

UNCLASSIFIED

ACP 190
US SUPP-1(C)

GUIDE TO FREQUENCY PLANNING

ACP 190 US SUPP-1(C)

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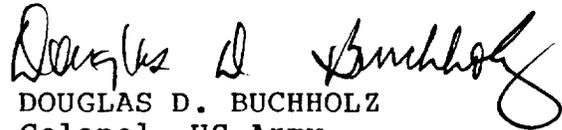
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For the Joint Chiefs of Staff:



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Colonel, US Army
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CHAPTER 1

INTRODUCTION

101. Purpose

The purpose of this publication is to provide instructions, guidance, and technical information concerning the organization and responsibilities for radio frequency management within the United States Department of Defense (DOD).

102. Scope

This publication is intended to supplement ACP 190 and, as necessary, to fill the need for a joint reference publication concerning the following:

- a. Allocation, assignment, and control of radio frequencies.
- b. The frequency management organization.
- c. Special joint frequency assignments.
- d. Frequency engineering principles.
- e. Technical information helpful in frequency assignment.

103. Allocation, Allotment and Assignment

a. Frequency Allocation. The process of designating radio-frequency bands for use by specific radio services.

b. Frequency Allotment. The process of designating a radio frequency or radio frequency channel in an agreed plan for use in one or more identified countries or geographical areas and under specified conditions.

c. Frequency Assignment. The process of authorizing a specific frequency, group of frequencies, or frequency band to be used at a certain location under specified conditions such as bandwidth, power, azimuth, duty cycle, or modulation.

104. Peacetime Allocation and Assignment

Frequency allocation and assignment, both national and international, are controlled in peacetime by several civil and military organizations which coordinate with one another. Primary

104. (Continued)

consideration is given to international agreements in accordance with the Radio Regulations of the International Telecommunication Union (ITU) which allocates various frequency bands for specific radio services. Frequency control within the United States and its Possessions (US&P) is exercised by the President through the Secretary of Commerce, assisted by the National Telecommunications and Information Administration (NTIA) for federal government agencies and by the Federal Communications Commission (FCC) for non-federal government activities. The frequency management responsibilities of the Military Communications-Electronics Board (MCEB) Frequency Panel (FP) and the theater commanders are described in Chapter 2.

105. Wartime Allocation and Assignment

In wartime the Director, Office of Science and Technology Policy, Executive Office of the President, has overall spectrum management responsibility within the US&P. E.O. 12472 assigns frequency spectrum management responsibility to NTIA for the Federal Government spectrum users and to the FCC for users other than the Federal Government.

106. Frequency Management Guidance

a. The electromagnetic frequency spectrum is a critical resource essential to the support of DOD operations. Military use of the spectrum is based on extensive sharing since there are no exclusive radio frequencies allocated specifically for the satisfaction of military communications-electronics (C-E) requirements. Sharing is not confined to the military; the requirements of other government and non-government users, as well as U.S. international commitments, must be considered. Intensive use, expanding requirements and congestion require positive management at all levels of command. Conflicting military requirements must be evaluated and resolved at that level of command competent to assess the total effect upon all C-E operations involved.

b. By direction of DOD Directive 4650.1, all DOD Components shall obtain radio frequency spectrum guidance for C-E systems from the MCEB as early as possible during the concept exploration, demonstration and validation stages of system acquisition. DOD Components are defined as the Office of the Secretary of Defense (OSD), the Military Departments (MILDEPs), the Joint Staff, the unified and specified commands, the Inspector General of the Department of Defense, the Defense Agencies, and DOD Field

06.b. (Continued)

Activities. MCEB guidance must be obtained as prescribed in paragraph 204.f, Chapter 2.

c. Proper management of the electromagnetic spectrum requires that the cognizant assigning authority be immediately advised when a frequency assignment is no longer required.

d. Participation in a program of regularly scheduled reviews of frequency assignments and an analysis of frequency usage is essential to achieve optimum utilization of the available radio frequency spectrum.

CHAPTER 2

RESPONSIBILITIES AND AUTHORITY

201. General

International allocation of radio frequency spectrum is accomplished by international agreements through the ITU. National allocations are accomplished by the individual governments concerned, taking into account the allocations established by the Radio Regulations of the ITU.

202. National Allocation and Assignment Authority

Authority over radio frequencies within the US&P is divided between the Congress of the U.S. and the President. The Congress has delegated authority to the FCC which has jurisdiction over non-federal users. The President, by Executive Order, has delegated to the NTIA, authority to assign frequencies to federal government agencies. The Interdepartment Radio Advisory Committee (IRAC), serves in an advisory capacity to the NTIA to assist in assigning frequencies, developing policies, programs, procedures and technical criteria pertaining to the allocation, management and use of the spectrum. IRAC is composed of representatives from Federal Government agencies.

203. International Aspects

Frequency coordination with foreign governments is normally handled through the Department of State, except certain international military channels that have been established for military frequency planning and coordination. International frequency allocation and registration is accomplished through the ITU in accordance with current international agreements. The International Frequency Registration Board (IFRB), a permanent organization of the ITU, publishes the International Frequency List (IFL) which is based on the Master International Frequency Register (MIFR) maintained by the IFRB.

204. Military Frequency Management

In both peace and war the following DOD policies and responsibilities are effective:

a. The Joint Staff in consonance with OASD(C³I) are responsible for providing guidance on joint and inter-Service operational military frequency engineering and management matters. Guidance is provided in paragraphs 205 and 206 of this supplement.

204. (Continued)

b. The MCEB is responsible for:

(1) Developing detailed policy and procedures pertaining to frequency management within the DOD.

(2) Managing the Frequency Resource Record System (FRRS).

c. The MCEB FP supports the MCEB in developing the above frequency policy and procedures pertaining to frequency management. The FP consists of members from the U.S. Army, Navy, Air Force, Marine Corps, Coast Guard, Defense Communications Agency (DCA), National Security Agency (NSA), the Joint Staff and the Joint Tactical Command, Control and Communications Agency (JTC3A). In addition, the DOD Electromagnetic Compatibility Analysis Center (ECAC), the National Communications System (NCS) and the Office of the Secretary of Defense provide representatives to the FP. Other DOD components may have representatives to the FP as authorized by the Military Secretary.

d. The Secretaries of the MILDEPs are responsible for frequency engineering and management within their respective MILDEPs. They have in turn delegated this function to the Director of Information Systems for Command, Control, Communication, and Computers, Department of the Army; the Director, Naval Telecommunications, Department of the Navy; and the Assistant Chief of Staff, Systems for Command, Control, Communications and Computers, Department of the Air Force.

e. The Director of the DCA is responsible for the efficient management of frequencies authorized for use by the Defense Communications System (DCS).

f. DOD Components are responsible for:

(1) Obtaining radio frequency spectrum guidance for C-E from the MCEB as early as possible during the concept exploration and demonstration and validation stages of system acquisition. MCEB guidance must be obtained before assuming contractual obligations for the full-scale development, production, or procurement of those systems. Radio frequency spectrum support requirements (DD Form 1494) shall be sent through the MCEB, for coordination with host nations where this equipment is intended to be deployed, as early in the acquisition process as practical. Host nation coordination must be initiated before contracting for a system's full-scale development.

204.f (Continued)

(2) Full participation in the FRRS in accordance with the provisions of MCM-15-90, FRRS Organization, Mission and Function. All frequency assignments (except temporary assignments of 90 days or less) shall be entered into the FRRS Central Database at DOD ECAC. Each assignment shall be represented by only one record in the central database. All frequency records in the FRRS will be in the Standard Frequency Action Format (SFAF).

205. Policy Guidance for Unified and Specified Command Frequency Requirements

a. The basic policy governing joint frequency management is that:

(1) Unified commanders control the use of frequencies assigned to U.S. military users operating within their area of responsibility (AOR).

(2) Unified commanders with no defined AOR and specified commanders control the use of frequencies assigned to military users within their command.

b. The basic policy on inter-Service military frequency matters is that the Service providing the support will use its own or DOD facilities and procedures when supporting another Service.

c. In peacetime, U.S. Military Forces within foreign countries, and their air space and territorial waters, have no independent authority to use radio frequencies and are dependent upon existing agreements or coordination with appropriate national administrations. In wartime, authority to use frequencies will be in accordance with the Directives of the combined or joint task force (JTF) commander.

206. Specific Guidance for Unified and Specified Commands (CINC)

The following guidance and procedures are intended to amplify and to delineate the procedures for coordinating and assigning frequencies to satisfy CINC requirements:

a. Frequency Panel:

(1) The FP will coordinate at the national level and assign frequencies for use within those CINC AORs which are in the US&P. Frequency requirements for operation within a CINC's AOR will be coordinated with the applicable CINC prior to or in parallel with submission to the FP.

206.a (Continued)

(2) The FP will assign frequencies for use at terminals outside the US&P locations when bilateral agreements require FP coordination with host nations and for those areas not within a theater commander's AOR. Coordination with adjacent theater commander(s) may be required prior to or in parallel with submission to the FP.

(3) Unified or specified command frequency requirements submitted for FP coordination and assignment will be forwarded to and processed by the MILDEP or DOD Agency (as principal FP members) having operational control over the system concerned. If a MILDEP/DOD Agency having primary interest cannot be identified, requirements will be coordinated within the FP by the MILDEP as specified below:

Army - USCINCEUR, USCINCCENT, CINCFOR, USCINCSO
Navy - USCINCLANT and USCINCPAC
Air Force - CINCSPACE, USCINCSOC, USCINCSpace,
USCINCTrans

(4) To maintain commonality of frequencies for netting and to maintain central management of assignments for national and international actions, the FP will coordinate and assign frequencies for the following worldwide operations:

(a) All space systems (excluding allocated intra-theater tactical assets such as UHF, GMFSCS, AFSAT/FLTSAT).

(b) Down range missile test frequencies (for all aspects of testing).

(c) MYSTIC STAR/White House Communications Agency.

(d) World Wide Airborne Command Post (NEACP, CINC ABNCP, TACAMO, FBM BCST.), (less ground maintenance support requirements).

(e) Radio links between locations of the US&P and Outside The United States and its Possessions (OUS&P).

(f) GIANT TALK, and Ground Command and Control Stations (GCCS).

(g) Exclusive maritime mobile (MM) bands.

206.a.4. (Continued)

(h) Support for CONUS DCS and non-DCS entry exercises for circuits originating or terminating in CONUS.

(i) Requirements when requested by non-DOD agencies.

(j) Assignment of frequencies other than specified above requires prior coordination with the FP and affected DOD AFCs.

(5) The FP has assignment authority over netted and worldwide Aeronautical Off-Route (OR) frequencies as delineated in the designated "OR" channel plan. Unified commanders may assign "OR" frequencies on channels to USN and USAF subordinate commands taking into account the interference potential to netted and worldwide "OR" operations and the allotments (Radio Reg ITU Appendix 26) to other countries.

(6) In order to maintain central management, frequency assignments for fixed HF sounders will be notified to the FP. The FP will insure that sounder transmitter stations are included in ACP 191.

b. Unified Commanders:

(1) Authority is granted to unified commanders for coordinating and assigning frequencies during peacetime (including contingencies and crises) within their AOR, excluding the US&P and assignments covered by paragraphs 206a(4) and (5) and as permitted by the US Government rules and regulations. As required during crisis periods the unified commanders have the authority to determine that the safety of life and/or property is involved when coordinating and assigning frequencies and/or urgency of military requirement does not permit timely coordination with the FP.

(2) Temporary frequency assignments outside the US&P of the type requiring FP approval or assignment (in paragraphs 206a(4) and 206a(5)) may be made by unified commanders provided host government approval has been obtained and formal FP coordination is pending.

(3) Unified commanders, when conducting joint tactical and training exercises within the US&P, may make frequency assignments for periods of 90 days or less providing the following restrictions are adhered to:

206.b.(3) (Continued)

(a) Frequency assignments will be made in the following order of precedence:

1 Previously assigned military frequencies within the area of operation will be used whenever possible.

2 Maximum use of frequencies and parameters delineated in Article 7.15 of the NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management.

(b) Assignments below 30 MHz with less than or equal to 1 kW of power or in the 225-400 MHz band with 100 watts or less of power will be coordinated with affected government agencies and AFCs.

(c) Assignments below 30 MHz with more than 1 kW of power or in the 225-400 MHz band with more than 100 watts of power will be coordinated with the FP.

(d) Frequencies assigned under this authority are not required to be entered into the FRRS.

(e) Other frequency sub bands as mutually agreed by the FP and Theater Commander.

(f) Frequency bands allocated to the radio services listed below are excluded from this authorization:

1 Amateur below 30 MHz.

2 Radio Astronomy.

3 Broadcast except as listed in the NTIA Manual.

4 Standard frequencies and time signals.

5 Radionavigation below 535 kHz.

6 Radiolocation in the MF band.

7 Aeronautical Mobile Route (R).

8 Aeronautical Mobile OR except as delineated in paragraph 206.a.(5).

9 Other safety of life and property frequencies.

206.b.(3) (Continued)

(g) A point of contact to accomplish shutdown in case of serious degradation to established users will be promulgated to all concerned prior to the start of operations.

(4) Frequency assignments made under the provision of paragraph 206a(4) in the unified commander's AOR may be reassigned by the unified commander as deemed necessary due to the urgency of the military requirement and/or when safety of life or property is involved. The concurrence of host governments is discretionary but should be obtained where possible and reasonable.

(5) Satellite requirements for use outside the US&P which have been submitted to the FP in accordance with the provisions of this ACP, may be temporarily assigned by unified commanders while awaiting formal FP assignments under the following conditions:

(a) Host government approval has been obtained and formal FP action is in progress but may not be completed by urgent operational requirement date.

(b) Unified commander has coordinated satellite scheduling, with the MILDEP or DOD Agency having responsibility for power budgeting, channel selection, or frequency selection.

(6) Unified commanders will develop local coordination and assignment procedures for use within their area of responsibility.

(7) Requirements initiated within a unified commander's AOR by component commands which require FP action must be coordinated by the unified commander prior to action by the FP. This does not preclude arrangements for specific bands/areas that may be mutually agreed upon between the unified command and the FP.

c. Specified Commanders:

(1) Frequency requirements for operation within the US&P will be submitted to the FP for national coordination and assignment as prescribed by 206a(3) for processing through the FP. Frequency requirements for operation within a unified command AOR will be coordinated with that unified command before submission.

206.c. (Continued)

(2) Frequency requirements for operation outside the US&P and within the AOR of a unified command will be submitted to the applicable unified command.

(3) Frequency requirements for operation outside the US&P and not within a unified command's AOR will be submitted to the FP, for processing.

d. Joint Task Force:

(1) When a JTF is established, the JTF Commander will control all frequencies assigned to the JTF and to the component forces within the area of operation.

(2) The JTF Commander, when operating within the US&P or in an area not within a unified command AOR, will submit frequency requirements to the FP. When operating within a unified command AOR outside the US&P, the JTF Commander will submit frequency requirements to the appropriate unified command.

207. CINCNOAD

a. Frequency requirements will be submitted to the FP.

b. The Department of the Air Force will process NORAD requirements submitted to the FP.

208. Joint Chiefs of Staff

a. Frequency requirements for operations supporting the JCS will be submitted to the FP and CINCs as appropriate by the Service of primary interest.

b. Requirements with no clear Service of primary interest will be submitted to the FP by the Joint Staff for processing. The FP will assign an action Service.

209. Satellite Frequency Notifications and Assignments

a. In accordance with national policy and procedures, the FP shall ensure that proper and timely actions are taken for the coordination, notifications to the IFRB, and assignments of frequencies to support DOD space systems.

209. (Continued)

b. Frequency coordination and assignment for space stations and their associated earth stations, less earth stations associated with intra-theater (i.e., UHF and GMFSCS) tactical assets, will be accomplished by the FP, using unified commander assistance for host nation coordination, as appropriate, within existing procedures.

c. Those elements of the system having a tactical capability may have frequency assignments made by the appropriate unified commander for such tactical elements. Assignments made under this provision shall be within the overall designated bands and limitations of their original allotment.

