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DETAIL SPECIFICATION
FUNCTIONAL REQUIREMENTS DOCUMENT
FOR THE
AFLOAT MULTIMEDIA PRODUCTION SYSTEM
WITHIN THE AFLOAT MEDIA DEPARTMENT/DIVISION
VERSION 2.0

Prepared for:
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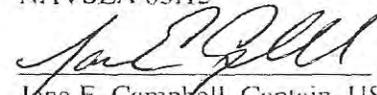
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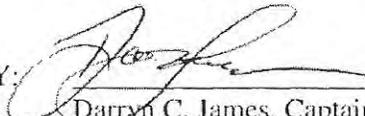
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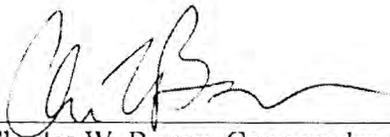
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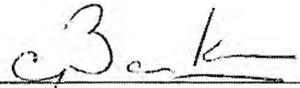
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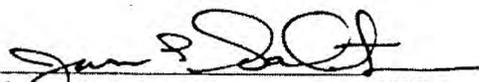

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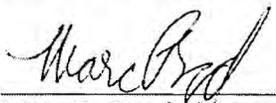
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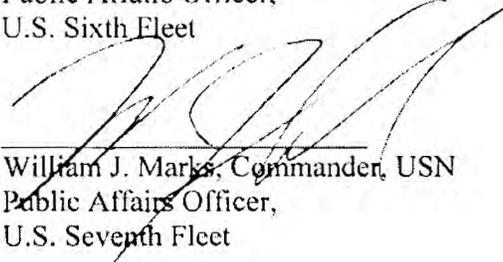
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PREFACE

This document describes the functional requirements for the systems and equipment within the Afloat Multimedia Production System (AMMPS), formerly known as the Digital Production Laboratory, and work to-date by the Navy Media Systems Technical Review Panel. The NMSTRP Points of Contact include:

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Definition of Terms

Broadcast

Broadcast is defined as both television and radio (audio) products disseminated by the SITE system (AN/UXQ-66). The SITE system configuration must adhere to requirements as set forth in DoDI 5120-20 for American Forces Radio and Television shipboard outlets.

Imagery

Imagery is defined as graphic art, still photographs and motion media (video) produced by public affairs and Combat Camera personnel to meet commander's communication objectives and DoD-directed Visual Information Documentation (VIDOC), Operational Documentation (OPDOC) and Technical Documentation (TECDOC) missions. Video, in this context, is further defined by the Department of Defense/Intelligence Community/National System for Geospatial-Intelligence Motion Imagery Standards Board as the sub-domain of Motion Imagery for Video Support Services to include training and newsgathering or other non-critical functions that do not directly support the warfighter. This includes traditional studio and field video productions.

Multimedia

Multimedia is media and content that uses a combination of different content forms. It is usually recorded and played, displayed or accessed by information content processing devices, such as computerized and electronic devices. Content forms include text, audio, still images, animation and video footage.

Print

Print is the Printing Document Automation & Production requirement formerly represented by the Print Shop function and includes print capabilities to support operational taskings (targeting packages, radio frequency cards, Pilot Briefing Cards, RECCE Guides, leaflets, handbills, etc.).

Standard and High Definition

The NMSTRP uses the following consistent scanning format definitions:

High Definition (HD) is defined as spatial resolution at or greater than 1280x720 pixels, progressively scanned, at temporal rates at or greater than 24 Hz. High Definition, progressive scan imagery (SMPTE 296M-2001) is the desired end-state for Navy public affairs motion imagery systems. 1280x720x(50p)60p is the target HD imaging format for all existing and currently planned motion imagery collection systems that will be fielded in the next five to ten years. 1920x1080x(50p)60p is anticipated to become the revised end-objective in a few years (when the technology becomes more mature).

Standard Definition (SD) is defined as any interlace scanned format at 720x576 or 720x480. Standard definition systems shall be replaced by progressively captured high definition systems as soon as practical. It is CHINFO policy to migrate to all progressive scanning formats. However, it is recognized that 720x480 and 720x576 interlace systems compose the bulk of existing Navy public affairs motion imagery imaging systems, and that such systems will continue to be used until the end of their practical service life. Such existing interlace systems must not be replaced with new interlace systems.

{end of Preface}

1.0 SCOPE

The Afloat Media Department/Division Production Center (AMDPC) provides for a 24/7 underway media production capability, in a networked, collaborative environment, to ensure National Command Authority, DoD, Joint and Navy commanders, the Carrier Strike Group (CSG), Expeditionary Strike Group (ESG), and Amphibious Ready Group (ARG) are provided with mission essential still, video and media products. The AMDPC integrates the separate functions and systems of the Photo Lab and Print Shop into the aircraft carrier and Amphibious Warfare Media Departments/Divisions created in 2004¹. It does not include the Shipboard Information Training & Entertainment (SITE)² system. The requirements set forth in this FRD meet the Navy Vision for Public Affairs, signed by the CNO February 2009 and are accumulated from existing commercial and military standards, specifications, and guidance documents coupled with lessons learned from existing CVN 68 Class Aircraft Carrier Ship Alterations (SHIPALTS), LHA and LHD Ship Construction New (SCN) installations and Ship Change Documentation (SCD). The FRD was developed specifically for CVN 68 Class Aircraft Carriers, LHA 6 Amphibious Assault Ships and LHD 1 Amphibious Assault Ships, but are applicable to preceding and succeeding class aircraft carriers and amphibious assault ships as directed by the Aircraft Carrier Program Executive Officer (PEO) or Amphibious Assault Ship PEO as applicable. It is also applicable to other afloat units that serve as platforms for expeditionary public affairs teams and detachments that deploy for missions requiring the media production capability but which have no organic production capability. The AMMPS resides within the Media Department aboard a CVN or Media Division aboard a large deck amphibious ship and serves as the command's internal and external communication conduit for timely and factual information regarding Navy operations during world crises, contingencies, exercises and military operations and further ensures media products are properly aligned with Navy and DoD communication objectives.

1.1 **Afloat Multimedia Production System (AMMPS)**

The AMMPS comprises seven public affairs production subsystems providing a shipboard digital media production and distribution capability that includes internal and external communication of imagery, print, news, and information product(s) to the crew, their families and external customers via print, broadcast and web-based delivery systems. AMMPS is a Commercial-Off-The-Shelf (COTS) high production imagery processing and editing system utilizing computer workstations, multimedia editing and processing software applications and various output devices such as high quality, high capacity photographic printers, high quality, high capacity document printers and Compact Disk (CD), Digital Video Disk (DVD) and Blu-ray disk read/writing devices. The AMMPS is further supported by a local area network (LAN) and server with a COTS Data Asset Management (DAM) system to store and data base still, motion media and graphic art files with the ability to search, retrieve, and caption via all multimedia work stations and production systems. System accessories include lights, tripods, external hard drives, and carrying bags.

Development of the AMMPS as defined in this FRD has mirrored that of the efforts of the Army and Marine Corps, both of which have also produced capabilities documents within the Joint Capabilities Integration and Development System (JCIDS) for their PA systems requirements. The Army's Capabilities Development Document for Tactical Digital Media systems and the Marine Corps'

¹ CNO GENADMIN Message 210049Z JAN 2004 and COMNAVSURFOR ALNAVSUR Message 021506Z MAY 2005.

² The functional requirements for SITE are provided in the Functional Requirements Document for the Shipboard Information, Training & Entertainment (SITE) system.

Capabilities Production Document for The Public Affairs System of Systems, Increment 1, Supporting Marine Air-Ground Task Force Visual Information Operating Systems are similar in scope with this FRD with the exception of the production output devices necessary to meet the media production mission for Navy's afloat PA requirements. Otherwise, the camera systems and computer-based media processing, editing and distribution system capabilities requirements are nearly identical.

1.1.1 Digital Still Photographic Acquisition System (DSPAS)

DSPAS is a COTS still photographic system composed of portable, professional grade hand-held digital cameras, lenses and associated accessories which record in a range of operator selected file sizes and formats to meet a variety of official and general photography products and uses. The number of DSPAS is dependent upon many a factor not least of which is the overall number of Mass Communication Specialists (MC) assigned to the AMDPC.

1.1.2 Digital Video Acquisition System (DVAS)

DVAS is a COTS motion media system composed of portable, professional grade hand-held digital video cameras, lenses and associated accessories which record in a range of operator selected formats and recording modes to include Standard Definition (SD) and High Definition (HD). The number of DVAS is generally far fewer than the number of DSPAS but in quantities sufficient to meet video mission objectives while also accounting for spares.

1.1.3 Digital Multimedia Processing & Editing Workstation (DMMWS)

The DMMWS is a COTS hardware and software system specifically configured to meet U.S. Navy digital image editing requirements. The system is designed to accept, duplicate, edit, and store digital images and digital video. The DMMWS accepts image and video data and can provide output in various media formats. A typical AMMPS configuration will contain at least five (5), if not more, DMMWS.

1.1.4 Digital Publishing & Finishing System (DPFS)

The DPFS consists of COTS multimedia production output devices that provide commercial photographic and high capacity, high quality four-color and black and white document print and finishing capability along with media (CD/DVD/Blu-Ray) duplication.

1.1.5 AMMPS Local Area Network (AMMPS-LAN)

The AMMPS-LAN is a COTS server-based LAN that provides capability to store all digital media files (photographs, graphic arts, video, etc.), as well as provide data management and backup capabilities within a collaborative work environment.

1.1.6 Public Affairs Night Vision Acquisition System (PANVAS)

The PANVAS is a COTS night vision system that allows for image acquisition in extreme low-light conditions and is adaptable to either DSPAS or DVAS cameras.

1.1.7 Public Affairs News Link System (PANLS)

The PANLS is a COTS capability that enables the AMDPC sailors to transmit product in real-time. This

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system provides the AMDPC with the capability to better distribute product, specifically video, to battle group and higher headquarters ashore and can allow for an at sea “live broadcast” capability.

1.2 Mission Area

The AMMPS provides a full range of communication products essential to a range of Joint integrating and operating concepts, including Major Combat Operations Joint Operating Concept (JOC); Military Support to Stabilizations, Security, Transition, and Reconstruction Operations JOC; Homeland Defense and Civil Support JOC; and Deterrence Operations JOC. Requirements fall within the Tier 2 Joint Capability Area (JCA) Communicate³, of Tier 1 JCA, Building Partnerships and are cited in the range of joint doctrine, DON policy and the Universal Naval Task List including the NTA 5.8 *Conduct Public Affairs*. Specifically, the AMMPS supports the subtasks 5.8.3 *Produce Public Affairs Products* and 5.8.4 *Release Information and Imagery* as well as 74 *Conduct/Support VIDOC Using Digital Still and Motion Data*.

