

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

In the Matter of)	
)	
Unlicensed Use of the 6 GHz)	ET Docket No. 18-295

**COMMENTS OF THE CITY OF AUSTIN, TEXAS
ON BEHALF OF THE GREATER AUSTIN-TRAVIS COUNTY REGIONAL
RADIO SYSTEM, TO THE NOTICE OF PROPOSED RULEMAKING**

Introduction Summary

The Greater Austin-Travis County Regional Radio System, or “GATRRS,” operated by the City of Austin and other local government partners, is a sophisticated digital, multi-site 100-channel 700 MHz - 800 MHz P25 compliant trunked radio network, supporting the daily traffic of more than 16,000 active public safety and public service users.

To achieve mission critical reliability especially during disasters when First Responders are needed most, the GATRRS relies heavily upon the 6 GHz microwave connectivity, as do many Public Safety systems throughout the United States. Wireless microwave has proven to be the best and most reliable network connectivity solution for public safety communications because of its reliability, cost effectiveness and it is not as susceptible to outages during disasters as wireline alternatives. This makes the 6 GHz spectrum critically important such that the threat of interference, even if temporary, puts both First Responders and the public at significant risk. *Spectrum sharing simply to accommodate unlicensed consumer devices must not interfere with or reduce the reliability of our 6 GHz microwave links.*

The following pages contain our specific, itemized comments and recommendations.

1. GATRRS radio tower sites are connected to one another, and the system’s controller, by use of 6 GHz microwave radio links. These 6 GHz links are critical and essential to our system design, and currently provide a high degree of security and reliability to our closed-loop public safety and public service agency voice radio network. A number of GATRRS tower sites rely solely on the 6 GHz links, as no fiber or other wireline connectivity is available. The City of Austin is concerned about the possibility of harmful interference to the GATRRS network traffic, endangering the protection of human life and property in a large metropolitan area of central Texas.

2. The City of Austin supports the proposal to protect both current and future licensed microwave links from interference. It is essential there be continued ability for public safety and other licensees in the 6 GHz band to add new links and modify existing links without experiencing interference from unlicensed devices.

3. The City of Austin questions whether allowing a potentially huge number of unlicensed devices can be accomplished without causing harmful interference to licensed systems. However, should the Commission move forward with such spectrum sharing, the City of Austin supports a centralized Automated Frequency Coordination (AFC) spectrum access system with up-to-date information and appropriate algorithms and protocols to define the Part 101 channels on which an access point and its associated client devices must avoid at a given location to prevent interference to licensed 6 GHz operations.

- a. The access point must register its unit ID, position location, and power level with the AFC, which in turn provides the access point the proper channel on which to operate.
- b. To maintain an accurate record of the licensed facilities to be protected, the AFC system database should be updated at least every 24 hours.
- c. Any initial transmission to establish communications prior to receiving channel instructions from the AFC system should be conducted on unlicensed frequencies outside the 6 GHz band, e.g. on 5 GHz unlicensed frequencies.
- d. If/when the access point changes location, and/or power level, the AFC needs to recalculate the Part 101 channels on which the access point may not operate.
- e. By default, an unlicensed 6 GHz access point should be turned off unless it has a viable connection to the AFC that can provide instructions on the appropriate channels in a given area to avoid interference to authorized licensed 6 GHz systems. Once connected and operating, transmissions between an access point and associated client devices also should be suspended if/when connection to the AFC is lost.
- f. The control link between the AFC system and the unlicensed access point should be secure and encrypted. The AFC provider(s) should be required to use the best industry security measures and should be audited periodically for security practices.
- g. The AFC should maintain a list of registered access points, accessible by unit ID and location, which can be accessed in the event an interference

problem arises. Also, if an interference problem arises that creates a potential danger to public safety that must be expeditiously resolved, the AFC should incorporate the capability to instruct an access point to shut down.

- h. If the AFC is centralized as the City of Austin recommends, the algorithms and protocols can be updated as needed rather easily, as compared to updating every deployed access point and associated client device.

4. The City of Austin recommends that both outdoor and indoor access points be required to connect to the AFC. Indoor access points could interfere with licensed 6 GHz facilities, especially if the access point/client devices are on the high floor of a multi-story building. Given the recent work to advance vertical (Z axis) location technologies for wireless 911 devices, it may also be possible to incorporate a cost effective vertical location solution into 6 GHz unlicensed devices. Registration of an access point's vertical location as well as horizontal location could lead to more accurate interference prediction determinations.

5. Resulting from the criticality of licensed fixed links in the 6 GHz band, public safety agencies implementing such links specify at least a "five-9's" level of reliability. Accordingly, link design practices incorporate sufficient margin to maintain that level of reliability, taking into account multi-path fading, the vagaries of RF propagation, weather and other factors. The implementation of spectrum sharing to accommodate unlicensed devices must not erode these fade margins, as doing so would reduce the level of reliability needed for critical fixed links.

6. The City of Austin understands the Fixed Wireless Communications Coalition (FWCC) has been deliberating on the appropriate propagation models and protection criteria to minimize interference to critical fixed links. The City of Austin looks forward to reviewing FWCC's comments and recommendations on these points.

7. The Commission should implement trial testing requirements to demonstrate that the AFC, and representative sample access points and client devices, operate correctly according to the protocols and algorithms adopted. Such testing should include trial operations in a variety of environments, including urban, suburban and rural. Regular deployment of 6 GHz access points and client devices should await affirmative results of such testing.

8. Finally, once the AFC operation is confirmed with sample trial devices, the Commission should have an ongoing equipment certification program to approve unlicensed access points and client devices prior to their deployment.

In summary, given the criticality of 6 GHz microwave links as an essential part of its public safety communications system, the City of Austin seriously questions the viability of the proposed spectrum sharing. Should the Commission decide to implement such spectrum sharing, both existing and future public safety 6 GHz band microwave links

must be protected from interference so that the current level of reliability is not reduced. In addition, rules must be put into place that provide a mechanism to identify and shut down any interfering unlicensed devices immediately.

Respectfully submitted,

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