

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

In the Matter of)	
)	
The Federal Communications Commission and)	ET Docket No. 14-99
the National Telecommunications and)	
Information Administration: Model City for)	
Demonstrating and Evaluating Advanced)	
Sharing Technologies)	

COMMENTS OF CTIA – THE WIRELESS ASSOCIATION®

CTIA – The Wireless Association® (“CTIA”) respectfully submits these comments in response to the Joint Public Notice¹ issued by the National Telecommunications and Information Administration (“NTIA”) and the Federal Communications Commission’s Office of Engineering and Technology (“OET”), which seeks comment on a public-private partnership to enable the creation of an urban test city (“Model City”) for spectrum sharing.

CTIA supports efforts to make additional bands accessible for commercial wireless uses and believes that the Model City program holds great promise as a test bed for innovative spectrum sharing technologies. CTIA submits that if the Model City is guided by certain key principles, the project has the potential to be highly successful and enable much-needed spectrum access. CTIA also notes that there are many unanswered questions that will influence the Model City process and encourages the FCC and NTIA to work through a multi-stakeholder group to resolve those issues. In particular, CTIA is concerned that the Commission’s experimental licensing rules, which NTIA and OET propose to extend to the Model City, are insufficient to facilitate the true “sharing” environment that the Model City hopes to achieve.

¹ *The Federal Communications Commission and the National Telecommunications and Information Administration: Model City for Demonstrating and Evaluating Advanced Sharing Technologies*, Public Notice, DA 14-981 (July 11, 2014) (“Public Notice”).

I. THE MODEL CITY HOLDS PROMISE AS A TEST BED FOR INNOVATIVE WIRELESS SERVICES.

The Commission and NTIA envision the Model City as a venue “for demonstrating and evaluating advanced spectrum sharing technologies” that will allow for “systems-level testing in real-world environments across multiple frequency bands, including public safety and selected federal bands.”² The wireless industry is very interested in the Model City, and believes that this process has the potential to provide useful data regarding numerous spectrum bands and sharing arrangements. CTIA agrees with the Commission that the Model City is best promoted “through independent public-private partnerships among federal and local government stakeholders and commercial interests.”³ This may require initiatives to facilitate federal agency participation in the program.⁴ CTIA supports a flexible approach to the Model City guided by a series of key principles that will promote a productive sharing environment.

The wireless industry is interested in the Model City as a framework for several types of testing. The Model City should be used to test long term spectrum sharing, such as that envisioned by the Commission in its 3.5 GHz proceeding.⁵ The Model City process also can be used to evaluate more temporary shared access to spectrum. For example, the AWS-3 spectrum is currently home to Federal incumbents, but will eventually be transitioned to commercial use. The Model City could be used to determine whether shared access to those bands during a

² *Id.* at 1.

³ *Id.* at 3.

⁴ *Id.* at 4.

⁵ *Amendment of the Commission’s Rules with Regard to Commercial Operations in the 3550-3650 MHz Band*, Further Notice of Proposed Rulemaking, GN Docket No. 12-354 (Apr. 23, 2014).

transition period is feasible. Finally, the Model City framework holds promise for exploring sharing environments for potential new candidate spectrum bands for future consideration.

CTIA believes that to be successful, the Model City program should be guided by a series of key principles. For example,

- (1) the Model City should endeavor to test a variety of use cases and spectrum bands, as this will produce the most useful results.
- (2) The testing process should be open and transparent, as should the reporting of findings – this will ensure confidence in the results.
- (3) Any testing process should include procedures for expeditious resolution of interference complaints.
- (4) Prior to testing, a multi-stakeholder group should be charged with establishing governing technical issues related to the Model City.
- (5) Finally, at no time should the Model City testing process result in disruption to wireless consumers or other end users.

By following these principles, and others to be determined by key stakeholders, the Model City experiment will be comprehensive, productive, and of great utility to numerous classes of spectrum users.

II. THE MODEL CITY CONCEPT RAISES NUMEROUS QUESTIONS

As indicated above, access to spectrum is a top priority for CTIA’s wireless industry members, and the Model City has the potential to benefit all stakeholders by enabling spectrum sharing. CTIA notes, however, that there are many unanswered questions that will influence the Model City process. At this stage, flexibility regarding the particulars of the Model City is appropriate. In these comments, CTIA provides some suggestions for shaping the process, and takes the opportunity to highlight certain key issues that OET and NTIA should address.

