

Audit Report

US, New York City — 2024





Foreword



We have analyzed the mobile network performance of the mobile networks of Boost Mobile, AT&T, Verizon and T-Mobile in New York, the most populous city in the United States.



Measurement Overview

umlaut tested and measured the performance of its voice and data services on smartphones in comparison to other 5G/LTE mobile radio networks in New York City, US. The audit was done as a performance benchmark performed by umlaut between 10/21/2024 and 10/30/2024. Dedicated measurements have been executed as drive and walk tests using a Samsung Galaxy S24 Ultra.

All data measurements have been performed in 5G preferred mode. Voice measurements have been done in 5G/5G 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.



Measurement Setup

	Drivetest	Voice	Data
Device	Samsung Galaxy S24 Ultra		Samsung Galaxy S24 Ultra
Test Cases	Mobile-to-Mobile (M2M) to Side1(VoLTE/VoNR) to Side2(VoLTE/VoNR) 105 sec call window 70 sec call duration Device capabilities and features depending on firmware British English speech sample (super wideband) 100KB HTTP traffic injection 15s Opt D Call Setup Timeout		Data 5G preferred CA HTTP DL datastream 7s HTTP UL datastream 7s HTTP 10MB DL fixed file transfer HTTP 5MB UL fixed file transfer 8 Live web pages YouTube v16 Interactivity testing (eGaming) Generic OTT voice channel
Mobility and Route Types	Drive test and walk test		
Samples	7,778		80,997
Dates	10/21/2024 to 10/30/2024		



Testing Areas

Driven routes in New York City by Drivetest cars.



