Navy SBIR Topic N243-106, Drone RF Optimized Nodal Element (DRONE) Antenna System
Frequently Asked Questions

1. Q: How many drones are expected to be a part of the solution and/or airborne at a given time?
   A: To perform beam forming, at least 2 with likely no more than 100.

2. Q: What sea state condition is the solution expected to operate in? What environmental conditions (e.g., wind speed, weather, temperature, etc.)?
   A: Sea state 6+ for DDG with ship speeds up to 40 knots and corresponding environmental conditions (wind, weather, heat, humidity, etc.).

3. Q: Does the Navy have a specific drone/UAV or tether in mind?
   A: No for both. This is up to the proposer to determine.

4. Q: What is the CONOPS?
   A: Please see topic language.

5. Q: What Ingress Protection (IP) rating is desired?
   A: Please propose the rating that will allow for operation of the drones for many years (perhaps 5+).

6. Q: Will there be a power supply/source to the drones via the tether?
   A: Yes, prime power will likely be 110/115 Volt AC with 15 Amps per drone.

7. Q: What is driving the high-power levels in the requirements?
   A: HF: 40 dBW (Threshold), 50 dBW (Objective) | VHF: 30 dBW (Threshold), 40 dBW (Objective) – These are the transmit power levels from the below deck RF amplifiers to support long distance communications.

8. Q: What is the instantaneous bandwidth requirement?
   A: HF bandwidth will be up to 10 MHz; VHF bandwidth will be up to 50 MHz.

9. Q: What is the requirement for switching time between bands/tuning?
   A: Ideally, one DRONE system will perform HF or VHF operations. Frequencies will be adjusted dynamically; however, the center frequencies will not likely change rapidly. Tuning time of one (1) minute is likely.

10. Q: What are the beam forming and nulling requirements?
    A: Beam forming will be performed by adjusting the power levels at the amplifiers. DRONE will be responsible for yielding the antenna array. Propose any design that will create use the antenna array.

11. Q: What is the focus for reducing RCS and in what directions are if interest?
    A: The ship's signature could introduce vulnerabilities to adversarial attacks. All directions are of interest. Proposed the lowest possible increase in RCS from the hardware.

12. Q: What is the desired solution (e.g., antenna only, include tether and drone, etc.?
    A: The Navy is seeking the antenna array that includes the tethers and drones. Please note that the tether cam be part of the antenna.

13. Q: What is the recommended length, weight, and thickness of the tether?
    A: There is no recommended length, weight, or thickness. Please note, as stated in the BAA, the tether length should adjust to match the desired frequency.

14. Q: Is this a COTS solution or can be comprised of COTS?
    A: Proposer can offer a solution that is fully developmental or uses COTS.

15. Q: How many Phase I contracts will be awarded?
    A: We are not at liberty to disclose.

16. Q: What is the target platform?
    A: The goal is to deploy this on all platforms with a Digital Modular Radio (DMR), as well as land. For the Phase I feasibility it is ok to start with large decks (i.e., carriers).

17. Q: What is the target Program of Record and its interface?
    A: The Program of Record (PoR) is the Digital Modular Radio (DMR), but this could also be used with other HF and VHF systems like Battle Force Tactical Network (BFTN). The interface is analog RF.

18. Q: Please clarify the deployable aspect of the effort.
    A: The intent is to have this system carried on aboard targeted platforms (or on land) and stored until needed. Deployment could be in non-optimal conditions (e.g., soft, uneven sand for land). Ideally, the solution will be deployed within an hour.

19. Q: What is the desired polarization of the antenna system?
    A: Primarily vertical; all other polarization to include LH/RH circular from the arrays.

20. Q: Is there a time-of-flight requirement for the drones?
    A: No performance target currently, please propose the goal parameters.

21. Q: Are the antennas intended for both Tx and Rx? Are there any requirements on emissions?
    A: The intent is both Tx and Rx. As for emissions, there is no performance target currently, please propose the goal parameters.

22. Q: Are there any SWaP constraints?
    A: No performance target currently, please propose the goal parameters.