



Telecom Decision CRTC 2022-91

PDF version

Ottawa, 29 March 2022

Public record: 8669-C12-01/01

CISC Emergency Services Working Group – Consensus report ESRE0094 – Updates to the wireless location accuracy benchmarks set out in Telecom Decision 2019-120.

The Commission **approves** the recommendations contained in the CISC Emergency Services Working Group’s (ESWG) consensus report regarding updates to the wireless location accuracy benchmarks set out in Telecom Decision 2019-120. Accordingly, the Commission **directs** wireless service providers (WSPs) to use the revised minimum and target thresholds shown in the appendix to this decision as the basis for measuring location accuracy performance for the reporting period from 1 January 2021 to 31 December 2021 and subsequent reporting periods. Further, the Commission requests the ESWG to continue to assess WSPs’ wireless location accuracy results annually and to report to the Commission if and when it deems any adjustment to the thresholds is appropriate, and to continue to monitor and report on technical and standards developments in the wireless industry that could lead to improved wireless location accuracy results.

Background

1. Effective access to emergency services is critical to the health and safety of citizens, and is an important part of ensuring that Canadians have access to a world-class communications system. In Telecom Regulatory Policy 2014-342 the Commission set out its 9-1-1 action plan, which included key initiatives aimed at enhancing Canadians’ access to existing 9-1-1 services.
2. Subsequently, the Commission issued a series of decisions in which it established a wireless 9-1-1 location accuracy monitoring process.¹ The objective of the monitoring process is to better understand the degree of accuracy of the location information that wireless service providers (WSPs) send to public safety answering points (PSAPs)² during a 9-1-1 call, in order to inform future improvements to wireless location accuracy.

¹ See Telecom Decision 2019-120, Telecom Decision 2017-119 and Telecom Decision 2015-255.

² PSAPs are established and managed by provincial/territorial governments or municipalities to answer 9-1-1 calls and direct them to the appropriate emergency responders.

3. The Commission approved minimum and target thresholds that WSPs are to use to measure location accuracy performance, as well as an obligation for WSPs to file reports with the Commission that include analyses of performance results, explanations if thresholds are not met, and action plans to resolve any related issues. The Commission also requested that the CRTC Interconnection Steering Committee (CISC) Emergency Services Working Group (ESWG) conduct annual assessments of the identified thresholds to determine whether they should be adjusted.
4. WSPs have filed threshold results for seven annual periods with the Commission, beginning in 2015. As part of the location accuracy monitoring process, and to inform the ESWG's assessments, the Commission has made available aggregated results for each period.
5. The Commission has adjusted the original thresholds approved in Telecom Decision 2014-415 on two occasions, in Telecom Decision 2017-119 and Telecom Decision 2019-120.

The ESWG report

6. On 26 January 2022, the ESWG submitted the following consensus report (the report) for Commission approval:
 - *Recommended Updates to the Wireless Location Accuracy Benchmarks Approved in Telecom Decision 2019-120, 9 December 2021 (ESRE0094).*
7. The report can be found in the "Reports" section of the CSCN page, which is available in the CISC section of the Commission's website at www.crtc.gc.ca.
8. In the report, the ESWG outlined its findings regarding the wireless 9-1-1 location accuracy thresholds established by the Commission and made recommendations accordingly. The recommendations were agreed upon by key stakeholders, including WSPs and PSAPs participating in the ESWG.
9. The ESWG assessed the current minimum and target thresholds for location accuracy, based on the aggregated results from 1 January 2019 to 31 December 2019 (period 6) and from 1 January 2020 to 31 December 2020 (period 7). Those results showed that WSPs were exceeding the minimum required accuracy thresholds and, for the most part, attaining the target thresholds.
10. As a result, the ESWG reviewed the appropriateness of adjusting the thresholds for wireless location accuracy. The ESWG proposed revised thresholds for the period from 1 January 2021 to 31 December 2021 (period 8), which are set out in the appendix to this decision.

11. The ESWG made the following recommendations:

- a. that the Commission approve the revised wireless location accuracy thresholds proposed for period 8, replacing those approved in Telecom Decision 2019-120; and
- b. that the ESWG continue to assess the aggregated results and, if necessary, file future reports with the Commission recommending further adjustments to the thresholds.

Commission's analysis and determinations

12. The Commission notes that the primary means to improve wireless location accuracy is through the creation and adoption of new or improved wireless location technologies. WSPs are using the most advanced location technology available, and part of the monitoring process is to ensure that their location systems are working at their optimal level.
13. The ESWG developed the newly proposed minimum thresholds based on aggregated results for periods 6 and 7, with the reasonable understanding that WSPs should be able to meet the minimum thresholds for upcoming periods. However, it is expected that some WSPs will not meet the minimum thresholds in certain locations.
14. The Commission notes that WSPs that do not meet minimum thresholds must provide explanations and must provide action plans to detail how they expect to meet or exceed the thresholds in the future. Some WSPs that did not meet the targets for period 7 indicated that they expect their results in most of these instances to be above the minimum thresholds and minimum yield during period 8, since most of the issues that negatively affected their results either have already been or will soon be resolved. WSPs also indicated that, with a projected increase in the use of mobile handsets that are enabled for Assisted Global Positioning System (A-GPS),³ more accurate 9-1-1 caller location information is expected.
15. The Commission notes that the ESWG developed the proposed target thresholds based on the mean national aggregated results for period 7 with the understanding that they are aspirational targets to which all WSPs should strive. Based on a comparison with the actual location accuracy results for period 7, the Commission considers that the thresholds proposed in the report are reasonable.
16. The Commission also considers that the monitoring process is working well and should continue, given the action undertaken by WSPs to improve their results following publication of previous results, and given the increases in the thresholds proposed for period 8.

