

**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, DC 20554**

IN RE:

**REQUEST BY 32 TECHNOLOGIES LLC
FOR WAIVER OF SECTION 15.250(C)
OF THE COMMISSION’S RULES**

DOCKET NO. _____

TO: CHIEF, OFFICE OF ENGINEERING AND TECHNOLOGY

REQUEST FOR WAIVER

32 Technologies LLC (the “Company”), by and through its attorneys, and pursuant to Section 1.3 of the Federal Communications Commission’s rules, 47 C.F.R. § 1.3 (2018), hereby submits the following Request for Waiver of Section 15.250(c).¹

Grant of the Request will not undermine the purpose of Section 15.250(c) (the “Rule”), which was adopted to prevent the creation of wide-area communications system or network under certain circumstances. As discussed below, the Company’s proposed use of portable outdoor anchors will permit the introduction of innovative pet collar products, but will not create a communications system or network. As discussed below, the Company’s collar has been designed to enter low-power mode when it has not received a signal from the anchor. Further, the Company has designed the software to guide the placement of the anchors so that they will be in close proximity of each other, and will only work with paired collars produced by the Company.

¹ See 47 C.F.R. § 15.250(c) (2018) (“Except for operation onboard a ship or a terrestrial transportation vehicle, the use of a fixed outdoor infrastructure is prohibited. A fixed infrastructure includes antennas mounted on outdoor structures, e.g., antennas mounted on the outside of a building or on a telephone pole.”).

In light of these specific preventive steps, it is clear that the Company's devices will not in any way create a "communications network" as defined by the FCC, and grant of the instant request is in the public interest.

BACKGROUND

32 Technologies LLC is a software development company based in Newark, New Jersey. Its founder, Bradley Franco, has been involved in the communications industry for more than 25 years and previously served as Associate General Counsel for a publicly-traded industrial Internet of Things and M2M company.

32 Technologies has designed an innovative pet collar that integrates location-tracking and containment capabilities. Instead of having to install and maintain an underground system to establish the boundary of the containment zone, the Company has developed a pet collar that interacts with anchors to track the location of pets within a containment zone. Except for a short period of time during the initial set-up of the containment zone and/or firmware updates, the anchors will not actively communicate with each other, and neither the anchors nor the pet collar has the ability to create a wireless network. Further, the anchors will not be able to communicate with unpaired collars.

In particular, the current design for the product anticipates the use of four anchors. As shown in Exhibit A, the anchors will be spaced in proximity to each other, permitting the location of the pet collar's X-Y-Z coordinates to be tracked relative to the location of the anchors. In the event that a pet ignores the containment stimuli and escapes the containment zone, the pet collar will automatically switch on the integrated LTE and GPS technology so that the owner can track his or her pet.

The initial set-up of the system is governed by a smartphone application that assists in the design of the containment zone. The pet collar will have an integrated Bluetooth chip, with which it can receive signals from Bluetooth-enabled smart phones for the initial set-up, configuration and future software updates. As noted above, except for the initial configuration of the containment zone and/or infrequent firmware updates, the anchors will not communicate with each other. Moreover, the anchors will not communicate with any other devices and will not be connected to a wireless communications network or to the Internet.

The Company intends to use an integrated chip that operates with a bandwidth of 500 MHz at 6.4896 GHz. The transmit power of the collar and beacon is -41.3 dBm, which complies with the maximum EIRP levels established in Section 15.250.

Finally, the Company has identified a US-based Telecommunications Certification Body (TCB) that will test the anchors and the pet collar to ensure that both products comply with the technical specifications set forth in Part 15 of the FCC's rules. However, prior to obtaining the necessary equipment authorization under Part 2 of the FCC's rules, the Company requires a waiver of Section 15.250(c).

DISCUSSION

As described herein, the Company proposes to create a paired collar/anchor system that can monitor the real-time location of pets within a containment zone established by the pet owner. Because Section 15.250(c) prohibits the use of a fixed outdoor infrastructure, and in light of the recent *iRobot* decision, the Company seeks a waiver of the Rule.

