

**Before the
Federal Communications Commission
Washington, DC 20554**

In the Matter of	)	
	)	File No. SAT-MOD-_____
HawkEye 360, Inc.	)	
	)	Call Sign: S3042
Application to Modify License	)	

MODIFICATION APPLICATION

HawkEye 360, Inc. (“HE360”) requests that the Space Bureau (“Bureau”) modify the company’s space station license for its constellation (“HE360 Constellation”),¹ as follows:

- increase the number of HE360 clusters² in the polar, sun-synchronous orbit (“SSO”) from nine to **twelve** and decrease the number of HE360 clusters in the mid-inclination orbit from ten to **seven**, with no change to the single cluster in near-equatorial orbit;³
- authorize HE360 to deploy, as part of any of its twenty HE360 clusters in the HE360 Constellation, either the originally authorized “Hawk” satellite or the smaller form factor “Kestrel” satellite;⁴
- expand the inclination range of the authorized mid-inclination orbit from 35-50 degrees to 35-**55** degrees;⁵

¹ See Stamp Grant, HawkEye 360, Inc., ICFS File Nos. SAT-MOD-20240812-00180, SAT-MOD-20220906-00099, SAT-AMD-20221014-00136, SAT-MOD-20230724-00181 (granted May 30, 2025; reissued June 18, 2025); *see also* Application, HawkEye 360, Inc., ICFS File No. SAT-MOD-20250910-00267 (filed September 12, 2025) (requesting authority to increase the number of HE360 clusters in the polar, sun-synchronous orbit by one and correspondingly to decrease the number of HE360 clusters in the near-equatorial orbit by one).

² The HE360 clusters consist of three satellites, except for the initial Kestrel cluster, which consists of only a single satellite, Kestrel-0A. *See, e.g.*, Application, HawkEye 360, Inc., ICFS File No. SAT-MOD-20240619-00139 (granted May 30, 2025; reissued June 18, 2025) (“Kestrel-0A Application”).

³ *See infra* Section I. For the avoidance of doubt, there is no proposed change to the total number of authorized clusters, which remains at twenty.

⁴ *See infra* Section II.

⁵ *See infra* Section III.

- expand the identified sensing capability of the HE360 Constellation from a 30 MHz to 18 GHz range to a 2 MHz to 40 GHz range;⁶
- add two X-band transmitter antennas to the Hawk satellites beginning with Cluster 15;⁷ and
- update the list of HE360 Earth stations coordinated with Federal agencies.⁸

HE360 is not requesting any other changes to its license or authorized satellite operations and certifies that such operations remain unchanged.⁹ HE360 submits that grant of this application will serve the public interest. HE360 will be better able to manage its fleet of satellites, take advantage of launch rideshares, operate more efficiently, and serve its customers, as discussed in more detail below. HE360 requests grant of the application prior to April 1, 2026, to ensure that Cluster 15 and the first production Kestrel cluster, *i.e.*, Kestrel 1, are timely authorized before the scheduled launch.

Attached are the following exhibits in support of this application:

Exhibit 1 – Frequency Plan Table¹⁰

⁶ See *infra* Section IV.

⁷ See *infra* Section V.

⁸ The revised list includes one new Earth station located in Longovilo, Chile and also removes the geographic coordinates for the stations. That information, along with other radiofrequency information, is provided separately to the federal spectrum managers as part of the informal coordination process.

⁹ The HE360 license identifies a maximum uplink EIRP of 40.8 dBW. See, e.g., Stamp Grant, HawkEye 360, Inc., ICFS File Nos. SAT-MOD-20240812-00180, SAT-MOD-20220906-00099, SAT-AMD-20221014-00136, SAT-MOD-20230724-00181, at Condition 12.b. (granted May 30, 2025; reissued June 18, 2025). HE360 seeks no change to that limit but will confirm with federal spectrum managers during the coordination process that this limit is irrespective of transmit bandwidth.

