



Combined Naval Event

MAY 23rd- 25th 2023

Farnborough, UK

CAPT. DENNIS MONAGLE
PROGRAM MANAGER,
PMA-266- PAX Naval Base

Controlled by: Department of the Navy
NAVAIRSYSCOM: PEO (U&W); PMA-266
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PMA-266 Portfolio



MQ-9A Block 5-25
Extended Range
(MUX/MALE)



MQ-8C



Skytower I
Data Networking /
Comms Relay
(MQ-9A)



MQ-8C
DCM/TacISR



AIS



BRITeStar
Block II



MQ-8C
AN/ZPY-8
RADAR /
Minotaur



DAAS
(MQ-9A)



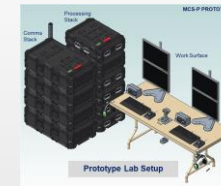
EW
(MQ-9A)



MCS



TCS



MCS-P



TCDL



MMCS



UCARS



MQ-8C Fire Scout

SUW (Radar) Increment First Deployment Jan 2022



Over 3,200+ MQ-8C Flight Hours to date and counting...
(Over 19,000 MQ-8B Flight Hours upon Sundown)



■ Mission:

- Provide organic airborne, unmanned, sea-based, persistent intelligence, surveillance, reconnaissance and targeting (ISR-T) to the host Littoral Combat Ship (LCS) or suitably equipped air capable ship (SEAC).
- Full kill-chain support for off-board weapon engagement & battle damage assessment (BDA) to tactical users without the use of manned aircraft or reliance on limited joint theater or national assets.

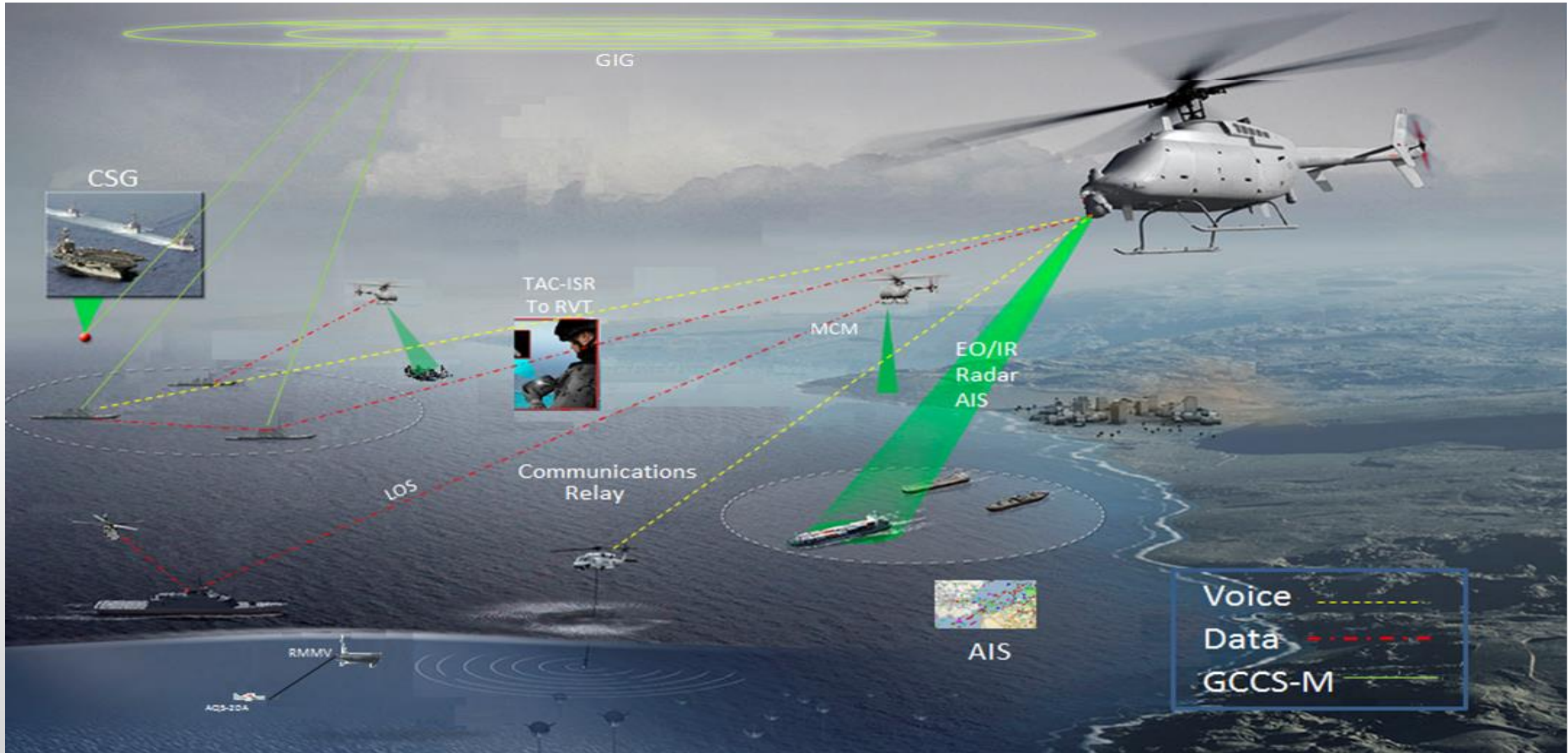
■ Capability:

