**Before the**
**FEDERAL COMMUNICATIONS COMMISSION**
**Washington, D.C. 20554**

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| In the Matter of | ) | |
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| 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 | ) | |

# COMMENTS OF USA MOBILITY, INC.


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## COMMENTS OF USA MOBILITY, INC.

USA Mobility, Inc. hereby submits the following comments in response to the Notice of Proposed Rulemaking in the above-referenced proceeding.[1] The *NPRM* seeks comment on a new regulatory framework governing the use of signal boosters. While USA Mobility supports many of the proposals for regulating the use of consumer-oriented signal boosters, the Commission should avoid regulations that would inadvertently impose burdens on carrier-grade equipment. In fact, the Commission should expressly exclude carrier-grade signal boosters used by Commission licensees from the new regulatory regime. The Commission also should impose more stringent restrictions on consumer signal booster use in the 900 MHz paging bands in light of their frequent use for emergency communications.

## INTRODUCTION AND SUMMARY

USA Mobility appreciates the Commission's interest in preventing wireless interference from poorly designed or improperly installed signal boosters. USA Mobility agrees that the haphazard use of signal boosters poses significant interference risks, and that innovative solutions are desirable to mitigate those risks. Imposing additional regulatory requirements on

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[1] *Amendment of Parts 1, 2, 22, 24, 27, 90 and 95 of the Commission's Rules to Improve Wireless Coverage Through the Use of Signal Boosters*, Notice of Proposed Rulemaking, WT Docket No. 10-4 (rel. Apr. 6, 2011) ("*NPRM*").

signal boosters, however, will necessarily raise the costs associated with both signal booster acquisition and operation. Because the risks associated with signal booster use vary depending on the type of user and method of installation, the Commission should reject a one-size-fits-all approach.

USA Mobility's primary objective in connection with this proceeding is to ensure that its existing messaging services remain reliable and affordable to the budget-strapped emergency responders and healthcare professions that rely on the unique characteristics of paging services to support their critical operations. Signal boosters installed and maintained by paging carriers pose no material risks of causing harmful interference to other licensed services. Accordingly, the costs of imposing additional requirements on carrier-grade equipment—in particular, manufacturing requirements—would outweigh the expected benefits. Imposing manufacturing and registration requirements where there are adequate existing safeguards would only raise the cost of providing service (and therefore the cost of service to the consumer), and would not meaningfully advance the Commission's stated goal of preventing wireless interference.

In contrast, the framework proposed by the Commission in the *NPRM* does provide a sensible solution in the context of consumer-grade, non-professionally installed equipment, because adequate safeguards do not generally protect the use of that equipment. In fact, because of the unique characteristics of paging service and the types of users that rely on it, the Commission should actually go farther than the *NPRM* proposes and require that consumers in the 900 MHz paging bands register their signal boosters and obtain licensee approval before using them.

## BACKGROUND

USA Mobility is the nation's leading provider of traditional one-way and advanced two-way paging services, catering primarily to hospitals and other health care institutions,

government agencies, and large businesses.[2] These government and industry users depend on USA Mobility to provide reliable, low-cost wireless messaging services that have many unique attributes. The Commission has repeatedly recognized the importance of paging services for emergency responders and hospitals, in the wake of Hurricane Katrina and in other contexts. Indeed, the *NPRM* appropriately acknowledges and is responsive to the needs of these emergency personnel.[3]

For certain types of uses and users, paging services provide notable advantages over other forms of wireless communication. For example, paging networks are less vulnerable to service outages because they rely on satellite transmission, have built-in redundancy due to simulcasting, and make minimal use of the PSTN. Paging transmitters also emit more powerful signals than mobile voice and broadband transmitters, significantly improving range and in-building penetration. In addition, because paging networks are designed to handle a high volume of messages, they are not prone to the congestion problems that affect other forms of wireless communication during emergencies.

Despite these benefits, the paging industry faces tremendous economic challenges as a result of the migration of mass market consumers to mobile phones, PDAs, and other broadband wireless devices. Most of USA Mobility's units in service generate less than $10 per month in revenue, and a significant portion generate only about $4 per month. Paging customers tend to be very cost sensitive, and experience demonstrates that emergency personnel (among other customers) cannot absorb significant cost increases. Indeed, *any* increase in service cost might

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[2] The market sectors of health care, government, and large enterprise represent 88 percent of USA Mobility's customer base. For further detail regarding USA Mobility's subscribership, *see* USA Mobility 2010 Annual Report, *available at* http://usamobility.com/about_us/investor_relations/.

