Federal Aviation Administration

NAWC Aircraft Division NAVAL AIR WARFARE CENTER

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FAA Antenna Roadmap and Questionnaire

Responses should be no more than 20 pages and have a font no smaller than Times New Roman 10.

Questions to Market RFI Participants:

1. What capabilities does the offeror recommend adding to the DO-401 draft MOPS to complement the offers' antenna and antenna electronics?
2. Does your company have advanced GPS integrity or antenna development efforts for civil applications?
3. If applicable, does your company develop GPS/GNSS related certified product(s) according to FAA TSO and/or European Union Aviation Safety Agency's European Technical Standard Order?
4. Are you currently involved in or planning research and development activities for GPS/GNSS secure radio frequency interference/spoofing (RFIS) systems to include antenna technologies, signal processing techniques, or other technologies and do you see a market opportunity for such development?
   If NO:
   a. If consideration to conducting research and development of GPS/GNSS RFIS systems were evaluated but not targeted, were there any technologies that may aid in a solution set for this capability?
   b. Please describe the difficulties/barriers faced, if any, or the factors preventing you from developing a multi-element antenna for the civil market (other than ITAR/USML).
   c. Please describe how much time is expected to be required to complete development and when an actual flight test could be achieved.
   d. What level of investment do you estimate is needed to develop a multi-element antenna with marketable capabilities for the civil market?
   e. Identify assessment/assumptions of current and projected global RFI environments for the purposes of responding to the next two questions.
   f. Based upon the RFI environment assessment/assumptions, what are the multi-element antenna and antenna electronics capabilities, characteristics and performance foreseen as marketable for aircraft retaining legacy GPS, GPS/SBAS, or GPS/GBAS receivers.
   g. Same question as above except for aircraft equipped with TSO/ETSO avionics consistent with expectations for the future RTCA DO-401() /EUROCAE ED-259().
   If YES:
   a. Please specify the maturity level of the technology developed.
   b. Please describe the timeframe you foresee completing the development and when you believe in achieving actual implementation.

   c. Please describe the difficulties/barriers, if any, being faced in the development of the multi-element antennas for the civil aviation market
   d. What is the level of investment being used to develop a CRPA antenna for the civil aviation market?
5. Does your company have any advanced GPS/GNSS RFIS on civil aircraft?
   If YES:
   a. What are your company's product design layers (CRPA antenna, antenna electronics, GPS receiver software)?
   b. What protections would be in each layer?
6. Would your company be interested in participating in the development of minimum operational standards for technologies for GPS/GNSS protection for civil aviation applications?

Please provide a Technology Roadmap for your proposed solution: