

EXHIBIT A – SPECIAL TEMPORARY AUTHORITY NARRATIVE

SprintCom, Inc. (“Sprint”), a wholly-owned subsidiary of Sprint Corporation, pursuant to Sections 5.3(e), 5.3(j), and 5.61 of the Federal Communications Commission’s (“FCC’s” or “Commission’s”) Rules, 47 C.F.R. §§ 5.3(e), 5.3(j), and 5.61, hereby requests Special Temporary Authority (“STA”) to conduct demonstrations of experimental transmitters. The testing will further advance Sprint’s understanding of the proposed technology and its application towards High Altitude Platform Stations (“HAPS”). The STA is sought for a period of 180 days beginning on November 1, 2019. Consistent with the standards set forth in Section 5.61 of the Commission’s Rules, Sprint outlines below its need for the requested STA and the reasons that the STA should be granted expeditiously.

GENERAL DESCRIPTION

Sprint intends to conduct a series of tests with a subsidiary of SoftBank (“HAPSMobile”) to demonstrate and determine the techniques and potential for communicating with a HAPS over the island of Lanai, Hawaii. HAPSMobile has partnered with AeroVironment to conduct these tests. Sprint seeks temporary authority to support these tests.

FREQUENCIES USED FOR EXPERIMENTAL TESTING

The spectrum frequencies (“Spectrum”) that will be utilized for the experiments under this STA fall within the 1.9 GHz Personal Communications Service (“PCS”) band (“B25”) and the 2.5 GHz Broadband Radio Service “BRS” and Educational Broadband Service (“EBS”) bands (“B41”). Specifically, the following frequencies channels will be utilized:

- B25 Service Link: C4 (1980-1985 MHz paired with 1900-1905 MHz)¹
- B41 Feederlink Downlink (From HAPS to Ground) 15 MHz occupied bandwidth (2500-2515 MHz)² within channels: BRS1, A1, A2, and A3 (2496 – 2518.5 MHz)
- B41 Feederlink Uplink (From Ground to HAPS) 15 MHz occupied bandwidth (2616-2631 MHz)³ within channels: K, BRS2, E1, and E2 (2614 – 2635 MHz)

SUMMARY OF TESTING ACTIVITIES

HAPSMobile intends to conduct multiple tests utilizing the Sprint Spectrum over the period of this STA. Specifically, HAPSMobile will be testing the capability of transmitting LTE signals from certain ground equipment to a HAPS. The primary objectives of this testing will be to:

¹ Sprint is licensed for the B25 Service Link pursuant to call sign WPOJ830.

² Sprint is licensed for the B41 Feederlink DownLink pursuant to call sign B222 and WHR717 (pursuant to lease ID L000007908 with the EBS entity University of Hawaii).

³ Sprint is licensed for the B41 Feederlink UpLink pursuant to call signs B222 and WQYK918

- Determine the system’s ability to maintain a stable service link while the HAPS is station keeping over Lanai.
- Test the HAPS optimal system link budgets for LTE service
- Test User Equipment (“UE”) handover between the service link cells
- Conduct drive testing to determine HAPS signal coverage over Lanai

Additional details concerning the technical aspects of these testing activities and the proposed equipment are included in the attached Confidential Exhibit.

GEOGRAPHIC AREA OF TESTING ACTIVITIES

The HAPS Ground Station will be located at Latitude 20.7667, Longitude -156.9333.

In addition to initial ground testing, HAPSMobile will operate the HAPS platform above 15 Kilometers over the island of Lanai as shown in Figure B below.

The latitudinal and longitudinal boundaries of the HAPS flight box are as follows:

Direction	Latitude	Longitude
North	21.1301	-156.993743
South	20.5566	-156.898754
East	20.8267	-156.622924
West	20.8267	-157.540248

Figure B: HAPS Operational “Flight Box”



University of Alaska Fairbanks on behalf of HAPSMobile and AeroVironment has filed the necessary applications to the Federal Aviation Administration as required by Commission Rules.⁴

PROTECTION AGAINST INTERFERENCE

Sprint has identified that it is the only licensee holding licenses in the testing frequencies and the frequencies immediately adjacent to those being utilized for this testing. The equipment used for the Service and Feeder links include a radiation hardened “Out of Band” control relay capable of disconnecting supply voltage to the radio transmitter in the event that Sprint or HAPSMobile is contacted by a third party with an alleged interference concern. In these circumstances, HAPSMobile will immediately cease operations and investigate the cause of the alleged interference.

SPRINT CONTACT INFORMATION

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⁴ 47 C.F.R. § 5.61(b)(11). FAA Application File Number is 2019-WSA-3623.

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One or more of the following individuals will be available 24/7 during all testing and has authority and ability to immediately cease all operations:

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