

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

In the Matter of
ContiTech USA, Inc. Request for Waiver of
Section 90.103(b) of the Commission's Rules
WT Docket 22-260

ORDER

Adopted: November 21, 2023

Released: November 21, 2023

By the Chief, Mobility Division, Wireless Telecommunications Bureau:

I. INTRODUCTION

1. On February 24, 2022, ContiTech USA Inc. (ContiTech) requested a waiver of section 90.103(b) to allow for the certification and marketing of a Conveyor Radar Device (Device) in a portion of the 76-81 GHz band. The Device will monitor the content carried on conveyor belts for a variety of applications including mining. The 76-81 GHz band is normally limited to vehicular radars and airport runway debris detection radars. Under Part 90 of our rules, radars are subject to site-based licensing for fixed radiolocation operations. As outlined below, we grant the waiver request subject to the conditions contained herein.

II. BACKGROUND

2. ContiTech Waiver Request. ContiTech would like to use radar technology, which was originally developed for use in automobiles for collision avoidance and adaptive cruise control operating in the 76-81 GHz band, to support mining, milling, and tunneling operations in the 76-77 GHz frequency range. The 76-81 GHz band currently is used for radars that detect foreign objects on airports runways and monitor air traffic. The 76-81 GHz band is allocated for radiolocation use, but is not available to the Part 90 Radiolocation Service. ContiTech's Device would be placed above a conveyor belt to monitor weight changes and energy consumption and provide safety information. ContiTech therefore requests a waiver of the Radiolocation Service frequency table in section 90.103(b) to permit equipment authorization and site-based licensing of the Device for use in various environments.

3. In order to avoid interference to incumbent vehicular radars and airport runway debris detection radars, ContiTech states that all Device deployments will be within controlled property boundaries of the Device operators, which are restricted from use by the general public. ContiTech also

1 ContiTech USA, Inc. Request for Waiver of Section 90.103 (b) of the Commission's Rules, WT Docket No. 22-260, at 1 (filed Feb. 24, 2022), https://www.fcc.gov/ecfs/search/search-filings/filing/1022459833895 (Request).

2 47 CFR § 95.3331.

3 47 CFR § 90.103(b).

4 Request at 1.

5 See Amendment of Parts 1, 2, 15, 90, and 95 of the Commission's Rules to Permit Radar Services in the 76-81 GHz Band, 32 FCC Rcd 8822, Report and Order (Jul. 14, 2017).

6 See 47 CFR §§ 2.106, 90.103(b).

7 Request at 5.

states that it will mitigate harmful interference in the band by the use of pseudo-noise coding⁸ of the emissions, restrictions on the positioning and installation of the Device, and controls on power levels emitted by the Device.⁹ ContiTech claims that the pseudo-noise coding avoids interference to co-channel devices by identifying each transmission with a unique code.¹⁰

4. The Wireless Telecommunications Bureau (Bureau) sought comment on this request.¹¹ One comment was submitted by the National Telecommunications and Information Administration (NTIA) on behalf of the National Science Foundation (NSF), requesting that as a condition of approval, no operations be permitted within certain exclusion zones detailed in the comment.¹² ContiTech agreed with the proposed condition and we list the locations attached as an Appendix.¹³

III. DISCUSSION

5. To obtain a waiver of the Commission's rules, a petitioner must demonstrate either that the underlying purpose of the rule(s) would not be served or would be frustrated by application to the present case and that grant of the waiver would be in the public interest; or that, in 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.¹⁴

6. When the Commission designated the 76-81 GHz band for vehicular radar and radar in airport air operations areas, it declined to permit additional types of fixed radar in the band so as to "mitigate any risk that fixed radar operations could cause harmful interference to and impair the reliability of vehicular radar operations in the band."¹⁵ It noted that there is adequate geographic separation between public roads and airport air operations areas to avoid harmful interference to vehicular radars.¹⁶ The Commission also stated,

We acknowledge that, under careful coordination, it might nevertheless be possible for fixed radars to operate in the band at carefully selected locations without causing harmful interference to vehicular radars. Presently, there is insufficient information in the record to develop the specific criteria for a successful coordination process. Interested parties may provide future filings that might provide such detail. We are open to the possibility that specific, limited fixed uses of 76-81 GHz radars outside of airport locations may be possible, provided we can be convinced that such use would not cause harmful interference

⁸ A pseudo noise or pseudo-random noise radar generates a deterministic signal that appears random or noise-like. Pseudo noise signals often present a lower potential for interference because the signal is spread over a wider bandwidth at a lower power level minimally raising the noise floor.

