

WASP Interim Flight Clearance Simi Valley California

From: (b) (6), (b) (3) 10 USC 130b [REDACTED] [REDACTED]

Sent: Friday, August 24, 2007 14:19

Subject: 232003Z AUG 07 P UAS SOF INTERIM FLIGHT CLEARANCE FOR WASP
BLOCK III MICRO AIR VEHICLE (MAV) INCO

P 232003Z AUG 07 UAS SOF INTERIM FLIGHT CLEARANCE FOR WASP BLOCK III
MICRO AIR VEHICLE (MAV) INCO COMNAVAIRSYSCOM PATUXENT RIVER
MD(UC)

TO CG MCWL QUANTICO VA(uc)
CC ONR DET CAMP LEJEUNE NC(uc)
COMNAVAIRSYSCOM PATUXENT RIVER MD(uc)
PEOSTRKWPNSUAVN PATUXENT RIVER MD(uc)
PEOASWASM PATUXENT RIVER MD(uc)

PASS TO OFFICE CODES:

FM COMNAVAIRSYSCOM PATUXENT RIVER MD//4.0P//
INFO PEOSTRKWPNSUAVN PATUXENT RIVER MD//PMA263//
COMNAVAIRSYSCOM PATUXENT RIVER MD//5.0D/4.0P/4.1.1.5//
PEOASWASM PATUXENT RIVER MD//PMA-290//
MSGID/GENADMIN/NAVAIRSYSCOM AIR-4.0P//

SUBJ/UAS SOF INTERIM FLIGHT CLEARANCE FOR WASP BLOCK III MICRO AIR
VEHICLE (MAV) INCONUS TRAINING OPERATIONS.//

REF/A/DESC:DOC/NAVAIR/261410ZJUL2007//

REF/B/DESC:DOC/DON/26MAR2007//

REF/C/DESC:DOC/AEROVIRONMENT/25JUL2006//

REF/D/DESC:DOC/AEROENVIRONMENT/06JUL2007//

REF/E/DESC:DOC/NAVAIR/28SEP2004//

NARR/REF A IS SUBJECT FLIGHT CLEARANCE REQUEST.

REF B IS UNIVERSAL NEED STATEMENT, MROC DM 26-2007 APPROVAL UUNS
06361 UB-OIF-III.

REF C IS THE WASP OPERATING LOCATIONS WITHIN NATIONAL AIRSPACE.

REF D IS WASP BLOCK III BATMAV MICRO AERIAL VEHICLE OPERATORS
MANUAL

REF E IS NAVAIRINST 13034.1C, FLIGHT CLEARANCE POLICY FOR AIR
VEHICLES AND AIRCRAFT SYSTEMS. //

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RIVER, MD/TEL: (b) (6), (b) (3) [REDACTED] /TEL:FAX (b) (6), (b) (3) [REDACTED]
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1. UAS SOF INTERIM FLIGHT CLEARANCE FOR WASP BLOCK III MICRO AIR VEHICLE (MAV). IRT REF A AND ISO REF B, SAFETY OF FLIGHT (SOF) INTERIM FLIGHT CLEARANCE (IFC) IS GRANTED FOR THE WASP BLOCK III MICRO AIR VEHICLE (MAV) FOR INCONUS TEST AND TRAINING FLIGHTS. DUE TO INSUFFICIENT DATA AVAILABLE AT THIS TIME TO FULLY ASSESS THE AIR VEHICLE AIRWORTHINESS, THIS IS A SAFETY OF FLIGHT CLEARANCE FOR FLIGHT OPERATIONS WITHIN RESTRICTED AIRSPACE, WARNING AREAS AND OVER UNPOPULATED OR SPARSELY POPULATED AREAS IN SIMI VALLEY, CALIFORNIA AT THE FOLLOWING LOCATIONS PER REF C: BRENNAN FIELD, FILLMORE, UPPER FIELD WASTE MANAGEMENT AND LOWER FIELD WASTE MANAGEMENT. THE WASP MICRO AIR VEHICLE SYSTEM IS OWNED BY THE MARINE CORPS WARFIGHTING LAB (MCWL) AND WILL BE OPERATED BY MARINES. THIS FLIGHT CLEARANCE IS SUBJECT TO REFS C AND D AND TO THE FOLLOWING CONFIGURATION, LIMITS AND WARNINGS, CAUTIONS AND NOTES.

