



**SPECTRUM INTERFERENCE RESOLUTION
PROGRAM**

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The OPR for this supplement is AFSPC CSS/SCSF (J. James Rossignol, GS-13). This supplement implements and extends the guidance of Air Force Instruction 10-707, ***Spectrum Interference Resolution Program***. This AFI is published word-for-word without editorial review. Air Force Space Command (AFSPC) supplemental material is indicated in bold face. This supplement describes AFSPC's procedures for use in conjunction with the basic AFI. This supplement applies to Headquarters Air Force Space Command (HQ AFSPC) and its subordinate units. This supplement applies to Air National Guard (ANG) and Air Force Reserve units performing AFSPC missions. Upon receipt of this integrated supplement, discard the Air Force basic publication. Provide any recommended changes, questions, and notification of conflicts between this supplement and other publications to HQ AFSPC Communications Support Squadron, Command Spectrum Management Office, (AFSPC CSS/SCSF), 150 Vandenberg St., Ste 1105, Peterson AFB CO 80914-4730. Contact AFSPC CSS/SCSF by telephone (DSN 692-5958/6765 or Commercial (719) 554-5958/6765), fax (DSN 692-9656), or e-mail (cssscsf@peterson.af.mil).

1. For Space Systems, AFSPC units will submit an initial report within 3 hours after the start of the EMI event. For non-space equipment or systems, i.e. microwaves for communication or air traffic control communications, EMI reporting should be accomplished within 24 hours of start of EMI. Wings are encouraged to supplement this document, as needed, to tailor this program to their mission needs.

1.2. CJCSI 3320.02, ***Joint Spectrum Interference Resolution*** (JSIR), Enclosure A, paragraph 1.b. "Interference incidents that are suspected to be caused by hostile electronic attack will be assessed at the lowest possible level in the chain of command and reported to the ***Joint Spectrum Center*** (JSC) JSIR Office" (see attachment A3.14 – A3.19 for reporting addressees). The ***Space Control Center's*** (SCC) situational awareness relies heavily upon efficient and timely reporting (see para. 1 for reporting criteria). ***Cheyenne Mountain Operations Center*** (CMOC) is a fusion center responsible for determining threats and resolving EMIs effecting US Space systems. With access to information from all Theaters and all Components, CMOC is in the best position to make a decision if the space system EMI is hostile, however unit level assessment is required to aid in their determination.

NOTE:

Definition of hostile found in paragraph 2.1.12.

2. Due to time criteria, a complete investigation may not be possible. Report the information available within the time criteria and continue to investigate reporting any changes and actions taken via a follow-up report using the same addressees as the initial report (see paragraph 2.3.5.).

2.1.1. Determine if new equipment has been installed, to include non-RF (Radio Frequency) equipment that may be used in support of RF equipment, e.g., Thermostatic Control Device.

2.1.2. For space systems, attempt to determine if the interference is on the uplink or downlink. For example, if another organization, geographically separated, over 300 miles away with the same mission is receiving the same interference on the same channel, it will likely be an uplink interference.

2.1.7. (Added) Obtain, as much as possible, detailed technical information as described in Table A4.1. and paragraph A4.2., Sample EMI report, on the affected equipment/system.

2.1.8. (Added) Evaluate possible base/unit-level sources (recent frequency assignments, new transmitters present, etc.) with the assistance of your local frequency management office.

2.1.9. (Added) Attempt to determine if any new *civil engineering* (CE) activity has occurred during the time interval of the reported interference, i.e., *Heating Ventilation Air Conditioning* (HVAC), lighting modifications, phone/cable installations, personnel security, etc.

2.1.9.1. If CE activity is determined to be ongoing, investigate possible interference sources by turning CE systems off/on to verify if CE is indeed the source. If CE activity is determined to be the source of the interference, investigate possible fixes.

2.1.10. (Added) Check outside the facility, if applicable, and see if other equipment is operating near the facility, i.e., lawn mowers, automobile engines running, car alarms, generators, etc.

2.1.11. (Added) A reportable EMI for AFSPC units is: Any event that cannot be directly attributed to environmental conditions, i.e. weather (terrestrial or space), scheduling conflicts or equipment problems.

