DEPARTMENT OF THE AIR FORCE
HEADQUARTERS AIR FORCE CIVIL ENGINEER SUPPORT AGENCY

OCT 21 2003

FROM: AFCESA/CES
139 Barnes Drive, Suite 1
Tyndall AFB, FL 32403-5319

SUBJECT: **Engineering Technical Letter (ETL) 03-5: Converting Civil Engineering Radio Frequency Devices to Narrowband Technology**

1. Purpose. This ETL provides guidance to help the base civil engineer (BCE) and other users manage the conversion of wideband radio-based systems (voice, data, and video) to narrowband technology.

2. Summary of Revisions. This ETL replaces ETL 00-12, *Fire Protection Engineering Criteria – Conversion of Fire Alarm Radio Systems to Narrowband Technology* in its entirety.

3. Application. Requirements in this ETL are mandatory for all Air Force installations in the United States and its possessions (US&P).

Note: Use of "will," "shall," or "must" indicates a mandatory requirement. "May" or "should" indicates a non-mandatory action or condition.

3.1. Authority: National Telecommunications and Information Administration (NTIA), *Manual of Regulations and Procedures for Federal Radio Frequency Management*, May 2003, and Air Force Instruction (AFI) 33-118, *Radio Frequency (RF) Spectrum Management*, April 2002.

3.2. Effective Date: Immediately.

3.3. Intended Users: Major command (MAJCOM) Civil Engineers (CE) and BCEs.

3.4. Coordination:
- MAJCOMs/CEO
- Headquarters, Air Force Frequency Management Agency (HQ AFFMA)
- Headquarters, Air Force Command, Control, Communications, and Computers Intelligence, Surveillance, and Reconnaissance (C4ISR) Combat Connectivity Division (HQ USAF/XICC)

3.5. Waivers. There are no provisions for waivers, deviations, or delayed implementation.

CAUTION

Failure to comply with the NTIA narrowband mandate within the time frames specified could lead to a directed shutdown of all noncompliant equipment. *(See reference in paragraph 4.1.)*

3.6. Exclusions. The NTIA mandate does not apply to military tactical land mobile radio (LMR) systems used for combat or combat training applications.

4. Referenced Publications. The latest editions of the following publications apply:

4.1. Department of Commerce:

- NTIA, *Manual of Regulations and Procedures for Federal Radio Frequency Management*, May 2003, http://www.ntia.doc.gov/osmhome/redbook/redbook.html

4.2. Office of the Secretary of Defense:

- Deputy Secretary of Defense Memo, *Policy for Land Mobile Radio (LMR) Systems*, 1 Aug 2001, http://doim.hqda.pentagon.mil/LMR_Policy.pdf

4.3. Department of the Air Force:

- Air Force Instruction (AFI) 33-118, *Radio Frequency (RF) Spectrum Management*, 03 Apr 2002, http://www.e-publishing.af.mil/pubfiles/af/33/afi33-118/afi33-118.pdf
- Air Force Manual (AFMAN) 33-120, *Radio Frequency (RF) Spectrum Management*, 03 Apr 2002, http://www.e-publishing.af.mil/pubfiles/af/33/afman33-120/afman33-120.pdf
- *Land Mobile Radio (LMR) Narrowband Migration Plan,* 30 Jan 2003
- AFI 33-106, *Managing High Frequency Radios, Personal Wireless Communication Systems, and the Military Affiliate Radio System*, 09 Jan 2002, http://www.e-publishing.af.mil/pubfiles/af/33/afi33-106/afi33-106.pdf

5. Acronyms and Terms:

AF	–	Air Force (as used on forms)
AFB	–	Air Force base
AFCA	–	Air Force Communications Agency
AFCESA	–	Air Force Civil Engineer Support Agency
AFFMA	–	Air Force Frequency Management Agency
AFI	–	Air Force Instruction
AFMAN	–	Air Force Manual
BCE	–	base civil engineer

