Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Methods for Verifying Compliance With E911 Accuracy Standards	)	ET Docket No. 99-300
	)	

To: Chief, Office of Engineering and Technology

COMMENTS OF AIRTOUCH COMMUNICATIONS, INC.

AirTouch Communications, Inc. ("AirTouch") hereby files comments in response to the Office of Engineering and Technology ("OET") and Wireless Telecommunications Bureau ("Bureau") Public Notice requesting technical information on measuring the accuracy of Enhanced 911 ("E-911") systems for locating wireless callers.[1] As discussed herein, industry is in the process of developing testing protocols to determine the accuracy and reliability of E911 Phase II ALI solutions. These protocols will address the issues raised in the Public Notice, and extensive Commission involvement is unnecessary and unwise. While the Commission can provide important and useful guidance, it should not unilaterally establish mandatory testing requirements. This proceeding cannot legally provide the basis for imposition of such mandatory requirements.

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[1] *See* Public Notice, *Information Sought on Methods for Verifying Compliance with E911 Accuracy Standards*, ET Docket No. 99-300, DA 99-2130 (rel. October 8, 1999) ("Public Notice").

I. THE OET/BUREAU ROLE IN THIS AREA MUST BE LIMITED

Consistent with the Commission's approach towards E-911 technical standards, which relies primarily on industry-based standards bodies work and testing, the rules do not impose detailed E-911 Phase II location testing requirements on manufacturers and/or carriers. The OET/Bureau guidelines should reflect this approach as well.

AirTouch supports Commission *guidance* in the development of industry testing procedures. At the outset, however, AirTouch urges the Commission to confirm that any guidelines it establishes are just that. This is *not* a rulemaking proceeding, and mandatory testing protocols would be inappropriate in any event. The Commission is not in a position to provide specific uniform guidance in this area, based on technology differences and the current state of product development. Further, any mandate that individual carriers demonstrate proof of performance with respect to particular systems would depart significantly from the Commission's prior approach to E911 issues. Such an approach would also be contrary to the Commission's approach toward RF emissions standards and qualifications testing.

In the *Third Report and Order* in the Commission's E-911 proceeding, the Commission appropriately noted that to date it has "declined to adopt specific methods for measuring compliance with the E-911 rules, relying instead upon the parties to resolve technical issues in good faith."[2] The Commission has generally "determine[d] what capabilities must be

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[2] *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Third Report and Order*, CC Docket No. 94-102, FCC 99-245, ¶ 83 (rel. October 6, 1999) ("*Third Report and Order*").

achieved, rather than attempt[ed] to promulgate extensive technical standards."[3] Further, the Commission has noted that carriers and manufacturers have already "responded by working collaboratively to resolve a number of technical issues associated with Phase II E911."[4] However, despite these references to the promulgation of guidelines, the Public Notice suggests establishment of more mandatory requirements for carrier testing.[5] Again, this proceeding cannot be used to substantively change existing requirements in this area, and any OET/Bureau guidelines should confirm this essential fact.

II. INDUSTRY-BASED TESTING PROTOCOLS, WITH LIMITED OET/BUREAU GUIDANCE, WILL ENSURE COMPLIANT PHASE II EQUIPMENT IS DEPLOYED

In "expeditiously develop[ing] and publish[ing] methods that may be used for verifying compliance with our rules governing Phase II," OET and the Bureau were directed by the Commission to "take into account the practical and technical realities." In the Public Notice, OET and the Bureau request "technical information . . . to develop guidelines for test procedures for verifying compliance with E911 accuracy standards."[6]

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[3] *Revision of the Commission's Rules To Ensure Compatibility with Enhanced 911 Emergency Calling Systems, Report and Order and Further Notice of Proposed Rulemaking*, 11 FCC Rcd. 18676, 18712-18713 (1996).

[4] *Third Report and Order* ¶ 85.

[5] For example, the Public Notice asks "[w]hat measurement precision should be required . . . ;" it also asks whether there should be a "maximum time to obtain a location fix?" Public Notice at 2.

[6] Public Notice at 1.

While not entirely clear, it appears from the Public Notice that the Bureau potentially envisions that individual *carriers* conduct elaborate ALI Phase II testing *after* deployment.[7] To start, such an approach is inconsistent with the Commission's admonition that testing methods account for "practical realities." Such an approach is unrealistic and unworkable and would impose costs and delays on Phase II deployment. Indeed, industry-based testing procedures, which address issues raised in the Public Notice, are already under development, and technology-specific compliance testing can be fairly accomplished without mandatory Commission-imposed testing requirements. There is no basis for imposing expansive post-production testing procedures on individual carriers.

Carriers need assurances *at the time of purchase* that ALI equipment and software is Phase II compliant. Carriers will work with manufacturers to test and verify ALI equipment as a matter of course. This testing process provides the proper forum (and timeframe) for ALI technology qualifications testing. Carriers will also undertake more particular testing as part of the product acceptance/verification process -- as is currently done with equipment for RF emissions and other purposes. Thus, post-production acceptance testing should be used to confirm/verify the compliance of equipment which has already been produced in accordance with industry standards.

