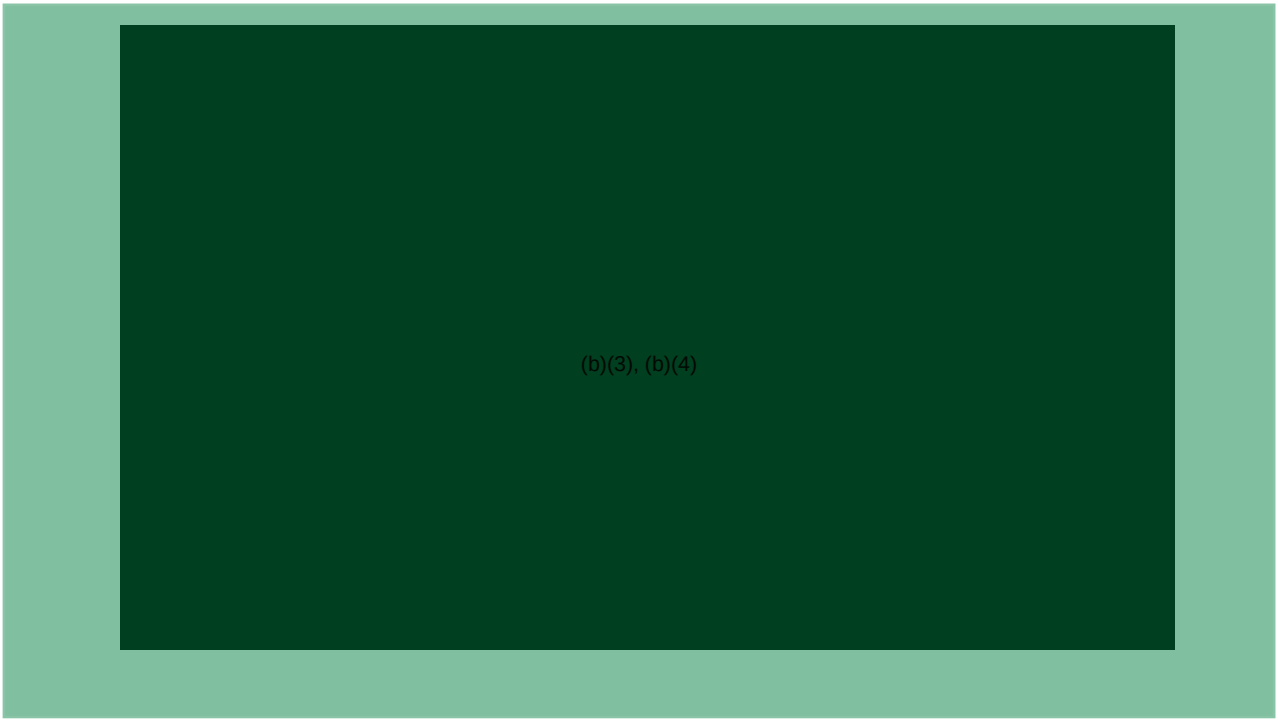
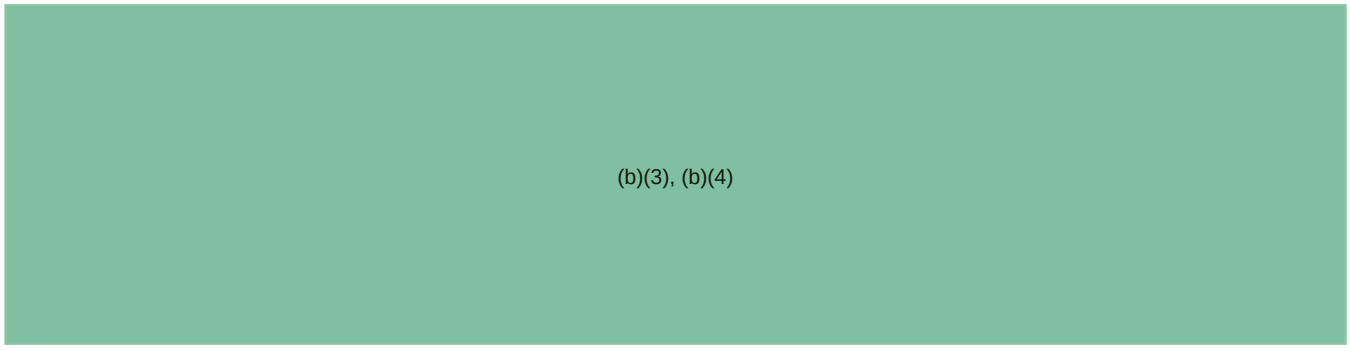
MISSION SYSTEMS (MS)

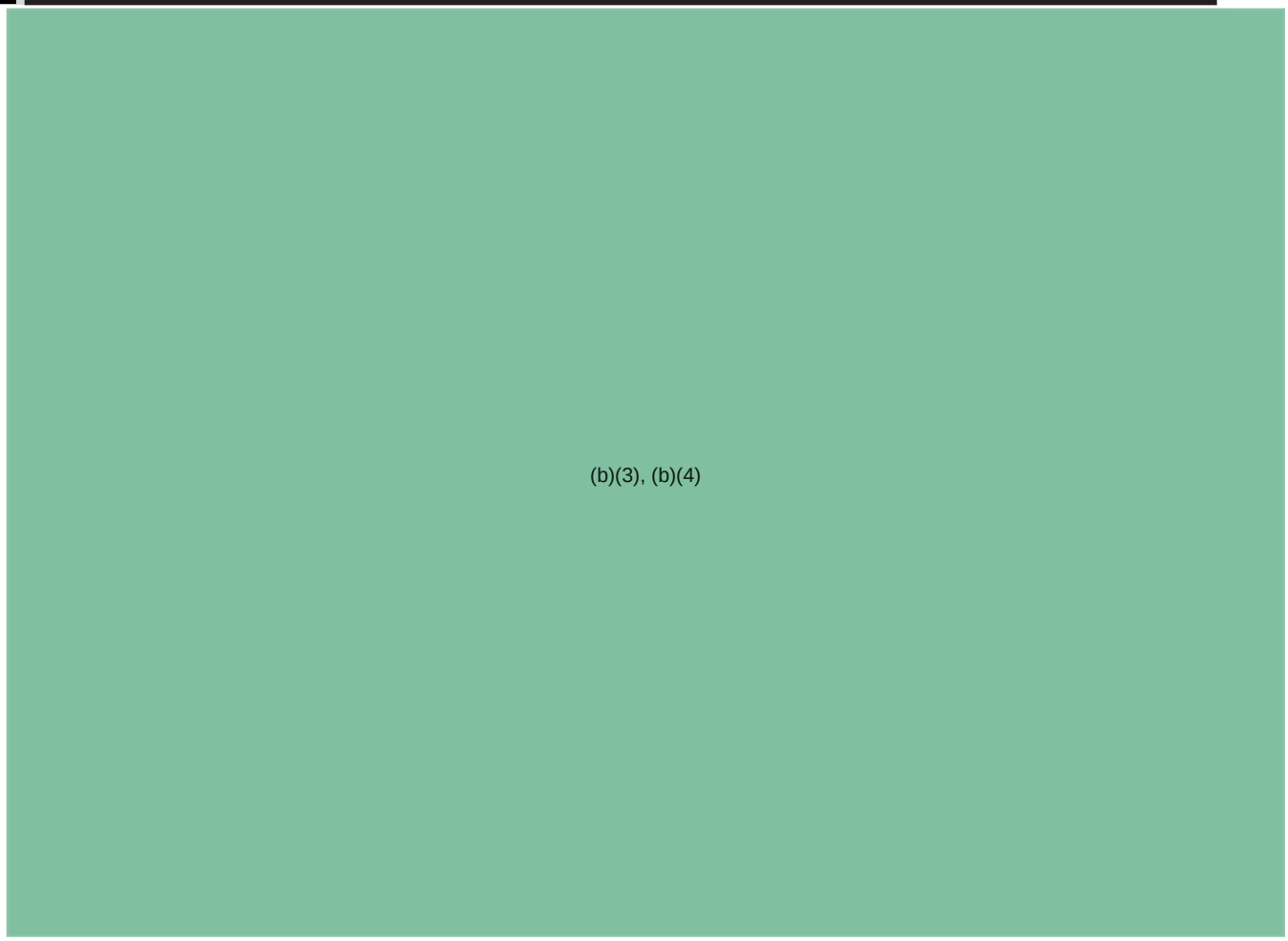
DESCRIPTION: (b)(3), (b)(4) display management computer left (DMCL) and DMC right (DMCR) are the computers that perform processing and generate video to drive the head-down multi-function display unit (DU). The DU consists of the display surface and touch screen. Display management computer-helmet (DMCH) is the computer that performs processing and drives video to the helmet mounted display (HMD). The integrated core processor (ICP) provides MS general purpose processing, sensor processing, and network resources to support a variety of tactical functions.



OBSERVATION: The MS data transmitted to VS for CSMU recording is very limited. Due to the limited nature of MS data recorded on the CSMU, it is not possible to determine what the pilot saw on the head down DU or the HMD, but the operational state of the DMCs can be assessed. The following analysis focuses on the aircraft time period from approximately AC time 4752s to 4792s.

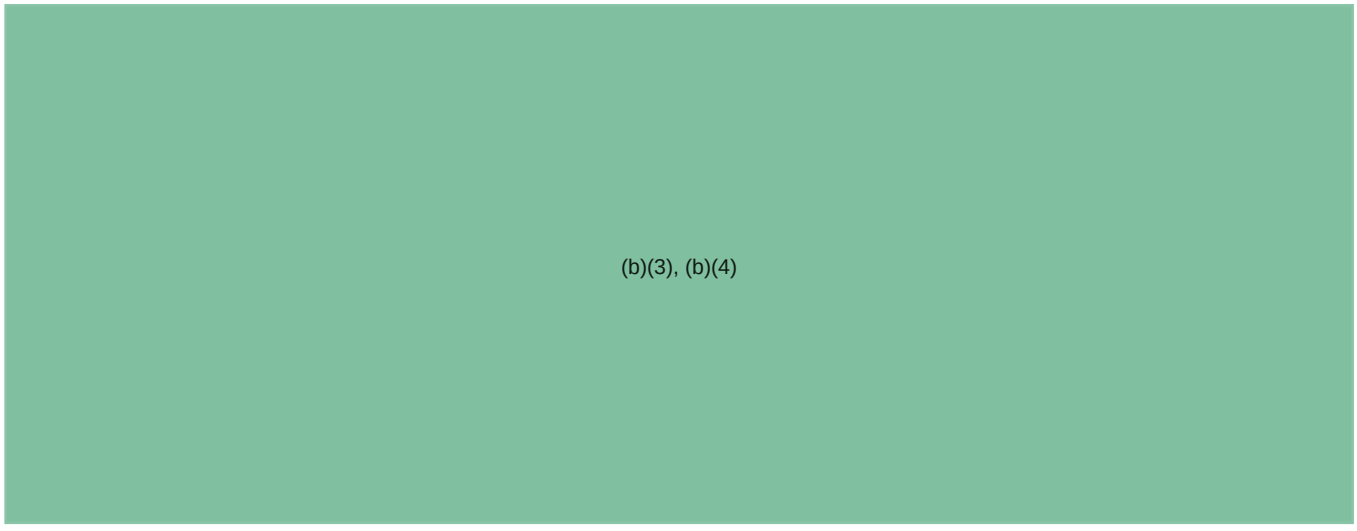
DMC LEFT (DMCL) AND DMC RIGHT (DMCR)





CONCLUSION: Due to the limited nature of MS data recorded on the CSMU, it is not possible to determine what the MP saw on the HMD. Recorded CSMU data indicated the DMCs remained powered and were able to provide critical information such as ICAWS from AC time 4752s (17:32:06.5Z) to 4792s (17:32:46.5Z).

INTEGRATED CAUTION AND WARNING SYSTEM (ICAWS) DATA



(b)(3), (b)(4)

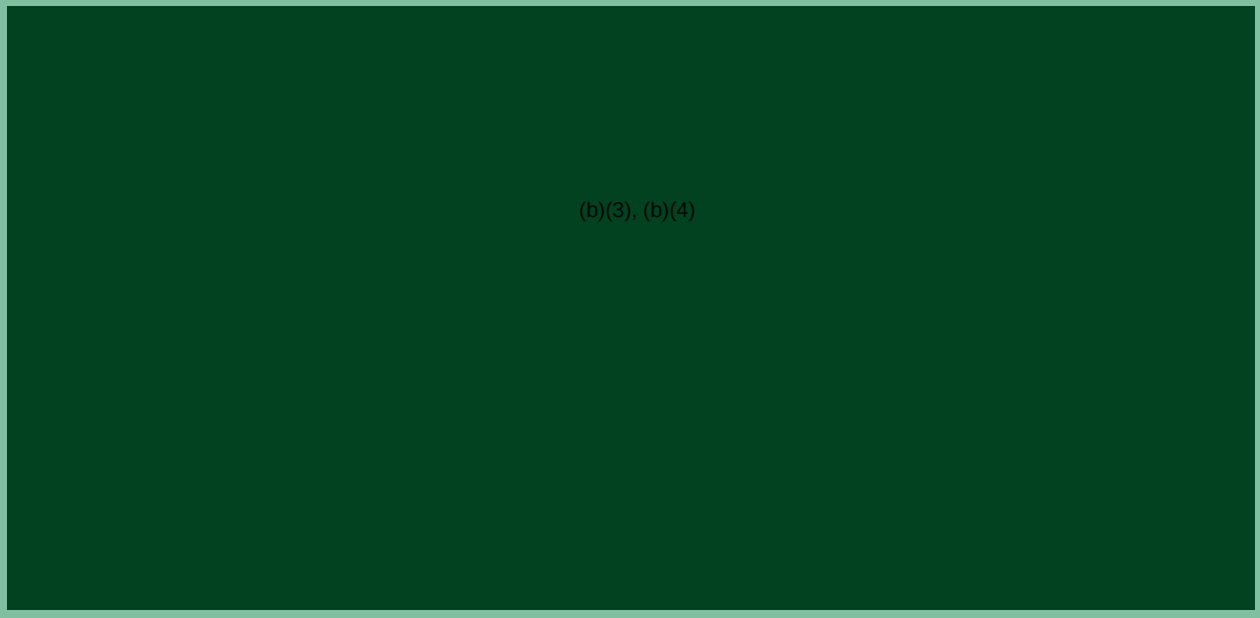
CONCLUSION: Data indicates that ICAWS were functioning properly up to aircraft time of approximately AC time 4790s (17:32:44.5Z).

DMC - HELMET (DMCH) AND HMD

(b)(3), (b)(4)

CONCLUSION: Recorded CSMU data indicated the DMCH and HMD remained powered and displayed information to the pilot during the time period from approximately AC time 4752s to 4792s. Helmet pitch data during the last 24 seconds recorded several instances of significant downward head movement.

DATA COMPARISON TO OTHER FLIGHTS


(b)(3), (b)(4)

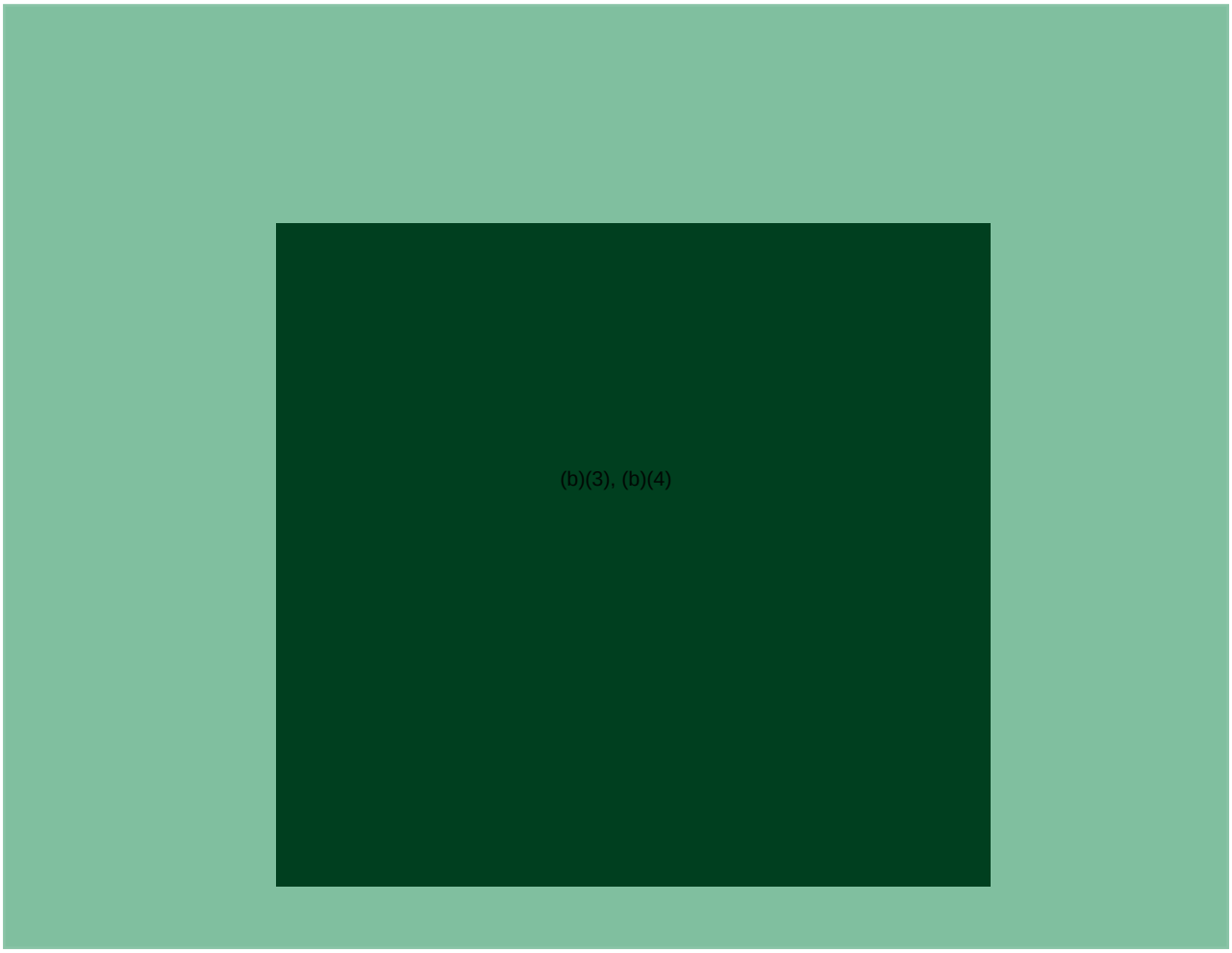
CONCLUSION: The data comparison on six additional flights with a common EPS event suggests DMCL, DMCR, and DMCH for the MA did not lose power during the transient electrical event.

STANDBY FLIGHT DISPLAY (SFD)

ANALYSIS: The SFD provides a source of aircraft flight parameters, independent of the DMCs. The SFD's only reliance on Mission Systems is for the calculation of magnetic heading, which occurs on DMCR.

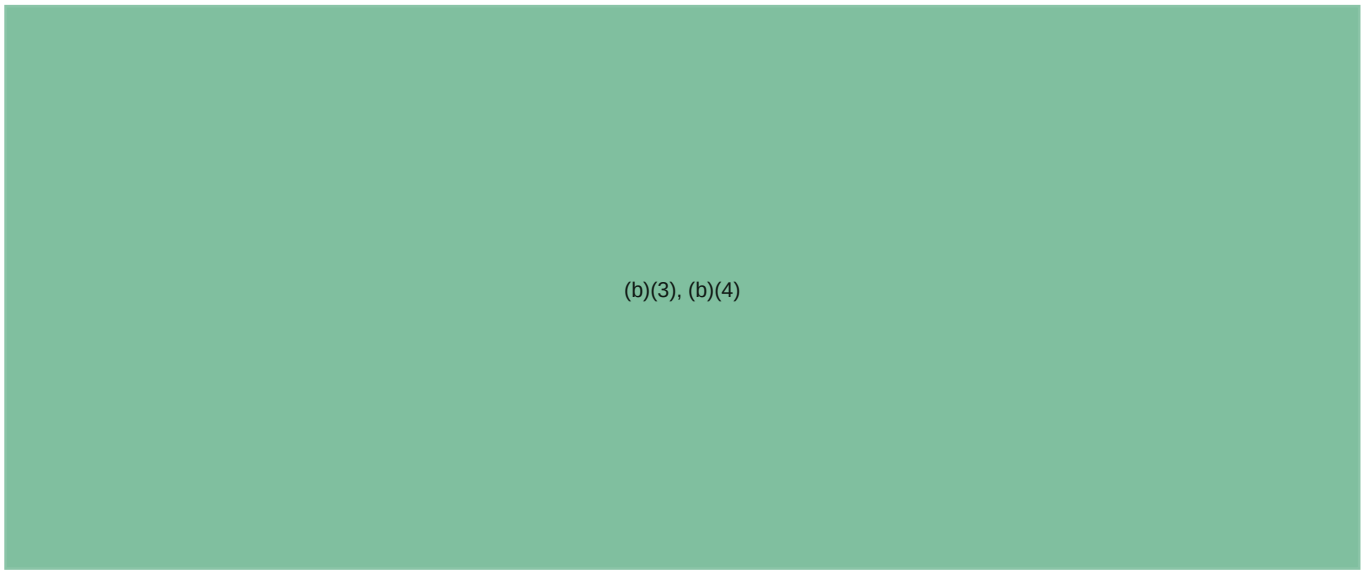
The SFD relies on an internal inertial measurement unit (IMU) for aircraft attitude information and the air data system for additional flight parameters. (b)(3), (b)(4)

(b)(3), (b)(4)



CONCLUSION: The SFD provided valid flight reference data to the MP throughout the time period from AC time 4752s to 4792s

INTEGRATED CORE PROCESSOR (ICP)



CONCLUSION: CSMU data recorded the ICP-A restarting at approximately AC time 4753s (17:32:07.5Z), while the ICP-B continued to operate normally during the time period from approximately AC time 4752s (17:32:06.5Z) to 4792s (17:32:46.5Z).

RECOMMENDATION: None.

FLIGHT CONTROL LAW APPLICATION (CLAW)

DESCRIPTION: Aircraft control is provided by execution of a defined set of control laws (CLAWs) that reside in VMC software, based on the flight mode of the aircraft. The F-35B control law (CLAW) application uses multiple feedback sensors and switches to stabilize the aircraft and provide desired handling qualities for pilot tasks in all regimes, including ground handling, power approach (PA), up and away (UA) modes. The F-35B aircraft may operate in CTOL mode or in STOVL mode. In flight, the F-35B has relaxed stability in the pitch and yaw axes making it impossible for the pilot to control the aircraft without stabilizing feedback loops.

CTOL Mode. The CTOL modes include PA for takeoff and landing, and UA when the landing gears are up. Aerial refueling (AR) is a submode of UA and PA and occurs when the probe is extended. Autopilot modes are provided and can be selected via hand on throttle and stick (HOTAS), pedals, or the PCD. (b)(3), (b)(4)

The UA control laws provide maneuvering throughout the gear-up envelope, including the post-stall regime. The longitudinal control system is a pitch rate command system at low speeds, which switches to a normal load factor (Nz) command system at higher speeds (b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4) The roll axis is a stability axis roll rate command system. For small deflections, the lateral stick commands roll rate proportional to stick deflection, but as deflection increases the command becomes parabolic. The roll coordination is automatic, incorporating a slight amount of adverse sideslip during the roll, eliminating the need for coordination with pedal. The directional axis is a proportional sideslip command system at lower angle of attack, transitioning to a yaw rate command system at higher angle of attack. (b)(3), (b)(4)

The PA CLAW provides precise control of glideslope, lineup, and speed/AOA during approach and landing. (b)(3), (b)(4)

(b)(3), (b)(4)

The pitch axis control law in PA uses a blended control approach to provide neutral speed stability at higher speeds and good speed stability at approach. (b)(3), (b)(4)

(b)(3), (b)(4), (b)(7)e

(b)(3), (b)(4)

The AGCAS will generate an automatic flyup when the model predicts the potential for ground collision while in CTOL mode with the landing gear up (UA). Pitch, roll, and engine thrust are commanded as required to clear terrain(b)(3), (b)(4)

If terrain elevation data (TED) data, radar altimeter (RALT), and system altitude are unavailable, AGCAS coverage is not available. With a failed ICP B or a degraded OKM solution, the AGCAS function is not available. (b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)

STOVL Mode. (b)(3), (b)(4)

(b)(3), (b)(4) The STOVL CLAWs control the aircraft after the propulsive lift system has been engaged. STOVL flight is comprised of two flight phases: semi-jet (SJ) and jetborne (JB). On ground modes include Taxi and Short Takeoff (STO) control law modes. (b)(3), (b)(4)

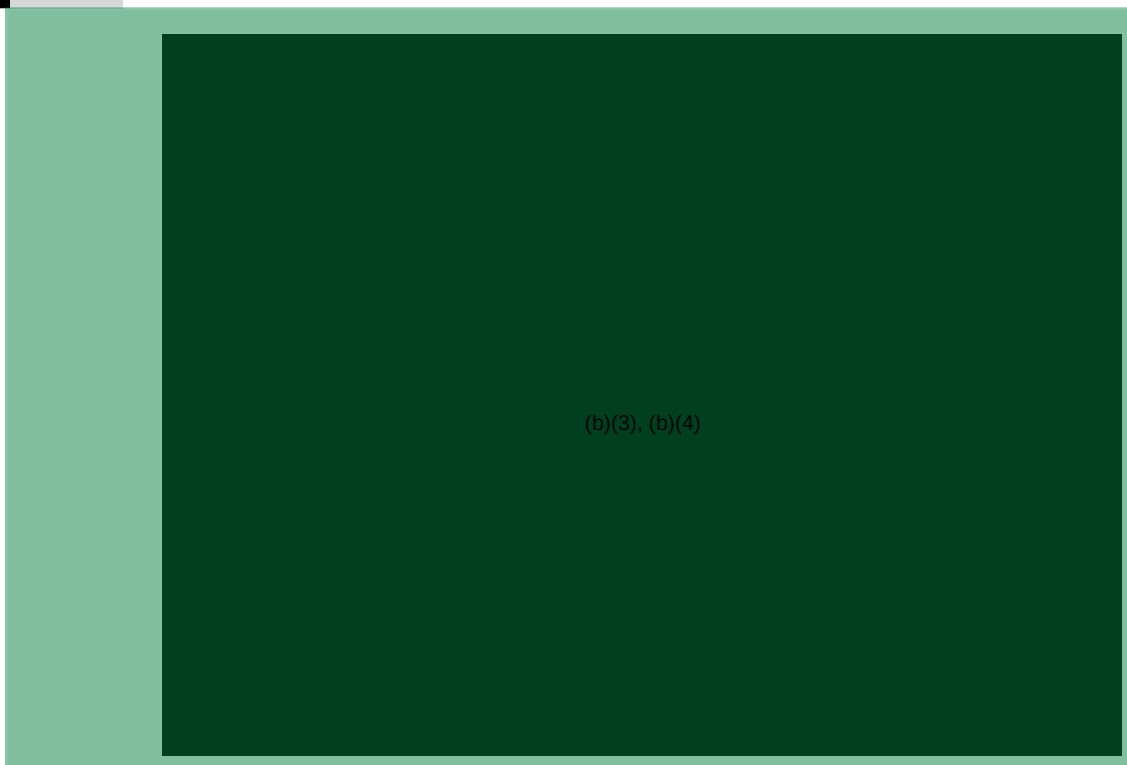
Conversion. Conversion is the reconfiguration of the aircraft and propulsion system between conventional flight with the lift system disengaged and STOVL flight with the lift system engaged. At any time during a transition in normal operation, including conversion, it is possible to quickly and safely stop the maneuver and reverse its direction. (b)(3), (b)(4) Conversion is initiated by the pressing of the conversion button when the aircraft is within the conversion flight envelope and in either Mode 1 (CTOL) or Mode 4 (STOVL).

(b)(3), (b)(4)

Conversion is conceptually broken into six top level modes for communication between the airframe and propulsion system (b)(3), (b)(4)

(b)(3), (b)(4) Modes 1 and 4 are steady-state modes, representing aircraft and propulsion system configurations for CTOL and STOVL flight, respectively.

(b)(3), (b)(4)



During a conversion from a CTOL to a STOVL configuration, the aircraft proceeds through Modes 2 and 3, which encompass the opening of the STOVL doors, the reconfiguration of the propulsive system by clamping and locking the clutch, and the CLAW initiation closed-loop control over the propulsive effectors. (b)(3), (b)(4)

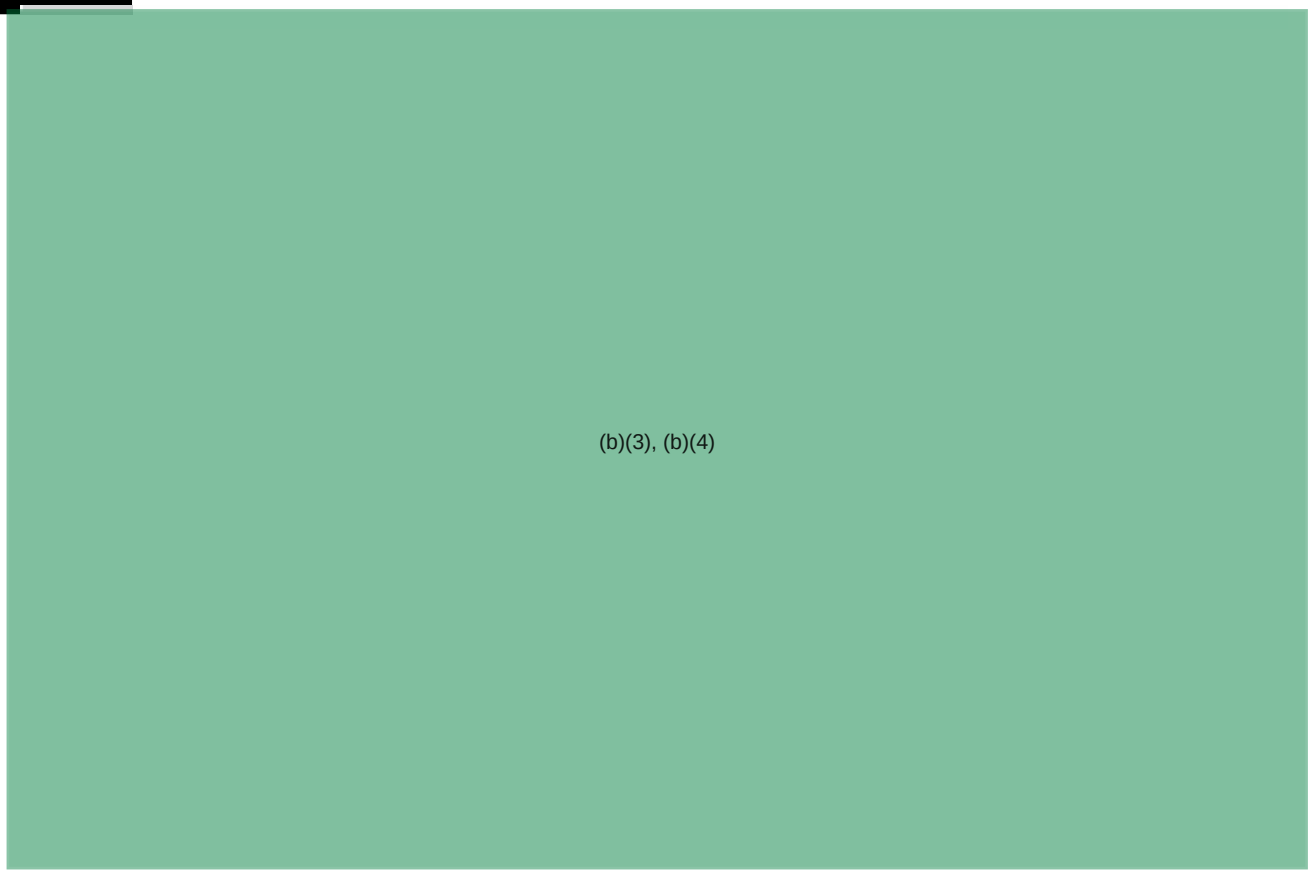
(b)(3), (b)(4)

During a conversion from a STOVL to a CTOL configuration, the aircraft proceeds through Modes 5 and 6, which encompass the closing of the STOVL doors and the unlocking of the clutch as the aircraft is reconfigured for conventional flight. (b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)



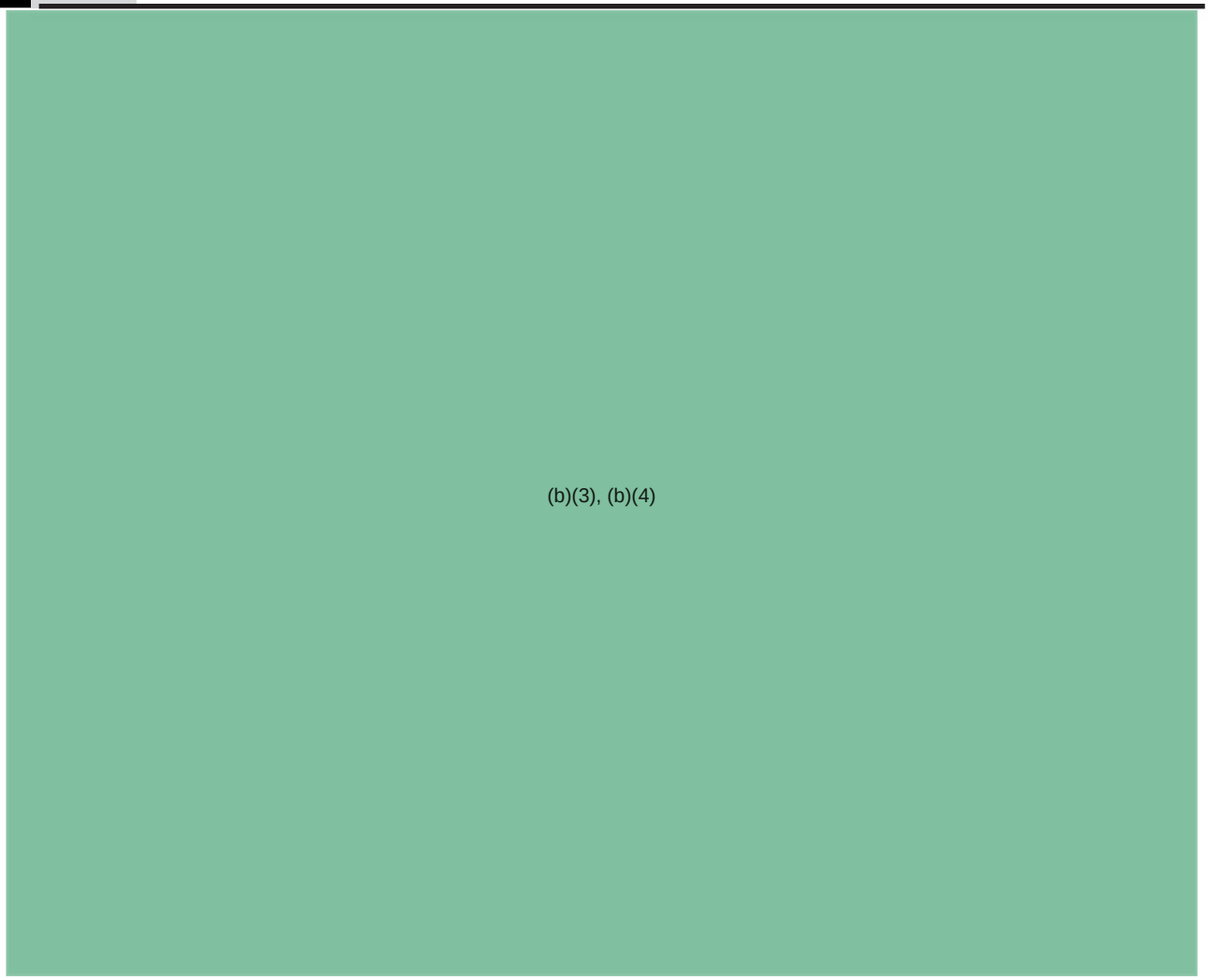
Landing in STOVL Mode. Landings in STOVL mode with the lift fan engaged can be performed at any speed from conventional landing speeds down to a zero forward speed vertical landing. Slow landings (SLs) are performed to a conventional airfield at speeds below conventional landing speeds (b)(3), (b)(4)

(b)(3), (b)(4)

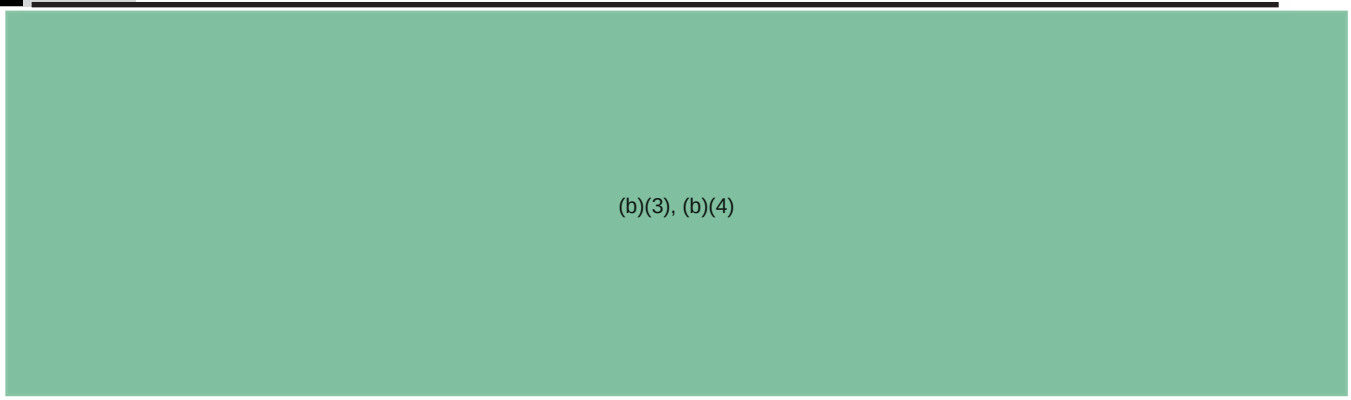
Autopilots. The autopilot (AP) has the following selectable modes: attitude hold, altitude hold, heading select, altitude select, and route hold. The auto throttle (AT) has the following modes: speed hold, speed select, and time-over-steerpoint. An approach power compensator (APC) is also available. (b)(3), (b)(4)

(b)(3), (b)(4)

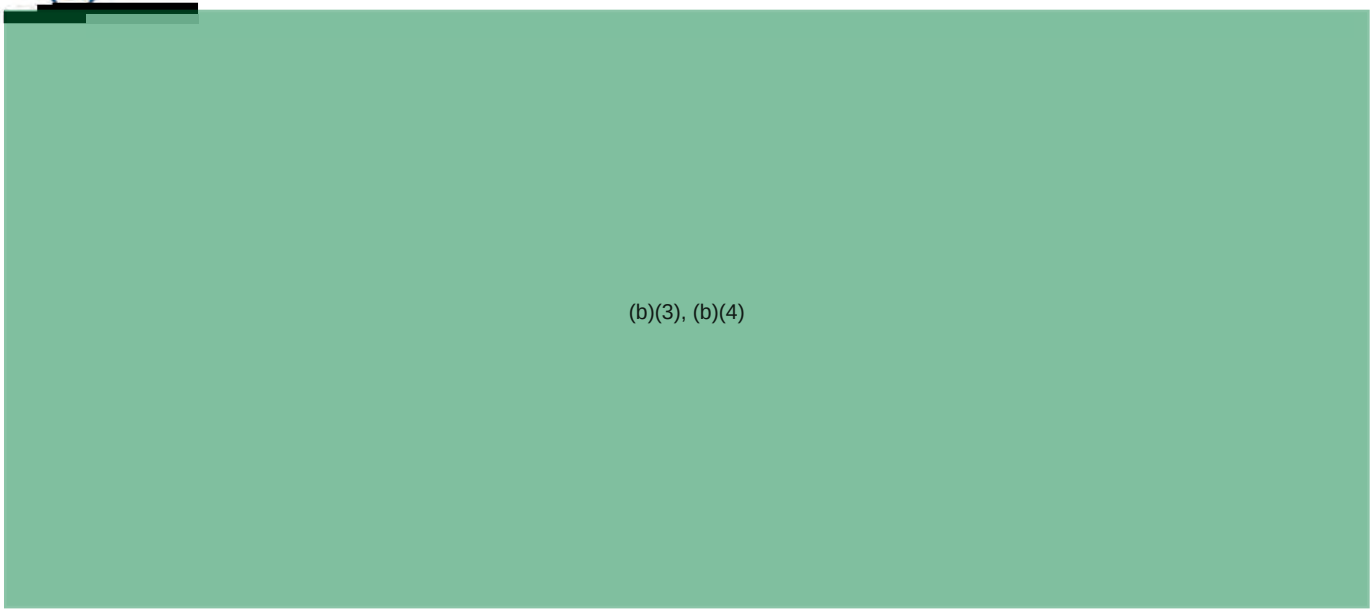

(b)(3), (b)(4)

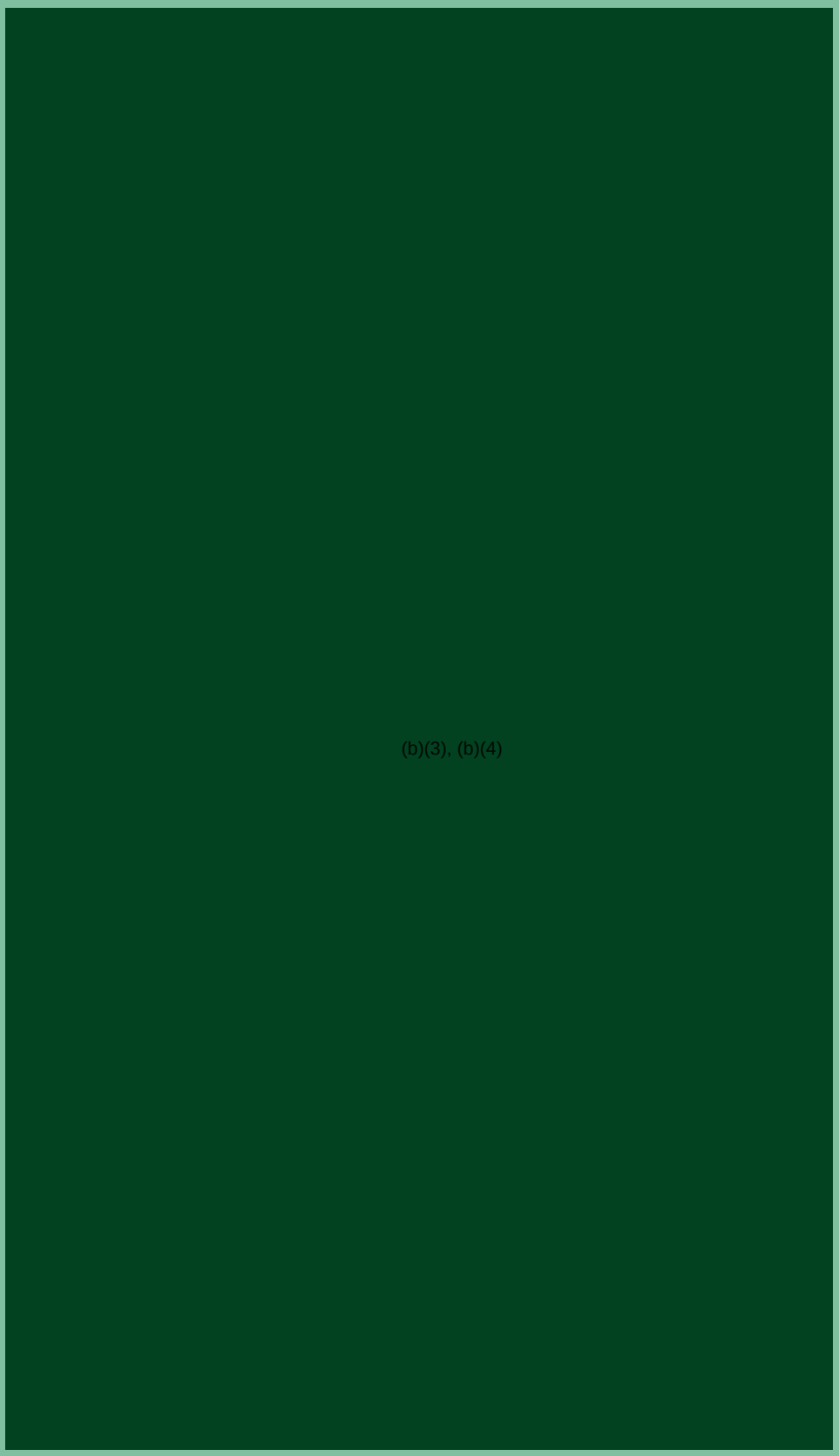

(b)(3), (b)(4)


(b)(3), (b)(4)


(b)(3), (b)(4)


(b)(3), (b)(4)


(b)(3), (b)(4)

