

September 26, 2022

**VIA ECFS**

Marlene H. Dortch, Secretary  
Federal Communications Commission  
45 L Street NE  
Washington, DC 20554

**Re: Unlicensed Use of the 6 GHz Band, ET Docket No. 18-295; Expanding Flexible Use in Mid-Band Spectrum Between 3.7 and 24 GHz, GN Docket No. 17-183: Notice of *Ex Parte* Presentation**

Dear Ms. Dortch:

On August 15, 2022, NCTA – The Internet Association submitted an *ex parte* filing noting the University of Michigan’s recent “Wi-Fi Upgrade Project” where the university replaced more than 16,000 wireless access points in over 225 indoor and outdoor locations to deliver Wi-Fi 6E throughout its campus.<sup>1</sup> Of note, the university did issue a correction through the press that noted that this Wi-Fi 6E system does *not* have any outdoor access points and that the Wi-Fi 6E system consists of 15,500 Wi-Fi 6E access points indoors.<sup>2</sup> The undersigned parties urge the Commission to utilize this large state-of-the-art Wi-Fi 6E network to perform real-world measurements of Wi-Fi 6E.

As the Commission knows, licensed incumbents in the 6 GHz band have consistently asked for actual operating data for Wi-Fi 6E.<sup>3</sup> In addition, there are ongoing disputes between unlicensed proponents and licensed incumbents about Wi-Fi 6E operating parameters – disputes that could be remedied by measuring data at this extensive Wi-Fi 6E system.<sup>4</sup> As there is an active proceeding underway in which unlicensed proponents seek

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<sup>1</sup> See Letter from Becky Tangren, Vice President and Associate General Counsel, NCTA, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295 at 2 (filed Aug. 15, 2022).

<sup>2</sup> See C.Hetting, “University of Michigan deploys colossal Wi-Fi 6E campus network,” Wi-Fi NOW, (found at: [University of Michigan deploys colossal Wi-Fi 6E campus network - Wi-Fi NOW Global \(wifinowglobal.com\)](https://www.wifinowglobal.com))(“Correction July 26: Outdoor Wi-Fi 6E operation is as yet not permitted by the FCC. U-M says the network consists of 15,500 Wi-Fi 6E Aps for indoor deployment and approximately 500 Wi-Fi 6 Aps that cover outdoor areas.”).

<sup>3</sup> See *e.g.*, Letter from Coy Trosclair, Director of Telecom Services, Southern Company Services, Inc., to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295 at 2 (filed March 21, 2021).

<sup>4</sup> See *e.g.*, Letter from Larry F. Butts, Manager, Telecom Engineering, Southern Company Services, Inc., to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295 at 3 (filed Aug. 16, 2022) (noting that, among other things, NCTA “[u]tilizes inputs to the CableLabs Monte Carlo simulation that woefully underestimate the bandwidth, transmit powers, and duty cycles for unlicensed operations while simultaneously overestimating building entry losses.”). See *also* Letter from Becky Tangren, Vice President and Associate General Counsel,

increases in Wi-Fi 6E power levels,<sup>5</sup> the Commission has an opportunity and a responsibility to gather measured Wi-Fi 6E data prior to considering any changes to the existing rules. The current unlicensed 6 GHz rules relied almost exclusively upon simulations and data provided by CableLabs<sup>6</sup> – measurements based on devices using the Wi-Fi 5 standard or older standards, as the Wi-Fi 6 standard for high speed and wider bandwidths was not certified until September 2019.<sup>7</sup> Unlicensed proponents' own data demonstrate that since 2018, when those measurements were taken, wireless data rates have increased three-fold and the density of Wi-Fi access points has increased four-fold.<sup>8</sup> This new 15,500 Wi-Fi 6E access point network at the University of Michigan therefore represents a unique opportunity for the Commission and all affected stakeholders to measure actual operating characteristics for Wi-Fi 6E.

The undersigned parties suggest that the Commission, in cooperation with the University of Michigan and along with any interested stakeholders (both unlicensed proponents and licensed incumbents), engage in measurements of the university's Wi-Fi 6E network over a week-long period. The goal of this effort would be to gather data to demonstrate what specific inputs should be modeled in the underlying Monte Carlo simulations relied upon by the Commission and unlicensed proponents. Specifically, sufficient data should be gathered to allow for modeling and analysis based on real-world distributions of building losses, transmit powers, bandwidths, duty cycles, and other key technical characteristics of Wi-Fi 6E.<sup>9</sup> The undersigned parties also reiterate that the Monte Carlo simulation developed by CableLabs should be provided for peer review.

By proceeding in this fashion, the Commission will be able to accurately model the performance of Wi-Fi 6E products based on current operations rather than outdated information from more than four years ago. Supplementing the existing Monte Carlo simulations with real-world data would be the only technically sound approach to analyzing

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NCTA, to Marlene H. Dortch, Secretary, FCC, ET Docket No. 18-295 at 2 (filed July 20, 2022) (suggesting different duty cycles, powers, bandwidths that should be utilized for modeling Wi-Fi 6E).

<sup>5</sup> See *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, GN Docket No. 17-183, Report and Order and Further Notice of Proposed Rulemaking, FCC 20-51 (rel. Apr. 24, 2020).

<sup>6</sup> *Id.* at ¶¶117-118.

<sup>7</sup> See "Wi-Fi Certified 6™ delivers new Wi-Fi® era" (found at: [Wi-Fi CERTIFIED 6™ delivers new Wi-Fi® era | Wi-Fi Alliance](#)).

<sup>8</sup> See Cisco Annual Internet Report (2018-2023) White Paper (found at: <https://www.cisco.com/c/en/us/solutions/collateral/executive-perspectives/annual-internet-report/white-paper-c11-741490.html>) ("Globally, the average Wi-Fi speeds will grow from 30.3 Mbps in 2018 to 92 Mbps by 2023"; "Globally, there will be nearly 628 million Wi-Fi hotspots by 2023, up from 169 million hotspots in 2018.").

<sup>9</sup> These distributions can be distilled into cumulative distribution functions and applied in the Monte Carlo simulations, instead of the 2018 data that has been previously relied upon for analysis of the 6 GHz band.

the interference environment in the 6 GHz band. Moreover, it would resolve ongoing disputes between licensed incumbents and unlicensed proponents about the proper parameters for Wi-Fi 6E to be used for modeling interference. Acting on the basis of outdated information on Wi-Fi operation – when actual measurements could easily be made and provided to the public record – would be inconsistent with sound engineering practices and could be considered by a court to be arbitrary and capricious.

Respectfully submitted,

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