JOINT MEDICAL DISTANCE SUPPORT AND EVACUATION (JMDSE) JOINT CAPABILITY TECHNOLOGY DEMONSTRATION (JCTD)

OVERVIEW:

Ultra Lightweight System

JMDSE was a FY09-11 JCTD. The DDR&E Rapid Fielding Office is the proponent organization for JCTDs and JMDSE was managed by a joint Department of Defense (DoD) team with USJFCOM as the Operational Manager and US Army Natick Soldier Research, Development & Engineering Center (NSRDEC) as the Technical Manager. JMDSE included a focus on low weight payload (Micro Light Weight (MLW) 10-150 lbs. and Ultra Light Weight (ULW) 250-700 lbs.) delivery of medical bundles, sensors, robots/UGS and Psychological Operations (PSYOP) payloads from fixed wing (C-130, C-17, V-22), rotary wing (UH-60, SH-60, CH-53), AND INCLUDED: JPADS drops from fixed wing, Vertical Take-Off and Landing (VTOL) and balloon UAS to include Tigershark, Maverick, KMAX, and COTS Weather balloons. All mentioned UAS airdrops were demonstrated to include use of JPADS developed technologies that allow for JPADS integration into UASs with no/min. modifications to the UAS avionics or ground station (utilizes an independent Iridium satellite communications (SATCOM) system) and min integration to the UAS.

DESCRIPTION:

JPADS in these MLW and ULW classes are self guided parafoil based airdrop systems that can be deployed from up to 25K ft. Mean Sea Level (MSL) and land to within accuracies as follows: 50M radius threshold for MLW (10M Objective), and 150M radius threshold for ULW (50M objective) at 80% Circular Error Probable (CEP) with a system reliability of 94%.

A top level description of capabilities demonstrated are listed below:

- Demonstrated a wide range of payload deliveries to include typical resupply for Small unit/ Squads (food, water etc), UGS (robots), wide range of medical supplies, unattended sensors etc. from manned fixed wing (C-130, C-17, V-22) and many helicopter types (most ranged between 10—500lbs) with altitudes up to (C-130 and C-17s), 25KftMSL. Also demonstrated numerous early "combo drops" with follow on military free fall jumpers.
- Demonstrated SATCOM-initiated airdrop of medical supplies, UGSs, and resupply loads between 10-2,200 lbs. (up to 4 at a time and utilizing fielded Low Cost Low Altitude (LCLA), G-12s, and prototype JPADS) from a carousel/sling load off the KMAX UAS multiple times from up to 10K ft. MSL. Designed for easy integration to other fixed wing UAS.
- Demonstrated SATCOM-initiated airdrop of small payloads (scaled demo) from a balloon system with adjustable altitude (from 1-90K ft. MSL) from ~5K ft. MSL, after hours of flight (designed to be days of flight).

TRANSITION:

To date, only the ULW JPADS technologies have transitioned to a formal (USMC) program of record. The other technologies are at a range of TRLs and ready for further refinement, enhancements, additional technologies and maturization to PORs if requirements are generated.

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