

Reason and Scope for Modification Request
Original License Space HAUC 0230-EX-CN-2020

Reason:

The SPACE HAUC X-Band system is powered by a DC power supply that operates at a switching frequency of 500 kHz. This switching frequency generates harmonics in the X-Band system, which introduces noise in a frequency region ± 2.5 MHz around the carrier frequency.

It was discovered during final testing of the X band uplink, that because of this interference, the X band receiver on the satellite cannot successfully demodulate an incoming signal with a bandwidth of 2 MHz, the currently authorized bandwidth.

Demodulation of the X band uplink is necessary to perform the high gain beam steering experiment.

Scope of Modification:

Further testing showed that a 10 MHz bandwidth incoming signal overcomes the effects of the switching power supply, and the signal can be successfully demodulated. The link budget shows that the X band uplink will close with this bandwidth, with a margin of 7.5 dB. We therefore request that the license be modified to allow uplink operation at 10 MHz bandwidth. No other emission parameters will be changed, only the bandwidth.