

|   |  |  |  |   |  |  |  |
|---|--|--|--|---|--|--|--|
| <b>APPLICATION FOR EQUIPMENT<br/>FREQUENCY ALLOCATION</b>   |  | <b>CLASSIFICATION<br/>UNCLASSIFIED</b> |  | <b>DATE</b><br>04/09/2003   |  | <b>J/F 12/07253</b>                    |  |
|   |  |  |  |   |  | Page 1 of 14 Pages                     |  |
| <b>DOD GENERAL INFORMATION</b>  |  |  |  |   |  |  |  |
| <b>TO</b><br>Department of the Navy<br>Naval Electromagnetic Spectrum Center<br>CNO N61F<br>Washington, DC 20350  |  |  |  | <b>FROM</b><br>PEO-CU<br>47123 Buse Road, Unit IPT<br>Patuxent River, MD 20670-1547   |  |  |  |
| 1. APPLICATION TITLE (U) PREDATOR C-Band MAE UAV<br>Medium Altitude Endurance Unmanned Aerial Vehicle   |  |  |  |   |  |  |  |
| 2. SYSTEM NOMENCLATURE (U) MAE UAV C-Band Line-of-Sight Command/Video Links   |  |  |  |   |  |  |  |
| 3. STAGE OF ALLOCATION (U) <input type="checkbox"/> a. STAGE 1 CONCEPTUAL <input type="checkbox"/> b. STAGE 2 EXPERIMENTAL <input type="checkbox"/> c. STAGE 3 DEVELOPMENTAL <input checked="" type="checkbox"/> d. STAGE 4 OPERATIONAL |  |  |  |   |  |  |  |
| 4. FREQUENCY REQUIREMENTS<br>a. FREQUENCY(IES) (U) 5250 MHz - 5850 MHz<br>b. EMISSION DESIGNATORS (U) 560KF1D 17M0F9F (See Remarks)   |  |  |  |   |  |  |  |
| 5. TARGET STARTING DATE FOR SUBSEQUENT STAGES<br>a. STAGE 2 (U) NA      b. STAGE 3 (U) NA      c. STAGE 4 (U) NA  |  |  |  |   |  |  |  |
| 6. EXTENT OF USE (U) Continuous during flight operations  |  |  |  |   |  |  |  |
| 7. GEOGRAPHICAL AREA FOR<br>a. STAGE 2 (U) NA<br>b. STAGE 3 (U) NA<br>c. STAGE 4 (U) US&P; Korea; Contingency Operations in Central/South America   |  |  |  |   |  |  |  |
| 8. NUMBER OF UNITS<br>a. STAGE 2 (U) NA      b. STAGE 3 (U) NA      c. STAGE 4 (U) 64   |  |  |  |   |  |  |  |
| 9. NUMBER OF UNITS OPERATING SIMULTANEOUSLY IN THE SAME ENVIRONMENT(U) 6  |  |  |  |   |  |  |  |
| 10. OTHER J/F 12 APPLICATION ID(S) TO BE<br>(U) <input type="checkbox"/> a. SUPERSEDED<br><input type="checkbox"/> b. RELATED   |  |  |  | 11. IS THERE ANY OPERATIONAL REQUIREMENT AS DESCRIBED IN THE INSTRUCTIONS FOR PARAGRAPH 11?<br>(U) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO <input type="checkbox"/> c. NAVAIL |  |  |  |
| 12. NAMES AND TELEPHONE NUMBERS (U)   |  |  |  |   |  |  |  |
| a. PROGRAM MANAGER (b) (6)  |  |  |  | (1) (b) (6)   |  | (2) DSN (b) (6)                        |  |
| b. PROJECT ENGINEER (b) (6)   |  |  |  | (1) (b) (6) (b) (6)   |  | (2) DSN (b) (6)                        |  |
| 13. REMARKS (U)<br>Item 4b: 4M72F1D, 88K3F1D<br><br>Item 7c: Operation in conflict areas.   |  |  |  |   |  |  |  |
| DOWNGRADING INSTRUCTIONS  |  |  |  |   |  | J/F 12/07253                           |  |
|   |  |  |  |   |  | <b>CLASSIFICATION<br/>UNCLASSIFIED</b> |  |

