

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

<b>In the Matter of</b>	)	
	)	
<b>Unlicensed Use of the 6 GHz Band</b>	)	<b>ET Docket No. 18-295</b>
	)	
<b>Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz</b>	)	<b>GN Docket No. 17-183</b>
	)	

**REPLY COMMENTS OF MIDCONTINENT COMMUNICATIONS**

Midcontinent Communications (Midco) hereby submits these short Reply Comments in response to some of the initial comments filed in the above-captioned proceedings. As a long-time cable provider and a more recent fixed wireless provider, Midco is uniquely positioned to provide insight into the indoor and outdoor unlicensed abilities of the 6 GHz band to propel innovation, help close the Digital Divide, and boost consumers' ever-increasing broadband connectivity needs. We join the numerous other commentators, from a broad array of different industries,<sup>1</sup> in supporting the continued unlicensed nature of the 6 GHz band.

Midco urges the Commission to reject unsubstantiated complaints from some commentators that incumbents will not be protected with new, unlicensed uses in the 6 GHz band.<sup>2</sup> The Commission has already indicated its "commitment to preserve and protect the

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<sup>1</sup> *Unlicensed Use of the 6 GHz Band; Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, ET Docket No. 18-295 and GN Docket No. 17-183, FCC 18-147, Comments from NCTA, the Wi-Fi Alliance, Public Interest Organizations, GE Healthcare, Boeing, and WISPA.

<sup>2</sup> See, e.g., Association of American Railroads Comments at 1; Globalstar Comments at 1; UTC Comments at 3-5; AT&T Comments at 4; and UWB Alliance Comments at 3-4.

important base of incumbent users in these frequency bands.”<sup>3</sup> Claims of lower-powered indoor devices causing interference to incumbents are not credible, and the Automated Frequency Coordination (AFC) system will help mitigate any concern of harmful interference from outdoor devices.<sup>4</sup> As a rural provider with relatively few incumbent operators in our territory, we are especially concerned with claims that unlicensed uses in the 6 GHz band should be limited even when incumbents are not present.

While Commentators submitted comments for both rural and urban areas, Midco is focused on rural areas. Midco is a rural broadband provider, and our comments are limited to our experiences in rural America. The Commission has already noted that reforms in the 6 GHz band “could promote new technology and services that will advance the Commission’s efforts to make broadband connectivity available to all Americans, *especially those in rural and underserved areas*.”<sup>5</sup> We join the numerous other commentators in stressing that the 6 GHz band could help operators close the Digital Divide: “Authorizing outdoor point-to-point and point-to-multipoint operations in the 6 GHz band is in the public interest because it will support the efficient expansion of broadband services to rural and underserved communities.”<sup>6</sup> Further, the 6 GHz band for point-to-multipoint operations “can serve as the public infrastructure that

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<sup>3</sup> *Unlicensed Use of the 6 GHz Band; Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz*, Notice of Proposed Rulemaking (NPRM), ET Docket No. 18-295 and GN Docket No. 17-183, FCC 18-147, at ¶ 2.

<sup>4</sup> *Id.* at ¶ 20.

<sup>5</sup> *Id.* at ¶ 1 (emphasis added).

<sup>6</sup> Broadcom Comments at 38; and Public Interest Organizations Comments at 22.

enables high-speed broadband in underserved areas at a fraction of the cost of fiber and other wireline technologies.”<sup>7</sup>

The 6 GHz band would significantly propel forward our Midco Edge Out<sup>SM</sup> strategy where we “edge out” high-speed, low latency broadband from our fiber plant using fixed wireless technology. Of the numerous suggestions we made in our initial comments, we want to highlight in these Reply Comments two rules that could help us provide rural broadband: (1) the outdoor access point height for the U-NII-5 and U-NII-7 bands should be increased; and (2) the power limits for at least client devices in the U-NII-5 and U-NII-7 bands should be increased to at least mirror the power limits for access points.

