

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of
Petition for a Declaratory Ruling, a
Clarification or, in the Alternative, a Waiver of
Certain Narrowband Personal Communications
Services (PCS) Rules as they Apply to a
High-Altitude Balloon-Based Communications
System

MEMORANDUM OPINION AND ORDER

Adopted: September 11, 2001

Released: September 12, 2001

By the Chief, Wireless Telecommunications Bureau:

I. INTRODUCTION

1. In this Order, the Wireless Telecommunications Bureau (Bureau) addresses Space Data Corporation's (Space Data) petition for declaratory ruling or waiver of certain narrowband Personal Communications Services (PCS) rules as they apply to the operation of its proposed high altitude balloon-based communications system. We conclude that a limited waiver of the rules is appropriate to enable Space Data to operate high-altitude repeaters as proposed, and that subject to this waiver, Space Data's system is compliant with the narrowband PCS rules and will not adversely affect the operations of other licensees. Therefore, as discussed below, we grant Space Data's waiver request in part, subject to the conditions set forth herein.

II. BACKGROUND

2. Space Data states in its request that it has developed a communications system to provide nationwide two-way paging and other advanced messaging services on narrowband PCS spectrum by means of a network of high-altitude repeaters mounted on free-floating balloons similar to weather balloons. The balloon-borne system is designed to extend service particularly to rural and other underserved geographic regions in the United States that are too remote and/or too high cost to be covered by ground-based infrastructure. As proposed, the Space Data system consists of a network of ground stations that will control and communicate with small (6 pound) balloon-mounted repeaters launched from launch sites distributed across the continental U.S. The repeaters will be mounted either on high-altitude weather balloons that are used by the National Weather Service (NWS) to gather daily nationwide

1 Space Data's Petition for a Declaratory Ruling or in the Alternative for a Waiver, filed April 10, 2001 (Petition).

2 Id. at 2.

3 Id. The Commission granted a two-year experimental authorization to Space Data to test and develop the technical, equipment, engineering and operational parameters necessary to deploy Space Data's nationwide service. See Experimental License No. 0320-EX-PL-1999 (granted February 8, 2000).

atmospheric information, or on high-altitude balloons launched by Space Data that will be equivalent to the NWS balloons in size, configuration, and operation.<sup>4</sup> The balloons will be launched every 12 hours from each of 69 launch sites, and will rise to an altitude of 100,000 feet, where each repeater will operate for approximately 12 hours -- the life span of a typical balloon at 100,000 feet. At that point, each repeater will be deactivated and will parachute back to the ground. Each repeater will be encased in a Styrofoam container with a postage-paid return label attached so that if found, it can be returned to Space Data. Space Data will meanwhile launch a new set of balloon-borne repeaters and the 12-hour cycle will be repeated. Space Data notes that the NWS has been launching a nationwide network of balloons and payloads every 12 hours in this manner for more than 50 years.<sup>5</sup>

3. Space Data proposes to operate its system on a nationwide basis using narrowband PCS spectrum. For this purpose, Space Data has undertaken to acquire the nationwide narrowband PCS paired 50/50 kHz channel previously held by TSR Wireless, Inc. (TSR), which filed for Chapter 7 bankruptcy in December 2000. The bankruptcy court has conducted an auction of TSR's assets, at which Space Data was the high bidder for TSR's narrowband PCS license.<sup>6</sup>

4. Operation of the Space Data system is analogous to a ground-based paging system that uses a central base station to transmit paging data to a repeater which, in turn, retransmits the data to the customer's pager.<sup>7</sup> In the Space Data system, messaging traffic is sent from a national operating center to a ground station, from which the data is transmitted to the nearest balloon-borne repeater. The repeater, in turn, retransmits the data to the end-user's two-way pager.<sup>8</sup> Messages originating from the end-user's two-way pager are transmitted back to the balloon-borne repeater and then relayed to the nearest ground station. Space Data estimates that each airborne repeater provides coverage over a circular area having a radius of 284 kilometers, the equivalent of multiple ground-based sites. Thus, the use of high altitude repeaters will enable Space Data to achieve comprehensive coverage of the continental U.S., including remote and otherwise unserved areas, at far less cost than a solely ground-based system.<sup>9</sup> Space Data also states that its system will carry paging and other advanced messaging traffic for ground-based paging service providers, and that the system has accordingly been designed to be compatible with a broad selection of commercially available paging devices.<sup>10</sup>

