



20-003 –SATCOM System

<i>Information we need from your organization</i>							
Title	SATCOM System						
Description	We are seeking solutions for a SATCOM system to be installed on a Mobile Vehicle with the following characteristics: fly-away, auto-pointing, Ku-band antenna system, a rack-mounted antenna controller, a rack-mounted satellite modem, and ruggedized transit cases for the exterior antenna equipment. The system will access a commercial Ku-band satellite network.						
Focus Area(s)	<p>1. Functionality</p> <ol style="list-style-type: none"> 1.1. Shall support single-button “auto-acquisition” of desired satellite. Ku Band Automatic satellite acquisition and tracking shall be in accordance with paragraphs 2 and 3 of IESS-411, (Requirements for Earth Stations Accessing INTELSAT V, VA & VA (IBS) Satellites Having Higher than Nominal Orbital Inclination (Operating in a Contingency Mode or With Satellites at Designated Inclined Orbit Locations)). The FlyAway shall track the satellite to within 0.5 dB peak in no wind and shall track the satellite to within 2.0 dB peak in 30 MPH steady state winds gusting to 60 MPH when deployed on a stable surface. 1.2. Shall go from storage case to in-net operation in 15-20 minutes, without tools, to include attaching all necessary cabling to vehicle asset infrastructure (using industry-standard RF connectors and cabling). 1.3. System shall provide integrated tilt sensors allowing self-leveling of antenna pointing with a tripod offset of up to 5 degrees. 1.4. Shall include all components necessary for operation. 1.5. Shall support manual antenna pointing (emergency hand cranking or equivalent) on all axes. 1.6. Shall be fully compatible with the iDirect Evolution X5 Satellite Router, which is part of the vehicle infrastructure, without modification. Refer to the iDirect product information for necessary details. <p>2. RF Specifications</p> <ol style="list-style-type: none"> 2.1. The antenna shall transmit and receive in the horizontal and vertical linear polarization modes, but not simultaneously. 2.2. Support linear cross polarization, with +/- 90° of polarization (2-port feed) and motorized movement of the feed. 2.3. Feed Assembly shall achieve 35dB of cross-pol isolation, with addition Tx reject filtering on the Rx port to achieve 80db of isolation between the receive port and Tx port. 2.4. Shall achieve TX EIRP of 49.0 dBw in Ku Band. Two (2) continuous wave carriers at 14.25 GHz and 14.24 GHz respectively; EIRP of 46.0 dBW each @P1dB 2.5. The FlyAway shall be certified for Ku INTELSAT operation according to INTELSAT Standard requirements, as defined in INTELSAT Earth Station Standards (IESS) 208 (Standards C, E and K Antenna and Wideband RF Performance Characteristics of Ku-Band Earth Stations Accessing the INTELSAT Space Segment for Standard Services) <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Frequency Band</th> <th style="text-align: center;">G/T (dB/K)</th> <th style="text-align: center;">Measurement Condition</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Ku</td> <td style="text-align: center;">18.5</td> <td>Measured at 10.95 GHZ clear sky conditions, 20 degree elevation angle</td> </tr> </tbody> </table> <ol style="list-style-type: none"> 2.6. Shall support Ku TX frequency range of 13.75 – 14.5 GHz 2.7. Shall support Ku RX frequency range of 10.70 – 12.75 GHz. 	Frequency Band	G/T (dB/K)	Measurement Condition	Ku	18.5	Measured at 10.95 GHZ clear sky conditions, 20 degree elevation angle
Frequency Band	G/T (dB/K)	Measurement Condition					
Ku	18.5	Measured at 10.95 GHZ clear sky conditions, 20 degree elevation angle					

- 2.8. Shall be certified to operate on the 'Eutelsat 172A', 'SES-2', and 'Eutelsat 113 West A' satellites and compliant with all satellite operator specifications.
- 2.9. The BUC and LNB shall operate off of the DC power supplied by the iDirect Evolution X5 Satellite Router (BUC Power (IFL) +24 VDC, 70W (up to 50° C), 3.5 Amps maximum //LNB Power (IFL) +19 VDC / +14 VDC 300mA (DiSEqC) 22 kHz DiSEqC tone (to meet EIRP requirements the BUC may operate from an vender supplied power supply).

3. Physical Characteristics

- 3.1. Shall break down and pack completely away into included ruggedized transit cases.
- 3.2. Once stowed into included transit cases, no individual case shall weigh more than 70 pounds. Any case over 50 pounds in weight must be 2-person portable (must provide carry points for 2 persons).
- 3.3. Controls, indicators, and displays of all equipment shall be sunlight-readable.
- 3.4. Antenna/BUC control from terminal (Fly-Away Antenna) shall be a wire control with single interface configuration into vehicle.
- 3.5. Control Terminal shall be one of the following: Rack Mounted Antenna Control, Laptop PC, Handheld Smart terminal or combination of.
- 3.6. Auto-point movement shall support at a min: azimuth of +/- 90° and elevation of 10° to 90°, and polarization +/- 90°.
- 3.7. System shall be operational in 180 mm/h of rain; survivable in 360 mm/h, IAW MIL-STG-810G.
- 3.8. System shall be operational in 50 km/h of wind; survivable in 100km/h, IAW MIL-STD-810G.
- 3.9. Shall remain fully operational from -20° to 50° C, IAW MIL-STD-810G.
- 3.10. Transit case linear dimensions shall be less than 84 inches, each, with a combined total of all cased equipment equaling less than 168 linear inches.
- 3.11. Any equipment necessary for operation that is not assembled into the outdoor, deployed terminal, such as an antenna/M&C controller, shall be rack-mountable into a standard 19 inch rack, occupying no more than 2U of rack space and with a depth of no more than 20 inches. Such equipment shall also operate on 50/60 Hz 110/120 VAC.

