

## WAIVER REQUESTS

### **1. Request for Partial Waiver of Section 25.115(e) Application for 20/30 GHz Earth Stations**

Section 25.115(e) of the Commission's rules provides that "[a]pplications to license individual earth stations operating in the 20/30 GHz band shall be filed on FCC Form 312, Main Form and Schedule B, *and shall also include the information described in Sec. 25.138.*" (emphasis added).

#### **A. Section 25.138 (d) Earth Station Antenna Radiation Parameters**

Section 25.138(d) states as follows:

"The applicant shall provide for each earth station antenna type, a series of radiation patterns measured on a production antenna performed on a calibrated antenna range and, as a minimum, shall be made at the bottom, middle, and top frequencies of the 30 GHz band. The radiation patterns are:

- (1) Co-polarized patterns for each of two orthogonal senses of polarizations in two orthogonal planes of the antenna.
  - (i) In the azimuth plane, plus and minus 10 degrees and plus and minus 180 degrees.
  - (ii) In the elevation plane, zero to 30 degrees.
- (2) Cross-polarization patterns in the E- and H-planes, plus and minus 10 degrees.
- (3) Main beam gain."

As indicated by its title, Section 25.138 was intended to address blanket licensing of relatively small, mass produced antennas. Clearly, the wide range of measurement parameters specified in the rule was meant to account for the wide range of installation possibilities for such mass marketed antennas, and for the fact that not every antenna would be tested after installation. These small antennas could be readily subjected to the testing described in Section 25.138(d).

The current DIRECTV 20/30 GHz earth station application is for a 9.2-meter antenna that has been constructed on-site. This is not a "production" antenna, in the sense that was contemplated under Section 25.138, and DIRECTV believes that for this case of relatively large individually licensed antennas, strict application of Section 25.138 is not appropriate. This is due to the fact that each individual antenna will be meticulously constructed and mechanically aligned "on site" before any antenna testing begins. In fact, state-of-the-art photogrammetry techniques will be employed to complete the final alignment of the main reflector surface, ensuring reflector surface tolerances within a small fraction of a wavelength. This will then be followed by in situ antenna performance verification testing, of the type called for in Section 25.132(c) for individually licensed, relatively large, C- and Ku-Band antennas. By employing these careful construction techniques, followed by antenna performance verification

measurements, it can be fully assured that the overall performance of the completed antenna will meet or exceed the requirements of Section 25.209<sup>1</sup>.

DIRECTV is including with this application, and in compliance with Section 25.138(d), a series of antenna performance verification measurement results from an identical model, previously licensed, antenna. As was explained in the original applications for these previously licensed antennas, although a number of practical and physical limitations precluded the generation of a complete set of measured radiation patterns, as called for in Section 25.138(d), these performance verification measurement results clearly demonstrate the validity of the points made in the previous paragraph. After grant of the currently applied-for license, DIRECTV will conduct antenna performance verification measurements. The results of this verification testing will be made available to the Commission, upon request.

## **B. Summary**

DIRECTV maintains that its individually constructed 9.2 meter Ka-band antenna will meet or exceed all required FCC performance parameters for such antennas as called for in Section 25.209. In addition, the maximum EIRP density into the antenna for the applied-for carrier type is below -10.63 dBW/40 kHz, which consequentially indicates that the antenna meets the off-axis EIRP requirements of Section 25.138 and is therefore two-degree compliant. Accordingly, to the extent that the Commission deems it is required, DIRECTV requests a waiver of the specific information requirements of Section 25.115(e) and asks that this antenna be deemed compliant with Section 25.138.

### **2. Request for Waiver of Section 25.203(b)**

Section 25.203(b) requires that an applicant for an earth station authorization, other than an ESV, in a frequency band shared with equal right with terrestrial services submit a frequency coordination report demonstrating frequency compatibility with the terrestrial services. The frequency bands included in this application that are shared with equal rights with the terrestrial services are the 18.3-18.8 GHz receive band and the 28.35-28.6 GHz and 29.25-29.5 GHz transmit bands. The Commission has found with respect to previously licensed DIRECTV earth stations that it would be appropriate to waive any requirement for coordination with such fixed service licensees for a proposed earth station that would be essentially collocated with an existing earth station already authorized to operate in those frequency bands.<sup>2</sup>

This earth station falls into that category, as it will be essentially collocated with earth station E080026, which is already authorized to receive in the 18.3-18.8 GHz band

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<sup>1</sup> This is an expectation that is borne out by actual tests performed on previously licensed identical model antennas at two other DIRECTV earth station locations (*i.e.*, call signs E050229 and E070002).