5. In its petition, Space Data seeks action with respect to three Commission rules that affect the prospective operation of its system. First, Space Data seeks a declaratory ruling that its high altitude repeaters should be classified as "base stations" as the term is used in the narrowband PCS rules. Alternatively, Space Data requests that its repeaters be authorized on a waiver basis to operate under the rules applicable to base stations. Second, Space Data requests clarification or, alternatively, waiver of the rule requiring narrowband PCS licensees to maintain a current listing of all base station locations. Third, Space Data seeks a declaratory ruling that balloon-borne repeaters are not subject to the Commission's

---

<sup>4</sup> Space Data Reply Comments at 19, note 41. Space Data represents that it is currently negotiating with NWS regarding possible mounting of its repeaters on NWS balloons.

<sup>5</sup> Space Data Reply Comments at 22-23.

<sup>6</sup> Petition at 4. The license for narrowband PCS nationwide Channel 4, call sign KNKV204, consists of 901.15-901.20 MHz paired with 940.15-940.20 MHz. A separate application for consent to assignment of the license from TSR to Space Data is pending before the Commission. *See* ULS File No. 0000423487.

<sup>7</sup> Space Data contends that its balloon units resemble cellular repeaters, which serve as extensions of associated base stations and are permitted to operate at the same power levels as the base station. Petition at 6, *citing* 47 C.F.R. § 22.913(a).

<sup>8</sup> Petition at 3-4; Space Data Reply Comments at 2.

<sup>9</sup> Space Data Reply Comments at 9.

<sup>10</sup> Petition at 3-4.

Part 17 antenna registration requirements.

6. The Bureau sought public comment on the Space Data Petition on April 19, 2001.<sup>11</sup> The petition is supported by Coborn's, Inc. (food retailer), Motorola (paging equipment manufacturer), the National Indian Telecommunications Institute (research and policy development organization focusing on Native American telecommunications issues), SkyTel Corp. (provider of nationwide messaging services), and TGA Technologies, Inc. (paging infrastructure manufacturer). The petition is opposed by Arch Wireless, Inc. (Arch) and Cingular Wireless LLC (Cingular).

### III. DISCUSSION

7. Section 1.2 of the Commission's rules provides that the Commission may "on motion or on its own motion issue a declaratory ruling terminating a controversy or removing uncertainty."<sup>12</sup> Section 1.3 of the Commission's rules allows the Commission to grant a waiver request upon a showing of good cause.<sup>13</sup> Further, Section 1.925(a)(3) of the Commission's rules provides that the Commission "may grant a request for waiver if it is shown that: (i) [t]he underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the requested waiver would be in the public interest; or (ii) [i]n view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative."<sup>14</sup>

8. We conclude that, while Space Data's proposed balloon-borne repeaters do not fall within the definition of "base station" as that term is used in the narrowband PCS rules, Space Data has demonstrated unique and special circumstances that justify applying the base station rules to its repeaters, subject to certain operational restrictions to prevent interference to other domestic or international spectrum users. We also decline to apply the requirement that Space Data provide a listing of "locations" of its airborne repeaters, provided that Space Data continuously tracks and records their movement and makes such information available to others. We conclude that balloon-borne repeaters are not subject to the Commission's antenna registration requirements, but note that Space Data must comply with separate Federal Aviation Administration (FAA) regulations relating to high altitude balloons of this type. Finally, we conclude that prior to commencing operations, Space Data must address the environmental impact of its proposal under the Commission's rules implementing the National Environmental Policy Act (NEPA), and we condition the waiver accordingly.

