Institut belge des services postaux
et des télécommunications

Communication du Conseil de l'IBPT du 18 avril 2026 concernant les résultats d'une campagne de mesure de la qualité des réseaux mobiles en Belgique

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1. Contexte et description du marché

1. L'IBPT a demandé au consultant Mozark de réaliser une campagne de mesure nationale concernant la qualité des réseaux mobiles d'Orange, de Proximus et de Telenet. L'opérateur DIGI n'a pas été repris dans les résultats de l'étude étant donné qu'au moment où elle a été réalisée, à savoir entre fin août et mi-novembre, il utilisait principalement le réseau 4G d'un autre opérateur.

2. L'IBPT publie à présent les résultats de cette campagne de mesure pour 2025. L'objectif de cette campagne est de donner un aperçu objectif et réaliste de la qualité des services vocaux et de données mobiles telle que perçue quotidiennement par les utilisateurs finaux dans différents environnements d'utilisation, tels que dans la voiture, dans le train et dans les centres commerciaux. À cet égard, l'accent est mis sur l'expérience utilisateur réelle, et non sur la couverture théorique.

3. Les mesures ont été effectuées dans trois environnements. Sur la route, les mesures ont été effectuées dans un véhicule sur une sélection représentative de routes belges, tant dans des villes grandes et moyennes que dans des zones rurales. Sur le rail, les mesures ont été effectuées dans des trains de voyageurs sur 16 lignes ferroviaires importantes[1], à des points de mesure sélectionnés, tant en heure creuse qu'en heure de pointe. Des mesures ont en outre été effectuées dans neuf grands centres commerciaux[2] dans des environnements urbains.

4. La connectivité mobile joue un rôle de plus en plus important dans la vie quotidienne des citoyens, tant lors de leurs déplacements que dans les lieux très fréquentés. C'est pourquoi l'IBPT mesure les performances des réseaux mobiles à l'aide de divers indicateurs pratiques.

   4.1. Pour les services vocaux, l'on mesure si les communications s'établissent facilement, à quelle vitesse et si elles se déroulent sans interruption et avec une bonne qualité sonore.

   4.2. Pour les services de données, l'on mesure la vitesse, la fiabilité et l'expérience utilisateur lors de la consommation de données mobiles, comme le téléchargement et le chargement de fichiers, la navigation sur le web, le streaming vidéo et la messagerie.

5. En rendant ces informations publiques, l'IBPT souhaite offrir une transparence aux consommateurs et aux décideurs politiques et contribuer à l'amélioration continue des réseaux mobiles en Belgique.

[1] Bruxelles-Gand, Bruxelles-Anvers, Bruxelles-Liège (ligne à grande vitesse), Bruxelles-Liège (ligne régulière), Bruxelles-Namur, Bruxelles-Hal, Hal-Mons, Anvers-Gand, Gand-Courtrai, Hal-Tournai, Bruxelles-Charleroi, Gand-Bruges, Charleroi-Namur, Louvain-Hasselt, Namur-Arlon et Liège-Welkenraedt.
[2] À Bruxelles (Docks Brussels, City 2 et Westland Shopping Center), à Anvers (Wijnegem Shopping Center et Stadsfeestzaal), à Liège (Médiacité et Belle-Île), à Louvain-la-Neuve (Esplanade) et à Charleroi (Rive Gauche).

2. Résultats de la campagne de mesure

6. Les mesures sur la route indiquent que les services vocaux y restent très fiables, avec un taux d'appels établis et reçus avec succès (« call setup success rates ») élevé, tant en ce qui concerne les appels mobiles classiques que les services OTT tels que WhatsApp : en moyenne 98,8 % pour Orange, 98,5 % pour Proximus et 98 % pour Telenet. Dans les environnements urbains, ce taux de réussite est généralement plus élevé que dans les zones rurales. Dans les grandes villes, les valeurs sont très élevées : en moyenne entre 99,5 % et 98,3 %. Dans les zones rurales, les problèmes de connexion restent légèrement plus fréquents, même si la fiabilité générale y reste bonne, entre 97,7 % et 97,1 % selon l'opérateur.

7. Sur la route, la qualité des données mesurée atteint également un bon niveau. En ce qui concerne les vitesses de téléchargement, les valeurs moyennes de tous les opérateurs se situent largement au-dessus des exigences de base pour une utilisation confortable de l'internet mobile, avec quelques différences plutôt mineures entre les réseaux. En outre, les messages Whatsapp ont été envoyés et reçus avec succès dans 94,5 % des cas chez Proximus, contre 93,8 % et 92,6 % chez Telenet et Orange, respectivement. En moyenne et selon l'opérateur, une page Internet peut être complètement téléchargée dans 95,1 % à 97,4 % des cas, mais là encore, on observe des variations selon la zone : dans les grandes villes, tous les opérateurs obtiennent en moyenne au moins 97,8 %, tandis que ce chiffre tombe en zones rurales à 95,7 % pour Proximus et Orange et à 91,3 % pour Telenet.

8. Les résultats dans les trains présentent un tableau plus contrasté. Ainsi, les mesures ont indiqué que sur les lignes ferroviaires étudiées, plus de 97 % des appels ont été établis avec succès par les opérateurs. Toutefois, cela ne signifie pas qu'il est question d'une couverture totale ou uniforme sur toutes les lignes ferroviaires. Sur plusieurs trajets, l'on dénombre encore des zones dans lesquelles il est plus difficile d'établir une connexion ou dans lesquelles le service est instable. En outre, les mesures sont basées sur un échantillon de points de mesure, ne permettant donc pas de parler d'une couverture générale de la partie mesurée du réseau ferroviaire.

9. Les performances des services de données mobiles à l'intérieur des trains ont également été testées. En ce qui concerne les services de données mobiles à l'intérieur des trains, les performances étaient clairement inférieures à celles sur la route. Le taux de réussite des services de messagerie reste relativement élevé : sur toutes les lignes ferroviaires testées, il s'élève en moyenne à 92,2 % pour Orange, 91,4 % pour Telenet et 89,8 % pour Proximus. Le pourcentage de pages Internet complètement téléchargées est de 94,9 % pour Telenet, de 93,7 % pour Proximus et de 93,1 % pour Orange. Regarder des vidéos dans le train s'avère en moyenne plus difficile sur toutes les lignes : le pourcentage de vidéos YouTube qui ont pu être lues avec succès sans interruption ni coupure s'élève à 57 % pour Orange, 56,5 % pour Telenet et 42 % pour Proximus. À titre de comparaison, les mesures le long des routes révèlent un taux de réussite de 85,4 % pour Orange, de 83,6 % pour Proximus et de 83,1 % pour Telenet pour cet indicateur. Cela peut s'expliquer par les débits de téléchargement à l'intérieur des trains qui sont en moyenne nettement plus faibles et plus sensibles aux interruptions.

