BY ORDER OF THE COMMANDER
MISAWA AIR BASE

MISAWA AIR BASE INSTRUCTION
17-220

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Cyberspace Operation

ELECTROMAGNETIC SPECTRUM MANAGEMENT

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(Maj Kenneth J. Sturgis)

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This instruction implements Department of the Air Force Instruction (DAFI) 17-220, *Spectrum Management*, and outlines the responsibilities and rules for management of radio frequencies on Misawa Air Base (AB). This instruction applies to all units assigned, attached, and associated with the 35th Fighter Wing (35 FW) that utilize radio frequencies on Misawa AB. Tenant units not associated with the 35 FW must coordinate their frequency requirements with the 35th Communications Squadron (35 CS) Installation Spectrum Manager (ISM) through their respective home station Spectrum Manager. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, *Recommendation for Change of Publication*; route AF Forms 847 from the field through the appropriate functional chain of command. "Ensure all records generated as a result of processes prescribed in this publication adhere to AFI 33-322, Records Management and Information Governance Program, and are disposed in accordance with the Air Force Records Disposition Schedule, which is located in the Air Force Records Information Management System,"

SUMMARY OF CHANGES

This document is substantially revised and must be completely reviewed. This revision updates Frequency Management Policies set for Misawa Air Base Japan.

1. Introduction.

1.1. Due to increased radio frequency congestion in the Misawa area, commanders must manage assigned radio frequencies to meet key mission needs. Planning and coordination with

proper command authority is essential for all radio frequency and electromagnetic compatibility matters to provide an environment free from interference.

2. Responsibilities.

2.1. Installation Commander is responsible for all electromagnetic radiation emanating from the installation and from those outlying activities hosted by the installation.

2.2. Installation Spectrum Manager (ISM) will:

2.2.1. Submit all frequency actions through appropriate command channels.

2.2.2. Provide users an authorization document of assigned frequencies and operational parameters, upon authorization.

2.2.3. Publish a Radio Frequency Management Instruction for the installation defining the management of all electromagnetic radiation devices within the manager's area of responsibility.

2.2.4. Establish a frequency management education program.

2.2.5. Attempt to resolve interference problems at the local level.

2.2.6. Maintain a complete list of all United States Forces Japan (USFJ) frequencies assigned to Misawa AB.

2.2.7. Assist using organizations in the preparation of electromagnetic interference (EMI) reports via the *Misawa Air Base EMI Report* (**Attachment 2**) for Ground-based EMI or the *AF Spectrum Interference Resolution* (**Attachment 3**) for Air-based EMI, respectively.

3. Using Organization.

3.1. Users will comply with user organization responsibilities outlined in DAFI 17-220.

3.2. Users will not commit funds or award contracts for the purchase of spectrum dependent equipment prior to obtaining frequency and equipment approval from the 35 FW ISM.

3.3. Any organization that radiates electromagnetic energy will appoint a Unit Frequency Manager (UFM) for all frequency matters.

3.4. The UFM will:

3.4.1. Hold a at minimum a SECRET level clearance.

3.4.2. Have a SIPRNet account and access to a SIPRNet terminal.

3.4.3. Have one-year retainability at Misawa AB.

3.4.4. Complete annual training created by the ISM and inform the ISM of completion dates.

3.4.5. Coordinate all frequency actions, plans, programs, and requirements using or changing the use of the radio frequency spectrum with the ISM.

3.4.6. Identify frequency needs via the *Frequency Assignment Request Form* (**Attachment 4**), to the ISM a minimum of 120 days prior to required date.

3.4.7. Contact the ISM to ensure the proper authorizing Spectrum Management (SM) agency (5 AF/A6, PACAF A3/A6, PACOM-J) designates and approves operating

frequencies and have obtained approval to use the equipment in the host country. Users will not commit funds or award contracts prior to confirming frequency and equipment approval in the host country.

3.4.8. Maintain the frequency authorization documents for each frequency, review authorization documents annually, and identify frequencies that are no longer in use or required. A copy of the annual review will be forwarded to the ISM.

3.4.9. Ensure frequencies are used in compliance with frequency assignments and governing directives.

3.4.10. Ensure the operation of equipment that radiates electromagnetic energy complies with authorized limitations and tolerance.

3.4.11. Investigate and prepare all required Electromagnetic Interference (EMI) reports via the *Misawa Air Base EMI Report* (**Attachment 2**) for Ground-based EMI or the *AF Spectrum Interference Resolution* (**Attachment 3**) for Air-based EMI, respectively.

