

Defense Standardization Program

JOURNAL

MAY–AUGUST 2021

Standardization Stars

**Distinguished
Award Winner:**

Development of the
DoD CM Portfolio
with MIL-HDBK-61B

**Miniature
Microminiature/
Module Test and
Repair Program**

**Development of the
Military Specification
Covering Bulk Metal
Foil Chip Resistors for
Established Reliability
and Space Level
(MIL-PRF-32663)**

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Director's Forum

Standardization Stars

Standards have always been a crucial aspect of planning and preparedness for warfighter capabilities. We revalidate this statement each year as we recognize the individuals and teams of the military departments and defense agencies who have made significant contributions to improvements in interoperability, cost reduction, quality, reliability, and readiness through standardization.

Standardization enables innovation by sharing expertise and lessons regarding emerging technologies and practices; it links common solutions to common problems across all services and, often, across the world. The standardization community plays an important role in the warfighter's safety and supplying the tools to get the job done. The Defense Standardization Program annually recognizes the achievements of teams and individuals in the standardization community for outstanding results in their efforts to support this mission. Despite the unprecedented restrictions due to the coronavirus pandemic, we remain committed to celebrating the people's contributions, just as they remain committed to the work. This issue of the *DSP Journal* highlights the accomplishments of the FY20 DSP Achievement Awards winners: two Navy teams and one individual from the Defense Logistics Agency.

DISTINGUISHED ACHIEVEMENT AWARD WINNER DEVELOPMENT OF THE DOD CM PORTFOLIO WITH MIL-HDBK-61B

The Configuration Management (CM) Integrated Product Team and Steering Committee developed and actively managed the government and international standards committee through the creation of a new CM portfolio. The latest player in the CM portfolio is the updated government MIL-HDBK-61B, replacing the old MIL-HDBK-61A handbook. This new handbook serves as a pointer to the various CM documents in the portfolio covering DoD activities.

STANDARDIZATION ACHIEVEMENT AWARD WINNERS MINIATURE MICROMINIATURE/MODULE TEST AND REPAIR PROGRAM

The Miniature Microminiature/Module Test and Repair (2M/MTR) Program develops computer-aided test routines (Gold Disks) for troubleshooting and fault isolation of specific circuit cards. The uniqueness of the Gold Disk test routine is that, once developed and verified, it is shared with every 2M/MTR station throughout the world. The program has trained and certified technicians supporting every mission and warfare area for any form of electronics for execution. Over 2,100 certified technicians on ships and shore stations throughout the world make a wide range of repairs as part of the program.

DEVELOPMENT OF THE MILITARY SPECIFICATION COVERING BULK METAL FOIL CHIP RESISTORS FOR ESTABLISHED RELIABILITY AND SPACE LEVEL (MIL-PRF-32663)

Mr. Andrew Ernst demonstrated outstanding leadership and accomplishments in the significant engineering standardization effort for the development of a new specification (MIL-PRF-32663) and 12 specification sheets. These new specifications cover bulk metal film chip resistors for high-reliability and standard-reliability applications. This multi-year effort completed with the dating of the specification and 12 associated specification sheets on October 5, 2020.

“Congratulations to the FY20 winners. Your hard work and commitment are greatly appreciated by DoD leadership and undoubtedly by the many in uniform who benefit from your accomplishments.”

The DSP Achievement Awards call for nominations is disseminated every fall. It is my hope that our readers will submit their outstanding achievements for the FY21 awards.”



Michael A. Heaphy Jr.
Director
Defense Standardization Program Office

Distinguished Award Winner: Development of the DoD CM Portfolio with MIL-HDBK-61B

Award Winner: U.S. Army, U.S. Air Force, U.S. Marine Corps, Department of the Navy, and Office of the Secretary of Defense

The Military Handbook 61B (MIL-HDBK-61B) project is a shining example of the Department of Defense (DoD) coming together to move ownership of a government-managed systems engineering (SE) activity to an international industry standards committee, making DoD more efficient. Configuration management (CM) is the first broad process portfolio to successfully complete this type of transfer, resulting in \$4.5 million per year in reduced total ownership costs (RTOCs) across DoD, faster product development speed, and quality improvements. The CM Integrated Product Team (IPT) overcame barriers with implementation to achieve agreements with MIL-HDBK-61B across DoD.

