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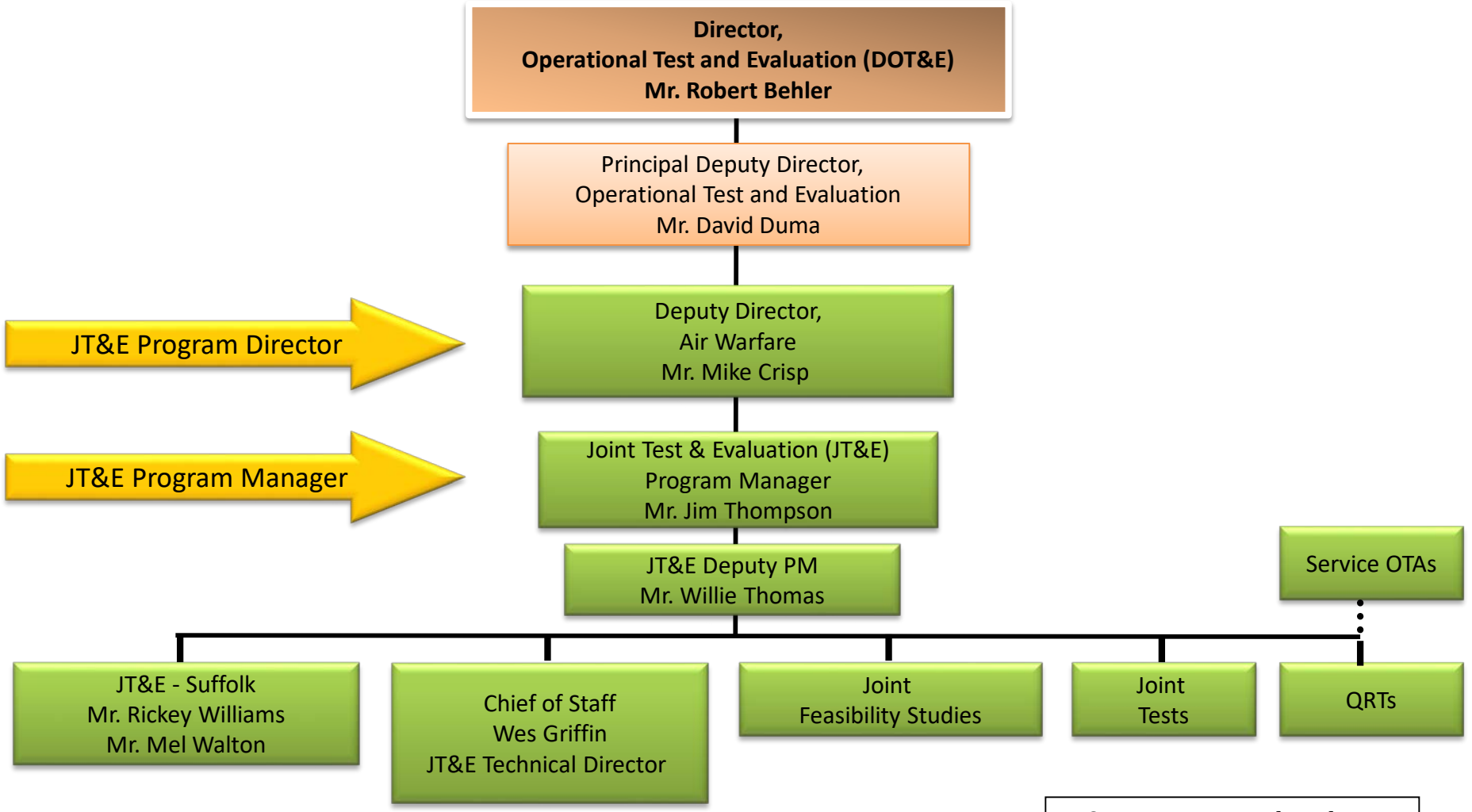
Joint Laser Systems Effectiveness (JLaSE) Joint Test Overview for the IDGA 3rd Annual Directed Energy and Next Generation Munitions