210. International Registration

a. Frequency assignments will be internationally notified whenever consistent with host nation and national security policies.

b. To assure on-going review of policy with respect to systems or relations with other countries, responsibility for initiation of notifications to the IFRB rests with the using MILDEP/DOD Agency.

c. Arrangements and agreements with host nations are documented by the MCEB and provide guidance concerning frequency coordination and IFRB notification channels for frequencies used by US Forces on foreign soil. The unified commander may be requested to act as the MCEB agent with host nations within his geographical AOR. All frequency assignments should indicate whether IFRB registration is desired.

211. Frequency Support to Other DOD Agencies

a. DOD level organizations without frequency management personnel shall be provided with such support by the Military Services as follows:

- | | |
|----------|---|
| (1) Army | Defense Logistics Agency, Defense Nuclear Agency, Defense Criminal Investigative Service, Military Traffic Management Command |
| (2) Navy | Defense Intelligence Agency, Defense Investigative Service, Uniformed Service University of the Health Sciences |

211.a. (Continued)

- (3) Air Force Defense Mapping Agency, Defense
Audio Visual Agency, Defense
Advanced Research Projects Agency
(less those projects assigned to a
Military Service), Defense Security
Assistance Agency

b. Frequency requirements for other DOD organizations shall be forwarded to the FP using the SFAF. The FP will refer such requests to either the Army, Navy or Air Force as mutually agreed.

212. Coordination

Overall coordination of DOD frequency matters and the assignment of frequencies within the MCEB is exercised by the FP.

a. Procedures and channels for the coordination and registration of frequencies with foreign countries are contained in ACP 190 US SUPP-2, Coordination and Registration of Frequencies Used by US Military Forces on Foreign Soil.

b. MILDEP or DOD Agency Responsibility. The MILDEPs, DCA and NSA are responsible for the efficient management of their radio frequencies, including allocation, assignment and necessary coordination.

c. Unified Commanders. Unified commanders are responsible for the coordination and assignment of military frequencies within their geographical AOR, within the terms of the guidance contained in paragraph 206.

d. Local Commanders. Local commanders will ensure maximum coordination for the use of radio frequencies within their AOR.

(1) The procedures for field coordination of military tactical and training assignments between 25-2400 MHz in non-government bands within US&P are contained in Annex A.

(2) The procedures for the coordination of frequencies to be used on military test ranges are contained in Annex B.

CHAPTER 3

SPECIAL PURPOSE FREQUENCIES

301. General

Certain frequencies have been designated by national and international agreement to be used for specific purposes. This chapter lists those frequencies which pertain to military operations.

302. Combat Scene of Action

A combat scene of action frequency is one designated as a simplex channel for tactical communication in a situation in which two or more elements of a combat force are employed in circumstances precluding the prior agreement on a communications plan. These frequencies are used only for initial contact; once contact is established, immediate arrangements are made for the use of other frequencies in continuing communication. The use of these frequencies for other purposes must be avoided. Currently agreed combat scene of action frequencies are:

3850 kHz	47.8 MHz
27900 kHz	279.4 MHz

303. Distress and Emergency

Certain frequencies have been reserved for use in emergencies. Distress and emergency frequencies will be used only to provide a communication channel to and from airborne and ground stations or surface craft experiencing actual emergency or distress conditions. This includes immediate assistance by other aircraft or surface units in the vicinity acting to alleviate or avert the distress or emergency condition, but does not include further communications incident to a coordinated search and rescue (SAR) operation. SAR communications are to be conducted on designated SAR frequencies or other appropriate frequencies as directed.

303. (Continued)

<u>FREQUENCY</u>	<u>USE</u>
500 kHz	International Distress, Morse (CW)
2182 kHz	International Distress Radiotelephony
3023/5680 kHz	Mobile, Search and Rescue
4125/6215.5 kHz	Maritime Mobile Distress (Voice)
8364 kHz	Survival Craft (CW)
40.5 MHz	Military Joint Emergency Common Frequency
121.5 MHz	Aeronautical Emergency (Voice) and EPIRB's with Search and Rescue Satellite (SARSAT)
123.1 MHz	On-scene SAR/Auxiliary Aeronautical (Voice)
156.8 MHz	Maritime Mobile Distress (Voice)
243.0 MHz	Survival Craft (Voice) and EPIRB's with SARSAT
406.0 - 406.1 MHz	EPIRB with SARSAT

304. Use of 40.5 MHz

The frequency 40.5 MHz is designated as the military joint emergency common frequency. Use of this channel is limited to communications necessary to establish contact when other channel information is not available and for emergency communications. This frequency also may be used for SAR.

CHAPTER 4

FREQUENCY ASSIGNMENTS

401. General

The assignment of frequencies in the radio spectrum is a very complex problem. This complexity is the result of the necessity of establishing a definite plan involving a number of variables. Some of the chief variables are:

- a. Each type of equipment has different radiation characteristics.
- b. Radio wave propagation does not recognize political boundaries and is subject to certain vagaries over which there is no physical control.
- c. The operational environment in which equipment is used determines in various degrees its influence on the radiated signal.

402. Frequency Sharing

Frequency sharing is an essential factor in accomplishing successful frequency assignment planning and the satisfaction of operational requirements in any congested frequency band or area. If, in an attempt to satisfy frequency requirements, a simple division of the frequency spectrum was made, requirements would far outnumber available frequencies. In most cases, however, these requirements can be satisfied by proper sharing. Frequency sharing can be accomplished by:

- a. Time Sharing. This method of sharing requires stations to operate on schedules, so that two stations do not use the same frequency at the same time. Time sharing is an effective method of avoiding interference, but is obviously limited in its military suitability.
- b. Geographical Sharing. Geographical sharing is one of the most effective methods of frequency sharing. In determining necessary separation for the use of the same or adjacent frequencies, frequency engineers must consider a number of factors, among which are receiver selectivity and sensitivity, distance, terrain, propagation characteristics of the frequency range under consideration, transmitter and receiver siting, emission bandwidth, antenna directivity and radiated power. Geographical sharing can often be achieved or enhanced by the use of directional antennas.

403. Security Aspects of Frequency Proposals/Assignments

a. Much intelligence is gained through intercept of radio transmissions. Many factors determined through radio intelligence are dependent on the radio frequency and the characteristics of the transmitting equipment used. Frequencies should be changed regularly when practical, both to prevent assembly of information by intercept and as an aid in the prevention of electronic countermeasures. Policy and guidance on changing frequencies is contained in MJCS-121-88, 'Changing Tactical Call Signs and Frequency Assignments'. Frequencies and power should be selected so as to limit transmission range to the minimum required for satisfactory communications.

b. Intelligence indicators are date/time of use, geographic locations, special users, operational purpose, unique equipment and supplemental remarks concerning the requirement.

c. The responsibility for determining the security classification of frequency proposal/assignments rests with the user in accordance with DOD INST 5200.1R.

d. The security classification guide for frequency assignment records is contained in Annex F.

404. Frequency Coordination Procedures

a. Prior to the operation of any device intentionally radiating electromagnetic waves, a radio frequency authorization will be obtained from a competent authority. Requests for this authorization shall be submitted through the appropriate chain of command. Frequency requests outside US&P should be submitted only on those equipments that have been previously coordinated and approved for frequency supportability with appropriate host nations through the cognizant unified command.

b. All requests for frequencies to meet routine, foreseeable requirements should be submitted in the prescribed SFAF format at least 90 days prior to commencement of the requirement if within the US&P and 120 days if OUS&P.

c. During a crisis situation, FP response to message frequency support requests from deploying forces is required in a timely manner. To ensure a rapid response by the FP to crisis or contingency frequency requirements, the following unclassified subject line should be used as appropriate: "Frequency Proposal (or assignment) for Contingency Communications, USN (or AR or AF) (unclassified plan name and number, if applicable)."

404. (Continued)

d. Requests for frequencies to be used within the area of cognizance of a DOD AFC, normally will be coordinated as delineated in Annex B.

e. When a requirement exists for an activity in the US&P to operate in local civil police, fire or emergency nets, the request shall list the specific frequency to be employed and shall also include a letter of concurrence from the local civil agency involved.

f. Frequency coordination with the countries represented on the Combined Communications-Electronics Board (CCEB) (Australia, Canada, New Zealand and the United Kingdom) should be submitted in SFAF. Frequency assignments will be coordinated by the FP or Unified Command as specified in CCEB PUB 4.

g. The procedure for the local coordination of frequencies in the bands 1435-1530 and 2310-2390 MHz within CONUS and certain radars within US&P is contained in Annex D. The radars involved are land based and operate in bands 1215-1400, 2700-2900, and 9000-9200 MHz and interrogators operating on 1030 MHz.

405. Frequency Assignment Review

a. Permanent frequency assignments are normally made for an indefinite period. Each DOD Agency shall maintain a continuing review program of frequency assignments to its radio stations (normally every five years), and shall delete or modify such assignments as appropriate. Further coordination of assignments is not required for continued authorization unless significant changes are proposed in the assignment parameters, e.g. antenna power and emission bandwidth. Each assignment shall be periodically reviewed to confirm that frequency assignments are:

(1) in current use and are correctly reflected in the FRRS listing of authorized frequency assignments.

(2) required for continued operations for the purpose stated in their justification.

(3) still in conformance with national and international radio regulations.

405. (Continued)

b. Temporary frequency assignments are authorized for a period of five years or less. No later than 90 days prior to the end of the authorized period, each assignment must be reviewed. Appropriate action must be taken to substantiate the requirement for any required extension.

406. Frequency Assignment Review Procedures for FRRS Assignments

a. Review of frequency assignments outside the US&P is governed by the unified command's directives and is based on host nation requirement and/or assignment review date. Review of frequency assignments in the US&P is governed by the NTIA requirement that frequencies nationally authorized and listed in the Government Master File (GMF) must be reviewed on a five year basis.

b. One of the following actions will be taken after review of assigned frequencies:

- (1) Modification to review date only
- (2) Modification of assignment parameters
- (3) Deletion of assignment

c. Selection of assignment records for review will be accomplished in the FRRS computer. Criteria for selection will be based on the recorded review date. All records due for review will be distributed to appropriate FRRS users. The cognizant user will determine the action to be taken on each record. The appropriate MILDEP/DOD Agency will take necessary action to update GMF records.

d. ECAC will provide, on a scheduled basis to the using DOD command or activity, as desired by participants, a recurring output or message, of all FRRS records due for review.

e. Action will be taken by the recipients to effect review of each assignment and to propose (1), (2) or (3) above. The action deemed necessary will be effected by forwarding appropriate proposals in SFAF, either electrically, by magnetic tape or computer disk, as appropriate.

406.e (Continued)

(1) If an assignment is still in use and required beyond the review date, and all necessary SFAF items are complete and up-to-date, propose a modification that replaces the old review date with a new one.

(2) If the assignment requires modification to correct data elements or to update the assignment parameters, propose modification of the assignment.

(3) If an assignment is no longer required, propose deletion of the assignment.

f. Users shall review the proposed actions and forward them through frequency management channels for necessary update action.

g. For required FP actions, the cognizant MILDEP or DOD Agency, upon effecting coordination with concerned FP participants will:

(1) If IRAC approval is required, initiate submission of the IRAC application, and/or

(2) Initiate appropriate assignment/modification/deletion action.

CHAPTER 5

ALLOCATIONS FOR EQUIPMENTS

501. General

The frequency allocation process for developmental equipments is intended to alleviate the majority of operational frequency supportability and electromagnetic compatibility problems. This can only be obtained through the close coordination between staff operational personnel and frequency management personnel. Standard operating procedures should be established to govern expected conflicts, and commanders should be prepared to establish relative priorities when it appears that technical resolution of the compatibility problem by frequency allocation and assignment personnel is not possible. In areas containing a high density of electronic equipments, electromagnetic environmental surveys should be conducted before a decision is reached as to types of equipment to be installed.

502. Development

In determining the frequency range for new electronic equipments, engineers and project officers consider many factors. Among the factors considered are technical, economic and mission requirements. But the prime factor and the one which must be considered throughout all stages of development is the consideration of US National, host nation and International Frequency Allocation Rules and Regulations. This factor often determines the frequency supportability in the intended areas of operation and is particularly important in obtaining host nation frequency support. Frequency managers should assess the impact of evolving electronic equipment on the use of the radio frequency spectrum and provide to the developers frequency allocation guidance which has a positive influence on the frequency range selection.

503. Contractual Commitments

MCEB guidance must be obtained before assuming contractual obligations for the full-scale development, production, or procurement of those systems. Radio frequency spectrum support requirements shall be sent through the MCEB, for coordination with host nations where this equipment is intended to be deployed, as early in the acquisition as practical. Host nation coordination must be initiated before contracting for a systems's full-scale development.

504. Radio Frequency Allocation Procedures

The following procedures, shall be utilized to obtain radio frequency allocation guidance from the MCEB:

a. APPLICATIONS: Applications for Equipment Frequency Allocation (DD Form 1494) and Applications for Foreign Spectrum Support (Foreign Releasable DD Form 1494) shall be submitted by DOD component's sponsoring MILDEP frequency management office (FMO) to the MCEB secretariat for distribution and processing. Applications for spectrum review and supportability assessment at the US national level shall be submitted by DOD component's sponsoring MILDEP FMO to the NTIA Spectrum Planning Subcommittee.

b. NTIA SPECTRUM SUPPORT: NTIA spectrum review and support is required for subsystems involving the use of satellites or spacecraft, new major terrestrial systems or subsystems, and major modifications to existing systems or subsystems prior to assumption of contractual obligations. Allow at least 120 days for this process. The results of the NTIA review shall be provided by the MILDEP FMO's to the J-12 Permanent Working Group, FP and MCEB to be included in the MCEB guidance.

c. PROCESSING OF RELEASABLE DD FORM 1494: The applications for Foreign Spectrum Support (Foreign Releasable DD Form 1494) together with release authorization (processed in accordance with MILDEP regulations) is provided to the MCEB secretariat for distribution and processing. This document may be provided at Stage 1 or Stage 2 if sufficient information to justify host nation coordination is available. Host nation coordination at Stage 2 should be seriously considered to avoid delays in MCEB guidance and Stage 4 approval process due to host nation lead-times. If not previously submitted or if significant information is added or changed, a releasable DD Form 1494 for equipment with US operations anticipated in foreign countries must be provided concurrent with the submission of the Stage 3 Application for Equipment Frequency Allocation (DD Form 1494). A releasable DD Form 1494 and release authorization must be submitted to the MCEB at Stage 4 for DD Forms 1494 for equipment with anticipated US use in nations in addition to those whose comments were received during previous Stage 1, 2 or 3 submissions and for DD Forms 1494 with significant differences from the Stage 3 application. Unified commanders will forward releasable DD Forms 1494 received from the MCEB to applicable host nations for comment. The MCEB will forward DD Forms 1494 through appropriate channels to host nations not included within a CINCs area of responsibility and to the CCEB and member nations when appropriate.

504. (Continued)

d. UNIFIED COMMANDER AND HOST NATION COMMENTS: Unified commanders shall provide comments within 60 days to the MCEB on DD Forms 1494 forwarded for review. Comments from host nations listed as operating locations and with foreign releasability authorization will be included. When host nation comments are not available within the 60 day requirement, CINC comments will include expected receipt time and a CINC estimation of the host nation reaction to the application. Allow at least 120 days for completing this process with host nation comments.

e. DOD AFC's AND OTHER INTERESTED AGENCY COMMENTS: DOD ECAC, DOD AFC's, and other interested agencies comments are solicited by the MCEB secretariat or the DOD components as appropriate.

f. MCEB GUIDANCE: After coordination has been completed, final MCEB guidance for DOD components will be prepared taking into consideration all of the coordination comments. This guidance will be forwarded to the appropriate DOD components.

g. AUTHORITY TO OPERATE: The approval of an equipment frequency allocation does not constitute authority to operate. Prior to the operation of an equipment or system, a frequency assignment application must be submitted to and approved by the cognizant frequency assignment authority in accordance with the procedures outlined in Chapter 4.

CHAPTER 6

MEACONING, INTRUSION, JAMMING AND INTERFERENCE

601. General

The reliance on C-E systems by the military to accomplish various missions has caused vulnerability from electronic interference. This may be intentional or unintentional dependent upon the source of the electronic interference. Interference from friendly sources can be dealt with by coordination and cooperation. However, any hostile efforts to probe, harass, deceive, or interfere with the success of a mission must be reported.

