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August 26, 2020

VIA IBFS

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, S.W.
Washington, DC 20554

Attention: Mr. Karl Kensinger
Deputy Chief, Satellite Division

Re: Swarm Technologies, Inc.
IBFS File No. SAT-PDR-20200228-00021; Call Sign S3064

Dear Secretary Dortch:

With respect to the above-referenced application, Swarm Technologies, Inc. (Swarm) herein provides clarification concerning the attitude control capabilities of its proposed UHF spacecraft.

The design of Swarm's initial satellites operating under experimental authority (SpaceBEE-1 through -7) include a passive stability mechanism that drives the attitude of the satellite. Specifically, the differential ballast mass within each satellite is offset to create a preferred orientation when exposed to perturbations from atmospheric drag and Earth gravity gradient. Due to minimal damping effects in space, the satellite slowly oscillates about this stable configuration in orbit, but maintains a predictable ballistic coefficient. Swarm contracted LeoLabs to measure the passive body rates of the initial SpaceBEEs via radar, and observed rates ranged from 0 to 9 degrees per second. These measurements were consistent with Swarm's preliminary estimates.

Swarm's latter experimental spacecraft (SpaceBEE-8 and -9), as well as the commercial satellites Swarm will launch and operate under routine Part 25 authority include magnetorquers for active attitude control. Upon command from the ground, these magnetorquers can be used to configure the satellite into a low drag or high drag attitude state relative to the passive state. This active control mode can be used for a variety of reasons, including differential drag maneuvers for collision avoidance, as well as thermal/solar power management. Swarm's VHF and proposed UHF satellites both employ this on-demand attitude control system.

In addition to attitude control, Swarm’s architecture roadmap contemplates equipping its UHF satellites with an identical propulsion system to that described in its recent VHF modification filing

(IBFS File No: SAT-MOD-20200501-00040).[1] This propulsion system will primarily be used for collision avoidance and to accelerate disposal at end of life. Swarm's above-referenced active attitude control system will be engaged during propulsive maneuvers to allow for precisely measured orbit adjustments.[2]

Should you have any questions, please do not hesitate to contact the undersigned.

Sincerely,

/s/ Tim Bransford

Tim Bransford

Counsel to Swarm Technologies, Inc.

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1 Swarm supports active propulsion as a mandatory requirement for small spacecraft operating under the FCC's Part 25 rules.

2 Swarm filed its UHF application during the final stages of research and development of the above-referenced propulsion system. Swarm will not implement propulsion in its proposed UHF system without prior FCC approval.