4. Processing.

4.1. UFMs will submit all permanent, temporary, or deployed frequency requests via the *Frequency Assignment Request Form* (**Attachment 4**) to the ISM. The ISM will review the form for completeness and a frequency proposal will be submitted to the 5th Air Force (5 AF) and the Pacific Air Forces (PACAF) Spectrum Management Office via Spectrum XXI software. 5 AF and PACAF Spectrum Management Offices will validate the requirement and forward to the proper assigning authority. 5 AF and PACAF Spectrum Management Office will coordinate all frequency requests within Japan or at the deployed location. All non-temporary frequency requests must be submitted at least 120 days prior to the required date. Temporary requests must be submitted at least 90 days prior to required date.

4.2. Request for new frequencies. UFMs will submit requests with complete explanation and justification of the requirement. Classified frequency requirements must include the classification directive. An approved frequency is required prior to equipment purchase.

4.3. Modifications. Proposed modifications to assigned frequencies will be submitted in writing and approved by the ISM before any changes or modifications are implemented to ensure no interference with other authorized users.

4.4. Deletion of assigned frequencies. Users will notify the ISM in writing when an assigned frequency is no longer required.

4.5. Temporary frequency requirements. No frequency will be used until a temporary frequency assignment is received.

4.6. Deployment frequency. All requirements for use of frequencies at a deployed location must be obtained through the home station ISM.

4.7. Radio frequency interference. Due to the congestion of the radio frequency spectrum, users may experience interference of assigned frequencies. When interference is disruptive and recurring, the user will log the occurrence and submit an EMI report. Interference must be reported as prescribed in AFI 17-221, *Spectrum Interference Resolution Program*.

5. Policy on Consumer Products that Emit Radio Frequencies.

5.1. The Radio Law of Japan prohibits the use of radio frequencies on which U.S. non-licensed devices such as cordless phones, walkie-talkies, and baby monitors often operate. This is emphasized on devices in the 900 MHz band. In those cases, similar, locally purchased products, specifically manufactured for use in Japan, should be used instead to stay within the authorized frequencies.

6. Radio Controlled Model Equipment.

6.1. Authorized radio frequencies. The Government of Japan has authorized the use of these frequencies for radio controlled (RC) model equipment:

6.1.1. The 26.995 MHz, 27.045 MHz, 27.095 MHz, and 27.255 MHz; 2 watts power, A1A and A2D emissions.6.1.2. 72.24 MHz, 72. 4 MHz, and 75.64 MHz; 1 watt power; A1A and A2A emissions.

6.2. Restrictions on use of authorized frequencies.

6.2.1. The transmitter will not exceed the parameters above.

6.2.2. The operator, transmitter, and controlled device must be within the requirements of the installation Model Aircraft policy.

6.2.3. The operator must have written approval from the installation commander prior to recreational operation of RC model equipment outside of the authorized areas prescribed in the Model Aircraft policy.

6.2.4. As directed by DAFI 17-220, users will report interference activity to the ISM. The ISM will conduct an investigation and mitigate the interference. Operation of a transmitter declared by the ISM to be causing interference with another communications- electronic facility or device will stop immediately. Post-mitigation the ISM will file an Air Force Spectrum Interference Resolution report. Transmissions may resume when the cause of the interference is eliminated.

6.2.5. Private organizations, such as hobby clubs, may obtain frequency authorization by contacting the ISM.

MICHAEL P. RICHARD, Col, USAF
Commander, 35th Fighter Wing

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

DAFI 17-220, *Spectrum Management,* 8 June 2021

AFI 17-221, *Spectrum Interference Resolution Program,* 11 May 2018

AFMAN 33-322, *Records Management and Information Governance Program*, 28 Jul 2021

Prescribed Forms

Misawa Air Base Electromagnetic Interference (EMI) Report

AF Spectrum Interference Resolution (AFSIR) Worksheet

Misawa A*ir Base* Frequency A*ssignment Request Form*

Adopted Form

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AB—Air Base

AFI—Air Force Instruction

EMI—Electromagnetic Interference

ISM—Installation Spectrum Manager

POC—Point of Contact

RC—Radio Control

Attachment 2

MISAWA AIR BASE ELECTROMAGNETIC INTERFERENCE (EMI) REPORT

Figure A2.1. Misawa Air Base Electromagnetic Interference (EMI) Report (1 of 2).

