

**CJCSM 3320.02A
20 January 2006**

**JOINT SPECTRUM
INTERFERENCE
RESOLUTION (JSIR)
PROCEDURES**



**JOINT STAFF
WASHINGTON, D.C. 20318**

(INTENTIONALLY BLANK)



CHAIRMAN OF THE JOINT CHIEFS OF STAFF MANUAL

J-6
DISTRIBUTION: A, B, C, J, S

CJCSM 3320.02A
16 February 2006

JOINT SPECTRUM INTERFERENCE RESOLUTION (JSIR) PROCEDURES

References: See Enclosure I.

1. Purpose. This manual standardizes techniques and procedures for spectrum interference resolution throughout the Department of Defense. It provides detailed guidance to the Department regarding standard electromagnetic interference (EMI) detection, identification, reporting, and resolution procedures for space and terrestrial systems.
2. Cancellation. CJCSM 3320.02, 8 November 2002, is hereby canceled.
3. Applicability. This manual is applicable to the Military Departments (to include the US Coast Guard), combatant commands, unified commands, subunified commands, Service component commands, joint task forces, combined commands, Defense agencies, and DOD elements of the intelligence community (hereafter referred to as the DOD components). This document may be reprinted without further authorization.
4. Procedures. Controlling the electromagnetic battlespace is key to successful military operations. Inherent in this control is the rapid resolution of electronic warfare (EW) and EMI. DOD components will develop specific procedures and training necessary to implement CJCSI 3320.02A, using the procedures contained within this manual and the policy guidance given in the references.
5. Summary of Changes. This revision reflects an update of the document to reflect changes in JSIR resolution procedures, reporting format and reporting procedures, declassification guidelines, and the development of an EMI checklist. References, contact information, and glossary were also updated during this revision.
6. Releasability. This manual is approved for public release; distribution is unlimited. DOD components (to include combatant commands), other federal agencies, and the public may obtain copies of this manual through the Internet

from the CJCS Directives Home Page at the following address
http://www.dtic.mil/cjcs_directives/index.htm. Copies are also available
through the Government Printing Office on the Joint Electronic Library CD-
ROM.

7. Effective Date. This manual is effective upon receipt.

For the Chairman of the Joint Chiefs of Staff:



SCOTT S. CUSTER
Major General, USAF
Vice Director, Joint Staff

Enclosures:

- A - Joint Spectrum Interference Resolution Procedures
- B - DMS Message Addressee
- C - Security Classification Guide and Message Precedence Guidelines
- D - EMI Characterization and Resolution at the Local Level
- E - EMI Reporting Format
- F - Natural Phenomena Effects
- G - Essential Points of Contact Information
- H - Commercial SATCOM EMI/RFI Upchannel Reporting Checklist
- I - References
- GL - Glossary

DISTRIBUTION

Distribution A, B, C, and J plus the following:

	<u>Copies</u>
Secretary of Defense.....	2
Chief of Naval Operations.....	2
Chief of Staff, US Army (G6)	2
Chief of Staff, US Air Force (AFFMA).....	2
Commandant of the Marine Corps.....	2
Commandant, United States Coast Guard.....	2
Commander, US Central Command	2
Commander, US European Command.....	2
Commander, US Joint Forces Command	2
Commander, US Northern Command	2
Commander, US Pacific Command.....	2
Commander, US Southern Command.....	2
Commander, US Special Operations Command.....	2
Commander, US Strategic Command	2
Commander, US Transportation Command.....	2
Director, National Security Agency	2
Director of Central Intelligence Agency	2
Director, Defense Information Systems Agency.....	2
Joint Spectrum Center.....	2

(INTENTIONALLY BLANK)

TABLE OF CONTENTS

ENCLOSURE	PAGE
A JOINT SPECTRUM INTERFERENCE RESOLUTION PROCEDURES	A-1
General	A-1
Background.....	A-1
JSIR Program	A-1
Roles	A-2
JSIR Process	A-5
EMI Reporting.....	A-22
Costs.....	A-22
B DMS MESSAGE ADDRESSEE.....	B-1
Combatant Command, JTF, or Service Requests for JSC JSIR Support	B-1
Reports Affecting SATCOM Systems.....	B-1
Reports Affecting GPS Space Systems.....	B-2
Other Space System Related Reports	B-3
Suspected Jamming or Hostile Electronic Attack Incidents	B-3
CONUS Terrestrial EMI.....	B-4
OCONUS Terrestrial EMI.....	B-5
Reports Sent via Secure E-Mail (SIPRNET).....	B-6
C SECURITY CLASSIFICATION GUIDE AND MESSAGE PRECEDENCE GUIDELINES	C-1
Security Classification Guide.....	C-1
Duration of Classification.....	C-2
D EMI CHARACTERIZATION AND RESOLUTION AT THE LOCAL LEVEL	D-1
EMI Checklist	D-1
E EMI REPORT FORMAT.....	E-1
EMI Formats	E-1
F NATURAL PHENOMENA EFFECTS.....	F-1

G ESSENTIAL POINTS OF CONTACT INFORMATION..... G-1

 JSC..... G-1

 USSTRATCOM/GOC G-1

 USSTRATCOM/GSSC..... G-1

 USSTRATCOM/GPS Operations Center G-2

 Air Force Space Weather Center G-2

H COMMERCIAL SATCOM EMI/RFI UPCHANNEL REPORTING
CHECKLIST H-1

I REFERENCES.....I-1

GL GLOSSARY GL-1

FIGURES

 A-1 CONUS Terrestrial JSIR Process A-6

 A-2 OCONUS Terrestrial JSIR Process.....A-10

 A-3 Space System EMI Resolution ProcessA-14

ENCLOSURE A

JOINT SPECTRUM INTERFERENCE RESOLUTION (JSIR) PROCEDURES

1. General. Electromagnetic interference (EMI) regularly hampers the command and control (C2) of military operators by degrading essential systems that use the electromagnetic spectrum. EMI impedes operations and hinders mission accomplishment. Effective EMI management plays a crucial role in assuring critical information is exchanged timely and accurately in times of war, during operations other than war, and peacetime. Effective EMI management is crucial to obtaining and maintaining information superiority, an essential foundation of information operations. Timely and accurate identification, verification, characterization, reporting, geolocation of the source, analysis, and resolution of EMI during military operations is essential to maintaining C2 of US forces and responding to adversary EW actions. Since EMI can be caused by enemy, neutral, friendly, or natural sources, it generally must be resolved on a case-by-case basis. The intent of these procedures is to resolve EMI incidents at the lowest possible level within the command structure. However, when the cause and recipient of the interference are not within the same component force or supporting element, resolution may require assistance from the combatant command, joint task force (JTF), Service Spectrum Management HQ or Joint Spectrum Center (JSC). Users must report all EMI regardless of the severity. It is essential that efficient, practical procedures be established to affect the reporting and resolution of EMI. The Service or command and/or organization owning the affected equipment is responsible for the implementation and funding of recommended resolution actions.

2. Background. The JSIR program was established in October 1992 by the Department of Defense to address persistent and recurring EMI problems affecting DOD systems. The JSIR program replaced the DOD Meaconing, Intrusion, Jamming, and Interference program that was disestablished on 30 June 1992.

3. JSIR Program. The JSIR program addresses EMI events and EW affecting the Department of Defense. The program is coordinated and managed for the Joint Staff Command, Control, Communications, and Computer (C4) Systems Directorate (J-6) by the JSC, Annapolis, Maryland. The program itself is centrally managed; however, the execution process is highly decentralized. Each of the DOD components shares responsibility for successful execution of the JSIR program (reference d).

a. The objective of the JSIR program is to report and assist with the resolution of EW and recurring EMI. The three-step resolution process for EMI events includes:

(1) Identification, verification, characterization, and reporting.

(2) Geolocation, analysis, developing courses of action, and recommendations (corrective actions).

(3) Implementation and notification to user(s) and final closure reporting. Resolution includes but is not limited to implementation of EMI corrective actions needed to regain use of the affected spectrum. However, some EMI events cease before corrective action is taken and, in other cases, the EMI corrections may not be feasible, affordable, or result in regaining the use of the spectrum.

b. The JSIR program resolves EMI at the lowest possible level using organic and/or other assets available to the command. If an EMI event cannot be resolved locally, it must be elevated up the chain of command with each higher level attempting resolution. If the event cannot be resolved at the combatant command, JTF, Service, Defense agency HQ, or Joint Staff level, then each may request JSC JSIR support.

4. Roles

a. Joint Staff/J-6. The Joint Staff/J-6 Combatant Command Operations Division (J-6Z) is responsible for the coordination of interference resolution efforts that involve multiple unified commands and/or Department of State (DOS) coordination with other countries. The Joint Staff may require inter-area of responsibility (AOR) combatant command cooperation or may coordinate with DOS for International Affairs when combatant command liaison efforts fail or are not possible. The Joint Staff can request JSC JSIR technical support. The Joint Staff/J-6Z will provide status of ongoing efforts to the Military Communications-Electronics Board (J-6B) for use in frequency management policy development.

b. Unified Commands, Subunified Commands, and Combined Commands. The unified commands, subunified commands and combined commands are responsible for developing the local procedures, training and reporting requirements in their respective AOR for resolving interference matters. In cases of EMI to terrestrial systems used outside the continental United States (CONUS), the command using the affected system is responsible for resolving the interference. When interference originates from one command's AOR that affects another command's AOR, the command responsible for the AOR where the interference source is located will support the other command. The

supporting command will request host-nation assistance to identify the interfering source and resolve the EMI problem. Unified commands, subunified commands, and combined commands can request JSC JSIR technical support. Combatant commands will annually review open JSIRs contained in the JSC JSIR database that are under their purview and submit closing reports as appropriate.

c. Services. The Services are responsible for developing the training necessary for interference awareness and reporting procedures. In cases of terrestrial interference, the Service owning or operating the affected system is responsible for investigating and resolving the interference. If the interference incident cannot be resolved by the affected DOD component or the Service spectrum management agency responsible for spectrum interference resolution, it is referred to the JSC for resolution. A Service HQ can request JSC JSIR technical support. Implementation and costs associated with recommended EMI fixes are the responsibility of the Service owning the equipment. The Service frequency management offices have been identified as the cognizant office for EMI issues. These include the Air Force Frequency Management Agency, Army Spectrum Management Office, and Navy and Marine Corps Spectrum Center.

d. Combined Forces Commander (CFC) and Joint Task Force. The CFC or JTF is responsible for developing local procedures and reporting of EMI. The JTF may request assistance from the supported unified command to resolve the EMI.

e. Joint Frequency Management Office (JFMO), Joint Spectrum Management Element (JSME), and Area Frequency Coordinators (AFCs). JFMOs and AFCs are the unified, subunified command and Service resources responsible for management of the electromagnetic spectrum within their respective AORs. JSME perform the same function for JTFs. The JFMO/JSME usually reports to the command J-6. The JFMO and/or JSME are also assigned the responsibility for requesting and coordinating interference resolution support from the JSC.

f. Joint Spectrum Center. The JSC serves as the center for EMI reporting and resolution and is tasked to provide interference resolution support to the unified and JTF commanders, as well as to DOD components. The JSC is responsible for tracking all EMI events from initial report of a problem through closure, and for providing ready access to this tracking information. Upon receipt of a JSIR report or EMI support request, the JSC will perform in-house analyses and coordinate with field activity spectrum managers to resolve interference problems. The JSC will also provide deployable JSIR field teams for onsite EMI resolution support, as required. The JSC has the authority to coordinate and task other involved organizations as deemed necessary to

resolve EMI. The JSC may also coordinate with civilian authorities when interference is CONUS-based and involves civilian spectrum use. Throughout this process, the JSC will provide feedback to the appropriate agency as necessary.

g. National Security Agency (NSA). The Director, NSA, (DIRNSA) is the principal signals intelligence and information systems security advisor to the Secretary of Defense, the Director of Central Intelligence, and the Chairman of the Joint Chiefs of Staff. As such, DIRNSA is responsible for providing signals intelligence (SIGINT) support for spectrum-use efforts of the combatant commanders and other commanders as designated by the Chairman of the Joint Chiefs of Staff. In addition, DIRNSA can task subordinate SIGINT resources to participate in the interference resolution process.

h. Joint Communications Security (COMSEC) Monitoring Activity (JCMA). JCMA is a unified command resource that provides COMSEC monitoring within the unified command's AOR. The JCMA can assist in ultrahigh frequency (UHF) satellite communications (SATCOM) EMI source characterization and analysis of interfering signals (IS). The JCMA is directly tasked by US Strategic Command (USSTRATCOM).

i. Federal Communications Commission (FCC). The FCC provides support to the Department of Defense with direction finding and assists with EMI issues concerning US civilian entities.

j. US Strategic Command. USSTRATCOM will assist and support EMI resolution efforts for DOD space systems. USSTRATCOM will also determine if an EMI event is hostile in nature and report suspected acts of hostility to warfighting combatant commands, the President, and Secretary of Defense in accordance with (IAW) the emergency action procedures of the Chairman of the Joint Chiefs of Staff, Volume VI. In addition, each USSTRATCOM component is responsible for reporting and resolving EMI events within its established scope and responsibilities. USSTRATCOM resources include the Global Satellite Communications Support Center (GSSC) and Regional Satellite Communications Support Center (RSSC), which are both dedicated to supporting SATCOM assets; the Global Positioning System (GPS) Support Center, which is dedicated to supporting global GPS operations; and the Joint Information Operations Center (JIOC) in its role to support information operations. USSTRATCOM's Space Cell at the Global Operations Center (GOC) serves as the command's focal point for receiving and processing reports of affected and degraded space systems to the appropriate USSTRATCOM organization for resolution.

k. National Telecommunications and Information Administration (NTIA).

NTIA functions as a clearinghouse for issues relating to the use of spectrum by the federal government. NTIA provides support and measurement capabilities to resolve EMI problems concerning interference among federal agencies and between federal agencies and the private sector.