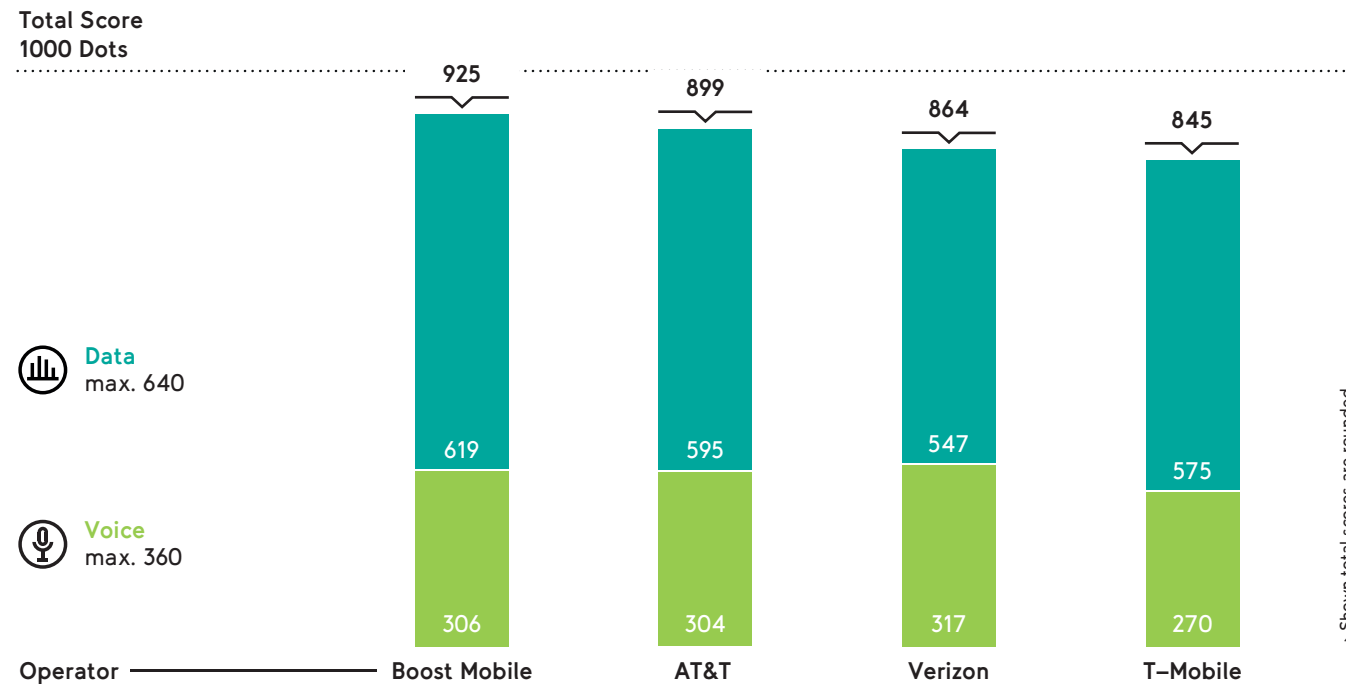
 **1025 miles**
measuring distance





Score and Breakdown

Boost Mobile achieved the highest overall score among competitors with 925 dots out of 1000.



↑ Shown total scores are rounded.

Overall score considering Voice and Data.

Total score

		Boost Mobile	AT&T	Verizon	T-Mobile
Voice	max. 360	306	304	317	270
Drivetest	270	83%	82%	86%	71%
Walktest	90	92%	94%	95%	88%
Data	max. 640	619	595	547	575
Drivetest	480	96%	92%	85%	94%
Walktest	160	97%	95%	87%	78%
Total	1000	925	899	864	845

Shown scores are rounded.



Data KPI Overview

Achieved percentage of the maximum score in each of the different data services.

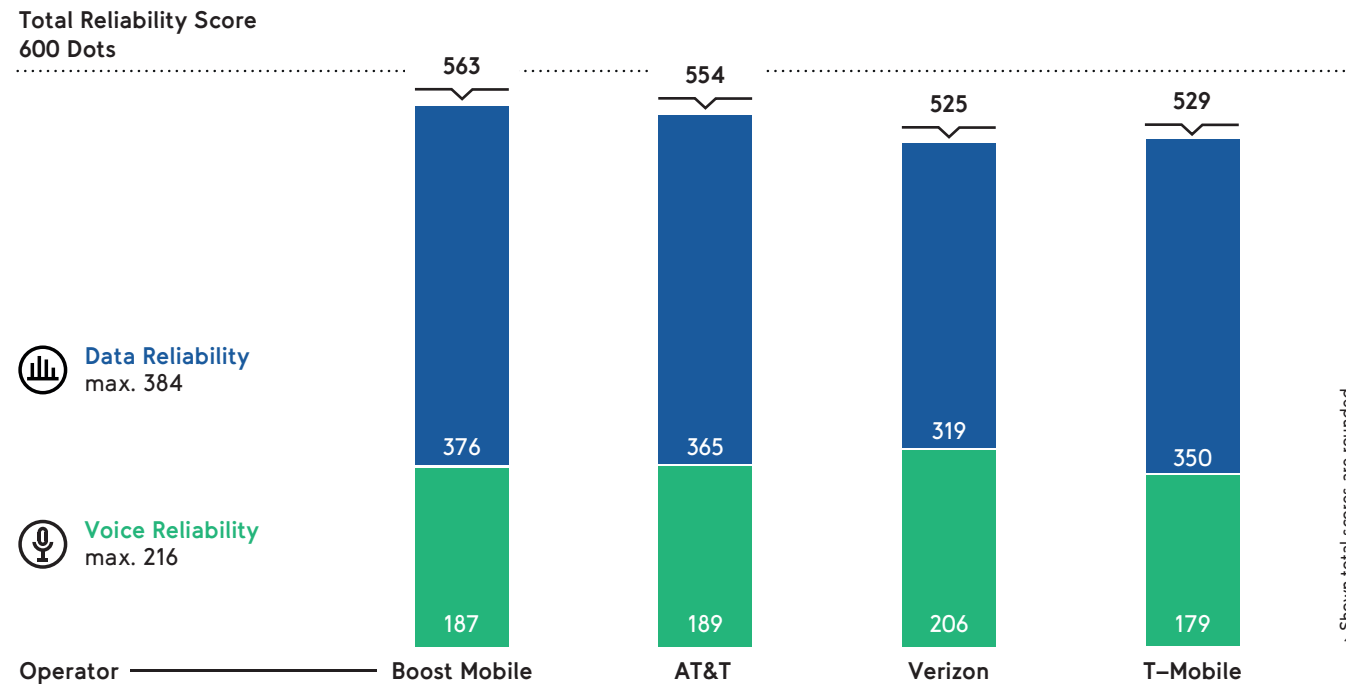
Data	Service Group	max	Boost Mobile	AT&T	Verizon	T-Mobile
Overall Drivetest	Web Browsing	84.0	99%	97%	98%	98%
	File Download	108.0	98%	96%	96%	96%
	File Upload	108.0	94%	90%	95%	94%
	YouTube	108.0	97%	90%	52%	89%
	OTT*	72.0	95%	89%	87%	92%
Overall Walktest	Web Browsing	28.0	100%	100%	99%	86%
	File Download	36.0	99%	98%	94%	84%
	File Upload	36.0	95%	95%	93%	82%
	YouTube	36.0	98%	97%	66%	61%
	OTT*	24.0	94%	80%	86%	80%

