BY ORDER OF THE COMMANDER
KADENA AIR BASE

KADENA AIR BASE INSTRUCTION
17-220

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Cyberspace

ELECTROMAGNETIC SPECTRUM MANAGEMENT

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(Lt Col Ingemar S. Westphall)

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This instruction implements Air Force Instruction (AFI) 17-220, *Spectrum Management*, and outlines the responsibilities and rules for management of radio frequencies on Kadena Air Base (AB). This instruction applies to all units assigned, attached, and associated with the 18th Wing (18 WG) that use radio frequencies on Kadena AB. Tenant units not associated with the 18 WG must coordinate their frequency requirements with the 18th Communications Squadron (18 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 that all records created as a result of processes prescribed in this publication are maintained in accordance with (IAW) Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of IAW Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS).

1. Introduction.

1.1. Due to increased radio frequency congestion in the Kadena 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 Kadena AB.

2.2.7. Assist using organizations in the preparation of Electromagnetic Interference (EMI) Reports (**Attachment 2**).

3. Using Organization.

3.1. Any organization that radiates electromagnetic energy will provide a point of contact (POC) for all frequency matters. This person will have at least 1 year retainability at Kadena AB.

3.2. **The Unit POC will:**

3.2.1. Maintain the frequency authorization documents for each frequency until the frequency is deleted.

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

3.2.3. Coordinate all frequency actions with the ISM.

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

3.2.5. Identify frequency needs via the Kadena AB Form 99, *Frequency Action Request* (**Attachment 3**), to the ISM a minimum 120 days prior to required date.

3.2.6. Investigate and prepare all required EMI reports.

3.2.7. Review assigned frequencies annually and identify frequencies which are no longer in use or required. A copy of the annual review will be forwarded to the ISM.

3.2.8. Contact the local 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.

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

4. Processing.

4.1. Unit POCs will submit all permanent, temporary, or deployed frequency requests via the Kadena AB Form 99 to the ISM. The ISM will review the Kadena AB Form 99 (**Attachment 3**) 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.** Unit POCs 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 pertains in particular to 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 AFI 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.

7. Citizens Band (CB) Radio Equipment.

7.1. There are many types of CB radio equipment on sale throughout Japan. Such equipment includes 1-channel walkie-talkies, base stations, and mobiles with various channel capabilities. The U.S. has set certain specific frequencies (channels) aside for CBs such as FRS/GMRS. However, these frequencies do not correspond to the Japanese citizens' service allocation.

7.2. The use of CB equipment or cordless phones in Japan is not authorized under the Status of Forces Agreement, except as noted in **paragraph 6**. However, devices purchased locally may be granted approval. The ISM will issue approval letters on a case-by-case basis.

CASE A. CUNNINGHAM,
Brigadier General, USAF
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 17-220, *Spectrum Management,* 16 March 2017

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

AFMAN 33-363, *Management of Records,* 1 Mar 2008

Prescribed Form

Kadena AB Form 99, Frequency Action Request

Adopted Form

AF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

AB—Air Base

AFI—Air Force Instruction

CB—Citizens Band

EMI—Electromagnetic Interference

ISM—Installation Spectrum Manager

POC—Point of Contact

RC—Radio Control

Attachment 2

KADENA AB ELECTROMAGNETIC INTERFERENCE (EMI) REPORTING

Figure A2.1. Kadena AB Electromagnetic Interference (EMI) Reporting.

KADENA AB Electromagnetic Interference (EMI) Reporting

* Please fill out the below document if experiencing radio interference. Contact the spectrum management office for any interpretations.

STEP	ACTION	COMPLETE Y/N
1	Start a log and collect as much information about the EMI as possible.	-
2	Record what 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 area affected.	-
3-2	Verify exact location of receiver using GPS, if available.	-
4	Determine interference start and stop times.	-
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 suspect, 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.	-

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KADENA AB Electromagnetic Interference (EMI) Reporting

* Please fill out the below document if experiencing radio interference. Contact the spectrum management office for any interpertations.

