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January 8, 2013

**VIA ELECTRONIC FILING**

Marlene H. Dortch, Secretary  
 Federal Communications Commission  
 The Portals  
 445 12th Street, S.W.  
 Washington, DC 20554

**Re: Ex Parte Comments of Nextivity, Inc. – WT Docket No. 10-4**

Dear Ms. Dortch:

On behalf of Nextivity, Inc. (“Nextivity”), this letter is being filed *ex parte* in the above-referenced docket to supplement Nextivity’s previous submissions in this proceeding, and to bring to the Commission’s attention additional information that is material to the Commission’s decision-making herein. As Nextivity has repeatedly stressed to the Commission,<sup>1</sup> expedited action in this proceeding is critical to allow U.S. residential and enterprise users to reap the significant benefits of advanced signal booster technology as well as to provide the regulatory certainty necessary for the financial markets to continue to invest in wireless access technology innovators, such as Nextivity. On September 14, 2012, Nextivity specifically urged the Commission to give priority to resolving this proceeding because “a prolonged regulatory process and extended regulatory uncertainty has a chilling effect on the availability of financial and other important resources . . . need[ed] to continue pursuing important developments.”<sup>2</sup> Nextivity herein submits that the continuing delay is also jeopardizing the successful use of small cell technology -- an innovative approach to improving network capacity and coverage.

**I. Resolution of The Signal Booster Rules is Important to the Development of Small Cell Technology to Dramatically Improve Wireless Service and Increase Capacity.**

Nextivity continues to engage in research and outreach to other interested parties in this proceeding in furtherance of this goal. As part of its ongoing research and outreach,

<sup>1</sup> See Further Comments of Nextivity, WT Docket No. 10-4 (filed Sept. 14, 2012); Letter to Marlene H. Dortch from Catherine Wang and Jeffrey Strenkowski, Counsel for Nextivity, WT Docket No. 10-4 (filed October 3, 2012).

<sup>2</sup> *Id.* at 5.

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Nextivity has been working with members of the Small Cell Forum<sup>3</sup> to investigate the effect of smart signal boosters on the capacity of “small cells,” to determine whether they form part of a solution that will be unconditionally network safe for licensees’ wireless networks and still provide subscribers with the highest feasible gain levels and maximum coverage improvements. In the course of this effort, Nextivity has determined that further delay in adopting rules in this proceeding jeopardizes the ability of network operators to successfully deploy small cell sites to solve network coverage and capacity issues.

Small cells have become a key part of the network evolution plans of all the major operators across the United States. In recent months, AT&T<sup>4</sup>, Sprint<sup>5</sup> and Verizon<sup>6</sup> all have released press announcements about their intended large scale deployments of small cells to improve network coverage and capacity. At least one industry analyst has predicted that by 2017, more than 3.5 times more small cells will be deployed annually than macro cells.<sup>7</sup>

## **II. Commission Failure to Act Quickly On New Compliance Rules for Signal Boosters Will Impair Operator Deployment of Small Cell Technology**

The most important characteristic of small cells for purposes of this proceeding is their ability to operate with lower transmission power levels to provide local coverage and capacity and to be installed at lower elevations than macro cells -- such as on lampposts rather than towers or roofs. This means that these cells are typically much closer to an

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<sup>3</sup> The Small Cell Forum is the independent industry and operator association that supports the wide-scale adoption of small cell technologies to improve coverage, capacity and services delivered by mobile networks. *See* <http://www.smallcellforum.org/about-us-who-are-we>.

<sup>4</sup> Press Release, “AT&T to Invest \$14 Billion to Significantly Expand Wireless and Wireline Broadband Networks, Support Future IP Data Growth and New Services,” Nov. 7, 2012, <http://www.att.com/gen/press-room?pid=23506&cdvn=news&newsarticleid=35661>

<sup>5</sup> “Sprint has big plans for small cells,” Gigacom, May 9, 2012, <http://gigaom.com/2012/05/09/sprint-has-big-plans-for-small-cells/>

<sup>6</sup> “4G World: Verizon exploring small cells for adding future capacity,” Connected Planet, October 25, 2011, <http://connectedplanetonline.com/3g4g/news/4G-World-Verizon-exploring-small-cells-for-adding-future-capacity-1025/>

<sup>7</sup> “HetNets to drive shipments of 5m small cells by 2017,” FierceWireless, Dec. 3, 2012, <http://www.fiercewireless.com/press-releases/hetnets-drive-shipments-5m-small-cells-2017>

end user and the user's communication equipment. As a result, the path loss between a small cell and an end user can be 30-40 dB less than it is for macro cells.

This reduction in distance and path loss between the small cells and end user equipment, including signal boosters, makes Commission action in this proceeding even more urgent. Broadband signal boosters are already being deployed today that are not in compliance with the proposed rules set forth in the joint proposal<sup>8</sup> filed Nextivity Inc., T-Mobile USA Inc, V-COMM LLC, Verizon Wireless and Wilson Electronics in this proceeding. Even in today's network configurations, these noncompliant signal boosters can cause significant interference problems for network operators.<sup>9</sup> As small cells are deployed in greater numbers, these cells will be closer than macro cells, not only to end users generally, but to signal boosters in particular -- and hence the interference problem caused by these signal boosters will dramatically worsen as small cell deployment increases. For every dB reduction in path loss between the signal booster and the base station, the noise level from the booster measured at the base station will rise by a dB. Thus, to the small cell base station, which has 30-40 dB less path loss than a macro cell, the signal booster signal will be felt as 30-40 dB stronger than at a macro cell base station, increasing by several times the potential for interference.

In short, as small cell deployment proceeds, the danger of interference caused by noncompliant signal boosters will skyrocket unless the Commission acts quickly to regulate their use. This will be especially true for broadband boosters since not all operators will deploy small cells in the same geographic locations. Thus, a narrow-band booster might be far enough away from the base station of the specific carrier that uses the same frequencies to avoid interference, but a broadband booster at the same location will potentially interfere with the base stations of *any* carrier, and so have a higher chance of being dangerously close to a small cell with which it would interfere. The situation is even more dire for mobile boosters: these boosters will by their very nature continually travel past a large number of small cells and cause interference havoc as they go.

Each day that passes enables a greater number of noncompliant boosters to be deployed, creating increasingly significant interference problems as operators move to small cell deployment. These interference issues would be resolved by mandating that all signal boosters comply with the proposed rules in the Joint Proposal.

### **III. Conclusion**

For these and other reasons previously expressed, Nextivity again urges the Commission to take swift action to bring these proceedings to a conclusion. Continued delay

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<sup>8</sup> Letter to Marlene H. Dortch from Michiel Lötter, Nextivity, Inc., et al., WT Docket No. 10-4 (filed June 8, 2012) ("Joint Proposal").

<sup>9</sup> See, e.g., Letter to Marlene H. Dortch from William L. Roughton, Jr., AT&T Corp., WT Docket No. 10-4 (filed Sept. 25, 2012).

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jeopardizes not only the ability of companies like Nextivity to continue to invest in new technologies to solve these issues, but also the operators' ability to employ small cell architecture to increase broadband penetration and make more efficient use of spectrum.

Should any additional information be required with respect to this *ex parte* submission, please do not hesitate to contact the undersigned.

Very truly yours,

*/s/ Catherine Wang*

Catherine Wang  
Patrick J. Whittle

*Counsel for Nextivity, Inc.*