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VIA ELECTRONIC FILING

May 28, 2019

Roger Noel
Chief, Mobility Division
Wireless Telecommunications Bureau
Federal Communications Commission
445 12th St SW
Washington, DC 20554

GRANTED
for the reasons stated
6/13/19
[Signature]

Re: **Omnipless Manufacturing (PTY) Ltd. Request for Waiver of Part 87 Rules to Allow Equipment Authorization of an Aeronautical Mobile Satellite Service Transceiver (AVIATOR UAV 200)**

Dear Mr. Noel:

Pursuant to Section 1.925 of the Commission's Rules, Omnipless Manufacturing (PTY) Ltd. trading as Cobham Aerospace Communication Cape Town ("Omnipless") hereby requests waiver of Sections 87.131, 87.137, 87.139(i)(1) Note 2, and 87.141(j) of the Commission's Rules to permit certification of its next-generation aeronautical-mobile satellite service ("AMSS") transceiver, the AVIATOR UAV 200 ("UAV 200"). The transceiver will support the Inmarsat SwiftBroadband aircraft communications service as used with unmanned aircraft.

Under Section 1.925, the FCC may grant waiver if "[t]he underlying purpose of the rule(s) would not be served or would be frustrated by application to the instant case, and that a grant of the waiver would be in the public interest or; [i]n view of unique or unusual factual circumstances of the instant case, application of the rule(s) would be inequitable, unduly burdensome or contrary to the public interest, or the applicant has no reasonable alternative."¹

The FCC granted similar waivers of the Part 87 rules to Thrane & Thrane in September 2018 to permit authorization of similar equipment.² Indeed, the UAV 200 utilizes the same radio module as specified for the radios described in the September 2018 waiver requests. There, the Commission agreed that grant served the public interest to allow provision of "high-speed data and voice capabilities on aircraft."³ The agency has also granted similar waivers to EMS,

¹ 47 C.F.R. § 1.925(b)(3).

² See Letter dated September 13, 2018, for the Aviator 700D, from David E. Hilliard to Roger Noel, Mobility Division, Wireless Telecommunications Bureau (Stamp Grant, Sept. 21 2018 "for the reasons set forth herein"); Letter dated September 13, 2018, for the Aviator 200/300/350 Series, from David E. Hilliard to Roger Noel, Mobility Division, Wireless Telecommunications Bureau (Stamp Grant, Sept. 21, 2018 "for the reasons set forth herein").

³ *Id.*

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Honeywell International, Inc. and Rockwell Collins, Inc.,⁴ finding "waiver would be in the public interest" because "current Part 87 rules do not allow for the wider bandwidth, higher transmission speeds and more efficient modulation techniques of newer AMSS systems."⁵ Grant here would provide the same public interest benefits and allow Omnipless's next-generation transceiver to deliver high-speed data in support of aircraft.

Description of the Equipment

The UAV200 supports Inmarsat SwiftBroadband signals using QPSK as well as 16-point and 4-point Quadrature Amplitude Modulation (16QAM, 4QAM). The UAV200 transceiver provides one baseband communication channel capable of supporting simultaneous full-duplex of SwiftBroadband nonvoice data functionality. The System functions in the 1525-1559 MHz receive band and 1626.5-1660.5 MHz transmit band.

The UAV200 transceiver will meet the technical requirement of Part 87 AMSS rules with respect to output power, spurious emissions, intermodulation and frequency stability. As the FCC has acknowledged, Inmarsat's SwiftBroadband service "offers higher data rates by utilizing more efficient modulation techniques."⁶ Grant of the instant waiver request would serve the public interest because the Part 87 rules have not yet been updated to reflect the Inmarsat SwiftBroadband emission types and bandwidths.

A more detailed description of the equipment and the specific rules for which waiver is requested is attached under the company's letterhead.

Please contact me with any questions.

