

# DoD activities

**Many changes are under way at the DoD.**

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**A**s a result of retirements, the U.S. DoD EMC community recently lost several key personnel from its ranks. The most significant member was Mr. Stephen Caine, who retired in September 1998 from the Joint Spectrum Center (JSC), where he was Director of Plans and Programs and the Director of E<sup>3</sup>. While with the JSC, Mr. Caine initiated several efforts to update MIL-STD-461, the latest being the generation of MIL-STD-461E. His other noteworthy EMC activities included the formation and conduct of the Defense/Industry E<sup>3</sup> Standards Committee (DIESC), and work as the U.S. Delegate to the NATO Special Working Group (SWG/10) on EMC for Navy systems and ships and Chairman of the MIL-STD-464 Working Group. He also served as the liaison and U.S. coordinator with the Data Exchange Agreement (DEA) on EMC with the United Kingdom. Additional activities included sponsorship of the DoD annual E<sup>3</sup> conference, known in military circles as the DoD E<sup>3</sup> Program Review, and sponsorship of an E<sup>3</sup> training program supporting nearly 30 EMC seminars and courses per year for DoD and NATO personnel. The publication of a quarterly E<sup>3</sup> Bulletin was also made possible through his efforts. Additionally, Mr. Caine pro-

vided support to the Assistant Secretary of Defense, OSD, Chief of Naval Operations (CNO) and other departments within the U.S. defense organization. Now an employee of R&B Enterprises, Mr. Caine has been replaced by Mr. William Lenzi as Director of EMC, for whom contact information is provided in the Government directory at the back of this publication. Whereas Mr. Lenzi plans to continue many of the programs initiated by Mr. Caine, NATO SWG/10 coordination has been delegated to Mr. F. Mike Stewart, SPAWAR Code 051-1E, and the DEA responsibilities have been passed to Mr. Joseph Juras, NAVSEA Code 05K2B. Mr. John Zentner, ASC/ENAE with the Air Force at Wright-Patterson AFB has taken over the MIL-STD-461 revision project.

Another key individual who retired at the end of FY 98 was Mr. Anthony Iacono. Mr. Iacono was Branch Head of the NAVAIR E<sup>3</sup> group which was responsible for the ASEMICA program. Mr. Iacono was very active in NATO activities and DEAs, and he sponsored E<sup>3</sup> training for all of NAVAIR's program managers. He now works for Sentel Corporation. He has been replaced by Mr. Matthew Grenis, NAVAIR Code 4.1.7.

Other key individuals who have made significant contributions to the EMC efforts of the military include Mr. David Cofield, who retired last year from the Army CECOM, and Mr. Dennis Basely, who

transferred from WPAFB to another organization. The E<sup>3</sup> community owes a debt of gratitude to these fine EMC professionals.

## COMPETITION FROM MILITARY EMC TEST LABS

With the consolidation of military facilities and the cutbacks in overhead funds, the DoD's EMC test labs (in fact, all of their labs), must now compete for business with commercial test labs. While using taxpayer dollars to pay for facilities and test equipment, and marketing and overhead personnel, many of the DoD EMC labs are now performing test jobs that in the past would have been performed by smaller, independent test laboratories. Sometimes, the test work isn't put out for bid, but is "internalized" and sent from one military activity to another, with funds, for EMC testing. That's right, folks. The military test labs are now one of the industry's largest competitors, and they are using our tax dollars to do it. Could they compete if they had to pay interest on their test equipment loans and taxes on their profits?

In October 1998, President Clinton signed into law a major piece of legislation which bolsters the independent test lab's fight against unfair government competition in the commercial marketplace. The Federal Inventory Reform Act (FAIR Act) of 1998 will require all Federal agencies to inventory all their activities and categorize them as either inherently governmental or commercial. The law also requires agencies to ensure that "contracted" activities are outsourced in a competitive manner, correcting the growing problem of one Federal agency contracting with another for EMC test services without allowing the private sector to compete for the contract.