DISCUSSION

BACKGROUND

Various government activities managed a variety of CM standardization documentation, making CM implementation unique across DoD activities. Different CM processes and methods resulted in extra management costs for multiple standardization documents, additional training support structures, and inefficiencies with CM employees or technical data packages (TDPs) transferring between program offices. Over a 7-year period, CM documents were consolidated and transferred to the SAE International industry committee. However, some documentation remained with the government, necessitating defining, communicating, and authorizing CM updates in a new portfolio to achieve efficiencies effectively across DoD.

PROBLEM/OPPORTUNITY

To achieve enterprise opportunities, select CM leads addressed the following issues as part of a CM IPT and Steering Committee:

- Multiple unconsolidated CM standardization processes and methods.
- Multiple CM training and certification support structures.
- Government maintenance of all the various CM documentation and publication processes.
- Inefficiencies from CM employees transferring to another organization and needing retraining.
- The inability to transfer a TDP to another organization without extensive modifications to fit that organization's CM process.
- The need to define the complex portfolio and interfaces in the government and an international industry standards committee.
- The need to communicate and manage the new portfolio across DoD.
- The ability to communicate official government adoption of the new CM portfolio.
- Top-level support of the CM IPT and Steering Committee.
- The ongoing requirements to support updates and membership in the SAE International subcommittee.
- The ability to drive RTOC with future new acquisitions and logistical footprints with the new CM model.

DESCRIPTION

The CM IPT and Steering Committee developed and actively managed the government and international standards committee through the creation of a new CM portfolio. The latest component in the CM portfolio is the updated government MIL-HDBK-61B. This updated handbook points to the various CM documents in the portfolio covering DoD activities. *Figure 1* shows the full portfolio.

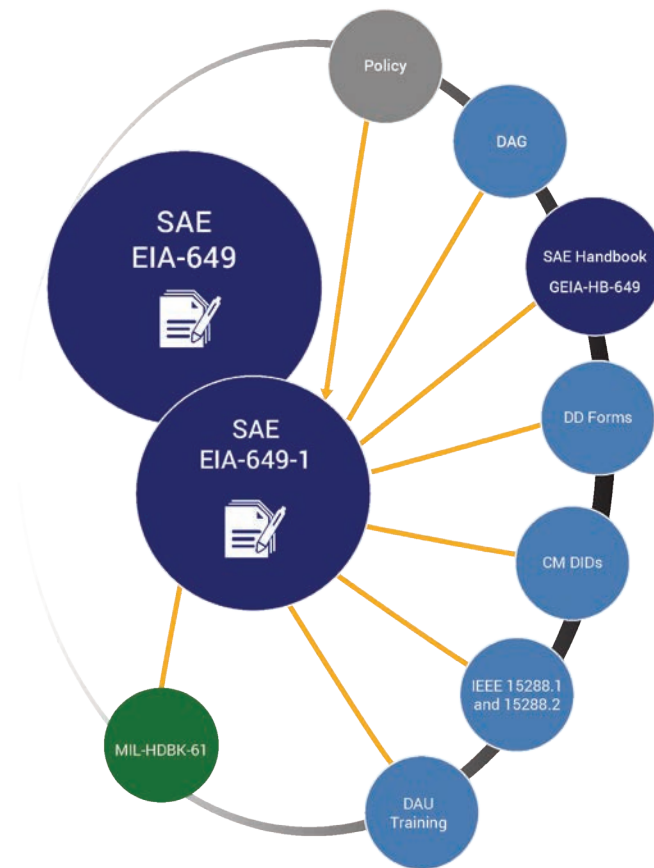


Figure 1: DoD CM Portfolio Diagram

Many standards, handbooks, instructions, contracting guidance, and training support a common CM approach in the DoD business model. *Figure 1* depicts MIL-HDBK-61B in the dark green circle. The government-adopted SAE CM documents are in the larger blue circles: SAE EIA-649-C, "Configuration Management Standard;" SAE EIA-649-1, "Configuration Management Requirements for Defense Contracts;" and the SAE GEIA-HB-649, "Configuration Management Handbook." Each DoD activity can obtain copies of these documents by contacting its local standards coordinator to procure SAE standards.

The most recent CM updates reflect a change from depending on a diverse government portfolio with multiple standards to a single standards portfolio centrally managed by SAE International. This change originated from the Federal Acquisition Streamlining and Reform Acts initiated in the 1990s.

Previously, DoD had different CM standards, guidance, and processes for the various services or departments. When acquisition programs or personnel transferred, they had to cross-functionally manage joint programs with unique CM requirements. These differences also increased costs from maintaining multiple standards and processes. To improve the way DoD managed its resources, the CM portfolio was consolidated and transferred to a single industry standard. This also supplied additional CM expertise from industry and academia sources.