In particular, the FCC granted a waiver of Section 15.250(c) for the development and sale of robotic lawn mowers.² Just as in the instant case, the previously-authorized iRobot system incorporated the use of anchors to establish a containment zone.³ However, while the iRobot system contemplated the installation of the anchors at the boundaries of the containment zone, the Company has designed its system so that the anchors would be installed in proximity to each other, thus further reducing the chance that the anchors would cause interference to authorized spectrum users.⁴

As in the case of the iRobot waiver request, the Company has contracted with an accredited TCB to demonstrate compliance with all FCC technical requirements prior to sale to the public. Finally, neither the iRobot nor the Company's pet collar is capable of creating a wireless communications network.

The Rule's prohibition on using a "fixed outdoor infrastructure" centers on the concern that parties will create "wide area communications systems" in the 5925–7250 MHz frequency band.⁵ In adopting the Rule, the FCC has never defined what would be considered to be a "fixed outdoor infrastructure," but it would appear that the FCC was most concerned about permanent installations of radios on telephone poles or transmission towers. Similar to the previously-authorized iRobot system, the Company's proposed system relies on anchors that are not

² See *iRobot Corporation Request for Waiver of Section 15.250 of the Commission's Rules*, Order, 30 FCC Rcd 8377 (OET 2015).

³ Similar to the iRobot system, the Company's anchors will communicate with each other during the initial set up period, and during infrequent software updates.

⁴ See Exhibit A.

⁵ See *Revision of Part 15 of the Commission's Rules Regarding Ultra-Wideband Transmission Systems*, Second Report and Order and Second Memorandum Opinion and Order, 19 FCC Rcd 24558, 24570-71 para. 27 (2004) (the *2004 Order*). See also *iRobot*, 30 FCC Rcd at 8379.

permanently installed, and they may be readjusted or removed in the event that there is a concern about interference to authorized services.

The FCC's rules expressly provide that the FCC may waive any provision of its rules "if good cause therefor is shown."⁶ The FCC "may exercise its discretion to waive a rule where particular facts would make strict compliance inconsistent with the public interest."⁷ It is well established that the FCC will waive its rules in specific cases if it determines, after careful consideration of all pertinent factors, that such a grant would serve the public interest without undermining the policy that the rule in question is intended to serve.⁸

The underlying purpose of Section 15.250(c) is "to prevent the establishment of wide area communications systems" in the 5925-7250 MHz frequency band.⁹ However, as noted herein, the Company's proposed use will not create a "wide area communication system" because the anchors will not communicate with each other on a consistent basis, nor will any other product utilize the Company's equipment for wide area communications.

In addition to the FCC's strong interest in encouraging innovative uses of technology, the public interest favors the grant of the Company's Request for Waiver for two main reasons, (i) accurate tracking and (ii) power consumption. First, the use of other technologies, such as Bluetooth, WiFi, or GPS will not permit a pet owner to track the location of its pet within the containment zone with the required level of specificity. If the Company's system is not permitted

⁶ 47 C.F.R. § 1.3.

⁷ *Northeast Cellular Tel. Co. v. FCC*, 897 F.2d 1164, 1166 (D.C. Cir. 1990), citing *WAIT Radio v. FCC*, 418 F.2d 1153, 1159 (D.C. Cir. 1969) (*WAIT Radio*).

⁸ *See WAIT Radio*, 418 F.2d at 1157.

⁹ *See 2004 Order*, 19 FCC Rcd at 24570-71; *See also iRobot*, 30 FCC Rcd at 8379.

to use technology solutions with a high level of accuracy as proposed, it is very likely that the location of the boundary and the location of the pet relative to the boundary will change, *i.e.*, drift. This can result in the system incorrectly registering that the pet had left the containment zone, and erroneously issue the corrective stimulus to the pet. Over an extended period of time, the corrective stimulus would no longer be effective.

