent nature of stated requirements, your early consideration would be appreciated. Should criteria such as enclosed be adopted nationally, Government agencies who might operate therein would employ extensive sharing so as to reduce the number of channels involved to a minimum. It is foreseen that stated Government requirements might be met on as little as one family of frequencies, with a given agency coordinating the over-all use thereof.

Sincerely,

WEllummer

W. E. Plummer Acting

Enclosure

cc Dr. Whitehead

Title: Uniform Interpretation of the Aeronautical Mobile Service (R) Requirements

BACKGROUND

A need has arisen for a clarification and a uniform interpretation of the definition of Aeronautical Mobile Service "R" to provide a common understanding when faced with the problem of satisfying stated requirements within the properly allotted frequencies. In order to provide a base for this understanding, a review of the ITU and ICAO definitions as well as the FCC Rules is in order.

Paragraph 429 of the ITU Radio Regulations states: "Frequencies in any band allocated to the aeronautical mobile (R) service are reserved for communications between any aircraft and those aeronautical stations primarily concerned with the safety and regularity of flight along national or international civil air routes."

To better understand RR 429, it is appropriate that RR 430 be quoted: "Frequencies in any band allocated to the aeronautical mobile (OR) service are reserved for communications between any aircraft and aeronautical stations other than those primarily concerned with flight along national or international civil air routes." (Obviously, the intent of RR 429 is to use "R" band frequencies "along national and international air routes".) The FAA also uses the same very high frequency for operations in accordance with U. S. 32 of the National Allocation Table. Neither of these operations is in accordance with Par. 429 of the ITU Radio Regulations. This type of operation, while not prohibited by ICAO, is not specifically provided for in the international portions of the frequency bands provided for AMS. On the other hand, ICAO works within the ITU Radio Regulations.

B. <u>Aviation Instructional Aircraft & Aviation Instructional</u> Land Stations

These stations use VHF aeronautical mobile (R) channels (Sec. 87.341) for "...radiocommunications pertaining to instructions to students or pilots while actually operating aircraft or engaged in soaring activities." This is not in accordance with Par. 429 of the ITU Radio Regulations.

C. Aeronautical Advisory Stations

These stations use VHE aeronautical mobile (R) channels (Sec. 87.253) for "advisory and civil defense communications". Sec. 87.257(d)(2) also provides: "on a secondary basis, communications may be transmitted which pertain to the efficient portal-to-portal transit of which the flight is a portion, such as requests for ground transportation, food, or lodging required during transit." See Sec. 87.257(e) for civil defense operations.

This is not in accordance with Par. 429 of the ITU Radio Regulations. This is in accordance with ICAO definition of flight regularity messages provided the requests for passengers and crew requirements are due to unavoidable deviations from normal operating schedules and that <u>individual requirements</u> are not specified.

D. Aeronautical Multicom Station

These stations use one VHF aeronautical mobile (R) channel (Sec. 87.271). Section 87.277(a) states in part: ".... communications by an aeronautical multicom station shall pertain to activities in flight for the successful ... or safe conduct of the activity. Such communications shall be limited to the directing of ground activities from the air, the directing of aerial activities from the ground, and air-to-air communications where such communications are otherwise not provided for in this part. This is not in accordance with Par. 429 of the ITU Radio Regulations.

E. Aeronautical Enroute Station

These stations use both VHF and HF aeronautical mobile (R) channels (Secs. 87.293 through 87.309) for "....carrying on a service with aircraft stations, but which may also carry on a limited communication service with other aeronautical enroute stations." Section 87.295(a) permits the use of one HF channel for communications in support of offshore drilling operations in open water areas beyond the range of VHF propagation.

The communications in support of offshore drilling operations is not in accordance with Par. 429 of the ITU Radio Regulations. The point-to-point operation of the aeronautical enroute station is in conflict with the ICAO definition of the aeronautical mobile service (AMS).

F. Aeronautical Utility Mobile

These stations use VHF aeronautical mobile (R) channels (Sec. 87.431) for the "necessities of ground traffic control at an airdrome and may be used for essential communications with the control towers, ground vehicles and aircraft on the ground." This operation is recognized throughout the world, and there are extensive operations of this nature by both Government and non-Government in the U. S. However, this is not in accordance with Par. 429 of the ITU Radio Regulations. ICAO provides for use of AMS (R) frequencies for Airport Surface Control.

G. U. S. Military Assignments in the VHF (R) Band

Military aircraft and aeronautical ground stations are permitted to use VHF (R) frequencies for (OR) purposes including refueling operations. This is not in accordance with Par. 429 of the ITU Radio Regulations, nor is it provided for in the ICAO Standards and Recommended Practices.

II. Government Agency Operational Requirements that require attention.

COMMERCE. Operating four highly instrumented aircraft engaged in hurricane research and other severe storm phenomena research projects at various locations throughout the United States of America. Temporary frequency authorizations through November 1970 were obtained at Miami, New York City, Boulder, and Norman, Oklahoma, on the following frequencies:

> 4669.5 kHz 6527.5 kHz 10094.5 kHz 3A3J, 1 Kw 13357.5 kHz 17942.5 kHz

INTERIOR. Requirement involves operational control of about 20 aircraft in international law enforcement patrol, involving fisheries and fire suppression activities, both in Alaska.

> International Fisheries 3A3J/1 Kw 6527.5/10094.5/13357.5 kHz

Six Ground Stations Anchorage Fairbanks Kenai Kodiak Cold Bay Bethel

Also, a few planes are involved in weather modification studies centered in Denver. (Associated with the National Science Foundation) It is understood that Interior also has a requirement for communication with helicopters in the Gulf of Mexico. <u>AEC</u>, Requirement involves about seven aircraft used in aerial tracking and radiological measurements throughout the U. S. A.

<u>FAA</u>. Requirement involves 65 aircraft utilized in the FAA flight inspection program throughout the U. S. A. This requirement is presently met by using UHF air/ground frequencies and phone patches, but this has not proven satisfactory. Although this requirement is for operational control communications, the FAA is making every effort to satisfy it in bands other than aeronautical mobile "R".

All of the above Government requirements for high frequencies appear to fit the category of "safety and regularity of flight" as designated in Par. 429 of the ITU Regulations. However, these flights do not conform with any designated national or international civil air routes. It is presumed that all messages will be safety and control messages in accordance with Par. 432 of the ITU Radio Regulations.

III. Non-Government use of HF Aeronautical Mobile (R) Bands Present use of the "R" band consists of frequency assignments covering two areas, support for flight tests and offshore oil drilling. Both functions evidently meet the "safety and regularity of flight" requirement in accordance with ITU Rules.

IV. Military HF Air/Ground Communications.

Frequencies in the bands allocated exclusively to the (OR) service are nationally used primarily for the satisfaction of military aeronautical requirements. The Navy and Air Force utilize the aeronautical mobile (OR) bands in support of their operations (tactical and training). The Coast Guard is also accommodated in the "OR" bands. However, the Army is unable to meet its air/ground communications requirements in the "OR" bands and has resorted to using bands allocated for fixed or mobile services.

V. FAA HF Air/Ground Existing Operation.

FAA's 1967 needs for communication, with two of its aircraft, were satisfied by using the fixed bands.

VI. Government and Non-Government "R" Operations in Accordance with Appendix 27.

The FAA is currently utilizing HF air7ground international route frequencies at Balboa, Anchorage, Cold Bay, Barrow, Wake, Guam and Samoa. The Aeronautical Radio, Inc. (ARINC) operates on international route frequencies at New York, Miami, San Juan, New Orleans, San Francisco, Honolulu and Okinawa. Interior operates on international route frequencies in the Trust Territories. Domestic route HF frequencies are in use by FAA and non-Government stations in Alaska.

SUMMARY

There are operations authorized by the Federal Communications Commission on 23 VHF and 16 HF aeronautical mobile (R) channels which are not strictly in accordance with the ITU Radio Regulations or ICAO Standards and/or recommended practices; however, such is permitted to meet operational requirements which could not be adequately satisfied in other bands.

Additional Government and non-Government requirements have been identified which require immediate attention. Stop-gap action has been taken in one instance by granting six-month assignments until a satisfactory permanent solution can be; found.

The United States has chosen to set aside the Aeronautical Mobile Service (OR) bands for the exclusive use of elements of the military services while attempting to satisfy all other requirements from the AMS (R) even to the extent of providing services in these bands for other than the defined purposes. This approach has been in the best interest of radio frequency spectrum conservation and has had little or no adverse effect on the international community, particularly in the VHF assignments which only influence other stations within the radio horizon. However, because of the recent substantial expanded interest in A3J-SSB, ICAO has begun a search for additional HF families for use between the U. S.,

Canada, and Ireland. Since the U.S. mainland does not have HF (R) allotments for national use, it is becoming increasingly difficult to obtain high frequency families that are compatible with other foreign nation assignments.

RECOMMENDATION

It is recommended that the following criteria be used when assigning radio frequencies within the aeronautical mobile (R) high frequency bands for operations other than air traffic control use.

- Communications between aircraft and aeronautical stations primarily concerned with the safety and regularity of flight along national and international civil air routes shall have absolute priority over all others.
- Use of "R" band high frequencies shall be limited to SSB air/ground and incidental air/air communications beyond the range of VHF/UHF facilities.
- 3. Users shall share to the maximum extent possible.
- 4. Requirements be handled on a case-by-case basis.
- 5. A showing must be made that the accommodation of the requirements in bands other than aeronautical mobile (R) (e.g., fixed bands) is not satisfactory from technical, operational or economic reasons.

- 6. Only those requirements be considered where the primary need for the communications is for the safety of the aircraft and its passengers or for operational control communications, i.e., "communications required for exercising authority over initiation, continuation, diversion or termination of a flight in accordance with the provisions of Annex 6 (ICAO)".
- 7. Use of aeronautical mobile (R) high frequencies in accordance with the foregoing normally shall be limited to the non-military.
- 8. If the aforementioned criteria are met, the stipulation that "R" bands are to be used only for flights along national and international civil air routes need not be met.