The Public Notice does not identify the spectrum bands or the particular technologies that would be tested by the Model City. However, it requests comment on “the types of spectrum

sharing innovations and supported applications that would be good initial candidates for such evaluations, including their potential benefits, recommended spectrum bands for sharing, and appropriate operational requirements.”⁶ The Model City should test a wide variety of spectrum bands, and even as testing progresses additional candidate bands may be identified. CTIA does note that the spectrum band selected will dictate the interference environment, which in turn will determine testing parameters and may require the adoption of specific procedures. As the Public Notice observed, stakeholders will need flexibility to “make adjustments as needed when developing sharing protocols under real-world scenarios.”⁷ With respect to commercial uses, the FCC and NTIA must be mindful that commercial providers in particular actively and intensively utilize every megahertz of spectrum available to them, and any sharing approach must account for this intensive use.

Similarly, the Public Notice does not propose a specific city. Given that some bands may have different levels of utilization in different geographic locations, it is possible that multiple cities will need to be used to capture all of the services and morphologies that need to be tested. There is also a variation in interference potentialities and characteristics from city to city. Further, a single city may not possess the testing environment necessary to achieve the goals of a sharing study. For this reason, it may be preferable to conduct testing in multiple cities that, taken together, create a composite “virtual city” that reflects a broad range of sharing permutations that may be experienced nationwide.

⁶ Public Notice at 3.

⁷ *Id.* at 4.

The Public Notice also asks how the Model City can take advantage of the Commission’s recently-updated experimental licensing rules.⁸ As the Public Notice notes, it recently adopted “a more flexible framework to keep pace with the speed of modern technological change, including advanced spectrum sharing concepts.”⁹ The Commission hopes to have the Model City “take advantage of these rule changes without having to establish or fund a new federal program.”¹⁰ CTIA cautions OET and NTIA that the Model City spectrum sharing framework will require a level of coordination above and beyond that required by the experimental licensing rules, and thus the Model City process will not truly be effective if the experimental licensing rules are applied without modification.

When the Commission adopted its revised rules, it declined to implement a rule requiring a CMRS licensee’s consent before an experimental authorization is granted for testing in the CMRS licensee’s spectrum.¹¹ The Commission also declined to adopt a formal pre-filing coordination requirement. As CTIA explained in that proceeding,¹² CMRS systems are very sensitive to external interference, and the coordination and notification requirements suggested by CTIA can play a key role in ensuring that experimental licensees do not interfere with

⁸ *Id.* at 3-4.

⁹ Public Notice at 3.

¹⁰ *Id.* at 4.

¹¹ *Promoting Expanded Opportunities for Radio Experimentation and Market Trials Under Part 5 of the Commission’s Rules*, Report and Order, 28 FCC Rcd 00758, ¶¶ 80-82 (2013).

¹² Comments of CTIA – The Wireless Association®, ET Docket No. 10-236, at 5 (March 10, 2011).

commercial wireless systems.¹³ The lack of robust interference protection for commercial licensees would undermine their ability to efficiently use their spectrum.

Because the Model City process will require a concurrence above and beyond that needed for experimental licensing, the Commission should consider adapting its experimental licensing rules for this program. Specifically, the Commission should consider how it can adapt its experimental licensing framework to meet the needs of a true “sharing” environment, which is what the Model City hopes to achieve. CTIA welcomes the opportunity to participate in such a process, and to continue to provide input on other aspects of the Model City.

¹³ *Id.* In the Experimental Licensing proceeding, CTIA highlighted the need for specific plans to avoid interference prior to the commencement of tests or experiments including, at a minimum:

- A detailed description of the proposed testing and potential contributions to the advancement of spectrum use and wireless technologies;
- A description of the radio equipment that would be used;
- A description of the testing location for all equipment;
- Technical data for the testing (*e.g.*, power levels, frequencies, emissions information);
- The testing duration, along with a demonstration of need sufficient to justify the requested duration;
- A demonstration that the proposed testing will not interfere with CMRS operations, along with an explanation of all steps taken to avoid such interference; and
- Contact information for a stop-buzzer individual who can address interference concerns and cease all testing transmissions immediately if interference occurs.

III. CONCLUSION

CTIA commends the Commission and NTIA for implementing new methods for increasing access to spectrum. While there remain several issues to be resolved, CTIA believes that with an emphasis on flexibility, variety, and protection of existing uses, the Model City will provide a wealth of information on potential future spectrum sharing technologies.

Respectfully submitted,

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