10. Les centres commerciaux constituent également des environnements techniquement complexes en raison de leur structure, de leurs multiples étages et de la densité d'utilisateurs élevée. Les services vocaux fonctionnent généralement bien, voire très bien, avec un « call setup success rate » de 100 % pour Telenet et de 99,6 % pour Orange et Proximus. Pour les services de données mobiles, les résultats sont moins homogènes : les applications telles que

la messagerie sont dans la plupart des cas exécutées avec succès par certains réseaux, tandis que d'autres réseaux affichent des taux de réussite plus faibles. Ainsi, le taux de réussite pour les messages Whatsapp est de 98 % chez Proximus, de 91,8 % chez Orange et de seulement 79,6 % chez Telenet. En revanche, les vitesses de téléchargement mesurées se situent en moyenne à un niveau suffisamment élevé comparable à celui enregistré à bord d'un véhicule circulant sur la route.

3. Conclusion

11. En résumé, la campagne de mesure confirme la présence globale d'une bonne disponibilité et fiabilité des services mobiles en Belgique, avec toutefois des différences claires et structurelles selon l'environnement. Les meilleures performances ont été mesurées sur la route et dans de grands environnements intérieurs, alors que les trains montrent davantage de variabilité et de limitations. L'expérience utilisateur réelle peut toutefois diverger de ces résultats dans la pratique, car elle est influencée par divers facteurs tels que le type d'appareil, le nombre d'utilisateurs simultanés et l'emplacement et l'environnement spécifiques.

12. Pour plus d'informations sur les différentes publications de l'IBPT concernant la présence et la qualité des réseaux mobiles, veuillez consulter la page Couverture des réseaux[3] sur le site Internet de l'IBPT.

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[3] https://www.ibpt.be/consommateurs/telephonie-internet-tv/comparer-les-operateurs/couvertures

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Belgian Institute for Postal Services and Telecommunications

NETWORK QUALITY TESTS
CAMPAIGN RESULTS 2025

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GLOSSARY

MOC	Mobile Originated Call
MTC	Mobile Terminated Call
OTT	Over-The-Top
MOS	Mean Opinion Score
CST	Call Setup Time
DL	Download
UL	Upload
HTTPS	HyperText Transfer Protocol Secure
RAT	Radio Access Technology
2G	Second Generation Mobile Network
4G	Fourth Generation Mobile Network
5G	Fifth Generation Mobile Network
n1	5G Frequency Band n1 (2100 Mhz)
n28	5G Frequency Band n28 (700 Mhz)
n78	5G Frequency Band n78 (3 500 Ghz)
VoLTE	Voice over Long-Term Evolution
VoNR	Voice over New Radio
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
TCP	Transmission Control Protocol
BBR	Bottleneck Bandwidth and Round-trip time
CUBIC	TCP CUBIC Congestion Control Algorithm
GB	Gigabyte
MB	Megabyte
Mbps	Megabits per second
URL	Uniform Resource Locator
GPS	Global Positioning System

1. EXECUTIVE SUMMARY

Every year, BIPT evaluates the quality of mobile networks in Belgium. The 2025 campaign was carried out by MOZARK/QoSi using the technical methodology approved by BIPT and shared with the mobile operators.

The objective is to reflect the real customer experience, without comparing or ranking operators. The mobile benchmarking exercise aims to capture what users encounter when performing typical activities on a mobile network with a 5G smartphone, such as making phone calls, downloading files, browsing websites and watching videos.

This report enhances transparency and enables customers to make more informed choices based on independently measured network performance. It also supports BIPT in gaining insight into the current state and ongoing development of mobile networks in Belgium. In addition, the findings provide operators with valuable guidance to better target their investments and further improve the quality of their mobile services.

This report presents the methodology and results of the mobile network quality tests campaign of 2025. It shows the performance of mobile networks for both voice and data services, based on measurements collected across Belgium.

The report provides the results for each operator individually but does not make any comparisons between them. Due to methodological differences compared with similar campaigns conducted in previous years, no comparison of the results or KPI values with those years will be carried out.

2. CAMPAIGN METHODOLOGY

The campaign was conducted between 25/Aug/2025 and 13/Nov/2025 and included drive tests, train tests, and measurements inside major shopping centres. All tests were performed using commercial 5G smartphones and standardized tools, following the agreed BIPT methodology to ensure consistent and comparable results.

The measurements cover several real use environments:

- Roads (urban, suburban, rural and national routes)
- Train lines
- Shopping centres

All measurements were performed using commercial 5G smartphones (Samsung Galaxy S24) inside vehicles or carried by technicians.

2.1. Drive tests scope

The drive test campaign was carried out across a representative selection of Belgian roads, including large cities, medium cities, small towns and rural areas.
Two vehicles communicating with each other were used simultaneously, each following predefined routes.

The measurements included:

- Mobile-to-mobile voice calls
- WhatsApp voice calls
- Data tests such as speed tests, file transfers, web browsing, video streaming and WhatsApp messaging

All tests were performed inside the vehicles to reflect real user experience, taking into account natural in-car signal attenuation.

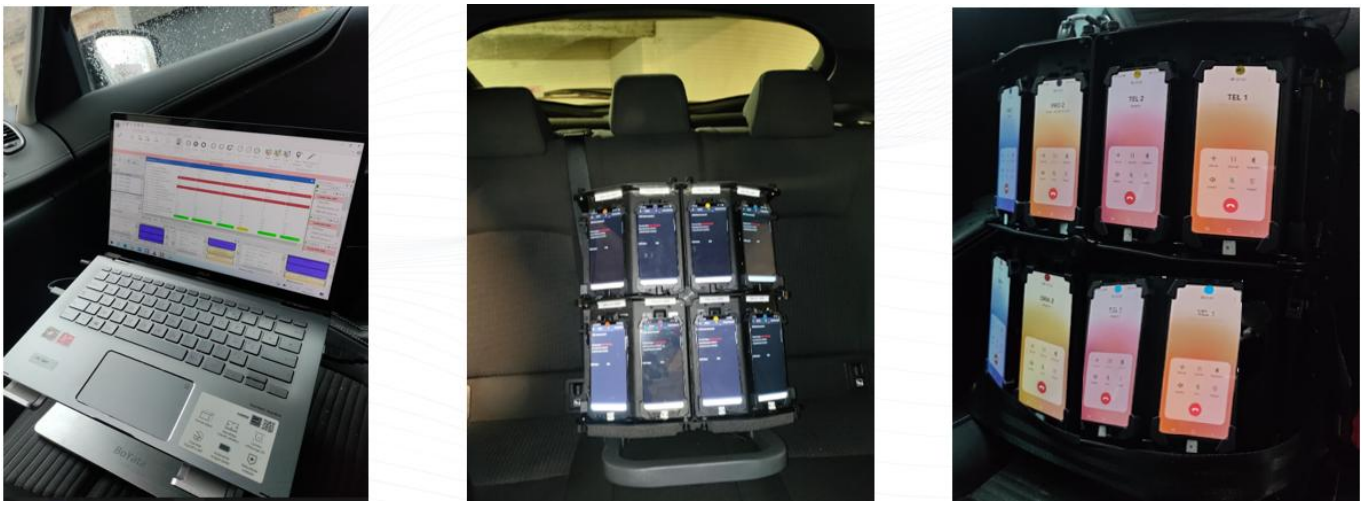


Figure 1: Drive test setup – technician computer (left), used smartphones backpack (middle), smartphones making calls (right).