*OTT includes Interactivity e-Gaming, Conversational App and Interactivity Videochat.





Reliability



Reliability score considering Voice Reliability and Data Reliability.

Total Score

	Service Group	max	Boost Mobile	AT&T	Verizon	T-Mobile
Reliability	Voice Reliability	216	87%	88%	95%	83%
	Data Reliability	384	98%	95%	83%	91%

Score achievement in school grades:
 outstanding (≥95%), very good (≥85% and <95%), good (≥75% and ≤85%), satisfactory (≤65% and <75%), sufficient (≤55% and <65%).



Data Services KPI Overview

Achieved values of all networks under test in each of the relevant Data Key Performance Indicators (KPIs) for the geographical category "Cities Drivetest".

Data Cities Drivetest	KPI Name	Unit	Boost Mobile	AT&T	Verizon	T-Mobile
HTTP Web Page DL Smartphone	Qualifier	[%]	99.9	99.7	99.8	99.7
	Overall Session Time	[s]	0.9	1.1	1.2	1.0
HTTP 10MB DL Smartphone	Qualifier	[%]	99.9	99.9	99.9	99.8
	Overall Session Time	[s]	1.0	1.3	1.3	1.2
	90% faster than	[Mbit/s]	82.3	44.9	41.8	51.4
	10% faster than	[Mbit/s]	169.5	279.7	196.0	267.0
HTTP 5MB UL Smartphone	Qualifier	[%]	99.9	99.6	99.9	99.9
	Average Session Time	[s]	1.4	3.0	2.0	2.0
	90% faster than	[Mbit/s]	16.4	7.7	13.0	14.1
HTTP DL FDTT	Qualifier	[%]	99.8	99.9	99.7	99.6
	10% faster than	[Mbit/s]	665.5	454.2	872.8	675.2
	faster than 20 Mbit/s	[%]	99.6	98.0	98.2	98.0
HTTP UL FDTT	Qualifier	[%]	99.0	99.8	99.8	99.9
	10% faster than	[Mbit/s]	166.0	71.2	110.2	72.9
	faster than 2 Mbit/s	[%]	99.9	99.2	99.5	99.3
	faster than 5 Mbit/s	[%]	98.8	96.5	98.4	97.2
YouTube	Qualifier	[%]	99.9	99.2	90.6	98.9
	Start Time	[s]	1.5	1.9	2.3	1.8
	AVG Resolution	[p]	1076.5	1079.0	1077.2	1079.6
YouTube Live Smartphone	Qualifier	[%]	99.9	98.8	95.6	98.9
	Start Time	[s]	2.3	2.6	3.2	2.5
	AVG Resolution	[p]	1079.9	1079.9	1073.3	1076.4
Interactivity egaming	Qualifier	[%]	99.1	97.3	94.9	98.1
	Interactivity egaming	[%]	81.0	72.2	76.1	76.5
Conversational App	Qualifier	[%]	99.9	99.2	99.5	99.9
	Speech Quality (P10)	[MOS-LQO]	4.0	3.9	3.6	3.9
Interactivity Videochat	Qualifier	[%]	98.3	95.7	92.0	95.3
	Interactivity Videochat	[%]	90.6	88.1	87.2	90.0



Data Services KPI Overview

Achieved values of all networks under test in each of the relevant Data Key Performance Indicators (KPIs) for the geographical category "Cities Walktest".