Ms. Crystal Reed, from Naval Information Warfare Systems Command (NAVWAR), chairs the SAE International CM G-33 Committee. Mr. Dan Christensen, from Naval Air Systems Command (NAVAIR), directs the subcommittee managing the soon to be released SAE EIA-649-1A. Various international CM experts from government and non-government sources are part of the committee. Naval leadership and influence in the CM community is a recognized achievement.

To offer a coordinated government response to the development of this CM portfolio, a cross-functional committee partnered with the Office of the Security of Defense (OSD). Government direction was required to select which CM-based industry standards apply to DoD activities and officially adopt the required documents to authorize the new industry standard sources. Originally, the U.S. Air Force (USAF) spearheaded the effort, which eventually transferred to the U.S. Navy for the development and release of MIL-HDBK-61B. Designated team members from the U.S. Army, the U.S. Marine Corps (USMC), the U.S. Navy, USAF, and OSD held several onsite meetings and teleconferences to create the final document over a 3-year period.

MIL-HDBK-61B's primary goal is to offer guidance on which CM documents apply to the DoD CM portfolio. *Figure 1* demonstrates how a CM practitioner needs to be aware of many sources and how to implement them effectively in a common DoD environment. The portfolio is coordinated so that updates to industry documents align with changes to our internal government documents. Top-level governance is controlled through the SAE International G-33 CM Committee, supported rigorously by government representatives.

The updated handbook is 60% smaller than the previous version since most of the data is now in the SAE documents. Major highlights include the new CM portfolio definition, updates required to align with SAE, and added material on the CM environment. *Figure 1* defines the new CM portfolio. In support of the new SAE requirements, the handbook definitions, terminology, and references were aligned with the latest SAE documentation. In the main body of the document, the CM lifecycle descriptions were drastically reduced. However, detailed DoD elements of CM not in the SAE documentation have been maintained. Newly added material covers data management (DM) requirements as well as emerging technologies. DM closely integrates with CM and drives objectives for consideration (see *Figure 2*).

Emerging technologies include aspects of how CM manages digital engineering and how to minimize logistic costs using modular open system approach (MOSA) principles. As new guidance or updates occur, this CM handbook will be revised to keep the CM portfolio current.

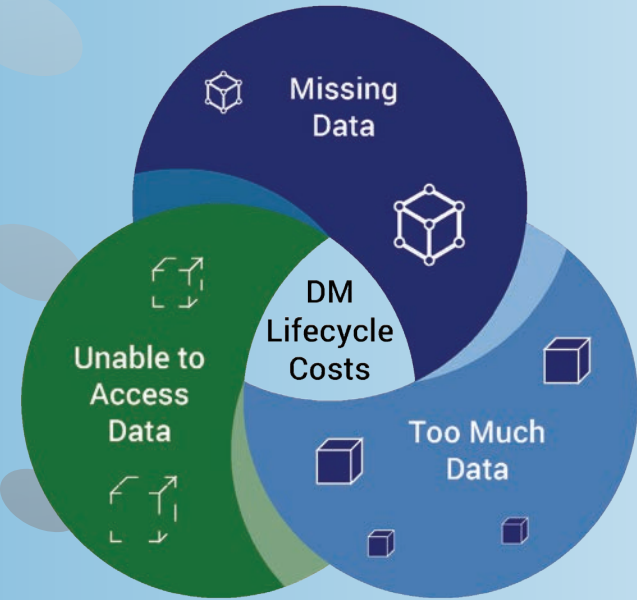


Figure 2. DM Lifecycle Costs

The strategy of moving multiple CM governance entities for DoD to a single industry standards committee has resulted in large efficiencies and transferred the cost of managing the CM portfolio away from the government. CM was the first activity to transfer all DoD entities into an industry standards body and fully integrate them with government processes. Other DoD areas, such as human system interfaces, are following this blueprint.

We can't do it all—this strategy enables us to focus on elements that support the warfighter.

OUTCOME

The standardized CM portfolio enables DoD activities and foreign partners to manage and sustain acquisition items for faster exchange, support, and implementation through a common approach. Technology upgrades occur 30% faster, quality improves 10% from CM efficiencies, and the CM process reaps cost savings of \$4.5 million per year.