2.2. Train tests scope

Train tests followed the selected major passenger railway lines, including high-speed and regular lines.

One measurement platform was carried by the technician inside the train, while the second platform remained static in a location with very good radio conditions. This way, only the performance experienced inside the train was evaluated, including both voice and data services.

The objective was to capture the true performance that passengers experience during daily and long-distance travel, taking into account natural in-train signal attenuation.

Figure 2: Train test setup - with technician computer and smartphone backpack.

2.3. Shopping Centre Scope

Measurements were conducted inside selected shopping centres in major Belgian cities.

A technician walked through the different areas of each centre with a backpack platform, while a second static platform in a location with very good radio conditions ensured stable reference conditions.

The purpose of these measurements was to assess mobile service quality in indoor commercial environments, where signal conditions are often more challenging.

Figure 3: Shopping centre setup – used smartphone backpack (left) and a walking technician performing measurements (right).

2.4. Technical Specifications and Tools

The following tools and equipment were used for all measurements:

- **Hardware**
  - Keysight Backpack Platform
  - Samsung Galaxy S24 (16 units)
  - Laptop controlling the tests
  - GPS module
- **Software**
  - Nemo Outdoor 10 (for measurement control)
  - NATA automation application
  - Nemo Analyze (for post-processing)
- **Servers**
  - Ubuntu 24.04.2 LTS
  - Dual-stack HTTPS (IPv4 + IPv6)
  - 10 Gbps guaranteed bandwidth
  - CUBIC and BBR congestion control, used 50/50 during tests

2.5. Tested Services and Geographic Distribution

The following services were measured during the campaign:

- Standard mobile voice calls (MOC and MTC)
- Regular and WhatsApp voice calls
- Download and Upload throughput (DL 10 GB / UL 500 MB)
- File transfer (DL 10 MB/UL 5 MB)
- Web browsing (6 URL panel)
- YouTube streaming
- WhatsApp messaging

All tests were executed in automated cycles with predefined timeouts and waiting times.

2.6. Geographic representation of the collected samples

Below is the geographic distribution of collected samples for the Voice and Data measurement campaigns with drive tests, train tests and shopping centre scope included.

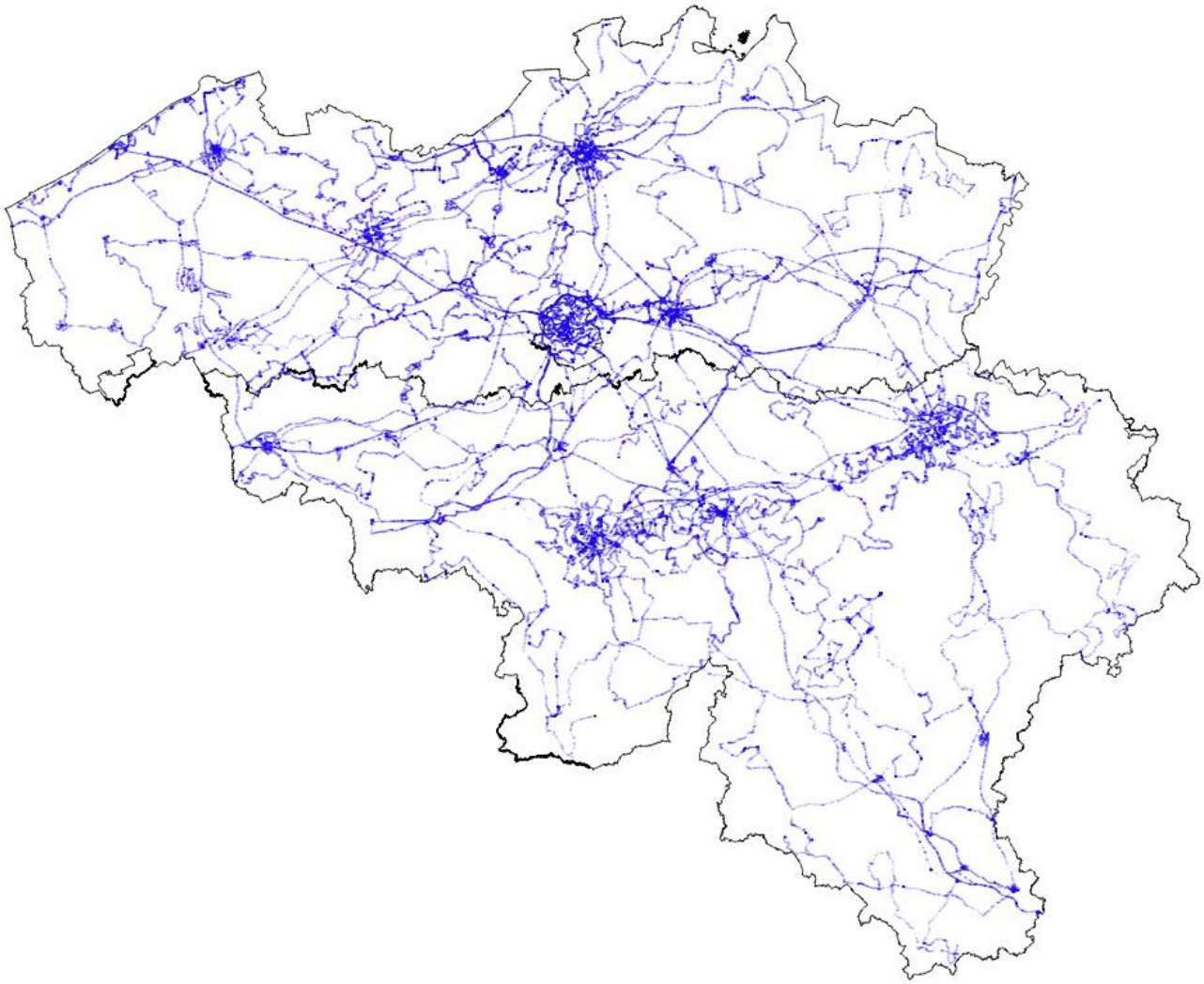


Figure 4: Geographic representation of the collected samples for Voice and Data measurements.

3. DRIVE TEST CAMPAIGN

3.1. Overview

The drive tests covered a wide mix of urban, suburban, and rural environments. All mobile operators were tested under identical conditions using the same devices and protocols. Since DIGI mainly uses the 4G network of Proximus in 2025, the results for DIGI are not part of the report.

To create a balanced and representative measurement campaign and to provide an overall view of the Quality of Experience across Belgium, a specific route selection methodology was applied to ensure the widest possible geographical distribution of measurements across the Belgian territory. Test measurements were assigned to geographical categories based on national population statistics and the number of inhabitants per municipality. Municipalities were classified according to population size and settlement type as follows: large cities with more than 100,000 inhabitants, medium-sized cities with between 30,000 and 100,000 inhabitants, small towns with between 15,000 and 30,000 inhabitants, and rural areas including villages and sparsely populated zones.

