

ELECTROMAGNETIC INTERFERENCE (EMI)

- EMI occurs when a device's performance is disturbed or interrupted by electromagnetic radiation/conduction
Naturally occurring or manmade, unintentional or intentional: MOST IS UNINTENTIONAL
Interference can vary greatly, change rapidly, and affect similar systems differently

RECOGNIZING EMI

- First indication of possible EMI often appears as equipment malfunctioning, user reports of complete or intermittent loss of communications, or a reduction in operational bandwidth - "network is slow"
Reports of increased solar activity with a potential to affect communications in the Ultra High Frequency (UHF) portion of the electromagnetic spectrum
Adverse terrestrial weather in area of operations with a potential to affect communications in the Extremely High Frequency (EHF) portion of the electromagnetic spectrum
EMI occurring in an operational environment is to be considered hostile until a determination can be made as to the source of the problem

ALL SUSPECTED EMI MUST BE REPORTED!!!

See report format on page 6 and CJCSM 3320.02C and D for additional information - submit report in accordance with local unit SOP. Classify report IAW system specific security classification guide.

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JOINT SPECTRUM INTERFERENCE RESOLUTION REPORT

CLASSIFICATION\* (TS/S/C/U) (when filled in)

WHEN STARTED, ZULU\*\* (Format must be a valid date in the spreadsheet "date format", e.g., 1/1/2010 not 012233ZJAN10)

AFFECTED SYSTEM\*\*

AFFECTED FREQ MHZ\*\*\* (Format must be numeric, e.g., 1234.234, not M1234.234)

CHANNEL\*\*\*

LOCATION OF AFFECTED RECEIVER\*\*

COUNTRY OF AFFECTED RECEIVER

DESCRIPTION OF EMI EVENT

(Include what it sounds like, actions taken so far, suspected cause, and other comments)

VICTIM POC NAME

VICTIM UNIT

COCOM/SERVICE/AGENCY

\*Refer to system specific security classification guide

\*\*Required item

\*\*At least one of these items is required

MHZ: megahertz

Preferred method of submission is online via JSIR-Online (JSIR-O), available on Intelink on SIPRnet.

CLASSIFICATION\* (TS/S/C/U) (when filled in)



GTA 40-01-003
Army Space Training Strategy
Home Station Training
Student Quick Reference Card

Electromagnetic Interference (EMI)
Mitigation Tactics, Techniques, and
Procedures (TTPs) for
Satellite Communications (SATCOM)

U.S. Army Space and Missile Defense Command/
Army Forces Strategic Command
G31 Training, Readiness & Exercise (Trex)
Army Space Training Integration Branch

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PROCEDURES WHEN EMI INDICATORS ARE PRESENT (continued)

- If you are on a Wideband Communications system, contact your regional Wideband Satellite Operations Center (WSOC) and make your report
If you are on a Protected Communications System, contact 4 Space Operations Squadron (4SOPS)
If thru 4 do not apply, call 1-855-SATCOM1 (1-855-728-2061).
Select the appropriate prompt and make your report when connected:
a. For Wideband issues, select 1
b. For Narrowband issues, select 2 - you will be connected to the SMDC Global Narrowband Watch Officer.
c. For Protected issues, select 3
d. For Commercial issues, select 4
e. For Gateway issues, select 5 - you will be connected to DISA
f. For EMI issues, select 6
g. For Site issues, select 7 - you will select the appropriate Regional Satellite Support Center (RSSC) from the next series of prompts
Follow all directions provided by the office you contact
Document all guidance and outcomes in your local operational log
Make any additional reports in accordance with local unit SOP

PROCEDURES WHEN EMI INDICATORS ARE PRESENT

- If you are still transmitting, continue to transmit and do not change frequency, power, or azimuth until directed to do so
CONTINUE TO FOLLOW THE PARAMETERS SET IN YOUR SATELLITE ACCESS AUTHORIZATION (SAA) or GAA.
If you have not previously contacted your higher (TOC, HQ), ensure you make notifications as required by your unit SOP
Follow troubleshooting procedures for your specific equipment; verify there are no ground equipment issues or nonexistent/invalid frequencies in use
If possible, verify with the S6, Space Support Element (SSE), or Space Weather Officer (SWO) there is no increase in space and/or terrestrial weather impacting your region and there are no spacecraft outages.
Ensure no operator errors are causing problems with communications
If the previous steps do not resolve issue, you, or the section designated in Resolution (JSIR) Report in accordance with the following guidelines
\*Note: The JSIR preferred reporting method is via online on SIPR using the JSIR-Online (JSIRO)
\*Note: Contact numbers for all sites listed are in the SAA (GAA)
1. If you suspect this is an issue with your downlink, work with your S6/local spectrum manager to contact the local regional theater frequency manager and make your report
2. If you are on a commercial satellite, contact the Network Operations Center (NOC) for the owner/operator or vendor and make your report

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- Prior to employing your SATCOM equipment verify you have your Satellite Access Authority (SAA), not just a "cut sheet"
Non-SATCOM ground terminal operators receive a Global Access Authority (GAA) - provided by S6 / local Spectrum Manager
SAA/GAA contains authorized frequencies and contact information for reporting communications issues
Review the JSIR Reporting Format - be familiar with EMI reporting procedures
Know frequencies equipment is operating on - affects reporting procedures
Ultra High Frequency (UHF) (Narrowband Communications):
Frequency range 300 MHz to 3 GHz
Mobile User Objective System (MUOS), UHF Follow On (UFO)
More susceptible to ionospheric disturbances/space weather
Least jam resistant\*Note - Global Positioning System (GPS) operates in UHF range
Super High Frequency (SHF) (Wideband Communications):
Frequency Range 3 GHz to 30 GHz
Wideband Global SATCOM (WGS), Defense Satellite Communications System (DSCS)
Extremely High Frequency (EHF) (Protected Comms):
Frequency Range 30 GHz to 300 GHz
Advanced EHF (AEHF), MILSTAR
More susceptible to terrestrial weather
Most jam resistant
If applicable, practice configuring and receiving timing via non-automated methods (e.g. other than the "boot" file)

GHZ: gigahertz
MHZ: megahertz