

CAPABILITY BRANCH JOINT EXPERIMENTATION CELL STORYBOARD: Loitering Munition Experimentation Update

SUMMARY: OTP 27-28 Feb 23 1RNZIR and Cap Br pers undertook training on the Defendtex D40

OVERVIEW

Background:

- The Joint Experimentation Cell (JEC) is undertaking experimentation with a representative loitering munition (D40 made by Australian vendor Defendtex) in order to help understand the potential PRICIE implications of loitering munition capability.
- This experimentation is joint in nature with both Army and Navy involvement.
- The experimentation centres on filling in knowledge gaps and answering questions about the viability and utility of loitering munitions via the use of the D40 on already planned exercises with likely end users providing feedback.
- Army General Staff provided the funding for 3 x D40 kits to enable this initial experimentation.
- Each kit costs approximately NZ\$30k.
- 1RNZIR R&S platoon will be the first users. Input from other likely users will also be sought in due course.

Defendtex D40

- D40 is a modular loitering munition system that can also carry various different payloads (40mm fragmentation, EO camera, IR camera, light and sound / training) enabling it to be used in the ISR role as well as a loitering munition. Payload interfaces with the D40 body are the same.
- Each kit (fig 1.) consists of 4 x D40 aircraft, 1 x charging payload, 3 x light and sound payloads, 1 x EO camera payload, 1 x EUD (Samsung S20 in Molle compatible case), 1 x Ground Control Station radio and antennas, 1 x radio pouch, charging equipment / cables and initial spares (props and motor arms).
- The system is controlled via the D40 application (based on open source ArduPilot software) loaded onto the EUD.

Training Course Content:

- For pers already qualified on UAS, the course is 2 days. Half a day of classroom theory instruction covering system overview, system components, assembly, set up and troubleshooting. The remaining day and a half is spent operating the system in various modes.
- This includes pre planned missions uploaded to the D40 and then flown autonomously and manual operation using the virtual sticks on the EUD.
- The inert light and sound payload is used to simulate detonation when flown as a loitering munition.

Update on D40 evolution:

- The JEC had a VTC with Defendtex on 2 Mar 23.

- s. 6(a) [redacted] The new warhead and fuse is designed to work with a proximity sensor to enable the 40mm fragmentation warhead to airburst. If successful, a certification process is expected to begin.

- A new 640 resolution IR camera is now available with a 1280 resolution IR camera in development.

Future plans

- Once the gen 2 payloads have been delivered, kits will be signed over to 1RNZIR and use on exercises can begin.
- RNZN is also looking at purchase options so the maritime aspects of the experimentation can be conducted concurrently.



Fig 1: D40 kit



Fig 2: 1RNZIR pers under instruction from Defendtex rep