[3] *See NPRM* ¶¶ 1, 11-13, 18-20.

force these users to curtail or even eliminate their use of paging services, depriving them of a critical communications tool.

USA Mobility's national paging networks operate on the 929 and 940 MHz bands, which are included within the scope of the *NPRM*.[4] USA Mobility has a particular interest in this proceeding because it has widely deployed Class B signal boosters and bi-directional amplifier systems to improve its in-building penetration and network availability for the benefit of its larger customers. USA Mobility installs and maintains these boosters within enclosed buildings and other structures where signal ingress is needed to ensure quality-of-service for its subscribers.

## DISCUSSION

### I. THE COMMISSION SHOULD EXCLUDE EQUIPMENT THAT IS INSTALLED AND MAINTAINED BY LICENSED CARRIERS FROM THE PROPOSED REGULATORY FRAMEWORK

The Commission should explicitly exclude wireless licensees and their equipment from the proposed requirements in the *NPRM*. The *NPRM* focuses on consumer equipment, as it "proposes a new regulatory framework authorizing individuals and entities to operate 'consumer signal boosters'" if the signal boosters meet certain requirements.[5] But the *NPRM* defines "consumer signal boosters" as "any signal booster operated by (*or for the benefit of*) *consumers* . . . ."[6] To the extent the proposed rules would apply to equipment installed by licensed carriers,[7]

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4 *Id.* ¶¶ 1, 28 n.49.

5 *Id.* ¶ 3.

6 *Id.* ¶ 3 n.3 (emphasis added).

7 For example, proposed § 95.401(h) includes "the use of bi- or unidirectional radio frequency amplifiers by licensees" within the definition of "Signal Booster Radio Service." *NPRM* pages 42-43. And despite repeated references indicating that the *NPRM* is intended only to apply to consumer devices, *see, e.g.*, *id.* ¶¶ 3 n.3, 5, 28, other

they are overbroad. Licensed carriers, including USA Mobility, frequently install and manage signal boosters on customer premises *for the benefit* of their customers. As described below, USA Mobility supports efforts to regulate true consumer devices because they pose a significant threat of interference, as the *NPRM* recognizes. In contrast, it is unnecessary for the Commission to impose additional regulatory requirements on licensed carriers and their equipment because adequate technological and practical safeguards already apply in connection with such equipment. If the Commission determines that it is appropriate to include licensed carriers within the scope of the new regulatory regime, it at least should apply such rules only after a grace period and should permanently grandfather carriers' existing signal boosters.

### A. Carrier-Grade Equipment Is Professionally Installed and Already Is Subject to Various Safeguards That Ensure Appropriate Operation.

Unlike low-cost, consumer-grade signal boosters, carrier-grade equipment already contains built-in technical safeguards and poses a minimal risk of improper use because professional technicians install the equipment. USA Mobility primarily uses carrier-grade Class B signal boosters/bi-directional amplifiers that limit amplification to RF energy in the 929 to 931 MHz Part 22/Part 90 paging bands and the 940 MHz Part 24 NPCS band. USA Mobility's status as a licensee currently permits the use of these signal boosters without the need for additional authorization from the Commission,[8] and all equipment deployed by USA Mobility satisfies the existing regulatory requirements covering the operation of signal boosters by licensees.[9]

The Commission's existing rules, including Part 90 in particular, already impose adequate safeguards to ensure safe operation of signal boosters by licensees. For example, Part

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references indicate that all signal boosters are within its scope, *see, e.g.*, *id.* ¶ 62 (discussing signal boosters operated by CMRS licensees).

8 *See, e.g.*, 47 C.F.R. §§ 22.99, 22.527, 90.7, 90.219(e).

9 *See, e.g.*, 47 C.F.R. §§ 22.527, 22.165, 90.219.

90 imposes low power and emission limits on both Class A and Class B signal boosters.[10] In addition to complying with those existing signal booster requirements, USA Mobility's equipment—and the equipment used by many carriers—includes additional features that minimize the risk of interference. For instance, the Class B signal boosters utilized by USA Mobility meet the Commission's proposed Class B ERP limitations, and USA Mobility's current and expected Class B signal boosters also include automatic gain control and internal fault checking to limit extraneous and/or out-of-band emissions.