**A. THE RECORD SUPPORTS ALLOWING HIGHER HEIGHTS FOR ACCESS POINTS IN THE U-NII-5 AND U-NII-7 BANDS, AT LEAST IN RURAL AMERICA**

In our initial comments, we explained how the Commission could take a big step in closing the Digital Divide by declining to impose any height restriction on access points in the U-NII-5 and U-NII-7 bands, at least in rural America.<sup>8</sup> We provided propagation maps showing the difference that the proposed 30-meter deployment height versus a minimum 90-meter height would provide in closing the Digital Divide in rural America.<sup>9</sup> The table below summarizes those maps and our previous analysis:

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<sup>7</sup> Public Interest Organizations Comments at 24.

<sup>8</sup> Midco Comments at 1.

<sup>9</sup> *Id.* at 3-5, Figure 1.

	30 Meter	90+ Meters	Percentage Increase in Coverage at 90+ Meters
Overall Area Coverage	31 sq. miles	44 sq. miles	34.7%
100/20 Mbps Coverage	24.8 sq. miles	35.1 sq. miles	34.4%

We also provided path analyses showing that a higher deployment height on access points would allow us to tilt the antennas to better achieve signal levels, provide a clearer line of sight between the access point and client device, and help mitigate any risk of harmful interference.<sup>10</sup> We believe that any concern of a risk of harmful interference can be further minimized with a properly engineered fixed wireless network using AFC-controlled access points.

Other commentators agreed with our proposal, including the two major trade associations representing the wireline and wireless broadband connectivity operators, NCTA and WISPA.

WISPA, for example, explained the practical concerns with limiting deployment heights:

The Commission should not set an absolute maximum height on access points. The typical WISP access point is higher than a typical Wi-Fi access point, as the latter is aimed at users in its immediate environs, while a WISP access point is generally a sector intended to be used by fixed clients up to several miles away and thus needs to be located above nearby obstructions. In wooded areas, a WISP access point generally needs to be above the tree canopy. . . . In sum, artificial restrictions on the maximum height would unnecessarily impair some operations that might be permitted by the AFC based on its ability to determine protection. For example, in a rural area, a WISP may have access to a grain leg 35 meters high. The antenna could not mount below its top because the silos that surround it would block the signal.<sup>11</sup>

NCTA agreed that access point deployment heights should not be limited, at least in rural areas:

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<sup>10</sup> See *id.* at 3-5, Figure 2-3.

<sup>11</sup> WISPA Comments, at 23-24.

The Commission should not adopt a specific height limit for outdoor, standard-power APs. The proposed 30-meter limit may not be adequate for P2P links or P2MP systems . . . the Commission should permit heights of up to 90 meters for standard-power APs in rural areas. This higher limit would enable fixed wireless operators to provide broadband services in a greater number of areas, including rural areas, utilizing directional antennas aimed at client devices. The directionality of the antennas in these types of deployments would minimize the potential for harmful interference.<sup>12</sup>

We urge the Commission to decline to impose any height requirement for U-NII-5 and U-NII-7 access points, at least in rural America. Alternatively, we suggest that the Commission increase the proposed 30-meter maximum deployment height for rural U-NII-5 and U-NII-7 access points to at least 90 meters.

**B. THE RECORD SUPPORTS INCREASED POWER LIMITATIONS IN THE U-NII-5 AND U-NII-7 BANDS, ESPECIALLY FOR OUTDOOR CLIENT DEVICES**

In our initial comments, we provided analysis on why higher power limitations for outdoor client devices under AFC control is necessary. We also supported either increased power limitations for access points in the U-NII-5 and U-NII-7 bands or a procedure for allowance to operate at higher power levels. Other commentators have provided extensive and persuasive arguments and data supporting higher power limitations for outdoor access points.<sup>13</sup>

We want to highlight the need for the power of outdoor client devices in the U-NII-5 and U-NII-7 bands to at least mirror the power of the access points. The Commission's proposed power limitation for client devices is an EIRP of 24 dBm, while the proposed EIRP for U-NII-5 and U-NII-7 access points is 36 dBm. In proposing these rules, the Commission has not

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<sup>12</sup> NCTA Comments at 12-13.

