



**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Telecommunications and**  
**Information Administration**  
Washington, D.C. 20230

**MAY 17 2018**

Mr. Julius P. Knapp  
Chief, Office of Engineering and Technology  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

**ACCEPTED/FILED**

**MAY 29 2018**

Federal Communications Commission  
Office of the Secretary

Mr. Donald K. Stockdale, Jr.  
Chief, Wireless Telecommunications Bureau  
Federal Communications Commission  
445 12<sup>th</sup> Street, SW  
Washington, DC 20554

**RE: Promoting Investment in the 3550-3700 MHz Band (GN Docket No. 17-258)<sup>1</sup>**

Dear Mr. Knapp:

The National Telecommunications and Information Administration (NTIA) and the Department of Defense (DOD) have worked in close collaboration with the Federal Communications Commission (FCC or Commission) as it implements the rules governing the Citizens Broadband Radio Service (CBRS) in the 3550-3700 MHz band (3.5 GHz Band). The comprehensive regulatory scheme adopted by the Commission includes specific licensing, technical, and service rules to enable dynamic sharing between multiple tiers of federal and commercial users in the 3.5 GHz Band.<sup>2</sup> The Spectrum Access System (SAS) is the automated frequency coordinator necessary to maximize efficiency in the band while protecting incumbent spectrum users. The SAS(s) will incorporate information from the Environmental Sensing Capability (ESC), which will be used to increase available spectrum in the coastal and other applicable areas while continuing to protect incumbent DOD radar systems.

In this letter, NTIA: (1) describes the Dynamic Protection Areas (DPAs) that can be used in conjunction with ESCs to enable protection of DOD radar systems while providing flexibility for commercial operations in the 3.5 GHz Band; (2) notifies the FCC of a new exclusion zone at Nellis Air Force Base (AFB), Nevada in accordance with 47 C.F.R. Section 96.15(a)(3); and (3) establishes protections for the quiet zones defined in 47 C.F.R. Section 1.924.

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<sup>1</sup> See *Promoting Investment in the 3550-3700 MHz Band*, GN Docket No. 17-258, Notice of Proposed Rulemaking and Order Terminating Petitions, FCC 17-134 (Oct. 24, 2017).

<sup>2</sup> See Amendment of the Commission's Rules with Regard to Commercial Operations in the 3550-3650 MHz Band, Order on Reconsideration and Second Report and Order in GN Docket No. 12-354 (rel., May 2, 2016).

The geographic area defining the boundaries of the DPA are described as coordinates of polygons. DPAs may be defined for incumbent protection inland or off shore. An activated DPA must be protected from aggregate CBSD interference based on specified protection criteria within the DPA. An ESC shall indicate a DPA is to be activated in a frequency range or set of CBSD channels. If a frequency range is not specified the default range will be 3550-3650 MHz. A minimum wait time shall be established for the DPA to switch from an activated to de-activated state if an ESC does not detect the presence of a radar signal. The polygons describing the DPAs are predefined and expected to be fixed in location, but may be revised over time as needed based on future 3.5 GHz Band radar system requirements.

NTIA used the following guidelines in defining the coastal DPAs:

- DPAs shall be large enough to ensure DOD's Operational Security (OPSEC) geolocation inaccuracy requirement of 65 nautical miles is satisfied;<sup>9</sup>
- DPAs shall be centered around key naval ports/shipyards;<sup>10</sup>
- DPAs for key naval ports/shipyards shall start at the coastline;
- DPAs not corresponding to key ports/shipyards shall start 10 kilometers from the coastline;
- DPA width and depth may vary based on local terrain profiles and other factors; and
- DPAs shall not overlap.

The DPAs for the East, West, Gulf, Alaska, Hawaii, and Puerto Rico coasts are defined in Attachment A.<sup>11</sup>

### **DPA Activation/De-Activation**

In the absence of an ESC, all DPAs are considered activated on all frequencies. If the SAS loses communications with the ESC or otherwise determines that the ESC has failed, the SAS shall activate all DPAs monitored by the failed ESC, over the entire frequency range for which the DPAs must be protected. The SAS must be capable of determining that an ESC failure has occurred.