⁹ See Request at 7-11.

¹⁰ See Request at 7.

¹¹ *The Wireless Telecommunications Bureau Seeks Comment On ContiTech USA Inc.'s Request For Waiver Of 76 GHz Radiolocation Rules*, 22-260, Public Notice, DA 22-732 (WTB 2022).

¹² National Telecommunications and Intelligence Association (Filed on behalf of the National Science Foundation), Comments, at 1, <https://www.fcc.gov/ecfs/document/108081380801952/2>.

¹³ ContiTech USA Inc., Reply, at 4-5, <https://www.fcc.gov/ecfs/document/10819233447976/1>.

¹⁴ See 47 CFR § 1.925(b)(3).

¹⁵ See Amendment of Parts 1, 2, 15, 90 and 95 of the Commission's Rules to Permit Radar Services in the 76-81 GHz Band, Report and Order, 32 FCC Rcd 8822, 8845, para. 40 (2017) (76-81 GHz Report and Order).

¹⁶ See *id.* at 8845, para. 42. The air operations area is that part of an airport where aircraft operate, including runways, taxiways, and apron areas (areas where aircraft park and are serviced) within the airport's perimeter fence. 47 CFR § 87.5.

to vehicular radar operations in the band.¹⁷

7. ContiTech asserts that the radiation of material on conveyor belts in mining and tunneling operations, and at processing plants and loading terminals, is precisely the type of “specific, limited fixed use[]” that would not undermine the Commission’s rules and would greatly serve the public interest in multiple ways.¹⁸ It intends to mitigate the risk of harmful interference with the following efforts: pseudo-noise coding to avoid harmful interference to co-channel vehicular radar operations, and placing the Device on controlled property in a downward position towards the conveyor belt away from other receivers to avoid additional interference.¹⁹ The Device will also be limited to an EIRP not exceeding 30 dBm for the long-range device and not exceeding 24 dBm for the short-range device.²⁰ This is consistent with other operations in this band.

8. ContiTech asserts that this grant would be in the public interest as it would minimize dangerous conditions and related environmental damage by preventing spillage of materials and the associated risk of clean-up.²¹ It also asserts that this grant would maximize energy efficiency in addition to the improved tracking of the material on the conveyor belt²²

9. We find that ContiTech has met the waiver standard under Section 1.925(b)(3)(i) of our rules and grant this request to waive section 90.103(b), subject to the conditions listed below. We find that ContiTech has demonstrated that the Device can serve an important public interest function by monitoring material in various milling, mining, and other processes to improve the safety and efficiency of such mining operations and the other uses detailed in this request. Further, its operations will be conducted under Part 90 site-based radiolocation rules, meaning that each installation will require a separate application and authorization by the Bureau, which allows additional conditions for operation to be added if needed.

10. In addition to the Part 90 licensing process, ContiTech has offered sufficient conditions on the grant and agreed to avoid areas of concern expressed by the NTIA and NSF.

11. Based on the public interest benefits presented, we find this waiver would serve the public interest by increasing the safety and efficiency of the applications presented by ContiTech and would not undermine the purpose of the rules by allowing these operations without interfering with other users of the band.

A. Conditions

12. We grant the waiver subject to the following conditions:

- a. Use is limited to: Underground and above-ground (i.e., open pit) mining operations, and milling and tunneling operations; bulk material processing operations; and loading terminal operations.
- b. A good faith effort shall be made to place the device on portions of the conveyer that are away from places that vehicles could be expected to operate and/or place appropriate conditions and restrictions on vehicle use near the belts.

¹⁷ 76-81 GHz Report and Order, 32 FCC Rcd at 8845, para. 40 (footnote omitted).

¹⁸ Request at 6.

¹⁹ *Id.* at 7-8.