C4ISR	–	Command, Control, Communications, and Computers Intelligence, Surveillance, and Reconnaissance
CE	–	Civil Engineer
CEG	–	Civil Engineer Group
CES	–	Civil Engineer Squadron
COTS	–	commercial off-the-shelf systems
CS	–	Communications Squadron
DOD	–	Department of Defense
EMC	–	electromagnetic compatibility
EMCS	–	Energy Management Control Systems
EOD	–	explosive ordnance disposal
ESMR	–	Enhanced Specialized Mobile Radio
ETL	–	Engineering Technical Letter
FAQ	–	frequently asked questions
FAR	–	Federal Acquisition Regulation
FY	–	fiscal year
GSA	–	General Services Administration
HQ	–	Headquarters
HQ AFFMA	–	Headquarters, Air Force Frequency Management Agency
HQ USAF/XICC	–	Headquarters, C4ISR Combat Connectivity Division
ISM	–	Installation Spectrum Manager
kHz	–	kilohertz
LMR	–	land mobile radio
MAJCOM	–	major command
MCEB	–	Military Communications Electronics Board
MAS	–	Multiple Award Schedule
MHz	–	megahertz
NTIA	–	National Telecommunications and Information Administration
OEM	–	original equipment manufacturer
OSD	–	Office of the Secretary of Defense
POC	–	point of contact
POM	–	program objective memorandum
PWCS	–	Personal Wireless Communications Services
PWS	–	Performance Work Statement
RF	–	radio frequency
RX	–	receivers
TX	–	transmitters
UHF	–	Ultra High Frequency
US	–	United States
USAF	–	United States Air Force
US&P	–	United States and its possessions
VHF	–	Very High Frequency
XMR	–	transceivers
24/7	–	24 hours a day, 7 days a week

6. Definitions:

6.1. *Radio Channel*: A characteristic center frequency along with a frequency band that is designated to be occupied by a radio signal.

6.2. *Bandwidth*: The width of the frequency band that is necessary to ensure the transmission of information at the rate and with the quality required under specified conditions.

6.3. *Narrowband Systems*: For the purposes of this ETL, narrowband systems are those radio systems designed to operate with a necessary bandwidth of 11 kilohertz (kHz) or less.

6.4. *Narrowband Operation*: For the purpose of this ETL, narrowband operation means operation in a 12.5 kHz bandwidth channel as defined by the NTIA in reference 4.1.

6.5. *Land Mobile Radio (LMR)*: A radio that operates in a radio frequency band designated for mobile communications by the US National Table of Frequency Allocations. LMRs are typically line-of-sight, handheld or vehicular radios providing netted conventional two-way or trunked voice communications. LMRs and supporting infrastructures (such as towers and repeaters) are used in garrison and at deployed sites and are typically approved and maintained by base Communications personnel.

6.6. *Trunked Voice Communications*: A trunked radio system is one that automatically and dynamically allocates a small number of radio channels to support a large number of users.

6.7. *Tactical LMR*: As defined by the NTIA, tactical LMRs are intended for mission-critical applications and used in combat or other tactical applications requiring the highest level of security and possibly anti-jam or Low Probability of Intercept/Low Probability of Detection features.

6.8. *Mission-critical LMR*: As defined in the *Land Mobile Radio (LMR) Narrowband Migration Plan*, mission-critical LMRs are used to support “operations readiness or mission effectiveness.” This classification covers Fire/Crash/EOD LMRs across the US&P.

6.9. *Mission-essential LMR*: As defined in the *Land Mobile Radio (LMR) Narrowband Migration Plan*, mission-essential LMRs are used for base “sustainment/indirect support.” This classification covers all CE LMRs, except Fire/Crash/EOD, across the US&P.

7. Background.

7.1. In the early 1990s, the NTIA, part of the Department of Commerce, levied requirements for the use of narrowband systems in certain parts of the Very High Frequency (VHF) and Ultra High Frequency (UHF) bands. These requirements affect nearly all radio-based systems currently in use by BCEs across the US&P.

7.2. The NTIA requirements reduce the radio channel spacing from 25 kHz to 12.5 kHz (i.e., narrowband). This allows creation of a new channel between formerly adjacent channels for the purpose of providing greater radio frequency spectrum access for all Americans, and this change necessitates that radio equipment become more accurate to prevent interference between the new adjacent radio channels.

