

CERTIFICATE

P3 communications GmbH
hereby certifies that

**ROGERS COMMUNICATIONS
CANADA INC.
ACHIEVED BEST IN TEST**

in the Mobile Benchmark Canada 07/2019.

Score 857 of 1000 in Total

Score 347 of 400 in Voice Services

Score 510 of 600 in Data Services



Hakan Ekmen
CEO



Rogers Communications
Canada Inc.

MEASUREMENT OVERVIEW

MEASUREMENT SETUP

Drivetest	Voice	Data
Device	Samsung Galaxy S9	Samsung Galaxy S9
Test Cases	Mobile-to-Mobile (M2M) Side1 (4G preferred: Volte) to Side2 (4G preferred: Volte) 115 sec call window 70 sec call duration 15 sec call setup timeout Multi-RAB traffic injection on both sides	Data 4G preferred CA HTTP DL datastream 7s HTTP UL datastream 7s HTTP 5MB DL fixed file transfer HTTP 2.5MB UL fixed file transfer Web Browsing - Kepler ETSI Ref. Page 10 Live web pages (5 http / 5 https) 2 YouTube HD video ~ 45s 1 YouTube live stream ~ 45s
Mobility and Route Types	Drive test 100% 63% in Cities, 12% in Towns and 25% on Roads	
Samples	~ 18500 per Operator	~ 7000 per Operator
Dates	46 measurement days May 6th 2019 - July 15th 2019	

P3 COMMUNICATIONS GMBH

tested and measured the performance of its voice and data services on smartphones in comparison to other LTE/UMTS/GSM mobile radio networks in metropolitan and rural areas of Canada.

The audit was done as a performance benchmark performed by P3 communications between May 6th 2019 and July 15 2019 in cities and towns as well as on connection roads and on railways.

Dedicated measurements have been executed as drive tests outdoors using a Samsung Galaxy S9 cat16 Smartphone 1000 Mbit/s Download / 105 Mbit/s Upload.

All data measurements have been performed in 4G preferred mode. Voice measurements have been done in 4G/4G preferred mode on both sides, while call origin has been alternated.

The following pages provide a comparative overview about the performance results observed for the different tested service types.

