

NARRATIVE STATEMENT

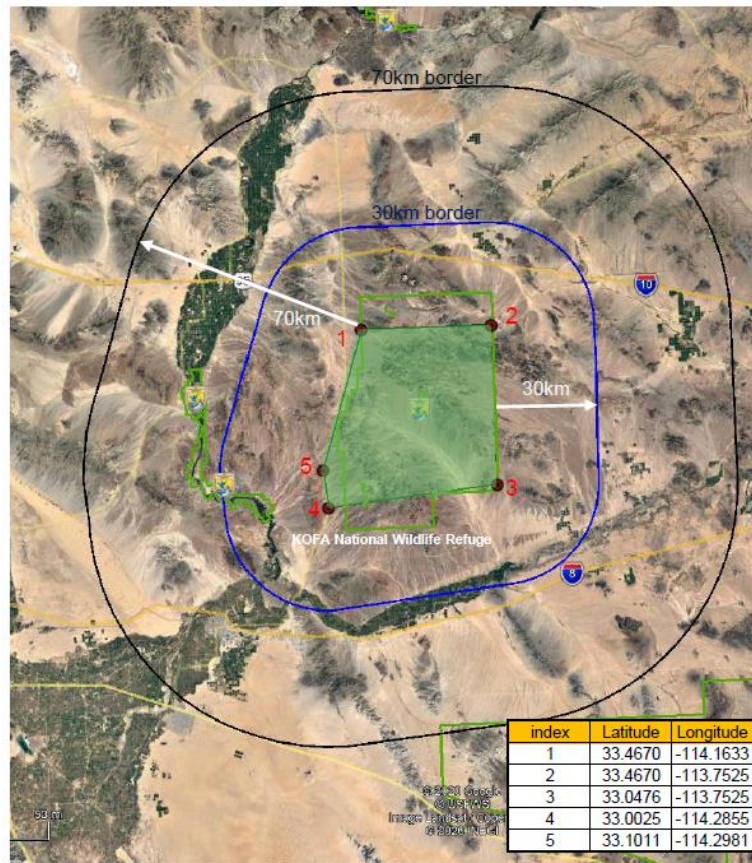
Pursuant to Sections 5.51 and 5.54(a)(1) of the Federal Communications Commission's ("FCC") rules, Intelsat License LLC, as debtor in possession ("Intelsat"), hereby respectfully requests an experimental license for one year to operate in the 894-915 MHz (uplink), 925-960 MHz (downlink), and portions of the 4500-4800 MHz (feeder link) frequency bands so that it may conduct proof of concept testing around Yuma Proving Ground (AZ) for a high-altitude platform system ("HAPS").¹ Specifically, the testing will allow Intelsat to determine the feasibility of utilizing a HAPS to support a broadband application for fixed and mobile end users.

Intelsat submits that grant of the requested experimental authority would serve the public interest, convenience and necessity, as it would allow the company to enhance its ability to continue its on-going efforts to develop innovative services to support the information needs of the public. In support of its request, Intelsat provides the following additional information:

1. **System Description:** Intelsat seeks to evaluate and demonstrate broadband connectivity to fixed and mobile end users using HAPS. The system will consist of a fixed-wing aircraft at an approximate 20 km altitude linking end users to/from a fixed ground station that connects the users to the internet and public switched telephone network ("PSTN"). Fixed and mobile user terminals on the ground will communicate with a mobile base station on the HAPS, which will relay the communications to the ground station.
2. **Location of Proposed Experiment:** The testing will take place around the Yuma Proving Ground, Arizona and occur in two Phases as described below.
 - a. In Phase 1 of the testing Intelsat will conduct ground tests, i.e. no HAPS, using the custom equipment being developed. The ground testing for both the user terminals and a feeder link ground station will be conducted inside a 30-km radius area with a geographic center point of 33.2° latitude/-114.0° longitude.
 - b. In Phase 2 of the testing, the HAPS geographic center point (NADIR) will always be located inside the shaded green area as defined by the latitude and longitude points provided in the Figure below. All user terminals (fixed and mobile) will be located inside a 30-km radius relative to the HAPS center point. The Figure shows user terminal 30-km radius considering all possible range of center point. Additionally, the location of the feeder link ground station will be inside the 70 km radius shown in the Figure. The exact location of the feeder link ground station is still being determined and will depend on various factors including availability of Internet Point-Of-Presence (POP) access, and avoidance of existing feeder link frequency license holders. The Figure shows feeder link ground station

¹ 47 C.F.R. §§ 5.51, 5.54(a).