7.3. The NTIA-required transition to narrowband systems is mandatory for all Federal radio spectrum users, including the Department of Defense (DOD). The required timetable for transition to narrowband-compliant systems is:

7.3.1. VHF 138 – 150.8 MHz Band:

- All new systems must use narrowband technology (effective 1 Jan 1997).
- **Existing systems must be converted to narrowband by 1 Jan 2008.**

7.3.2. VHF 162 – 174 MHz Band:

- All new systems must use narrowband technology (effective 1 Jan 1995).
- **Existing systems must be converted to narrowband by 1 Jan 2005.**

7.3.3. UHF 406.1 – 420 MHz Band:

- All new systems must use narrowband technology (effective 1 Jan 1995).
- **Existing systems must be converted to narrowband by 1 Jan 2008.**

7.4. BCEs own, operate, and/or maintain a wide range of radio frequency (RF) systems. The most common radio systems are base fire reporting systems, Energy Management Control Systems (EMCS), load management switches and other industrial control devices, LMRs, runway ice detection systems, bird scare systems, and explosive ordnance disposal (EOD) robots. Most of these systems across the US&P fall within the 3 frequency bands identified in paragraph 8.3 and require narrowband migration. The NTIA *Manual of Regulations and Procedures for Federal Radio Frequency Management* and AFI 33-118 (Chapter 5, paragraph 5.3) mandate that RF systems that cannot be converted to narrowband technology are required to be removed, replaced, or shut down to prevent interference with adjacent radio channels.

7.5. MAJCOM and Installation Spectrum Managers (ISM) are fully aware of the NTIA narrowband requirements and BCE must contact them at the earliest opportunity prior to any RF system procurements/upgrades. This is very important since some operational wideband systems may be required to move to another frequency band during the narrowband conversion process. For example, the 162 to 174 MHz band is

highly congested and shared by non-DOD agencies of the Federal Government (primary user), the DOD (secondary user), and industry (very limited use). It is imperative that the Civil Engineer (CE) narrowband point of contact (POC) work with the ISM and the Narrowband Compliance Help Desk at Headquarters, Air Force Civil Engineer Support Agency (HQ AFCESA) throughout the entire conversion process.

7.6. HQ AFCESA Narrowband Compliance Help Desk. The AFCESA Narrowband Compliance Help Desk (hereafter referred to as the Help Desk) was established on 1 Oct 2001 at the request of the MAJCOMs at the 2001 Board of Advisors Conference. The purpose of the Help Desk is to assist BCEs with and provide Air Force-wide oversight for converting CE-owned/operated/maintained wideband radio-based systems to narrowband technology.

8. Specific Requirements. This section provides the basic steps and procedures necessary to meet the NTIA deadlines in a technically sound and fiscally responsible manner. Figure 1 illustrates the step-by-step process to identify and convert your wideband radio systems to narrowband technology. A narrative explanation for each step of the process follows the illustration.

