

1: Purpose of Operation

DARPA's OFFensive Swarm-Enabled Tactics (OFFSET) program envisions future small-unit infantry forces using swarms comprising upwards of 250 unmanned aircraft systems (UASs) and/or unmanned ground systems (UGSs) to accomplish diverse missions in complex urban environments. By leveraging and combining emerging technologies in swarm autonomy and human-swarm teaming, the program seeks to enable rapid development and deployment of breakthrough capabilities.

Clarification of using swarms: The purpose of the operation is to provide an LTE network to a swarm comprising 250 or fewer small unmanned air and ground systems. The unmanned systems are clients to a fixed-position, terrestrial LTE base station.

Total number of devices: The total number of devices being used for this operation, no more than 250.

Operator of Unmanned Aircraft Systems (UAS): Raytheon is the operator of the unmanned systems. This request is for operating LTE Band 66 with uplink 1755 – 1760 Megahertz's and downlink 2155 – 2160 Megahertz's.

2: Government Contract POC/Number:

Program Name: DARPA OFFSET – CCAST
Government Agency: SARPA
Government Contract Number: N66001-17-C-4067
Government Program Manager: Dr. Timothy Chung
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3: Technical Synopsis:

Spectrum needed:
1755 - 1760 MHz
2155 - 2160 MHz

Equipment:

Manufacturer: Ericsson
Model Number: INF 903 6032/N66A
Number of Units: 1
Experimental: No

Manufacturer: Sierra Wireless
Model Number: 340U
Number of Units: 250
Experimental: No

Manufacturer: Laird
Model Number: TRA6927M3NB-001

Number of Units: 2
Experimental: No
Directional Antenna (Other than Radar): No
Antenna Gain: 5 dBi
Antenna Horizontal Plane: 360
Antenna Vertical Plane: 45

Manufacturer: Integrated Antenna Sierra Wireless
Model Number: 340U
Number of Units: 250
Experimental: No
Directional Antenna (Other than Radar): No
Antenna Gain: 0 dBi
Antenna Beam Width (At the half-power point): 360
Antenna Horizontal Plane: 360
Antenna Vertical Plane: 180

Power levels requested:

Ericsson INF 903 6032/N66A:

Output Power: 43dBm
Effective Radiating Power (ERP): 48dBm

Sierra Wireless 340U

Output Power: 24dBm
Effective Radiating Power (ERP): 26dBm

Modulation:

Ericsson INF 903 6032/N66A:

Modulation: OFDM
Emission Designator: 5M00W7W
Occupied Bandwidth: 5 MHz

Sierra Wireless 340U Modulation: OFDM

Modulation: SC-FDMA
Emission Designator: 5M00W7W
Occupied Bandwidth: 5 MHz

Location of use:

State: Tennessee
County: Montgomery
City: Fort Campbell
LAT/LONG: 36 °38'02.0"N 87 °33'06.5"W
Radius: 2 Kilometers
Flight Level Max Altitude: 121.9 Meters, 400 Feet
Site above Mean Sea Level Fixed: 533
Antenna Feed Point Height Fixed: 2 Meters

Distance to Nearest Aircraft Landing Area: 7.53 Kilometers

Stop buzzer contact:

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File Number: 1040-EX-ST-2021

Class of Station: Fixed/Mobile

Station Location: Fixed/Mobile

Effective Date: 10/21/2021

Expiration Date: 11/30/2021

4: Experimental Explanation:

Integration of LTE network into command and control system