

S1. GENERAL INFORMATION Complete for all satellite applications.

| | | | | | |
|---|---------------------------------------|--|--|--|--|
| a. Space Station or Satellite Network Name: AMAZONAS-1 | | e. Estimated Date of Placement into Service: 7/31/2004 | | i. Will the space station(s) operate on a Common Carrier Basis: N | |
| b. Construction Commencement Date: 1/2/2002 | | f. Estimated Lifetime of Satellite(s): 16.8 Years | | j. Number of transponders offered on a common carrier basis: | |
| c. Construction Completion Date: 5/31/2004 | | g. Total Number of Transponders: 16 | | k. Total Common Carrier Transponder Bandwidth: MHz | |
| d1. Est Launch Date Begin: 1/6/2004 | d2. Est Launch Date End: 6/30/2004 | h. Total Transponder Bandwidth (no. transponders x Bandwidth) 648 MHz | | i. Orbit Type: Mark all boxes that apply: <input checked="" type="checkbox"/> GSO <input type="checkbox"/> NGSO | |

S2. OPERATING FREQUENCY BANDS Identify the frequency range and transmit/receive mode for all frequency bands in which this station will oper
Also indicate the nature of service(s) for each frequency band.

| Frequency Band Limits | | | | e. T/R Mode | f. Nature of Service(s): List all that apply to this band |
|-----------------------|-----------------|-----------------------|-----------------|-------------|---|
| Lower Frequency (.Hz) | | Upper Frequency (.Hz) | | | |
| a. Numeric | b. Unit (K/M/G) | c. Numeric | d. Unit (K/M/G) | | |
| 14.0 | G | 14.5 | G | R | Fixed Satellite Service |
| 11.7 | G | 12.2 | G | T | Fixed Satellite Service |
| 13.75 | G | 14.0 | G | R | Fixed Satellite Service |

S3. ORBITAL INFORMATION FOR GEOSTATIONARY SATELLITES ONLY:

| | | | | | |
|---|--------------|--|--|---|--|
| a. Nominal Orbital Longitude (Degrees E/W): 36 W | | b. Alternate Orbital Longitude (Degrees E/W): | | c. Reason for orbital location selection: The satellite network AMAZONAS-1 will be relocated from 61°W to 36°W. Under this application we are seeking authority to provide service with AMAZONAS-1 to the U.S. territories in the Ku band. | |
| Longitudinal Tolerance or E/W Station-Keeping: | | f. Inclination Excursion or N/S Station-Keeping Tolerance: | | Range of orbital are in which adequate service can be provided (Optional): <u> Degrees </u> <u> E/W </u> | |
| d. Toward West: | 0.05 Degrees | 0.07 Degrees | | g. Westernmost: | |
| e. Toward East: | 0.05 Degrees | | | h. Easternmost: | |
| i. Reason for service are selection (Optional): | | | | | |

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S4. ORBITAL INFORMATION FOR NON-GEOSTATIONARY SATELLITES ONLY

S4a. Total Number of Satellites in Network or System:

S4c. Celestial Reference Body (Earth, Sun, Moon, etc.):

S4b. Total Number of Orbital Planes in Network or System:

S4d. Orbit Epoch Date:

For each Orbital Plane Provide:

| (e) Orbital Plane No. | (f) No. of Satellites in Plane | (g) Inclination Angle (degrees) | (h) Orbital Period (Seconds) | (i) Apogee (km) | (j) Perigee (km) | (k) Right Ascension of the Ascending Node (Deg.) | (l) Argument of Perigee (Degrees) | Active Service Arc Range (Degrees) | | |
|-----------------------|--------------------------------|---------------------------------|------------------------------|-----------------|------------------|--|-----------------------------------|------------------------------------|---------------|-----------|
| | | | | | | | | (m) Begin Angle | (n) End Angle | (o) Other |
| | | | | | | | | | | |

S5. INITIAL SATELLITE PHASE ANGLE For each satellite in each orbital plane, provide the initial phase angle.

| (a) Orbital Plane No. | (b) Satellite Number | (c) Initial Phase Angle (Degrees) |
|-----------------------|----------------------|-----------------------------------|
| | | |