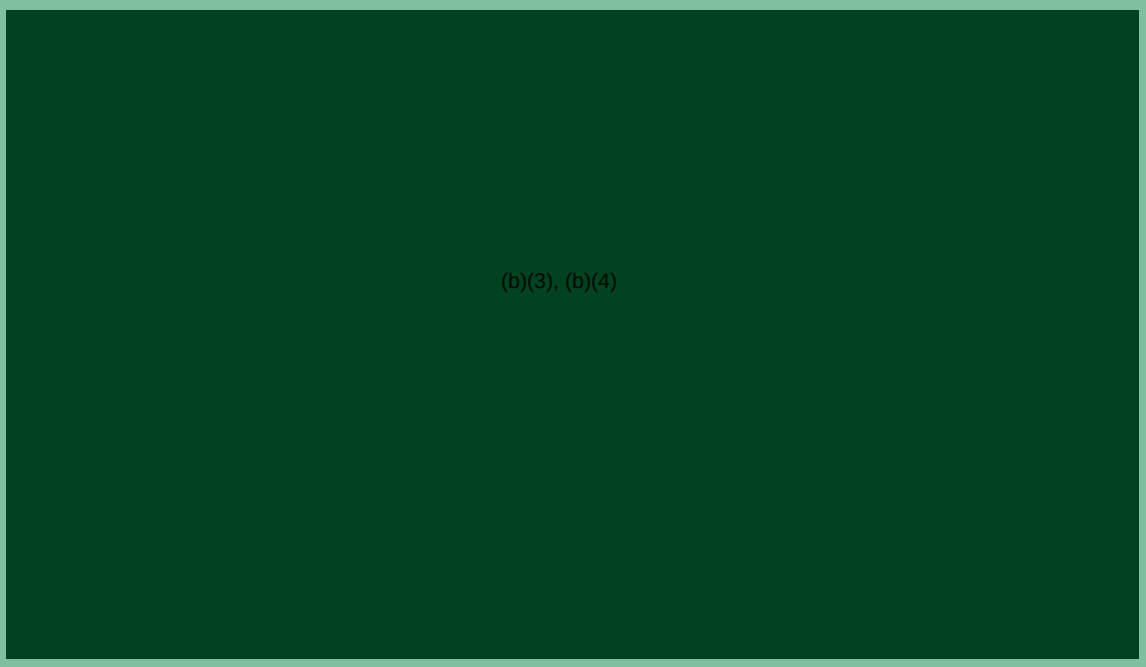

(b)(3), (b)(4)

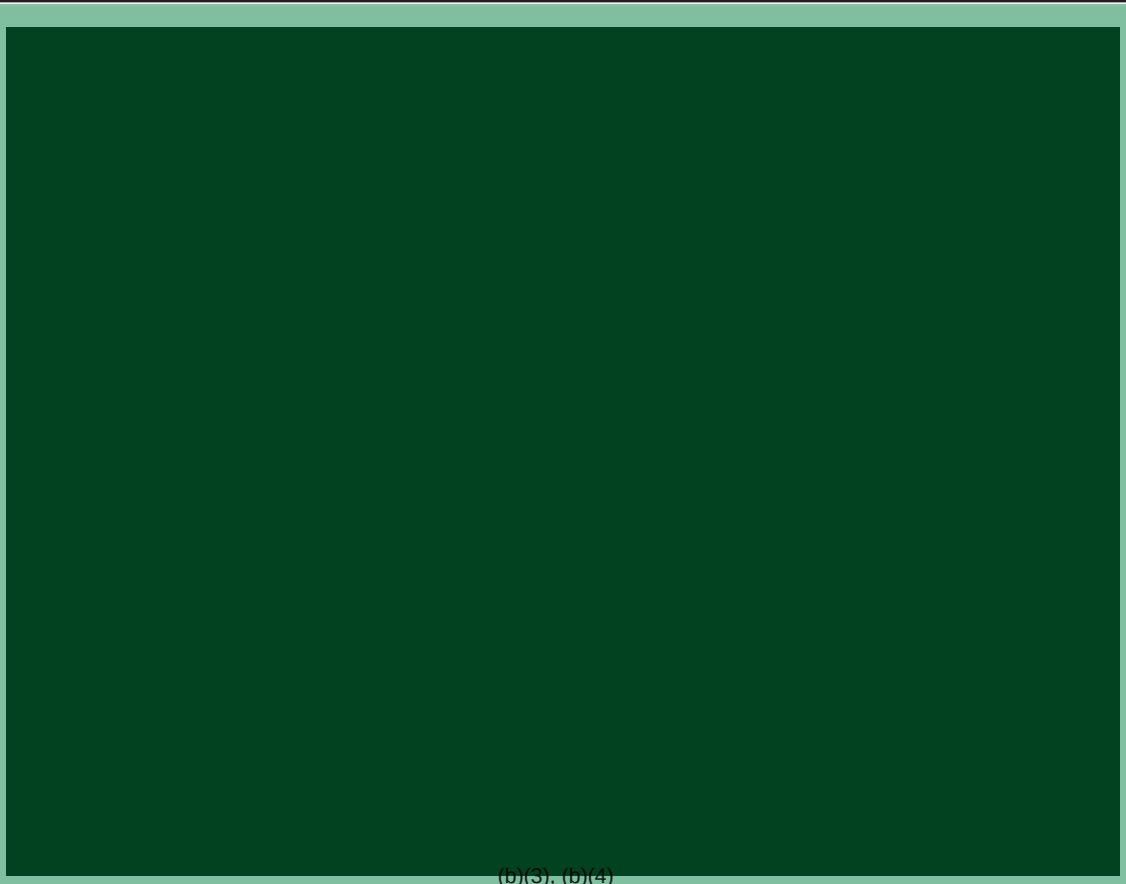
(b)(3), (b)(4)


(b)(3), (b)(4)

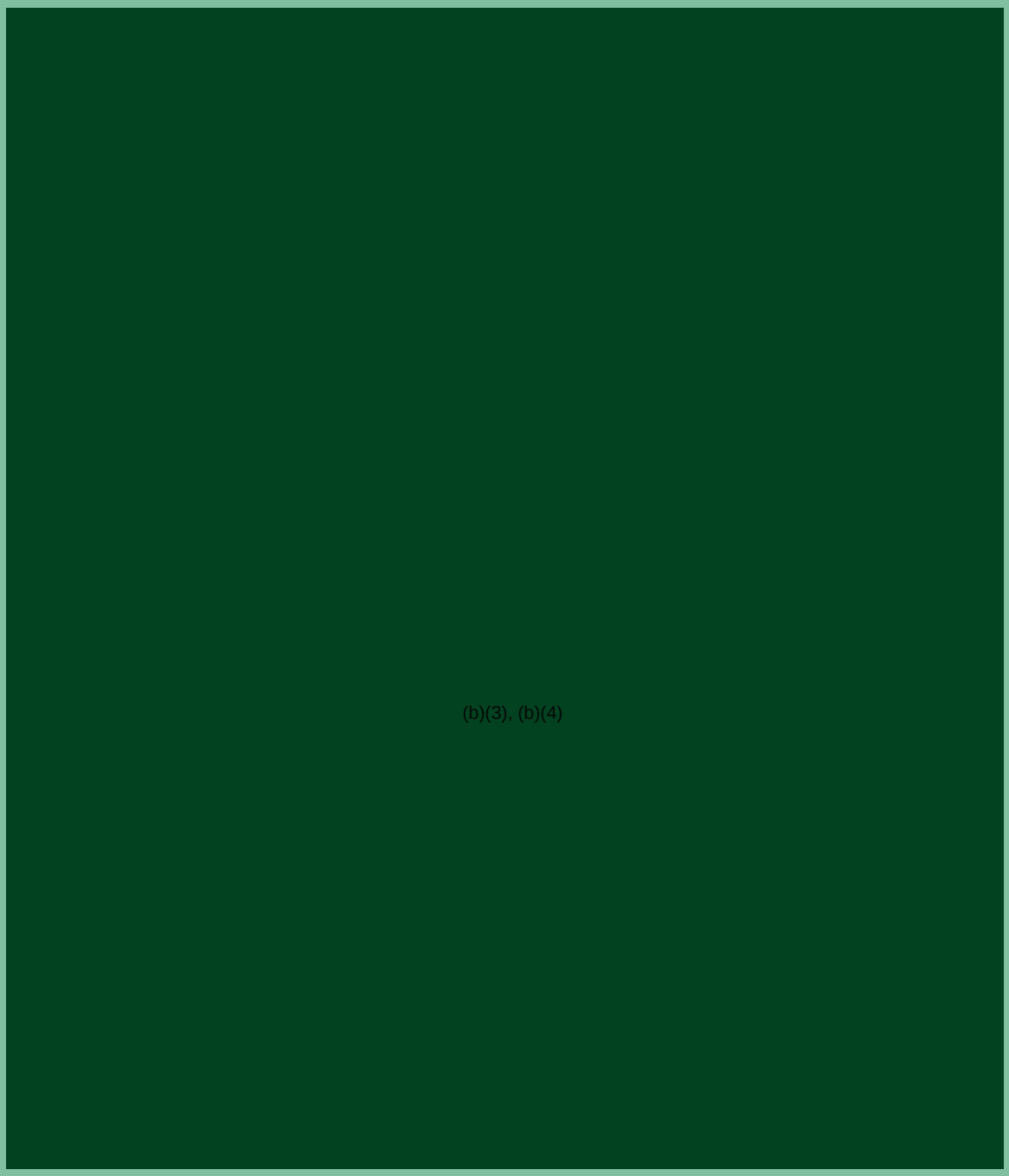
(b)(3), (b)(4)

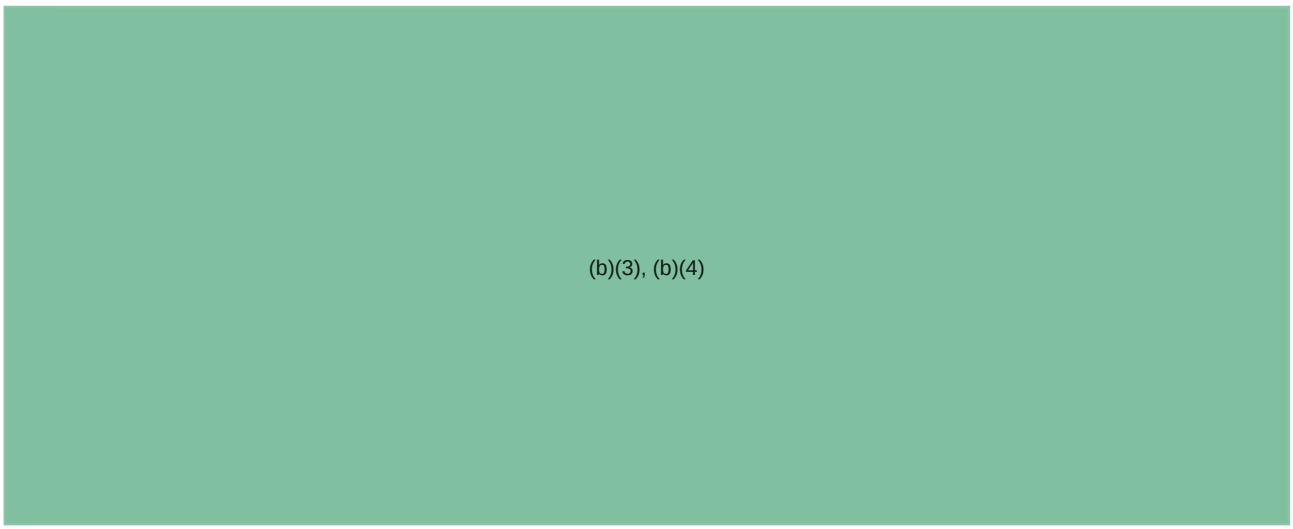

(b)(3), (b)(4)

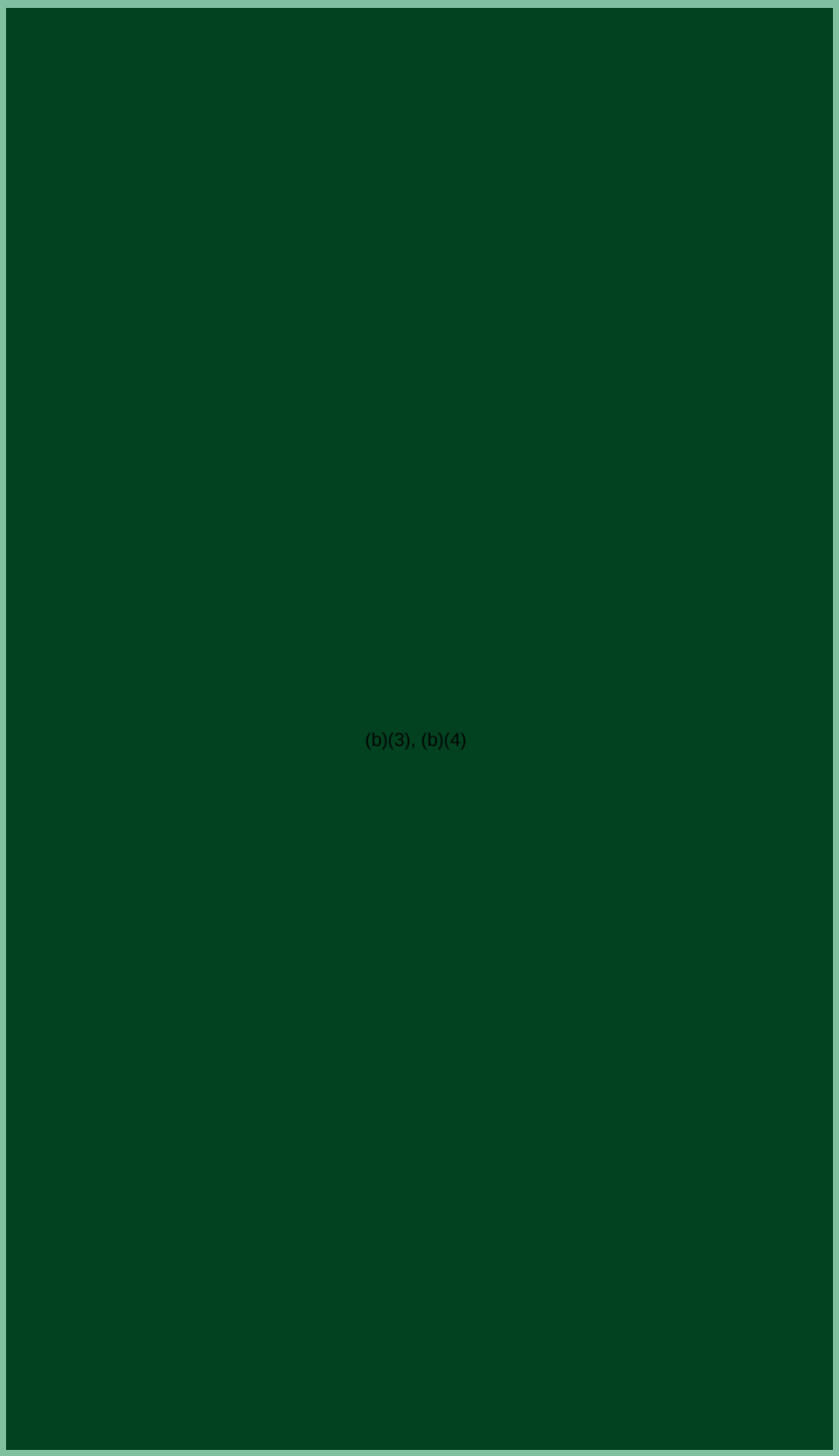

(b)(3), (b)(4)

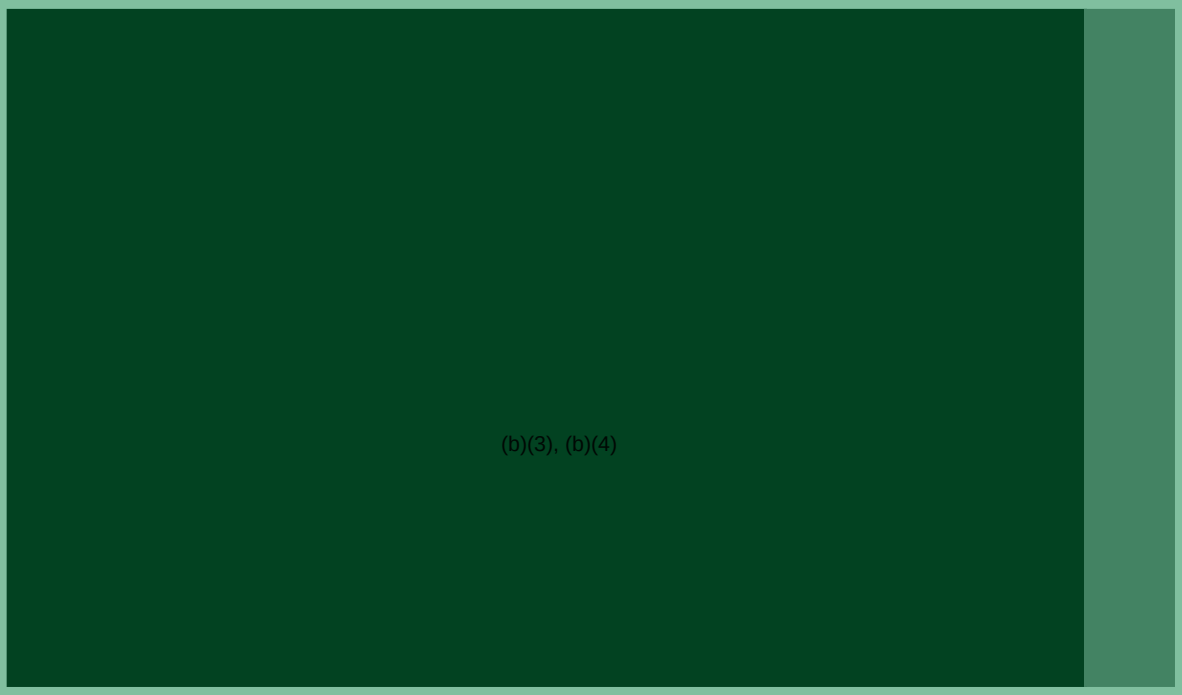


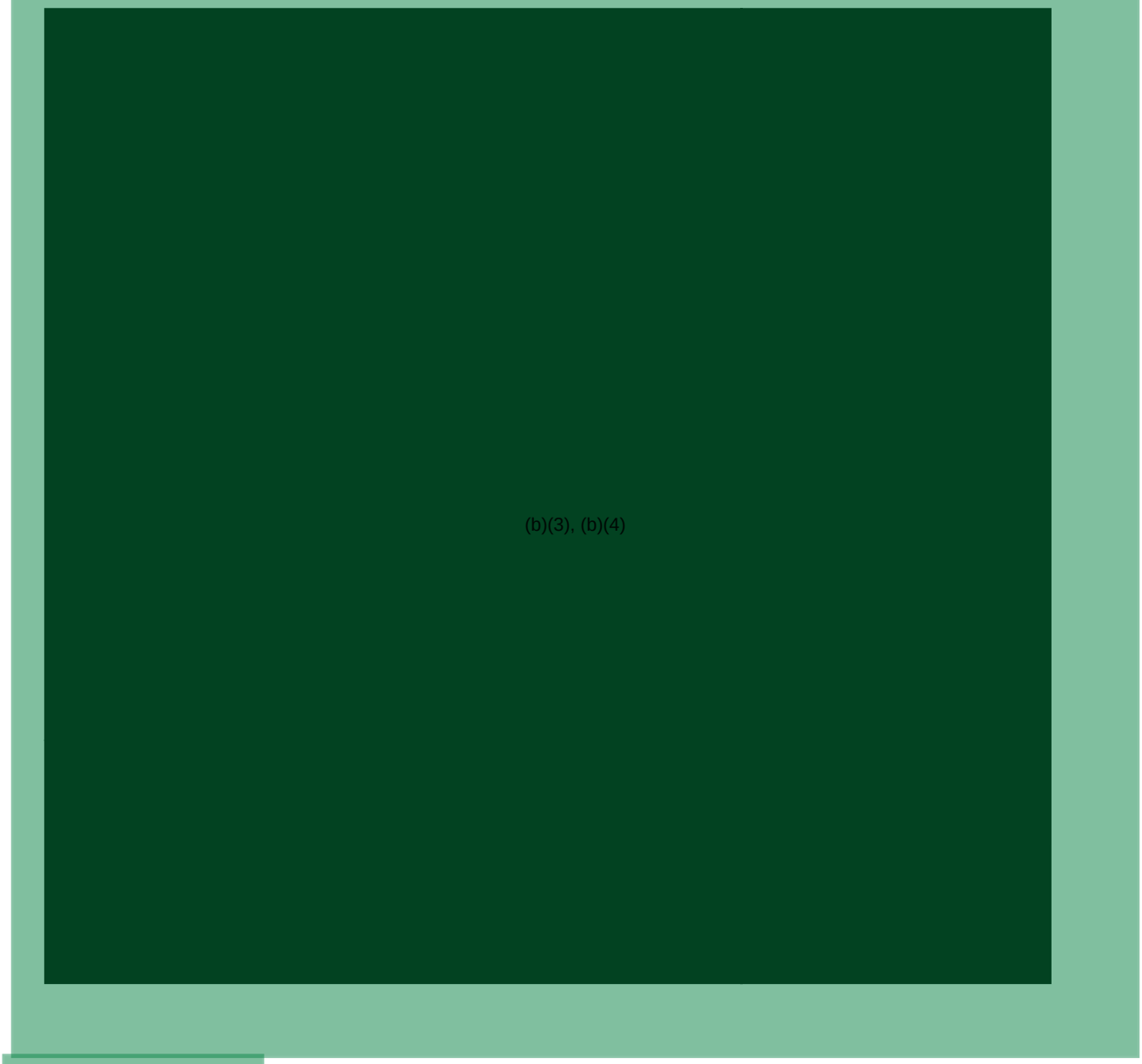
(b)(3), (b)(4)


(b)(3), (b)(4)


(b)(3), (b)(4)


(b)(3), (b)(4)

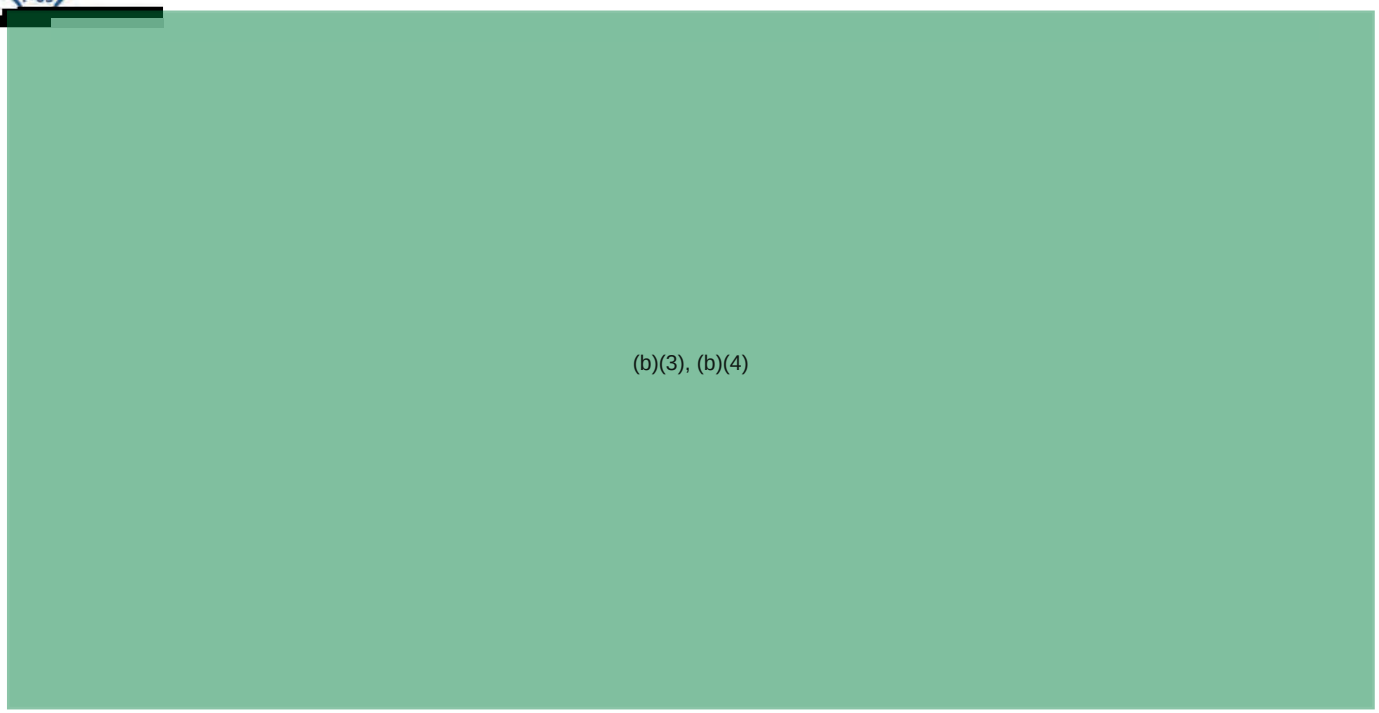

(b)(3), (b)(4)

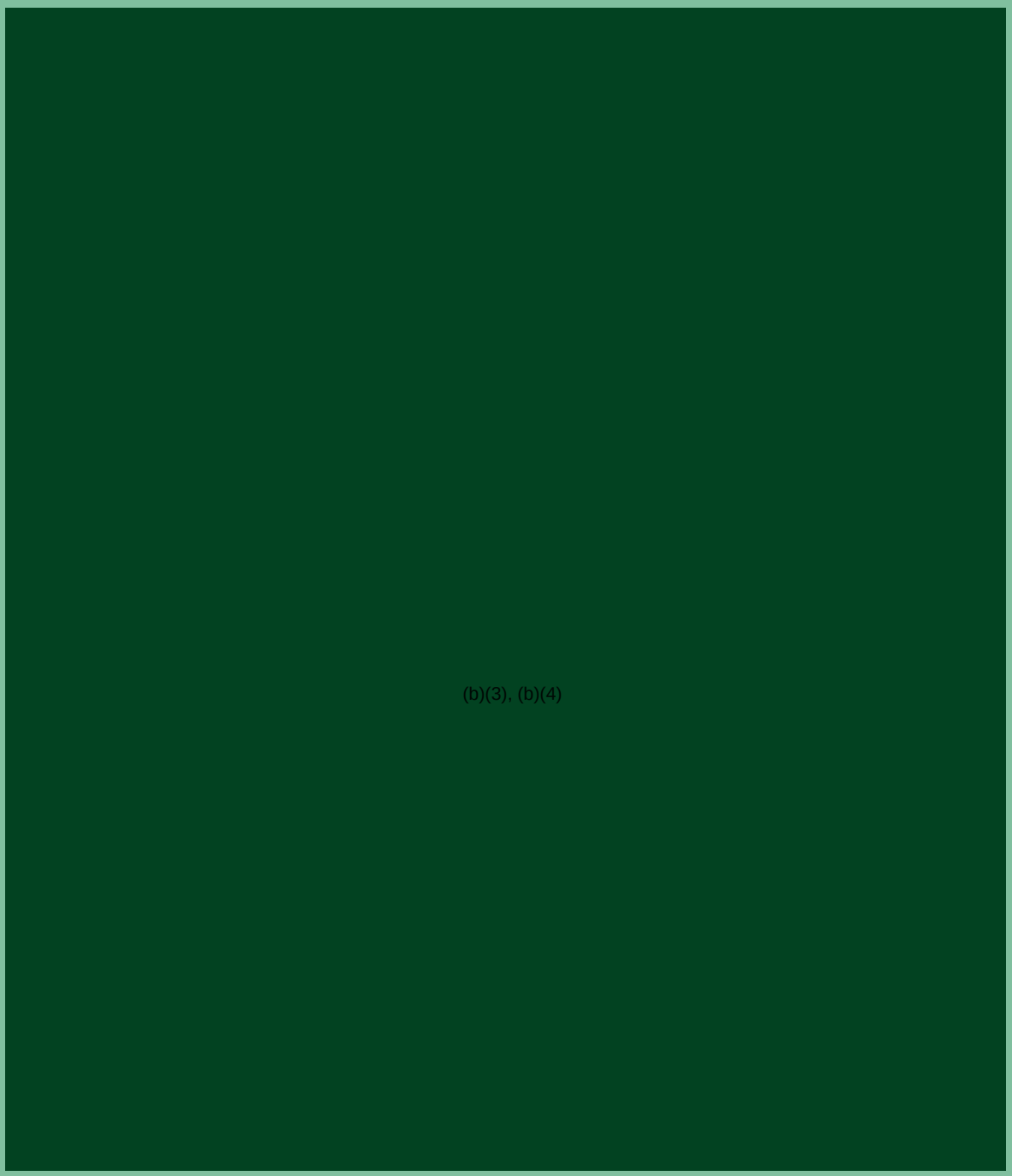


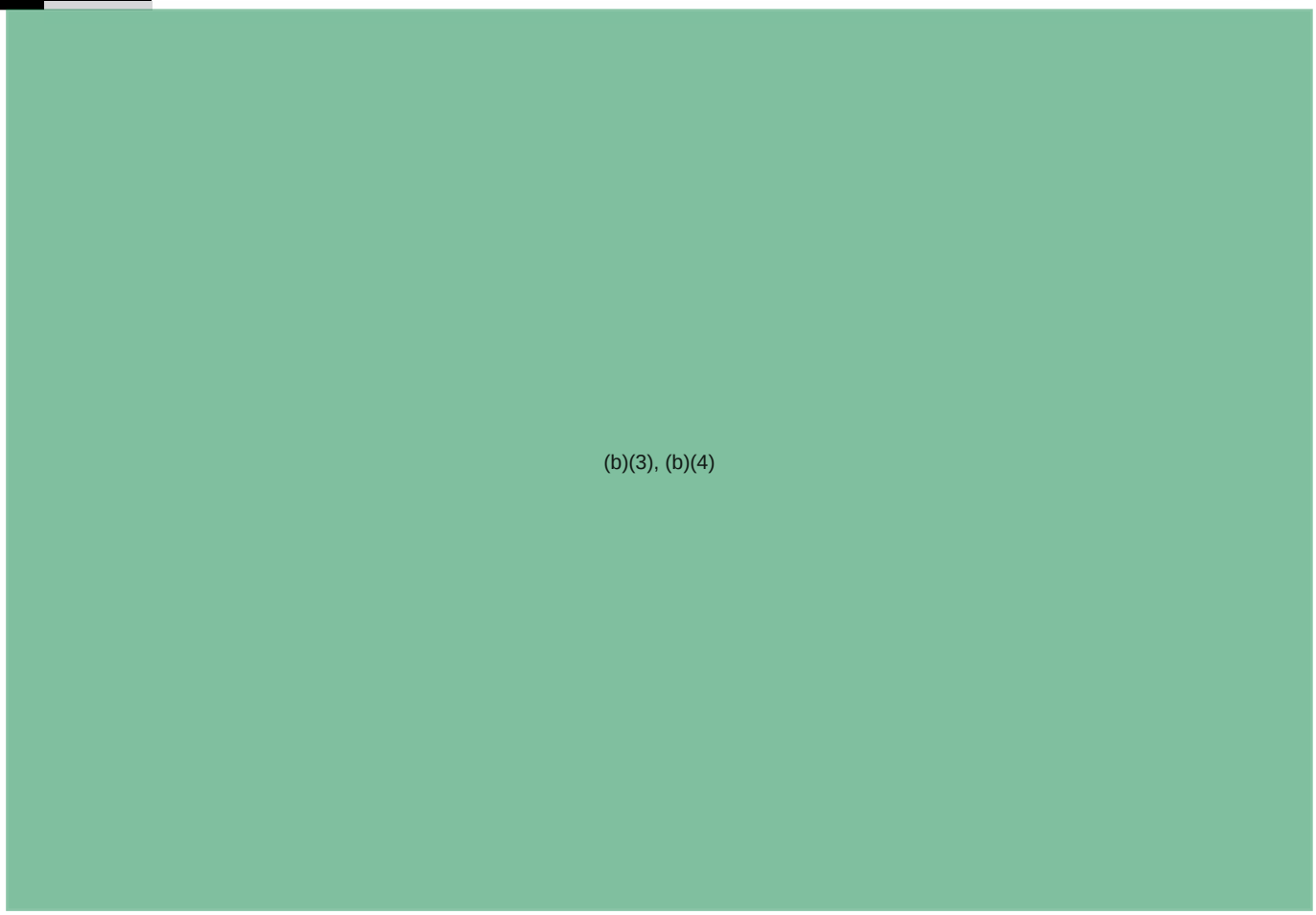
(b)(3), (b)(4) following ejection the MA continued to fly for approximately 11 more minutes achieving a peak altitude of approximately 9,216 MSL before descending and accelerating to an airspeed of 552 KCAS prior to impacting the ground. Ground impact was at a calculated flight path angle of -12 degrees.

The control law response was nominal through all flight phases during this flight. A number of FCS system faults were observed starting at AC time 4751s (17:32:05.5Z). While these failure indications resulted in a loss of redundancy within the FCS (b)(3), (b)(4) (b)(3), (b)(4) locking of the LEFs (LEF L/R_FAIL), and possible impacts on TNS velocities (FCS_VEL_DEGD), none resulted in a degradation of aircraft control or impacted aircraft flying qualities. (b)(3), (b)(4)

(b)(3), (b)(4)


(b)(3), (b)(4)


(b)(3), (b)(4)



CONCLUSION: The CLAW application performed as expected throughout the approach to landing, conversion from CTOL to STOVL mode, the waveoff, subsequent conversion from STOVL to CTOL mode and post ejection. Post ejection aircraft dynamics were consistent with expected response for an aircraft with a feedback control system.

RECOMMENDATION: None

PROPULSION SYSTEM

(b)(3), (b)(4)

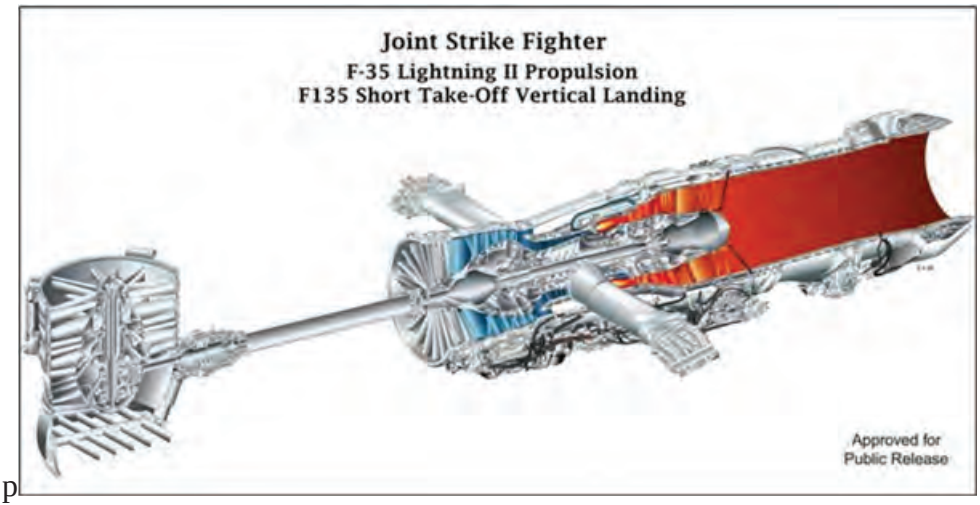
The Pratt & Whitney F135-PW-600 engine (b)(3), (b)(4) is a low bypass, counter rotating, dual spool, augmented turbofan engine with a three-bearing swivel duct (3BSD) vectoring exhaust and a low observable axisymmetric nozzle. The low-pressure spool consists of a three-stage fan driven by a two-stage low pressure turbine that rotates counterclockwise (viewed from aft). A driveshaft connects the low-pressure spool via a hub at the front of the engine to a lift fan assembly. The lift fan assembly is only engaged for use during powered lift operations typically associated with take-offs and landings. The high-pressure spool of the engine consists of a six-stage high pressure compressor driven by a single high-pressure turbine which rotates clockwise (viewed from aft).

Variable inlet guide vanes on the fan and variable vanes on the high-pressure compressor enhances compressor stability. The strutless diffuser delivers flow to the high temperature rise combustor. (b)(3), (b)(4)

(b)(3), (b)(4)

The engine is controlled by two identical FADECs operating in tandem. The FADECs control all aspects of the engine operation by interfacing with fueldraulic actuators on the nozzle, fuel throttling valves, compression system variable geometry, and other functions. The two FADECs each have dual channel communication buses that communicate both with each other on an engine internal bus and to each of the three aircraft VMCs to make a multi-redundant system. If required, a single FADEC can independently fully control the engine if the other one fails. The FADECs also share the propulsion health area manager (PHAM) function and logic which determines engine health and identifies required maintenance actions (b)(3), (b)(4)

(b)(3), (b)(4)



p

(b)(3), (b)(4)

ANALYSIS: The CSMU data recorded the aircraft completed a conversion to Mode 4 (STOVL) operations at AC time 4688.3s (17:31:02Z) and subsequently completed conversion to Mode 1 (CTOL) operations at AC time 4796.7s (17:32:51Z), approximately five seconds after ejection.

(b)(3), (b)(4)

(b)(3), (b)(4) The propulsion system responded as expected to both conversion sequences.

(b)(3), (b)(4)

(b)(3), (b)(4)

The CSMU data showed that the engine performance was nominal during flight as Engine Thrust Request (ETR) Feedback correctly responded to ETR command. However, engine inlet temperature and pressure presented a momentary spike at approximately AC time 4793s (17:32:47Z). The engine inlet temperature momentarily spiked (b)(3), (b)(4) (b)(3), (b)(4) an instantaneous 39-degree increase. Coincident with this temperature spike, the engine inlet pressure momentarily spiked (b)(3), (b)(4) an instantaneous 3.9 pounds per square inch (PSI) increase. (b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)

CONCLUSION: CSMU data recorded the propulsion system operation was consistent with normal and expected operation.

RECOMMENDATION: None.

COM, NAV, AND IDENTIFICATION (CNI) SYSTEM

DESCRIPTION: The communication, navigation, and identification (CNI) system is an integrated subsystem designed to provide a broad spectrum of secure/anti-jam/covert voice and data communications, precision navigation and landing aids, self-identification, and beyond visual range target interrogation and identification.

The CNI system is composed of two racks, CNI-A and CNI-B, that contain line replaceable modules used for creating various CNI waveforms, to include ultra-high frequency/very high frequency (UHF/VHF) voice with secure and anti-jam waveforms, data links such as Link 16 and multifunction advanced data link (MADL), and navigation and landing aids such as the tactical air navigation (TACAN), Identification Friend or Foe (IFF), and instrument landing system (ILS). The CNI system also includes separate line replaceable units such as Audio Control Electronics (ACE) and UHF clear voice Backup Radio (BUR) that are available to the pilot during CNI emergency mode where neither rack is functioning and (b)(3), (b)(4) power is available to the CNI.

OBSERVATION: The LM Aeronautics CNI IPT reviewed the data for any anomalies. CSMU data reviewed contained 21 minutes of data, approximately AC time 4200s to 5473s. (b)(3), (b)(4)

(b)(3), (b)(4)

ANALYSIS: There are a few signals captured in the CSMU data related to the BUR, COM, Radar Altimeter, and TACAN messaging. There are no signals from IFF or PHM messaging. With no IFF data, it is not possible to determine whether the EMERGENCY button on the IFF settings page was selected or if the IFF transponder was squawking the emergency mode 3 code of 7700.

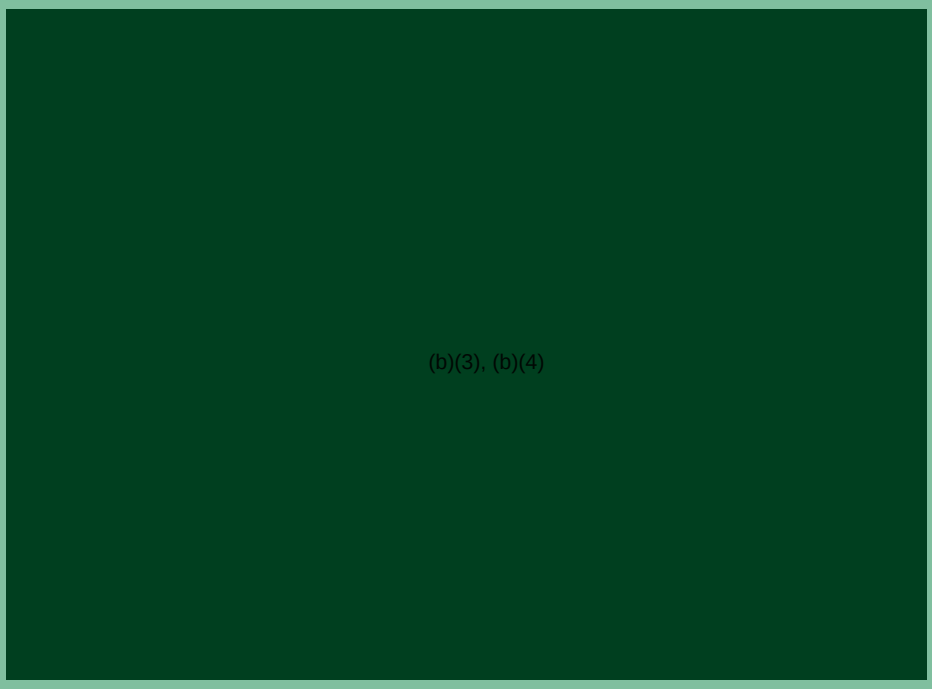
The CSMU data indicated the CNI system operated as designed until approximately AC time 4750.6s (17:32:05.1Z) at which point waveforms (recorded parameters) froze or became invalid.

The following ICAWS were related to a CNI rack and waveform failures.

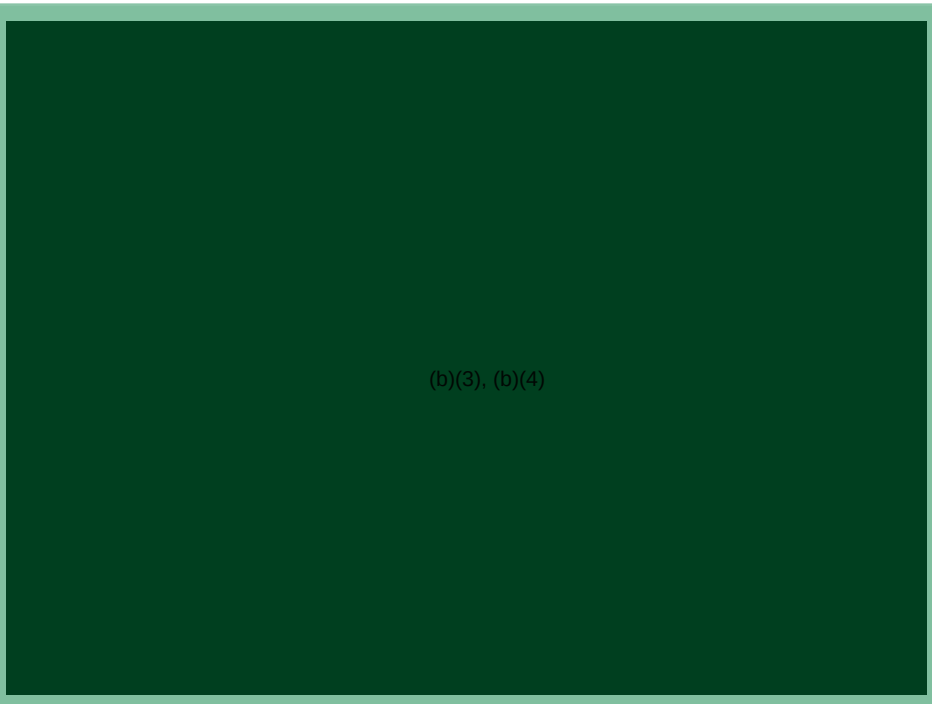
CNI RACK FAIL A	4755.36676
CNI FAIL IFF	4759.30572
CNI FAIL TACAN	4759.30572
CNI FAIL RALT	4759.30572
CNI FAIL L16	4759.30572

(b)(3), (b)(4)

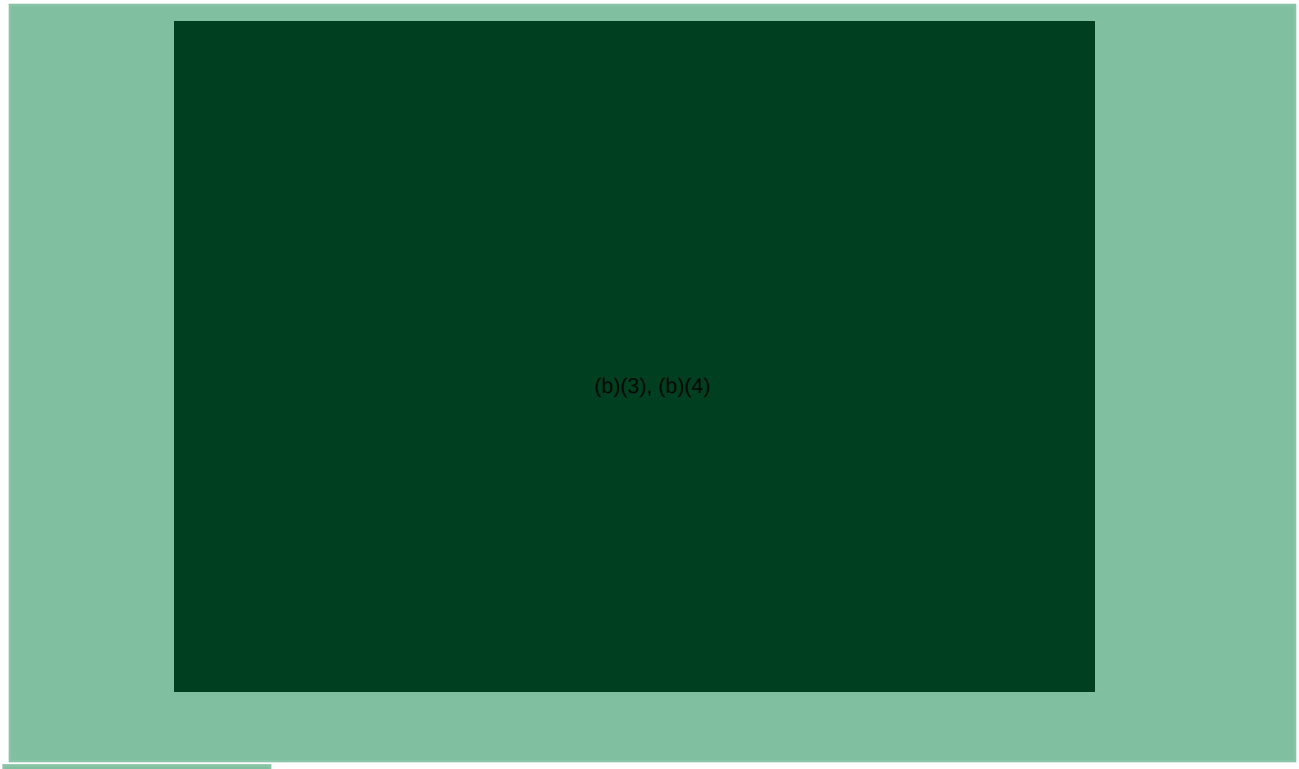
(b)(3), (b)(4) the BUR with COM UnitID set to 4 which corresponds to a COM-C assignment and a radio state that remains at 1 indicating no activity.



