

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

In the Matter of	)	
	)	
WIRELESS STRATEGIES, INC	)	WT Docket No. 07-121
	)	
Request for Declaratory Ruling on	)	
Compliance of Fixed Microwave	)	
Antennas Having Distributed	)	
Radiating Elements	)	

**COMMENTS OF THE  
NATIONAL SPECTRUM MANAGERS ASSOCIATION**

The National Spectrum Managers Association (“NSMA”) hereby respectfully submits its comments on the above-captioned request for declaratory ruling filed by Wireless Strategies, Inc. (“WSI”).<sup>1</sup> NSMA is a voluntary association of individuals involved in the spectrum management profession. NSMA’s goal is to promote rational spectrum policy through consensus views formulated by representatives of diverse segments of the wireless industry.

**I. BACKGROUND**

WSI requests a declaratory ruling confirming that “a Fixed Service licensee is permitted to simultaneously coordinate multiple links whose transmitter elements collectively comply with the Commission’s antenna standards and frequency coordination procedures.”<sup>2</sup> In WSI’s view, such “multiple links” consist of (i) a main

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<sup>1</sup> See Wireless Strategies, Inc, Request for Declaratory Ruling on Compliance of Fixed Microwave Antennas Having Distributed Radiating Elements (Feb. 23, 2007) (“WSI Request” or “Request”).

<sup>2</sup> *Id.* at 1.

point-to-point microwave path identified by the characteristics specified in Section 101.31(d)(2)(ii) of the Commission’s Rules for which prior coordination has been completed; and (ii) additional microwave links, unspecified in number, location and orientation operating within the energy field generated by the transmitter (*i.e.*, the radiating element and antenna) located at each end of the main microwave path.

WSI describes the energy field radiated by the microwave transmitter as the main lobe and side lobes of the transmit antenna. Within the side lobes, WSI states that it is possible to operate the additional microwave links, which presumably would use the same channel-frequency, capacity loading and emission characteristics as prior coordinated for that end of the main microwave path. The additional links would be created by so-called “distributed radiating elements” not co-located with the main antenna.

In support of its proposal, WSI states that the main antenna can be composed of discrete elements each capable of radiating energy and still satisfy FCC Rules. WSI goes on to equip the discrete antenna element, now remote from the main antenna, with a “transceiver” source of radio frequency energy. The additional links operating in the main antenna’s side lobes need not coincide with the azimuthal orientation of the main microwave path nor radiate towards the distant main receiver location.<sup>3</sup> WSI suggests that the additional links may be oriented in any direction so long as the totality of radiating elements together conform to the applicable antenna radiation pattern in Section 101.115(b)(2).

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<sup>3</sup> *Id.*

## II. DISCUSSION

NSMA opposes the grant of the Request filed by WSI. Grant of the WSI Request would:

- Significantly undermine the purpose and effectiveness of the prior coordination process authorized under Section 101.103(d);
- Fail to confirm that distributed antenna radiating elements located remote from the main antenna also conform to Section 101.115(b);
- Deny potentially affected parties access to that information required by Section 101.103(d)(ii) for the distributed radiating elements and associated transceivers, thus eliminating their ability to make an informed decision on the full impact of the proposed operation;
- Deny potentially affected parties the opportunity to respond to the complete proposed system under the bi-lateral process mandated by Section 101.103(d)(2)(i);
- Reduce the accuracy of the point-to-point database information that is used to perform interference analysis, thus reducing spectrum utilization efficiency by failing to allow for the recording and authorization of all points of communication of the proposed radio system;
- Convert the FCC's site-specific radio authorization for point-to-point operation into an amalgam authorization consisting of a point-to-point operation for a main path and a geographic, point-to-multipoint authorization about a point (the main antenna location) with an undefined boundary; and
- Introduce a nonconforming spectrum usage that would impede the relocation of 2.1 GHz band incumbents by AWS licensees, as well as other potential terrestrial fixed service users.

NSMA addresses some of the reasons why the WSI proposal would have such significant adverse effects in the following discussion.

**A. WSI's Assertion that the Side Lobe Radiation From a Licensed Path Prevents Other Paths From Sharing the Same Spectrum is Incorrect**

WSI's statement that "[o]thers attempting to use it [spectrum] would fail in coordination, and if they persisted, would receive or cause interference"<sup>4</sup> is not justified by WSI and not accurate. Contrary to this very assertion, WSI correctly describes the effectiveness of existing coordination procedures on the same page of the Request:

"In practice the proposed station may be compatible with many stations in the coordination area, due to such mitigating factors as terrain, relative orientation of transmit and receive antennas, relative power, antenna size, polarization, and other considerations."<sup>5</sup>

All of these "many stations" are either in the main lobe or side lobe of each other and are successfully sharing spectrum. Much of this spectrum reuse is possible because of readily available antennas that minimize and side lobe radiation and promoted spectral efficiency by meeting, and typically exceeding, the directional antenna standards set forth in Section 101.115 of the Commission's Rules.<sup>6</sup> WSI's proposal "to communicate with locations in the side lobe areas" cannot be justified by the simplistic and unsupported claim that "spectrum is wasted."<sup>7</sup>

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<sup>4</sup> *Id.* at 5.

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

<sup>6</sup> For example, according to the ULS database, there are 29 other licenses within 50 kilometers and co-channel with one of WSI's two frequencies transmitting from their BA Tower (WQHD218) site.

<sup>7</sup> WSI Request at 5.