July 9, 1970

Dear Senator Baker:

I appreciated very much the opportunity to meet with you and to discuss communications policy and the role of the new CTP. I will keep in touch with Lee Smith and Hugh Branson as you suggested, and will especially be in touch with Lee after I have some feel about Senator Pastore's and Senator Magnuson's strategy for the hearings (now scheduled for 10:00 Thursday, July 16th).

Our first year's appropriation will be particularly significant, and I appreciate your assistance in that regard; as I indicated, I would be pleased to meet with Mr. Evins at his convenience.

I will certainly make it a point to keep your office informed as we get under way and some of the more significant policy issues arise. I hope you and your staff will call on me at any time should you have any products or chould there be anything we might be able to help with.

Sincerely,

Clay T. V hitchead Special Assistant to the President

Honorable Howard H. Baker, Jr. United States Senate Ashington, D. C.

cc: Mr. Whitehead Central Files

CTWhitehead:jm

Dear Congressman Broyhill:

I appreciated your taking the time to meet me yesterday and to discuss the area of telecommunications policy and the role of the new CTP. Your suggestions with respect to meeting the other members of the full Committee and Subcommittee were very helpful and I will begin immediately to make those contacts.

As we discussed, I recognize and agree with the importance of effective cooperation and coordination between the Administration and the Congress in this area. I hope I will have the opportunity to keep your office informed and to discuss the various issues with you from time to time. I would also be pleased to visit with you should you have any questions or problems at any time in the future.

The six year colo.

Sincerely,

Clay T. Whitehead Special Assistant to the President

Honorable James T. Broyhill House of Representatives Vashington, D. C.

cc: Mr. V hitehead Central Files

CTWhitchead:jm

July 7, 1970

Dear Senator Cotton:

I appreciate very much your taking the time to talk with me yesterday about my nomination to be Director of the new Office of Telecommunications Policy. As you suggested, I have begun to contact the other Senators on the Commerce Committee. I hope to be able to most with all the Republicans and as many of the Democrats as possible. I have also been in touch with Art Pankopf about meeting some of the Committee staff and getting the hearings scheduled in a timely way.

Attached for your ready reference is a copy of a brief biography and materials released from the White House Press Office regarding the purposes and functions of the new Office of Telecommunications Policy.

I certainly enjoyed our visit. It was most helpful to me, and I hope that I will have the opportunity to keep you informed and consult with you from time to time as this new undertaking proceeds. I would be pleased to visit with you at any time should you have any questions or problems.

Sincerely,

Clay T. Whitehead Special Assistant to the President

Honorable Norris Cotton United States Senate Washington, D. C.

Attachments

cc: Mr. Whitehead Central Files

CTWhitehead:ed

July 6, 1970

Dear Mr. Chairman:

For your use in considering my nomination to be Director of the Office of Telecommunications Policy. I make the following statements.

I have no connection with and no financial interest in any corporation, business enterprise, or nonprofit or educational institution. I have no creditors to whom I am indebted except for small amounts incurred for normal household and living expenses. I have no financial interests in any real property.

Yours truly,

Clay T. Whitehead Special Assistant to the President

Honorable Warren G. Magnuson Chairman Committee on Commerce United States Senate Washington, D. C.

cc: Mr. Donfeld Mr. Whitehead Central Files

CTWhitehead:ed 7/6/70

EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS MANAGEMENT WASHINGTON, D.C. 20504

Date:

July 29, 1970

11

Subject:

Aeronautical Telecommunications Services via Satellites

To: See Distribution

This memorandum provides a summary of the status of the efforts of the U. S. Government and others in planning for aeronautical satellites. The memorandum and its attachments provide background information for the use of representatives of this office who will attend the Industry-Government meeting on "Fadors Affecting Aeronautical Satellite System Choices" to be held on Wednesday, August 12, 1970. A paper supplementing the text of this memorandum is enclosed as Tab A.

Background:

The technical feasibility of using geostationary satellites for the provision of aeronautical telecommunication services was demonstrated initially through SYNCOM III in early 1965. The technical feasibility was verified in experiments in the VHF band (118-136 MHz) by various airline aircraft through the ATS-1 in late 1966 and early 1967. Subsequently, limited experiments in the UHF L-Band (1540-1660 MHz) were initiated with the ATS-5, launched in August 1969.

Although an important new capability was demonstrated in the earlier experiments, extended delays have been encountered in making the policy and resource decisions necessary to begin the actual development and deployment of an operational system. Accordingly, we have reached the paradoxical situation where modern transport aircraft are required to operate in trans-oceanic areas with marginal high frequency communications while at the same time space telecommunications technology exists which could be used to overcome the serious communication deficiencies. With

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DTM

- 2 -

the advent of larger transport aircraft and increases in traffic volume the need for better communications for air traffic control, operational control, and search and rescue purposes will become more crucial. This state of affairs presents a serious challenge to American leaders in the fields of international aviation and international telecommunications.

A background chronology of important events and a bibliography of pertinent documentation related to this subject are shown on pages 4, 5 and 6 of enclosure Tab A.

Current Situation:

Aeronautical satellite activities can be characterized as being fraught with much confusion, growing discord and agonizing delay and indecision. Generally, this situation stems from a lack of agreement, domestically in both industry and Government, on what should be done, who should do it, how it should be done and when it should be done. This situation is further complicated by disagreements in the international arena arising from strong industry and Government pressures and the uncertainties associated with the what, how, who and when questions.

The problems in aeronautical satellites fall in several interrelated categories. First, the users i.e., the airlines and various elements of the Government have not been able to agree on a firm set of time phased specific operational needs or requirements. There is agreement that communications services need improvement. However, agreement has not been possible with respect to the need for independent surveillance for air traffic control or the need for air navigation. The disagreement rests initially internal to the FAA between the operations people who want immediate help to improve communications. and the research and development people who want to combine communications and surveillance. The disagreement likewise extends to the civil airline industry as well as the international community. Second, there are technical and operational uncertainties over the choice of operating radio frequency (VHF or UHF L-Band or both) which have a major impact on the cost benefit trade-offs. Obviously, such choice is very sensitive to the specific operational objectives (needs). Third, there is the mounting discord over the program approach and institutional arrangements which might be adopted for implementing a program leading to operational utilization of aeronautical satellites.

- 3 -

Included in the discord are the questions of using an evolutionary or revolutionary program approach and the choice of private industry or a Government-owned system and institutional approach.

This brief summary of very complex "problems" is intended to present the situation in outline form only. A specific treatment of the situation was recently made by Philip J. Klass in an article appearing in AVIATION WEEK AND SPACE TECHNOLOGY magazine of May 18, titled, "Discord over Aerosat Increasing," copy enclosed as Tab B. I feel Mr. Klass has captured the essence of the conflicting interests and that he has presented a balanced and objective account of the current situation.

Symptomatic of the confusion, discord and indecision are the abortive efforts of the DOT/FAA and NASA to agree on what type of project NASA should offer to ESRO for a cooperative NASA/ESRO air traffic control experiment in the North Atlantic. This is borne out by the negative results of an important meeting held by senior officials of NASA and DOT/FAA on June 29. Another recent example is the conflict arising from the ATA and IATA views expressed to members of Congress and various agencies of the Government, including OTP, wherein ATA/IATA took very strong objections to the proposed NASA/ ESRO project which might conduct UHF experiments and pre-operational trials without prior U. S. and foreign airline agreement. A copy of the ATA/IATA position is enclosed as Tab C.

Current Activities:

The Interagency Group on International Aviation (IGIA) chaired by FAA, approved the National Plan for Aeronautical Telecommunications Services via Satellites on November 13, 1968. This plan has provided guidance for U. S. delegations at subsequent international meetings; however, it is out of date and needs to be amended. At the request of FAA, the Acting DTM on January 28, 1970 submitted a proposed version of a National Plan which included: (a) an evolutionary program approach -- through the use of "hybrid" VHF and UHF (L-ban d) satellites for experiments and pre-operational usage -- prior to

- 4 -

making the operational system decision; (b) a complementary NASA/ESRO experimental project; and (c) policy guidance with respect to the use of leased services when commercial facilities can be made available. The FAA has obtained comments on the National Plan from NASA and COMSAT. I understand the FAA is generating its own version of the Plan and expects to release it when the current discussions with NASA are complete and basic decisions are made on the specific operational requirements and the proposal from COMSAT on hybrid satellites.

The Administrator, FAA, Mr. Shaffer, in a letter to ARINC on December 1, 1969, suggested consideration be given to an aeronautical satellite system using a configuration combining both VHF and UHF in a single satellite. (See enclosed Tab **D**). Based on this concept, COMSAT submitted a formal proposal on May 8, 1970 to FAA and ARINC for an Aero nautical Satellite System employing dual frequency "hybrid" satellites for the Pacific Ocean area and optionally for the Atlantic Ocean area. (See enclosed Tab E) The proposal is being evaluated by FAA with technical assistance from NASA.

NASA is continuing technical discussions with representatives of ESRO on a proposed project for an air traffic control satellite experiment and pre-operational system for the North Atlantic area. These discussions are impeded by the lack of specific concurrence from the DOT/FAA as to what kind of a project should be established.

The International Civil Aviation Organization (ICAO) established a panel of technical experts pertaining to Application of Space Techniques Relating to Aviation (ASTRA) in 1968. The staff of the FAA, other Government Departments and Agencies and representatives from industry are working on the preparation of proposed background information documents and working papers for use by the U. S. Delegation to the next meeting of the ASTRA panel. This office is assisting FAA in the preparation of material for the U. S. Delegation.

