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

In the Matter of	)	
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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	)	WT Docket No. 10-4

COMMENTS OF SIRIUS XM RADIO INC.

Sirius XM Radio Inc. ("Sirius XM") submits these comments in response to the *Second Further Notice of Proposed Rulemaking* adopted in this proceeding on March 22, 2018.[1] In the *FNPRM*, the Commission proposes "additional steps to enhance the usefulness of signal boosters in improving access to wireless service while continuing to guard against unacceptable interference . . . ."[2] Among other things, the Commission requests input on whether it should extend the use of Consumer Signal Boosters to additional spectrum bands—including the Wireless Communications Service ("WCS") band at 2305-2320 MHz and 2345-2360 MHz.[3] Sirius XM limits its comments to this specific question.

Sirius XM operates in the Satellite Digital Audio Radio Service ("SDARS") band at 2320-2345 MHz, which is surrounded on both sides by the WCS band. Because SDARS radios receive relatively low-power signals from satellites and WCS transmitters operate at much higher power levels on the ground, WCS operations have a significant potential to cause harmful

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1 *See 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*, Second Report and Order and Second Further Notice of Proposed Rulemaking, WT Docket No. 10-4, FCC 18-35 (Mar. 22, 2018) ("*FNPRM*").

2 *Id.* ¶ 17.

3 *Id.* ¶ 24.

interference into Sirius XM's service, which currently has over 33 million subscribers (and many times that number of listeners). The nature of this operating environment has created unavoidable technical challenges for Sirius XM and AT&T (which controls almost all WCS licenses). The Commission attempted to address some of these challenges through its WCS rules, which it intended to both "limit the potential for harmful interference to satellite radio users in the SDARS band and foster the provision of mobile services by WCS providers."[4] Among the measures the Commission adopted to protect satellite radio reception, those rules define what constitutes "harmful interference" to SDARS, establish ground-level power limits, strictly limit out-of-band emissions, and prohibit external vehicle mounted antennas.[5] The relevant rules are even more restrictive with respect to the WCS C and D blocks, reflecting the enhanced interference risks of operating in spectrum directly adjacent to the SDARS band.[6]

Sirius XM and AT&T are engaged in ongoing, painstaking efforts in an attempt to refine and supplement the Commission's WCS regulatory framework through coordination arrangements and other cooperative activities, taking into account each party's network architectures, customer needs, and deployment plans. These efforts are designed to ensure that each site complies with the Commission's rules and the parties' coordination agreements, satisfies WCS consumers' needs, and does not harm SDARS reception.

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4 *See Amendment of Part 27 of the Commission's Rules to Govern the Operation of Wireless Communications Services in the 2.3 GHz Band*, 25 FCC Rcd 11710, at ¶ 29 (2010) ("*2010 WCS Order*").

5 *See* 47 C.F.R. §§ 27.64(d), 27.53(a), and 27.50(a)(3)(iv).

6 As the Commission notes in the *FNPRM*, "[m]obile operations are not permitted in the WCS C and D Blocks closest to the Satellite Digital Audio Radio Service bands (2315-2320 MHz and 2345-2350 MHz)." *FNPRM* ¶ 24 n.54. Accordingly, the FNPRM proposes to allow Consumer Signal Boosters only in the WCS A and B Blocks. *Id.*

Given the significant challenges inherent in WCS band operations—and especially the risk of interference with satellite radio—it would be unthinkable to allow Consumer Signal Booster use in the WCS band at this time. Doing so would upset the delicate balance that the Commission established in adopting rules for the 2.3 GHz band[7] and further complicate the coordination challenges that WCS and SDARS stakeholders address every day as the WCS band continues to mature. Critically, it would be extremely difficult, if not impossible, for the Commission to tighten the technical parameters within which unlicensed Consumer Signal Boosters must operate if harmful interference were to occur after those boosters are deployed. For this reason, introducing Consumer Signal Boosters in the 2.3 GHz band would likely require the Commission to adopt more conservative limits for operations in the band—a result that would inhibit efficient WCS and SDARS operations and ultimately harm wireless broadband customers using AT&T's WCS service, as well as Sirius XM's satellite radio service. Moreover, there is no practical likelihood of undergoing coordination or even developing cooperative relationships with large numbers of individual consumers using boosters.

The *FNPRM* identifies four specific factors the Commission intends to consider in determining whether a given band is appropriate for Consumer Signal Booster use. Consideration of each such factor underscores the inadvisability of allowing such use in the WCS band.

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[7] *See, e.g., 2010 WCS Order* ¶ 130 (adopting technical limits that seek to "appropriately balance the interests of both SDARS and WCS licensees").

1. Since the WCS Band Is Still Being Built Out, It Is Not Yet Being Used to Provide Service that Would Benefit from Boosters

The *FNPRM* acknowledges that Consumer Signal Boosters are useful only "if services are being provided and there are consumer or other devices operating [in a band] that require an increased or improved signal . . . ."[8] There is no such demonstrated need for boosters in the WCS band at this time. Commercial use of the WCS band is still developing, and the need for consumer boosters is unproven at this time and is likely to be unnecessary for the foreseeable future. Indeed, construction deadlines for WCS networks have been repeatedly extended; final constructions deadlines for the A and B blocks have been pushed until late 2019, and *interim* performance milestones for the C and D blocks have been extended beyond that date.[9] To the extent service is being provided in the WCS A and B blocks, nothing indicates that an "increased or improved signal" from consumer boosters would facilitate those operations. To the contrary, in crafting technical and service rules for the 2.3 GHz band the Commission made specific judgments about the technical parameters that will facilitate reasonable WCS operations while protecting SDARS service. These judgments should not be upset, particularly in the absence of any compelling need for Consumer Signal Boosters in the 2.3 GHz band.