## TRANSMITTER EQUIPMENT CHARACTERISTICS

|  |  |  |  |
|--|--|--|--|
| 1. NOMENCLATURE, MANUFACTURER'S MODEL NO.<br>(U) C-Band Transmitter, Model #1234211-SA-N             |  | 2. MANUFACTURER'S NAME<br>(U) Sierra Monolithics, Inc.   |  |
| 3. TRANSMITTER INSTALLATION<br>(U) Ground Data Terminal  |  | 4. TRANSMITTER TYPE<br>(U) Digital FM Communications   |  |
| 5. TUNING RANGE<br>(U) 5250 MHz - 5850 MHz   |  | 6. METHOD OF TUNING<br>(U) PLL Synthesizer   |  |
| 7. RF CHANNELING CAPABILITY<br>(U) 5.25 GHz, 1 MHz increments, 601 channels                          |  | 8. EMISSION DESIGNATORS<br>(U) 560KF1D (U) 88K3F1D (U)   |  |
| 9. FREQUENCY TOLERANCE<br>(U) 20 ppm   |  | 12. EMISSION BANDWIDTH<br><input type="checkbox"/> CALCULATED <input checked="" type="checkbox"/> MEASURED |  |
| 10. FILTER EMPLOYED<br>(U) <input checked="" type="checkbox"/> a. YES <input type="checkbox"/> b. NO |  | a. -3 dB (U) 340 KHz (U) 62.86 KHz (U)   |  |
| 11. SPREAD SPECTRUM<br>(U) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO |  | b. -20 dB (U) 420 KHz (U) 88.32 KHz (U)  |  |
| 13. MAXIMUM BIT RATE<br>(U) 200 Kbps   |  | c. -40 dB (U) NA (U) 219.41 KHz (U)  |  |
| 14. MODULATION TECHNIQUES AND CODING<br>(U) 15 bit randomized NRZ FSK data                           |  | d. -60 dB (U) 1.2 MHz (U) 671.96 KHz (U)   |  |
| 16. PRE-EMPHASIS<br>(U) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO    |  | e. OC-BW (U) 560 KHz (U) 88.32 KHz (U)   |  |
| 19. POWER  |  | 15. MAXIMUM MODULATION FREQUENCY<br>(U) 100 KHz  |  |
| a. MEAN (U) 10 W (U) 10 W (U)  |  | 17. DEVIATION RATIO<br>(U) 1.5   |  |
| b. PEP (U) NA (U) NA (U)   |  | 18. PULSE CHARACTERISTICS  |  |
| 20. OUTPUT DEVICE<br>(U) FET Transistor  |  | a. RATE (U) NA (U) (U)   |  |
| 22. SPURIOUS LEVEL<br>(U) -65 dB   |  | b. WIDTH (U) NA (U) (U)  |  |
| 23. FCC TYPE ACCEPTANCE NO.<br>(U) NA  |  | c. RISE TIME (U) NA (U) (U)  |  |
|  |  | d. FALL TIME (U) NA (U) (U)  |  |
|  |  | e. COMP RATIO (U) NA (U) (U)   |  |
|  |  | 21. HARMONIC LEVEL   |  |
|  |  | a. 2nd (U) -65 dB  |  |
|  |  | b. 3rd (U) -65 dB  |  |
|  |  | c. OTHER (U) -65 dB  |  |

24. REMARKS (U) Item 13: 19.2 Kbps/200 Kbps.

Item 17: 3 (19.2 Kbps)