602. Applicable Documents

Details regarding Meaconing, Intrusion, Jamming and Interference (MIJI) reporting are contained in JCS Pub. 3-51.1, Electronic Warfare Procedures for Joint Tactical Operations, Joint Regulation AFR 55-3, AR 105-3, OPNAVINST 3430.18 and MCO 03430.18; Subject: Reporting Meaconing, Intrusion, Jamming, and Interference of Electromagnetic Systems, STANAG 6004, CCEB PUB 4 and ARFA Handbook, Chapter 62.

603. Resolving Interference Problems

Corrective action to resolve interference problems should be conducted in accordance with applicable service, theater or command directives.

CHAPTER 7

FREQUENCY MANAGEMENT AND PLANNING DATA

701. General

The purpose of this chapter is to provide frequency allocation and assignment personnel with a bibliography of pertinent publications, as well as the essential minimum amount of technical information. These documents, if required, should be obtained through departmental channels.

702. Data Bases, Documents and Publications

a. Frequency Resource Record System. The FRRS is an automated system that maintains records of all frequency assignments made by DOD frequency management activities. The FRRS central data base is maintained by ECAC. The FRRS includes the capability to provide those activities with extracts of the records in a variety of outputs, as needed, to meet individual requirements. Additional information can be found in USMCEB Pub 5 and MCM-15-90.

b. Naval Telecommunications Procedures, Spectrum Management Manual NTP-6. The Commander, Naval Computer and Telecommunications Command (COMNAVCOMTELCOM), has the responsibility for developing, promulgating, and maintaining the NTP-6. This responsibility is executed by the Naval Electromagnetic Spectrum Center (NAVEMSCEN) for COMNAVCOMTELCOM. This manual covers spectrum procurement, allocation, assignment, scheduling, coordination, utilization and protection, in detail, and presents specific procedures necessary for effective spectrum management.

c. Air Force Regulation 700-14, Radio Frequency Spectrum Management, describes responsibilities and provides policy, guidance, and information concerning Air Force management of the electromagnetic spectrum. The Air Force Radio Frequency Authorization (RFA) published by authority of the Director, Command Control, Communications and Computers, Headquarters USAF lists all radio frequency authorizations for Air Force use. Distribution of the USAF RFA is provided to the Air National Guard, Air Force Reserves, Major Air Command Headquarters, higher echelons, and all Air Force operating units.

702. (Continued)

d. Army Regulation AR 105-24, Radio Frequency and Call Sign Assignment for US Army Communications-Electronics Activities, outlines procedures to be followed in requesting radio frequency and call sign assignments for the support of C-E operations in the Army.

e. International Frequency List. The ITU publishes this document, which lists all the particulars of frequency notifications which are maintained in a MIFR.

f. Non-Government Frequency List. This publication lists non-Government frequency uses in the US&P, as licensed by the FCC.

g. Government Master File. The published record of assignments to US Government activities by the IRAC as authorized by the Administrator, NTIA.

h. Frequency Allocation List (FAL), U.S. Military Electronic Equipment. A comprehensive tabulation of frequency allocations for all DOD C-E equipments as prepared by ECAC.

i. Manual of Regulations and Procedures for Federal Radio Frequency Management (referred to as the NTIA Manual). Issued by Administrator, NTIA. This manual identifies the responsibilities delegated to the Administrator, NTIA by E.O. 12046, and the procedures necessary for fulfilling the provisions of the Communications Act of 1934 section 305 and the Communications Satellite Act of 1962.

j. ITU Radio Regulations. Published by the General Secretariat of the ITU, Geneva. Sets forth the international provisions and regulations.

k. Combined Frequency Allocation List (CFAL). A list of C-E equipment for which frequency supportability has been coordinated with the CCEB nations as prepared by ECAC.

CHAPTER 8

COMMAND AND CONTROL COMMUNICATIONS COUNTERMEASURES (C3CM)

801. General

C3CM is the integrated use of operations security, military deception, jamming, and physical destruction supported by intelligence, to deny information, to influence, degrade, or destroy adversary C3 capabilities.

802. Relationships to C3CM

C3CM is a concept receiving increased emphasis within the Military Services and the unified/specified commands. All unified/specified commands have established C3CM operation activities and have required their components to do the same. Comprehensive guidance has been provided to the Services and appropriate Defense Agencies directing support to C3CM, integration of C3CM into routine operation plans and orders, operational tests and exercises, and coordination of C3CM matters with allies and other nations. Unless part of a jointly coordinated plan, any active countermeasures taken by a military component within the area of a unified/specified command will be promptly notified to the other military components in view of the possible adverse effects on friendly C3 systems.

803. Frequency Planning and C3CM

During planning and execution of joint operations, a frequency manager must be involved in the coordination of C3CM activities in order to identify friendly frequency assignments so that C3CM planners can consider such data during planning and decision making.

ANNEX A TO ACP 190 US SUPP-1(C)

MILITARY COMMUNICATIONS IN NON-GOVERNMENT AND GOVERNMENT
BANDS ABOVE 25 MHz FOR TACTICAL AND TRAINING OPERATIONS
WITHIN THE US&P

1. Coordination requirements for military communications within the US in non-government bands above 25 MHz for tactical and training purposes are described in paragraphs 3 through 7. Paragraph 8 addresses military communications in Government bands between 30 and 50 MHz for tactical and training purposes.
2. Similarly, frequency requirements outside the US&P should be obtained in accordance with host nation agreements and/or unified command directives.
3. The Military Services may employ frequencies in certain non-Government bands above 25 MHz, after coordination between FCC field personnel and military field personnel, for tactical and training operations in the US&P in accordance with the arrangement between the FCC and the Military entitled "Field Coordination of Military Tactical and Training Assignments 25-2400 MHz." The military use of non-Government frequencies under the procedures stipulated will not be a bar to the present or future assignment, through the normal IRAC/FCC process, and, in such military use of non-government frequencies, protection shall be afforded to Government operations authorized on specific frequencies within the non-government frequency bands concerned. The text of the arrangement between the FCC and the Military is contained in the following paragraphs.
4. In order to provide for military tactical and training assignments in the US&P, FCC field personnel and military field personnel are authorized to coordinate such assignments.
5. Military agencies have agreed that prior to coordinating tactical and training frequency assignments with FCC field offices, military field representatives will first establish that proposed assignments have a good chance of being compatible with non-government assignments. Consequently, FCC field Engineers in Charge (EIC) are not expected to "engineer" such assignments for the Military.

6. The following procedures will apply to the use of the non-Government bands between 25 and 2400 MHz specified herein:

a. The Military will not request the use of frequencies allocated to non-Government radio services whenever the tactical and training requirements can be met through the use of Government bands.

b. Military tactical and training assignments shall cause no harmful interference to non-Government assignments and military operations shall be terminated immediately upon notification that harmful interference has occurred.

7. The following shall be used as a guide for the coordination of Military tactical and training assignments when it has been determined that the use of non-Government bands is necessary.

a. Bands allocated to the Broadcasting Service for domestic use.

(1) The following are the bands between 25 and 2400 MHz that are allocated for this purpose:

<u>MHz</u> 54-72	<u>MHz</u> 174-216
76-100(excluding Alaska)	470-608
100-108	614-890

(2) FCC field engineers are acquainted with the areas being served by broadcasting stations and these engineers will not permit military tactical and training assignments on TV or FM channels in the areas where the public is receiving service. In many instances such service is received far beyond the normal service ranges of broadcasting stations. However, reception in such areas shall be protected regardless of the quality of such reception.

7. (Continued)

b. Bands used for auxiliary broadcast purposes.

(1) The following are the bands between 25 and 2400 MHz that are allocated for this use:

<u>MHz</u>	<u>Use</u>
25.85- 26.48	Remote Pickup
152.86-153.35	Remote Pickup
160.86-161.40 (Puerto Rico and Virgin Islands Only)	Remote Pickup
161.625-161.775 (Except Puerto Rico and Virgin Islands)	Remote Pickup
450-451	Remote Pickup
455-456	Remote Pickup
942-952	Studio Transmitter Links (STL)
1990-2110	TV Pickup, TV-STL

(2) Frequencies in bands used by remote pickup, studio transmitter links and other broadcast auxiliaries may be used for military tactical and training purposes providing FCC field engineers coordinate such use with the appropriate broadcast station licensees. For example, there is no objection to a military tactical and training assignment co-channel to a remote pickup assignment in the same area provided the broadcast licensee is cognizant of such arrangements and can be assured that in the event a remote broadcast pickup is necessary, any military operations that may be on the air will cease operations immediately upon notification.

(3) As an additional example, frequencies which are assigned to studio transmitter links (STL) may be utilized by military tactical and training assignments, providing these assignments are coordinated by the FCC Field Representative with the broadcast licensees involved and the tactical and training assignments so arranged as to cause no harmful interference to an STL. In all cases where a tactical and training assignment

7.b.(3) (Continued)

is made on an auxiliary broadcast service frequency within interference range of a co-channel FCC licensee, the licensee should be given the name of the military representative to contact in the event interference is caused.

c. Public Safety, Citizens Radio, Industrial, Land Transportation and Maritime Mobile Bands.

(1) The following bands between 25 and 2400 MHz are allocated for this purpose:

<u>MHz</u> 25.01-25.33	<u>MHz</u> 39.00-40.00	<u>MHz</u> 156.675-156.725
26.96-27.54	42.00-43.20	156.875-157.025
29.70-29.80	43.68-46.60	157.45-157.74
30.56-32.00	47.00-49.60	158.10-158.46
33.00-34.00	150.80-152.00	158.70-161.775
35.00-35.20	152.24-152.48	173.20-173.40
35.68-36.00	152.84-156.25	451.00-454.00
37.00-38.00	156.325-156.625	460.00-470.00

(2) Frequencies in bands allocated to these services for land mobile use may be authorized for military tactical and training assignments provided the assignments are coordinated between FCC field engineers and military field representatives.

d. Bands allocated to non-Government fixed service (excluding common carriers).

(1) The following are the bands between 25 and 2400 MHz that are allocated for this purpose:

<u>MHz</u> 72.0-73.0	<u>MHz</u> 1850-1990
75.4-76.0	2130-2160
76.0-100 (In Alaska)	2180-2200
952-960	

7.d. (Continued)

(2) In bands allocated to the non-Government fixed service (excluding common carrier), military tactical and training assignments may be authorized after coordination with appropriate FCC field offices. It is not possible to develop typical standards for the coordination of such assignments in fixed bands due to the fact that, in general, highly directive antennas are used and problems of interference protection will vary greatly. Since many military tactical and training operations involve the use of highly directive antennas, it may sometimes be possible to coordinate such assignments, although they may be in the same area as non-Government assignments, by taking into account directive antenna features of the installations involved. In coordinating such assignments, FCC field engineers are urged to coordinate proposed military tactical and training assignments with FCC licensees whenever there is a doubt as to the compatibility of the proposed military assignments.

e. Bands allocated to non-Government aeronautical fixed and international fixed public services.

(1) The following bands between 25 and 2400 MHz are allocated for this purpose:

MHz
26.95-26.96

29.80-29.89

29.91-30.00

(2) In the above bands, military tactical and training assignments may be authorized after coordination with FCC field offices provided that the military use is limited to those periods when propagation conditions would not normally support long distance communications, and therefore could be expected to confine to the local area the potential of interference to non-Government services.

f. Amateur Bands

7. (Continued)

(1) The following are the bands between 25 and 2400 MHz that are allocated for this purpose:

<u>MHz</u>	<u>MHz</u>
28-29.7	420-450
50-54	1240-1300
144-148	2300-2400(This band extends to 2450 MHz.)
222-225	

(2) The following provisions are applicable in the use of the above bands for communication purposes (i.e., for other than radiolocation purposes).

(a) Subject to the provisions of the rules adopted by the FCC, amateur stations generally are operated freely on any frequency within the established amateur bands. Therefore, great care needs to be taken in the coordination and in the use of such frequencies by the Military.

(b) The following conditions shall be observed in the military use of amateur frequency bands between 25 and 2400 MHz for routine day-to-day tactical and training purposes:

1. Operations on such frequencies will be confined normally to the hours of 0600-1800 local time.

2. Prior to transmission on specific frequencies, military personnel should ascertain that such frequencies are not in actual use by amateur stations within the local area in a manner which is likely to suffer harmful interference if the frequencies were used for military operation.

3. In recognition of the primary status of amateur stations as against the secondary status of military frequency use in such bands in peacetime, military personnel have responsibility in the event of, evidence of, or actual complaints of interference, to take effective remedial action without undue delay.

7.f.2.(b) (Continued)

4. Insofar as practical, consideration should be given in planning the use of such frequencies to their employment in a manner or at transmitter locations well removed from areas of civilian population where amateur use is likely. Appropriate measures should be adopted to minimize interference as by the use of minimum radiated power and intermittent transmissions of short duration.

5. It should be recognized that long distance propagation characteristics of the 28 MHz and 50 MHz bands, especially in the case of the former, require that good judgment be exercised in military use of these bands. Only when sky-wave propagation is not present is it practicable to use these bands for anything except extremely low power.

8. To meet local military peacetime tactical and training requirements within the US&P, the military services may employ frequencies in the Government bands 30.00 to 30.56, 32.00 to 33.00, 34.00 to 35.00, 36.00 to 37.00, 38.00 to 39.00, 40.00 to 42.00, 46.60 to 47.00, and 49.60 to 50.00 MHz on a secondary basis to the services of other Government stations authorized on frequencies within these bands provided that:

a. Operations shall be with field-type portable and mobile equipment.

b. Minimum power shall be used commensurate with the actual communication requirement but not in excess of 50 watts.

c. The bandwidth of emission shall not exceed 6 kHz with type A3E emission and 36 kHz with type F3E emission.

d. Prior to transmission, responsible military personnel shall ascertain that services being performed by other Government agencies in the local area will not be disrupted or suffer harmful interference as a result of such military use of frequencies within the local area.

e. The use of any frequency authorized herein shall be terminated immediately upon notification that harmful interference is being caused.

ANNEX B TO ACP 190 US SUPP-1(C)

TERMS OF REFERENCE FOR DOD AREA FREQUENCY COORDINATION
SYSTEM FOR NATIONAL AND SERVICE TEST AND TRAINING RANGES

1. The DOD establishes policy and assigns responsibilities for the management and use of the radio frequency spectrum within the DOD. The Joint Staff are responsible for providing overall guidance on joint and inter-Service military frequency engineering and management matters. Implementation of this guidance is the responsibility of the MCEB. The FP supports the MCEB in these functions.
2. The basic policy governing joint frequency management is that the unified commanders control all military frequencies within their commands. Chapter 2 promulgates guidance on frequency management and support for the unified and specified commands.
3. The establishment of area frequency coordination systems at and in the vicinity of National and Service Test and Training Ranges is essential to ensure successful operation of the extensive C-E systems at these ranges.
4. The purpose of these terms of reference is to define areas of responsibility for minimizing electromagnetic interference and the avoidance of frequency assignment and usage conflicts at National and Service Test and Training Ranges and with adjacent DOD and non-military activities. In this respect the following will apply:
 - a. Unified commanders are responsible for the coordination and assignment of military frequencies within their geographical area of responsibility.
 - b. The MILDEPs are responsible for the coordination and assignment of radio frequencies in support of military operations in CONUS and for the coordination of frequencies among civil and Government agencies within the US&P.
 - c. The DOD AFC is responsible for promoting overall frequency coordination in the areas that lie within and adjacent to a National Test Range or other designated complex as further defined herein. Although AFCs are provided by the military

4.c. (Continued)

departments, these coordinators are responsible to the MCEB, and thus, are responsible for complying with all provisions of this publication. This responsibility does not obviate the need for the AFCs to communicate through proper departmental channels to establish a departmental position prior to presenting an issue or subject to the FP and/or MCEB. DOD AFCs in CONUS will be responsible for compliance with this procedure.

5. For the purpose of these terms of reference the following definitions apply:

a. Frequency Coordination: The process of effecting arrangements and technical liaison for the purpose of minimizing harmful interference through cooperative use of the radio frequency spectrum. To be effective, the coordination must extend through the planning, proposal, and actual in-use phases of radio frequency utilization.

b. Harmful Interference: Interference which endangers the functioning of a radionavigation service or of other safety services, or seriously degrades, obstructs or repeatedly interrupts a radiocommunications service operating in accordance with the ITU Radio Regulations.

c. Down Range Site: An area within a 200 mile radius of a DOD launch complex or tracking site including ships on station, under the operational control of a range commander.

