HawkEye 360

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December 4, 2019

Stephen Duall
Chief, Policy Branch, Satellite Division
International Bureau
Federal Communications Commission
445 12th Street, SW
Washington, DC 20552

Subject: HawkEye 360
Reference: SAT-LOA-20190102-00001

Dear Mr. Duall:

On January 2nd, 2019, HE360 filed a request for authority to launch, operate and replenish a constellation of up to sixty (60) to eighty (80) operational low Earth orbit, non-geostationary ("NGSO") microsatellites (SAT-LOA-20190102-00001). The total number of satellites to be launched and operated over the 15-year term of the requested satellite license is one hundred and sixty-five (165) to two hundred and twenty (220).

By this letter, HawkEye 360, Inc. ("HE360") informs the International Bureau that it has completed pre-coordination with federal operators to launch, operate and replinsh fifteen (15) satellites of its satellite constellation.[1] The total number of satellites to be launched and operated over the 15-year term of the requested partial grant of fifteen operational satellites is eighty (80). Accordingy, HE360 requests that the Commission grant its above-referenced license application for fifteen operational satellites and defer consideration of the remaining satellites in the constellation, pending completion of further coordination with federal operators. Provided below are proposed license conditions and relevant parameters for the pre-coordinated satellites and earth stations.

Proposed license conditions:

[1] HE360's Constellation has been preceded by an experimental earth exploration three-satellite cluster called Pathfinder, which has been separately coordinated with federal operators. *See* ELS File No. 0024-EX-CN-2017, as modified 0055-EX-CM-2019. The Pathfinder satellites successfully launched on December 3, 2018 and are operational in the 2240 MHz, 2246 MHz, 2256 MHz (space-to-Earth), 432-438 MHz (Earth-to-space), 2410 MHz (space-to-space), and 8050 MHz, 8175 MHz, and 8300 MHz (space-to-Earth) frequency bands. Authorization for continued operations of the three Pathfinder satellites, as previously coordinated, should be included under this Part 25 license application, as requested in our application, and should not count toward the 15-satellite limit.

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1) Transmissions in the 8025-8400 MHz frequency band may only be made to earth stations coordinated pursuant to the coordination agreement executed with the National Aeronautics and Space Administration (NASA) and certain other federal agencies.

2) Transmissions in the 2200-2290 MHz and 2025-2110 MHz bands may only be made to/from earth stations coordinated with federal agencies, including NASA, the National Oceanic and Atmospheric Administration (NOAA), and the United States Air Force. Hawkeye shall provide the FCC the list of coordinated earth stations.

3) Pursuant to coordination with federal agencies, satellites 1 through 15 of the Hawkeye constellation shall operate on the center frequencies identified in the following chart:

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Frequency Band (MHz)	Use	Transmit Center Frequency for Satellites in Each Cluster (MHz)[2]
X-band: 8025-8400	Primary payload downlink	Sat#1 - 8075 MHz Sat#2 - 8165 MHz Sat#3 - 8255 MHz Sat#4 - 8345 MHz
X-Band: 8025-8400	TT&C downlink	Sat#1 - 8291 MHz Sat#2 - 8297 MHz Sat#3 - 8303 MHz Sat#4 - 8309 MHz
S-Band: 2200-2290	Emergency Backup TT&C downlink	Sat#1 - 2236 MHz Sat#2 - 2242 MHz Sat#3 - 2254 MHz Sat#4 - 2260 MHz
S-Band: 2025-2110	Primary payload uplink	For satellites one (1) through nine (9):[3] Sat#1 - 2068.2 MHz Sat#2 - 2062.7 MHz Sat#3 - 2077.4 MHz For satellites ten (10) through fifteen (15) (and any replacement satellites): Sat#1 - 2046.5 MHz Sat#2 - 2049.3 MHz Sat#3 - 2075.0 MHz Sat#4 - 2052.5 MHz
S-Band: 2025-2110	TT&C uplink	Sat#1 - 2063.965 MHz Sat#2 - 2064.965 MHz Sat#3 - 2065.965 MHz Sat#4 - 2065.465 MHz
S-Band: 2025-2110	High Speed TT&C uplink	Sat#1 - 2063.965 MHz Sat#2 - 2064.965 MHz Sat#3 - 2065.965 MHz Sat#4 - 2065.465 MHz

Relevant satellite parameters:

The fifteen satellites will operate in a polar, sun synchronous orbit.

Earth station parameters:

HE360 has pre-coordinated the use of the following ground stations, which are owned and operated by Kongsberg Satellite Services:

[2] Each satellite cluster HawkEye 360 launches will be in groups of three (3) or four (satellites). The center band freqnecies provided in this chart provide the center-band frequencies for each satellite in such a cluster.
[3] For the first 9 satellites, HawkEye 360 has pre-coordinated three (3) clusters of three (3) satellites (total 9) in these specific S-Band Primary Payload UL center frequencies. For satellites ten (10) through fifteen (15) and any replacement satellites, we have pre-coordinated for either three (3) or four (4) satellite clusters.

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Earth Station Parameters			Relevant Bands		
Location	Latitude (N)	Longitude (E)	X-Band DL[4]	S-Band UL[5]	S-Band DL[6]
Svalbard, Nor	78.231	15.390	X	X	X
Tromso, Nor	69.663	18.940	X	X	X
Troll, Antarctica	-72.001	2.526	X	X	X
Punta Arenas, Chile	-52.936	-70.870	X	X	X
Awarua, New Zealand	-46.529	168.381	X	X	X
Hartbeesthoek, South Africa	-25.884	27.884	X	X	X

Thank you for your consideration.

Sincerely,

Dr. Michael Mineiro
V.P. Legal, Regulatory, and Government Affairs

[4] Primary Payload DL and Primary TT&C DL
[5] Primary Payload UL and TT&C UL
[6] Emergency Backup TT&C DL