PAYOFF

Cost savings, performance improvements, and quality indicators are quantified as follows:

- Effective communication and management of the new CM portfolio across the larger DoD organization improves organizational performance by 10%. A 3% more reliable CM activity reduces errors and improves product quality by 5%.
- The consolidated CM portfolio reduces the management and release of multiple documents and processes in DoD by \$1.5 million per year.
- Consolidated CM training and certification reduces structure costs by \$0.5 million per year.
- Transferring the government maintenance and publication of CM documents to SAE International reduces government costs by \$0.75 million per year.
- Interoperability efficiency gains from CM employees transferring to other organizations reduces costs by \$0.25 million per year and enables employees to engage in their new organization, on average, 1 month earlier.
- Interoperability efficiencies with transferring common CM-based TDPs into another organization without extensive modifications save \$1.0 million per year.
- The clearly defined CM portfolio and interfaces reduce wasted time in the CM community by \$0.25 million per year.
- Official government adoption of the SAE International documents enables government approval of future updates and a clear sustainment process, avoiding unapproved changes in DoD organizations.

- Top-level support of the CM Steering Committee supplies a forum to drive future standardization efficiencies in DoD.
- Government membership on the SAE International subcommittee provides operational improvements and a mechanism for interfacing on government documentation, reducing errors from a larger oversight expert base and ensuring technology upgrades are implemented at a 30% faster rate.
- The new CM portfolio is recognized by our allies (e.g., the North Atlantic Treaty Organization and cooperative programs), and offers efficiencies with foreign national program offices of \$0.25 million per year.

CURRENT STATUS

The final MIL-HDBK-61B was formally released in the ASSIST repository as a DoD handbook on April 7, 2020.

CHALLENGES

The CM IPT had to overcome barriers to achieve agreements, coordinate input, communicate statuses, and implement a consolidated CM process across the entire DoD organization. Since all engineering organizations are affected, the input and adjudication required substantial time and effort. Ensuring the satisfaction of government needs during the SAE International subcommittee required compromise and strong leadership from the government representatives. Culture had to be changed throughout the DoD environment with management from service leads.

About the Award Winner

The core team included Patty Fenwick (USMC CM manager), Bob Flagg (USAF CM manager), Daniel Christensen (Department of the Navy [DON] NAVAIR CM manager), Tom Schneider (U.S. Army CM manager), and Bruce Burnside (NAVSEA CM) with assistance from Ron Jones (Office of the Deputy Assistant Secretary of Defense [ODASD][SE] lead manager SE, Policy, and Guidance), Leisa Lemaster (USAF CM manager), Cornita Bullock (ODASD[SE] manager), and Crystal Reed (DON NAVWAR). All team members were leads from their respective DoD service and on the CM IPT and CM Steering Committee. All team members support the SAE International standards G-33 committee as government representatives and communication channels in their service organizations. All team members coordinated and adjudicated comments as leaders in their service.

Miniature Microminiature/ Module Test and Repair Program

Award Winner: U.S. Navy, Naval Sea Systems Command

The Naval Sea Systems Command (NAVSEA) Miniature Microminiature/Module Test and Repair (2M/MTR) Program is a maintenance program supporting all Naval Warfare Enterprises and the U.S. Marine Corps (USMC) ground community. Organizational level (O-level) repairs to circuit card assemblies (CCAs) and electronic modules (EMs) reduce system total ownership costs and enhance ship readiness and self-sustainability. The 2M/MTR Program supplies diagnostic test and repair equipment, including tools, techniques, and training for DoD-, Department of Homeland Security-, and Foreign Military Sales- (FMS-) sponsored repair facilities. Electronic technicians utilize the tools for diagnostic testing and reliable quality repairs on complex CCAs and other electronic and avionics modules. From April 1996 to September 2020, Navy Maritime commands outfitted with 2M/MTR capabilities reported 233,905 repairs, resulting in 13,876 casualty reports (CASREPs) averted or corrected and \$840.29 million in operating target cost avoidance.

Identical 2M/MTR capabilities are shared across all services, the U.S. Coast Guard (USCG), and FMS countries. The military departments and 13 allied countries use the standard test set and repair equipment from this program. Utilization promotes unit's self-sufficiency, results in reduced requirements for wholesale and retail spares, reduces technical assists from off-ship or base technical representatives, and minimizes diminishing manufacturing sources and material shortages issues.

DISCUSSION

BACKGROUND

Since the 1970s, the Navy has relied on 2M/MTR trained and certified technicians onboard ships and shore commands to repair CCAs and EMs. The Navy's 2M/MTR repair capabilities have continuously evolved to support new technologies and expanded in scope to include computer-aided test and diagnostic capabilities for analog and digital components, ball grid array X-ray diagnostics, and

piece parts to support repairs. In addition, the program has become DoD's standardized method to test and repair electronic assemblies. The program supports outfitting commands that perform O-level, intermediate-level, and depot-level (naval shipyards) maintenance. The program outfits and sustains 251 ships and shore commands.