STEP	ACTION	COMPLETE? Y/N
1	Start a log and collect as much information as possible about the EMI.	
2	Record what the interference sounds like. If appropriate measurement equipment is available, attempt should be made to quantify the characteristics of the interference signal. These characteristics include the interfering source center frequency, bandwidth, relative amplitude, modulation, direction of interference, time of occurrence, and any other characteristics that can be obtained.	
Geographical Information		
3-1	Check with other units in the geographical area to determine the arena affected.	
3-2	Verify exact location of receiver using GPS, if available.	
4	Determine interference start and stop timers.	
5	Have maintenance personnel: Ensure all connectors are tight. Ensure antenna cables are in good condition. Ensure equipment is operating IAW technical manual specifications and frequency assignment parameters.	
6	Verify antenna is on the correct azimuth and elevation.	
Environment Information		
7-1	Contact all nearby units to determine if there is any recently installed equipment.	
7-2	Contact the Electronic Warfare Officer (EWO) to determine if there is any local jamming or exercise occurring in the local area. If air assets are suspected, validate with spectrum analyzer and have EWO validate.	
7-3	Check with equipment and facility maintenance personnel to determine if the interference is the result of maintenance actions or an equipment malfunction. This should include non-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.)	
7-4	If possible, conduct a site survey looking for other users and environmental considerations that may impact affected emitter.	
7-5	Check to see if construction is being conducted in the immediate area.	
7-6	Determine whether the natural environment is the cause.	

Figure A2.2. Misawa Air Base Electromagnetic Interference (EMI) Report (2 of 2).

STEP	ACTION	COMPLETE? Y/N
	Frequency Assignment Information	
8-1	Verify through the ISM or MAJCOM spectrum management office that a valid frequency assignment authorization exists.	
8-2	If no assignment exists, cease transmission and request a valid frequency.	
8-3	If valid assignment exists change to alternate frequency and determine if interference is present.	
8-4	If a valid assignment exists and the interference goes away after changing to an alternate frequency, submit an interference report through your spectrum management office.	
8-5	Where co-channel or adjacent channel interference is suspected (i.e., the interfering signal overlaps the operating bandwidth of the victim receiver), check with the Installation Spectrum Management office to determine if other locally operated equipment has been recently assigned a co-channel/or adjacent channel frequency.	
	General Characterization	
9	Determine if the following are true to help characterize the interference: The interfering signal is encrypted. The interfering signal is understandable. (e.g., voice) Note all settings (de-modifications, bandwidth gains, etc.) of your receiver equipment that enabled you to hear intelligible information on the interfering signal. The interference is due to a steady receive key indicating equipment failures, glitches, or lapses in operational discipline.	
NAME:		
DSN/COMM:		

Attachment 3

AF SPECTRUM INTERFERENCE RESOLUTION (AFSIR) WORKSHEET

Figure A3.1. AF Spectrum Interference Resolution (AFSIR) Worksheet (1 of 2)

(CLASSIFICATION)

NOTE: Do not enter classified information on this form unless on a SIPR computer!

AF SPECTRUM INTERFERENCE RESOLUTION (AFSIR) WORKSHEET	
AIRCRAFT INFORMATION	
LINE 0A	WING/SQUADRON:
LINE 0B	AIRCRAFT TYPE:
LINE 0C	CALL SIGN:
LINE 0D	MISSION TYPE:
VICTIM	
LINE 1	FREQUENCY:
LINE 2A	STATE/COUNTRY:
LINE 2B	LOCATION (CITY):
LINE 2C	EMI COORDINATES: START: END:
LINE 3A	SYSTEM FUNCTION:
LINE 3B	SYSTEM NAME:
LINE 3C	NOMENCLATURE:
LINE 3D	MANUFACTURER/MODEL#:
LINE 3E	SYSTEM DESCRIPTION OF OTHER VICTIM(S):
LINE 3F	RX CHARACTERISTICS:
LINE 3G	EMISSION DESIGNATOR:
LINE 3H	ANTENNA TYPE:
LINE 4	OPERATING MODE:
INTERFERENCE	
LINE 5	CHARACTERISTICS:
LINE 6	EFFECT ON PERFORMACE:
LINE 7A	DATE & TIME:
LINE 7B	DURATION:
LINE 7C	REPETITION RATE:
LINE 7D	INTERFERENCE SIGNAL LEVEL:
LINE 7E	ACTIVITIES COINCIDING WITH INTERFERENCE:
LINE 8	SOURCE LOCATION:
LINE 9	LOCATION OF OTHER RECEIVERS AFFECTED:

(CLASSIFICATION)

Figure A3.2. AF Spectrum Interference Resolution (AFSIR) Worksheet (2 of 2).