5. JSIR Process. The process is designed to resolve EMI events at the lowest possible level with organic and other assets available at each organizational level. If an event cannot be resolved locally, it is referred up the chain of command with each higher level attempting resolution. If an event cannot be resolved at the combatant command, JTF, Defense agency, or Service HQ level, then JSC JSIR support should be requested. Report EMI incidents using the format in Enclosure E. The JSC will track the status of interference resolution efforts and results. When interference problems overlap combatant command and/or JTF AORs, or occur between the Services, the Joint Staff/J-6 (after consultation with the appropriate combatant command and/or JTFs, Service HQ, Joint Staff, and technical consultants) will determine the proper course of action and assign a lead agency to coordinate EMI resolution activities. The JSC will generate the annual list of open JSIRs not later than (NLT) the third quarter of each fiscal year. The combatant commands, Services, and agencies will then annually review open JSIRs under their purview and submit closing reports as appropriate NLT the end of the fourth quarter of each fiscal year. For cases involving interference with or caused by foreign systems that cannot be resolved by the combatant command and/or JTFs, the Joint Staff/J-6 will coordinate a response with the Department of State requesting assistance in resolving the interference from the originating source. All suspected hostile incidents will be reported immediately to the organizations listed in Enclosure B, paragraph 5, using the format in Enclosure E.

a. JSIR Database. The JSIR database, maintained by the JSC on behalf of the Joint Staff, is available on the SIPRNET and the Joint Worldwide Intelligence Communications System (JWICS). The JSIR database is hosted on the JSC Web sites by the JSC database access Web server (JDAWS). The JSIR database contains data and all correspondence for all reported interference, meaconing, intrusion, and jamming incidents dating back to 1970. The JSIR database also contains the results of JSC analyses and onsite visits and supports both trend analysis and future interference analyses. The user can receive feedback on JSIR cases by accessing JSIR records via JDAWS.

b. Terrestrial. Terrestrial interference events are to be handled at the lowest level possible and, if no resolution is possible at that level, the problem must be elevated up the chain of command with each higher level attempting resolution.

(1) CONUS. In cases of terrestrial interference within CONUS, the Service owning or operating the affected system will be responsible for resolving the interference. The following steps are to be taken to resolve interference (or potential jamming), as shown in Figure A-1:

(a) Identification/Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to locally rule out causes, such as equipment problems, non-existent and/or invalid frequency assignments, or space weather.

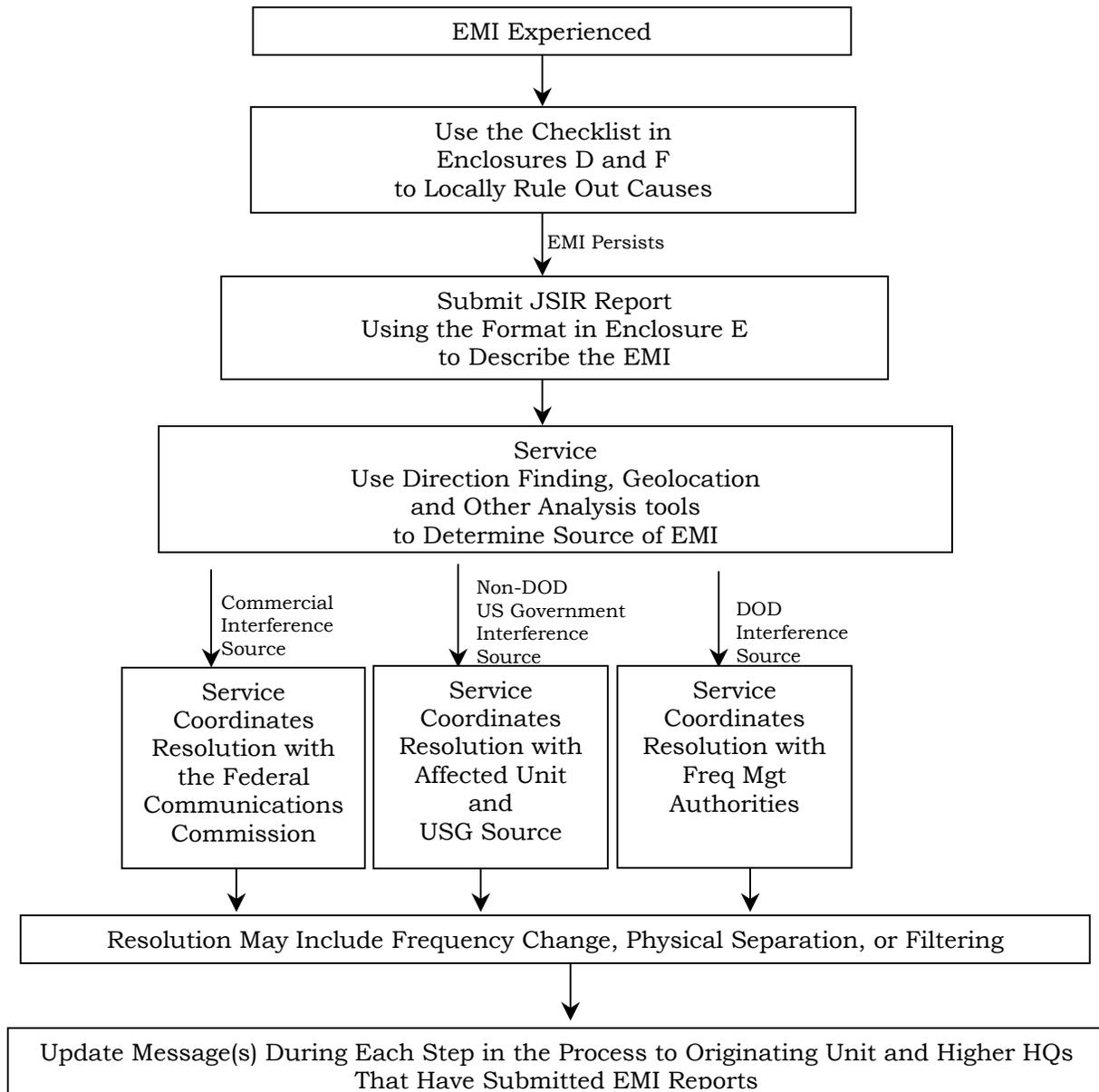


Figure A-1. CONUS Terrestrial JSIR Process

(b) Characterization and Reporting Procedures. If the interference is present, the unit will determine the characteristics of the interference to allow further analysis by higher HQ. A message will be generated including: the details of the problem, what steps have been taken to resolve the problem, any characterization of the interference signal, and a statement indicating whether onsite resolution support is needed. Message addressee for the report and the formats of the messages are contained in Enclosures B and E, respectively. Each succeeding higher HQ will attempt to make a determination as to the source of the interference and add any details to the original interference report as required.

(c) Geolocation/Direction Finding. Users requiring geolocation or direction finding (DF) services can request these services in an initial or update JSIR report to their higher HQ.

1. Services and unified combatant commands should document organic DF and geolocation capabilities and the process for tasking.

2. When command, Service, or agency resources have been exhausted, contact the JSC for analytical, DF, and geolocation support.

3. Submit all requests for geolocation/DF service using the JSIR Report (Enclosure E), Item 3C, "Request for Resolution Assistance." Specify the type of support required.

(d) Resolution. When the IS is emanating from a DOD unit, the Services will coordinate with appropriate frequency management authorities to resolve the problem. The resolution may require a change of frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

1. When the IS is emanating from a US government (USG) source other than the Department of Defense, the Service will coordinate the interference resolution with the Service and the USG agency responsible for the interference source. Resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

2. When the IS is emanating from a civilian source, the Service will coordinate a response with the FCC.

3. The cost of implementing resolution measures will be the responsibility of the Service that owns the affected system.

(e) Feedback. During each step of the process, the originator of the report will be kept informed by the entity responsible for the assistance as to the progress of the interference investigation. When an EMI event is closed out by eliminating the interference source, by determining an “unusable” status or condition due to the interference, or because the interference ceased, a closing report will be provided to the originator and all involved and applicable parties.

(f) Timeline. Units experiencing suspected interference must report it to higher HQ within 4 hours from the start of the incident. At that time, an initial JSIR also must be submitted to recipients specified in Enclosure B. The initial JSIR need not request assistance; however, it is of importance to other organizations. The 4-hour period will be used to determine if the incident is due to equipment malfunction, system anomaly, or other local causes. Checklists to assist in making this determination are included in Enclosure D and Enclosure F. Higher HQ will have 72 hours to further evaluate the interference and coordinate with other agencies for assistance, as appropriate.

(2) Outside the Continental United States (OCONUS). In cases of terrestrial interference OCONUS, the combatant command or JTF using the affected system is responsible for resolving the interference. Terrestrial interference events are to be handled at the lowest level possible, and if no resolution is possible at that level, the problem will be referred through the chain of command with each higher level attempting resolution. Interference and jamming are to be considered synonymous until a determination can be made as to the source of the problem. The only difference between interference and jamming is the intent of the operator of the interfering transmitter. The following steps are to be used as a guide, when specific combatant command guidance is not available, to resolve interference (or potential jamming), as shown in Figure A-2.

(a) Identification and Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to locally rule out causes, such as equipment problems, non-existent and/or invalid frequency assignments, or space weather.

(b) Characterization and Reporting Procedures. If interference or jamming is present, the unit will characterize the interference or jamming to allow further analysis by higher HQ. If the interference or jamming is still present, and the receive equipment is determined to be operating correctly with a valid frequency assignment, the problem will be referred up the chain of command. A message will be generated including: the details of the problem, what steps have been taken to resolve the problem, any characterization of the interference or jamming signal, and a statement indicating whether onsite resolution support is needed. Message addressees for the report and the formats of the messages are contained in Enclosures B and E, respectively.

Each succeeding higher HQ will attempt to make a determination as to the source of the interference or jamming and add any details to the original interference report as required.

(c) Geolocation. Each Service will have the capability of providing DF and geolocation services to the units in the field, and will use them at this point. Combatant command and JTF J-2 intelligence collection assets should be used if not prohibited by regulation or treaty. If available, host nation (HN) DF and geolocation assistance can be requested through the combatant command JFMO. When combatant command component resources are exhausted prior to resolving an incident, the JSC can be contacted to provide analytical, DF, and geolocation support. This no-cost support will be provided by the JSC.

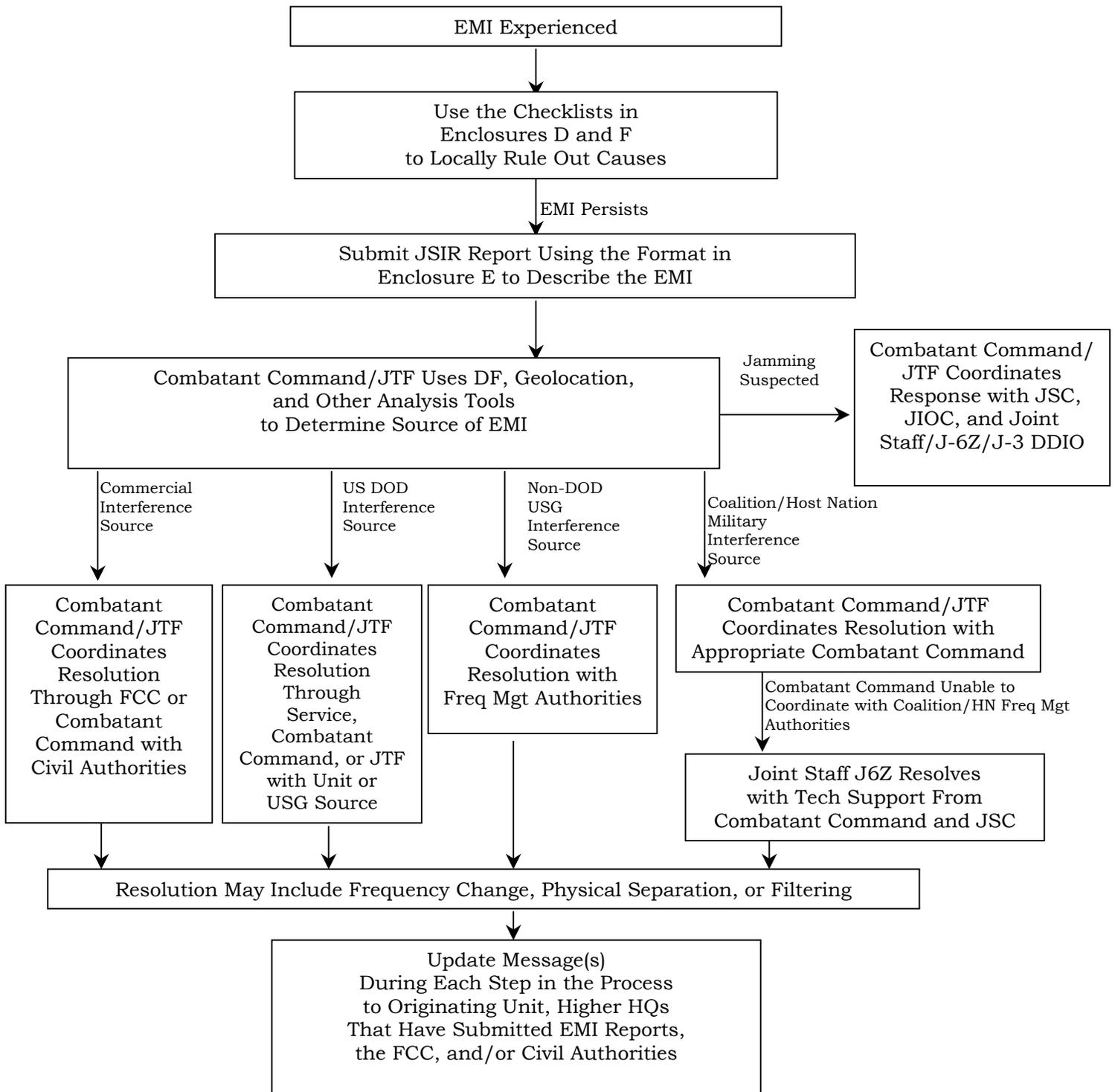


Figure A-2. OCONUS Terrestrial JSIR Process

(d) Resolution. When the IS is emanating from DOD operations, the combatant command or JTF will coordinate with appropriate frequency management authorities to resolve the problem. The resolution may require a change of frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical adjustments.