The *NPRM* proposes to add several new manufacturing requirements for signal boosters, including self-monitoring and feedback or oscillation detection and automatic deactivation.[11] While implementation of these intelligent monitoring and shutoff features would increase the production costs (and the price) of all signal boosters that are required to have them, those features provide protection against a risk that is effectively limited to consumer signal boosters—improper installation.[12] In contrast to self-installed consumer signal boosters, licensed carriers rely on professional technicians to install and manage their equipment, and those technicians carefully employ practices and configure the equipment to avoid causing interference. For instance, USA Mobility installs its carrier-grade Class B boosters/bi-directional amplifiers in accordance with well-established engineering practices to ensure safe operation, and limits the repeated RF energies to the desired spectrum associated with the USA Mobility base stations that are either collocated with or in close proximity to the facilities covered by the signal boosters. Additionally, due diligence in USA Mobility's implementation of these Class B signal boosters

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10 47 C.F.R. § 90.219.

11 *NPRM* page 42.

12 *See, e.g.*, *NPRM* ¶ 36 (noting that "if a device is improperly installed, it may exceed its designated power or OOBE limits and may oscillate and disrupt communications between nearby mobile devices and a base station." (footnote omitted)).

ensures that USA Mobility's equipment meets the Maximum Permissible Exposure ("MPE") limitations prescribed for both controlled and uncontrolled access areas under the OET 65 guidelines.

Absent evidence of a genuine problem involving carrier-grade equipment, the Commission should refrain from extending additional manufacturing requirements to such devices. Notably, USA Mobility has not received a single complaint about interference caused by one of its signal boosters, despite the widespread use of signal boosters on its network for many years. Licensed carriers operate other types of wireless equipment at far greater power levels and with a larger potential for interference than signal boosters, and in most instances, the Commission regulates that equipment differently than equipment designed for use by consumers. In the absence of concrete evidence that existing signal booster use by licensed carriers generates harmful interference, there is no reason to deviate from that approach and apply consumer requirements to carriers and, in the process, raise the cost of providing service. To the contrary, such a poorly targeted approach would be arbitrary and capricious.[13]

### B. If the Commission Imposes Additional Manufacturing Requirements for Carrier-Grade Equipment, Already-Deployed Carrier-Grade Equipment Should Be Grandfathered Indefinitely.

The Commission correctly notes that "there are signal boosters being operated today by CMRS licensees or others, which will not meet the requirements we propose in the [*NPRM*]" and asks how those signal boosters should be treated under the proposed rules.[14] Specifically, the Commission seeks comment on whether existing devices should be subject to a sunset period or grandfathered indefinitely, and whether those signal boosters should be subject to a registration

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13 *See, e.g.*, *Nat'l Fuel Gas Supply Corp. v. FERC*, 468 F.3d 831, 843 (D.C. Cir. 2006) ("Professing that an order ameliorates a real industry problem but then citing no evidence demonstrating that there is in fact an industry problem is not reasoned decisionmaking.").

14 *Id.* ¶ 62.

requirement should the Commission implement one.[15] USA Mobility submits that if the Commission extends new requirements to carrier-grade equipment, it should grandfather devices operated by licensed carriers indefinitely and should not subject those devices to a registration requirement.

Unlike individual users or enterprises, which typically have one or a few signal boosters, many carriers have hundreds or even thousands of signal boosters deployed on their networks. Carriers plan their capital expenditures many years in advance and achieving a full lifecycle from deployed equipment is critical to providing cost-effective services. If the Commission were to prohibit use of existing signal boosters, the financial burden on carriers to upgrade all of their existing equipment would be substantial and would pose a significant risk of impairing service quality. Similarly, although the compliance costs associated with a registration requirement may be negligible for the typical end user, the sheer number of signal boosters deployed on some carrier networks means that a registration requirement would be overly burdensome for carriers, and especially for paging providers given their established difficulties recovering the costs of regulatory requirements.[16]

In the absence of a well-developed record demonstrating interference concerns caused by existing equipment managed by licensees, requiring carriers to incur the costs associated with upgrading or registering their existing deployed equipment would undermine the Commission's interests in promoting affordable service without advancing the Commission's goal of reducing

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15 *Id.*

16 *See Assessment and Collection of Regulatory Fees for Fiscal Year 2003*, Report and Order, 18 FCC Rcd 15985, 15992 (2003) ("[B]ecause the messaging industry is spectrum-limited, geographically localized, and very cost sensitive, it is very difficult for [it] to pass on increases in costs to its subscribers.").

harmful interference. While USA Mobility believes that carrier-grade equipment should be exempt from any new rules, the Commission at least should grandfather existing carrier-grade equipment indefinitely and allow carriers to replace that equipment as part of their normal equipment upgrade cycles.[17]

## II. THE COMMISSION SHOULD REQUIRE REGISTRATION AND CARRIER APPROVAL OF CONSUMER-GRADE EQUIPMENT ON THE 900 MHz PAGING BANDS