Locations within these categories were selected to ensure measurements across the entire Belgian territory. Connecting roads between the selected areas, as well as intercity routes linking these locations, were also included in the drive tests. This approach made it possible to collect both detailed local results and a comprehensive overview of network performance across different environments. This also explains the relatively higher representation of rural areas in the 2025 campaign compared to their share of the population, as shown below.

	Percentage of population	Percentage of performed drive tests
Large cities	17%	17%
Medium cities	33%	26%
Small towns	28%	23%
Rural areas	22%	32%

Table 1: Municipality classification with percentage of population and percentage of drive tests.

3.2. Voice Results

The voice KPIs are reported separately for regular mobile calls and WhatsApp calls because these two services operate in different ways. A regular call uses the operator's own voice network, which is designed to provide fast call setup and stable speech quality, while a WhatsApp call uses mobile data to send voice over the internet, making its quality more dependent on data performance and network load. The voice call summary combines the results of both services, using two sets of regular call samples and one set of WhatsApp call samples, to give a balanced and realistic overview of the calling experience that users can expect across traditional telephony and popular OTT applications.

Voice Call KPIs are the following:

- **Call Setup Success Rate**: Percentage of calls that are successfully connected without failure or timeout.
- **Successfully Established Calls Completion Rate**: Percentage of calls that are successfully connected and completed within 90 seconds without being dropped.
- **Call Setup Time (s)**: Average time, in seconds, between initiating a call and the called party being alerted.
- **Voice Quality Score**: Objective measurement of perceived speech quality during the call, based on MOS evaluation.

A. Voice Call Summary (both regular and WhatsApp voice calls):

KPIs Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	98.8%	98.5%	98.0%
Successfully established calls completion rate	%	96.3%	95.3%	93.0%
Call Setup Time				
Call Setup Time (s)	Average	2.2	3.1	2.4
Call Setup Time (s) long samples	10% longest	5.6	12.2	9.0
Voice Quality				
Voice Quality Score	Average	4.2	4.0	4.2
Voice Quality Score low samples	10% lowest	3.2	3.0	3.3

Table 2: Overview of the voice call KPIs for both regular and WhatsApp voice calls during the drive tests.

B. Regular Voice Call only:

KPIs Regular Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	99.3%	99.4%	99.0%
Successfully established calls completion rate	%	96.8%	95.8%	93.1%
Call Setup Time				
Call Setup Time (s)	Average	1.9	3.4	2.3
Call Setup Time (s) long samples	10% longest	4.5	13.1	10.2
Voice Quality				
Voice Quality Score	Average	4.4	4.1	4.4
Voice Quality Score low samples	10% lowest	3.6	3.1	3.5

Table 3: Overview of the regular voice call KPIs during the drive tests.

The table below presents the distribution of regular voice call samples by radio access technology for each mobile operator during the measurement campaign. It provides an overview of the network technologies used to carry standard mobile calls under real-life conditions.

Technology	Orange	Proximus	Telenet
2G	1.0%	13.2%	1.9%
4G	98.8%	86.7%	97.9%

Table 4: Technology distribution for regular voice calls during the drive tests.

Technology distribution during the measurement campaign shows that 4G is the dominant technology across all operators. 2G is still observed in some cases, particularly for DIGI and Proximus, reflecting fallback to legacy networks where 4G coverage is limited or where VoLTE is not available. 3G is largely absent from the measurements, as it is being phased out in Belgium and is no longer used as a primary technology for voice services. 5G is observed mainly for data connectivity, while voice services continue to rely on 4G through VoLTE, as native 5G voice (VoNR) is not yet commercially deployed.

C. WhatsApp Voice Call only:

KPIs WhatsApp Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	97.8%	96.8%	95.9%
Successfully established calls completion rate	%	95.3%	94.3%	92.8%
Call Setup Time				
Call Setup Time (s)	Average	2.7	2.6	2.7
Call Setup Time (s) long samples	10% longest	6.3	5.6	6.1
Voice Quality				
Voice Quality Score	Average	3.8	3.8	3.8
Voice Quality Score low samples	10% lowest	2.9	3.0	3.1

Table 5: Overview of the WhatsApp voice call KPIs during the drive tests.

The table below presents the distribution of WhatsApp call samples by radio access technology for each mobile operator during the measurement campaign.

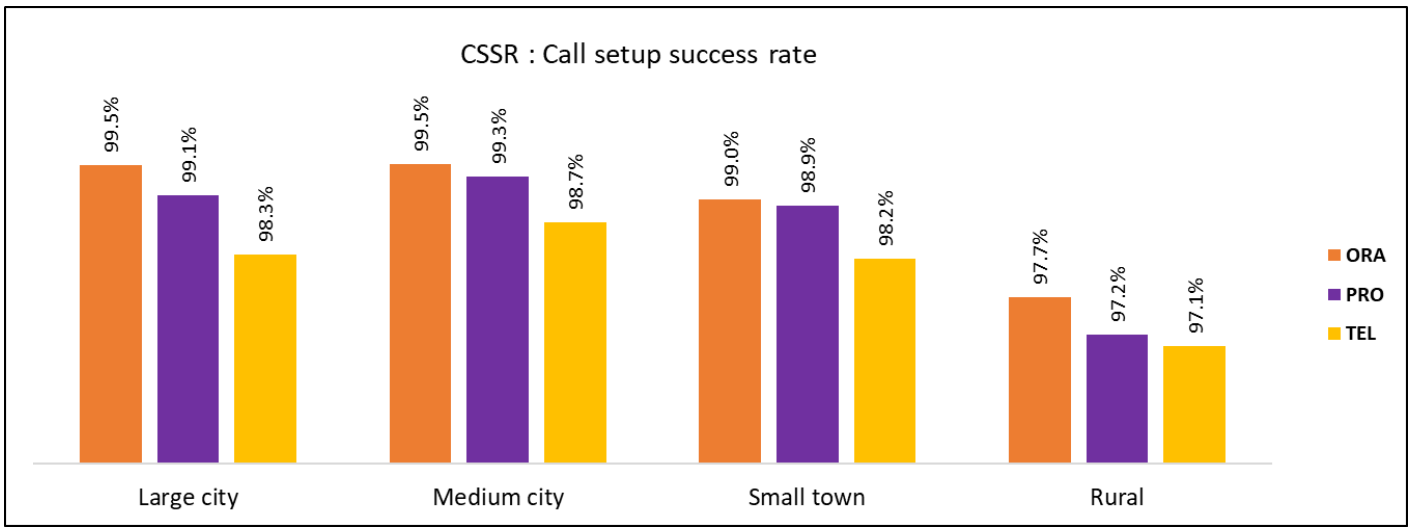
Technology	Orange	Proximus	Telenet
2G	0.2%	0.4%	0.5%
4G	26.0%	25.3%	32.1%
5G	73.8%	74.3%	67.3%