1.3 Acquisition Strategy

AMMPS acquisition strategy combines a government identified and validated detailed set of operational, functional, and environmental requirements with a phased implementation approach, utilizing prior or existing shipboard exposure and laboratory analyses to migrate new technologies for shipboard use under minimal risk to vital shipboard operations. This phased approach ensures target PA production designs are reliable, survivable, maintainable, and supportable, while sufficiently flexible to accommodate future transformational technologies and upgrades. The acquisition strategy for AMMPS is based on an open architecture design to maximize vendor selectivity and product eligibility for mitigation of equipment obsolescence-related risks. In accordance with the NMSTRP, all new systems are required to be based on digital still and motion imagery technology as set forth in this FRD.

{end section one}

³ The ability to develop and present information to domestic audiences to improve understanding; and, to develop and present information to foreign audiences to affect their perceptions, will, behavior and capabilities to further U.S. national security or shared global security interests.

2. APPLICABLE DOCUMENTS

2.1 General

The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3, 4, or 5 of this specification, whether or not they are listed.

2.2 Government documents

2.2.1 Specifications, standards, and handbooks

The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

a. DEPARTMENT OF DEFENSE SPECIFICATIONS

MIL-D-23140D (NAVY) - Military Specification Drawings, Installation Control, for Electronic Equipment

b. DEPARTMENT OF DEFENSE STANDARDS

MISP v.5.4 (DoD/IC/NSG) - Motion Imagery Standards Profile
DOD-STD-2003 (NAVY) - Electric Plant Installation Methods
MIL-STD-1689 - Fabrication Welding and Inspection of Ships Structure
MIL-DTL-24749 - Straps, Electric Grounding, General Specifications
MIL-STD-1310 (Series) - Shipboard Bonding, Grounding, and Other Techniques for Electromagnetic Compatibility and Safety
MIL-STD-901D - Requirements for Shock Tests, High Impact Shipboard Machinery, Equipment and Systems
MIL-DTL-24643 (NAVY) - Cable and Cord, Electrical, Low Smoke, For Shipboard Use, General Specification

c. DEPARTMENT OF DEFENSE HANDBOOKS

MIL-HDBK-299 - Cable and Comparison Handbook, DTD 03 APR 89 (Including DDS 304.1 and 2)

2.2.2 Other Government documents, drawings, and publications

The following other Government documents, drawings and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

a. DEPARTMENT OF DEFENSE

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DoD Directive 8100.1	- Global Information Grid (GIG) Overarching Policy
DoD Directive 8500.01E	- Information Assurance (IA)
DoD Instruction 5040.02	- Visual Information
DoD Instruction 5040.06	- Life-Cycle Management of DoD Visual Information (VI)
DoD Instruction 5120.4	- Department of Defense Newspapers, Magazines and Civilian Enterprise Publications
DoD Instruction 5230.29	- Security and Policy Review of DoD Information for Public Release
DoD Instruction 5400.13	- Public Affairs (PA) Operations
DoD Instruction 5400.14	- Procedures for Joint Public Affairs Operations
DoD Instruction 8500.2	- Information Assurance (IA) Implementation
DoD Instruction 8510.01	- DoD Information Assurance Certification and Accreditation Process
DoD 5040.6-M-2	- Instructions for Handling Visual Information (VI) Material
JROCM 298-07	- Joint Public Affairs Initial Capabilities Document
JP 3-13	- Information Operations
JP 3-13.2	- Military Information Support Operations
JP 3-61	- Public Affairs
CDD	- Capabilities Development Document for Army Tactical Digital Media, 28 Nov 2012
CPD	- Capabilities Production Document for The Public Affairs System of Systems, Increment 1, Supporting Marine Air-Ground Task Force Visual Information Operating System, Version 3, 11 Mar 2013

b. DEPARTMENT OF THE NAVY

SECNAVINST 4120.24	- Implementation of the Defense Standardization Program in the Department of the Navy
SECNAVINST 5239.3	- Department of Navy Information Assurance Policy
SECNAVINST 5510.36A	- Department of the Navy Information Security Program (ISP) Instruction
SECNAVINST 5720.44C	- Department of The Navy Public Affairs Policy & Regulations
OPNAVINST 3104.1A	- Navy Visual Information Program Policy and Responsibilities
OPNAVINST 5239.3C	- Navy Information Assurance Program
NAVSEA S9AA0-AB-GOS-010/GSO	- General Specification for Overhaul of Surface Ships GSO
NAVSEA 0938-LP-018-0010	- Air Conditioning, Vent and Heating Design Criteria manual for surface ships of the US Navy
NAVSEA 0232382	- Grounding and Bonding, Equipment Enclosures, Chassis and Cases, Design and Installation
SEA 9090-310E	- Alterations Accomplished to Ships by Alteration Installation Teams
NAVSEA 9083.1 (Series)	- Commercial Off the Shelf (COTS) Policy
NAVSEA Pub0908-LP-00-3010 Rev 1	- Shock Design Criteria for Surface Ships.
NAVSEA 4130.12B	- Configuration and Management (CM) Policy and Guidance
NAVSEAINST 9096.3 (Series)	- Weight and moment compensation and limiting drafts for surface ships

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NAVSUP 5239	- Information Assurance Publication Series
TS9090-400D	- Ship Change Document (SCD) Technical Specification
S9AA0-AA-SPN-010/GEN-SPEC	- General Specifications for US Navy Ships
NAVPERS 18068F	- Navy Enlisted Occupational Standards Volume I

c. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

ISO/IEC 15408:1999	- Information technology – Security techniques – Evaluation criteria for information security (parts 1 through 3), 1 December 1999
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2.2.3 Non-Government publications

The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

ATSC Doc. A/53 Part 1	- Digital Television Standard, Part 1 – Digital Television System
ATSC Doc. A/53 Part 4	- Digital Television Standard, Part 4 – MPEG-2 Video System Characteristics
ETSI TS 101 154 V1.8.1	- Digital Video Broadcasting (DVB): Implementation Guidelines for the use of MPEG-2 Systems, Video and Audio in Satellite, Cable and Terrestrial Broadcasting Applications, Annex B
ISO/IEC 10918-1 (ITU-T.81)	- Information technology – Digital compression and coding of continuous-tone still images – Requirements and guidelines
ISO/IEC 10918-1 (ITU-T.83(11/94))	- Information technology – Digital compression and coding of continuous-tone still images: Compliance testing
ISO/IEC 10918-1 (ITU-T.84(07/96))	- Information technology – Digital compression and coding of continuous-tone still images: Extensions
ISO/IEC 10918-1 (ITU-T.84(04/99))	- Provisions to allow registration of new compression types and versions in the SPIFF header
ISO/IEC 10918-1 (ITU-T.86(06/98))	- Information technology – Digital compression and coding of continuous-tone still images: Registration of JPEG Profiles, SPIFF Profiles, SPIFF Tags, SPIFF colour Spaces, APPn Markers, SPIFF Compression types and Registration authorities (REGAUT)
ISO/IEC 10918-1 (ITU-T.86(06/12))	- Application specific marker list
ISO/IEC 13818-1(E)	- International Standard, Information technology – Generic coding of moving pictures and associated audio information systems
ISO/IEC 14496-10 (ITU-T H.264)	- International Standard (2005), Advanced video coding for generic audiovisual services
ISO/IEC 15444-1	- Information technology – Joint Photographic Experts Group 2000

ITU-R BT.709-5	(JPEG 2000) image coding system: Core coding system - Parameter values for the HDTV Standards for Production and International Programme Exchange
ITU-T.81	- Information Technology – Digital Compression And Coding Of Continuous-Tone Still Images – Requirements And Guidelines
ITU-T H.261	- Video Codec for Audiovisual Services at $p \times 64$ kbits
SMPTE170M	- Standard for Television—Composite Analog Video Signal, NTSC for Studio Applications
SMPTE 274M	- Standard for Television—1920 x 1080 Scanning and Analog and Parallel Digital Interfaces for Multiple Picture Rates
SMPTE 293M	- Standard for Television—720 x 483 Active Line at 59.94-Hz Progressive Scan Production, Digital Representation
SMPTE 296M	- Standard for Television—1280 x 720 Progressive Image Sample Structure, Analog and Digital Representation and Analog Interface

2.4 **Order of Precedence**

In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained in writing.

{end section two}

3.0 REQUIREMENTS

The AMMPS comprises seven subsystems: Digital Still Photographic Acquisition System (DSPAS), Digital Video Acquisition System (DVAS), Digital Multimedia Processing & Editing Workstation (DMMWS), Digital Publishing & Finishing System (DPFS), AMMPS Local Area Network (AMMPS-LAN), Public Affairs Night Vision Acquisition System (PANVAS) and the Public Affairs News Link System (PANLS). The functional requirements described below represent warfare mission areas established under OPNAVINST C3501.2 series guidance for Required Operational Capabilities (ROC) and Projected Operational Environment (POE) Statements (ROC/POE), specifically within the Fleet Support Operations (FSO) and Noncombat Operations (NCO) capabilities. The functional requirements also conform to the critical capabilities identified in the Initial Capabilities Document (ICD) for Joint Public Affairs (JPA)⁴ as outlined in Table I.

Critical Capabilities	JPA Contribution	Operational Outcomes
The ability to design and disseminate information in various forms to influence the views of adversary, neutral, and supportive audiences.	- Conduct operations, including support to mass media, to communicate unclassified information to support operations to internal, domestic, and international audiences to gain and maintain stability or support other SSTR Operations.	- PA products are developed and disseminated in time to be used to effect target audience decision making.
The ability to broadcast US and coalition intentions and to help the local population find quick survival relief.	- Acquire imagery and information and develop and disseminate JPA products to priority audiences in time to inform about on-going SSTR Operations activities. - Monitor coverage of operations in open source media. - Identify misinformation/disinformation for response.	- Information and imagery is transmitted in time to be used to inform the target audience. - Media receives desired information and imagery. - Target audiences receive appropriate information. - Target audiences understand information as it is intended. - Information provided results in support for operations. - Commanders seize the communications initiative and achieve information dominance. - Enemy disinformation and propaganda is rendered ineffective.

Table I. JPA Critical Capabilities, Contributions and Operational Outcomes

3.1 Digital Still Photographic Acquisition Subsystem (DSPAS)

The DSPAS shall provide handheld digital still image capture/acquisition throughout a range of environmental and lighting conditions. The camera systems must record in several selectable file sizes and commercial standard formats and provide image size requirements for a variety of end product uses. The DSPAS must also provide multiple interchangeable lenses ranging from extreme wide angle to telephoto which enables image acquisition in a broad range of distances, from enclosed spaces to long

⁴ The ICD for JPA was signed by Gen. James E. Cartwright, Vice Chairman of the Joint Chiefs of Staff, on 21 December 2007.

