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May 7, 2018

**VIA ECFS**

Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, SW  
Washington, DC 20554

Re: PS Docket No. 18-64 – Notice of Inquiry in the Matter of Location-Based Routing for Wireless 911 Calls

RapidSOS, Inc. (“RapidSOS”) appreciates the opportunity to comment on the Federal Communications Commission’s (“FCC” or “Commission”) Notice of Inquiry (“NOI”) on location-based routing for wireless 9-1-1 calls. RapidSOS applauds the Commission’s continued leadership in improving 9-1-1 service and agrees with the Commission’s observation that citizens’ expectations are not always being met due to the limitations of the legacy E9-1-1 system.<sup>1</sup> As the Commission rightfully concludes, call misroutes based on inaccurate location resulting in Public Safety Answering Point (“PSAP”) call transfers “ultimately delays dispatch and the ability of first responders to render aid,” which can occasionally have “deadly consequences.”<sup>2</sup> There is no silver bullet to precisely and immediately locate, and route based on that location, every wireless 9-1-1 call. However, based on RapidSOS’s direct experience working with PSAPs and leading technology providers, we agree with the Commission that “location based routing would be in the public interest and should be encouraged and actively facilitated.”<sup>3</sup> The use of device-based hybrid technology offers immense opportunity for improving access to 9-1-1 for consumers and saving lives.

Reducing response times by improving location accuracy and providing other rich data to PSAPs to increase situational awareness is at the very core of RapidSOS’s mission. RapidSOS has a history of innovating at the forefront of NG9-1-1, using modern technologies to enhance 9-1-1 service. RapidSOS is a provider of Next Generation 9-1-1 (“NG9-1-1”) technology services such as the NG911

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<sup>1</sup> *Location-Based Routing for Wireless 9-1-1 Calls*, Notice of Inquiry, PS Docket No. 18-64 at ¶¶ 1-8 (“NOI”).

<sup>2</sup> *Id.* at ¶ 2.

<sup>3</sup> *Id.* at ¶ 4.

Clearinghouse,<sup>4</sup> a NENA-i3-compliant Location Information Server (“LIS”) and Additional Data Repository (“ADR”). PSAPs across the country are able to connect to the RapidSOS NG9-1-1 Clearinghouse to obtain faster, more accurate, and more comprehensive information about callers, devices, incidents, and locations. RapidSOS has previously filed comments with the FCC on important 9-1-1 technology issues,<sup>5</sup> participated in a FCC Workshop on emerging 911 technology issues,<sup>6</sup> and is an active participant in standards development and community engagement with numerous individual PSAPs and communities, as well as national public safety organizations such as NENA – The 9-1-1 Association, the Association of Public-Safety Communications Officials International (“APCO”), and the National Association of State 9-1-1 Administrators (“NASNA”). RapidSOS has extensively studied the relationship between improvements in location technology, response times, and mortality and has published a review of academic literature on this subject.<sup>7</sup>

RapidSOS has long been an advocate for using device-based hybrid location technologies for emergency communications. RapidSOS contributed its perspective on location-based routing to the CSRIC V working group and agreed with the working group’s recommendation to “further study the suitability of device-based hybrid for use in E9-1-1.”<sup>8</sup> Since the CSRIC V Final Report was published in September 2016, RapidSOS has contributed to the body of research on the suitability of device-based hybrid location in the context of 9-1-1. Consistent with the CSRIC V Final Report’s recommendation that “the FCC should continue to support the independent testing and analysis of new location technologies that promise significantly increased accuracy and quicker time to first fixes,”<sup>9</sup> over the past several years RapidSOS has conducted extensive testing – with the CTIA Test Bed LLC as well as in the field in multiple communities, collaborating with PSAPs, 9-1-1 Authorities, and public safety vendor partners. The following test results highlight some of the merits of using device-based hybrid location services, both in terms of their accuracy as well as their time-to-first fix:

- **CTIA 9-1-1 Location Technologies Test Bed, LLC**

RapidSOS recently participated in Stage 2A of the 911 Location Test Bed.<sup>10</sup> According to this Test Bed, “the observed overall system accuracy performance was good with 90.8% of all correlated test calls, in both regions and across all morphologies, having a positioning error within 50m.”<sup>11</sup> The results in this report have been derived from independent testing that complies with the methodology specified by the Alliance for Telecommunications Industry

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<sup>4</sup> See RapidSOS NG911 Clearinghouse, available at <https://rapidsos.com/ng911clearinghouse/>.

