

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554**

In the Matter of)
)
SWARM TECHNOLOGIES INC.)
)
Application for Authority for a Blanket)
Mobile Earth Station License) File No. SES-LIC-20190612-00769
to Operate with a Non-Voice,)
Non-Geostationary Low-Earth)
Orbit Satellite System in the)
Mobile-Satellite Services)

PETITION TO DISMISS, DENY, OR HOLD IN ABEYANCE

ORBCOMM License Corp. (“ORBCOMM”) hereby requests that the Commission dismiss or deny the above-captioned application (“Application”) filed by Swarm Technologies Inc. (“Swarm”).¹ The Application seeks blanket authority for up to 1 million Non-Voice, Non-Geostationary Mobile Satellite Service (“NVNG MSS”) mobile earth stations to operate in conjunction with the NVNG MSS low-Earth orbit satellite system proposed in Swarm’s pending FCC space segment license application (“Space Segment Application”).² Given that there are various still unresolved significant material defects in the Space Segment Application, as

¹ *Public Notice*, Report No. SES-02194, August 28, 2019.

² File No. SAT-LOA-20181221-00094.

detailed in ORBCOMM’s associated pending Petition to Dismiss, Deny or Hold in Abeyance (“ORBCOMM Petition”),³ at a minimum, the Application is clearly not ‘ripe’ for processing at this time.

Furthermore, the Application unfortunately exhibits many of the same fatal defects as the Space Segment Application. Swarm continues to erroneously claim that it “does not request authority to operate in any spectrum assigned on a primary basis to the sole NVNG MSS incumbent, ORBCOMM.”⁴ As detailed in the record of the ORBCOMM Petition, Swarm’s erroneous claim in the Space Segment Application of no spectrum overlap with ORBCOMM (simply repeated in the Application) is based on a devious attempt to twist and obfuscate the Commission’s NVNG MSS Rules and policies and ORBCOMM’s current NVNG MSS licensee rights. In fact, the Commission’s NVNG MSS Rules and policies and ORBCOMM’s current NVNG MSS licensee rights *clearly do not* require ORBCOMM to vacate spectrum for Swarm’s proposed FDMA NVNG MSS system.⁵ Accordingly, to resolve the fatal defects in the Space Segment Application, many of which are mimicked virtually verbatim in the Application, Swarm must modify both license requests.

Specifically, Swarm must revise its proposed spectrum utilization plan to demonstrate how it will be able to implement its proposed NVNG MSS FDMA uplink operations sharing

³ See ORBCOMM Petition to Dismiss, Deny or Hold in Abeyance, File No. SAT-LOA-20181221-00094, filed April 1, 2019, and associated pleadings *et. seq.*

⁴ Application Narrative at p. 8.

⁵ See n. 3, *supra*. See also, ORBCOMM *Ex Parte* Submission in File No. SAT-LOA-20181221-00094, filed May 23, 2019; ORBCOMM *Ex Parte* Submission in File No. SAT-LOA-20181221-00094, filed July 1, 2019.

spectrum with ORBCOMM on a co-frequency co-coverage basis to operate without causing harmful interference to ORBCOMM. Alternatively, Swarm is free to propose a CDMA system that comports with the Commission’s NVNG MSS licensing Rules and policies, or to file a petition for rulemaking to modify the applicable Commission Rules and policies. Otherwise, it appears quite clear that the Commission would be left with no choice but to dismiss or deny both the Application and the Space Segment Application.

Regrettably, the Application simply regurgitates Swarm’s *ad hoc* May 17, 2019 modification of the Space Segment Application where Swarm first introduced its flawed proposal to avoid harmful interference from Swarm uplink operations into other co-frequency systems by modifying the proposed Swarm mobile earth station (“MES”) design to incorporate Carrier-Sense Multiple Access (CSMA) media access control (MAC) with Collision Avoidance “listen-before-talk” technology.⁶ Although “listen-before-talk” technology has been employed as an effective means of spectrum sharing for some types of radio systems, ORBCOMM has definitively demonstrated that it would clearly be ineffective as an NVNG MSS 148 MHz band uplink interference avoidance solution.⁷

This is because an MES-based system intended to detect and avoid causing harmful interference to other co-frequency 148 MHz band systems can only detect signals emitted by other transmitters located within the limited receive area of the MES – at most the unblocked

⁶ See, Swarm *Ex Parte* Submission in File No. SAT-LOA-20181221-00094, filed May 17, 2019. See, also, Application Narrative at p. 7.

⁷ See, e.g., ORBCOMM *Ex Parte* Letter, File No. SAT-LOA-20181221-00094 (filed May 23, 2019). Thus far, Swarm has nebulously referred to several possible other sharing technologies that it might use, but has not provided sufficient information for reasonable evaluation of the feasibility or effectiveness of these purported additional spectrum sharing techniques.

line-of-sight radius of the subject MES. However, the intended satellite uplink receiver is susceptible to harmful interference from a transmitter located anywhere in that satellite's receive antenna footprint (which in the case of a proposed Swarm satellite would be a land area of approximately 2,300 km in diameter). Consequently, Swarm's proposed MES-based "listen-before-talk" uplink channel assignment interference avoidance system would be ineffective. It would be extremely susceptible to various co-frequency harmful interference scenarios (both interference to other systems *and* self-interference) including: interference to unintended satellite receivers (both intra-system, and inter-system); duplicative intra-system MES channel assignments that would jam the intended satellite receiver; and interference to the intended satellite receiver on the selected channel from foreign (other system) transmitters located in the satellite footprint but not within the reception radius of the intended Swarm transmitting MES.

In light of its patently defective and untimely character, ORBCOMM urges the Commission to dismiss or deny the Application. Alternatively, the Commission could hold the Application in abeyance until such time as Swarm modifies both the Application and the Space Segment Application to resolve the various material defects that are impeding Commission action. ORBCOMM once again confirms that it remains willing and ready to work with Swarm

towards addressing and resolving these matters – if and when Swarm finally chooses to engage with ORBCOMM to do so.

Respectfully submitted,



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September 27, 2019

CERTIFICATE OF SERVICE

I hereby certify that on this 27th day of September, 2019, I caused a true and correct copy of the foregoing "PETITION TO DISMISS, DENY, OR HOLD IN ABEYANCE" to be sent by first class mail, postage prepaid, and E-Mail to the following:

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