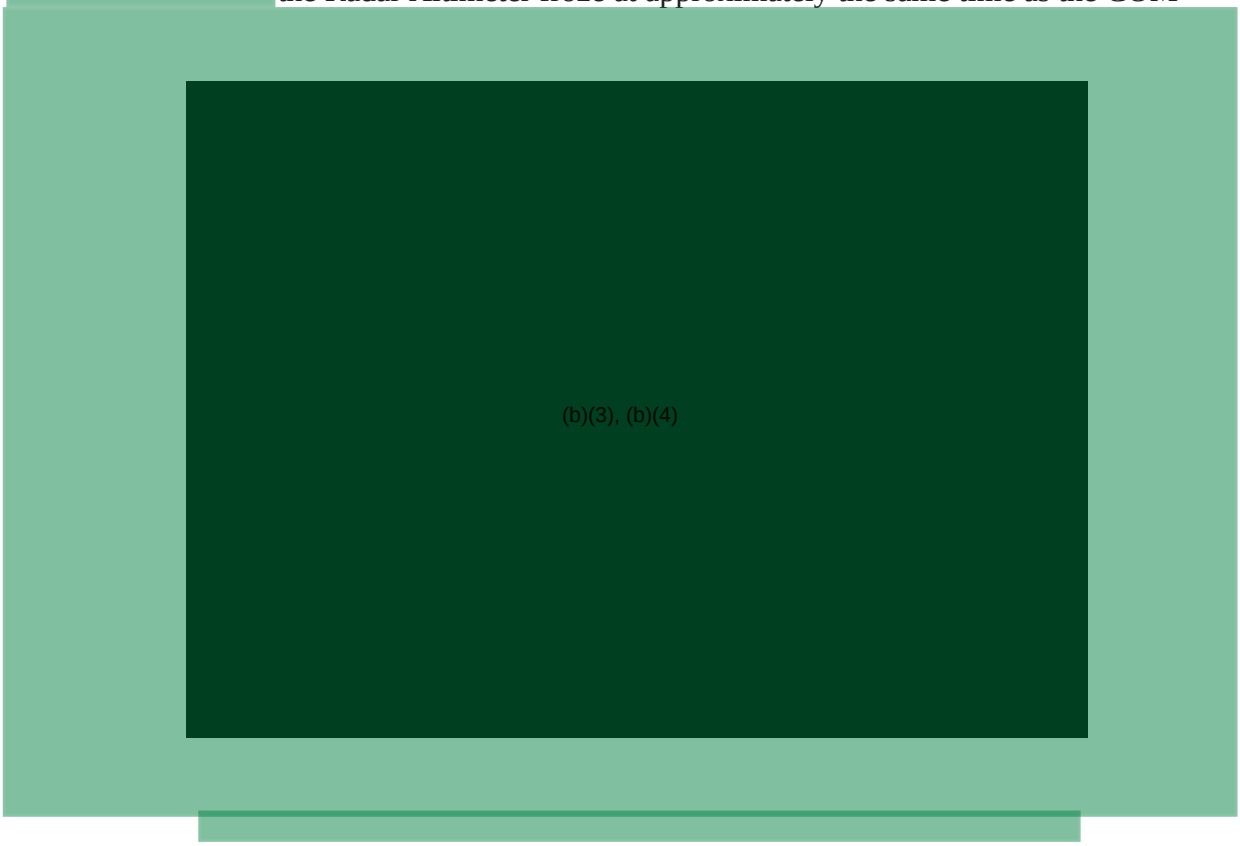
(b)(3), (b)(4) the COM waveform assigned to COM-A was initially tuned to 379.925MHz and then briefly to 239.000MHz before waveform data froze at AC time 4750.6s (17:32:05.1Z) and then became invalid at AC time 4757.6s (17:32:12.1Z).



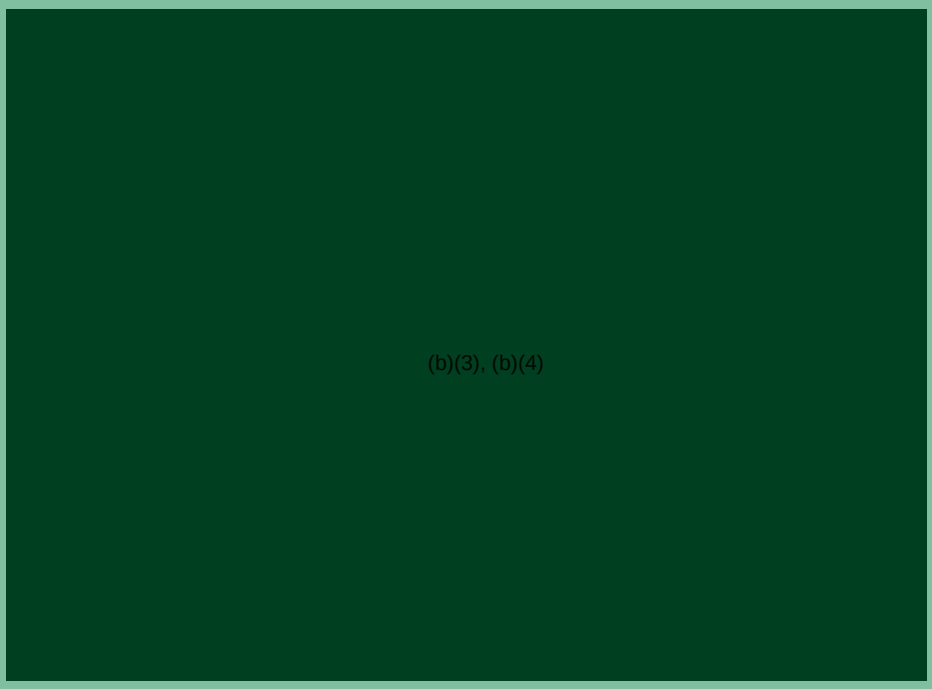
(b)(3), (b)(4) the COM waveform assigned to COM-B was tuned to 326.700MHz and a transmission occurred at AC time 4604s (17:29:38.5Z). The time on the COM waveform froze AC time 4751.7s (17:32:06.2Z).



(b)(3), (b)(4) the Radar Altimeter froze at approximately the same time as the COM



(b)(3), (b)(4) the TACAN was initially set to Channel 30 and then changed to Channel 82 with the data freezing at AC time 4750s (17:32:04.5Z).



CONCLUSION: The CNI rack and waveforms associated with the CNI rack operated as designed until approximately AC time 4750.6s (17:32:05.1Z) at which point waveforms froze or became invalid due to the transient electrical event. The ACE and BUR continued to be available until AC time 4792.4s (17:32:46.9Z).

RECOMMENDATION: None.

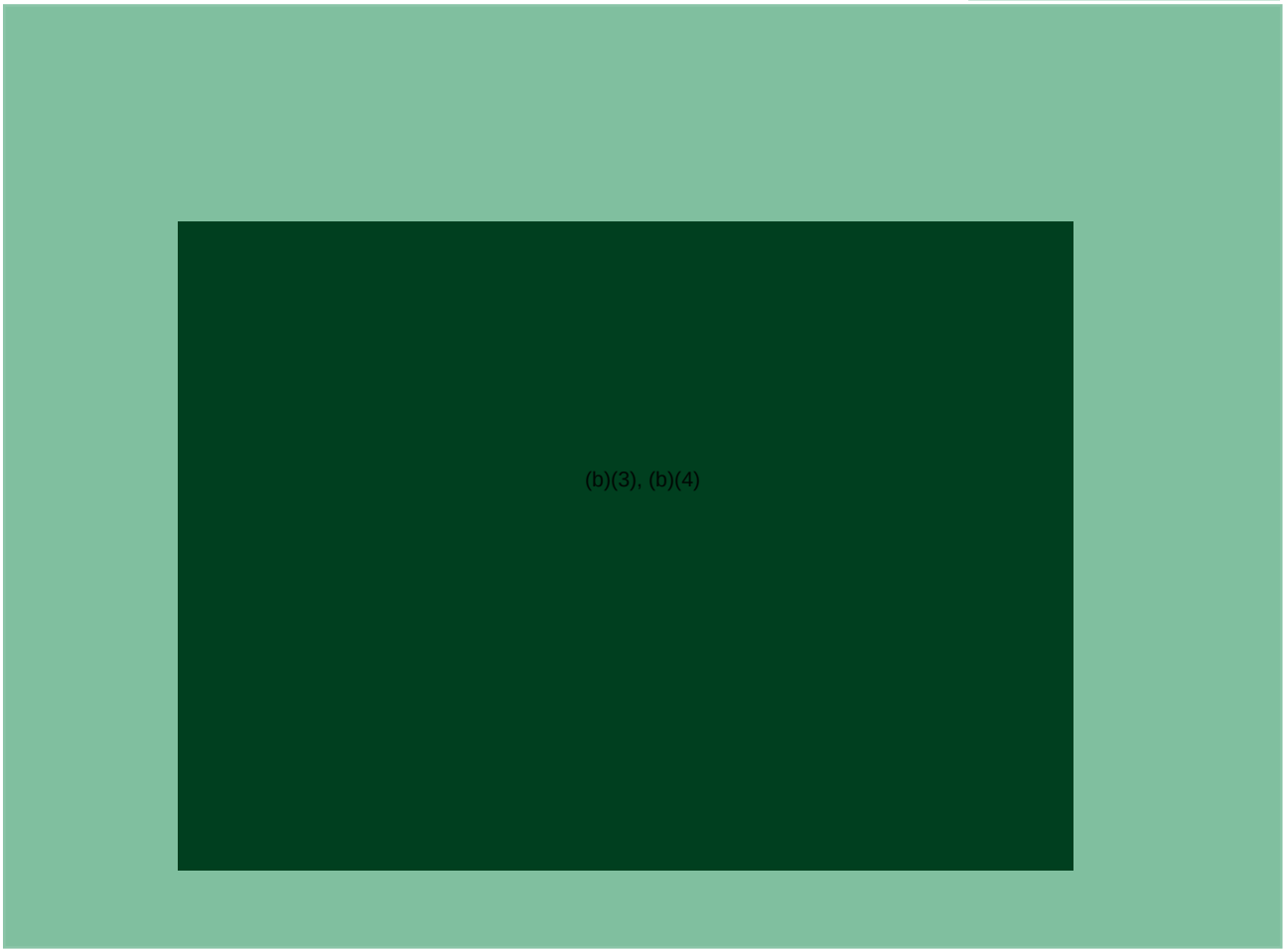
FLIGHT CONTROLS SYSTEM (FCS)

DESCRIPTION: The FCS is a fly-by-wire system consisting of three redundant flight control channels (b)(3), (b)(4) The FCS receives inputs from the following relevant systems to generate FCS surface, engine thrust requests, pilot display feedback, and weapon bay door commands:

- Tactical navigation system (TNS)
- Stores management system (SMS)
- Electro-hydrostatic actuation (EHA) system
- Active inceptor system (AIS)
- Vehicle systems built-in-test (VS BIT)

FCS surface commands are generated by the VMCs and sent to the EHA system.

Tactical Navigation System. Six inertial measurement unit (IMU) devices are located on the aircraft. (b)(3), (b)(4)
(b)(3), (b)(4)
(b)(3), (b)(4) measure pitch, yaw, and roll rates and linear acceleration about the IMU sensor axes (b)(3), (b)(4)



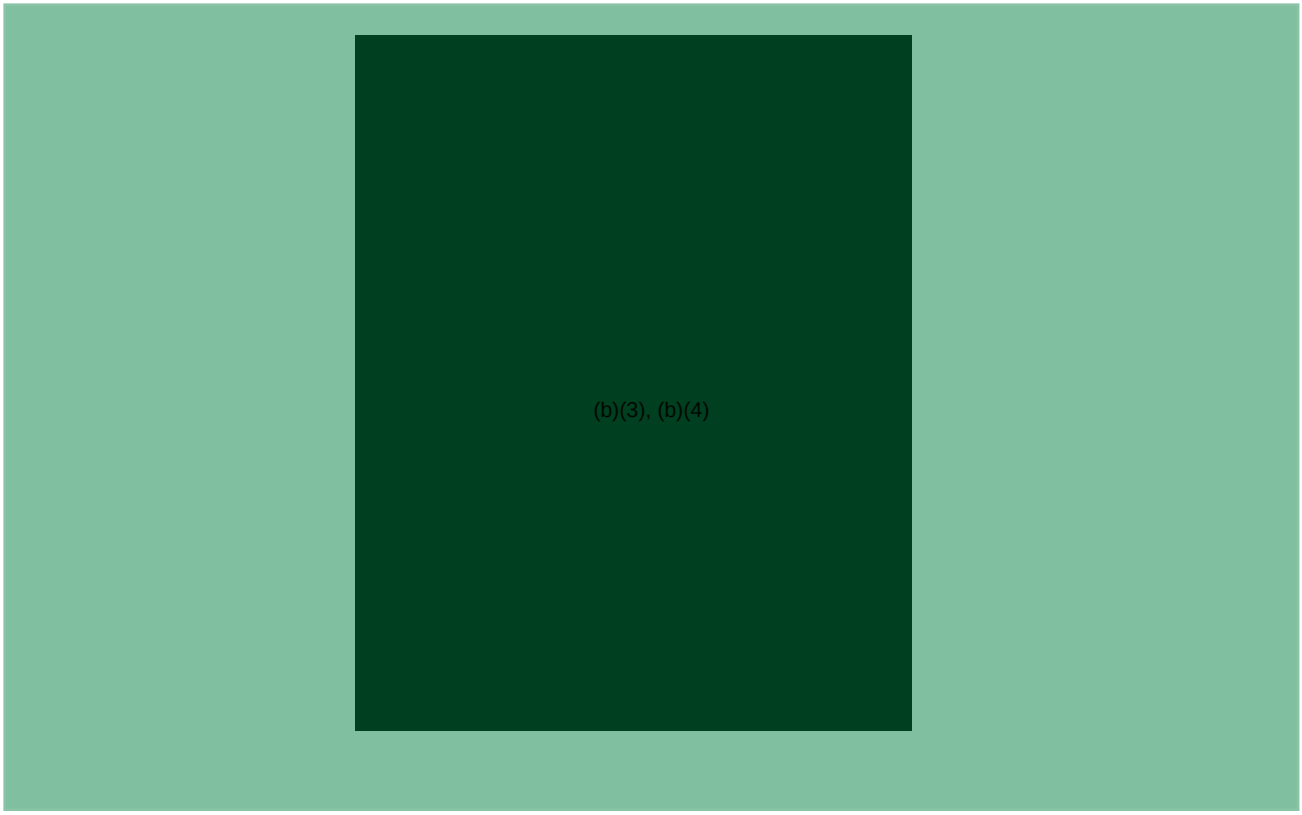
Stores Management System (SMS). The FCS fire control and stores selector/monitor (FCSSM) selects and monitors the stores and mass properties information reported by the mission systems SMS software. (b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4) To compensate for the need to return the aircraft to a clean stores state, the capability to emergency jettison External or All stores is still provided in (b)(3), (b)(4) failure configuration (b)(3), (b)(4)

(b)(3), (b)(4)



Electro-Hydrostatic Actuation System. The flight control surfaces consist of horizontal stabilizers (referred to as stabs or HTs), flaperons (referred to as flaps or trailing edge flaps - TEFs), dual rudders, and LEFs. (b)(3), (b)(4)

(b)(3), (b)(4)

Each of the primary flight control surfaces is separately controlled by an EHA system. (b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)

Active Inceptor System (AIS). The AIS consists of the inceptor control unit (ICU), active side stick controller assembly (ASSCA) and the active throttle quadrant assembly (ATQA). (b)(3), (b)(4)

(b)(3), (b)(4)

The ASSCA is an active side stick controller that provides pitch and roll inputs to the VMCs. (b)(3), (b)(4)

(b)(3), (b)(4)

The ATQA is an active controller which provides thrust commands to the FADECs via the VMCs in CTOL mode and acceleration/deceleration commands to the FCS in STOVL mode. (b)(3), (b)(4)

(b)(3), (b)(4)

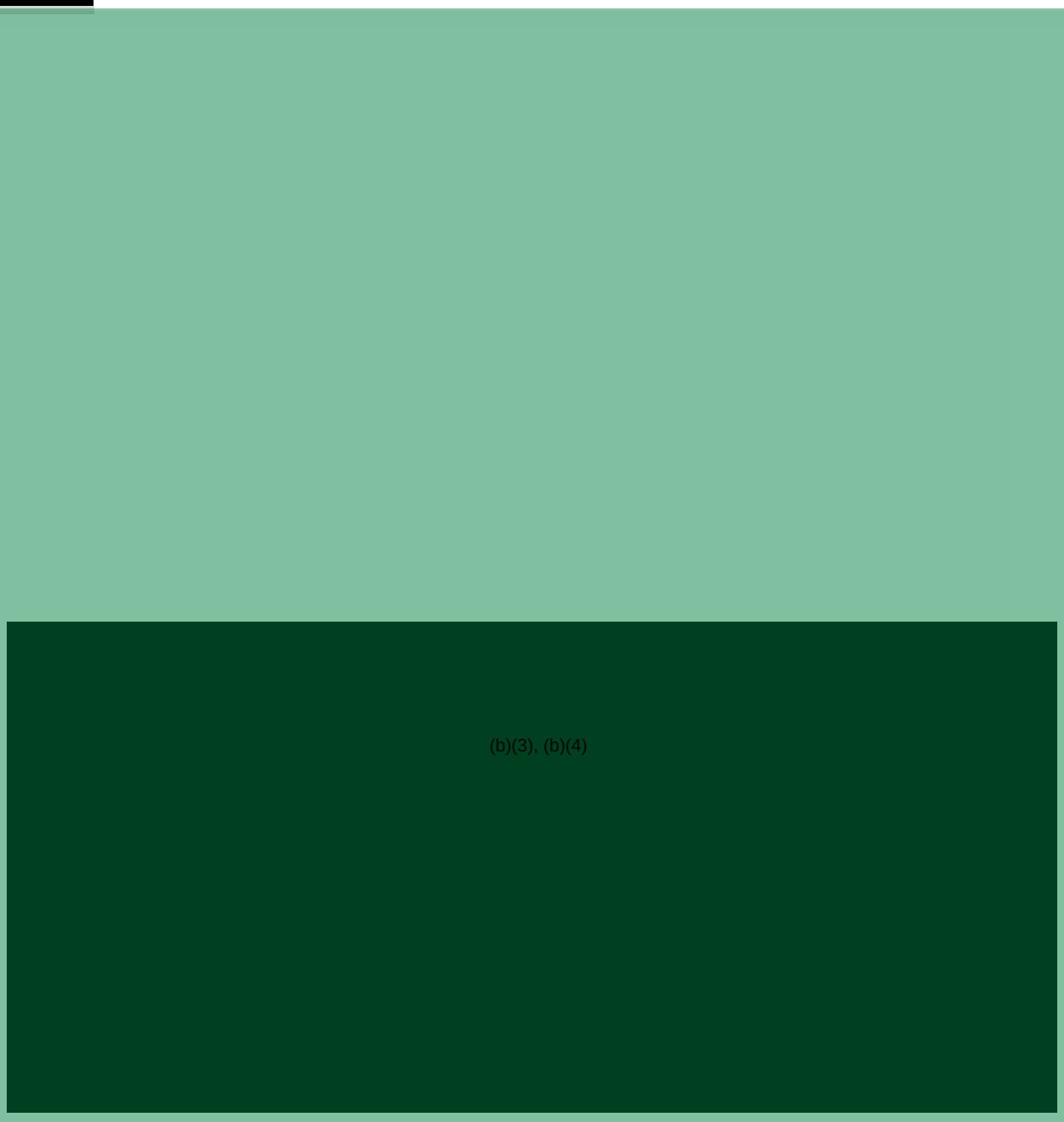
(b)(3), (b)(4)

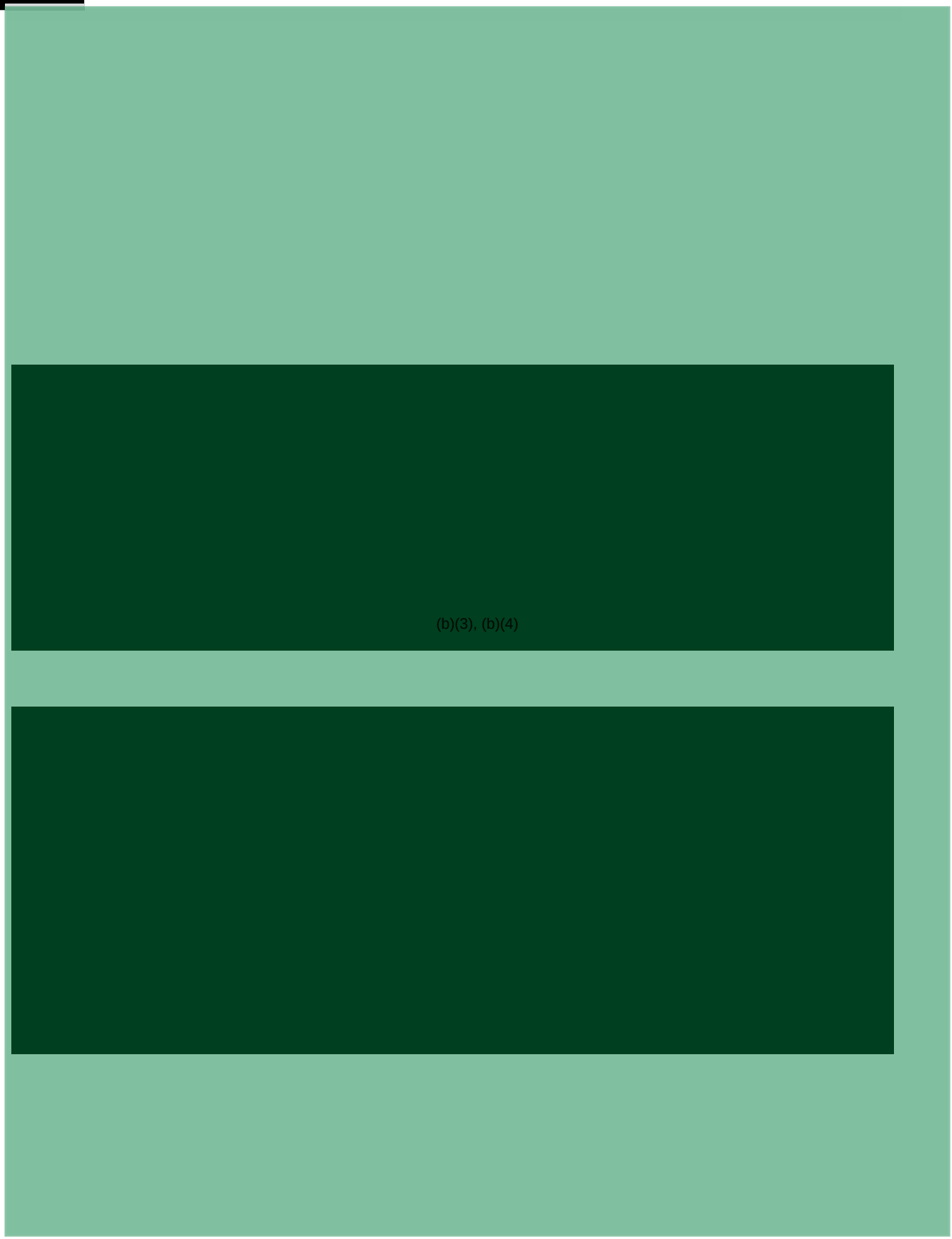
Vehicle Systems Built-In-Test. VS BIT is an intrusive on-aircraft manual IBIT intended to detect latent failures within vehicle systems on a properly maintained aircraft. VS BIT tests for additional failures that may not be detected through start-up BIT (SBIT), periodic-BIT (PBIT), or through redundancy management. (b)(3), (b)(4)

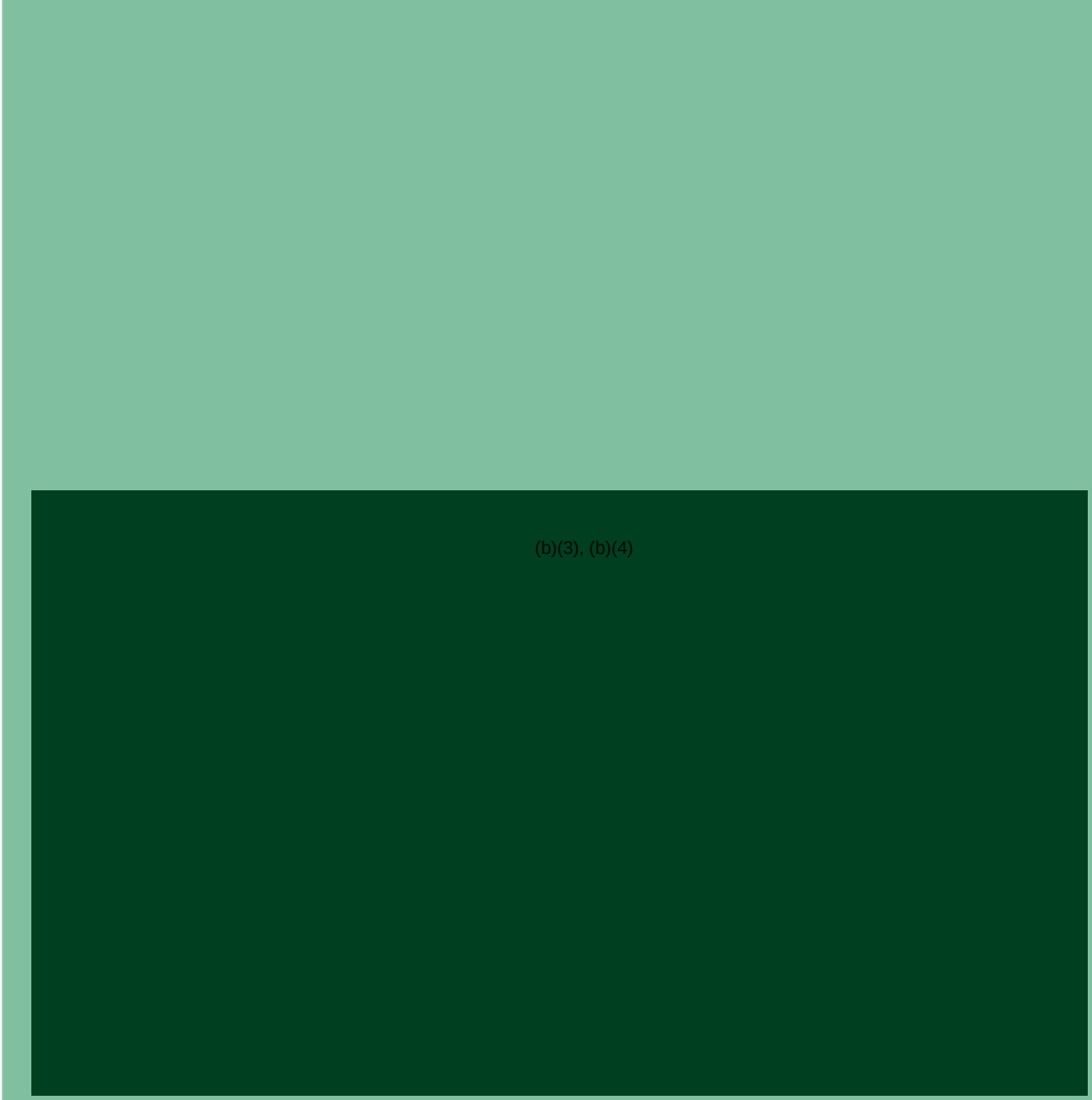
(b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)


(b)(3), (b)(4)


(b)(3), (b)(4)


(b)(3), (b)(4)

[redacted]

(b)(3), (b)(4)

CONCLUSION: Due to the transient electrical event, the following were observed.

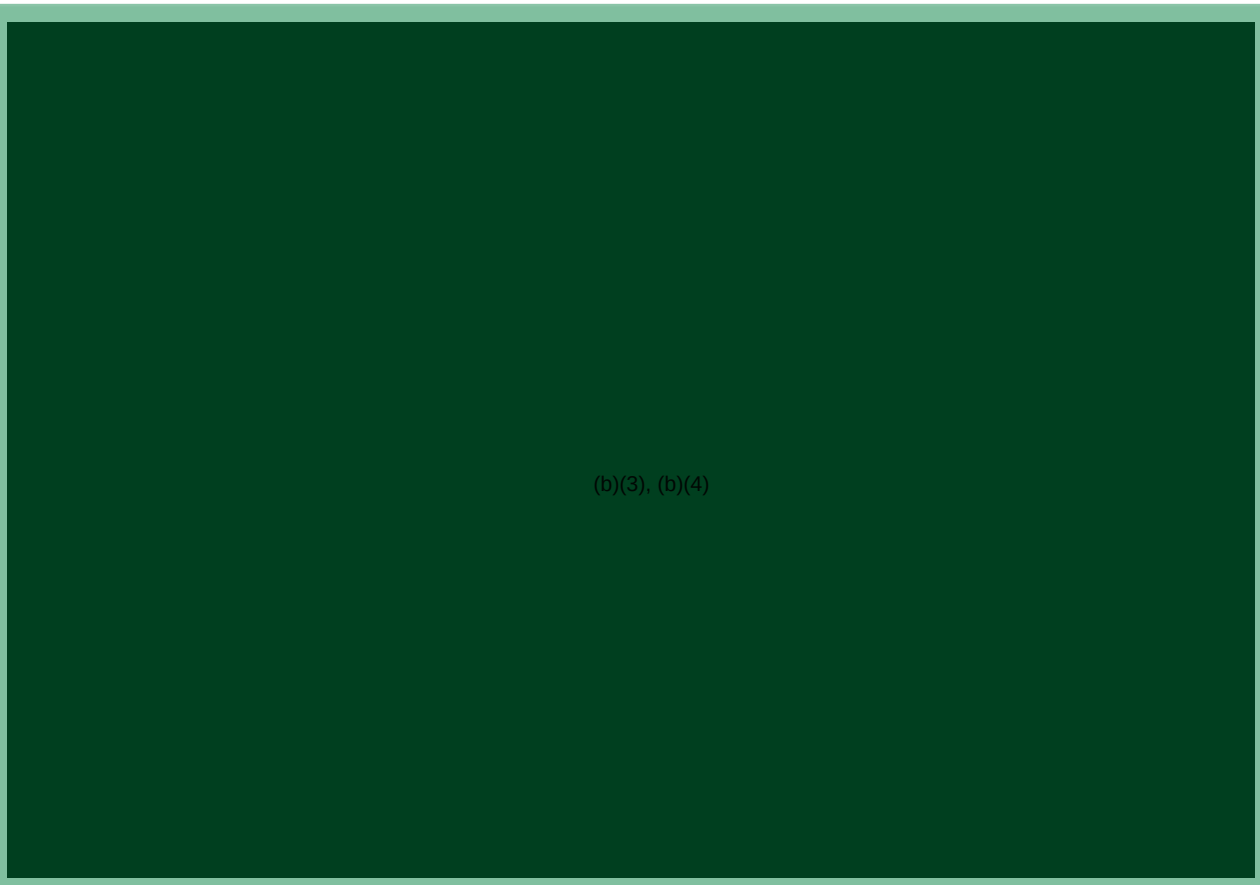
1. LEF Lock and ICU faults asserted as expected due to transient power loss (b)(3), (b)(4) (b)(3), (b)(4) Loss of redundancies would not have affected flying qualities in the current operating envelope.
2. INS, GPS, and Autopilot data exhibited failures resulting in degraded TNS velocity and attitude outputs to control laws and the loss of certain autopilot modes.
3. ICU C and dual cockpit IMU failures occurred post ejection. IMU communication continued however, a pitch rate spike is seen in TNS B recorded data (b)(3), (b)(4) pitch rate was not affected by these failures. ICU C failed due to communication loss and caused a loss of redundancy. Some HOTAS switches on ICU C would be non-operational.
4. AGCAS was never engaged throughout the entire flight (power cycle).

RECOMMENDATION: None.

[redacted]

FUEL MANAGEMENT SYSTEM (FMS)

DESCRIPTION: The F-35B fuel system (b)(3), (b)(4) consists of 11 integral fuel tanks and several subsystem components relating to various sub-functions including feed, transfer, refueling, gauging, pressurization and venting, and on-board inert gas generation system (OBIGGS).



Fuel weight is derived from (b)(3), (b)(4) capacitance probe measurements in each tank. Indications of fuel weight are provided to the pilot, fuel software, and flight controls. The pilot sees Usable Minimum Weight to the lower nearest (b)(3), (b)(4) or each tank and the lower nearest (b)(3), (b)(4) for total weight. The fuel system and flight controls use minimum and maximum fuel weights in their calculations.

Engine feed is provided by (b)(3), (b)(4) boost pumps (BP). (b)(3), (b)(4)
(b)(3), (b)(4)

(b)(3), (b)(4)

The fuel transfer subsystem maintains a distribution that ensures CG position is within limits and ensures the feed box is full. (b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)

The fuel engine feed line passes through a main feed shut-off valve (MFSOV) which allows fuel to the engine to be shut-off during maintenance and emergencies.

(b)(3), (b)(4)

(b)(3), (b)(4)

The STOVL fuel system architecture allows all tanks to dump except the feed tanks. Dump is achieved by opening a dump valve that connects the transfer manifold to a dump outlet on the underside of the left wing.

Internal fuel tanks are pressurized with Nitrogen Enriched Air (NEA) by the OBIGGS.

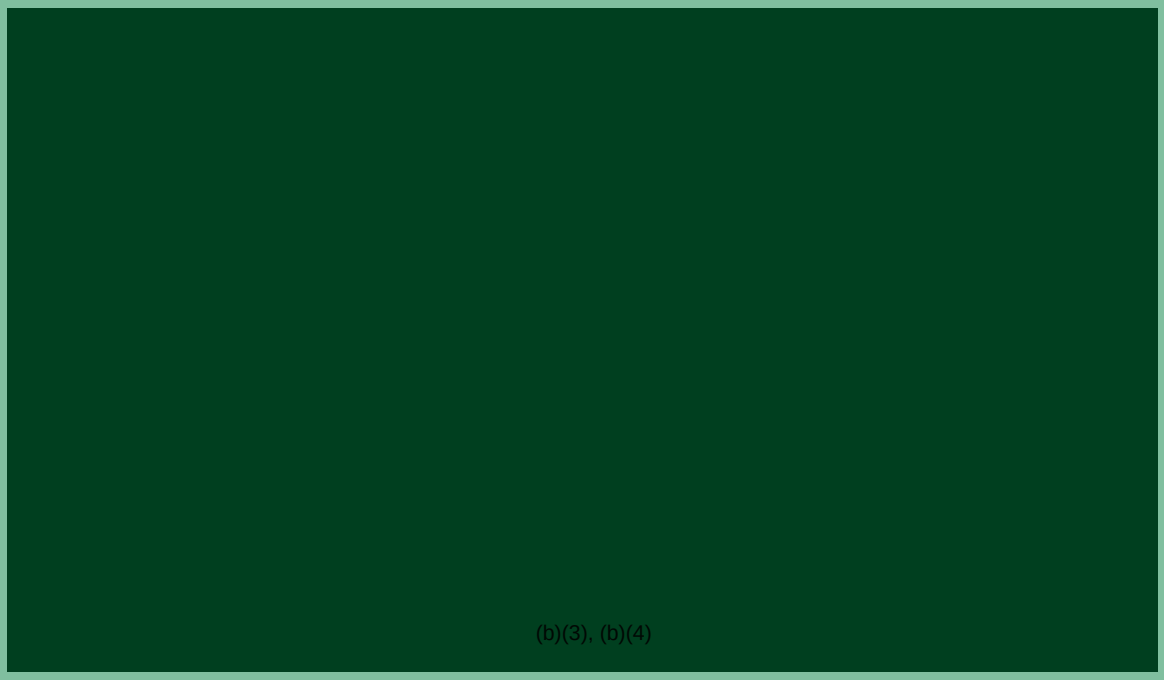
(b)(3), (b)(4)

OBSERVATION: The LM Aeronautics Fuel Management System (FMS) IPT reviewed the CSMU data for any anomalies. Key data points and charts are presented in the analysis below.

ANALYSIS: There were no FUEL system ICAWS observed prior to ejection (b)(3), (b)(4)

(b)(3), (b)(4)

(b)(3), (b)(4)


(b)(3), (b)(4)

(b)(3), (b)(4)

CONCLUSIONS: The fuel system provided sufficient fuel flow to the engine and performed as expected for the duration of the flight.

RECOMMENDATION: None.

HYDRAULICS AND UTILITIES ACTUATION (HUA) SYSTEM

DESCRIPTION: The F-35B STOVL aircraft hydraulic system consists of components and equipment necessary to provide power to two independent hydraulic systems designated as system A and system B. Each system is further defined as being composed of a hydraulic power generation system (HPGS), utility actuators and control valves (UACV) system, LG, and STOVL doors. Figure 21 below shows the overall STOVL hydraulic system and each hydraulic function provided by system A and/or system B.

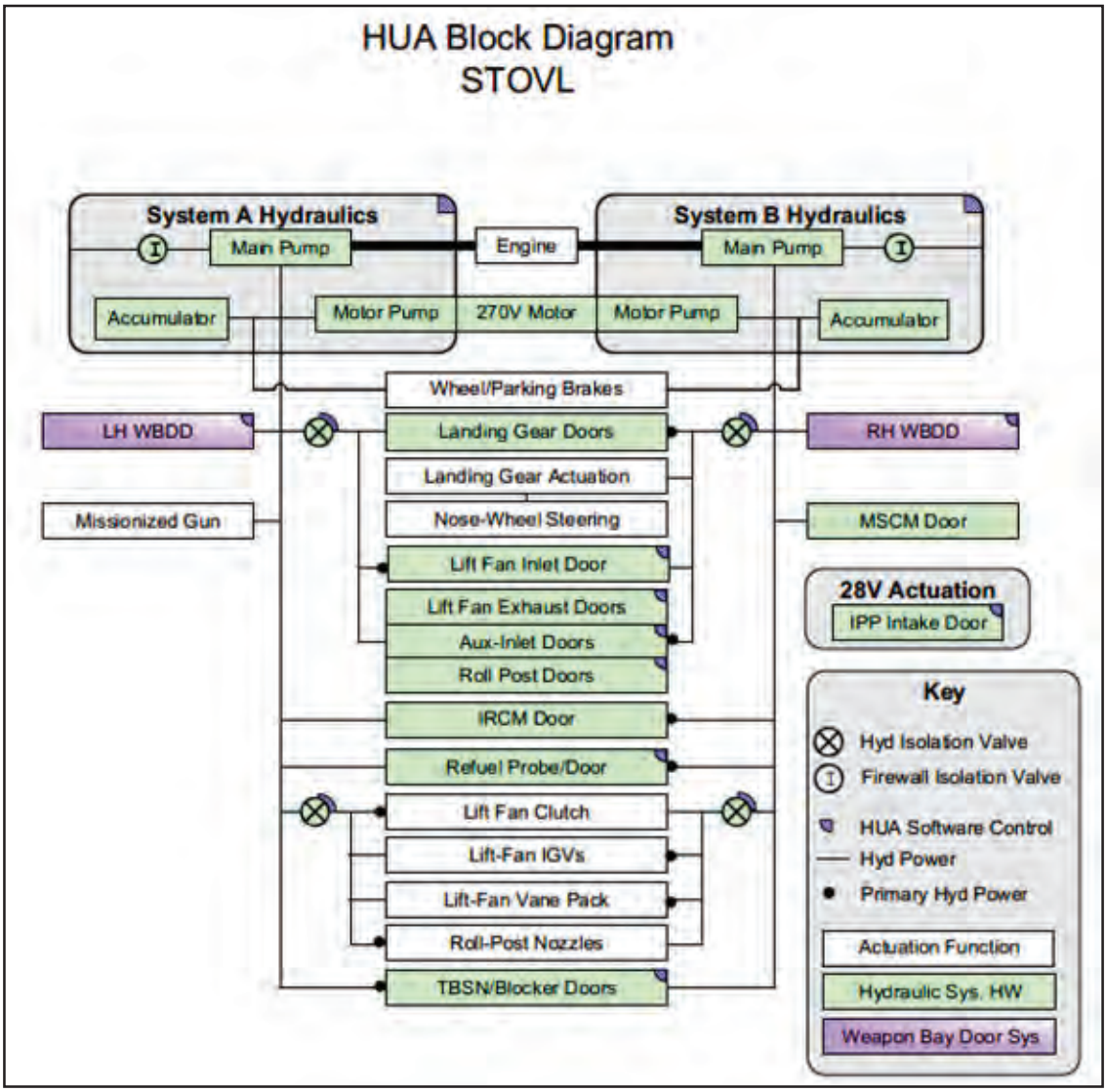


Figure 21. STOVL Hydraulic System Operation

Hydraulic Power Generation System (HPGS). The HPGS is defined as the set of hydraulic components which are required for the generation and control of all hydraulic power on the aircraft, including those required for fluid storage, fluid conditioning, and system monitoring. The HPGS is designed to deliver a maximum flow of (b)(3), (b)(4) at a nominal pressure of (b)(3), (b)(4) to each of the two isolated and

independent hydraulic power circuits on the aircraft. The return pressure of each system is nominally(b)(3), (b)(4) The two separate hydraulic systems provide redundant hydraulic power for operations of selected utility and safety critical functions.

(b)(3), (b)(4)

Additionally, each HPGS contains a landing gear shutoff valve (LGSOV) that isolates the associated system's landing gear hydraulic circuit after the landing gear has been successfully stowed in-flight. (b)(3), (b)(4)

(b)(3), (b)(4)

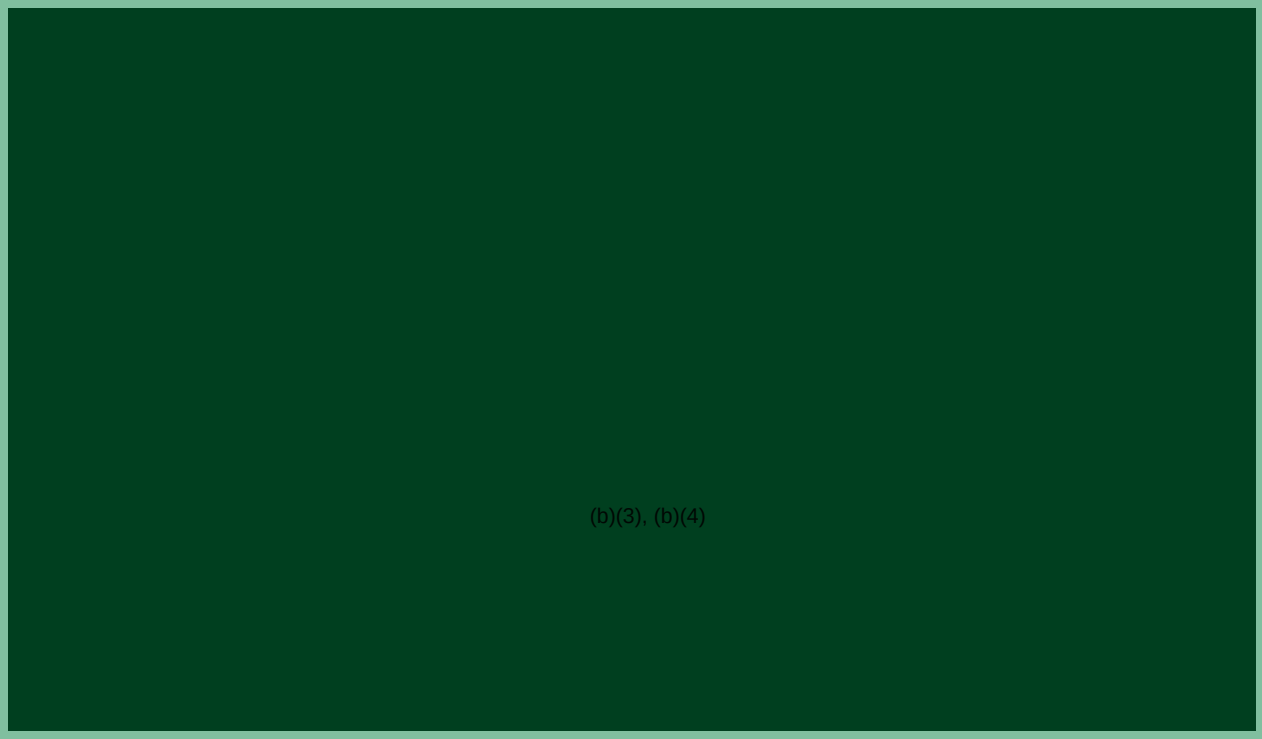
Each HPGS also contains a gas charged accumulator which provides stored hydraulic power to the bootstrap reservoir for EDP boost pressure and supplemental power for metered braking and the parking brake. The accumulator stored power is achieved via a check valve that isolates the accumulator from the rest of the hydraulic system preventing power draw except through the reservoir and brakes.

