

DESCRIPTION

Iridium Satellite LLC and Iridium Constellation LLC (collectively, “Iridium”), seek to modify the licenses of their gateway earth stations located in Tempe, Arizona; Chandler, Arizona; and Fairbanks, Alaska¹ in the manner identified below to update their authority to transmit and receive feeder links and tracking, telemetry, and command (“TT&C”) links for Iridium’s non-geostationary satellite orbit, mobile satellite service Iridium NEXT constellation (FCC call sign S2110).

The updated power levels and non-interference showings in the gateway earth station modification applications this exhibit accompanies were submitted previously by Iridium in requests for special temporary authority (“STA”).² Iridium now seeks regular authority to add these power levels to its gateway earth station licenses and to harmonize its Chandler gateway license with its Tempe and Fairbanks gateway licenses by expanding the 14 MHz feeder link carrier for Chandler from the 29.1-29.25 GHz band to the 29.1-29.3 GHz band.

The updated Iridium NEXT telecommand signals are transmitted on two carriers, a 29.102 GHz carrier and a 29.298 GHz carrier, using a bandwidth of 1 MHz and a 1M00F9D emission designator. Iridium seeks license modifications authorizing it to transmit these carriers from its gateway earth stations in Tempe, Chandler, and Fairbanks at 69.1 dBW EIRP and a 45.1 dBW/4 kHz EIRP density with a transmitter power of 11.7 dBW.

In addition, Iridium seeks to use its Tempe, Chandler, and Fairbanks gateway earth stations to receive 13 Iridium NEXT telemetry carriers spaced at 400 kHz with center frequencies from 19400.2 to 19405 MHz. The emission designator for these telemetry carriers is 200KF9D.

The Schedule B information that is included with Iridium’s modification applications shows only the changes Iridium seeks to make to its Tempe, Chandler, and Fairbanks gateway earth station licenses. A zero, which signifies no change, has been entered in response to items regarding Antenna Facilities, Antenna Heights and Maximum Power Limits (E29 - E42) and Frequency Coordination Limits (E52 - E60), and in the case of the Chandler application only, also in response to items regarding Particulars of Operation (E43 - E49). Items that have been left blank in Schedule B also are unchanged.

¹ The call signs for these gateway earth stations are (Iridium Satellite LLC) E960131 Tempe, AZ; E050282 and E060300, Fairbanks, AK; and (Iridium Constellation LLC) E960244 Chandler, AZ.

² See, e.g. IBFS File Nos. SES-STA-20221021-01120, SES-STA-20221021-01157, SES-STA-20221021-01156, and SES-STA-20221021-01119.

For the reasons stated below, operating in the manner requested in this filing presents no concerns of interference to Local Multipoint Distribution Services (“LMDS”) stations, Fixed Service stations, and Fixed-Satellite Service stations that share Iridium’s TT&C/feeder link band.

LMDS stations. Iridium shares the 29.1-29.25 GHz portion of its uplink TT&C/feeder link band with LMDS. Iridium previously coordinated its proposed uplink operations with LMDS licensees, in connection with its STA requests; updated coordination letters prepared by Comsearch are included with the gateway modification applications.

Fixed Service stations. Iridium shares its 19.4-19.6 GHz downlink TT&C/feeder link band with the Fixed Service. Iridium previously coordinated its proposed downlink operations with Fixed Service licensees in connection with its STA requests. Updated coordination letters prepared by Comsearch are included with the gateway modification applications.³

Geostationary Satellite Orbit (“GSO”) Fixed-Satellite Service (“FSS”) stations. The 29.25-29.3 GHz band Iridium uses to uplink its feeder link and TT&C transmissions is shared on a co-primary basis with GSO FSS stations. Iridium’s Tempe and Fairbanks gateway earth stations have been operating on these frequencies for years.⁴

In order to avoid interference to Iridium’s satellites, GSO FSS earth stations operate in the 29.25-29.3 GHz band only in areas that are widely separated from Iridium’s gateway earth stations. There are fixed separations in the case of individually-licensed GSO FSS earth stations and exclusion zones around Iridium gateway earth stations in the case of blanket-licensed GSO FSS earth stations.

The separation distances required to avoid interference from GSO FSS earth stations to Iridium’s satellites are far greater than the separation distances that are required to avoid interference from Iridium gateway earth stations to GSO FSS satellites. The locations at which GSO FSS stations transmit in the 29.25-29.3 GHz band, therefore, of necessity are locations that protect GSO FSS satellites against interference from Iridium gateway earth stations.

³ Please note that the coordinates shown for Iridium’s gateway FCC license for Chandler are based on NAD27. Comsearch converted the coordinates to NAD83, and the modification application reflects this update.

⁴ Although Iridium’s Chandler earth station has not been operating in the 29.25-29.3 GHz band, except pursuant to STA, it is located only 8.5 km (*i.e.*, 5.3 miles) from Iridium’s Tempe earth station, which has been operating in the 29.25-29.3 GHz band.