STEP	ACTION	COMPLETE Y/N
7-5	Check to see if construction is being conducted in the immediate area.	-
7-6	Determine whether the natural environment is the cause	-
	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 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 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 (demods, bandwidths, 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:		

(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 PERFORMANCE:
LINE 7A	DATE & TIME:
LINE 7B	DURATION:
LINE 7 C	REPETITION RATE:
LINE 7D	INTERFERENCE SIGNAL LEVEL:
LINE 7E	ACTIVITIES COINCIDING WITH INTERFERENCE:
LINE 8	SOURCE LOCATION:
LINE 9	LOCATION OF OTHER RECEIVERS AFFECTED:

AFSIR WORKSHEET (Page 1 of 2) (1June 2006)

(CLASSIFICATION)

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(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 interference was the strongest): * to imput text go to tools-Content Editing-Add Text.
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 CCC upon turning in the comm kit.

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 determined the releasability 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 your Installation Spectrum Manager.

AFSIR WORKSHEET (Page 2 of 2) (1June 2006)

(CLASSIFICATION)

Attachment 3

KADENA AB FORM 99, FREQUENCY ACTION REQUEST (SAMPLE)

Figure A3.1. Kadena AB Form 99, Frequency Action Request (Sample).

CLASSIFICATION: UNCLASSIFIED When Filled In

FREQUENCY ACTION REQUEST

REQUESTORS INFORMATION

Rank, Name	Org./Office	E-mail	DSN Number
TSgt, Snuffy	99 CS/SMSK	snuffy.stuffy@us.af.mil	456-7890

SPECTRUM REQUIREMENTS

110. Frequency (MHz)	112. Minimum Separation	115. Transmitter Power (watts)	116. Power Type
M245.1	12Khz	W10	(•) MEAN ( ) PEAK

113. How is the frequency being use

Station Types (Mark all that apply): [X] FIXED [ ] MOBILE [X] PORTABLE [ ] Other

Will this station be a Repeater?	Will this station communicate with Aircraft?
( ) YES (•) NO	(•) YES ( ) NO

114. Bandwidth

Emission Designator	Bandwidth	Modulation	Signal Type
6K00A3E	1Khz	AM	Analog

140. Date Required	130. Usage Type
09/12/1992	[X] 1. Regular, not limited to workweek
141. Expiration Date	[ ] 2. Regular, workweek
09/13/1992	[ ] 3. Occasional, not limited to workweek
	[ ] 4. Occasional, workweek

TRANSMITTER INFORMATION

300. Country	301. City	303. Latitude/Longitude Coordinates	306. Radius (km)
Japan	Kadena	262119N1274709E	10

340. Equipment Name	341. Number of Stations	343. Equipment Certification Number (JF12)
PSC-5	1	J/F 12/07310

TRANSMIT ANTENNA INFORMATION

354. Antenna Name (type)	357. Gain (dBi)	362. Orientation	363. Polarization
Discone	1	Non-Directional	Vertical

356. Structure Height (in meters)	358. Site Elevation (in meters)	359. Feed Point Height (in meters)
12	45	15

RADAR INFORMATION

345. Tunability	346. Pulse Duration	347. Pulse Repetition Rate (pps)
	this is not a radar	

KADENA AB Form 99, 2019MMDD UNCLASSIFIED Page 1 of 2
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RECEIVER INFORMATION			
400. Country Korea	401. City Busan	403. Latitude/Longitude Coordinates Aircraft	406. Radius (km) 15

440. Equipment Name	343. Equipment Certification Number (JF12)
ARC-210	J/F 12/06635/2

RECEIVER ANTENNA INFORMATION			
454. Antenna Name (type) Blade	457. Gain (dBi) 0	462. Orientation Non-Directional	463. Polarization Horizontal/Omni

456. Structure Height (in meters)	458. Site Elevation (in meters)	459. Feed Point Height (in meters)
n/a	n/a	n/a

520. Requirement Justification

Require 1 UHF and 1 VHF frequency for SOF and Air-Ground-Air operations. This request is in support Exercise "XXXX". Frequencies may be used to communicate with Multinational partners for ground control ops.

711. Aircraft Transmission Information

32711