2.1.12. (Added) Definitions:

2.1.12.1. Hostile. A source, indicating an imminent or actual threat, purposeful interference, intrusion or attack on any US asset to include US Space Systems.

2.1.12.2. Non-Hostile. A source which does not involve any hostile characteristics or intent.

2.1.12.3. Space System Unknown Source. Any space system anomaly that cannot be definitively attributed to the space environment or caused by a known or previously documented source. When using this category of EMI reporting, describe what has already been ruled out as a possible source (equipment, operator error, predicted frequency conflict, etc) and indicate whether the EMI source is space-based or terrestrial if possible. Continue investigating possible sources and up-channel all relevant information in accordance with this instruction.

2.1.12.4. Bandwidth (BW). For the purpose of EMI reports, BW is defined as the necessary bandwidth, i.e. amount of spectrum needed to transmit or receive in, not the tuning range of the equipment.

2.2.4. (Added) In all cases, when in doubt, submit a report.

2.3.2. For AFSPC units submit QFIRC requests through the 738 EIS, Keesler AFB, MS, DSN 597-3920 (not a 24/7 operations). See paragraph 3.1.2.

2.3.3. Every EMI report must be closed by the originator of the initial report whether it is resolved or not. The EMI report remains open as long as the EMI continues. Submit a closing report 24 hours after the EMI ceases, or at the discretion of the Commander of the victim activity. For space systems it may mean waiting till the next contact with the same satellite to make that determination.

2.3.4. (Added) Report Categories (see Attachment 3). There are 6 report categories for AFSPC units:

2.3.4.1. Space System Unknown Source.

2.3.4.2. Space System Hostile.

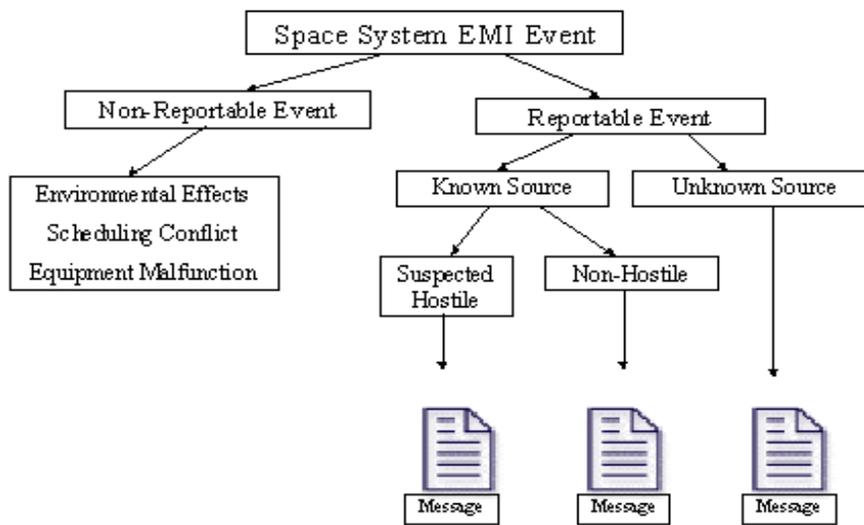
2.3.4.3. Space System Non-Hostile.

2.3.4.4. Non-Space System Unknown Source.

2.3.4.5. Non-Space System Hostile.

2.3.4.6. Non-Space System Non-Hostile.

Figure 1. (Added) EMI Events.



NOTE:

See Attachment A3.14. through A3.19. for EMI Address Elements.

2.3.5. (Added) Addressing Follow-on and Closing/Final Reports. When addressing follow-on or closing reports (see attachment 3, A3.14-A3.19), all original addressees must be included in the reports as well as those addressees in the changed category.

EXAMPLE: An initial report is submitted for a Space System Unknown Source. Later the category changes to Space System Non-Hostile as a result of further investigations. The modified or final report will include the addressees in the initial report as well as addressees in the Non-Hostile category without duplicating addressees. This will inform all involved of the status.

