

Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of)	
)	
ALVARION LTD.)	LKT-BMAX-SI36 (BreezeMAX Si CPE)
)	BMAX-CPE-Si-TDD-E-3.x
Application for Equipment Certification for)	BreezeMax 3.65 Broadband Wireless Access
Transmitter in the 3650-3675 MHz Band under)	System: Indoor Subscriber unit
Subpart Z of Part 90 of the Commission’s Rules)	

ORDER

Adopted: April 22, 2010

Released: April 22, 2010

By the Chief, Office of Engineering and Technology, and the Chief, Wireless Telecommunications Bureau

I. INTRODUCTION

1. This Order addresses the above-captioned application by Alvarion, Ltd. (“Alvarion”) for certification of a transmitter as a fixed station for terrestrial operation in the 3650-3675 MHz band, a subset of the 3650-3700 MHz band (3650 MHz). For the reasons set forth below, the Office of Engineering and Technology (OET) and the Wireless Telecommunications Bureau (WTB) classify this transmitter as a mobile station for operation in the 3650 MHz band and grant a limited waiver of the power limits in Section 90.1321(c) of the Commission’s Rules,¹ subject to the conditions set forth below. In addition, OET refers the above-captioned application to the Chief of its Laboratory Division for further processing consistent with this Order and the Commission’s Rules. Actions taken herein will further the Commission’s goal in the 3650 MHz proceeding to facilitate the provision of wireless broadband service while maintaining protection of grandfathered Fixed Satellite Service (FSS) earth stations and Federal Government radiolocation stations in the band.²

II. BACKGROUND

2. *Rules governing terrestrial operation in the 3650 MHz band.* In the 3650 MHz proceeding, the Commission developed a regulatory framework for new terrestrial operations in the 3650 MHz band to be licensed on a nationwide, non-exclusive basis, with all licensees registering their base and fixed stations in a common data base prior to beginning operation.³ Base and fixed stations are limited to 25 watts equivalent isotropically radiated power (EIRP) per 25 MHz bandwidth, and the peak EIRP power density shall not exceed 1 Watt in any one-megahertz slice of spectrum.⁴ In addition, base and fixed stations may not be located within 150 km of specified grandfathered satellite earth stations unless the licensee(s) of the satellite earth station(s) and the 3650-3700 MHz licensee mutually agree on such

¹ 47 C.F.R. § 90.1321(c).

² Wireless Operations in the 3650-3700 MHz Band, ET Docket No. 04-151, Rules for Wireless Broadband Services in the 3650-3700 MHz Band, WT Docket No. 05-96, *Report and Order*, 20 FCC Rcd 6502, 6503, 6508, 6519 ¶¶ 1, 15, 47 (2005) (*3650 MHz Order*), *recon. granted in part, Memorandum Opinion and Order*, 22 FCC Rcd 10421 (2007) (*MO&O*).

³ *3650 MHz Order*, 20 FCC Rcd at 6513-14 ¶¶ 31-32.

⁴ 47 C.F.R. § 90.1321(a).

operation.⁵ Fixed and base stations may not be located within 80 km of specified Federal Government radiolocation facilities unless such operation is successfully coordinated through the Interdepartmental Radio Advisory Committee.⁶

3. With respect to mobile and portable stations, operations are limited to 1 watt EIRP per 25 MHz bandwidth, and the peak EIRP power density shall not exceed 40 milliwatts in any one-megahertz slice of spectrum.⁷ Mobile and portable stations may operate only if they can positively receive and decode an enabling signal transmitted by a base station.⁸ In addition, mobile and portable stations that meet the Commission's requirements need not be registered.⁹

4. Stations operating in the 3650 MHz band must employ a contention-based protocol, a technology that permits multiple licensees to share spectrum by ensuring that all licensees receive reasonable opportunities to operate in the band.¹⁰ In addition, 3650 MHz equipment must be certified by the Commission, and applications for equipment certification must include the showings set forth in Section 90.203(o) of the Commission's rules.¹¹ Equipment operating in the 3650 MHz band is subject to the Commission's radiofrequency (RF) exposure requirements.¹²

5. In adopting these technical requirements in the *3650 MHz Order*, the Commission stated that its goal is to permit sufficient operating power and flexibility to make terrestrial operations in this band a viable option for potential service providers while adequately protecting grandfathered FSS and Federal Government stations.¹³ On reconsideration, the Commission modified its rules to limit the operation of equipment using "restricted" contention-based protocols to the lower 25 megahertz portion of the 3650 MHz band.¹⁴ The Commission otherwise denied requests for reconsideration of various technical rules, including requests to increase the allowable power for mobile transmissions to 5 Watts per 25 MHz.¹⁵ The Commission found that the fixed and mobile power limits adopted in the *3650 MHz Order*, combined with the size of the protection zones established for FSS earth stations, are appropriate to achieve the Commission's goals.¹⁶

⁵ 47 C.F.R. § 90.1331(a).

