



Federal Communications Commission  
Washington, D.C. 20554

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## **SMALL ENTITY COMPLIANCE GUIDE**

### **Wireless E911 Location Accuracy Requirements**

**FCC No. 19-124**

**PS Docket No. 07-114**

**Released November 25, 2019**

**This Guide is prepared in accordance with the requirements of Section 212 of the Small Business Regulatory Enforcement Fairness Act of 1996. It is intended to help small entities—small businesses, small organizations (non-profits), and small governmental jurisdictions—comply with the revised rules adopted in the above-referenced Federal Communications Commission (FCC or Commission) rulemaking dockets. This Guide is not intended to replace or supersede these rules, but to facilitate compliance with the rules. Although we have attempted to cover all parts of the rules that might be especially important to small entities, the coverage may not be exhaustive. This Guide cannot anticipate all situations in which the rules apply. Furthermore, the Commission retains the discretion to adopt case-by-case approaches, where appropriate, that may differ from this Guide. Any decision regarding a particular small entity will be based on the statute and any relevant rules.**

**In any civil or administrative action against a small entity for a violation of rules, the content of the Small Entity Compliance Guide may be considered as evidence of the reasonableness or appropriateness of proposed fines, penalties or damages. Interested parties are free to file comments regarding this Guide and the appropriateness of its application to a particular situation. The FCC will then consider whether the recommendations or interpretations in the Guide are appropriate in that situation. The FCC may decide to revise this Guide without public notice to reflect changes in the FCC's approach to implementing a rule, or it may clarify or update the text of the Guide. Direct your comments and recommendations, or calls for further assistance, to the FCC's Consumer Center:**

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## I. OBJECTIVES OF THE PROCEEDING

The *Fifth Report and Order* advances the Commission’s goal of ensuring “that all Americans using mobile phones – whether they are calling from urban or rural areas, from indoors or outdoors – have technology that is functionally capable of providing accurate location information so that they receive the support they need in times of an emergency.”<sup>1</sup> In the *Fifth Report and Order*, the Commission adopted a metric to more precisely identify the location of a 911 wireless caller located in a multi-story building. The Commission amended its rules to require the provisioning of vertical location (z-axis) information that would help enable first responders to identify the caller’s floor level within 3 meters for most wireless calls to 911 from multi-story buildings, which represents a critical element to achieving the Commission’s indoor location accuracy objectives. Consistent with the regulatory framework established in the last major revision of the Commission’s wireless location accuracy rules in 2015, and the information developed in the associated docket, PS Docket 07-114, the *Fifth Report and Order* adopted a z-axis location accuracy metric of 3 meters above or below a handset for 80 percent of wireless Enhanced 911 (E911) indoor calls from z-axis capable devices as demonstrated in the test bed used to develop and test proposed z-axis accuracy metrics.

## II. COMPLIANCE REQUIREMENTS

### 911 Service Requirements

#### A. *Vertical Location (47 CFR § 9.10(i)(2)(ii)(C) and (D))*

Section 9.10(i)(2)(ii)(C) and (D) of the rules require Commercial Mobile Radio Service (CMRS) providers to deploy either dispatchable location, or z-axis technology in certain geographic areas under a phased, multi-year timeline.<sup>2</sup>

##### 1. *Z-axis Metric*

- The *Fifth Report and Order*, requires CMRS providers that deploy z-axis technology to comply with the following z-axis accuracy metric:
  - Within 3 meters above or below (plus or minus 3 meters) the handset for 80% of wireless E911 calls made from the z-axis capable device. CMRS providers must deliver z-axis information in Height Above Ellipsoid. Where available to the CMRS provider, floor level information must be provided in addition to z-axis location information.<sup>3</sup>
- Consistent with the timeframes previously established in this proceeding, non-nationwide CMRS providers have an extended compliance timeframe.

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<sup>1</sup> *Wireless E911 Location Accuracy Requirements*, Third Further Notice of Proposed Rulemaking, 29 FCC Rcd 2374, 2377, para. 6 (2014).

