

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of)	
)	
Amendment of Parts 1, 2, 22, 24, 27, 90 and 95)	WT Docket No. 10-4
of the Commission's Rules to Improve Wireless)	
Coverage Through the Use of Signal Boosters)	

REPLY COMMENTS OF SURECALL

No party disputes the important public interest benefits that would result from eliminating the personal use restriction for wideband signal booster and permitting these safe and effective devices to be used in enterprise environments. As business owners explain, “wireless signal boosters have, for many businesses, become a key building block in spreading wireless connectivity across enterprise facilities.”¹ Low cost boosters that are fully compliant with the Commission’s Network Protection Standard (“NPS”) are available from numerous manufacturers, including Surecall. Once the personal use restriction is eliminated, countless small businesses, entrepreneurs and organizations will be able to use these devices to enhance the broadband capabilities of their operations and provide added convenience to their customers.

None of the comments that were filed in response to the Commission’s Further Notice raise any technical concerns about the use of NPS-compliant wideband signal boosters in enterprise environments. Instead, the sole question at issue is the manner in which wideband boosters should be registered, a relatively minor administrative question that can be addressed by the Commission without delay. Therefore, the Commission should further the public interest by promptly removing the personal use restriction on wideband signal boosters. The

¹ Comments of the Ad Hoc Telecommunications Users Committee, WT Docket No. 10-4, at 2 (May 18, 2018) (“*Ad Hoc Users Comments*”).

Commission should also authorize the use of wideband signal boosters on additional frequency bands and develop labeling and notification requirements to facilitate the installation of embedded wideband signal boosters in transportation vehicles.

I. NO PARTY IDENTIFIED ANY TECHNICAL OR PUBLIC POLICY REASON TO PROHIBIT BUSINESSES AND WORKING CONSUMERS FROM USING WIDEBAND SIGNAL BOOSTERS FOR WIRELESS CONNECTIVITY

Experience has demonstrated that NPS-compliant Consumer Signal Boosters do not cause harmful interference to wireless networks, a fact that major wireless carriers have acknowledged.² Permitting NPS-compliant wideband signal boosters to be used in enterprise environments will not raise any new technical issues. Although one party suggested otherwise in an *ex parte* filed more than a year ago,³ that party did not reassert its concern in its comments, nor was its concern echoed by any other party. Instead, Surecall provided a detailed technical analysis with its comments showing that it is exceedingly unlikely that an intermodulation signal might leak into the downlink path of a wideband signal booster and impact the signal reception of a wireless device using that booster.⁴ Even if this did occur, the wireless device receiving the additional noise would rapidly correct the problem by switching to another frequency.⁵

² See, e.g., Comments of Verizon, WT Docket No. 10-4, at 1 (May 18, 2018) (“*Verizon Comments*”) (explaining that “[t]his framework, based on technical rules developed jointly by wireless licensees and booster manufacturers, has worked as intended to improve coverage for wireless customers while protecting wireless networks from interference”); see also Comments of AT&T Services, Inc., WT Docket No. 10-4, at 2 (May 18, 2018) (“*AT&T Comments*”) (explaining that, while it is still addressing interference concerns caused by wireless signal boosters, the problems may be caused by older, non-NPS-compliant signal boosters).

³ See Nextivity *Ex Parte* Letter, WT Docket No. 10-4 (March 22, 2017), Attachment 1 at 4.

⁴ See *Intermodulation in Wideband Signal Boosters*, at 7 (May 18, 2018) (“*Surecall Technical Demonstration*”), included as an attachment to Comments of Surecall, WT Docket No. 10-04 (May 18, 2018) (“*Surecall Comments*”).

⁵ See *id.*

The absence of any legitimate technical concern with the operation of NPS-compliant wideband signal boosters in enterprise environments should mark the end of this inquiry. Surecall acknowledges, however, that a modest question remains regarding the best way to encourage enterprise consumers to register their devices in a manner that will enable all carriers to have transparency into the location and types of wideband boosters in use.