- 5 -

Obviously, the preparation group is constrained in the preparation of documentation relating to "what should be done" due to the absence of firm decisions on a national program. This effort, hopefully, will be aided by the actions underway in the DOT/FAA.

The above planning actions do not constitute the extent of the current activities. NASA and other Government and Industry participants are cooperating in various test experiments using the ATS-3 satellite in the VHF band and the ATS-5 satellite in UHF L-Band.

Pending Activities:

The DOT/FAA and NASA have arranged an important Industry-Government meeting to be held on Wednesday, August 12, 1970. The subject of the meeting is "Factors affecting aeronautical satellite system choices," with a program which includes presentations by FAA/NASA and representatives from the airlines and COMSAT. The draft program is enclosed as Tab F. It is my understanding that this meeting will help the senior officials in the DOT/FAA and NASA to decide on the formulation of a basic national program for aeronautical satellites and a meaningful and complementary NASA/ESRO project in support of that national program.

The fourth meeting of the ASTRA panel will be held in Montreal on January 11 - 22, 1971. The agenda for the fourth meeting has been established and is as follows:

- 1. Definition of the essential characteristics of the system(s) based on space techniques that would make the most significant contributions to international civil aviation.
 - 1. Experimental Systems
 - 2. Pre-operational Systems
 - 3. Operational Systems

- 6 -

- 2. Development of advice to the Air Navigation Commission on relative priorities, cost/benefit considerations and possible time scales for introduction of the preferred system(s).
- 3. In the light of work accomplished under the foregoing two agenda items, revisions as necessary of the material developed by the Panel at its First, Second and Third Meetings.
- 4. Exchange of views on the problems of technical co-ordination affecting the development of space technology for international civil aviation.

Conclusion:

The outlook for aeronautical satellites is not too promising. Further delay is predictable and the probability of strong leadership from DOT/FAA is rather low. In this connection, attention is invited to a recent editorial in AVIATION WEEK concerning the FAA "a lagging bureaucracy" enclosed as Tab G.

What should the Office of Telecommunications Policy do to move this subject off "dead-center"?

- 1. The staff should continue to maintain close liaison with interested Departments and Agencies and participate, as appropriate, in activities which have national policy implications.
- 2. The new Director should acquaint Mr. Beggs, Under Secretary, Department of Transportation, with the Director's active interest in this promising field.
- 3. If no real progress is accomplished in a reasonable period (say October 31, 1970), the Director should inform Mr. Beggs of our concern for no progress.

- 7 -

Such action could focus on the need for updating the National Plan so that the U. S. Delegation, at planned international meetings, will have firm decisions relative to aeronautical satellites.

Jom Olson

W. T. Olsson

Encls.

Tab A - Summary of status of efforts of U. S. Government and others in planning for aeronautical satellites.

Tab B - Klass article in AVIATION WEEK AND SPACE TECHNOLOGY.

Tab C - ATA/IATA objections to proposed NASA/ESRO project.

Tab D - FAA letter to ARINC, December 1, 1969 re consideration be given aeronautical satellite system using configuration combining both VHF and UHF in a single satellite.

Tab E - COMSAT proposal of May 8, 1970 to FAA and ARINC.

Tab F - Draft program for Industry-Government meeting of August 12, 1970.

Tab G - Editorial from AVIATION WEEK re "a lagging bureaucracy."

Distribution: Mr. Plummer Mr. Clark Mr. Dean Mr. Hall Capt. Raish Dr. Whitehead (Hold)


(TALKING PAPER)

AERONAUTICAL TELECOMMUNICATION SERVICES

VIA SATELLITES

(THE NEED FOR NATIONAL POLICY)

OTP July 1970

OUTLINE

THE PROBLEM

BACKGROUND CHRONOLOGY/BIBLIOGRAPHY

CURRENT SITUATION

CURRENT ACTIVITIES

POLICY ISSUES

OTHER IMPORTANT CONSIDERATIONS

BASIC PROGRAM ALTERNATIVES

DTM ACTIONS

PLANNED ACTIVITIES

NEED FOR A COHERENT NATIONAL POLICY

THE PROBLEM

(Highly Oversimplified)

Although technical feasibility of aeronautical satellites has been demonstrated and current high frequency radio used in international aviation, operations are marginal and undependable --

- No firm decisions have been made by the Government
 or the airlines to begin development and deployment
 of an Aeronautical Satellite System.
- In fact, no specific operational requirements have been validated or agreed to by the Government and the International civil aviation community.
- Furthermore, confusion and discord characterize the current situation both domestically and internationally. These involve policy issues concerning institutional arrangements and other important operational, technical and economic considerations.

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6/24/70

4

BACKGROUND CHRONOLOGY

Aeronautical Telecommunications Services via Satellites

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DATE	EVENT / ACTION	REMARKS
Dec. 6, 1966	ATS-1 Launched	Experiments with VHF Transponder and Air Transports
Apr. 3, 1967	COMSAT Contract with Philco/Ford	Systems Engineering Study of Aeronautical Satellite Services
Nov. 5, 1967	ATS-3 Launched	Experiments with VHF Transponder and Air Transports
Dec. 15, 1967	Report by Philco/Ford under contract to COMSAT	Systems Engineering Study of Aeronautical Satellite Services
Spring-Summer 1968	COMSAT/ARINC discussions on a VHF Aeronautical Satellite	See ICSC 32-36 (13 May 68) See ICSC 33-24 (24 June 68)
Aug. 2, 1968	COMSAT issued Requests for Proposals to Industry	Design, development and manufacture of VHF aeronautical satellites
Sept 4, 1968	IGIA Adopted Statement of Requirements	See IGIA 77/1.29F "Statement of Requirements for Aeronautical Telecommunications Services via Satellites
Fall, 1968	ICAO established ASTRA Panel of Technical Experts	"Application of Space Techniques relating to Aviation (ASTRA)
Nov. 1968	First Meeting ASTRA Panel	See U. S. Delegation Report
Nov. 13, 1968	IGIA Adopted National Plan	See IGIA 77/1. 21C "National Plan for Aeronautical Telecommunications Services via Satellites

DATE EVENT/ACTION REMARKS Jan. 1969 COMSAT Proposal to ARINC on See ICSC 38-108 (Temp) (15 Apr 69) for VHF Aerosat technical details

Spring-ARINC & FAA Discussions on VHF Summer 1969 Aerosat Aug. 12, 1969 ATS-5 Launched

Summer/Fall NASA/ESRO Discussions on Experimental/ 1969 Pre-operational Aeronautical-Cooperative Projects

Oct., 1969 2nd ASTRA Panel Meeting

Nov. 4, 1969 ARINC Proposal to FAA on VHF Aerosat

Dec. 1, 1969 FAA Administrator Response to ARINC

Jan. - Feb. 1970 Coordination Meeting NASA/ESRO Cooperative Project

Jan. 28, 1970 OTM Policy Guidance to FAA

Feb. -Mar. 1970 Third ASTRA Panel Meeting

May 1970

May 1970

Coordination Meeting NASA/ESRO COMSAT Hybrid Sat Proposal to FAA & ARINC

Jun 1970 NASA - DOT FAA Meeting

Spin Mode-not 3-axis stabilized UHF (L-Band) Transmitter UHF Air Traffic Control Satellite System for the North Atlantic (See NASA trip report 19 Dec 69)

See U. S. Delegation Report

Cost sharing approach in the Pacific

Requested look at use of both VHF and UHF

See revision #8 - "Study of the Requirements for an Experimental and Pre=operational Aeronautical Satellite System for the North Atlantic. "

Updating National Plan of Nov. 13, 1968

See U. S. Position Paper IGIA 95/1.13 and FAA Memo Feb. 11, 1970 and U. S. Delegation Report

ESRO Projected Hybrid Experiment

See Proposal Document

Minutes not available yet (No decisions, however)

BIBLIOGRA PHY

6

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December 15, 1967	Philco Ford Report (6 volumes) "Systems Engineering Study of Aeronautical Satellite Services"
November 13, 1968	IGIA 77/1.31C National Plan for Aeronautical Telecommunications Services via Satellites
January 16, 1969	COMSAT Proposal for VHF Satellite System to ARINC. See ICSC 38-108 (Temp) April 15, 1969
December 1, 1969	Administrator FAA Ltr to ARINC Requested Consideration of a dual-frequency satellite.
May 8, 1970	COMSAT Proposal to FAA , and ARINC for a Hybrid Satellite System
January 28, 1970	Acting DTM Letter to FAA "Aeronautical Telecommunications Services via Satellites"

CURRENT SITUATION

-- CONFUSION, DISCORD & INDECISION --

- LACK OF AGREED-TO SPECIFIC OPERATIONAL REQUIREMENTS, INCLUDING TIME-PHASING
- INTERNATIONAL COMMUNITY DEBATE RE AERONAUTICAL SATELLITES
 - OPERATIONAL REQUIREMENTS
 - PROGRAM APPROACH AND CHOICE OF FREQUENCY
- STRONG EUROPEAN INDUSTRY PRESSURE TO COMPETE
 - SPACE PROGRAM
 - AVIONICS INDUSTRY
- STRONG U. S. AEROSPACE INDUSTRY PRESSURE TO BUILD MANY SATELLITES
- STRONG U. S. AVIONICS INDUSTRY PRESSURE TO RETAIN WORLD LEADERSHIP
- COMSATT HYBRID PROPOSAL TO FAA & ARINC TO BUILD A COMMERCIAL SYSTEM
- NASA/ESRO EXPERIMENT IMPLICATIONS
- STRONG ATA-IATA OPPOSITION TO COSTLY MODIFICATIONS DURING CURRENT FISCAL CLIMATE

3

Current Activities

Navigation, Ai	r Traffic	Control	and	Aeronautical	Satellites	in	the	Executive	Branch
8						-			

- NASC -- Navigation system(s) Policy
- OST -- PSAC Panel on Air Traffic Control
- OTM -- Policy advice to Department of State and policy guidance to DOT/FAA on
 - Preparation for Space World Administrative Radio Conference 1971
 - Advice to Department of State on Aeronautical Satellites via INTELSAT Consortium and U. S. position at ASTRA Panel meetings.
- DOT/FAA -- Considering COMSAT Proposal for Hybrid Aerosat System to FAA and ARINC
 - -- Preparation for ASTRA Panel Meetings
 - -- Liaison with NASA on NASA/ESRO Project
 - -- Updating National Plan for Aeronautical Telecommunications Services via Satellites.
 - <u>NASA</u> -- Planning and coordination for NASA/ESRO Cooperative Project on Air Traffic Control (UHF L-Band)
 - FY-71 \$3.0 M Studies? FY-72 Start (?)
 - DOD -- DDR&E -- NAVSAT Project Office -- DCP NAV Systems
 - -- Navy -- TIMATION (updated TRANSIT)
 - -- U. S. Air Force -- Integrated Communications, Navigation & Identification (I, CNI)
 - -- OJCS -- Studies and Plans

Policy Issues Relative to Aeronautical Telecommunication Services via Satellites

9

DOMESTIC

...