26 June 2018

Mr. Scott Boyd
Joint Test Director
NSWC Dahlgren

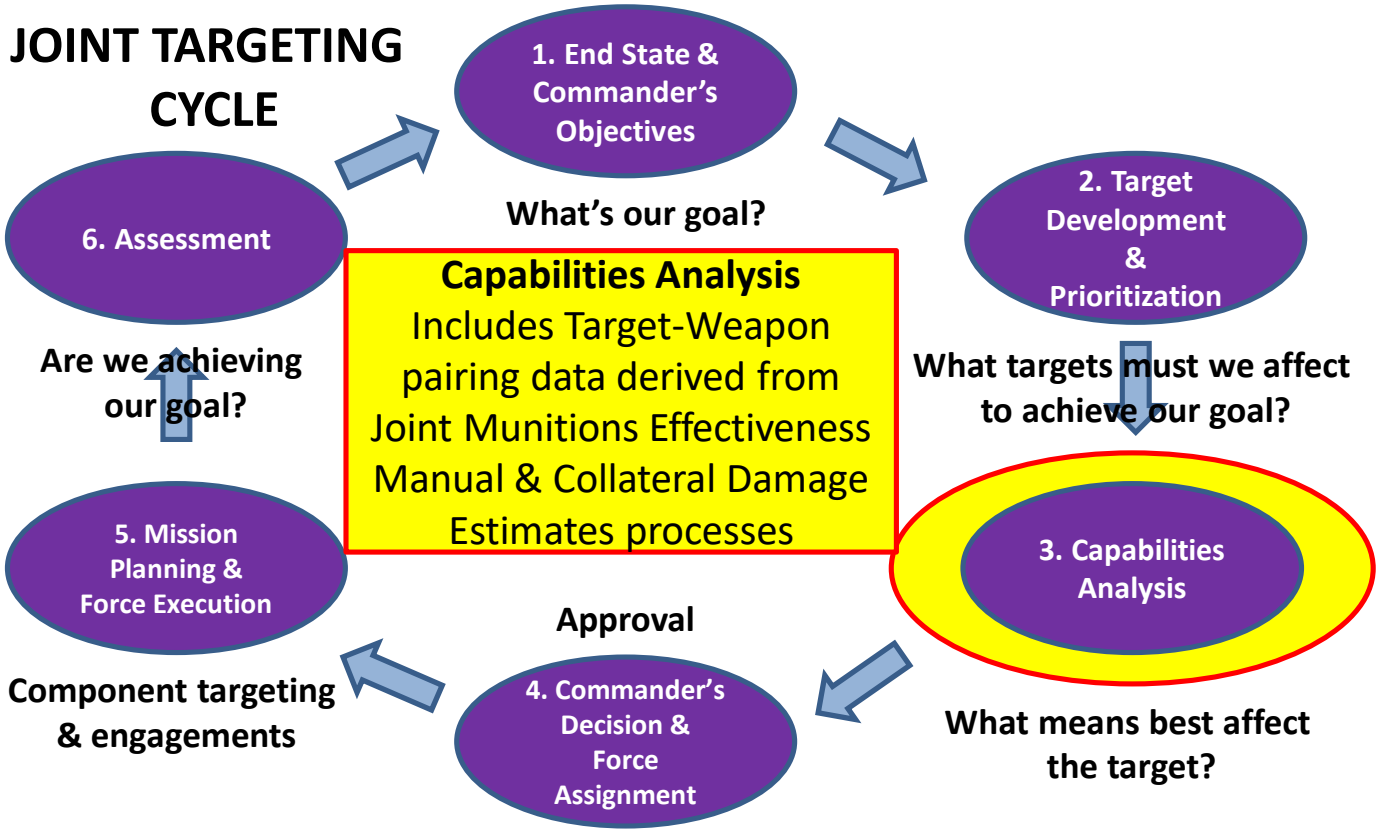
Joint Test & Evaluation Program



JT&E - Joint Test and Evaluation
QRT - Quick Reaction Test
OTA – Operational Test Agency

JLaSE Problem Statement

Problem Statement: Targeteers lack the ability to incorporate High Energy Laser (HEL) Weapon Systems into the Joint Targeting Cycle, Capabilities Analysis – Weaponeering and Collateral Damage Estimation to employ laser weapon capabilities.