As all parties seem to acknowledge, the Commission “should adopt clear registration requirements that are easily complied with.”⁶ The registration process should be “as simple as possible for consumers, as this will make them more likely to comply.”⁷ Consistent with this, there seems to be consensus agreement that enterprise users of wideband boosters should not be required to separately register their devices with every wireless carrier serving that area. As AT&T explains, “93 percent of wideband Consumer Signal Booster users will need to complete *four or more* registration processes to comply with the Commission’s rules.”⁸ Such an approach would be “impractical at best and more likely infeasible.”⁹

Instead, Surecall agrees with those parties that favor “a one-stop, centralized registration system.”¹⁰ Further, as enterprise users explain, “[t]his one-stop registration could be coordinated and operated by the wireless licensees themselves, through a single purpose

⁶ *AT&T Comments* at 7.

⁷ *Id.* at 8.

⁸ *Id.* at 9.

⁹ Comments of CTIA, WT Docket No. 10-4, at 9 (May 18, 2018) (“*CTIA Comments*”).

¹⁰ *AT&T Comments* at 8; *see also Verizon Comments* at 11 (explaining that “[a] central registry would allow for one-time registration of a Wideband Booster, without the need for the user to research which operators to register with and then register with multiple operators”).

consortium created by the licensees to manage such a database, or by an existing entity such as their trade association, CTIA.”¹¹

AT&T suggests that booster manufacturers should manage the registration portal, claiming they would be its “primary beneficiaries.”¹² Wireless consumers, however, have always been the primary beneficiaries of wireless signal boosters, which is why the Commission authorized their use on wireless networks. Wireless carriers are also a primary beneficiary because signal boosters fill gaps in their wireless networks, thus greatly increasing the satisfaction of their subscribers.

CTIA claims that “[t]he fact that Wideband and Mobile Consumer Signal Boosters will require use of spectrum by consumers that are *not* subscribers for portions of the operation should compel the Commission to be involved in the registration process.”¹³ Surecall disagrees. The lack of a direct subscriber relationship with the wireless carriers can best be resolved by ensuring that each of the wireless carriers is directly involved in the registration process, either individually or through a wireless trade association. This can best be accomplished in the same manner as the Commission did when it first authorized the use of NPS-compliant signal boosters in 2013 – by directing the wireless carriers to manage the registration system for such devices.

¹¹ *Ad Hoc Users Comments* at 6.

¹² *AT&T Comments* at 10-11.

¹³ *CTIA Comments* at 10.

II. THE COMMISSION SHOULD AUTHORIZE THE USE OF SIGNAL BOOSTERS ON ALL CMRS FREQUENCY BANDS

As major carriers acknowledge, “[t]he Commission’s 2013 Consumer Signal Booster rules have proved to be a success story in enhancing wireless service for thousands of consumers.”¹⁴ Given this success, the Commission should authorize the use of NPS-compliant wideband signal boosters on all CMRS frequency bands. As the Enterprise Wireless Alliance explains, “the rebuttable presumption should be that this flexibility can be imported to these bands and others, . . . without conducting additional rulemakings for each allocation or, in most instances, designing allocation-specific rules to accommodate them.”¹⁵

CTIA argues that “[i]n the future, the Commission should continue to provide wireless operators the opportunity to comment on the authorization of signal boosters, particularly in the bands within which they operate.”¹⁶ Any such notice and comment process, however, should be completed concurrently with the adoption of licensing and service rules for new CMRS frequency bands.

With respect to those frequency bands that have already been authorized for CMRS, Surecall concurs with Verizon’s position that the Commission’s rules for signal boosters should be modified “to include 600 MHz, WCS, and BRS/EBS because the current NPS is sufficient to ensure safe operations in those bands.”¹⁷

¹⁴ *Verizon Comments* at 1; *see also AT&T Comments* at 1 (acknowledging that “consumers and enterprises can benefit from the signal amplification provided by signal boosters”).

