

**BY ORDER OF THE COMMANDER
SPACE OPERATIONS COMMAND**

**SPACE OPERATIONS COMMAND
MISSION DIRECTIVE 200**

15 AUGUST 2023

Mission Directive

**HEADQUARTERS SPACE DELTA 2 -
SPACE DOMAIN AWARENESS (SDA)**



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This mission directive implements guidance in AFI 38-101, *Manpower and Organization*. Its purpose is to define the mission, organization, and responsibilities of the United States Space Force USSF Space Domain Awareness (SDA) Squadrons. This MD applies to all Space Delta 2 units and personnel. This MD does not apply to Air National Guard, Air Force Reserve Command, or United States Air Force units and members. Refer recommended changes and questions about this publication to the OPR using DAF Form 847, *Recommendation for Change of Publication*; route DAF Forms 847 from the field through the appropriate functional's chain of command. Submit requests for waivers through the chain of command to the appropriate Tier waiver approval authority, or alternately, to the Publication OPR for non-tiered compliance items. Ensure that all records created as a result of processes prescribed in this publication are maintained IAW AFI33-322, *Records Management and Information Governance Program*, and disposed of IAW the Air Force Records Information Management System Records Disposition Schedule. This publication may not be supplemented or further implemented/extended.

1. Mission. Space Delta 2 provides critical combat support to its assigned Space Domain Awareness (SDA) Squadrons. SDA is the effective identification, characterization, and understanding of any factor, passive or active, associated with the space domain that could affect space operations and thereby impact the security, safety, economy, or environment of our nation. Space Delta 2 consists of: four active duty squadrons and their respective operating locations and/or detachments, two operating locations, and one detachment, 15th Space Surveillance Squadron (15 SPSS), 15th SPSS Detachment 1, 15th SPSS Detachment 2, 18th Space Defense Squadron (18 SDS), 18th SDS, Detachment 1, 19th Space Defense Squadron (19 SDS), 20th Space Surveillance Squadron (20 SPSS), 20 SPSS Operating Location – Alpha (20 SPSS OL-A), DEL 2 Operating Location – Alpha Alpha (DEL 2 OL-AA), DEL 2 Operating Location – Bravo (OL-B), and DEL 2 Detachment 2 (DEL 2 Det 2). They are organized under Deployment Identification Code 9 Unit Type Code of “9ABDA – HQS Group”.

1.1. HQ Space Delta 2 (DEL 2) organized/designed mission. The mission of DEL 2 is to prepare, present, and fight using assigned and attached forces executing combat-ready SDA operations to maintain freedom of action for United States, allied, civil and commercial partners; and to close the kill-chain to protect and defend the United States and our allies from attack in, from, and to space.

1.1.1. Del 2 Weapon Systems and equipment . HQ Space Delta 2 does not operate, maintain or manage any weapon systems or mission equipment.

1.1.2. Del 2 applicable Threat Environments. HQ Space Delta 2 has been organized/designed to operate in Threat Level 1, Threat Level 2 and Threat Level 3.

1.1.3. Del 2 Future Requirements. There are currently no planned future requirements for DEL 2.

1.1.4. Del 2 Air Reserve Component Total Force Integration (TFI) relationship. There is no Air Reserve Component associated with HQ Space Delta 2

1.2. DEL 2 Det 2 organized/designed mission. DEL 2 Det 2 is located at Starfire Optical Range (SOR), Kirtland AFB, Albuquerque, New Mexico and is developing capabilities for nighttime, near real-time, high-resolution satellite imaging and Closely Spaced Objects (CSO) detection in support of USSPACECOM requirements and national security objectives. DEL 2 Det 2 augments Air Force Research Lab (AFRL) operations at SOR, which includes laser range finders and large telescopes pioneering the use of laser guide star and adaptive optics for SDA in support of innovation efforts for DEL 2 and Space Systems Command.

1.2.1. DEL 2 Det 2 Weapon Systems and equipment . DEL 2 Det 2, in conjunction with AFRL Electro-Optical Division, operates, maintains, and manages:

1.2.1.1. A 3.5-m telescope to gather imaging of space objects. The telescope uses adaptive optics that corrects for atmospheric distortions in real-time, using a closed-loop system consisting of a wave-front sensor, reconstructor, sodium guide star to measure atmospheric distortion, and deformable mirror.

1.2.1.2. A 1.5-m telescope to image space objects. The telescope uses adaptive optics that corrects for atmospheric distortion in real-time, using a closed-loop system consisting of a wave-front sensor, deformable mirror, and Rayleigh Beacon to measure atmospheric distortion.

1.2.1.3. A 1.0-m (laser) auxiliary beam director that provides illumination of LEO space objects in full dark conditions for detection by the 3.5-m and 1.5-m telescopes.