USA Mobility agrees with the Commission that consumer operation of signal boosters, in contrast to professionally installed carrier-grade equipment, poses significant risks of interference. Therefore, USA Mobility not only supports the framework proposed in the *NPRM* as applied to consumers, but encourages the Commission to take an even more restrictive approach on paging bands. The *NPRM* proposes a license-by-rule framework that does not require carrier approval before deployment.[18] The Commission also seeks comment on whether "signal booster operators should be required to register their devices with a national clearinghouse prior to operation."[19] While USA Mobility takes no position on the merits of allowing the deployment of consumer-grade equipment without carrier approval on non-paging bands,[20] the Commission should require registration and carrier approval on the 900 MHz paging bands for two reasons.

First, there is far less need for consumer signal boosters on paging networks because of the architecture of those networks and the general lack of a mass market customer base. Within

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17 Wilson Electronics has similarly suggested "grandfathering all existing, deployed signal boosters." *Id.* ¶ 60 & n.128.

18 *See id.* ¶ 29.

19 *Id.* ¶ 65.

20 As the Commission notes in the *NPRM*, at least one cellular carrier is opposed to the use of signal boosters without licensee approval. *Id.* ¶ 56; *see also id.* ¶ 59 (noting that the DAS Forum recommends coordination with the carrier prior to operation).

designated coverage areas, most paging networks have comparatively fewer coverage gaps than other types of wireless communications networks because paging networks utilize a simulcast broadcast of multiple transmitters operating within a geographic area and radiate high power levels with overlapping coverage footprints. The ability to synchronize broadcasting of overlapping RF energy uniquely positions paging networks to minimize coverage gaps, and what coverage gaps do exist are mainly isolated to building basement areas and are remedied by fixed signal boosters installed in buildings. The vast majority of paging customers are large institutional customers that prefer to work with carriers to purchase complete, integrated solutions, and experience has shown that these customers prefer carriers to install and maintain any signal boosters used with their paging services. In contrast to other CMRS services, there is virtually no use of *mobile* signal boosters for paging services. Whereas low-quality and intermittent signals on wireless voice networks result in clearly observable symptoms—like dropped calls—that frustrate consumers and encourage them to purchase and install signal boosters on their own (including mobile signal boosters),[21] no comparable problems or mass-market users exist in connection with paging networks. Therefore, to the extent that coverage gaps exist on paging networks, they are remedied directly by carriers, not by mass market consumers.

Second, the 900 MHz paging bands pose special public interest concerns because of their extensive use by emergency responders and health care professionals. The Commission has expressed particular concern about the impact of interference on these users,[22] and the record contains abundant examples of the problems that these types of users experience because of

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21 *See id.* ¶¶ 1, 6; *see also id.* ¶ 9 ("Typically, mobile signal boosters transmit and receive wireless signals to and from a cell phone operated inside a vehicle (e.g., car, boat or RV).").

22 *See id.* ¶¶ 1, 11-13.

signal booster use by consumers.[23] Similar interference problems pose a concern for paging networks. While the architecture of paging networks helps reduce gaps in coverage, it also magnifies the risks of interference because paging networks are unable to guarantee and track the delivery of messages. In contrast to mobile phone calls, where the sender will typically know that a call did not go through or will have the option of leaving a voicemail for later retrieval by the recipient, interference close to a pager may result in dropped messages that will not be detectable by the sender or recipient. In the case of emergency responders and health care professionals, a missed message can have life-or-death implications.

In sum, there is little utility in or demand for consumer signal boosters in the 900 MHz paging bands. Requiring registration and carrier approval will allow licensed carriers to prevent problems from occurring in the first place and to quickly resolve problems if they arise. USA Mobility recognizes that registration and approval requirements impose a burden on consumers, and that, given the ubiquity of mobile voice and broadband devices and the coverage gap problems associated with those services,[24] the public interest may weigh in favor of allowing broader use of consumer signal boosters on some communications bands at the cost of some additional interference. But the public interest analysis is different in the paging context. Given the extensive use of those bands by emergency personnel and increased risks posed by interference, as well as the limited demand for and utility of signal boosters for paging service, the public interest warrants taking a more restrictive approach on paging bands.

## CONCLUSION

For the foregoing reasons, USA Mobility urges the Commission to refrain from imposing new requirements on carrier-grade signal boosters managed by licensed carriers, but encourages

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23 *See id.* ¶ 20 & nn.28-30.

24 *See, e.g., id.* ¶ 1.

the Commission to impose restrictive requirements on consumer-grade signal boosters managed by consumers for use in the 900 MHz paging bands.

Respectfully submitted,

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