9. Application of the Narrowband PCS Base Station Rules. The narrowband PCS rules define a "base station" as a "land station . . . not intended to be used while in motion."<sup>15</sup> Space Data seeks a declaratory ruling that, although its balloon-borne repeaters are not land-based and will be operated while in motion, they are classifiable as base stations rather than as mobile stations because they perform the same function in Space Data's network as conventional fixed base stations, *i.e.*, they transmit to and receive transmissions from mobile units operated by end-users.<sup>16</sup> Space Data also argues that classifying its repeaters as base stations is justified because the narrowband PCS rules were written broadly in order to foster innovative services, and because the rules do not specifically exclude the

---

<sup>11</sup> Wireless Telecommunications Bureau Seeks Comment on Space Data Research, LLC's Request for Declaratory Ruling or Waiver Regarding the Narrowband PCS Rules, *Public Notice*, DA 01-970 (WTB rel. April 19, 2001) .

<sup>12</sup> 47 C.F.R. § 1.2.

<sup>13</sup> 47 C.F.R. § 1.3.

<sup>14</sup> 47 C.F.R. § 1.925(3).

<sup>15</sup> 47 C.F.R. § 24.5.

<sup>16</sup> Petition at 5-6.

possibility of airborne base stations.<sup>17</sup>

10. Alternatively, Space Data requests a waiver of the “base station” definition to allow its repeaters to operate under the transmitter power and interference limits applicable to narrowband PCS base stations.<sup>18</sup> Space Data seeks to operate under these limits because at high altitude, its repeaters must operate at up to 190 watts ERP to retransmit ground traffic, which is well within the 3500 watt limit for base stations but would be precluded if the mobile station limit of 7 watts were applied.<sup>19</sup> Space Data argues that a waiver is justified because it has developed a unique and innovative approach to providing advanced messaging services to remote and underserved areas of the United States.<sup>20</sup> Space Data also argues that strict application of the narrowband PCS rules to prohibit its operation would frustrate the underlying purpose of the rules and would not be in the public interest.<sup>21</sup>

11. The opponents of the Space Data Petition, Arch and Cingular, argue that high altitude balloon-borne repeaters are not base stations within the meaning of the narrowband PCS rules, and that Space Data’s declaratory ruling request should therefore be denied.<sup>22</sup> With respect to Space Data’s alternative waiver request, Arch argues that the issues raised by the petition should be addressed in a rulemaking proceeding rather than by waiver.<sup>23</sup> Specifically, Arch contends that a rulemaking is required because of potential interference, safety, and environmental concerns raised by Space Data’s request.<sup>24</sup>

12. With respect to Space Data’s request for declaratory ruling, we conclude that Space Data’s proposed airborne repeaters do not fall within the definition of “base station” as that term is used in the narrowband PCS rules. Section 24.5 defines a base station as a “land station . . . not intended to be used while in motion.”<sup>25</sup> Because neither of these attributes applies to balloon-borne repeaters operating at 100,000 feet, we find that the Space Data repeaters fall outside the plain meaning of the definition. Therefore, we deny this aspect of Space Data’s petition.

13. We conclude, however, that Space Data has met the standard for grant of a waiver to allow operation of its airborne repeaters, subject to certain limitations and conditions set forth below. We reject the view put forth by Arch that these issues can only be addressed in a rulemaking proceeding. “[T]he essence of waiver is a narrow, particularized exception to a rule based on a showing by a particular party that such an exception will not subvert the rule under that party’s unique circumstances.”<sup>26</sup> Space Data’s waiver request meets this standard because it seeks narrowly crafted relief from the narrowband PCS rules based on the unique characteristics of Space Data’s technical proposal, and because the interference, safety, and environmental concerns raised by other commenters, to the extent they are well-founded, can be addressed through appropriate conditions and limitations on the waiver. We also find that granting relief subject to the conditions discussed in this order will not fundamentally alter the nature of the narrowband PCS service or otherwise subvert the narrowband PCS rules. In this respect, Space

---

<sup>17</sup> Space Data Reply Comments at 4-5.

<sup>18</sup> Petition at 13.

<sup>19</sup> *Id.* at 6. Mobile stations are limited to an operating power of 7 watts ERP. 47 C.F.R. § 24.132(b).

<sup>20</sup> *Id.* at 14.

<sup>21</sup> *Id.* at 13.

<sup>22</sup> Arch Comments at 2-3; Cingular Comments at 2-3.