<sup>2</sup> 47 CFR § 9.10(i)(2)(ii)(C) (By April 3, 2021: In each of the top 25 cellular market areas (CMAs), nationwide CMRS providers shall deploy either dispatchable location, or z-axis technology in compliance with the following z-axis accuracy metric: Within 3 meters above or below (plus or minus 3 meters) the handset for 80% of wireless E911 calls made from the z-axis capable device.”); 47 CFR § 9.10(i)(2)(ii)(D) (“By April 3, 2023: In each of the top 50 CMAs, nationwide CMRS providers shall deploy either dispatchable location, or z-axis technology in compliance with the following z-axis accuracy metric: Within 3 meters above or below (plus or minus 3 meters) the handset for 80% of wireless E911 calls made from the z-axis capable device.”).

<sup>3</sup> 47 CFR § 9.10(i)(2)(ii)(C) and (D).

- Non-nationwide CMRS providers shall provide vertical location information with wireless 911 calls under the following timeframes pursuant to Section 9.10(i)(2)(ii)(E):<sup>4</sup>
  - **April 3, 2022:** non-nationwide CMRS providers that serve any of the top 25 cellular market areas (CMAs) must deploy either (1) dispatchable location, or (2) z-axis technology in compliance with the z-axis accuracy metric. Where available to the CMRS provider, floor level information must be provided in addition to z-axis location information.
  - **April 3, 2024:** non-nationwide CMRS providers that serve any of the top 50 CMAs must deploy either (1) dispatchable location or (2) such z-axis technology in compliance with the z-axis accuracy metric. Where available to the CMRS provider, floor level information must be provided in addition to z-axis location information.

2. *Compliance Certification and Live Call Data Reporting Requirements.* The *Fifth Report and Order* amended Section 9.10(i)(2)(ii)(C) and (D) to extend to the vertical location accuracy requirements the (1) compliance certification and (2) live call data reporting requirements of existing Sections 9.10(i)(2)(iii) and 9.10(i)(3), respectively.<sup>5</sup>

- *Compliance Certification Requirements*

- Within 60 days after the vertical location accuracy benchmark dates specified above, non-nationwide CMRS providers must certify “that they are in compliance with the location accuracy requirements applicable to them as of that date.”<sup>6</sup>
  - CMRS providers shall be presumed to be in compliance “by certifying that they have complied with the test bed and live call data provisions” in the rules.<sup>7</sup>
  - All CMRS providers “must certify that the indoor location technology (or technologies) used in their networks are deployed consistently with the manner in which they have been tested in the test bed.”<sup>8</sup>

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<sup>4</sup> 47 CFR § 9.10(i)(2)(ii)(E) (“Non-nationwide CMRS providers that serve any of the top 25 or 50 CMAs will have an additional year to meet each of the benchmarks in paragraphs (i)(2)(ii)(C) and (D) of this section.”).

<sup>5</sup> 47 CFR § 9.10(i)(2)(ii)(C) and (D) (“CMRS providers that deploy z-axis technology must also comply with the compliance certification and call data reporting requirements of paragraphs (i)(2)(iii) and (i)(3) of this section.”). *See also* 47 CFR §§ 9.10(i)(2)(iii) and (i)(3).

<sup>6</sup> 47 CFR § 9.10(i)(2)(iii).

<sup>7</sup> 47 CFR § 9.10(i)(2)(iii).

<sup>8</sup> 47 CFR § 9.10(i)(2)(iii)(A) (“All CMRS providers must certify that the indoor location technology (or technologies) used in their networks are deployed consistently with the manner in which they have been tested in the test bed. A CMRS provider must update certification whenever it introduces a new technology into its network or otherwise modifies its network, such that previous performance in the test bed would no longer be consistent with the technology’s modified deployment.”).