DPAs may be activated by notification of an ESC. When the ESC detects radar operation, the ESC will send the DPA identification number and channels that need protection to all associated SASs within 60 seconds. The SAS will then activate that DPA on those

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<sup>9</sup> For OPSEC purposes the SASs and ESCs must not reveal any information pertaining to the movement or position of a federal system. ESC operators and SAS administrators interfacing with one or more ESCs must ensure at all points in their design and operation that the location of federal activity cannot be closely estimated or tracked. Given proposed ESC design constraints, the initial analysis from the DOD suggests a likely position estimate uncertainty of approximately 65 nautical miles.

<sup>10</sup> The key naval ports and shipyards include: Norfolk, VA; Jacksonville, FL; San Diego, CA; Bremerton, WA; Everett, WA; Pearl Harbor, HI; Bath, ME; Newport News, VA; Pascagoula, MS; and New Orleans, LA.

<sup>11</sup> When feasible, DPA geographical definition may take into account practical and cost considerations for ESC sensor deployment.

## NELLIS AFB EXCLUSION ZONE

Section 96.15(a)(3) of the Commission's Rules for CBRS specifies the exclusion zones for federal radiolocation sites. The Rules provide that NTIA may update the list of protected federal sites. NTIA hereby notifies the Commission that it is adding a new exclusion zone for the 3.5 GHz Band at Nellis AFB, Nevada. The coordinates defining the new exclusion zone are provided in Attachment B. The Nellis AFB exclusion zone was developed so as to minimize the impact on populated areas where CBSDs could be deployed.

## PROTECTION OF QUIET ZONES

NTIA's Institute for Telecommunication Sciences (ITS) is the Department of Commerce entity with delegated responsibility for protecting the Table Mountain Radio Receiving Zone from possible harmful interference.<sup>13</sup> Field strengths of radiated signals from CBSDs operating in the 3.5 GHz Band that are received on this 1800 acre protected site should not exceed a power-flux density of  $-85.8 \text{ dBW/m}^2$  in the authorized bandwidth of service.<sup>14</sup> ITS historically has coordinated all proposed frequency assignments to stations, including assignments to stations established under group authority, within specified conditions of power and radial distances from the Table Mountain reference point. Under the FCC's Part 96 Rules for the CBRS, the SAS is the automated frequency coordinator for frequency, bandwidth, and power assignments for priority access licenses and general authorized access CBSDs. As such, the only practical and effective way to ensure protection of the Table Mountain quiet zone from harmful interference from CBRS is for the Commission to require that the SAS shall have the capability and responsibility to ensure that operation of CBSDs complies with the field strength limits specified in Section 1.924(b)(1) of the FCC's rules.<sup>15</sup>

On April 19, 2018, NTIA sent a letter to the Chiefs of the FCC's Offices of Engineering and Technology (OET) and Wireless Telecommunications Bureau (WTB) seeking concurrence

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<sup>13</sup> The Table Mountain Radio Receiving Zone is an 1800 acre site in the vicinity of the reference point at coordinates 40.130660 degrees North Latitude, -105.244596 degrees West Latitude. NTIA was originally delegated the authority to protect Table Mountain by the Secretary pursuant to Department Organization Order 10-10, § 4. The authority has since been codified in the NTIA Organization Act, 47 USC 902(b)(1), and delegated to ITS pursuant to Department Organization Order 25-7, § 7. *See also* Commerce Real Property Management Manual, § 2.2.2.

<sup>14</sup> NTIA Manual of Regulations and Procedures for Federal Radio Frequency Management, Section 8.3.20 (rev. Sept. 2015); 47 C.F.R. Section 1.924(b)(1).

<sup>15</sup> 47 C.F.R. Section 1.924(b)(1).

in the 3.5 GHz Band to include the Nellis AFB and the NRAO/NRRO quiet zone sites,<sup>20</sup> and defines an activated DPA for the Table Mountain Radio Receiving quiet zone. NTIA looks forward to our collaborative efforts in completing the SAS and ESC approval process to realize the full sharing potential in the 3.5 GHz Band while protecting critical federal operations.