1. When the IS is emanating from a coalition military or HN transmitter, the combatant command or JTF will coordinate with the appropriate combatant command for resolution. In cases where the combatant command is unable to coordinate with the coalition frequency management authorities, the Joint Staff/J-6Z, with notification to the J-6B, will act as the focal point for resolution with assistance from the combatant command, JSC, and the Department of State.

2. When the IS is emanating from a USG source other than the Department of Defense, the combatant command or JTF will coordinate the interference resolution with the affected combatant command component and the USG agency responsible for the interference source. Resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit and receive filtering, or other technical fixes.

3. When the IS is emanating from a civilian source located within the United States and its possessions (US&P), the combatant command or JTF will coordinate with the Joint Staff/J-6B to obtain assistance from the FCC.

4. If the EMI is assessed to be originating from a jammer, the combatant command or JTF will contact the JSC, JIOC, and the Joint Staff/J-6/J-3 DDIO for further action and assistance.

(e) Feedback. During each step of the process, the originator of the report will be kept informed by the entity responsible for the assistance as to the progress of the interference investigation. When an EMI event is closed out by eliminating the interference source, by determining an “unusable” status or condition due to the interference, or because the interference ceased, a closing report will be provided to the originator and all involved and applicable parties by the highest resolution authority.

(f) Timeline. Units experiencing interference must report it to higher HQ within 4 hours from the start of the incident. The 4-hour period will be used to determine any equipment malfunction, system anomaly, or other local causes. Combatant command or JTF personnel will have 72 hours to further evaluate the interference and coordinate with other agencies for assistance, as appropriate.

c. Space. Space systems include the space, ground, and control segments directly supporting space operations. Interference and jamming are considered synonymous until a determination can be made as to the source of the problem. The distinguishing difference between interference and jamming is the intent of the originating source. Space system interference reports of the affected space system(s) are forwarded through the operational unit chain of command. Interference or possible jamming affecting any US space system will be reported to the USSTRATCOM/GOC (Enclosure G) as defined in Enclosure E. The USSTRATCOM/GOC will determine the appropriate organization(s) within USSTRATCOM to resolve the EMI. Interference or possible jamming affecting SATCOM systems that cannot be immediately resolved at the component or combatant command or JTF level will be reported to the appropriate RSSC and GSSC (Enclosure B) in addition to the GOC. Interference or possible jamming affecting GPS will be routed through the GPS Operations Center as defined in Enclosure B. The GPS Operations Center will coordinate all suspected GPS interference or jamming with the Federal Aviation Administration (FAA) and the US Coast Guard Navigation Center. USSTRATCOM/GOC, GSSC, or GPS Operations Center will forward the event report to JSC for additional analysis and support as required. Joint Staff/J-3 and J-6 will be info copied on all message traffic regarding GPS interference or jamming. This process is illustrated in Figure A-1.

(1) SATCOM. For the purposes of this manual, SATCOM is defined as DOD owned and/or contracted and operated satellite assets for the use of both voice and digital communications supporting military operations.

(a) Identification and Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to rule out local causes such as defective equipment, invalid frequency assignments, or other variables such as space weather.

(b) Characterization and Reporting Procedures. If the interference or jamming is present, the unit will determine the characteristics of the interference or jamming to allow further analysis by higher HQ. A message will be generated including: the details of the problem, what steps have been taken to resolve the problem, any characterization of the interference or jamming signal, and a statement indicating whether onsite resolution support is needed. Message addressee for the report and the format of the messages is contained

in Enclosures B and E, respectively. Each succeeding higher HQ will attempt to make a determination as to the source of the interference or jamming and add any details to the original interference report as required.

(c) Geolocation. When interference is determined to be originating on a satellite uplink channel, the interference will be reported to the appropriate RSSC in accordance with Enclosure B for further analysis and submission through the GSSC for geolocation support.

(d) Resolution. Once the geographic area of the interference source is identified (and depending on the area), coordination through the combatant command responsible for the geographic area of the interference source may be requested to initiate discussions with the interference source owner. When the interference source is determined to be within US&P, USSTRATCOM/GSSC will be contacted and requested to coordinate and resolve the interference. If coordination is not possible with the interfering source, and the interference is from OCONUS, the Joint Staff will initiate coordination through the appropriate combatant command and/or the Department of State (Figure A-3).

1. When the IS is emanating from a DOD unit, the supporting RSSC will coordinate with supported combatant command(s) to resolve the event. The resolution may require a change in frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical applications.

2. When the IS is emanating from a USG source other than the Department of Defense, the JSC and/or Joint Staff will coordinate the interference resolution with the affected combatant command component and the government agency responsible for the interference source. Resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes. If the interference cannot be resolved directly with the federal agency, the interference should be brought to the attention of the NTIA.

3. When the IS is emanating from a US civilian source, the JSC and/or Joint Staff will coordinate a resolution solution with the FCC.

4. If interference to a CONUS unit is originating from OCONUS, the GSSC will coordinate a response with the appropriate combatant command responsible for the geographic area where the interference source is located. If direct military-to-military coordination with the HN is not possible or is not likely to result in successful resolution of the EMI, the Joint Staff will initiate coordination with the HN through DOS channels. The Joint Staff will also adjudicate any combatant command differences over the resolution of the interference or jamming.

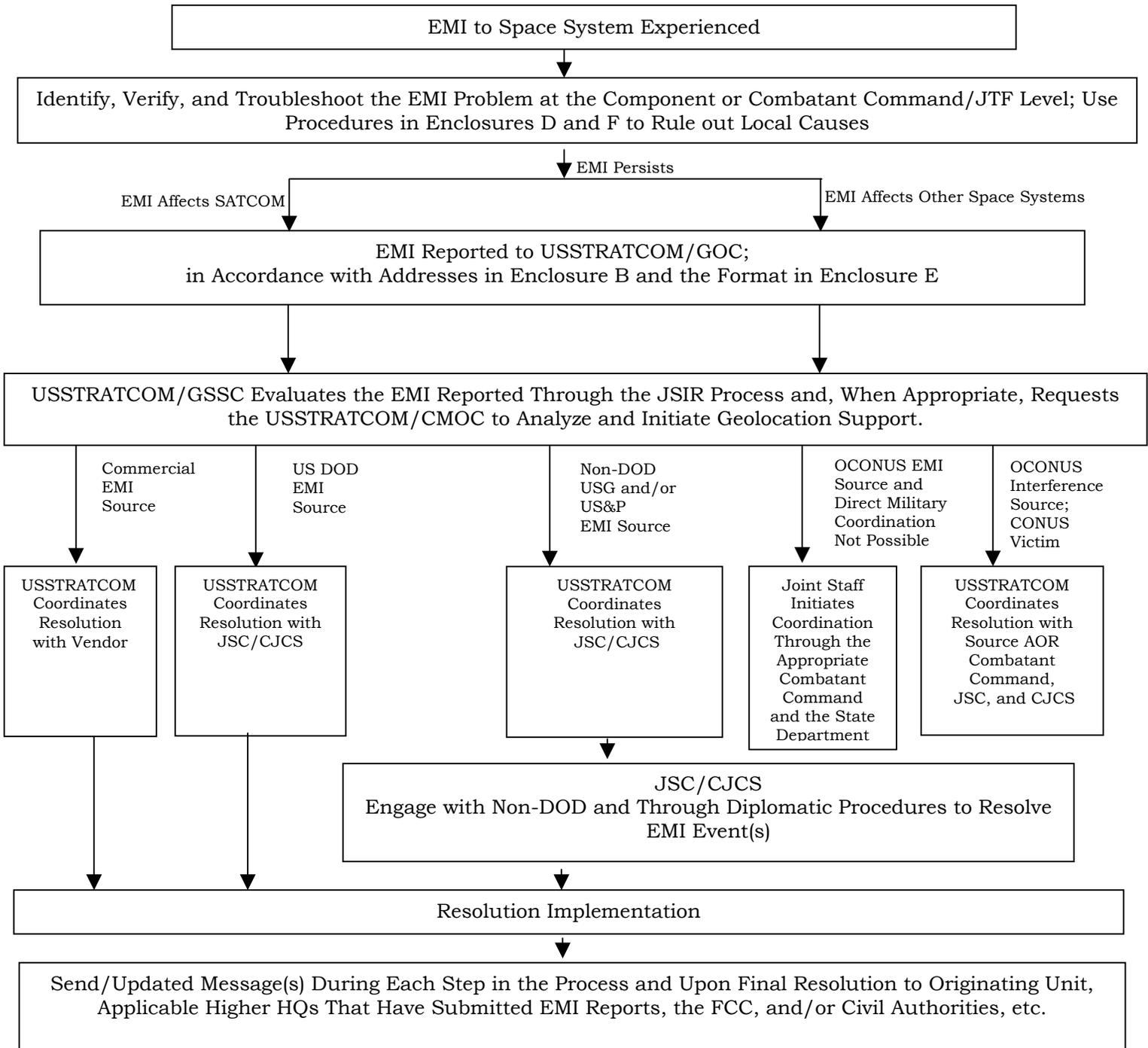


Figure A-3. Space System EMI Resolution Process

5. If the EMI is assessed to be originating from a radio frequency jammer, USSTRATCOM will contact the JIOC, the JSC, and the Joint Staff/J-6/J-3 DDIO (at a minimum) for further action and assistance.

(e) Feedback. During each step of the process, the originator of the report will be kept informed by the entity responsible for the assistance as to the progress of the interference investigation. When an EMI event is closed out by eliminating the interference source, by determining an “unusable” status or condition due to the interference, or because the interference ceased, a closing report will be provided to the originator by the highest resolving authority.

(f) Timeline. Units experiencing interference must report it to higher HQ within 4 hours from the start of the incident. The 4-hour period will be used to determine any equipment malfunction, system anomaly, or other local causes. USSTRATCOM will advise status and disposition of JSIR support requests within 24 hours and, as appropriate, will update upon any change until EMI is resolved or geolocated. Combatant command or JTF personnel will have 72 hours to further evaluate the interference and then report the incident and request further assistance from USSTRATCOM.

(2) Global Positioning System

(a) Identification and Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to locally rule out causes such as defective equipment or other variables such as space weather.

(b) Characterization and Reporting Procedures. If the interference or jamming is present, the unit will determine the characteristics of the interference or jamming to allow further analysis by higher HQ. A message will be generated including: the details of the event, steps taken to resolve the event, any characterization data of the interference or jamming signal, and a statement indicating whether onsite resolution support is required. Message addressee for the report and the formats of the messages are contained in Enclosures B and E, respectively. Timely reporting of the interference or jamming is critical due to the potential hazards and impacts to navigation systems, weapons systems, C2 systems, and safety of life issues associated with GPS. Each succeeding higher HQ will attempt to make a determination as to the source of the interference or jamming and add any additional available information to the original interference report as required.

(c) Geolocation. When interference is determined to be originating on either GPS frequency, the interference will be reported immediately to the GPS Operations Center for further analysis to determine if the interference is related to a satellite outage. If the GPS Operations Center reports the

interference is not a satellite-wide outage, a JSIR will be submitted to the local frequency manager to investigate.

(d) Resolution. Once the geographic area of the interference source is known (and depending on the area), coordination through the combatant command responsible for the geographic area of the interference source may be requested to initiate discussions with the interference source owner. If direct military-to-military coordination with the HN is not possible or is not likely to result in successful resolution of the EMI, then the Joint Staff will initiate coordination with the HN through DOS channels. Where the interference source is determined to be within the US&P, USSTRATCOM will be notified and requested to help resolve the interference.

1. When the IS is emanating from a DOD unit, USSTRATCOM will coordinate with appropriate frequency management authorities to resolve the problem. The resolution may require a change of frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

2. When the IS is emanating from a USG source other than the Department of Defense, the JSC will coordinate the interference resolution with the affected combatant command component and the USG agency responsible for the interference source.

3. When the IS is emanating from a civilian source, the JSC will coordinate a response with the FCC, FAA, and US Coast Guard Navigation Center.

4. The cost of implementing resolution measures will be the responsibility of the combatant command component that owns the affected system.

5. If the EMI is assessed to be originating from an RF jammer, USSTRATCOM will contact the JSC, JIOC, and the Joint Staff/J-6/J-38/J-3 DDIO (at a minimum) for further action and assistance.

(e) Feedback. During each step in the process, the originator of the report will be kept informed as to the progress of the interference investigation. When an event is closed out by eliminating the interference source, by determining that an area is degraded or unusable for GPS usage due to the interference, or because the interference ceased, a closing report will be provided to all interested parties.

(f) Timeline. Units experiencing interference must report it to higher HQ within 4 hours from the start of the incident. The 4-hour period will be

used to determine any equipment malfunction, system anomaly, or other local causes. GPS Operations Center, combatant command, or JTF personnel will have 72 hours to further evaluate the interference and coordinate with other agencies for assistance, as appropriate.

(3) Other Space Systems. For the purposes of this manual, other space systems are defined as any space system other than SATCOM or GPS. These systems include the ground, space, and control segments. In addition, it encompasses the telemetry, tracking, and commanding (TT&C) systems. Other space systems include, but are not limited to, the Defense Support Program, classified space systems, and others.

(a) Identification and Verification. The unit experiencing the interference will use the procedures provided in Enclosures D and F to locally rule out causes such as equipment problems, non-existent/invalid frequency assignments, or space weather.

(b) Characterization and Reporting Procedures. If the interference or jamming is present, the unit will determine the characteristics of the interference or jamming to allow further analysis by higher HQ. A message will be generated including: the details of the problem, what steps have been taken to resolve the problem, any characterization of the interference or jamming signal, and a statement indicating whether onsite resolution support is needed. Message addressee for the report and the format of the messages is contained in Enclosures B and E, respectively. Each succeeding higher HQ will attempt to make a determination as to the source of the interference or jamming and add any details to the original interference report as required. Classified systems will continue to report and resolve harmful interference IAW existing agreements with the JSC.