<sup>23</sup> Arch Comments at 4.

<sup>24</sup> *Id.*

<sup>25</sup> 47 C.F.R. § 24.5.

<sup>26</sup> *Wait Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969), *cert.denied*, 409 U.S. 1027 (1972).

Data's request is analogous to the waiver request previously granted by the Bureau to AirCell, Inc. (AirCell) to allow AirCell to operate a specialized aircraft-based cellular system otherwise prohibited by the cellular rules.<sup>27</sup> In the *AirCell Order*, which was upheld by the Commission, the Bureau concluded that a waiver rather than a rulemaking was the appropriate vehicle for granting the requested relief. We reach the same conclusion here, and therefore turn to the substantive merits of Space Data's waiver request.

14. Airborne transmitter power limits and interference protection. As noted above, Space Data seeks to operate its repeaters subject to the power limits and interference protections applicable to narrowband PCS base stations. These rules allow narrowband PCS base stations to operate at up to 3500 watts ERP,<sup>28</sup> although Space Data states that its airborne repeaters will operate at a maximum of 190 watts ERP. Space Data contends that its proposed operation will not cause interference to other spectrum users. First, Space Data submits that because it intends to operate on narrowband PCS spectrum licensed to it on a nationwide basis, there is no risk of co-channel interference to other narrowband PCS licensees.<sup>29</sup> Second, Space Data contends that its airborne operation will not cause harmful interference to adjacent channel licensees because signals from its repeaters will be naturally attenuated due to the balloons' high altitude.<sup>30</sup> Finally, Space Data asserts that if potential interference issues arise, they can be resolved immediately because Space Data will have the ability to control the direction of and, if necessary, shut down transmissions from any balloon-borne repeater that threatens to cause interference.<sup>31</sup>

15. We conclude that Space Data's proposal does not create a risk of harmful interference to other spectrum users, provided that it operates its system subject to certain technical limitations. First, with respect to co-channel interference, we agree with Space Data that so long as the system is operated on nationwide narrowband PCS spectrum that is licensed exclusively to Space Data, there is no risk of domestic co-channel interference from balloon-borne transmissions. Therefore, we will grant a waiver limited to nationwide narrowband PCS channels licensed to Space Data. We note, however, that operation of Space Data's system near the Canadian and Mexican borders raises potential co-channel issues that require additional limitations and international coordination. We discuss international limitations on Space Data's operation separately below.<sup>32</sup>

16. With respect to adjacent channel interference, Cingular contends that Space Data's high altitude repeaters threaten to cause harmful adjacent-channel interference to other domestic licensees.<sup>33</sup> In response, Space Data has filed an interference analysis of the potential impact of its repeaters on adjacent channels.<sup>34</sup> According to this analysis, the findings of which are not contested by Cingular or

---

<sup>27</sup> In re AirCell, Inc., Petition, Pursuant to Section 7 of the Act, for a Waiver of the Airborne Cellular Rule, or, in the Alternative, for a Declaratory Ruling, *Order*, 14 FCC Rcd 806 (Wireless Tel. Bur. 1998); In re AirCell, Inc., Petition, Pursuant to Section 7 of the Act, for a Waiver of the Airborne Cellular Rule, or, in the Alternative, for a Declaratory Ruling, *Memorandum Opinion and Order*, 15 FCC Rcd 9622 (2000).

<sup>28</sup> 47 CFR § 24.132(c).

<sup>29</sup> Petition at 11.

<sup>30</sup> Petition at 11-12.

<sup>31</sup> Petition at 12.

<sup>32</sup> See para. 28, *infra*.

<sup>33</sup> Cingular Comments at 6-7.