AirTouch agrees that some standard methodologies are required, and that industry-based protocols should consider OET/Bureau guidelines developed herein. By

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[7] For example, the Public Notice asks "How many measurements must be made *within a carrier's service area* to ensure statistical confidence," and whether "a test procedure [should] include the entire advertised coverage area *of a wireless service provider*." Public Notice at 2 (emphasis added).

providing general guidance on certain issues, the Commission *can* meaningfully contribute to carriers' compliance efforts. It is impractical and improper, however, for the Commission to set forth mandatory testing protocols or to require every individual cellular and broadband PCS carrier in every market to conduct field testing to the broad extent envisioned in the Public Notice.

Again, industry will continue to test ALI solutions and develop appropriate testing and verification protocols. In this regard, for example, the industry-based CDMA Development Group ("CDG"), which includes carriers and manufacturers, has developed a Phase II testing protocol.[8] This protocol addresses many of the "major issues" listed in the Public Notice and sets forth valuable information on possible ALI testing parameters. While modifications will be required to use this test plan for determining compliance with the Commission's rules, it confirms that meaningful industry efforts are ongoing, and that the FCC need not become overly involved in this process.

In addition, AirTouch submits that the Commission's Part 2 RF emissions rules provide useful precedent for appropriate and limited Commission action here.[9] A similar

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[8] CDG Text Plan Document for Location Determination Technologies Evaluation (Rev. 0.6), Lucent Technologies, 1999 ("CDG Protocol").

[9] Section 2.1091(c) of the rules provides:

> Applications for equipment authorization of mobile and unlicensed transmitting devices subject to routine environmental evaluation must contain a statement confirming compliance with the limits specified in paragraph (d) of this section as part of their application. Technical information showing the basis for this statement must be submitted to the Commission upon request.

(continued...)

industry-based certification process, whereby a manufacturer certifies that the Phase II solution it implements has been tested and found compliant with the Commission requirements, should suffice for compliance purposes. AirTouch envisions that this process would work and would fit well with existing carrier practices.

More particularly, precedent supports adoption of a limited technology-specific qualifications standard developed by industry, against which equipment can be tested for qualification purposes. This will include field testing, aimed at "exercising" equipment under real conditions, based on appropriate industry-developed testing protocols, such as the CDG Stage 3 Inter-Operability Test Document (after appropriate revision has been made). In this regard, the Commission has previously embraced multiple industry- and standards body-based product evaluation regimes for compliance purposes.[10] Similarly, multiple evaluation regimes will likely develop here, to reflect the different technologies (*e.g.* CDMA, TDMA, GSM) which will be utilized for Phase II solutions.

III. ANY OET/BUREAU GUIDELINES SHOULD PROVIDE LIMITED CLARIFYING INFORMATION

Finally, in the *Third Report and Order*, the Commission cited as examples of "practical and technical" realities the fact that "in some instances, calls cannot be completed and ALI cannot be provided" and it acknowledged that "the methodology may need to give

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[9] (...continued)
47 C.F.R. § 2.1091(c).

[10] *Guidelines for Evaluating the Environmental Effects of Radiofrequency Radiation, Report and Order*, 11 FCC Rcd 15123, ¶ 70 (1996).

appropriate weight to the variety of conditions and locations in which wireless equipment is used."[11] AirTouch agrees that these are important considerations and that the FCC can assist all affected parties -- and the public -- by setting forth some basic clarifying guidelines. Again, however, the Commission's role in this arena should be limited.

With this caveat in mind, AirTouch provides some brief comments on the particular testing issues raised in the Public Notice.

- At the outset, testing protocols must reflect different Phase II technologies and air interface standards.

Statistical Considerations

- A rigidly defined statistical model is not appropriate. Any model and parameter values that can be associated with it will vary depending on location.

- No special considerations are necessary for outliers; that is "no fix" call attempts will be a percentage of all calls (*i.e.* "all calls" = "calls with fixes" + "calls without fixes").

Choice of Measurement Locations

- Measurements should count only where a call can be completed and maintained.

- Test locations should be representative of the environments to be encountered and should be classified according to Radio Propagation Morphology, including dense urban areas, urban areas, suburban areas and rural areas.

- Test results from each test location should be weighted according to where E-911 calls are made.

- Multiple "samples" should be taken at each test location. Typically, a number of samples will be needed to assure statistical validity.

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[11] *Third Report and Order* ¶ 85.

- Test locations should be chosen to exercise the limitations of the location technology under consideration.

Measurement Techniques

- A reasonable time to obtain a fix is appropriate and should reflect the amount of time a PSAP has prior to dispatching services. This will allow the benefits of averaging, or other processing of multiple fixes to be taken into account.

- Use of predictive models should be considered if they can be demonstrated to have the necessary accuracy.

CONCLUSION

AirTouch recommends that any OET/Bureau guidelines released regarding Phase II compliance matters reflect the foregoing.

Respectfully submitted,

AIRTOUCH COMMUNICATIONS, INC.

By: Pamela J. Riley

Pamela J. Riley
David A. Gross
Michael Scullin
1818 N Street, NW
Suite 800
Washington, DC 20036
(202) 293-3800

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