2. TAKEOFF CONFIGURATION: IAW REF D AND AS FOLLOWS:

A. DIMENSIONS: WINGSPAN 28.5 INCHES, LENGTH 9.3 INCHES

B. PAYLOAD:

1. INTEGRATED DUAL FORWARD- AND SIDE-LOOK EO CAMERA

2. MODULAR EO/IR CAMERA

C. POWER: SINGLE DIRECT DRIVE ELECTRIC MOTOR

D. ELECTRICAL: RECHARGEABLE LITHIUM ION BATTERY

E. AVIONICS: AEROVIRONMENT MINATURE AUTOPILOT

F. NAVIGATION: C-CODE GLOBAL POSITIONING SYSTEM WITH ELECTRONIC COMPASS

G. DATALINK: 4 CHANNEL SELECTABLE (UPLINK/DOWNLINK):

1. CH 1: 395.000MHZ/1787.5MHZ

2. CH 2: 395.050MHZ/1810.0MHZ

3. CH 3: 395.100MHZ/1840.0MHZ

4. CH 4: 394.950MHZ/1760.0MHZ

H. SOFTWARE:

1. AUTOPILOT: WASP AVIONICS FIRMWARE V0.1.33

2. GCS: GCU2 HUB V1.4.4, HAND CONTROLLER V1.4.0, RF UNIT V1.2

3. GCS LAPTOP OPERATING SYSTEM: WINDOWS SP2, FALCONVIEW TOOLBAR V2.6.0.0

3. LIMITATIONS: IAW REFS C AND D, THE MOST RESTRICTIVE LIMITS APPLY, AND AS FOLLOWS:

A. GROSS WEIGHT: MTOGW 450 GRAMS

B. LAUNCH ALTITUDE: 10,000 FT DENSITY MAXIMUM

C. LANDING ALTITUDE: 10,000 FT DENSITY MAXIMUM

D. FLIGHT ALTITUDE: 150-500 FT AGL, 10,500 FT MAXIMUM DENSITY ALTITUDE

E. FLIGHT TIME: 45 MINUTES MAXIMUM AT CRUISE AIRSPEED OF 11 METER/SEC (21 KNOTS). SEE NOTE, PARA 4.F.

F. RANGE: 3 TO 5 KM LOS
G. WIND SPEED: 15 KNOTS MAXIMUM
H. RAIN: 0.15 INCHES PER HOUR MAXIMUM
I. MAXIMUM FLIGHT AIR SPEED: 18 METER/SEC (35 KNOTS)
J. MINIMUM FLIGHT AIR SPEED: 10 METER/SEC (19 KNOTS)
K. MAXIMUM BANK ANGLE: 30 DEGREES
L. LAUNCH METHOD: HAND LAUNCH ONLY AUTHORIZED
M. LANDING METHOD: MANUAL GLIDE OR AUTONOMOUS LANDING
N. FLIGHT CONTROL: AUTONOMOUS FLIGHTS AUTHORIZED
O. DAY AND NIGHT OPERATIONS ARE AUTHORIZED
P. SIMULTANEOUS OPERATION OF TWO (2) OR MORE AIR VEHICLES IS NOT AUTHORIZED

4. SPECIAL WARNINGS, CAUTIONS AND NOTES:

A. -----WARNING-----

THE HAZARD AREA FOR RECOVERY OPERATIONS SHOULD BE CONSIDERED TO BE PLUS/MINUS 200 FT FROM THE CENTERLINE OF THE APPROACH AND PLUS/MINUS 1000FT FROM THE INTENDED TOUCHDOWN LOCATION AS PER REF D (PARA 4.4.1), PERSONNEL WITHIN THE LANDING HAZARD AREA SHOULD BE PREPARED TO MOVE QUICKLY IF THE AIR VEHICLE DEVIATES FROM THE INTENDED LANDING PATH. THE OPERATOR SHOULD RECEIVE INDICATION FROM PERSONNEL WITHIN THIS HAZARD AREA THAT THEY ARE PREPARED FOR COMMENCEMENT OF RECOVERY OPERATIONS. THIS HAZARD AREA APPLIES TO BOTH MANUAL GLIDE AND AUTONOMOUS LANDINGS. FAILURE TO COMPLY COULD RESULT IN INJURY TO PERSONNEL AND/OR DAMAGE TO PROPERTY.

