

## Chapter 7

### UHF Air Force Satellite Communications

#### 7-1. System Description

a. AFSATCOM provides reliable, worldwide, C<sup>2</sup> communications. These communications are used by designated Single Integrated Operational Plan (SIOP)/nuclear capable users for emergency action message (EAM) dissemination, JCS-CINC internetting, force direction, and force report-back. AFSATCOM capacity is also provided for a limited number of high priority non-SIOP users for operational missions, contingency/crisis operations, exercise support, and technical/operator training.

b. The AFSATCOM system is made up of a space segment. This space segment consists of UHF transponders aboard several spacecraft and a terminal segment. The terminal segment consists of standard AFSATCOM ground/airborne, manpack, and special communications system terminals. The space segment is Air Force managed transponders of varying capability and capacity. They are carried aboard the fleet satellite communications (FLTSATCOM), leased satellite communications (LEASATCOM), satellite data systems (SDS), Packages B and C, DSCS III, and Lincoln experimental satellites (LES) 8 and 9.

#### 7-2. System Communications Control Hierarchy

The Air Force Communications Command (AFCC) controls system communications as directed by the AFSATCOM program management directive (PMD). Figure 7-1 shows the hierarchy of control elements as follows:

- System operational management office (OMO).
- Master control center (MCC).
- Primary control center (PCC).
- Network control element (NCE).
- a. The AFSATCOM control objectives--
  - Provide the operator/user with communications with a minimum of control.

- Schedule satellite accesses in keeping with current system limitations, equipment constraints, and validated priorities.
- Prevent users from interfering with each other and/or disrupting the integrity of the system.
- Manage the number and power of satellite accesses ensuring sufficient downlink power margin to those users authorized to operate.
- Provide a control subsystem with enough equipment to monitor satellite communication transponder operations and to recognize and assist with operational or technical system problems.
- Provide high priority users reliable communications during crisis or contingencies.

b. The Chief of Staff, United States Air Force (CSAF) is the executive agent for the management and control of AFSATCOM. The Strategic Communications Division (SCD) is designated the AFSATCOM operational manager for the commander, AFCC. The SCD manages the AFSATCOM satellite system on a day-to-day basis, interacting directly with the Navy telecommunications command (NAVTELCOM) on control procedures involving both services.