**B. WSI Provides No Justification That Remote Radiating Elements Are Part of a Main Antenna and Can Be Represented By a Single Radiation Pattern**

WSI describes a “radiating element” as being “physically separate” from the main antenna, connected to a transceiver, and located at the “subscriber end” of a communications link.<sup>8</sup> Although WSI seems to define the main antenna and radiating elements as being part of a “smart antenna” system, beyond saying that the elements operate “under control of the main link transceiver,” no other characteristics typically associated with “smart antennas” are given.<sup>9</sup> However, there is no question that these remote elements are separate radio stations, transmitting and receiving, and carrying traffic between the main site and the subscribers.

WSI states that “the totality of all emissions from multiple elements must lie within the permissible RPE of the main link antenna.”<sup>10</sup> This statement seems to confuse an antenna pattern with a power level that is specified at some unknown location or undefined service area boundary. For the coordination process to be effective, an antenna pattern must accurately represent the characteristics of the antenna installed at a specified location and elevation. WSI has failed to explain how the interference potential of a set of individual stations at remote locations can be reduced to a single equivalent antenna pattern that would protect existing paths, and yet not unnecessarily inhibit the deployment of future point-to-point paths that could otherwise be located within the area of the main link. WSI asserts that the remote radiating elements as a whole meet the

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<sup>8</sup> *Id.* at 9.

<sup>9</sup> *Id.* at 6.

<sup>10</sup> *Id.* at 6.

requirements, while the basis for the prior coordination process currently in place is based on the requirement that each remote radiating element must individually meet the specifications.

**C. WSI’s Explanation of “Concurrent Coordination” Fails To Meet Coordination Requirements**

Frequency coordination is a process in which details of a newly proposed or modified operation must be shared with existing licensees, permittees, applicants and those who have previously proposed paths in the coordination area. As clearly defined in Section 101.103(d), this process is a bi-lateral process in which “notification must include relevant technical details of the proposal.” All items required in the coordination notice (*see* Section 101.103(d)) are critical for others to have the ability to evaluate the interference potential of a proposed system.

Current or future point-to-point paths may be located in the immediate area and bore-sight to a WSI radiating element located at a subscriber site, yet be sufficiently distant and have ample antenna discrimination to coexist with the station using the main antenna. As with any other radiating source, transmissions from the subscriber site have the potential to produce harmful interference and must be evaluated. However, without the information specified in Section 101.103(d) (2) (ii), this evaluation cannot be performed.

WSI defines, without technical justification, the subscriber sites as being “concurrently coordinated” because they are “coordinated simultaneously with, and ancillary, to the main beam.”<sup>11</sup> Presumably, WSI does not intend to share specific site and operational parameters of the subscriber stations with potentially affected users in the

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<sup>11</sup>*Id.* at 7.

prior coordination process. Although convenient for WSI, this approach does not result in the bi-lateral evaluation required in the coordination process.

**D. WSI Is Attempting To Change Site-Specific, Point-to-Point Authority into a Point-to-Multipoint Licensing Scheme Incompatible with Fixed Microwave Links**

Part 101 rules and prior coordination procedures are in place to promote maximum spectral efficiency. The introduction of WSI's proposed point-to-multipoint operation into the high capacity and clearly defined point-to-point bands will result in the loss of spectrum choices required by the nation's businesses, local governments, critical infrastructure, and public safety entities.

The AWS Auction completed in September 2006 raised \$13.7 billion.<sup>12</sup> The basis of this spectrum availability for sale was the relocation of several thousand point-to-point licensed microwave paths into alternative bands.<sup>13</sup> The grant of WSI's Request could have a chilling impact on this relocation. Since the request is not band specific, it has the potential of significantly reducing the available spectrum across the board for the 2.1 GHz incumbents at this most critical time. Creating operational exclusion zones based on an arbitrary and unsupported interpretation of the Commission's Rules has the real potential of introducing delays and disruption in the deployment of AWS systems.

WSI's proposed scheme would encourage applicants to request the maximum available transmit power and use an antenna defined by the minimal antenna pattern

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<sup>12</sup> FCC Public Notice, DA 06-1882 (September 20, 2006).

<sup>13</sup> FCC Ninth Report and Order, 06-45 (April 12, 2006).

standard to achieve the highest available EIRP in the side lobes.<sup>14</sup> This strategy would maximum the point-to-multipoint use to the detriment of other point-to-point users. This results in reduced spectral efficiency -- just the opposite of WSI's claims.

There are unlicensed and licensed bands already allocated for point-to-multipoint service.<sup>15</sup> WSI has not addressed why it cannot use the current allocations and existing rules setup for point-to-multipoint use and avoid adversely impacting point-to-point services.

### **III. CONCLUSION**

The Commission should deny WSI's Request because it is contrary to the intent and purpose of Part 101 Point-to-Point Microwave Service rules. Approval would result in significant negative impact on the existing and future users of the point-to-point microwave bands. For the reasons stated above, public interest will be served by denial of WSI's request.

Respectfully submitted,

**NATIONAL SPECTRUM MANAGERS  
ASSOCIATION**

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<sup>14</sup> See WSI's Authorizations: Call Signs WQGH695, WQGH696, WQGH697, WQHD215, WQHD217 and WQHD218.

<sup>15</sup> BRS, LMDS, Free Space Optics, Part 15 Unlicensed 2.45 GHz ISM, 5.8 GHz UNII are a few examples.