JLaSE Background

- **Proposed as a DOT&E Special Project Joint Test in Aug 2016**
  - **SOCOM initially proposed as lead based on success of the Joint Fiber Laser Mission Engagement (J-FLaME) Joint Test and operational demand for weaponeering/laser lethality**
- **Chartered as Joint Feasibility Study on 24 Feb 2017**
- **Mar 2017, DOD agreed to fund JLaSE and the Joint Technical Coordination Group for Munitions Effectiveness (JTCG/ME) for FY18/19**
- **Chartered as a Joint Test on 18 Apr 2017 (Two Phases)**
  - **Phase One – 18 Apr 2017 to Dec 2017 to develop the Joint Test**
  - **Phase Two – Jan 2018 to Dec 2019 to conduct the Joint Test**

Operational Endorsers

- USSOCOM
- USPACOM
- USCENTCOM
- NORAD AND NORTHCOM
- USSTRATCOM
- JS J2
- JSOC
- ACC
- OPNAV N94
- MCWL
- USARPAC
- JWAC

- **JTCG/ME signed as Transition Agent & Product Owner**
  - JLaSE will develop and test procedures supporting the HEL Joint Munition Effectiveness Manual (JMEM) Weaponeering System (HEL JWS)
- **Also received a Congressional Endorsement**

JLaSE – JTCG/ME Relationship

DOT&E
Deputy Director Air Warfare/JT&E

JLaSE

Joint Targeting Cycle

DOT&E
Deputy Director Live Fire T&E

JTCG/ME

JTCG/ME

Validated data

Laser JMEM Data

J-NKE
ACC Langley
Mr. Justin Pyle

NSWCDD
Dahlgren
Dr. Chris Lloyd
Lethality testing

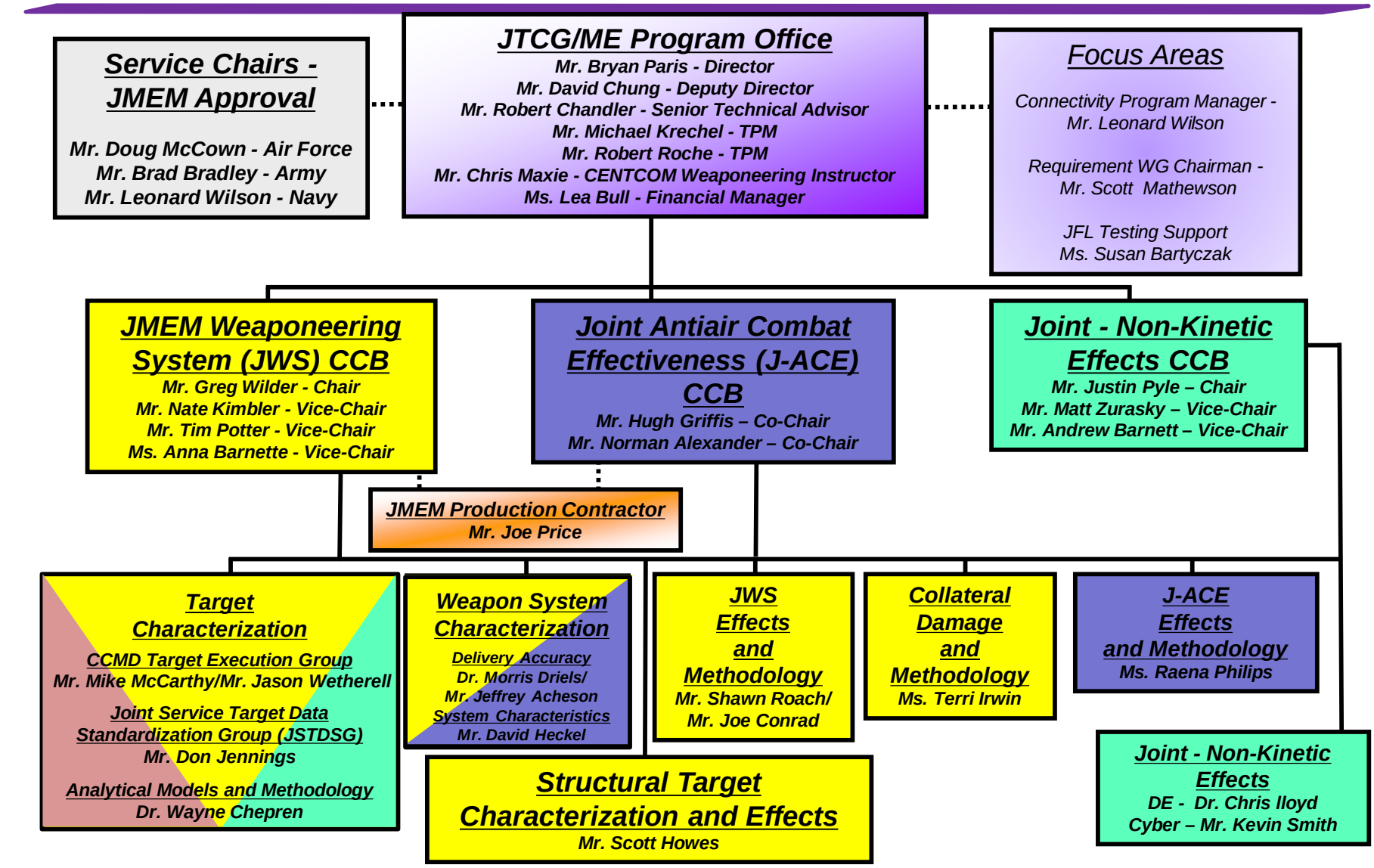
AFRL
Albuquerque
Mr. Bob Ulibarri
Lethality testing

