



January 20, 2010

BY ELECTRONIC FILING

Marlene H. Dortch
Secretary
Federal Communications Commission
445 Twelfth Street, S.W.
Washington, DC 20554

Re: *IBFS File Nos. SES-STA-20091202-01520 and -01526*

Dear Ms. Dortch:

In the above referenced proceedings, DIRECTV Enterprises, LLC (“DIRECTV”) has requested Special Temporary Authority (“STA”) to conduct in-orbit testing (“IOT”) of the recently launched DIRECTV 12 satellite from its Ka-band earth stations in Castle Rock, Colorado and New Hampton, New Hampshire (call signs E070027 and E090076, respectively). Section 25.203(k) of the Commission’s rules requires that applicants requesting authority to operate earth stations that will communicate with GSO satellites in a band shared with NGSO satellites must demonstrate that the proposed operations will not cause unacceptable interference to any other satellite network authorized to operate in the same frequency band. The NGSO MSS system operated by Iridium Satellite LLC (“Iridium”) is the only NGSO system currently authorized to operate, or proposed to operate, in any portion of the Ka-band in which DIRECTV 12 is authorized to operate – specifically, the lowest 50 MHz of this band (*i.e.*, 29.25-29.30 GHz). For the reasons discussed below, grant of the pending STA requests would not result in unacceptable interference to Iridium.

Iridium operates a gateway earth station located in Tempe, AZ that is authorized to communicate in the 29.25-29.30 GHz band.¹ The two DIRECTV earth stations that are associated with the subject DIRECTV 12 IOT STAs are located in Castle Rock, CO and New Hampton, NH. The locations of these earth stations, along with the Iridium Tempe, AZ site, are shown on the map below.

¹ Iridium also holds two additional licenses for NGSO MSS feeder link earth stations in Fairbanks, AK. However, because those earth stations are even further away from the earth stations involved in these proceedings than the Tempe, AZ site, there is even less concern for interference.

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DIRECTV has reviewed Recommendation ITU-R S.1419, “Interference Mitigation Techniques to Facilitate Coordination Between non-GSO MSS Feeder Links and GSO FSS networks in the bands 19.3-19.7 GHz and 29.1-29.4 GHz.” This Recommendation states that geographic isolation between GSO and NGSO earth stations is an effective interference mitigation method, and that studies have confirmed that maintaining a minimum latitudinal separation of 2° (*i.e.*, 225 km) leads to acceptable interference levels between networks. This Recommendation further notes that the mitigation from geographical separation is significantly enhanced when combined with the use of high gain antennas, such that geographical isolation down to 60 km is possible when combining these techniques.

The coordinates of Iridium’s Tempe, AZ gateway are $33^{\circ}\text{-}20'\text{-}32.2''\text{N}$, $111^{\circ}\text{-}53'\text{-}48.5''\text{W}$. The DIRECTV Castle Rock, CO feeder link coordinates are $36^{\circ}\text{-}16'\text{-}38''\text{N}$, $104^{\circ}\text{-}48'\text{-}31.7''\text{W}$, and the New Hampton, NH feeder link coordinates are $43^{\circ}\text{-}37'\text{-}26.7''\text{N}$, $71^{\circ}\text{-}38'\text{-}33.5''\text{W}$. Thus, there is almost 3° of latitudinal separation between Iridium’s gateway and the Castle Rock, CO site, and almost 10° of latitudinal separation between Iridium’s gateway and the New Hampton, NH site. In addition, the antennas to be used during DIRECTV 12 IOT are large 9.2m antennas with over 60 dBi of gain. As can be seen from the map above, the separation distances between Iridium’s gateway site and the Castle Rock, CO and New Hampton, NH sites are over 900 km and 3600 km, respectively, which is orders of magnitude greater than the 60 km separation value cited in Recommendation S.1419 when high gain antennas are used.

In addition, IOT of DIRECTV 12 will require only temporary operation of these two earth stations. Indeed, the amount of time during which transmissions will be made in the specific 50 MHz of spectrum shared with Iridium out of the entire 1000 MHz of licensed Ka-band spectrum used by DIRECTV 12 will be very small.

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Considering all of the above, DIRECTV submits that there is no possibility of unacceptable interference to the Iridium system during the IOT of DIRECTV 12 from the two earth stations for which STAs have been requested.

If you have any questions, please do not hesitate to contact me.

Respectfully submitted,

/s/

William M. Wiltshire
Counsel to DIRECTV Enterprises, LLC

cc: Andrea Kelly
Kathryn Medley