According to Circular No. A-76 (Revised) for the Office of Management and Budget ([www.whitehouse.gov/wh/eob/hmtl/circulars/a076/a076.html](http://www.whitehouse.gov/wh/eob/hmtl/circulars/a076/a076.html)) Government performance of a commercial activity is

authorized only under the following conditions: (1) no commercial source is capable of providing the needed product or service, or (2) use of such a source would cause unacceptable delay or disruption of an essential program. These efforts must include at least three notices describing requirements in the Commerce Business Daily over a 90-day period.

For additional information, contact Tony Pagliaro, American Council of Independent Laboratories (ACIL), (202) 887-5872. Government activities should contact the OMB, Office of Federal Procurement Policy, 726 Jackson Place, NW, Room 9013, Washington, DC 20503, (202) 395-6810.

## MIL-STD-461E

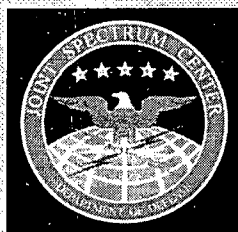
When MIL-STD-461E, "Requirements for the Control of Electromagnetic Interference Characteristics of Subsystems and Equipment," is published, MIL-STD-462 will go the way of MIL-STD-463: it will be canceled. Unlike the process used for MIL-STD-463, the contents of MIL-STD-462 will be merged into MIL-STD-461 so that the requirements and associated test methodology will be in the same document. The document will certainly be larger, but the problem of someone applying the wrong test methods by citing the wrong version of the MIL-STD-462 specification will be avoided. Certainly someone, somewhere, will try to use an old test method for a new requirement, but such certainties are a fact of life.

Possible changes listed on the Defense Standardization Program (DSP) website ([dsp.dla.mil](http://dsp.dla.mil)) include:

- a. Combining of MIL-STD-461 and MIL-STD-462 into one document. Applicability, limits, and test procedures associated with a particular requirement are all located in the same section.
- b. In Table II, the frequency break point for emission testing has been changed from 250 kHz to 150 kHz.
- c. In 4.3.10.4.1 and Table III, the dwell time for susceptibility scan-

ning has been increased from one second to three seconds and the scan rates and step sizes for 30 Hz to 1 GHz have been increased.

- d. Figures 2 through 5 have been clarified.
- e. In Table V, applicability designations for equipment installation location versus individual requirements have changed. CE101 is no longer applicable for ships. Changes in applications are noted for CS115 and CS116.
- f. **CE101.** No longer applicable for ships.
- g. **CE106.** Applicability and test procedures have been modified to include amplifiers.
- h. **CS101.** Upper frequency has been changed from 50 kHz to 150 kHz. A curve has been added to replace the 80 watt alternative limit with a value dependent on frequency.
- i. **CS109.** The test procedure and associated figures have been clarified.
- j. **CS114.** The requirement for the loop circuit impedance measurement has been removed. The alternative limit has been set to 6 dB above the calibration level rather than being an absolute number regardless of frequency. A maximum insertion loss for injection probes has been added.
- k. **CS116.** The requirement for the loop circuit impedance measurement and testing at resonant frequencies has been removed.
- l. **RE101.** The 50 centimeter requirement has been removed. The limit for Navy applications has been modified. Measurements are limited to EUT faces and electrical connectors with electrical cables being excluded.
- m. **RE102.** Limits for submarines have been extended to 18 GHz, limits have been modified, and separate limits are provided for inside and outside the pressure hull.
- n. **RS101.** The limit for Navy applications has been modified. Test procedure wording has been clarified to address testing of electrical connectors rather than cables.



# DoD Joint Spectrum Center

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Commander\* **H. E. YEISER III, CAPT, USN**

**J00A**  
Executive Officer\* **J. MAHONEY, CDR, USN**

**J00AS • SECURITY**  
Security Officer **L. OAKCRUM**

**J1 • CENTER SERVICES DIVISION**  
Department Head **R. WELLER**

**J11 • MANPOWER/PERSONNEL  
INFO MGMT/SPT SVCS DIV**  
Chief **N. TITUS**

**J12 • FINANCIAL MANAGEMENT/  
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Chief **A. MYERS**

**J01**  
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Department Head\* **H. BRUS, CDR, USN**

**J8 • JOINT ACQUISITION SUPPORT DEPT.**  
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Project Manager **C. MILLS, 1LT, USAF**  
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\*Joint Duty Assignment Billet

Figure 1. DoD Joint Spectrum Center.