¹⁰ The attached frequency plan table updates the “Frequencies” section in the HE360 license grant to show the modified number of clusters in each operating orbit, the expansion of the mid-inclination orbital range, and the frequency information for the Kestrel satellites. Additionally, HE360 corrects several references in the table to “satellites,” which should be “clusters.” The

Exhibit 2 – Frequency Plan Table (black-line)

Exhibit 3 – X-band PFD Compliance

Exhibit 4 – HawkEye 360 Earth Stations Coordinated with Federal Agencies

Exhibit 5 – Orbital Debris Assessment Report

Exhibit 6 – Ownership Information

Discussion

I. Orbital Flexibility

As authorized, HE360 is permitted to launch and operate twenty clusters of satellites into three identified orbits, pursuant to a precise distribution of clusters in each orbit: specifically, eight clusters in SSO, ten clusters in mid-inclination orbit, and two clusters in near-equatorial orbit.¹¹ HE360 has a pending application to adjust this distribution to: nine clusters in SSO, ten clusters in mid-inclination orbit, and one cluster in near-equatorial orbit.¹² In this application, HE360 requests authority to launch and operate its satellite clusters in the following orbits: twelve clusters in SSO, seven clusters in mid-inclination orbit, and one cluster in near-equatorial orbit. Such flexibility will improve HE360's ability to manage its fleet, accommodate customer demands, and take advantage of available launches.

HE360 submits that expeditious action on this request is warranted. HE360 will soon be at maximum capacity for the number of clusters that are authorized to operate in polar, SSO.¹³

revised document and the black-line version of this document provided in Exhibit 2 are provided for the Bureau's convenience.

¹¹ *See supra* note 1.

¹² Application, HawkEye 360, Inc., ICFS File No. SAT-MOD-20250910-00267 (filed September 12, 2025).

¹³ For the Bureau's awareness, the following HE360 Clusters are or will soon be operating in polar, SSO: 2, 3, 5, 7, 10, 12, Kestrel-0A, 13 (TBD) and 14 (TBD). The following HE360 Clusters are operating in the mid-inclination orbit: 6, 8, 9, and 11. Clusters 1 and 4 have been

As a result, HE360 will not have authority to deploy and operate the Cluster 15 and Kestrel 1 satellites, scheduled to launch in June 2026, at a polar, SSO, although the company has authority to deploy additional clusters in non-SSO orbits. Moreover, granting HE360 greater flexibility to manage its operational orbits is consistent with FCC policies and proposed rules.¹⁴

HE360 will reach out to the federal spectrum managers to coordinate the change in the number of clusters for each authorized orbit.¹⁵ Enclosed as Exhibits 1 and 5, respectively, are an updated frequency plan table and Orbital Debris Assessment Report (“ODAR”), reflecting these changes.

II. Satellite Form Factor Flexibility

HE360 requests authority for flexibility to launch and operate either of two satellite form factors for its HE360 Constellation, the originally approved Hawk form factor that has been modified over the years and the smaller Kestrel form factor recently authorized by the Bureau.¹⁶ The Hawk fleet and the Kestrel fleet will form the HE360 Constellation.¹⁷ The Kestrel satellites

decommissioned. *See also supra* note 1 (identifying a pending request for a modest change in the number of clusters in two of the authorized orbits).

¹⁴ *See Space Modernization for the 21st Century, Notice of Proposed Rulemaking*, FCC 25-69, at ¶ 154 (October 28, 2025) (“We also hope to give licensees the flexibility to test and modify systems as needed to determine the most effective and efficient system equipment or operational parameters as quickly as reasonably possible.”).

¹⁵ As discussed above, HE360 will also confirm with federal spectrum managers during the coordination process that the 40.8 dBW uplink EIRP limit is irrespective of transmit bandwidth. *See also supra* note 9.

¹⁶ *See* Stamp Grant, ICFS File Nos. SAT-MOD-20240619-00139; SAT-MOD-20240812-00180, SAT-MOD-20220906-00099, SAT-AMD-20221014-00136, SAT-MOD-20230724-00181, SAT-AMD-20250331-00085 (granted May 30, 2025; reissued June 18, 2025).