Narrowband Migration Process

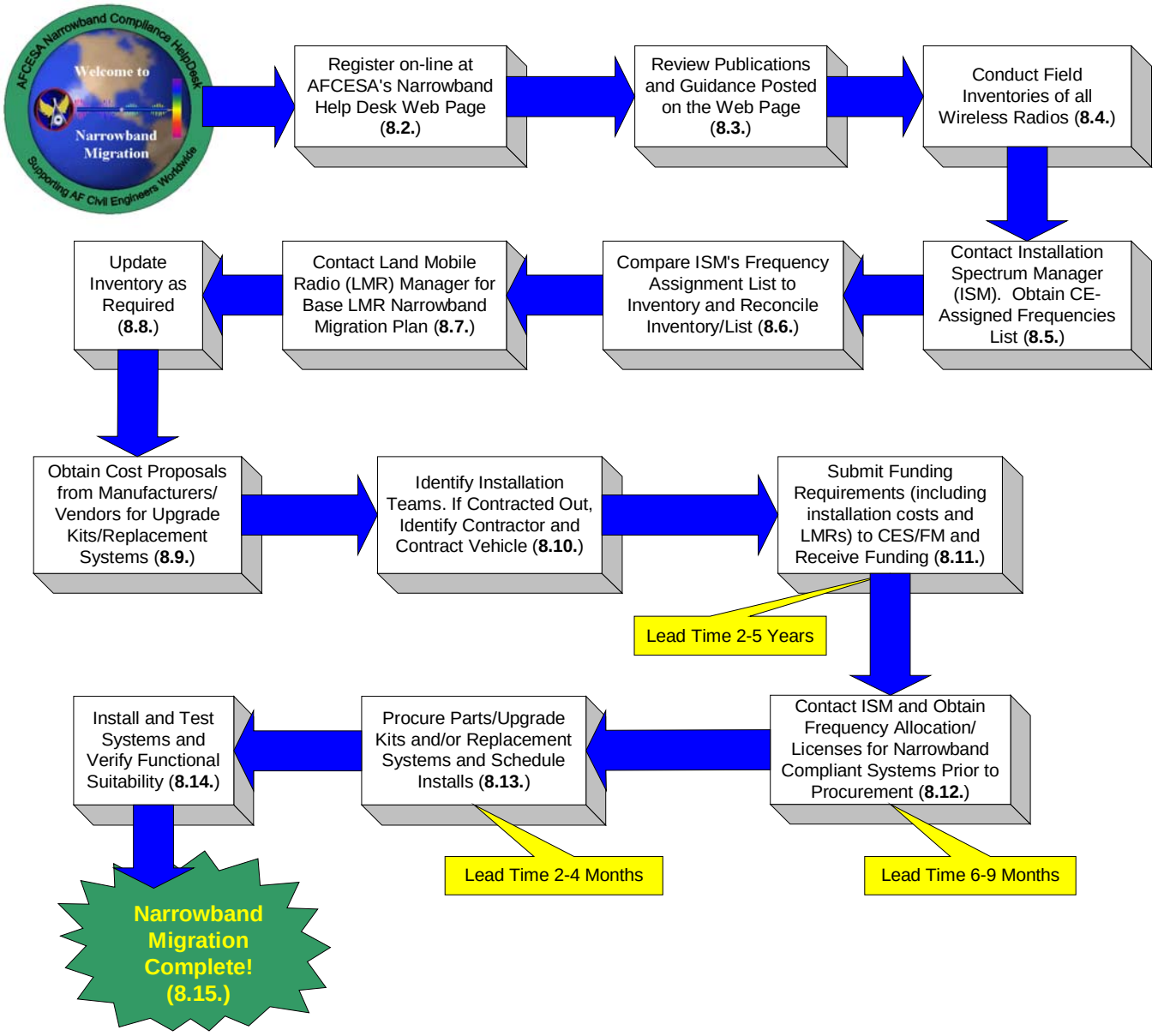

Figure 1. Narrowband Migration Process. This flow chart identifies the major steps required to convert wideband radio systems to narrowband technology.

8.1. Assign MAJCOM and BCE POCs. MAJCOMs and bases may obtain assistance from the Help Desk throughout the conversion process by assigning a narrowband POC at the MAJCOM and at each CE group (CEG) or CE squadron (CES).

8.2. Register Online via the Internet at AFCESA's Secure (.mil) Web Site. The Help Desk has implemented several Internet-based tools to communicate guidance, processes, and solutions to assist MAJCOM CEs and BCEs in their narrowband conversion efforts. MAJCOM and base-appointed narrowband POCs are required to register online prior to accessing the online database. Locate the Help Desk Web site at: http://www.afcesa.af.mil/Directorate/CES/Mechanical/Narrowband/default.htm.

Note: POCs should contact the Help Desk (DSN: 523-6995) for specialized assistance.

8.3. Review Publications and Guidance Posted on the Help Desk Web Site. The Help Desk Web site provides useful information and tools to assist BCEs with converting wideband systems to narrowband technology, including:

- POC registration forms and reports
- Inventory Collection database, forms, and reports
- Policy and guidance
- Narrowband Deadlines Chart
- ETLs
- LMR policy and guidance
- Office of the Secretary of Defense (OSD), Air Force, Air Force Civil Engineer, and AFCESA memorandums
- Inventory Guidance Package
- Manufacturer/vendor compliance information
- Narrowband brochure
- Frequently Asked Questions (FAQs)

8.4. Conduct Field Inventories of All CE Wireless Radio Systems. Perform a survey of all wireless radio transmitters (TX), receivers (RX), and/or transceivers (XMR) operating in the 3 frequency bands identified in paragraph 7.3. Use the forms attached to the AFCESA Narrowband Compliance Inventory Guide that is posted on the Help Desk's home page to record the information necessary to determine the narrowband status of each radio. After you have collected the inventory information on the forms, enter that data into the Help Desk's online database using the instructions in paragraph 8.4.2. Once the inventory is entered into the online database, the Help Desk will begin to research unique/uncommon RF devices and contact the manufacturers for compliance and/or noncompliance information along with any known upgrade or replacement cost figures for noncompliant radios. Information on obtaining the necessary cost information for upgrades/replacements can be found in paragraph 8.9.

Note: It is very important that you use the Monaco Enterprises inventory forms if you have a Monaco fire alarm system. It is the only form Monaco will accept to provide you with a cost proposal to upgrade your fire alarm system.