(c) Geolocation. When interference is determined to be originating on the frequency of a space sensor or the TT&C frequencies, the interference will be reported to USSTRATCOM for geolocation support.

(d) Resolution. Once the geographic area of the interference source is identified (and depending on the area), coordination through the combatant command responsible for the geographic area of the interference source may be requested to initiate discussions with the interference source owner. When the interference source is determined to be within the US&P, USSTRATCOM will be contacted to help resolve the interference by coordination or to provide onsite geolocation. If there is no coordination possible with the interference source owner and the interference is from OCONUS, then the Joint Staff will initiate coordination through the appropriate combatant command and/or the Department of State.

1. When the IS is emanating from a DOD unit, USSTRATCOM will coordinate with appropriate frequency management authorities to resolve the problem. The resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

2. When the IS is emanating from a USG source other than the Department of Defense, USSTRATCOM will coordinate the interference resolution with the affected combatant command component and the USG agency responsible for the interference source. Resolution may require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other technical fixes.

3. When the IS is emanating from a US civilian source, USSTRATCOM will coordinate a possible resolution with the FCC.

4. If an interference case to a CONUS unit is originating OCONUS, USSTRATCOM will coordinate a response with the appropriate combatant command responsible for the geographic area where the interference source is located. If direct military-to-military coordination with the HN is not possible or is not likely to result in successful resolution of the EMI, then the Joint Staff will initiate coordination with the HN through DOS channels. The Joint Staff will also adjudicate any combatant command differences over the resolution of the interference or jamming.

5. The cost of implementing resolution measures will be the responsibility of the combatant command component that owns the affected system.

6. If the EMI is assessed to be originating from a RF jammer, USSTRATCOM will contact the JSC, JIOC, and the Joint Staff/J-6/J-3 DDIO (at a minimum) for further action and assistance.

(e) Feedback. During each step of the process, the originator of the report will be kept informed by the entity responsible for the assistance as to the progress of the interference investigation. When an EMI event is closed out by eliminating the interference source, by determining an “unusable” status or condition due to the interference, or because the interference ceased, a closing report will be provided to the originator and all involved and applicable parties.

(f) Timeline. Units experiencing interference must report it to higher HQ within 4 hours from the start of the incident. The 4-hour period will be used to determine any equipment malfunction, system anomaly, or other local causes. Combatant command or JTF personnel will have 72 hours to further

evaluate the interference and then coordinate with other agencies for assistance as appropriate.

(4) DOD SATCOM includes both military SATCOM systems (MILSATCOM) and leased commercial SATCOM resources. Suspected EMI or radio frequency interference (RFI) issues in the commercial SATCOM spectrums must be handled differently than organic MILSATCOM systems because the Department of Defense does not own the on-orbit resources and management processes but simply leases these from the commercial SATCOM providers (vendors or owner-operators). Because of this, different processes and instructions have been developed, tested, and implemented for dealing with suspected EMI or RFI on commercial SATCOM. USSTRATCOM/GSSC is a DOD focal point for all suspected SATCOM EMI and/or RFI events. USSTRATCOM has coordinated aggressively at the department, agency, center, and other levels as well as with commercial SATCOM industry partners to mitigate the effects of EMI and RFI events to DOD customers. Commercial SATCOM providers have an inherent responsibility and desire to assist in EMI and RFI identification and resolution as a quality of service initiative for all their users. All initial reporting of commercial SATCOM EMI or RFI occurs through the GSSC. SATCOM terminal operators (SO) that experience interference to traffic on commercial satellites report the interference directly to providers per their leasing agreement. The providers use a predefined line item checklist (Rapid Response Upchannel Reporting Checklist (RRURC)) to report the event to the GSSC. The GSSC initiates upchannel reporting to designated offices and/or agencies, and either initiates or ensures an initial JSIR is submitted to all appropriate addressees as identified in enclosure B. The GSSC also initiates, assigns, and tracks all EMI and RFI resolution activities, to include geolocation services that may be requested of the commercial SATCOM provider. Timely initial notification for suspected EMI and/or RFI events to the GSSC is critical to begin the 3-phase process of reporting, assessing, and resolving the interference. Finally, the SO is the focal point for local (downlink) interference issues on commercial SATCOM leases. The SO will seek assistance from the commercial SATCOM provider, chain of command, RSSC, combatant commands J-6 (TCCC/GCCC), and JSC for resolution of these interference issues.

(a) Identification and Verification. A SATCOM EMI or RFI occurs when an IS occurs on a SATCOM uplink frequency, is received by the transponder, and is propagated through the downlink. A SO experiencing commercial SATCOM problems uses the procedures provided in Enclosures D and F to rule out local causes such as defective equipment, invalid frequency assignments, or other variables such as space weather. If unsuccessful with initial troubleshooting, the SO contacts the commercial SATCOM provider for assistance. The commercial SATCOM provider's top priority is service restoration and will work immediately toward that end with the SO. The

commercial SATCOM provider will also provide a determination of the problem with the circuit. If the problem is suspected EMI or RFI, they will immediately advise the GSSC, then make other required notifications.

(b) Characterization and Reporting Procedures. If EMI or RFI is present, the commercial SATCOM provider determines the characteristics of the interference and passes this information to the GSSC via the RRURC. The GSSC then submits RRURC information via SIPRNET e-mail. This product is considered the JSIR message. Message addressees and report content and format are contained in enclosures B and E, respectively. From this point forward, USSTRATCOM initiates the space operations loop and executes appropriate actions associated with the 3 phases of EMI and RFI event resolution.

(c) Geolocation. Geolocation is a technique available to assist with EMI and RFI resolution. It involves employment of equipment designed to locate sources of suspected EMI and RFI. Some commercial SATCOM providers own this equipment and employ it to resolve EMI or RFI events. In the event that this resource needs to be exercised to resolve an EMI or RFI event, the GSSC will contact the commercial SATCOM provider and request geolocation support. The provider will report all information about EMI and RFI events, to include geolocation efforts. USSTRATCOM/GSSC will disseminate these results as applicable.

(d) Resolution. When an EMI or RFI source is geolocated, USSTRATCOM may request support from the combatant command for the AOR within which the interference source emanates. When the interference source is within the US&P, USSTRATCOM coordinates to resolve the interference. If coordination is not possible with the interfering source, and the interference is from OCONUS, USSTRATCOM initiates coordination through the appropriate combatant command. If DOS involvement is required, the Joint Staff will coordinate (Figure A-1). Frequency changes OCONUS may need to be covered under HN approval processes. CONUS frequency changes may need frequency approval, and the satellite owner has the responsibility to ensure this occurs.

1. When the IS emanates from a DOD unit, USSTRATCOM coordinates with the supported combatant command(s) to resolve the event. The resolution may require a frequency change, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other actions.

2. When the IS emanates from a USG source other than the Department of Defense, USSTRATCOM, JSC, and/or Joint Staff coordinate the interference resolution with the affected combatant command component and the government agency responsible for the interference source. Resolution may

require a user to change frequency, a physical separation of interfering transmit and victim receive antennas, additional transmit/receive filtering, or other actions.

3. When the IS emanates from a CONUS US civilian source, the JSC and/or Joint Staff coordinate a resolution solution with the FCC.

4. If interference to a CONUS unit originates from OCONUS, USSTRATCOM coordinates a response with the appropriate combatant command responsible for the geographic area where the interference source is located. If direct military-to-military coordination with the HN is not possible or is not likely to result in successful resolution of the EMI or RFI, the Joint Staff initiates coordination with the HN through the Department of State.

5. If the EMI or RFI is assessed to be originating from a radio frequency jammer, USSTRATCOM contacts the JIOC, the JSC, and the Joint Staff/J-6/J-3 DDIO (at a minimum) for further coordination actions.

(e) Feedback. When an EMI or RFI on a commercial SATCOM resource is reported, it is loaded into the Commercial SATCOM Management and Planning System tool, operating on the SIPRNET. The tool contains a tracking mechanism that allows the GSSC to assign and track the status of the steps to the resolution process. Access to the tool can be achieved through the USSTRATCOM Commercial SATCOM Operational Manager (SOM). Guests can logon, which enables anyone with access to SIPRNET to view the status of ongoing EMI or RFI resolution activities.

(f) Timeline. Timely initial notification for suspected EMI or RFI events to the GSSC is absolutely critical to reporting, assessing, and resolving the interference. Resolution of EMI or RFI events is dependent on several time-critical actions. SOs experiencing suspected EMI or RFI must advise the appropriate commercial SATCOM provider as soon as local troubleshooting is completed, but NLT 30 minutes from event start. For high priority circuits or when the EMI or RFI results in total communication interruption, the call to the appropriate commercial SATCOM provider should occur immediately upon completion of the terminal user's RRURC. At this point the commercial SATCOM provider confirms the event and immediately advises USSTRATCOM/GSSC. The goal is for the GSSC to be informed within 5 minutes of SO determination that an issue exists. The SO should also report the event through the chain of command as required, the goal being within 4 hours from incident start. After communications are restored, the GSSC will continue to track resolution activities, submit additional pertinent information related to the event, and closeout the JSIR as required.

6. EMI Reporting

a. EMI Characterization. It is important to characterize the EMI as completely and accurately as possible when reporting it. Little can be done to resolve the EMI until the problem is adequately characterized. However, the initial report should not be held up because some information is not immediately available. Use follow-up reports to provide additional information as it becomes available.

b. EMI Reporting. EMI events will be reported using the format specified in Enclosure E. All reports of jamming will be submitted via secure means. The JSC has a 24-hour capability for receiving interference reports (see Enclosure G). SPECTRUM XXI software may be used to generate a report of interference.

c. Security Classification of Interference Report. The originator of the interference report must classify the report appropriately by evaluating the security sensitivity of the interference on the affected system and by considering the classification of the text contents. Guidelines for classifying interference incidents are contained in Enclosure C.

d. Precedence. EMI reports will be assigned precedence consistent with the urgency of the reported situation. Guidelines for setting the precedence for interference incidents are contained in Enclosure C.

e. Report Address. Each military unit must submit reports through the appropriate chain of command to the major or unified command, combatant command, or JTF level, local spectrum manager, cognizant AFC (CONUS EMI only), and to the engineering agency responsible for interference resolution for its DOD component IAW established Service reporting procedures. Information copies of all interference incident reports (both terrestrial and space-based systems) should be sent to the JSC for inclusion in the JSIR database. Enclosure B specifies the minimum message addressee.

f. EMI Message Report Format. See Enclosure E.

7. Costs

a. The Services provide the staffing and funding for the development of the necessary instructions and manuals to provide interference resolution guidelines to their respective Service.

b. Funding responsibility to resolve EMI resolution will be based on the following criteria:

(1) Terrestrial Interference. Costs of local interference resolution efforts (i.e., up to the Service, JTF, or combatant command levels) will be the responsibility of the affected units, Service JTF, or combatant command. The combatant command, Service, or JTF is authorized to negotiate cost reimbursement from the interfering source if the other entity is responsible for the interference and is in noncompliance with appropriate civil or DOD spectrum management.

(2) Interference to Space Systems. EMI to space systems will be treated as follows:

(a) Downlink Interference. Downlink interference is defined as the part of the transmission link reaching from the satellite to the ground. Funding responsibility is the same as for terrestrial interference.

(b) Uplink Interference. Uplink interference is defined as the part of the transmission link from the earth station to the satellite. USSTRATCOM will coordinate SATCOM EMI resolution efforts with the affected combatant command, Joint Staff, and the Department of State (if necessary) IAW CJCSI 6250.01B, "Satellite Communications." If funding to non-US sources is required, USSTRATCOM and the Joint Staff with the Department of State will coordinate EMI resolution funding. DOD funding of uplink interference resolution is the responsibility of the Service providing the operational SATCOM constellation. USSTRATCOM and the Joint Staff will coordinate funding requirements with the Service.

c. Interference Resolution Support

(1) The US Air Force provides funding for the interference resolution and quick fix interference reduction capability services provided for the USAF (salaries, test equipment, special purpose vehicles, etc.) by the 738th Engineering Installation Squadron (EIS). The travel costs associated with deploying these 738 EIS services are funded by the Air Force Frequency Management Agency (AFFMA).

(2) JSC support to determine the source of the interference will be provided at no cost to the warfighter, subject to available funding.

(3) The US Navy provides funding for the rapid deployment of EMI teams, interference resolution, and quick fix installation of EMI solutions for all surface ships and submarines via the Naval Sea Systems Command (NAVSEA) and the Shipboard Electromagnetic Compatibility Improvement Program (SEMCIP). The travel costs associated with deploying these NAVSEA SEMCIP services is funded by the SEMCIP program.

(4) The US Navy provides funding for technical assistance with fleet-experienced EMI for all naval aviation units via the Naval Air Systems Command (NAVAIR) and the Air Systems Electromagnetic Interference Corrective Action Program (ASEMICAP). Costs associated with these NAVAIR ASEMICAP technical support services are funded by ASEMICAP.