NO NGSO DATA FILED

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S6. SERVICE AREA CHARACTERISTICS for each service area provide:

| (a) Service Area ID | (b) Type of Associated Station (Earth or Space) | (c) Service Area Diagram File Name (GXT File) | (d) Service Area Description. Provide list of geographic areas (state postal codes or ITU 3-ltr codes), satellites or Figure No. of Service Area Diagram. |
|---------------------|---|---|---|
| 1 | S | vupku_sa.gxt | 01 |

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S8. ANTENNA BEAM DIAGRAMS For each beam pattern provide the reference to the graphic image and numerical data:
Also provide the power flux density levels in each beam that result from the emission with the highest power flux density.

| (a) Beam ID | (b) T/R Mode | (c) Co-or Cross Polar Mode ("C" or" X") | (d) GSO Ref. Orbital Longitude (Deg. E/W) | (e) NGSO Antenna Gain Contour Description (Figure/Table/ Exhibit) | (f) GSO Antenna Gain Contour Data (GXT File) | Max. Power Flux Density (dBW/M2/Hz) | | | | |
|-------------------|--------------------|---|---|---|--|--|------------|------------|------------|------------|
| | | | | | | At Angle of Arrival above horizontal (for emission with highest PFD) | | | | |
| | | | | | | (g) 5 Deg | (h) 10 Deg | (i) 15 Deg | (j) 20 Deg | (k) 25 Deg |
| KUR | R | C | -61 | | vupkunach.gxt | | | | | |
| KUR | R | X | -61 | | VUPKUNAXh.gxt | | | | | |
| KUT | T | C | -61 | | vdwkunach.gxt | -132.5 | -132.5 | -132.5 | -132.5 | -132.5 |
| KUT | T | X | -61 | | VDWKUNAXh.gxt | | | | | |
| KUR | R | C | -61 | | vupkunacv.gxt | | | | | |
| KUR | R | X | -61 | | VUPKUNAXv.gxt | | | | | |
| KUTV | T | C | -61 | | vdwkunacv.gxt | -132.5 | -132.5 | -132.5 | -132.5 | -132.5 |
| KUTV | T | X | -61 | | VDWKUNAXv.gxt | | | | | |

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S9. SPACE STATION CHANNELS For each frequency channel provide: S10. SPACE STATION TRANSPONDERS For each transponder provide:

| (a) Channel No. | (B) Assigned Bandwidth (kHz) | (c) T/R Mode | (d) Center Frequency (MHz) | (e) Polarization (H, V, L, R) | (f) TTC or Comm Channel (T or C) |
|-----------------|------------------------------|--------------|----------------------------|-------------------------------|----------------------------------|
| KT1 | 54000 | T | 11738 | V | C |
| KT2 | 54000 | T | 11799 | V | C |
| KT3 | 54000 | T | 11738 | H | C |
| KT4 | 54000 | T | 11799 | H | C |
| KT5 | 36000 | T | 11972 | V | C |
| KT6 | 36000 | T | 12012 | V | C |
| KT7 | 36000 | T | 12052 | V | C |
| KT8 | 36000 | T | 12092 | V | C |
| KT9 | 36000 | T | 12132 | V | C |
| KT10 | 36000 | T | 12172 | V | C |
| KT11 | 36000 | T | 11972 | H | C |
| KT12 | 36000 | T | 12012 | H | C |
| KT13 | 36000 | T | 12052 | H | C |
| KT14 | 36000 | T | 12092 | H | C |
| KT15 | 36000 | T | 12132 | H | C |
| KT16 | 36000 | T | 12172 | H | C |
| KR1 | 54000 | R | 14034 | H | C |
| KR2 | 54000 | R | 14095 | H | C |
| KR3 | 54000 | R | 14034 | V | C |
| KR4 | 54000 | R | 14095 | V | C |
| KR5 | 36000 | R | 13772 | H | C |
| KR6 | 36000 | R | 13812 | H | C |
| KR7 | 36000 | R | 13852 | H | C |
| KR8 | 36000 | R | 13892 | H | C |
| KR9 | 36000 | R | 13932 | H | C |
| KR10 | 36000 | R | 13972 | H | C |
| KR11 | 36000 | R | 13772 | V | C |
| KR12 | 36000 | R | 13812 | V | C |
| KR13 | 36000 | R | 13852 | V | C |
| KR14 | 36000 | R | 13892 | V | C |