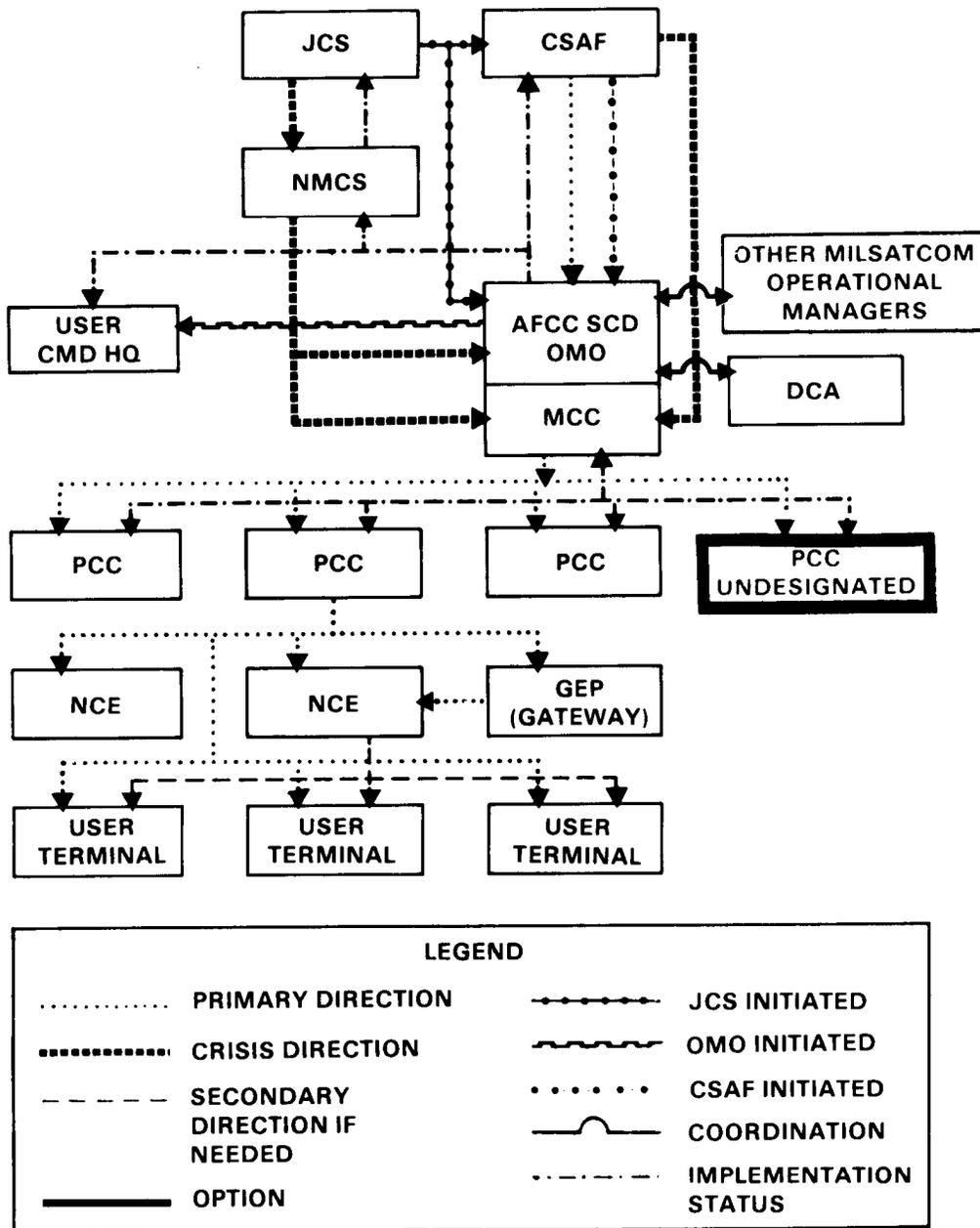


Figure 7-1. AFSATCOM system control hierarchy.

7-3. Access Requests

Access requests should be submitted to the appropriate PCC at least 14 days before the requested start time of the access. If a ground entry point (GEP) (AN/FSC-82) is part of the access, an additional 14 days are required for coordination. PCCS normally begin preparing access schedules 30 days in advance to allow for changing user requirements. Routine access requests must be submitted between 14 and 30 days before requested access start time. Access request may be submitted earlier if lead-time is required for host nation frequency approval. Frequency approval should be requested for all AFSATCOM frequencies in the operating area. (See Tables 7-1 through 7-11.)

Table 7-1. AFSATCOM frequency plan assignments.

SATELLITE	NARROWBAND	WIDEBAND
100° W FLTSAT	PLAN C	PLAN C
72° E FLTSAT	PLAN C	PLAN C
23° W FLTSAT	PLAN B	PLAN B
172° E FLTSAT	PLAN B	PLAN B
SDS	PLANS D & E	NA NOTE 1
105° W LEASAT	PLAN W	PLAN W
77° E LEASAT	PLAN W	PLAN W
15° W LEASAT	PLAN X	PLAN X
177° W LEASAT	PLAN X	PLAN X

NOTE 1: Operations limited to Plan D.

NOTE 2: Mission requirements or satellite equipment failure could dictate a change to these assignments.

Table 7-2. AFSATCOM frequency plan A channel frequencies (MHz).

CHANNEL	UPLINK	DOWNLINK
1	317.045	243.945
2	317.055	243.955
3	317.060	243.960
4	317.065	243.965
5	317.070	243.970
6	317.075	243.975
7	317.080	243.980
8	317.085	243.985
9	317.090	243.990
10	317.095	243.995
11	317.100	244.000
12	317.110	244.010
W/B	294.200	260.600

Table 7-3. AFSATCOM frequency plan B channel frequencies (MHz).