B. -----CAUTION-----

OPERATIONS SHOULD BE CONDUCTED AWAY FROM ANTENNAS OF ACTIVE RADIO TRANSMITTERS AND RADARS, ESPECIALLY THOSE OPERATING AT HIGH POWER LEVELS. THIS IS BECAUSE AIR VEHICLE CONTROL OR NAVIGATION COULD BE DISRUPTED WHEN EITHER THE AIR VEHICLE OR GROUND STATION IS SUBJECTED TO IMPINGING RADIO-FREQUENCY (RF) ENERGY. AT PRESENT, MINIMUM SAFE SEPARATION DISTANCES FROM SOURCES OF RF ENERGY CANNOT BE ESTABLISHED: TEST DATA IS ABSENT. NOTE THAT SUSCEPTIBILITY TO DISRUPTION COULD ALSO IMPAIR CO-LOCATIONAL OPERATION OF MULTIPLE UAS. FAILURE TO COMPLY COULD RESULT IN THE LOSS OF THE AIR VEHICLE.

C. -----CAUTION-----

FLIGHT OUTSIDE OF LINE-OF-SIGHT AREA OR BEHIND OBJECTS AND TERRAIN FEATURES WILL INCREASE THE RISK OF COLLISION, PERSONAL INJURY, AND LOSS OF VEHICLE. AT MINIMUM, THE RESULT WILL BE A LOSS OF LINK. OPERATORS SHOULD AVOID INTENTIONAL FLIGHT INTO A LOSS-OF-LINK STATUS.

D. -----CAUTION-----

OPERATION BETWEEN HIGH-RISE BUILDINGS OR IN URBAN CANYONS IN A CITY ENVIRONMENT MAY RESULT IN LOSS OF THE VEHICLE AND PERSONAL

INJURY DUE TO HIGH WIND GUSTS, REDUCED ROOM TO MANEUVER, LOSS-OF-LINK, AND A LACK OF COLLISION AVOIDANCE CAPABILITY.

E. -----NOTE-----

OPERATORS SHOULD BE ADVISED THAT FLIGHT SPEEDS DISPLAYED IN THE GCS INDICATE GROUND SPEED, NOT AIR SPEED. WIND SPEED SHOULD BE TAKEN INTO ACCOUNT WHEN PLANNING MISSIONS, ESPECIALLY FOR TAKEOFF AND LANDING.

F. -----NOTE-----

THE MAXIMUM FLIGHT TIME OF 45 MINUTES IS BASED ON CONTINUOUS OPERATIONS AT BEST CRUISE AIRSPEED OF 11 METER/SEC (21 KNOTS). FLIGHT TIME WILL BE REDUCED FOR OPERATIONS OF LONG DURATIONS AT MAXIMUM POWER/MAXIMUM AIRSPEED.

G. -----NOTE-----

AN ELECTROMAGNETIC COMPATIBILITY (EMC) SAFETY-OF-FLIGHT TEST (SOFT) IS REQUIRED PRIOR TO FIRST FLIGHT OF ANY VARIANT CONFIGURATION (INCLUDING NEW LAUNCH CONFIGURATIONS OR LOCALES). IF DISRUPTION IS NOTED AND UNACCEPTABLE, DEVELOP MITIGATING OPERATIONAL PROCEDURES. NOTE THAT SATISFACTORY OPERATION DURING AN EMC SOFT DOES NOT GUARANTEE IMMUNITY AGAINST DISRUPTION FROM EXTERNAL RF ENERGY DURING ALL PHASES OF FLIGHT.

H. -----NOTE-----

IN ORDER TO MAINTAIN TERRAIN CLEARANCE, OPERATORS SHOULD BE AWARE OF THE ALTITUDE OF THE TERRAIN AND OBSTACLES IN THE OPERATING AREA. OPERATORS SHOULD ATTEMPT TO MAINTAIN AT LEAST 150 FT CLEARANCE ABOVE OBSTRUCTIONS, BUILDINGS AND TERRAIN FEATURES EXCEPT WHEN TAKING OFF OR LANDING.