⁶ 47 C.F.R. § 90.1331(b).

⁷ 47 C.F.R. § 90.1321(c).

⁸ 47 C.F.R. § 90.1333(a).

⁹ *3650 MHz Order*, 20 FCC Rcd at 6514 n. 54. *See also id.* at 6521 ¶¶ 51-52 (mobile station operations and power). *See also* Wireless Telecommunications Bureau Announces Start Date for Licensing and Registration Process for the 3650-3700 MHz Band, *Public Notice*, 22 FCC Rcd 19802, 19805 (mobile and portable stations are not registered but may only operate if they can positively receive and decode an enabling signal transmitted by a registered base station) *citing* 47 C.F.R. § 90.1333 (WTB 2007).

¹⁰ 47 C.F.R. § 90.1319(b).

¹¹ *See* 47 C.F.R. § 90.203(o); *3650 MHz Order*, 20 FCC Rcd at 6527-28 ¶¶ 67-69 (2005).

¹² 47 C.F.R. § 90.1335 ("Licensees in the 3650-3700 MHz band are subject to the exposure requirements found in Sections 1.1307(b), 2.1091 and 2.1093 of our Rules.").

¹³ *3650 MHz Order*, 20 FCC Rcd at 6519 ¶ 47.

¹⁴ *MO&O*, 22 FCC Rcd at 10435 ¶ 36; 47 C.F.R. § 90.1319(c). "Restricted" protocols are those capable of avoiding interference only to other devices using the same protocol.

¹⁵ *MO&O*, 22 FCC Rcd at 10437-38 ¶¶ 41-43.

¹⁶ *MO&O*, 22 FCC Rcd at 10437-38 ¶ 43.

6. *Alvarion BreezeMAX-Si*. Alvarion's application seeks certification for its BreezeMAX Si-CPE (BMAX-Si) as a fixed station that would need to be registered under the Commission's rules prior to operating in the 3650-3675 MHz band using a restricted contention-based protocol. Alvarion describes this equipment as a compact subscriber unit intended for indoor installation at residential or business premises by a non-professional user.¹⁷ Alvarion notes that the BMAX-Si contains six internal antennas¹⁸ and a connection to an optional wall/window detached antenna.¹⁹ Channel bandwidth is 3.5 megahertz and 5 megahertz, and Alvarion states that the BMAX-Si meets the base/fixed power limits of Section 90.1321(a), concerning EIRP radiated power and peak EIRP power density, because the maximum rated output power is 23 dBm and the antenna gain is 9 dBi for the internal antennas. Specifically, using the internal antennas, the calculated EIRP is 1.514 Watts (31.8 dBm) for the 3.5 megahertz channel and 1.58 Watts (32 dBm) for the 5 megahertz channel.²⁰ The User Manual for this equipment includes an "FCC Radiation Hazard Warning" stating that, "to comply with FCC RF exposure requirements in Section 1.1307 and 2.1091 of FCC Rules, the antenna used for this transmitter must be kept at a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."²¹

III. DISCUSSION

7. As an initial matter, we decline to certify Alvarion's BMAX-Si *as a fixed station*, based on the Commission's policies and goals in the 3650 MHz proceeding. As discussed above, in establishing licensing and technical rules for new terrestrial operations in the 3650 MHz band, the Commission emphasized the need to protect grandfathered FSS earth stations and Federal Government radiolocation stations in the band. In particular, the Commission found that that fixed stations could operate at a significantly higher power level than mobile stations without causing harm to grandfathered facilities because fixed stations would remain at a specific location that would be registered in the Commission's data base and could not be within a specified distance from grandfathered stations absent bilateral agreement.²² Consistent with the Commission's goals in the 3650 MHz proceeding, we do not find that a compact, desktop device that can be operated by consumers with internal antennas unconnected to any fixed mounting should be certified as a fixed station, which would be entitled to operate at a power level up to 25 W/25 MHz EIRP.

¹⁷ See BreezeMAX CPE Product Manual (User Manual) at 5.

¹⁸ See The Standards Institution of Israel, Industry Division, Electronics and Telematics Laboratory, EMC Section, Test Report No. 8812307227, for Alvarion Ltd., Equipment Under Test: BMAX-CPE-Si-TDD-E-3.x, Broadband Wireless Access System, Indoor Subscriber unit (Test Report) at 4 (customer provided description).

¹⁹ *Id.*

²⁰ See, e.g., Test Report at 3-4, 9 (calculated EIRP was 32.0 dBm or less with the internal antennas and 34 dBm or less with the external antenna, including a 3 dBi cable loss). See also User Manual at 15 (Table 1-14: Si CPE Radio Specifications).