AFRL
Ft Sam Houston
Dr. Bob Thomas
Ocular & Skin CDE

SMDC
Huntsville
Mr. Chuck Lamar
Lethality testing

- JLaSE Joint Test will develop and test procedures using laser JMEM data provided by Joint Non-Kinetic Effects (J-NKE) in support of the JTCG/ME.
- Data from previous, current, and future testing can also be used from NSWCDD & AFRL.

JTCG/ME Organization



Related Directed Energy Efforts

- **Directed Energy Joint Transition Office** (former HEL-JTO)
- **Directed Energy Laser Lethality/M&S efforts** where laser effects and target vulnerability testing are conducted and test results provide inputs into M&S:
  - **Lethality/M&S**
    - ❖ Technical Area Working Group (TAWG) consists of NSWC Dahlgren, Air Force Research Laboratory (AFRL) and the Army Space and Missile Defense Command (SMDC); interaction for over 14 years
    - ❖ The TAWG works with NSWC Crane & AFRL for sensor capabilities expertise in testing of sensors for degradation/damage thresholds
  - **Reflection and Collateral Damage Estimate (CDE)**
    - ❖ AFRL Bio-effects Division in San Antonio conducts HEL reflection testing for input into Hazard Analysis for DE Simulation (HADES) M&S models