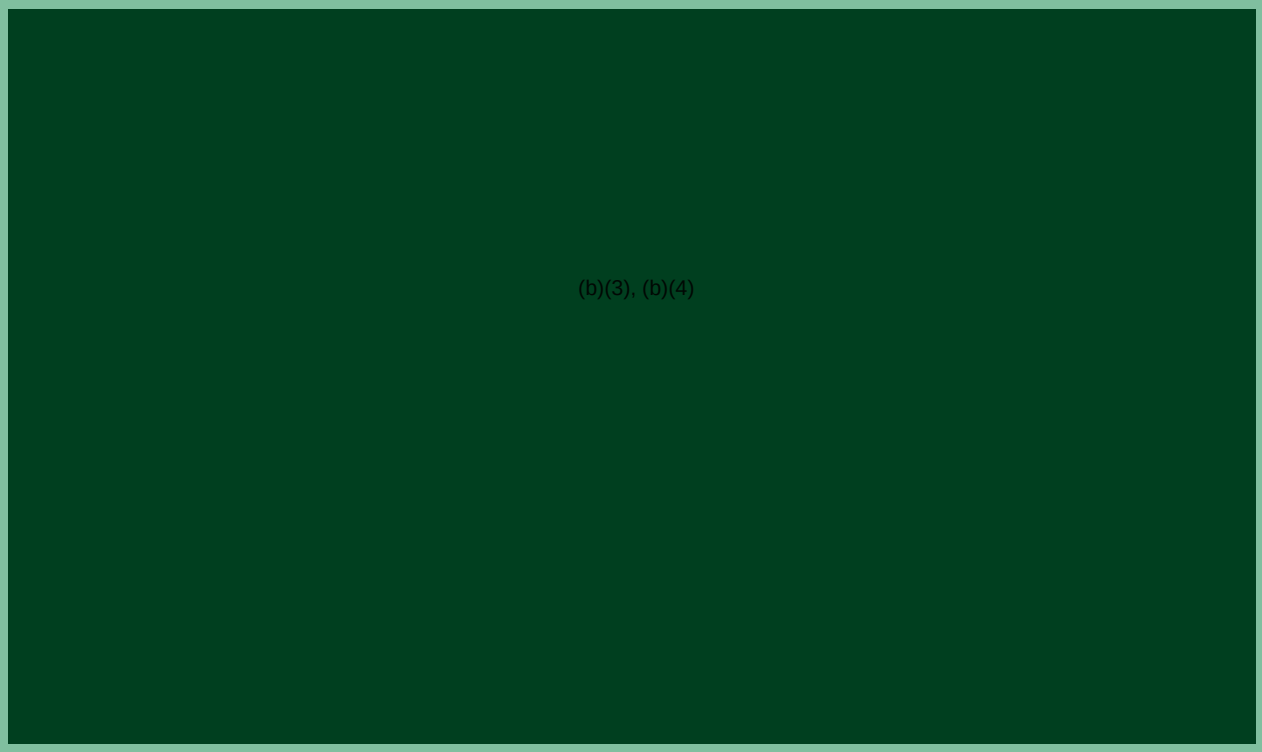
Utility Actuators and Control Valves (UACV). Hydraulic system A and hydraulic system B provide hydraulic power for various utility actuators and control valves. The primary flight controls are not powered by the hydraulic system. Some key actuators and control valves are listed below.

- *STOVL Door Actuation Hardware:* The auxiliary air inlet (AAI) doors, lift fan nozzle (LFN), and roll post (RP) doors receive power from system B. The lift fan inlet (LFI) door and three-bearing swivel nozzle (3BSN) doors receive power from system A.
- *Weapons Bay (WB) doors:* The left WB doors receive power to open/close from system A, while system B powers the right-side door set on the aircraft.
- *Countermeasure (CM) doors:* The mission system equipment (MSE) and infrared-countermeasure (IRCM) doors receive power from system B. Additionally, the IRCM doors are provided redundant power from system A when power from system B is not available.
- *Aerial Refuel Probe and door:* The aerial refuel subsystem consists of a double acting actuator that uses system B power for normal extension and retraction, and system A for emergency extension.

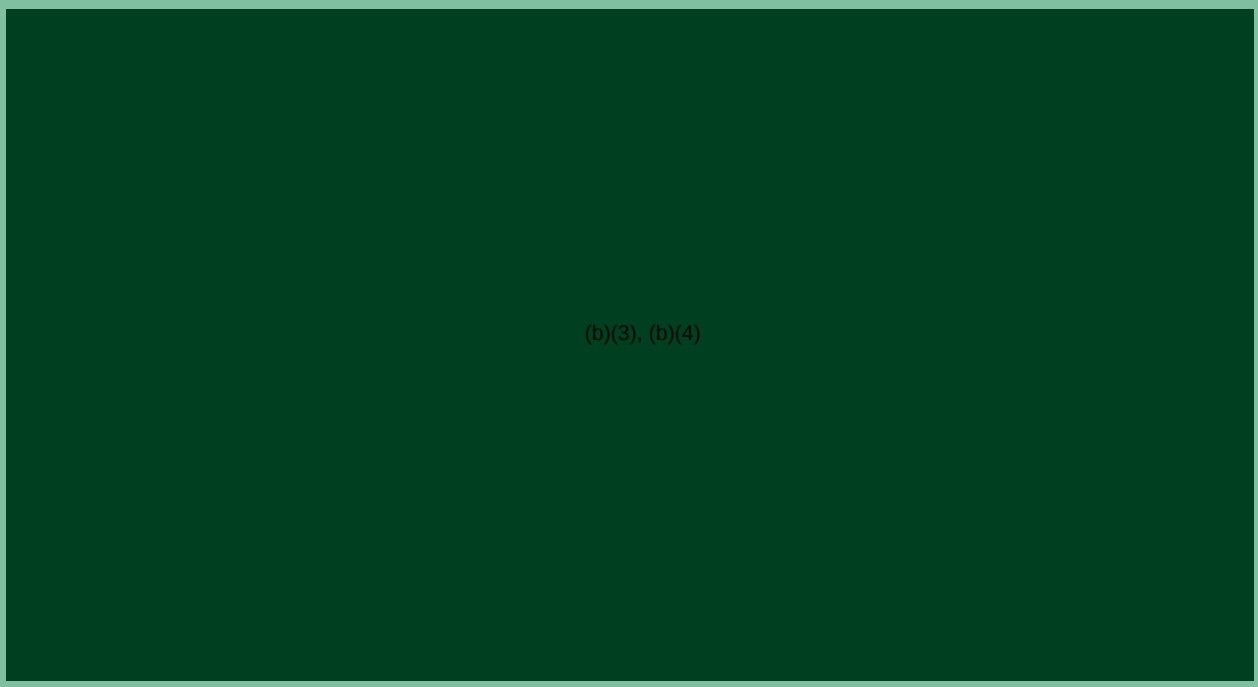
Landing Gear (LG). The landing gear subsystem consists of the NLG, NLG door, nose wheel steering (NWS), left and right main landing gear (LMLG, RMLG), left and right main landing gear forward doors (LMLG Fwd Door, RMLG Fwd Door), left and right MLG wheel brakes and associated door locks. Electrical and mechanical components are included to provide control and indicate status during LG operations. During normal operations, the LG circuit is powered by hydraulic system B. Emergency extend power capability is provided by hydraulic system A.

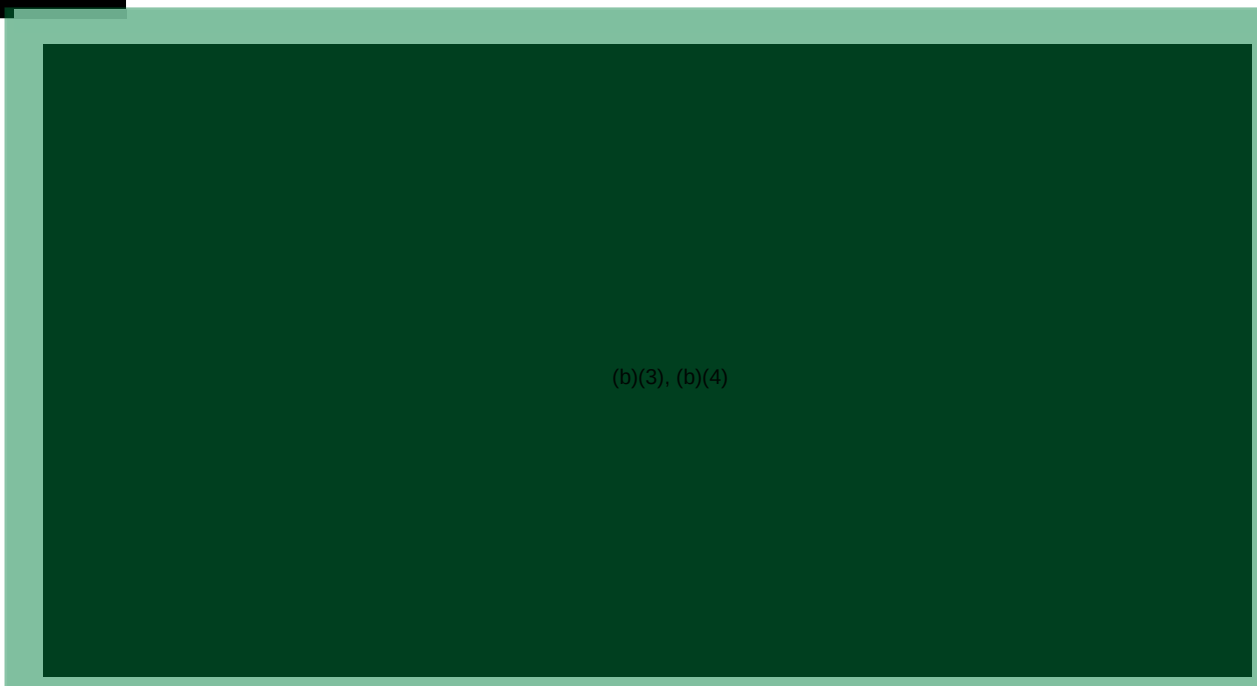
[redacted]


(b)(3), (b)(4)


(b)(3), (b)(4)

(b)(3), (b)(4)


(b)(3), (b)(4)



All STOVL door transitions during the conversions were nominal. (b)(3), (b)(4)

(b)(3), (b)(4)

the health (or validity) of a switch.

(b)(3), (b)(4)

(b)(3), (b)(4)

CONCLUSION: Based on a review of the CSMU data, the hydraulic system performed nominally throughout the flight up until of the end of data recording.

RECOMMENDATION: None.

CREW SYSTEMS

DESCRIPTION: The Crew Systems Integrated Product Team (IPT) encompasses the major systems and subsystems of Ejection Seat, Life Support System (LSS), Pilot Flight & Survival Equipment (PFE) and Transparency Removal Systems (TRS). Crew Systems is a sub-tier IPT within Vehicle Systems.

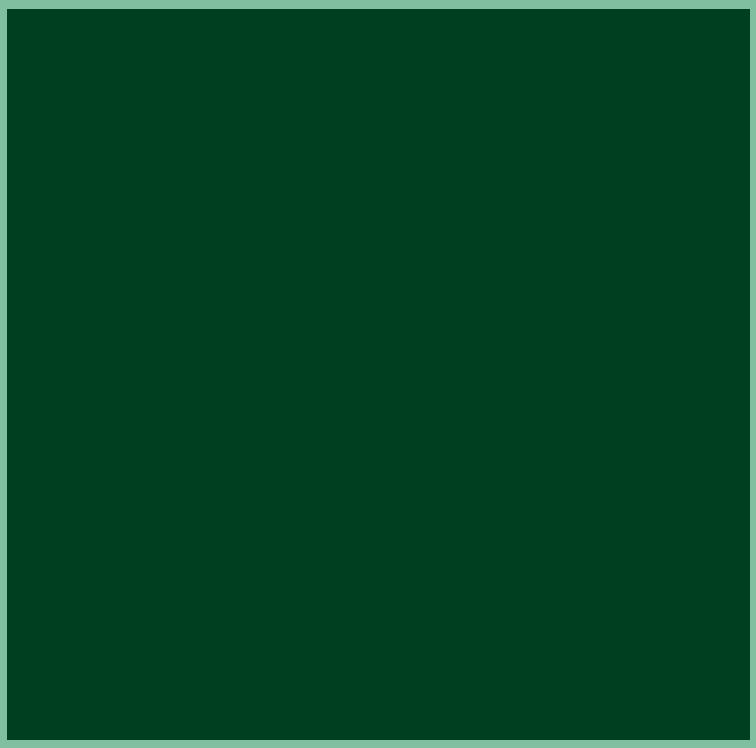
The Helmet Mounted Display System (HMDS) IPT is a sub-tier IPT within Mission Systems, which includes the Oxygen Mask.

These integrated systems and subsystems provide the pilot the necessary requirements to sustain life during all aircraft operating environments, provide safe escape from the Air Vehicle in the event of an emergency, and provide pilot protection during the seat-aircraft and seat-man separation sequences. The Escape System is the combination of multiple systems and subsystems across Vehicle Systems and Mission Systems that operate together to provide safe escape of the F-35 pilot. Crew Systems has the primary responsibility of integrating across the various IPTs and hardware disciplines to provide the F-35 Escape System.

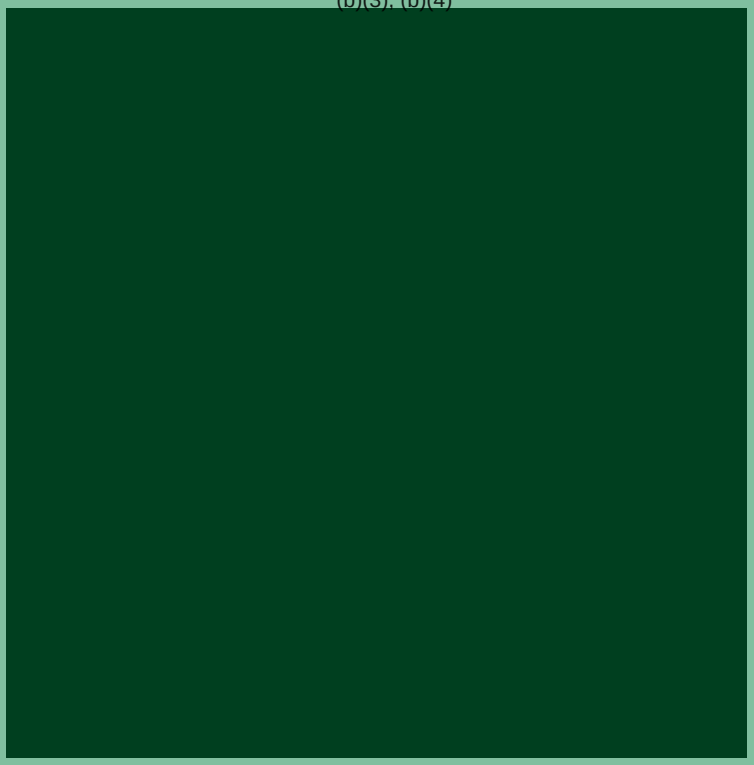
EJECTION SEAT

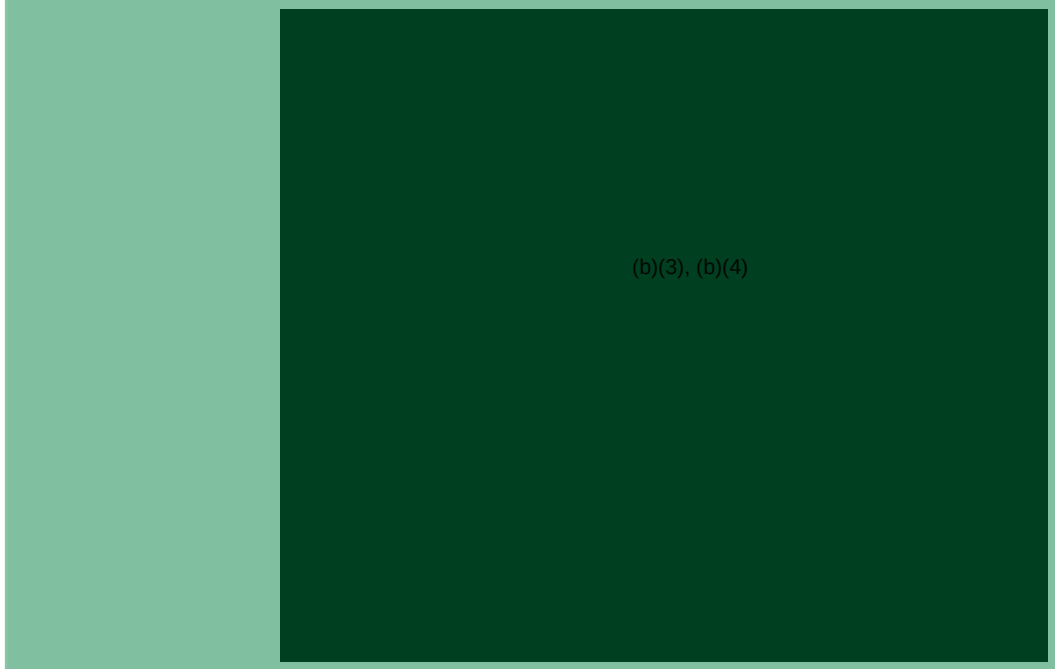
DESCRIPTION: The US16E ejection seat is a fully automatic, electronically controlled ejection seat. The ejection seat consists of main assemblies; Rail Assembly Tilt Mechanism, Combined Twin Catapult/Main Beams Assembly, Seat Bucket Assembly, Parachute Container & Martin Baker Generation 5 (MG5) Integrated Harness Assembly, and Seat Survival Kit. The US16E seat bucket is attached to the twin catapult assembly. The parachute container is attached between the top caps of each catapult tube. The MG5 harness is attached to the ballistically released locks on the upper front of the twin catapult assembly and to lower locks on the seat bucket. The US16E escape system also has a rail assembly tilt mechanism which includes the guide rails that are attached to the aircraft cockpit structure. (b)(3), (b)(4)

(b)(3), (b)(4)



(b)(3), (b)(4)





CONCLUSION: A Mode 2 ejection occurred.

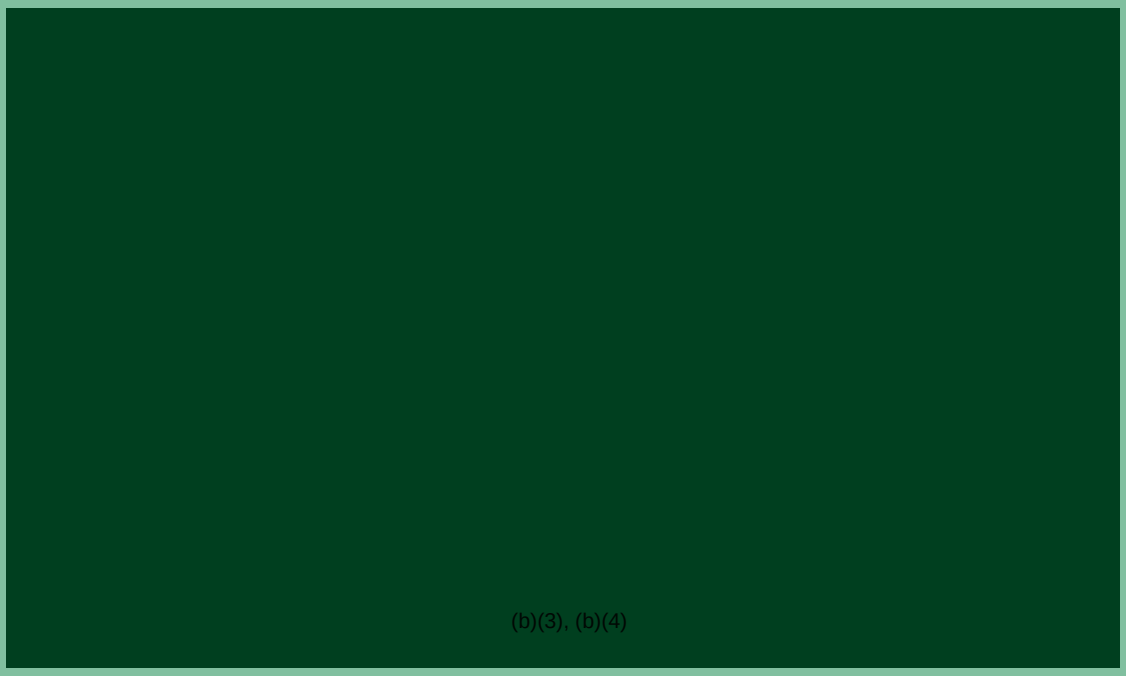
RECOMMENDATION: None

LIFE SUPPORT SYSTEM (LSS)

DESCRIPTION: The primary function of the LSS is to provide concentrated oxygen, anti-G functionality, Pressure Breathing for G's (PBG), and Pressure Breathing for Altitude (PBA) protection according to the cabin pressure and G schedule. The three main components of the LSS are the On-Board Oxygen Generation System (OBOGS), Seat Portion Assembly (SPA), and

(b)(3), (b)(4)

Backup Oxygen System (BOS). Both the OBOGS and the BOS provide breathing gas to the SPA which then regulates the pressure and flow depending on the pilot demand. The F-35 LSS architecture is designed such that the BOS is automatically selected during failure events to protect the pilot from any adverse effects that degrade the system's ability to provide the appropriate amount of oxygen. (b)(3), (b)(4)



(b)(3), (b)(4)

(b)(3), (b)(4)

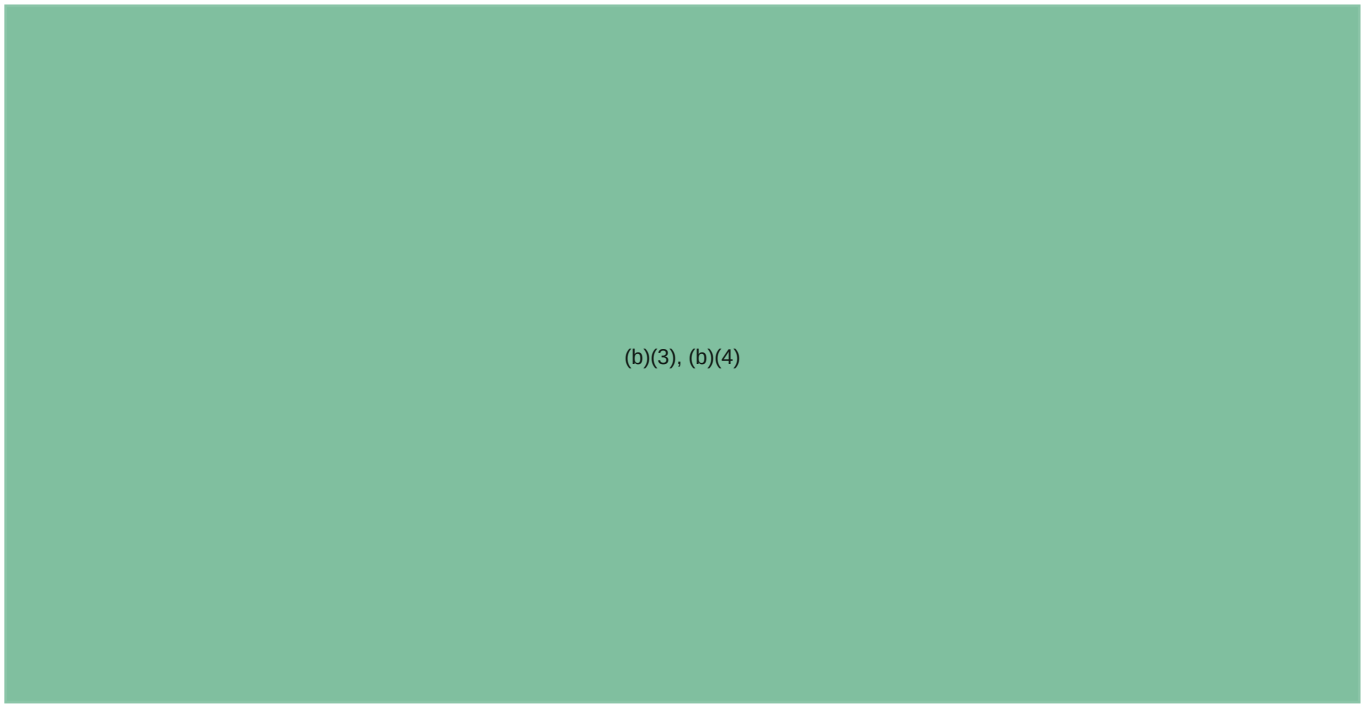
CONCLUSION: The Life Support System operated as designed for the entire flight event.

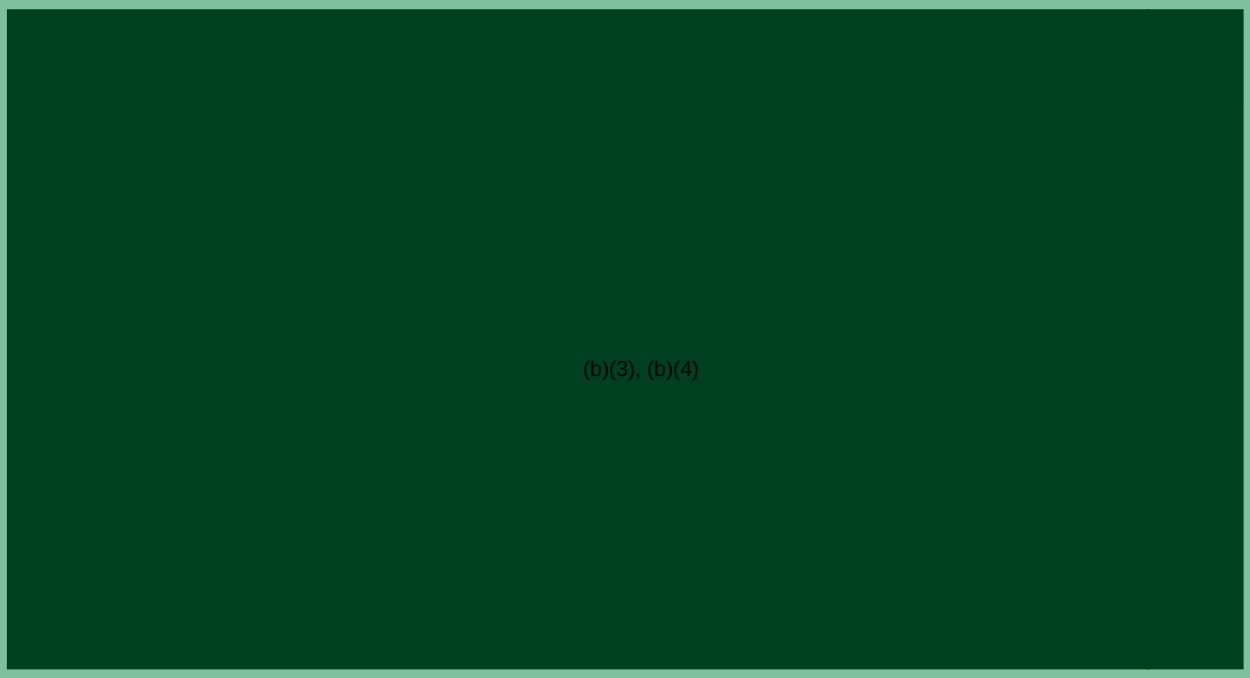
RECOMMENDATION: None.

PILOT FLIGHT EQUIPMENT (PFE)

DESCRIPTION: The PFE suite is a combination of garments that are designed to provide physiological protection to the pilot during all operational environments and during emergency escape. Each pilot is measured for specific anthropometry and each specific garment is sized, fit, adjusted, and tailored. This unique fit ensures the best fit of each garment and proper integration of pilot and equipment to the cockpit systems.

To provide maximum protection of the pilot, the PFE incorporates an Arm Restraint System that is integrated into the Flight Jacket Sleeved and Light Weight Coverall. This system links to the MG5 harness via Arm Restrain Extension Lines (AREL). During an ejection, the operation of the ejection seat pulls down on the ARELs and acts as a retention system of the arms to prevent arm flail.





ANALYSIS: Analysis of PFE functionality could not be accomplished since no data for this system is recorded in the CSMU.

CONCLUSION: None.

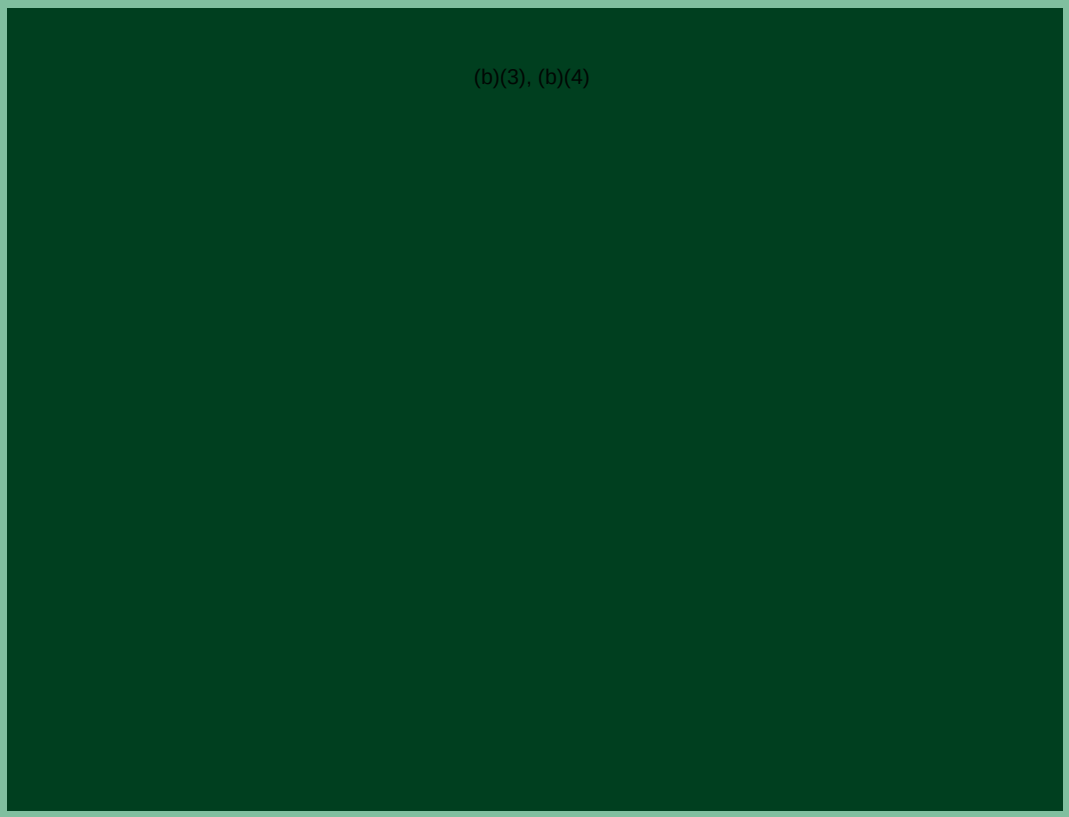
RECOMMENDATIONS: None

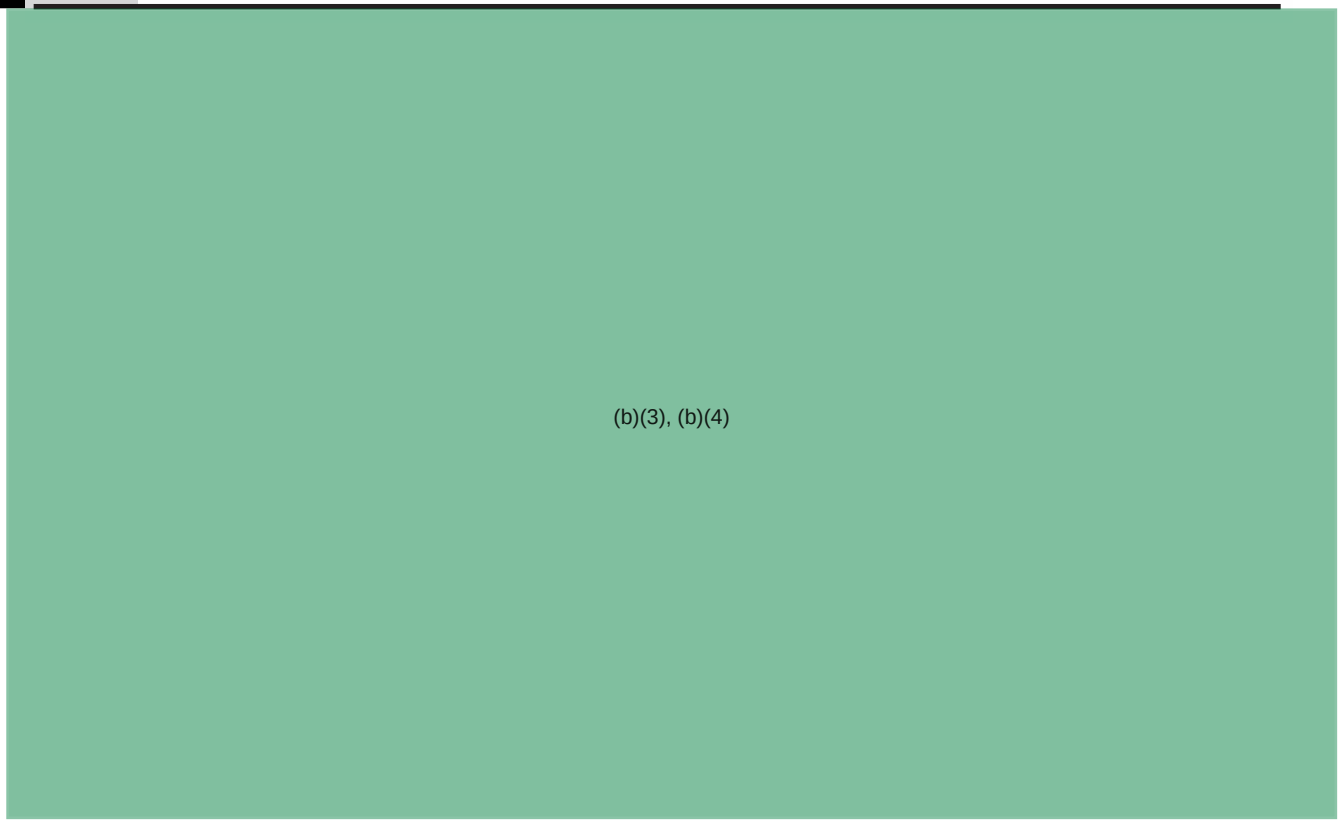
TRANSPARENCY REMOVAL SYSTEM (TRS)

DESCRIPTION: The TRS is a non-electrical energetic system to remove the transparency of the F-35 aircraft and provide a quick escape path from the cockpit in the event of an emergency. The primary function is tied to the ejection seat through the Aircraft Interface Disconnect Unit (AIDU) gas system. When the pilot activates the Ejection Seat by pulling its ejection handle, a sequence of events is started culminating in transparency removal and the seat riding up the rails. Seat rocket ignition then powers the seat away from the aircraft at which time the parachutes are deployed and the pilot descends safely to the ground.

The secondary function of the TRS is to allow the pilot to remove the transparency, without seat ejection, in the event of an emergency.

(b)(3), (b)(4)


(b)(3), (b)(4)



ANALYSIS: Analysis of TRS functionality could not be accomplished since no data for this system is recorded in the CSMU.

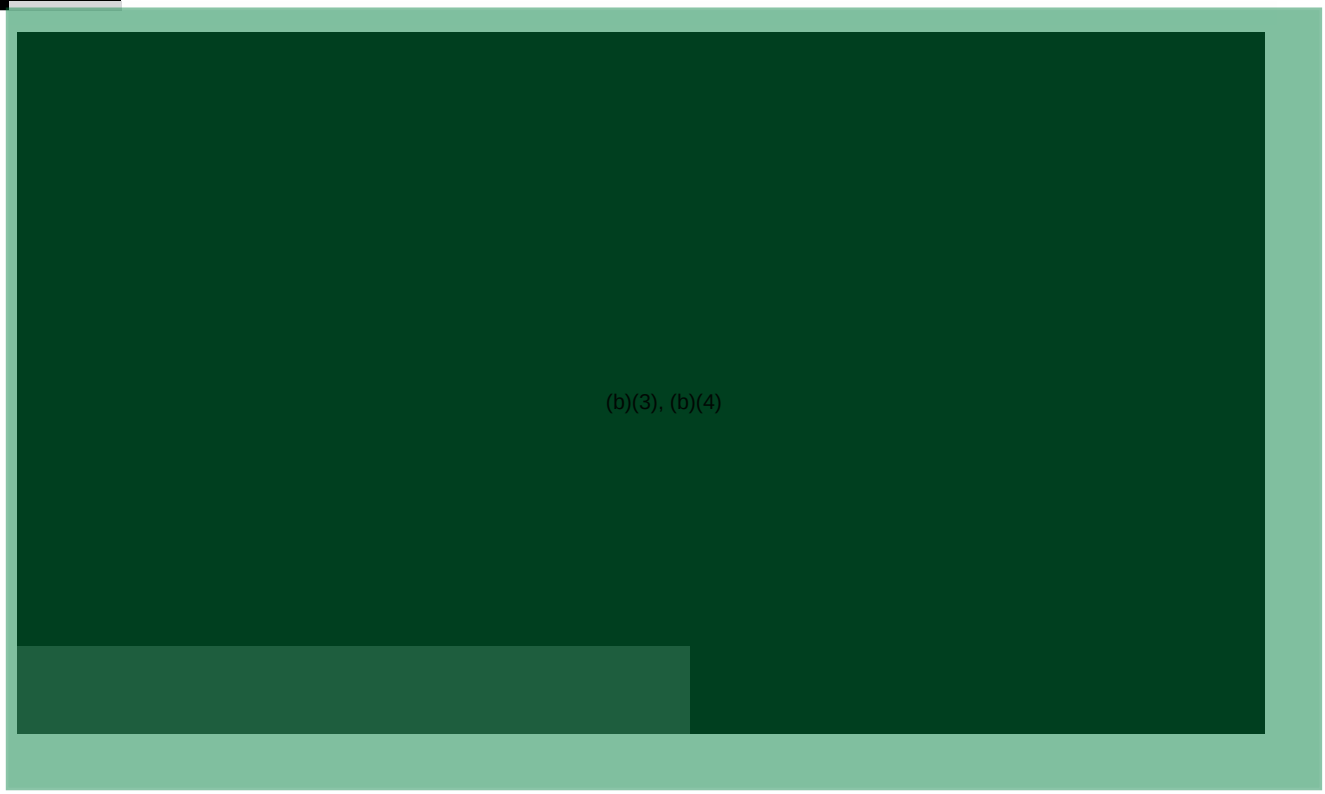
CONCLUSION: None

RECOMMENDATIONS: None

HELMET MOUNTED DISPLAY (HMD) SYSTEM

DESCRIPTION: The Helmet Mounted Display System is comprised of hardware that is aircraft mounted and pilot worn. This review, description and investigation is strictly for pilot worn Helmet Mounted Display and Oxygen Mask components.

Helmet Mounted Display (b)(3), (b)(4) is comprised of (2) major subsystems; Helmet Display Unit (HDU) & Helmet Assembly Unit (HAU). The HDU/HAU provides a binocular display to the pilot and hosts the clear display and tinted external visors for the baseline Gen III HMDS. The Gen III HMD provides the connections and interfaces for the Active Noise Reduction (ANR) Headset, Helmet Communications Interface (HCI) Cable and mounting of the receivers for the Oxygen Mask. the Gen III HMD is connected to the Display Management Computer/Helmet through a specialized aircraft cable assembly, with a Helmet Vehicle Interface (HVI) which is designed for quick disconnect. The HVI interface connects to the ejection seat on the right hand side and is mechanically disconnected during the ejection sequence.



ANALYSIS: Analysis of HMD functionality could not be accomplished since no data for this system is recorded in the CSMU.

CONCLUSIONS: None

RECOMMENDATIONS: None

CONCLUSION SUMMARY

1. The configured MA (b)(3), (b)(4) CG was within the defined (Landing Gear UP) aircraft limitations.
2. The ejection sequence was initiated on short final while in heavy rain conditions and the MA continued flying unmanned before coming to a rest in a low angle/high speed trajectory approximately 64 miles northeast of Joint Base Charleston.
3. The MA CSMU was functioning and operating normally.
4. The nacelle fan tripped its electrical power contactor. The electrical fault drove a power transient to half of the non-battery backed buses until the fault was isolated by the tripped contactor. PTMS performed in accordance with its design for the given nacelle fan fault condition.
5. Based on a review of the CSMU data, the ADS performed as designed.
6. The EDU (b)(3), (b)(4) contactor output to the Nacelle Fan tripped at AC time 4751.01s (17:32:05.5Z) due to an overcurrent event causing a transient voltage drop on the ICC1 voltage output.
7. Due to the limited nature of MS data recorded on the CSMU, it is not possible to determine what the MP saw on the HMD. Recorded CSMU data indicated the DMCs remained powered and were able to provide critical information such as ICAWS from AC time 4752s (17:32:06.5Z) to 4792s (17:32:46.5Z).
8. Data indicates that ICAWS were functioning properly up to aircraft time of approximately AC time 4790s (17:32:44.5Z).
9. Recorded CSMU data indicated the DMCH and HMD remained powered and displayed information to the pilot during the time period from approximately AC time 4752s to 4792s. Helmet pitch data during the last 24 seconds recorded several instances of significant downward head movement..
10. The data comparison on six additional flights with a common EPS event suggests DMCL, DMCR, and DMCH for the MA did not lose power during the transient electrical event.
11. The SFD provided valid flight reference data to the MP throughout the time period from AC time 4752s to 4792s.
12. CSMU data recorded the ICP-A restarting at approximately AC time 4753s (17:32:07.5Z), while the ICP-B continued to operate normally during the time period from approximately AC time 4752s (17:32:06.5Z) to 4792s (17:32:46.5Z).
13. The CLAW application performed as expected throughout the approach to landing, conversion from CTOL to STOVL mode, the waveoff, subsequent conversion from STOVL to CTOL mode and post ejection. Post ejection aircraft dynamics were consistent with expected response for an aircraft with a feedback control system.
14. CSMU data recorded the propulsion system operation was consistent with normal and expected operation.
15. The CNI rack and waveforms associated with the CNI rack operated as designed until approximately AC time 4750.6s (17:32:05.1Z) at which point waveforms froze or became invalid due to the transient electrical event. The ACE and BUR continued to be available until AC time 4792.4s (17:32:46.9Z).
16. LEF Lock and ICU faults asserted as expected due to transient power loss (b)(3), (b)(4) (b)(3), (b)(4) Loss of redundancies would not have affected flying qualities in the current operating envelope.

17. INS, GPS, and Autopilot data exhibited failures resulting in degraded TNS velocity and attitude outputs to control laws and the loss of certain autopilot modes.
18. ICU C and dual cockpit IMU failures occurred post ejection. IMU communication continued however, a pitch rate spike is seen in TNS B recorded data (b)(3), (b)(4), (b)(7)(E) pitch rate was not affected by these failures. ICU C failed due to communication loss and caused a loss of redundancy. Some HOTAS switches on ICU C would be non-operational
19. AGCAS was never engaged throughout the entire flight (power cycle).
20. The fuel system provided sufficient fuel flow to the engine and performed as expected for the duration of the flight.
21. Based on a review of the CSMU data, the hydraulic system performed nominally throughout the flight up until of the end of data recording.
22. A Mode 2 ejection occurred.
23. The Life Support System operated as designed for the entire flight event.