|   |  |   |  |
|---|--|---|--|
| CLASSIFICATION<br><div style="text-align: center; font-weight: bold; font-size: 1.2em;">UNCLASSIFIED</div>  |  | PAGE 3  |  |
| TRANSMITTER EQUIPMENT CHARACTERISTICS   |  |   |  |
| 1. NOMENCLATURE, MANUFACTURER'S MODEL NO.<br>(U) C-Band Transmitter, Model #1234211-SA-N  |  | 2. MANUFACTURER'S NAME<br>(U) Sierra Monolithics, Inc.  |  |
| 3. TRANSMITTER INSTALLATION<br>(U) MAE UAV (Predator)   |  | 4. TRANSMITTER TYPE<br>(U) FM Video/Data Communications   |  |
| 5. TUNING RANGE<br>(U) 5250 MHz - 5850 MHz  |  | 6. METHOD OF TUNING<br>(U) PLL Synthesizer  |  |
| 7. RF CHANNELING CAPABILITY<br>(U) 5.25 GHz, 1 MHz increments, 601 channels   |  | 8. EMISSION DESIGNATORS<br>(U) 17M0F9F (U) 4M72F1D (U)  |  |
| 9. FREQUENCY TOLERANCE<br>(U) 20 ppm  |  | 12. EMISSION BANDWIDTH<br><div style="text-align: center;"> <input type="checkbox"/> CALCULATED           <input checked="" type="checkbox"/> MEASURED         </div> |  |
| 10. FILTER EMPLOYED<br>(U) <input checked="" type="checkbox"/> a. YES <input type="checkbox"/> b. NO  |  | a. -3 dB (U) 8.5 MHz (U) 2.8 MHz (U)  |  |
|   |  | b. -20 dB (U) 18.0 MHz (U) 20 MHz (U)   |  |
|   |  | c. -40 dB (U) NA (U) NA (U)   |  |
| 11. SPREAD SPECTRUM<br>(U) <input type="checkbox"/> a. YES <input checked="" type="checkbox"/> b. NO  |  | d. -60 dB (U) 46.2 MHz (U) 66 MHz (U)   |  |
|   |  | e. OC-BW (U) 18.0 MHz (U) 4.7 MHz (U)   |  |
| 13. MAXIMUM BIT RATE<br>(U) 3.2 Mbps  |  | 15. MAXIMUM MODULATION FREQUENCY<br>(U) 8.0 MHz   |  |
| 14. MODULATION TECHNIQUES AND CODING<br>(U) (See Remarks)   |  | 17. DEVIATION RATIO<br>(U) (See Remarks)  |  |
| 16. PRE-EMPHASIS<br>(U) <input checked="" type="checkbox"/> a. YES <input type="checkbox"/> b. NO   |  | 18. PULSE CHARACTERISTICS<br>a. RATE (U) NA (U) NA (U)  |  |
|   |  | b. WIDTH (U) NA (U) NA (U)  |  |
| 19. POWER<br>a. MEAN (U) 10 W (U) 10 W (U)  |  | c. RISE TIME (U) NA (U) NA (U)  |  |
| b. PEP (U) NA (U) NA (U)  |  | d. FALL TIME (U) NA (U) NA (U)  |  |
|   |  | e. COMP RATIO (U) NA (U) NA (U)   |  |
| 20. OUTPUT DEVICE<br>(U) FET Transistor   |  | 21. HARMONIC LEVEL<br>a. 2nd (U) -65 dB   |  |
| 22. SPURIOUS LEVEL<br>(U) -65 dB  |  | b. 3rd (U) -65 dB   |  |
| 23. FCC TYPE ACCEPTANCE NO.<br>(U) NA   |  | c. OTHER (U) -65 dB   |  |
| 24. REMARKS (U) <div style="margin-left: 20px;">           Item 14: FM Video with 6.8 and 7.5 MHz Telemetry Subcarriers (17M0F9F), or FSK Data with 6.8 and 7.5 MHz carriers not utilized (4M72F1D).<br/><br/>           Item 16: Standard NTSC pre-emphasis is employed.<br/><br/>           Item 17: Deviation Ratio<br/>                     0.8 for 17M0F9F<br/>                     0.625 for 4M72F1D         </div> |  |   |  |
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## RECEIVER EQUIPMENT CHARACTERISTICS

## 1. NOMENCLATURE, MANUFACTURER'S MODEL NO.

(U) C-Band Receiver, Model #1235110N

## 2. MANUFACTURER'S NAME

(U) Sierra Monolithics, Inc.

## 3. RECEIVER INSTALLATION

(U) MAE UAV (Predator)

## 4. RECEIVER TYPE

(U) Dual Conversion Superheterodyne

## 5. TUNING RANGE

(U) 5250 MHz - 5850 MHz

## 6. METHOD OF TUNING

(U) PLL Synthesizer

## 7. RF CHANNELING CAPABILITY

(U) 5.25 GHz, 1 MHz increments, 601 channels

## 8. EMISSION DESIGNATORS

(U) 560KF1D 88K3F1D

## 9. FREQUENCY TOLERANCE

(U) 20 ppm

## 11. RF SELECTIVITY

☐

CALCULATED

☒

MEASURED

## 10. IF SELECTIVITY

1st (U)

2nd (U)

3rd (U)

a. -3 dB

35 MHz

1 MHz

NA

b. -20 dB

55 MHz

3.2 MHz

NA

c. -60 dB

115 MHz

4 MHz

NA

a. -3 dB

(U) 303 MHz

b. -20 dB

(U) 375 MHz

c. -60 dB

(U) 525 MHz

d. Preselection Type

(U) (See Remarks)