PROBLEM/OPPORTUNITY

Each year, military departments spend billions of dollars on repair contracts for CCAs and EMs. Original equipment manufacturers and other vendors are costly and often fail to meet the demand timelines for emergent equipment repairs. A primary factor affecting cost and timeline is obsolescence, a major concern as legacy systems remain in service well beyond their original life expectancy. This problem demands a highly dispersed group of trained uniformed service members outfitted with the tools, equipment, and piece parts to perform repairs at or near the point of failure.

DESCRIPTION

The 2M/MTR Program develops computer-aided test routines (Gold Disks) for troubleshooting and fault isolation of specific circuit cards. The uniqueness of the Gold Disk test routine is that, once developed and verified, it is shared with every 2M/MTR station throughout the world. Test routines created for the MK 15 Phalanx Close-In Weapons System have been used by the Army and the Navy (and can be used by any service) to improve operational readiness, reduce cost, increase reliability and sustainability, and reduce the logistics footprint. Gold Disk developers are experts in microelectronics repair, developing standard procedures for fault isolation and repairs. Utilizing schematics, assembly

drawings, and the bill of materials, technicians create step-by-step diagnostic test routines for other technicians to use when troubleshooting and repairing CCAs and EMs. The key to the effectiveness of 2M/MTR is standardized test routines, training, test systems, repair equipment, and technical guidance. It is truly a standardized DoD program. The term "Gold Disk" is used interchangeably for certified test routines and the Gold Disk DVD with over 7,000 test routines used for repairing many command, control, communications, computers, collaboration, intelligence, hull, mechanical, and electrical systems.

OUTCOME

The program has trained and certified technicians supporting every mission and warfare area for any form of electronics for execution. Over 2,100 certified technicians on ships and shore stations throughout the world repair everything from the AN/TPN-30A radar at a Marine air traffic control detachment and a AN/SPY-1 radar on a ballistic missile defense guided missile destroyer (DDG) in the Mediterranean to Naval Submarine Support Facility New London CCAs for the AN/BSY-1 integrated anti-submarine warfare combat system deployed on SSN 688-class submarines. This program is the Navy's emergency responder for electronic repair and the technicians are the electronics neurosurgeons executing this critical work.

Outstanding performance of one Gold Disk technician, ET2 Corey T. Mink, stationed on the USS *The Sullivans* (DDG-68), documents his completion of 89 repairs, with 20 CASREPs averted or corrected, during FY20 with a total cost avoidance in excess of \$737,000.

In 2011, the 2M/MTR program received the DoD Value Engineering Award.

PAYOFF

Commands supported by NAVSEA report quarterly utilization metrics. The metrics are supplied to the Type Command and Operational Navy Resource and Assessment sponsors. The annual metrics indicate an average return on investment of 5 to 1 over the last 9 years.

CURRENT STATUS

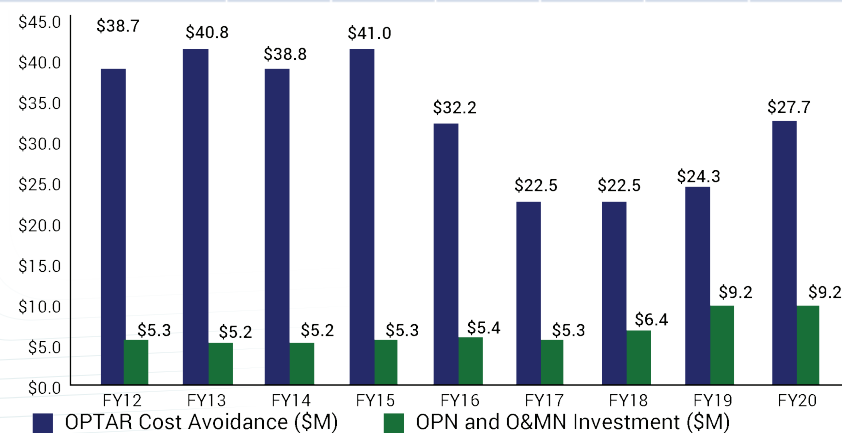
In addition to the Navy's complement of 251 ship and shore commands and the Future of Sailor Maintenance, the 2M/MTR equipment supports repairs at 39 USCG, 37 U.S. Air Force (USAF), 5 National Guard, and 1 U.S. Army commands in addition to 13 FMS cases. Embracing 2M/MTR Gold Disk utilization in the lifecycle support plan and obtaining technical data to support Gold Disk development during the system acquisition phase greatly reduces total ownership costs and is integrated with the USS *Columbia* acquisition program. 2M/MTR combats system obsolescence issues. System in-service engineering agent (ISEA) support during Gold Disk development equates to a superior product

for the warfighter. Gold Disk candidate selection is sharply focused on addressing system readiness issues uncovered by troubled system processes rather than just cost avoidance.