If you have any questions, please contact me or Edward Drocella, Chief, Spectrum Engineering and Analysis Division, Office of Spectrum Management at [edrocella@ntia.doc.gov](mailto:edrocella@ntia.doc.gov) or (202) 482-2608.

Sincerely,

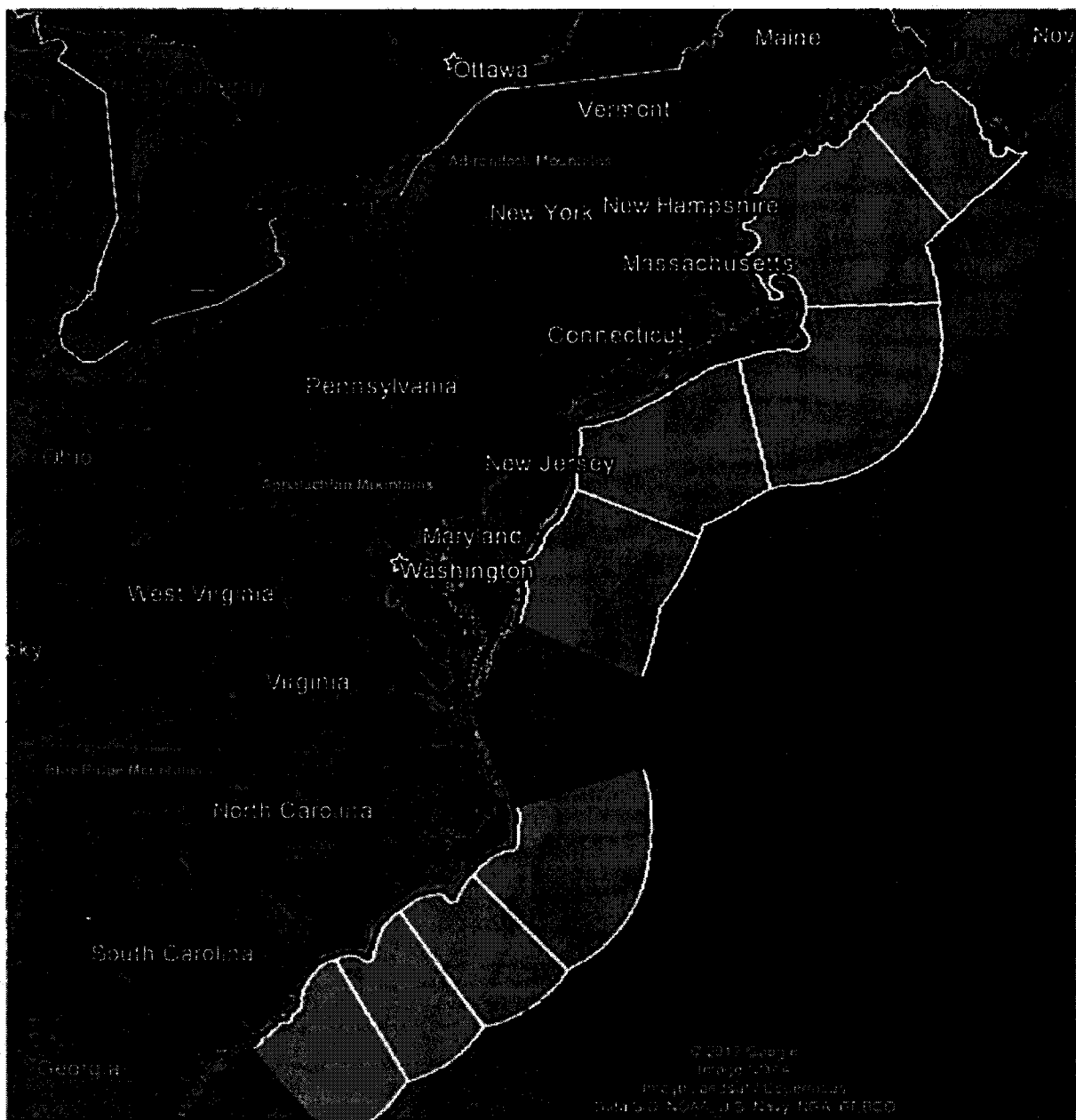


Paige R. Atkins  
Associate Administrator  
Office of Spectrum Management

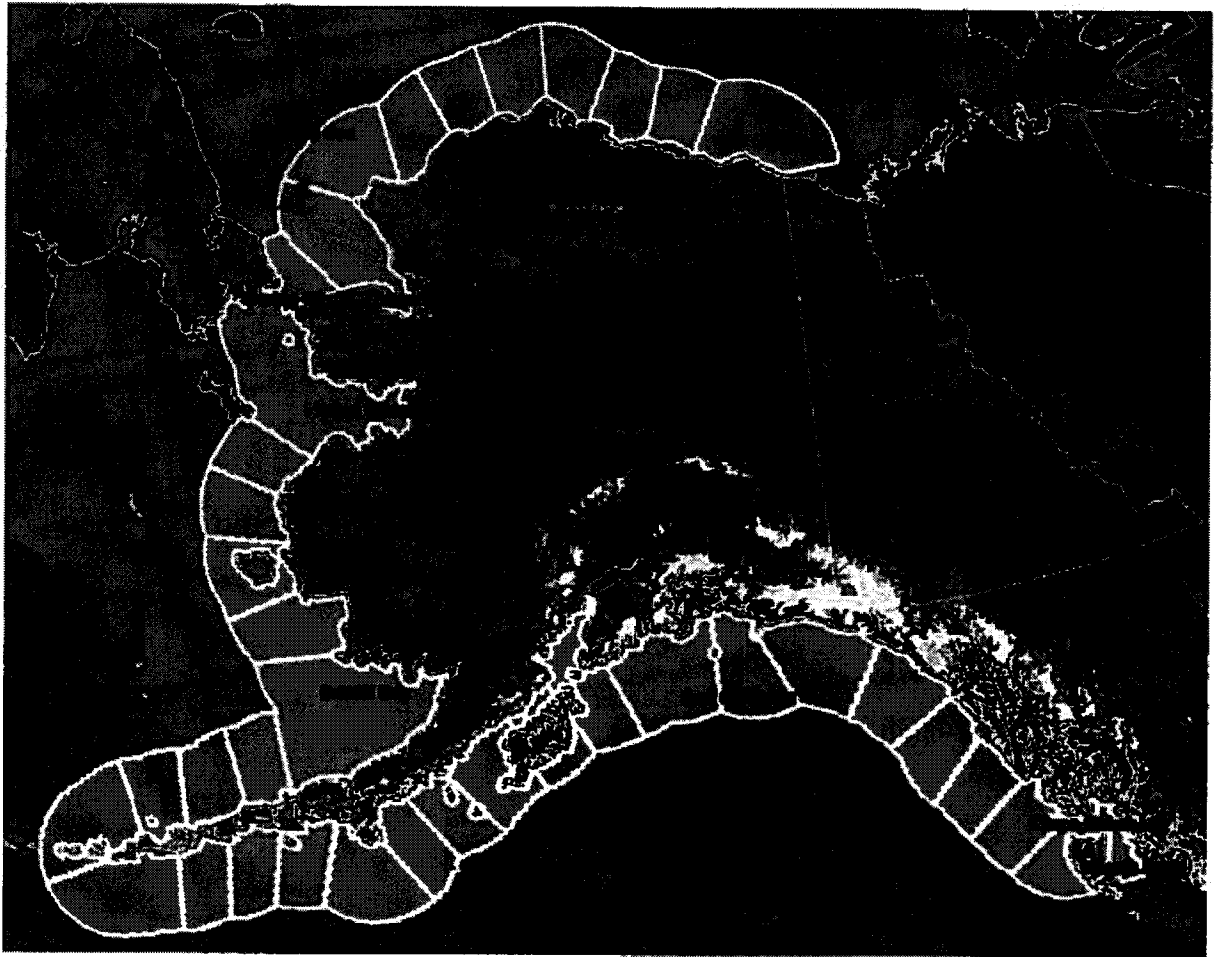
Attachments

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