²¹ User Manual at viii. 47 C.F.R. § 2.1091 defines a mobile device as a transmitting device designed to be used in other than fixed locations and to generally be used in such a way that a separation distance of at least 20 centimeters is normally maintained between the transmitter's radiating structure(s) and the body of the user or nearby persons. See 47 C.F.R. § 2.1091 (also noting that, in this context, the term "fixed location" means that the device is physically secured at one location and is not able to be easily moved to another location). Alvarion's Test Report provides an environmental evaluation and exposure limit, which states that the minimum RF safety distance from the unit antenna is 13.8 cm for 3.5 megahertz channel operation and 14 cm for 5 megahertz channel operation. See Test Report at 5.

²² See *3650 MHz Order*, 20 FCC Rcd at 6508, 6519-6527 ¶¶ 17, 47-66; *MO&O*, 22 FCC Rcd at 10437-38 ¶ 43. Fixed and base stations are limited to 25 W/25 MHz EIRP and mobile and portable stations are limited to 1 W/25 MHz EIRP). 47 C.F.R. § 90.1321.

8. We recognize, however, that the Commission did anticipate that *mobile* stations might be used “in a fixed mode” in the 3650 MHz band without harm to grandfathered stations.²³ In particular, the Commission found that mobile stations used in a fixed mode need not be registered if they meet the same requirements that apply to all mobile stations, because the power limitation for mobile stations and the requirement that mobile stations operate within close proximity of a registered base station would be adequate to protect grandfathered stations from interference.²⁴

9. We conclude that the BMAX-Si, which can be easily relocated but is designed to be used by subscribers at their home or business, is best evaluated for equipment certification purposes as the type of “mobile station used in a fixed mode” that was envisioned by the Commission for operation in the 3650 MHz band. In this regard, we note that the BMAX-Si appears to be designed and tested for compliance with the Commission’s RF safety rules for mobile devices. We note, however, that the BMAX-Si exceeds the mobile power and mobile power density limits set forth in Section 90.1321(c).²⁵ Accordingly, we address, on our own motion, whether a limited waiver of Section 90.1321(c) is warranted to permit certification of the BMAX-Si for operation in the 3650 MHz band.

10. The Commission may waive any provision of its rules on its own motion and for good cause shown.²⁶ A rule may be waived where the particular facts make strict compliance inconsistent with the public interest.²⁷ In making this determination, we consider whether a waiver would undermine the purpose(s) of the rule and there must be a stronger public interest benefit in granting the waiver than in applying the rule.²⁸

11. In this instance, we conclude that the strict application of Section 90.1321(c) would not further the underlying purposes of the rules and that granting a waiver, subject to conditions, better serves the public interest by furthering the Commission’s underlying purpose of fostering the deployment of new broadband technologies without undermining the protections that the Commission adopted for grandfathered operations. Specifically, we conclude that a mobile station designed and marketed only for fixed-mode use limited to the maximum EIRP and power density as specified in the above-captioned Alvarion application, which is above the mobile peak power and density limits, furthers the underlying purposes of the rules so long as such mobile stations are used only (1) in the fixed mode; (2) after registration in ULS; and (3) subject to the coordination zones set forth in Section 90.1331.²⁹ In essence, the instant waiver will afford grandfathered facilities the same protections from potential interference from the BMAX-Si as the Commission’s rules afford grandfathered facilities vis-à-vis fixed stations.

12. Moreover, in order to help ensure that the BMAX-Si is used by subscribers in compliance with this *Order*, we will require Alvarion to limit the marketing and sale of the device to 3650 MHz

²³ *3650 MHz Order*, 20 FCC Rcd at 6514 n 54.

²⁴ *Id.*

²⁵ 47 C.F.R. § 90.1321(c) (limits mobile and portable stations to 1 watt/25 MHz EIRP and further provides that, in any event, the peak EIRP density shall not exceed 40 milliwatts in any one-megahertz slice of spectrum).

²⁶ See 47 C.F.R. § 1.3; see also *ICO Global Communications (Holdings) Limited v. FCC*, 428 F.3d 264 (D.C. Cir. 2005); *Northeast Cellular Telephone Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990) (*Northeast Cellular*); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969), *aff’d*, 459 F.2d 1203 (1972), *cert. denied*, 409 U.S. 1027 (1972).

²⁷ See *Northeast Cellular*, 897 F.2d at 1166; *ICO Global*, 428 F.3d at 269; *WAIT Radio*, 418 F.2d at 1157-59.

²⁸ See, e.g., *WAIT Radio*, 418 F.2d at 1157; *Northeast Cellular*, 897 F.2d at 1166.

