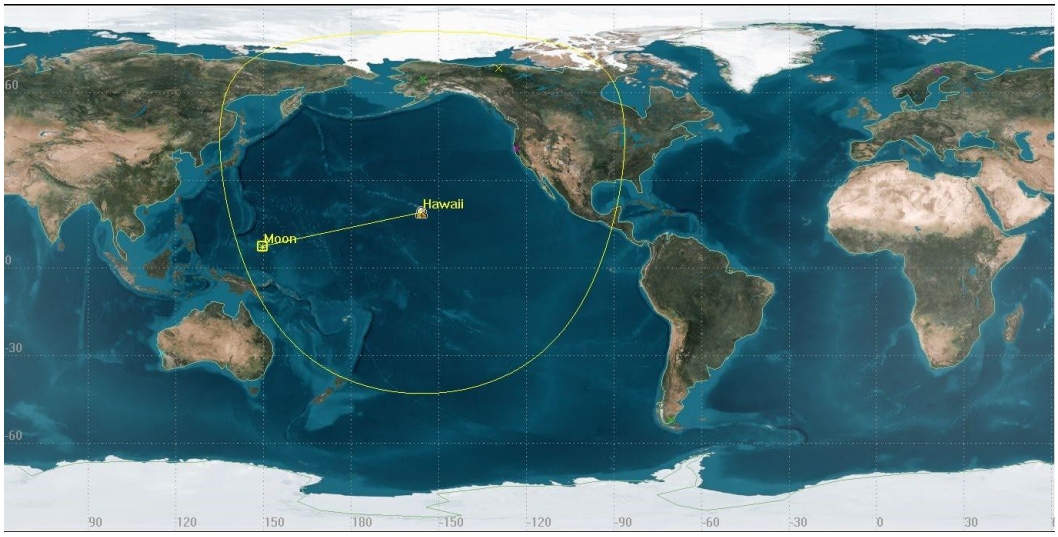
USN support for Chandrayaan-2 Lunar orbiter from Hawaii

By this application, SSC Space US, Inc. dba Universal Space Network (collectively, "USN"),[1] a Delaware corporation, seeks further FCC approval to support Chandrayaan-2, the second lunar mission of the Indian Space Research Organization (ISRO). Chandrayaan-2 is currently orbiting the moon and will explore the polar regions of which this data is essential for the NASA Artemis program and future US/Japanese lunar base. This additional science data collection from Hawaii will benefit the near future missions to the moon.

Universal Space Network (USN) has made a long-term application to support transmission to, and reception of the Chandryaan-2 mission throughout the lifetime of the spacecraft. That pending application is: SES-LIC-INTR2022-00457.

USN is hereby requesting that this STA application be approved to continue to operate as a **receive-only** facility to support for Chandrayaan-2 for a period of 60 days and to remain valid until such time the commission takes action on the above referenced application.

The first day of support for this STA would be February 22th, 2022. Support may consist of 2 hours each day of receive-only reception of science data when the moon is in view of the earth station.



Chandrayaan-2 typical coverage from Hawaii

[1] USN also is engaging counsel to update the entity's FRN information to reflect its corporate name, SSC Space US, Inc., rather than its former and d/b/a name. However, given the pressing nature of this request, this request is being submitted under the entity's current registration.

Flux Density impinging on the ground in Hawaii from Chandrayaan-2

The Flux density is calculated as:

$$\boldsymbol{Flux\ density = EIRP\ \div (4\,\pi\,Rse^2)}$$

Where $\boldsymbol{Rse}$ is the distance from spacecraft to the ground.

Where $\boldsymbol{EIRP}$ is the Effective Isotropic Radiated Power of the Spacecraft.

Data from the spacecraft vendor indicates that the maximum EIRP of Chandrayaan-2 is 35.0 dBW. The altitude (and thus the closest distance to earth during an overhead pass) is = 400,000 Km. Converting 35.0 dBW to scalar watts = 3162.3 watts transmitted at 8484.000 MHz

Thus:

$$\boldsymbol{Flux\ density = 3162.3\ \div (4\,\pi\ *\ 400,000,000\ meters^2)}$$

Flux density = 1.572 x 10^{-15} Watts/meter^2

or

Flux density = 1.572 x 10^{-16} mW/cm^2