¹⁵ Comments of The Enterprise Wireless Alliance, WT Docket No. 10-4, at 4 (May 18, 2018).

¹⁶ *CTIA Comments* at 4; *see also Verizon* at 3 (arguing that “[i]f the Commission considers the addition of other bands in the future, however, it should do so only through notice-and-comment rulemaking”).

¹⁷ *Verizon Comments* at 3.

Several parties have identified specific frequency bands where, they argue, special restrictions may be needed to enable the use of signal boosters to enhance the reception of wireless networks. For example, T-Mobile raises concern that the use of Consumer Signal Boosters in the 600 MHz band during the repacking process could result in harmful interference to broadcast television stations that have not yet been moved to new frequencies.¹⁸ AT&T, Sirius XM Radio, and AFTRCC (representing aircraft manufacturers), expressed concern about the potential use of Consumer Signal Boosters in the WCS bands, which are subject to restrictions to prevent interference into satellite radio and aircraft flight test operations.¹⁹

In both cases, concerns about signal boosters appear to reflect a misunderstanding regarding the manner in which signal boosters operate. Consumer Signal Boosters, which are limited to just 1 watt output power by the NPS,²⁰ cannot extend significantly the geographic range of wireless networks. Instead, the primary purpose of Consumer Signal Boosters is to receive the wireless network signal that is already present outside a building and retransmit that signal inside the building where it may not be available. If the signal from a wireless network cannot be received outside a building (by a booster or by a wireless handset), then the booster cannot retransmit the signal inside the building. Further, the absence of a network signal outside the building means that neither the wireless handsets inside the building nor the signal booster serving that building will transmit signals back to the network using those frequencies.

¹⁸ *T-Mobile Comments* at 3.

¹⁹ *AT&T Comments* at 3-4 (*citing* Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band, Order on Reconsideration, FCC 12-130 (2012)).

²⁰ *See* 47 C.F.R. § 20.21(e)(8)(i)(D) (limiting the uplink power to 1 watt composite conducted power and equivalent isotropic radiated power (EIRP) for each band of operation).

Given this, the operation of signal boosters in the 600 MHz and WCS frequency bands would not disrupt negotiated arrangements between the carriers and other spectrum users (be they broadcasters, aircraft manufacturers, or satellite radio) regarding the siting of wireless network base stations in locations where their operations cannot interfere with co-frequency or adjacent spectrum uses. Signal boosters would not place at risk negotiated exclusion zones because – just like wireless handsets – signal boosters refrain from operating in a particular frequency band if they cannot “hear” the downlink signal in a location from the network.

The Commission should also permit the use of wideband Consumer Signal Boosters in BRS/EBS frequencies. The fact that multiple carriers may be using LTE-TDD technology in the unpaired 2495-2690 MHz should not prevent the use of wideband boosters to enhance their operations. As Nextivity acknowledges, the switch point between uplink and downlink transmissions “is well defined because all of the base stations of a LTE-TDD network are synchronized.”²¹ Therefore, these timing requirements can be easily addressed both by wideband and single-carrier boosters through various technical methods. As just one example, a wideband booster equipped with BRS/EBS frequencies within its range could momentarily support TDD operations using BRS/EBS frequencies for only one BRS/EBS-enabled handset at a time, while still boosting signals for other handsets using other frequency bands. Numerous other proprietary technical approaches are available to address this issue.

The Commission should also permit the use of wideband signal boosters in millimeter wave (“mmW”) CMRS allocations. Verizon expresses concern about the manner in which Consumer Signal Boosters may interact with mmW wireless networks using narrow

²¹ *Nextivity Comments* at 6.

beamforming technologies.²² Wideband signal boosters, however, will be able to employ larger antennas and thus produce even tighter beams than wireless handsets. Therefore, wideband signal boosters should be extremely beneficial in extending the reach of mmW wireless networks into indoor locations, particularly given the high attenuation and short transmission paths that mmW networks will experience.