ENCLOSURE B

DMS MESSAGE ADDRESSEE

1. Combatant Command, JTF, or Service Requests for JSC JSIR Support. Combatant command, JTF, or Service requests for JSC JSIR support in the resolution of persistent and recurring interference should be sent via the Defense Message System (DMS) with a message subject of "Request for JSIR Support" to the following addressee (Note: All DMS addressees are for the classified DMS system):

Action: (DMS) DISA JSC-J3 (s)

2. Reports Affecting SATCOM Systems. All space system incident reports affecting SATCOM systems must be sent to:

Action (DMS)

USSTRATCOM OFFUTT AFB NE/////J66/J661/J663///// (For the appropriate Region)
RSSC CONUS MACDILL AFB FL
RSSC EUROPE VAIHINGEN GE
RSSC PACIFIC WHEELER AAF HI
GSSC PETERSON AFB CO
JOINT STAFF WASHINGTON DC/////J6Z///// (Priority One and JCS channels)

INFO (DMS)

DISA JSC-J3-(UC) (s)

Chain of command of reporting unit

Local Spectrum Manager

Cognizant Area Frequency Coordinator (CONUS EMI)

Supporting satellite operations center

CMOC SCC CHEYENNE MOUNTAIN AFS CO

Military Department POC

Cognizant combatant command or JTF JSME

DSCS NETWORK MANAGER WASHINGTON DC (DSCS interference only)

HQ AFWA OFFUTT AFB NE/////XOGS///// (Space weather and other natural phenomena effect issues only)

DIRNSA FT GEORGE G MEADE MD/////PIW34/////

DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO//

DISA WASHINGTON DC/////D314-1/TWI-3A//D34-F///// (DSCS)

DISAGNOSC WASHINGTON DC (DSCS & commercial)

DISA EUR VAIHINGEN GE/////RNOSC///// (DSCS & commercial)

DISA PAC WHEELER AAF HI////RNOSC//// (DSCS &
commercial)
DISA SCOTT AFB IL////RNOSC////
HQ AFSPC PETERSON AFB CO////DOR/DOIP/DOXP////
(USAF)
AFSPACE VANDENBERG AFB CA////A3/A33////(USAF)
COMARSPACE COLORADO SPRINGS CO//// SMDC-AR-OS////
(DSCS)
NAVNETWARCOM NORFOLK VA////N3/N32//// (for USN)
COMNAVSECGRU FT GEORGE G MEADE MD////N6//// (for
USN)
CNO WASHINGTON DC////N71////(USN)
NAVMARSPECCEN WASHINGTON DC (for USN/USMC)
ARMY SPECTRUM MGT-ALEXANDRIA VA//NETC-EST-TS (for
USA)
AFFMA ALEXANDRIA VA////SCM//// (for USAF)
JOINT STAFF WASHINGTON DC////J6Z//// (All other SATCOM
channels)
(For the appropriate region)
JCMSA FT GEORGE G MEADE MD////X52/X524/PISCES////
BAD AIBLING STATION BAD AIBLING
GERMANY////F7633/FIREBACK////
CDR MENWITH HILL STATION HARROGATE
UK////F773C/SPRINKLER////
NCPAC HONOLULU HI////F405/WATERCUP////
(For the appropriate region)
NCTAMS EURCENT NAPLES IT////N3/N30/JFTOC////
NCTAMS LANT NORFOLK VA////N3/N31/JFTOC////
NCTAMS PAC HONOLULU HI////N3/N35/JFTOC////
738 EIS KEESLER AFB MS////EEEM//// (for USAF)
HQ USEUCOM VAIHINGEN GE////JFMO/ECJ6-F////
Communications Squadron/Facility (for appropriate to affected
and adjacent areas)

3. Reports Affecting GPS Space Systems. All GPS space system incident reports must be sent to:

ACTION (DMS):
HQ USSPACECOM PETERSON AFB
CO////J33/J330/GSC/J36/J36S/J36P////
USSTRATCOM OFFUTT AFB NE////J3612////
GPS OPERATIONS CENTER SCHRIEVER AFB CO
SPACEAF////A3/A33////

INFO (DMS):

Chain of command of reporting unit
Local spectrum manager
Cognizant area frequency coordinator
CMOC SCC CHEYENNE MOUNTAIN AFS CO
DISA JSC-J3-(UC) (s)
CNO WASHINGTON DC////N71////(USN)
HQ AFWA OFFUTT AFB NE////XOGS//// (Space weather and
other natural phenomena effect issues only)
Cognizant combatant command or JTF JSME
DIRNSA FT GEORGE G MEADE MD////PIW34////
DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO//

4. Other Space System Related Reports. All other space system (not SATCOM or GPS) incident reports must be sent to:

ACTION (DMS):

USSTRATCOM OFFUTT AFB NE////J66/J661/J663////

INFO (DMS):

Chain of command or reporting unit

Local spectrum manager

Cognizant Area Frequency Coordinator

NRO WASHINGTON DC////COM/OSF////

CMOC SCC CHEYENNE MOUNTAIN AFS CO

JSC-J3

CNO WASHINGTON DC////N71////(USN)

Military Department POC

Cognizant combatant command or JTF JSME

HQ AFWA OFFUTT AFB NE////XOGS//// (Space weather and
other natural phenomena effect issues only)

DIRNSA FT GEORGE G MEADE MD////PIW34////

DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO ////

AFFMA ALEXANDRIA VA////SCM//// (for USAF incidents)

ARMY SPECTRUM MGT-ALEXANDRIA VA//NETC-EST-TS (for USA
incidents)

NAVMARSPECCEN WASHINGTON DC (for USN/USMC incidents)

738 EIS KEESLER AFB MS////EEEM//// (for USAF)

5. Suspected Jamming or Hostile Electronic Attack Incidents. Suspected jamming or hostile EW incidents for all terrestrial and space systems must be sent to:

ACTION (DMS):

DISA JSC-J3-(UC)

USSTRATCOM OFFUTT AFB NE////J66/J661/J663//// (for
attacks on SATCOM)

GPS OPERATIONS CENTER SCHRIEVER AFB CO (for attacks on
GPS)

INFO (DMS):

JOINT STAFF WASHINGTON DC/////J6B/J6S/J6Z/////
CMOC SCC CHEYENNE MOUNTAIN AFS CO//
USSTRATCOM OFFUTT AFB
NE/////J31/J35/J66/J661/J662/////

JIOC SAN ANTONIO TX/////J54/////

DIRNSA FT GEORGE G MEADE MD/////PIW34/////

DIA WASHINGTON DC//TWI-3A//CL/DCCC SCO /////

AFFMA ALEXANDRIA VA/////SCM///// (for USAF incidents)

ARMY SPECTRUM MGT-ALEXANDRIA VA//NETC-EST-TS (for USA
incidents)

NAVMARSPECCEN WASHINGTON DC (for USN/USMC incidents)

CNO WASHINGTON DC/////N71///// (USN)

Military Department POC
Cognizant combatant command or JTF JSME
HQ AFIWC KELLY AFB TX

DISA WASHINGTON DC/////D34-F/////

COMNAVSPACECOM DAHLGREN VA/////N33/////

NCTAMS EURCENT NAPLES IT/////N3/N30/JFTOC/////

NCTAMS LANT NORFOLK VA/////N3/N31/JFTOC/////

NCTAMS PAC HONOLULU HI/////N3/N35/JFTOC/////

Communications Squadron/Facility (for appropriate to affected
and adjacent areas)

HQ AFSPC PETERSON AFB CO/////DOR/DOIP/DOXP/////

AFSPACE VANDENBERG AFB CA/////A3/A33/////

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

738 EIS KEESLER AFB MS/////EEEM///// (for USAF)

HQ USEUCOM VAIHINGEN GE/////JFMO/ECJ6-F/////

6. CONUS Terrestrial EMI. All terrestrial interference affecting systems
operated in the CONUS must be reported to the cognizant Service frequency
management agency:

ACTION (DMS):

AFFMA ALEXANDRIA VA/////SCM///// (for USAF incidents)

ARMY SPECTRUM MGT-ALEXANDRIA VA//NETC-EST-TS (for USA
incidents)

NAVMARSPECCEN WASHINGTON DC/////10/30///// (for
USN/USMC incidents)

USNORTHCOM DMS address: C=US//O=U.S
GOVERNMENT/OU=DOD/OU=NORTHCOM/OU=ORGANIZATIONS
/L-PETERSON AFB CO/OU=HQ NORTHCOM(SC)/OU=J6(SC)

INFO (DMS):

DISA JSC-J3-(UC) (S)
CNO WASHINGTON DC////N71///// (USN)
DA WASHINGTON DC////DAMO-FDC///// (USA)
HQ USAF WASHINGTON DC////XOFE/XORR///// (USAF)
CMC WASHINGTON DC////C4///// (USMC)
COMDT COGARD WASHINGTON DC////xxx///// (USCG)
NAVNETWARCOM NORFOLK VA ////N3/N32///// (for
USN/USMC)
COMNAVSECGRU FT GEORGE G MEADE MD////N6///// (for
USN/USMC)
NAVMARSPECCEN WASHINGTON DC (for USN/USMC)
ARMY SPECTRUM MGT-ALEXANDRIA VA//NETC-EST-TS (for
USA)
AFFMA ALEXANDRIA VA////SCM///// (for USAF)
HQ AFIWC KELLEY AFB TX (for USAF)
SPAWARSYSCEN SAN DIEGO CA////D841///// (for USN/USMC)
JFMO LANT NORFOLK VA////xxx///// (as appropriate)
JFMO PAC HONOLULU HI////J613///// (as appropriate)
738 EIS KEESLER AFB MS////EEEM///// (for USAF)
affected and adjacent regional NAVSECGRU activities
other addressee as appropriate

7. OCONUS Terrestrial EMI. All terrestrial interference affecting systems operated OCONUS must be reported to the cognizant combatant command or JTF:

ACTION (DMS):

Cognizant combatant command/JTF JSME

INFO (DMS):

Chain of command of reporting unit

Local spectrum manager

DISA JSC-J3-(UC)
CNO WASHINGTON DC////N71///// (for USN)
DA WASHINGTON DC////DAMO-FDC///// (for USA)
HQ USAF WASHINGTON DC////XOFE/XORR///// (for USAF)
Appropriate MAJCOM/MACOM frequency management authorities
CMC WASHINGTON DC////C4///// (USMC)
COMDT COGARD WASHINGTON DC////xxx///// (for USCG)
NAVNETWARCOM NORFOLK VA ////N3/N32///// (for
USN/USMC)
COMNAVSECGRU FT GEORGE G MEADE MD////N6///// (for
USN/USMC)

NAVMARSPECCEN WASHINGTON DC (for USN/USMC)
ARMY SPECTRUM MGT-ALEXANDRIA VA//NETC-EST-TS (for
USA)
AFFMA ALEXANDRIA VA////SCM//// (for USAF)
HQ AFIWC KELLEY AFB TX (for USAF)
SPAWARSYSCEN SAN DIEGO CA////D841//// (for USN/USMC)
JFMO LANT NORFOLK VA////xxx//// (as appropriate)
JFMO PAC HONOLULU HI////J613//// (as appropriate)
738 EIS KEESLER AFB MS////EEEM//// (for USAF)
HQ USEUCOM VAIHINGEN GE////JFMO/ECJ6-F////
affected and adjacent regional NAVSECGRU activities
other addressee as appropriate

8. Reports Sent via Secure E-Mail (SIPRNET). Although reports **must** be sent via DMS, if the command determines the necessity preliminary reports may be sent in the proper format through secure e-mail to the following SIPRNET addresses:

USNORTHCOM
nc.J636.omb@northcom.smil.mil

NORAD/NORTHCOM
nc.j662.omb@northcom.smil.mil

USCENTCOM
TCCCSPECMGR@TCCCFWD.CENTCOM.SMIL.MIL

USJFCOM
gccc@hq.jfcom.smil.mil

USSOCOM
SOCOMC4CURRENTOPS@HQ.SOCOM.SMIL.MIL

USSOUTHCOM
ombspectrummanagement@hq.southcom.smil.mil

USTRANSCOM
Ustcj6-op@ustranscom.smil.mil

USSTRATCOM
GSManagement@stratnets.stracom.smil.mil

USPACOM
JFMOPAC@PACOM.SMIL.MIL

USEUCOM
Unavailable

Joint Spectrum Center (JSC)
operations@jsc.js.smil.mil

Navy and Marine Corp Spectrum Center (NMSC)
navyspectrum@navemscen.navy.smil.mil

NETWARCOM
LTLC_NNWC_OPS@NAVY.SMIL.MIL

AIR FORCE (AFFMA)
affma.cc@affma.af.smil.mil

ARMY (ASMO)
ArmySpecMgtOfc@ncr.disa.mil

Shipboard Electromagnetic Compatibility Improvement Program – NAVSEA
bradleyhr@navsea.navy.smil.mil

(INTENTIONALLY BLANK)

ENCLOSURE C

SECURITY CLASSIFICATION GUIDE AND MESSAGE PRECEDENCE
GUIDELINES

1. Security Classification Guide. Security classification of interference incidents and reports is determined principally by nationality and location of the implied or stated source of the interference and the security sensitivity of the affected military system. Stations located in combat areas or having a sensitive military mission generally must classify all interference reports. The following are guidelines for classifying interference incidents and reports:

a. The specific identification of an unfriendly platform or location by country or coordinates as the source of interference or EW will be classified as SECRET. Reason: 1.4(c).

b. Specific susceptibility or vulnerability of US electronic equipment and systems will be classified at a minimum level of SECRET. Reason: 1.4(g). The classification guide for the affected system should be consulted for specific guidance.

c. Parametric data of classified US electronic equipment and systems will be classified in accordance with the classification guide for the equipment affected. Classify correspondence equal to the security category assigned to the affected system.

d. Suspected interference from unidentified sources while operating in or near hostile countries will be classified SECRET. Reason: 1.4(g).

e. Interference to US electromagnetic equipment and systems caused by EW exercises in foreign nations will be classified as CONFIDENTIAL. Reason: 1.4(g)

f. Suspected interference from friendly sources can be treated as UNCLASSIFIED unless it reveals a specific system vulnerability, in which case it will be classified at a minimum level of SECRET. Reason: 1.4(c).

g. Suspected interference from unknown sources will be classified at a minimum level of CONFIDENTIAL. The classification guide for the affected system should be consulted for specific guidance.

h. When referring to JSIR and stating that JSIR analyses are a function of the JSC, reports will be UNCLASSIFIED.

2. Duration of Classification

a. IAW Executive Order (EO) 12958 (as amended by EO 13292), at the time of original classification, the original classification authority shall attempt to establish a specific date or event for declassification based upon the duration of the national security sensitivity of the information. Upon reaching the date or event, the information shall be automatically declassified. The date or event shall not exceed the time frame established in paragraph b.

b. If the original classification authority cannot determine an earlier specific date or event for declassification, information shall be marked for declassification 10 years from the date of the original decision, unless the original classification authority otherwise determines that the sensitivity of the information requires that it shall be marked for declassification for up to 25 years from the date of the original decision.