6. The military departments named below will provide a DOD AFC for the geographical areas delineated below and will provide logistic support as required.

a. The Department of the Air Force will provide:

(1) The Eastern AFC located at Patrick AFB, FL for the area bounded by 24°N, 31°N, 77°W, and 83°W.

(2) The Gulf AFC located at Eglin AFB, FL for the area bounded by 27°N, 33°30'N, 83°W, and 90°W.

(3) The Continental Operations Range AFC located at Nellis AFB, NV for the entire State of Nevada, the area of the State of Utah west of longitude 111°W and the area of the State of Idaho south of latitude 44°N.

6.a. (Continued)

b. The Department of the Navy will provide:

(1) The Western AFC located in Point Mugu, CA, for the area enclosed within a 200 mile radius of the Headquarters Building, Pacific Missile Test Center (PMTTC), and the area of California that lies south of latitude 37° 30' North.

(2) The DOD AFC Puerto Rico located at Roosevelt Roads, PR for the area enclosed within a 200 mile radius of the Operational Control Center, Atlantic Fleet Weapons Range, Roosevelt Roads, PR.

c. The Department of the Army will provide:

(1) The AFC at the Army Electronic Proving Ground (AEPG), Fort Huachuca, AZ, for the entire State of Arizona.

(2) The AFC at the White Sands Missile Range (WSMR), NM, for the area comprising the State of New Mexico and other US territory within a 150 mile radius of the Headquarters Building, WSMR, NM plus the area of Utah and Colorado that lies south of 41° N and between 108° and 111° W.

(3) The AFC located at the U.S. Army Kwajalein Atoll (USAKA), for the area enclosed within a 200 mile radius of the Headquarters Building, USAKA.

7. The responsibilities and authority of unified commanders in regard to military frequency management are identified in Chapter 2. The Unified commanders are requested to coordinate with the appropriate AFC when making assignments in areas adjacent to or under the cognizance of an AFC.

8. The MILDEPs will coordinate with the appropriate AFC prior to assignment of all frequencies intended for use within the areas delineated in paragraph 6 above. Coordination for use at down range instrumentation sites, including range ships and aircraft will be by the cognizant military department with the appropriate unified commander(s) through the FP.

9. AFCs will function within the following terms of reference and procedures. Nothing in these terms of reference is intended to usurp the Services and/or a commander's prerogatives or responsibilities in respect to frequency management. However, certain such responsibilities for departmental activities in the area of cognizance of an AFC may be delegated to the AFC by the Department concerned.

a. Objectives:

(1) To provide a radio frequency coordination system for DOD, National and Service Ranges and test sites.

(2) To minimize harmful interference at DOD, Service and National Ranges and test sites.

(3) To promote the DOD Electromagnetic Compatibility Program.

(4) To encourage maximum utilization of the radio frequency spectrum by promoting the cooperative use of this resource.

(5) To provide radio frequency coordination in support of research, development, test, and evaluation (RDT&E) and operational programs at DOD, National and Service Range and test sites.

b. Responsibilities:

(1) AFCs are responsible for attainment of the objectives listed above.

(2) AFCs are directly responsible to their respective departmental headquarters for administrative purposes and to the MCEB for policy guidance.

(3) AFCs shall advise the commanders of National or Service Test and Training Ranges and sites of foreseen radio frequency conflicts in proposed and scheduled operations and tests. Resolution of such conflicts is a responsibility of the commanders concerned.

(4) AFCs will assist, when requested, in the elimination of real time harmful electromagnetic interference to range and test site operations. In performing this function, the AFCs are authorized to request temporary radio silence on a frequency or band of frequencies on the part of any interfering activity for the period of time necessary to complete the operation in progress.

9. (Continued)

c. Coordination:

- (1) Unified commanders are the final frequency coordination authority within their area of jurisdiction.
- (2) AFCs are authorized to coordinate with all activities, military, Government, and non-Government, within their authorized areas of cognizance.
- (3) In areas under the jurisdiction of a unified commander, the AFCs will coordinate frequency proposals in support of range or site operations with the appropriate unified commander.
- (4) In CONUS, AFCs may, by mutual agreement among military activities within their geographical area of cognizance, arrange for time sharing and technical adjustments (emission, power output, etc.) of frequency assignments as required to minimize harmful interference and preclude conflicts. In areas under the jurisdiction of a unified commander, arrangements of this nature will be coordinated with the appropriate unified commander.
- (5) It is essential that particularly close liaison and coordination on matters of mutual interest be maintained between the AFCs and with other military and civil frequency coordination activities in their areas of cognizance.

d. Records:

- (1) AFCs will maintain current records of all frequencies which have been coordinated and/or assigned for use in their areas of cognizance. Such records will include frequencies assigned to military activities, military contractors, and those Government and non-Government assignments being shared with test range frequency assignments.
- (2) In unified area commands, records of the unified commander should be employed for information concerning assignments of other military activities within the area.
- (3) Records of AFCs will be made available to other military activities for use in frequency planning.

9. (Continued)

e. Frequency Requests:

(1) AFCs will review and evaluate frequency assignment requests proposed for use within their areas of cognizance. The review and evaluation will establish the compatibility of proposed frequencies with test range operations and other military activities in the area. Requests for frequencies in CONUS will be forwarded to the appropriate departmental headquarters of the requesting military activity with supporting technical comments. Requests received from unified commanders will be returned to the unified commander with supporting technical comments.

(2) If considered appropriate, coordination by the Military Services may be effected at departmental level with the Service having jurisdiction over the AFC concerned. An information copy of the requests should be provided the AFC for technical comment as may be necessary.

(3) AFCs, upon request, will provide any activity within their area of cognizance technical comments concerning the probability of harmful interference which might be caused or encountered by a proposed operation.

10. In event of a frequency conflict within an AFC's area of cognizance within CONUS which cannot be resolved satisfactorily through measures acceptable to the installations or units involved, the AFC will forward a complete and detailed report to the Washington Headquarters of his cognizant Department. Such problems will be resolved jointly at departmental level.

11. MILDEPs may appoint activity representatives as necessary to assist in fulfilling the mission of the AFC by mutual agreement among the activities concerned.

12. In the event a question regarding a frequency coordination problem arises that is not provided for herein, including frequency clearance for foreign governments, coordination will be effected with the FP.

ANNEX C TO ACP 190 US SUPP-1(C)

SYMBOLS AND DEFINITIONS

1. General

Symbols and definitions accepted by the IRAC are used generally by US frequency allocation and assignment authorities to define services and classes of stations.

2. Special Terms

Where a definition is followed by the parenthetical expression "(RR)", it is an indication that the definition comes from the ITU Radio Regulations, 1982 Edition, as revised by the World Administrative Radio Conferences, Geneva, 1985 and 1988. Where a definition is followed by "(CONV.)", it is an indication that the definition comes from the International Telecommunication Convention, Nairobi, 1982.

Active Satellite: An earth satellite carrying a station intended to transmit or retransmit radio-communication signals. (RR)

Altitude of the Apogee (Perigee): The altitude of the apogee (perigee) above a specified reference surface serving to represent the surface of the Earth. (RR)

ASDE: A radiolocation device employed for airport surface surveillance.

Assigned Frequency: The center of the frequency band assigned to a station. (RR)

Assigned Frequency Band: The frequency band the center of which coincides with the frequency assigned to the station and the width of which equals the necessary bandwidth plus twice the absolute value of the frequency tolerance. (RR)

Authorized Bandwidth: Authorized bandwidth is, for purposes of this publication, the necessary bandwidth (bandwidth required for transmission and reception of intelligence) and does not include allowance for transmitter drift or doppler shift.

2. (Continued)

Carrier Power of a Radio Transmitter: The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle under conditions of no modulation. This definition does not apply to pulse modulated emissions. (RR)

Characteristic Frequency: A frequency which can be easily identified and measured in a given emission (RR) (See also - Reference Frequency).

Community reception (in the broadcasting-satellite service): The reception of emissions from a broadcasting-satellite space station by receiving equipment, which in some cases may be complex and have antennae larger than those used for individual reception, and intended for use:

--by a group of the general public at one location, or

--through a distribution system covering a limited area. (RR)

Conterminous United States: The term "Conterminous United States" includes the 48 contiguous States and the District of Columbia. (See also definition for "United States" and "United States and Possessions").

Coordination Distance: Distance from an Earth station in a given azimuth within which a terrestrial station sharing the same frequency band may cause or be subject to more than a permissible level of interference. (RR)

Coordination Contour: The line joining the points which are on all azimuths around an Earth station at a distance from this station equal to the coordination distance corresponding to each azimuth. (RR)

Coordination Area: Area around an Earth station enclosed by the coordination contour. (RR)

Deep Space: Space at distances from the Earth approximately equal to or greater than the distance between the Earth and the Moon. (RR)

Distance Measuring Equipment(DME): Equipment that ascertains the distance of an interrogator from a transponder by measuring the time of transmission to and from the transponder.

Duplex Operation: Operating method in which transmission is possible simultaneously in both directions. (RR)

2. (Continued)

Effective Radiated Power: The power supplied to the antenna multiplied by the relative gain of the antenna in a given direction. (RR)

Electromagnetic Compatibility (EMC): EMC is the condition which prevails when telecommunications equipment is performing its individually designed function in a common electromagnetic environment without causing or suffering unacceptable degradation due to unintentional electromagnetic interference to or from other equipment in the same environment.

Environmental Communications: Communications in the maritime mobile service for the broadcast of information pertaining to the environment conditions in which vessels operate, i.e., weather, sea conditions, time signals of a grade adequate for practical navigation, notices to mariners and hazards to navigation.

Equivalent Isotropically Radiated Power (e.i.r.p.): The product of the power of an emission as supplied to an antenna and the antenna gain in a given direction relative to an isotropic antenna. (RR)

Equivalent Satellite-Link Noise Temperature: The noise temperature at the input of the Earth station receiver corresponding to the radio-frequency noise power which produces the total observed noise at the output of the satellite link excluding noise due to interference coming from satellite links using other satellites and from terrestrial systems. (RR)

Facsimile: A system of telecommunication for the transmission of fixed images, with or without half-tones, with a view to their reproduction in a permanent form. (RR)

Field-Disturbance Sensor: A restricted radiation device which establishes a radio frequency field in its vicinity and detects changes in the field resulting from the movement of persons or objects within the radio frequency field. Examples: microwave intrusion sensors; devices that use RF energy for production line counting and sensing.

Frequency Tolerance: The maximum permissible departure by the center frequency of the frequency band occupied by an emission from the assigned frequency or, by the characteristic frequency of an emission from the reference frequency. The frequency tolerance is expressed in parts 10^6 or in hertz. (RR)

2. (Continued)

Gain of an Antenna: The ratio of the power required at the input of a reference antenna to the power supplied to the input of the given antenna to produce, in a given direction, the same field at the same distance. When not specified otherwise, the figure expressing the gain of an antenna refers to the gain in the direction of the radiation main lobe. In services using scattering modes of propagation the full gain of an antenna may not be realizable in practice and the apparent gain may vary with time. (RR)

Geosynchronous Satellite: An Earth satellite whose period of revolution is equal to the period of rotation of the Earth about its axis. (RR)

Geostationary Satellite: A satellite, the circular orbit of which lies in the plane of the Earth's equator and which turns about the polar axis of the Earth in the same direction and with the same period as those of the Earth's rotation. The orbit on which a satellite should be placed to be a geostationary satellite is called the geostationary satellite orbit. (RR)

Harmful Interference: Any emission, radiation or induction which endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs or repeatedly interrupts a radiocommunication service. (RR)

Hertz: A unit of frequency which is equivalent to one cycle per second.

Inclination of an Orbit (of an Earth Satellite): The angle determined by the plane containing an orbit and the plane of the Earth's equator. (RR)

Incidental Radiation Device: A device that radiates radio frequency energy during the course of its operation although the device is not intentionally designed to generate radio frequency energy.

Individual Reception (in the broadcasting-satellite service): The reception of emissions from a broadcasting-satellite space station by simple domestic installations and in particular those possessing small antennae. (RR)

2. (Continued)

Industrial Heating Equipment: Any apparatus which utilizes a radio frequency oscillator or any other type of radio frequency generator and transmits radio frequency energy used for, or in connection with, industrial heating operations utilized in a manufacturing or production process.

Industrial, Scientific, and Medical Equipment: Radiation devices which use radio waves for industrial, scientific or medical purposes, including the transfer of energy by radio, and which are neither used nor intended to be used for radiocommunication.

Instrument Landing System (ILS): A radionavigation system which provides aircraft with horizontal and vertical guidance just before and during landing and, at certain fixed points, indicates the distance to the reference point of landing. (RR)

Instrument Landing System Glide Path: A system of vertical guidance embodied in the instrument landing system which indicates the vertical deviation of the aircraft from its optimum path of descent.

Instrument Landing System Localizer: A system of horizontal guidance embodied in the instrument landing system which indicates the horizontal deviation of the aircraft from its optimum path of descent along the axis of the runway. (RR)

Ionospheric Scatter: The propagation of radio waves by scattering as a result of irregularities or discontinuities in the ionization of the ionosphere. (RR)

Ionospher Sounder: A device that transmits signals for the purpose of determining ionospheric and radio wave propagation conditions.

Low-Power Communication Device: A restricted radiation device, exclusive of those employing conducted or guided radio frequency techniques, used for the transmission of signs, signals (including control signals), writing, images and sounds of intelligence of any nature by radiation of electromagnetic energy. Examples: Wireless microphone, phonograph oscillator, radio-controlled garage door opener, and radio-controlled models.

Marker Beacon: A transmitter in the aeronautical radionavigation service which radiates vertically a distinctive pattern for providing position information to aircraft. (RR)

2. (Continued)

Mean Power of a Radio Transmitter: The power supplied to the antenna transmission line by a transmitter during normal operation, averaged over a time sufficiently long compared with the period of the lowest frequency encountered in the modulation. A time of 1/10 second during which the mean power is greatest will be selected normally. (RR)

Medical Diathermy Equipment: Any apparatus (other than surgical diathermy apparatus designed for intermittent operation with low power), which utilizes a radio frequency oscillator or any other type of radio frequency generator and transmits radio frequency energy used for therapeutic purposes.

Miscellaneous ISM Equipment: Any apparatus other than that defined as medical diathermy equipment or industrial heating equipment, or otherwise excepted by those definitions, in which radio frequency energy is applied to materials to physical, biological, or chemical effects, such as heating, ionization of gases, mechanical vibrations, hair removal, and acceleration of charged particles, which do not involve communications or the use of radio receiving equipment.

Multi-Satellite Link: A radio link between a transmitting Earth station and a receiving Earth station through two or more satellites, without any intermediate Earth station. A multi-satellite link comprises one up path, one or more satellite-to-satellite paths and one down path. (RR)

Necessary Bandwidth: For a given class of emission, the minimum value of the occupied bandwidth sufficient to ensure the transmission of information at the rate and with the quality required for the system employed, under specified conditions. Emissions useful for the good functioning of the receiving equipment as, for example, the emission corresponding to the carrier of reduced carrier systems, shall be included in the necessary bandwidth. (RR)

Occupied Bandwidth: The frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5% of the total mean power radiated by a given emission. In some cases, for example multichannel frequency-division systems, the percentage of 0.5% may lead to certain difficulties in the practical application of the definitions of occupied and necessary bandwidth; in such cases a different percentage may prove useful. (RR)

2. (Continued)

Orbit: The path, relative to a specified frame of reference, described by the center of mass of a satellite or other object in space, subjected solely to natural forces, mainly the force of gravity. By extension, the path described by the center of mass of an object in space subjected to natural forces and occasional low energy corrective forces exerted by a propulsive device in order to achieve and maintain a desired path (RR)

Passive Satellite: An Earth satellite intended to transmit radiocommunication signals by reflection. (RR)

Peak Envelope Power of a Radio Transmitter: The average power supplied to the antenna transmission line by a transmitter during one radio frequency cycle at the highest crest of the modulation envelope, taken under conditions of normal operation. (RR)

Power: Whenever the power of a radio transmitter, etc., is referred to, it shall be expressed in one of the following terms:

--peak envelope power (P_p);

--mean power (P_m)

--carrier power (P_c).

