

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

In the Matter of)	
)	
Xthings Industry LLC)	ET Docket No. 25-103
)	
Request for Waiver of Section 15.519(a) and)	
15.519(a)(2) of the Commission's Rules)	

ORDER

Adopted: September 9, 2025

Released: September 9, 2025

By the Acting Chief, Office of Engineering and Technology:

I. INTRODUCTION

1. By this order, we grant a request by Xthings Industry LLC (Xthings), formerly U-Tec Group Inc.¹ to waive Sections 15.519(a) and 15.519(a)(2) of our rules governing ultrawideband (UWB) devices for its smart lock for residential use.² For the reasons discussed below, we find there is good cause to grant Xthings' request.

II. BACKGROUND

2. Xthings seeks authorization to manufacture and market its smart door lock system for residential use, called the Ultraloq, that operates in the 6-10 GHz range.³ Xthings states that its lock system will operate under the Commission's Part 15 rules governing UWB device operation.⁴ Part 15 permits low-power radio frequency devices to operate without an individual license from the Commission.⁵ Unlicensed transmitters using UWB technology, which are governed by Subpart F, employ very narrow or short-duration pulses that result in very large transmission bandwidths.⁶ UWB devices share frequency bands with authorized radio services and, like all unlicensed devices, may not

¹ Letter from Gerard B. Waldron and Travel Cappel, Counsel for U-tec Group, Inc. to Marlene H. Dortch, Secretary, FCC, ET Docket No. 25-103 (filed Mar. 27, 2025) (Xthings Ex Parte).

² *U-Tec Group Inc. Request for Waiver of Section 15.519(a), and 15.519(a)(2)) of the Commission's Rules* (filed Dec 20, 2024) (Xthings Waiver Request). *See also* 47 CFR §§ 15.519(a) and 15.519(a)(2) (requiring UWB devices to be handheld while operating and prohibiting the use of antennas mounted on outdoor infrastructure, respectively).

³ Xthings Waiver Request at 2 (describing how its products are compatible with many smart ecosystems such as Google Home and Amazon Alexa that provide users remote access through a smartphone app).

⁴ *Id.*

⁵ 47 CFR §§ 15.1 *et seq.*

⁶ 47 CFR §§ 15.501-15.525. Several of these rules address specific UWB applications, such as ground-penetrating radar, medical imaging, and surveillance systems, which are not directly applicable here. Xthings proposes to operate its devices under those sections of Subpart F that govern the authorization and use of handheld UWB systems.

cause harmful interference to authorized radio services and must accept interference that the operation of other stations and devices may cause.⁷

3. To allow for the certification and marketing of its lock system, Xthings requests that we waive Sections 15.519(a) and 15.519(a)(2) of the Commission's rules.⁸ Section 15.519(a) requires UWB devices to be hand-held and not employ a fixed infrastructure.⁹ Section 15.519(a)(2) prohibits the use of antennas mounted on outdoor infrastructure, such as the outside of a building, a telephone pole, or any fixed infrastructure.¹⁰ Xthings claims that its device will not create harmful interference, will not undermine the purpose of the rule, is similar to other devices previously approved by the Commission, and is in the public interest.¹¹

4. The Office of Engineering and Technology (OET) issued a Public Notice on February 25, 2025, seeking comment on Xthings' waiver request.¹² In response, the Commission received three comments, all of which support granting the waiver request.

III. DISCUSSION

5. We are authorized to grant a waiver under Section 1.3 of the Commission's rules if the petitioner demonstrates good cause for such action.¹³ Good cause, in turn, may be found and a waiver granted "where particular facts would make strict compliance inconsistent with the public interest."¹⁴ To make this public interest determination, the waiver cannot undermine the purpose of the rule, and there must be a stronger public interest benefit in granting the waiver than in applying the rule.¹⁵

6. The technical and operational standards in Part 15 were adopted to ensure that UWB devices do not cause harmful interference to authorized radio services.¹⁶ As discussed below, we find nothing in the record to indicate that Xthings devices would differ from other UWB devices in a manner that would pose an increased harmful interference risk to authorized radio services. As an initial matter, we note that just like all UWB devices, Xthings' lock system will emit signals at very low power, consistent with the UWB handheld rules.¹⁷ The current rules allow power levels up to -41.3 dBm in the 6

⁷ 47 CFR § 15.5(b).

⁸ Xthings Waiver Request at 1.

⁹ 47 CFR § 15.519(a).

¹⁰ 47 CFR § 15.519(a)(2).

¹¹ Xthings Waiver request at 1-2.

¹² *Office of Engineering and Technology Seeks Comment on U-tec Group, Inc Request for Waiver of Section 15.519(a) and 15.519(a)(2) of the Commission's Rule for a UWB Lock System*, Public Notice, ET Docket 25-103, (Public Notice).