Data Cities Walktest	KPI Name	Unit	Boost Mobile	AT&T	Verizon	T-Mobile
HTTP Web Page DL Smartphone	Qualifier	[%]	100.0	100.0	100.0	97.9
	Overall Session Time	[s]	1.0	1.1	1.3	1.1
HTTP 10MB DL Smartphone	Qualifier	[%]	100.0	100.0	100.0	100.0
	Overall Session Time	[s]	0.9	1.0	1.6	3.8
	90% faster than	[Mbit/s]	104.8	79.0	27.1	9.5
	10% faster than	[Mbit/s]	178.2	218.5	155.6	221.8
HTTP 5MB UL Smartphone	Qualifier	[%]	100.0	100.0	100.0	100.0
	Average Session Time	[s]	2.1	1.9	2.5	3.8
	90% faster than	[Mbit/s]	8.3	10.8	11.7	4.1
HTTP DL FDTT	Qualifier	[%]	100.0	100.0	100.0	100.0
	10% faster than	[Mbit/s]	839.8	341.5	485.6	379.3
	faster than 20 Mbit/s	[%]	100.0	100.0	95.0	80.0
HTTP UL FDTT	Qualifier	[%]	100.0	100.0	100.0	100.0
	10% faster than	[Mbit/s]	170.4	60.7	50.1	71.0
	faster than 2 Mbit/s	[%]	100.0	100.0	100.0	94.4
	faster than 5 Mbit/s	[%]	100.0	100.0	94.4	94.4
YouTube	Qualifier	[%]	100.0	100.0	85.7	95.0
	Start Time	[s]	1.5	1.9	1.8	1.9
	AVG Resolution	[p]	1080.0	1080.0	1058.4	1080.0
YouTube Live Smartphone	Qualifier	[%]	100.0	100.0	100.0	94.7
	Start Time	[s]	2.2	2.4	3.0	3.1
	AVG Resolution	[p]	1080.0	1080.0	1069.5	1080.0
Interactivity egaming	Qualifier	[%]	100.0	94.7	89.5	100.0
	Interactivity egaming	[%]	79.1	72.7	77.8	61.9
Conversational App	Qualifier	[%]	100.0	98.3	100.0	100.0
	Speech Quality (P10)	[MOS-LQO]	3.9	3.9	3.7	4.2
Interactivity Videochat	Qualifier	[%]	94.7	84.2	94.7	76.5
	Interactivity Videochat	[%]	91.2	88.2	82.2	86.3



Voice KPI Overview

Achieved values of all networks under test in each of the relevant Voice Key Performance Indicators (KPIs) for the geographical categories "Cities".

Voice	Service Group	Unit	Boost Mobile	AT&T	Verizon	T-Mobile
Overall Drivetest	Qualifier	[%]	98.4	98.5	99.4	97.9
	Call Setup Time (P90)	[s]	2.5	4.1	4.6	5.7
	Speech Quality (P10)	[MOS-LQO]	3.7	4.0	4.0	3.9
Overall Walktest	Qualifier	[%]	100.0	100.0	100.0	100.0
	Call Setup Time (P90)	[s]	2.7	3.1	2.6	4.8
	Speech Quality (P10)	[MOS-LQO]	3.6	4.0	3.9	3.7





Key Takeaways

Boost Mobile achieves the highest score in New York City with 925 points out of 1000, followed by AT&T with 899 points, Verizon with 864 points and T-Mobile with 845 points.

Boost Mobile leads in the data category and data reliability while Verizon is ahead in the voice category and voice reliability.

Boost Mobile achieves in New York City the highest overall Reliability with 563 points out of 600, followed by AT&T with 554 points, T-Mobile with 529 points and Verizon with 525 points.





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