For different classes of emissions, the relationships between peak envelope power, mean power, and carrier power, under the conditions of normal operation and no modulation, are contained in Recommendations of the CCIR, which may be used as a guide. (RR)
(See also - Carrier Power of a Radio Transmitter, Effective Radiated Power, Mean Power of a Radio Transmitter, and Peak Envelope Power of a Radio Transmitter.)

Priority: Priority, unless specifically qualified, is the right to occupy a specific frequency for authorized uses, free of harmful interference from stations of other agencies.

Period of a Satellite: The time elapsing between two consecutive passages of a satellite or planet through a characteristic point on its orbit. (RR)

Radar: A radiodetermination system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined. (RR)

2. (Continued)

Radar Beacon (racon): In the maritime radionavigation service, a receiver-transmitter device, which, when triggered by a surface search radar, automatically returns a distinctive signal which can appear on the display of the triggering radar, providing range, bearing and identification information. (RR)

Radio: A general term applied to the use of radio waves. (RR)

Radio Altimeter: A radionavigation equipment, on board an aircraft, which makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the ground. (RR)

Radiocommunication: Telecommunication by means of radio waves. (RR)

Radiodetermination: The determination of position, or the obtaining of information relating to position, by means of propagation properties of radio waves. (RR)

Radio Direction-Finding: Radiodetermination using the reception of radio waves for the purpose of determining the direction of a station or object. (RR)

Radiolocation: Radiodetermination used for purposes other than those of radionavigation. (RR)

Radionavigation: Radiodetermination used for the purposes of navigation, including obstruction warning. (RR)

Radiosonde: An automatic radio transmitter in the meteorological data. (RR)

Radio Waves (or Hertzian Waves): Electromagnetic waves of frequencies arbitrarily lower than 3000 GHz, propagated in space without artificial guide. (RR)

Reference Frequency: A frequency having a fixed and specific position with respect to the assigned frequency. The displacement of this frequency with respect to the assigned frequency has the same absolute value and sign that the displacement of the characteristic frequency has with respect to the center of the frequency band occupied by the emission. (RR) (See also Characteristic Frequency).

2. (Continued)

Restricted Radiation Device: A device in which the generation of radio frequency energy is intentionally incorporated into the design, and in which the radio frequency energy is conducted along wires or is radiated, exclusive of transmitters for which provisions are made under those parts of Chapter 7 of the NTIA Manual other than part 7.9, and exclusive of Industrial, Scientific, and Medical (ISM) equipment.

RF Stabilized Arc Welder: Any welding equipment that utilizes radio frequency energy to initiate and stabilize the arc. An RF stabilized arc welder includes the source of the RF and welding currents, the welding torch, and all interconnecting cables.

Satellite: A body which revolves around another body of preponderant mass and which has a motion primarily and permanently determined by the force of attraction of that other body. A body so defined which revolves around the Sun is called a planet or planetoid. (RR)

Satellite Link: A radio link between a transmitting Earth station and a receiving Earth station through one satellite. A satellite link comprises one up path and one down path. (RR)

Satellite Network: A satellite system or a part of a satellite system, consisting of only one satellite and the cooperating Earth stations. (RR)

Satellite System: A space system using one or more artificial Earth satellites. (RR)

Simplex Operation: Operating method in which transmission is made possible alternately in each direction, for example, by means of manual control. (RR)

Spacecraft: A man-made vehicle which is intended to go beyond the major portion of the Earth's atmosphere. (RR)

Space Radiocommunication: Any radiocommunication involving the use of one or more space stations or the use of one or more passive satellites or other objects in space. (RR)

Space System: Any group of cooperating Earth and/or space stations employing space radiocommunication for specific purposes. (RR)

Space Telecommand: The use of radiocommunication for the transmission of signals to a space station to initiate, modify or terminate functions of the equipment on a space object, including the space station. (RR)

2. (Continued)

Space Telemetry: The use of telemetering for the transmission from a space station of results of measurements made in a spacecraft, including those relating to the functioning of the spacecraft. (RR)

Spurious Emission: Emission on a frequency of frequencies which are outside the necessary band, and the level of which may be reduced without affecting the corresponding transmission of information. Spurious emissions include harmonic emissions, parasitic emissions and intermodulation products, but exclude emissions in the immediate vicinity of the necessary band, which are a result of the modulation process for the transmission of information. (RR)

Telecommunication: Any transmission, emission or reception of signs, signals, writings, images and sound or intelligence of any nature by wire, radio, visual or other electromagnetic systems. (RR)

Telegraphy: A system of telecommunications which is concerned in any process providing transmission and reproduction at a distance of documentary matter, such as written or printed matter or fixed images, or the reproduction at a distance of any kind of information in such a form. For the purposes of the Radio Regulations, however, unless otherwise specified therein, "telegraphy" shall mean "A system of telecommunications for the transmission of written matter by the use of a signal code". (CONV.)

Telemetry: The use of telecommunication for automatically indicating or recording measurements at a distance from the measuring instrument. (RR)

Telephony: A system of telecommunication set up for the transmission of speech or, in some cases, other sounds. (RR)

Television: A system of telecommunication for the transmission of transient images of fixed or moving objects. (RR)

Terrestrial Radiocommunication: Any radiocommunication other than space radiocommunication or radio astronomy. (RR)

Terrestrial Telecommand: The use of radiocommunication for the transmission of signals to a terrestrial station to initiate, modify, to terminate functions of equipment directly associated with the station, including the station itself.

2. (Continued)

Tropospheric Scatter: The propagation of radio waves by scattering as a result of irregularities or discontinuities in the physical properties of the troposphere. (RR)

Ultrasonic Equipment: Any apparatus which generates radio frequency energy and utilizes that energy to excite or drive an electromechanical transducer for the production of sonic or ultrasonic mechanical energy for industrial, scientific, medical, or other noncommunications purposes.

United States: The term "United States" includes the 50 States and the District of Columbia. (See also definitions for "Counterminous United States" and "United States and Possessions".)

United States and Possessions: The term "United States and Possessions" includes the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, and the territories and possessions (but less the Canal Zone). (See also definitions for "Conterminous United States" and "United States".)

Wired Radio Frequency System: Systems employing restricted radiation devices in which the radio frequency energy is conducted or guided along wires or in cables, including electric power and telephone lines.

3. Services

Where a definition is followed by parenthetical expression "(RR)", it is an indication that the definition comes from Article 1 of the ITU Radio Regulations, 1982 Edition, as revised by the World Administrative Radio Conferences, Geneva, 1985 and 1988.

Aeronautical Fixed Service: A fixed service intended for the transmission of information relating to air navigation, preparation for and safety flight. (RR)

Aeronautical Mobile Service: A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may also participate.

Aeronautical Mobile-Satellite Service: A mobile-satellite service in which mobile Earth stations are located on board aircraft. Survival craft stations and emergency positions indicating radiobeacon stations may also participate in this service. (RR)

3. (Continued)

Aeronautical Multicom Service: A mobile service not open to public correspondence, used to provide communications essential to conduct of activities being performed by or directed from private aircraft.

Aeronautical Radionavigation Service: A radionavigation service intended for the benefit of aircraft. (RR)

Aeronautical Radionavigation-Satellite Service: A radionavigation-satellite service in which mobile Earth stations are located on board aircraft. (RR)

Amateur Service: A service of self-training, intercommunication and technical investigation carried on by amateurs, that is by duly authorized persons interested in radio technique solely with a personal aim and without pecuniary interest. (RR)

Amateur Satellite Service: A radiocommunication service using space stations on Earth satellites for the same purposes as those of the amateur service. (RR)

Broadcasting Service: A radiocommunication service in which the transmission are intended for direct reception by the general public. This service may include some sound transmissions, television transmissions or other types of transmissions. (RR)

Broadcasting-Satellite Service: A radiocommunication service in which signals transmitted or retransmitted by space stations for direct reception by the general public. In the broadcasting-satellite service, the term "direct reception" shall encompass both individual reception and community reception. (RR)

Earth Exploration-Satellite Service: A radiocommunication service between Earth and one or more space stations in which:

- information relating to the characteristics of the Earth and its natural phenomena is obtained from instruments on Earth satellites;
- similar information is collected from airborne or Earth based platforms;
- such information may be distributed to Earth stations within the system concerned;
- platform interrogation may be included. (RR)

3. (Continued)

Fixed Service: A service of radiocommunication between specified fixed points. (RR)

Fixed Satellite Service: A radiocommunication service:

--between Earth stations at specified points when one or more satellites are used; in some cases this office includes satellite links, which may also be affected in the intersatellite service;

--between Earth stations at specified points when one or more satellites are used; in some cases this service includes satellite links, which may also be affected in the intersatellite service;

--for connection between one or more Earth stations at specified fixed points and satellites used for a service other than the fixed-satellite service for example, the mobile-satellite service, broadcasting-satellite service, etc.). (RR)

Inter-Satellite Service: A radiocommunication service providing links between artificial Earth satellites. (RR)

Land Mobile Service: A mobile service between base stations and land mobile stations, or between land mobile stations. (RR)

Land Mobile-Satellite Service: A mobile-satellite service in which mobile Earth stations are located on land. (RR)

Maritime Mobile Service: A mobile service between coast stations and ship stations, or between associated on-board communication stations; survival craft stations may also participate in this service. (RR)

Maritime Mobile-Satellite Service: A mobile-satellite service in which mobile Earth stations are located on board ships. Survival craft stations and emergency positions indicating radiobeacon stations may also participate in this service. (RR)

Maritime Radionavigation Service: A radionavigation service intended for the benefit of ships. (RR)

Maritime Radionavigation-Satellite Service: A radionavigation-satellite service in which mobile Earth stations are located on board ships. (RR)

3. (Continued)

Meteorological Aids Service: A radiocommunication service used for meteorological, including hydrological, observations and exploration. (RR)

Meteorological-Satellite Service: An Earth exploration-satellite service for meteorological purposes. (RR)

Mobile Service: A service of radiocommunication between mobile and land stations, or between mobile stations. (RR)

Mobile-Satellite Service: A radiocommunication Service:

--between mobile Earth station and one or more space stations used by this service;

--or between mobile Earth stations by means of one or more space stations;

--and if the system so requires, for connection between these space stations and one or more Earth stations at specified fixed points. (RR)

Port Operations Service: A maritime mobile service in or near a port, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the operational handling, the movement and the safety of ships and, in emergency, to the safety of persons. Messages which are of a public correspondence nature shall be excluded from this service. (RR)

Radio Astronomy Service: A service involving the use of radio astronomy. (RR)

Radiodetermination Service: A service involving the use of radiodetermination.

Radiodetermination-Satellite Service: A radiocommunication service involving the use of radiodetermination and the use of one or more space stations. (RR)

Radiolocation Service: A radiodetermination service involving the use of radiolocation. (RR)

3. (Continuation)

Radionavigation-Satellite Service: A radiodetermination-satellite service used for the same purposes as the radionavigation service; in certain cases this service includes transmission or retransmission of supplementary information necessary for the operation of the radionavigation systems. (RR)

Safety Service: A radiocommunication service used permanently or temporarily for the safeguarding of human life and property on the Earth's surface, in the air or in space. (RR)

Ship Movement Service: A maritime mobile safety service, other than a port operations service, between coast stations and ship stations, or between ship stations, in which messages are restricted to those relating to the movement of ships. Messages which are of a public correspondence nature shall be excluded from this service. (RR)

Space Operation Service: A radiocommunication service concerned exclusively with the operation of spacecraft, in particular tracking, telemetry and telecommand. These functions will normally be provided within the service in which the space station is operated. (RR)

Space Research Service: A radiocommunication service in which spacecraft or other objects in space are used for scientific or technological research purposes. (RR)

Standard Frequency Service: A radiocommunication service for scientific, technical and other purposes, providing the transmission of specified frequencies of stated high precision, intended for general reception. (RR)

Standard Frequency-Satellite Service: A radiocommunication service using space stations on Earth satellites for the same purposes as those of the standard frequency service. (RR)

Time Signal-Satellite Service: A radiocommunication service using space stations on Earth satellites for the same purposes as those of the time signal service. (RR)

Time Signal Service: A radiocommunication service for the transmission of time signals of stated high precision, intended for general reception. (RR)

4. Station Class Symbols and Definitions

Where a definition is followed by the parenthetical expression "(RR)", it is an indication that the definition is in the ITU Radio Regulations, 1982 Edition.

All Classes of Earth stations are fixed Earth stations except those which have the letter "A", "S", "L", or "M" suffixed to the station symbol or have the following station class symbols: TE, TG, TJ, TO, TQ and TU.) An "A" indicates the Earth station is aboard an aircraft, "S" that it is aboard a ship, "L" that it is on a land vehicle, and "M" that it is on any two or all three of the foregoing.

The suffix "R" shall be added to the established class of station symbol only if the station is to be used primarily as a repeater in the bands:

29.89-50.00 MHz	138.00-144.00 MHz
148.00-149.90 MHz	150.05-150.80 MHz
162.00-174.00 MHz	406.10-420.00 MHz

For this purpose, a repeater consists of a radio transmitter, a radio receiver and coupling between the two so as to retransmit unchanged, the received signal.

For those stations utilizing communications via the meteor burst propagation mode, add the suffix "MB". As examples, a base station which communicates with mobile stations, "FB", would become "FBMB", Mobile Station, "MO", becomes "MOMB" and Fixed Station, "FX" becomes "FXMB".

a. Stations - alphabetical by class definition

SYMBOLS	DEFINITIONS
FAB	Aeronautical Broadcast Station: An aeronautical station which makes scheduled broadcast of meteorological information and notices to airmen. (In certain instances, an aeronautical broadcast station may be placed on board a ship.
AX	Aeronautical Fixed Station: A station in the aeronautical fixed service. (RR)
RLA	Aeronautical Marker Beacon Station: A radionavigation land station in the aeronautical radionavigation service which employs a marker beacon.

4.a. (Continued)

- TB Aeronautical Mobile-Satellite Earth Station:
An Earth station in the aeronautical mobile-
satellite service. (RR)
- TJ Aeronautical Mobile-Satellite Mobile Earth Station:
A mobile earth station in the aeronautical mobile-
satellite service. (RR)
- EJ Aeronautical Mobile-Satellite Space Station: A
space station in the aeronautical mobile-
satellite service
- RLB Aeronautical Radiobeacon Station: A radiobeacon
station in the aeronautical radionavigation
service intended for the benefit of aircraft.
- TZ Aeronautical Radionavigation-Satellite Earth
Station: An Earth station in the aeronautical
radionavigation-satellite service.
- TO Aeronautical Radionavigation-Satellite Mobile
Earth Station: A mobile earth station in the
aeronautical radionavigation-satellite service.
(RR)
- EO Aeronautical Radionavigation-Satellite Space
Station: A space station in the aeronautical
radionavigation satellite service. (RR)
- FA Aeronautical Station: A land station in the
aeronautical mobile service. In certain
instances an aeronautical station may be placed
on board a ship or an Earth satellite. (RR)
- FLEA Aeronautical Telemetry Land Station: A
telemetry land station used in the flight
testing of manned or unmanned aircraft, missiles,
or major components thereof.
- MOEA Aeronautical Telemetry Mobile Station: A
telemetry mobile station used in testing of
manned or unmanned aircraft, missiles, or major
components thereof.
- FLU Aeronautical Utility Mobile Station: A land
station located at airdrome control towers and
used for control of ground vehicles and aircraft
on the ground at airdromes.

4.a. (Continued)

- MOU Aeronautical Utility Mobile Station: A mobile station used for communication, at airdromes, with aeronautical utility land station, ground vehicles, and aircraft on the ground. (All transmissions shall be subject to the control of the airdrome control station and shall be discontinued immediately when so requested by the airdrome control operator.)
- MA Aircraft Station: A mobile station in the aeronautical mobile service on board an aircraft or an air-space vehicle. (RR)
- FAC Airdrome Control Station: An aeronautical station providing communication between an airdrome control tower and aircraft.
- ROA Altimeter Station: A radionavigation mobile station in the aeronautical radionavigation service which employs a radio altimeter.
- FB Base Station: A land station in the land mobile service carrying on a service with land mobile stations. (RR)
- EB or EV Broadcasting-Satellite Space Station: A space station in the broadcasting-satellite service. (EB - sound broadcasting; EV - television broadcasting.) (RR)
- BC or BT Broadcasting Station: A station in the broadcasting service. (BC - Broadcasting station, sound; BT - Broadcasting station, television.) (RR)
- FC Coast Station: A land station in the maritime mobile service. (RR)
- TW Earth Exploration-Satellite Earth Station: An Earth station in the Earth exploration-satellite service. (RR)
- EW Earth Exploration-Satellite Space Station: A space station in the Earth exploration-satellite service. (RR)
- TP Earth Station (receiving): An Earth station used for receiving. (RR) (TP is not used on applications.)