ENCLOSURE D

EMI CHARACTERIZATION AND RESOLUTION AT THE LOCAL LEVEL

1. EMI Checklist

a. To resolve EMI locally, personnel should see Enclosure F and use the following checklist.

STEP	ACTION	COMPLETE Y/N
001	Start a log and collect as much information as possible.	
002	Record what interference sounds like. If appropriate measurement equipment is available, an attempt should be made to quantify the characteristics of the interference signal. These characteristics include the interfering source's center frequency, bandwidth, relative amplitude, modulation, direction of interference, time of occurrence, and any other characteristics that can be obtained.	
003	Geographical Information	
003-01	Check with other units in the geographical area to determine the area affected.	
003-02	Verify exact location of receiver using GPS, if available.	
004	Determine interference start and stop times.	
005	Ensure affected system is operating correctly.	
005-01	Ensure all connectors are tight.	
005-02	Ensure antenna cables are in good condition.	
005-03	Have maintenance personnel ensure equipment is operating IAW technical manual specifications and frequency assignment parameters.	
006	Verify antenna is on the correct azimuth and elevation.	
007	Environment Information	
007-01	Contact all nearby units to determine if there is any recently installed equipment.	
007-02	Check with equipment maintenance personnel to determine if the interference is the result of maintenance actions or an equipment malfunction. This should include non-radio frequency (RF) equipment that can cause spark-type interference used to support the operation of RF equipment (e.g., thermostat-controlled devices, electric motors, welders, etc.)	
007-	Check to see if construction is being conducted in the	

STEP	ACTION	COMPLETE Y/N
03	immediate area.	
007-04	Determine whether the natural environment is the cause of the problem; see Enclosure F.	
008	Frequency Assignment Information	
008-01	Verify through Service component or JTF spectrum manager that a valid frequency assignment and/or satellite authorization exists.	
008-02	If no assignment exists, cease transmission and request new frequency.	
008-03	If valid assignment exists, change to alternate frequency and determine if interference is present. If interference is to a satellite communications system, skip to step 9.	
008-04	If a valid assignment exists and the interference goes away after changing to an alternate frequency, submit an interference report through next higher headquarters and info JSC.	
008-05	Where co-channel or adjacent channel interference is suspected (i.e., the interfering signal overlaps the operating bandwidth of the victim receiver), check with local and area frequency management personnel to determine if other locally operated equipment has been recently assigned a co-channel or adjacent channel frequency.	
009	Satellite Communications Interference for SATCOM	
009-01	Net Control Station should contact the supporting satellite support center (SSC) and determine if they can identify interference on the satellite. A determination must be made at this time as to whether the interference is on the uplink or downlink of the satellite channel. If two or more users separated by 300 miles are observing the same interference, the interference is likely on the uplink.	
009-02	If no interference is present on the satellite uplink frequency, request to be switched to an alternate channel in a different part of the frequency band.	
009-03	If SSC reports a steady receive key (SRK) on the channel, have all users vacate the net.	
009-04	Once all users are off the net, contact SSC and ask if the SRK is present.	
009-05	If SRK is gone, have users re-access the net one at a time while SSC monitors; once the user that was causing the interference moves back onto the net, the SRK will re-appear.	

STEP	ACTION	COMPLETE Y/N
009-06	If SRK is present, request another channel for testing. Have users move to the new channel, one at a time, while monitoring the channel.	
009-07	Once all users have moved to new channel, determine if SRK is present on the original channel.	
009-08	If SRK is present on original channel, initiate a harmful interference report.	
010	Uplink or Downlink	
010-01	Determine if the interference is downlink. SATCOM downlink interference has the following characteristics: <ul style="list-style-type: none"> ▪ Other users on the same satellite channel in your immediate area are also experiencing interference. ▪ Other users on the same satellite channel who are distant from you, i.e., more than 150 miles, are not experiencing interference. ▪ When you move the antenna away from the direction of the communication satellite, both the desired signal and interference levels change, but by different amounts. ▪ The antenna direction for maximum signal gain will be different than the direction at which the interference signal is a maximum. 	
010-02	Determine if the interference is on the uplink. SATCOM uplink interference has the following characteristics: <ul style="list-style-type: none"> ▪ Stations separated by more than 150 miles are experiencing the same problem. ▪ Moving the earth terminal antenna changes both the desired signal and interference levels by the same amount. ▪ The antenna direction for maximum interference signal will be equal to the direction at which the desired signal gain is a maximum. 	
011	Intentional or Unintentional	
011-01	For detailed checklists regarding whether or not the interference is intentional, please follow the JSIR links kept by the JSC at the J32 Space and Intel pages at http://www.jsc.js.smil.mil(SIPRNET) or http://jsc.ic.gov(JWICS)	
012	General Characterization	
012-01	Determine if the following are true to help characterize the interference: <ul style="list-style-type: none"> ▪ The interfering signal is encrypted. ▪ The interfering signal is understandable, e.g., voice. 	

STEP	ACTION	COMPLETE Y/N
	<ul style="list-style-type: none"> ▪ Note all settings (demods, bandwidths, gains, etc.) of your receiver equipment that enabled you to hear intelligible information on the interfering signal. ▪ The interfering signal appears to be one illegally passing traffic over a known channel (e.g., channel pirating). ▪ The interference is due to a SRK or stuck in receive key event, indicating equipment failures, glitches, or lapses in operational discipline. 	
013	GPS Interference	
013-01	If possible, utilize a spectrum analyzer to determine whether the interfering signal is on L1 (1575.4MHz) or on L2. (1227.6MHz).	
013-02	Check with area frequency manager to ensure there are no frequency assignments within ± 12 MHz of 1575.42 MHz (GPS L1) or 1227.60MHz (GPS L2) from systems like Mobile Subscriber Equipment, Digital Wideband Transmission System, and AN/FRC-142.	
014	Combatant command or JTF will request JSC support to help resolve interference to terrestrial systems.	
015	Combatant command or JTF will request resources to support interference resolution to space systems.	
016	Provide feedback through the chain of command to the affected unit of actions taken and the resolution.	

b. Each unified command, JTF and Military Department is required to establish procedures that are to be maintained locally. These local procedures will address the role of the local base, post, camp, and/or station spectrum manager and will define specific procedures that are unique to their installations and systems under their purview.

c. Each Service is responsible for establishing Service-unique interference resolution processes that provide guidance and interference resolution support to their subordinate commands. This guidance has been promulgated in the following documents:

- Air Force: AFI 10-707
- Army: AR 5-12
- Navy: NTP-6
- Marine Corps: MCO 2400.2

d. Service components may obtain interference resolution assistance from the appropriate AFC, USJFCOM, or Service points of contacts:

Area Frequency Coordinators:

JFMO Alaska: DSN 317-552-2283
AFC Arizona: DSN 879-6423
AFC White Sands Missile Range: DSN 258-3702
Eastern AFC: DSN 854-5837
Western AFC: DSN 351-7983
Gulf AFC: DSN 872-4416
DOD AFC Nellis AFB: DSN 682-3417
AFC MIDLANT: DSN 342-1532/1194
AFC HAWAII includes Guam (JFMOPAC): DSN 477-1051/52/53/54
JFMO LANT: DSN 836-8010/5436

Air Force: Air Force Frequency Management Agency, Washington DC, DSN 328-1506, commercial (703) 428-1506
738 EIS, Keesler AFB MS, DSN 597-3920, commercial (228) 377-3920
Army: Army Spectrum Manager, Alexandria VA, DSN 221-3810/703-325-3810
Navy/Marine Corps: NAVMARSPECCEN, Washington DC, DSN 221-2822, commercial (703) 325-2822

e. For unified commands, the instructions or procedures to follow for interference resolution are as follows:

US Central Command	CCR 25-206, "Information Systems Management, Command, Control, Communications, and Computer (C4) Services, and Support and Network Management," Annex C to Appendix C, 27 December 2001
US European Command	Spectrum Management Manual, June 2002, Chapter 7, http://www.eucom.smil.mil/ecj6/J64/smmpage.htm
US Joint Forces Command	UHF SATCOM: USCINCOM 152000ZJAN99, UHF SATCOM RADIO FREQUENCY INTERFERENCE (RFI) PROCEDURES (UHF SATCOM ONLY); Other systems: No combatant command-specific guidance
US Northern Command	No combatant command-specific guidance

US Pacific Command	USPACOM Joint Electromagnetic Spectrum Management Instruction (JESMI) 2400.1G SCR 105-1, Chapter 6
US Southern Command	No combatant command-specific guidance
US Special Operations Command	No combatant command-specific guidance
US Strategic Command	SD 710-4, "Satellite Communications (SATCOM) Electromagnetic Interference (EMI) Resolution Procedures"
US Transportation Command	No combatant command-specific guidance

ENCLOSURE E

JSIR REPORT FORMAT

1. EMI Formats. The intent of the JSIR program is to keep the reporting procedures as simple as possible to allow a report to be written quickly and concisely, but with enough information so that the analyst can begin resolving the interference upon receipt of the report. The operator or user experiencing the interference is responsible for submitting the initial EMI report. For the purposes of this manual, the user is defined as the unified command, JTF, Defense agency, or Military Department. Local procedures may allow EMI reporting by system users at lower levels. It is preferable that the interference report be submitted via electronic message and contains at least the following information, provided the information is available at the time of message submission. The interference-reporting module of the Spectrum XXI program may be used as the report template. Information listed below will expedite analysis; however, the initial report should not be delayed because some information is not immediately available. Use follow-up reports to provide additional information as it becomes available. The message subject line should indicate whether the report is initial, follow-up, or final. Templates for DMS (classified e-mail) messages follow.

- a. All interference will be reported regardless of type, frequency, and source. This will supplement the JSIR database, which can be used to determine trends in area of interference.
- b. Every effort should be made to complete as much of the required information as accurately as possible in the initial report. However, the search for information should not delay the timely transmission of a report once ready.
- c. Do not use Service, agency, or program-specific terminology, acronyms, or abbreviations in the report. Terminology differences between the Services create confusion and misunderstanding.
- d. Only the unified theater commander endorses a JSIR report to higher authority outside the theater of operations.
- e. The following paragraphs provide guidance as to DMS e-mail formats; the SPECTRUM XXI program can also be used as a reporting tool.

(1) DMS E-mail Format. The following template demonstrates the standard format for reporting EMI events via e-mail, regardless of DOD

agency, RF medium, or system. UPPERCASE information is considered mandatory for the minimum completion of the report.

To: See Enclosure B.

Cc: See Enclosure B.

Subject: Security Classification/Precedence (See Enclosure C)/ XXX JOINT SPECTRUM INTERFERENCE RESOLUTION (JSIR) REPORT 000-00 YYYYYYYYYY (where XXX is SHF, EHF, VHF, HF, LF, VLF or ELF, affected system name and YYYYYYYYYY is INITIAL, FOLLOW-UP or FINAL.)

Message Body:

EXER/Exercise Name// (during named exercises)

OPER/Operation Name/Plan Originator & Number// (during named operations)

TYPE/Activity Type/ (contingency, exercise or project)

MSGID/GENADMIN/Originator & Office Code/000-00// (where 000-00 is your local tracking number)

REF/A/DOC/CJCSI/3320.02A//

Additional message references. Reference message traffic that is related to the interference problem being reported. Reference the message date-time group, originator, action addressee, and subject line.

POC/Last Name, First, Middle Initial/Grade & Title/Organization & Office Code/Street Address/Telephone (DSN)/Telephone (Comm)/e-mail (SIPRNET)/e-mail (NIPRNET)//24/7 POC Information. RMKS/

1. DESCRIPTION OF AFFECTED SYSTEM

A. FREQUENCY(IES) AFFECTED: If satellite, then include uplink frequency(ies), downlink frequency(ies), and satellite channel(s).

B. FREQUENCY ASSIGNMENT NUMBER: The agency serial number or unique identification number of the frequency assignment being affected by the interference, if known.

C. NETWORK(S)/CIRCUIT(S) AFFECTED: Network circuits affected by the interference.

D. LOCATION OF SYSTEM(S): Location of system(s) affected by the interference, i.e., latitude, longitude, and site name.

E. SYSTEM AFFECTED: Include function, name, nomenclature, manufacturer with model number, or other system description. If

available, include equipment characteristics of the affected receiver, such as receiver bandwidth, antenna type, antenna size, and information about any installed frequency band filters. For commercial SATCOM, include affected satellite, satellite location (east or west longitude), transponder ID, uplink frequency, downlink frequency, and downlink polarization. For specific data documentation format, refer to Items 4 through 8 of the EMI/RFI Upchannel Reporting Checklist (Enclosure H).

F. OPERATING MODE: Operating mode of the affected system, if applicable (frequency agile, pulse Doppler, search, upper/lower sideband, etc.). For commercial SATCOM, include the user's signal bandwidth (MHz) and whether digital or analog. For specific data documentation format, refer to Items 9 and 10 of the EMI/RFI Upchannel Reporting Checklist (Enclosure H).

G. NETWORK CONTROL STATION & PRINCIPAL USER(s): Network control station and principal users. This information may be used to determine the priority of the restoration attempts.

H. OTHER STATIONS/UNITS EXPERIENCING INTERFERENCE: Other stations or units affected by the interference; include geographical location, coordinates, and line-of-bearing and distance from reporting site.

2. CHARACTERIZATION OF EMI

A. INTERFERENCE FREQUENCY, BANDWIDTH, AND SIGNAL STRENGTH: Record the frequency and bandwidth (in KHz, MHz, etc.) at which the EMI is most apparent and the EMI signal strength (in dB, dBW, etc.).

B. INTERFERENCE CHARACTERISTICS: CONTINUOUS, INTERMITTENT, RANDOM, or CHARACTERISTIC pattern; VARIED or CONSTANT amplitude; NOISE and/or PULSED. Include any other information that may assist in determining the source of the problem. For commercial SATCOM, does the interfering signal appear to be modulated? If so, include the downlink bandwidth and power of the interfering signal (MHz) and whether power and/or frequency are steady or varying. If the power is varying, is it pulsing or slow increase/decrease? If the frequency is varying, sweeping, or erratic, include the center of the swept bandwidth and the bandwidth affected (both in MHz). For specific data documentation format, refer to Items 13 through 20 of the EMI/RFI Upchannel Reporting Checklist (Enclosure H).