²⁰ *Id.* at 10.

²¹ *Id.* at 12.

²² *Id.* at 14.

- c. EIRP may not exceed 30 dBm.²³
 - d. Devices may not cause harmful interference to and must tolerate interference from Government Radiolocation, 76-81 GHz Band Radar, Radio Astronomy, Amateur, and Space Research operations.
 - e. Devices must employ pseudo-noise coding to minimize harmful interference to co-channel vehicular radar operation, regardless of positioning or directionality of the radars.
 - f. Installation of the Devices must be so that the direction of the transmission is downward on private property, at least 100 meters from any public roadway, and no more than 90 meters above ground level.
 - g. In order to install and operate any Devices within any exclusion zone noted in Table 1 (see Appendix) ContiTech must complete prior coordination with the impacted radio astronomy site(s). Any application for Devices in these zones must have the consent of NSF attached, such coordination may be initiated by contacting esm@nsf.gov.
 - h. ContiTech must obtain equipment authorization for the Device. A copy of the Bureau's Order granting this waiver shall be submitted with the equipment authorization application. The Bureau's waiver will apply to the Devices as currently designed, as well as to any future generation versions of the radar system per our rules.²⁴
 - i. All operation of these Devices will require a separate Bureau authorization and license from the Bureau, using Part 90 radio service code RS (radiolocation service) for each location. Any application seeking such license must contain an exhibit referencing the Bureau's Order by the appropriate DA number, and demonstrate that the Device(s) will comply with conditions A-H of this grant.
13. No operation is authorized prior to license grant, and no applications will be granted until ContiTech obtains equipment authorization.

IV. ORDERING CLAUSES

14. Accordingly, IT IS ORDERED that pursuant to Section 4(i) of the Communications Act, as amended, 47 U.S.C. § 154(i), and section 1.925 of the Commission's Rules, 47 CFR § 1.925, the Request for Waiver of section 90.103(b) is GRANTED SUBJECT TO THE CONDITIONS described herein.

15. These actions are taken under delegated authority pursuant to sections 0.131 and 0.331 of the Commission's Rules, 47 CFR §§ 0.131, 0.331.

FEDERAL COMMUNICATIONS COMMISSION

Roger S. Noel
Chief, Mobility Division
Wireless Telecommunications Bureau

APPENDIX

²³ This condition applies to both the long- and short-range Devices that ContiTech is reviewing under the experimental license granted to ContiTech with the call sign WL2XFY.

²⁴ See 47 CFR 2.1043.

Table 1: Requested prohibition of usage of these frequency bands, unless coordinated.

(a) Within 25 km of the National Radio Astronomy Observatory's (NRAO's) Very Long Baseline Array (VLBA) Stations:

State	VLBA Station	Lat. (N)	Long. (W)
AZ	Kitt Peak	31° 57' 23"	111° 36' 45"
CA	Owens Valley	37° 13' 54"	118° 16' 37"
HI	Mauna Kea	19° 48' 05"	155° 27' 20"
IA	North Liberty	41° 46' 17"	91° 34' 27"
NH	Hancock	42° 56' 01"	71° 59' 12"
NM	Los Alamos	35° 46' 30"	106° 14' 44"
NM	Pie Town	34° 18' 04"	108° 07' 09"
TX	Fort Davis	30° 38' 06"	103° 56' 41"
VI	Saint Croix	17° 45' 24"	64° 35' 01"
WA	Brewster	48° 07' 52"	119° 41' 00"

(b) Within 150 km of the following observatories:

State	Telescope and Site	Lat. (N)	Long. (W)
AZ	The Submillimeter Telescope, Mt. Graham	32° 42' 06"	109° 53' 28"
CA	Caltech Telescope, Owens Valley	37° 13' 54"	118° 17' 36"
HI	James Clerk Maxwell Telescope, Mauna Kea	19° 49' 33"	155° 28' 47"
MA	Haystack Observatory, Westford	42° 37' 24"	071° 29' 18"
NM	NRAO's Very Large Array, Socorro	34° 04' 44"	107° 37' 06"
WV	Green Bank Telescope, Green Bank	38° 25' 59"	079° 50' 23"