## 12. IF FREQUENCY

a. 1st (U)

954 MHz

b. 2nd (U)

70 MHz

c. 3rd (U)

NA

## 13. MAXIMUM POST DETECTION FREQUENCY

(U) 150 KHz

## 14. MINIMUM POST DETECTION FREQUENCY

(U) NA

## 16. MAXIMUM BIT RATE

(U) 200 Kbps

## 15. OSCILLATOR TUNED

1st (U)

2nd (U)

3rd (U)

a. ABOVE TUNED FREQUENCY

X

b. BELOW TUNED FREQUENCY

X

c. EITHER ABOVE OR BELOW  
THE FREQUENCY

## 17. SENSITIVITY

a. SENSITIVITY (U) - 98 dBm

b. CRITERIA (U)  $1 \times 10^{-6}$  BER

c. NOISE FIG (U) 2 dB

d. NOISE TEMP (U) NA

## 18. DE-EMPHASIS

(U)

☐

a. YES

☒

b. NO

## 19. IMAGE REJECTION

(U) 60 dB

## 20. SPURIOUS REJECTION

(U) 50 dB

21. REMARKS (U) Item 11d: 10 section cavity bandpass filter.

## RECEIVER EQUIPMENT CHARACTERISTICS

## 1. NOMENCLATURE, MANUFACTURER'S MODEL NO.

(U) C-Band Receiver, Model #1235110N

## 2. MANUFACTURER'S NAME

(U) Sierra Monolithics, Inc.

## 3. RECEIVER INSTALLATION

(U) Ground Data Terminal

## 4. RECEIVER TYPE

(U) Dual Conversion Superheterodyne

## 5. TUNING RANGE

(U) 5250 MHz - 5850 MHz

## 6. METHOD OF TUNING

(U) PLL Synthesizer

## 8. EMISSION DESIGNATORS

(U) 17M0F9F 4M72F1D

## 7. RF CHANNELING CAPABILITY

(U) 5.25 GHz, 1 MHz increments, 601 channels

## 11. RF SELECTIVITY

☐

CALCULATED

☒

MEASURED

## 9. FREQUENCY TOLERANCE

(U) 20 ppm

a. -3 dB (U) 303 MHz

b. -20 dB (U) 375 MHz

c. -60 dB (U) 525 MHz

d. Preselection Type (U) (See Remarks)

## 10. IF SELECTIVITY

1st (U)

2nd (U)

3rd (U)

a. -3 dB 35 MHz 20 MHz NA

b. -20 dB 55 MHz 22.5 MHz NA

c. -60 dB 115 MHz 28 MHz NA

## 12. IF FREQUENCY

a. 1st (U) 954 MHz

b. 2nd (U) 70 MHz

c. 3rd (U) NA

## 13. MAXIMUM POST DETECTION FREQUENCY

(U) 8.0 MHz

## 14. MINIMUM POST DETECTION FREQUENCY

(U) NA

## 16. MAXIMUM BIT RATE

(U) 3.2 Mbps

## 15. OSCILLATOR TUNED

1st (U)

2nd (U)

3rd (U)

a. ABOVE TUNED FREQUENCY

X

b. BELOW TUNED FREQUENCY

X

c. EITHER ABOVE OR BELOW  
THE FREQUENCY

## 17. SENSITIVITY

a. SENSITIVITY (U) (See Remarks)

b. CRITERIA (U) (See Remarks)

c. NOISE FIG (U) 2 dB

d. NOISE TEMP (U) NA

## 18. DE-EMPHASIS

(U) ☒ a. YES☐ b. NO

## 19. IMAGE REJECTION

(U) 60 dB

## 20. SPURIOUS REJECTION

(U) 50 dB

21. REMARKS (U) Item 11d: 10 section cavity bandpass filter.

Item 17: -84 dBm for 23 dB S/N and 17M0F9F  
-86 dBm for  $1 \times 10^{-6}$  BER and 4M72F1D.