1.2.2. **DEL 2 Det 2 applicable Threat Environments.** Del 2 Det 2 has been organized/designed to operate in Threat Level 1, Threat Level 2 and Threat Level 3.

1.2.3. **Del 2 Det 2 Future Requirements.** There are currently no planned future requirements for Del 2 Det 2.

1.2.4. **DEL 2 Det 2 Air Reserve Component TFI relationship.** There is no Air Reserve Component associated with DEL 2 Det 2.

1.3. **DEL 2 OL-AA organized/designed mission.** DEL 2 OL-AA is located at Peterson SFB, Colorado Springs, Colorado. DEL 2 OL-AA is responsible for the development and establishment of operational squadrons in support of future SDA weapon systems. As new SDA weapon systems are delivered to DEL 2, DEL 2 OL-AA is designated as the Subject Matter Experts (SMEs) of the system, developing initial operational procedures and operational requirements (e.g., training plans, TTPs, combat/dwell cycles, etc.). DEL 2 OL-AA also provides operators in support of system development and during testing periods. From an administrative perspective, DEL 2 OL-AA advocates for the new squadron's logistics and resource requirements, based on the System Concept (SYSCON) and associated acquisition documents.

1.3.1. **DEL 2 OL-AA Weapon Systems and equipment** . DEL 2 OL-AA does not have a dedicated weapon system and will develop/operate weapon systems as they are delivered to DEL 2.

1.3.2. **DEL 2 OL-AA applicable Threat Environments.** Del 2 OL-AA has been organized/designed to operate in Threat Level 1, Threat Level 2 and Threat Level 3.

1.3.3. **DEL 2 OL-AA Future Requirements.** DEL 2 OL-AA has the following future requirements:

1.3.3.1. DEL 2 OL-AA will require Type I training of each new SDA weapon system allocated to the unit to fulfill responsibilities as SMEs and the initial cadre of the weapon systems. DEL 2 OL-AA will coordinate with the applicable System Program Office (SPO) to ensure training requirements are included within the weapon system contract.

1.3.3.2. DEL 2 OL-AA will require testing guidance from Space Delta 12 in support of developmental testing (DT) and operational testing (OT) requirements. Due to the mission and operations tempo of DEL 2 OL-AA, a consistent battle rhythm needs to be established with the applicable SDA test team.

1.3.3.3. DEL 2 OL-AA will require communications access to networks across the classification spectrum (e.g. NIPR, SIPR, JWICS, SGN, CORE, etc.) in order to effectively develop weapon systems IAW mission requirements. Use of classified networks may require logistics resources (e.g. additional workspace). Accesses will allow DEL 2 OL-AA to support both testing and operations of weapon systems. DEL 2 OL-AA will also leverage its network accesses to coordinate further analysis support and collaboration efforts with Command and Control (C2) agencies (e.g. 18 SDS) and other sensors (e.g. 15 SPSS).

1.3.3.4. DEL 2 OL-AA will require continual access to the Unified Data Library (UDL), which is the authoritative source for accessing and managing all data in support of Space Force operational systems. The UDL is pivotal in accessing non-traditional data for space operations.

1.3.4. **DEL 2 OL-AA Air Reserve Component TFI relationship.** There is no Air Reserve Component associated with DEL 2 OL-AA.

1.4. **DEL 2 OL-B organized/designed mission.** DEL 2 OL-B is located at Royal Australian Air Force (RAAF) Base Edinburgh, Adelaide, South Australia and conducts radar surveillance and Space Situational Awareness (SSA). SSA primarily focuses on current mission operations as the effective knowledge and characterization of space objects, and is a critical component to SDA – similar to how the Air Force strives for maximum Air Domain Awareness (ADA) to achieve Air Superiority. DEL 2 OL-B is the liaison to the No. 1 Remote Space Unit (1RSU) which is charged with enhancing the Aerospace Data Facility's space presence and SSA. This is achieved with the C-band radar, Space Based Infrared System – Australian Mission Processor (SBIRS-AMP), and Space Surveillance Telescope (SST).

1.4.1. **DEL 2 OL-B Weapon Systems and equipment.** 1RSU operates, maintains, and manages:

1.4.1.1. The C-band radar is a sensor within the Space Surveillance Network (SSN) – a worldwide network of telescopes and radars that detect, track, identify and catalogue man-made objects in space and provides valuable coverage over the southern hemisphere. This information is used to contribute to space-flight safety and to ensure that satellites are not endangered by space debris. The C-band radar is located at Harold E Holt (HEH) and operated by 1RSU personnel.

1.4.1.2. The SST meets a gap in detecting and tracking satellites out to geostationary orbit over the eastern hemisphere. It is designed by the Defense Advanced Research Projects Agency (DARPA) and it is installed at HEH and operated by 1RSU personnel.