Key points:

- Common training throughout DoD
 - Navy (6): Center for Surface Combat Systems training sites in Norfolk, VA; San Diego, CA; Mayport, FL; and Pearl Harbor, HI; Center for Naval Aviation Technical Training Unit Whidbey Island, WA; and Center for Naval Aviation Technical Training Detachment Atsugi, Japan
 - USMC (1): Marine Corps Communications–Electronics School 29 Palms, CA
 - USAF (1): 372nd Training Squadron, Detachment 11, Davis–Monthan, AZ
 - USCG (1): Training Center Yorktown, VA
- Commands outfitted with piece parts tailored to their equipment configuration
- Quality monitoring through inspections and certifications every 18 months
- Technician proficiency verified every 18 months

	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20
REPAIRS COMPLETED	11,350	11,002	8,795	8,321	7,790	7,493	8,174	7,516	8,321
AVER. REPORTERS (%)	84	83	80	76	75	76	69	70	72
CASREPS AVERY/CORR	627	634	601	498	459	212	340	261	143



Data does not include repairs conducted at Naval and Marine aviation or ground Marine maintenance activities.

Figure 3. 2M/MTR Tracking System

- Proficiency testing and site certification by 2M/MTR inspectors at fleet maintenance activities
- Standardized suite of 2M/MTR tools and equipment

CHALLENGES

The two major barriers to the Gold Disk process are obtaining the technical data and CCAs needed for development. Without proper technical data and access to loaned circuit cards, diagnostic test routines cannot be created. These barriers have been minimized through collaboration and improved support from various NAVSEA program executive offices, Naval Supply Systems Command (NAVSUP) headquarters, and numerous product support specialists and item managers. Recognizing the value to the warfighter and program sustainment, these managers have facilitated the acquisition of the CCAs and involved more technical data in the process. The type commanders, seeing the benefits, are assisting with obtaining CCAs. The 2M/MTR Program continually seeks additional resources to support test routine development, recently including NAVSUP Real-Time Reutilization Asset Management and Defense Logistics Agency Defense Reutilization Marketing Service as sources. Further strides can be gained through more collaboration with NAVSUP and DLA.

The 2M/MTR Program communicates the benefits and advantages of the program to acquisition program managers and ISEAs who have not fully committed to the 2M/MTR process for their systems lifecycle support plans. These managers often do not purchase technical data to support their systems or Gold Disk development due to the costs. The 2M/MTR Program offers briefs and performance metrics data about the need to purchase technical data for new

systems. This awareness effort has achieved success. Specifically, the program manager of the USS *Columbia* class of submarines has authorized up-front analysis and evaluation for the development of test routines. When the analysis is complete, the test routines will be developed in support of platform deployment. This is truly a milestone for the 2M/MTR Program!

About the Award Winners

The award winners—Michael Bruzan (technical program manager), Scott Doherty (DoD fleet liaison), Dennis Blair (logistics lead), John Preston (certification agent), and Brett Estes (2M training lead)—include the best of the best selected from each of the supporting ISEAs. Each winner is integrated as a member of the ISEA team but has set themselves apart through their steadfast dedication and commitment to excellence. Equipment outfitting is performed by the program's two engineering agents: Naval Surface Warfare Center Crane Division and Naval Undersea Warfare Center Detachment Field Engineering Office Norfolk. Outfitting includes 2M/MTR repair equipment, associated tools, microscopes, electrostatic discharge prevention material and equipment, special purpose test systems, Gold Disk test and diagnostic procedures, 2M/MTR repair procedures, repair piece parts and their allowance parts lists, and 2M/MTR equipment integrated logistics support (ILS). The engineering agents also support other systems commands, DoD, USCG, Military Sealift Command, and numerous allied countries.