| (a) Transponder ID | (b) Transponder Gain (dB) | Receive Band | | Transmit Band | |
|--------------------|---------------------------|-----------------|-------------|-----------------|-------------|
| | | (c) Channel No. | (d) Beam ID | (e) Channel No. | (f) Beam ID |
| 1 | 127.1 | KR1 | KURH | KT1 | KUTV |
| 2 | 127.1 | KR2 | KURH | KT2 | KUTV |
| 3 | 127.1 | KR3 | KURV | KT3 | KUTH |
| 4 | 127.1 | KR4 | KURV | KT4 | KUTH |
| 5 | 127.1 | KR5 | KURH | KT5 | KUTV |
| 6 | 127.1 | KR6 | KURH | KT6 | KUTV |
| 7 | 127.1 | KR7 | KURH | KT7 | KUTV |
| 8 | 127.1 | KR8 | KURH | KT8 | KUTV |
| 9 | 127.1 | KR9 | KURH | KT9 | KUTV |
| 10 | 127.1 | KR10 | KURH | KT10 | KUTV |
| 11 | 127.1 | KR11 | KURV | KT11 | KUTH |
| 12 | 127.1 | KR12 | KURV | KT12 | KUTH |
| 13 | 127.1 | KR13 | KURV | KT13 | KUTH |
| 14 | 127.1 | KR14 | KURV | KT14 | KUTH |
| 15 | 127.1 | KR15 | KURV | KT15 | KUTH |
| 16 | 127.1 | KR16 | KURV | KT16 | KUTH |

| | | | | | |
|------|-------|---|-------|---|---|
| KR15 | 36000 | R | 13932 | V | C |
| KR16 | 36000 | R | 13972 | V | C |

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S11. DIGITAL MODULATION PARAMETERS For each digital emission provide:

| (a) Digital Mod. ID | (b) Emission Designator | (c) Assigned Bandwidth (kHz) | (d) No. of Phases | (e) Uncoded Data Rate (kbps) | (f) FEC Error Correction Coding Rate | (g) CDMA Processing Gain (dB) | (h) Total C/N Performance Objective (dB) | (i) Single Entry C/I Objective (dB) |
|---------------------|-------------------------|------------------------------|-------------------|------------------------------|--------------------------------------|-------------------------------|--|-------------------------------------|
| 1 | 1M80G7W | 1800 | 4 | 2048 | 0.75 | | 9 | 17.7 |
| 2 | 36M0G7W | 36000 | 4 | 38010 | 0.75 | | 6.1 | 18.3 |
| 3 | 9M00G7W | 9000 | 8 | 11300 | 0.66666667 | | 8 | 20.2 |
| 4 | 14K0G7W | 14 | 4 | 11 | 0.5 | | 6.8 | 19 |

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S13. TYPICAL EMISSIONS For each planned type of emission provide:

| Associated Transponder ID Range (a) Start (b) End | | Modulation ID | | (e) Carriers per Transponder | (f) Carrier Spacing (kHz) | (g) Noise Budget Reference (Table No.) | (h) Energy Dispersal Bandwidth (kHz) | Receive Band (Assoc. Transmit Stn) | | | Transmit Band (This Space Station) | | | |
|---|----|-------------------------|------------------------|------------------------------|---------------------------|--|--------------------------------------|---|-------------------------------------|----------|------------------------------------|------|--|--------------------------------|
| | | (c) Digital (Table S11) | (d) Analog (Table S12) | | | | | (i) Assoc. Stn. Max. Antenna Gain (dBi) | Assoc. Station Transmit Power (dBW) | | EIRP (dBW) | | (n) Max. Power Flux Density (dBW/m ² /Hz) | (o) Assoc. Stn Rec. G/T (dB/K) |
| | | | | | | (j) Min. | (k) Max. | | (l) Min. | (m) Max. | | | | |
| 1 | 16 | 1 | | 18 | | Link_Budget_1. | | 53 | 2.5 | 9.5 | 27.1 | 32.1 | -132.5 | 30 |
| 1 | 4 | 4 | | 2340 | | Link_Budget_2. | | 43 | -15 | -8 | 2.6 | 5.6 | -137.8 | 31 |
| 5 | 16 | 4 | | 2340 | | Link_Budget_2. | | 43 | -15 | -8 | 2.6 | 5.6 | -137.8 | 31 |
| 1 | 4 | 4 | | 2340 | | Link_Budget_3. | | 49.2 | -16.4 | -9.4 | 5.4 | 10.4 | -133 | 26.3 |
| 5 | 16 | 4 | | 2340 | | Link_Budget_3. | | 49.2 | -16.4 | -9.4 | 5.4 | 10.4 | -133 | 26.3 |
| 1 | 16 | 2 | | 1 | | Link_Budget_4. | | 53 | 16 | 23 | 40.1 | 45.1 | -132.5 | 26.3 |
| 1 | 16 | 3 | | 4 | | Link_Budget_5. | | 53 | 8.1 | 15.1 | 32.7 | 37.7 | -134 | 30 |