2.6. Action addressees are those who take action on the report, or those of collateral responsibility. Some may be identified as action addressees in one situation while information addressee in other situations. Example: The Joint Spectrum Center (JSC) is action addressee when support is requested of them, otherwise, the JSC is an information addressee. The 738 EIS, is an action addressee if the QFIRC is requested, otherwise, an information addressee.

2.7. Note: For AFSPC units, see Table A.4.1. and A.4.2. (Sample EMI Report) for report format.

3.1.2. The 738 EIS/EEEM, Keesler AFB MS, formerly 1839 EIG is responsible for providing technical assistance to resolve interference problems under the Air Force Spectrum Interference Resolution (AFSIR) Program. AFSPC units who experience interference and need on-site assistance to resolve the problem may request Quick Fix Interference Reduction Capability (QFIRC) assistance. QFIRC assistance is provided to Air Force units by the 738 EIS/EEEM. The 738 EIS can be contacted at (DSN) 597-3920/3924 or commercial (228) 377-3920/3924 directly (not a 24/7 operation), for analysis, consultation on local investigative actions or to request on-site assistance. If needed, the 738 EIS will deploy an engineering team with test equipment to perform on-site direction finding, equipment tests and problem solving. The requesting unit should keep the AFSPC frequency management office informed. The 738 EIS will coordinate funding issues with AFFMA when on-site assistance is needed.

3.2. For AFSPC, the JSC is the **office of primary responsibility** (OPR) for the JSIR program. The JSC/JSIR also provides analytical and on-site assistance in resolving EMI problems. When all Air Force resources have been exhausted, contact the JSIR for assistance through your command channels. The JSIR program is structured to have interference incidents resolved at the lowest level of the **Department of Defense** (DoD) component, using the chain of command. If the interference is not resolved through this process, then it is referred to JSC/JSIR to analyze and attempt to recommend corrective action by using the JSC/JSIR data base and analytical tools. If needed, the JSC/JSIR, will provide personnel and equipment to perform on-site direction finding, equipment tests and problem solving. Assistance from JSC/JSIR is requested through the **Air Force Frequency Management Agency** (AFFMA), 738 EIS, HQ US Air Force and/or the CMOC. However, if the interference affects personnel safety or is otherwise determined to be an emergency situation requiring immediate attention, such as safety of life, call the JSC directly at (410) 293-9857 or DSN 281-9857, and notify AFFMA afterwards.

3.2.1. (Added) For EMIs affecting SATCOM systems, request resolution assistance through your assigned SATCOM Support Center (SSC).

Attachment 1

GLOSSARY OF TERMS, ABBREVIATIONS AND ACRONYMS

Terms

Space System—As defined in AFDD 2-2, "...consists of three elements: space, terrestrial, and link. The space element consists of the platforms for which astrodynamics is the primary principle governing movement. Examples include satellites, space stations, or the space shuttle. The terrestrial-based elements consist of land, sea or airborne equipment used to communicate with and the control of space elements. The terrestrial-based element also includes the personnel required to operate and maintain equipment. Examples include ground stations, shipborne space communication nodes or airborne space communications systems. The link element is the communications between the space element and the terrestrial element. Example includes data link signal. All three elements can be key factors in military operations." For the purpose of this instruction, a space system includes any element of the Space Surveillance Network (SSN) dedicated, collateral, or contributing optical, radar, or passive radio frequency sensor and associated data processing/command and control center. It also includes, by definition, any element of the Satellite Control Network (SCN).

Spectrum Management—Planning, coordinating and managing joint use of the electromagnetic spectrum through operational, engineering and administrative procedures, with the objective of enabling electronic systems to perform their functions in the intended environment without causing or suffering unacceptable interference (JCS Pub 1-02).

Abbreviations and Acronyms

738EIS -—738 Engineering and Installation Squadron

AFSIR - —Air Force Spectrum Interference Resolution

AOR - —Area Of Responsibility

BW—Bandwidth (See definitions pg. 3)

CINC - —Commander In Chief

CJCSI - —Chairman Joint Chief of Staff Instruction

CMOC - —Cheyenne Mountain Operations Center

DF - —Direction Finding

EMI - —Electromagnetic Interference

GSC—Global Positioning System Support Center

GSSC—Global SATCOM Support Center

JC2WC - —Joint Command and Control Warfare Center

RF - —Radio Frequency

RFI - —Radio Frequency Interference (Same as EMI)

RSSC—Regional SATCOM Support Center

A2.2.1. JEWEC name has changed to Joint Command and Control Warfare Center (JC2WC).