(CLASSIFICATION)

NOTE: Do not enter classified information on this form unless on a SIPR computer!

AF SPECTRUM INTERFERENCE RESOLUTION (AFSIR) WORKSHEET	
SUMMARY	
LINE 10	NARRATIVE SUMMARY: (Include true course, ground speed, altitude, and coordinates when interference was the strongest.)
LINE 11	REPORT DATE TIME GROUP:
LINE 12	INTERFERENCE SOURCE & RESOLUTION:
LINE 13	TECHNICAL ASSISTANCE NEEDED?:
LINE 14	POINT OF CONTACT (Include rank, name, aircrew position, & DSN number):

NOTES

1. Electromagnetic Interference (EMI) can be caused by enemy, neutral, friendly, or natural sources and must be reported. Crew members will complete and submit an AFSIR worksheet when EMI occurs. Crews will complete this form to the best of their ability and return it to the Misawa Spectrum Management office.

2. Crew members will evaluate the security sensitivity of EMI on affected system and classify the worksheet accordingly. Classification of interference incidents/reports is determined mainly by nationality and location of implied or stated source of interference and the security sensitivity of affected military systems. Stations located in combat areas or having a sensitive military mission generally must classify all interference reports.

3. Installation Spectrum Manager will determine the release ability of the contents of the work sheet.

4. For further information on the AF Spectrum Interference Resolution (AFSIR) Program, EMI or Electromagnetic Interference Resolution see AFI 17-221, *Spectrum Interference Resolution Program*, or the Misawa Installation Spectrum Manager DSN 226-5773.

(CLASSIFICATION)

Attachment 4

MISAWA AIR BASE FREQUENCY ASSIGNMENT REQUEST FORM

Figure A4.1. 35FW Installation Spectrum Management (1 of 4).

UNCLASSIFIED

- **Required lead time to process request is a minimum of 90 Business days**
- **Items 1-41 are required for radio frequency requests.**
- **Items 42-46 are required for RADAR requests.**
- **DO NOT PUT CLASSIFIED INFORMATION ON THIS FORM!**
- **When worksheet is completed e-mail to:**
  - **ORG BOX: 35CS.ISM.SpectrumManager@us.af.mil**
- **Please direct questions to DSN 315-226-5773.**

General Information

1. Security Classification of Assignment (check one): ☐ Classified ☐ Unclassified
2. Type of assignment action (check one): ☐ New ☐ Modify Existing
3. Frequency(ies) requested:
   EX: 163.5 MHz or 162-174MHz (What specific frequency(ies) are required? What band of frequencies does equipment operate/tune on?)
4. Excluded frequency(ies):
   EX: M34.66, M36.5 (Are there frequencies equipment will not tune to in the requested band?)
5. Frequency(ies) separation criteria: ☐ Minimum ☐ Maximum
   EX: 2 Min, 8 Max (Do you have equipment using multiple frequencies which require minimum and maximum frequency separation between frequencies? What is the minimum separation? Maximum separation?)
6. Type of equipment: ☐ Handheld ☐ Base Station ☐ Vehicle Mounted ☐ Aircraft ☐ Microwave ☐ Telemetry ☐ Radar ☐ Other:
7. Bandwidth of equipment:
   (How wide is the broadcast signal? Ex 16kHz, 25kHz, 1MHz)
8. Emission of equipment EX: AM / FM / Pulse:
9. Type of signal broadcast: ☐ Voice ☐ Data ☐ Video ☐ Telemetry
10. Transmitter output power in watts:
    EX: 50W (What is minimum required power for your use? Not max power of equipment.)
11. Time of use:
    EX: 24 hours, 7 days a week, regular workweek, occasionally
12. Required date:
    EX: 98 Apr 10 (New proposals take at least 90 days for approval)
13. Expiration date:
    EX: 98 May 15 (Temporary assignments only)
14. Joint agency use:
    EX: NASA/Air Force (Is frequency(ies) jointly used by two or more agencies?)
15. Operating Unit:
    EX: 46RANS/DOP (What organization is using the frequency(ies)? Office Symbol?)

Figure A4.2. 35FW Installation Spectrum Management (2 of 4).