What are the roles of the various Government departments and agencies in aeronautical satellites?

Should the Aeronautical Satellite System be a Government-owned system or a commercial enterprise, or a mix?

What role should the airlines, ARINC and COMSAT play in an Aeronautical Satellite System?

What role for the Aerospace and Avionics Industries?

INTERNATIONAL

What role, if any, should INTELSAT play in providing the space segment of any commercial Aeronautical Satellite System?

Should the U.S. promote a NASA/ESRO cooperative project at "L" Band only? If so, would a NASA/ESRO Project "Lock" U.S. airlines out of "VHF"?

What are the implications of the pressure from European Aerospace and Avionics Industries and Governments to avoid any VHF participation?

What impact, if any, does the absence of a firm U. S. program have on the United States position for the 1971 Space World Administrative Radio Conference?

ECONOMIC

What are the Balance of Payments implications?

Other Important Considerations

Concerning

Aeronautical Telecommunication Services via Satellites

Operational

What are the valid near-term and long-term requirements (accuracy, numbers of channels, data rates and quality of service) for the services of communications, both voice and data, air traffic control, independent surveillance and navigation in the oceanic basins?

How do these requirements for the international route structure compare with domestic needs?

What are the priority requirements for the near-term?

Do the U. S. airlines agree with these needs?

Do the international foreign airlines agree? Is a Regional System an operationally feasible alternative? Technical

What are the technical uncertainties?

Should the same system provide the full range of telecommunications services including surveillance capability?

Does a navigation capability fit in the Aeronautical Satellite System?

What frequency band(s) should be used to meet the operational requirements (VHF or UHF L-Band)?

If UHF, what are implications to aircraft operators?

Economic

What are the cost/benefit uncertainties in the choice of frequency, band, particularly with respect to cost of UHF (L-Band) Aircraft Antennas and Equipment?

BASIC PROGRAM ALTERNATIVES

11

PROGRAM APPROACH

	OPTION	Operational System Decision Point	Pro	Con
I. U. S. Na separate Experim Pre-Op	U. S. National Plan separate VHF-UHF Experiments	Mid-1970's	Retains options	- International (ICAO)
	Pre-Operational		Logical evolutionary approach	Opposition possible
	or			
Π.	Hybrid Satellite Both VHF & UHF (L-Band)	Mid-1970's	Retain options	ESRO opposition
	(Adaptive operating Modes)		Logical evolutionary approach	U. S. airlines
	or		Most flexible approach	UHF element
III.	"L" Band only	1970/71	NASA/ESRO Support	Closes options
				Strong U. S. Airline opposition

INSTITUTIONAL OPTION

I. Government-owned facilities

II. Commercial provided services

or

OTM ACTIONS

Policy Guidance to FAA

-- Updated the November 1968 National Plan

Policy Guidelines - Institutional Arrangements - Program Approach

(see Acting DTM letter to FAA dated January 28, 1970 "Aeronautical Telecommunications Services via Satellites")

U. S. Position for ASTRA III Panel Meeting to IGIA

-- Proposed changes to draft U. S. position

(see Acting DTM comments to FAA (IGIA) dated January 30, 1970 "Third Meeting of the ASTRA Panel")

U. S. Position for 1971 Space WARC to Department of State

-- Incorporates frequency requirements for aeronautical satellites

(see Preliminary Views documentation)

Planned Activities

DOT/FAA - NASA

-- Industry/Government meeting on factors August 12, 1970 affecting Aeronautical Satellite System choices

ICAO ASTRA Panel Meeting No. 4

- -- Preparation of background information Due October 15, 1970 and working papers
 - -- Develop U. S. 'Position

-- Delegation to Montreal

Due

January 11 - 22, 1971

13

ACTIONS REQUIRED TO FORMULATE A COHERENT NATIONAL POLICY

• Determine Time Phased Specific Operational Requirements

-- Communications - Voice

- Data

-- Independent Surveillance (?)

-- Navigation (?)

- Update the National Plan and develop an orderly program to meet long range objectives of the Plan
- Effect coordination and obtain support of Departments/Agencies and Airlines
- Promulgate an Executive Branch National Policy Statement

-- Assigning roles and missions

- -- Providing program guidelines, including resource allocation
- -- Assuring international coordination

DDT/FAA Airlines Coordination with DOD

DOT/FAA

Executive Office of the President DTP lead. Coordination: Departments and Agencies and FCC





Focal point of dispute on proposed aeronautical satellite is whether to use VHF or accept delay to gain L-band advantages

By Philip J. Klass

Washington-Controversy is growing over a U.S. proposal to orbit a satellite to provide air-ground communications service over the Pacific, despite wide agreement that satellites can provide valuable service for transoceanic operations.

On the surface, the issues appear to be purely technical, with one involving timing: But some protagonists on both sides charge that these technical issues are largely a smokescreen which masks deeper, self-serving motives.

One seemingly key issue is the matter of the frequency band in which aeronautical satellites should operate. The VHF band, now used for short-range airground communications is one contender, while the other is L-band (approximately 1.5 gc.), a new frequency for aeronautical communications. It is sometimes referred to as UHF since it falls within the 300-3,000 mc. part of the spectrum.

Ironically, all parties agree that Lband will come into use ultimately, because it can provide greater accuracy for such functions as air surveillance and navigation and has more available spectrum. Most of the protagonists agree that VHF could be deployed sooner because the necessary equipment and technology are now available. The VHF supporters claim it can provide operational type service 3-5 years sooner, while L-band proponents claim the edge is no more than 1-2 years.

Opponents of a VHF aeronautical satellite charge that airline efforts to deploy one in the Pacific for trial evaluation, on what is called a "pre-operational status," is largely a ruse to get VHF's foot in the door to delay development of an L-band system.

Supporters of a VHF satellite argue that this is the only way to get an early operational capability by 1973-74, which they say will by then be needed badly. L-band, they argue, cannot be available until at least several years later. All parties recognize that if VHF is delayed for a couple years, this important advantage will disappear.

The controversy has produced alliances which cut across international boundaries, although representatives from major West European countries generally are unified in their opposition to a VHF acro-sat.

In the U.S., the battle lines are confused. For example, some, but not all, of the international carriers are pushing for an early VHF satellite capability. They are generally supported by the operational people within the Federal Aviation Administration. But at least one important member of the FAA's technical staff opposes a VHF aero-sat. At higher levels within the National Aeronautics and Space Administration, there is strong support for an L-band satellite, while at lower technical levels there are mixed views, although L-band support is stronger. The European Space Research Organization (ESRO) also is a strong proponent of L-band.

Waning public interest in space has prompted NASA to increase its efforts to find terrestrial applications for space technology. Observers note that a VHF aero-sat would be a Comsat Corp. project in which NASA's role would be limited to launching the spacecraft. An L-band system would involve NASA more deeply because of experiments and new technology which must still be developed.

ESRO finds itself in a similar situation in terms of obtaining funds from its member states (Aw&st Mar. 9, p. 89; Apr. 20, p. 11). Additionally, ESRO must avoid projects which merely seem to duplicate prior U.S. programs, such as meteorological, communications and earth resources satellites. The field of aeronautical satellites is one where ESRO sees an opportunity to do pioneering work.

One West European observer, who strongly opposes VHF, points out that the North Atlantic has a more pressing need for an aero-sat than the Pacific. Since the North Atlantic traffic is divided roughly 50/50 between U.S. and foreign carriers, he believes that the total cost of an aero-sat system over the Nor h Atlantic should be shared in roughly the same ratio.

On this basis, European companies would expect to get roughly half of the total system fabrication work. Since only the U.S. is likely to have the proved launcher capability needed to place moderately heavy aero-sats in synchro-



Elliott Air Data Computer Ordered for Jaguar

Elliott Flight Automation modular air data computer has been ordered for the Royal Air Force Jaguar by the British Technology Ministry. Unit at right is a pressure transducer removed from the computer, itself an adaptation of the Elliott unit for the Lockheed C-5A program. Computer forms a single central source of corrected signals of height, indicated air speed, true airspeed, Mach number and outputs for other flight instruments, including head-up display, navigation and weapon aiming.



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nous orbit, this presumably would be its assigned share of work in an L-band system for the North Atlantic. West European avionics and airframe companies would be given the assignment of developing and building most if not all of the L-band satellite and its avionics.

If the U.S. were to proceed with a VHF aero-sat, the entire job would probably be done by American companies. Furthermore, U.S. avionics companies, three of which already offer the high-power amplifier and low-noise VHF transceivers needed for satellite operation, would dominate the aircraft avionics market. If, however, the initial system is L-band and West European companies develop the satellite, they might achieve an earlier capability in the associated aircraft avionics equipment.