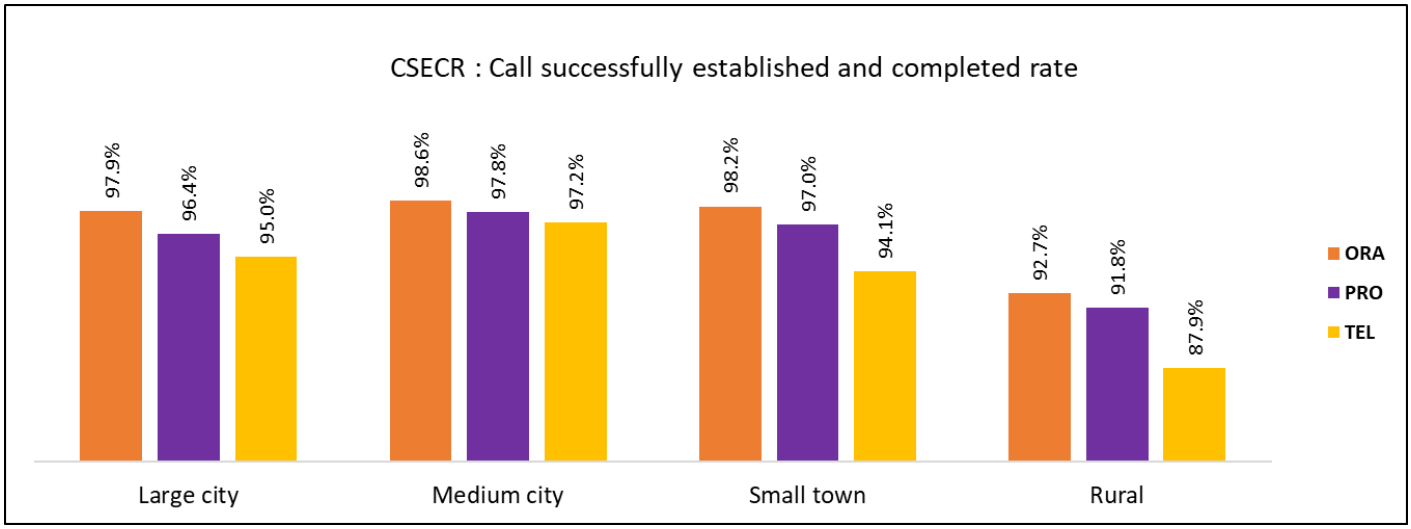
Table 6: Technology distribution for WhatsApp voice calls during the drive tests.

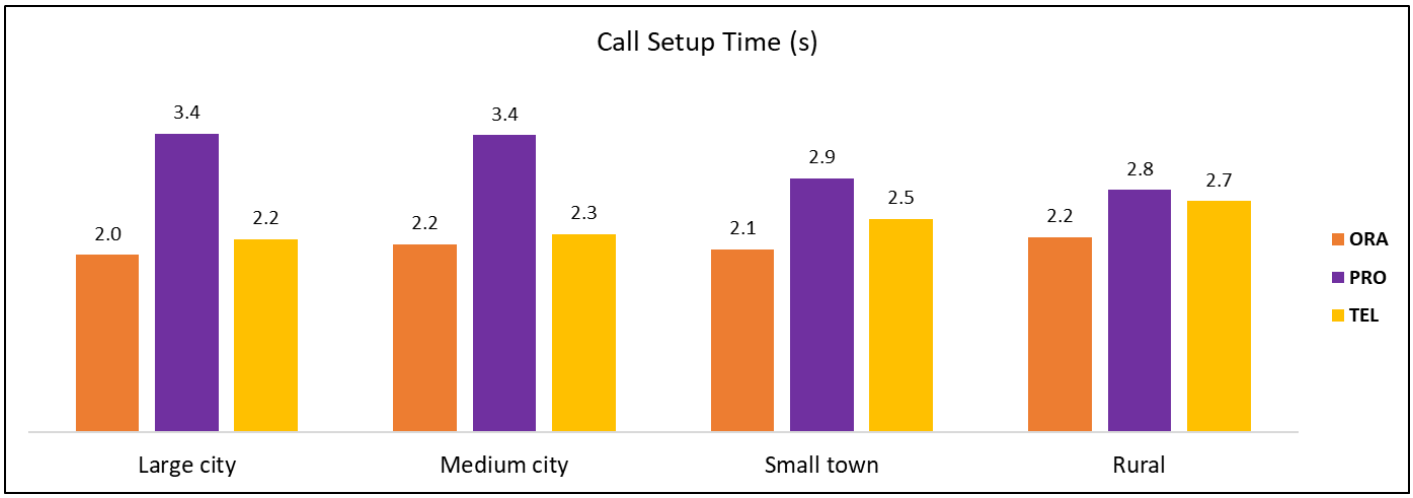
These results show that WhatsApp calls are predominantly carried over 4G and 5G networks, reflecting the data-based nature of this service. The use of 2G remains marginal, while 5G contributes significantly for Orange, Proximus, and Telenet. For DIGI, WhatsApp calls are almost exclusively performed over 4G, with no 5G samples recorded.

D. Performance per area

This section shows voice performance by geographical area for both regular voice calls and WhatsApp calls, based on Call Setup Success Rate, Successfully Established Calls Completion Rate, Call Setup Time, and Voice Quality Score.


CSSR : Call setup success rate
99.5%
99.1%
98.3%
99.5%
99.3%
98.7%
99.0%
98.9%
98.2%
97.7%
97.2%
97.1%
Large city
Medium city
Small town
Rural
ORA
PRO
TEL


CSECR : Call successfully established and completed rate
97.9%
96.4%
95.0%
98.6%
97.8%
97.2%
98.2%
97.0%
94.1%
92.7%
91.8%
87.9%
Large city
Medium city
Small town
Rural
ORA
PRO
TEL


Call Setup Time (s)
2.0
3.4
2.2
2.2
3.4
2.3
2.1
2.9
2.5
2.2
2.8
2.7
Large city
Medium city
Small town
Rural
ORA
PRO
TEL

