

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

In the Matter of	)	
	)	
LG Electronics Inc.	)	ET Docket No. 26-57
	)	
Request for Waiver of Sections 15.519 (a) and	)	
15.519 (a)(2) of the Commission's Rules	)	

ORDER

Adopted: August 27, 2026

Released: August 27, 2026

By the Chief, Office of Engineering and Technology:

I. INTRODUCTION

1. By this Order, we grant a request by LG Electronics, Inc. (LG) to waive Section 15.519(a) and 15.519(a)(2) of our rules governing ultrawideband (UWB) devices.¹ These part 15 rules dictate that UWB devices to be hand-held while operating and prohibit the use of antennas mounted on outdoor infrastructure, respectively.² The waiver of the subject rules will permit LG to certify and market a UWB-based physical access system (UWB Smart Door Locks). For the reasons discussed below we find there is good cause to grant LG's request, subject to technical and operation conditions consistent with prior waiver grants for comparable UWB door lock systems.

II. BACKGROUND

2. LG's UWB Smart Door Locks will operate as residential door locks that are designed to be installed on entryways to single family homes or apartments.³ LG states that its system will use multiple transmission and modulation types, along with time difference of arrival (TDOA) based angle of arrival (AoA) ranging techniques, to enhance door lock operations and create a more secure operating environment; it purports that this design will be more resilient to spoofing and electronic attacks.⁴ More specifically, LG's UWB Smart Door Locks will operate as impulse radios that will communicate with a separate authorized user device, such as a handheld device or a smartphone.⁵ To operate, LG's UWB Smart Door Locks must first receive an access credential via Bluetooth Low Energy (BLE) transmissions.⁶ The UWB communication and ranging session only occurs if the access credential is

¹ *LG Request for Waiver of Section 15.519 of the Commission's Rules*, ET Docket No. 26-57 (filed Feb. 4, 2026) (LG Waiver Request). *See also* 47 CFR §§ 15.519(a) and 15.519(a)(2).

² *See* 47 CFR §§ 15.519(a) and 15.519(a)(2).

³ LG Waiver Request at 1-2. *See also* Letter from David S. Keir, Counsel to LG Electronics, Inc. to Marlene H. Dortch, Secretary, FCC, ET Docket No. 26-57 (filed July 17, 2026).

⁴ LG Waiver Request.

⁵ *Id.* at 1 and 3. Impulse radios are characterized by their use of extremely short, sharp bursts of energy to transmit information and are especially well suited for operation under the ultra-wideband rules.

⁶ *Id.* at 4. As the authorized user device approaches the door at a separation distance between five to fifteen meters the handheld device detects a UWB Smart Door Lock's BLE broadcast signal, initiates a handshake, and connects

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verified and validated with encryption keys.⁷ This instant waiver request only pertains to the UWB portion of the UWB Smart Door Locks' authorization protocol.

3. In its waiver request, LG explains that its UWB Smart Door Locks have been engineered to pose no greater risk of harmful interference potential than any other handheld device. Specifically, it states that the device employs a low duty cycle and transmits with relatively low power; does not create continuous emission; operates within established UWB masks; and will be installed in fixed deployments less than two meters above ground level with a horizontal tilt.⁸ It states that these properties will help to mitigate the risk of harmful interference and, when taken together, help to preserve the purpose of the rule; it further asserts that grant of a waiver will serve the public interest by advancing a safer, more secure, and more convenient method of residential access control while promoting competition in the door lock market.⁹

4. LG's UWB Smart Door Locks will operate under the Commission's part 15 rules governing the operation of UWB devices, which permits low-power radio frequency devices to operate without an individual license from the Commission.¹⁰ Unlicensed transmitters using UWB technology, which are governed by subpart F of part 15, employ very narrow or short-duration pulses that result in very large transmission bandwidths.¹¹ UWB devices share frequency bands with authorized radio services and, like all unlicensed devices, may not cause harmful interference to authorized radio services and must accept interference that may be caused by the operation of other stations and devices.¹²