NASA and ESRO representatives have held several conferences in an effort to work out the technical details of a joint program for an L-band system. But any final agreement will require formal discussions between the U.S. State Dept. and its West European counterparts. This, plus the difficult task of parceling out design tasks to each of the many countries involved, is likely to delay L-band system implementation beyond some current estimates, VHF supporters argue.

The controversy came to a boil last fall when Comsat offered to place a spacecraft, called Aerosat, in orbit over the Pacific to provide four VHF airground communications channels (AW& sr Oct. 20, p. 199). Comsat's action was in response to earlier expressions of interest by several U.S. international carriers and recent interest by the FAA.

Under the proposed arrangement, the FAA and the airlines would each lease one channel on an exclusive basis and share a third. The fourth VHF channel would be available for rental to other international carriers and foreign aviation agencies operating in the Pacific. No capital investment would be required of any of the users.

The proposed trial evaluation in the Pacific was termed a "pre-operational" satellite, because it was expected to provide some useful operational capability. (This terminology would enable the FAA to charge its rental fees against its large projected operational funding rather than against a much smaller research and development budget and would justify airline investment in the required aircraft avionics.)

But when the Aerosat proposal was presented to the International Civil Aviation Organization's Astra Panel, which had been created late in 1968 to evaluate the use of space technology for aviation, the group declined to endorse the idea.

ICAO had been cool to the idea of a VHF aeronautical satellite since it was first suggested by U.S. airlines in more general terms in 1966. Three years ago the opposition had come principally from France, whose scientists were then working on the concept of an L-band system capable of providing communications, navigation and air surveillance functions. The French concept, called Dioscures, has since emerged from the conceptual phase and is now in the first stage of development and experimentation. (While West Europeans generally favor L-band, many are not overly enthusiastic about the French signal format/modulation technique.)

In the fall of 1969, when the formal Acrosat proposal was presented, there was more widespread opposition from West European representatives. They privately expressed concern that the proposed Acrosat was a foot-in-the-door attempt by the U.S. to implement VHF satellites and to delay an L-band system.

The report issued by the Astra Panel following its second meeting in Montreal last fall (known as Astra-2), cautioned the U.S. against attempting to proceed with a VHF satellite in the hope of trying later to ease it into a fully operational status.

The Astra-2 report said that "any preoperational system that does not include parallel (side-by-side) VHF and UHF (L-band) experiments should not in itself warrant further expansion to an operational system in either frequency band." In other words, any pre-opera-



 ought to carry both VHF and L-band receiver-transmitters to prevent a VHF "monopoly" from snow-balling support for a full operational VHF system.

Supporters of the VHF Aerosat conceded that the Astra panel move was a elever one. If Comsat tried to add an L-band transponder, this would cut the number of VHF channels down to two, making per-channel rental charges too high and reducing the ability of the satellite to provide useful air traffic control services.

At the end of the Astra-2 meeting, another conference was scheduled for Paris in late February, 1970. There would be two working groups, one of which would identify specific experiments needed to be conducted before it would be possible to define firm characteristics for an aeronautical satellite system. A second working group would attempt to correlate air traffic control operational requirements and cost-benefit considerations.

Judging from the Astra-2 final report, there were no plans to reconsider a VHF aero-sat since, presumably, it had been struck down by the provision that it ought to carry both VHF and L-band equipment.

When the Astra-3 panel convened in Paris several months ago, West European representatives came armed with a variety of data which appeared to show that VHF was more vulnerable to periodic atmospheric conditions than its proponents realized. Furthermore, data was offered to show that UHF was decidedly superior for the communications service, aside from its acknowledged superior accuracy in air surveillance.

If West European L-band proponents had been doing their "homework" in the months since the Astra-2 meeting, Comsat had not been idle. A new Thorad-Delta launch vehicle, with up to nine strap-on solid rockets, is being developed which will increase the synchronous orbit payload capability of the Delta booster from approximately 300 lb. to at least 500 lb. This would make it possible to add an L-band transponder to Aerosat and provide the dual-band channels that Astra-2 had specified.

. A tentative proposal for this hybrid Aerosat was presented in Paris, with data showing how the available power could be traded off between VHF and L-band. One possibility, for example, would provide three VHF channels and one at L-band; perhaps even more L-band channels, depending upon the gain that can be achieved in the aircraft antenna. At present, L-band transmitters are less efficient than VHF, and more power is required for L-band voice under normal conditions.

The Air Transport Assn., speaking for the airlines, had endorsed the hybrid concept, providing ESRO and NASA - Iller Cantiller

Naval Air Development Center plans to evaluate a variety of avionics equipment for possible use in a reconnaissance version of the Grumman F-14 and is seeking loan of candidate hardware on a no-cost basis. Equipment includes infrared sensors, low-light-level television, passive electronic countermeasures sensors, inertial navigation system, airborne computer, high-aititude radar altimeter, Doppler navigator, moving map display, radar-TV display equipment and side-looking radar sensors and viewfinders. Interested companies should notify NADC immediately.

An L-band "mini-jammer" for tactical aircraft, which employs pseudorandom modulation, will be developed for Naval Air Development Center by AIL Div. of Cutler-Hammer.

Possibility of using the Reeves TSQ-96 ground-based radar, now deployed in Cambodia, for directing radio-controlled "smart bombs" is being reviewed by the Air Force. The concept calls for outfitting a glide bomb with a receiver for external guidance after release from strike aircraft until it passes beyond ground-radar line of sight or to relay ground-computed guidance signals through the aircraft's X-band transponder for redirecting the weapon to a target with airborne forward looking radar.

Army is narrowing its selection of potential contractors for development of the long-range position determining system (LRPDS), a technique for locating an unknown, cooperative radiating site by using the location of three known base stations arranged in a triangle and an aircraft to extend line of sight. The aircraft's position is found as it flies a reference line over the triangle. The position of forward, unknown points can be computed by a ground-based computer control from ranges between the aircraft and various stations determined by transponder signal delays. Competitors include Bunker Ramo, Bell Aerosystems, Teledyne Systems and Motorola.

Selection of a contractor to develop prototypes of the Anny's TSQ-73 air defense system is expected shortly in an Army competition among Epsco, Hughes Aircraft, Litton, Raytheon and Univac Div. of Sperry Rand.

Martin Marietta will develop the laser illuminators for the gated night vision sight which Electro-Optical Systems Div. of Xerox is building for the Army's TOW battlefield missile (AW&ST Apr. 20, p. 59).

Federal Aviation Administration is shooting a film designed to familiarize air traffic controllers with the operational capabilities of area navigationequipped transport aircraft. Both American Airlines, with two Butlerequipped Boeing 727s, and Eastern Airlines, with a Decca-equipped Mc-Donnell Douglas DC-9, are cooperating. Users, meanwhile, are negotiating suitable area navigation routes and special holding patterns in the New York area's new Metroplex traffic plan, which is now slated to go into effect June 25.

Avco is trying to interest the Army Missile Command in a pedestalmounted infrared warning device to provide surveillance of low-flying airborne targets. The indium antimonide infrared set would be able to observe potentially hostile threats throughout a 360-deg, field of view.

Although Federal Aviation Administration currently is short of funds to sponsor research in air traffic control, National Aeronautics and Space Administration centers, seeking projects with relevance to terrestrial problems, are able to find funds for such activities. For example, NASA's Langley Research Center plans to award a contract for study of "human factors aspects of air traffic control by measurement of operator load in an information processing task" to Biotechnology, Inc., of Falls Church, Va. would underwrite half of the cost of the satellite, with the other half being funded by the FAA and the airlines.

But the Astra-3 technical working group found the new dual-band satellite not to its liking, even though it appeared to meet the requirements the group had listed only a few months earlier.

One objection arose from semantics. The VHF portion was termed for "preoperational" tests while the L-band portion was referred to as "experimental." This, the Astra-3 group concluded, tended to favor VHF. But from the FAA viewpoint, to call both experimental would make it impossible to pay rental charges out of the agency's much larger operating budget.

A more worrisome factor was that many more airliners were likely to be equipped with existing VHF equipment than with experimental L-band hardware. This, the Astra-3 report concluded, would make it "difficult subsequently, in some circumstances, to select the preferred frequency band for the operational phase." In other words, the Astra panel feared that VHF would become too firmly established by virtue of a sizable airline investment in airborne equipment.

The data which West European representatives brought to the Astra-3 meeting indicated that atmospheric conditions could adversely affect VHF much more seriously than L-band, requiring that more satellite power be reserved to overcome these conditions when they occur. These included Polar cap absorption, which becomes a potential problem above 55 deg. geomagnetic latitude, and ionospheric scintillation. The data were based on extrapolations of measurements made at lower frequencies.

The objectivity of the Astra panel technical working group and the data presented almost entirely by West European representatives is as controversial as the issue of VHP vs. L-band. In theory, Astra panel members serve as unbiased technical consultants and are not supposed to try to further any political goals of their individual countries.

One West European member of the Astra panel told AVIATION WEEK & SPACE TECHNOLOGY that "all Astra panel members contributed with complete objectivity . . . because each of them was highly interested in the overall result. This basic study was badly needed," the member said, "since it was sometimes said that 'obviously VHF would be cheaper and quicker to implement as far as voice and data communications are concerned.' It is now demonstrated, with no doubt left, that even for communications-only, L-band is largelysuperior to VHF."

The Astra panel member said the "results of Astra-3 will, no doubt, have a huge impact on the decisions to be mad in the near future, those decisions hav ing no longer any reason to be based of emotional or subjective or politic grounds since clear and objective finings... are now available." He addo that "as far as the European countris are concerned, there is a complete coasensus on L-band, and the work ervisaged within ESRO is very promising

A U.S. observer at the Paris meetin who favors L-band, said he believed the there "was a reasonably objective is terchange on the technical problem that are encountered at VHF and 1 band."