2. WCS Band Licensees Would Not Consent to Consumer Signal Booster Operations

The *FNPRM* observes that "the consent of wireless provider licensees is a fundamental underpinning of the rules and a necessity for the operation of Consumer Signal Boosters."[10] In doing so, the *FNPRM* cites Sections 301 and 310(d) of the Communications Act, as amended,

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8 *FNPRM* ¶ 20.

9 *See AT&T Mobility Spectrum LLC*, 32 FCC Rcd 708 (2017).

10 *FNPRM* ¶ 21 n.50.

implying that operation of Consumer Signal Boosters absent licensee consent would impermissibly undermine a WCS licensee's control of its licensed spectrum.[11] Almost all active WCS licenses are held by AT&T subsidiaries and, based on Sirius XM's interactions with AT&T on WCS coordination matters, AT&T is highly unlikely to consent to the operation of Consumer Signal Boosters in the WCS band.[12] For this reason alone, the Commission should refuse to extend Consumer Signal Booster use to the WCS band.

Sirius XM also objects to Consumer Signal Booster operations in the WCS band because: (i) Sirius XM is a licensed operator in the SDARS band, and its service could be adversely affected by Consumer Signal Booster operations in the adjacent WCS band (given the increased potential for harmful interference); and (ii) Sirius XM is a party to complex coordination arrangements with AT&T, the effectiveness of which would be adversely impacted by Consumer Signal Booster operations (given their potential impact on SDARS *and* WCS operations).

3. Consumer Signal Booster Use in the WCS Band Would Adversely Affect Other Technologies and Operations in the WCS and Adjacent Bands

The *FNPRM* acknowledges the need to assess whether Consumer Signal Booster operations could affect the operation of devices authorized in spectrum adjacent to the WCS band.[13] As noted above, Sirius XM operates in the SDARS band, which is surrounded on both sides by the WCS band creating a significant risk of interference to satellite radio service.

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11 *Id.* n.51.

12 WCS licensees are likely to be legitimately concerned about the interference Consumer Signal Boosters would create to their own operations. Moreover, Consumer Signal Booster operations would also constrain WCS operations with reference to SDARS; since Section 27.64(d) establishes an overall WCS ground level signal that would constitute harmful interference to SDARS, any Consumer Signal Booster transmissions would reduce the remaining interference "budget" available to licensed WCS operations. *See* 47 C.F.R. § 27.64(d).

13 *FNPRM* ¶ 22.

Adding Consumer Signal Boosters into the mix would exacerbate the situation, making it far more difficult for Sirius XM provide interference-free service to its 33 million subscribers. Among other things, Consumer Signal Booster operations would: (i) increase the potential for harmful interference into the SDARS band; (ii) undermine the ability of WCS licensees to maintain control over WCS operations and ensure compliance with applicable technical limits; and (iii) frustrate the efforts of both WCS and SDARS licensees to identify the specific source(s) of any harmful interference so that it could be mitigated. Consequently, Consumer Signal Boosters would also undermine the carefully constructed technical framework reflected in Part 27 of the Commission's rules, as well as coordination agreements negotiated on an operator-to-operator basis with WCS licensees (including, principally, subsidiaries of AT&T).

4. Existing Technical Rules for Consumer Signal Boosters Would Require Significant Modification

The *FNPRM* acknowledges that existing technical rules for Consumer Signal Boosters may not be appropriate for new service bands.[14] In the case of the WCS band, this is a considerable understatement; given the extraordinarily challenging operating environment in the 2.3 GHz band, allowing Consumer Signal Boosters in the WCS band would require substantial modification of existing rules. The Commission would need to undertake a significant amount of additional technical work to develop these rules to ensure that Consumer Signal Boosters could be used in the WCS band without posing an unacceptable risk of harmful interference to WCS and SDARS networks. The Commission would also need to revisit its existing Part 27 rules to determine whether any changes in those rules would be necessary to accommodate Consumer Signal Boosters in the WCS band and to avoid inconsistencies between the two sets of

[14] *Id.* ¶ 23.

rules. Since it took the Commission over ten years and multiple rulemakings to adopt the current WCS rules—including numerous compromises between WCS and SDARS licensees—revising those rules would be a considerable undertaking.

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For the reasons set forth above, Sirius XM urges the Commission to abandon any further consideration of Consumer Signal Booster use in the WCS band. Given the carefully crafted balance of interests between SDARS and WCS that underlies the current Part 27 technical framework, and the significant risk of harmful interference to SDARS operations, allowing Consumer Signal Boosters in the WCS band would disserve the public interest and undermine efforts by WCS and SDARS licensees to make effective use of their licensed spectrum.

Respectfully submitted,

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