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## ANTENNA EQUIPMENT CHARACTERISTICS

|   |  |
|---|--|
| 1. (U) <input type="checkbox"/> a. TRANSMITTING <input type="checkbox"/> b. RECEIVING <input checked="" type="checkbox"/> c. TRANSMITTING AND RECEIVING |  |
| 2. NOMENCLATURE, MANUFACTURER'S MODEL NO.<br>(U) GCS Acquisition Horn, Model #15921   | 3. MANUFACTURER'S NAME<br>(U) Technical Systems Associates   |
| 4. FREQUENCY RANGE<br>(U) 5250 MHz - 5850 MHz   | 5. TYPE (U) Monopulse Horn   |
| 6. POLARIZATION<br>(U) Vertical   | 7. SCAN CHARACTERISTICS  |
| 8. GAIN   | a. TYPE (U) MECHANICAL   |
| a. MAIN BEAM<br>(U) 15.0 dBi  | b. VERTICAL SCAN (U) Manual  |
| b. 1st MAJOR SIDE LOBE<br>(U) 2.0 dBi @ 44 deg  | (1) Max Elev (U) 30 deg  |
| 9. BEAMWIDTH  | (2) Min Elev (U) -10 deg   |
| a. HORIZONTAL<br>(U) 30 deg   | (3) Scan Rate (U) NA   |
| b. VERTICAL<br>(U) 30 deg   | c. HORIZONTAL SCAN (U) Mechanical  |
|   | (1) Sector Scanned (U) 360   |
|   | (2) Scan Rate (U) 45 deg/sec, <11 scans/minute   |
|   | d. SECTOR BLANKING (U) <input type="checkbox"/> (1) YES <input checked="" type="checkbox"/> (2) NO |

## 10. REMARKS (U)

Item 7b: The horn is normally adjusted to be 20 degrees above the horizon.

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## ANTENNA EQUIPMENT CHARACTERISTICS

|   |  |
|---|--|
| 1. (U) <input type="checkbox"/> a. TRANSMITTING <input type="checkbox"/> b. RECEIVING <input checked="" type="checkbox"/> c. TRANSMITTING AND RECEIVING |  |
| 2. NOMENCLATURE, MANUFACTURER'S MODEL NO.<br>(U) GCS 6' Dish Antenna, Model #16616  | 3. MANUFACTURER'S NAME<br>(U) Technical Systems Associates   |
| 4. FREQUENCY RANGE<br>(U) 5250 MHz - 5850 MHz   | 5. TYPE (U) (See Remarks)  |
| 6. POLARIZATION<br>(U) Vertical   | 7. SCAN CHARACTERISTICS  |
| 8. GAIN   | a. TYPE (U) MECHANICAL   |
| a. MAIN BEAM<br>(U) 34.5 dBi  | b. VERTICAL SCAN (U) Adjustable  |
| b. 1st MAJOR SIDE LOBE<br>(U) 14.5 dBi @ 3.5 deg  | (1) Max Elev (U) 30 deg  |
| 9. BEAMWIDTH  | (2) Min Elev (U) -10 deg   |
| a. HORIZONTAL<br>(U) 2.2 deg  | (3) Scan Rate (U) NA   |
| b. VERTICAL<br>(U) 2.2 deg  | c. HORIZONTAL SCAN (U) Mechanical  |
|   | (1) Sector Scanned (U) 360   |
|   | (2) Scan Rate (U) 45 deg/sec, <11 scans/minute   |
|   | d. SECTOR BLANKING (U) <input type="checkbox"/> (1) YES <input checked="" type="checkbox"/> (2) NO |

## 10. REMARKS (U)

Item 5: 1.83 Meter cosecant-squared reflector with monopulse feed.

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## ANTENNA EQUIPMENT CHARACTERISTICS

1. (U)

☐

a. TRANSMITTING

☐

b. RECEIVING

☒

c. TRANSMITTING AND RECEIVING

## 2. NOMENCLATURE, MANUFACTURER'S MODEL NO.

(U) GCS Omni Antenna, Model #10171

## 3. MANUFACTURER'S NAME

(U) Technical Systems Associates

5. TYPE (U) Stacked Dipole Array

## 4. FREQUENCY RANGE

(U) 5250 MHz - 5850 MHz

## 7. SCAN CHARACTERISTICS

a. TYPE (U) FIXED

## 6. POLARIZATION

(U) Vertical

b. VERTICAL SCAN (U) NA

(1) Max Elev (U)

## 8. GAIN

## a. MAIN BEAM

(U) 6 dBi

(2) Min Elev (U)

(3) Scan Rate (U)

## b. 1st MAJOR SIDE LOBE

(U) NA

c. HORIZONTAL SCAN (U) NA

(1) Sector Scanned (U)

## 9. BEAMWIDTH

## a. HORIZONTAL

(U) 360 deg

(2) Scan Rate (U)

## b. VERTICAL

(U) 30 deg

d. SECTOR BLANKING (U) ☐ (1) YES ☒ (2) NO

## 10. REMARKS (U)

None.