RECOMMENDATION SUMMARY

(b)(3), (b)(4), (b)(5)

GLOSSARY

3BSD	Three-bearing swivel duct
3BSN	Three-bearing swivel nozzle
AAI	Auxiliary air inlet
AB	Afterburner
AC	Aircraft
ACE	Audio control electronics
ADA	Air data application
ADS	Air data system
AFI	Arm-fire initiator
AFSAS	Air Force Safety Automated System
AGCAS	Automatic Ground Collision Avoidance System
AIDU	Aircraft interface disconnect unit
AIM	Air intercept missile
AIS	Active inceptor system
AMB	Aircraft Mishap Board
AMD	Aircraft memory device
AMRAAM	Advanced medium range air to air missile
AMS	Aircraft memory system
AOA	Angle of attack
AOS	Angle of sideslip
AP	Autopilot
APC	Approach power compensator
APU	Auxiliary Power Unit
AR	Aerial refueling or action request
AREL	Arm restraint extension lines
ASRAAM	Advanced short-range air to air missile
ASSCA	active side stick controller assembly
AT	Auto throttle
ATQA	Active throttle quadrant assembly
BATT	Battery
BCCU	Battery charger control unit
BIT	Built-in test
BOS	Backup oxygen system
BP	Boost pump
BUNO	Bureau Number
BUR	Backup radio
C	Celsius/Centigrade
CCA	Circuit card assembly
CCDL	Cross channel data link
CE	Control electronic
CG	Center of gravity
CLAW	Control law
CNI	Communication, navigation, and identification
CPM	Crash-protected memory
C/R	Converter regulator
CSMU	Crash survivable memory unit
CTOL	Conventional takeoff and landing
CVL	Creeping vertical landings
dc or DC	Direct current
DDL	Design Development Lab
deg	Degrees
DEGD	Degrade
DMC	Display management computer
DMCH	DMC helmet
DMCL	DMC left
DMCR	DMC right
DU	Display unit
ECS	Environmental Control System
EDP	Engine-drive pump
EDTC	Enhanced data transfer cartridge
EDTCR	Enhanced data transfer cartridge receptacle
EDU	Electrical distribution unit
EHA	Electro-hydrostatic actuator
EIR	Engineering Investigation Report

EPS	Electrical Power System
EPU	Emergency Power Unit
ESG	Engine starter/generator
ETR	Engine thrust request
ETR_FB	Engine thrust request feedback
EU	Electronics unit
FADEC	Full Authority Digital Engine Control
FCRM	Flight control redundancy management
FCS	Flight control system
FCRM	Flight Controls Redundancy Management
FCSSM	Fire control and stores selector/monitor
FDHX	Fan duct heat exchanger
FDRM	Flight data recorder manager
FHQ	Fault history queue
FLSCA	Flexible linear shaped charge assembly
FMS	Fuel management system
FPM	Flush port module
FPS	Fire protection system
FSD	Flight series data
FSOV	Firewall shutoff valve
gpm	Gallons per minute
GPS	Global Positioning System
HAU	Helmet assembly unit
HCI	Helmet communications interface
HDU	Helmet display unit
HE	High energy
HGI	Hot gas ingestion/initiators
HIC	Health indicator code
HMD	Helmet mounted display
HOTAS	Hands on throttle and stick
HPGS	Hydraulic power generation system
HRC	Health report code
HT	Horizontal tails
HUA	Hydraulics & utilities actuation
HVI	Helmet vehicle interface
IBIT	Initiated built-in test
ICAW	Integrated Caution Advisory or Warning
ICC	Inverter converter controller
ICP	Integrated core processor
ICU	Inceptor control unit
IEU	Inertial electronic unit
IFF	Identification Friend or Foe
ILS	Instrument landing system
IMU	Inertial measurement unit
INS	Inertial Navigation System
IPP	Integrated Power Package
IPT	Integrated Product Team
JB	Jetborne
JDL	JSF data library
JSF	Joint Strike Fighter
KGS	Knots ground speed
KCAS	Knots calibrated airspeed
LAGS	Landing gear system
LEF	Leading edge flap
LG	Landing gear
LGSOV	Landing gear shutoff valve
LFN	Lift fan nozzle
LMLG	Left main landing gear
LM	Lockheed Martin
LRC	Line replaceable components
LRU	Line Replaceable Unit
LS	Lift system
LSS	Life support system
LVDT	Linear variable differential transducer
MA	Mishap Aircraft
MAC	Mean aerodynamic chord
MADL	Multifunction advanced data link
MCAS	Marine Corps Air Station
MCV	Main control valve
METAR	METeorological Aerodrome Report
MFP	Multi-function probe
MFSOV	Main feed shut-off valve
MG5	Martin Baker Generation 5
MIST	Mishap Inv Support Team

MP	Mishap Pilot
ms	Milliseconds
MS	Mission Systems
MSL	Mean Sea Level
MWB	Main weapons bay
NAVAIR	Naval Air Systems Command
NEA	Nitrogen enriched air
NLG	Nose landing gear
NWS	Nose wheel steering
Nz	Vertical G-load
OBIGGS	On-board inert gas generation system
OBOGS	On-board oxygen generation system
OFP	Operational Flight Program
OMS	Offboard mission support
PA	Powered approach
PAO	Polyalphaolefin
PBA	Pressure breathing for altitude
PBG	Pressure breathing for G's
PBIT	Periodic BIT
PCD	Panoramic cockpit display
PDC	Power distribution centers
PDE	Power drive electronics
PFE	Pilot flight and survival equipment
PHAM	Propulsion health area manager
PHM	Prognostics and health management
PMD	Portable memory device
PMG	Permanent magnet generator
P/N	Part number
Prop	Propulsion
psi	Pounds per square inch
psia	Pounds per square inch absolute
psig	Pounds per square inch gauge
PTMS	Power and thermal management system
PVCV	Pressure and vent control valve
RALT	Radar altimeter
RDCTL	Rapid deflagrating transfer lines
RMLG	Right main landing gear
RIO	Remote input/output
RP	Roll post
RPM	Revolutions per minute
RVL	Rolling vertical landings
S	Seconds
SFD	Standby flight display
S/G	Starter generator
S/W	Software
S/N	Serial number
SBIT	Start-up BIT
SJ	Semi-jetborne
SL	Slow landing
SMS	Stores management system
SPA	Seat portion assembly
STOVL	Short takeoff and vertical landing
T	True
TACAN	Tactical air navigation
TED	Terrain elevation data
TEF	Trailing edge flaps
TFAT	Total free air temperature
TNS	Tactical Navigation System
TP	Transfer pump(s)
TRS	Transparency removal system
TT2	Total temperature probe
UA	Up-and-away
UACV	Utility actuators and control valves
UHF	Ultra-high frequency
UTC	Universal Time Coordinated
UTIL	Utility
V	Volts
Vdc	Volt direct current
VEL	Velocity
VHF	Very high frequency
VL	Vertical landing
VMC	Vehicle management computer

VMHL	Vehicle Management Hardware Labe	WB	Weapons bay
		WonW	Weight On Wheels
VMS	Vehicle management system	WVWF	Wild voltage wild frequency
VS	Vehicle system		
		Z	Zulu (time)

ATTACHMENTS

(b)(3), (b)(4)

Attch 1 - 169591 (BF-66) MCAS Beaufort Class A 20230917 Select Recorded CSMU Data.xlsx
Attch 2 - 169591 (BF-66) MCAS Beaufort Class A 20230917 CSMU Data Overview.xlsx

18 Jan 2024

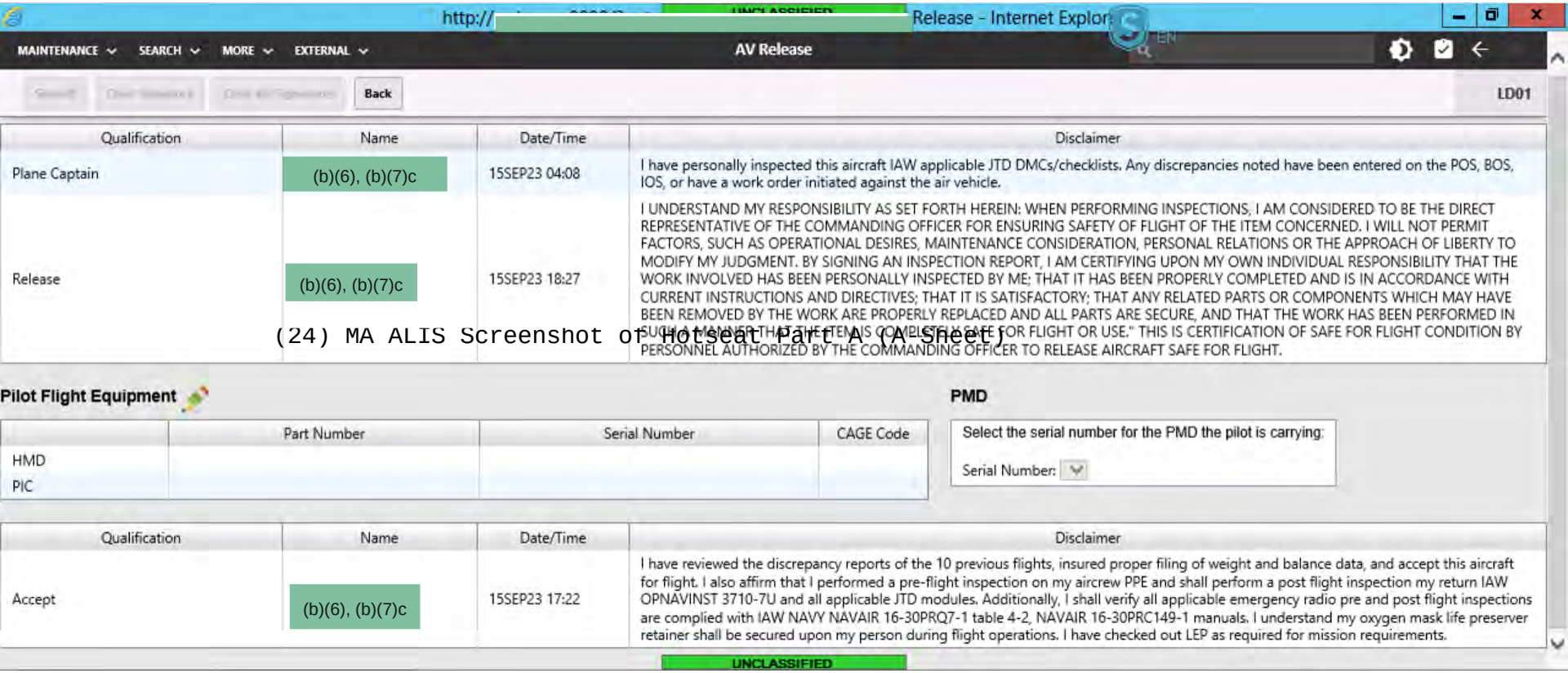
MEMORANDUM FOR THE RECORD

Subj: SUMMARY HISTORY AND MAINTENANCE DATA REGARDING MISHAP AIRCRAFT

1. The F-35B involved in a mishap on 17 September 2023 was Bureau Number (BUNO) 169591 (BF-66). This aircraft was accepted by VMFAT-501 on 3 October 2018 and flew a total of 1267.1 hours. This is near the average amount of flight hours for the aircraft assigned to VMFAT-501. The mishap aircraft flew 40.6 hours in 90 days, 18.4 hours in the last 60 Days, and 18.4 hours in the last 30 days leading up to the mishap. Of note, the aircraft was down from 10 July 2023 to 11 September 2023 for multiple maintenance requirements including a high-time IPP, damaged IPP drop link bushings, ladder door latches, and the incorporation of HMOD-40 (an Electro-Hydraulic Actuator upgrade).

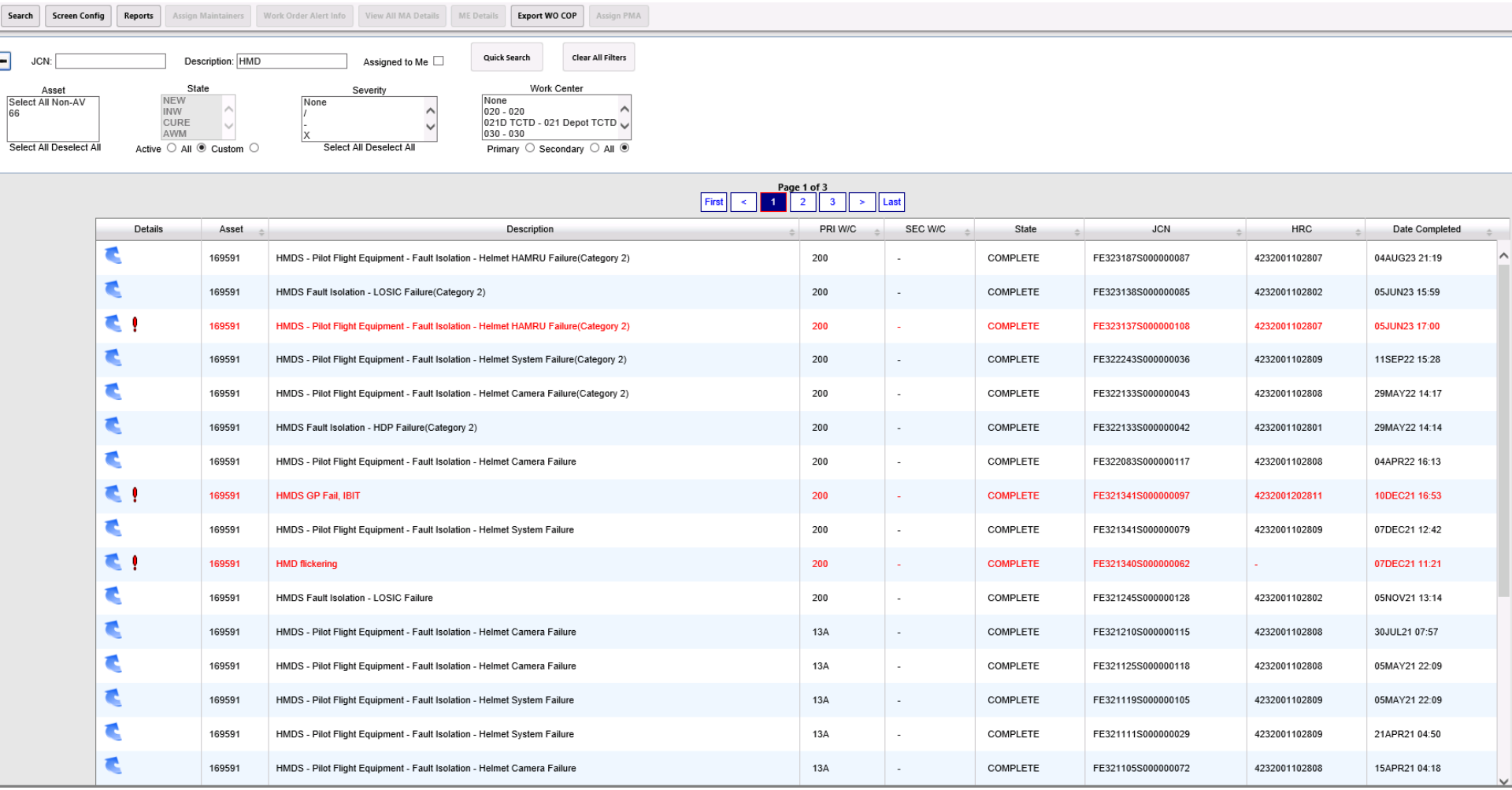
2. The point of contact for this matter is (b)(6), (b)(7)c at (b)(6), (b)(7)c or (b)(6), (b)(7)c (b)(6), (b)(7)c

(24) MA ALIS Screenshot of Hotseat Part A (A-Sheet)



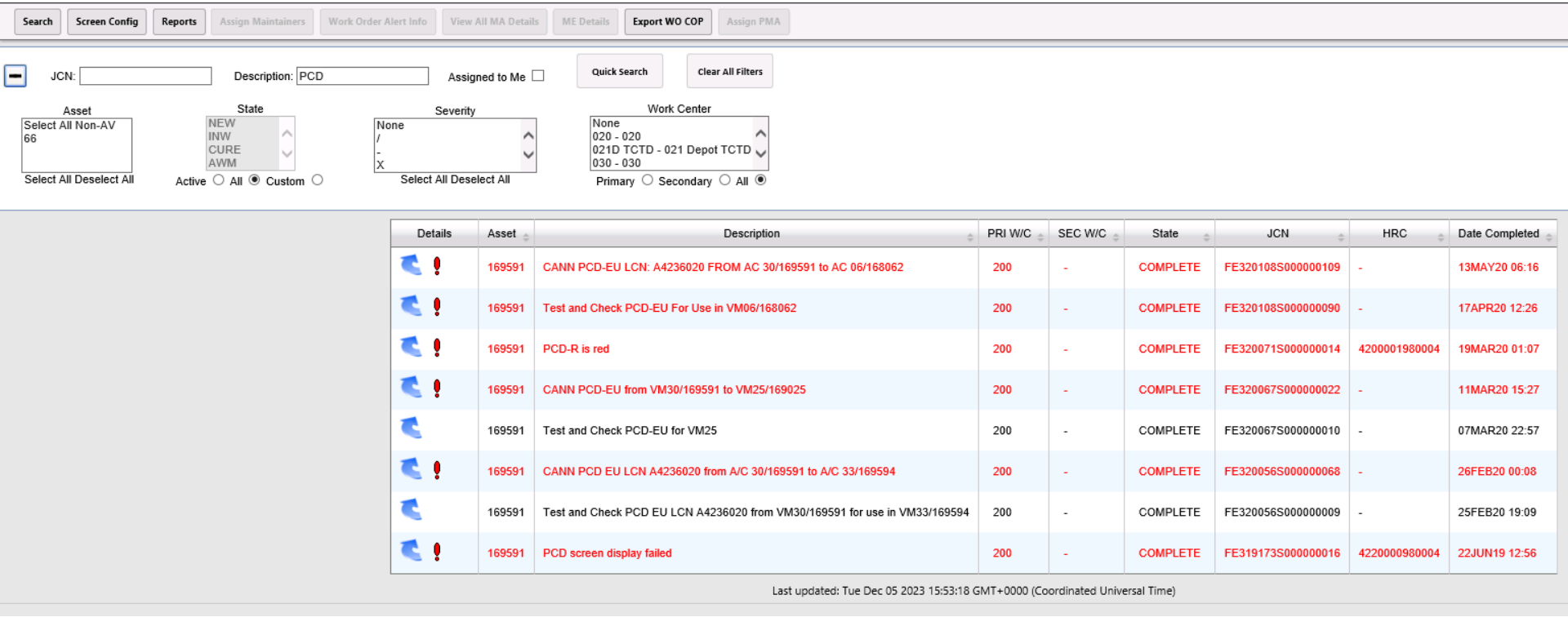
(24) MA ALIS Screenshot of Hotseat Part A (A-Sheet)

(27) MA ALIS Screenshots of Pilot Display MAFs



Details	Asset	Description	PRI W/C	SEC W/C	State	JCN	HRC	Date Completed
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet HAMRU Failure(Category 2)	200	-	COMPLETE	FE323187S000000087	4232001102807	04AUG23 21:19
	169591	HMDS Fault Isolation - LOSIC Failure(Category 2)	200	-	COMPLETE	FE323138S000000085	4232001102802	05JUN23 15:59
!	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet HAMRU Failure(Category 2)	200	-	COMPLETE	FE323137S000000108	4232001102807	05JUN23 17:00
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet System Failure(Category 2)	200	-	COMPLETE	FE322243S000000036	4232001102809	11SEP22 15:28
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet Camera Failure(Category 2)	200	-	COMPLETE	FE322133S000000043	4232001102808	29MAY22 14:17
	169591	HMDS Fault Isolation - HDP Failure(Category 2)	200	-	COMPLETE	FE322133S000000042	4232001102801	29MAY22 14:14
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet Camera Failure	200	-	COMPLETE	FE322083S000000117	4232001102808	04APR22 16:13
!	169591	HMDS GP Fail, IBIT	200	-	COMPLETE	FE321341S000000097	4232001202811	10DEC21 16:53
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet System Failure	200	-	COMPLETE	FE321341S000000079	4232001102809	07DEC21 12:42
!	169591	HMD flickering	200	-	COMPLETE	FE321340S000000062	-	07DEC21 11:21
	169591	HMDS Fault Isolation - LOSIC Failure	200	-	COMPLETE	FE321245S000000128	4232001102802	05NOV21 13:14
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet Camera Failure	13A	-	COMPLETE	FE321210S000000115	4232001102808	30JUL21 07:57
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet Camera Failure	13A	-	COMPLETE	FE321125S000000118	4232001102808	05MAY21 22:09
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet System Failure	13A	-	COMPLETE	FE321119S000000105	4232001102809	05MAY21 22:09
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet System Failure	13A	-	COMPLETE	FE321111S000000029	4232001102809	21APR21 04:50
	169591	HMDS - Pilot Flight Equipment - Fault Isolation - Helmet Camera Failure	13A	-	COMPLETE	FE321105S000000072	4232001102808	15APR21 04:18

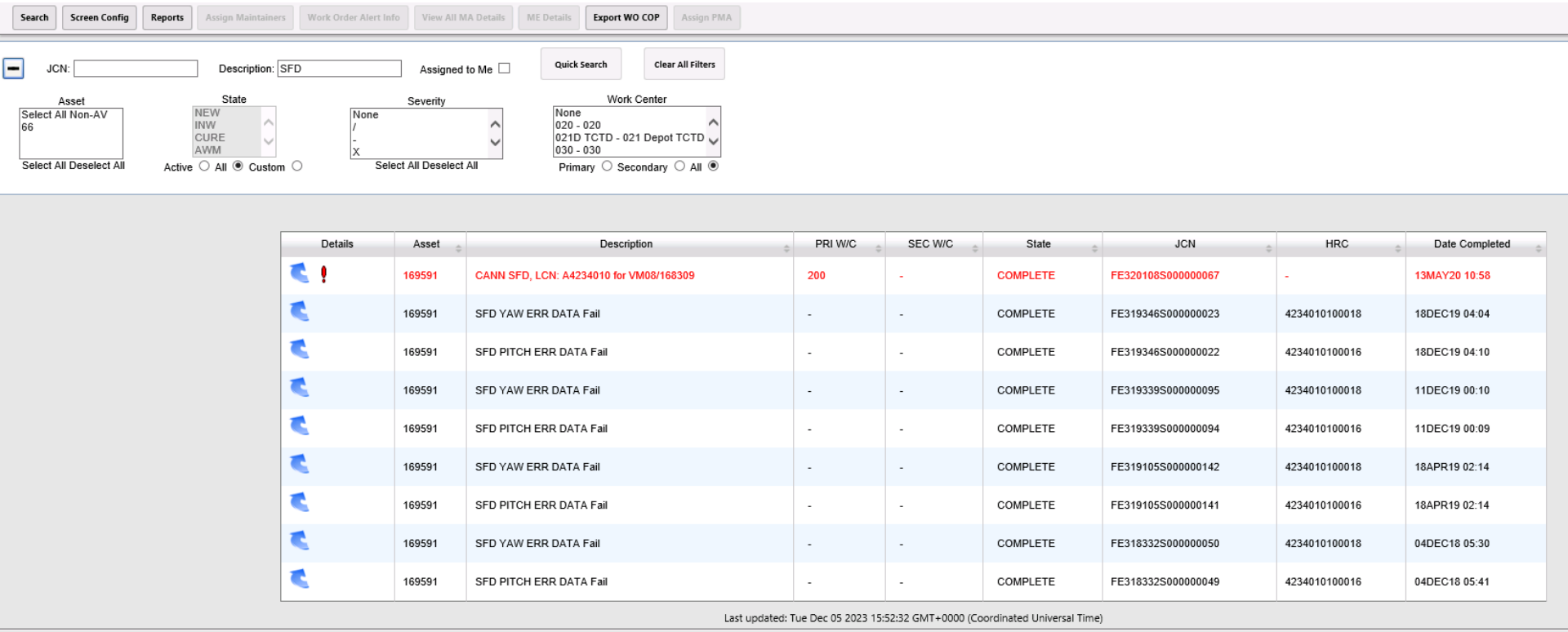
(27) MA ALIS Screenshots of Pilot Display MAFs



Details	Asset	Description	PRI W/C	SEC W/C	State	JCN	HRC	Date Completed
	169591	CANN PCD-EU LCN: A4236020 FROM AC 30/169591 to AC 06/168062	200	-	COMPLETE	FE320108S000000109	-	13MAY20 06:16
	169591	Test and Check PCD-EU For Use in VM06/168062	200	-	COMPLETE	FE320108S000000090	-	17APR20 12:26
	169591	PCD-R is red	200	-	COMPLETE	FE320071S000000014	4200001980004	19MAR20 01:07
	169591	CANN PCD-EU from VM30/169591 to VM25/169025	200	-	COMPLETE	FE320067S000000022	-	11MAR20 15:27
	169591	Test and Check PCD-EU for VM25	200	-	COMPLETE	FE320067S000000010	-	07MAR20 22:57
	169591	CANN PCD EU LCN A4236020 from A/C 30/169591 to A/C 33/169594	200	-	COMPLETE	FE320056S000000068	-	26FEB20 00:08
	169591	Test and Check PCD EU LCN A4236020 from VM30/169591 for use in VM33/169594	200	-	COMPLETE	FE320056S000000009	-	25FEB20 19:09
	169591	PCD screen display failed	200	-	COMPLETE	FE319173S000000016	4220000980004	22JUN19 12:56

Last updated: Tue Dec 05 2023 15:53:18 GMT+0000 (Coordinated Universal Time)

(27) MA ALIS Screenshots of Pilot Display MAFs

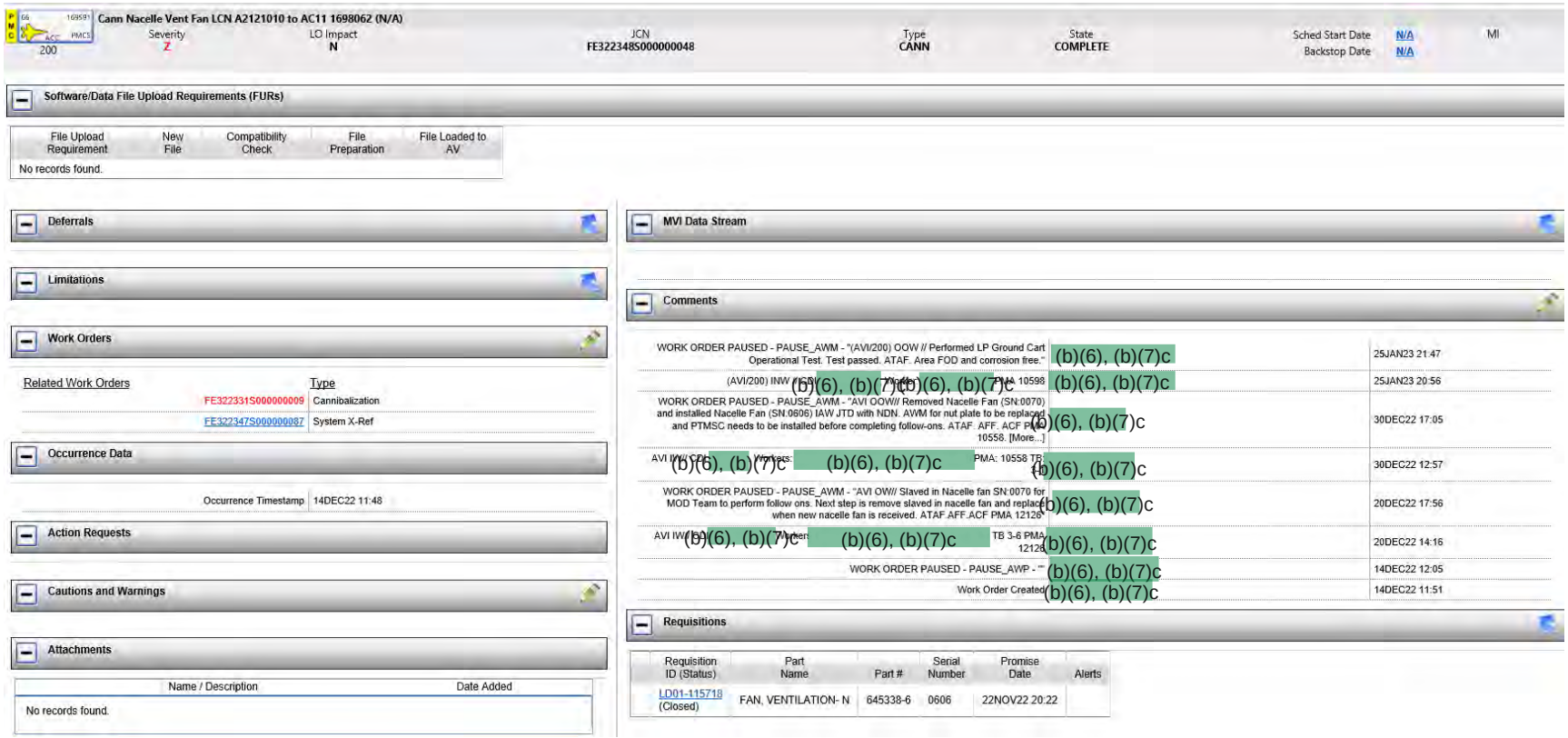


(28) MA ALIS Screenshots of Nacelle Fan MAFs

Details	Asset	Description	PRI W/C	SEC W/C	State	JCN	HRC	Date Completed
!	169591	Test and Check Nacelle Fan LCN: A2121010 to A/C 14	200	-	COMPLETE	FE323068S000000060	-	23MAR23 09:12
!	169591	Cann Nacelle Vent Fan LCN A2121010 to AC11 1698062	200	-	COMPLETE	FE322348S000000048	-	25JAN23 22:31
	169591	Test and check Nacelle Fan LCN: A2121010 to BF11/ 168062	200	-	COMPLETE	FE322347S000000087	-	14DEC22 23:18
	169591	Nacelle ventilation fan stuck on fault (Boolean)(Category 1)	200	-	COMPLETE	FE322307S000000023	2100000100080	01DEC22 04:18
!	169591	CANN Nacelle fan A2121010 from A/C 66 169591 to A/C 35 168838	200	-	COMPLETE	FE322195S000000007	-	14JUL22 04:31
	169591	Nacelle ventilation fan stuck on fault (Boolean)(Category 1)	200	-	COMPLETE	FE322181S000000102	2100000100080	15JUL22 02:33
	169591	Nacelle ventilation fan controller reported discrete fault (Boolean)	200	-	COMPLETE	FE321279S000000019	2100000100091	06OCT21 22:23
!	169591	Nacelle ventilation fan stuck off fault (Boolean)	200	-	COMPLETE	FE321279S000000018	2100000100081	06OCT21 13:54
	169591	POTENTIAL FOD FROM MISSING BOLT FOR NACELLE DIVERTER SHIELD UNDER PANEL 3112	040	-	COMPLETE	FE320248S000000058	-	04SEP20 23:12
	169591	Nacelle ventilation fan controller reported discrete fault (Boolean)	200	-	COMPLETE	FE320216S000000055	2100000100091	06AUG20 03:23
!	169591	Nacelle ventilation fan stuck off fault (Boolean)	200	-	COMPLETE	FE320216S000000054	2100000100081	06AUG20 03:22
	169591	Nacelle ventilation fan stuck on fault (Boolean)	13B	-	COMPLETE	FE319260S000000069	2100000100080	30SEP19 22:14

Last updated: Sun Oct 15 2023 20:14:46 GMT+0000 (Coordinated Universal Time)

(28) MA ALIS Screenshots of Nacelle Fan MAFs



Cann Nacelle Vent Fan LCN A2121010 to AC11 1698062 (N/A)

Severity	LO Impact	JCN	Type	State	Sched Start Date	Backstop Date	MI
Z	N	FE322348S000000048	CANN	COMPLETE	N/A	N/A	

Software/Data File Upload Requirements (FURs)

File Upload Requirement	New File	Compatibility Check	File Preparation	File Loaded to AV
No records found.				

Deferrals

Limitations

Work Orders

Related Work Orders	Type
FE322331S000000009	Cannibalization
FE322347S000000087	System X-Ref

Occurrence Data

Occurrence Timestamp	14DEC22 11:48

Action Requests

Cautions and Warnings

Attachments

Name / Description	Date Added
No records found.	

MVI Data Stream

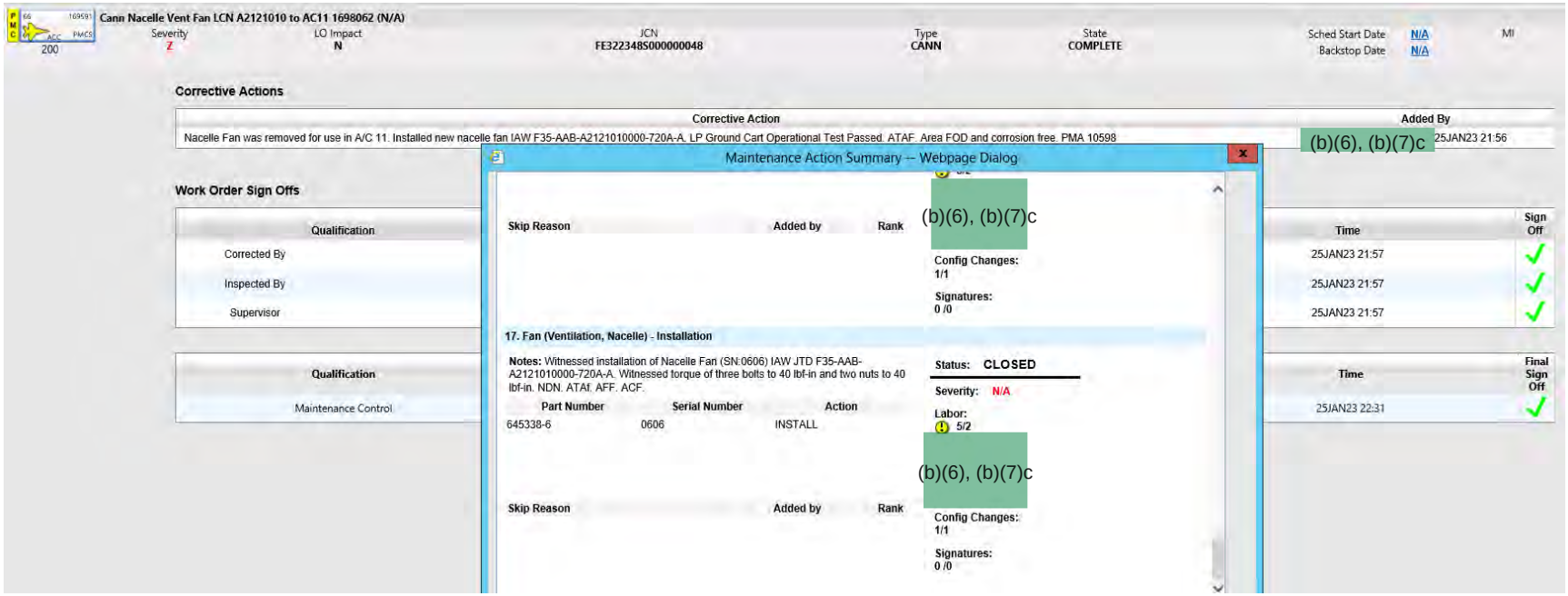
Comments

WORK ORDER PAUSED - PAUSE_AWM - "(AVI/200) OOW // Performed LP Ground Cart Operational Test. Test passed. ATAF. Area FOD and corrosion free." (b)(6), (b)(7)c	25JAN23 21:47
(AVI/200) INW [illegible] PMA 10598 (b)(6), (b)(7)c	25JAN23 20:56
WORK ORDER PAUSED - PAUSE_AWM - "AVI OOW// Removed Nacelle Fan (SN:0070) and installed Nacelle Fan (SN:0606) IAW JTD with NDN. AWM for nut plate to be replaced and PTMSC needs to be installed before completing follow-ons. ATAF. AFF. ACF PMA 10558. [More...] (b)(6), (b)(7)c	30DEC22 17:05
AVI IW[illegible] Workers: (b)(6), (b)(7)c PMA: 10558 TB [illegible] (b)(6), (b)(7)c	30DEC22 12:57
WORK ORDER PAUSED - PAUSE_AWM - "AVI OW// Slaved in Nacelle fan SN:0070 for MOD Team to perform follow ons. Next step is remove slaved in nacelle fan and replace when new nacelle fan is received. ATAF.AFF.ACF PMA 12126." (b)(6), (b)(7)c	20DEC22 17:56
AVI IW[illegible] Workers: (b)(6), (b)(7)c TB 3-6 PMA 12126 (b)(6), (b)(7)c	20DEC22 14:16
WORK ORDER PAUSED - PAUSE_AWP - "" (b)(6), (b)(7)c	14DEC22 12:05
Work Order Created (b)(6), (b)(7)c	14DEC22 11:51

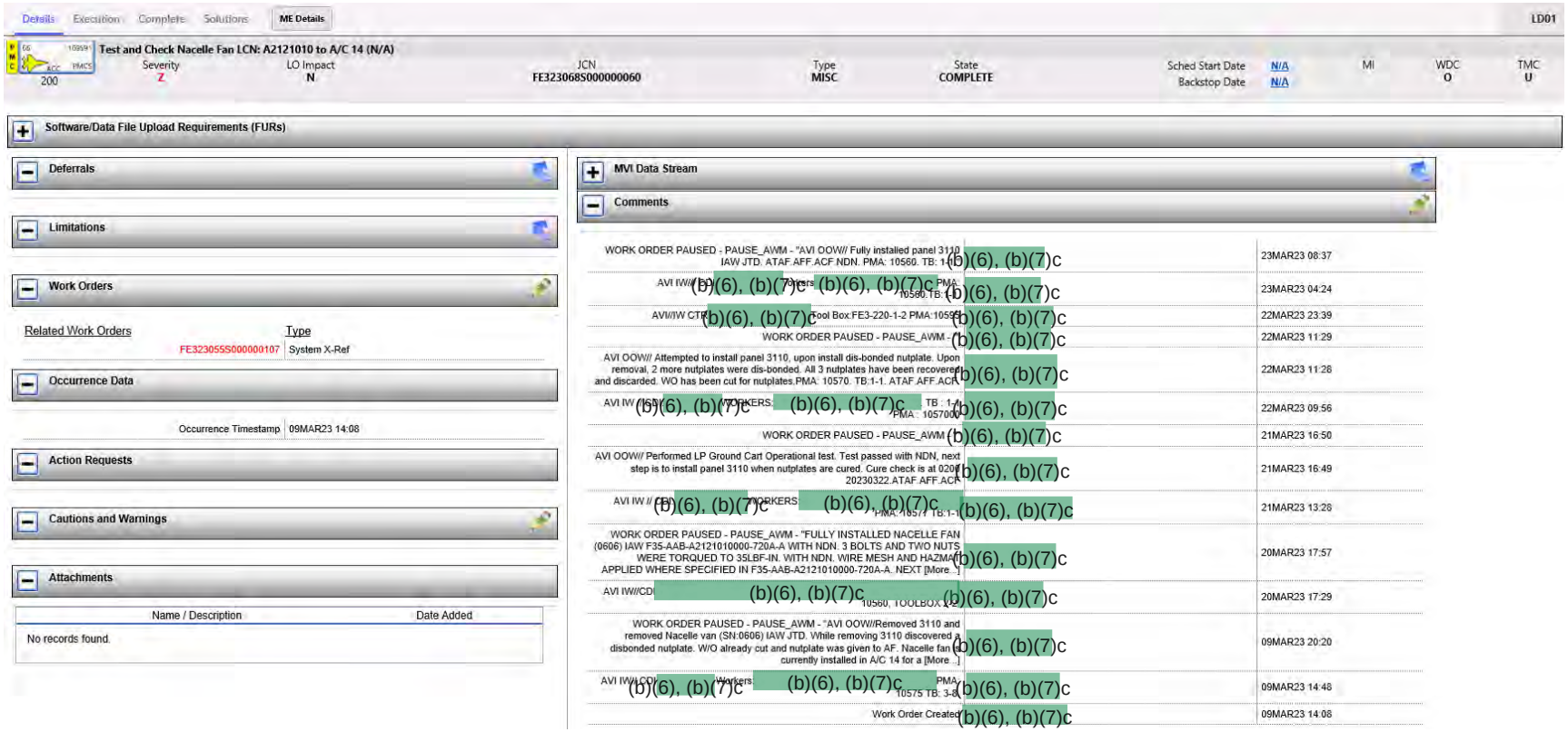
Requisitions

Requisition ID (Status)	Part Name	Part #	Serial Number	Promise Date	Alerts
LD01-115718 (Closed)	FAN, VENTILATION- N	645338-6	0606	22NOV22 20:22	

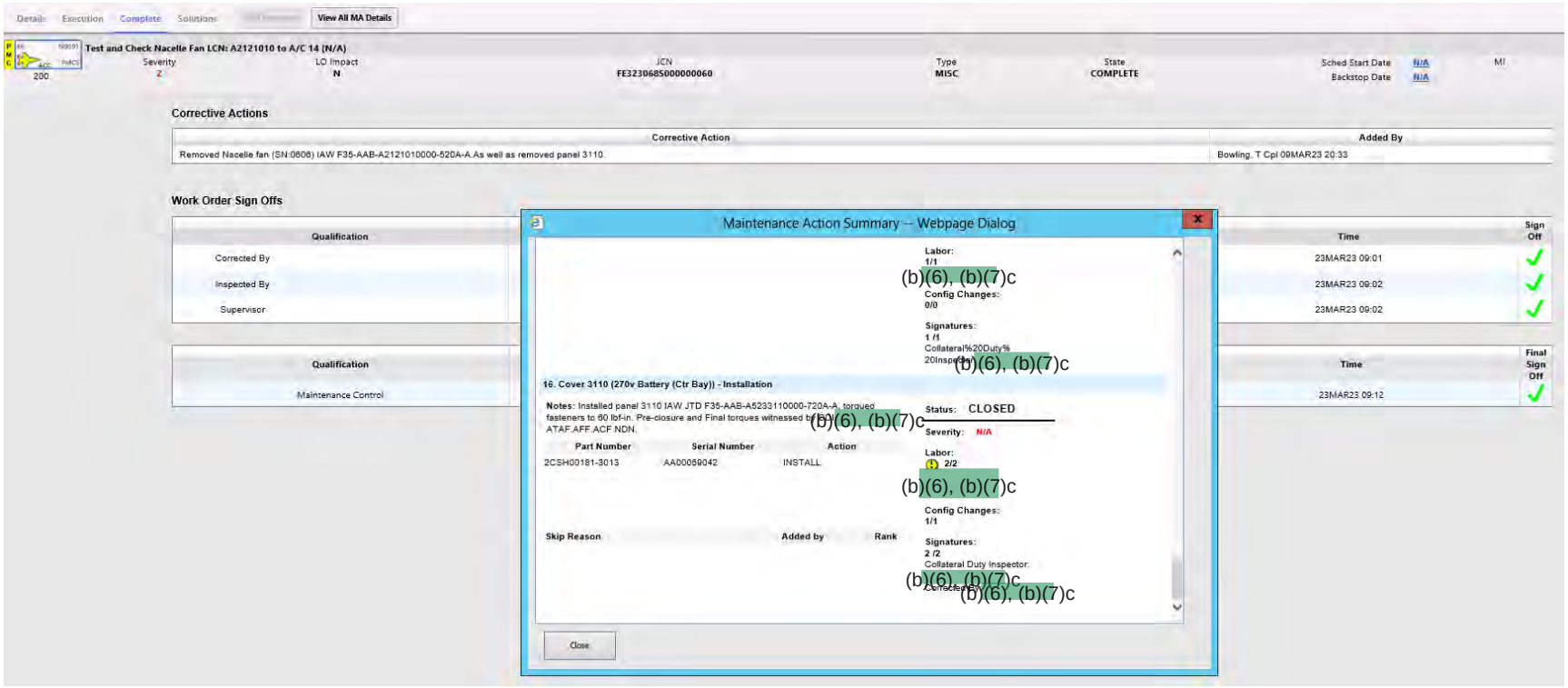
(28) MA ALIS Screenshots of Nacelle Fan MAFs

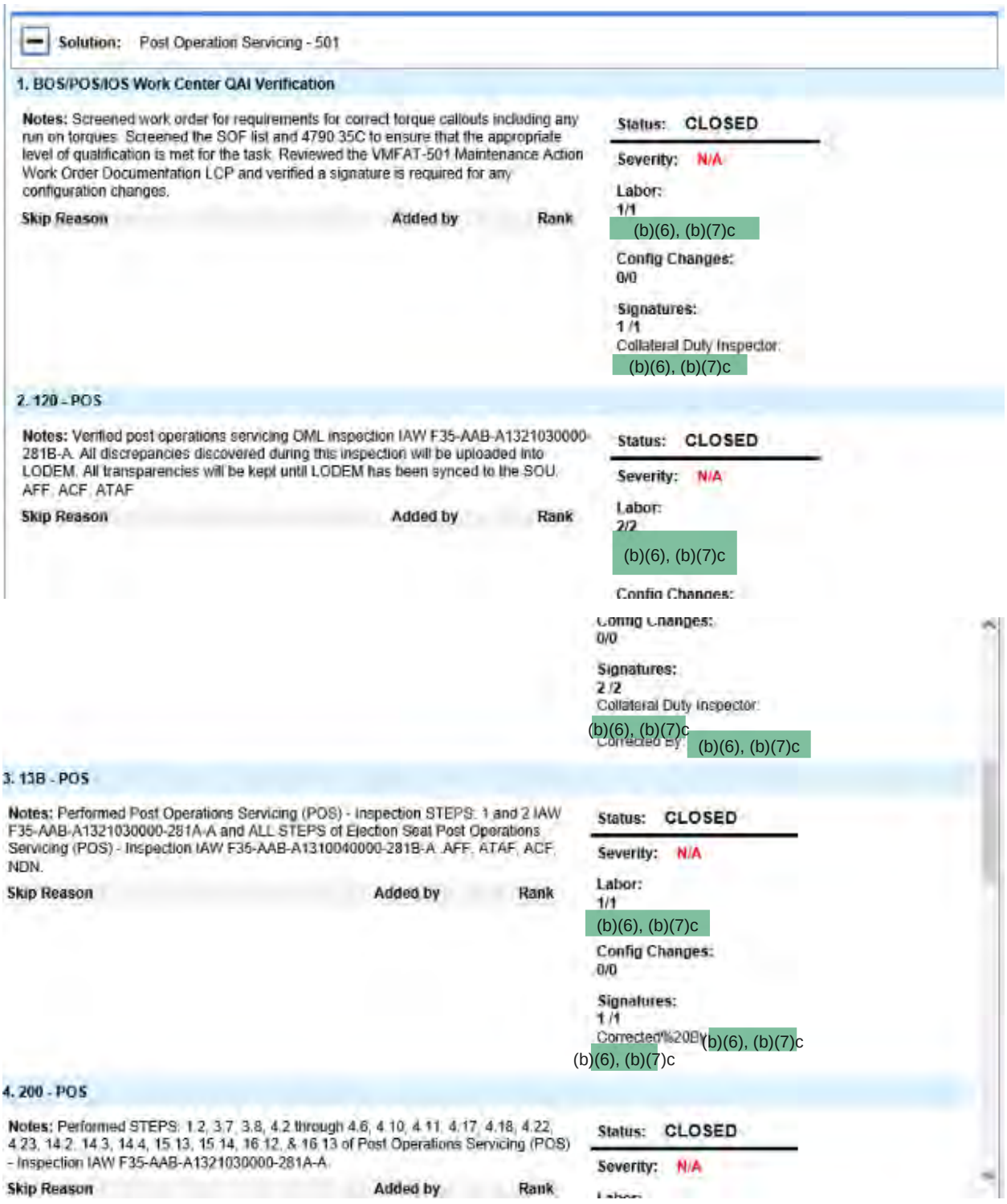


(28) MA ALIS Screenshots of Nacelle Fan MAFs



(28) MA ALIS Screenshots of Nacelle Fan MAFs





Solution: Post Operation Servicing - 501

1. BOS/POS/IOS Work Center QAI Verification

Notes: Screened work order for requirements for correct torque callouts including any run on torques. Screened the SOF list and 4790.35C to ensure that the appropriate level of qualification is met for the task. Reviewed the VMFAT-501 Maintenance Action Work Order Documentation LCP and verified a signature is required for any configuration changes.