8.4.1. Conduct the Inventory. A thorough and accurate inventory of all radio equipment used within CE is key to determining your funding requirements. Record any radio equipment, fixed or mobile, in your inventory, including all mission-essential LMRs (as defined in paragraphs 6.8 and 8.7.1). This will help later in the budgeting process.

8.4.1.1. The operating frequency of most radios will be displayed somewhere on the manufacturer's data plate attached to the radio device. In some cases, maintenance personnel may have written the frequency on the device itself. If you find an RF device without a data plate attached, record as much information as possible about the device and include it in your inventory records.

8.4.1.2. It's important to note that the radio equipment may be manufactured by a company different than the overall systems manufacturer. For example, you may find a utility dataflow system engineered by company XYZ with a manufacturer's data plate showing XYZ as the manufacturer. But, when you open the box and examine the radio device inside, you may discover that Motorola or some other company made the radio device providing the transmission and/or receiving function. When you inventory a system with multiple remote sites containing TX, RX, and/or XMR units, it is very important to physically check each site and record the data from each location. With older systems, you may find that compatible substitutes have taken the place of the original equipment manufacturer (OEM) equipment that you thought was installed at every site. Cost savings and/or contracted repair services may have contributed to the system becoming a collection of multiple-OEM radio devices over the years. To account for any possibility of this, you should inspect each radio device or circuit card and record the manufacturer's information. It is recommended that you follow the guidance provided in the AFCESA Narrowband Compliance Inventory Guide on the Help Desk's Web site and record your inventory on the RF Equipment Inventory form.

8.4.2. Enter Radio Inventory into the AFCESA Online Database.

8.4.2.1. To begin using the online inventory database, you must first be a registered POC with a current user name. If you have not yet registered, refer to paragraph 8.2 for instructions on registering with the Help Desk. Registered users can log in to the database by clicking on the "Registered User" link on the Help Desk home page. On the Narrowband Database User Sign In page, enter your assigned user name (user name is case sensitive and must match exactly as you registered) and then select your base from the pull-down menu of installations.

8.4.2.2. For each record, you must enter the required fields as a minimum. After each record, click the "Next" button to continue entering records. If you have completed all your entries for the session, click the "Finished" button.

8.4.2.3. If you decide that you do not want to save any of the record data you entered, click the “Menu” link to return to the main user menu. After entering records into the database, it is recommended that you view those records by clicking on the “Narrowband Equipment Edit” link under Administrative Functions on the user menu. From this page you can view and edit or delete any records that have errors or were incomplete. You can return at any time to make adjustments or corrections to your inventory records.

8.4.2.4. If you make changes or delete records, you must click on the “Apply Changes” button to save any changes you have made. To help the server accommodate multiple users of the database without losing data, it is recommended that you click on “Apply Changes” after altering no more that 10 records at a time.

8.4.2.5. If you want to print your inventory records, you can print the records displayed on the screen. You may have to adjust the printer settings in your Internet browser to eliminate partial cutoff of the information on the printed form.

8.5. Contact the ISM. Narrowband POCs are required to meet with their ISM to compare frequency assignments to their RF inventory list. Determine if any frequency assignments will be changed as part of the narrowband conversion. A change in radio channel will generally require a change to the antenna systems and could significantly affect the conversion costs. You are also encouraged to review each frequency license and corresponding expiration date. All wideband RF systems impacted by the NTIA deadlines will have expiration dates on or before the NTIA deadline for the frequency band in which the system operates. After you have compared your list of RF equipment to the ISM’s list for CE, you will have a good idea of whether or not all CE-owned/operated/maintained RF devices have been captured in your inventory.

8.6. Reconcile Inventory. The purpose of this step is to enter any systems not previously identified during the initial equipment inventory stage and/or to correct/edit any previously entered data such as operating frequency and quantities. It is also recommended that you review the Manufacturer Information and Pricing listing on the Help Desk’s Web site since it provides a direct link to a list of system manufacturers of common radio-based systems in the CE inventory. Additionally, this information page may help you identify other RF systems that were not initially captured. Likewise, if a vendor has gone out of business or no longer repairs fielded systems, the BCE will have a vendor pool from which to select a replacement system. The information is readily accessible 24/7 by all military users via the AFCESA Narrowband Web page. The Help Desk will continue to update this important knowledge bank as new systems are discovered and system modifications are made.