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Transmitter (TX) Equipment Information	
16.	Transmitter Location: EX: Range B70, site A3 (Physical location)
17.	Transmitter Coordinates: EX: 282000N0800001W What is the latitude and longitude (include degrees, minutes and seconds) of where transmitter antenna is located?
18.	Mile radius EX: 100 Miles (Area of Operations):
19.	TX Equipment Nomenclature: EX: Motorola Saber (What is the name of equipment used? Include either the standard military nomenclature (AN/GRN-22) or the commercial make and model number of the equipment (Motorola Saber H99QX))
20.	Number of systems: EX: 30 handhelds (LMR's might have 30 portables, one mobile, one base station)

TX Antenna Information	
21.	TX Antenna Name:(disregard for handheld) EX: Dipole (Description of antenna type. Whip? Long Wire? Dish?)
22.	TX Antenna Nomenclature: EX: Motorola AS102 (Who manufactured antenna and model number)
23.	TX Antenna Gain: EX: 3db (Gain of antenna is found in tech manuals or ask manufacturer)
24.	TX Antenna Elevation: EX: 28 Feet (Height above mean sea level of the building or the base of tower where antenna is mounted, in feet)
25.	TX Antenna Feedpoint Height: EX: 50 Feet (Distance in feet from base of tower or ground to antenna feedpoint)
26.	TX Antenna Orientation: EX: Directional (Direction antenna is pointing (in degrees)/rotation of antenna /does antenna radiate in all directions)
27.	TX Antenna Polarization: EX: Vertical (Vertical, Horizontal, Linear, ect.)

Receiver (RX) Equipment Information	
28.	Receiver Location: EX: FL, Eglin (State and physical location)
29.	Receiver Coordinates: EX: 282000N0800001W (What is the latitude and longitude (include degrees, minutes and seconds) of where receiver antenna is located)?
30.	RX Equipment Nomenclature: EX: Motorola Saber (What is the name of equipment used? Include either the standard military nomenclature (AN/GRN22) or the commercial make and model number of the equipment (Motorola Saber H99QX)

Figure A4.3. 35FW Installation Spectrum Management (3 of 4).

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Receiver (RX) Antenna Information

31. RX Antenna Name (disregard for handheld):
EX: Dipole (Description of antenna type. Whip? Long Wire? Dish?)

32. RX Antenna Nomenclature (disregard for handheld):
EX: Motorola AS102 (Who manufactured antenna and model number)

33. RX Antenna Gain:
EX: 3db (Gain of antenna is found in tech manuals or ask manufacturer)

34. RX Antenna Elevation:
EX: 28 Feet (Height above mean sea level of the building or the base of tower where antenna is mounted, in feet)

35. RX Antenna Feedpoint Height:
EX: 50 Feet (Distance in feet from base of tower or ground to antenna feedpoint)

36. RX Antenna Orientation:
EX: Directional (Direction antenna is pointing (in degrees)/rotation of antenna does antenna radiate in all directions)

37. RX Antenna Polarization:
EX: Vertical (Vertical or Horizontal)

38. Requirement Description:
EX: See attached memo dated dd mmm yy
Describe in detail your requirement & impact on mission if not supported.

Figure A4.4. 35FW Installation Spectrum Management (4 of 4).

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Receiver (RX) Antenna Information (Continued)	
39. Aeronautical Service Range and height:	
EX: 250 Miles/50000 Feet Elevation (If aeronautical aid or air traffic control assignment. What is the flight level and service radius?)	
40. Requester Data:	
EX: TSgt Smith, 46TS/OGEE DSN 872-9999 (Who is the point of contact for requirement? Name, organization, office symbol, telephone)	
41. Tuning Range/Tuning Increments:	
EX: 100 khz (What is the tuning range and the tuning increments of the equipment?)	

Additional Information for Radar Assignments	
42. Radar Tunability:	
(Does radar operate on various frequencies? Single discrete frequency? Discrete frequency on fixed magnetron? Tunable to any frequency? Capable of being tuned across band in discrete steps or increments?)	
43. Pulse Duration:	
EX: .4/.8/1.2 (What is the transmitted pulse measured in microseconds at the half-power (3db) points)	
44. Pulse Repetition Rate:	
EX: 250/400/1000 (Number of pulses per second (PPS) for all equipment using pulsed emission)	
45. Intermediate Frequency:	
EX: M450 (What is the intermediate frequency?)	
46. Side Lobe Suppression:	
(Is side lobe suppressed or not suppressed)	
NOTE: Once we receive this information, we will immediately process the Standard Frequency Action Format (SFAF) paperwork. Normal lead-time for new assignments is 90-120 days.	

Additional Information for Programs	
47. Project Name:	
(Exact Title of the program)	
48. JON:	
49. Is this a commercial only project?	
Yes or No and give company name	
50. Is this a foreign military sales project?	
Yes or No and name country involved	
51. Is this a direct foreign sales project?	
Yes or No and give country and companies involved	