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distances. The lenses must have consistent wide apertures of a minimum of f/2.8 through the entire focal range to maximize low-light shooting capability as well as depth of field control for visual effect. Lenses must be internally focusing to minimize ingress of dust into the lens.

3.1.1 DSPAS Key Performance Parameters (KPP)

DSPAS shall meet the KPPs identified in Table II.

KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
KPP 1: Still Image Acquisition	Selectable write format – RAW 12 or 14 bit lossless compressed, compressed, and uncompressed; TIFF (RGB); JPEG Fine, normal, and basic at a frame rate of 6 frames per second (FPS)	Maintain industry standard / exceed threshold (O)
KPP 2: Image sensor	12 megapixel Complimentary Metal Oxide Semiconductor (CMOS) Sensor	Greater than threshold(O)
KPP 1: Frame rate	6 frames per second at full resolution	Greater than threshold (O)
KPP4: Lenses, interchangeable	No fewer than three lenses of varying focal length, enabling optical zoom from 17mm to 200mm (assuming 1.4 x effective magnification when CMOS sensor is not “full frame”); Internal focusing; Aperture settings from f/2.8 through f/32	Maintain industry standards (O)
KPP 5: Focus modes	Selectable auto or manual focus	(T) = (O)
KPP 6: Image size	4928x3280	(T) = (O)
KPP 7: Shutter speed range	30 to 1/8,000 second and bulb	(T) = (O)
KPP 8: Metering range	0 to 20 EV (Matrix or Center-weighted) 2 to 20 EV (Spot)	(T) = (O)
KPP 9: Exposure modes	Programmed auto (P), Shutter-priority auto (S), Aperture-priority auto (A), and Manual (M)	(T) = (O)

KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
KPP 10: Light sensitivity	ISO 200-12800	(T) = (O)

TABLE II. DSPAS Key Performance Parameters

3.2 Digital Video Acquisition Subsystem (DVAS) Detailed Requirements

The DVAS shall provide handheld digital video capture/acquisition throughout a range of environmental and lighting conditions. In keeping with the Motion Media Standards Profile developed by the DoD Motion Imagery Standards Board, High Definition, progressive scan (SMPTE 296M-2001) is the desired end-state for AMMPS video systems. The target HD imaging format for all existing and currently planned DVAS is 1280x720x(50p)60p. The camera systems must record in several selectable and commercial standard formats including, but not limited to, selectable Standard Definition (SD) and High Definition (HD) formats and recording modes of 1920x1080x24p/25p/30p or lesser formats. The DVAS must further provide multiple and varied interfaces, including HDMI and HD-SDI, as well as enable direct connectivity for video signals to a range of devices including computers, external drives and transmission systems enabling maximum operational flexibility. The DVAS must also accommodate wide angle and telephoto lens attachments.

3.2.1 DVAS KPPs

DVAS shall meet the KPPs identified in Table III.

KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
KPP 1: Record 1920x1080 full high definition, up to 50Mbps bit rate 4:2:2 color sampling, digital video to non-proprietary removable solid-state media card	Selectable SD and HD Record multiple recording bit rates, resolutions and variable frame rates.	Maintain industry standards (O)
KPP 2: Direct electronic interface with external devices	HDMI & HD-SDI output, gunlock input and SMPTE time code input/output terminals.	Greater than threshold (O)
KPP 3: Light Sensitivity	Minimum illumination: Three 1920x1080 CMOS image sensors. Full auto mode: 4.5 lux, Gain +21 dB gain; Manual mode: 08 lux, Gain +33 dB gain .	Maintain industry standards / greater than threshold (O)
KPP 4: Frame rates	Variable frame rate: 60i, 60p, 30p and 24p	Maintain industry standards (O)
KPP 5: Exposure control	Full Auto Exposure Control and Manual Exposure Control.	Maintain industry standards (O)

TABLE III. DVAS Key Performance Parameters

3.3 Digital Multimedia Processing & Editing Workstation (DMMWS)

The DMMWS shall provide high volume production processing, editing, color correcting and captioning of digital imagery (still and video) to include graphic arts generation and desktop publishing. Supported video compression includes MPEG-2, MPEG-4 Part 10 (i.e. AVC or H.264) and JPEG 2000. Supported file formats include RAW, JPEG, MPEG-2 transport stream, MXF and AAF. Multimedia editing applications are very resource intensive and the performance specifications must meet or exceed current commercial media industry standards and the minimum specifications for the accompanying software. Typical file sizes of individual still images range from 12 MB to 55 MB. Video file size typically ranges from 400 Mb up to 4 Tb depending upon the end use and size of production.

3.3.1 DMMWS KPPs

The DMMWS shall meet the KPPs identified in Table IV.

KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
KPP 1: Multi-media Processing & Editing Computer Workstation	Enable rapid, high-volume photo and video editing with professional-grade editing software; Multi Core 3 Ghz processor; 12 GB RAM; 12 GB RAM; 500 GB Hard Drive; 1394 Firewire ports (FW 400/800); USB 3.0 port X 4; CD/DVD/Blu-ray reader/writer; 2GB quadro video card; external LED or LCD monitor with a minimum diagonal screen dimension of 24 inches and capable of displaying resolutions of 1440x900, 1024x768, 1280x768 and 1920x1280 and capable of displaying multi-format signals up to 1080i via DVI, display port and VGA.	Highest speed processor available; fastest commercially available graphics card; maximum RAM supported (O)
KPP 2: Flatbed scanner	Maximum scan resolution of 2400x4800 dpi at 48 bit color depth;	Maintain/exceed industry standard (O)

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KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
	scan bed maximum of 11" x 17"	
KPP 3: Client Platforms	25 for CVN 7 for LHA/LHD XX for LCC	(T) = (O)

TABLE IV. DMMWS Key Performance Parameters

3.3.1.1 Multi-media processing and editing software.

Must be compatible with applicable DIMOC standards and DoD directives and at a minimum should include latest versions of Adobe Creative Suite Master Collection⁵, Microsoft Office, Flash, color management software, Photo Mechanic, and other applications/software necessary to operate all associated peripheral equipment.⁶

3.4 **Digital Publishing & Finishing System (DPFS)**

Production output devices shall provide commercial full color photographic print production, high capacity, high quality black and white and four-color document print production, as well as industry standard publishing and duplication capability. The binding and finishing equipment consists of paper drills, stitchers and industrial paper cutters.

3.4.1 **DPFS KPPs**

The DPFS shall meet the KPPs identified in Table V.

KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
KPP 1: Color photographic printer	Maximum print size of 17" wide with print resolution of 2880 x 1440 dpi; 1440 x 720 dpi; 720 x 720 dpi; 720 x 360 dpi; 360 x 360 dpi; 360 x 180 dpi; capable of printing one 8 x 10 color print in less than 4 minutes	Maintain/exceed industry standard (O)
KPP 2: Large format photographic printer	Maximum print size of 42" wide by 40'; 15-20 high resolution (600-1200 DPI) 32" x 40" four color prints per hour; various media	Maintain/exceed industry standard (O)

⁵ Adobe Creative Suite Master Collection includes Photo Shop, Illustrator, InDesign, Acrobat, Flash Catalyst, Flash Professional, Flash Builder, Dreamweaver, Fireworks, Contribute, Premiere Pro, After Effects, Soundbooth, OnLocation, Encore.

⁶ Peripheral equipment consists of still digital cameras, photographic and plain paper printers, portable media storage devices, scanners all of which may have drivers or other associated software required to interface with other systems.

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KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
	such as glossy, matte, canvass; can handle multiple weight mediums with multi-roll capability	
KPP 3: Color document production printer	Maximum print size of 12" x 18"; up to 50 color prints per minute (ppm) on multiple paper sources and media types from 16lb to a maximum of 110lb paper stock (glossy and matte finish); 256 color continuous tone; with minimum 100 sheet duplex automatic document feeder; minimum of 60 ipm color simplex and duplex scanning; minimum of 60 ipm color simplex and duplex scanning; scan formats: TIFF, multi-page TIFF, and PDF; throughput weights from 16 to 110 lbs; Throughput sizes from 5" x 8" to 11" x 17"; maximum output of 600-3000 prints per hour (minimum 180,000 pages per month), minimum print resolution of 1200 x 1200 dots per inch (dpi); must be networkable; Anti-counterfeit device; reduction and enlargement from 25% to 400%; automatic color exposure; Paper Handling: no less than, 5,000 sheet capacity.	Maintain/exceed industry standard (O)
KPP 4: Black & white document production printer	Maximum print size of 12" x 18"; up to 110 ppm on multiple paper	Maintain/exceed industry standard (O)

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KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
	<p>sources and media types from 16lb to a maximum of 140lb paper stock; multiple media types with a minimum capability to print on bond, cover, index, recycled, transparencies, tabs and pre-printed forms; with minimum 100 sheet duplex automatic document feeder; minimum of 80 ipm B&W simplex and duplex scanning; minimum scanning resolution up to 600 x 600 dpi / 8 bit gray (256 shades); scan formats: TIFF, multi-page TIFF, and PDF; throughput weights from 16 to 110 lbs; throughput sizes from 5" x 8" to 11" x 17"; (minimum 180,000 pages per month); minimum print resolution of 1200 x 1200 dpi; Anti-counterfeit device; reduction and enlargement from 25% to 400%; Paper Handling: no less than, 7,000 sheet capacity; must be networkable</p>	
KPP 5: Paper cutter	<p>500 sheets at a time; up to 12" x 18" in size; 3" maximum document thickness; 600 documents per hour; accepts various paper weights</p>	<p>Maintain/exceed industry standard (O)</p>
KPP 6: Paper stitcher	<p>1" maximum document thickness; 600 documents per hour; accepts various paper</p>	<p>Maintain/exceed industry standard (O)</p>

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KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
	weights	
KPP 7: Paper drill	2” maximum document thickness; 600 documents per hour; accepts various paper weights	Maintain/exceed industry standard (O)
KPP 8: Laminating	Minimum size of original: Business and ID card up to 44” maximum	Maintain/exceed industry standard (O)
KPP 9: CD/DVD Publishing & Duplication	Minimum 50 discs per hour	Maintain/exceed industry standard (O)
KPP 10: CD/DVD Printer	Full color or monochrome printing at 600 dpi; minimum 50 discs per hour	Maintain/exceed industry standard (O)

TABLE V. DPFS Key Performance Parameters

3.5 AMMPS Local Area Network (AMMPS-LAN)

The high volume of large file size still and motion imagery will quickly exceed the storage capacity of a single DMMWS. In addition, to extend work flow and collaboration throughout the media department requires a server and local area network. The AMMPS-LAN shall provide digital media file (photographs, graphic arts, video, etc.) storage with the ability to search and retrieve files from any workstation within the AMMPS. Digital Asset Management software must be part of the AMMPS-LAN to manage, search, distribute, and archive media files. The AMMPS-LAN will not interface with the ship’s ISNS.