8.7. Contact the Base LMR Manager.

8.7.1. Although the ultimate responsibility for ensuring that funds are available to complete the NTIA-mandated migration to narrowband technology remains with the MAJCOMs, the Air Force Communications Agency (AFCA) has initiated a program action and funding strategy to handle all "mission-critical" LMRs and supporting infrastructures at Air Force bases across the US&P. AFCA specifically singled out Fire/Crash/EOD services as mission-critical areas they will fund; however, AFCA funding will not cover the remaining CE LMRs that are categorized as "mission essential." It is therefore imperative that BCEs contact the base LMR Manager to determine the base LMR narrowband migration strategy and the migration responsibilities of the CES. BCEs may be required to fund all mission-essential radios, reevaluate squadron LMR requirements, and/or seek alternative solutions. Most base LMR Managers should have a detailed breakdown of the CE LMRs requiring upgrade/replacement and the anticipated cost to the BCE. Include information on mission-essential LMRs and enter it in the online inventory database on the Help Desk Web site.

8.7.2. Additionally, AFCA has provided base commanders with the flexibility to target approximately 30 percent of existing wideband LMRs to be replaced with commercial Personal Wireless Communications Services (PWCS) alternatives (e.g., Intra-Squad Radios, one or two-way commercial pagers, Enhanced Specialized Mobile Radio [ESMR] or Cellular Telephone services); however, commanders should be aware of the associated risks in using commercial services, such as overload during emergencies and peak operating times (AFI 33-106, *Managing High Frequency Radios, Personal Wireless Communication Systems, and the Military Affiliate Radio System,* paragraph 4.9.). A recently published report from the Public Safety Wireless Network Program titled *Answering The Call: Communications Lessons Learned From The Pentagon Attack* notes that "major incidents, regardless of location, have shown that commercial service networks are not designed to handle the immense volume of calls generated at or near an incident scene. Responders found that the only reliable form of communications were their own, private LMR systems."

8.8. Update Inventory as Required. Update your equipment inventory on the Help Desk's Web site to include LMRs requiring upgrade/replacement and associated costs to the BCE. Do not include mission-critical LMRs identified by the base LMR Manager that are covered by Communications Squadron (CS) funding.

8.9. Obtain Equipment Cost Proposals. Once your detailed inventory is complete for each noncompliant RF system owned, operated, and maintained by CE, request a cost proposal/quotation from the system manufacturer. After you receive this quotation, submit your requirements to your Financial Manager/Resource Advisor for funding and procurement actions and insert this information into the online inventory database at the Help Desk Web site. Any upgrade/replacement costs for equipment owned by another organization (e.g., building security alarms owned by Security Forces) but

maintained by CE should be submitted to the organization that owns the equipment and/or property. CE will not fund upgrades and/or replacements for systems that belong to other users. When you have completed this step, the requirements identification stage is complete.

Note: Users should also evaluate whether any wideband analog systems that must be converted should be replaced with digital technology for lower life-cycle cost and better system performance.

8.10. Identify Installation Teams. The BCE should identify who will perform the upgrades and/or replacements of the wideband RF systems as early as possible after the inventory stage is complete. Upgrading/replacing RF systems to narrowband standards can be accomplished in-house with DOD civilians and military personnel, A-76 contractor personnel, local vendors (typically via an Air Force [AF] Form 9, **Request for Purchase**, for services), or by the system manufacturer/supplier (commonly available via General Services Administration [GSA] schedule). Contact the Help Desk for a list of GSA schedules/contracts that are readily available to assist you with your installations/upgrades.

8.10.1. Costs may be reduced by performing some of the upgrades and/or replacements during routine/preventive maintenance and corrective maintenance. Finally, complete the conversion specifically to meet the NTIA deadline.

8.10.2. Once you decide who will perform the installation of narrowband-compliant parts and/or systems, identify any additional costs (e.g., installation/labor costs) that may be incurred by the BCE to install and/or replace noncompliant systems and/or components and what contract vehicle will be used to procure those services. For example, for A-76 contracted operations, determine if narrowband upgrades/replacements are within the scope of the current contract. The A-76 contract may incur additional costs if not within the scope of the present Performance Work Statement (PWS). Those costs need to be budgeted for and any necessary PWS changes in place prior to delivery of the procured parts/upgrade kits.