- Vertical Take-off/Landing, Sea/Land-Based, Runway Independent, Group 4 UAS.
- Real-time Day & Night, Active & Passive ISR-T
- Data Correlation & Payload Management
- Communications Relay
- Laser Designation/Range Finding (LDRF)
- Small Radar Cross Section (RCS)
- Modular Payload Capable

■ Vision:

- **"Fire Scout Always"**
 - Sustain Our Current Fleet
 - Demonstrate Current Capability
 - Improve System of Systems Reliability & Resiliency
- **"Fire Scout (Operate) Anywhere"**
 - MCS-Portable (FFG-62 risk reduction)
 - Optical Takeoff, Landing & Due Regard
 - Beyond Line of Sight (BLOS) Command & Control
- **"Fire Scout (Data) Everywhere"**
 - Data Link Network
 - Fire Scout Data Dissemination
 - Ship & Shore-Based, MQ-8 as a node vice LCS
 - Fires Support
 - Contested Logistics (Cargo Capacity)

MQ-8C Operational Overview



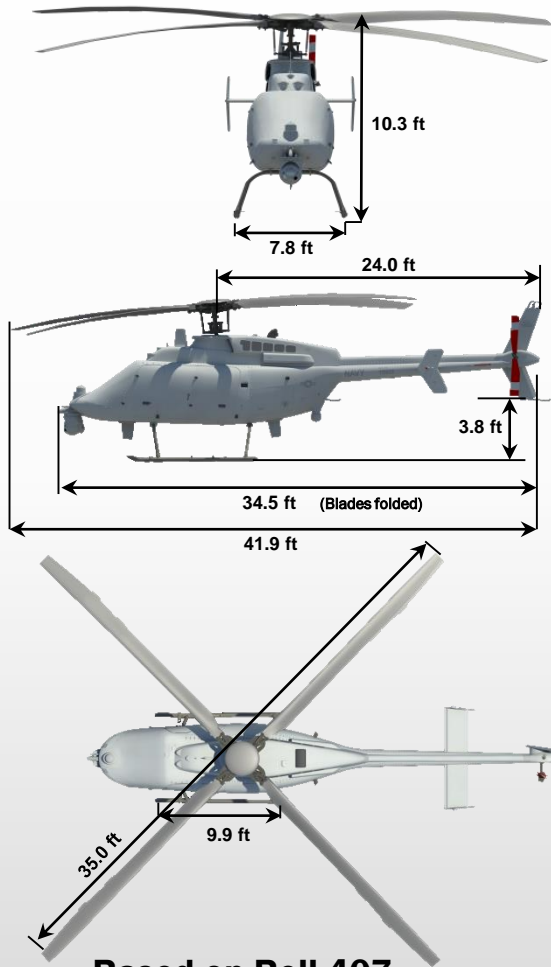
MQ-8C Fire Scout System of Systems



MQ-8C Fire Scout 101



Air Vehicle (AV)



