



Federal Communications Commission
Washington, D.C. 20554

DA 06-1093

May 24, 2006

Christine M. Gill, Esq.
McDermott Will & Emery LLP
600 Thirteenth Street, N.W.
Washington, D.C. 20005-3096

Re: Call Sign: E060134
File No.: SES-LIC-20060412-00643

Dear Ms. Gill:

On April 12, 2006, Arizona Public Service Company (APS) filed the above-captioned earth station application to operate a Conventional Ku-band¹ VSAT network consisting of a 3.8-meter antenna hub station in Sun City West, Arizona and one hundred 0.25-meter remote terminals throughout the United States. In the applications, APS states that it intends to use the hub station to communicate with ALSAT-designated satellites. Pursuant to Section 25.112(a)(1) of the Commission's rules, 47 C.F.R. § 25.112(a)(1), we dismiss the application as defective without prejudice to refiling.²

First, APS did not list a point of communication for its remote terminals, as required in FCC Form 312, Schedule B.³ Second, we cannot determine the proposed emission power of the hub or remote terminals due to inconsistencies among the proposed maximum EIRP density per carrier listed in the application and the average EIRP density calculated from other parameters. Specifically, for the 1M0G7DCC emission, APS indicates the maximum EIRP density per carrier for the hub station is -24.2 dBW/4kHz (Question E49). However, we calculate an average value of +20.83 dBW/4kHz as derived from the maximum EIRP per carrier of 44.8 dBW (Question E48) and 1.0 megahertz necessary bandwidth (Question E47). Similarly, for the same emission, APS indicates that the maximum EIRP density per carrier for the remote stations is -39.5 dBW/4kHz (Question E49). However, this value is less than the average value of +8.02 dBW/4kHz as derived from the maximum EIRP per carrier of 32.0 dBW (Question E48) and 1.0 megahertz necessary bandwidth (Question E47). Further, APS lists the total EIRP for all carriers for the remote stations as 39.5 dBW (Question E40). This is inconsistent with the Total EIRP of 26 dBW calculated using the proposed transmit antenna gain of 26 dBi (Question E41/E42) with the proposed maximum input power at the antenna flange of 1 Watt (Question E38).

¹ 14.0-14.5 GHz.

² If APS refiles an application identical to the one dismissed, with the exception of supplying the corrected information, it need not pay an application fee. *See* 47 C.F.R. § 1.1109(d).

³ Should APS choose to refile the application, we note that only those fixed-satellite service earth stations that are two-degree compliant and that operate in the 3700-4200 MHz, 5925-6425 MHz, 11.7-12.2 GHz, or 14.0-14.5 GHz bands can request ALSAT as a point of communication.

In addition, APS indicated in its application that it plans to use the direct sequence spread spectrum Code Division Multiple Access (CDMA) technique. CDMA is a method of increasing the amount of traffic within a VSAT network by assigning different codes to transmissions to or from different remote earth stations, so that transmissions can occur simultaneously without causing harmful interference to each other. However, these simultaneous transmissions, when considered together, can result in EIRP levels that exceed the VSAT power limit specified in the Commission's rules. Accordingly, Section 25.134(g) of the Commission's rules, 47 C.F.R. § 25.134(g), requires applicants for VSAT licenses planning to use CDMA to reduce the maximum power of any given individual transmission.⁴ However, in Exhibit 3 of its application, APS states that its individual transmissions within its VSAT network will be as high as those allowed when the VSAT network operator does not plan to use CDMA.⁵ Thus, APS does not meet the requirements of Section 25.134(g), and did not request a waiver of this rule in its application.