The ISEAs develop, select, and acquire standard equipment and ILS, standard test and diagnostic software, 2M/MTR repair procedures, and 2M/MTR certification and reporting procedures. The USAF, U.S. Army, and USCG fund and outfit their commands using 2M/MTR standard equipment and test procedures from the NAVSEA 2M/MTR engineering agents.

Development of the Military Specification Covering Bulk Metal Foil Chip Resistors for Established Reliability and Space Level (MIL-PRF-32663)

Award Winner: Andrew Ernst, Defense Logistics Agency (DLA), DLA Land and Maritime, Engineering and Technical Support Directorate (V)

Mr. Andrew Ernst demonstrated outstanding leadership and accomplishments in the significant engineering standardization effort for the development of a new specification (MIL-PRF-32663) and 12 specification sheets. These new specifications cover bulk metal film chip resistors for high-reliability and standard-reliability applications. This multi-year effort completed with the dating of the specification and 12 associated specification sheets on October 5, 2020.

DISCUSSION

BACKGROUND

DLA Land and Maritime customers sought military- and space-grade precision resistors that maintained their resistance values over the diverse temperatures in various military operations. Space applications especially

needed resistors with extremely stable resistance values due to the wide range of temperatures in the space environment.

PROBLEM/OPPORTUNITY

The military resistor specifications did not cover resistors with the precision and stability needed for new military and space systems. Resistors with steady resistance values over a wide temperature range were needed. These resistors also had to be reliable, as failures in their applications could compromise the mission.

DESCRIPTION

The project started with a request during the May 2012 SAE CE-11 committee meeting. Committee members wanted bulk metal foil resistors covered in a military specification. Mr. Ernst studied engineering practices to

evaluate whether the resistor chip specification MIL-PRF-55342 could be modified to accommodate the new resistors. However, due to the differences between the current film and the new foil resistor technologies, a new specification was the preferred way forward.

With the Vishay Precision Group (Vishay PG), DLA created an initial draft of the specification. Vishay PG equipped its test lab with the capacity to produce the new resistors by adding ovens, power supplies, chambers, and other items. Next, Vishay PG developed the power limits for each size part, power limits for the power tests (burn-in, load life, and power shot), and the delta limits for each test.

Several setbacks delayed work on the specification. Vishay PG put development on hold due to serious health issues of the lead engineer for the project. The delay was lengthened by the resignation of a key player in the development. Then, Vishay PG updated its quality management and environmental systems to meet the needs of its customers, further setting back development.

After the basic parameters and requirements were established, initial drafts of the basic, supplement, and 17 specification sheets were created. These drafts were then sent for review to the military, NASA, manufacturers, and other potential users. In September 2019, the first coordination meeting was held. These 3-hour virtual meetings occurred every 2 weeks to further refine the documents and resolve comments from the reviewers. In July 2020, the last coordination meeting convened, and the number of specification sheets was reduced from 17 to 12. Second drafts of the documents were sent for review on August 30, 2020. In September 2020, one final coordination meeting discussed and resolved the comments from the second drafts. Justification letters for the new specifications and the qualification requirement were then sent to the DLA Land and Maritime Standardization Office for final approval, which was granted. The specifications were finalized on October 5, 2020, and then sent to DLA Document Services for publishing.

OUTCOME

PAYOFF

Military resistors did not meet the requirements for precision applications. The new resistors supply the military services, NASA, and industry with reliable and stable resistors for their missions and are used in many future military and NASA systems. Some of the weapon systems that use the new resistors include the B-1B, F-15, F/A-18, Seawolf-class submarines, Nimitz-class carriers, F-14, MH-35 helicopters, EA-18, EA-6B, H-60 Seahawk, CH-53, AN/FPS-124 radars, and NASA satellite programs.

These new specifications will guide production of resistors while avoiding nonstandard parts. Nonstandard parts are typically more expensive, harder to procure, not as reliable, and become obsolete and go out of production much sooner than standard military parts. Nonstandard parts also often contain pure tin finishes, which promote tin whiskers, causing system failures. The new specifications help meet the long system life of military and space programs without obsolescence or nonavailability. These resistors are less susceptible to counterfeiting through use of the trademarked JAN branding.

Mr. Ernst's efforts support standardization in the military departments by furnishing reliable resistors that meet the performance needs of their systems. The result is thousands of new resistors for demanding military systems. His efforts preclude the costly piecemeal introduction of nonstandard parts.

We conservatively estimate that the new specification will alleviate a minimum of 50 nonstandard parts each year for the next 5 years. The "Parts Management Guide" (SD-19) states the average cost of adding a part into a system is \$27,500. Based on this figure, the new specification will avoid \$1.4 million in costs annually (\$6.9 million for 5 years). An added benefit will result in qualified manufacturers for these resistors, increasing supply availability for many years to come.