But another West European observe who attended the Paris meeting said, ' am not at all happy about how thing went. An ICAO panel is supposed to consist of independent experts, not of ligated by national policies, who can work together freely. It didn't work the way. Practically all of the states we guilty and this doesn't lead to good technical progress."

A NASA scientist, experienced is both VHF and L-band communication who subsequently studied the Astrareport, found numerous flaws in som of the data and conclusions reached Nearly all of these discrepancies, I noted, tend to favor L-band. He epressed the hope "that both L-band ar VHF satellite systems of a pre-oper-

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	It could be that Black, the 2nd mover in chess, will always win, assuming best play by both opponents. No existing computer can refute the hypothesis. In "Computer Chess" each player al- ternately makes <i>two</i> successive moves with 2 restrictions: 1) "check" can be made only on the second of two moves; 2) response to a check must be made on the first of two moves. Is it possible that White cannot ensure a win or a draw under optimal play? — Contributed by David Silverman
If you would like a taste of what we can do for yousend us your. specs and we'll serve up the complete story with samples and prices. B Rolled threads on 40-45 Rc "C" material MS studs to controlled root radii MHeat-treated bar stockno de arb	 The LTN-51 Inertial Navigation System from our Aero Products division can readily be optimized for Area Navigation rendering the system suitable for use in any environment. It's been thoroughly tested around the world and over its major oceans. The system's accuracy, well within the FAA AC 25-4 limits, can be tightened to satisfy FAA Advisory Circular 90-45 by updating inertially-computed position with DME/DME or DME/VOR inputs. The job's complete with the addition of a Card Reader Unit for automatic data insertion and an accessory unit for coupling VHF receivers plus a software change. Optional additions: digital air data, a map display, and data link. More on the LTN-51 can be known by writing to 6700 Eton Ave., Canoga Park, Calif. 91303.
PRECISION PIECE PARTS, INC. since 1942	ANSWER TO LAST WEEK'S PROBLEM: The marks are spaced at intervals of 1, 3, 2, 7, 8 and 10 inches respectively.

so that we can have facts rather than opinions to discuss."

The Astra-3 meeting made plans for a fourth conference to be held during the last four months of this year in Montreal. Observers report that some West Europeans are pushing for early September in an effort to hurry a final recommendation for ICAO's Air Navigation Commission, an ICAO policymaking group. Supporters of VHF are seeking to delay the Astra-4 meeting until late in the year to provide time to obtain data to refute some of the arguments against VHF performance.

Meanwhile, Comsat is refining its earlier tentative design for a hybrid dualband aero-sat, and it is expected to make a formal proposal to the FAA and the airlines within a matter of several weeks.

The ATA, in a letter dated Feb. 2 to the FAA, which endorsed the Comsatproposed hybrid satellite, added, "If at any time it becomes apparent that the hybrid proposal will be unsuccessful for other reasons, the airlines would like assurance from the FAA that we would jointly revert to the VHF-only proposal." It is understood that FAA officials have given such assurances orally.

Oscar Bakke, FAA associate administrator for plans, who has been a strong supporter for an early satellite service, indicated that the agency still favors such a program in his remarks on Apr. 14 at the FAA's Planning Review Conference. Bakke said the FAA is "pursuing with somewhat greater than normal enthusiasm the feasibility of exploiting our VHF technology soon." He added that "we intend to do this, however, without any compromise of our longerterm investigation of L-band applications."

ATA's Frank White, a strong proponent of a VHF satellite, speaking at the same conference, sought to allay the fears of VHF opponents. "The U.S. carriers," White emphasized "do not oppose the development of L-band as



Laser Makes Microcircuitry Mask Pattern

Laser is used to make photographic master for producing microcircuitry masks in machine developed by Bell Telephone Laboratories. It can prepare complex mask pattern in only 12 min., compared with 12 hr. required by conventional methods. The machine, called a primary pattern generator, employs an argon laser, with modulators and lenses to control beam intensity and a 10-sided mirror spinning on air bearings to produce laser beam scanning and expose photographic plate mounted on a moving platform. Typical photo master mask is shown in foreground.

merit, but we have not been disposed to wait out its development." Referring to the hybrid satellite proposal's cool reception by the Astra-3 panel, White said "some countries seem to see in the hybrid satellite proposal, and its strong support by the U.S. flag airlines, a steam roller that will crush L-band." He added, "The hybrid proposal provides both VHF and L-band, let the best of the two systems come out on top."

The U.S. flag carriers, White said, support the "orderly development" of L-band but are "quite convinced, based on what we think is fair evidence, that VHF satellite operational capability of good quality can be provided at least three to five years before L-band. The airlines are prepared to pay their fair share for a VHF-only satellite, and recently went on record as being willing to support a hybrid."

Ironically, the Astra-3 conference did not object to having NASA add a VHF repeater to the ATS-F satellite, which already is planned to carry an L-band repeater. The ATS-F is not scheduled for launch until 1973 and its channel capacity would be too limited for operational use. Also, the satellite is expected to spend some of its time over the Indian Ocean.

If the FAA and U.S. airlines should decide to proceed with deployment of a satellite over the Pacific, they could do so even if a later Astra panel strongly recommends against such action, and it this recommendation were adopted by the parent Air Navigation Commission and even by ICAO itself. The reason is that even ICAO's highest-powered Standards in an Annex, are not bindingin the sense of a treaty, one member states. The U.S. could file what is called a "difference," which it has done on other occasions, to notify other states of its plans to proceed.

But such action would certainly "ruffle some international feathers," according to one observer.

ATA's White recalled an earlier time when the U.S. flag carriers found it difficult to wait out the problems of international coordination. This was when the U.S. carriers sought to replace Morse code with radio-telephone for air-ground communications to eliminate the need for carrying an airborne radio operator.

White said there were many objections then and that only within the past decade did one country finally agree to eliminate the requirement for a radio operator. For many years, White said, airlines operating into that country had been forced by law to carry a radio telegrapher on board who merely rode in the cabin with no duties to perform.

"He had no job, yet the law required him to be aboard the aircraft," White noted.



AIR TRANSPORT ASSOCIATION

of America

1000 CONNECTICUT AVENUE, N.W. . WASHINGTON, D.C. 20036 . TELEPHONE 296-5800

June 16, 1970

Mr. William E. Plummer Acting Director Office of Telecommunications Management Executive Office of the President Washington, D. C. 20504

Dear Mr. Plummer:

The attached joint statement of views of the Air Transport Association of America and the International Air Transport Association on satellite system planning, is forwarded for your information and such action as you may deem appropriate. These two associations represent over 95% of the scheduled air transport services throughout the world.

The airlines support the view you expressed to IGIA on 26 January 1970 wherein the U. S. should support a commercial effort to provide aeronautical satellite service similar to that currently being offered by COMSAT to FAA and ARINC. Such a hybrid (UHF/VHF) satellite system deserves the support of the U. S. Government rather than the NASA/ESRO satellite program (UHF only) which would virtually commit the United States to support a satellite system whose cost is expected to reach at least \$150 million.

The step-by-step program, already outlined by NASA and ESRO, if supported with the \$3 million requested by NASA for FY 71 can only result in a satellite system that the airline users neither desire nor are willing to support.

We have advised Senator Pastore, Chairman, Subcommittee on Independent Offices, of the Committee on Appropriations, U. S. Senate, of our concern in this matter.

Sincerely,

I. Am F

Vice President - Operations & Engineering

Attachment: Joint ATA/IATA Statement

JOINT STATEMENT

by

AIR TRANSPORT ASSOCIATION and INTERNATIONAL AIR TRANSPORT ASSOCIATION

Subject: Satellite System Planning for the North Atlantic Region

- 1. Air navigation facilities and services required for North Atlantic operations are planned by the North Atlantic Region Air Navigation (NAT/RAN) Meetings of the International Civil Aviation Organization (ICAO). The fifth ICAO NAT RAN meeting, convened in Montreal in April 1970, drew up a statement of essential requirements for long term systems plan up to 1979, and developed a related list of elements to be taken into account in such a planning. Predicted growths in both subsonic and supersonic operations across the Atlantic were considered, and various measures aiming at improved utilization of airspace and increased system capacity were earmarked for both short term and longer time scale investigations. Significantly, this gathering of provider and user states of NAT route facilities and service and of aircraft operating agencies, placed main emphasis on measures other than space techniques through which the presently applied separation criteria should be reduced such as composite separation, improved aircraft navigation accuracy, reduction of vertical separation in the upper airspace, airborne separation monitors, automatic airground reporting of in-flight determined position data, etc. It was recognized that the need for communications application (both voice and data) of satellite relay techniques might emerge sometime after 1975. However, ATC surveillance through multi-satellite ranging techniques was classified only as being "worthy of investigation on a long-term planning basis," but as "one for which as yet no firm conclusions can be drawn."
- 2. The International Air Transport Association and the Air Transport Association of America, Member Airlines of which operate more than 95% of scheduled air transport services throughout the world, consider that several significant points of conflict exist between the above summarized conclusions of the ICAO-5th NAT RAN Meeting, and the NASA/ESRO satellite system planning for the NAT Region. The latter gives grounds for concern for the following reasons:
 - a) Without any prior trials of air-ground communications through satellite using the UHF band (1540-1660 MHz),

a full system with capabilities of both communications and ATC surveillance through multi-satellite ranging is planned for launch in 1974 to the exclusion, certainly on the ESRO side, of any further consideration of the VHF aeromobile band (118-136 MHz). The only available experimentation involving aircraft has taken place, however, in the VHF band, in which a commercial agency, with a large amount of experience in the satellite technology, guarantees a workable system. Airline trials in the VHF band lead them to believe that this is a valid claim.