70-km radius considering all possible locations of HAPS center point. At 70 km radius, the minimum ground station elevation angle is 20 degrees.



3. **Testing Duration:** Intelsat herein requests an experimental license term of one year, Intelsat anticipates conducting the testing in two timeframes as described in Section 2 during this period. Phase 1 ground testing (without the HAPS) will occur in the first quarter of 2021 using the custom equipment being developed. Phase 2 testing with the HAPS will be for a consecutive thirty-day period, beginning sometime in between March and August of 2021. A one-year license term will provide Intelsat with the flexibility needed to finalize and coordinate its testing plans and then conduct the testing operations.

4. **Technical Details:**

Frequencies: 894-915 MHz (user uplink), 925-960 MHz (user downlink), and 4500-4800 MHz (feeder link). Although Intelsat is requesting authority to operate user links within the frequency ranges 894-915 MHz and 925-960 MHz, Intelsat anticipates that the testing will ultimately take place in 10 MHz uplink and downlink blocks. Further, Intelsat anticipates that the testing for the feeder link station will take place in 30 MHz uplink and

20 MHz downlink blocks, these two blocks of spectrum will need to be separated by a minimum of 40 MHz to avoid self-interference. Currently the planned center frequencies are 4615 MHz for the 20 MHz downlink and 4680 MHz for the 30 MHz uplink. The technical details of the planned testing are provided in Form 442. Additional information on the antenna as requested in Form 442 is provided below:

HAPS Antenna Details - for user links

Antenna Manufacturer	Amphenol
Antenna Part Number	Custom (1111)
Number of Units per part number	1
Type	+/- 45 deg dual polarization dipole
Gain	10 dBi @ 0 degrees from boresight
Beam Width at Half-Power Point	35 degrees from side to side
Orientation in the Horizontal Plane	Boresight pointing towards the earth
Orientation in the Vertical Plane	Boresight pointing towards the earth

HAPS Antenna Details for feeder links

Antenna Manufacturer	Amphenol
Antenna Part Number	Custom (2222)
Number of Units per part number	1
Type	Single dipole
Gain	1.5 dBi @ 0 degrees from bore-sight
Beam Width at Half-Power Point	120 degrees from side to side
Orientation in the Horizontal Plane	Boresight pointing towards the earth
Orientation in the Vertical Plane	Boresight pointing towards the earth

Ground Antenna Details for feeder link (ground station)

Antenna Manufacturer	Amphenol
Antenna Part Number	Custom (3333)
Number of Units per part number	1
Type	Parabolic dish
Gain	36.5 dBi @ 0 degrees from bore-sight (1.8m)
Beam Width at Half-Power Point	2.6 degrees from side to side
Orientation in the Horizontal Plane	Boresight pointing towards HAPS
Orientation in the Vertical Plane	Boresight pointing towards HAPS

The fixed and mobile user terminals on the ground that will communicate with the HAPS will be commercially available hand-held smartphones (e.g., iPhone). These devices will employ omni-directional antenna pattern with 23 dBm EIRP.

5. **Operational Safeguards and Coordination Efforts:** Intelsat recognizes that experimental operations must not cause harmful interference to authorized facilities. Accordingly, prior to commencing operations, Intelsat will coordinate with incumbent licensees to ensure that Intelsat's testing does not interfere with authorized operations. Should interference occur, however, Intelsat will take immediate steps to resolve the interference, including, if necessary, arranging for the discontinuance of operations and provides a stop buzzer point of contact in Section 7.
6. **Equipment Matters:** Intelsat does not propose to market devices under the requested experimental license, and any devices will be labelled in accordance with Section 2.803 of the FCC's rules that "This device has not been authorized as required by the rules of the Federal Communications Commission. This device is not, and may not be, offered for sale or lease, or sold or leased, until authorization is obtained."

7. **Contact Information:**

Intelsat Stop Buzzer Contact:

Virgil Cannon 310-525-5207

Sagar Engineer 913-221-2122

Intelsat FCC Contact:

Cynthia J. Grady
Intelsat License LLC
7900 Tysons One Place
McLean, VA 22102
Cynthia.Grady@intelsat.com
(703)559-6949

Intelsat FCC Legal Counsel:

Jennifer D. Hindin
Meredith Singer
Wiley Rein LLP
1776 K. Street NW
Washington, DC 20006
jhindin@wiley.law
(202)719-4975