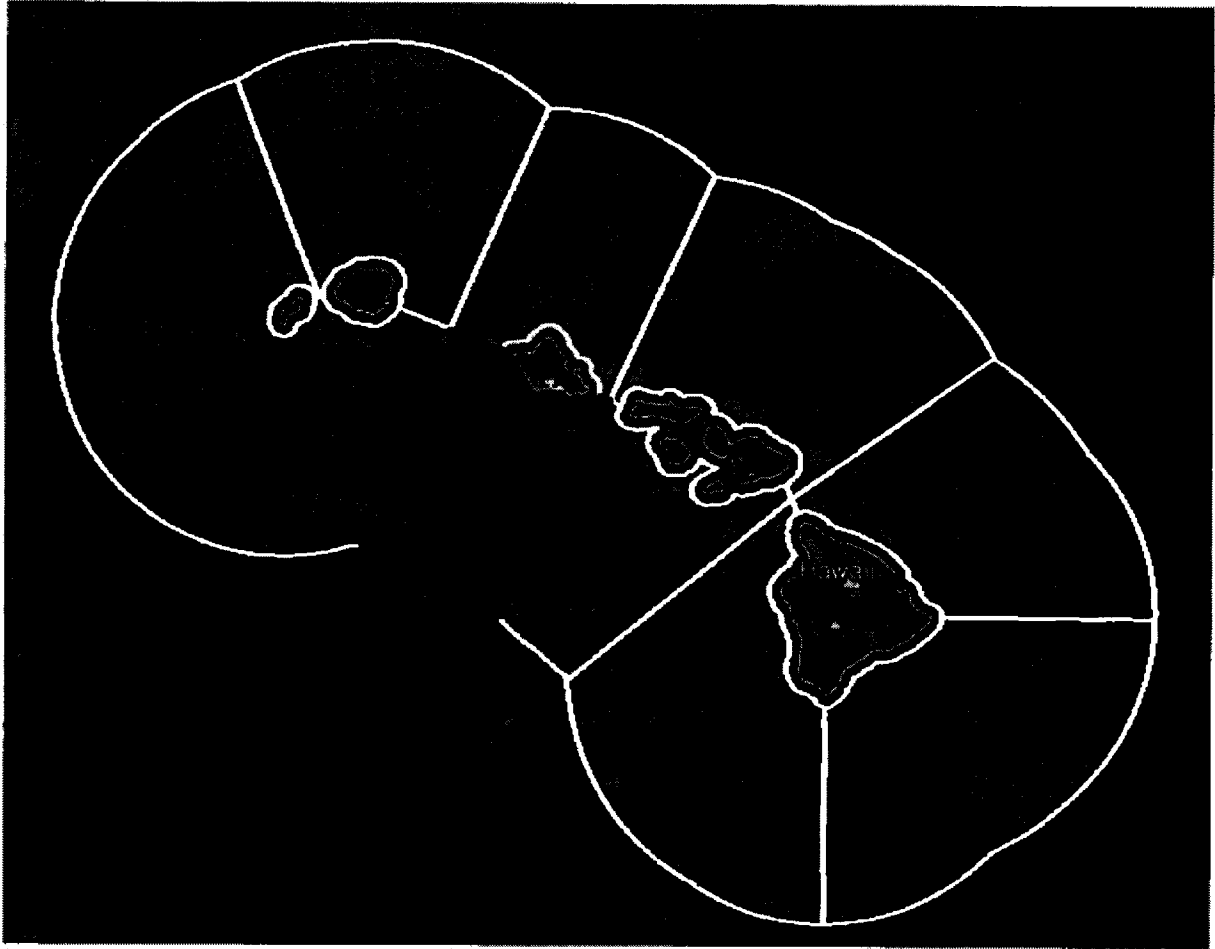
<sup>20</sup> The list of 3.5 GHz federal exclusion zones are available at <https://www.ntia.doc.gov/fcc-filing/2015/ntia-letter-fcc-commercial-operations-3550-3650-mhz-band>.