<sup>34</sup> Interference Analysis for Balloon-borne Repeaters in the Narrowband Personal Communications Service by Theodore S. Rappaport, P.E., PhD. and James S. Tucker, Professor of Engineering, Mobile and Portable Radio Research Group, Bradley Department of Electrical and Computer Engineering, Virginia Tech University (Interference Analysis), filed May 21, 2001.

any other commenter to the proceeding, transmissions at the power levels proposed by Space Data from balloon-borne repeaters at 100,000 feet will be highly attenuated by the time they reach the ground. In fact, the analysis indicates that they will be near the theoretical thermal noise limits (even without considering the adjacent channel device's selectivity filtering), and well below the typical receive sensitivity of adjacent channel receivers.<sup>35</sup>

17. Even assuming that the potential for adjacent channel interference could arise, Space Data asserts that such issues can be quickly resolved because of Space Data's ability to track and control the operation of each of its balloon-borne repeaters. Space Data states that its system will continuously receive Global Positioning System (GPS) coordinates from each balloon-borne transmitter that will provide a real-time fix on the location of any repeater at any given moment.<sup>36</sup> In addition, through its network of ground stations, Space Data will have the ability to signal any repeater to adjust the power and direction of its transmissions, or to shut down the repeater altogether.<sup>37</sup>

18. Based on the interference analysis submitted by Space Data, we conclude that Space Data's proposed operation of high altitude repeaters is not likely to cause harmful adjacent-channel interference to adjacent narrowband PCS licensees or other spectrum users. No commenter disputes the methodology, findings, or conclusions of Space Data's analysis, and we find no independent basis to quarrel with its findings. We also note that Space Data has already operated balloon-borne receivers under an experimental license with no allegations or complaints that this has caused harmful interference. We conclude, therefore, that the limits placed on Space Data's operation are sufficient to protect against the possibility of harmful interference. First, we set the maximum transmitter power for Space Data's airborne repeaters at 190 watts ERP, the maximum power level identified in the petition. Second, we require Space Data to take immediate remedial action if its operations violate adjacent channel interference limits applicable to narrowband PCS licensees.

19. Transmitter Location Information. Section 24.415(j) of the Commission's rules requires that narrowband PCS licensees maintain a current list of all station (*i.e.*, transmitting antenna) locations, using geographical coordinates and conventional references to street numbers, landmarks, or the equivalent.<sup>38</sup> Space Data seeks clarification or waiver of this rule to avoid being required to list the "locations" of individual repeaters that are operational for only 12 hours and are in motion while operational.<sup>39</sup> Cingular argues that the purpose of the rule is to ensure that station locations are readily identifiable in case interference issues arise, and that allowing Space Data to operate airborne repeaters without providing information regarding their location and operational status will leave third parties and the Commission unable to trace interference caused by Space Data to its source.<sup>40</sup>

20. We conclude that Section 24.415(j) applies on its face to fixed ground-based stations and was not intended to apply to airborne transmitters that do not have fixed coordinates. Therefore, we decline to apply the rule to Space Data. However, we agree with Cingular that Space Data should be

---

<sup>35</sup> *Id.* at 9. Space Data states that it is more likely that adjacent channel users would cause interference to end users of the Space Data system, particularly where a Space Data end user is close to an adjacent channel terrestrial tower. However, because Space Data proposes to focus its operations in remote areas where ground-based networks do not exist, it asserts that its subscribers will rarely be close to any interfering terrestrial tower

<sup>36</sup> Petition at 12.

<sup>37</sup> *Id.* at 12-13.

<sup>38</sup> 47 C.F.R. § 24.415(j).

<sup>39</sup> Petition at 14-15. Space Data does not contest that the listing requirement applies to ground stations in its network.

<sup>40</sup> Cingular Comments at 7.

required to maintain both real-time and historical information regarding the airborne location and flight path of its repeaters, and to make such information available in the event of a complaint about possible interference. As noted above, Space Data's repeaters will be GPS-equipped so that their location can be tracked on a real-time basis. Space Data also states that its tracking system maintains a complete historical record of every balloon-borne repeater's flight path from start to finish and can retain this information indefinitely.<sup>41</sup> Therefore, as a condition of the waiver, we require Space Data to generate and maintain location and flight path information for each airborne repeater, and to make such information available to the Commission or third parties upon request.