5. TIME PERIOD: THIS INTERIM FLIGHT CLEARANCE EXPIRES 30 AUG 2009.

6. POINTS OF CONTACT: **Exemption 6**

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7. OTHER REMARKS:

A. DUE TO INSUFFICIENT DATA AVAILABLE AT THIS TIME TO FULLY ASSESS THE AIR VEHICLE AIRWORTHINESS, THIS IS A SAFETY OF FLIGHT CLEARANCE WHERE FLIGHT OPERATIONS ARE AUTHORIZED OVER UNPOPULATED OR SPARSELY POPULATED AREAS. ENGINEERING ASSESSMENT HAS BEEN

CONDUCTED PRIMARILY TO ENSURE SAFETY OF FLIGHT IN THE IMMEDIATE ENVIRONMENT OF ALL PERSONNEL INVOLVED IN FLIGHT OPERATIONS OF THE WASP UAS. THIS INTERIM FLIGHT CLEARANCE DOES NOT PROVIDE NAVAIR AIRWORTHINESS CERTIFICATION. NAVAIR STRONGLY RECOMMENDS THAT FURTHER TESTING BE CONDUCTED ON THIS AIR VEHICLE TO ADDRESS OUTSTANDING AIRWORTHINESS CONCERNS. RECOMMENDED TESTING AND ANALYSIS TO INCLUDE, BUT NOT LIMITED TO, NAVIGATION SYSTEM, FLIGHT QUALITIES, FLIGHT PERFORMANCE AND FLIGHT CONTROL LAWS.

B. DUE TO A LACK OF TESTING OF THE NAVIGATION AND TARGETING CAPABILITIES OF THE SYSTEM, THE WASP SYSTEM SHALL NOT BE AS THE PRIMARY SOURCE OF TARGETING INFORMATION. DO NOT RELY ON THE WASP SYSTEM FOR TARGETING COORDINATES.

C. MROC UNIVERSAL URGENT NEEDS STATEMENT IS DETAILED IN REF B.

D. THE WASP BLOCK III MICRO AIR VEHICLE SYSTEM HAS BEEN DEEMED TO BE EXPENDABLE BUT REUSABLE. PROBABILITY OF LOSS OF AIR VEHICLE IS ACCEPTED BY THE MARINE CORPS WARFIGHTING LAB (MCWL) AND THE UNIT COMMANDER.

E. RANGE AND AIRSPACE CLEARANCE IS THE RESPONSIBILITY OF THE OPERATORS.

F. THIS FLIGHT CLEARANCE DOES NOT ADDRESS INTEROPERABILITY WITH MANNED AIRCRAFT.

G. UAV OPERATOR QUALIFICATIONS, MAINTAINER QUALIFICATIONS, CONFIGURATION MANAGEMENT, ESTABLISHED FLIGHT TEST PRACTICES, SCHEDULED/UNSCHEDULED MAINTENANCE PRACTICES, AND OTHER ASSOCIATED PROCEDURES ARE BEYOND THE SCOPE OF THIS FLIGHT CLEARANCE BUT SHOULD BE ADEQUATELY ADDRESSED BY AN APPROPRIATE AUTHORITY TO ENSURE AN ACCEPTABLE LEVEL OF SAFETY FOR THE UAS AND TO MINIMIZE RISK TO GROUND PERSONNEL AND PROPERTY. THIS IFC DOES NOT AUTHORIZE AIRCRAFT/SYSTEM MODIFICATION, NOR DOES IT SATISFY NAVAIR REQUIREMENTS FOR CONFIGURATION MANAGEMENT (REFER TO OPNAVINST 4790.2J FOR POLICY GUIDANCE ON CONFIGURATION MANAGEMENT AND MOD).

H. UAV FLIGHTS OUTSIDE OF RESTRICTED AND WARNING AREAS MUST BE IAW FAA POLICIES AND REGULATIONS.

I. PER REF E, THIS FLIGHT CLEARANCE PROVIDES NAVAIR SAFETY OF FLIGHT CERTIFICATION SUBSEQUENT TO A DESIGN ENGINEERING REVIEW. IT DOES NOT AUTHORIZE AIRCRAFT/SYSTEM MODIFICATION, NOR DOES IT SATISFY NAVAIR REQUIREMENTS FOR CONFIGURATION MANAGEMENT OR CONTROL. REFER TO OPNAV 4790.2J FOR POLICY GUIDANCE ON CONFIGURATION MANAGEMENT AND MOD AUTHORITY.

J. INFORMATION REGARDING THE AIRWORTHINESS OFFICE AND PROCESS, INCLUDING A LISTING OF ALL CURRENT INTERIM FLIGHT CLEARANCES ISSUED BY NAVAIR 4.0P AND 24/7 CONTACT NUMBERS CAN BE FOUND AT OUR

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