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## ANTENNA EQUIPMENT CHARACTERISTICS

|   |  |
|---|--|
| 1. (U) <input type="checkbox"/> a. TRANSMITTING <input type="checkbox"/> b. RECEIVING <input checked="" type="checkbox"/> c. TRANSMITTING AND RECEIVING |  |
| 2. NOMENCLATURE, MANUFACTURER'S MODEL NO.<br>(U) MAE UAV Omni, Model #702653-1  | 3. MANUFACTURER'S NAME<br>(U) TECOM Industries, Inc.   |
| 4. FREQUENCY RANGE<br>(U) 5250 MHz - 5850 MHz   | 5. TYPE (U) Stacked Dipole Array   |
| 6. POLARIZATION<br>(U) Vertical   | 7. SCAN CHARACTERISTICS  |
| 8. GAIN   | a. TYPE (U) FIXED  |
| a. MAIN BEAM<br>(U) 3 dBi   | b. VERTICAL SCAN (U) NA  |
| b. 1st MAJOR SIDE LOBE<br>(U) NA  | (1) Max Elev (U)   |
| 9. BEAMWIDTH  | (2) Min Elev (U)   |
| a. HORIZONTAL<br>(U) 360 deg  | (3) Scan Rate (U)  |
| b. VERTICAL<br>(U) 25 deg   | c. HORIZONTAL SCAN (U) NA  |
|   | (1) Sector Scanned (U)   |
|   | (2) Scan Rate (U)  |
|   | d. SECTOR BLANKING (U) <input type="checkbox"/> (1) YES <input checked="" type="checkbox"/> (2) NO |

10. REMARKS (U)

None.

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## ANTENNA EQUIPMENT CHARACTERISTICS

|   |  |
|---|--|
| 1. (U) <input type="checkbox"/> a. TRANSMITTING <input type="checkbox"/> b. RECEIVING <input checked="" type="checkbox"/> c. TRANSMITTING AND RECEIVING |  |
| 2. NOMENCLATURE, MANUFACTURER'S MODEL NO.<br>(U) MAE UAV Horn Antenna, Model #11572   | 3. MANUFACTURER'S NAME<br>(U) Technical Associates, Inc.   |
| 4. FREQUENCY RANGE<br>(U) 5250 MHz - 5850 MHz   | 5. TYPE (U) Lensed Horn  |
| 6. POLARIZATION<br>(U) Vertical   | 7. SCAN CHARACTERISTICS  |
| 8. GAIN   | a. TYPE (U) MECHANICAL   |
| a. MAIN BEAM<br>(U) 15.0 dBi  | b. VERTICAL SCAN (U) Fixed, Adjustable   |
| b. 1st MAJOR SIDE LOBE<br>(U) -5 dBi @ 44 deg   | (1) Max Elev (U) 30 deg  |
| 9. BEAMWIDTH  | (2) Min Elev (U) -30 deg   |
| a. HORIZONTAL<br>(U) 30 deg   | (3) Scan Rate (U) NA   |
| b. VERTICAL<br>(U) 30 deg   | c. HORIZONTAL SCAN (U) Mechanical  |
|   | (1) Sector Scanned (U) 360   |
|   | (2) Scan Rate (U) 45 deg/sec, <11 scans/minute   |
|   | d. SECTOR BLANKING (U) <input type="checkbox"/> (1) YES <input checked="" type="checkbox"/> (2) NO |

10. REMARKS (U)

None.

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## ANTENNA EQUIPMENT CHARACTERISTICS