5. To enable its UWB Smart Door Locks to obtain certification and for LG to market and deploy the devices, LG asks us to waive Section 15.519(a) and 15.519(a)(2) of the Commission's rules.¹³ Section 15.519(a) requires UWB devices to be hand-held and not employ a fixed infrastructure.¹⁴ Section 15.519(a)(2) prohibits the use of antennas mounted on outdoor infrastructure such as the outside of a building, telephone pole, or any fixed infrastructure.¹⁵ According to LG, its system will utilize forward-directional patch antennas optimized for frequencies in the range of 7.5 GHz to 8.5 GHz.¹⁶ Because LG's

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the UWB Smart Door Lock's reader. The reader then confirms the access credential from the user device. *See id.* at Fig. 1, "Communication Flow" (depicting each step of a UWB Smart Door Locks' communications protocol stack).

⁷ *Id.* at 4.

⁸ *Id.* at 6.

⁹ *Id.* at 1 and 6.

¹⁰ 47 CFR §§ 15.1 *et seq.*

¹¹ 47 CFR §§ 15.501-15.525. Several of these rules address specific UWB applications, such as ground penetrating radar, medical imaging, and surveillance systems, that are not directly applicable here. LG proposes to operate its devices under those parts of Subpart F that govern the authorization and use of handheld UWB systems. LG Waiver Request at 1.

¹² 47 CFR § 15.5(b).

¹³ LG Waiver Request at 1-2.

¹⁴ 47 CFR § 15.519(a).

¹⁵ 47 CFR § 15.519(a)(2). *See also 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, 7503, para 199 (2002) (*UWB First R&O*). The underlying purpose of the rule is to avoid development of large-scale communications systems that could adversely impact authorized services, and to ensure that the UWB device would only transmit when it is sending information to an associated receiver.

¹⁶ LG Waiver Request at 4. *See also*, Letter from Jeffrey J. Carlisle, Partner, Lerman Senter PLLC, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 26-57, at 2 (June 1, 2026) (LG Supplement). LG confirms that its device

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UWB Smart Door Locks are intended to be installed on outer door frames for security purposes, LG seeks a waiver of these rules.¹⁷

6. The Office of Engineering and Technology (OET) issued a Public Notice on March 9, 2026, seeking comment on LG's waiver request.¹⁸ In response, three parties filed comments in support of LG's request, while only LG filed reply comments in support of its own request.¹⁹

III. DISCUSSION

7. 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.²⁰ Good cause, in turn, may be found and a waiver granted "where particular facts would make strict compliance inconsistent with the public interest."²¹ To make this public interest determination, the waiver cannot undermine the purposes of the rule, and there must be a stronger public interest benefit in granting the waiver than in applying the rule.²²

8. The technical and operational standards in Part 15 were adopted to ensure that UWB devices do not cause harmful interference to authorized radio services.²³ As discussed below, we find nothing in the waiver request to indicate that LG's UWB Smart Door Locks would differ from other UWB systems in a manner that would increase the risk of causing harmful interference to authorized radio services. As an initial matter, we also note that, similar to all UWB devices, LG plans to design its positioning devices to emit a significantly low-power signal.²⁴ Our existing rules allow power levels of -41.3 dBm in the 6 to 10 GHz range in which this device is requesting to operate, and LG is not seeking a waiver of the low part 15 power limits that are applicable to UWB operations in the band.²⁵

9. When adopting its UWB rules requiring that devices be handheld and prohibiting antennas from being mounted on fixed outdoor infrastructure, the Commission sought to prevent the development of large-scale communications systems that could create continuous outdoor emissions and

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has the capability of operating across the 6-10 GHz band, however, the forward directional patch antennas are optimized to use IEEE 802.15.4z channelization scheme.

¹⁷ LG Waiver Request at 3.