21. Antenna Registration Requirements. Part 17 of the Commission's rules requires specified types of antenna structures that potentially affect air navigation and safety to be registered with the Commission and identified to the FAA.<sup>42</sup> Part 17 also sets forth requirements concerning antenna structure painting, marking, and lighting to ensure air safety.<sup>43</sup> Although these requirements are generally the responsibility of antenna structure owners, Section 24.55 of the narrowband PCS rules makes narrowband PCS licensees responsible for ensuring that the Part 17 requirements are met with respect to antenna structures used by their systems.<sup>44</sup> Space Data requests that the Commission clarify that these antenna registration requirements do not apply to Space Data's repeaters mounted on high altitude balloons.<sup>45</sup> Cingular opposes this request, arguing that if Space Data mounts its transmitters on balloons in lieu of fixed structures pursuant to a waiver, it should be subject to the same registration burdens that are imposed on other licensees in the service.<sup>46</sup>

22. Space Data also notes that there are separate FAA regulations governing free-floating balloons of the type used by Space Data. Specifically, Section 101.11(a)(4) of the FAA's rules exempts unmanned free-floating balloons that carry payloads below certain weight thresholds from FAA regulations that otherwise govern operation, marking, and pre-launch notice. Space Data notes that the weather balloons and payloads used by NWS meet these size and weight specifications, and have been used successfully for 50 years without presenting a danger to air safety or navigation.<sup>47</sup> Space Data states that its balloons are identical to the NWS balloons, and that its repeaters also comply with the payload weight thresholds specified by the FAA. Space Data also states that it has fully coordinated with FAA regional authorities in carrying out balloon launches pursuant to its experimental license.<sup>48</sup>

23. We conclude that Space Data's balloon-borne repeaters are not subject to Part 17 because Part 17 applies to ground-based antenna structures and because balloons of the type used by Space Data are governed by separate FAA regulations. Part 17 requires registration and FAA notification of antenna structures that are greater than 200 feet in height or that are located within a range of specified distances from an airport.<sup>49</sup> Registration includes identification of fixed coordinates for the antenna structure. These requirements were clearly intended to apply to ground-based radio towers that could affect air

---

<sup>41</sup> Space Data Reply Comments at 16-17.

<sup>42</sup> 47 CFR §§ 17.4, 17.7.

<sup>43</sup> 47 CFR § 17.21.

<sup>44</sup> 47 CFR § 24.55.

<sup>45</sup> Petition at 15. Space Data acknowledges that its ground stations are subject to antenna registration requirements where the antenna structures meet the relevant Part 17 criteria.

<sup>46</sup> Cingular Comments at 8.

<sup>47</sup> Space Data Reply Comments at 18-19.

<sup>48</sup> *Id.*

<sup>49</sup> *See* 47 CFR § 17.7.

navigation.<sup>50</sup> However, nothing in Part 17 or the associated FAA requirements for antenna structures suggests that these requirements were also intended to apply to free-floating balloon-borne transmitters operating at 100,000 feet, well above any airport or associated commercial or general aviation aircraft. The fact that separate FAA regulations apply to unmanned balloon operations buttresses our conclusion here. We emphasize that our decision in no way exempts Space Data from being required to comply with all FAA regulations applicable to its operations, including the cited FAA regulations governing balloons of the type used by NWS and Space Data, and to coordinate its operations as necessary with the FAA.

24. Environmental Issues. Cingular asserts that the Space Data petition is defective because it makes no mention of any potential impact on the environment from the proposed use of balloon-based repeaters.<sup>51</sup> Cingular contends that because Space Data intends to launch thousands of repeaters over time that will fall to earth, an environmental assessment is required with respect to the components of the repeater units, including the transmitter and related electronics, battery, and ballast.<sup>52</sup>

25. In response, Space Data argues that it is not required to address environmental compliance issues because its balloon-borne repeaters comply with all relevant Environmental Protection Agency (EPA) regulations and do not trigger Commission review under the Commission's NEPA rules.<sup>53</sup> Space Data also contends that its use of balloon-borne repeaters will have no significant impact on the environment. Although Space Data proposes to launch approximately 69 balloons every 12 hours, all of which will return to earth, Space Data notes that the balloons will be spaced 150 to 480 kilometers apart,<sup>54</sup> and asserts that this distribution over the geographic area of the continental U.S. will be equivalent to one balloon landing onto any given acre of land once every 38,350 years.<sup>55</sup> Space Data also notes that the repeater units will be housed in containers that are returnable to Space Data, postage pre-paid, and that the NWS has been launching and recovering balloon payloads at an 18% rate for over 50 years.<sup>56</sup> Space Data also contends that the electronics, batteries, ballast, and other materials in its repeater units are either not covered by, or otherwise do not trigger, environmental regulations.<sup>57</sup>