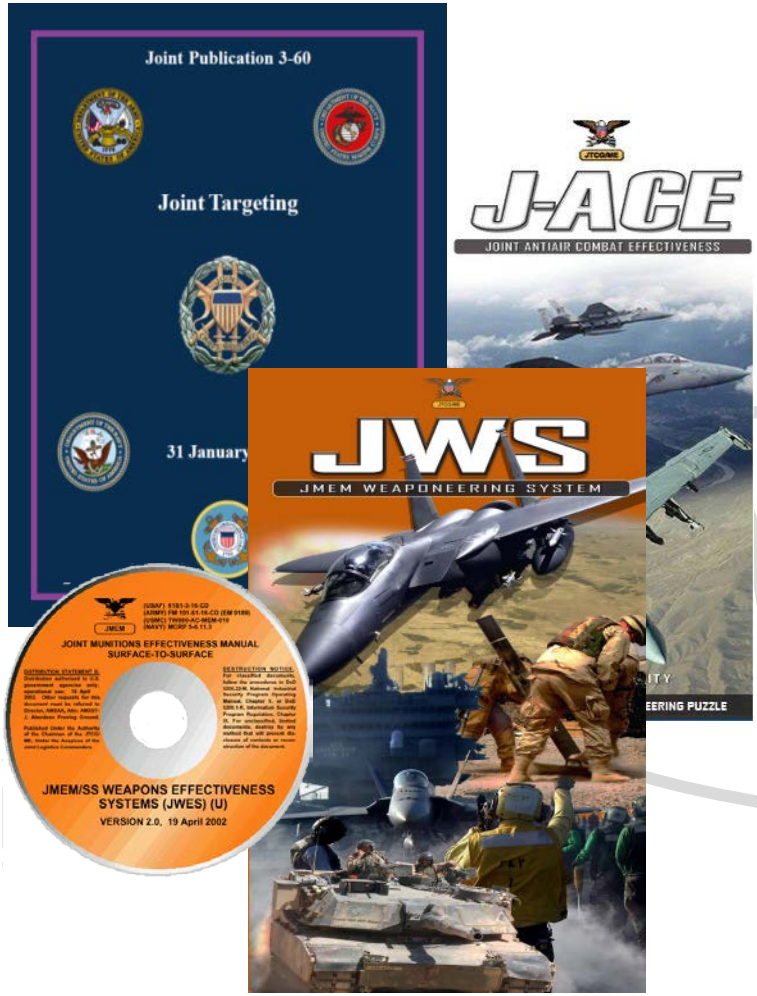
Stakeholder Groups

- **<u>Tactics, Techniques, Procedures (TTP) Working Groups (TWG)</u>:** Develop procedures needed to utilize HEL weapon systems and associated data be incorporated into the HEL JWS
- **<u>Intelligence Working Groups (IWG</u>**): Determine intelligence, weaponeering, and operational processes and products inherent in or to be developed for Capabilities Analysis when employing HEL weapon systems.
- **<u>Joint Warfighters Advisory Groups (JWAG)</u>:** Bring together subject matter experts to represent their organizational operational perspectives.

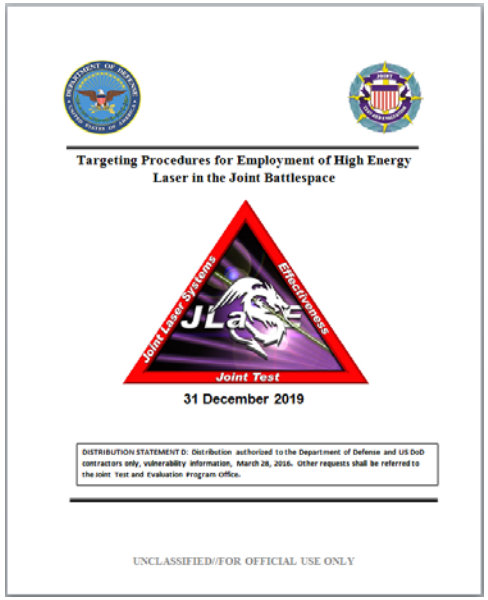
General Officer Steering Committee

Members		
Chair	RADM Hahn	Chief of Naval Research
DOT&E	Mr. Crisp (SES)	Deputy Director Air Warfare
DOT&E	Dr. Ugrina (SES)	Deputy Director Live Fire T&E
OSD Policy	Mr. Colby (SES)	DASD Strategy & Force Dev
OUSD AT&L	Dr. Conley (SES)	Deputy Director Electronic Warfare
USD(I)	Lt Gen Shanahan	Director for Defense Intelligence
ASD SO/LIC	Mr. Bob Doheny (SES)	Sr. Advisor for Policy and Program Oversight
SOCOM	Mr. Smith (SES)	Deputy Director Special Operations Research
PACOM	Dr. Ka'iliwai (SES)	Director Resources and Assessments J8
EUCOM	MG Davis / Brig Gen Meyer	Director of Operations J3
NORTHCOM	RDML Bert / BG Kramer	Deputy Director of Operations J3
NORAD	Brig Gen Pierce/Brig Gen Huyck	Deputy Director of Operations J3
US Air Force	Mr. Ted Uchida (SES)	Deputy Director ACC A3/ACC/A3-2
US Marine Corps	BGen Wortman	CG MCWL / VCNR
US Army	MG Shoffner	CG Fires Center of Excellence
US Navy	RDML Small	NAVSEA PEO IWS 2

Test Article Development
Weaponeering and CDE Processes



- JLaSE will:
  - Integrate HEL capabilities into existing joint weaponeering processes
  - Gain consensus from JWAG/GOSC selecting target (e.g. vehicles, UAS, small boats, power/comm grids)
  - Reverse engineer of JTCG system processes (e.g. JMEM Weaponeering System (JWS), Joint Anti-Air Combat Effectiveness (J-ACE), and Collateral Damage Estimate Mitigation Methodology Tools


Targeting Procedures for Employment of High Energy Laser in the Joint Battlespace

31 December 2019

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Field Test and TTP Development Events (TDE)

TDE	Test Venue	Location	Time Frame
TDE 1	MAWTS-1	Yuma, AZ	10-17 Apr 2018
TDE 2 (AW)	NAWDC	NAS Fallon, NV	Jun 2018
TDE 2 (SW)	SMWDC	Dahlgren, VA	Sep 2018
TDE 3	SOF	Ft Bragg, NC	Oct 2018
TDE 4	USAF/ Navy SOF	Hurlburt Field, FL / Canon AFB, NM	Jan 2019
Field Test A	JS J6 C5 AD	Suffolk, VA	Feb-Mar 2019
Field Test B	TS 2019	PACOM Exercises	2019
FT-B Back Up	NE 2019	PACOM Exercises	2019