8.11. Submit Funding Requirements.

8.11.1. Base Level.

8.11.1.1. Because there is not enough time to use traditional funding requests (e.g., Financial Plans) to meet the first NTIA deadline of 1 Jan 2005, BCEs should identify and fund narrowband requirements expeditiously by redistributing fiscal year (FY) 04 funds internally or, at the latest, allocating FY 2004 year-end “fall-out” funding for narrowband upgrades/replacements. To meet the second NTIA deadline of 1 Jan 2008, BCEs are encouraged to use the traditional Financial Plan process for their narrowband requirements. Strategically staggering your funding requirements will help minimize large funding spikes and will help system manufacturers meet the demand for

their narrowband-compliant upgrade kits and/or replacement systems. The Help Desk works with and understands the capabilities and limitations of these vendors and manufacturers and can help seek alternative suppliers in the event of equipment shortages.

8.11.1.2. The Help Desk collects narrowband migration costs for all CE radio-based systems not in compliance with NTIA narrowband specifications. Funding requirements to date have been identified at the Air Force, MAJCOM, and base levels and categorized as fire alarms, LMRs, or utilities, and prioritized by the applicable NTIA deadline. The Help Desk submits updated narrowband migration status reports to MAJCOMs on a quarterly basis, or when requested by the MAJCOM. The Help Desk develops template financial plan statements and makes them available on the AFCESA Narrowband Web page for BCE use. Templates generated for the most common systems in the CE inventory will identify and justify the requirement and include an "impact if not funded" statement.

8.11.2. MAJCOM Level.

8.11.2.1. MAJCOMs should prioritize funding requirements in this order:

1. Air Force bases with wideband systems operating in the 162 to 174 MHz band
2. Air Force bases located in areas of high-density spectrum use versus those located in low-density spectrum use (e.g., Bolling AFB or Hanscom AFB prior to Grand Forks AFB or Ellsworth AFB)
3. Air Force bases with wideband systems operating within 50 miles of the Canadian border (spectrum allocation along the Canadian border pending)
4. Air Force bases with wideband systems operating within 100 miles of the Mexican border (spectrum allocation along the Mexican border pending)

8.11.2.2. The collection and consolidation of CE radio inventories at a central location (Help Desk) and repository provides the MAJCOMs the ability to identify and assess the scope of the narrowband mandate and the impact it will have in terms of cost, schedule, and performance. By inventorying, consolidating, categorizing, and identifying CE radio-based assets that are currently noncompliant with NTIA narrowband standards, MAJCOMs can focus narrowbanding activities strategically on prioritized locations and the most important systems.

8.11.2.3. If an installation's wideband radio-based system will not meet the NTIA-mandated deadlines and could interfere with an adjacent Federal or commercial narrowband-compliant system, the Help Desk can assist the MAJCOM in evaluating the reallocation of funding and/or radio assets within the command. This will reduce the risk of an AFFMA-directed shutdown of the noncompliant radio-based system.

8.12. Secure a Narrowband Planning Frequency Assignment.

8.12.1. If any narrowband upgrades are required, a planning frequency assignment is required from your ISM. A “planning” frequency assignment is used to reserve a place in the frequency spectrum for your future narrowband-compliant devices. This planning assignment may be your present operating frequency assignment. This is a very important step prior to obligation of funds, but before you receive your planning assignment from your ISM, spectrum certification needs to be verified. Many manufacturers and vendors claim their systems are narrowband compliant; however, narrowband compliance can be determined and certified only by the Military Communications Electronics Board (MCEB) and/or NTIA.

8.12.2. AFI 33-118, *Radio Frequency (RF) Spectrum Management*, requires that all Air Force components obtain radio spectrum certification for any new or replacement radios not previously certified by the MCEB and/or the NTIA. The MCEB and/or the NTIA reviews the radio characteristics to determine supportability expectations, including conformance with international and national specifications and electromagnetic compatibility (EMC) standards. This process is required for all RF emitters (transmitters or receivers), including commercial off-the-shelf systems (COTS) that operate in the Federal RF spectrum.

8.12.3. After the spectrum certification/verification process, you can apply for a frequency assignment for each discrete frequency needed to transmit and/or receive voice, data, and/or video signals. Contact your ISM at the earliest opportunity (6 to 9 month lead time) prior to system procurement.