Finally, the Commission should decline T-Mobile's request that "[c]arriers should be expressly permitted to deny requests to deploy boosters in other spectrum bands where there are similar concerns."²³ Instead, a strong presumption should exist that Consumer Signal Boosters are safe and effective in all CMRS frequencies. In those limited cases in which carriers have specific concerns, the carriers should work with the major booster manufacturers (perhaps in the context of wireless industry trade associations) to address their questions.

Meanwhile, the issue of making additional frequency bands available to signal boosters should not delay resolution of the primary issue before the Commission in this proceeding, which is eliminating of the personal use restriction for wideband signal boosters. Only Nextivity has called for further delay in allowing the use of wideband signal boosters in enterprise environments and its motivations are blatantly anti-competitive.²⁴ None of the wireless carriers have objected to the elimination of the personal use restriction for wideband boosters as long as it is coupled with an expeditious and convenient mechanism to ensure their registration. The Commission should therefore eliminate the personal use restriction

²² *Verizon Comments* at 4-5.

²³ *T-Mobile Comments* at 3 (referencing its concerns about the 600 MHz repacking).

²⁴ *Nextivity Comments* at 7-8 (urging the bifurcate of this proceeding in order to create even further delay in the removal of the personal use restriction for wideband signal boosters).

immediately, even if this means delaying action on the introduction of signal boosters in certain additional frequency bands until lingering questions about those bands are resolved.

III. THE COMMISSION SHOULD MODIFY ITS NOTIFICATION RULES TO FACILITATE THE USE OF EMBEDDED CONSUMER SIGNAL BOOSTERS

Major wireless carriers have acknowledged that the Commission should adopt rules “that will enable manufacturers of embedded signal boosters to comply with applicable labeling requirements.”²⁵ Further, such rules can be adopted without placing significant burdens on vehicle owners or manufacturers.

Surecall agrees that proper documentation and notifications should be provided at the point of sale for each vehicle that contains an embedded signal booster. Surecall also concurs with the recommendation of Verizon and others that a sticker be placed in the door frame of the vehicle advising the user of the presence of the embedded signal boosters and the requirements for its use.²⁶

AT&T and CTIA further argue that the Commission should retain its requirement that labelling be included directly on an embedded signal booster “in the event that it is removed from the vehicle and sold to a third party.”²⁷ Although Surecall has no objection to this proposal, given the highly integrated nature of modern vehicles (in which the booster, its power supply, and each of its antennas will be installed in different locations in the vehicle with the cabling bundled with other wires), it seems exceedingly unlikely that consumers will remove embedded booster for stand-alone use.

²⁵ *AT&T Comments* at 4.

²⁶ *Verizon Comments* at 7-8.

²⁷ *AT&T Comments* at 5-6; *CTIA Comments* at 6-7.

Finally, Surecall agrees that vehicle dealers should be encouraged to complete the booster registration process at the point of sale²⁸ and that this registration process should include such basis information as the make, model, the VIN, and the license plate of the vehicle.²⁹ The Commission, however, should refrain from imposing any additional obligations on the owners of vehicles containing embedded signal boosters in order to avoiding making the registration process so burdensome as to create disincentives to compliance.

IV. CONCLUSION

Given the widespread acknowledgement of the public interest benefits of NPS-compliance Consumer Signal Boosters and their safe and effective operation on wireless network, the Commission should promptly remove the person use restriction on wideband Consumer Signal Boosters in order to permit their use in enterprise environments. The Commission should also authorize the use of Consumer Signal Boosters on all CMRS frequency bands and adopt additional labeling requirements for Consumer Signal Boosters that are embedded in vehicles.

Respectfully submitted,

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²⁸ *Verizon Comments* at 9-10, *AT&T Comments* at 6; *CTIA Comments* at 6.

²⁹ *Verizon Comments* at 9.