Based on Bell 407 Commercial Airframe

ISR Payloads

BRITE Star II (EO/IR/LR/LD)



TACISR (Full Motion Video)



Automatic Information System (AIS)



AN/ZPY-8 Multi-Mode Maritime AESA Radar



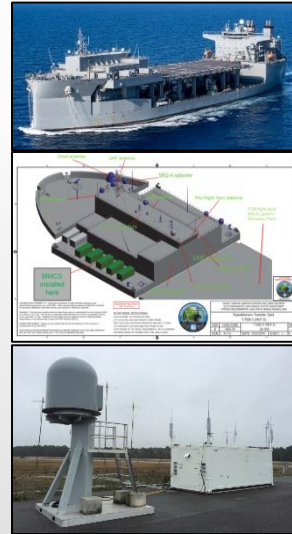
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Mission Control Systems (MCS)

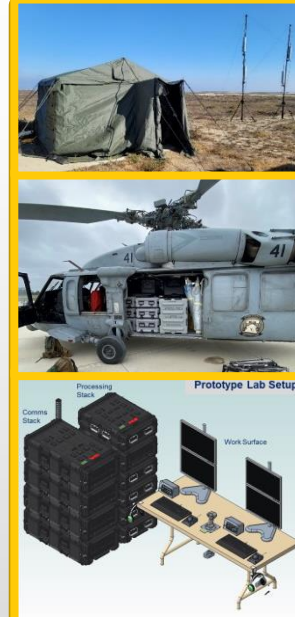
(Ship Based and/or Land Based)



Shipboard MCS (MD-4A)
LCS Only



Mobile MCS (MD-4B)
ESB-4/5/6/7 & Land



MCS-Portable (MCS-P)

FFG-62 (future) & Land

Performance


Parameter	MQ-8C	MQ-8C w/ Radar
Maximum Speed ¹	90 KCAS ³ 130 KCAS ⁴	90 KCAS ³ 130 KCAS ⁴
Cruise Speed ^{1,2}	90 KCAS ³ 120 KCAS ⁴	90 KCAS ³ 120 KCAS ⁴
Service Ceiling (Std Day)	12,000 ft ³ 16,000 ft ⁴	12,000 ft ³ 16,000 ft ⁴
Maximum Endurance (Std Day)	11.0 hrs (BSII, AIS)	9.7 hrs (Radar, BS II, AIS)
Range ⁵	150 nm	150 nm
Time on Station ⁶	8.3 hrs	7.0 hrs
Empty Weight	3,250 lbs	3,520 lbs
Max Takeoff Gross Weight	6,000 lbs	6,000 lbs
Length (folded)	34.5 ft	34.5 ft

- Standard Day at Sea Level,
- True cruise speed at 110 kts, but limited to max speed
- MQ-8C over 5,250 lbs. gross weight
- MQ-8C below 5,250 lbs. gross weight
- Range limited by TCDL LOS co-located with MCS; airborne MCS-MCS hand-off capable to extend range
- 12K MSL Station 110 NM from MCS

MQ-8C Program Current Activities



MQ-8C Sustainment



Inventory

- 38 Delivered
- Production Complete

- Correction of Deficiencies
- Airworthiness & Authority to Operate
- Readiness, Reliability & Resiliency

MCS Technical Refresh Activity (TFA) Upgrade

MCS-Portable (MCS-P)

RESOLUTE HUNTER

MQ-8 Support LCS Even (Independence Class)