8.12.4. The spectrum certification and frequency assignment process requires support from the ISM, MAJCOM Spectrum Manager, and the AFFMA. Once you have received your planning assignment, you are authorized to procure the RF equipment you need to meet the NTIA’s narrowband mandate. After obtaining this planning assignment, you will have the exact frequency to which the new radios need to be tuned. Unless otherwise agreed to in writing by the ISM, procurement actions shall not begin prior to obtaining a narrowband frequency assignment.

8.13. Procure Parts/Upgrade Kits and/or Replacement Systems.

8.13.1. The demand on system manufacturers for their narrowband-compliant upgrade kits and/or replacement systems will vary according to the availability and distribution of funds from Air Staff to the MAJCOMs and bases. Many of the system manufacturers do not have large inventories of readily available narrowband-compliant parts. Most manufacturers require a 60- to 120-day lead time. If the distributions of funds are not done in a strategically staggered manner, system manufacturers may not be able to deliver the parts or systems in time for BCEs to meet the NTIA deadlines. To mitigate this risk, the Help Desk works with and understands the capabilities and limitations of CE system vendors and manufacturers and seeks alternative suppliers in the event of

equipment shortages.

8.13.2. Consider suppliers that are available under GSA contracts. When orders are placed against a GSA Multiple Award Schedule (MAS) contract using the procedures under Federal Acquisition Regulation (FAR) 8.4, they are considered issued using full and open competition [see FAR 6.102(d)(3)]. Ordering offices need not seek further competition, synopsize the requirement, make a separate determination of fair and reasonable pricing, or consider small business programs. By placing an order against a GSA Schedule contract, the ordering office has concluded that the order represents the best value and results in the lowest overall cost alternative (considering factors such as price, special features, and administrative costs) to meet the government's needs. The documentation requirement when placing orders against GSA MAS contracts begins at the CES or CEG with an AF Form 9 that contains the following basic information:

8.13.2.1. For products and services that do not require a statement of work, identify the products and services to be purchased, the GSA Schedule contractor (contractor's name and contract number) from which the products and services are to be purchased, and associated costs.

8.13.2.2. For requirements over the micro-purchase threshold that are so defined as to require a particular brand name, product, or feature peculiar to one manufacturer, include an explanation stating why the particular brand name, product, or feature is essential to satisfy the agency's needs.

8.13.2.3. For services that require a statement of work, identify the services to be purchased, the Schedule contractor (contractor's name and contract number) from which the services will be purchased, and the amount to be paid. If other than a firm-fixed price order is placed, include the basis for the determination to use a labor-hour or time-and-materials order. For requirements over the micro-purchase threshold, document the evaluation of Schedule contractors' quotes that formed the basis for selecting the chosen contractor and the rationale for any trade-offs made in the selection.

8.13.2.4. Contact your local financial manager for additional guidance and direction.

8.14. Install and Test Systems.

8.14.1. Test plans and procedures should be used to assess and verify the operational adequacy of the upgraded and/or replaced systems. Furthermore, test plans and procedures will provide BCEs with the final acceptance steps to verify that the system meets the requirements and specifications required by the BCE, the manufacturer, and the NTIA.

8.14.2. The Help Desk develops template test plans and test procedures as necessary to assist installations with system test and acceptance. The Help Desk makes available

manufacturers' test plans and procedures on the Help Desk Web page and assists the MAJCOMs and BCEs with tailoring these template test plans/procedures for their specific installation. The template test plans and procedures are updated to reflect any lessons learned.

8.15. Narrowband Migration Complete. Contact your MAJCOM POC and ISM upon completion. Upon notification, the ISM will remove any wideband designations that were previously assigned to your system and provide an updated frequency license that reflects narrowband compliance.

9. Technical Assistance. Contact the MAJCOM CE narrowband POC or the HQ AFCESA Narrowband Compliance Help Desk for assistance in applying ETL requirements.

10. Point of Contact. Recommendations for improvements to this ETL are encouraged and should be furnished to the AFCESA Narrowband Compliance Help Desk (Mr. Fred Nehrings and Mr. Dave Mathews), HQ AFCESA/CESM, 139 Barnes Drive, Suite 1, Tyndall AFB, FL 32408-5319, DSN 523-6995, commercial (850) 283-6995, e-mail afcesa.narrowband@tyndall.af.mil, or visit our Internet site at http://www.afcesa.af.mil/Directorate/CES/Mechanical/Narrowband/default.htm.

JEFFREY L. LEPTRONE, Colonel, USAF
Director of Technical Support

1 Atch
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