¹⁸ *Office of Engineering and Technology Seeks Comment on the Petition of LG Electronics Inc. for Waiver of Sections 15.519(a) and 15.519(a)(2) of the Commission's Rules*, ET Docket. No 26-57, Public Notice, DA 26-225 (OET Mar 9, 2026).

¹⁹ UWB Alliance Comments; FiRa Consortium Comments; NXP USA, Inc. Comments; and LG Reply Comments.

²⁰ 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).

²¹ *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.

²² *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).

²³ *See UWB First R&O*, 17 FCC Rcd. 7435 *passim* (2002). *See also*, 47 CFR. §§ 15.501-15.525.

²⁴ LG Waiver Request at 3 and 6.

²⁵ *See* 47 CFR § 15.519.

adversely impact authorized services.²⁶ Consistent with this purpose, LG's device operates at relatively low installation height, uses a low duty cycle and extremely low power, employs front-direction antenna pattern with natural environmental blocking, and only initiates UWB transmissions after a BLE connection and multi-step authentication sequence.

10. We find that the operational characteristics of LG's UWB Smart Door Locks will mitigate the potential of harmful interference. For example, LG anticipates that the complete process from user approach to door unlock completion occurs within approximately five to eight seconds under normal operating conditions. Within that sequence, the UWB session initiation takes approximately 50-100 milliseconds, and the UWB ranging operation takes less than five seconds, which depends on user movement and other environmental factors. LG expects that these secure entry occurrences for each door will occur eight to ten times per day.²⁷ Thus, resulting in a total UWB transmit time of less than 50 seconds per door each day for any given installation. The aforementioned design factors²⁸ will help to ensure that UWB emissions remain extremely limited and well within the intended framework of Section 15.519.

11. In addition to the device's low duty cycle and short-duration transmissions, LG anticipates that its UWB Smart Door Locks will be installed at height of the door handle, which is relatively low to the ground (100-120 cm in height).²⁹ Providing us with enough assurance that neither these antennas nor devices will be placed at high installation heights which would provide less favorable interference mitigation characteristics. We note that the device will operate under our UWB rules which already set a low power density limit of -41.3 dBm/MHz. This already low power density level coupled with the fact the UWB session is only initiated after the device received a valid acknowledgment credential via BLE multi-step authentication provides us with further assurance that the UWB component of the device will not transmit unnecessarily nor outside of the power levels prescribed by our rules.

12. In addition, LG commits to a ranging cycle that would occur no more frequently than once every 192 milliseconds.³⁰ We agree that LG's system ranging cycle will not increase the risk of harmful interference due to its low power, duty cycle, and limited deployment. Thus, as in previous similarly situated waiver orders, we are including a ranging cycle condition.³¹

13. Consistent with earlier UWB smart-lock waivers we will also limit the annual sales of the LG's UWB Smart Door Locks – in this case, to approximately 133,000 devices per year – and require LG to submit a report annually for the first three years identifying any known interference complaints and their resolution.³² As in earlier waiver grants, the numerical limitation serves as an additional protective

²⁶ *UWB First R&O*, 17 FCC Rcd at 7503, para. 199 (2002) (observing 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).

²⁷ LG Supplement at 5.

²⁸ *See supra* para. 3.

²⁹ LG Supplement at 1.

³⁰ *Id.* at 2-3.

³¹ *See id.* *See also id.* at 3, n.1 (citing to *Assa Abloy Group, Request for Waiver of Section 15.519(a) and 15.519(a)(2) of the Commission's Rules*, ET Docket No. 21-267, Order, 37 FCC Rcd 12311, 12316, para. 20 (OET 2022) (*Assa Abloy Waiver Order*) (stating that the ranging cycle occurs no more frequently than once every 200 milliseconds); *Xthings Industry LLC, Request for Waiver of Section 15.519(a) and 15.519(a)(2) of the Commission's Rules*, ET Docket No. 25-103, Order, 40 FCC Rcd 7107, 7111, para. 14 (OET Sept. 9, 2025) (*Xthings Waiver Order*) (stipulating the same 200 ms limitation).