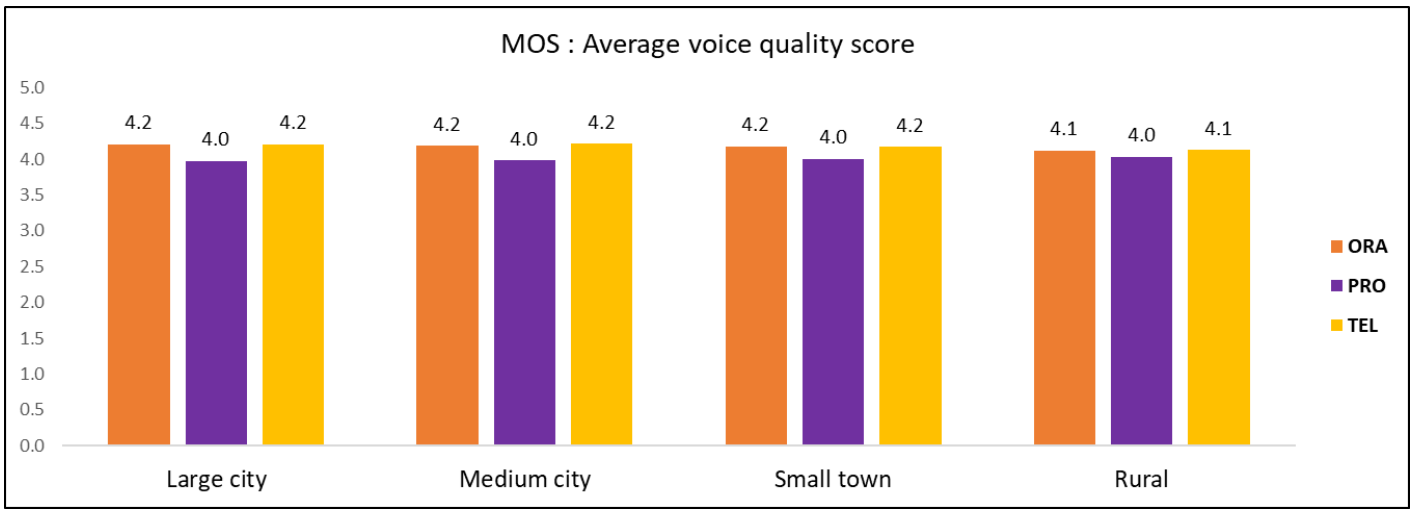


Figure 5: Overview of the voice call KPIs (CSSR, CSECR, Call Setup Time and Voice Quality) for both regular and WhatsApp voice calls during the drive tests by geographical area.

3.3. Data Results

This section summarises the data performance results from the drive test campaign, covering throughput, file transfer, web browsing, video streaming and messaging KPIs for each mobile operator.

Data KPIs are the following:

- **Download Throughput (HTTPS DL 10 GB fixed duration)**: Average application-layer download throughput measured over a 10 second test.
- **Upload Throughput (HTTPS UL 500 MB fixed duration)**: Average application-layer upload throughput measured over a 10 second test.
- **File Download Success Rate (HTTPS DL 10 MB)**: Percentage of 10 MB file downloads successfully completed within 30 seconds.
- **File Upload Success Rate (HTTPS UL 5 MB)**: Percentage of 5 MB file uploads successfully completed within 30 seconds.
- **Web Browsing Success Rate**: Percentage of web pages fully downloaded within 15 seconds.
- **Web Browsing median time (s)**: median time required for a web page to fully load after the request is initiated, within a 15 second limit.
- **YouTube Success Rate**: Percentage of YouTube videos successfully played without failure or drop.
- **YouTube Time to First Picture**: Average time taken for the first video image to appear after playback is requested.
- **WhatsApp Messaging Success Rate**: Percentage of WhatsApp messages successfully sent and received within the defined within 30 seconds.

A. Data Summary

KPIs Data Summary		Orange	Proximus	Telenet
Throughput				
DL throughput (Mbps)	Average	83.7	94.4	70.0
	10% slowest	3.2	1.9	2.4
UL throughput (Mbps)	Average	33.2	36.0	32.5
	10% slowest	4.5	4.2	4.3
File Transfer				
File download	Median time (s)	6.3	5.7	7.1
	Success rate (%)	95.6%	90.3%	94.1%
File upload	Median time (s)	3.7	3.2	3.7
	Success rate (%)	94.2%	88.6%	93.4%
Web Browsing				
Web Browsing	Median time (s)	2.2	1.9	2.1
	Success rate (%)	96.8%	97.4%	95.1%
Video Streaming				
YouTube Buffered Streaming	Success rate (%)	85.4%	83.6%	83.1%
	Time to 1st picture (s)	0.8	0.8	0.9
Messaging				
WhatsApp messaging	Success rate (%)	92.6%	94.5%	93.8%

Table 7: Overview of the data KPIs during the drive tests.

The table below shows the distribution of data test samples by radio access technology for each mobile operator. It highlights the proportion of measurements performed on 4G and 5G networks during the drive test campaign.

Technology	Orange	Proximus	Telenet
4G	34.0%	33.7%	38.0%
5G	66.0%	66.1%	61.9%

Table 8: Technology distribution for data results during the drive tests.

The table below presents the distribution of 5G connection samples by frequency band for each mobile operator. Only 5G samples are considered, showing the relative use of n1, n28, and n78 bands during the measurement campaign.

5G frequency bands	Orange	Proximus	Telenet
n1 (2100 MHz band)	38.9%	53.0%	56.5%
n28 (700 MHz band)	20.1%	7.6%	24.2%
n78 (3500 MHz band)	40.5%	39.1%	18.9%

Table 9: 5G frequency band distribution for data results during the drive tests.

This table shows that Orange, Proximus, and Telenet use a mix of low-band, mid-band, and high-band 5G frequencies in their networks, reflecting a balance between coverage and capacity. The n78 band plays a key role in providing higher data capacity, while n1 and n28 contribute mainly to broader 5G coverage. DIGI recorded no 5G samples, indicating that 5G services were not observed during the measurements.

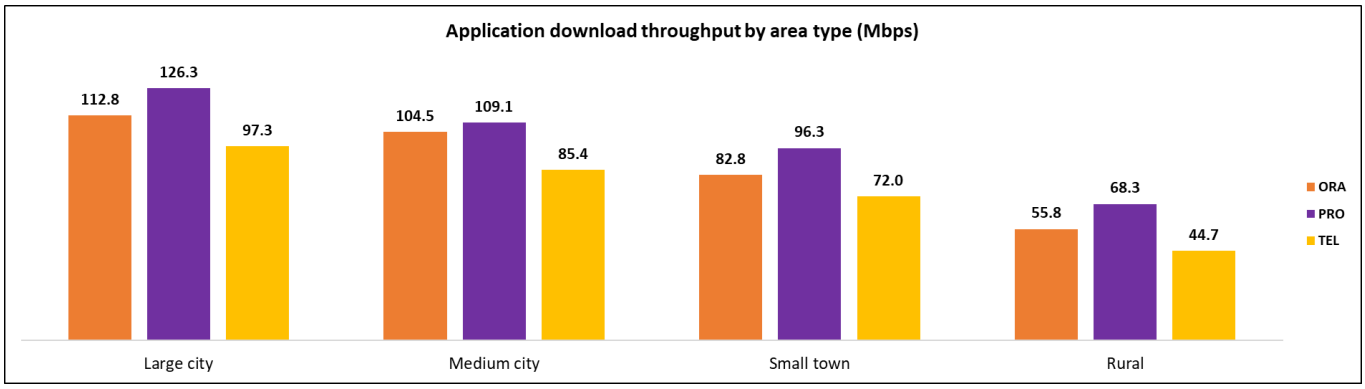
Below is the percentage of download tests reaching defined speed thresholds of 3 Mbps, 10 Mbps, and 30 Mbps for each mobile operator, providing an overview of how often users experience basic, standard, and high-speed data performance.