²⁹ Given these limitations, our waiver of Section 90.1321(c) to allow certification of the BMAX-Si does not disturb the Commission’s decision declining to increase the power limit for mobile units, see *3650 MHz MO&O*, 22 FCC Rcd at 10437 ¶ 42.

licensees, rather than marketing and selling directly to end users and consumers. In addition, Alvarion must ensure by having proper safeguards that the device is only marketed and sold to end users by such licensees who agree to and are responsible for customer/user operation of the device in accordance with the instant Order and the Commission's Rules. Alvarion must inform those licensees that BMAX-Si devices must be operated in accordance with all of the conditions of this Order and that modification of the waiver and certification of the BMAX-Si may be required if harmful interference is caused.³⁰

13. We find that a grant of this request, as conditioned herein, is in the public interest because it will promote the use of more efficient use of the 3650 MHz band by terrestrial licensees while protecting grandfathered FSS earth stations and Federal Government radiolocation stations operating in the band from interference.³¹ The use of the BMAX-Si in accordance with the conditions set forth in this *Order* will provide terrestrial licensees in this band with more equipment options to encourage the rapid expansion of broadband services without compromising the interference protection afforded to grandfathered facilities.³² Indeed, the Commission structured the band's rules to provide licensees an economical means of quickly initiating broadband services, particularly in under-served and rural areas, and the instant waiver removes a regulatory obstacle to the use of a device that may make terrestrial operations a viable option for potential service providers. Accordingly, we find that grant of the instant waiver better serves the public interest than would strict adherence to the rule.³³

14. We note that, to the extent that equipment manufacturers file similarly-situated applications for certification of 3650 MHz equipment (*i.e.*, mobile devices to be used in a fixed mode that exceed the mobile power limit but meet the mobile RF safety standard), OET's Laboratory Division may process such applications consistent with this Order and the Commission's Rules. As we observe how mobile stations are used in a fixed mode in the 3650 MHz band, we will continue to evaluate how this classification serves the Commission's goals for this band.

IV. SUMMARY OF CONDITIONS

15. Summarizing the above, the following conditions shall apply to the limited waiver being granted to Alvarion for the above-captioned BreezeMAX Si-CPE:

- The grantee must ensure by having proper safeguards that the device is only marketed to licensees with base stations registered in ULS for operation in the 3650 MHz band and that the licensee assumes responsibility for proper ULS registration of the device under its license and responsibility for operation in accordance with the instant Order and the Commission's Rules, including the following:
 - The BreezeMAX Si CPE device is certified as a mobile station only for fixed-mode operation limited to the maximum EIRP and power density as specified in the above-captioned application by Alvarion.
 - The location of the fixed-mode operation must be registered in the Universal Licensing System (ULS) database by the license holder prior to operation and the device may only

³⁰ The provisions of 47 C.F.R. §2.939(a) allow the Commission to revoke the certification grant, if Alvarion or any operator of these devices fails to comply with the obligations placed on them in accordance with the equipment authorization program. *See* 47 C.F.R. § 2.939(a).

³¹ *See, e.g., 3650 MHz Order*, 20 FCC Rcd at 6511-6513 ¶¶ 25-30.

³² *See, e.g., WAIT Radio*, 418 F.2d at 1157; *Northeast Cellular*, 897 F.2d at 1166.

³³ *Id.*

be operated at the fixed location registered in ULS and may not be operated at any location other than as registered in ULS. Such registrations will be subject to the rules and procedures that generally govern registration of fixed/base stations including 47 C.F.R. § 90.1331 (Restrictions on the operation of base and fixed stations).

- The marketing and/or sale of the device to end users or consumers is prohibited.
- The grantee is required to include sufficiently detailed installation instructions and guidelines to ensure that licensees locate the BreezeMAX Si CPE in a manner that will maintain appropriate human exposure separations at all times.

V. ORDERING CLAUSES

16. Accordingly, pursuant to the authority in Section 1.3 of the Commission's rules, 47 C.F.R. section 1.3, and Sections 4(i) of the Communications Act of 1934, as amended, 47 U.S.C. Sections 154(i), IT IS ORDERED that a limited waiver of Section 90.1321(c) of the Commission's Rules, 47 C.F.R. § 90.1321(c), is granted to Alvarion, Ltd. to permit the operation of the BreezeMAX Si CPE, File No. LKT-BMAX-SI36, in the 3650-3675 MHz band subject to strict compliance with the conditions set forth in this *Order*.

17. The above-captioned application for equipment certification is referred to the Chief, Laboratory Division, Office of Engineering and Technology, for further processing consistent with this Order and the Commission's Rules.

18. This action is taken under delegated authority pursuant to Sections 0.31, 0.131, 0.241, and 0.331 of the Commission's Rules, 47 C.F.R. §§ 0.31, 0.131, 0.241, 0.331.

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