**Figure A-2. East Coast DPA**



**Figure A-4. Alaska Coast DPA**

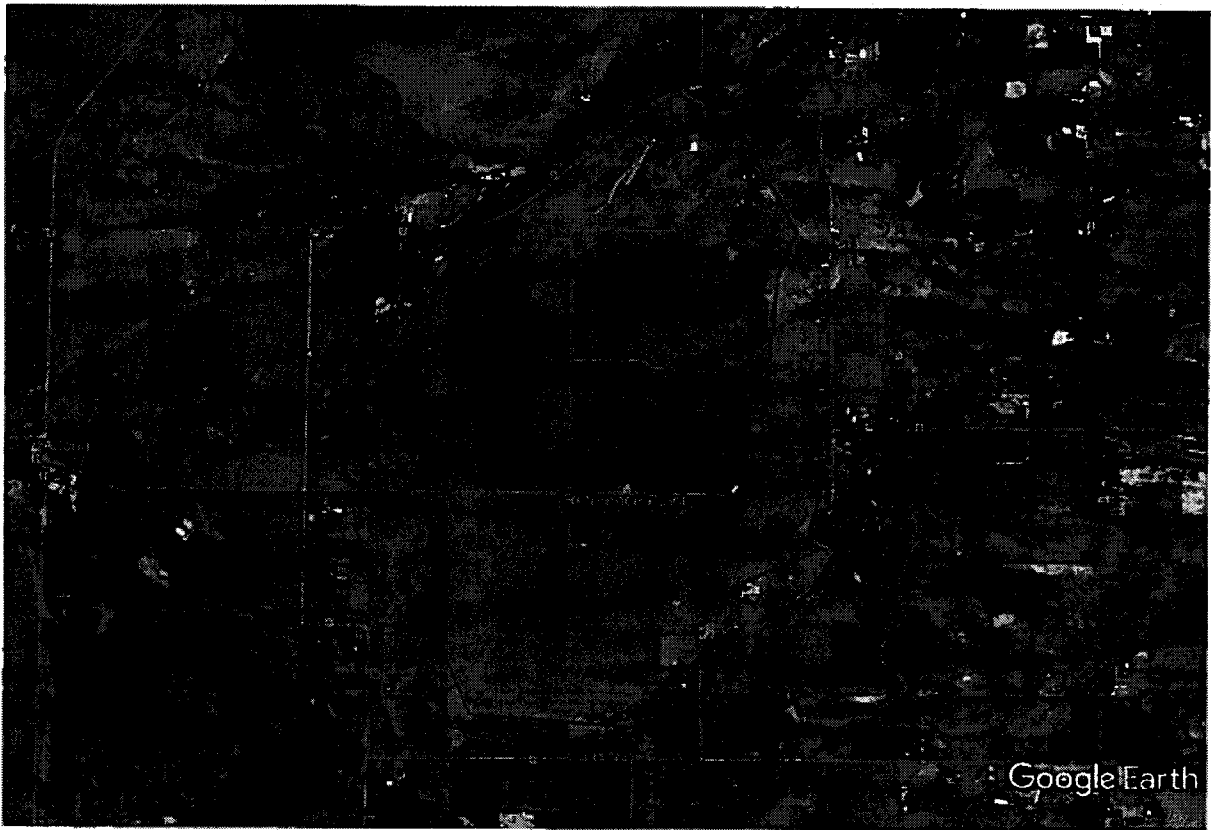


**Figure A-6. Hawaii DPA**

## **ATTACHMENT C PROTECTION OF RADIO QUIET ZONES**

### **TABLE MOUNTAIN RADIO RECEIVING ZONE**

Figure C-1 defines a single point dynamic protection area (DPA) for the Table Mountain Radio Receiving Zone that is always active. The reference point is at 9 meters above ground level at the coordinates: 40.130660 degrees North Latitude, -105.244596 degrees West Latitude. The DPA is calculated based on a received power at the reference point that must not exceed -118 dBW in the authorized bandwidth of the service (power flux-density of -85.8 dBW/m<sup>2</sup> assuming a 0 dBi gain antenna).