Skip Reason | Added by | Rank

Status: CLOSED
Severity: N/A
Labor:
1/1
(b)(6), (b)(7)c
Config Changes:
0/0
Signatures:
1 /1
Collateral Duty Inspector:
(b)(6), (b)(7)c

2. 120 - POS

Notes: Verified post operations servicing OML inspection IAW F35-AAB-A1321030000-281B-A. All discrepancies discovered during this inspection will be uploaded into LODEM. All transparencies will be kept until LODEM has been synced to the SOU. AFF, ACF, ATAF

Skip Reason | Added by | Rank

Status: CLOSED
Severity: N/A
Labor:
2/2
(b)(6), (b)(7)c
Config Changes:
0/0
Signatures:
2 /2
Collateral Duty Inspector:
(b)(6), (b)(7)c
Corrected By:
(b)(6), (b)(7)c

3. 13B - POS

Notes: Performed Post Operations Servicing (POS) - Inspection STEPS: 1 and 2 IAW F35-AAB-A1321030000-281A-A and ALL STEPS of Ejection Seat Post Operations Servicing (POS) - Inspection IAW F35-AAB-A1310040000-281B-A. AFF, ATAF, ACF, NDN.

Skip Reason | Added by | Rank

Status: CLOSED
Severity: N/A
Labor:
1/1
(b)(6), (b)(7)c
Config Changes:
0/0
Signatures:
1 /1
Corrected%20By(b)(6), (b)(7)c
(b)(6), (b)(7)c

4. 200 - POS

Notes: Performed STEPS: 1.2, 3.7, 3.8, 4.2 through 4.6, 4.10, 4.11, 4.17, 4.18, 4.22, 4.23, 14.2, 14.3, 14.4, 15.13, 15.14, 16.12, & 16.13 of Post Operations Servicing (POS) - Inspection IAW F35-AAB-A1321030000-281A-A.

Skip Reason | Added by | Rank

Status: CLOSED
Severity: N/A

Skip Reason Added by Rank

Labor:
1/1
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
1 /1
Corrected%20By:(b)(6), (b)(7)c
(b)(6), (b)(7)c

5. 300 - POS

Notes: POS COMPLETED IAW JTD MODULE F35-AAB-A1321030000-281A-A ATAF. AF/CF.

Status: CLOSED

Skip Reason Added by Rank

Severity: N/A

Labor:
1/1
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
1 /1
Plane Captain (b)(6), (b)(7)c

6. 300 - Engine POS

Notes: ENGINE POS COMPLETED IAW JTD MODULE F35-AAB-P7200010000-281C-A. ATAF. AF/CF.

Status: CLOSED

Skip Reason Added by Rank

Severity: N/A

Labor:
1/1
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
1 /1
Plane Captain (b)(6), (b)(7)c

7. 300-Lift System POS

Notes: LIFT SYSTEM POS COMPLETED IAW JTD MODULE F35-AAB-C8610100000-281B-A. ATAF. AF/CF

Status: CLOSED

Skip Reason Added by Rank

Severity: N/A

Labor:
1/1
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
1 /1
Plane Captain (b)(6), (b)(7)c

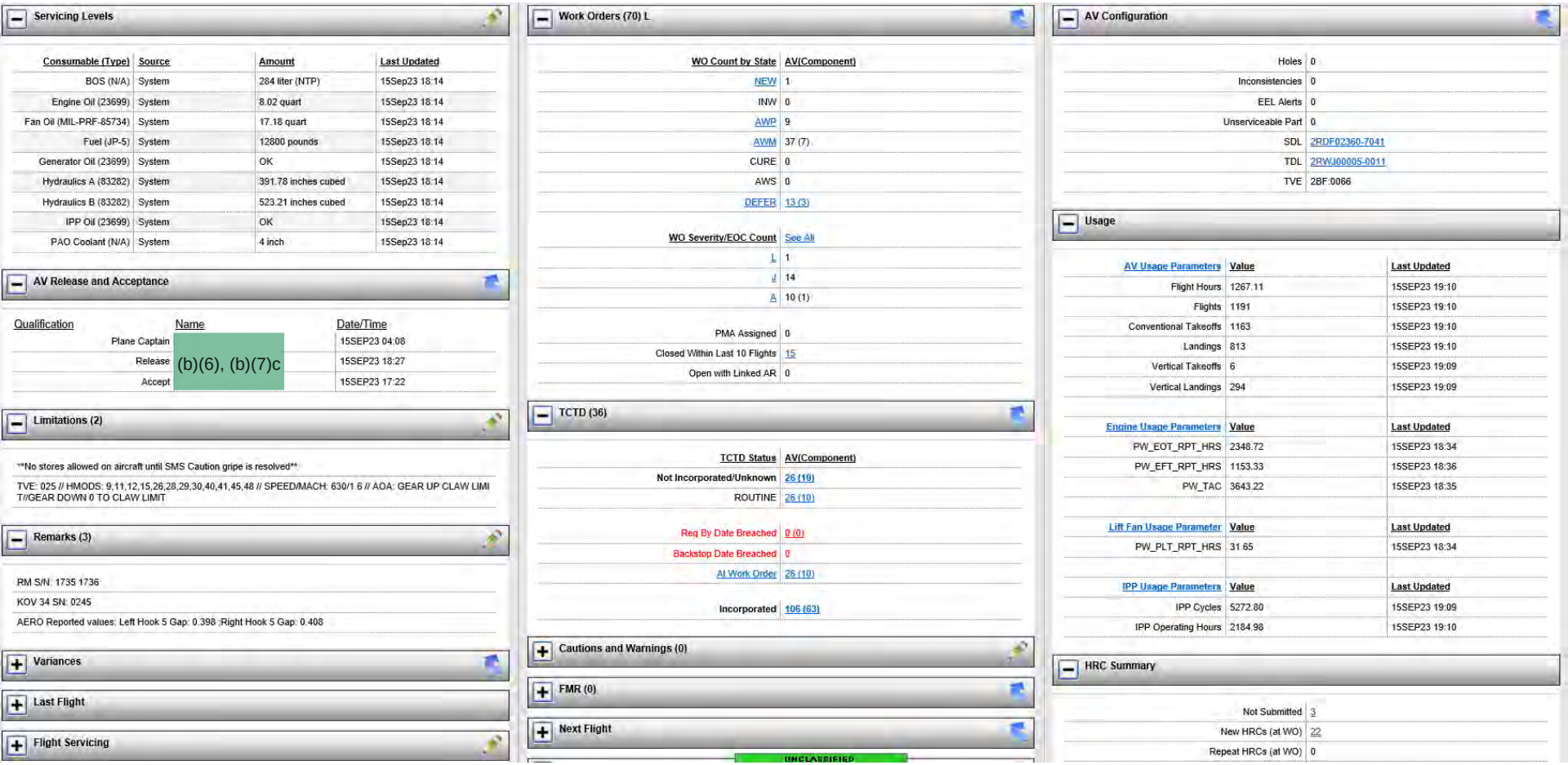
8. Post Operation Servicing - 501

Notes:

Status: CLOSED


Notes:
Skip Reason
Added by
Rank
Status: CLOSED
Severity: N/A
Labor:
0/0
Config Changes:
0/0
Signatures:
0 /0

(30) MA ALIS Screenshot of AV Status Page



Servicing Levels

Consumable (Type)	Source	Amount	Last Updated
BOS (N/A)	System	284 liter (NTP)	15Sep23 18:14
Engine Oil (23699)	System	8.02 quart	15Sep23 18:14
Fan Oil (MIL-PRF-85734)	System	17.18 quart	15Sep23 18:14
Fuel (JP-5)	System	12800 pounds	15Sep23 18:14
Generator Oil (23699)	System	OK	15Sep23 18:14
Hydraulics A (83282)	System	391.78 inches cubed	15Sep23 18:14
Hydraulics B (83282)	System	523.21 inches cubed	15Sep23 18:14
IPP Oil (23699)	System	OK	15Sep23 18:14
PAO Coolant (N/A)	System	4 inch	15Sep23 18:14

AV Release and Acceptance

Qualification	Name	Date/Time
Plane Captain	(b)(6), (b)(7)c	15SEP23 04:08
Release		15SEP23 18:27
Accept		15SEP23 17:22

Limitations (2)

No stores allowed on aircraft until SMS Caution gripe is resolved

TVE: 025 // HMODS: 9,11,12,15,26,28,29,30,40,41,45,48 // SPEED/MACH: 630/1 6 // AOA: GEAR UP CLAW LIMI T//GEAR DOWN 0 TO CLAW LIMIT

Remarks (3)

RM S/N: 1735 1736

KOV 34 SN: 0245

AERO Reported values: Left Hook 5 Gap: 0.398 ;Right Hook 5 Gap: 0.408

Variances

Last Flight

Flight Servicing

Work Orders (70) L

WO Count by State	AV(Component)
NEW	1
INW	0
AWP	9
AWM	37 (7)
CURE	0
AWS	0
DEFER	13 (3)

WO Severity/EOC Count	See All
L	1
J	14
A	10 (1)

PMA Assigned	0
Closed Within Last 10 Flights	15
Open with Linked AR	0

TCTD (36)

TCTD Status	AV(Component)
Not Incorporated/Unknown	26 (10)
ROUTINE	26 (10)
Req By Date Breached	0 (0)
Backstop Date Breached	0
At Work Order	26 (10)
Incorporated	106 (63)

Cautions and Warnings (0)

FMR (0)

Next Flight

AV Configuration

Holes	0
Inconsistencies	0
EEL Alerts	0
Unserviceable Part	0
SDL	2RDF02360-7041
TDL	2RWJ00005-0011
TVE	2BF:0066

Usage

AV Usage Parameters	Value	Last Updated
Flight Hours	1267.11	15SEP23 19:10
Flights	1191	15SEP23 19:10
Conventional Takeoffs	1163	15SEP23 19:10
Landings	813	15SEP23 19:10
Vertical Takeoffs	6	15SEP23 19:09
Vertical Landings	294	15SEP23 19:09

Engine Usage Parameters	Value	Last Updated
PW_EOT_RPT_HRS	2348.72	15SEP23 18:34
PW_EFT_RPT_HRS	1153.33	15SEP23 18:36
PW_TAC	3643.22	15SEP23 18:35

Lift Fan Usage Parameter	Value	Last Updated
PW_PLT_RPT_HRS	31.65	15SEP23 18:34

IPP Usage Parameters	Value	Last Updated
IPP Cycles	5272.80	15SEP23 19:09
IPP Operating Hours	2184.98	15SEP23 19:10

HRC Summary

Not Submitted	3
New HRCs (at WO)	22
Repeat HRCs (at WO)	0

1. BOS/POS/IOS Work Center QAI Verification

Notes: Screened WO for inspection requirements per the F-35 Standardized SOF list and 4790.35C.

Skip Reason	Added by	Rank

Status: CLOSED

Severity: N/A

Labor:
1/1
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
1 /1
Collateral%20Duty%20Inspector: (b)(6), (b)(7)c

2. 13B - BOS

Notes: Performed Before Operations Servicing (BOS) - Inspection STEPS: 6-11 IAW F35-AAB-A1321010000-281A-A and ALL STEPS of Ejection Seat Before Operations Servicing (BOS) - Inspection IAW F35-AAB-A1310040000-281A-A. ACF, ATAF, AFF, NDN.

Skip Reason	Added by	Rank

Status: CLOSED

Severity: N/A

Labor:
1/1
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
1 /1

3. 300 -- BOS

Notes: BOS COMPLETED IAW JTD MODULE F35-AAB-A1321010000-281A-A. LMLG TIRE PRESSURE 230. RMLG TIRE PRESSURE 230 AND NLG TIRE AT 260. ATAF. AF/CF.

Skip Reason	Added by	Rank

Status: CLOSED

Severity: N/A

Labor:
1/1
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
1 /1
Plane Captain: (b)(6), (b)(7)c
(b)(6), (b)(7)c

4. Engine/Lift System BOS

Notes: PERFORMED ENGINE BOS IAW F35-AAB-P7200010000-281B-A AND PERFORMED LIFT SYSTEM BOS IAW F35-AAB-C8610100000-281A-A. ATAF. AF/CF.

Skip Reason	Added by	Rank

Status: CLOSED

Severity: N/A

Labor:
1/1
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
1 /1
Plane Captain (b)(6), (b)(7)c

5. Fuel Samples

Notes: INSPECTED FUEL SAMPLES FROM F1, F2L, F2R, F3L, F3R, F4L, F4R, LH WING, RH WING, F5R AND F5L FOR CONTAMINANTS IAW NAVAIR 01-1A-35, NATOPS REFUELING MANUAL 00-80T-109 AND JTD MODULE F35-AAB-A1221010000-221A-A. NO CONTAMINATES FOUND. ATAF. AFF. ACF.

Skip Reason	Added by	Rank

Status: CLOSED

Severity: N/A

Labor:
2/2
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
2 /2
Collateral Duty Inspector:
(b)(6), (b)(7)c
Corrected By: (b)(6), (b)(7)c
(b)(6), (b)(7)c

6. 120-BOS

Notes: Performed MVI NLG X dimension checks IAW F35-AAB-A1215010000-362B-A, checks good. Performed MVI MLG X dimension checks IAW F35-AAB-A1215020000-362B-A, checks good. Verified hydraulic servicing level for system A and for system B Checks good. Area FOD free at time of inspection. AFF, NDN. ATAF

Skip Reason	Added by	Rank

Status: CLOSED

Severity: N/A

Labor:
2/2
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
2 /2
Collateral Duty Inspector:
(b)(6), (b)(7)c
Corrected By: (b)(6), (b)(7)c

7. Before Operation Servicing - 501

Notes:

Skip Reason	Added by	Rank

Status: CLOSED

Severity: N/A

Labor:
1/0
(b)(6), (b)(7)c

Config Changes:
0/0

Signatures:
0 /0

SUBJ: COMMAND INVESTIGATION INTO THE CIRCUMSTANCES SURROUNDING THE F-35 MISHAP OF MAG-31, VMFAT-501 ON 17 SEPTEMBER 2023

The following enclosures have been withheld in their entirety under FOIA Exemption (b)(3) 10 U.S.C. § 130e.

Enclosure (32) 15 September Aviation Maintenance Supply Readiness Report, pages 397-405

Enclosure (33) MA ALIS Screenshot of Ordnance Loadout Configuration, page 406

Pages 397-406

UNITED STATES MARINE CORPS
MARINE FIGHTER ATTACK TRAINING SQUADRON 501
MARINE AIRCRAFT GROUP 31
2D MARINE AIRCRAFT WING
POST OFFICE BOX 66051
MCAS BEAUFORT, SOUTH CAROLINA 29904-6051

Friday, September 15, 2023 (23258)

DUTIES

ODO:	0720-1030	WW:	0950-1100
ODO: (b)(6), (b)(7)c	1030-1200	WW: (b)(6), (b)(7)c	1230-1345
ODO:	1200-LPOD		

AIRFIELD HOURS: 0700-1900

SDO:	
ASDO:	
AODO: (b)(6), (b)(7)c	0705-0945
AODO:	0945-LPOD (+30)

SBTP REPORT

	SBTP	SCHEDULED SRTS / HRS	FLOWN SRTS / HRS
FY	5132	4430 / 5157.4	3986 / 4767.9
QTR	1348	881 / 1050.7	758 / 871.7
MONTHLY	415	176 / 208.2	128 / 155.4
DAILY SCHEDULED:		16 / 16.8	

BMNT: 0613	SR / SS: 0707/1929	MR / MS: 0730/2000	ILLUM: 0.1%	EENT: 2023	LLL: 2036-0601*	HLL: 0600-0613, 2023-2036

FLIGHTS:
4 HP/HS 10 Taxi 2

EVENT	PRI	TMS	C/S	BRF/ETD/ETA	ICAO	CREW	T&R	TMR	MSN	SBTP	FLIGHT PLAN	TAC	CONFIGURATION	AIRSPACE	NOTES
1-1 1-2	1	F-35B	Swede11 Swede12	0735/0950/1100	KNBC/KNBC	(b)(6), (b)(7)c	1102	1E1 2L5	FAM	1/1.2 1/1.2	N/A	1	1 1	N/A	HP/HS
2-1 2-2	2	F-35B	Swede21 Swede22	0735/0950/1100	KNBC/KNBC		1102	1E1 2L5	FAM	1/1.2 1/1.2	N/A	2	1 1	N/A	HP
3-1 3-2	2	F-35B	Helct31 Helct32	1015/1200/1310	KNBC/KNBC		1319	2L5 1E6	TI	1/1.2 1/1.2	NBC-12	1	1 1	W-137-139B: 1100-1300	Red Air: ATAC (Double Cycle) POC (b)(6), (b)(7)c AIC: MACS-2 228-7088, HP/HS
4-1 4-2	3	F-35B	Helct41 Helct42	1015/1200/1310	KNBC/KNBC		1319	2L5 1E6	TI	1/1.2 1/1.2	NBC-12	3	1 1	W-137-139B: 1100-1300	Red Air: ATAC (Double Cycle) POC: (b)(6), (b)(7)c AIC: MACS-2 228-7088, HP/HS
5-1 5-2	4	F-35B	Swede51 Swede52	0735/1230/1340	KNBC/KNBC		1103	1E2 2L5	INST	1/1.2 1/1.2	DD-1801	2	1 1	N/A	
6-1 6-2 6-3 6-4	1	F-35B	Swede11 Swede12 Swede13 Swede14	1015/1230/1340	KNBC/KCHS		2103 2103 2103 2103	1A1 1A1 1A1 1A1	FAM	1/1.2. 1/1.2 1/1.2 1/1.2	NBC-11	355.025	1 1	W-137-139A: 1100-1300	(b)(6), (b)(7)c over
7-1	1	F-35B	Swede71	1015/1400/1500	KNBC/KNBC		1100	1E1	TAXI	1/0.0	N/A	WW	1	N/A	IP: (b)(6), (b)(7)c
8-1	2	F-35B	Swede81	1015/1400/1500	KNBC/KNBC		1100	1E1	TAXI	1/0.0	N/A	WW	1	N/A	IP: (b)(6), (b)(7)c

SIMULATORS:

EVENT	DEVICE	BRF/ETD/ETA	CREW	T&R	TMR	MSN	SBTP	INSTRUCTOR
SIM	KNBC - F-35B - FMS 1 KNBC - F-35B - FMS 2	0700/0800/0940		0171	2L5 1A1	AAR	1/1.7 1/1.7	(b)(6), (b)(7)c
SIM	KNBC - F-35B - FMS 7	0700/0800/0940		0110	1E1	EP	1/1.7	(b)(6), (b)(7)c
SIM	KNBC - F-35B - FMS 8	0700/0800/0940		5003, 5004	1B1	FAM	1/1.7	(b)(6), (b)(7)c FAM-3 and 4 IUT
SIM	KNBC - F-35B - FMS 5	0745/0815/0955	(b)(6), (b)(7)c	2101	1F1	EP	1/1.7	(b)(6), (b)(7)c
SIM	KNBC - F-35B - FMS 2	0900/1000/1140		0107	1A1	FAM	1/1.7	(b)(6), (b)(7)c
SIM	KNBC - F-35B - FMS 7	0900/1000/1140		0110	1E1	EP	1/1.7	(b)(6), (b)(7)c
SIM	KNBC - F-35B - FMS 8	0930/1000/1140		0103	1E2	INST	1/1.7	Practice Sim (b)(6), (b)(7)c

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SIM	KNBC - F-35B - FMS 5	0945/1015/1155		(b)(6), (b)(7)c		2101	1F1	EP	1/1.7	(b)(6), (b)(7)c
SIM	KNBC - F-35B - FMS 1	1100/1200/1340				0308	1E6	BT TI	1/1.7	
SIM	KNBC - F-35B - FMS 2	1100/1200/1340				0107	1E1	I-AM	1/1.7	
SIM	KNBC - F-35B - FMS 7	1100/1200/1340				0301	1E7	BT TCT	1/1.7	
SIM	KNBC - F-35B - FMS 8	1100/1200/1340				0105	1E1	EP	1/1.7	
SIM	KNBC - F-35B - FMS 5	1145/1215/1355				2101	1F1	EP	1/1.7	
SIM	KNBC - F-35B - FMS 5 KNBC - F-35B - FMS 6	1315/1415/1555				0320	2L5 1A6	TI	1/1.7 1/1.7	

ACADEMICS / BRIEFS:

START	END	SUBJECT	T&R	LOCATION	INSTRUCTOR	PERSONNEL	NOTES
0800	1000	Power and Thermal Management System (PTMS)	0022	PTC EML Classroom 1	(b)(6), (b)(7)c	(b)(6), (b)(7)c	
0800	1030	Day Visual/Non-Visual Formation Procedures	0067	PTC EML Classroom 4			
0830	1100	Night Lab	0066	Night Lab, 1st Deck, Base Education Bldg/ Library			Bring NATOPS Jacket
1000	1200	Hydraulic System	0027	PTC EML Classroom 1			
1030	1230	CAT I Debrief	0266	501 SAPF	(b)(6), (b)(7)c		
1100	1200	Night Systems and Operations	0065	PTC EML Classroom 2	Self-Paced		
1200	1300	AI Stage Brief	0991	501 SAPF	(b)(6), (b)(7)c		
1200	1300	Night Formation	0069	PTC EML Classroom 2	Self-Paced		
1300	1400	Night Air To Ground Employment	0218	501 SAPF	(b)(6), (b)(7)c		
1300	1400	Landing Gear Systems	0028	PTC EML Classroom 1	Self-Paced		
1300	1500	Strike Tactics	0295	501 SAPF	(b)(6), (b)(7)c		
1400	1500	Canopy System	0029	PTC EML Classroom 1	Self-Paced		
1400	1530	Night Air-to-Air Employment	0264	PTC EML Classroom 2	Self-Paced		
1500	1600	Life Support System	0031	PTC EML Classroom 1	Self-Paced		
1500	1800	Advanced Route Planning / OMS Review	0297	501 SAPF	(b)(6), (b)(7)c		

GENERAL NOTES:

1. 0600: Remedial PT, Tail Fin (Required Personnel)
2. 0645-0845: Day Crew Safety Standown (All Day Crew Personnel)
3. 0845: FOD Walk (All Available Personnel)
4. 0845: Maint Meeting, Maint Training Classroom (Required Personnel)
5. 1100: Safety Stand Down, Ready Rm (All Pilots)
6. 1300-1330: Promotions, Ready Room (CO, (b)(6), (b)(7)c vailable Officers)
7. 1300: UMAPIT Training, Maint Training Classroom (b)(6), (b)(7)c Required Personnel)
8. 1630: Maint Meeting, Maint Training Classroom (Required Personnel)

QUESTIONS OF THE DAY:

EPOD: Q: CABIN PRESS

FSD QOD: Q: How long will the accumulators provide pressure for the parking brake?

THREAT: Q: J-16

OPS X MX X DSS X SgtMaj X

(b)(6), (b)(7)c

By Direction

UNITED STATES MARINE CORPS
MARINE FIGHTER ATTACK TRAINING SQUADRON 501
MARINE AIRCRAFT GROUP 31
2D MARINE AIRCRAFT WING
POST OFFICE BOX 66051
MCAS BEAUFORT, SOUTH CAROLINA 29904-6051

Saturday, September 16, 2023 (23259)

DUTIES

AIRFIELD HOURS: CLOSED
SDO:
ASDO: (b)(6), (b)(7)c
GDO:

SBTP REPORT

	SBTP	SCHEDULED SRTS / HRS	FLOWN SRTS / HRS
FY	5132	4446 / 5174.2	3986 / 4767.9
QTR	1348	897 / 1067.5	758 / 871.7
MONTHLY	415	192 / 225.0	128 / 155.4
DAILY SCHEDULED:		8 / 9.6	

BMNT: 0614 | **SR / SS:** 0707/1928 | **MR / MS:** 0825/2024 | **ILLUM:** 0.8% | **EENT:** 2021 | **LLL:** 2035-0602* | **HLL:** 0601-0614, 2021-2035

FLIGHTS:
4 XC 4

EVENT	PRI	TMS	C/S	BRF/ETD/ETA	ICAO	CREW	T&R	TMR	MSN	SBTP	FLIGHT PLAN	TAC	CONFIGURATION	AIRSPACE	NOTES
1-1 1-2 1-3 1-4	1	F-35B	Swede11 Swede12 Swede13 Swede14	0845/1100/1210	KCHS/KCHS	(b)(6), (b)(7)c	5028, 3202 3202 3202 3202	1B7 1A7 1A7 1A7	SCAR	1/1.2 1/1.2 1/1.2 1/1.2	SCAR	1	1 1 1 1	W-122 15-19; 1100-1300	
2-1 2-2	1	F-35B	Swede11 Swede12	1145/1400/1510	KCHS/KCHS		2404 2404	1A6 1A6	TI	1/1.2 1/1.2	DD-1801	1	1 1	W-122 15-19; 1500-1700	
3-1 3-2	2	F-35B	Swede21 Swede22	1145/1400/1510	KCHS/KCHS			2K4 2K4	RED AIR	1/1.2 1/1.2	DD-1801	2	1 1	W-122 15-19; 1500-1700	

SIMULATORS:
No Simulators Scheduled

ACADEMICS / BRIEFS:
No Academics / Briefs Scheduled

GENERAL NOTES:

QUESTIONS OF THE DAY:
EPOD: Q: CANOPY DELAM
FSD QOD: Q: How long can fire and bleed leak ICAWS remain after return to normal temps?
THREAT: Q: J-10

OPS X MX X DSS X SgtMaj X

(b)(6), (b)(7)c

By Direction

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UNITED STATES MARINE CORPS
MARINE FIGHTER ATTACK TRAINING SQUADRON 501
MARINE AIRCRAFT GROUP 31
2D MARINE AIRCRAFT WING
POST OFFICE BOX 66051
MCAS BEAUFORT, SOUTH CAROLINA 29904-6051

Sunday, September 17, 2023 (23260)

DUTIES

AIRFIELD HOURS: 1500-1700
SDO:
ASDO: (b)(6), (b)(7)c
GDO:

SBTP REPORT

	SBTP	SCHEDULED SRTS / HRS	FLOWN SRTS / HRS
FY	5132	4454 / 5183.8	3986 / 4767.9
QTR	1348	905 / 1077.1	758 / 871.7
MONTHLY	415	200 / 234.6	128 / 155.4
DAILY SCHEDULED:		8 / 9.6	

BMNT: 0614	SR / SS: 0707 / 1928	MR / MS: 0825 / 2024	ILLUM: 0.8%	EENT: 2021	LLL:2035-0602*	HLL:0601-0614, 2021-2035

FLIGHTS:
4 XC 4

EVENT	PRI	TMS	C/S	BRF/ETD/ETA	ICAO	CREW	T&R	TMR	MSN	SBTP	FLIGHT PLAN	TAC	CONFIGURATION	AIRSPACE	NOTES
1-1	1	F-35B	Swede11	0845/1100/1210	KCHS/KCHS	(b)(6), (b)(7)c	2404	1A6	TI	1/1.2	DD-1801	1	1	W-122 15-19; 1100-1300	
1-2			Swede12				2404	1A6		1/1.2			1		
2-1	2	F-35B	Swede21	0845/1100/1210	KCHS/KCHS			2K4	RED AIR	1/1.2	DD-1801	2	1	W-122 15-19; 1100-1300	
2-2			Swede22					2K4		1/1.2			1		
3-1	1	F-35B	Swede11	1145/1400/1510	KCHS/KNBC		2103	1A1	FAM	1/1.2	DD-1801	1	1	N/A	
3-2			Swede12				2103	1A1		1/1.2			1		
4-1	2	F-35B	Swede21	1145/1400/1510	KCHS/KNBC		2103	1A1	FAM	1/1.2	DD-1801	2	1	N/A	
4-2			Swede22				2103	1A1		1/1.2			1		

SIMULATORS:
No Simulators Scheduled
ACADEMICS / BRIEFS:
No Academics / Briefs Scheduled

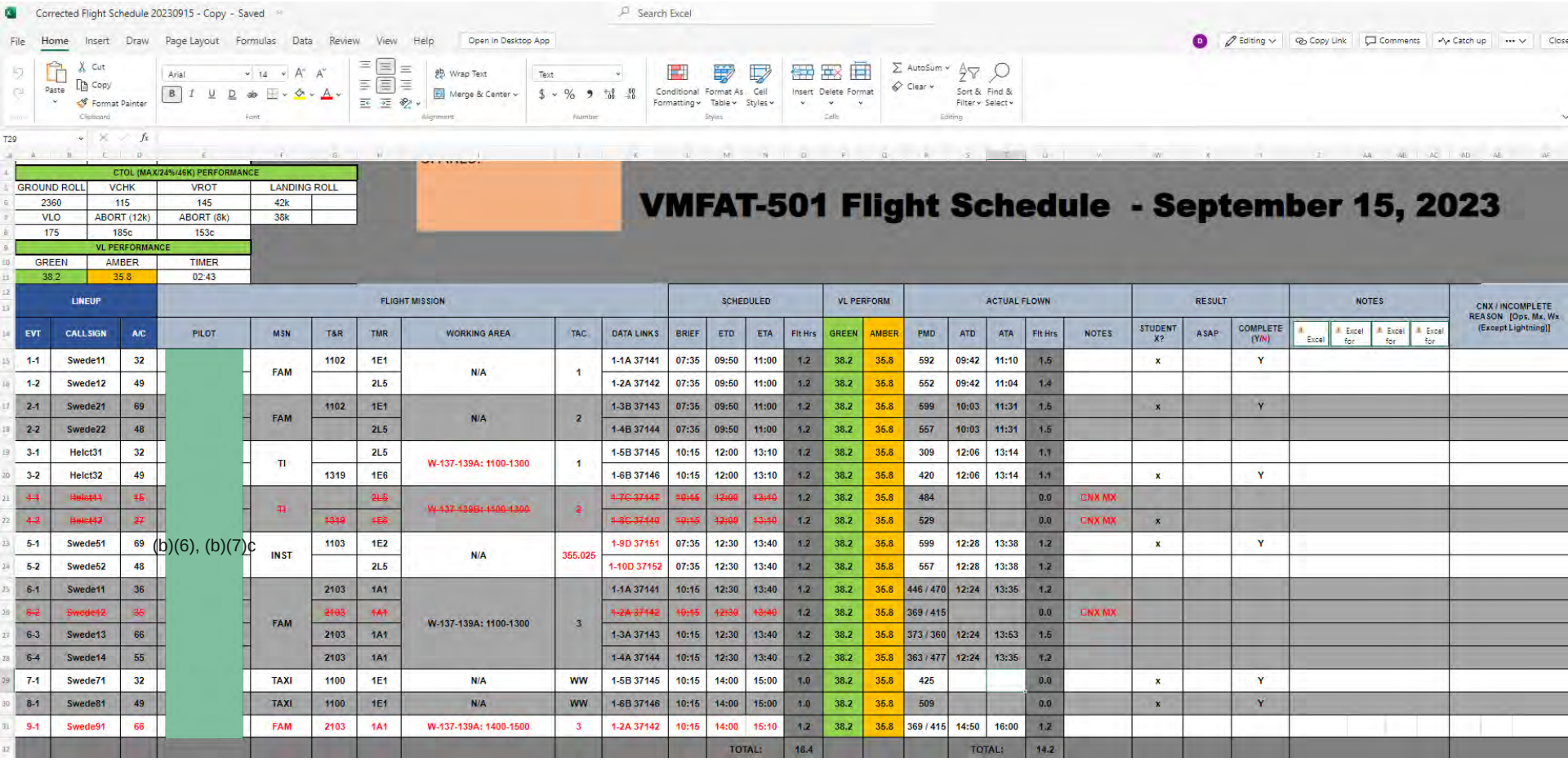
GENERAL NOTES:
1. 1630: Maint Meeting, Maint Training Classroom (Required Personnel)

QUESTIONS OF THE DAY:
EPOD: Q: CANOPY LOSS
FSD QOD: Q:How long will it take the IPP to transition to burn mode after a FLAMEOUT?
BREVITY: Q: J-11

OPS (b)(6), (b)(7)c MX X DSS (b)(6), (b)(7)c SgtMaj (b)(6), (b)(7)c

(b)(6), (b)(7)c
By Direction

(35) VMFAT-501 Corrected Flight Schedule for 15 September



Corrected Flight Schedule 20230915 - Copy - Saved

CTOL (MAX/24%/46K) PERFORMANCE				
GROUND ROLL	VCHK	VROT	LANDING ROLL	
2360	115	145	42k	
VLO	ABORT (12k)	ABORT (8k)	38k	
175	185c	153c		

VL PERFORMANCE		
GREEN	AMBER	TIMER
38.2	35.8	02:43

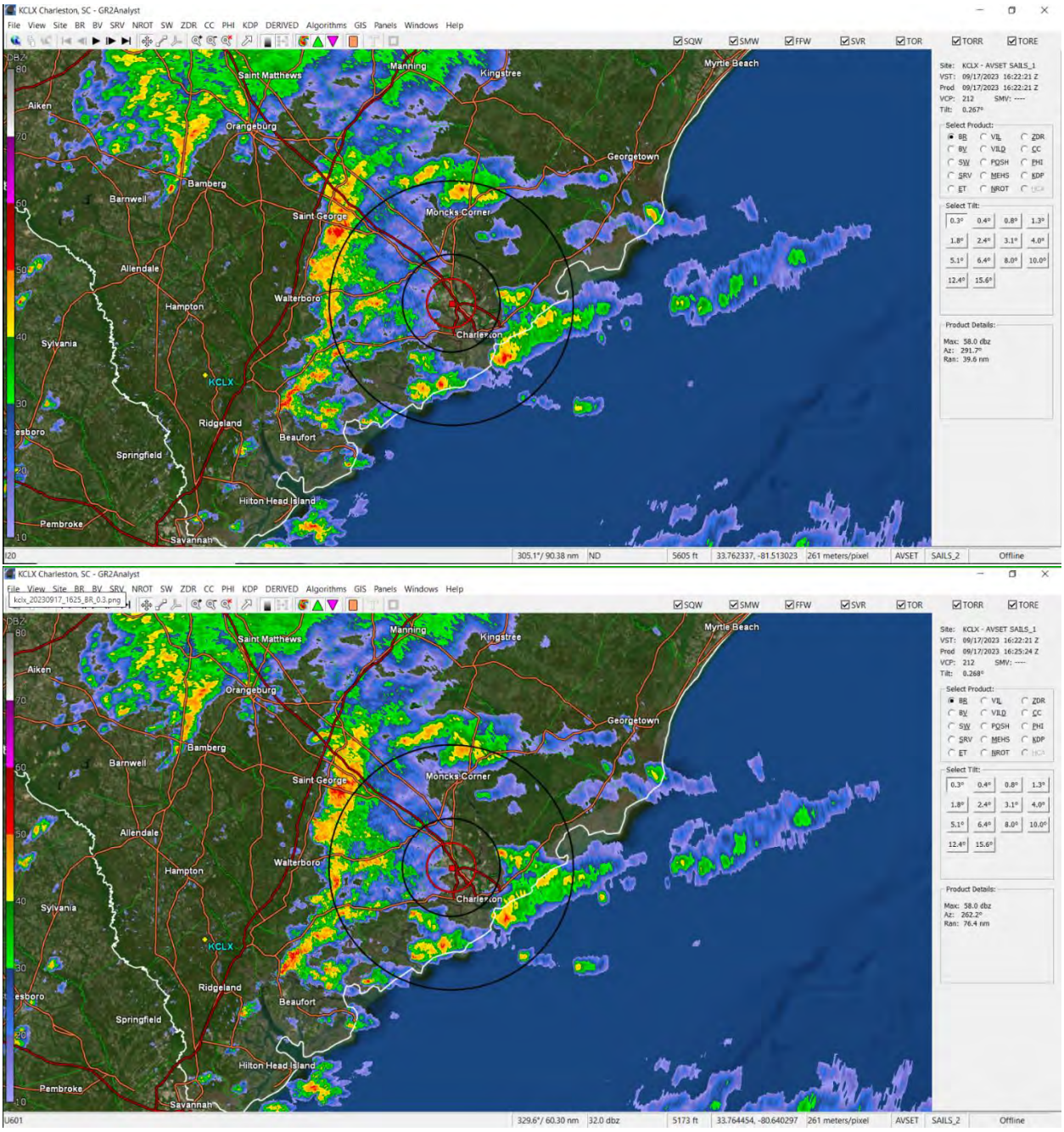
VMFAT-501 Flight Schedule - September 15, 2023

LINEUP			FLIGHT MISSION							SCHEDULED				VL PERFORM		ACTUAL FLOWN					RESULT			NOTES	CNX / INCOMPLETE REASON [Ops, Mx, Wx (Except Lightning)]
EVT	CALLSIGN	A/C	PILOT	MSN	T&R	TMR	WORKING AREA	TAC	DATA LINKS	BRIEF	ETD	ETA	Flt Hrs	GREEN	AMBER	PMD	ATD	ATA	Flt Hrs	NOTES	STUDENT X?	ASAP	COMPLETE (Y/N)		
1-1	Swede11	32	(b)(6), (b)(7)c	FAM	1102	1E1	N/A	1	1-1A 37141	07:35	09:50	11:00	1.2	38.2	35.8	592	09:42	11:10	1.5		x		Y		
1-2	Swede12	49				2L5			1-2A 37142	07:35	09:50	11:00	1.2	38.2	35.8	552	09:42	11:04	1.4						
2-1	Swede21	69		FAM	1102	1E1	N/A	2	1-3B 37143	07:35	09:50	11:00	1.2	38.2	35.8	599	10:03	11:31	1.5		x		Y		
2-2	Swede22	48				2L5			1-4B 37144	07:35	09:50	11:00	1.2	38.2	35.8	557	10:03	11:31	1.5						
3-1	Helct31	32		TI		2L5	W-137-139A: 1100-1300	1	1-5B 37145	10:15	12:00	13:10	1.2	38.2	35.8	309	12:06	13:14	1.1						
3-2	Helct32	49			1319	1E6			1-6B 37146	10:15	12:00	13:10	1.2	38.2	35.8	420	12:06	13:14	1.1		x		Y		
~~4-1~~	~~Helct41~~	~~15~~		~~TI~~		~~2L5~~	~~W-137-139A: 1100-1300~~	~~2~~	~~1-7C 37147~~	~~10:15~~	~~12:00~~	~~13:10~~	1.2	38.2	35.8	484			0.0	CNX MX					
~~4-2~~	~~Helct42~~	~~37~~			~~1319~~	~~1E6~~			~~1-8C 37148~~	~~10:15~~	~~12:00~~	~~13:10~~	1.2	38.2	35.8	529			0.0	CNX MX	x				
5-1	Swede51	69		INST	1103	1E2	N/A	355.025	1-9D 37151	07:35	12:30	13:40	1.2	38.2	35.8	599	12:28	13:38	1.2		x		Y		
5-2	Swede52	48				2L5			1-10D 37152	07:35	12:30	13:40	1.2	38.2	35.8	557	12:28	13:38	1.2						
6-1	Swede11	36		FAM	2103	1A1	W-137-139A: 1100-1300	3	1-1A 37141	10:15	12:30	13:40	1.2	38.2	35.8	446 / 470	12:24	13:35	1.2						
~~6-2~~	~~Swede12~~	~~35~~			~~2103~~	~~1A1~~			~~1-2A 37142~~	~~10:15~~	~~12:30~~	~~13:40~~	1.2	38.2	35.8	369 / 415			0.0	CNX MX					
6-3	Swede13	66			2103	1A1			1-3A 37143	10:15	12:30	13:40	1.2	38.2	35.8	373 / 360	12:24	13:53	1.5						
6-4	Swede14	55			2103	1A1			1-4A 37144	10:15	12:30	13:40	1.2	38.2	35.8	363 / 477	12:24	13:35	1.2						
7-1	Swede71	32		TAXI	1100	1E1	N/A	WW	1-5B 37145	10:15	14:00	15:00	1.0	38.2	35.8	425			0.0		x		Y		
8-1	Swede81	49		TAXI	1100	1E1	N/A	WW	1-6B 37146	10:15	14:00	15:00	1.0	38.2	35.8	509			0.0		x		Y		
9-1	Swede91	66		FAM	2103	1A1	W-137-139A: 1400-1500	3	1-2A 37142	10:15	14:00	15:10	1.2	38.2	35.8	369 / 415	14:50	16:00	1.2						
											TOTAL:		18.4				TOTAL:		14.2						

Terminal Aerodrome Forecast (TAF)

Valid Time:	ICAO:	Location:	Observation Data:
17, Sep 2023 05:33Z	KCHS	CHARLESTON AFB INTL	TAF KCHS 170533Z 1706/1806 00000KT P6SM FEW100 BKN250 FM171400 14005KT P6SM SCT040 BKN150 FM171900 17009KT 6SM SHRA VCTS BKN035CB FM180200 VRB03KT P6SM BKN070
17, Sep 2023 11:25Z	KCHS	CHARLESTON AFB INTL	TAF KCHS 171125Z 1712/1812 14005KT P6SM BKN080 FM171900 17009KT 6SM SHRA VCTS BKN035CB TEMPO 1721/1723 3SM TSRA BKN025CB FM180000 VRB03KT P6SM BKN070
17, Sep 2023 14:39Z	KCHS	CHARLESTON AFB INTL	TAF AMD KCHS 171439Z 1715/1812 14005KT P6SM BKN080 TEMPO 1715/1716 4SM SHRA BKN030 FM171900 17009KT 6SM SHRA VCTS BKN035CB TEMPO 1721/1723 3SM TSRA BKN025CB FM180000 VRB03KT P6SM BKN070
17, Sep 2023 16:46Z	KCHS	CHARLESTON AFB INTL	TAF AMD KCHS 171646Z 1717/1812 15007KT P6SM RA SCT035 BKN070 FM171800 17009KT 6SM SHRA VCTS BKN035CB TEMPO 1721/1723 3SM TSRA BKN025CB
17, Sep 2023 17:12Z	KCHS	CHARLESTON AFB INTL	TAF AMD KCHS 171712Z 1717/1812 15007KT 5SM RA BKN025 FM171730 15011G18KT 4SM +RA BKN025 FM171800 17009KT 6SM SHRA VCTS BKN035CB TEMPO 1721/1723 3SM TSRA BKN025CB FM180000 VRB03KT P6SM BKN070
17, Sep	KCHS	CHARLESTON AFB INTL	TAF KCHS 171731Z 1718/1818 15010KT 4SM RA VCTS SCT025CB BKN050

2023 17:31Z			FM172000 16010G16KT 3SM TSRA BKN025CB FM172300 27006KT P6SM SCT025 BKN050 FM180000 VRB03KT P6SM BKN070
17, Sep 2023 18:07Z	KCHS	CHARLESTON AFB INTL	TAF AMD KCHS 171807Z 1718/1818 15010KT 4SM RA VCTS SCT025CB BKN050 TEMPO 1718/1719 BKN008CB FM172000 16010G16KT 3SM TSRA BKN025CB FM172300 27006KT P6SM SCT025 BKN050 FM180000 VRB03KT P6SM BKN070
17, Sep 2023 19:22Z	KCHS	CHARLESTON AFB INTL	TAF AMD KCHS 171922Z 1719/1818 16010KT P6SM SCT025 BKN050 FM172100 16010G16KT 3SM TSRA BKN025CB FM172300 27006KT P6SM SCT025 BKN050 FM180000 VRB03KT P6SM BKN070
17, Sep 2023 20:19Z	KCHS	CHARLESTON AFB INTL	TAF AMD KCHS 172019Z 1720/1818 16010KT P6SM SCT025 BKN050 FM172045 16010G16KT 3SM TSRA BKN025CB FM172300 27006KT P6SM SCT025 BKN050 FM180000 VRB03KT P6SM BKN070
17, Sep 2023 20:32Z	KCHS	CHARLESTON AFB INTL	TAF AMD KCHS 172032Z 1721/1818 28015G30KT 2SM TSRA SCT010 OVC015CB FM172200 27006KT P6SM VCSH SCT025 BKN050 FM180000 VRB03KT P6SM BKN070