³ A-GPS is a handset-based positioning system that, with the help of a location server on the network, uses readings taken from satellites and cellular towers to determine a caller's location.

Conclusion

17. In light of all of the above, the Commission **approves** the recommendations set out in the report, and:

- i. **directs** WSPs to use the revised minimum and target thresholds shown in the appendix to this decision as the basis for measuring location accuracy performance for period 8 and subsequent reporting periods;
- ii. requests the ESWG to continue to assess WSPs' wireless location accuracy results annually and to report to the Commission if and when it deems any adjustment to the thresholds is appropriate; and
- iii. requests the ESWG to continue to monitor and report on technical and standards developments in the wireless industry that could lead to improved wireless location accuracy results.

Policy Directions

18. In accordance with subparagraph 1(b)(i) of the 2006 Policy Direction,⁴ the Commission considers that approval of the recommendations set out in the report will advance the policy objectives set out in paragraphs 7(g) and (h) of the *Telecommunications Act*.⁵ The recommendations represent a competitively neutral and symmetrical approach to implementing NG9-1-1, and specifically handset-based location technology, which affects all facilities-based WSPs.

19. The 2019 Policy Direction,⁶ which complements the 2006 Policy Direction, states that the Commission must consider and specify how its determinations can promote competition, affordability, consumer interests, or innovation, as applicable. The report addresses matters relating to improving location accuracy for calls for emergency services made from wireless devices, the majority of emergency calls. The Commission considers that by directing WSPs to implement the various measures outlined in the report's recommendations the Commission will better ensure the proper functioning of wireless networks and thereby promote consumer interests.

Secretary General

⁴ *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives*, SOR/2006-355, 14 December 2006

⁵ The cited policy objectives are: 7(g) to stimulate research and development in Canada in the field of telecommunications and to encourage innovation in the provision of telecommunications services; and 7(h) to respond to the economic and social requirements of users of telecommunications services.

⁶ *Order Issuing a Direction to the CRTC on Implementing the Canadian Telecommunications Policy Objectives to Promote Competition, Affordability, Consumer Interests and Innovation*, SOR/2019-227, 17 June 2019

Related documents

- *CISC Emergency Services Working Group - Consensus report recommending updates to the wireless 9-1-1 caller location accuracy thresholds originally approved in Telecom Decision 2017-119, Telecom Decision CRTC 2019-120, 26 April 2019*
- *CISC Emergency Services Working Group - Consensus report regarding updates to the wireless 9-1-1 caller location accuracy thresholds, Telecom Decision CRTC 2017-119, 28 April 2017*
- *CISC Emergency Services Working Group – Consensus report on monitoring the wireless 9-1-1 caller location accuracy performance of wireless carriers, Telecom Decision CRTC 2015-255, 15 June 2015*
- *9-1-1 action plan, Telecom Regulatory Policy CRTC 2014-342, 25 June 2014, as amended by Telecom Regulatory Policy CRTC 2014-342-1, 30 January 2015*
- *CISC Emergency Services Working Group - Consensus report regarding wireless enhanced 9-1-1 Phase II location accuracy requirements, Telecom Decision CRTC 2014-415, 6 August 2014*
- *Implementation of wireless Phase II E9-1-1 service, Telecom Regulatory Policy CRTC 2009-40, 2 February 2009*

Appendix to Telecom Decision CRTC 2022-91

Revised wireless location accuracy thresholds for period 8 (1 January 2021 to 31 December 2021)

Uncertainty ⁷ Threshold	<150m for Rural / Small PSAPs ⁸		<150m for Large / Metro PSAPs		<1000m for Rural / Small PSAPs		<1000m for Large / Metro PSAPs	
	Period 7	Period 8	Period 7	Period 8	Period 7	Period 8	Period 7	Period 8
Minimum threshold⁹	60%	65%	60%	65%	72%	75%	82%	86%
Target threshold¹⁰	74%	76%	72%	74%	85%	87%	92%	93%

⁷ In Telecom Regulatory Policy 2009-40, the Commission mandated the provision of wireless E9-1-1 Phase II location information to public safety answering points at a 90% confidence level, with the accompanying uncertainty value in metres, and a 30-second response time. “Uncertainty” is an estimate of the horizontal error between the actual handset position and the latitude/longitude calculated by the location system, at a given level of confidence. “Confidence” indicates how reliable or confident the system is regarding the estimate.

⁸ Public safety answering point

⁹ “Minimum threshold” is the point below which a WSP is outside the normal range of performance (more than two standard deviations), indicating a need for location accuracy improvement.

¹⁰ “Target threshold” is the mean performance of WSPs (50% of WSPs are below this figure and 50% are above) and is an aspirational target to which all WSPs should strive.