- CMRS providers that file quarterly reports of live call data in one or more of the six Test Cities “must certify that their deployment of location technologies throughout their coverage area is consistent with their deployment of the same technologies in the areas that are used for live call data reporting.”<sup>9</sup>
- Non-nationwide CMRS providers that do not provide service or report quarterly live call data in any of the six Test Cities must also certify that they have verified based on their own live 911 call data that they are in compliance with the applicable accuracy requirements.<sup>10</sup>
- Consistent with the timeframes previously established in this proceeding, non-nationwide CMRS providers shall certify compliance with the vertical location accuracy requirements under the following timeframes pursuant to Section 9.10(i)(2)(iii):
  - **June 2, 2022:** non-nationwide CMRS providers must certify compliance with the applicable vertical location accuracy benchmark.
  - **June 2, 2024:** non-nationwide CMRS providers must certify compliance with the applicable vertical location accuracy benchmark.
- *Collection and reporting of aggregate live 911 call location data.*
  - Live call data reporting under Section 9.10(i)(3), of the rules require that all CMRS providers, including non-nationwide providers, providing service in any of the Test Cities or portions thereof must collect and report aggregate data on the location technologies used for live 911 calls in those areas.<sup>11</sup> CMRS providers must collect and retain for two years 911 call tracking data for all wireless 911 calls placed on their networks.<sup>12</sup>
  - All CMRS providers, including non-nationwide providers must record information on all live 911 calls, including, but not limited to, the positioning source method used to provide a location fix associated with the call, and record the confidence and uncertainty data that they provide.<sup>13</sup>

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<sup>9</sup> 47 CFR § 9.10(i)(2)(iii)(B) (“CMRS providers that provide quarterly reports of live call data in one or more of the six test cities specified in paragraph (i)(1)(vi) of this section must certify that their deployment of location technologies throughout their coverage area is consistent with their deployment of the same technologies in the areas that are used for live call data reporting.”).

<sup>10</sup> 47 CFR § 9.10(i)(2)(iii)(C) (“Non-nationwide CMRS providers that do not provide service or report quarterly live call data in any of the six test cities specified in paragraph (i)(1)(vi) of this section must certify that they have verified based on their own live call data that they are in compliance with the requirements of paragraphs (i)(2)(i)(B) and (i)(2)(ii) of this section.”).

<sup>11</sup> 47 CFR § 9.10(i)(3)(ii).

<sup>12</sup> 47 CFR § 9.10(i)(3)(iii) (“CMRS providers shall retain testing and live call data gathered pursuant to this section for a period of 2 years.”).

<sup>13</sup> CMRS providers shall (1) identify and collect information regarding the location technology or technologies used for each 911 call in the reporting area during the calling period (*see* 47 CFR § 9.10(i)(3)(ii)(A)); (2) report Test City

- Non-nationwide CMRS providers that operate in a single Test City need only report live 911 call data from that city or portion thereof that they cover. Non-nationwide CMRS providers that operate in more than one Test City must report live 911 call data only in half of the regions (as selected by the provider). All non-nationwide CMRS providers must report their Test City live call data every 6 months.<sup>14</sup>
- Non-nationwide CMRS providers that do not provide coverage in any of the Test Cities can satisfy the requirement of paragraph (i)(3)(ii) by collecting and reporting data based on the largest county within its footprint. In addition, where a non-nationwide CMRS provider serves more than one of the ATIS ESIF morphologies, it must include a sufficient number of representative counties to cover each morphology.<sup>15</sup>

**B. Submission of Plans and Reports (47 CFR § 9.10(i)(4)(v))**

Section 9.10(i)(4) of the Commission’s rules imposes certain reporting and certification obligations on all CMRS providers subject to this section.<sup>16</sup>

- *Z-axis use certification.* The *Fifth Report and Order* requires that prior to use of z-axis information to meet the Commission’s 911 vertical location accuracy requirements in paragraph (i)(2)(ii) of section 9.10, “CMRS providers must certify that neither they nor any third party they rely on to obtain z-axis information will use z-axis information or associated data for any non-911 purpose, except with prior express consent or as otherwise required by law. The certification must state that CMRS providers and any third party they rely on to obtain z-axis information will provide z-axis location information privacy and security protection equivalent to the NEAD [National Emergency Address Database].”<sup>17</sup>

**C. Confidence and Uncertainty Data (47 CFR § 9.10(j)(1) and (j)(4))**

The Commission extended the confidence and uncertainty (C/U) data requirements adopted in the *Fourth Report and Order* in this proceeding to its vertical location requirements.

- The *Fifth Report and Order* amended Section 9.10(j)(1) of the Commission’s rules to provide that “CMRS providers shall provide for all wireless 911 calls, whether from outdoor or

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call location data on a quarterly basis to the Commission, the National Emergency Number Association, the Association of Public Safety Communications Officials, and the National Association of State 911 Administrators, (see 47 CFR § 9.10(i)(3)(ii)(B)); (3) provide quarterly live call data on a more granular basis that allows evaluation of the performance of individual location technologies within different morphologies (e.g., dense urban, urban, suburban, rural) (see 47 CFR § 9.10(i)(3)(ii)(C)).