A2.1.1. ECAC name has changed to Joint Spectrum Center (JSC).

A2.3.1. SPADOC name has changed to US Space Command Cheyenne Mountain Operations Center (CMOC) Space Control Center (SCC).

A2.4.1. Office change from HQ USAF/XOFE to HQ USAF/XORR.

A2.6.5. 1839 EIG name changed to 738 EIS.

A2.7.1. Assists spectrum managers to track, coordinate, identify and resolve radio frequency interferences.

A2.8. (Added) Global SATCOM Support Center (GSSC):

A2.8.1. Provides the central operational focus for global SATCOM constellation payload management.

A2.8.2. Assists spectrum managers to track, coordinate and assist in electromagnetic interference (EMI) identification and resolution for SATCOM systems.

A2.8.3. Provides assistance to combatant commands and other SATCOM users when there is a disruption of services.

A2.8.4. Requests EMI resolution assistance from the Joint Spectrum Center (JSC).

A2.9. (Added) Global Positioning System Support Center (GSC):

A2.9.1. The GSC coordinates responses to radio frequency interferences in the use of GPS in military operations.

A2.9.2. Provides tactical support for planning and assessing military missions involving the use of GPS.

A2.9.3. Serves as US Space Command's interface to the civil community.

A2.9.4. Routinely assesses the GPS service being provided to the civil community to determine compliance with national policy guidelines.

A2.10. (Added) Regional SATCOM Support Center (RSSC):

A2.10.1. Manage day-to-day regional SATCOM operations.

A2.10.2. Assist in EMI identification and resolution.

Attachment 3

ADDRESSEES FOR EMI REPORTS

(As a minimum)

A3.14. (Added) Space System Unknown Source:**Action:** AEROSPACE OPERATIONS CENTER VANDENBERG AFB CA

CMOC SCC CHEYENNE MTN AS CO

CMOC CHEYENNE MTN AS CO//J3S//

HQ USSPACECOM PETERSON AFB CO//SPOC/J36/J36S//

AFSPC CSS PETERSON AFB CO//SCSF//

AREA FREQUENCY COORDINATOR (in AOR)

GSSC PETERSON AFB CO (For SATCOM systems only)

AREA RSSC (For SATCOM systems only)

GSC PETERSON AFB CO (For GPS systems only)

AREA CINC//J6// (When operating in that AOR)

AREA JFMO (When operating in that AOR)

Info: HQ USAF WASHINGTON DC//XORR//

HQ USSPACECOM PETERSON AFB CO//J6O//

HQ AFSPC PETERSON AFB CO//DOIP//

AFFMA ALEXANDRIA VA//SCM//

* JSC ANNAOPLIS MD//J3/JSIR//

* 738 EIS KEESLER AFB MS//EEEM//

COMARSPACE COLORADO SPRINGS CO//SMDC-AR-O//

NAVSPOC DAHLGREN VA//N3/N33//

A3.15. (Added) Space System Source Hostile:**Action:** AEROSPACE OPERATIONS CENTER VANDENBERG AFB CA

CMOC SCC CHEYENNE MTN AS CO

CMOC CHEYENNE MTN AS CO//J3S//

HQ USSPACECOM PETERSON AFB CO//SPOC/J36/J36S//

AFSPC CSS PETERSON AFB CO//SCSF//

AREA FREQUENCY COORDINATOR (in AOR)

GSSC PETERSON AFB CO (For SATCOM systems only)

AREA RSSC (For SATCOM systems only)

GSC PETERSON AFB CO (For GPS systems only)

AREA CINC//J6// (When operating in that AOR)

AREA JFMO (When operating in that AOR)

