

## REQUEST FOR EXTENSION OF SPECIAL TEMPORARY AUTHORITY

Iridium Satellite LLC and Iridium Constellation LLC (collectively, “Iridium”), pursuant to Section 25.120 of the Commission’s Rules, hereby request an extension of special temporary authority (“STA”) to operate their gateway earth stations located in Tempe, Arizona; Chandler, Arizona; and Fairbanks, Alaska, in the manner identified below.<sup>1</sup> Iridium seeks an extension of 180 days commencing on January 28, 2018.

Iridium’s request is supported by good cause. The Commission previously granted STAs, initially for 30 and then for 180 days, so that Iridium can operate its gateway earth stations in the manner proposed herein.<sup>2</sup> These STAs enable Iridium to satisfy system requirements for TT&C during the launch and early operation phase (“LEOP”) of Iridium NEXT. TT&C transmissions are essential to the implementation, health and safety of Iridium’s constellation. By granting Iridium’s initial STA requests, the Commission already has determined that the operations proposed in this extension request are in the public interest. Grant of an extension will provide continuing authority for these operations while LEOP continues through the next 180 days.

The Iridium NEXT constellation will consist of 66 active satellites and nine spare satellites. Iridium has launched 40 of these satellites, and four additional launches are scheduled for 2018.

The following operating parameters and non-interference showing were submitted with Iridium’s initial STA requests and are repeated here for the convenience of the Commission:

Iridium’s Tempe, Chandler, and Fairbanks gateway earth stations transmit and receive the feeder links and tracking, telemetry, and command (“TT&C”) links for Iridium’s non-geostationary satellite orbit, mobile satellite service constellation (call sign : S 2110).

The 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 an STA extension authorizing it to transmit these

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<sup>1</sup> The call signs for these gateway earth stations are E050282, E060300, E960131, and E960244. The licensee of the first three call signs is Iridium Satellite LLC. The licensee of the fourth call sign is Iridium Constellation LLC. This exhibit accompanies separate STA requests that Iridium is filing for each call sign.

<sup>2</sup> See Call Sign E960244, SES-STA-20160804-00716, SES-STA-20170523-00592 ; call sign E060300, SES-STA-20160804-00717, SES-STA-20170523-00590; call sign E050282, SES-STA-20160804-00718, SES-STA-20170523-00589; and call sign E960131, SES-STA-20160804-00719, SES-STA-20170523-00591 .

carriers at 69.1 dBW EIRP and a 69.1 dBW/MHz EIRP density with a transmitter power of 11.7 dBW.

Iridium also seeks an extension of authority to operate both Iridium NEXT uplink carriers from its gateway earth station in Chandler, Arizona. Iridium's license for Chandler includes the 29.1-29.25 GHz portion of Iridium's feeder link band that encompasses the 29.102 GHz Iridium NEXT TT&C frequency, but does not include the 29.25-29.3 GHz portion of Iridium's feeder link band that encompasses the 29.298 GHz Iridium NEXT TT&C frequency.

In addition, Iridium seeks an extension of authority 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.

Operating in the manner requested in this filing, moreover, presents no concerns of interference to the 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 has coordinated its proposed uplink operations with LMDS licensees; coordination reports prepared by Comsearch were attached to the initial STA requests.

**Fixed Service stations.** Iridium shares its 19.4-19.6 GHz downlink TT&C/feeder link band with the Fixed Service. Iridium has coordinated its proposed downlink operations with Fixed Service licensees. Coordination reports prepared by Comsearch concerning those operations were attached to the initial STA requests.<sup>3</sup>

**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.<sup>4</sup>

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

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<sup>3</sup> Please note that the coordinates shown for Iridium's gateway earth stations in the Comsearch reports all are based on NAD83. The coordinates shown in the FCC license for Iridium's Chandler gateway earth stations are based on NAD27, and Comsearch converted the coordinates to NAD83.

<sup>4</sup> Although Iridium's Chandler earth station has not been operating in the 29.25-29.3 GHz band, 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.

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. In any event, the Iridium NEXT LEOP operations pursuant to the requested STA extensions will be on a secondary, unprotected, non-interference basis.

### **Conclusion**

Accordingly, and for good cause shown, Iridium respectfully asks that its requests for STA extension be granted.