¹³ 47 CFR § 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 (D.C. Cir. 1990); *WAIT Radio v. FCC*, 418 F.2d 1153 (D.C. Cir. 1969).

¹⁴ *Northeast Cellular*, 897 F.2d at 1166; *see also* *ICO Global Communications*, 428 F.3d at 269 (quoting *Northeast Cellular*); *WAIT Radio*, 418 F.2d at 1157-59.

¹⁵ *See, e.g., WAIT Radio*, 418 F.2d at 1157 (stating that even though the overall objectives of a general rule have been adjudged to be in the public interest, it is possible that application of the rule to a specific case may not serve the public interest if an applicant's proposal does not undermine the public interest policy served by the rule); *Northeast Cellular*, 897 F.2d at 1166 (stating that in granting a waiver, an agency must explain why deviation from the general rule better serves the public interest than would strict adherence to the rule).

¹⁶ *See generally, Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems, First Report and Order, ET Docket 98-153, 17 FCC Rcd 7435 (2002) (UWB First R&O); see also* 47 CFR. §§ 15.501-15.525.

¹⁷ Xthings Waiver Request at 9.

to 10 GHz range in which this device is designed to operate, and Xthings is not seeking a waiver of these requirements.¹⁸

7. When adopting the UWB rules and designating devices to be handheld and not permitting antennas to be mounted on outdoor infrastructure, the Commission was concerned about the development of a large communications system and its adverse impact on authorized services.¹⁹ In response to those concerns, Xthings states that its device operates similarly to other devices already approved by the Commission under similar Part 15 rule waivers, will not create a large-scale communication network as the intent of the rule dictates, will not cause harmful interference to the licensed users of the band, and will be in public interest.²⁰

8. We agree. Based on this device's operational and technical characteristics, it is unlikely that Xthings' device will be capable of creating a large communication system that could impact authorized devices, as the purpose of the rule dictates.²¹ First, UWB communications only occur after credential authentication has taken place via Bluetooth Low Energy, and a legitimate credential is detected near the access control device.²² Second, once initiated, UWB communication is extremely brief, lasting only 1 millisecond.²³ If that fails, the system falls back to an alternative mechanism that does not employ UWB.²⁴ Third, the Xthings device does not communicate with other devices off the property.²⁵ Even in cases where multiple adjacent residences use the same Xthings product, the devices will not communicate with each other over UWB.²⁶ Fourth, in instances where multiple access credentials are present, communication will not occur simultaneously. Instead, it will be time-multiplexed on the same 500 MHz bandwidth channel.²⁷

9. In addition to not being able to form a large communication system, we also do not believe that the Xthings' device will increase the risk of harmful interference to authorized services. The Xthings device emits UWB signals for extremely brief moments, as explained above, and operates at very low power levels already authorized by the Commission's rules.²⁸ In effect, the device would likely emit a UWB signal for less than one second per device, at most a few times a day, and only when a valid credential is nearby.²⁹

¹⁸ See 47 CFR § 15.519.

¹⁹ *UWB First R&O*, 17 FCC Red at 7503. The Commission stated that, without protections, the creation of such networks, such as wide area networks of UWB devices, might negatively impact existing authorized services, including cellular, PCS, and GPS systems employed in E-911 applications.

²⁰ Xthings Waiver Request at 6-10.

²¹ *Id.* at 7-8.

²² See Xthings Waiver Request, Exhibit 1. The lock uses UWB communication to perform secure ranging, allowing it to obtain precise distance measurements from the user's smartphone, which is used to evaluate the user's intent to either lock or unlock the door based on their movement pattern. If the intent to lock is detected, the lock is unlocked, and the UWB session is terminated immediately thereafter.

²³ *Id.* at 4 (stating that if the connection cannot be established or is lost, the system attempts to establish another connection. Even in this case, it transmits no more than 1 millisecond every 200 milliseconds).

²⁴ *Id.*

²⁵ *Id.* at 4, 7.

²⁶ *Id.* at 8.

²⁷ *Id.* at 4, 8.

²⁸ See 47 CFR § 15.519.

²⁹ Xthings Waiver Request at 8.

10. Similarly, the device's antenna design, installation height, and operation being similar to previously approved devices also give us further confidence that it will not increase the risk of harmful interference. The device's readers use directional type antennas with beam patterns primarily in the azimuthal plane to minimize interference to satellite services.³⁰ Additionally, Xthings' device will be deployed in the entranceways of residential units, closer to the ground, which will help keep emissions low.³¹

11. We are also restricting the annual sale volume of Xthings' lock system to no more than 100,000 devices per year, and adding reporting provisions.³² In sum, we do not believe that deploying these devices – operating infrequently, at already low power levels, with antennas pointing in the azimuthal plane, and operating low to the ground – will increase the risk of harmful interference. The Commission also has experience with similar door locks operating under a similar waiver process, and we are not aware of any instances of harmful interference caused by those devices.³³ Based on that, we do not believe that the Xthings lock system will be any different.