KCLX Charleston, SC - GR2Analyst
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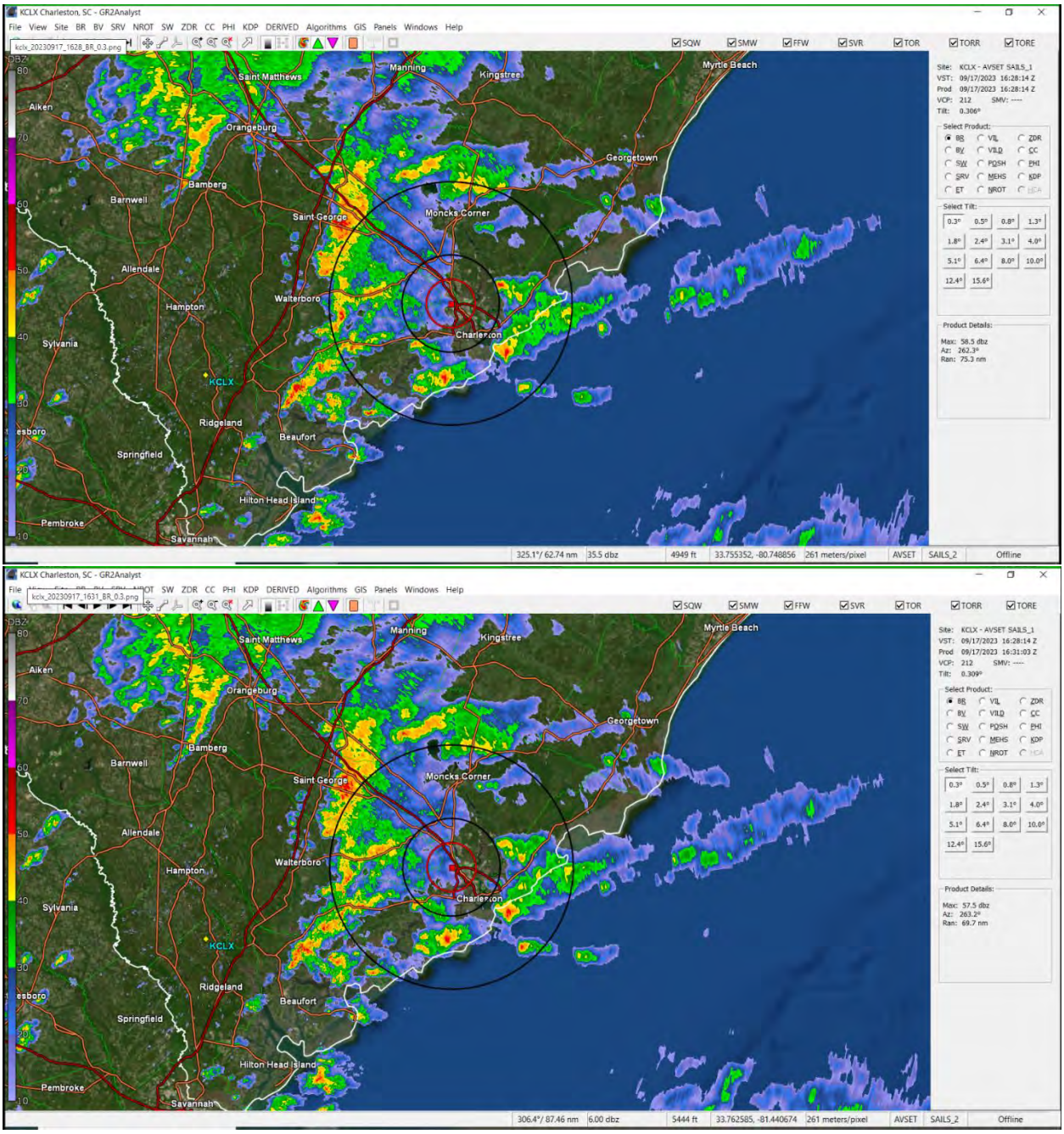
Pembroke
Savannah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KCLX
Ridgeland
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Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:28:14 Z
Prod 09/17/2023 16:28:14 Z
VCP: 212 SMV: ----
Tilt: 0.306°
Max: 58.5 dbz
Az: 262.3°
Ran: 75.3 nm
325.1°/ 62.74 nm
35.5 dbz
4949 ft
33.755352, -80.748856
261 meters/pixel
AVSET
SAILS_2
Offline

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KCLX
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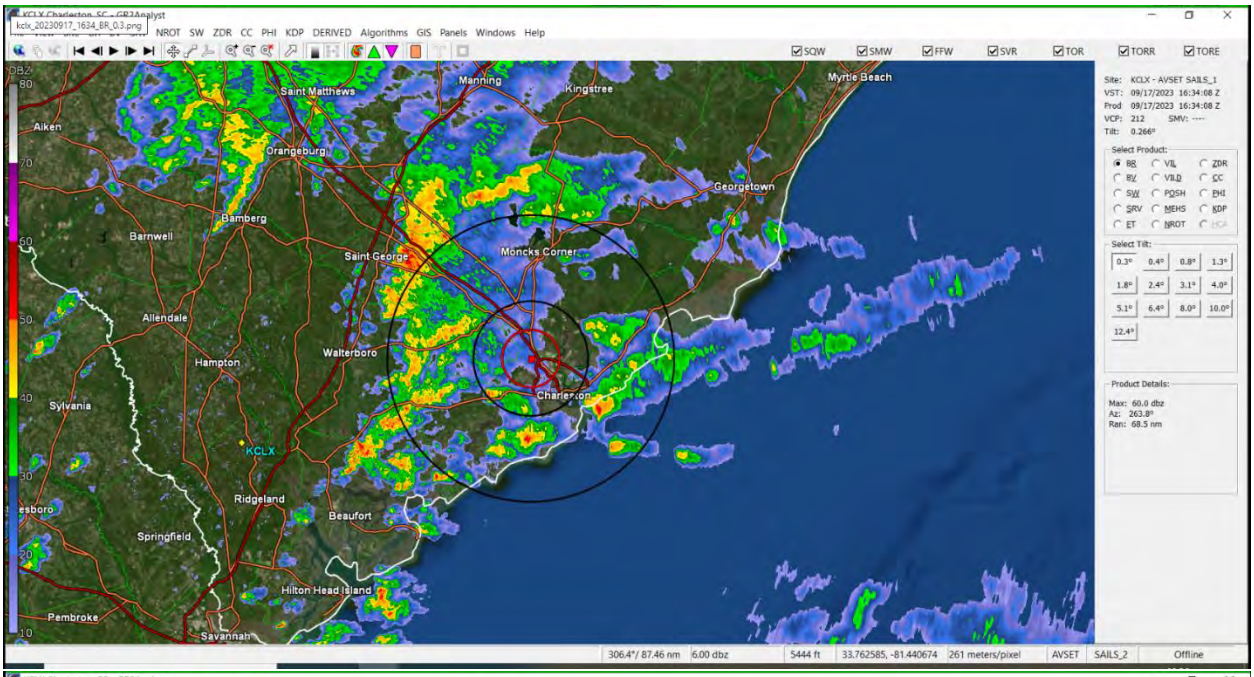
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:28:14 Z
Prod 09/17/2023 16:31:03 Z
VCP: 212 SMV: ----
Tilt: 0.309°
Max: 57.5 dbz
Az: 263.2°
Ran: 69.7 nm
306.4°/ 87.46 nm
6.00 dbz
5444 ft
33.762585, -81.440674
261 meters/pixel
AVSET
SAILS_2
Offline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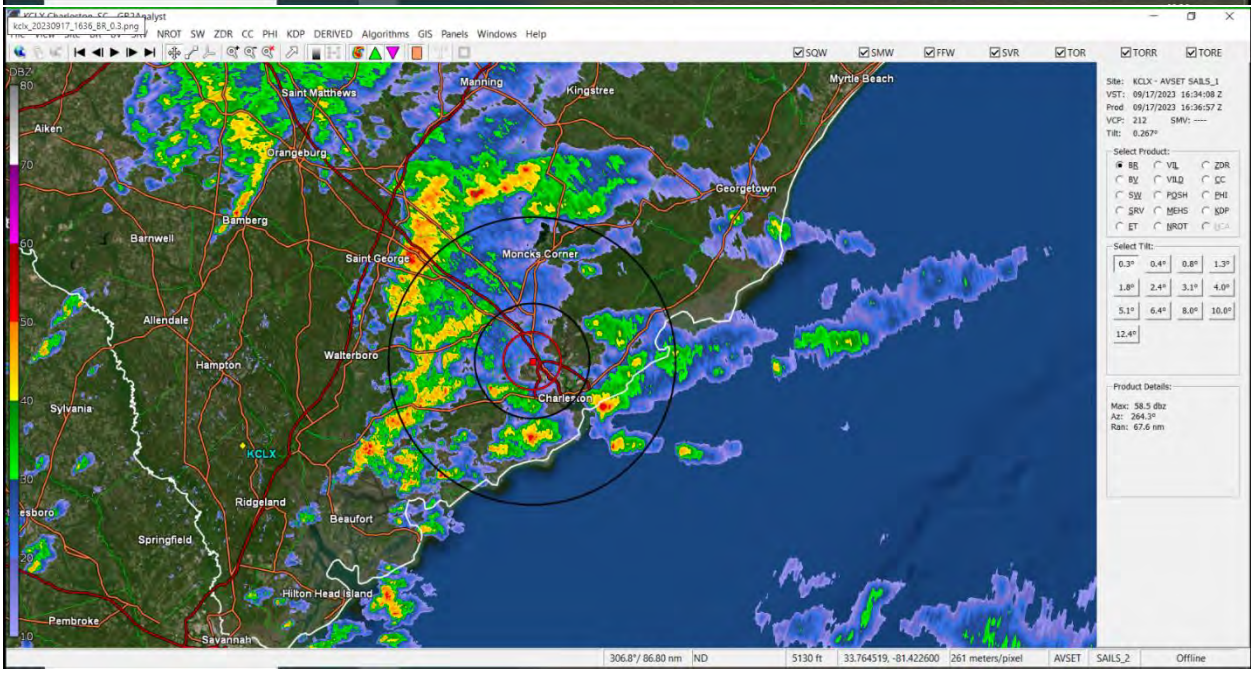
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
306.4°/ 87.46 nm
6.00 dbz
5444 ft
33.762585, -81.440674
261 meters/pixel
AVSET
SAILS_2
Offline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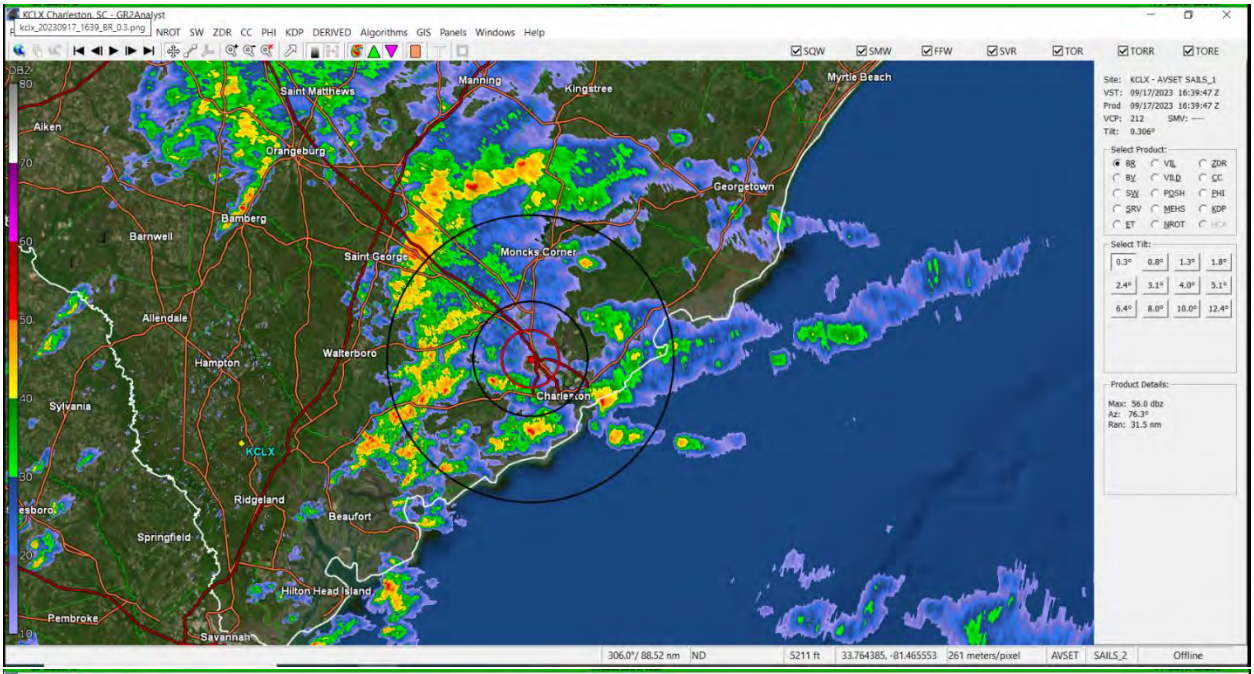
Charleston
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
306.8°/ 86.80 nm
ND
5130 ft
33.764519, -81.422600
261 meters/pixel
AVSET
SAILS_2
Offline


KCLX Charleston, SC - GR2Analyst
kclx_20230917_1639_BR_0.3.png
NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
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KCLX
Ridgeland
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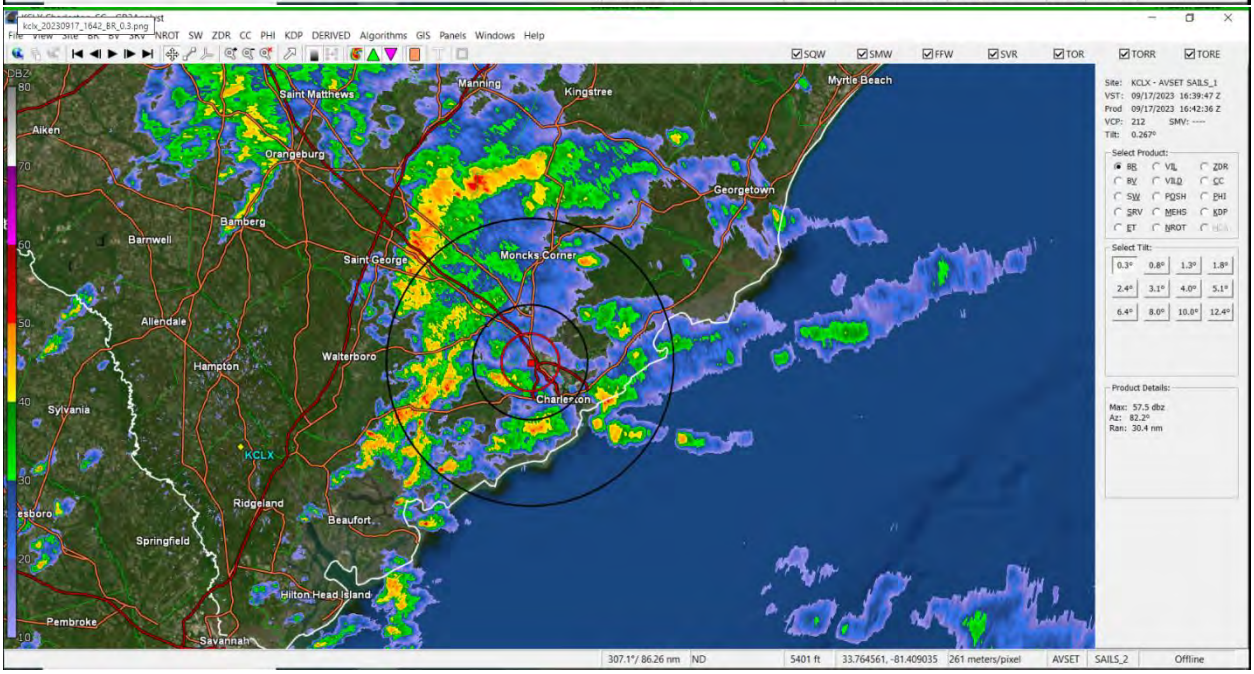
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:39:47 Z
Prod 09/17/2023 16:39:47 Z
VCP: 212 SMV: ----
Tilt: 0.306°
Select Product:
Select Tilt:
Product Details:
Max: 56.0 dbz
Az: 76.3°
Ran: 31.5 nm
306.0°/ 88.52 nm ND 5211 ft 33.764385, -81.465553 261 meters/pixel AVSET SAILS_2 Offline


kclx_20230917_1642_BR_0.3.png
NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
Saint Matthews
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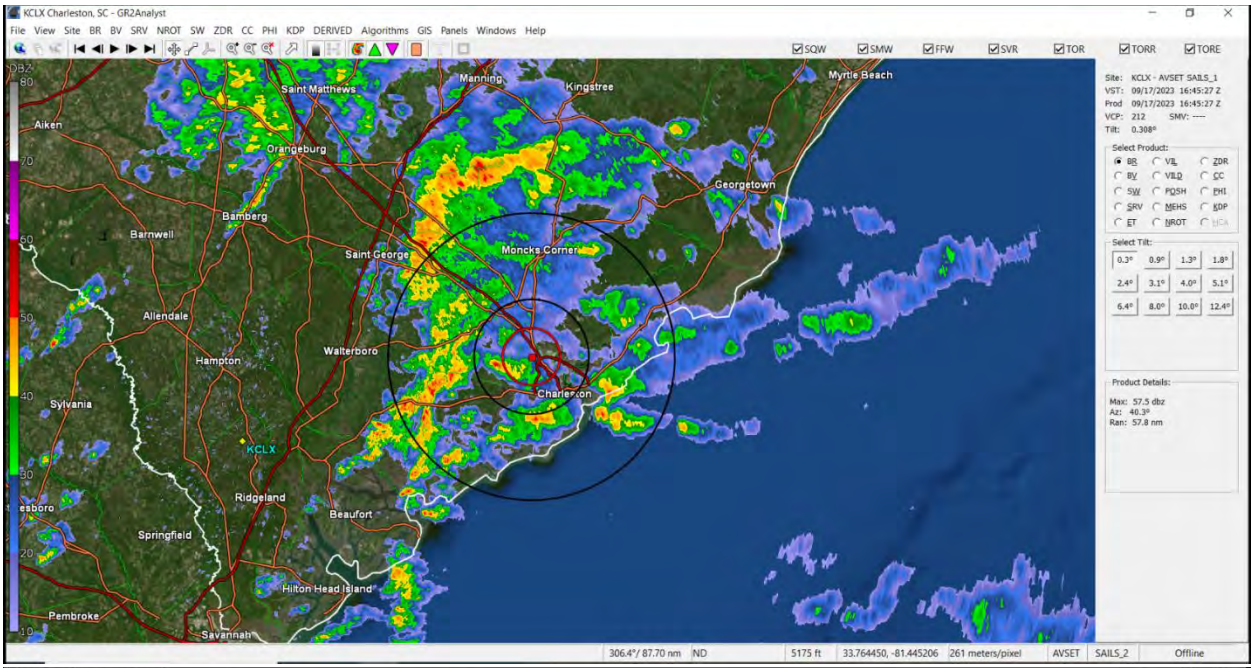
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:39:47 Z
Prod 09/17/2023 16:42:36 Z
VCP: 212 SMV: ----
Tilt: 0.267°
Select Product:
Select Tilt:
Product Details:
Max: 57.5 dbz
Az: 82.2°
Ran: 30.4 nm
307.1°/ 86.26 nm ND 5401 ft 33.764561, -81.409035 261 meters/pixel AVSET SAILS_2 Offline


KCLX Charleston, SC - GR2Analyst
File View Site BR BV SRV NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
Saint Matthews
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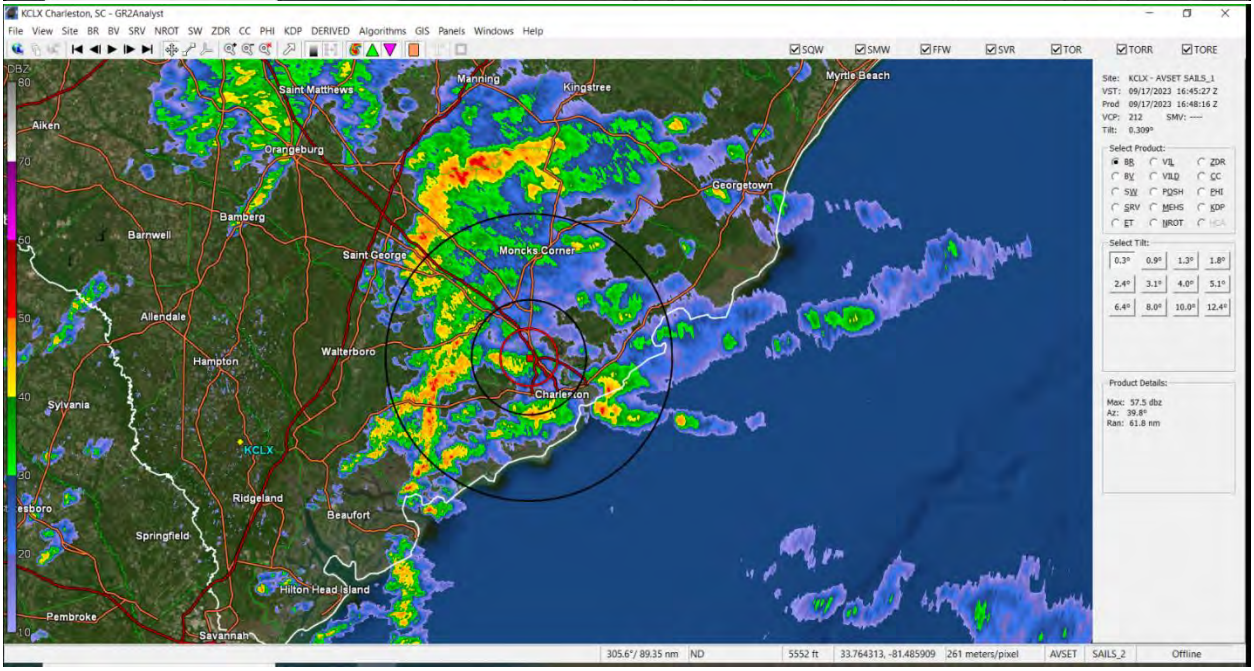
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:45:27 Z
Prod 09/17/2023 16:45:27 Z
VCP: 212 SMV: ----
Tilt: 0.308°
Select Product:
Select Tilt:
Product Details:
Max: 57.5 dbz
Az: 40.3°
Ran: 57.8 nm
306.4°/ 87.70 nm ND 5175 ft 33.764450, -81.445206 261 meters/pixel AVSET SAILS_2 Offline


KCLX Charleston, SC - GR2Analyst
File View Site BR BV SRV NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
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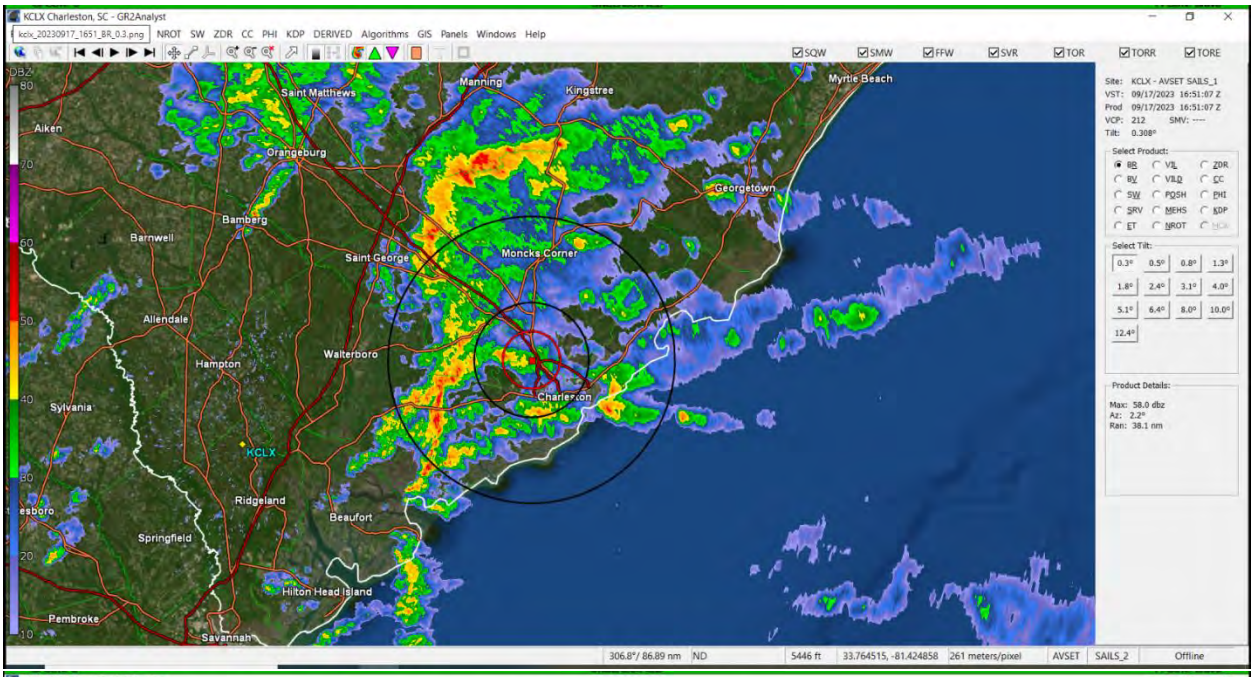
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:45:27 Z
Prod 09/17/2023 16:48:16 Z
VCP: 212 SMV: ----
Tilt: 0.309°
Select Product:
Select Tilt:
Product Details:
Max: 57.5 dbz
Az: 39.8°
Ran: 61.8 nm
305.6°/ 89.35 nm ND 5552 ft 33.764313, -81.485909 261 meters/pixel AVSET SAILS_2 Offline


KCLX Charleston, SC - GR2Analyst
NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
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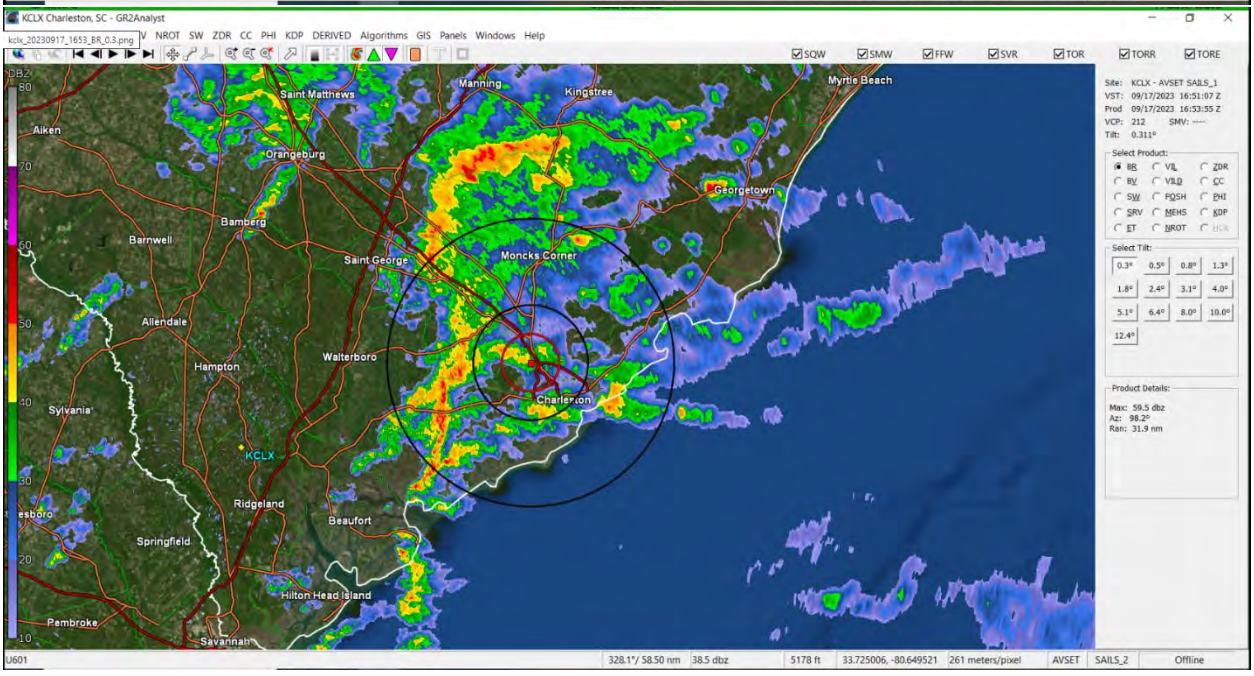
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:51:07 Z
Prod 09/17/2023 16:51:07 Z
VCP: 212 SMV: ----
Tilt: 0.308°
Select Product:
Select Tilt:
Product Details:
Max: 58.0 dbz
Az: 2.2°
Ran: 38.1 nm
306.8°/ 86.89 nm
ND
5446 ft
33.764515, -81.424858
261 meters/pixel
AVSET
SAILS_2
Offline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NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
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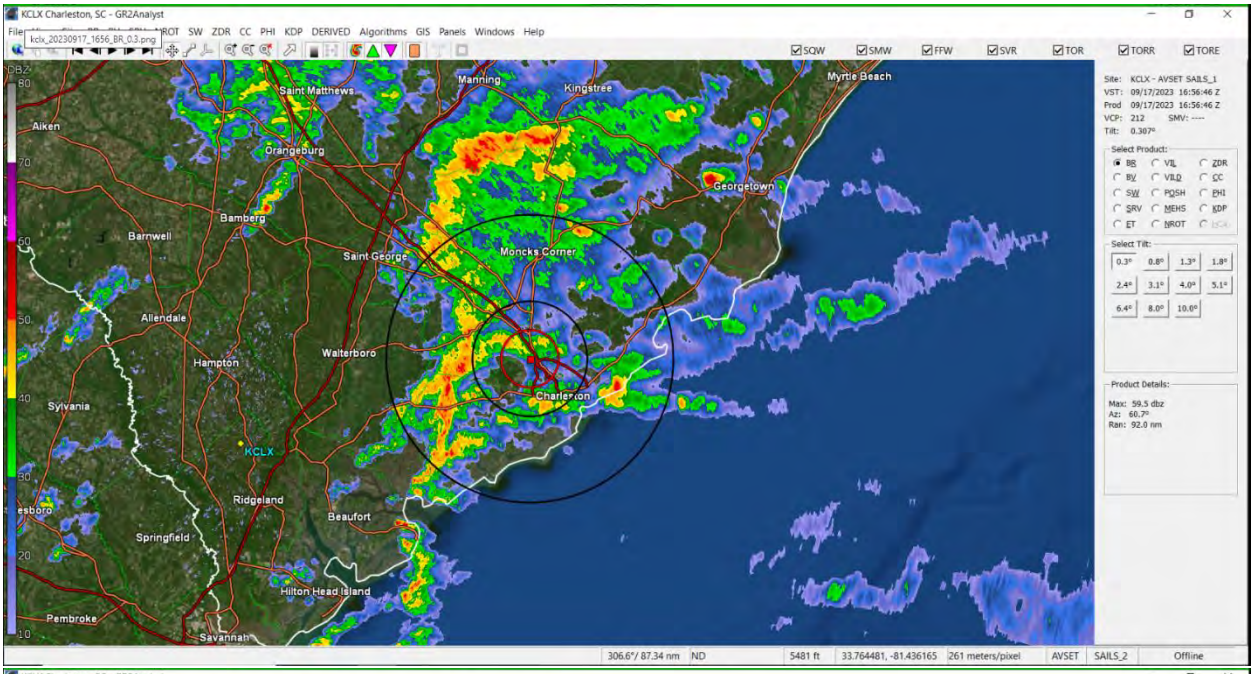
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:51:07 Z
Prod 09/17/2023 16:53:55 Z
VCP: 212 SMV: ----
Tilt: 0.311°
Select Product:
Select Tilt:
Product Details:
Max: 59.5 dbz
Az: 98.2°
Ran: 31.9 nm
328.1°/ 58.50 nm
38.5 dbz
5178 ft
33.725006, -80.649521
261 meters/pixel
AVSET
SAILS_2
Offline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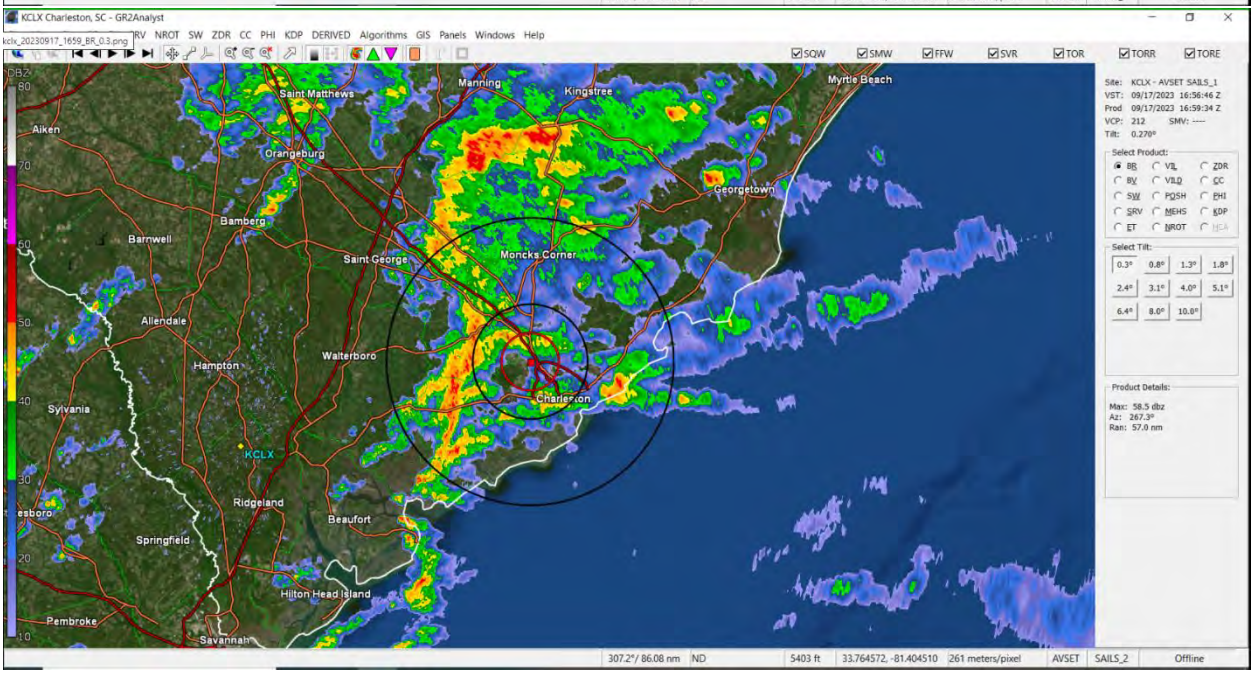
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:56:46 Z
Prod 09/17/2023 16:56:46 Z
VCP: 212 SMV: ----
Tilt: 0.307°
Product Details:
Max: 59.5 dbz
Az: 60.7°
Ran: 92.0 nm
306.6°/ 87.34 nm
ND
5481 ft
33.764481, -81.436165
261 meters/pixel
AVSET
SAILS_2
Offline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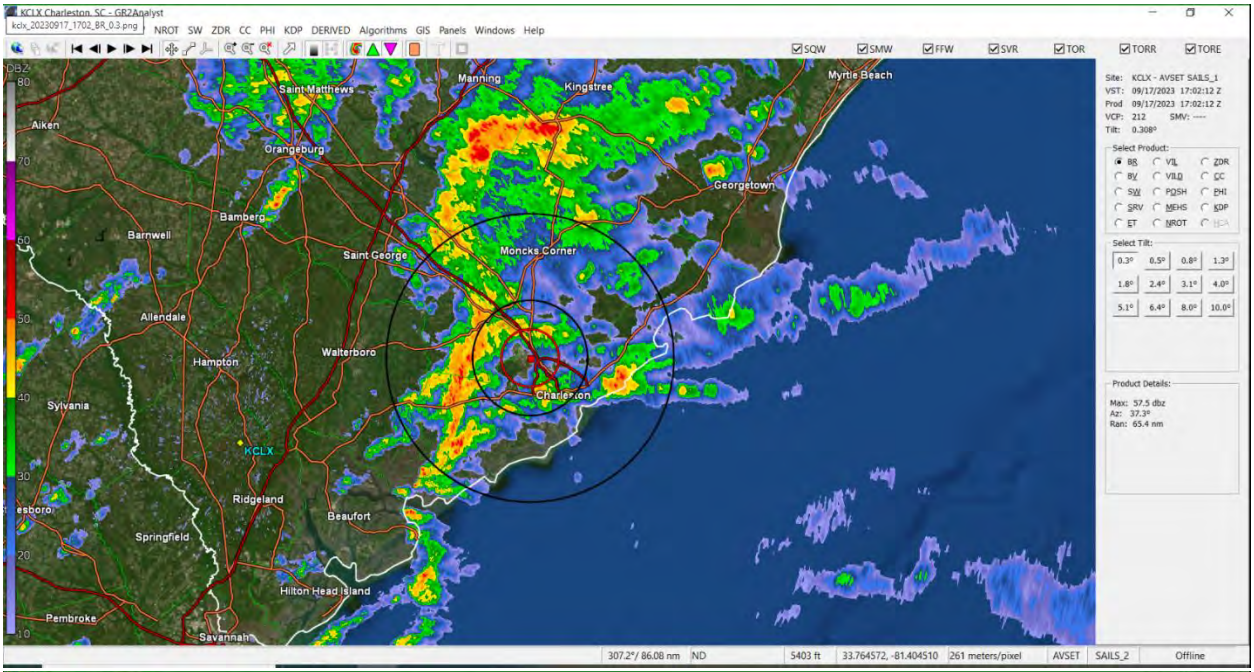
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 16:56:46 Z
Prod 09/17/2023 16:59:34 Z
VCP: 212 SMV: ----
Tilt: 0.270°
Product Details:
Max: 58.5 dbz
Az: 267.3°
Ran: 57.0 nm
307.2°/ 86.08 nm
ND
5403 ft
33.764572, -81.404510
261 meters/pixel
AVSET
SAILS_2
Offline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kclx_20230917_1702_BR_0.3.png
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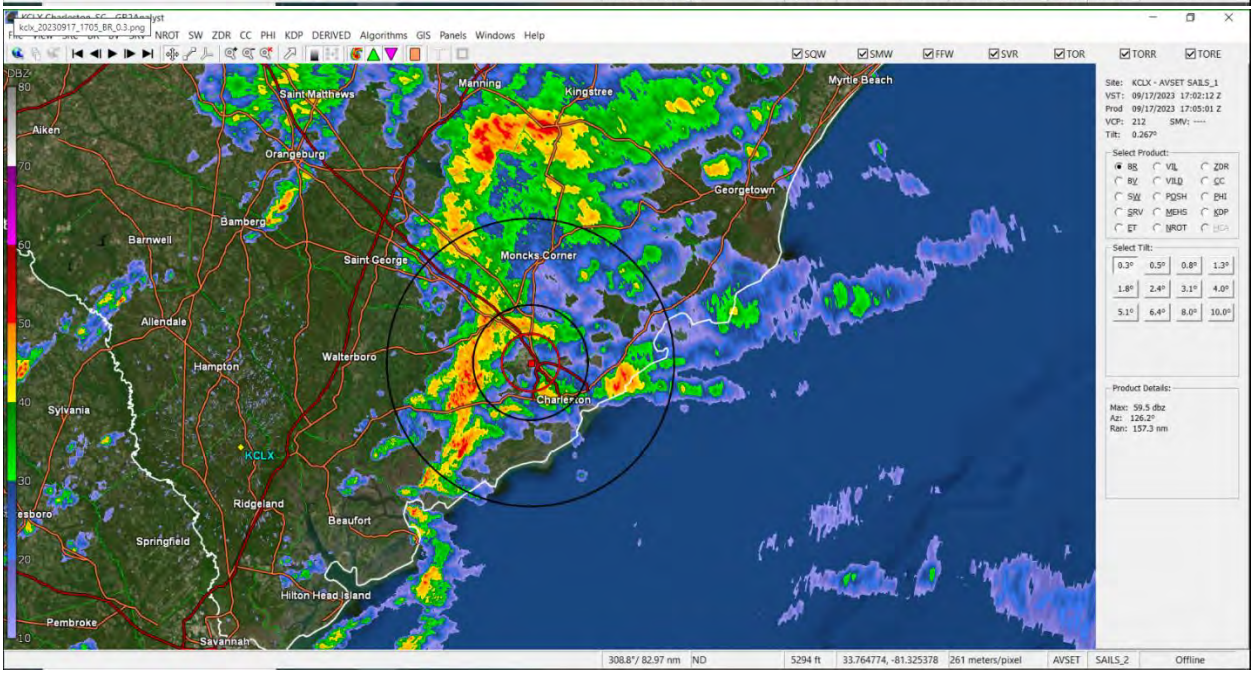
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:02:12 Z
Prod 09/17/2023 17:02:12 Z
VCP: 212
Tilt: 0.308°
Product Details:
Max: 57.5 dbz
Az: 37.3°
Ran: 65.4 nm
307.2°/ 86.08 nm
5403 ft
33.764572, -81.404510
261 meters/pixel
AVSET
SAILS_2
Offline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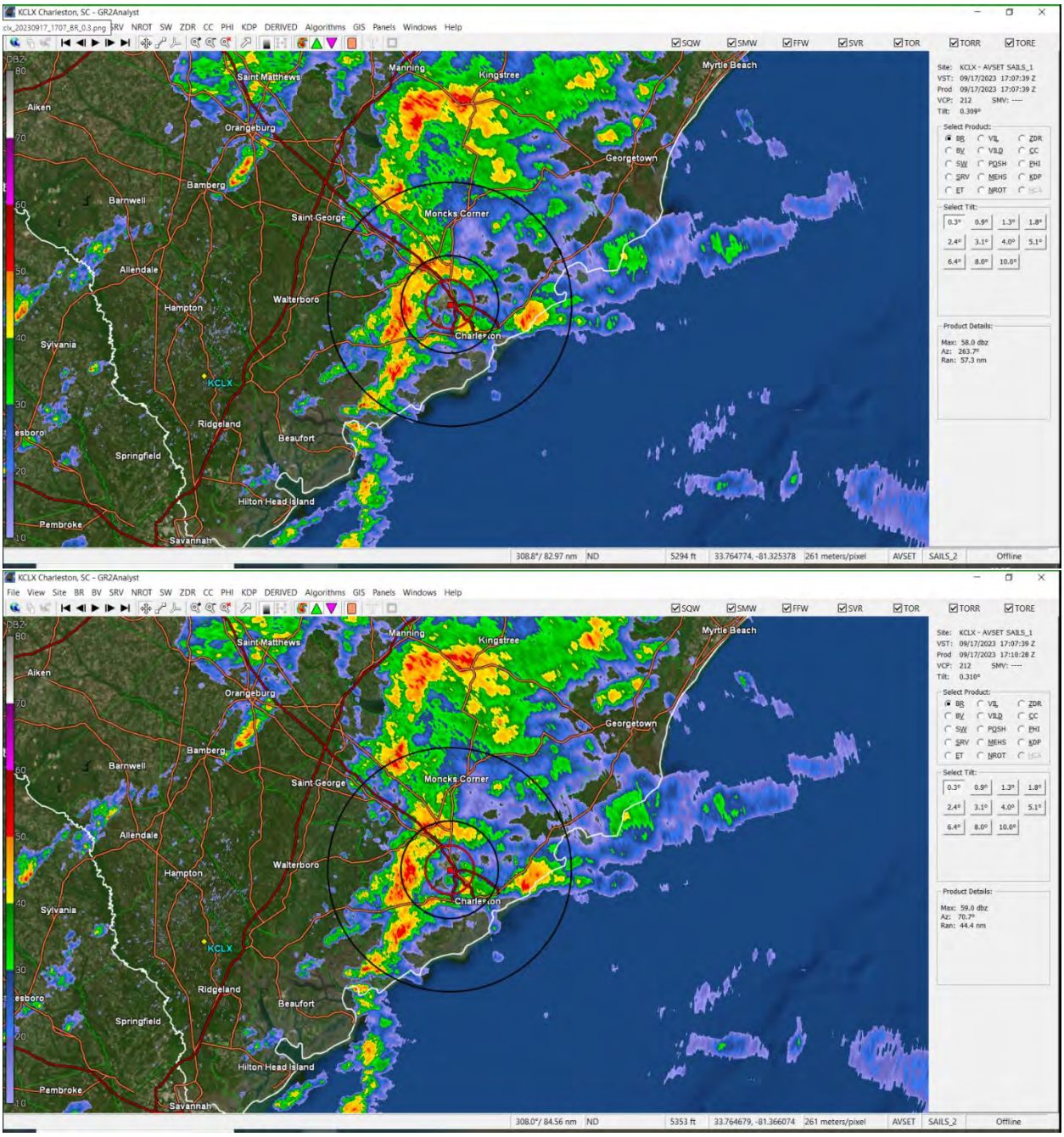
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:02:12 Z
Prod 09/17/2023 17:05:01 Z
VCP: 212
Tilt: 0.267°
Product Details:
Max: 59.5 dbz
Az: 126.2°
Ran: 157.3 nm
308.8°/ 82.97 nm
5294 ft
33.764774, -81.325378
261 meters/pixel
AVSET
SAILS_2
Offline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Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:07:39 Z
Prod 09/17/2023 17:07:39 Z
VCP: 212 SMV: ----
Tilt: 0.309°
Select Product:
Select Tilt:
Product Details:
Max: 58.0 dbz
Az: 263.7°
Ran: 57.3 nm
308.8°/ 82.97 nm ND 5294 ft 33.764774, -81.325378 261 meters/pixel AVSET SAILS_2 Offline