CHANNEL	UPLINK	DOWNLINK
1	317.145	244.045
2	317.155	244.055
3	317.160	244.060
4	317.165	244.065
5	317.170	244.070
6	317.175	244.075
7	317.180	244.080
8	317.185	244.085
9	317.190	244.090
10	317.195	244.095
11	317.200	244.100
12	317.210	244.110
W/B	295.300	261.700

Table 7-4. AFSATCOM frequency plan C channel frequencies (MHz).

CHANNEL	UPLINK	DOWNLINK
1	317.245	244.145
2	317.255	244.155
3	317.260	244.160
4	317.265	244.165
5	317.270	244.170
6	317.275	244.175
7	317.280	244.180
8	317.285	244.185
9	317.290	244.190
10	317.295	244.195
11	317.300	244.200
12	317.310	244.210
W/B	295.900	262.300

Table 7-5. AFSATCOM frequency plan D channel frequencies (MHz).

CHANNEL	UPLINK	DOWNLINK
1	316.595	243.695
2	316.605	243.705
3	316.610	243.710
4	316.615	243.715
5	316.620	243.720
6	316.625	243.725
7	316.630	243.730
8	316.635	243.735
9	316.640	243.740
10	316.645	243.745
11	316.650	243.750
12	316.660	243.760

Table 7-6. AFSATCOM frequency plan E channel frequencies (MHz).

CHANNEL	UPLINK	DOWNLINK
1	316.755	243.855
2	316.765	243.865
3	316.770	243.870
4	316.775	243.875
5	316.780	243.880
6	316.785	243.885
7	316.790	243.890
8	316.795	243.895
9	316.800	243.900
10	316.805	243.905
11	316.810	243.910
12	316.820	243.920

Table 7-7. AFSATCOM frequency plan W channel frequencies (MHz).

CHANNEL	UPLINK	DOWNLINK
9	316.955	243.855
10	316.960	243.860
11	316.975	243.875
12	317.000	243.900
13	317.010	243.910
W/B	297.400	263.800

Table 7-8. AFSATCOM frequency plan X channel frequencies (MHz).

CHANNEL	UPLINK	DOWNLINK
9	317.055	243.955
10	317.060	243.960
11	317.075	243.975
12	317.100	244.000
13	317.110	244.010
W/B	294.200	260.600

Table 7-9. Leased satellite (LEASAT) frequency plan Y channel frequencies (MHz).

CHANNEL	UPLINK	DOWNLINK
9	317.155	244.055
10	317.160	244.060
11	317.175	244.075
12	317.200	244.100
13	317.210	244.110
W/B	295.300	261.700

Table 7-10. LEASAT frequency plan Z channel frequencies (MHz):

CHANNEL	UPLINK	DOWNLINK
9	317.255	244.155
10	317.260	244.160
11	317.275	244.175
12	317.300	244.200
13	317.310	244.210
W/B	295.900	262.300

Table 7-11. AFSATCOM wideband channel frequency assignments (MHz).