- b) The projected NASA/ESRO system for the NAT Region, with estimated costs of some \$120 - 150 millions, derived its operational justification from a mission specification developed by ESRO Working Group "Air Traffic Control." This group has no direct responsibility for the provision of air traffic control in the NAT Region, and there has been no adequate consultation with the airlines.
- c) In the airlines' opinion, the assumptions made in the UHF band system planning about the performance characteristics, workability and maintainability in service of the airborne antenna in particular are not realistic, and it is considered that the assumed high degree of system reliability will not be achieved in the real life situation.
- d) The Frequency Allocation Table in the ITU Radio Regulations (1968 edition) indicates that the UHF band 1540-1660 MHz is also allocated to the fixed service in the F. R. of Germany, Austria, Indonesia, Albania, Bulgaria, Hungary, Poland, Romania, Czechoslovakia and the USSR. Though the band is also allocated for the use and development of systems using space communications techniques, such use and development is subject to agreement and coordination between administrations concerned and those having services operating in accordance with the table, which may be affected. The suitability of this band from an interference viewpoint therefore requires confirmation by a less ambitious experiment, such as ATS-F.

e) No attention has been paid so far to operational application planning of the manner in which the proposed NASA/ESRO system, even in its pre-operational stage, would be phased into the present NAT ATC f) There has been no demonstrated operational requirement for satellite surveillance through multisatellite ranging techniques.

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- 3. For the reasons given, ATA and IATA respectfully urge that in the absence of any sense of urgency as evidenced by the conclusions of the 5th NAT RAN meeting, a safer evolutionary approach be followed, namely:
 - a) Further limited experimentation and pre-operational trials using a hybrid satellite with both VHF and UHF capabilities, which would make it possible to determine the optimum frequency band for satellite communications by comparative tests over the same propagation path.
 - b) For the foreseeable future, exploitation of only the communications potential of the satellite technology.
- 4. In conclusion, both IATA and ATA consider that economic cost/benefits assumed to justify the cost of the NASA/ESRO proposed NAT satellite system are highly questionable and not based on realistic operational or economic assumptions. The NASA/ESRO proposed system for the NAT Region is not responsive to valid internationally agreed operational requirements, but reflects the intent to apply satellite technology regardless of the need or costs. In view of these facts the airline industry cannot support the NASA/ESRO program and hereby disassociates itself from future financial participation either through user charges or through the carriage of airborne equipment at airline expense.



DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

WASHINGTON, D.C. 20590



OFFICE OF THE ADMINISTRATOR

1 OEC 1969

General J. Francis Taylor, Jr. President Aeronautical Radio, Inc. Annapolis, Maryland 21401

Dear General Taylor:

As you will recall, we discussed the desirability of a dual-frequency satellite and the possibility of such a capability being included in the ARINC/COMSAT effort. Exploring such a possibility could enhance the overall acceptability of the ARINC/COMSAT proposal for a number of reasons.

First, there could be economies resulting from a joint effort which could utilize the total payload capability of the launch vehicle. Secondly, the United States has indicated to the international aviation community that UHF aeronautical satellite experimentation and evaluation will be conducted. Further to this point, the recent ASTRA Panel stated that if prior comparative evaluations of the performance of VHF and UHF in aeronautical space applications have not been made, any pre-operational system that does not include parallel VHF and UHF experiments should not in itself warrant further expansion to an operational system in either frequency band. A joint VHF/UHF effort should be able to establish the inherent strengths and weaknesses of each frequency band, thus enabling decisions to be made on system characteristics for a fully operational system.

In light of the foregoing, it may be premature for your office to proceed with service arrangements with the principal airlines as you indicated in your proposal of 4 November 1969.

I would appreciate an expression of your interest as soon as possible on exploratory talks on a joint VHF/UHF effort, so that we can proceed accordingly.

Sincerely,

Administrator



COMMUNICATIONS SATELLITE CORPORATION

JOSEPH V. CHARYR Headont

4

May 8, 1970

The Honorable J. H. Shaffer Administrator Federal Aviation Administration 800 Independence Avenue, S. W. Washington, D. C. 20590

Dear Mr. Shaffer:

NESAT

The Communications Satellite Corporation (Comsat) is pleased to submit herewith to the Federal Aviation Administration (FAA) and to Aeronautical Radio, Incorporated (ARINC), its proposal for providing aeronautical mobile communications services via dual-frequency ("hybrid") satellites in the Pacific and Atlantic Ocean areas. As outlined in the proposal, separate contracts are proposed with each organization: with ARINC, for communications services in the VHF band (118-136 MHz), for use by ARINC and FAA air traffic control operations; and with FAA, for communications services in the UHF band (1540-1660 MHz), for use by FAA and National Aeronautics and Space Administration (NASA) Research and Development activities.

This proposal supersedes the Comsat proposal to ARINC dated January 16, 1969, which should be regarded as obsolete.

The proposal is submitted on the basis of what appears to involve the simplest organizational arrangements, although Comsat is willing to consider other arrangements if desired. Since the possible participation of NASA was suggested by the FAA, we have left the discussion of this possibility and associated arrangements to the FAA. As outlined in this proposal, Comsat is prepared to undertake provision of these services by means of satellites and earth station equipment funded, procured and operated by Comsat, under terms wherein users will pay for the services on a monthly fixed-charge basis over the five-year service period, beginning when the services become available.

2. -

It is anticipated that the services could commence in approximately 21-24 months from the date of definitive Comsat contract(s) with the selected equipment contractor(s).

Comsat is prepared to initiate competitive selection of equipment upon commitment of users to purchase the services when available. Firm fixed-charge contracts between the users and Comsat will be executed after Comsat has selected its equipment contractors.

For the present, Comsat recommends the two-ocean program (Option #1) which meets presently known needs, provides early two-satellite experimental capability in both the VHF and UHF bands, and also provides for a substantial period of twoocean service.

For the future, Comsat is prepared to provide continuing and expanded aeronautical communications services as desired, in the VHF or UHF bands, or both, under the same type of arrangements as are proposed herewith.

It should be recognized that the conclusion of firm Comsat contracts and the provision of these services are subject to appropriate filings with, and approvals by, the Federal Communications Commission.

We look forward to hearing from you with respect to your interest in this proposal, and to the establishment of the necessary commitments upon which we can proceed.

> Sincerely, Original Signed

Joseph V. Charyk

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cc: The Honorable Thomas O. Paine Administrator, NASA C. S. S. S. S. S. T.

COMMUNICATIONS SATELLITE CORPORATION

JOSEPH V. CHARTYK Prosident

8

May 8, 1970

Mr. J. S. Anderson Chairman Aeronautical Radio, Incorporated 2551 Riva Road Annapolis, Maryland 21401

Dear Mr. Anderson:

The Communications Satellite Corporation (Comsat) is pleased to submit herewith to the Federal Aviation Administration (FAA) and to Aeronautical Radio, Incorporated (ARINC), its proposal for providing aeronautical mobile communications services via dual-frequency ("hybrid") satellites in the Pacific and Atlantic Ocean areas. As outlined in the proposal, separate contracts are proposed with each organization: with ARINC, for communications services in the VHF band (118-136 MHz), for use by ARINC and FAA air traffic control operations; and with FAA, for communications services in the UHF band (1540-1660 MHz), for use by FAA and National Aeronautics and Space Administration (NASA) Research and Development activities.

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950 L'ENFANT PLAZA SOUTH, S.W. . WASHINGTON D.C. 20024 . PELEPHONE 554-6000

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We look forward to hearing from you with respect to your interest in this proposal, and to the establishment of the necessary commitments upon which we can proceed.

Sincerely,

Original Signed

Joseph V. Charyk

cc: The Honorable Thomas O. Paine Administrator, NASA COMMUNICATIONS SATELLITE CORPORATION

JOSEPH V. CHARVE Provident

1

May 8, 1970

The Honorable, Thomas O. Paine Administrator National Aeronautics and Space Administration 400 Maryland Avenue, S. W. Washington, D. C. 20546

Dear Tom:

Since our discussion of aeronautical satellite communications possibilities last January, we have been developing the elements of a program through which we could provide meaningful communications services in both the VHF and UHF bands, to meet early operational as well as research and development needs. Throughout this period we have evolved our approach on the basis of various published documents reflecting these needs, and continuing discussions with government and industry personnel having interest in the use of satellites to provide aeronautical services. Our conclusions have taken the form of a specific proposal, which we have submitted to the Federal Aviation Administration and Aeronautical Radio, Incorporated. I am enclosing a copy for your parsonal information.

We believe that the proposed UHF services could be very useful in furthering the early achievement of some important research and development objectives of your organization, providing earlier UHF data, allowing early tests of techniques involving two satellites with overlapping UHF coverage of the same area, providing an extended period of twoocean UHF service, and supplementing your ATS-F program and other planned satellite work in the aeronautical communications field. In addition, these services would provide insurance that the occurrence of a single failure in your planned program would not cause serious delay in the achievement of program objectives.

As outlined in the proposal, these services could be obtained without the necessity of establishing a new satellite project or requiring investment of any government funds. Comsat will fund, establish and operate the satellites and earth station equipment and provide the UHF communications services on a fixed-charge basic, such charges to be paid monthly after the services become available. In addition to the usefulness of the proposed services, we believe that this financial arrangement should be helpful in a period of increasing budgetary difficulty for space research and development projects, which seems likely to characterize the period when these services could be available.

We have submitted the proposal on the basis of what seems to involve the simplest contractual and organizational arrangement, presuming that possible sharing arrangements between NASA and FAA could be worked out directly between the two organizations. However, Comsat is willing to consider other arrangements if desired.

I will be happy to discuss the subject further at any time.

Sincerely,

Original Signed

enc.

Joseph V. Charyk

cc: The Honorable J. H. Shaffer Administrator, FAA COMMUNICATIONS CATELLITE CORPORATION

JOSLOH V. CHARYK President

May 8, 1970

The Honorable James M. Beggs Under Secretary of Transportation Department of Transportation 800 Independence Avenue, S. W. Washington, D. C. 20590

Dear Jim:

Since our January meeting with Tom Faine, during which we discussed aeronautical satellite communications possibilities, we have continued our work in this field. The results have now taken the form of a proposal to the Federal Aviation Administration and Aeronautical Radio, Incorporated. In view of your personal interest in the subject, I am enclosing a copy of this proposal.