3.5.1 AMMPS-LAN KPPs

The AMMPS-LAN shall meet the KPPs identified in Table VI.

KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
KPP 1: Network Storage Capacity	15 Tb	20 Tb
KPP 2: Input	Ability to ingest different sources such as removable media, CD/DVD, Blu-Ray, etc.	(T) = (O)
KPP 3: Domain Controller	Primary & Backup	(T) = (O)
KPP 4: Client Connection Speed	1Gbps	10 Gbps
KPP 5: RAM	12 Gb	16 Gb
KPP 6: Security Technologies	Integrated Identity & Access Management	(T) = (O)
KPP 7: Database Operating System	Windows/MAC OS	(T) = (O)
KPP 8: Estimated Total number of concurrent users	15	(T) = (O)
KPP 9: Production hours of operation	24/7	(T) = (O)

TABLE VI. AMMPS-LAN Key Performance Parameters

3.6 Public Affairs Night Vision Acquisition Subsystem (PANVAS)

AMD personnel will be tasked to acquire imagery in low-light situations and require image intensification systems that magnify the existing or available light. The night vision imagery must meet or exceed current industry standards for news gathering applications to increase usability of finished products, both for internal use and release to external organizations.

3.6.1 PANVAS KPPs

The PANVAS shall meet the KPPs in table VII.

KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
KPP 1: Light sensitivity	1-15 Lux	(T) = (O)
KPP 2: Image Resolution	GEN-III specifications: 64 line-pair/mm	Greater than threshold (O)
KPP 3: Full-frame imaging	Image full-frame with no vignetting	(T) = (O)
KPP 4: Camera adapters	PANVS must include camera adapters for still and video cameras	(T) = (O)

TABLE VII. PANVAS Key Performance Parameters

3.7 Public Affairs News Link System (PANLS)

The PANLS is a video transport capability used for multicast and unicast streaming of high-quality, low latency broadcast video for live and file-based newsgathering and video transport. The PANLS provides encoding, live transmission, post event-file based work flow, and store and forward capability critical to meet emerging PA mission requirements. Specifically, the PANLS allows for two-way live audiovisual interviews with deployed commanders as well as live broadcast of key events as directed by the CSG, ESG/ARG/Fleet Command ship or JTF/JFMCC commander.

3.7.1 PANLS KPPs

The PANLS shall meet the KPPs identified in Table VIII.

KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
KPP 1: Encoding/Decoding	Capable of encoding multiple video formats to include H.264 Encoding - High Definition input formats: 480i, 480p, 576i, 576p, 720p, 1080i, 1080p	(T) = (O)
KPP 2: Video Streaming	- 16:9 Aspect Ratio Resolutions: All standard definition resolutions	(T) = (O)

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KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
	listed above, plus 960 x 544, 720p (1280 x 720p), 1080p (1920 x 1080) - Video Frame Rates: 0.5, 1, 2, 3, 5, 6, 7.5, 10, 15, 30 fps (NTSC), 60 fps (720p and below), 0.5, 1, 2.5, 5, 12.5, 25 (PAL), 50 fps (720p and below) - Constant Bit Rate / Constant Frame Rate - Closed Captioning (HD-SDI only) - User-defined key frame interval - Inputs: 3G-SDI, HD-SDI, HDMI™, and Component - Rate control - Deblocking filter - Baseline profile	
KPP 3: Network protocol	Unicast/Multicast UDP / IPv4 and IPv6 / RTSP / RTCP / RTP / HTTP / RTSP Interleave / IGMP / MPEG2 Transport Stream / Automatic Unicast (RTSP ANNOUNCE) / HTTPS Management / SSH / RTMP	(T) = (O)
KPP 4: Audio	AAC-LC and AAC-HE Encoding - Sample Frequency 8 Khz to 48 Khz - Rates: 8 Kbps to 256 Kbps - Audio Modes: Stereo, Mono - Inputs: Unbalanced, balanced, and microphone via Minijack. Audio inputs can also come through	(T) = (O)

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KEY PERFORMANCE PARAMETERS	THRESHOLD	OBJECTIVE
	the HDMI, HD-SDI, or SDI inputs	
KPP 5: Streaming rate	- Rates: 32Kbps – 20Mbps	(T) = (O)
KPP 6: Video inputs & outputs	Multiple input and output options to include Composite, SDI, Genlock	(T) = (O)
KPP 7: Audio	Interruptible Fold Back	(T) = (O)

TABLE VIII. PANLS Key Performance Parameters

{end section three}

4. Information Technology and National Security System Supportability

4.1 Bandwidth Allocation

Commanders should prioritize requirements and allocate resources based on their intent, CONOPS, available resources, and the operational environment. In order to meet emergent communication objectives, Commanders must provide bandwidth priority to the AMD to ensure timely (to include near real time or live) transmission of PA and VI products ashore. Bandwidth allocation must be made available for PA products, both classified and unclassified, as files can routinely be more than 250 megabytes in size and during surge events, streaming live at a minimum of 1 megabytes (Mbps) per second for Standard Definition video, 2.5 Mbps for High Definition video. It should be stressed that the bandwidth allocation is not a 24/7 requirement and that the AMD may not have data to transfer within any given 24-hour period. The ability to gain access to a sizeable amount of bandwidth, however, is necessary to ensure successful transmission of vital PA communication products in a timely and efficient manner.

Information Types	Size Limit	Timeliness Threshold/ Objective	Size Limit	Timeliness Threshold/ Objective	Size Limit	Timeliness Threshold/ Objective
Time Sensitive External Release Information (includes video and still imagery files)	Less than 300,000 bits	<15 seconds <8 seconds	Up to 6,000,000 bits	10 minutes 1 minute	Up to 250,000,000 bits	30 minutes 5 minutes
Live Broadcast/Standard Definition Video Streaming	Less than 1,000,000 bits	1 second (T) = (O)	Up to 4,000,000 bits	1 second (T) = (O)	Up to 8,000,000 bits	1 second (T) = (O)
Live Broadcast/High Definition Video Streaming	Less than 2,500,000 bits	1 second (T) = (O)	Up to 8,000,000 bits	1 second (T) = (O)	Up to 30,000,000 bits	1 second (T) = (O)

Table IX. Data Transfer Rates

4.2 Volume of Data

The highest data volumes generated by the AMMPS are from the DVAS, AMMPS-LAN and PANLS. Recorded video is transferred directly to the AMMPS-LAN via a DMMWS. File sizes of edited video that requires transport will vary based on length and selected compression standard. High definition video files can be as large as 440 GB for one hour of content, although most distributed individual video files contain 5 minutes or less of video content. Nevertheless, the AMMPS-LAN requires high volume storage and archive capability, minimum 15 terabyte, however, this volume will increase with full transition to high definition video acquisition and production. In addition, the DMMWS supporting AMMPS must be configured with robust system RAM and processors sufficient for editing HD video. Actual requirements will be determined when specific editing applications are selected.

4.3 **Internet Access**

The AMD requires unlimited Internet access to include unfiltered external access for information and imagery release, local area network access, and establishment and operation of unit and/or contingency unclassified and classified web-based sites.

While not a 24/7 requirement, the Media Department/Division must have access to sufficient bandwidth to meet communication objectives and to stay ahead of adversary information activities. Table IX provides requirements for data transfer rates.

{end section four}

5. Intelligence Supportability

PA is a customer of intelligence support and uses intelligence products to support PA planning and enhance media analysis, as appropriate. Intelligence requirements are coordinated with the intelligence department. Intelligence's historical and human factors analysis of the adversary gives PA a context from which to understand and anticipate propaganda and disinformation. Additionally, PA may require access to relevant intelligence (including imagery) products to assist in the execution of the PA mission.

The AMMPS systems have no intelligence supportability requirements. While the AMMPS will not receive or transmit intelligence data, there will be case-by-case scenarios in which imagery acquired by tactical imagery sensors such as weapons systems video will be edited within the AMMPS to remove classified or FOUO information and data to release imagery to the public to counter adversary propaganda and disinformation. To eliminate the possibility of electronic spillage, this is accomplished by using a non-networked, or standalone, DMMWS, typically a laptop computer outfitted with the necessary editing and processing software.

{end section five}

6. **E3 and Spectrum Supportability**

The AMMPS major items are professional-grade, commercial digital photographic and video cameras. While most COTS electronic devices are susceptible to electromagnetic environment effects (E3), commercial digital still and video cameras nearly identical to those planned for the AMMPS are in use in current tactical and shipboard environments and have neither caused nor suffered any known E3 effects. AMMPS cameras will be operated alongside operational forces across the range of military operations. The editing and publishing systems will be operated in the AMD spaces and thus subject to the same E3 effects as any other COTS equipment in that environment.

{end section six}

7. Assets Required to Achieve Full Operational Capability

Types and quantities of assets required to attain FOC. The Acquisition Objectives (AO) for AMMPS SoS include the digital still acquisition system, digital video acquisition system, digital multimedia workstations, local area network, PA night vision system, and PA news link system. The number of production printers that make up the digital publishing and finishing system are determined by actual output as represented by documents per hour as listed in Section 3.4.1. The numbers of digital still acquisition systems generally represent a minimum of systems to allow for one digital camera system per MC assigned to the Media Department/Division/Detachment as well as provide spares in the event of an unplanned loss or malfunction. The quantities of digital video acquisition systems allow for one camera system per MC with 8143 (NEC) assigned to the Media Department/Division/Detachment, as well as provide spares in the event of an unplanned loss or malfunction. Table X, AMMPS Acquisition Objectives, provides a baseline for subsystem quantities as required by the platforms that currently have organic PA assets assigned. It should be noted that the subsystems listed for the AS platforms are scaled down significantly due to the smaller capacity requirements and space limitations. The LPD class was not initially outfitted for a PA capability and therefore does not have space available, nor is it required, for a full AMMPS suite. The subsystems provided to the LPD class are based on the individual kits developed for and provided to MCs assigned to the Navy Public Affairs Support Element. These kits contain digital camera systems and a laptop computer with requisite imagery processing and editing software identical to the software load of an AMMPS-DMMWS.