Info: HQ USAF WASHINGTON DC//XORR//
HQ USSPACECOM PETERSON AFB CO//J6O//
HQ AFSPC PETERSON AFB CO//DOIP//
NSA CSS FT GEORGE G MEADE MD//W9M7//
DIA WASHINGTON DC//TWI-3//
HQ AFIWC KELLY AFB TX//SAV//
SMC LOS ANGELES AFB CA//AXE/CW//
AFFMA ALEXANDRIA VA//SCM//
* JSC ANNAPOLIS MD//J3//
* 738 EIS KEESLER AFB MS//EEEM//
COMARSPACE COLORADO SPRINGS CO//SMDC-AR-O//
NAVSPOC DAHLGREN VA//N3/N33//

A3.16. (Added) Space System Source Non-Hostile:

Action: AEROSPACE OPERATIONS CENTER VANDENBERG AFB CA

CMOC SCC CHEYENNE MTN AS CO

CMOC CHEYENNE MTN AS CO//J3S//

HQ USSPACECOM PETERSON AFB CO//SPOC/J36/J36S//

AFSPC CSS PETERSON AFB CO//SCSF//

AREA FREQUENCY COORDINATOR (in AOR)

GSSC PETERSON AFB CO (For SATCOM systems only)

AREA RSSC (For SATCOM systems only)

GSC PETERSON AFB CO (For GPS systems only)

AREA CINC//J6// (When operating in that AOR)

AREA JFMO (When operating in that AOR)

Info: HQ USAF WASHINGTON DC//XORR//
HQ USSPACECOM PETERSON AFB CO//J6O//
HQ AFSPC PETERSON AFB CO//DOIP//
AFFMA ALEXANDRIA VA//SCM//
* JSC ANAPOLIS MD/J3//

* 738 EIS KEESLER AFB MS//EEEM//
 COMARSPACE COLORADO SPRINGS CO//SMDC-AR-O//
 NAVSPOC DAHLGREN VA//N3/N33//

A3.17. (Added) Non-Space System Unknown Source:

Action: HQ USSPACECOM PETERSON AFB CO//SPOC/J36/J36S//

AFSPC CSS PETERSON AFB CO//SCSF//
 AREA FREQUENCY COORDINATOR (in AOR)
 AREA CINC//J6// (When operating in that AOR)
 AREA JFMO (When operating in that AOR)

Info: HQ USAF WASHINGTON DC//XORR//
 HQ USSPACECOM PETERSON AFB CO//J6O//
 HQ AFSPC PETERSON AFB CO//DOIP//
 AFFMA ALEXANDRIA VA//SCM//

* JSC ANNAPOLIS MD//J3//
 * 738 EIS KEESLER AFB MS//EEEM//

A3.18. (Added) Non-Space System Source Hostile:

Action: HQ USSPACECOM PETERSON AFB CO//SPOC/J36/J36S//

AFSPC CSS PETERSON AFB CO//SCSF//
 AREA FREQUENCY COORDINATOR (in AOR)
 AREA CINC//J6// (When operating in that AOR)
 AREA JFMO (When operating in that AOR)

Info: HQ USAF WASHINGTON DC//XORR//
 HQ USSPACECOM PETERSON AFB CO//J6O//
 HQ AFSPC PETERSON AFB CO//DOIP//
 NSA CSS FT GEORGE G MEADE MD//W9M7//
 DIA WASHINGTON DC//TWI-3//
 HQ AFIWC KELLY AFB TX//SAV//
 AFFMA ALEXANDRIA VA//SCM

* JSC ANNAPOLIS MD//J3//
 * 738 EIS KEESLER AFB MS//EEEM//

A3.19. (Added) Non-Space System Source Non-Hostile:

Action: AFSPC CSS PETERSON AFB CO//SCSF//

AREA FREQUENCY COORDINATOR (in AOR)

AREA CINC//J6// (When operating in that AOR)

AREA JFMO (When operating in that AOR)

Info: HQ USAF WASHINGTON DC//XORR//
HQ USSPACECOM PETERSON AFB CO//J6O//
HQ AFSPC PETERSON AFB CO//DOIP//
AFFMA ALEXANDRIA VA//SCM//
* JSC ANNAPOLIS MD//J3//
* 738 EIS KEESLER AFB MS//EEEM//

NOTES:

Contact your local or command frequency manager to determine address of your Area Frequency Coordinator, and Joint Frequency Management Office (JFMO)

* (Asterisks) See paragraph 2.6.