4.a. (Continued)

- TE Earth Station (transmitting): An Earth station used for transmitting. (TE is not used on applications.)
- XM Experimental Composite Station: An experimental station used in experimental operations of a complex nature not readily specified or used in operations which is a composite of two or more of the established experimental categories.
- XC Experimental Contract Developmental Station: An experimental station used for the evaluation or testing under Government contract of electronics equipment or systems in a design or development stage.
- XD Experimental Development Station: An experimental station used for evaluation or testing of electronics equipment or systems in the design or development stage.
- XE Experimental Export Station: An experimental station intended for export and used for the evaluation or testing of electronics equipment or systems in the design or development stage.
- XR Experimental Research Station: An experimental station used in the basic studies concerning scientific investigation looking toward the improvement of the art of radiocommunications.
- EX Experimental Station: A station utilizing radio waves in experiments with a view to the development of science or technique. This definition does not include amateur stations. (EX is not used on applications.) (RR)
- XT Experimental Testing Station: An experimental station used for the evaluation or testing of electronics equipment or systems, including site selection and transmission path surveys, which have been developed for operational use.
- TC Fixed-Satellite Earth Station: An Earth station in the fixed-satellite service.
- EC Fixed-Satellite Space Station: A space station in the fixed satellite service.

4.a. (Continued)

- FX Fixed Station: A station in the fixed service.
(RR)
- FLEB Flight Telemetering Land Station: A telemetering land station the emissions of which are used for telemetering to a balloon; to a booster or rocket, excluding a booster or rocket in orbit about the Earth or in deep space; or to an aircraft, excluding a station used in the flight testing of an aircraft.
- MOEB Flight Telemetering Mobile Station: A telemetering mobile station used for telemetering from a balloon; from a booster or rocket, excluding a booster or rocket in orbit about the Earth or in deep space; or from an aircraft, excluding a station used in the flight testing of an aircraft.
- FAT Flight Test Station: An aeronautical station used for the transmission of essential communications in connection with the testing of aircraft or major components of aircraft.
- RLG Glide Path (Slope) Station: A radionavigation land station in the aeronautical service which employs the Instrument Landing System Glide Path.
- FXH Hydrologic and Meteorological Fixed Station: A fixed station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.
- FLH Hydrologic and Meteorological Land Station: A land station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.
- MOH Hydrologic and Meteorological Mobile Station: A mobile station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.
- ES Inter-Satellite Space Station: A space station in the inter-satellite service.
- TY Land Mobile-Satellite Earth Station: An Earth station in the land mobile-satellite service.

4.a. (Continued)

- TU Land Mobile-Satellite Mobile Earth Station: A mobile earth station in the land mobile-satellite service.
(RR)
- EU Land Mobile-Satellite Space Station: A space station in the land mobile-satellite service.
- ML Land Mobile Station: A mobile station in the land mobile service capable of surface movements within the geographical limits of a country or continent.
(RR)
- FL Land Station: A station in the mobile service not intended to be used while in motion.
- RLL Localizer Station: A radionavigation land station in the aeronautical radionavigation service which employs an Instrument Landing System Localizer.
- RLN Loran Station: A long distance radionavigation land station transmitting synchronized pulses. Hyperbolic lines of position are determined by the measurement of the difference in the time arrival of these pulses.
- FCB Marine Broadcast Station: A coast station which makes scheduled broadcast of time, meteorological, and hydrographic information.
- RLM Marine Radiobeacon Station: A radiobeacon station in the maritime radionavigation service intended for the benefit of ships.4. (Continued)
- TI Maritime Mobile-Satellite Earth Station: An Earth station in the maritime mobile-satellite service at a specified fixed point.
- TG Maritime Mobile-Satellite Mobile Earth station: Mobile Earth station in the maritime mobile-satellite service.
- EG Maritime Mobile-Satellite Space Station: A space station in the maritime mobile-satellite service.
- TX Maritime Radionavigation-Satellite Earth Station: An Earth station in the maritime radionavigation-satellite service.

4a.. (Continued)

- TQ Maritime Radionavigation-Satellite Mobile Earth Station: A mobile earth station in the maritime radionavigation-satellite service. (RR)
- EQ Maritime Radionavigation-Satellite Space Station: A space station in the maritime radionavigation-satellite service. (RR)
- WXD Meteorological Radar Station: A station in the meteorological aids service employing radar.
- TM Meteorological-Satellite Earth Station: An Earth station in the meteorological-satellite service. (RR)
- EM Meteorological-Satellite Space Station: A space station in the meteorological-satellite service. (RR)
- MO Mobile Station: A station in the mobile service intended to be used while in motion or during halts at unspecified points. (RR)
- OE Oceanographic Data Interrogating Station: A station in the maritime mobile service the emissions of which are used to initiate, modify or terminate functions of equipment directly associated with an oceanographic data station, including the station itself. (RR)
- OD Oceanographic Data Station: A station in the maritime mobile service located on a ship, buoy, or other sensor platform the emissions of which are used for transmission of oceanographic data. (RR)
- RLO Omnidirectional Range Station: A radionavigation station in the aeronautical radionavigation service providing direct indication of the bearing (omnibearing) of that station from an aircraft.
- MAP Portable Aircraft Station: A portable station operating in the aeronautical mobile service.
- MLP Portable Land Mobile Station: A portable station operating in the land mobile service.
- MOP Portable Mobile Station: A portable station operating in the mobile service.

4.a. (Continued)

MRP Portable Radiolocation Station: A portable station operating in the radiolocation service.

MSP Portable Ship Station: A portable station operating in the maritime mobile service.

RLC Radar Beacon (racon) Station: A station which employs a radar beacon (racon).

WXB Radar Beacon Precipitation Gage Station: A transponder station in the meteorological aids service, the emissions of which are used for telemetering.

RA Radio Astronomy Station: A station in the radio astronomy service. (This is always a receiving station.) (RR)

MOB Radio Beacon Mobile Station: A mobile station the emissions of which are used to determine its location.

TF Radiodetermination-Satellite Earth Station: A fixed earth station in the radiodetermination-service. (RR)

TL Radiodetermination-Satellite Mobile Earth Station: A mobile earth station in the radiodetermination-satellite service. (RR)

EF Radiodetermination-Satellite Space Station: A space station in the radiodetermination-satellite service. (RR)

RG Radio Direction-Finding Station: A radio determination station using radio direction-finding. (RR)

LR Radiolocation Land Station: A station in the radiolocation service not intended to be used while in motion. (RR)

MR Radiolocation Mobile Station: A station in the radiolocation service intended to be used while in motion or during halts at unspecified points. (RR)

RL Radionavigation Land Station: A station in the radionavigation service not intended to be used while in motion. (RR)

4.a. (Continued)

- RLTM Radionavigation Land Test Station: A radionavigation land station (Maintenance Test Facility) in the aeronautical radionavigation service which is used as a radionavigation calibration station for the transmission of essential information in connection with the testing and calibration of aircraft navigational aids, receiving equipment and interrogators at predetermined surface locations. The primary purpose of this facility is to permit maintenance testing by aircraft radio service personnel.
- RLTO Radionavigation Land Test Station: A radionavigation land station (Operational Test Facility) in the aeronautical radionavigation service which is used as a radionavigation calibration station for the transmission of essential information in connection with the testing and calibration of aircraft navigational aids, receiving equipment and interrogators at predetermined surface locations. The primary purpose of this facility is to permit the pilot to check a radionavigation system aboard the aircraft prior to takeoff.
- RO Radionavigation Mobile Station: A station in the radionavigation service intended to be used while in motion or during halts at unspecified points. (RR)
- TN Radionavigation-Satellite Earth Station: An Earth station in the radionavigation-satellite service. (RR)
- EN Radionavigation-Satellite Space Station: A space station in the radionavigation-satellite service. (RR)
- RLR Radio Range Station: A radionavigation land station in the aeronautical radionavigation service providing radial equisignal zones. (In certain instances a radio range station may be placed on board a ship.)
- WXR Radiosonde Station: A station in the meteorological aids service employing a radiosonde.

4.a. (Continued)

- WXRG Radiosonde Ground Station: A station in the meteorological aids service employing a ground station associated with a radiosonde.
- MS Ship Station: A mobile station in the maritime mobile service located on board a vessel, other than a survival craft, which is not permanently moored. (RR)
- SN Sounder Network Station: A station equipped with an ionosphere sounder used for the real-time selection of frequencies for operational communication circuits.
- SP Sounder Prediction Station: A station equipped with an ionosphere sounder for real-time monitoring of upper atmosphere phenomena or to obtain data for the prediction of propagation conditions.
- TT Space Operation Earth Station: An Earth station in the space operation service. (RR)
- ET Space Operation Space Station: A space station in the space operation service.
- TH Space Research Earth Station: An Earth station in the space research service. (RR)
- EH Space Research Space Station: A space station in the space research service. (RR)
- ME Space Station: A station located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere. (RR) (ME is not used on applications.)
- TD Space Telecommand Earth Station: An Earth station the emissions of which are used for space telecommand. (RR)
- ED Space Telecommand Space Station: A space station which receives emissions used for space telecommand. (RR)
- TETD Space Telecommand Transmitting Earth Station for an Emergency Position-Indicating Radio Beacon (EPIRB) in a Mobile-Satellite Service.

4.a. (Continued)

- TETR Space Telemetering Transmitting Earth Station for an Emergency Position-Indicating Radio Beacon (EPIRB) in a Mobile-Satellite Service.
- TR Space Telemetering Earth Station: An Earth station which receives emissions used for space telemetering. (RR)
- ER Space Telemetering Space Station: A space station the emissions of which are used for space telemetering. (RR)
- TK Space Tracking Space Station: An Earth station which transmits or receives emissions used for space tracking. (RR)
- EK Space Tracking Space Station: A space station which transmits or receives and retransmits emissions used for space tracking. (RR)
- TETK Space Tracking Transmitting Earth Station for an Emergency Position Indicating Radio Beacon (EPIRB) in a Mobile-Satellite Service.
- SS Standard Frequency Station: A station in the standard frequency service. (RR)
- EE Standard Frequency-Satellite Space Station: A space station in the standard frequency-satellite service. (RR)
- FLEC Surface Telemetering Land Station: A telemetering land station the emissions of which are intended to be received on the surface of the Earth.
- MOEC Surface Telemetering Mobile Station: A telemetering mobile station located on the surface of the Earth and the emissions of which are intended to be received on the surface of the Earth.
- RLS Surveillance Radar Station: A radionavigation land station in the aeronautical radionavigation service employing radar to display the presence of aircraft within its range. (In certain instances, a surveillance radar station may be placed on board a ship.)

4.a. (Continued)

- FAD Telecommand Aeronautical Station: A land station in the aeronautical mobile service the emissions of which are used for terrestrial telecommand.
- MAD Telecommand Aircraft Station: A mobile station in the aeronautical mobile service the emissions of which are used for terrestrial telecommand.
- FBD Telecommand Base Station: A land station in the mobile service the emissions of which are used for terrestrial telecommand.
- FCD Telecommand Coast Station: A land station in the maritime mobile service the emissions of which are used for terrestrial telecommand.
- FXD Telecommand Fixed Station: A fixed station in the fixed service the emissions of which are used for terrestrial telecommand.
- FLD Telecommand Land Station: A land station in the mobile service the emissions of which are used for terrestrial telecommand.
- MLD Telecommand Land Mobile Station: A mobile station in the land mobile service the emissions of which are used for terrestrial telecommand.
- MOD Telecommand Mobile Station: A mobile station in the mobile service the emissions of which are used for terrestrial telecommand.
- MSD Telecommand Ship Station: A mobile station in the maritime mobile service the emissions of which are used for terrestrial telecommand.
- FXE Telemetering Fixed Station: A fixed station the emissions of which are used for telemetering.
- FLE Telemetering Land Station: A land station the emissions of which are used for telemetering.
- MOE Telemetering Mobile Station: A mobile station the emissions of which are used for telemetering.

b. Stations - alphabetical by symbol

SYMBOLS	DEFINITIONS
AX	Aeronautical Fixed Station: A station in the aeronautical fixed service. (RR)
BC or BT	Broadcasting Station: A station in the broadcasting service. (BC - Broadcasting station, sound; BT - Broadcasting station, television.) (RR)
EB or EV	Broadcasting-Satellite Space Station: A space station in the broadcasting-satellite service. (EB - sound broadcasting; EV - television broadcasting.) (RR)
EC	Fixed-Satellite Space Station: A space station in the fixed-satellite service.
ED	Space Telecommand Space Station: A space station which receives emissions used for space telecommand. (RR)
EE	Standard Frequency-Satellite Space Station: A space station in the standard frequency-satellite service. (RR)
EF	Radiodetermination-Satellite Space Station: A space station in the radiodetermination-satellite service. (RR)
EG	Maritime Mobile-Satellite Space Station: A space station in the maritime mobile-satellite service. (RR)
EH	Space Research Space Station: A space station in the space research service.
EJ	Aeronautical Mobile-Satellite Space Station: A space station in the aeronautical mobile-satellite service.
EK	Space Tracking Space Station: A space station which transmits or receives and retransmits emissions used for space tracking.
EM	Meteorological-Satellite Space Station: A space station in the meteorological-satellite service.

4.b. (Continued)

- EN Radionavigation-Satellite Space Station: A space station in the radionavigation-satellite service. (RR)
- EO Aeronautical Radionavigation-Satellite Space Station: A space station in the aeronautical radionavigation-satellite service. (RR)
- EQ Maritime Radionavigation-Satellite Space Station: A space station in the maritime radionavigation-satellite service.
- ER Space Telemetering Space Station: A space station the emissions of which are used for space telemetering. (RR)
- ES Inter-Satellite Space Station: A space station in the inter-satellite service. (RR)
- ET Space Operations Space Station: A space station in the space operation service.
- EU Land Mobile-Satellite Space Station: A space station in the land mobile-satellite service. (RR)
- EW Earth Exploration-Satellite Space Station: A space station in the Earth exploration-satellite service. (RR)
- EX Experimental Station: A station utilizing radio waves in experiments with a view to development of science or technique. This definition does not include amateur stations. (RR) (EX is not used on applications).
- FA Aeronautical Station: A land station in the aeronautical mobile service. In certain instances an aeronautical station may be placed on board a ship or an Earth satellite. (RR)
- FAB Aeronautical Broadcast Station: An aeronautical station which makes scheduled broadcasts of meteorological information and notices to airmen. (In certain instances, an aeronautical broadcast station may be placed on board a ship.)

4.b. (Continued)

- FAC Airdrome Control Station: An aeronautical station providing communication between an airdrome control tower and aircraft.
- FAD Telecommand Aeronautical Station: A land station in the aeronautical mobile service the emissions of which are used for terrestrial telecommand.
- FAT Flight Test Station: An aeronautical station used for the transmission of essential communications in connection with the testing of aircraft or major components of aircraft.
- FB Base Station: A land station in the land mobile service carrying on a service with land mobile stations. (RR)
- FBD Telecommand Base Station: A land station in the mobile service the emissions of which are used for terrestrial telecommand.
- FC Coast Station: A land station in the maritime mobile service (RR)
- FCB Marine Broadcast Station: A coast station which makes scheduled broadcasts of time, meteorological, and hydrographic information.
- FCD Telecommand Coast Station: A land station in the maritime mobile service the emissions of which are used for terrestrial telecommand.
- FL Land Station: A station in the mobile service not intended to be used while in motion. (RR)
- FLD Telecommand Land Station: A land station the emissions of which are used for terrestrial telecommand.
- FLE Telemetering Land Station: A land station the emissions of which are used for telemetering.
- FLEA Flight Telemetering Land Station: A telemetering land station the emissions of which are used for telemetering to a balloon; to a booster or rocket, excluding a booster or rocket in orbit about the Earth or in deep space; or to an aircraft, excluding a station used in the flight testing of an aircraft.