	CVN	LHA/LHD/LCC	AS	LPD	Expeditionary
Digital Still Photo Acquisition System	30	10	2	1	4
Digital Video Acquisition System	5	3	1	1	2
Digital Multimedia Process & Edit System	18	7	3	1	4
Digital Publishing & Finishing System					
Color Photo Printer (Max print 11x17)	2	1	1	1	2
Large Format Photo Printer (Max print 42")	2	1	N/A	N/A	2 (Max 24")
Color Document Printer (Min 3000 pph)	2	2	N/A	N/A	1
B&W Document Printer (Min 6000 pph)	2	1	1	N/A	1
Paper Cutter (Max 3" doc thickness)	1	1	1	N/A	N/A
Paper Stitcher (Max 1" doc thickness)	1	1	1	N/A	N/A
Paper Drill (Max 2" doc thickness)	1	1	1	N/A	N/A
Laminator (Max 44" wide)	1	1	1	N/A	N/A
CD/DVD Publication, Duplication, & Printing (Min 50 disc/hour)	2	1	N/A	N/A	1
AMMPS-Local Area Network (Min 20Tb)	1	1	1	N/A	1
PA Night Vision Acquisition System	8	4	1	1	2
PA News Link System	1	1	N/A	N/A	N/A

Table X AMMPS Acquisition Objectives

7.1 CVN Media Department

Full operational capability aboard the aircraft carrier Media Department will be achieved when each carrier is outfitted with the complete AMMPS and its subsystems in density as described in Table X and when sufficient spares and a maintenance strategy is in place. Figure 1 shows a typical AMMPS-LAN configuration for the CVN Media Department.

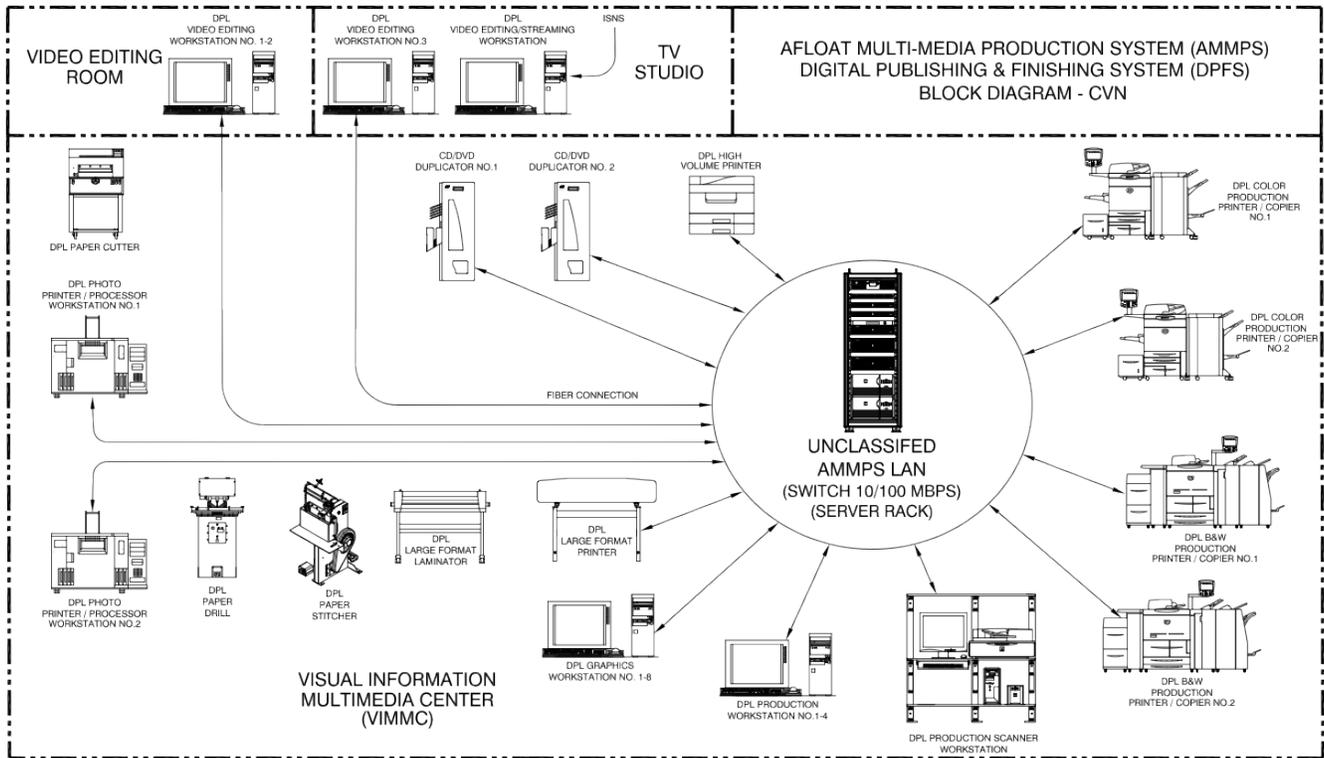


FIGURE 1. AMMPS-LAN for CVN Media Department

7.2 LHA/LHD/LCC Media Division

Full operational capability aboard the large deck amphibious ship Media Division will be achieved when each ship is outfitted with the complete AMMPS and its subsystems in density as described in Table X and when sufficient spares and a maintenance strategy is in place. Figure 2 shows a typical AMMPS-LAN configuration for the large deck amphibious ship Media Division.

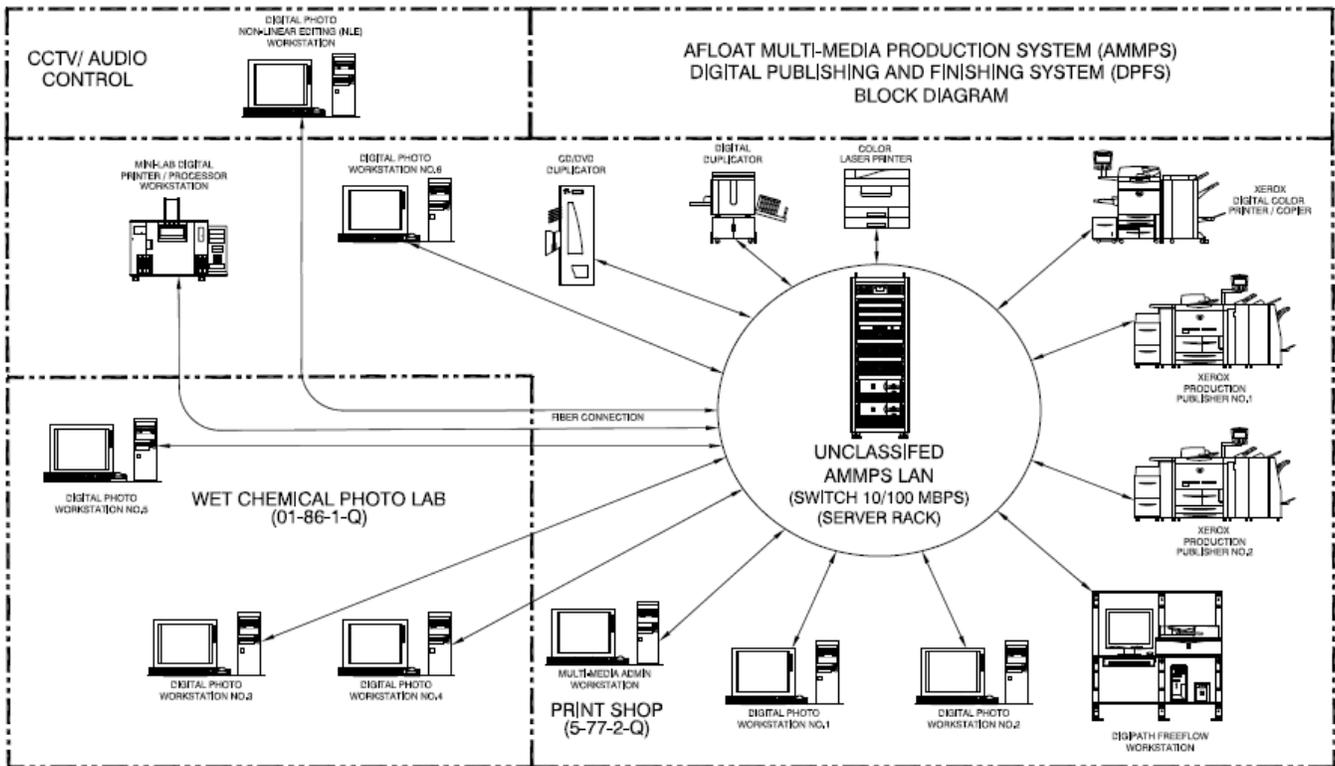


FIGURE 2. AMMPS-LAN Configuration for large deck amphibious platforms

7.3 Expeditionary Media Detachment

Many maritime missions with multinational interoperability and capacity building as their primary focus require a media production capability aboard ships that do not have an organic capability. Examples of these missions include Africa Partnership Stations, Pacific Partnership, Southern Partnership Stations, and Humanitarian Assistance/Disaster Relief efforts. USNS COMFORT and USNS MERCY, along with the LPD and LSD classes of ships, are good examples of units that commonly support these mission sets yet do not have an organic media production capability. The Expeditionary Media Detachment configuration is scalable and can fulfill this short-term media production requirement. The vessel serving as host to an Expeditionary Media Detachment achieves the necessary media production capacity when outfitted with the complete AMMPS and its subsystems as mission requirements dictate and as defined by the operational commander in the tasking message. The quantities listed in Table X are those typically outfitted aboard the hospital ships for HA/DR missions. The equipment described in Table X for the Expeditionary capability is portable in nature and is not permanently installed aboard ship, allowing it to meet the finite nature of the mission and then be available for use on other units. Figure 3 shows a typical AMMPS-LAN configuration for the Expeditionary Media Detachment.