<sup>13</sup> See, e.g., WISPA Comments at 9-15.

distinguished between indoor and outdoor client devices, even though the two devices have different purposes.

An indoor client device will likely be a Wi-Fi router, which usually uses an omnidirectional antenna for indoor networking. The Wi-Fi router talks to devices within the home or business, such as phones, laptops and tablets. The Wi-Fi router signal rarely travels outside of the structure because of the low power and attenuation of the signal by the building.

An outdoor client device in a fixed wireless network, however, has a highly directional antenna and acts in tandem with the outdoor access point to provide broadband connectivity. The outdoor, highly directional antenna of the client device connects or “talks” directly to the outdoor antenna of the base station at the vertical asset site.<sup>14</sup> The client device antenna, however, is smaller than the base station antenna. The result is a base station that can “scream” at the client device, but the client device can only “whisper” back.

If the power limitation for U-NII-5 and U-NII-7 client devices is not increased, the “whisper” will become fainter and will limit the upload capacity of the client device. To offer speeds of 100/20 Mbps at a 24 dBm EIRP, we will need to engineer the network to cover fewer homes than we could at a 36 dBm EIRP. If the Commission allowed a 36 dBm EIRP for outdoor client devices in the U-NII-5 and U-NII-7 bands, we could *serve 1/3 more area* from the vertical asset with high-speed broadband. There can be no doubt, therefore, that “permitting higher-power operations in the U-NII-5 and U-NII-7 bands (under AFC control) provides the opportunity to use spectrum as public infrastructure to provide high-capacity broadband at

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<sup>14</sup> Our comments on the 36 dBm EIRP are informed by our current network where we deploy directional antennas. We are not commenting on the appropriate EIRP for outdoor omnidirectional antennas.

affordable prices to rural, tribal and underserved areas across the country at no cost to the U.S. Treasury.”<sup>15</sup>

An EIRP of at least 36 dBm also allows us to implement current U-NII-3 equipment in the U-NII-5 and U-NII-7 bands. This provides an immediate and tangible benefit to our rural footprint as we can deploy immediately without waiting for further development of technology. These benefits outweigh any claims of harmful interference, especially as the highly directional antennas used in our LTE network will minimize any risk of harmful interference.<sup>16</sup> The Commission could also reduce any risk of harmful interference by requiring client devices with an EIRP above 24 dBm to register in the AFC system and identify their access point.<sup>17</sup>

Instead of needlessly limiting a U-NII-5 or U-NII-7 outdoor client device EIRP to 24 dBm, Midco suggests that the Commission institute at least a 36 dBm EIRP (the EIRP used for U-NII-5 or U-NII-7 access points). We further suggest that the Commission not impose any limitations on power levels for radios, the power spectral density, or the antenna gain, as long as the combination of the radio’s power and the antenna’s gain does not exceed the 36 (or higher) dBm EIRP.

## **CONCLUSION**

By increasing the deployment height for U-NII-5 and U-NII-7 access points to a minimum of 90 meters and increasing the power to a minimum of 36 dBm EIRP for client

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<sup>15</sup> Public Interest Organizations Comments at 24-25.

<sup>16</sup> If the Commission is concerned that increasing the EIRP to at least 36 dBm would pose a risk of harmful interference, the Commission could consider requiring client devices with an EIRP above 24 dBm to register in the AFC system and identify their access point.

<sup>17</sup> See, e.g., NPRM at ¶ 28 (seeking “comment on whether device registration in the AFC database is necessary.”).

devices, the U-NII-5 and U-NII-7 bands can help operators, like Midco, close the Digital Divide in rural America.

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**Respectfully submitted,**

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