4. System Grounding

- 4.1. Fly-Away VSAT equipment grounding shall comply with the requirements of NFPA 70-05, article 250, and the requirements of UL 1950, para 1.6.3 and section 2.5 for Class I equipment. Hinges and slides are not to be relied upon as the sole means of grounding.
- 4.2. Shall include a Wenzlau surface wire grounding kit or equivalent ground system to protect the equipment.
- 4.3. Fly-Away VSAT equipment leakage current to ground shall not exceed 3.5 Measurement Indication Units (MIU), when tested IAW ANSI C101.

5. Interconnections

- 5.1. Shall be compatible with the iDirect Evolution X5 Satellite Router, to include BUC and LNB IFL power requirements. Refer to iDirect product information for details.
- 5.2. All interconnect routed thru the vehicle infrastrucutre I/O panel shall be provided with lighting protection / isolation.

6. Shall include all necessary equipment and cabling to connect to the vehicle infrastructure.

7. **IF cabling shall be: ≥50ft Weather Seal quad shield outdoor 5MHz to 3GHZ RG-11 Coaxial Cable 75 Ohm with F-Type O-ring Weather Seal constructed with all BRASS compression connectors. Cables shall be of appropriate grade to meet the same environmental constraints as the outdoor equipment. Cable ends to meet the vehicle F-Type terminated.**
8. **Datalink cables shall be: CAT5E/Serial, cable shall be of appropriate grade to meet the same environmental constraints as the outdoor equipment. ≥50 feet. Cable ends to meet the vehicle bulkhead interface. The outdoor cabling, bulkhead connector(s) and indoor cabling to interface to controller shall be provide by vender.**
9. **Power coupling/cabling shall be integrated into the Datalink cabling: 2-conductor with ground, of sufficient gauge to power outdoor equipment, length of ≥50 feet.**

	Cables shall be of appropriate grade to meet the same environmental constraints as the outdoor equipment.
Keyword(s)	Fly-Away, Antenna, SATCOM
Response Instructions & Date	<p>Responses will be accepted thru 3/06/2020</p> <p>General Dynamics Mission Systems Innovation Sourcing Network™ (ISN) is seeking respondents to the following TechScout request. This TechScout request does not contain U.S. export controlled technical data or proprietary information, and is approved by General Dynamics Mission Systems for public release and is in the public domain.</p> <p>Send email response to techscout@gd-ms.com.</p> <p>TechScout responses should not contain any export controlled technical data or proprietary information.</p> <p>Response should include the following information</p> <ul style="list-style-type: none"> • Product information in the form of a data sheet • Include your SBA Classification • Include if you are a Non Traditional DoD Contractor • Include any OTA Consortia that you are a member of <p><i>In your response, please identify whether you or your company are located outside the U.S. If located outside the U.S., please identify any home country export controls that will apply to your response. If located in the U.S., please identify whether your company employs non-U.S. manufacturing or design facilities, or foreign nationals in your response.</i></p> <p>Any subsequent interaction between General Dynamics Mission Systems and a non-U.S. based TechScout respondent, or a U.S. based TechScout Respondent with non-U.S. manufacturing, design or foreign national employees must be reviewed and approved in advance for U.S. Export Compliance requirements by the General Dynamics Mission Systems Office of Import/Export Compliance prior to any such interaction.</p> <p>General Dynamics Mission Systems will not be responsible for, nor will it pay for any expense which may be incurred by the supplier in preparation of its TechScout response. Supplier acknowledges and agrees that this TechScout request does not commit General Dynamics Mission Systems to any course of action, including but not limited to, any purchase of supplier's products or services or any future involvement with supplier. The issuance of this request does not bind General Dynamics Mission Systems to accept or review any response, in whole or in part. Subsequent pursuit or action on the part of General Dynamics Mission Systems or the TechScout respondent may require the respondent to comply with aspects of the U.S. International Traffic in Arms Regulations (ITAR) or the U.S. Export Administration Regulations (EAR) including a need to register, or apply for or execute licenses or other authorizations.</p> <p>Firms or individuals from countries subject to U.S. sanctions are not eligible to participate in this TechScout request. (U.S. Sanctions information may be found at: https://www.treasury.gov/resource-center/sanctions/Programs/Pages/Programs.aspx). These sanctions apply comprehensively to Iran, Syria, Sudan, Cuba, and North Korea. In addition, Firms or individuals that appear on the U.S. Government's Consolidated Screening List (available at http://export.gov/ecr/eg_main_023148.asp) are not eligible to participate in this TechScout request."</p>
Questions	Email the Innovation Sourcing Network with any questions or required clarification at techscout@gd-ms.com .