26. As a threshold matter, we disagree with Space Data's contention that its proposed use of airborne repeaters falls entirely outside the scope of environmental review under the Commission's NEPA rules. Space Data contends that these rules apply only to towers and other antenna facilities that are installed permanently at an environmentally sensitive site. However, Section 1.1307(a) states that environmental review is required of Commission action with respect to any facilities that may significantly affect the environment in one of eight specified ways.<sup>58</sup> Although such review has traditionally focused on fixed facilities such as towers and other antenna structures, the term "facilities" is

---

<sup>50</sup> Section 303(q) of the Communications Act, which confers specific jurisdiction on the Commission to implement antenna registration requirements, refers to "radio towers." 47 U.S.C. § 303(q).

<sup>51</sup> Cingular Comments at 8.

<sup>52</sup> *Id.*

<sup>53</sup> Space Data Reply Comments at 21.

<sup>54</sup> Ex Parte letter from David Munson, Counsel to Space Data Corporation to Wilbert E. Nixon, Jr., filed August 1, 2001, page 2.

<sup>55</sup> Ex Parte letter from Cheryl A. Tritt, Counsel to Space Data Corporation to Ms. Magalie Roman Salas, filed August 29, 2001, Presentation Slides, page 18.

<sup>56</sup> Space Data Reply Comments at 22-23.

<sup>57</sup> *Id.* at 21-23.

<sup>58</sup> See 47 C.F.R. § 1.1307(a). Section 1.1307(b) additionally requires an Environmental Assessment if a facility will cause human exposure to radio frequency emissions in excess of the Commission's guidelines. 47 C.F.R. § 1.1307(b).

not on its face limited to these. Therefore, we believe that the Space Data repeater units are classifiable as Commission-authorized “facilities” under the rule, and are not categorically excluded from environmental processing unless they fall within none of the categories specified in Section 1.1307(a) and (b).<sup>59</sup>

27. The facilities that Space Data proposes to launch have several unique characteristics that distinguish them from fixed facilities such as antenna structures. In particular, these facilities, upon their parachute descent to Earth, will be subject to the prevailing winds, and their landing location will not be under the control of Space Data. Under these circumstances, it is not obvious that the facilities may not, for example, affect listed threatened or endangered species or designated critical habitats, or affect sites listed or eligible for listing in the National Register of Historic Places.<sup>60</sup> More broadly, given the novelty of Space Data’s proposal, we believe we should consider generally whether the launching and landing of these facilities may have a significant environmental impact and that the environmental assessment process is the most appropriate method to conduct this evaluation.<sup>61</sup> Therefore, as a condition of the waiver, we require Space Data to provide us with an Environmental Assessment prior to commencing operation, and we do not authorize Space Data to begin operation until an Environmental Assessment is approved.

28. International Agreements. Space Data’s operation in the narrowband PCS spectrum will be subject to international agreements that govern narrowband PCS operations. Existing agreements with Mexico and Canada specify how the narrowband PCS spectrum is to be shared at points within 75 miles (or 120 kilometers) of the U.S./Mexico and U.S./Canada borders.<sup>62</sup> Because these agreements do not specifically address operations from high-altitude balloons, however, we conclude that the Commission should undertake discussions with Mexico and Canada to determine the appropriate long-term sharing conditions that would apply to Space Data’s narrowband PCS operation. Pending further agreement with Mexico and Canada, Space Data may conduct narrowband PCS operations from high-altitude balloons subject to the following conditions: (1) no operations are permitted within 120 kilometers (km) of the U.S./Mexico or U.S./Canada border, except as provided in (5) below; (2) operations between 120 km and 354 km of either border on U.S. primary frequencies are limited to a maximum effective radiated power (ERP) in watts per sub-channel, towards any point in Mexico or Canada, according to the formula  $ERP = 16 + .2(D - 75)$ , where D is the distance in miles from the border; (3) operations between 120 km and 240 km of either border on U.S. secondary frequencies are limited to a maximum ERP in watts per sub-channel, towards any point in Mexico or Canada, according to the formula  $ERP = .213(D-75)$ , except as provided in (5) below; (4) operations between 240 km and 475 km of either border on U.S. secondary frequencies are limited to a maximum ERP in watts per sub-channel, towards any point in Mexico or Canada, according to the formula  $ERP = 16 + .2(D - 150)$ ; (5) for telemetry, command, and control purposes only, operations are permitted on U.S. primary frequencies at any location within the U.S. and