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S14. Is the space station(s) controlled and monitored remotely? If Yes, provide the location and telephone number of the TT and C control point(s): Yes

Remote Control (TT C) Location(s):

| | | | |
|--|------------------------|--|--------------------------|
| S14a: Street Address: CARRETERA M 220, KM 1,800 | | | |
| S14b. City: ARGANDA DEL REY | S14c. County: SPAIN | S14d. State/Country | S14e. Zip Code: 28500 |
| S14f. Telephone Number: +34918700160 | | S14g. Call Sign of Control Station (if appropriate): | |

Remote Control (TT C) Location(s):

| | | | |
|--|-------------------------|--|------------------------------|
| S14a: Street Address: PRAIA DO FLAMENGO 200 | | | |
| S14b. City: RIO DE JANEIRO | S14c. County: BRAZIL | S14d. State/Country | S14e. Zip Code: 22210-030 |
| S14f. Telephone Number: +552198582255 | | S14g. Call Sign of Control Station (if appropriate): | |

Remote Control (TT C) Location(s):

| | | | |
|-------------------------|---------------|--|-----------------|
| S14a: Street Address: | | | |
| S14b. City: | S14c. County: | S14d. State/Country | S14e. Zip Code: |
| S14f. Telephone Number: | | S14g. Call Sign of Control Station (if appropriate): | |

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S15. SPACECRAFT PHYSICAL CHARACTERISTICS:

| | | |
|---|-----------------------------------|---|
| S15a. Mass of spacecraft without fuel (kg): 2121 | Spacecraft Dimensions (meters) | Probability of Survival to End of Life (0.0 - 1.0) |
| S15b. Mass of fuel and disposables at launch (kg): 2415 | | |
| S15c. Mass of spacecraft and fuel at launch (kg): 4536 | S15f. Length (m): 36.1 | S15i. Payload: 0.77 |
| S15d. Mass of fuel, in orbit, at beginning of life (kg): 885 | S15g. Width (m): 7.89 | S15j. Bus: 0.87 |
| S15e. Deployed Area of Solar Array (square meters): 55.6 | S15h. Height (m): 6.74 | S15k. Total: 0.67 |

S16. SPACECRAFT ELECTRICAL CHARACTERISTICS:

| Spacecraft Subsystem | Electrical Power (Watts) At Beginning of Life | | Electrical Power (Watts) At End of Life | |
|---------------------------------|---|-------------|---|-------------|
| | At Equinox | At Solstice | At Equinox | At Solstice |
| Payload (Watts): | (a): 7315 | (f): 7315 | (k): 7315 | (p): 7315 |
| Bus (Watts): | (b): 1660 | (g): 940 | (l): 1660 | (q): 940 |
| Total (Watts): | (c): 8975 | (h): 8255 | (m): 8975 | (r): 8255 |
| Solar Array (Watts): | (d): 11504 | (i): 10359 | (n): 9770 | (s): 8906 |
| Depth of Battery Discharge (%): | (e) 60 % | (j) % | (o) 60 % | (t) % |

S17. CERTIFICATIONS:

| | | | |
|--|---|-----------------------------|------------------------------|
| a. Are the power flux density limits of § 25.208 met? | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| b. Are the appropriate service area coverage requirements of § 25.143(b)(ii) and (iii), or § 25.145(c)(1) and (2) met? | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |
| c. Are the frequency tolerances of § 25.202(e) and the out-of-band emission limits of § 25.202(f)(1), (2) and (3) met? | <input checked="" type="checkbox"/> YES | <input type="checkbox"/> NO | <input type="checkbox"/> N/A |

In addition to the information required in this Form, the space station applicant is required to provide all the information specified in Section 25.114 of the Commission's rules, 47 C.F.R § 25.114.