- MAWTS-1 – Marine Aviation Weapons and Tactics Squadron One
- NAWDC – Naval Aviation Warfighting Development Center
- SMWDC – Surface & Mine Warfare Development Center
- USAF – United States Air Force
- SOF –Special Operations Forces
- JS J6 C5 AD – Joint Staff J6 C5 Assessments Div
- TS – TALISMAN SABRE
- NE – NORTHERN EDGE

End State - Test Product

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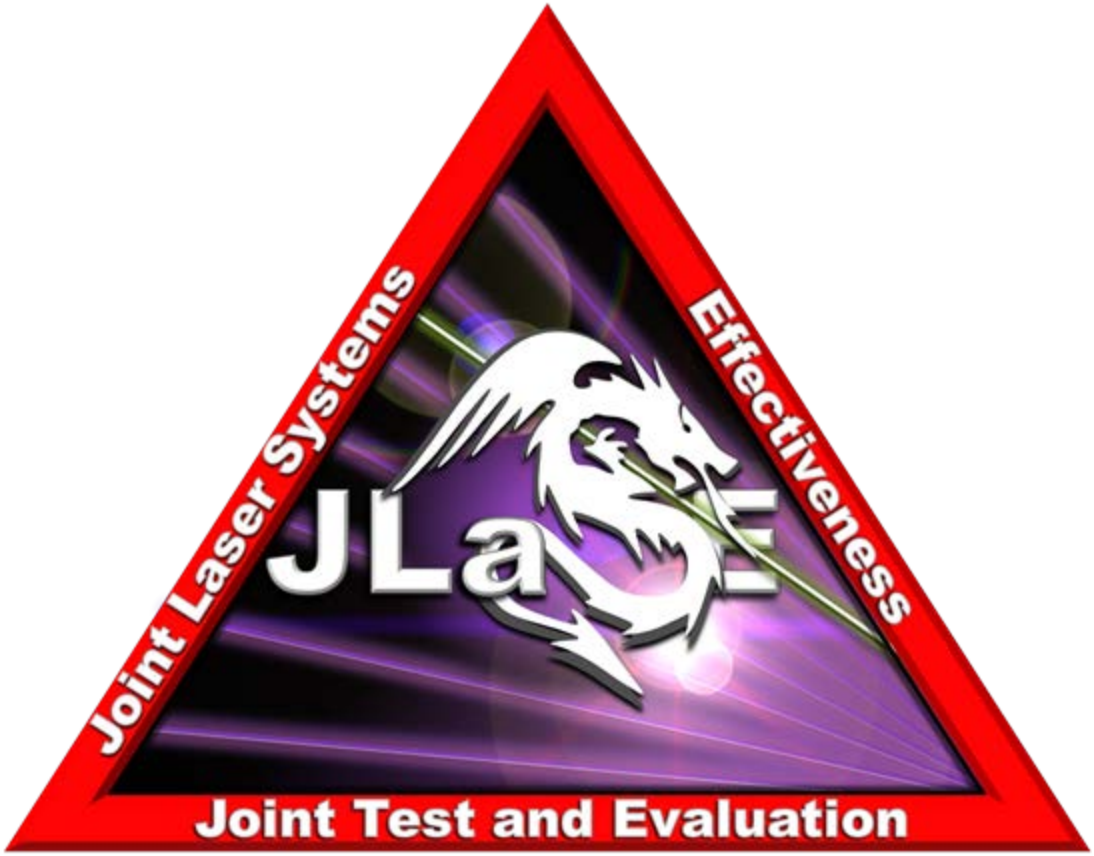
Table of Contents

Questions


Joint Laser Systems
Effectiveness
JLaE
Joint Test and Evaluation

4TH ANNUAL DIRECTED ENERGY SUMMIT

IDGA
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Future weapons, including directed energy weapons have been in the Research & Development phase for the past several years. As the US armed forces, continue to develop and innovate in order to achieve battlefield overmatch and superiority, the Directed Energy weapon systems are making their way form the R&D phase to DoD and Military programs as the next step before acquisition and force integration.

Over the three-day summit we will examine the latest DE advancements, initiatives and plans regarding technology, acquisition and service roadmaps. This event will bring together thought leaders, acquisition executives, industry solution providers, and academia in order to tackle some of the challenges that face this community in the near, mid, and far term fight. We will look to gain insight and lessons learned from warfighter perspectives on the operational challenges and requirements of DES that will influence the capabilities of this game-changing technology.

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