Respectfully,

/s/ David E. Hilliard

David E. Hilliard

⁴ See Letter dated April 9, 2010, from Bruce A. Olcott to James Shaffer, Mobility Division, Wireless Telecommunications Bureau (Stamp Grant Apr. 29, 2010) ("EMS Stamp Grant"); Rockwell Collins, Inc. equipment authorization for the HST-2110B and HST-2120B transceivers, FCC ID AJK8222232 and AJK8222234 (2008); Honeywell International, Inc. equipment authorization for the HD-128 transceiver, FCC ID GB8HD-128 (2007).

⁵ *Request of EMS Technologies Canada, Ltd. for Waiver of Part 87 Emission Mask to Allow Certification and Use of Aeronautical Mobile Satellite Service Transceiver*, 26 FCC Rcd 8824 (WTB 2011).

⁶ EMS Stamp Grant, at 2.



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May 27, 2019

Mr. Roger Noel
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Specific Requests for Waiver

87.131 Authorized Emissions

Section 87.131 authorizes G1D, G1E, and G1W for aircraft earth stations. However, Inmarsat SwiftBroadband uses 16QAM, 4QAM, and QPSK modulation schemes, with emission types G1D and D1D. Therefore, Omnipless requests waiver of the authorized

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emissions in section 87.131 of the Commission's rules to employ D1D in addition to the G1D emission authorized under Section 87.131.

87.137 Types of Emission

Section 87.137(a) of the Commission's rules authorizes for aircraft earth stations emission designator 21K0G1D. As explained above, however, SwiftBroadband utilize QPSK, 4QAM and 16QAM modulation with emission classes G1D and D1D. In addition, the authorized bandwidth under Part 87.137(a) for aircraft earth station emissions above 50 MHz is 25 kHz. Due to the increased symbol rates for 16QAM, a larger authorized bandwidth of up to 200 KHz is necessary. Omnipless therefore requests waiver to authorize the following emissions designators:

#	Symbol Rate (kSym/s)	Modulation Type	Necessary Bandwidth (kHz)	FCC Designator
1	33.6	16-OAM	50	50K0D1D
2	67.2	16-OAM	100	100KD1D
3	151.2	16-OAM	200	200KD1D
4	33.6	16-OAM	50	50K0D1D
5	67.2	16-OAM	100	100KD1D
6	151.2	16-OAM	200	200KD1D
7	67.2	QPSK	100	100KG1D
8	151.2	QPSK	200	200KG1D
9	16.8	QPSK	25	25K0G1D
10	33.6	QPSK	50	50K0G1D
11	67.2	QPSK	100	100KG1D
12	151.2	QPSK	200	200KG1D
13	16.8	QPSK	25	25K0G1D
14	33.6	QPSK	50	50K0G1D
15	84.0	4-QAM	100	100KD1D
16	84.0	16-OAM	100	100KD1D

87.139(i)(1) Note 2 Emission Limitations

Section 87.139(i)(1) of the Commission's rules provides the required attenuation for a modulated carrier and note 2 provides an absolute offset of +/-35 kHz. Under the required designs for the SwiftBroadband modulation techniques, 99 percent of the occupied bandwidth exceeds the +/-35 kHz offset in many cases. In short, the SwiftBroadband modulation schemes make meeting the offset impossible. Therefore, Omnipless requests waiver of Section 87.139(i)(1) note 2 to permit an absolute offset of +/-504 kHz due to the maximum SwiftBroadband symbol rate of 151.2 kSym/s.

87.141(j) Modulation Requirements

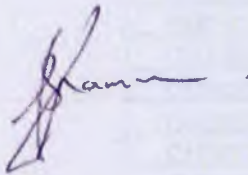
Section 87.141(j) of the Commission's rules require transmitters used as aircraft earth stations to employ BPSK for transmission rates up to and including 2.4 kbps and to employ QPSK for higher rates. However, SwiftBroadband services require the use of 16QAM at certain transmission rates higher than 2.4 kbps. Due to Inmarsat requirements for the SwiftBroadband service, Omnipless requests waiver to permit these modulations.

Conclusion

Waiver of the Part 87 rules described above to allow its UAV 200 transceiver to support the functionality of the Inmarsat SwiftBroadband service would serve the public interest.

Please contact the undersigned with any questions.

Sincerely,



SJ Spammer
Program Manager

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