<sup>2</sup> See *DIRECTV Enterprises, LLC*, 23 FCC Rcd. 12632, ¶ 15 (Int'l Bur. 2008) ("*Partial Licensing Order*").

and transmit in the 28.35-28.6 GHz and 29.25-29.5 GHz bands. Accordingly, for the reasons stated in the *Partial Licensing Order*, this earth station is eligible for the waiver granted to DIRECTV's similarly situated earth stations. DIRECTV respectfully requests that such waiver be granted.

In further support of this waiver request, DIRECTV sets forth below a more complete discussion of the coordination environment in the proposed transmission bands of 28.35-28.6 GHz and 29.25-29.5 GHz. The Commission's Table of Allocations indicates that frequencies in the range from 27.5-29.5 GHz are governed by the rules for satellite systems in Part 25 and fixed microwave systems in Part 101 of the Commission's rules.<sup>3</sup> Two rules in Part 101, in turn, specify that the frequencies available for fixed terrestrial systems in the 27.5-29.5 GHz range do *not* include the ones that DIRECTV proposes to use.<sup>4</sup> Thus, the frequency coordination report submitted with DIRECTV's prior application did not consider this frequency range.

Nonetheless, it appears that a limited number of terrestrial authorizations issued prior to July 1996 for temporary fixed operations in several bands, including 27.5-29.5 GHz, remain outstanding.<sup>5</sup> In practice, these authorizations are used on an infrequent and irregular basis to operate back-up facilities where other forms of wireline services are unavailable or non-existent.<sup>6</sup> Under the Commission's rules, such temporary operations may be conducted at a given location for a period of no more than six months, and are subject to prior coordination with existing licensees, permittees, and applicants in the area whose facilities could affect or be affected by such temporary operations.<sup>7</sup> Moreover, the operator is required to notify the Commission at least five days prior to installation of such temporary facilities, providing the location and operational parameters for its system and confirmation that required coordination with earth station facilities has been completed.<sup>8</sup>

In this application, DIRECTV seeks authority for an additional earth station antenna at a facility that has been licensed for the 28.35-28.6 GHz and 29.25-29.5 GHz frequencies for over three years. At no time during this period has DIRECTV experienced interference from a terrestrial wireless system, been informed that it has caused interference to a terrestrial wireless system, or been approached for coordination

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<sup>3</sup> See 47 C.F.R. § 2.106 (2007).

<sup>4</sup> See *id.*, §§ 101.101, 101.147(a) (2007) (listing frequencies available for fixed wireless use in this band as 27.5-28.35 GHz and 29.1-29.25 GHz).

<sup>5</sup> See *id.*, § 101.4. Such systems are subject to the requirements under Part 21 as in effect in July 1996.

<sup>6</sup> See 47 C.F.R. § 21.707(a)(3) (1995) ("The station shall be used only for rendition of communication service at a remote point where the provision of wire facilities is not practicable."). A similar rule applies today. See 47 C.F.R. § 101.31(a)(ii) (2007).

<sup>7</sup> See 47 C.F.R. §§ 21.706(d), 21.707(a) (1995). See also 47 C.F.R. §§ 101.31(a)(i), 101.103(d) (2007) (apply same requirements today).

<sup>8</sup> See 47 C.F.R. § 21.708 (1995).

with a terrestrial wireless system. Nor had DIRECTV been able to find any evidence in the Commission's records of a notification of temporary authorizations in the relevant band in the area near DIRECTV's earth station site. Accordingly, given that temporary fixed terrestrial licensees could only operate in the area near this existing earth station site for up to six months, DIRECTV concludes that no such systems are in fact operating within the area potentially affected by the proposed station.