³² In its waiver request LG proposes a set of waiver conditions that align with the waiver orders that FCC has already granted to similar UWB door lock systems, but did not specify an annual limit on device deployment. LG Waiver at 8. It subsequently stated that it expects to sell approximately 400,000 UWB Door Locks within a three-

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measure that is intended to ensure that, in the unlikely event harmful interference occurs, that the Commission and the Federal agencies have adequate time to identify, diagnose, and mitigate the issues before larger scale deployment could occur. We note that LG's projected deployment over a three-year period represents only a modest increase over previous UWB waiver orders.³³ We conclude that this limitation is appropriate given similarity of LG's UWB Smart Door Locks to door lock systems that have received prior waiver grants, and because it provides a reasonable balance between market needs and forward-thinking interference protection.

14. We also find that there is a stronger public interest benefit in granting the waiver than in applying the rule in this situation. As LG has demonstrated, the public interest is served in several ways that are made obvious in the design of and inherent functionality of the UWB Smart Door Locks. As LG asserts, that grant of a waiver will serve the public interest by providing a higher level of security compared to door lock systems that rely on RFID or Bluetooth systems alone because these technologies are susceptible to cloning or interception.³⁴ Indeed, previous UWB secure entry system waivers have found that such an enhanced security capability supports the public interest benefit finding.³⁵ Additionally, LG notes that the system results in reduced physical contact time with the door which will minimize the potential for disease transmission.³⁶ This benefit provides further support for our finding.

15. Because these issues have been reviewed previously, and because LG's UWB Smart Door Locks only contain minor operational differences to similar waivers that have been granted in the past, we find that there is good cause to waive Sections 15.519(a) and 15.519 (a)(2) of the Commission's rules. This will permit the certification, marketing, and operation of LG's UWB Smart Door Locks. This waiver is subject to the following conditions:

1. LG's UWB Smart Door Locks 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 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 be activated 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 one or all of the following: (1) Termination of Bluetooth Low Energy communication between the UWB Smart Door Lock and the associated user device is disconnected; (2) the user device requests UWB ranging session suspension; (3) the Smart Door Lock and associated user device has created a successful door opening sequence; (4) the Smart Door Lock determines that the associated user device is inside the area being secured;

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year period. LG Supplement at 5. On an annual basis, this 400,000-unit count is equivalent to approximately 133,000 units.

³³ See, e.g., Xthings Waiver Order (imposing an annual 100,000 device limitation).

³⁴ LG Waiver Request at 7, n.9 (drawing support from the Xthings Waiver Order and stating that "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" but systems employing UWB functionality can "acquire ranging information, which determines the user's actual location in proximity to the lock before access is granted").

³⁵ See, e.g., Assa Abloy Waiver Order and Xthings Waiver Order.

³⁶ LG Waiver Request at 7.

- (5) the user device leaves the UWB Smart Door Lock operational area or no longer satisfies the proximity conditions required for ranging;
6. A UWB ranging cycle must occur no more frequently than once every 192 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. Annually for the first three years following the date of grant of Certification of its UWB Smart Door Locks, LG shall submit a report identifying any known interference complaints and their resolution;
 10. LG shall be prepared to halt the sale and marketing of its UWB Smart Door Locks subject to this waiver if OET so directs; and
 11. LG shall sell no more than 400,000 units in the first three years following the date of grant of Certification of its UWB Smart Door Locks.

IV. ORDERING CLAUSES

16. 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 LG Electronics Inc. IS GRANTED consistent with the terms of this Order. This action is effective upon release of this Order.

17. IT IS FURTHER ORDERED that if no petitions for reconsiderations or applications for review are timely filed, this preceding SHALL BE TERMINATED, and ET Docket No. 26-57 IS CLOSED.

FEDERAL COMMUNICATIONS COMMISSION

Andrew C. Hendrickson
Chief
Office of Engineering and Technology