|   |  |
|---|--|
| 1. (U) <input type="checkbox"/> a. TRANSMITTING <input type="checkbox"/> b. RECEIVING <input checked="" type="checkbox"/> c. TRANSMITTING AND RECEIVING |  |
| 2. NOMENCLATURE, MANUFACTURER'S MODEL NO.<br>(U) MAE UAV Monopole Stub, #702-653-3  |  |
| 3. MANUFACTURER'S NAME<br>(U) TECOM Industries, Inc.  |  |
| 5. TYPE (U) 1/4 Wavelength Monopole Stub  |  |
| 4. FREQUENCY RANGE<br>(U) 5250 MHz - 5850 MHz   |  |
| 7. SCAN CHARACTERISTICS   |  |
| a. TYPE (U) FIXED   |  |
| b. VERTICAL SCAN (U) NA   |  |
| (1) Max Elev (U)  |  |
| (2) Min Elev (U)  |  |
| (3) Scan Rate (U)   |  |
| c. HORIZONTAL SCAN (U) NA   |  |
| (1) Sector Scanned (U)  |  |
| (2) Scan Rate (U)   |  |
| d. SECTOR BLANKING (U) <input type="checkbox"/> (1) YES <input checked="" type="checkbox"/> (2) NO  |  |
| 6. POLARIZATION<br>(U) Vertical   |  |
| 8. GAIN   |  |
| a. MAIN BEAM<br>(U) 0.3 dBi   |  |
| b. 1st MAJOR SIDE LOBE<br>(U) NA  |  |
| 9. BEAMWIDTH  |  |
| a. HORIZONTAL<br>(U) 360 deg  |  |
| b. VERTICAL<br>(U) 55 deg   |  |

## 10. REMARKS (U)

General: AN/URY-1/2/3/4 R-Cubed Units all have the same antenna equipment characteristics.

CLASSIFICATION

UNCLASSIFIED

J/F 12/07253

|   |   |  |
|---|---|--|
| <b>APPLICATION FOR<br/>SPECTRUM REVIEW</b>  | <b>CLASSIFICATION<br/>UNCLASSIFIED</b>        | <b>PAGE 12</b>   |
| <b>NTIA GENERAL INFORMATION</b>   |   |  |
| <b>1. APPLICATION TITLE</b> (U) PREDATOR C-Band MAE UAV<br>Medium Altitude Endurance Unmanned Aerial Vehicle  |   |  |
| <b>2. SYSTEM NOMENCLATURE</b> (U) MAE UAV C-Band Line-of-Sight Command/Video Links  |   |  |
| <b>3. STAGE OF ALLOCATION</b> (U) <input type="checkbox"/> a. STAGE 1<br>CONCEPTUAL <input type="checkbox"/> b. STAGE 2<br>EXPERIMENTAL <input type="checkbox"/> c. STAGE 3<br>DEVELOPMENTAL <input checked="" type="checkbox"/> d. STAGE 4<br>OPERATIONAL                                |   |  |
| <b>4. FREQUENCY REQUIREMENTS</b>  |   |  |
| <b>a. FREQUENCY(IES)</b> (U)      5250 MHz - 5850 MHz      5250 MHz - 5850 MHz      5250 MHz - 5850 MHz   |   |  |
| <b>b. EMISSION DESIGNATORS</b> (U)      560KF1D      17M0F9F      4M72F1D   |   |  |
| <b>5. PURPOSE OF SYSTEM, OPERATIONAL AND SYSTEM CONCEPTS</b> (U) Provide command and control of unmanned aerial vehicle, transmit payload imagery and system telemetry data.                      (WARTIME USE) <input checked="" type="checkbox"/> a. YES <input type="checkbox"/> b. NO |   |  |
| <b>6. INFORMATION TRANSFER REQUIREMENTS</b> (U) 19.2/200 Kbps FSK uplink; FM analog video with 19.2 kbps on subcarriers or 3.2 Mbps FSK data downlink   |   |  |
| <b>7. ESTIMATED INITIAL COST OF THE SYSTEM</b> (U) \$75k per aerial vehicle system  |   |  |
| <b>8. TARGET DATE FOR</b>   |   |  |
| <b>a. APPLICATION APPROVAL</b><br>(U) 03/01/1998  | <b>b. SYSTEM ACTIVATION</b><br>(U) 04/01/1998 | <b>c. SYSTEM TERMINATION</b><br>(U) 12/31/2015           |
| <b>9. SYSTEM RELATIONSHIP AND ESSENTIALITY</b> (U) This system controls the MAE UAV "PREDATOR" within Line-of-Sight, and is critical to the mission.  |   |  |
| <b>10. REPLACEMENT INFORMATION</b> (U) None   |   |  |
| <b>11. RELATED ANALYSIS AND/OR TEST DATA</b> (U) None   |   |  |
| <b>12. NUMBER OF MOBILE UNITS</b> (U) 64  |   |  |
| <b>13. GEOGRAPHICAL AREA FOR</b>  |   |  |
| <b>a. STAGE 2</b> (U) NA  |   |  |
| <b>b. STAGE 3</b> (U) NA  |   |  |
| <b>c. STAGE 4</b> (U) US&P; Korea; Contingency operations in Central/South America  |   |  |
| <b>14. LINE DIAGRAM</b> (U) See Page(s) 12  |   | <b>15. SPACE SYSTEMS</b> (U) See Page(s) NA              |
| <b>16. TYPE OF SERVICE(S) FOR STAGE 4</b><br>(U) Aeronautical Mobile<br>Mobile  |   | <b>17. STATION CLASS(ES) FOR STAGE 4</b><br>(U) FAD MOEA |
| <b>18. REMARKS</b> (U) Item 4b: The transmitters and receivers are configurable via software setup for either 88K3F1D, 560KF1D, 4M72F1D, or 17M0F9F.<br><br>Item 13c: Operations in conflict areas.   |   |  |
| <b>DOWNGRADING INSTRUCTIONS</b>   |   | <b>J/F 12/07253</b>                                      |
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MILITARY COMMUNICATIONS ELECTRONICS BOARD (MCEB)  
EQUIPMENT FREQUENCY ALLOCATION GUIDANCE