**Figure C-1. Table Mountain Radio Receiving Zone DPA Reference Point**



## ARECIBO OBSERVATORY

Figure C-3 defines the geographic area for the Puerto Rico Coordination Zone which extends 100 miles from the center of the dish at 18.3464 N and 66.75282 W. Licensees planning to construct and operate a new permanent base or fixed station to be located on the islands of Puerto Rico, Desecheo, Mona, Vieques, and Culebra, or for a modification of an existing authorization which would change the frequency, power, antenna height, directivity, or location of a station on these islands and would increase the likelihood of the authorized facility causing interference, shall notify:

Interference Office  
Attention: Spectrum Manager Arecibo Observatory  
HC3 Box 53995  
Arecibo, Puerto Rico 00612

Any correspondence to the Spectrum Management Arecibo Observatory should also be sent to the National Science Foundation Spectrum Management Office ([esm@nsf.gov](mailto:esm@nsf.gov)) and the Arecibo Program Officer Ashley Zauderer ([bezauder@nsf.gov](mailto:bezauder@nsf.gov)).

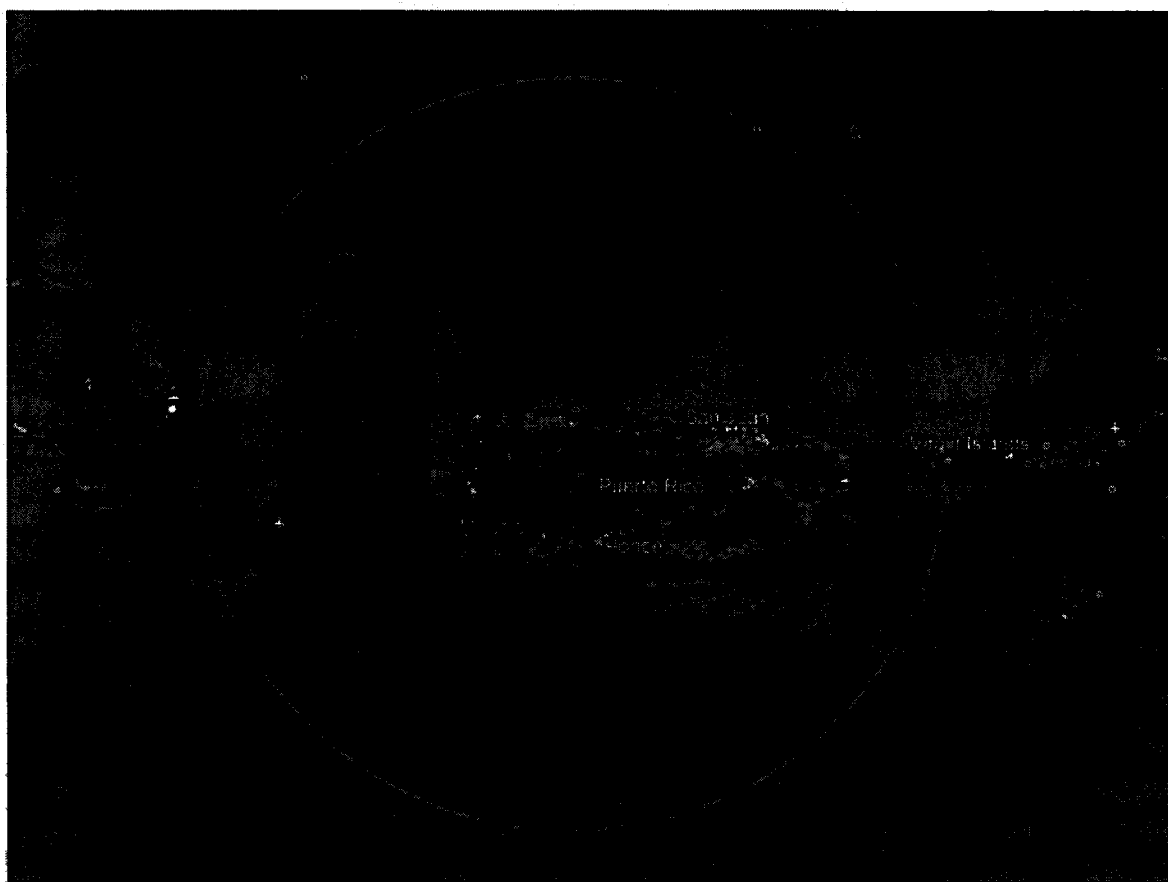


Figure C-3. Puerto Rico Coordination Zone