Single-System Multi-Mission Airborne Mine Detection (SMAMD) Demonstration

IMX23 (C5F) Spring 2023

AV & MCS Software Automation

```

    modifier ob
    mirror_object to mirror
    mirror_mod_mirror_object
    operation -- "MIM000_1"
    mirror_mod_use_x = True
    mirror_mod_use_y = False
    operation -- "MIM000_2"
    mirror_mod_use_x = True
    mirror_mod_use_y = False
    operation -- "MIM000_3"
    mirror_mod_use_x = False
    mirror_mod_use_y = True
    mirror_mod_use_x = True
    mirror_mod_use_y = False
    mirror_mod_use_x = True
    mirror_mod_use_y = True
    selection at the end add
    op_ob_select-1
    mir_ob_select-1
    context.scene.objects.active
    ("selector" s)str(modifier
    error_ob_select
    bpy.context.selected_objects
    data.objects[0].name).select
    int("please select exactly
    OPERATOR CLASSES
    types.Operator()
    X mirror to the selected
    object mirror_mirror_x"
    mirror "X"
    context()
    next_active_object is not
    
```

Datalink Network Integration

Labels: EO/IR Sensor, TCOL, EO/IR Radar, Clean Directional TCOL, Surface Vessel (USV), DATA, VOICE