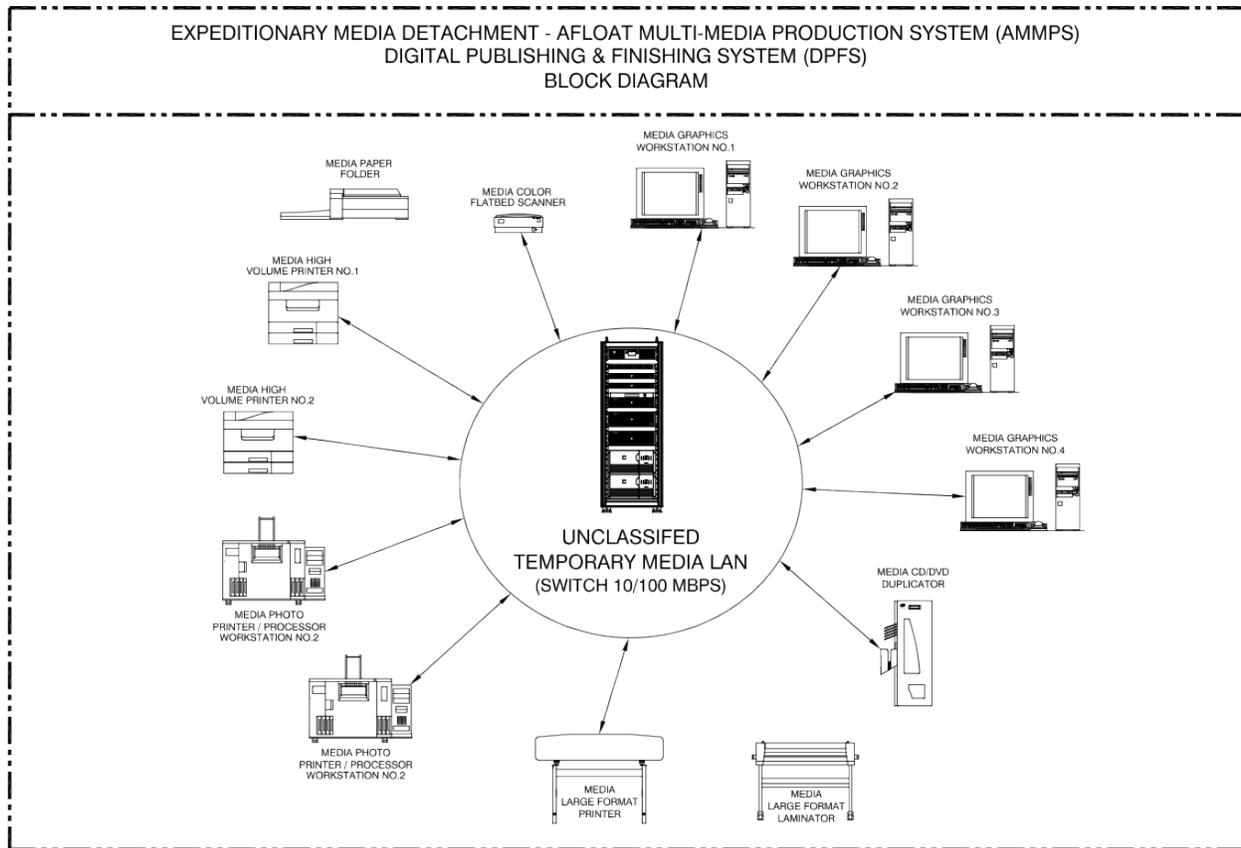


FIGURE 3. AMMPS-LAN Configuration for expeditionary platforms

7.4 **IOC and FOC Schedule Definitions**

IOC is attained when the assets for each platform with organic PA capability assigned have been fielded, new equipment training completed for operators/maintainers, support infrastructure is in place, and the appropriate schoolhouses have been provided with the required training materials. With the exception of the outfitting of the Navy Student Detachment at DINFOS, IOC has been attained in FY-12. Program shortfalls prevent implementation of the AMMPS system at DINFOS.

7.4.1 **Full Operational Capability**

FOC is attained when all users in operational forces are fully equipped, trained and logistically supported. FOC will be attained in FY16, provided program is fully funded.

7.4 **Program Affordability**

The current baseline funding for AMMPS does not support the lifecycle sustainment and logistics cost of the entire materiel requirements of the SoS across all platforms. Current program funding supports the lifecycle sustainment and logistics costs for the CVNs. An increase of \$5.1m per fiscal year would extend complete program support to all other platforms with organic PA capability, described above.

Overall program cost was assessed by reviewing manufacturer and vendor hardware and software data; seven years of program budget information; cost data associated with the recently completed SHIPALT

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9498K; and market research. Existing training for enlisted MCs supports the currently fielded systems and technology refreshes of the AMMPS. Long term cost benefits to enterprise licensing agreements for applicable COTS software were reviewed and considered as well. The program cost estimate reflects total ownership cost of the materiel requirements and lifecycle logistics (LCM) support for the AMMPS through FY18.

Funding						
Platform	FY14	FY15	FY16	FY17	FY18	FY14-18
CVN (4)	5,142	5,296	5,454	5,617	5,785	\$27,294
LHA/LHD (4)	3,016	3,106	3,199	3,294	3,392	\$16,007
LCC (1)	754	0	800	0	824	\$2,378
LPD (2)	75	77	79	81	83	\$395
AS (1)	205	0	217	0	230	\$652
Expeditionary (1)	529	0	560	0	594	\$1,683
LCM	1,078	1,110	1,143	1,177	1,212	\$5,720
Sub (\$K)	\$10,799	\$9,589	\$11,452	\$10,169	\$12,120	
Total Program Costs (\$K)						\$54,129

{end section seven}

8. SPACE REQUIREMENTS

8.1 General Space Requirements

The most conducive working environment for the AMD is to have all elements in contiguous spaces such as those on the NIMITZ class CVNs. This allows for greater collaboration and accountability of equipment and personnel. Due to the larger quantity of production equipment and overall greater capability on a CVN, the AMD requires a minimum of 3,000 square feet. The large deck amphibians, to include LHA, LHD and LCC, require far less space, typically no more than 1,000 square feet. The expeditionary capability is dependent upon the final requirements and availability of space. With the exception of the DIVO space on the CVN and Video Editing Room, the functional working areas should be open spaces. The AMD should have an arrangement conducive to six (6) basic functional work environments as described below:

8.1.1 Digital Imaging

The Digital Imaging area shall consist of an area for multimedia, Graphic Arts, Desktop Publishing, and NIPRNET computer workstations. This area will also contain various scanners and printers for use with these workstations and proofing. This area must be capable of supporting a minimum of eight (8) personnel for a CVN and two (2) for all others.

8.1.2 Video Editing

The Video Editing room shall consist of an area for two (2) video editing workstations and a suite of editing devices capable of handling the various formats addressed in the capabilities section of this document (Section 2.1). This area shall be enclosed in order to create a quiet work environment for the video editors. Also this area should contain a bulk storage area for the various media (magnetic and electronic) utilized in video editing. This area must be capable of supporting a minimum of two (2) personnel for a CVN and one (1) for all others.

8.1.3 Photographic Printing & Finishing Operations

The Photo Operations area will be utilized for printing photographs, charts, maps, and posters etc. This area will also be used for matte cutting, laminating, CD/DVD/Blu-ray duplication and printing. In order to facilitate the laminating and cutting processes a large (minimum 10' x 5') finishing table is required. This table will be fabricated utilizing various cabinets for storage and a flat work surface on top for layout purposes. This area must be capable of supporting a minimum of five (5) personnel for a CVN and two (2) for all others.

8.1.4 Print Shop Operations

The Print Shop Operations area will be utilized for bulk duplication, binding and document assembly. The equipment shall be arranged to promote a productive workflow. It will consist of the high-speed duplex printing devices (Color, Black and White), Paper Cutter, Drill, Stitcher, Digital Duplicator, and Classified Paper Shredder. This area shall also contain a finishing table (minimum 10' x 4') for job layout and staging. A Digital Duplicator shall also be placed in this area for classified Military Information Support Operations. This area must be capable of supporting a minimum of ten (10) personnel for a CVN and two (2) for all others.

8.1.5 Administrative Operations

The Administrative Operations area is unique to the CVN and LCC class and will consist of the Reception, Job Control and Division Office areas. The Reception area shall be capable of supporting five (5) customers and have job control bins to handle incoming and outgoing jobs. The bins shall be housed within the service counter. The Job Control area should house two (2) workstations for updating the job database and provide customer proofs. This area will also contain job control bins to handle the routing of jobs within the department. This area must be capable of supporting a minimum of two (2) personnel. The Division Office will have desk space for three (3) personnel (DIVO, LCPO and LPO). This area will have one SIPRNET workstation and three (3) NIPRNET workstations.

8.1.6 Maintenance Operations

The Maintenance Operations area will consist of the battery charging and maintenance area. The battery charging area shall consist of shelving and power outlets to house various battery chargers for the digital cameras utilized during the department operations. The maintenance area shall consist of a work surface and cabinets for performing various PMS procedures. This area can also be utilized for performing minor repairs on Photo and Print devices. This area must be capable of supporting a minimum of five (5) personnel for CVNs and one (1) person for all others.

8.2 Furniture Requirements

The AMD shall be outfitted with standard shipboard approved ergonomic chairs throughout the work areas. The Division Office will be outfitted with standard shipboard double pedestal desks. All other personnel work areas will be outfitted with double or triple tier Kevlok shelving. This shelving shall be mounted utilizing standard shipboard mounting methods.

8.3 Power & Lighting Requirements

The AMD shall follow standard shipboard lighting requirements.

8.4 HVAC Requirements

HVAC considerations for the AMP should include the relative heat generated by the workstations combined with the production printers and other peripheral devices which also generate heat during operation. The amount of equipment in a small space must be taken into account for all HVAC requirements.

{end section eight}

9. CONCEPT OF OPERATIONS

9.1 Operational Environment

The public affairs (PA) AMD aboard ship operate in a high density, multi-threat environment and function as an integral component of the Carrier Strike Group (CSG), Expeditionary Strike Group (ESG), and Amphibious Ready Group (ARG). The AMD is a key enabler to effectively execute communication strategies supporting operational plans. Navy PA capabilities are integral to major military operations, homeland defense, civil affairs, deterrence, and security, stability, transition and reconstruction operations.

The ability to rapidly inform and thus influence audiences in time to shape perceptions is critical to achieving national and military objectives, precluding or countering adversary propaganda. Historically, audiences received news through cyclic television network programming, radio and newspapers. Meeting the information demands of those media outlets in most cases simply meant meeting daily press deadlines. Today PA must contend with a 24-hour news cycle and commentary that is often mistaken for news on TV, radio, Internet and in social media including blogs, Facebook, YouTube and Twitter. Mission success is based on having the capability to continuously engage in a conversation which shapes opinions and attitudes. One-way, mass information dissemination is no longer solely the purview of the news media and is no longer effective on its own. Anyone with access to the Internet has the power to influence perceptions.

Our adversaries are not bound by rules of engagement (ROE) in any environment and are unencumbered by truth, accuracy and the processes and necessary ethical/moral or legal constraints by which the Department of Defense (DoD) abides. As shown in Figure 3, they are skilled in the use of the information environment to achieve their objectives and undermine our ability to do the same, including co-opting third parties to promulgate their propaganda and misinformation.



FIGURE 3. Adversary communication cycle

Communication in today's environment is complex and chaotic. With the advent of the virtual battlespace and net-centric operations the Navy faces even greater challenges in the information environment. Success in this environment demands continued innovation leveraging legacy systems, developing new capabilities, and updating existing processes to ensure timely dissemination of truthful information and to engage the public to meet the commander's operational objectives.

