RADITEK INC.

Satcom RFQ Guidlines

1. **Raditek offers two types of quoting**
   a. **Hardware to customers list, Customer designs a system and provides a list to quote**
   b. **System design and optimization, we will design the system and offer the best solution**
2. **Hardware to customers list (Raditek offers a complete solution, which includes Hub and Remotes) we need:**
   a. **Frequency Band and uplink and downlink frequency coverage.**
   b. **BUC (Block Upconverter) Power, (opt with 10M ER)**
   c. **LNB stability requirement (DRO or 10M ER)**
   d. **Any redundancy requirements at the hub and/or remotes:1+N at the HUB, 1+1 at the remote.**
   e. **Antenna size, and whether the antenna is transportable, flyaway, or fixed.**
3. **System design and optimization**
   a. **First we will prepare a rough LINK BUDGET to do this, we MUST know**
   b. **Designated Satellite**
   c. **The country, (and its rain fade information for a given % availability-99.9% (3x9's) 99.999% (5x9's)**
   d. **Satellite EIRP (Satellite's Effective Isotropic Radiated Power at the worst case in the network)**
   e. **Satellite G/T (Gain over noise temperature at the satellite), also called the Figure of Merit of the satellite (or earth station in the case of the remote itself). That would be seen at the proposed location of the hub and of ALL of the remotes.**
   f. **Data rates (uplink and downlink),**
      i. **STAR outbound from the HUB and inbound**
      ii. **MESH, the remotes uplink and downlink rates.**
   g. **Hub Capacity' The HUB has to be "sized" meaning how many remotes will be operational simultaneously at the Busiest time of operation. The HUB is designed for this traffic. It is IMPOSSIBLE to quote the HUB without knowing this. If we quote 100% utilization it will be the most expensive, of course. 50% UTILIZATION means in a network of X remotes, X/2 will be active at any one time at the busiest hour.**
   h. **The modulation can be selected for best satellite efficiency:**
      i. **QPSK offers 2 bits per symbol, meaning it uses ½ the bandwidth of BPSK (1 bit per symbol),**
      ii. **our 8PSK offers even better economy with 3 bits per symbol (requires 1/3 of the bandwidth).**
      iii. **The more bits per symbol selected, the more Signal to Noise (Eb/No) penalty, i.e. required Signal to Noise ratio needs to be a little higher.**
      iv. **Antenna size and uplink power can be modified as necessary,**
      v. **The advance Turbo product codes offer up to 3dB reduction in antenna gain or BUC power.**
4. **TO GET a reliable satellite network quote please TELL US ALL the required parameters.**

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