In addition, a reliance on GPS solutions is not possible due to the long satellite acquisition times inherent to a GPS system. Moreover, GPS solutions do not have the high level of accuracy required by the Company's proposed use. Similar problems exist with Bluetooth and WiFi solutions, both of which lack the high level of accuracy required to track pets on a real-time basis and which also lack the range required for an effective solution.

It has been estimated that there are more than 1.2 million deaths annually caused by automobiles striking dogs.¹⁰ For those pets not killed, the injury costs can be as high as \$8,000 for the pet, and car repairs in excess of \$1,000.¹¹ Even if the pet is not actually struck by a car, the car driver's attempt to avoid an accident raises significant public safety concerns. In light of the failure of other technologies (WiFi, GPS) to accurately track and provide timely stimuli to the pet on a consistent basis, there are significant public interest benefits arising from the grant of this Request for Waiver.

Further, the use of GPS, Bluetooth or LTE technologies all introduce an unacceptably high power consumption for the proposed use. Based on the Company's estimates, the Company's

¹⁰ See *These Statistics Are Staggering, Scary And Real*, The Pet's Tech, <https://www.thepetstech.com/blogs/the-pets-lounge/14446241-over-6-000-000-dogs-cats-were-killed-on-us-roads-last-year> (last visited June 12, 2018).

¹¹ *Id.*

proposed pet collar could be powered with just two rechargeable AAA batteries, with a charge life of five to seven days, and the anchors will be powered by regular AA batteries which should last 1 year or more.

If the Company is required to use other technologies such as GPS, LTE, WiFi or Bluetooth, the pet collar would require recharging every four to six hours, and would require larger, heavier batteries, both of which are commercially unreasonable. Also, the use of the proposed technology will permit the Company to provide to consumers a single technological solution for pets to remain within the confinement zone, both inside and outside the home, a result that none of the other technologies can provide.

Just as with the iRobot product, there is very little chance of the Company's proposed use actually causing interference to other authorized uses of the 6.4 GHz frequency band. As noted, no wireless communications network will be created, non-paired pet collars will not communicate with the anchors, and the Company intends for the anchors to be placed in proximity to each other, and at a significant distance from the consumer's property line. In granting the iRobot waiver request, the FCC noted,

We find that when taking into account the variability in propagation characteristics due to terrain, low antenna heights and other propagation factors, grant of this waiver is very unlikely to increase the potential for harmful interference.¹²

These very same factors are present with the Company's proposed use.

¹² *iRobot*, 30 FCC Rcd at 8380.

Finally, the Company's proposed use is inherently a nonindustrial, residential application. The Company commits to integrate language in its User Manual and promotional materials to clearly "convey this information to users."¹³

CONCLUSION

The FCC is required to give requests for waiver of its rules a "hard look."¹⁴ As discussed in *WAIT Radio*, the Company has proposed an innovative product that will not undermine the policy that led to the adoption of Section 15.250(c). The Company's proposed product will not be able to create a wireless communications network, nor will it utilize the "fixed outdoor infrastructure" that previously concerned the FCC. By limiting the use of the product to nonindustrial, residential use, the risk of interference to other authorized users will be minimized. Finally, because the FCC has previously granted a waiver relating to a nearly identical technical proposal, similar consideration must be afforded to the Company's proposed use.¹⁵

Therefore, 32 Technologies LLC respectfully requests a waiver of Section 15.250(c) of the FCC's rules to permit the Company to complete the equipment authorization process for the pet collar as described herein. Further, to the extent necessary, 32 Technologies LLC requests that the FCC take all steps to expedite the processing of this Request for Waiver in order to permit the timely implementation and marketing of the product.

¹³ *Id.* ("Operation under this waiver is limited to residential use only. iRobot will take appropriate steps (including device and instruction manual labeling) to convey this information to users, and will only market the device as a residential-use product.").

¹⁴ *See WAIT Radio v. FCC*, 418 F.2d 1153, 1157 (D.C. Cir. 1969).

¹⁵ *See Melody Music, Inc. v. FCC*, 345 F.2d 730, 733 (D.C. Cir. 1965) (the Commission may not treat similarly-situated parties differently).

Respectfully submitted,

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EXHIBIT A