C. PERFORMANCE EFFECTS. Description of interference effects on performance, e.g., one or more of the following: usable or unusable, garbled, frame loss, steady receive indication (SRI), reduced range, false targets, reduced intelligibility, data errors, etc. For commercial SATCOM, if the user's signal is digital, provide the bit error rate (BER) before the event and the worst case BER during the event. For specific data documentation format, refer to Items 10 through 12 of the EMI/RFI Upchannel Reporting Checklist (Enclosure H).

D. CIRCUIT RELIABILITY: Describe the quality of user circuitry as affected by the EMI as observed through the symptoms, e.g., frequency USABLE or UNUSABLE for DATA or VOICE, GARBLED, FRAME LOSS, SRI, etc.

E. INTERFERENCE CAUSE(S) & SOURCE(S): For example, solar weather, atmospheric conditions, terrestrial or structural blockage, stuck carrier or cryptographic phase, another unit (include unit name, geographical coordinates, and line-of-bearing and distance from reporting site, if available). For commercial SATCOM, does it appear that the user's signal is the focus of the interfering signal? Is this the first event of this nature on the user's signal? For specific data documentation format, refer to Items 21 through 22 of the EMI/RFI Upchannel Reporting Checklist (Enclosure H).

F. DATES AND TIMES: Give the dates and times of the interference commencement and cessation or indicate "ongoing." Indicate whether the duration of the interference is continuous or intermittent, the approximate repetition rate of the interference, and whether the amplitude of the interference is varying or constant. Indicate if the interference is occurring at a regular or irregular time of day and if the occurrence of the interference is coincident with any ongoing local activity. For commercial SATCOM, this information relates to Item 3 of the EMI/RFI Upchannel Reporting Checklist (Enclosure H).

3. RESOLUTION

A. SPECIFIC ACTIONS TAKEN TO MITIGATE, NULLIFY, IDENTIFY SOURCE(S) OF & RESOLVE INTERFERENCE: Include clear, concise description of steps taken to mitigate or nullify, isolate source(s) of, and resolve interference. Add additional narrative of anything else known or suspected about interference that might be helpful in

technical analysis. Specify whether assessment is based on technical measurement, observation, or estimation.

B. EMI STATUS: Indicate whether the problem has been identified and resolved.

C. REQUEST FOR RESOLUTION ASSISTANCE: Indicate if technical assistance is desired or anticipated by the DOD component; request should be directed to operational chain of command. Include recommendation for specific action.

4. ADDITIONAL INFORMATION: Include anything not addressed in previous paragraphs.

DECL/X1// Include declassification instructions as appropriate.

(INTENTIONALLY BLANK)

ENCLOSURE F

NATURAL PHENOMENA EFFECTS

This guide is used to help determine whether the natural environment is the cause of the EMI. Procedures will depend upon the particular system's vulnerability to the environment. For example, a SATCOM terminal whose side lobes intersect the sun may experience significant RFI during a solar radio burst or noise storm. Space or terrestrial weather products and data sources or meteorological and oceanographic (METOC) personnel can help to determine if the natural environment could be the cause of the interference. Standard procedures should be established and implemented to assure rapid resolution of this as a potential EMI source. Local METOC or space support team personnel may be able to provide support relevant to your particular system and mission (see Joint Publication (JP) 3-59 and JP 3-14). Table F-1 shows major types of systems impacted by various aspects of the natural environment. Natural phenomena that may produce EMI include variations in ionosphere properties, radio noise bursts from the sun, flares from the sun, and terrestrial atmospheric effects such as high rain rates. If natural interference is suspected as the source of EMI, provide Air Force Weather Agency (See Enclosure G) with an information copy of the report.

Table F-1. Natural Phenomena Effects

System	Potential Natural Sources of EMI	Remarks
UHF SATCOM	Solar radio bursts or noise storms, ionospheric scintillation	For solar radio EMI resolution, determine if the link line of sight (LOS) is aligned with sun and if side lobes of antennae intersect the sun's radio output. For ionospheric scintillation, determine if communication links intersect a region of ionospheric scintillation. Real-time and forecast space weather data and products may be obtained from Air Force Weather Agency (AFWA), which addresses the natural EMI sources described above. For information concerning near-real-time solar radio emissions, AFWA disseminates solar radio burst and noise storm messages and analyses. For information concerning the observed and forecast location and timing of ionospheric scintillation, AFWA produces scintillation region

System	Potential Natural Sources of EMI	Remarks
		observations and forecasts.
SHF SATCOM	Solar radio bursts or noise storms; rain attenuation	For solar radio EMI resolution, determine if link LOS is aligned with sun and if the side lobes of antennae intersect the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be obtained from AFWA, which addresses both sources described above. For rain attenuation, the impact severity will increase with increasing rain rate and depends upon the link intersection with a precipitation area.
EHF SATCOM	Solar radio bursts or noise storms; rain attenuation	For solar radio EMI resolution, determine if link LOS is aligned with the sun and if the side lobes of antennae intersect the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be obtained from AFWA, which addresses both sources described above. For rain attenuation, impact severity will increase with increasing rain rate and depends upon the link LOS intersection with the precipitation region.
HF Communications	Solar flares (induce "short-wave fades"); ionospheric storms; auroral impacts; solar radio bursts; noise storms	HF propagation conditions depend upon the condition of the ionosphere, which is directly influenced by solar activity. At the time of impact, this activity may be mistaken as either an equipment or man-made EMI problem. AFWA has a variety of real-time and forecast products that can be accessed to determine whether the natural environment is a factor in HF communications problems.
Radar	Solar radio bursts or noise storms; ionospheric storms; auroral activity; rain	For solar radio EMI resolution, determine if the radar field of view (including side lobes) intersects the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be obtained

System	Potential Natural Sources of EMI	Remarks
	attenuation	from AFWA, which addresses both sources described above. For rain attenuation, impact severity will increase with increasing rain rate and depend upon droplet size and the operating frequency of the radar.
Microwave LOS	Solar radio bursts or noise storms; rain attenuation	For solar radio EMI resolution, determine if the link LOS is aligned with the sun and if side lobes of antennae intersect the sun's radio output. Real-time and forecast space and terrestrial weather data and products may be obtained from AFWA, which addresses both sources described above. For rain attenuation, impact severity will increase with increasing rain rate and depend upon droplet size and whether or not the link is intersecting a precipitation region.
GPS Systems	Solar radio bursts or noise storms; ionospheric scintillation; ionospheric storms (for single frequency receivers)	For solar radio EMI resolution, determine if the link LOS is aligned with sun and if side lobes of antennae intersect sun's radio output. For ionospheric scintillation, determine if communications link intersects a region of ionospheric scintillation. Real-time and forecast space weather data and products may be obtained from AFWA, which addresses both natural EMI sources described above. For solar radio as a source, AFWA disseminates solar radio burst and noise storm messages and analyses. For information concerning the observed and forecast location and timing of ionospheric scintillation, AFWA produces scintillation region observations and forecasts.
Satellite Operations (TT&C)	Solar radio bursts or noise storms; ionospheric scintillation	For solar radio EMI resolution, determine if link LOS is aligned with sun and if side lobes of antennae intersect the sun's radio output. Real-time and forecast space and terrestrial

System	Potential Natural Sources of EMI	Remarks
	(UHF only); rain attenuation (SHF and EHF only)	weather data and products may be obtained from AFWA, which addresses both sources described above. For information concerning the observed and forecast location and timing of ionospheric scintillation and its potential impact on UHF links, AFWA produces scintillation region observations and forecasts. If UHF TT&C links intersect these regions, there is potential for degradation of link quality. For rain attenuation (SHF and EHF), severity of impact will increase with increasing rain rate, increasing frequency, and whether the link intersects a precipitation region.

ENCLOSURE G

ESSENTIAL POINTS OF CONTACT INFORMATION

1. JSC

JSC Duty Officer

24/7 Voice Mail Pager.

DSN: 281-9857, commercial: (410) 293-9857

DMS ADDRESS:

JSC J-3 (N) (S)

E-Mail

Unclassified (NIPRNET): operations@jsc.mil

CLASSIFIED (SIPRNET): operations@jsc.js.smil.mil

TS/SCI (JWICS): jscop@jsc.ic.gov

Sensitive Compartment Information (SCI) Messages. SCI messages are serviced directly through Special Security Office (SSO) channels (message address: SSO JSC//INS), secure facsimile (FAX), and JWICS e-mail in the SCI facility at the JSC.

Spectrum XXI. EMI events can be reported to the JSC using the Spectrum XXI program and should be augmented with the additional required information given in Enclosure G.

Web sites

<http://www.jsc.mil> (Unclassified)

<http://www.jsc.js.smil.mil> (SIPRNET)

<http://jsc.ic.gov> (Intelink-SCI)

2. USSTRATCOM/GOC

Watch Officer 24/7: (719) 554-5527/6000 (DSN: 692-xxxx)

SIPRNET: GOCwo@spacecom.smil.mil

MSG: HQ USSPACECOM PETERSON AFB CO//J36/J36S//

3. USSTRATCOM/GSSC

Phone number: (719) 554-5531 (DSN: 692-xxxx) (After hours, phone is forwarded to the GOC Watch Officer.

SIPRNET: gssc@spacecom.smil.mil

MSG: GSSC PETERSON AFB CO

Enclosure G

4. USSTRATCOM/GPS Operations Center

Phone number: DSN: 560-2541 or commercial: (719) 567-2541 (after hours,
calls are forwarded to 2SOPS @ DSN 560-2461

SIPRNET: gps_support@spacecom.smil.mil

NIPRNET: gps_support@scheiver.af.mil

MSG: GPS OPERATIONS CENTER SCHRIEVER AFB CO

5. Air Force Space Weather Center

DSN 272-8070 Comm (402) 232-8070

NIPRNET: space@afawa.af.mil

ENCLOSURE H

COMMERCIAL SATCOM EMI/RFI UPCHANNEL REPORTING CHECKLIST

Commercial SATCOM EMI/RFI Upchannel Reporting Checklist		Checklist Number EMI-xx
		Page 1 of
Step	Actions	
	<p>This checklist outlines actions the SATCOM Terminal Operator, the vendor NOC and the commercial SATCOM Owner-Operator will take upon encountering an interfering signal (IS) that affects the performance of the user's signal.</p> <p><u>After completing local troubleshooting procedures</u> for EMI/RFI affecting commercial C- and Ku-band, the SATCOM TERMINAL OPERATOR CONTACTS Vendor NOC or Commercial SATCOM Owner-Operator <u>IMMEDIATELY</u> with the following information:</p> <p style="text-align: center;">Lines 1) and 2) are Not Applicable within this checklist.</p> <p>3) *IS Time of Event: _____</p> <p>4) *Affected Satellite: _____</p> <p>5) *Location: _____ (East) or (West) Longitude</p> <p>6) Antenna Footprint Area (if spot beam)</p> <p>7) *Transponder Identifier (e.g. G2, G6): _____</p> <p>8) *Downlink Frequency: _____ (MHz) or (GHz)</p> <p>9) Uplink Frequency _____ (MHz) or (GHz)</p> <p>10) *Downlink Polarization: _____ (LHCP) or (RHCP) or (Vert) or (Horiz)</p> <p style="padding-left: 40px;">*Minimum Information Needed to Pass to the Vendor NOC or Commercial SATCOM Owner/Operator.</p> <p>9) (U) Vendor NOC or commercial SATCOM owner-operator will query SATCOM terminal operator and obtain the following additional information:</p> <p>11) Interference Type: U/L _____ D/L (check one)</p> <p>12) Bandwidth of User's Signal: _____ (MHz) or (GHz)</p> <p>13) User's Signal is: ____ (digital) __ or __ (analog)?</p>	

13 _____

14) [*If Digital*] Bit Error Rate (BER) before event? _____

14 _____

15) [*If Digital*] Worst BER during event? _____

15 _____

16) IS appears:

(modulated) or (unmodulated)?

16_ _____

17) [*If modulated*] Bandwidth of Interfering Signal:
_____ (MHz) or (GHz)

17 _____

18) The power (amplitude) of the IS appears:

(steady) or (varying)?

18 _____

19) [*If varying*] Power/amplitude of IS appears:

(pulsing) or (slow increase/decrease)?

19 _____

20) The frequency of the IS appears:

(steady) or (varying)?

20 _____

21) [*If varying*] Frequency of the IS appears:

(sweeping) or (erratic)?

21 _____

22) [*If sweeping*] Center of swept bandwidth: _____
(MHz) or (GHz)

22 _____

23) [*If sweeping*] Bandwidth of the full sweep: _____
(MHz) or (GHz)

User Evaluation

24) *Does it appear that the user's signal is the focus of the IS?*

(Yes) or (No)

25) *Is this the first event of this nature on the user's signal?*

(Yes) or (No)

(U) Vendor NOC or commercial SATCOM owner-operator will **IMMEDIATELY** and **FIRST** contact the GSSC to report the collected information by "Line Number."

***** GSSC Watch Officer: 719-554-3268 *****

(U) Vendor NOC will notify the combatant command TCCC **AFTER** notifying the GSSC.