	Orange	Proximus	Telenet
THRESHOLD SPEED 3 Mbps	94.8%	90.7%	93.7%
THRESHOLD SPEED 10 Mbps	88.8%	86.7%	83.8%
THRESHOLD SPEED 30 Mbps	71.8%	76.5%	66.3%

Table 10: Download speed thresholds for data results during the drive tests.

B. Performance per area

This section presents download, upload, and web browsing performance by geographical area, showing how data throughput and page loading experience vary between large cities, medium cities, small towns, and rural areas under real-life conditions.



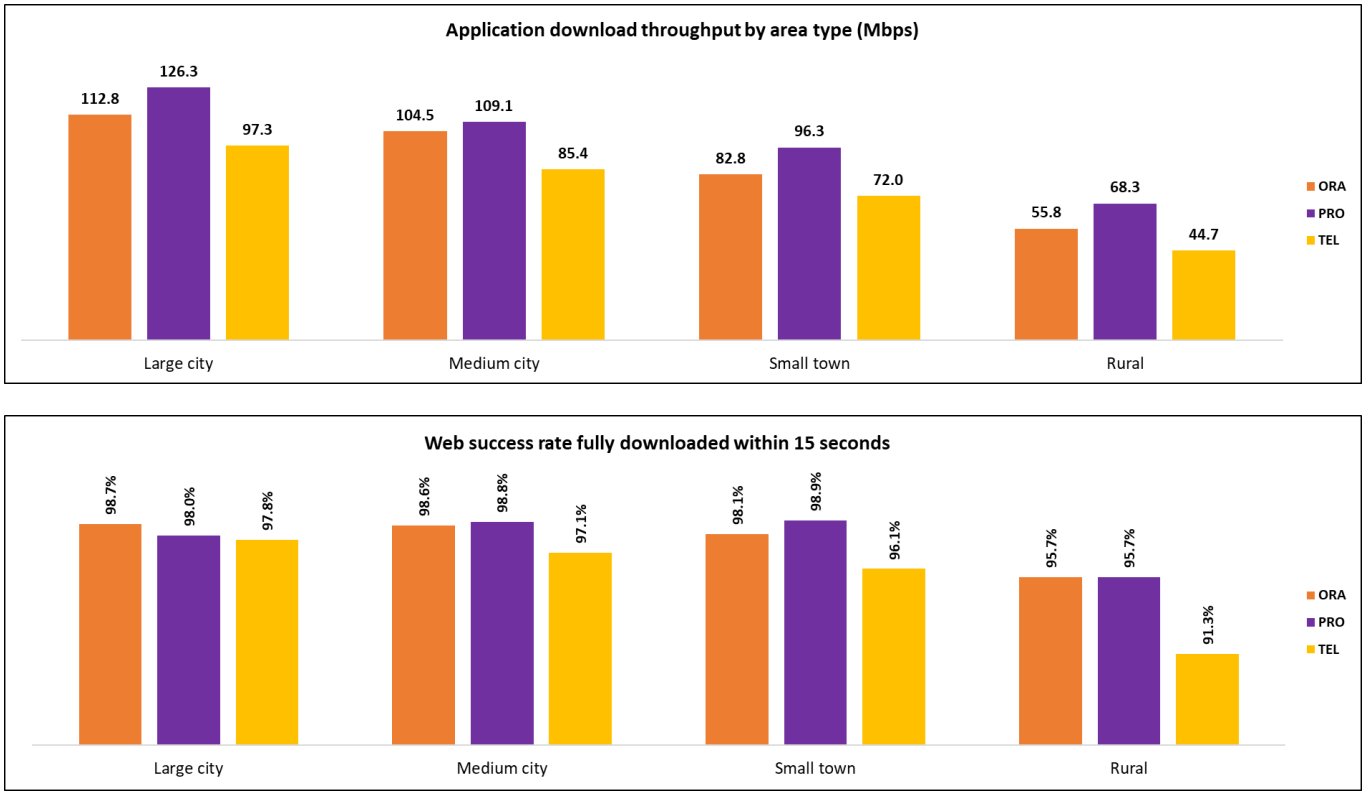


Figure 6: Overview of the data results (download, upload and browsing) during the drive tests by geographical area.

4. TRAIN TEST CAMPAIGN

4.1. Overview

The train tests were performed across selected major railway lines, including both high-speed and regular lines.

All mobile operators were tested under identical conditions using the same devices, protocols, and measurement methodology.

The goal of the campaign was to evaluate the real user experience on board trains, where radio conditions are often more challenging due to mobility, metallic structures, and variable coverage along the tracks.

This setup allowed us to observe realistic customer experience, including the impact of tunnels, long-distance stretches, rural areas, and changes in radio coverage along the tracks.

The tests were carried out on the following railway lines during both peak and off-peak hours in order to capture network performance under different traffic conditions: Brussels–Ghent, Brussels–Antwerp, Brussels–Liège (high-speed line), Brussels–Liège (regular line), Brussels–Namur, Brussels–Halle, Halle–Mons, Antwerp–Ghent, Ghent–Kortrijk, Halle–Tournai, Brussels–Charleroi, Ghent–Bruges, Charleroi–Namur, Leuven–Hasselt, Namur–Arlon and Liège–Welkenraedt.

4.2. Voice Results

A. Voice Call Summary (both regular and WhatsApp voice calls):

KPIs Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	99.3%	98.7%	97.9%
Successfully established calls completion rate	%	96.0%	95.3%	88.5%
Call Setup Time				
Call Setup Time (s)	Average	2.4	2.3	2.8
Call Setup Time (s) long samples	10% longest	7.1	7.7	11.9
Voice Quality				
Voice Quality Score	Average	4.1	4.1	4.1
Voice Quality Score low samples	10% lowest	3.1	3.0	3.1

Table 11: Overview of the voice call KPIs for both regular and WhatsApp voice calls during the train tests.

B. Regular Voice Call only:

KPIs Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	99.5%	99.0%	99.0%
Successfully established calls completion rate	%	95.8%	95.5%	86.7%
Call Setup Time				
Call Setup Time (s)	Average	2.2	2.2	2.7
Call Setup Time (s) long samples	10% longest	6.9	7.9	13.9
Voice Quality				
Voice Quality Score	Average	4.3	4.3	4.3
Voice Quality Score low samples	10% lowest	3.5	3.4	3.2

Table 12: Overview of the regular voice call KPIs during the train tests.

Technology	Orange	Proximus	Telenet
2G	2.4%	2.3%	2.8%
4G	97.6%	97.5%	96.6%

Table 13: Technology distribution for regular voice calls during the train tests.

C. WhatsApp Voice Call only:

KPIs Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	99.0%	98.1%	95.7%
Successfully established calls completion rate	%	96.3%	94.9%	91.9%
Call Setup Time				
Call Setup Time (s)	Average	2.8	2.7	2.9
Call Setup Time (s) long samples	10% longest	6.8	7.1	7.9
Voice Quality				
Voice Quality Score	Average	3.7	3.6	3.8
Voice Quality Score low samples	10% lowest	2.8	2.8	3.0

Table 14: Overview of the WhatsApp voice call KPIs during the train tests.