PLAN A & X		PLAN B & Y		PLAN C & Z		PLAN W	
UPLINK	DOWNLINK	UPLINK	DOWNLINK	UPLINK	DOWNLINK	UPLINK	DOWNLINK
293.950	260.350	295.050	261.450	295.650	262.050	297.150	263.550
293.975	260.375	295.075	261.475	295.675	262.075	297.175	263.575
294.000	260.400	295.100	261.500	295.700	262.100	297.200	263.600
294.025	260.425	295.125	261.525	295.725	262.125	297.225	263.625
294.050	260.450	295.150	261.550	295.750	262.150	297.250	263.650
294.075	260.475	295.175	261.575	295.775	262.175	297.275	263.675
294.100	260.500	295.200	261.600	295.800	262.200	297.300	263.700
294.125	260.525	295.225	261.625	295.825	262.225	297.325	263.725
294.150	260.550	295.250	261.650	295.850	262.250	297.350	263.750
294.175	260.575	295.275	261.675	295.875	262.275	297.375	263.775
294.200	260.600	295.300	261.700	295.900	262.300	297.400	263.800
294.225	260.625	295.325	261.725	295.925	262.325	297.425	263.825
294.250	260.650	295.350	261.750	295.950	262.350	297.450	263.850
294.275	260.675	295.375	261.775	295.975	262.375	297.475	263.875
294.300	260.700	295.400	261.800	296.000	262.400	297.500	263.900
294.325	260.725	295.425	261.825	296.025	262.425	297.525	263.925
294.350	260.750	295.450	261.850	296.050	262.450	297.550	263.950
294.375	260.775	295.475	261.875	296.075	262.475	297.575	263.975
294.400	260.800	295.500	261.900	296.100	262.500	297.600	264.000
294.425	260.825	295.525	261.925	296.125	262.525	297.625	264.025
294.450	260.850	295.550	261.950	296.150	262.550	297.650	264.050

a. AFSATCOM access request format. The AFSATCOM access request format has two parts. Part 1 is used for general information required to coordinate the access: times, dates, locations, points of contact, narrow or wideband transponder use, power, and bandwidth. Part 2 is used for GEP (AN/FSC-82) access. Figure 7-2 shows the format to request access of the AFSATCOM space segment. First time requests from Category 1 users and all requests from Category 2 must contain Parts 1 and 2. To request changes or extensions, use only the parts containing changed information.

Part 1 —General Request Information

1. Requesting agency and location. User requirements data base (UROB) line number and net name (acronym).
2. Number and type of accesses (for example, narrowband, regenerative, nonregenerative, "wideband, fixed frequency access, AFSATCOM wideband address code).
3. Purpose of access. This section must accurately describe the mission/requirement/purpose insufficient detail to equitably assign user priorities. Failure to provide accurate purpose information could result in a lower priority assignment than actually required or delays in access request processing while additional information is gathered.
4. Geographical limits of access (location of ground stations and maximum/minimum latitude/longitude of airborne terminals).
5. NCE location and using agency, "if different from item 1.
6. Staff POC and/or NCE point-of-contact (person/operations center/CP having immediate contact with NCE)-primary and alternate names and AUTOVON (if overseas, indicate AUTOVON area code). (THESE CONTACTS MUST BE AVAILABLE DURING THE ENTIRE ACCESS PERIOD. IF THE ACCESS IS CLASSIFIED. AN AUTOSEVOCOM NUMBER MUST BE PROVIDED.)
7. Access period(s) start and stop times (ZULU). (Indicate acceptable alternate time periods if possible.)
8. Modulation type and data rate,
9. Terminal(s) characteristics:
  - a. Terminal type/nomenclature.
  - b. Transmitter output (watts—fixed or variable, maximum/minimum) or maximum effective isotropic radiating power (EIRP).
  - c. Antenna nomenclature and gain (in dB) in all cases and manufacturer (if not a standard AFSATCOM antenna).
  - d. Receiver G/T (dB) (receiver system figure of merit).
  - e. Required Eb/No (dB) for data rate or FM signal-to-noise ratio.
  - f. Modem type/nomenclature.
10. Remarks: Name and AUTOVON number of requestor, if different from item 6. If access was approved by phone, name of person contacted. If request is priority 4 or higher, name and office symbol of individual from whom approval was obtained. If request is to extend or modify an existing access, the access authorization number of the original approval. Other information as necessary.

Figure 7-2. AFSATCOM access request message format parts 1 and 2.