¹⁷ HE360 refers to the Hawk clusters as “Cluster [#]” and, similarly, the Kestrel clusters as “Kestrel [#],” where “[#]” is the sequential cluster number for that satellite form factor. Individual satellites in a cluster are referred to as Hawk-[#][letter] or Kestrel-[#][letter], where “[letter]” is “A,” “B,” or “C.”

will operate in the same frequencies bounded by the same technical performance envelopes already authorized by the Bureau (and coordinated with Federal spectrum managers) for the Hawk satellites¹⁸ and communicate with the same Earth stations authorized for the system.¹⁹ Accordingly, HE360's decision to use one form factor over the other has no material impact on the radiofrequency ("RF") interference environment.

Additionally, to maximize operational flexibility and simplify administrative matters, HE360 requests authority to operate the Hawk and Kestrel satellites using any of the emission bandwidths previously authorized only to the other form factor.²⁰ To the extent necessary, HE360 would be willing to provide notice to the Bureau identifying the form factor used for each satellite as part of its launch notification, consistent with prior Bureau practice.²¹ Providing HE360 the flexibility to determine which form factor to use, without having to seek specific approval for each launch, will enhance the company's operating efficiency and responsiveness to customer demands.

Attached as Exhibit 5 is the ODAR for the updated Hawk and Kestrel satellites and orbits. Additionally, as explained in the ODAR, each satellite in the Kestrel fleet will have one of two potential propulsion systems onboard, both of which comply with all applicable orbital debris mitigation requirements. Providing HE360 the ability to select the specific propulsion

¹⁸ See Kestrel-0A Application, Narrative, at 2; *id.*, Attachment 1, at 1.

¹⁹ HE360 is not seeking additional authority to use Iridium inter-satellite links, which was approved for Kestrel-0A.

²⁰ The updated range of emission bandwidths is identified in the attached Frequency Plan Table, attached as Exhibit 1.

²¹ See Stamp Grant, Hawkeye 360, Inc., IBFS File No. SAT-MOD-20210114-00010, at Condition 27 (granted May 25, 2021) ("HE360 will notify the Commission in writing upon deployment of satellites which utilize the (1) rabbit antenna; (2) propulsion system; and (3) spiral-backed antenna.")(citations omitted).

system for each Kestrel satellite would provide HE360 system development and operating flexibility. To the extent necessary, HE360 would be willing to provide notice to the Bureau identifying the propulsion system used for each Kestrel satellite as part of its launch notification, consistent with prior Bureau practice.²²

III. Expansion of Mid-inclination Orbital Range

HE360 generally launches its satellites as secondary payloads on launch vehicles. As a result, HE360 relies on the launch vehicle operator, primarily SpaceX, to identify the specific deployment parameters. To ensure that HE360 is able to take advantage of potential changes in the mid-inclination launches, HE360 seeks authority to operate in a slightly broader range of mid-inclination orbits, *i.e.*, 35-~~55~~ degrees, instead of 35-50 degrees.

IV. Expansion of Sensing Capabilities

As explained in a prior application, HE360's sensing capabilities are identified in the company's FCC license via an unnecessarily complicated and detailed format, which does not appear relevant to any RF interference concern.²³ Accordingly, HE360 had requested that the Bureau simplify the RF sensing language provided in its license to state "HE360 satellites have antennas capable of sensing radiofrequency electromagnetic energy in the 30 MHz to 18 GHz range" and to permit HE360 to use any combination of antennas that the company has identified in its ODARs.²⁴

²² See *supra* note 21.

²³ See Application Narrative, HawkEye 360, Inc., ICFS File No. SAT-MOD-20240619-00139, at 4 (filed June 19, 2024); see also Stamp Grant, Spire Global, Inc., ICFS File No. SAT-MOD-20250722-00189, at 2 (granted November 24, 2025) (authorizing sensing authorization in 1.2-1.7 GHz band).

²⁴ See Kestrel-0A Application, at 5. The requests are still pending.