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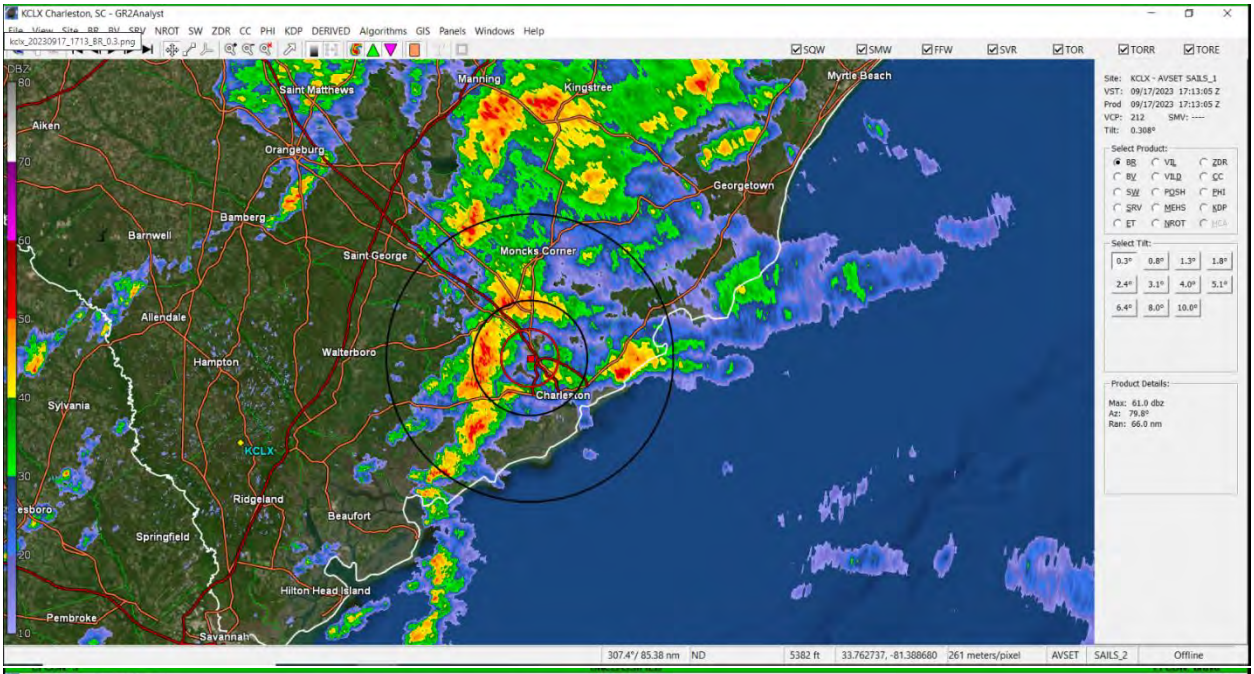
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:07:39 Z
Prod 09/17/2023 17:10:28 Z
VCP: 212 SMV: ----
Tilt: 0.310°
Select Product:
Select Tilt:
Product Details:
Max: 59.0 dbz
Az: 70.7°
Ran: 44.4 nm
308.0°/ 84.56 nm ND 5353 ft 33.764679, -81.366074 261 meters/pixel AVSET SAILS_2 Offline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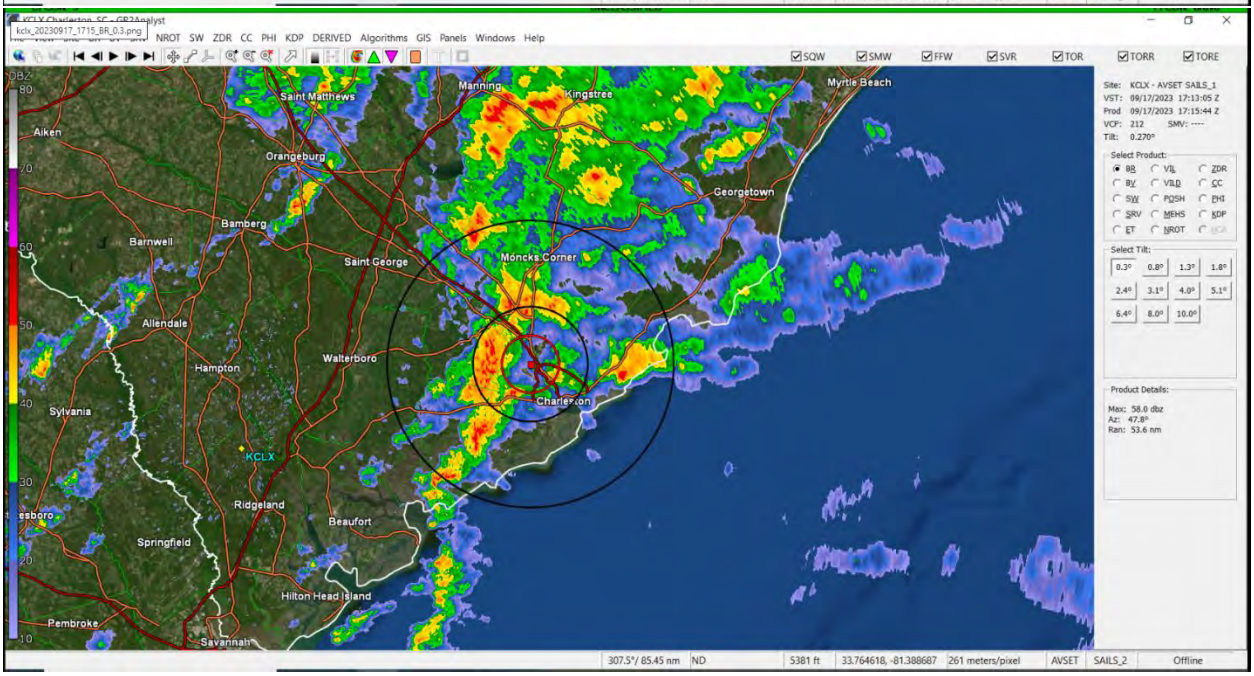
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:13:05 Z
Prod 09/17/2023 17:13:05 Z
VCP: 212 SMV: ----
Tilt: 0.308°
Select Product:
Select Tilt:
Product Details:
Max: 61.0 dbz
Az: 79.8°
Ran: 66.0 nm
307.4°/ 85.38 nm
ND
5382 ft
33.762737, -81.388680
261 meters/pixel
AVSET
SAILS_2
Offline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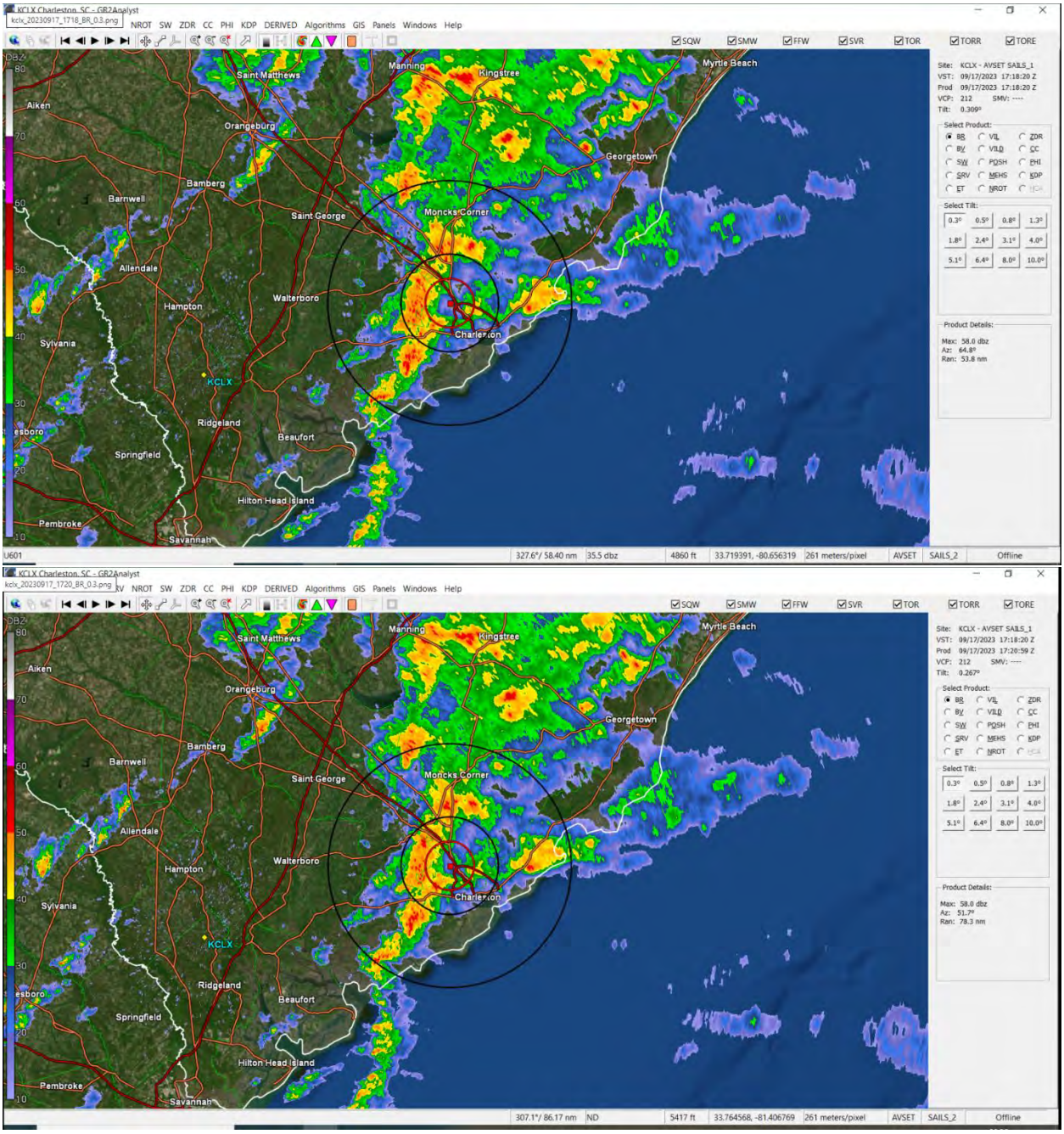
Myrtle Beach
Aiken
Orangeburg
Georgetown
Bamberg
Barnwell
Saint George
Moncks Corner
Allendale
Walterboro
Hampton
Sylvania
Charleston
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:13:05 Z
Prod 09/17/2023 17:15:44 Z
VCP: 212 SMV: ----
Tilt: 0.270°
Select Product:
Select Tilt:
Product Details:
Max: 58.0 dbz
Az: 47.8°
Ran: 53.6 nm
307.5°/ 85.45 nm
ND
5381 ft
33.764618, -81.388687
261 meters/pixel
AVSET
SAILS_2
Offline


KCLX Charleston, SC - GR2Analyst
kclx_20230917_1718_BR_0.3.png
NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
Saint Matthews
Manning
Kingstree
Myrtle Beach
Aiken
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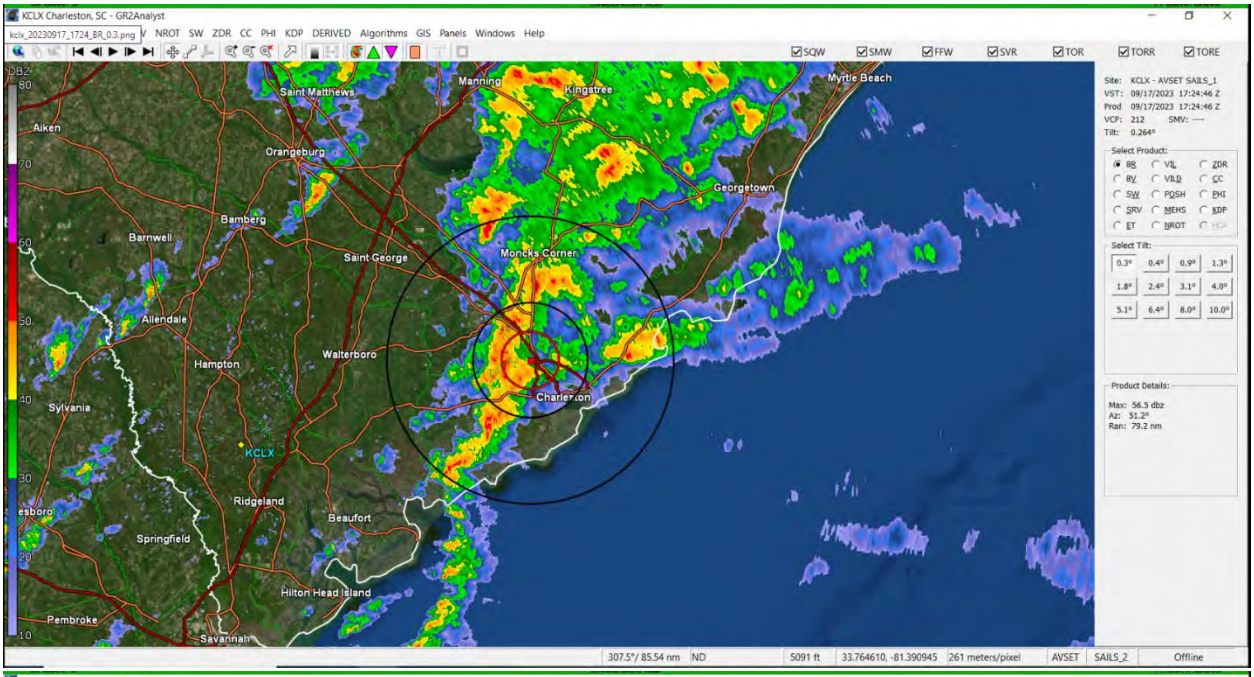
Georgetown
Bamberg
Barnwell
Saint George
Moncks Corner
Allendale
Walterboro
Hampton
Charleston
Sylvania
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:18:20 Z
Prod 09/17/2023 17:18:20 Z
VCP: 212 SMV: ----
Tilt: 0.309°
Select Product:
Select Tilt:
Product Details:
Max: 58.0 dbz
Az: 64.8°
Ran: 53.8 nm
U601
327.6°/ 58.40 nm
35.5 dbz
4860 ft
33.719391, -80.656319
261 meters/pixel
AVSET
SAILS_2
Offline
KCLX Charleston, SC - GR2Analyst
kclx_20230917_1720_BR_0.3.png
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:18:20 Z
Prod 09/17/2023 17:20:59 Z
VCP: 212 SMV: ----
Tilt: 0.267°
Product Details:
Max: 58.0 dbz
Az: 51.7°
Ran: 78.3 nm
307.1°/ 86.17 nm
ND
5417 ft
33.764568, -81.406769
261 meters/pixel
AVSET
SAILS_2
Offline


KCLX Charleston, SC - GR2Analyst
Saint Matthews
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Myrtle Beach
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Orangeburg
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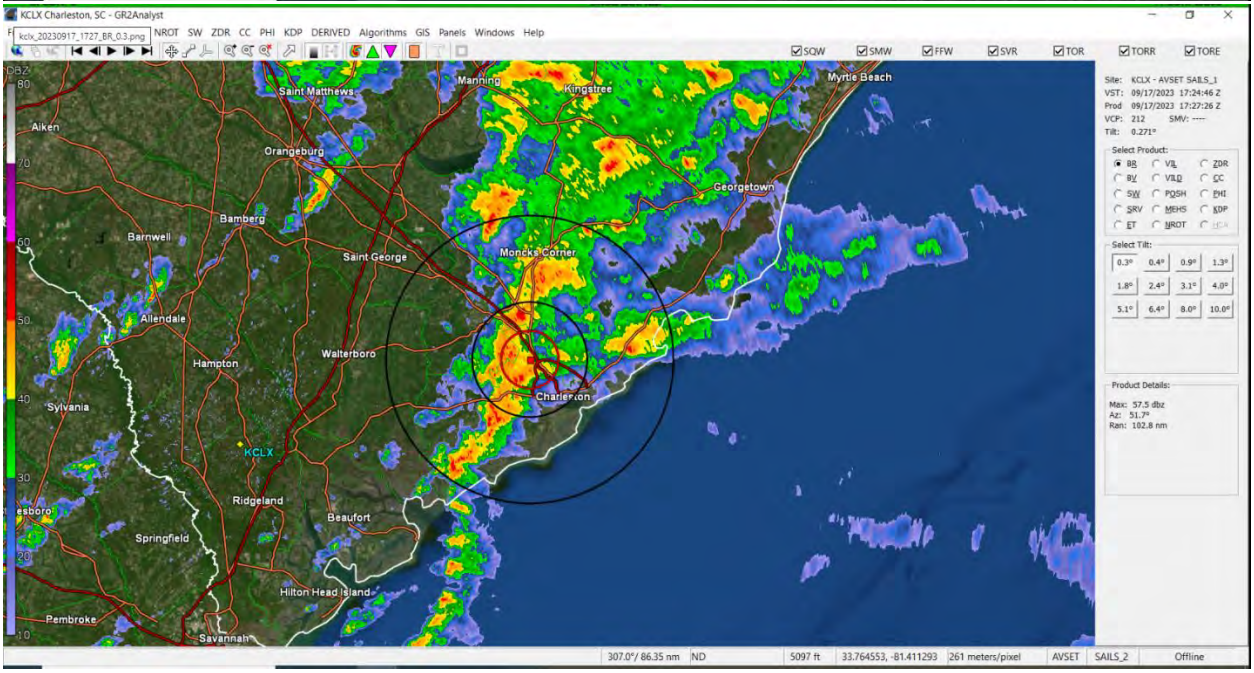
Saint George
Moncks Corner
Allendale
Walterboro
Hampton
Charleston
Sylvania
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:24:46 Z
Prod 09/17/2023 17:24:46 Z
VCP: 212 SMV: ----
Tilt: 0.264°
Product Details:
Max: 56.5 dbz
Az: 51.2°
Ran: 79.2 nm
307.5°/ 85.54 nm
5091 ft
33.764610, -81.390945
261 meters/pixel
AVSET
SAILS_2
Offline


KCLX Charleston, SC - GR2Analyst
Saint Matthews
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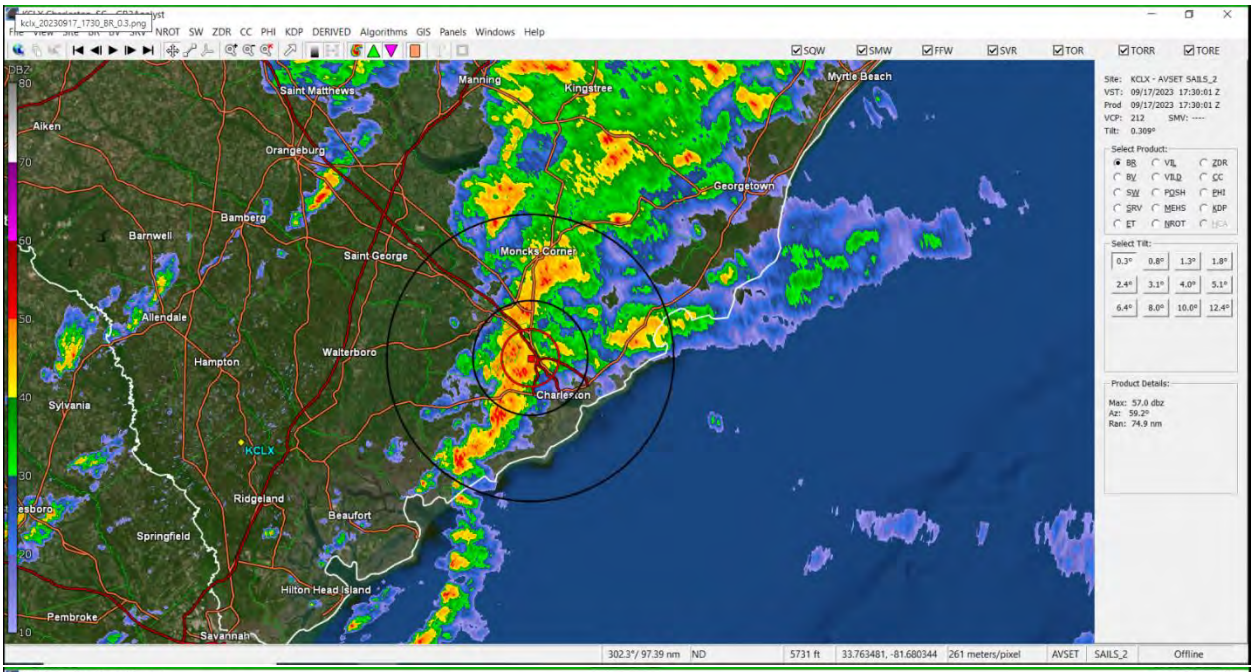
Moncks Corner
Allendale
Walterboro
Hampton
Charleston
Sylvania
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_1
VST: 09/17/2023 17:24:46 Z
Prod 09/17/2023 17:27:26 Z
VCP: 212 SMV: ----
Tilt: 0.271°
Product Details:
Max: 57.5 dbz
Az: 51.7°
Ran: 102.8 nm
307.0°/ 86.35 nm
5097 ft
33.764553, -81.411293
261 meters/pixel
AVSET
SAILS_2
Offline


Saint Matthews
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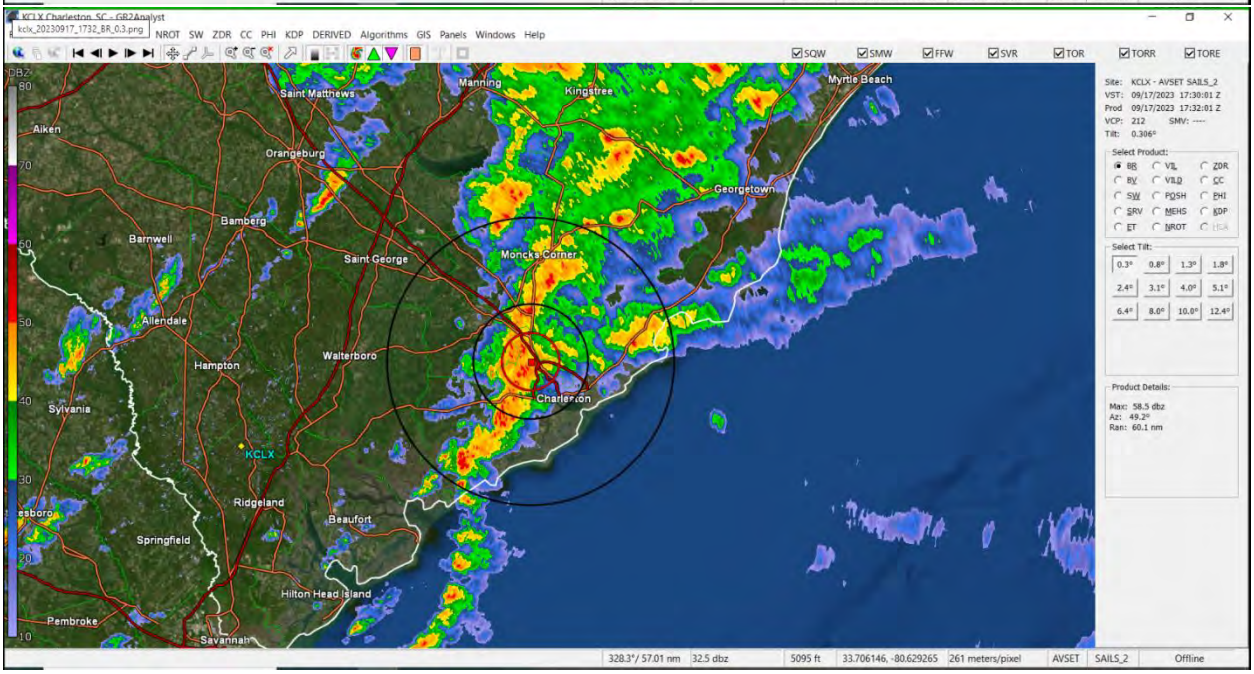
Moncks Corner
Allendale
Walterboro
Hampton
Sylvania
Charleston
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_2
VST: 09/17/2023 17:30:01 Z
Prod 09/17/2023 17:30:01 Z
VCP: 212 SMV: ----
Tilt: 0.309°
Select Product:
Select Tilt:
Product Details:
Max: 57.0 dbz
Az: 59.2°
Ran: 74.9 nm
302.3°/ 97.39 nm
ND
5731 ft
33.763481, -81.680344
261 meters/pixel
AVSET
SAILS_2
Offline


Saint Matthews
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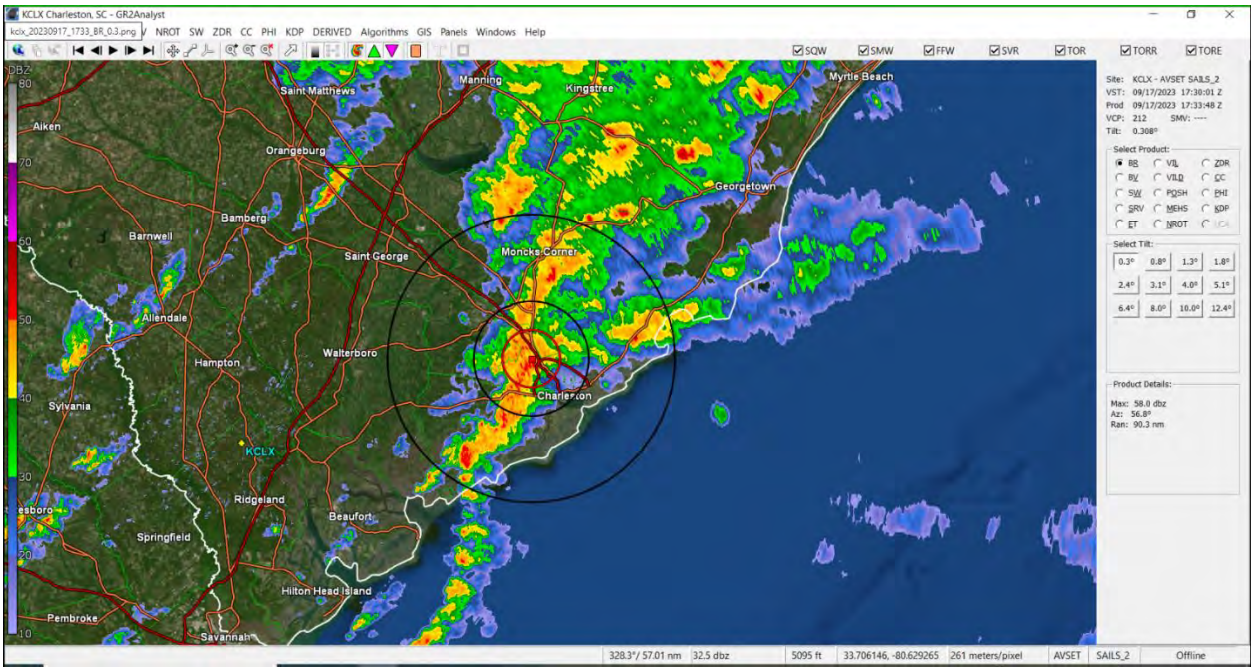
Moncks Corner
Allendale
Walterboro
Hampton
Sylvania
Charleston
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_2
VST: 09/17/2023 17:30:01 Z
Prod 09/17/2023 17:32:01 Z
VCP: 212 SMV: ----
Tilt: 0.306°
Select Product:
Select Tilt:
Product Details:
Max: 58.5 dbz
Az: 49.2°
Ran: 60.1 nm
328.3°/ 57.01 nm
32.5 dbz
5095 ft
33.706146, -80.629265
261 meters/pixel
AVSET
SAILS_2
Offline


KCLX Charleston, SC - GR2Analyst
kclx_20230917_1733_BR_0.3.png
NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
Saint Matthews
Manning
Kingstree
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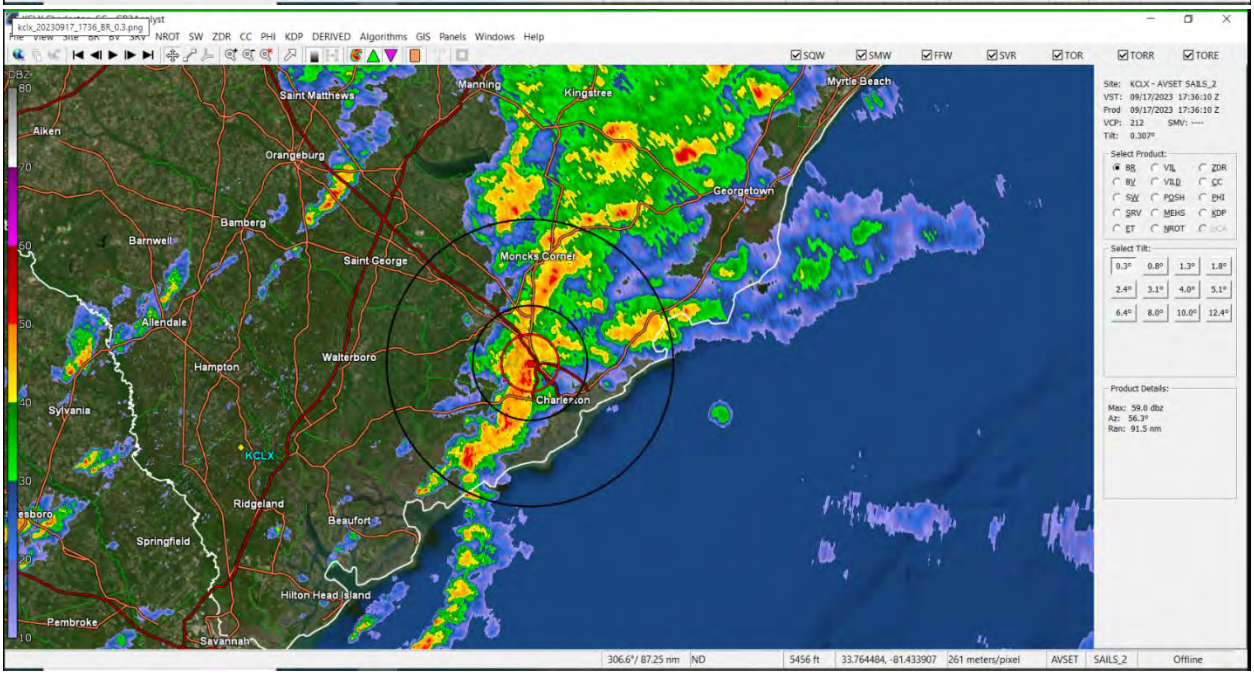
Orangeburg
Georgetown
Bamberg
Barnwell
Saint George
Moncks Corner
Allendale
Walterboro
Hampton
Sylvania
Charleston
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_2
VST: 09/17/2023 17:36:01 Z
Prod 09/17/2023 17:33:48 Z
VCP: 212 SMV: ----
Tilt: 0.308°
Select Product:
Select Tilt:
0.3° 0.8° 1.3° 1.8°
2.4° 3.1° 4.0° 5.1°
6.4° 8.0° 10.0° 12.4°
Product Details:
Max: 58.0 dbz
Az: 56.8°
Ran: 90.3 nm
328.3°/ 57.01 nm
32.5 dbz
5095 ft
33.706146, -80.629265
261 meters/pixel
AVSET
SAILS_2
Offline


kclx_20230917_1736_BR_0.3.png
NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
Saint Matthews
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Kingstree
Myrtle Beach
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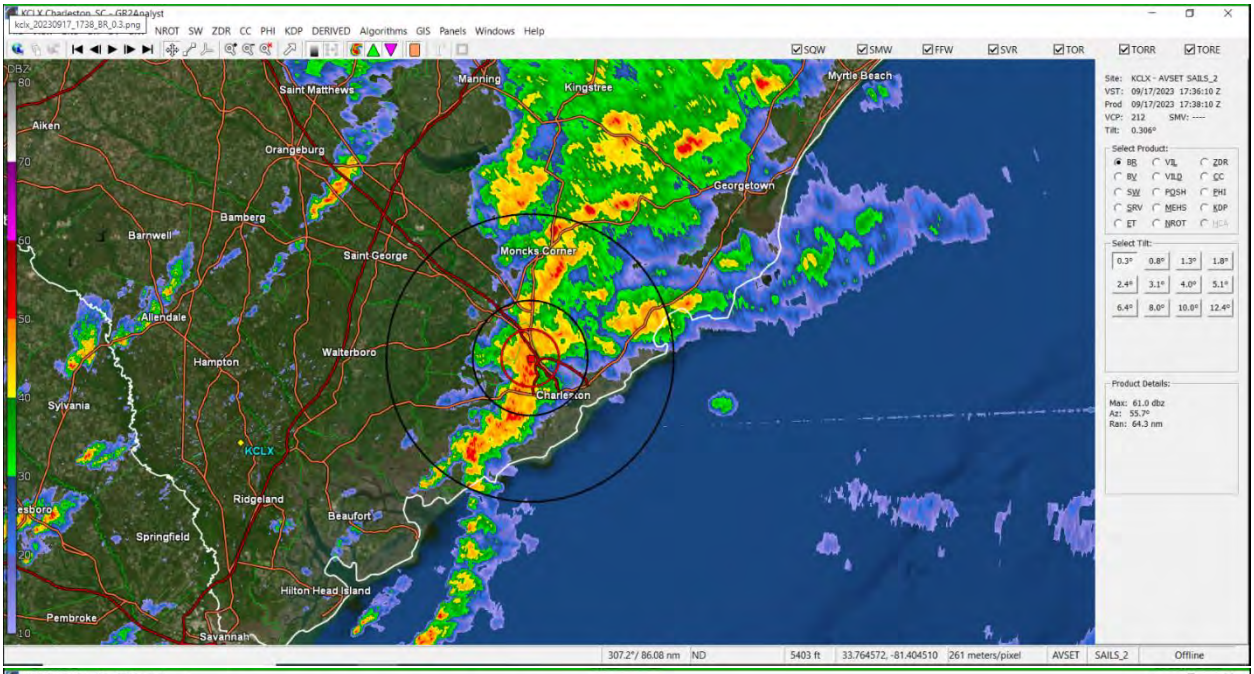
Orangeburg
Georgetown
Bamberg
Barnwell
Saint George
Moncks Corner
Allendale
Walterboro
Hampton
Sylvania
Charleston
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
Site: KCLX - AVSET SAILS_2
VST: 09/17/2023 17:36:10 Z
Prod 09/17/2023 17:36:10 Z
VCP: 212 SMV: ----
Tilt: 0.307°
Select Product:
Select Tilt:
0.3° 0.8° 1.3° 1.8°
2.4° 3.1° 4.0° 5.1°
6.4° 8.0° 10.0° 12.4°
Product Details:
Max: 59.0 dbz
Az: 56.3°
Ran: 91.5 nm
306.6°/ 87.25 nm
ND
5456 ft
33.764484, -81.433907
261 meters/pixel
AVSET
SAILS_2
Offline


Saint Matthews
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Bamberg
Barnwell
Saint George
Moncks Corner
Allendale
Walterboro
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Sylvania
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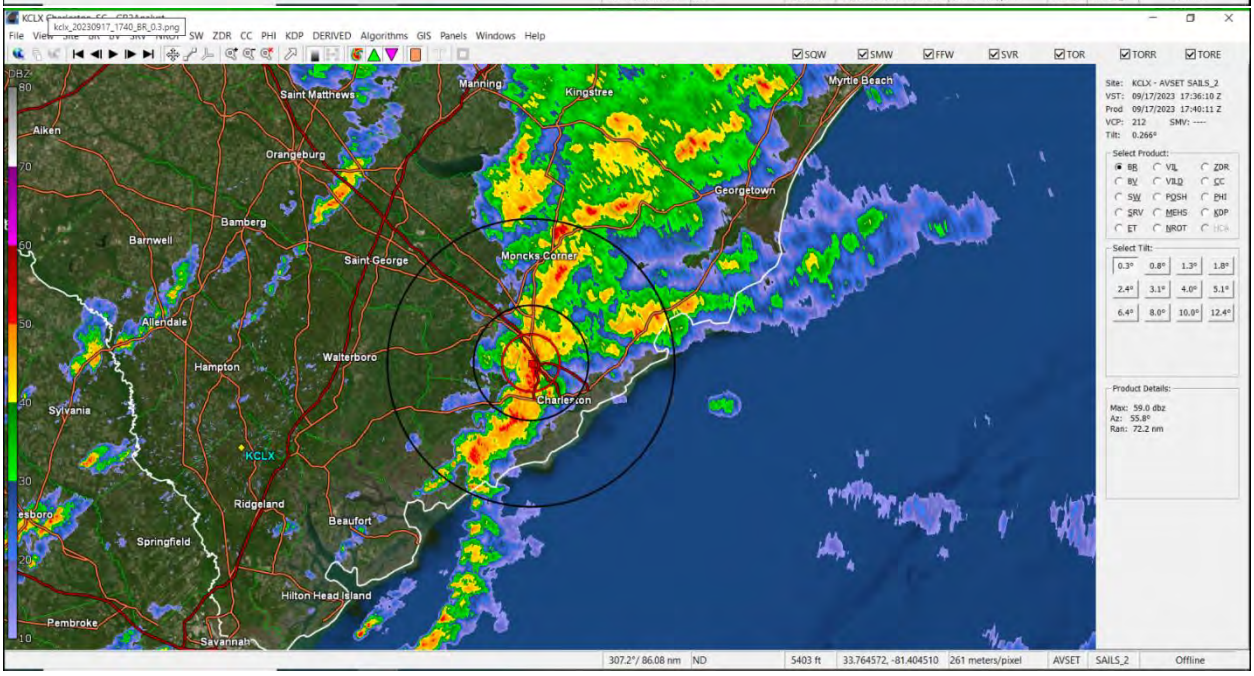
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah


Saint Matthews
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Allendale
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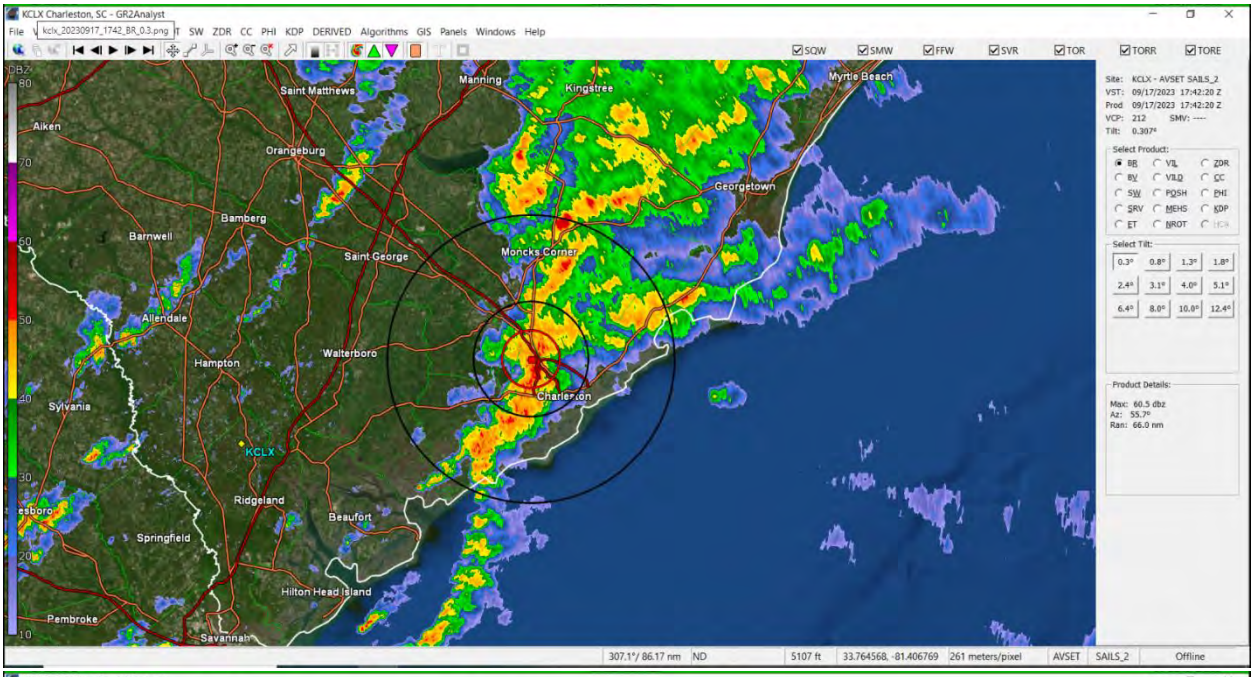
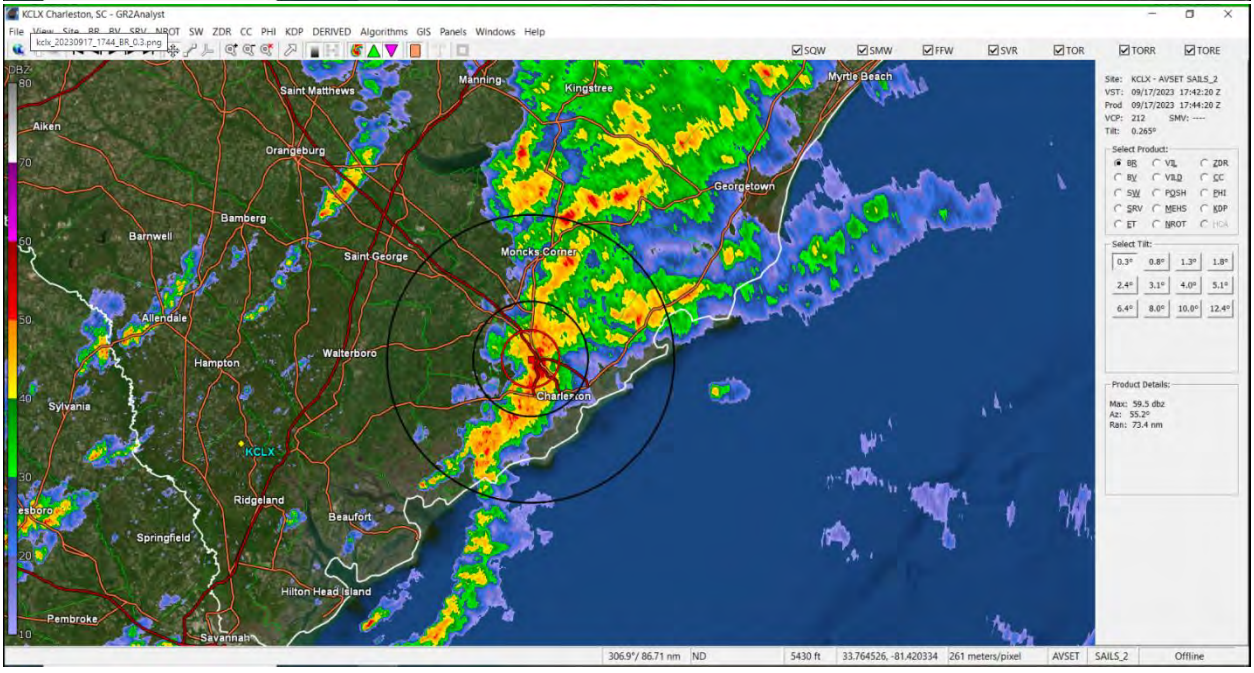
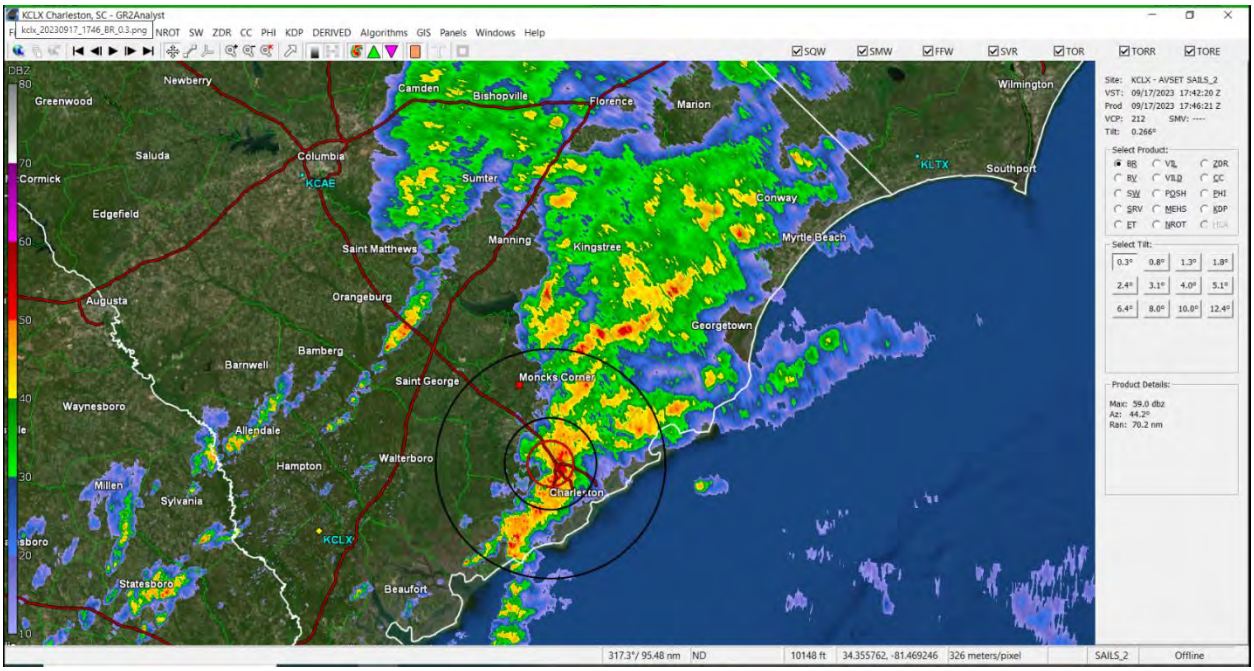
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah


KCLX Charleston, SC - GR2Analyst
Saint Matthews
Manning
Kingstree
Myrtle Beach
Aiken
Orangeburg
Georgetown
Bamberg
Barnwell
Saint George
Moncks Corner
Allendale
Walterboro
Hampton
Sylvania
Charleston
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
307.1°/ 86.17 nm
ND
5107 ft
33.764568, -81.406769
261 meters/pixel
AVSET
SAILS_2
Offline


KCLX Charleston, SC - GR2Analyst
Saint Matthews
Manning
Kingstree
Myrtle Beach
Aiken
Orangeburg
Georgetown
Bamberg
Barnwell
Saint George
Moncks Corner
Allendale
Walterboro
Hampton
Sylvania
Charleston
KCLX
Ridgeland
Beaufort
Springfield
Hilton Head Island
Pembroke
Savannah
306.9°/ 86.71 nm
ND
5430 ft
33.764526, -81.420334
261 meters/pixel
AVSET
SAILS_2
Offline


KCLX Charleston, SC - GR2Analyst
NROT SW ZDR CC PHI KDP DERIVED Algorithms GIS Panels Windows Help
SQW SMW FFW SVR TOR TORR TORE
DBZ
Newberry
Greenwood
Camden
Bishopville
Florence
Marion
Wilmington
Saluda
Columbia
KCAE
Sumter
KLTX
Southport
Cormick
Edgefield
Conway
Myrtle Beach
Saint Matthews
Manning
Kingstree
Augusta
Orangeburg
Georgetown
Barnwell
Bamberg
Saint George
Moncks Corner
Waynesboro
Allendale
Walterboro
Hampton
Millen
Sylvania
Charleston
KCLX
Statesboro
Beaufort
Site: KCLX - AVSET SAILS_2
VST: 09/17/2023 17:42:20 Z
Prod 09/17/2023 17:46:21 Z
VCP: 212 SMV: ----
Tilt: 0.266°
Select Product:
Select Tilt:
0.3° 0.8° 1.3° 1.8°
2.4° 3.1° 4.0° 5.1°
6.4° 8.0° 10.0° 12.4°
Product Details:
Max: 59.0 dbz
Az: 44.2°
Ran: 70.2 nm
317.3°/ 95.48 nm
ND
10148 ft
34.355762, -81.469246
326 meters/pixel
SAILS_2
Offline