12. We also find support in the record, which shows that all interested parties supported granting the waiver.³⁴ Parties generally favored granting the waiver on the grounds that similar UWB door locks are already operating pursuant to previous waivers without any reports of harmful interference.³⁵ They claim that Xthings devices are practically handheld devices. Similar technologies, such as digital vehicular keys, are already widely used today, and extending the same entry mechanism design to building entry applications will extend the same safety, security, and convenience benefits to consumers.³⁶

13. Finally, considering the importance of security and the low risk of harmful interference, we find a stronger public interest benefit in granting the waiver than in applying the rule. Xthings devices provide enhanced security compared to other lock systems that use Bluetooth alone. Such Bluetooth-only locks are more vulnerable to security breaches because they cannot determine the actual location of the user and can permit attackers to gain access via “man-in-the-middle” or relay-type attacks.³⁷ By contrast, Xthings' system uses UWB functionality to acquire ranging information, which determines the user's actual location in proximity to the lock before access is granted.³⁸ Additionally, Xthings describes how access credentials on the phone can be managed to control physical access, providing customers with added security and control.³⁹

14. For these reasons, we conclude that there is good cause to waive Sections 15.519(a) and 15.519(a)(2) of the Commission's rules to permit the certification, marketing, and operation of Xthings' UWB lock devices. This waiver is conditioned on the following conditions:

³⁰ *Id.* at 9.

³¹ *See id.* at 3-4 and 9.

³² *Id.* at 3-4. *See infra* para. 14.

³³ *See, e.g., Assa Abloy Group For Waiver of 15.519(a), and 15.519(a)(2) of the Commission's Rules Applicable to Ultra-Wideband Devices*, ET Docket 21-267, Order, 37 FCC Rcd 12311 (OET 2022); *Schlage Lock Company LLC's Request For Waiver of 15.519(a), and 15.519(a)(2) of the Commission's Rules*, ET Docket 22-248, Order, 38 FCC Rcd 4890 (OET 2023).

³⁴ *See generally* NXP Semiconductors Comments, HID Global Comments, and FiRa Consortium Comments.

³⁵ *Id.*

³⁶ UWB Alliance Comments at 2.

³⁷ Xthings Waiver Request at 2-3.

³⁸ *Id.* at 3 (describing how the access control device uses UWB ranging information to prevent the possibility of remote relay attacks).

³⁹ *Id.* at 11.

- 1) Xthings' device shall be certified by the Commission via an accredited Telecommunication Certification Body, and the certification application shall include a copy of this waiver order;
- 2) UWB sessions shall only be initiated following the discovery process and successful realization of qualifying credentials via 2.4 GHz Bluetooth operation;
- 3) UWB sessions shall only proceed until either the system identifies the user's intent to open the door or the user leaves the area by exiting the perimeter;
- 4) The UWB session shall not activate until a Bluetooth Low Energy connection has been made and the user's access credential has been identified;
- 5) The UWB session shall be terminated upon successful door opening sequence;
- 6) The ranging cycle occurs no more frequently than once every 200 milliseconds;
- 7) The UWB system shall only transmit when sending information to an associated receiver;
- 8) UWB operations shall be confined to the 6-10 GHz frequency range with an antenna that has its main beam in the azimuthal plane;
- 9) Xthings shall submit, annually for the first three years after the date of grant of this waiver, a report that identifies any known interference complaints and their resolution;
- 10) Xthings shall sell no more than 100,000 units per year;
- 11) Xthings shall be prepared to halt the sale and marketing of devices subject to this waiver if OET so directs.

15. Accordingly, pursuant to authority in Sections 0.31, 0.241, and 1.3 of the Commission's rules, 47 C.F.R. §§ 0.21, 0.241, and 1.3, and Sections 4(i), 302, 303(e), and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154(i), 302, 303(e), and 303(r), IT IS ORDERED that the Request for Waiver filed by Xthings IS GRANTED consistent with the terms of this Order. This action is effective upon release of this Order.

16. IT IS FURTHER ORDERED that if no petitions for reconsideration or applications for review are timely filed, this preceding SHALL BE TERMINATED, and ET Docket No. 25-103 IS CLOSED.

FEDERAL COMMUNICATIONS COMMISSION

Andrew Hendrickson
Acting Chief, Office of Engineering and Technology