CURRENT STATUS

MIL-PRF-32663 and the 12 resistor specification sheets were published on October 5, 2020. Mr. Ernst continues to support the DLA Land and Maritime Sourcing and Qualifications Division and the manufacturers interested in qualifying for the new specifications. Since manufacturers need site audits and qualification requires a 2,000-hour life test, the estimate for manufacturer qualification is October 2021. However, COVID-19 travel restrictions may delay this date.

CHALLENGES

Mr. Ernst overcame many challenges during this project. The time difference of 10 hours between key players (Israel: 7 hours ahead and West Coast: 3 hours behind compared to the East Coast) required meeting during the afternoon. The major manufacturer experienced difficulties, delaying the new documents by several years. We expect COVID-19 to delay qualification approval due to travel restrictions for site visits.

About the Award Winner

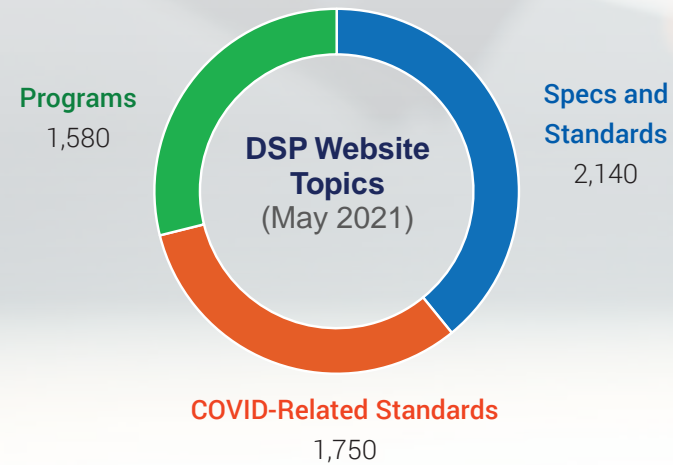
Mr. Ernst is DLA's lead resistor expert and led this effort from the inception of the initial concept to the publishing of the documents. He headed a working group with members from NASA, the military services, the Aerospace Corporation, the SAE CE-11 committee, resistor manufacturers, and major original equipment manufacturers, including Boeing and Raytheon. Mr. Ernst led the conference calls, organized the schedule, updated the draft documents after the meetings, and kept the program moving.

Mr. Ernst's responsibilities as the preparing activity for the new documents were many, including leading teleconferences and meetings, requesting projects, generating and coordinating multiple drafts, consolidating comments, recommending dispositions, resolving comments, obtaining final approval for documents, and answering questions along the way. Mr. Ernst has extensive experience and knowledge of the requirements for military specifications. His expertise on DoD 4120.24-M, "Defense Standardization Program Procedures," and MIL-STD-961, "Defense and Program-Unique Specifications Format and Content," was vital to these specifications. Mr. Ernst finalized the specifications, prepared the justification for qualification, and presented it along with the documents to the DLA Land and Maritime Standardization Office for final approval.

What's Trending

In May 2021, the DSPO website team noted an uptick in downloads for the March 2015 *DSP Journal*. In that month alone, 394 users downloaded “EIA 649-1 Configuration Management Requirements for Defense Contracts,” making it the top downloaded article. Read the article yourself: <https://www.dsp.dla.mil/Portals/26/Documents/Publications/Journal/150301-DSPJ-02.pdf>.

In addition, the top three topics visited on the DSP website in May 2021 were the following.



PMMC ABSTRACT SUBMISSION

The 2021 Parts and Material Management Conference (PMMC) committee invites you to submit an abstract for presentation at PMMC 2021 in Denver, Colorado, on December 13–16, 2021. The General Rules page lists the rules for submitting abstracts: <http://pmmcmeeting.org/pages/abstracts.html>.



Critical Deadlines	Abstract Links	Online Submission
Abstract Submission Aug 16	Abstract Overview	Abstract Submission
Abstract Notification Sep 20	Abstract Rules	
Final Presentation Submitted Nov 22	Abstract Notice	
	Abstract Tracks	

ACHIEVEMENT AWARDS PAGE

In the spirit of this “Standardization Stars” issue, we would like to also highlight our Achievement Awards page. Explore previous years’ winners and learn more about the submission process: <https://www.dsp.dla.mil/Programs/Achievement-Awards/>.