**Part 2—GEP (AN/FSC-82) Access**

11. GEP required (location).
12. Dates/times (ZULU) of requirement for GEP.
13. Type of interface required (voice or data).
14. Type of encryption device at deployed location.
15. Highest classification of traffic to be passed.
16. Specific end item required at GEP terminal (for example, KY-57, KY-65, UYA-7, UGC-1 29).
17. Intended termination at GEP (for example, AUTOVON, NMCC, Washington Switch, dedicated circuitry).
18. Remarks: Other specific information which will help the ground terminal manager meet your requirements.

**Figure 7-2. AFSATCOM access request message format parts 1 and 2.  
(continued)**

b. Access request addressees. The access request should be addressed to the PCC controlling the desired satellite. All access requests should also inform the remaining PCCS, the MCC, and the OMO. If the request is for a priority 4 or higher, JCS/C3SDS must also be included as an information addressee. Requests which include requirements using a GEP should also inform that agency and their intermediate headquarters. Table 7-12 lists all current message addressees.

Table 7-12. AFSATCOM access request addressees.

<b>BRANDYWINE PCC:</b>	<b>DET 2 2045CG BRANDYWINE MD//DODB//</b>
<b>MARCH PCC:</b>	<b>33CG MARCH AFB CA//DODB//</b>
<b>KADENA PCC:</b>	<b>1962CG KADENA AB JA//DODB//</b>
<b>MCC (OFFUTT AFB)</b>	<b>SCD OFFUTT AFB NE//YKOP//</b>
<b>OMO (OFFUTT AFB)</b>	<b>SCD OFFUTT AFB NE//YKO//</b>
<b>JCS</b>	<b>JCS WASHINGTON DC//C3SDO//</b>
<b>JCS (PRIORITY 4 or HIGHER)</b>	<b>JCS WASHINGTON DC//C3SDS//</b>
<b>BRANDYWINE GEP:</b>	<b>DET 2 2045CG BRANDYWINE MD//DONB/DODA//</b>
	<b>HQ ACD SCOTT AFB IL//DO/LG//</b>
<b>CLARK GEP:</b>	<b>1961CG CLARK AB RP//DON/LGM//</b>
	<b>HQ PCD HICKAM AFB HI//DO/LG//</b>

#### 7-4. Exercise Access Request

The supported unified or specified command for all supporting and component commands validates, consolidates, and submits satellite access requests for JCS-named, -coordinated, and -directed exercises. (See JCS Publication 2.) Heavy exercise communications traffic causes increased loading of the AFSATCOM system. Before a scheduled exercise, the exercise office of primary responsibility (OPR) notifies the MCC of the exercise scheduled time frame, geographical scope, and of the expected AFSATCOM channel requirements. This information should arrive at the MCC at least 45 days before the exercise start time. If military satellite communications (MILSATCOM) channels are unavailable to support all exercise requirements, the sponsoring CINC prioritizes and recommends allocation of the approved exercise satellite accesses in support of exercises in the CINCS area of responsibility (AOR). Requests for satellite access for unit or major command exercise communications (not in support of JCS-directed or JCS-coordinated exercises) should continue

to be coordinated directly between the requestor and the PCC unless otherwise directed by the theater CINC. Guidance for submitting JCS-named exercise satellite access requests as provided by the various CINCS follows:

a. USCINCEUR. To obtain UHF SATCOM support for exercises within the European theater, supporting units submit access requests through CINCUSAREUR Heidelberg GE//AEAIM-PA-PE//; AUTOVON 370-6868/6646. The USCINCEUR component commands review, validate, and consolidate all UHF SATCOM access requirements for their subordinate command, and submit the request to USCINCEUR Vaihingen GE//C3S-TSC//. AUTOVON is 430-8484/5416 or Secure 6416, drop 6.

b. USCINCCENT. To obtain UHF SATCOM support for exercises within USCENTCOMS AOR, supporting components submit access requests to USCENTCOM component commands as follows:

- Any Army component: COMUSARCEN Fort McPherson GA//AFRD-CE//; AUTOVON 588-4825/4928.