Military Department: Navy, Air Force  
Equipment:

PREDATOR C-Band MAE UAV Medium Altitude Endurance Unmanned Aerial  
Vehicle  
Stage: 4- Operational

## Section 1: ENCLOSURE

1. J/F 12/07253, 09 APR 2003

## Section 2: OPERATING CHARACTERISTICS FOR WHICH SUPPORT IS CERTIFIED

Frequency: 5250-5850 MHz

Emissions: (a)88K3F1D, 560KF1D; (b)4M72F1D, 17M0F9F.

Power (Mean): 10.0 WATTS

Type of Services: (a)Mobile (Aeronautical Mobile); (b)Mobile

Operating Locations: Phoenix, AZ (only ground Testing); Ft. Huachuca,  
AZ; Yuma Proving Grounds, AZ; El Mirage Flight Test Facility, Adelanto,  
CA; Edwards AFB, CA (including China Lake, CA); Aeronautical Systems, San  
Diego, CA; Marina, CA;  
Camp Roberts, CA; San Clemente Island, CA; San Nicholas Island, CA; NTC  
Fort Irwin, CA; NAS Key West, FL; MacDill AFB, FL; Kauai, HI; Fort Polk,  
LA; Roswell, NM; Tinker AFB, OK; Fort Sill, OK; Nellis AFB, NV; Indian  
Springs, NV; Nevada Test Site, NV; Fallon, NV; El Paso, TX; Langley AFB,  
VA

## Section 3: MCEB GUIDANCE

1. The enclosed application is approved for operational use at the above  
locations subject to the guidance provided in the following paragraphs.

2. For the intended use in the Aeronautical Mobile and Aeronautical  
Fixed service, the subject equipment is not in accordance with the US and  
ITU Table of Frequency Allocations over its tuning range. Operations  
will be on an unprotected, non-interference basis to the established  
services at the above locations.

3. The provisions of NTIA manual Sections 5.2 and 5.3.3 are considered  
applicable to the operation of the subject equipment. Based on the  
information provided, the subject equipment does comply with NTIA Manual  
Sections 5.2 requirement for frequency tolerances and unwanted emissions  
and, Section 5.3.3 requirement for spurious, and harmonics emission  
levels, unwanted emissions bandwidth and receiver's IF selectivity and  
spurious rejection. In any instance of harmful interference caused by  
nonconformance with these provisions, the responsibility for eliminating  
the harmful interference normally shall rest with the agency operating in  
nonconformance.

4. The subject equipment does not comply with the requirements of

MIL-STD-461E for harmonic levels. Compliance is not mandatory but the standard may be used as a design objective.

5. Frequency assignments request must be submitted using Standard Frequency Action Format (SFAF) and coordinated with the cognizant area frequency coordinator in accordance with ACP 190 US SUPP-1 (C), Guide to Frequency Planning, prior to activation.

6. Coordination with the NTIA Spectrum Planning Subcommittee was requested.

7. Operational use within the appropriate theater commands outside the United States has not been approved. Approval for operational use in the intended deployment area requires appropriate CINC's statement(s) that the subject system has been deemed frequency supportable.

Steering Member  
ESG Working Group  
MCEB Frequency Panel

APPROVAL SIGNATURE Date: 07 May 2003

IRAC DOC #: 32666/1  
SPS #: 13432

Downgrading Instructions  
Classified by: NA  
Declassify on: NA

Distribution: J-12 Holders  
MCEB J-12 Number: J/F 12/07253/1  
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