In this application, HE360 requests that the Bureau modify the above proposed language to expand the range to “2 MHz to 40 GHz”²⁵ and maintains its request to use any combination of antennas that the company has identified in its ODARs. Additional experience has shown that certain antennas have a wider usable tuning range (albeit at a reduced efficiency and/or performance). Accordingly, HE360 believes it is more appropriate to more broadly characterize the sensing frequency range.²⁶

V. New X-band transmitter Antennas

HE360 seeks authority to add two X-band transmitter antennas to its Hawk satellites beginning with Cluster 15. The new antennas will allow HE360 to simultaneously conduct

²⁵ To the extent the FCC determines that the sensing capabilities must be directly associated with particular antennas, HE360 requests that its capabilities be modified to reflect greater sensing ranges, as follows (emphasis added):

HE360 satellites have antennas capable of receiving in the following bands: 100-182 MHz (VHF Dipole); 382-422 MHz (UHF Dipole); 1090 MHz (ADS-B Patch); 1.3-2.0 GHz (L-band Patch); 2.5-3.5 GHz (S-band Patch); 1.4-7.0 GHz (Molded Button Antenna); 6.0-40.0 GHz (Horn Antenna). Starting with HE360 satellite cluster two, the satellites include antennas capable of receiving signals in the frequency bands used by the GPS L1 (center frequency 1575.42 MHz), L2 (center frequency 1227.60) and L5 (center frequency 1176.45 MHz) signals (GNSS Antenna). Starting with HE360 satellite cluster four, the Molded Button Antenna has been replaced by a Spiral-Backed Antenna capable of receiving in the 600 MHz-10 GHz frequency bands. Starting with HE360 satellites in Cluster 7, the satellites will include antennas capable of receiving signals in the 250-350 MHz frequency band, and the 1090 MHz (ADS-B Patch) antenna will be removed. Starting with HE360 satellites in Cluster 9, the satellites will include additional antennas capable of receiving signals in the 2-120 and 88-800 MHz frequency bands.

See Stamp Grant, HawkEye 360, Inc., ICFS File Nos. SAT-MOD-20240812-00180, SAT-MOD-20220906-00099, SAT-AMD-20221014-00136, SAT-MOD-20230724-00181, at n. 14 (granted May 30, 2025; reissued June 18, 2025).

²⁶ Although HE360 seeks broad authority to use any combination of already approved antennas for sensing purposes, for completeness, the Kestrel 1 satellites will have an L-band patch antenna capable of sensing in the 1300-2000 MHz range, two S-band patch antennas capable of sensing in the 2500-3500 MHz range, a spiral-backed antenna capable of sensing in the 900-18000 MHz range, a horn antenna capable of sensing in the 5000-18000 MHz range, and a customizable whip antenna capable of sensing in the 70-600 MHz range.

payload downlinks while collecting signals on the Hawk satellites, when such operational activity is preferred.

The proposed change would not increase interference. HE360 will only transmit using a single X-band channel at a time from any of the X-band antennas onboard the Hawk satellites. The new antennas have lower gain than the antennas currently authorized, and the transmit power levels using the new antennas would be lower than authorized power level.²⁷ Additionally, the X-band transmissions from the new antennas will be coordinated with federal spectrum managers and will comply with relevant technical standards.

Attached as Exhibit 3 are PFD compliance showings for the X-band transmissions. Additionally, Exhibit 5 (ODAR) shows that the new X-band antennas fully demise during re-entry.

²⁷ As identified in Exhibit 3 (X-band PFD Compliance), the transmit power is expected to be 0.65 dB less for X-band-2 and 1.3 dB less for the new XFAN beams because of additional losses due to the need to use RF switches.

Conclusion

HE360 submits that grant of this application will serve the public interest. HE360 will be better able to manage its fleet of satellites, take advantage of launch rideshares, operate more efficiently, and serve its customers. HE360 requests grant of the application prior to April 1, 2026, to ensure that the HE360 satellites for the next launch, Cluster 15 and Kestrel 1, are timely authorized.

Respectfully submitted,

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Technical Certification

I, Ryan Fielder, hereby certify, under penalty of perjury, that I am the technically qualified person responsible for the preparation of the engineering information contained in the technical portions of the foregoing application and the related attachments, that I am familiar with Part 25 of the Commission's rules, and that the technical information is complete and accurate to the best of my knowledge and belief.

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