<sup>5</sup> See e.g. RapidSOS Comment Letter, RM-11780, Feb. 2, 2017, available at <https://ecfsapi.fcc.gov/file/10203723701338/RapidSOS%20-%20FCC%20911%20Apps%20PN%20-%20Comment%20FINAL.pdf>.

<sup>6</sup> 911 Apps Workshop, May 2015, available at <https://www.fcc.gov/news-events/events/2015/05/911-apps-workshop>.

<sup>7</sup> Outcomes – Quantifying the Impact of Emergency Response Times, Dec. 2015, available at <http://info.rapidsos.com/download-whitepaper>.

<sup>8</sup> CSRIC WORKING GROUP 1, Final Report – Task 2: 911 Location-Based Routing, Section 9 (Recommendations) at 19, 27, Sep. 2016, available at <https://www.fcc.gov/about-fcc/advisory-committees/communications-security-reliability-and-interoperability>.

<sup>9</sup> *Id.* at 23, 28.

<sup>10</sup> 911 Location Technologies Test Bed LLC. General information available at <http://www.911locationtestbed.org/>.

<sup>11</sup> RapidSOS only very recently received access to the final testing report. A comprehensive report of detailed test results has not yet been published.

Standards (“ATIS”) for indoor wireless testing, including as described in ATIS-050031: Test Bed and Monitoring Regions Definitions and Methodology.

- **Presentation at NG9-1-1 Technology Showcase in 2018**

RapidSOS presented case studies that involve the use of device-based hybrid location technology, including results from a pilot project with a major smartphone operating systems provider and several 9-1-1 Authorities in Florida, Texas, and Tennessee. The pilot project found that device-based hybrid location was faster and more accurate than traditional E9-1-1 location.<sup>12</sup>

- **Tennessee Clearinghouse Pilot Project**

In 2017, RapidSOS conducted a pilot project together with the Tennessee Emergency Communications Board and several PSAPs in Tennessee (Loudon County, Carroll County, Washington County, Jefferson County) that examined the use of device-based hybrid location technologies. Device-based hybrid technology was found to be more accurate, more reliable, faster, and more dynamic than traditional E9-1-1 location.<sup>13</sup>

- Further testing together with RapidSOS integration partners and more PSAPs across the nation provides further data points that corroborate those findings:
  - Joint testing with Motorola Solutions in Cedar County, Iowa.<sup>14</sup>
  - Joint testing with INdigital in Elkhart County, Indiana.<sup>15</sup>
  - Joint testing with GeoComm in North Central Texas, Texas.<sup>16</sup>

Since CSRIC V issued its recommendation to further study the feasibility of device-based hybrid location services, RapidSOS and other vendors have generated substantial evidence that device-based hybrid location services are suitable for use in 9-1-1 communications.

RapidSOS looks forward to continued collaboration with all industry stakeholders to translate those findings into actionable steps towards using device-based hybrid location services for 9-1-1 call routing. RapidSOS seeks to partner with vendors of NG9-1-1 Core Services to improve routing determination inside the terminating network (ESInet), as well as collaborating with wireless carriers and their technology partners to improve 9-1-1 location and call delivery. RapidSOS appreciates the continued work of the Commission, public safety associations including NENA, APCO and NASNA, as well as CTIA and wireless carriers to enhance emergency services. A collaborative approach is in the best interest of saving lives and meeting citizens’ expectations.

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<sup>12</sup> RapidSOS Presentation at NG911 Technology Showcase, Feb. 2018, *available at* <http://www.ng911institute.org/tech-showcase-2018>; see also NG9-1-1 Clearinghouse Android ELS Pilot Project Report, Feb. 2018, *available at* <http://info.rapidsos.com/els>.

<sup>13</sup> Tennessee NG911 Clearinghouse Pilot Project, Jun. 2017, *available at* <http://info.rapidsos.com/blog/tennessee-pilot-project>.

<sup>14</sup> RapidSOS & Motorola Solutions Location Testing in Cedar County, Iowa; Aug. 2017, *available at* <http://info.rapidsos.com/blog/rapidsos-motorola-solutions-location-testing>.

<sup>15</sup> RapidSOS & INdigital Location Testing in Elkhart, IN, May 2017, *available at* <http://info.rapidsos.com/blog/indigital>.

<sup>16</sup> RapidSOS & GeoComm Location Testing at North Central Texas Council of Governments, Feb. 2017, *available at* <http://info.rapidsos.com/blog/rapidsos-geocomm-location-testing>.

Respectfully,

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Reinhard Ekl

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