TESTING ROUTE



6000 km
measuring distance



61 %
of population measured

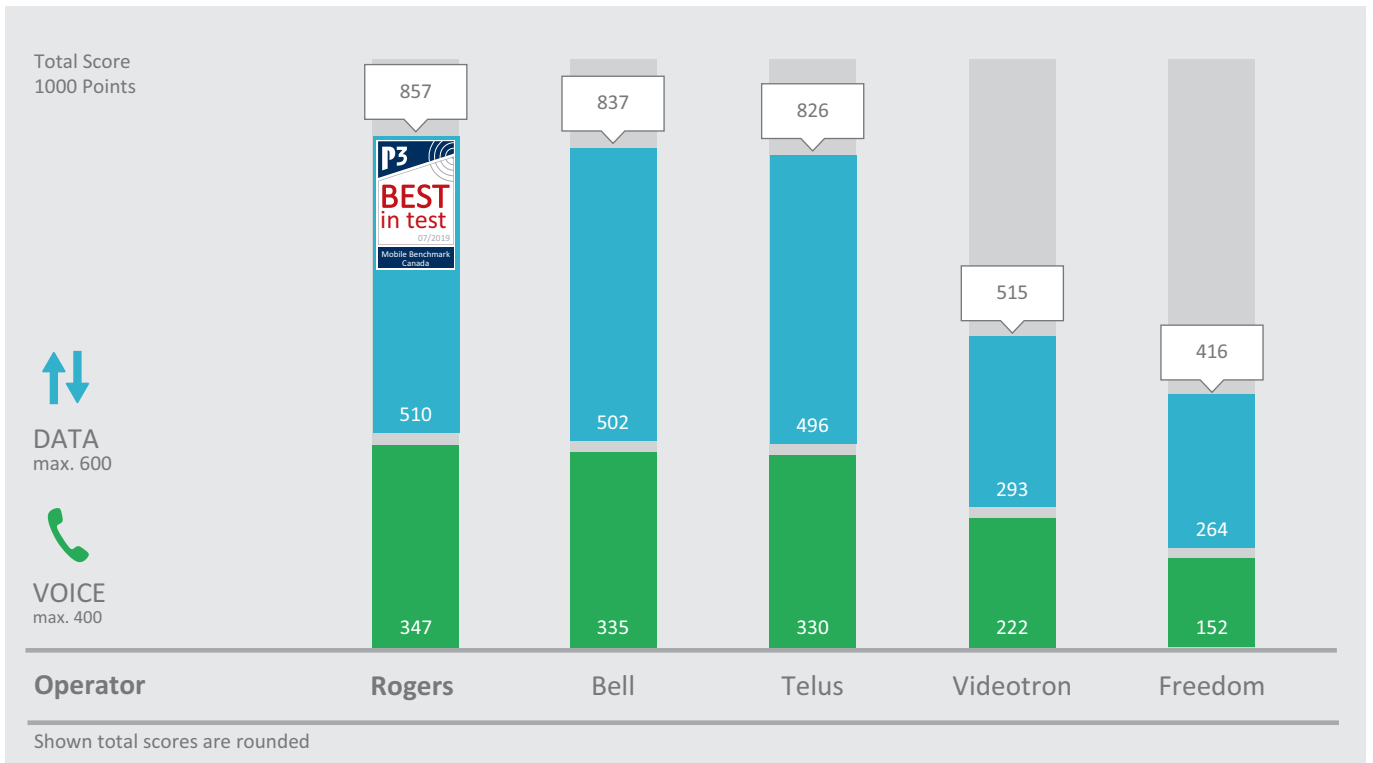
SCORE POINTS AND BREAKDOWN

ROGERS COMMUNICATIONS CANADA INC. ACHIEVED THE HIGHEST TOTAL SCORE AMONG COMPETITORS WITH 857 POINTS OUT OF MAXIMUM 1000.

TOTAL SCORE

		Rogers	Bell	Telus	Videotron	Freedom
Voice	max. 400	347	335	330	222	152
Cities Drivetest	180	93%	92%	92%	95%	58%
Cities Walktest	60	93%	92%	90%	87%	80%
Towns Drivetest	80	94%	77%	77%		
Roads Drivetest	50	63%	62%	68%		
Railways Walktest	30	62%	72%	51%		
Data	max. 600	510	502	496	293	264
Cities Drivetest	270	92%	92%	90%	83%	75%
Cities Walktest	90	83%	81%	88%	78%	67%
Towns Drivetest	120	90%	90%	86%		
Roads Drivetest	75	80%	72%	70%		
Railways Walktest	45	44%	41%	37%		
Total	1000	857	837	826	515	416

Videotron and Freedom have only been measured in cities, due to limited network coverage.
Shown scores are rounded.



TOTAL SCORE The graphic indicates the score points achieved by the networks under test in the modules “Voice” and “Data Services”. Videotron and Freedom have only been measured in cities, due to limited network coverage.

CLAIMS



BEST IN TEST

ROGERS COMMUNICATIONS
CANADA INC.



BEST IN DATA

ROGERS COMMUNICATIONS
CANADA INC.



BEST IN VOICE

ROGERS COMMUNICATIONS
CANADA INC.



METHODOLOGY

The leader in mobile benchmarking, P3, has analyzed the mobile networks of Canada with regards to mobile network performance. The P3 Mobile Benchmark evaluates the five mobile networks Rogers Wireless, Bell, Freedom, Telus and Videotron. Rogers has achieved the highest score in overall mobile performance.

We measure smartphone voice and data performance based on extensive drive-tests – from major metropolitan areas to smaller cities, roads and railways, complemented by walk-tests in big cities with special focus on busy areas, on public transport and in frequently visited buildings, like shopping malls, main station, etc. We objectively define the routes and test methodology and publish the results through certificates or public benchmark reports.

As the de-facto industry standard, our benchmarking methodology focuses on customer-perceived network quality and covers a wide range of mobile services.

Today, more than 200 mobile networks in more than 120 countries are being evaluated by our unique scoring methodology. It allows a technical analysis that is unprecedented in its level of detail and enables comparisons between the network performance and capability of each mobile network. Our public benchmarks as well as the certificate benchmarks help network operators to demonstrate how well they are delivering wireless connections to consumers, business users and enterprises and reveals the areas of improvement.



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