Attachment 4 (Added)

AFSPC REPORTING FORMAT

A4.1. Use this reporting format for all EMIs:

Table A4.1. Format.

Item #	Subject: Report category and whether initial, modified or closing report.
1	Frequency(ies) experiencing interference and bandwidth, if known.
2	Location and coordinate of affected system.
3	System function, name, nomenclature, manufacturer and model # (if available)
4	Operating mode
5	Type of interference (pulse, noise) and how often (continuous, intermittent)
6	Effect(s) of interference on system performance
7	Provide date(s) & time(s) in Zulu of interference(s)
8	Interference source (if known)
9	Other units experiencing the interference (if known)
10	Narrative summary providing results of local investigation (include commander's hostile/non-hostile assessment) "It is the unit commander's responsibility....to provide a threat assessment and explanation to every extent possible. Terrestrial weather and space weather if known.
11	Request for QFIRC (Yes/No)
12	Point of contact
13	Declassify instructions
Note: See sample EMI report below Attachment A4.2.	

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A4.2. Electromagnetic Interference (EMI) Reporting:

SAMPLE EMI REPORT

Classification (see paragraph 2.4.)

Precedence (see paragraph 2.5.)

Action addressees: (select proper address group from Attachment 3, A3.14. – A3.19.)

AREOSPACE OPERATIONS CENTER VANDENBERG AFB CA

CMOC SCC CHEYENNE MTN AS CO

CMOC CHEYENNE MTN AS CO//J3S//

HQ USSPACECOM PETERSON AFB CO//SPOC/J36/J36S//

AFSPC CSS PETERSON AFB CO//SCSF//

738 EIS KEESLER AFB MS//EEEM//

DODEAFC PATRICK AFB FL

Info:

HQ USAF WASHINGTON DC//XORR//

HQ USSPACECOM PETERSON AFB CO//J6O//

HQ AFSPC PETERSON AFB CO//DOIP//

AFFMA ALEXANDRIA VA//SCM//

JSC ANNAPOLIS MD//J3//

COMARSPACE COLORADO SPRINGS CO//SMDC-AR-O//

NAVSPOC DAHLGREN VA//N3/N33//

BT

S E C R E T Releasable to CAN/UK – (Classified for Example purpose only)

Subject: EMI Report (Space System Unknown (initial)) (U)

1. (U) Frequency/BW - 1214 - 1232MHz; BW - Unknown
2. (U) Location - Robins AFB, GA (323819N0833527W)
3. (U) System Function - Tracker Radar, AN/FPS-123
4. (U) Operating Mode - Search (scan and track)
5. (S) Type of interference and how often – CW/Intermittent
6. (S) Effects on performance - Loss of tracking capability 100%
7. (S) Dates and times - 16 Aug 98, 1215 – 1230Z and 1402 - 1432Z
8. (U) Source location - Unknown
9. (U) Other units experiencing same interference - Unknown

10. (S) Narrative - Initial interference was recorded at 1215Z. Radar was tracking a target and lost acquisition. Scan continued with acquisition targets spotted but could not lock on. Tracking was useless during the periods of interference.

Assessment: Potentially hostile – Tracking attempts on high interest items both times. Weather was 45 degrees and clear. Space environment, unknown.

11. (U) Request a QFIRC support at this time.

12. (U) Point of contact is: John Q. Adams, or on-duty Duty Officer (station manned 24 hours/day) DSN 778-1420 (STU III) or commercial (861) 332-1420.

13. (U) Declass on OADR.

NOTES:

For all reports, include an assessment whether hostile in item 10, and rational. Also include the weather condition (temperature, clear, cloudy, rain etc.) at time of EMI.

(This page is) UNCLASSIFIED – Sample Only

HARRY D. RADUEGE, JR., Maj Gen, USAF
Director, Communications and Information