We have submitted the proposal on what seems to be the simplest contractual and organizational basis, suggesting that possible MASA/FAA sharing could be worked out directly by those two organizations. However, Comsat is willing to consider other arrangements if desired.

I will be happy to discuss this subject further at any time.

Sincerely,

Quiginal Signod /

Joseph V. Charyk

enc.

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INDUSTRY/GOVERNMENT MEETING ON FACTORS

AFFECTING AERONAUTICAL SATELLITE SYSTEM CHOICES

Wednesday 12 August 1970

PROGRAM

9:00 a.m.	Introduction	
	 Introduction of Under Secretary, Administrator NASA and Administrator FAA (others, as appro- priate) Welcoming remarks by Mr. Shaffer 	
A		
	(Under Secretary, Administrator and others who have been briefed previously will retire until afternoon session)	
9:30	NASA/FAA Briefing on Technical and International Aspects. (Action: ED-1, IA-1)	
12:30	Lunch Break	
2:00	Reconvene	1
2:05	Presentation by DOT TSC	representatives.
2:30	Presentation by USAF Cam	bridge representatives.
2:45	Presentation by AT	
2:55	Presentation by COMSAT	
3:20	Presentation by U. S. Ai	rline: representatives.
3:45	Presentation by IATA	
4:15	Break	
4:25	Reconvene	
4:30	Discussion Period	



A Lagging Bureaucracy

This nation tackled two major technological challenges in 1961, both of which it hoped to achieve before the end of that decade. One was to land men on the moon and return them safely. The other was to automate and modernize the ancient and creaking air traffic control system to give it the capability for smooth handling of the anticipated airways traffic of the 1970s.

Las Vegas bookmakers in 1961 would certainly have quoted far longer odds on a successful manned lunar landing than for achievement of an automated air traffic control system utilizing supposedly "offthe-shelf" technology. Yet almost a decade later, the Apollo lunar landing program had accomplished its goal twice, while the automated air traffic control system appears to be as far away as ever from its 1961 goals. At the current rate of progress, we doubt if the Federal Aviation Administration will achieve these goals by the end of the current decade. With air traffic-airline, corporate and general aviationsurpassing its projected growth rates, this national crisis is getting worse. It is limiting the economic growth of civil aviation and imposing increasing and unnecessary safety hazards.

We have inveighed on this page against the technical incompetence and slothful leadership of the FAA and its predecessor agencies for more than a decade. In recent years, the FAA administrators beginning with "Pete" Quesada and continuing with John Shaffer have tried vigorously to mobilize the inertia of their civil service regiments into effective action. Unfortunately, their leadership has been blunted by the swarms of veteran airways employes who came into the agency in the era of lighted beacons and low-frequency ranges and have added little technical knowledgeability since then. This bureaucracy has frustrated the airlines, exasperated the Congress to the point where funding has been reluctant, virtually driven the avionics industry out of this market and concentrated primarily on its self-serving preservation.

Perceptive Study

One of the most perceptive and useful studies of this shameful, slothful record has been completed recently by the House government activities subcommittee, headed by Rep. Jack Brooks (D.-Tex.). It is based on hearings held last January and additional careful staff work (see p. 22).

In commenting on the FAA's bureaucracy, the committee report notes:

"FAA as an organization has more independent empires than medieval Europe."

It recommends that every effort "be made to revitalize the management and technical capability of FAA" and calls for a housecleaning of the upper technical levels in the agency with forced retirements and transfers. It also scores the standard government technique of tackling the perennial air traffic control problem by appointing distinguished ad hoc committees and then filing and forgetting their reports and recommendations.

Congressman Brooks' subcommittee report advocates the creation of an adequate technical staff at the top level of FAA that could have the competence and the continuity to plan and execute what is essentially a long-term job of keeping the airways and traffic control technology ahead of the rising traffic curve. Since 1961, when the automation program was begun, there have been four FAA administrators, none of whom can be held responsible for the failures of his predecessors.

New Standard Needed

It is obvious that the top FAA jobs require an unusual combination of operational and technical expertise that cannot be found in either a career civil service employe or a political appointee. The Brooks subcommittee is right in demanding that the FAA administrator and his key deputies be held directly accountable for the success or failure of the traffic control system development. But we think a new standard for picking these people also is required.

Beyond this, the FAA and its predecessors have for many years suffered from a malaise that the Brooks subcommittee diagnoses in these words:

"FAA as an organization lacks any feeling or urgency. The FAA simply does not move forward. All too often in the past, progress has been the result of tragedy. The committee desperately hopes the FAA will develop a sense of urgency and will earnestly seek to avert rather than respond to air tragedies in the 1970s." And so do we.

Congress has done its part in passing the Airport and Airways Development Act of 1970, which will provide a good start in again emphasizing this goal as a national priority and raising the revenues required to fund the new technology. But without a basically new spirit of leadership in FAA, supported by a dedicated and aggressive corps of capable engineers and systems managers to execute this program, the best intentions of Congress can be thwarted and the new revenues soaked up in the bureaucratic swamp with little improvement in the movement of air traffic.

Finally, some additional thrust could be added if the President could supplement his already strong support of this program by officially adding the objective of an improved air transport system as a national goal along with the campaigns against poverty, pollution and ignorance.

-Robert Hofz

EXECUTIVE OFFICE OF THE PRESIDENT OFFICE OF TELECOMMUNICATIONS POLICY WASHINGTON, D.C. 20504

Date: September 18, 1970

Subject: Reissue of Manual of Regulations and Procedures for Radio Frequency Management

To: Mr. C. T. Whitehead via Dr. George F. Mansur

> The subject Manual is a codification of the rules, regulations, allocations, and procedures applicable to the use of radio frequencies by Executive Branch agencies and departments. It is issued by this Office pursuant to Section 11 of E.O. 11556 and is kept current on the advice, as appropriate, of the IRAC. Its contents are limited to the frequency management responsibilities of the Office.

Revisions to the Manual have been issued quarterly since 1965 when it was first published. The current quarterly revision has been prepared to take into account Reorganization Plan No. 1 of 1970, E.O. 11556, TELECOM CIRCULAR 1200.2, changes to the allocation table, and new technical provisions on the use of frequencies.

In addition to providing for the regular quarterly revision, the cover has been redesigned and the contents have been restructured to remove all classified matter to a classified appendix. The latter will facilitate distribution of the major portion of the Manual to those individuals and agencies who do not need the classified matter.

The current quarterly revision, which should have been distributed on September 1. was held in abeyance pending the issuance of E. O. 11556. Distribution is now urgent because Government agencies are crucially dependent on the regulations and allocation table in their day-to-day frequency management activities.

It is recommended that the attached promulgation page be signed. It will be dated as of the day you are sworn in, and the master plates will be sent to the printer.

Dean, Jr.

Attachment * Would perpetuate IRAC. CONFIDENTIAL ATTACHED

PROMULGATION

By virtue of the authority vested in me pursuant to Reorganization Plan No. 1 of 1970 effective April 20, 1970, and Executive Order No. 11556 of September 4, 1970, I hereby approve this Manual of Regulations and Procedures for Radio Frequency Management for the use of the agencies and establishments of the Federal Government.

This order is UNCLASSIFIED. Portions of the Manual are classified CONFIDENTIAL (Group 3), and it shall not be published in the Federal Register.

14/1

Clay T. Whitehead Director of Telecommunications Policy

Dated: September 22, 1970

October 1, 1970

MEMORANDUM FOR PETER FLANIGAN

Over several weeks, a number of individually minor but cumulatively serious administrative decisions have been taken concerning the status of OTP. The bulk of these decisions involve the office of John Brown. The net effect of them is a significant downgrading of OTP in the eyes of other government agencies, the industry at large, and foreign governments, with which we are working and will have continuing relations. Any one of these actions can be agreed to be minimally affecting the status of the Office, when considered alone, and equally minimally important to the administrative responsibilities of Mr. Brown. The cumulative effect on OTP is a significant reduction of its stature and effectiveness while the advantages accruing administratively to John Brown can be only minimal. OTP is a new office and, as such, is being systematically denied accommodations and consideration universally enjoyed by other segments of the Executive Office of the President.

I am listing below specific items on which we have received negative or discouraging results upon our inquiry or request for accommodation. I personally consider the first two items very important and the balance of the list deserving consideration in decreasing order of priority. If, in fact, all of the requests reflected below must be denied, the purpose of establishing OTP in the Executive Office of the President will be totally frustrated. Therefore, I consider re-examination of these actions essential.

- Expulsion of OTP from all premises directly associated with the White House and potential exclusion from consideration for floor space in FOB #7.
- Denial of White House Mess access for the Director who is allowed no representational funds.

- 3. Elimination of the title of Special Assistant to the President.
- 4. Considerable difficulty in obtaining a single line from my office to the White House switchboard.
- 5. Refusal to provide any parking facilities, even for the Director's official car.

I can certainly live with necessary denials of some of the foregoing, but the cumulative effect of all such denials is to leave this Office with minimal status and without any possible pretense of equality or influence within the Executive Office of the President. Administrative allocations among agencies in the Executive Office cannot be 'fair and impartial' if applied only to the new kid on the block. If these are major problems to John, he should be willing to apply them across the board. If it is the President's intent that OTP be a second-class executive office, I shall adjust accordingly. But I would want to know that for good and sufficient reason, and not John Brown's for administrative convenience.

I recognize that John has a very difficult job; but then so do we all. The purpose of this memorandum is not to ask you to intervene in any of the above, but to let you know of an increasingly difficult and annoying problem.

Clay T. Whitehead