It is essential to operate inside the adversary's communication cycle and disrupt his initiative. The adversary's communication cycle is defined as the time from an action, activity or event (friendly or

enemy) until the adversary communicates publicly via the media (Internet, radio, TV, social media, text messaging, etc.).

9.2 Afloat Media Department/Division Within The Joint Force

The AMD is a standing PA capability for the CSG, ESG/ARG and joint force commander (JFC) to accomplish operational objectives. The AMD evaluates the impact of potential operational actions on the information environment; analyzes adversarial propaganda capabilities and potential actions; plans and executes communication strategies; synchronizes public information activities with other lines of operation; produces communication products and assesses the effects of friendly and adversary actions, words, and images. The combination of these actions helps to achieve the commander’s objectives. It provides accurate information to internal and external publics; counters propaganda, disinformation and misinformation; enhances allied and public support; and deters adversaries.

The JFMCC and JTF commanders enable the capabilities of the AMD by providing effective command, control, and communications; including PA as a part of the operational planning, execution and effects assessment processes; and ensuring the AMD can move information rapidly to provide an offensive information capability. Figure 4 shows the relationship of the AMD as part of the CSG or ESG/ARG within the scope of the Joint Force.

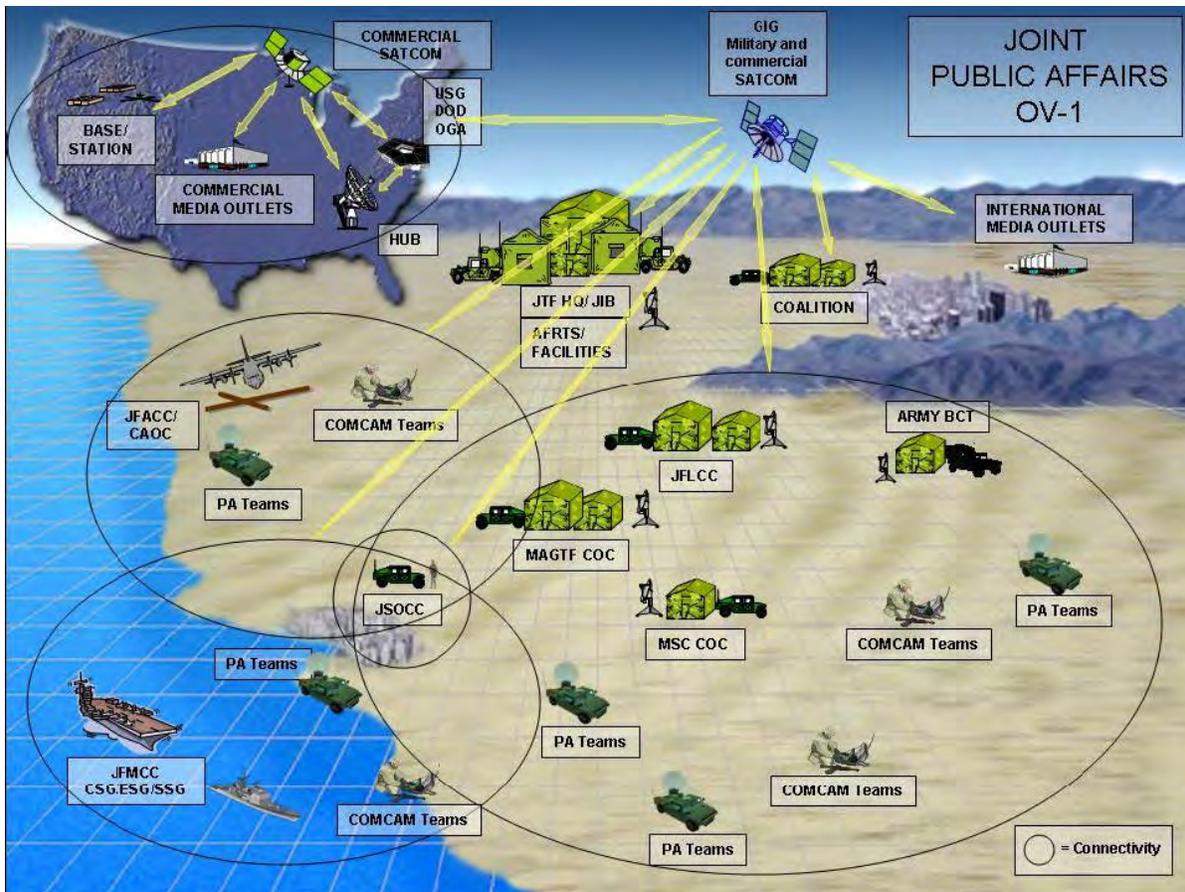


Figure 4. Joint Public Affairs Overview

Information as a component of warfighting is one of the most effective instruments of power available to the Navy and the JFC. While military mindset tends to emphasize the use of kinetic effects,

commanders are realizing the benefits that timely, truthful, and accurate information has on achieving operational objectives. Mission accomplishment will require the use of public information in tandem with kinetic operations. In some cases, the use of public information can achieve the commander's objective without the use of kinetic operations.

The requirements as stated in this document are consistent with those of the other services to ensure interoperability and standardization.

9.3 **AMD Organization**

9.3.1 **CVN Media Departments and Large Deck Amphib Media Divisions**

The AMD comprises officer and enlisted personnel organic to the ship. The CVN Media Department is organized with two Public Affairs Officers (designator 1650) and a minimum of 22 enlisted Mass Communication Specialists (MCs). The amphibious Media Division is manned with three to four enlisted MCs, with an MCC who serves as the PAO. Aboard the CVN, the senior Public Affairs Officer functions as the department head and also serves as the spokesperson for the ship, airwing and strike group, providing communication and public affairs counsel to the Commanding Officer and embarked Strike Group Commander. Other duties and responsibilities consist of media relations to include plans and logistics, community relations, and content oversight for command web sites. The junior Public Affairs Officer serves as the division officer and has day-to-day responsibility for product production and compliance with DON and DoD regulations and instructions. The enlisted MCs have specialized skill sets, identified by Navy Enlisted Classification (NEC) codes, and produce, process and disseminate media information in an efficient manner using the latest media technologies. The AMD will have communications connectivity, both secure and non-secure, to disseminate media products for internal and external requirements to include the Defense Imagery Management Operations Center (DIMOC), the Defense Media Activity, the Chief of Information, and Navy Media Content Service (NMCS).

9.3.2 **Sea Operational Detachment**

The AMD can be further supported under the Sea Operational Detachment (SEAOPDET) Concept consisting of a Public Affairs Officer (designator 1650) and enlisted Sailors who embark during major workups, e.g., JTFEX, and deployments to provide full ROC/POE capability. SEAOPDETs deploy from the Navy Public Affairs Support Element (NPASE) East or West depending upon AOR. The NPASE SEAOPDET relies on the host ship (CVN/LHD/other) for LAN connectivity for product distribution and deploys with specialized cameras and laptops to provide expeditionary PA/VI support independent of the AMD when required by the CSG or ESG/ARG commander. When embarked, the SEAOPDET PAO assists in all aspects of strike group public affairs and media support operations. The SEAOPDET enlisted team provides support to accompanying ships of the carrier strike group/amphibious ready group as an extended production capability to increase product flow (see Figure 5) in support of local commander(s) requirements and in support of NMCS, DIMOC and flag ship information outlets i.e., All Hands television, Navy.mil, and DMA.

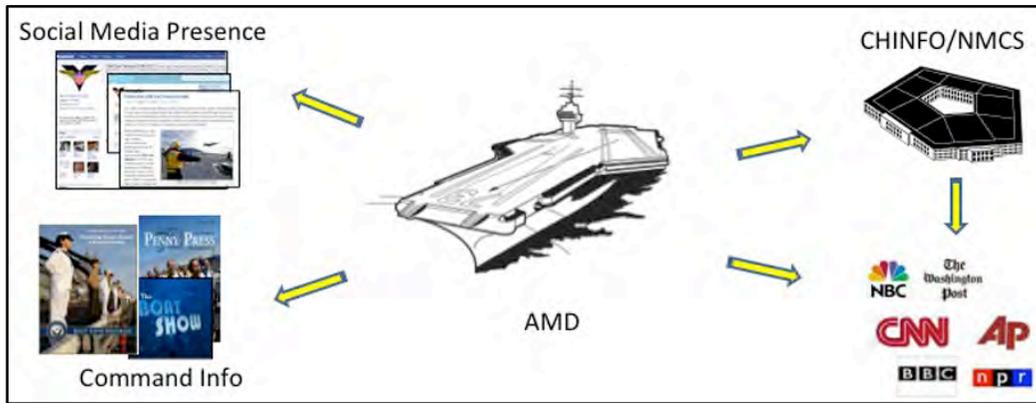


FIGURE 5. Media Products Flow

9.4 Public Affairs Products

9.4.1 AMD Production

The ability of Navy public affairs to inform the JFC, JFMCC, CSG, ESG/ARG, Sailors, and the U.S. public is of greater importance now than at any other time in history. The AMD can produce a multitude of products to support that effort. These products range from hard copy color photographic prints to virtual newspapers posted on a command-sponsored website. Internet-based Capabilities (IbC) offer the ability to directly reach an even greater number of people including the families of deployed units, Navy supporters, ship fans and citizens of the nations we deploy to. The Media Department/Division must be well equipped to communicate via IbC channels. Regardless of the audience, the products produced by the AMD are time sensitive and any self-induced latency can be detrimental to meeting the commander’s communication objectives. Figure 6 illustrates many of the products produced and disseminated by the afloat PA capability.

- | | |
|--|---|
| <ul style="list-style-type: none"> • Print, radio and video news and feature stories for use in internal and external outlets • Deployment guides, unit-level or strike group-level familygrams • Event photographs & video (excluding reenlistments and most retirements) • Speeches • CD/DVD production/reproduction • Graphic arts production • Television and radio spot announcements • MISO leaflets | <ul style="list-style-type: none"> • Biographies (CO/XO/CMC & specific Navy leadership) • Visual & operation documentation imagery (aerials, ships, units) • Social media presence & website content • Official portrait photographs • Media/Press Kits • Large format posters • Medical information handouts • MISO hand bills |
|--|---|

FIGURE 6. Afloat PA Products

9.4.2 Operational Imagery

In keeping with joint doctrine, commanders should release timely, factual and approved information and imagery of military operations. To do so, the Media Department/Division must also have immediate access to operational imagery of significant historical value or public interest derived from a variety of sources including unmanned aerial systems, intelligence assets, and weapons systems cameras. With direction from the PAO and Commanding Officer, the MCs will process the imagery, caption it and

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electronically transmit the resulting still/video imagery files to NMCS where it will be disseminated and properly archived.