4.b. (Continued)

- FLEB Flight Telemetry Land Station: A telemetry land station the emissions of which are used for telemetry to a balloon; to a booster or rocket, excluding a booster or rocket in orbit about the Earth or in deep space; or to an aircraft, excluding a station used in the flight testing of an aircraft.
- FLEC Surface Telemetry Land Station: A telemetry land station the emissions of which are intended to be received on the surface of the Earth.
- FLH Hydrologic and Meteorological Land Station: A land station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.
- FLU Aeronautical Utility Land Station: A land station located at airdrome control towers and used for control of ground vehicles and aircraft on the ground at airdromes.
- FX Fixed Station: A station in the fixed service. (RR)
- FXD Telecommand Fixed Station: A fixed station the emissions of which are used for terrestrial telecommand.
- FXE Telemetry Fixed Station: A fixed station the emissions of which are used for telemetry.
- FXH Hydrologic and Meteorological Fixed Station: A fixed station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.
- LR Radiolocation Land Station: A station in the radiolocation service not intended to be used while in motion. (RR)
- MA Aircraft Station: A mobile station in the aeronautical mobile service on board an aircraft or an air-space vehicle. (RR)
- MAD Telecommand Aircraft Station: A mobile station in the aeronautical mobile service the emissions of which are used for terrestrial telecommand.

4.b. (Continued)

- MAP Portable Aircraft Station: A portable station operating in the aeronautical mobile service.
- ME Space Station: A station located on an object which is beyond, is intended to go beyond, or has been beyond, the major portion of the Earth's atmosphere. (RR) (ME is not used on applications.)
- ML Land Mobile Station: A mobile station in the land mobile service capable of surface movement within the geographical limits of a country or continent. (RR)
- MLD Telecommand Land Mobile Station: A mobile station in the land mobile service the emissions of which are used for terrestrial telecommand.
- MLP Portable Land Mobile Station: A portable station operating in the land mobile service.
- MO Mobile Station: A station in the mobile service intended to be used while in motion or during halts at unspecified points. (RR)
- MOB Radio Beacon Mobile Station: A mobile station the emissions of which are used to determine its location.
- MOD Telecommand Mobile Station: A mobile station the emissions of which are used for terrestrial telecommand.
- MOE Telemetering Mobile Station: A mobile station the emissions of which are used for telemetering.
- MOEA Aeronautical Telemetering Mobile Station: A telemetering mobile station used in the flight testing of manned or unmanned aircraft, missiles, or major components thereof.
- MOEB Flight Telemetering Mobile Station: A telemetering mobile station the emissions of which are used for telemetering from a balloon; from a booster or rocket, excluding a booster or rocket in orbit about the Earth or in deep space; or from an aircraft, excluding a station used in the flight testing of an aircraft.

4.b. (Continued)

- MOEC Surface Telemetering Mobile Station: A telemetering mobile station located on the surface of the Earth and the emissions of which are intended to be received on the surface of the Earth.
- MOH Hydrologic and Meteorological Mobile Station: A mobile station the emissions of which are used for the automatic transmission of either hydrologic or meteorological data, or both.
- MOP Portable Mobile Station: A portable station operating in the mobile service.
- MOU Aeronautical Utility Mobile Station: A mobile station used for communication, at airdromes, with the aeronautical utility land station, ground vehicles, and aircraft on the ground. (All transmissions shall be subject to the control of the airdrome control station and shall be discontinued immediately when so requested by the airdrome control operator.)
- MR Radiolocation Mobile Station: A station in the radiolocation service intended to be used while in motion or during halts at unspecified points. (RR)
- MRP Portable Radiolocation Station: A portable station operating in the radiolocation service.
- MS Ship Station: A mobile station in the maritime mobile service located on board a vessel, other than a survival craft, which is not permanently moored. (RR)
- MSD Telecommand Ship Station: A mobile station in the maritime mobile service the emissions of which are used for terrestrial telecommand.
- MSP Portable Ship Station: A portable station operating in the maritime mobile service.
- OD Oceanographic Data Station: A station in the maritime mobile service located on a ship, buoy or other sensor platform the emissions of which are used for the transmission of oceanographic data. (RR)

4.b. (Continued)

- OE Oceanographic Data Interrogating Station: A station in the maritime mobile service the emissions of which are used to initiate, modify, or terminate functions of equipment directly associated with an oceanographic data station, including the station itself. (RR)
- RA Radio Astronomy Station: A station in the radio astronomy service. (RR) (This is always a receiving station.)
- RG Radio Direction-Finding Station: A radiodetermination station using radio direction-finding. (RR)
- RL Radionavigation Land Station: A station in the radionavigation service not intended to be used while in motion. (RR)
- RLA Aeronautical Marker Beacon Station: A radionavigation land station in the aeronautical radionavigation service which employs a marker beacon.
- RLB Aeronautical Radiobeacon Station: A radiobeacon station in the aeronautical radionavigation service intended for the benefit of aircraft.
- RLC Radar Beacon (Racon) Station: A station which employs a radar beacon (racon).
- RLG Glide Path (Slope) Station: A radionavigation land station in the aeronautical radionavigation service which employs the Instrument Landing System Glide Path.
- RLL Localizer Station: A radionavigation land station in the aeronautical radionavigation service which employs an Instrument Landing System Localizer.
- RLM Marine Radiobeacon Station: A radiobeacon station in the maritime radionavigation service intended for the benefit of ships.
- RLN Loran Station: A long distance radionavigation land station transmitting synchronized pulses. Hyperbolic lines of position are determined by the measurement of the difference in the time of arrival of these pulses.

4.b. (Continued)

- RLO Omnidirectional Range Station: A radionavigation land station in the aeronautical radionavigation service providing direct indication of the bearing (omnibearing) of that station from an aircraft.
- RLR Radio Range Station: A radionavigation land station in the aeronautical radionavigation service providing radial equisignal zones. (In certain instances a radio range station may be placed on board a ship.)
- RLS Surveillance Radar Station: A radionavigation land station in the aeronautical radionavigation service employing radar to display the presence of aircraft within its range. (In certain instances, a surveillance radar station may be placed on board a ship.)
- RLTM Radionavigation Land Test Station: A radionavigational land station (Maintenance Test Facility) in the aeronautical radionavigation service which is used as a radionavigation calibration station for the transmission of essential information in connection with the testing and calibration of aircraft navigational aids, receiving equipment and interrogators at predetermined surface locations. The primary purpose of this facility is to permit maintenance testing by aircraft radio service personnel.
- RLTO Radionavigation Land Test Station: A radionavigation land station (Operational Test Facility) in the aeronautical radionavigation service which is used as a radionavigation calibration station for the transmission of essential information in connection with the testing and calibration of aircraft navigational aids, receiving equipment and interrogators at predetermined surface locations. The primary purpose of this facility is to permit the pilot to check a radionavigation system aboard the aircraft prior to takeoff.
- RO Radionavigation Mobile Station: A station in the radionavigation service intended to be used while in motion or during halts at unspecified points.
(RR)

4.b. (Continued)

ROA Altimeter Station: A radionavigation mobile station in the aeronautical radionavigation service which employs a radio altimeter.

SN Sounder Network Station: A station equipped with an ionosphere sounder used for the real-time selection of frequencies for operational communication circuits.

SP Sounder Prediction Station: A station equipped with an ionosphere sounder for real-time monitoring of upper atmosphere phenomena or to obtain data for the prediction of propagation conditions.

SS Standard Frequency Station: A station in the standard frequency service. (RR)

TB Aeronautical Mobile-Satellite Earth Station: An Earth station in the aeronautical mobile-satellite service. (RR)

TC Fixed-Satellite Earth Station: An Earth station in the fixed-satellite service. (RR)

TD Space Telecommand Earth Station: An Earth station the emissions of which are used for space telecommand. (RR)

TE Earth Station (transmitting): An Earth station used for transmitting. (TE is not used on applications.) (RR)

TETD Space Telecommand Transmitting Earth Station for an Emergency Position-Indicating Radio Beacon (EPIRB) in a Mobile-Satellite Service.

TETK Space Tracking Transmitting Earth Station for an Emergency Position Indicating Radio Beacon (EPIRB) in a Mobile-Satellite Service.

TETR Space Telemetry Transmitting Earth Station for an Emergency Position-Indicating Radio Beacon (EPIRB) in a Mobile-Satellite Service.

TF Radiodetermination-Satellite Earth Station: A fixed earth station in the radiodetermination-service. (RR)

4.b. (Continued)

- TG Maritime Mobile-Satellite Mobile Earth Station: A mobile Earth station in the maritime mobile-satellite service. (RR)
- TH Space Research Earth Station: An Earth station in the space research service. (RR)
- TI Maritime Mobile-Satellite Earth Station: An Earth station in the maritime mobile-satellite service at a specified fixed point. (RR)
- TJ Aeronautical Mobile-Satellite Mobile Earth Station: A mobile earth station in the aeronautical mobile-satellite service. (RR)
- TK Space Tracking Earth Station: An Earth station which transmits or receives emissions used for space tracking. (RR)
- TL Radiodetermination-Satellite Mobile Earth Station: A mobile earth station in the radiodetermination-satellite service. (RR)
- TM Meteorological-Satellite Earth Station: An Earth station in the meteorological-satellite service. (RR)
- TN Radionavigation-Satellite Earth Station: An Earth station in the radionavigation-satellite service. (RR)
- TO Aeronautical Radionavigation-Satellite Mobile Earth Station: A mobile earth station in the aeronautical radionavigation-satellite service. (RR)
- TP Earth Station (receiving): An Earth station used for receiving. (RR) (TP is not used on applications.)
- TQ Maritime Radionavigation-Satellite Mobile Earth Station: A mobile earth station in the maritime radionavigation-satellite service. (RR)
- TR Space Telemetry Earth Station: An Earth station which receives emissions used for space telemetry.

4.b. (Continued)

TT Space Operation Earth Station: An Earth station in the space operation service. (RR)

TU Land Mobile-Satellite Mobile Earth Station: A mobile earth station in the land mobile-satellite service. (RR)

TW Earth Exploration-Satellite Earth Station: An Earth station in the Earth exploration-satellite service. (RR)

TX Maritime Radionavigation-Satellite Earth Station: An Earth station in the maritime radionavigation-satellite service. (RR)

TY Land Mobile-Satellite Earth Station: An Earth station in the land mobile-satellite service. (RR)

TZ Aeronautical Radionavigation-Satellite Earth Station: An Earth station in the aeronautical radionavigation-satellite service. (RR)

WXB Radar Beacon Precipitation Gate Station: A transponder station in the meteorological aids service, the emissions of which are used for telemetering.

WXD Meteorological Radar Station: A station in the meteorological aids service employing radar.

WXR Radiosonde Station: A station in the meteorological aids service employing a radiosonde.

WXRG Radiosonde Ground Station: A station in the meteorological aids service employing a ground station associated with a radiosonde.

XC Experimental Contract Development Station: An experimental station used for the evaluation or testing under Government contract of electronics equipment or systems in a design or development stage.

XD Experimental Developmental Station: An experimental station used for evaluation or testing of electronics equipment or systems in a design or development stage.

4.b. (Continued)

- XE Experimental Export Station: An experimental station intended for export and used for the evaluation or testing of electronics equipment or systems in the design or development stage.
- XM Experimental Composite Station: An experimental station used in experimental operations of a complex nature not readily specified or used in an operation which is a composite of two or more of the established experimental categories.
- XR Experimental Research Station: An experimental station used in basic studies concerning scientific investigation looking toward the improvement of the art of radicomunications.
- XT Experimental Testing Station: An experimental station used for the evaluation or testing of electronics equipment or systems, including site selection and transmission path surveys, which have been developed for operational use.

ANNEX D TO ACP 190 US SUPP-1(C)

PROCEDURE FOR FIELD LEVEL SELECTION AND COORDINATION
OF THE USE OF TELEMETRY AND RADIOLOCATION FREQUENCIES

1. Purpose

The purpose of this procedure is to provide for the local selection of frequencies and to minimize, through effective coordination, the possibility of harmful interference in the bands and areas indicated below.

2. Applicability

This procedure is applicable to all use of frequencies by U.S. Government radio stations within CONUS in the bands 1435-1530 MHz and 2310-2390 MHz.

It is also applicable to the use of frequencies by U.S. Government radio stations within the US&P in the following bands for the purposes indicated:

1030 MHz - Land based interrogators
1215-1400 MHz - Land based radars
2700-2900 MHz - Land based radars
9000-9200 MHz - Land based radars

3. Coordinators

a. The frequency coordination specified in this procedure for the bands 1435-1530 MHz and 2310-2390 MHz shall be effected by liaison with the appropriate office listed below:

<u>Office</u>	<u>Area</u>
DOD Western Area Frequency Coordinator Pt. Mugu, CA 93042-5000 Telephone: 805-989-7983 or 7981 Autovon: 351-7983 or 7981	California south of 37°30' N, including all offshore islands.
DOD Area Frequency Coordinator Nellis AFB, NV 89191-6340 Telephone: 702-652-3414/7 Autovon: 682-3414/7	Nevada; Utah west of 111° W; Idaho south of 44° N.

3.a. (Continued)

DOD Area Frequency Coordinator
State of Arizona
ATTN: SFIS-FAC-SH
Ft. Huachuca, AZ 85613-5000
Telephone: 602-538-6423
Autovon: 879-6423

Arizona

DOD Area Frequency Coordinator
ATTN: SFIS-FAC-SS
White Sands Missile Range
NM 88002-5526
Telephone: 505-678-5417
Autovon: 258-3702
FTS: 898-5017

Colorado west of 108° W;
New Mexico; Texas west of
104° W; Utah east of 111° W.

Army Frequency Management Office
Continental United States
ATTN: SFIS-FAC-SC
Ft. Sam Houston, TX 78234-5000
Telephone: 512-221-4845
Autovon: 471-4845
FTS: 746-2820

Alabama, Arkansas, California,
Colorado (less the area west
of 108°W), Connecticut,
Delaware, Florida, Georgia,
Idaho, Illinois, Indiana, Iowa,
Kansas, Kentucky, Louisiana,
Maine, Maryland (less certain
area which are included in the
Military District of Washington)
Massachusetts, Michigan,
Minnesota, Mississippi Missouri,
Montana, Nebraska, Nevada, New
Hampshire, New Jersey, New York
North Carolina, North Dakota,
Ohio, Oklahoma, Oregon, Pennsyl-
vania, Rhode Island, South
Carolina, South Dakota,
Tennessee, Texas (less Ft Bliss
and 150 MIRAD thereof), Utah
(less the area east of 111°W),
Vermont, Virginia (less certain
areas which are included in the
Military District of Washington)
Washington, West Virginia,
Wisconsin and Wyoming

DOD Gulf Area Frequency Coordinator
Eglin AFB, FL 32542
Telephone: 904-882-4416
Autovon: 872-4416

Alabama south of 33°30' N;
Florida west of 83° W;
Georgia west of 83°W, south
of 33°30'N; Louisiana east of
90°W; Mississippi east of
90°W, south of 33°30'N.

3.a. (Continued)

DOD Eastern Area Frequency
Coordinator
Patrick AFB, FL 32945
Telephone: 305-494-5366
Autovon: 854-5366

Florida east of 83° W;
Georgia east of 83° W;
south of 31°30' N.

Mid-Atlantic Area Frequency
Coordinator (CTR)
Naval Air Test Center
Patuxent River, MD 20670-5304
Telephone: 301-863-1194
Autovon: 356-1194

That area of the eastern
United States and the
Atlantic Ocean south of
41° N; east of a line
starting at the inter-
section of 33°30' N and
83° W; then south to the
intersection of 31°30' N
and 83° W; north of 31°30'
N; west of 68°40' W.

Area Frequency Coordinator
Department of the Air Force
USAF Frequency Management Center
Washington, DC 20330-6431
Telephone: 202-475-1825
Autovon: 335-1825

Alabama north of 33°30' N;
Connecticut, Kentucky,
Maine, Massachusetts,
Mississippi less east of
90° W, south of 33°30' N;
New Hampshire, New Jersey
north of 41° N; New York
north of 41° N; Ohio,
Rhode Island, Tennessee,
Vermont, West Virginia,
and those areas of the
following states west of
the Mid-Atlantic AFC area:
Georgia north of 33°30' N;
Maryland, North Carolina,
Pennsylvania including
that north of 41° N; South
Carolina, and Virginia.