Cyber Efforts



MUX/MALE



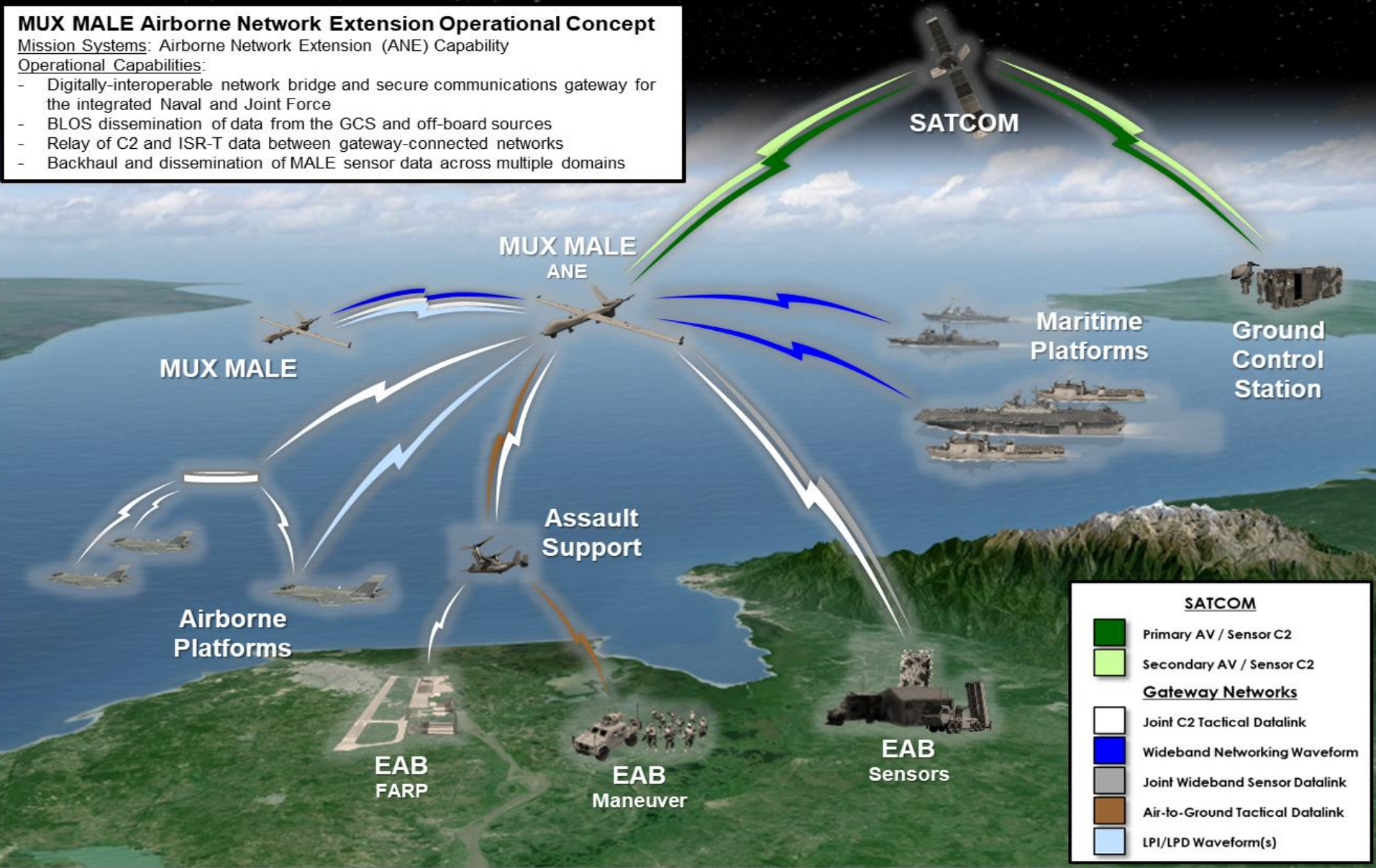
MUX/MALE MQ-9 Reaper

17K+
Flight
hours

2 USMC
MQ-9As
forward

- Marine Air Ground Task Force Unmanned Aerial System Expeditionary (MUX):
 - A family of unmanned aviation systems and sensors, acting in a complementary manner to support USMC Force Design 2030 CONOPS for Great Power Competition in the USINDOPACOM region
 - Missions include: Communications/Data Network Relay, Electronic Warfare, Airborne Early Warning, and Maritime Domain Awareness.
- Medium-Altitude Long-Endurance Unmanned Aerial System (MALE UAS):
 - A Group-5 UAS subsystem of MUX, acting as the primary air vehicle to enable other MUX sensors and systems as they are fielded
 - 20 MQ-9A Block 5 Extended Range (ER) Reaper UAS & Block 30 GCS (2 currently fielded, 18 more to deliver through 2024)
 - Early Operational Capability is scheduled for Q4FY23 and includes fielding of 2 MQ-9A, 1 GCS, with ANE (SkyTower I) capability

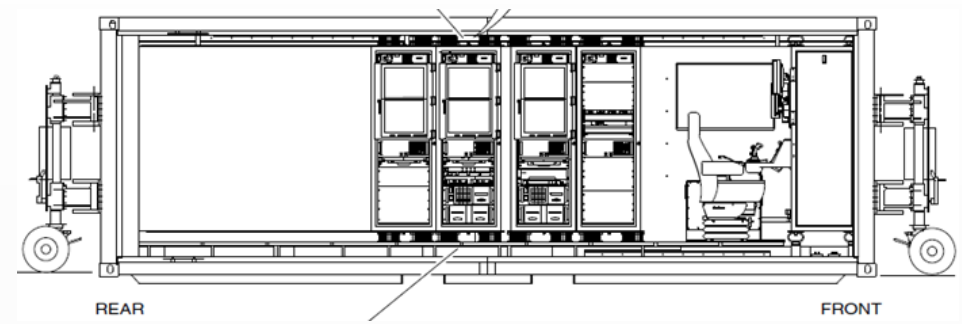
MUX/MALE UAS OV-1





Increment I Configuration

- MUX/MALE Increment I: MQ-9A Reaper**
- 20 x MQ-9A Block 5 air vehicles
 - 6 x Block 30 Ground Control Stations (GCS)
 - Mission systems: 9 x SkyTower I Pods
 - Conversion to -20 for fielded aircraft



Artist Rendering

Block 30 GCS



Characteristics	
Wing Span	66 ft.
Length	36 ft.
Powerplant	Honeywell TPE331-10
MGTOW	10,500 lbs.
Fuel Capacity	3,900 lbs.
Max Endurance	27 hrs.
Payload Capacity	3,000 lbs. ext., 850 lbs. internal
Power	11.0 kW 45.0 kVA
Max Altitude	50,000
Max Airspeed	240 KTAS

Summary and Questions