1.4.2. **DEL 2 OL-B applicable Threat Environments.** DEL 2 OL-B has been organized/designed to operate in Threat Level 1, Threat Level 2 and Threat Level 3.

1.4.3. **DEL 2 OL-B Future Requirements.** 1RSU has the following future requirements:

1.4.3.1. When delivered, 1RSU personnel will operate and maintain DARC (Deep Space Advanced Radar Capabilities). DARC provides deep space SDA from three geographically dispersed radar sites. Each radar site is capable of supporting multiple simultaneous launch tracking and custody, P&D missions. Site 1 (INDOPACOM) expected to be operational by March 2025, site 2 (EUCOM) by May 2027, and Site 3 (CONUS) by Dec 2027.

1.4.4. **DEL 2 OL-B Air Reserve Component TFI relationship.** There is no Air Reserve Component associated with DEL 2 OL-B.

2. Command. Combatant Command authority is vested in Commander, United States Space Command (CDRUSSPACECOM), through its C2 facilities. CDRUSSPACECOM delegated tactical control of assigned space forces to Combined Force Space Component Commander (CFSCC). The CFSCC coordinates, plans, integrates, synchronizes, task, executes and assesses space operations. The unit commander is authorized to communicate, coordinate, and work with

other units or agencies on matters relating to mission accomplishment or regarding administrative or logistical support under applicable agreements and memorandums of understanding.

3. Responsibilities:

- 3.1. Comply with requirements identified in all DAFIs, SPFIs and SpOCIs which include: AFI 1-2 *Commander's Responsibilities* and AFSPCI 10-605, *Operational Acceptance Process*.
- 3.2. Ultimately responsible for accomplishing assigned missions.
- 3.3. Unit members are trained, evaluated, and certified mission ready operators.
- 3.4. Provides administrative and logistical support to assigned personnel.
- 3.5. Establishes training and standardization and evaluation programs as directed by Higher HQ and Delta policy and guidance.
- 3.6. Evaluates on-site contractor performance in accordance with the statement of work (SOW) and guidance from the contracting officer.
- 3.7. Ensures adequate security is provided to protect any restricted access facilities and resources.
- 3.8. Assumes overall responsibilities for space systems maintenance, operations, training, evaluation, computer programming, computer operations, and satellite systems engineers.
- 3.9. Provides for the accounting, control, safeguarding, disbursing, and collection of government funds.
- 3.10. Provides data collection, processing, and reporting of operations and identifies capability assessment.
- 3.11. Implements procedures for accommodating new mission requirements or system enhancements.

STEPHEN N. WHITING, Lieutenant General, USSF
Commander

Attachment 1**GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION*****References***

AFI 1-2, *Commander's Responsibilities*, 8 May 2014

AFI 38-101, *Manpower and Organization*, 29 August 2019

AFI 33-322, *Records Management and Information Governance Program*, 23 March 2020

AFSPCI 10-605, *Operational Acceptance Process*, 20 June 2016

Prescribed Forms

None

Adopted Forms

DAF Form 847, *Recommendation for Change of Publication*

Abbreviations and Acronyms

1RSU—No. 1 Remote Sensor Unit

ADA—Air Domain Awareness

C2—Command and Control

CDRUSSPACECOM—Commander, United States Space Command

CFSCC—Combined Force Space Component Commander

CSO—Closely Spaced Object

DARC—Deep Space Advanced Radar Capabilities

DARPA—Defense Advanced Research Projects Agency

DEL 2—Space Delta 2

DSP—Defense Support Program

DT—Developmental Testing

GEO—Geostationary Orbit

HEH—Harold E Holt

HEO—Highly Elliptical Orbit

IR—Infrared

LEO—Low Earth Orbit

OT—Operational Training

RAAF—Royal Australian Air Force

SBIRS-AMP—Space Based Infrared System - Australian Mission Processor

SDA—Space Domain Awareness

SMEs—Subject Matter Experts

SOR—Starfire Optical Range

SpOC/CC—Commander, Space Operations Command

SSA—Space Situational Awareness

SSN—Space Surveillance Network

SST—Space Surveillance Telescope

SYSCON—System Concept

TFI—Total Force Integration

UDL—Unified Data Library

Office Symbols

15 SPSS—15th Space Surveillance Squadron

18 SDS—18th Space Defense Squadron

19 SDS—19th Space Defense Squadron

20 SPSS—20th Space Surveillance Squadron

DEL 2 Det 2—Space Delta 2 Detachment 2

DEL 2 OL-AA—Space Delta 2 Operating Location - Alpha

DEL 2 OL-B—Space Delta 2 Operating Location - Bravo