Non-Government: Aerospace and Flight Test Radio Coordinating
Council (AFTRCC) Coordinator

Aerospace and Flight Test Radio Coordinating Council
P.O. Box 718
Hawthorne, CA 90251
Telephone: 213-970-6563 or 316-526-2764

3. (Continued)

b. The frequency coordination specified in this procedure for 1030 MHz and the bands 1215-1400 MHz; 2700-2900 MHz, and 9000-9200 MHz shall be effected by liaison with the appropriate office listed below:

Federal Aviation Administration
Frequency Management Officer,
AMN-464H
17900 Pacific Hwy. South C-68966
Seattle, WA 98168
Telephone: 206-431-2407/2503

Colorado, Idaho, Montana,
Oregon, Utah, Washington,
and Wyoming.

Federal Aviation Administration
Frequency Management Officer
AWP-406
P.O. Box 92007
Worldway Postal Center
Los Angeles, CA 90009-2007
Telephone: 231-297-1340

Arizona, California,
including all offshore
islands; Nevada.

Federal Aviation Administration
Frequency Management Officer,
ACE-433.6
601 E. 12th St.
Kansas City, MO 64106
Telephone: 816-374-5647

Iowa, Kansas, Missouri,
and Nebraska.

Federal Aviation Administration
Frequency Management Officer
ASW-465
4400 Blue Mound Rd.
Fort Worth, TX 76193-0465
Telephone: 817-624-5465

Arkansas, Louisiana, New
Mexico, Oklahoma, and Texas.

Federal Aviation Administration
Frequency Management Officer
AGL-423
2300 East Devon Ave.
Des Plaines, IL 60018
Telephone: 312-694-7332

Illinois, Indiana,
Michigan, Minnesota, North
Dakota, South Dakota,
Ohio, and Wisconsin.

Federal Aviation Administration
Frequency Management Officer,
ASO-465
P.O. Box 20636
Atlanta, GA 30320
Telephone: 404-763-7385

Alabama, Florida, Georgia,
Kentucky, Mississippi,
North Carolina, Puerto
Rico, South Carolina,
Tennessee, US&P in the
Caribbean; Virgin Islands.

3.b. (Continued)

Federal Aviation Administration
Frequency Management Officer,
AEA-435
Fitzgerald Federal Building
JFK International Airport
Jamaica, NY 11430
Telephone: 212-917-1204

Delaware, District of
Columbia, Maryland, New
Jersey, New York,
Pennsylvania, Virginia,
and West Virginia.

Federal Aviation Administration
Frequency Management Officer,
ANE-461E
12 New England Executive Park
Burlington, MA 01803
Telephone: 617-273-7717

Connecticut, Maine,
Massachusetts, New
Hampshire, Rhode Island,
and Vermont.

Federal Aviation Administration
Frequency Management Officer,
AAL-464B
701 C St., P.O. Box 14
Anchorage, AK 99513-0087
Telephone: 907-271-5343

Alaska.

Federal Aviation Administration
Frequency Management Officer
AWP-406H
Honolulu ARTCC
4204 Diement Officer,
ANE-461E
12 New England Executive Park
Burlington, MA 01803
Telephone: 617-273-7717

Hawaii and US&P in the
Pacific Ocean.

Massachusetts, New
Hampshire, Rhode Island,
and Vermont.

Federal Aviation Administration
Frequency Management Officer,
AAL-464B
701 C St., P.O. Box 14
Anchorage, AK 99513-0087
Telephone: 907-271-5343

Alaska.

Federal Aviation Administration
Frequency Management Officer
AWP-406H
Honolulu ARTCC
4204 Di

Hawaii and US&P in the
Pacific Ocean.

4. Procedures

All proposed frequency assignments as described above shall be coordinated by the applicant with the appropriate Coordinator according to procedures mutually agreeable to the Coordinator and applicant concerned. If the applicant wishes, the Coordinator will recommend a frequency based on the applicant's requirements and the technical particulars furnished by the applicant. The Coordinator will inform the applicant of the probability of any harmful interference involving the proposed assignment and, if appropriate, will recommend alternatives and/or restrictions to preclude such interference. The Coordinator's comments to the applicant will be based on his records of spectrum usage in his geographical area of responsibility and such additional coordination with other entities and activities in that area which he deems appropriate. For the bands 1435-1535 and 2310-2390 MHz, such coordination will specifically include, as appropriate, the AFTRCC, and will be effected according to procedures mutually agreeable to the Coordinator and the AFTRCC Coordinator. The applicant shall ensure that the appropriate comments of the Coordinator are included on the frequency proposal.

ANNEX E TO ACP 190 US SUPP-1(C)

ACRONYMS USED IN THIS PUBLICATION

ABNCP	- Airborne Command Post
AEPG	- Army Electronic Proving Ground
AFC	- Area Frequency Coordinator
AFTRCC	- Aerospace and Flight Test Radio Coordinating Council
AOR	- Area of Responsibility
ASD(C3I)	- Assistant Secretary of Defense for Command, Control, Communications and Intelligence
C-E	- Communications-Electronics
C3CM	- Command and Control Communications Countermeasures
CCEB	- Combined Communications-Electronic Board
CFAL	- Combined Frequency Allocation List
CINC	- Commanders in Chief
CINCFOR	- Commander in Chief Forces Command
CINCNORAD	- Commander in Chief North America Defense
CINCSAC	- Commander in Chief Strategic Air Command
COMNAVTELCOM	- Commander, Naval Telecommunications Command
CONUS	- Contiguous 48 States
CW	- Continuous Wave
DCA	- Defense Communications Agency
DCS	- Defense Communications System

DOD - Department of Defense

ECAC - Electromagnetic Compatibility Analysis Center

EIC - Engineers in Charge

EMC - Electromagnetic Compatibility

FAL - Frequency Allocation List

FBM(Broadcast) - Fleet Ballistic Missile

FCC - Federal Communications Commission

FP - Frequency Panel

FMO - Frequency Management Office

FRRS - Frequency Resource Record System

GHz - Gigahertz

GMF - Government Master File

GMFSCS - Ground Mobile Forces Satellite Communications Sub-System

HF - High Frequency

IFL - International Frequency List

IFRB - International Frequency Registration Board

IRAC - Interdepartment Radio Advisory Committee

ITU - International Telecommunication Union

JCS - Joint Chiefs of Staff

JTC3A - Joint Tactical Command Control and Communications Agency

JTF - Joint Task Force

kHz - Kilohertz

KMR - Kwajalein Missile Range

kW	- Kilowatt
MARS	- Military Affiliate Radio Service
MCEB	- Military Communications- Electronics Board
MF	- Medium Frequency
MHz	- Megahertz
MIFR	- Master International Frequency Register
MIJI	- Meaconing, Intrusion, Jamming and Interference
MILDEP	- Military Department
MM	- Maritime Mobile
NCS	- National Communications System
NEACP	- National Emergency Airborne Command Post
NSA	- National Security Agency
NTIA	- National Telecommunications and Information Administration
NTIA MANUAL	- Manual of Regulations and Procedures for Federal Radio Frequency Management
OADR	- Originating Agency's Determination Required
"OR"	- Aeronautical Mobile Off-Route
OSD	- Office of the Secretary of Defense
OUS&P	- Outside the United States and its Possessions
PMTC	- Pacific Missile Test Center
"R"	- Aeronautical Mobile Route
RDT&E	- Research, Development, Test and Evaluation
RF	- Radio Frequency
RFA	- Radio Frequency Authorization
SAR	- Search and Rescue

SFAF - Standard Frequency Action Format

SPS - Spectrum Planning Subcommittee

STL - Studio Transmitter Link

TACAMO - Take Charge and Move Out (Designator for Navy Airborne VLF Relay System)

UHF - Ultra High Frequency

USCINCCENT - US Commander in Chief Central Command

USCINCEUR - US Commander in Chief European Command

USCINCLANT - US Commander in Chief Atlantic Command

USCINCPAC - US Commander in Chief Pacific Command

USCINCSO - US Commander in Chief Southern Command

USCINCSOC - US Commander in Chief Special Operations Command

USCINCSpace - US Commander in Chief Space Command

USCINTRANS - US Commander in Chief Transportation Command

US&P - United States and its Possessions

WARC - World Administrative Radio Conference

WHCA - White House Communications Agency

WWABNCP - World Wide Airborne Command Post

VHF - Very High Frequency

ANNEX F TO ACP 190 US SUPP-1(C)

SECURITY CLASSIFICATION GUIDE
FOR
FREQUENCY ASSIGNMENT RECORDS

1. Introduction

NTIA with DOD concurrence has issued new security guidelines governing the release of frequency assignment records contained in the GMF. It is therefore appropriate to provide similar guidance to the DOD user agencies with respect to the security classification of frequency assignment data outputs.

2. Background

Although most of the frequency assignment records in the GMF and FRRS data bases are individually UNCLASSIFIED, per se, lists of UNCLASSIFIED frequency assignment records in a given range of frequencies or in a given area can be classified under the provisions of Sections 1.3(a), 1.3(a) (6) and 1.3(b) of Executive Order 12356 of April 2, 1982 because they can provide information leading to the disclosure of military or national security related operations, and scientific and technological matters relating to the national security. Such lists can indicate the overall strategic telecommunication capabilities of the US and their disclosure could cause damage to the national security. The continued protection of this information is essential to the national security because it pertains to communications security and it reveals vulnerability and capability data, the unauthorized disclosure of which can reasonably be expected to result in nullifying the effectiveness of telecommunication networks and capabilities of the US.

3. Scope

This publication provides guidance for the protection of data extracted from FRRS (SECRET) and/or GMF (CONFIDENTIAL) frequency assignment records, and exchange of such extracts between DOD agencies, other government agencies, civil agencies, or with contractor entities under contract to any DOD agency. Nothing in this guide shall preclude any DOD agency from providing UNCLASSIFIED frequency assignment records to any other government agency or contractor as UNCLASSIFIED for the purpose of coordination of a frequency assignment, resolution of interference, or for electromagnetic compatibility studies. Extracts classified CONFIDENTIAL in accordance with paragraph 5 of this annex will be handled as directed in current DOD security directives.

4. Definitions

a. For the purpose of this classification guidance a list of frequency assignments includes:

1. A compilation of two or more complete or partial frequency assignment records.
2. Statistical summaries based on data from two or more frequency assignment records; and
3. Maps or drawings showing data from two or more frequency assignment records. These lists can be on all types of media, no matter how produced.

b. An assigned frequency is the frequency on which a station is authorized to operate by a frequency assignment.

c. A band assignment is the band of frequencies within which a station is authorized to operate by a frequency assignment.

d. For the purpose of this guide, DOD is considered as one agency which includes ARMY, NAVY, AIR FORCE, DCA, NSA, CINCS, DOD AFC's AND ECAC.

5. Classification Guidance

a. Please note that any extractions - product outputs or outer listings - from either the GMF or FRRS containing classified records will be classified at the level of the most highly classified record contained in the extraction. However, listings of UNCLASSIFIED records require special consideration. The composite of all UNCLASSIFIED frequency assignment records in the FRRS or GMF is classified at the CONFIDENTIAL level, except as exempted in paragraph 8 of this annex.

b. All data combining individually UNCLASSIFIED frequency assignments to radio stations of the US having been extracted from the FRRS and/or GMF shall be classified and marked CONFIDENTIAL when such data links assigned frequency(ies) or band assignment(s) with location(s), and include two or more agencies, or include assignments of an agency other than the requesting agency, unless otherwise exempted under paragraph 8 of this annex.

6. Declassification and Destruction

All lists of UNCLASSIFIED records marked with the CONFIDENTIAL classification will contain downgrading/declassification instruction OADR (Originating Agency Determination Required). Destruction of FRRS/GMF data extracts shall be accomplished in accordance with existing directives governing destruction of classified material.

7. Marking

a. The documents classified CONFIDENTIAL under this guide will carry marking in accordance with existing DOD security regulations, and will be marked as follows:

1. Classified by: MCEB Security Classification Guide for Frequency Assignment Records dtd 15 March 1983.

Declassify on: OADR.

This document/listing has been classified CONFIDENTIAL IAW paragraph 4 of the classification guide; however, the requestor may determine this listing is UNCLASSIFIED if review indicates that the data in this document/listing meets the exemption criteria classified in accordance with ACP 190.

2. WARNING - Destruction of this document must be in accordance with existing directives governing destruction of classified material.

b. The documents which contain FRRS/GMF data/records extracted from the FRRS/GMF data base which have been determined to be UNCLASSIFIED as a result of one of the exemptions in paragraph 8 of this annex will be marked as follows:

WARNING - This document, containing UNCLASSIFIED FRRS/GMF data/records, is UNCLASSIFIED IAW exemption-----of the MCEB Security Classification Guide for Frequency Assignment Records. However, if this document contains data/records, or if it is used, for purposes other than as stated in the exemption, it must be classified CONFIDENTIAL IAW paragraph 4 of this guide unless another exemption in paragraph 8 is applicable. This document must be destroyed using the same procedures applicable to destruction of classified material.

8. Exemptions

Certain types of assignment lists that would normally be classified in accordance with above guidelines are exempted from classification as follows:

a. Lists of UNCLASSIFIED frequency assignments to radio stations of the US Government whose transmissions are intended for the public; (examples are travelers information stations, weather broadcast stations, certain stations in the maritime radionavigation and maritime mobile services, and stations in the international broadcast service.

b. Lists of UNCLASSIFIED frequency assignments to radio stations of one agency when the lists have been requested by that agency.

c. Lists of UNCLASSIFIED frequency assignments to government stations that are operating on frequencies authorized to non-federal-government stations where such utilization is necessary for intercommunication with non-federal-government stations or required for coordination with non-federal-government activities.

d. Lists of UNCLASSIFIED frequency assignments to non-federal-government stations.

e. Lists of UNCLASSIFIED frequency assignments for aeronautical stations which come under the purview of the AERONAUTICAL Assignment Group or are used in the National Airspace System.

f. Lists of pertinent UNCLASSIFIED frequency assignment records used in the process of selecting or coordinating a frequency or band of frequencies or a specific location or locations for any station that may affect or be affected by a U.S. government station.

ANNEX G TO ACP 190 US SUPP-1(C)

POLICY FOR AIR TO GROUND
AND
SPACE TO GROUND TELEMETRY

1. This annex provides policy guidance concerning provisions for and the use of frequency bands for air to ground and space to ground telemetry as set forth in DOD Directive 5100.35, 6 May 85 and MCEB-M 92-65, 19 Feb 1965.

2. Telemetry is defined as the use of telecommunications for automatically indicating or recording measurements at a distance from the measuring instrument. Some of the common measurements are temperature, pressure and speed. Military air to ground and space to ground telemetering is supported in the following three frequency bands: 1435 - 1535 MHz, 2200 - 2290 MHz and 2310 - 2390 MHz.

a. The frequencies between 1435 and 1530 MHz will be assigned for aeronautical telemetry and associated telecommand operations for flight testing of manned or unmanned aircraft and missiles, or their major components. Permissible usage includes telemetry associated with launching and reentry into the earth's atmosphere as well as any incidental orbiting prior to reentry of manned or unmanned objects undergoing flight tests.

b. The 2200 - 2290 MHz band is designated for line-of-sight including aeronautical telemetry, excluding flight testing of manned aircraft.

c. The 2310 - 2390 MHz band used by the Mobile Service is limited to aeronautical telemetering and associated telecommand operations. As an exception, all other mobile telemetry uses shall be secondary.

3. To ensure that the spectrum will be used efficiently and that operations will be compatible in the the intended environment, air to ground and space to ground telemetry equipments will be designed in accordance with the appropriate channeling plans and technical criteria of the NTIA Manual and the IRIG Telemetry Standard 106-86. IRIG Standard 106-86 contains detailed data on telemetry multiplexing, pulse code modulation standards, pulse amplitude modulation standards and magnetic tape recording standards.

4. To receive status information from airborne vehicles being tracked by radars, military telemetering is authorized on a secondary basis in the bands 3100 - 3700 MHz, 5250 - 5925 MHz, 8500 - 10,000 MHz, 13.4 - 14.0 GHz and 15.7 - 17.7 GHz. These telemetry operations must be conducted as an integral part of the operations of authorized stations in the radiolocation service

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