Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of	)	
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Public Notice of Satellite Space Applications Accepted for Filing	)	Report No. SAT-01245
	)	
	)	
Application of Audacy Corporation for Authority to Deploy and Operate a NGSO FSS System in the 37.5-42.0 GHz, 47.2-50.2 GHz and 50.4-51.4 GHz Frequency Bands	)	File Number: SAT-LOA-20161115-00117

COMMENTS OF FACEBOOK, INC.

Facebook, Inc. submits these comments in response to the Commission's Public Notice released on Friday, June 16, 2017 concerning recent satellite space applications accepted for filing. Facebook's comments are focused on the application submitted by Audacy Corporation requesting authority to deploy and operate a Non-Geostationary Satellite Operator Fixed-Satellite System (NGSO FSS) in the following frequency bands: 29.50−30.00 GHz, 47.20−50.20 GHz, and 50.40−51.40 GHz (Earth−to−space); 22.55−23.55 GHz, 24.45−24.75 GHz, 32.30−33.00 GHz, 54.25−56.90 GHz, 57.00−58.20 GHz, and 65.00−71.00 GHz (Inter−satellite); and 19.70−20.20 and 37.50−42.00 GHz (space−to−Earth) bands.

As the Commission is aware, the 1997 World Radiocommunication Conference ("WRC-1997") added a global identification for High Altitude Platform Stations ("HAPS") in the frequency bands 47.2-47.5 GHz and 47.9-48.2 GHz. As defined by the International Telecommunication Union, a HAPS is a station operating around 20 kilometers (km) in the

stratosphere, and at a specified, nominal, fixed point relative to the Earth below.[1] At that altitude, a HAPS can deliver broadband to a service contour with a diameter of approximately 100-150 km, with far less ground station equipment than terrestrial networks require,[2] so at far lower cost. Given that less than 50% of the world's population has Internet access,[3] and the well-documented economic benefits to communities following Internet connectivity, entities around the world have begun to explore new unmanned solar HAPS platforms to allow mobile or satellite operators to expand broadband Internet access to previously unserved or underserved populations. HAPS can be used by an operator to backhaul 3G and 4G traffic from areas where other backhaul options may be prohibitively expensive or non-existent, and may even backhaul 5G traffic as that technology is deployed in rural hospitals, university campuses, industrial complexes or other facilities in remote locations.

Since the initial HAPS identification at WRC-97 twenty years ago, technology evolution in solar panel efficiency, autonomous avionics, lightweight composite materials and battery energy density, particularly with lithium-ion, have led a number of entities to test the delivery of broadband through solar HAPS platforms that station-keep at approximately 20 km. Countries in all three ITU regions have entities that are researching the deployment of broadband through new HAPS platforms, both heavier-than-air and lighter-than-air platforms. In order to meet spectrum

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1 *See* Article 1.66A, ITU Radio Regulations (2016 edition).

2 *See* Recommendation ITU-R M.1456 (2000), *Minimum performance characteristics and operational conditions for high altitude platform stations providing IMT-2000 in the bands 1 885-1 980 MHz, 2 010-2 025 MHz and 2 110-2 170 MHz in Regions 1 and 3 and 1 885-1 980 MHz and 2 110-2 160 MHz in Region 2*, at note 1 (*Each HAPS will be positioned above commercial airspace at an altitude that is high enough to provide service to a large footprint but that is low enough to provide dense coverage*).

3 *See Internet Usage Statistics: World Internet Users and 2017 Populations Stats*, Internet World Stats, available at http://www.internetworldstats.com/stats.htm; *47 percent of the world's population now use the Internet, study says*, Washington Post (Nov. 22, 2016), available at https://www.washingtonpost.com/news/worldviews/wp/2016/11/22/47-percent-of-the-worlds-population-now-use-the-internet-users-study-says/?utm_term=.12711555e702.

needs for the use of gateway and fixed terminal links for broadband HAPS, the 2015 World Radiocommunication Conference ("WRC-15") agreed to study new bands for HAPS broadband, and WRC-19 will consider additional identifications in the frequency band 24.25-27.5 GHz in ITU Region 2, covering the Americas.

The ITU Radiocommunication Sector Working Party 5C is the responsible party to conduct these sharing studies. At the most recent WP 5C, in May 2017, there were many contributions from delegations interested in HAPS, and together countries from each of the three ITU regions suggested there would be seven different HAPS systems that should be studied as the world examines ways to facilitate broadband access through HAPS in the new study bands and the existing identifications.[4] At the most recent WP 5C, in addition to the U.S., driven by contributions by Facebook and a major U.S.-headquartered aviation manufacturer, China, Germany and France had contributions on their planned systems. The European Space Agency noted its HAPS research.

Global interest in HAPS is broad, and is increasing. Like the race for 5G, the race for unmanned aerial vehicle, or drone, leadership is global. HAPS helps America continue to lead both mobile broadband and drone innovation by providing an optimized backhaul tool for mobile and fixed broadband, through a high-altitude drone exploiting the latest in lithium-ion batteries and solar panel technology.

Facebook kindly requests that the Commission take into consideration the existing global HAPS identification at the 47/48 GHz band and the 24-27 GHz study band for additional HAPS

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[4] *See e.g.*, Summary of the Work of ITU-R Working Party 5C, information document submitted by the CITEL PCC.II ITU-R WP 5C Rapporteur to the 29th Meeting of PCC.II (June 2017).

identifications, and sharing studies underway at ITU-R WP 5C for WRC-19 as it evaluates Audacy Corporation's application for authority to deploy and operate an NGSO FSS system.

Respectfully submitted,

/s/_____

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June 26, 2017

CERTIFICATE OF SERVICE

I, Chris Weasler, hereby certify that on this 26th day of June, 2017, I caused to be served a true copy of the foregoing by electronic mail upon the following:

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/s/_____

Chris Weasler

Facebook, Inc.