- An alternative procedure using Helmholtz coils has been added.
- o. **RS103.** An alternative procedure using a mode-tuned reverberation chamber above 200 MHz has been added.
  - p. **RS105.** The limit curve has been changed and the procedure has been modified.
  - q. **Appendix.** Numerous changes have been incorporated.

It should also be noted that an EMC test lab will not have to be compliant with ISO 25 in order to perform a qualification test to MIL-STD-

461E, nor will there be an uncertainty provision. At one time, the labs that tested to military requirements were the most qualified. Now they can be behind industry. The only exception is for NAVAIR procurements which require NVLAP certification, e.g., ISO 25 compliance.

Comments on the draft MIL-STD-461E document are still being received at the time of publication and plans for the review committee to meet in early April 1999 to review the comments are uncertain. If there are no further delays, MIL-STD-461E

should be released by early summer, 1999. Copies will be available on R&B's web site, [www.RBitem.com](http://www.RBitem.com).

**ROBERT GOLDBLUM** is the president of R&B Enterprises and the publisher of ITEM. He has more than 35 years of EMC engineering experience, which includes supporting government R&D for the development of EMC standards such as MIL-STD-461/462. Bob has written many articles on this subject and has traveled worldwide with his related presentations and courses. (610) 825-1960. [rgoldblum@RBitem.com](mailto:rgoldblum@RBitem.com).

# ESSENTIAL APPARATUS FOR PERFORMING TESTS PER MIL-STD-461D

TYPE NO.	DESCRIPTION	CE 101	CE 102	CS 101	CS 109	CS 114	CS 115	CS 116	RE 101	RE 102	RE 103	RS 101	RS 103	RS 105
6220-1A	Audio Isolation Transformer			X <sup>1</sup>										
6220-2	Audio Isolation Transformer			X <sup>1</sup>										
7032-1	Isolation Transformer, 800 W.			X <sup>2</sup>	X <sup>2</sup>									
7032-2	Isolation Transformer, 800 W.			X <sup>2</sup>	X <sup>2</sup>									
7334-1	Loop Antenna								X					
7720-( )	High Pass Filter, 50 ohms										X <sup>3</sup>			
8231-*/*	Band Reject Filter, 50 ohms										X <sup>3</sup>			
8850-1	High Power Sweep Generator, 200 W.			X										
9108-1N	Injection Probe, 10 KHz-200 MHz					X	X							
9123-1	Current Probe, 10 KHz-500 MHz					X	X							
9125-1	Calibration Jig, Injection Probe					X	X							
9127-1	Injection Probe, Damped Sine Wave							X						
9133-1	'Delta' Capacitor Assembly			X										
9142-1N	Injection Probe, 2 MHz-400 MHz					X	X							
9144-1N	Injection Probe, 10 KHz-200 MHz					X								
9146-1	'Wye' Capacitor Assembly			X										
9206-1	Current Probe, 10 KHz-100 MHz							X						
9207-1	Current Probe, 20 Hz-150 MHz	X										X		
9224-1.0	Precision Resistor, 1.0 ohms	X												
9225-0.5	Precision Resistor, 0.5 ohms			X										
9226-0.5	Precision Resistor, 0.5 ohms				X									
9229-1	Loop Sensor											X		
9230-1	Radiating Loop											X		
9233-50-TS-50-N	L.I.S.N.		X	X		X	X	X	X	X		X	X	X
9354-1	Universal Transient Generator							X						
9355-1	Pulse Generator						X							
9401-1	10 pF Series Capacitor									X				

X<sup>1</sup> Type 6220-1A is rated at 50 amperes secondary current.  
Type 6220-2 is rated at 100 amperes secondary current.

X<sup>2</sup> Type 7032-1 is rated at 120 volts, 50-400 Hz, 800 W.  
Type 7032-2 is rated at 240 volts, 50-400 Hz, 800 W.

X<sup>3</sup> High pass filters can be supplied up to 50 MHz, 50 ohms.  
Band reject filters can be supplied up to 50 MHz, 50 ohms.