(U) TCCC will initiate the JSIR process IAW CJCSM 3320.02

GSSC: Global SATCOM Support Center, STRATCOM/CL181 TCCC: Theater Command and Control Center JSIR: Joint Spectrum Interference Resolution			
	UNIT/OPR	DATE	DOWNGRADE INSTRUCTIONS

(INTENTIONALLY BLANK)

ENCLOSURE I

REFERENCES

- a. DOD Directive 3222.3, "Department of Defense Electromagnetic Environmental Effects (E3) Program"
- b. DOD Directive 4650.1, 24, "Policy for Management and Use of the Electromagnetic Spectrum"
- c. CJCS Instruction 3320.01 Series, "Electromagnetic Spectrum Use in Joint Operations"
- d. CJCS Instruction 3320.02A Series, "Joint Spectrum Interference Resolution (JSIR)"
- e. Joint Staff Message, JOINT STAFF//J6//131347ZOCT92
- f. DOD Directive C-3222.5, "Electromagnetic Compatibility (EMC) Management Program for SIGINT Sites (U)"
- g. DOD 5200.1, "Department of Defense Information Security Program Regulation"
- h. Air Force Instruction, AFI 10-707, "Spectrum Interference Resolution Program"
- i. Air Force Instruction, AFI10-707, AFSPC Supplement 1 (Space RFI), "Spectrum Interference Resolution Program"
- j. Navy Telecommunications Publication, NTP-6, "Spectrum Management Manual"
- k. Marine Corps Order, MCO2400, "Marine Corps Management of the Radio Frequency Spectrum"
- l. Army Regulation, AR 5-12, "Army Management of the Electromagnetic Spectrum"
- m. CJCS Instruction 6250.01 Series, "Satellite Communications"
- n. JP 1-02, "DOD Dictionary of Military and Associated Terms"
- o. Executive Order 12958, "Classified National Security Information"

(INTENTIONALLY BLANK)

GLOSSARY

PART I -- ABBREVIATIONS AND ACRONYMS

AFC	area frequency coordinator
AFFMA	Air Force Frequency Management Agency
AFWA	Air Force Weather Agency
AOR	area of responsibility
ASEMICAP	Air Systems Electromagnetic Interference Corrective Action Program
BER	bit error rate
C2	command and control
C4	command, control, communications and computers
CFC	combined force command
CJCS	Chairman of the Joint Chiefs of Staff
COMARFOR	Commander, Army Forces
COMINT	Communications Intelligence
COMSEC	Communications Security
CONUS	continental United States
DF	direction finding
DIRNSA	Director, National Security Agency
DISA	Defense Information Systems Agency
DOD	Department of Defense
DOS	Department of State
DMS	Defense Message System
EIS	Engineering Installation Squadron
EHF	extremely high frequency
EMI	electromagnetic interference
EW	electronic warfare
FAA	Federal Aviation Administration
FCC	Federal Communications Commission
GOC	Global Operations Center
GPS	global positioning system
GSSC	Global Satellite Communications Support Center
HF	high frequency
HN	host nation
HQ	headquarters

IAW	in accordance with
IS	interfering signal
JCMA	joint communications security (COMSEC) monitoring activity
JDAWS	Joint Spectrum Center database access Web server
JFMO	Joint Frequency Management Office
JIOC	Joint Information Operation Center
JP	joint publication
JSC	Joint Spectrum Center
JSIR	Joint Spectrum Interference Resolution
JSME	joint task force (JTF) spectrum management element
JTF	joint task force
JWICS	Joint Worldwide Intelligence Communication System
LOS	line of sight
MACOM	major command (USA)
MAJCOM	major command (USAF)
METOC	Meteorological and Oceanographic
MHz	megahertz
MILSATCOM	military satellite communications
NAVAIR	Naval Air Systems Command
NAVSEA	Naval Sea Systems Command
NAVSECGRU	Naval Security Group
NLT	not later than
NSA	National Security Agency
NTIA	National Telecommunications and Information Administration
OCONUS	outside the continental United States
RF	radio frequency
RFI	radio frequency interference
RRURC	Rapid Response Upchannel Reporting Checklist
RSSC	Regional Satellite Communications Support Center
SATCOM	satellite communications
SCI	sensitive compartmented information
SEMCIP	Shipboard Electromagnetic Compatibility Improvement Program
SHF	super high frequency
SIGINT	signals intelligence

SIPRNET	SECRET internet protocol routing network
SO	satellite communications terminal operator
SRI	steady receive indication
SRK	steady receive key
SSC	satellite support center
SSO	special security office
TT&C	telemetry, tracking, and commanding
UHF	ultrahigh frequency
US&P	United States and its possessions
USA	United States Army
USAF	United States Air Force
USCENTCOM	United States Central Command
USCG	United States Coast Guard
USEUCOM	United States European Command
USG	United States government
USJFCOM	United States Joint Forces Command
USMC	United States Marine Corps
USN	United States Navy
USNORTHCOM	United States Northern Command
USPACOM	United States Pacific Command
USSOCOM	United States Special Operations Command
USSOUTHCOM	United States Southern Command
USSTRATCOM	United States Strategic Command
USTRANSCOM	United States Transportation Command

PART II—DEFINITIONS

area of influence -- A geographical area wherein a commander is directly capable of influencing operations by maneuver or fire support systems normally under the commander's command or control. (JP 1-02)

area of interest -- That area of concern to the commander, including the area of influence, areas adjacent thereto, and extending into enemy territory to the objectives of current or planned operations. This area also includes areas occupied by enemy forces that could jeopardize the accomplishment of the mission. Also called AOI. (JP 1-02)

area of responsibility -- a. The geographical area associated with a combatant command within which a combatant commander has authority to plan and conduct operations. b. In naval usage, a predefined area of enemy terrain for which supporting ships are responsible for covering by fire on known targets or targets of opportunity and by observation. Also called AOR. (JP 1-02)

combatant command -- A unified or specified command with a broad continuing mission under a single commander established and so designated by the President, through the Secretary of Defense and with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Combatant commands typically have geographic or functional responsibilities. (JP 1-02)

combatant command (command authority) -- Nontransferable command authority established by title 10 ("Armed Forces"), United States Code, section 164, exercised only by commanders of unified or specified combatant commands unless otherwise directed by the President or the Secretary of Defense. Combatant command (command authority) cannot be delegated and is the authority of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command. Combatant command (command authority) should be exercised through the commanders of subordinate organizations. Normally this authority is exercised through subordinate joint force commanders and Service and/or functional component commanders. Combatant command (command authority) provides full authority to organize and employ commands and forces as the combatant commander considers necessary to accomplish assigned missions. Operational control is inherent in combatant command (command authority). Also called COCOM. (JP 1-02)

communications security -- The protection resulting from all measures designed to deny unauthorized persons information of value that might be derived from the possession and study of telecommunications, or to mislead unauthorized persons in their interpretation of the results of such possession and study. Communications security includes cryptosecurity, transmission security, emission security and physical security of communications security materials and information. Also called COMSEC. (JP 1-02)

crisis -- An incident or situation involving a threat to the United States, its territories, citizens, military forces, possessions or vital interests that develops rapidly and creates a condition of such diplomatic, economic, political or military importance that commitment of US military forces and resources is contemplated in order to achieve national objectives. (JP 1-02)

deconfliction -- A systematic management procedure to coordinate the use of the electromagnetic spectrum for operations, communications, and intelligence functions. This procedure minimizes possible interference issues that might arise after frequency assignment.

electromagnetic battlespace -- The electromagnetic battlespace includes background environmental information on the hostile, friendly, United Nations, host nation, and coalition forces' electromagnetic radiation within the joint task force area of responsibility and area of influence.

electromagnetic compatibility -- The ability of systems, equipment and devices that utilize the electromagnetic spectrum to operate in their intended operational environments without suffering unacceptable degradation or causing unintentional degradation because of electromagnetic radiation or response. It involves the application of sound electromagnetic spectrum management; system, equipment and device design configuration that ensures interference-free operation; and clear concepts and doctrines that maximize operational effectiveness. (JP 1-02)

electromagnetic interference -- Any electromagnetic disturbance that interrupts, obstructs, or otherwise degrades or limits the effective performance of electronics and electrical equipment. It can be induced intentionally, as in some forms of electronic warfare, or unintentionally, as a result of spurious emissions and responses, intermodulation products and the like. Also called EMI. (JP 1-02)

electronic warfare -- Any military action involving the use of electromagnetic and direct energy to control the electromagnetic spectrum or to attack the enemy. Also called EW. The three major subdivisions within electronic warfare are: a. **electronic attack** -- That division of electronic warfare involving the use of electromagnetic energy, directed energy, or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy combat capability and is considered a form of fires. Also called EA. EA includes: 1) actions taken to prevent or reduce an enemy's effective use of the electromagnetic spectrum, such as jamming and electromagnetic deception, and 2) employment of weapons that use electromagnetic or directed energy as their primary destructive mechanism (lasers, radio frequency weapons, particle beams). b. **electronic protection** -- That division of electronic warfare involving passive and active means taken to protect personnel, facilities and equipment from any effects of friendly or enemy employment of electronic warfare that degrade, neutralize, or destroy friendly combat capability. Also called EP. c. **electronic warfare support** -- That division of electronic warfare involving actions tasked by, or under direct control of, an operational commander to search for, intercept, identify and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of immediate threat recognition, targeting, planning and conduct of future operations. Thus, electronic warfare support provides information required for decisions involving electronic warfare operations and other tactical actions such as threat avoidance, targeting and homing. Also called ES. Electronic warfare support data can be used to produce signal intelligence, provide targeting for electronic or destructive attack and produce measurement and signature intelligence. (JP 1-02)

Global Satellite Communications Support Center -- The Global Satellite Communications Support Center provides operational support to all Department of Defense satellite communications users. The Global Satellite Communications Support Center was created in 1998. Also called GSSC. (CJCSI 6250.01, 20 October 98, "Satellite Communications")

information operations -- Actions taken to affect adversary information and information systems while defending one's own information and information systems. Also called IO. (JP 1-02)

offensive information operations -- The integrated use of assigned and supporting capabilities and activities mutually supported by intelligence, to affect adversary decision makers to achieve or promote specific objectives. These capabilities and activities include, but are not limited to: operations security; military deception; psychological operations;

electronic warfare; physical attack and/or destruction; and special information operations and could include computer network attack. (This term and its definition reduce to an acceptable level the vulnerabilities of friendly actions to adversary exploitation.) Also called OPSEC.

defensive information operations -- The integration and coordination of policies and procedures, operations, personnel, and technology to protect and defend information and information systems. Defensive information operations are conducted through information assurance, physical security, operations security, counterdeception, counterpsychological operations, counterintelligence, electronic warfare, and special information operations. Defensive information operations ensure timely, accurate, and relevant information access while denying adversaries the opportunity to exploit friendly information and information systems for their own purposes.

intrusion -- The deliberate insertion of false information into communications circuits designed to mislead the recipient of the information. Example: a counterfeit station entering a call-for-fire net with an artillery fire mission on friendly troops.

jamming -- The deliberate radiation, re-radiation, or reflection of electromagnetic energy to disrupt use of electronic devices, equipment, or systems.

joint force commander -- A general term applied to a combatant commander, subunified commander or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. Also called JFC. (JP 1-02)

joint restricted frequency list -- A time and geographically oriented listing of TABOO, PROTECTED and GUARDED functions, nets and frequencies. It should be limited to the minimum number of frequencies necessary for friendly forces to accomplish objectives. Also called JRFL. (JP 1-02)

joint task force -- A joint force that is constituted and so designated by the Secretary of Defense, a combatant commander, a subunified commander or an existing joint task force commander. Also called JTF. (JP 1-02)

meaconing -- The intentional transmission of signals designed to deceive users of navigational aids (TACAN, GPS, NDB, ILS, etc.). Example: trying to draw an aircraft across an international border by transmitting false VHF Omnidirectional Range (VOR) signals.

natural interference -- The interference caused by the natural environment.
Example: a solar radio burst or an ionosphere disturbance may cause extreme interference on some military communications systems.

Quick Fix Interference Reduction Capability -- An immediate action service to reduce or eliminate unintentional (“friendly”) electromagnetic interference (EMI) associated with Air Force operational equipment. The Quick Fix Interference Reduction Capability service analyzes and recommends corrective actions for reported EMI problems. The 738 Engineering Installation Squadron (EIS), located at Keesler Air Force Base, Mississippi, provides Quick Fix Interference Reduction Capability to all Air Force units. Approval and tasking for the 738 EIS Quick Fix Interference Reduction Capability services are requested through Air Force Frequency Management Agency. Also called QFIRC.

regional satellite communications support centers -- Centers that provide the day-to-day management of satellite communications resources in support of the designated combat commands, Services, and Defense agencies and other users. The three regional satellite communications support centers (Europe, Pacific, and CONUS) were created in 1998. Also called RSSCs.

specified command -- A command that has a broad, continuing mission, normally functional and is established and so designated by the President through the Secretary of Defense with the advice and assistance of the Chairman of the Joint Chiefs of Staff. It normally is composed of forces from a single Military Department. Also called specified combatant command. (JP 1-02)

spectrum management -- Planning, coordinating and managing joint use of the electromagnetic spectrum through operational, engineering and administrative procedures. The objective of spectrum management is to enable electronic systems to perform their functions in the intended environment without causing or suffering unacceptable interference. (JP 1-02)

subordinate command -- A command consisting of the commander and all those individuals, units, detachments, organizations or installations that have been placed under the command by the authority establishing the subordinate command. (JP 1-02)

supported commander -- The commander having primary responsibility for all aspects of a task assigned by the Joint Strategic Capabilities Plan or other joint operation planning authority. In the context of joint operation planning, this term refers to the commander who prepares operation

plans or operation orders in response to requirements of the Chairman of the Joint Chiefs of Staff. (JP 1-02)

satellite support center -- Term used when generically referring to either a regional or global satellite communications support center. Also called SSC.

unified command -- A command with a broad continuing mission under a single commander and composed of significant assigned components of two or more Military Departments, that is established and so designated by the President through the Secretary of Defense with the advice and assistance of the Chairman of the Joint Chiefs of Staff. Also called unified combatant command. (JP 1-02)

unintentional manmade interference -- The unintentional disruption of electronic devices, equipment, or systems. The difference between jamming and interference is intent. Example: the unintentional transmission of a military system that disrupts a civilian radio broadcast.

United States Space System The ground infrastructure supporting space operations (to include the hardware and personnel used in telemetry, tracking, and control of spacecraft, space surveillance, command and control elements, launch range operations, and any appropriate ground relay infrastructure), the spacecraft, and the communications link (data and voice) connecting the two.

(INTENTIONALLY BLANK)