{end section nine}

10. **DOTMLPF-Policy considerations**

All DOTMLPF and Policy issues listed below are enabling in nature. There are no approaches associated with the fielding of AMMPS which will affect the CONOPS or operational plans for the carrier battle group, amphibious ready group, expeditionary strike group or independent deployer.

10.1 **Doctrine**

Currently, there is no specific Navy doctrine for PA but AMMPS fully supports Navy doctrine which in turn supports joint doctrine to include Joint Pub 3-0, Operations, and Joint Pub 3-61, Public Affairs. The currently fielded AMMPS will not require Navy doctrinal changes (i.e., Navy warfighting and/or reference publications), nor will it require updates to joint doctrine and TTPs.

10.2 **Organization**

A detailed analysis of unit requirements, with subsequent organizational changes, was conducted prior to the development of this FRD as noted in the Scope section of this document. AMMPS equipment fielding and refresh will not require any new organizational modifications to current force structure. No impact to ownership cost is anticipated for the current system.

10.3 **Training**

No new skills will be required to operate and maintain current AMMPS equipment. New Equipment Training (NET) shall be conducted in conjunction with system delivery by the contractor or NAVSEA 05H only for potential improvement per the objective requirements stated in section 3. NET, when required, for future implementation phases will at a minimum include: system familiarization, networking, basic trouble shooting, preventive maintenance, power-up/down, safety, and grounding, etc. When required, training with the equipment sets should be accomplished at the Navy's Student Detachment of the Defense Information School (DINFOS) as part of the Field Exercise (FTX) functional area at the conclusion of the Basic Mass Communication Specialist Course. Identification of any additional training manpower and resource requirements shall be forwarded to CHINFO, OI-8, if required. Modifications to the MC Rate Training Manuals will be necessary and shall be undertaken by CHINFO OI-8 and Center for Service Support.

10.3.1 **Basic**

Initial training for operators in digital still photography, videography, studio operations, image production, and content distribution will continue to be conducted IAW Department of Defense Directive (DoDD) 5160.48. Navy enlisted MCs will continue to receive familiarization and fundamental training at one of the basic courses of instruction at the DINFOS, Ft Meade, Maryland.

10.3.2 **Intermediate**

Follow on training is structured to provide continuing professional education at intervals associated with rank advancements. Training courses increase the individual knowledge base for operators.

10.3.3 **Program Changes**

For potential future implementation phases, specific AMMPS training may need to be initiated or current courses modified within the DINFOS curriculum as determined by CHINFO OI-7 and OI-8. No additional instructors will be required to support DINFOS training and no additional personnel will be required to support course development.

10.4 Material

The currently fielded AMMPS systems are entirely comprised of COTS/GOTS equipment sets. All accessory items are COTS/GOTS, they shall be commercially available and in common use. AMMPS does not require the use of special tools. Future implementation phases may lead to smaller logistical footprints, reduced energy requirements, increased transportability, and reduced overall costs. Operator manuals, technical publications, and schematics, must be provided and updated by the manufactures for any future implementation phase or improvements to current systems. These documents will undergo Government review prior to issue.

10.4.1 Maintenance

AMMPS employs a single operator/maintainer to accomplish all organizational level maintenance and operator tasks, such as cleaning, preventative maintenance, performing inventory, line item replacement, replenishment of spares, determining the systems operational status, etc. Repairs above organizational level are performed via manufacturing warranty agreements and CHINFO Fleet Support Detachments via CHINFO OI-7. Depot level maintenance is not required.

10.4.2 Reliability, Availability and Maintainability (RAM)

AMMPS RAM characteristics are similar to those in comparable fielded commercial systems. Based on historical data for digital media components it is reasonable that the RAM characteristics of AMMPS COTS/GOTS equipment are acceptable for operational needs; however, the Program Manager (PM) must ensure the selected vendor(s) comply with commercial standards and practices for RAM.

10.4.3 Corrosion Prevention and Control (CPC)

Considering the maritime nature of Navy PA operations, CPC is critical in assuring the sustained performance, readiness, and service life of AMMPS camera equipment. CPC requires detailed consideration in acquisition, fielding, operation, and equipment storage. PA equipment will routinely be exposed to salt and sea air. The Program Manager is responsible for ensuring that a suitable corrosion prevention strategy is in place.

10.5 Leadership and Education

Leaders at all levels of the carrier battle group, expeditionary strike group and amphibious ready group must be educated to appreciate current and planned system capabilities, and limitations. PA should be incorporated into Navy Professional Military Education Programs to further the Navy leadership understanding of this unique capability, and to facilitate its effective employment.

10.6 Personnel

As stated in the Scope section, Navy PA manning has undergone detailed review and restructuring and the FRD reflects those changes.

10.7 **Facilities**

AMMPS does not require changes to existing facilities. Section 8 provides space requirements necessary to host AMMPS equipment.

10.8 **Policy**

AMMPS will not require changes to existing policy articulated in Navy, Joint Instructions, DoD Directives, Standard NATO Agreements (STANAG) or other applicable documents. There are no U.S. ratified international standardization agreements affecting PA operations with allied or coalition operations, and no changes in public law are required or anticipated.

{end section ten}

11. Glossary

A

AAC	Advanced Audio Compression
AFRTS	American Forces Radio & Television Service
AMD	Afloat Media Department/Division/Detachment
AMDPC	Afloat Media Department/Division/Detachment Production Center
AMMPS	Afloat Multimedia Production System
AMMPS-LAN	Afloat Multimedia Production System Local Area Network
ARG	Amphibious Ready Group

C

CCD	Charged Coupled Device
CD	Compact Disc
CELP	Code Excited Linear Prediction
CHINFO	Chief of Information
CMC	Command Master Chief
CMOS	Complimentary Metal Oxide Semiconductor
CNO	Chief of Naval Operations
COTS	Commercial-Off-The-Shelf
CS	Civil Support
CSG	Carrier Strike Group
CVN	Carrier Vessel Nuclear

D

DAM	Data Asset Management
dB	Decibel
DoD	Department of Defense
DoDI	Department of Defense Instruction
DIMOC	Defense Imagery Management Operations Center
DMA	Defense Media Activity
DMMWS	Digital Multimedia Production & Editing Workstation
DON	Department of the Navy
DPFS	Digital Publishing & Finishing System
DPI	Dots Per Inch
DSPAS	Digital Still Photographic Acquisition System
DTS	Direct To Sailor
DVAS	Digital Video Acquisition System
DVB	Digital Video Broadcasting
DVD	Digital Video Disc

E

E3	Electromagnetic Environment Effects
EV	Exposure Value

F

FOUO For Official Use Only
FRD Functional Requirements Document
FSO Fleet Support Operations

G

GB Gigabyte
GIG Global Information Grid
GSM Global System for Mobile

H

HD Homeland Defense
HD High Definition
HDTV High Definition Television
HZ Hertz

I

IA Information Assurance
IbC Internet-based Capabilities
ICD Initial Capabilities Document
ID Identification
ISO International Standards Organization

J

JCA Joint Capability Area
JFC Joint Force Commander
JFMCC Joint Force Maritime Component Commander
JOC Joint Operating Concept
JPA Joint Public Affairs
JPEG Joint Photographic Experts Group
JTFEX Joint Task Force Exercise

K

KBPS Kilobytes Per Second
KHZ Kilohertz
KPP Key Performance Parameters

L

LAN Local Area Network
LCC Amphibious Command and Control
LHA Amphibious Assault Ship (General Purpose)

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LHD Amphibious Assault Ship (Dock)
LUX Light Intensity

M

MB Megabyte
MBPS Megabytes Per Second
MC Mass Communication Specialist
MCO Major Combat Operations
MM Millimeter
MPEG Moving Picture Experts Group

N

NCA National Command Authority
NCO Noncombat Operations
NEC Navy Enlisted Classification
NTA Navy Tactical Tasks
NTSC National Television System Committee
NVNS Navy Visual News Service

O

OPDOC Operational Documentation

P

PA Public Affairs
PAO Public Affairs Officer
PANLS Public Affairs News Link System
PANVAS Public Affairs Night Vision Acquisition System
PEO Program Executive Officer
POE Projected Operational Environment
PPH Prints Per Hour
PPM Prints Per Minute

Q

R

RAM Random Access Memory
RAW Not an acronym – term used to identify unprocessed native formats
RECCE Reconnaissance
ROC Required Operational Capability

S

SC Strategic Communication
SCD Ship Change Document

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SCN Ship Construction New
SD Standard Definition
SDI Serial Digital Interface
SEAOPDET Sea Operational Detachment
SITE Shipboard Information, Training & Entertainment
SSTR Stabilizations, Security, Transition, and Reconstruction

T

TB Terabyte
TECDOC Technical Documentation

U

USB Universal Serial Bus

V

VI Visual Information
VIDOC Visual Documentation
VIRIN Visual Information Record Identification Number

X

XO Executive Officer

Y

Z

{end section nine}

11. Appendix A – Revision Record

Date on Document	Version Number	Notes/Status
22 Feb 2011	1.0	Version 1.0 – Initial FRD for Digital Production Lab, precursor to the Afloat Multimedia Production System. Submitted to MSTRP and adopted with agreed changes on 28 Feb 11.
XX MMM 13	2.0	<p>Incorporates the following changes approved by the MSTRP on 7 May 13:</p> <p>V2-001 – Change of document title to “Afloat Multimedia Production System Functional Requirements”</p> <p>V2-002 – Incorporates the requirements necessary to meet the media production mission across all afloat platforms that have an organic Public Affairs staff with the mission to produce media products for internal and external audiences</p> <p>V2-003 – Adds Preface with definitions at beginning of document</p> <p>V2-004 – Incorporates the adoption of High Definition, progressive scan imagery (SMPTE 296M-2001) as the desired end-state for Navy public affairs motion imagery systems</p> <p>V2-005 - Incorporates the MISP v.5.4 (DoD/IC/NSG) as the standard for all Navy PA/VI motion imagery systems</p> <p>V2-006 – Added International Organization for Standards for digital still imagery</p> <p>V2-007 – Updated the RAM capacity of the LAN from 8Gb to 16Gb</p> <p>V2-008 – Added Mac OS to database operating system of the LAN</p> <p>V2-009 – Added a section on Space Requirements for the AMDPC</p> <p>V2-010 – Added Appendix A, Summary of Changes</p> <p>V2-011 – Incorporates explanatory/editorial changes</p> <p>V2-012 – Adds U.S. Army and Marine Corps JCIDS documents for Media Production systems as reference documents</p> <p>V2-013 – Adds program affordability data to section 7, Assets Required to Achieve Full Operational Capability</p> <p>V2-014 – Adds DOTMLPF section</p>

{end Functional Requirements Document}