<sup>14</sup> 47 CFR § 9.10(i)(3)(ii)(D).

<sup>15</sup> 47 CFR § 9.10(i)(3)(ii)(E). The four morphologies found in the ATIS ESIF test regions include (1) dense urban, (2) urban, (3) suburban, and (4) rural.

<sup>16</sup> 47 CFR § 9.10(i)(4).

<sup>17</sup> 47 CFR § 9.10(i)(4)(v).

indoor locations, x- and y-axis (latitude, longitude) and z-axis (vertical) confidence and uncertainty information (C/U data) on a per-call basis upon the request of a PSAP.”<sup>18</sup>

- The Commission adopted a new Section 9.10(j)(4) to require that “[u]pon meeting the timeframes pursuant to paragraphs (i)(2)(ii)(C) and (D) of this section, CMRS providers shall provide with wireless 911 calls that have dispatchable location or z-axis (vertical) information the C/U data required under paragraph (j)(1) of this section.”<sup>19</sup>
- Section 9.10(j)(4) also requires that “[w]here available to the CMRS provider, floor level information must be provided with associated C/U data in addition to z-axis location information.”<sup>20</sup>
- Upon meeting the extended compliance timeframes referenced above, non-nationwide providers shall provide C/U data for vertical location information.

### III. RECORDKEEPING AND REPORTING REQUIREMENTS

The requirements adopted by the Commission in the *Fifth Report and Order* to ensure that first responders and PSAPs can find 911 callers quickly and accurately when a consumer calls from a multi-story building created additional recordkeeping and reporting obligations for CMRS providers.

- CMRS providers are required to provide vertical location (z-axis) information which will help first responders identify a wireless caller's floor level location within 3 meters in a multi-story building.
- CMRS providers must provide confidence and uncertainty data for the location information provided with all wireless 911 calls.
- CMRS providers must submit compliance certifications and quarterly reports associated with live call data reporting obligations.

The details and specifics of the reporting and recordkeeping requirements adopted in the *Fifth Report and Order* can be found in Section II of this guide under the Compliance Requirements.

### IV. IMPLEMENTATION DATE

The following rules in the *Fifth Report and Order* became effective March 16, 2020: 47 CFR § 9.10(j)(1), 47 CFR § 9.10(s). The following rules in the *Fifth Report and Order* require approval by the Office of Management and Budget (OMB) under the Paperwork Reduction Act: 47 CFR § 9.10(i)(2)(ii)(C) and (D), 47 CFR § 9.10(i)(4)(v), 47 CFR § 9.10(j)(4). These rules shall become effective after the Commission publishes a notice in the Federal Register announcing OMB approval and the relevant

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<sup>18</sup> 47 CFR § 9.10(j)(1) (stating “Except as provided in paragraphs (j)(2) through (4) of this section, CMRS providers subject to this section shall provide for all wireless 911 calls, whether from outdoor or indoor locations, x- and y-axis (latitude, longitude) and z-axis (vertical) confidence and uncertainty information (C/U data) on a per-call basis upon the request of a PSAP.”).

<sup>19</sup> 47 CFR § 9.10(j)(4).

<sup>20</sup> 47 CFR § 9.10(j)(4).

effective date.

## V. INTERNET LINKS

A copy of the *Fifth Report and Order*, is available at: <https://docs.fcc.gov/public/attachments/FCC-19-124A1.pdf>

A copy of the Erratum of the *Fifth Report and Order* is available at:  
<https://www.fcc.gov/document/erratum-wireless-e911-location-accuracy-requirements-1>

A copy of the Federal Register Summary of the *Fifth Report and Order* is available at:  
<https://www.federalregister.gov/documents/2020/01/16/2019-28483/wireless-e911-location-accuracy-requirements>

A copy of the Small Entity Compliance Guide to the *Fourth Report and Order*, is available at:  
<https://www.fcc.gov/document/wireless-e911-location-accuracy-requirements>