- Any special operations component: SOCCENT MacDill AFB FL//SOCJ6//; AUTOVON 968-6256.

USCENTCOM component commands review, validate, and consolidate all access requirements and submit them to USCINCCENT MacDill AFB FL//CCJ6-CM//; AUTOVON 968-6600, Secure 9163.

c. USCINCPAC. To obtain UHF SATCOM support for exercises within the Pacific theater, supporting units submit access requests to USCINCPAC component or subordinate unified commands as follows:

- Army units (exclusive of Korea and Japan forces): CDR WESTCOM Fort Shafter, Hawaii.

- US Forces in Korea: COMUSKOREA Seoul KOR//SJ-OPO//.

- US Forces in Japan: COMUSJAPAN Yokota AB JA//C3S//.

The component commands or subordinate unified commands review, validate, and consolidate all UHF SATCOM access requirements for their units. They submit these requests to USCINCPAC Honolulu HI//C3S// about 30 days before the exercise starts. This allows enough time for coordination. POC AUTOVON 477-6715/6644.

d. USCINCLANT. To obtain UHF SATCOM support for exercises within USCINCLANT AOR, subordinate forces submit access requests to USCINCLANT component commands as follows:

- Special operations forces: COMSOCLANT Fort Bragg NC//36//; AUTOVON 236-2213.

- Army forces: CINCARLANT Fort McPherson GA//AFCE-PR//; AUTOVON 588-4129/2239 .

USCINCLANT components, Joint Headquarters (CJTF/COMUSFORCTRY), and sub-unified commands (COMICEDEFOR, COMUSFORAZ, COMUSFORCARIB, COMSOCLANT) collect, consolidate, review, and validate exercise AFSATCOM access requirements and submit them as a single package to USCINCLANT Norfolk VA//J621//; AUTOVON 564-6761.

(1) Components and supporting commands/agencies provide an initial estimate of their access requirements during the initial planning conference.

(2) USCINCSO/SCJ6-0 consolidates all requirements and makes initial coordination with the AFSATCOM management office appropriate PCC during the planning process.

(3) Components and supporting commands provide a final statement of their requirements. It is prepared in the AFSATCOM access request format and sent to USCINCSO Quarry Heights PN//SCJ6-0//, AUTOVON 313-282-3252, no later than 60 days before the access start time.

e. USCINCSO. USCINCSO/SCJ6-0 acts as the central point for all AFSATCOM accesses for any USCINCSO sponsored, JCS-directed, or JCS-coordinated exercise within CINCSO AOR. USCINCSO/SCJ6-0 prioritizes and consolidates requirements and forwards them to the appropriate PCC.

f. USCINCSpace. When CINCSpace has been designated as the sponsoring CINC for JCS-directed or JCS-coordinated exercises, CINCSpace/J3Z, AUTOVON 692-2613, acts as the focal point for exercise support satellite access requests. Military satellite requirements in support of the exercises are directed to CINCSpace Peterson AFB CO//J3Z//. CINCSpace/J3Z reviews, validates, and consolidates all access requirements and submits the request to the appropriate PCC. Approved access requests are then assigned to the supporting commands and units based on CINCSpace determined priorities.

### 7-5. Emergency Access Request

An emergency/short notice access can be coordinated by telephone. These will be accepted if a properly formatted message traffic follow-up is submitted within 24 hours of the initial telephone access approval. Figure 7-3 shows the AFSATCOM access approval/disapproval message format.

1. Access authorization number.
2. Name of requesting agency.
3. Number and types of access granted on satellite.
4. Purpose of access.
5. Access period (start/stop times/dates).
6. Channel number(s) (narrowband); center frequency(s) or AFSATCOM wide-band address code(s) (wideband).
7. Assigned priority.
8. Maximum authorized EIRP.
9. Maximum authorized bandwidth (kHz).
10. User NCE point of contact (name and AUTOVON).
11. Remarks.

Figure 7-3. AFSATCOM access approval/disapproval message format.