Moreover, Section 25.220(c)(1) of the Commission's rules, 47 C.F.R. § 25.220(c)(1), sets forth a procedure for earth station applicants seeking authority to operate at power levels in excess of those specified elsewhere in Part 25. For the same reason that APS does not comply with Section 25.134(g), it does not comply with Section 25.220(c)(1). Specifically, in Exhibit 3, APS provides a graph showing that the off-axis EIRP density level of a single transmitting terminal meets the off-axis EIRP envelope applicable to the operations of a single terminal. However, the graph in Exhibit 3 should compare the EIRP density of APS's proposed VSAT network operations to an envelope that has been reduced to account for the fact that there will be more than one co-frequency simultaneously transmitting earth station in the same satellite receiving beam. As a result, the graph in Exhibit 3 does not adequately demonstrate that the proposed earth station operations would appear like those of a routinely authorized earth station, as required by Section 25.220(c)(1).⁶

Further, in response to Question E47, APS listed 1M0G7DCC as an emission designator. This does not conform to the Commission's emission designator rules. Section 2.201(b) of the Commission's rules provides that "[A] minimum of three symbols are used to describe the basic characteristics of radio waves. First symbol-type of modulation of the main character; Second symbol-nature of signal modulating the main carrier; Third symbol-type of information to be transmitted." Also, Section 2.202(b)(1) of the Commission's rules, 47 C.F.R. § 2.202(b)(1),

⁴ Specifically, such applicants must reduce their power by $10\log(N)$, where N is the number of simultaneous transmissions.

⁵ In other words, the applicant plans to operate at $-14 \text{ dBW}/4 \text{ kHz}$, instead of $-14 - 10\log(N) \text{ dBW}/4 \text{ kHz}$.

⁶ Should APS choose to re-file its application, we recommend that it include a spreadsheet demonstration containing: (1) the routinely licensed input power density of $-14-10 \log(N) \text{ dBW}/4 \text{ kHz}$; (2) maximum antenna Gain (dbi) at transmit center frequency of 14.25 GHz; (3) the Maximum EIRP density for the proposed remote antenna ($\text{dBW}/4 \text{ kHz}$); (4) non-routinely sized antenna input power density ($\text{dBW}/4 \text{ kHz}$); (5) the co-pol antenna gain under Section 25.209(a)(1); (6) off-axis EIRP density reduced by the number of co-frequency simultaneously transmitting remote earth stations in the same satellite receiving beam under Routine licensing; (7) Non-Routinely sized antenna off-axis antenna Gain (dBi); and (8) maximum off-axis EIRP density of non-routinely sized antenna ($\text{dBW}/4 \text{ kHz}$). We also recommend stating the Theta in increments of 0.1 from 1 degree to 3 degrees; increments of 0.5 from 3 degrees to 7 degrees; increments of 5 degrees from 7 degrees to 9.2 degrees and from 9.2 degrees to 48 degrees; and increments of 20 from 48 degrees to 180 degrees.

indicates that the necessary bandwidth of the emission designator is to be expressed by three numerals and one letter. Therefore, the last two symbols and the designation of the necessary bandwidth of the emission designator do not conform to the Commission's rules.

While we dismiss the application on the above basis, we take the opportunity to apprise APS of other discrepancies within the application that need to be corrected should it choose to re-file the application.

Specifically, in response to Question E38, APS listed the total input power at the antenna flange as 0.18 Watts. In the Radiation Hazard Report submitted with the application, however APS indicated that the input power into the antenna is 4 Watts.

Also, in response to Questions E56 through E59 on Schedule B, APS listed the minimum antenna elevation angle for the 3.8 meter hub station and for the 0.25 meter remote terminals as 0 degree. Section 25.205 of the Commission's rules, 47 C.F.R. § 25.205, however, states that earth station antennas shall not be authorized for transmission at an angle that is less than 5 degrees measured from the horizontal plane to the direction of the maximum radiation.

In light of the above, pursuant to Section 25.112(a)(1)⁷ of the Commission's rules, 47 C.F.R. § 25.112(a)(1), and Section 0.261 of the Commission's rules on delegations of authority, 47 C.F.R. § 0.261, we dismiss the application as defective without prejudice to re-filing.

Sincerely,

Scott A. Kotler
Chief, Systems Analysis Branch
Satellite Division
International Bureau

⁷ 47 C.F.R. § 25.112(a)(1). See also Echostar Satellite LLC, *Order on Reconsideration*, DA 04-4056 (released December 27, 2004).