---

<sup>59</sup> See 47 C.F.R. § 1.1307(a). Those actions not covered under Section 1.1307 are deemed “individually and cumulatively to have no significant effect on the quality of the human environment and are categorically excluded from environmental processing” at the Commission. See 47 C.F.R. § 1.1306(a).

<sup>60</sup> See 47 C.F.R. § 1.1307(a)(3), (4).

<sup>61</sup> See 47 C.F.R. § 1.1307(d) (“If the Bureau responsible for processing a particular action, otherwise categorically excluded, determines that the proposal may have a significant environmental impact, the Bureau, on its own motion, shall require the applicant to submit an EA [Environmental Assessment]”).

<sup>62</sup> Agreement Between the Government of the United States of America and the Government of the United Mexican States Concerning the Allocation and Use of Frequency Bands by Terrestrial Non-Broadcasting Radiocommunications Services Along the Common Border, June 16, 1994 (Mexico Agreement); Protocol Concerning the Allocation and Use of the Bands 901-902 MHz, 930-931 MHz, and 940-941 MHz Bands For Personal Communications Services Along the Common Border, May 15, 1995 (Mexico Protocol); Interim Sharing Agreement for the Bands 901-902 MHz, 930-931 MHz, 940-941 MHz, signed on October 21, 1994 (US-Canada Agreement).

on U.S. secondary frequencies at locations greater than 120 km from the U.S./Mexico and U.S./Canada borders, using only a single sub-channel, with a maximum of 4 watts ERP towards any point in Mexico or Canada and a transmission duty cycle of no more than 10 percent. U.S. primary and secondary frequencies are specified in the existing agreements. Space Data's operations may not cause harmful interference to any Canadian or Mexican operation that is protected under existing agreements, and the above conditions may be modified if harmful interference results. Final sharing conditions are subject to negotiation and agreement with Mexico and Canada. These negotiations may result in different border coordination or protection zones, and different operational restrictions, that would apply to Space Data operations near either border.

#### IV. ORDERING CLAUSES

29. Accordingly, IT IS ORDERED, pursuant to Sections 1.3 and 1.925 of the Commission's rules, 47 C.F.R. §§ 1.3, 1.925, that Space Data Corporation's request for rule waiver of Section 24.5 of the Commission's rules, 47 C.F.R. § 24.5, IS GRANTED, subject to the conditions set forth herein.

30. IT IS FURTHER ORDERED, pursuant to Sections 1.3 and 1.925 of the Commission's rules, 47 C.F.R. §§ 1.3, 1.925, that Space Data Corporation's request to clarify Section 24.415(j) of the Commission's rules, 47 C.F.R. §§ 24.415(j), IS GRANTED as described herein.

31. IT IS FURTHER ORDERED, pursuant to Sections 1.2 and 1.3 of the Commission's rules, 47 C.F.R. §§ 1.2, 1.3, that Space Data Corporation's request to clarify Sections 17.4, 17.7 and 24.55 of the Commission's rules, 47 C.F.R. §§ 17.4, 17.7 and 24.55, IS GRANTED as described herein, and its request in all other respects, IS DENIED.

32. This action is taken pursuant to the authority delegated in Section 0.331 of the Commission's rules, 47 C.F.R. § 0.331.

FEDERAL COMMUNICATIONS COMMISSION

Thomas J. Sugrue  
Chief, Wireless Telecommunications Bureau