Technology	Orange	Proximus	Telenet
2G	0.0%	1.0%	0.2%
4G	34.0%	19.6%	38.9%
5G	65.5%	79.4%	60.4%

Table 15: Technology distribution for WhatsApp voice calls during the train tests.

4.3. Data Results

A. Data Summary:

KPIs Data Summary		Orange	Proximus	Telenet
Throughput				
DL throughput (Mbps)	Average	62.0	63.7	45.2
	10% slowest	0.7	0.8	0.5
UL throughput (Mbps)	Average	26.1	26.7	24.2
	10% slowest	3.9	2.3	4.0
File Transfer				
File download	Median time (s)	7.1	6.3	7.9
	Success rate (%)	89.5%	70.2%	84.7%
File upload	Median time (s)	3.9	3.0	3.9
	Success rate (%)	87.9%	67.5%	86.2%
Web Browsing				
Web Browsing	Median time (s)	2.3	2.1	2.3
	Success rate (%)	93.1%	93.7%	94.9%
Video Streaming				
YouTube Buffered Streaming	Success rate (%)	57.0%	42.0%	56.5%
	Time to 1st picture (s)	0.8	0.8	1.0
Messaging				
WhatsApp messaging	Success rate (%)	92.2%	89.8%	91.4%

Table 16: Overview of the data KPIs during the train tests.

Technology	Orange	Proximus	Telenet
4G	46.1%	44.9%	47.6%
5G	53.7%	54.6%	52.3%

Table 17: Technology distribution for data results during the train tests.

	Orange	Proximus	Telenet
THRESHOLD SPEED 3 Mbps	85.9%	71.6%	85.7%
THRESHOLD SPEED 10 Mbps	77.1%	66.8%	74.0%
THRESHOLD SPEED 30 Mbps	56.6%	57.1%	49.1%

Table 18: Download speed thresholds for data results during the train tests.

B. Performance per train line

This section presents the data performance per railway line, focusing on application upload throughput and illustrating how data services perform while travelling by train across the different tested routes.

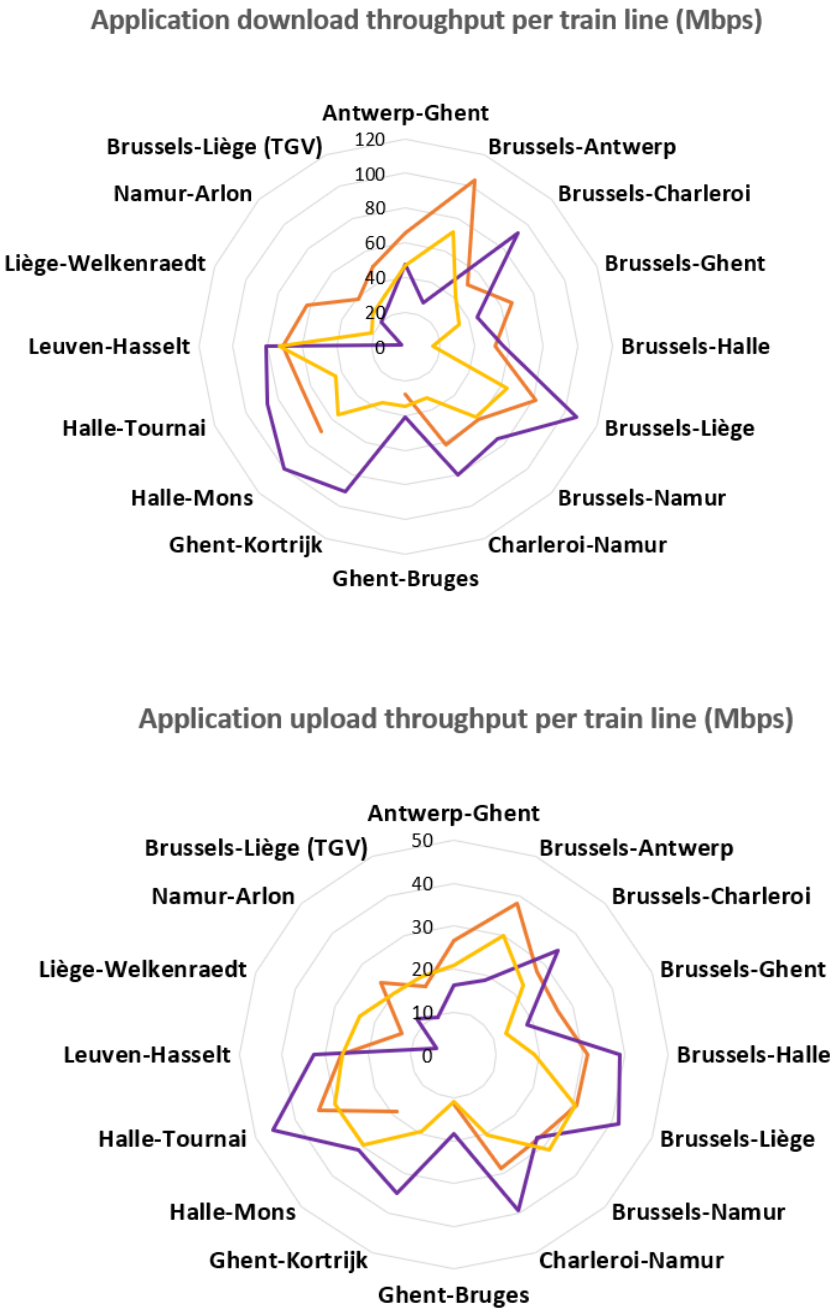


Figure 7: Overview of the data results (download and upload) during the train tests by each train line.

It should be noted that the Orange test results on the Ghent–Kortrijk line were excluded following an incident affecting Orange in the tested areas on 1 October.

5. SHOPPING CENTRE CAMPAIGN

5.1. Overview

The shopping centre tests were conducted inside major commercial centres across Belgium.

These locations typically have challenging radio conditions due to thick walls, multiple floors and crowds.

Measurements were performed while walking through all main areas of each shopping centre including corridors and all accessible levels.

The goal was to assess whether customers can make reliable voice calls, browse the web, stream videos, or use messaging apps during typical shopping activities.

This campaign provides a clear view of indoor network quality, where operators often face additional coverage and capacity constraints.

The following commercial centres were included in the test campaign: in Brussels, Docks Brussels, City 2, and Westland Shopping Center; in Antwerp, Wijnegem Shopping Center and Stadsfeestzaal; in Liège, Médiacité and Belle-Île en Liège; in Louvain-la-Neuve, Esplanade; and in Charleroi, Rive Gauche. The Ghent South Shopping Center was not tested in 2025 campaign due to renovation works.

5.2. Voice Results

A. Voice Call Summary (both regular and WhatsApp voice calls):

KPIs Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	99.6%	99.6%	100.0%
Successfully established calls completion rate	%	98.1%	99.6%	98.8%
Call Setup Time				
Call Setup Time (s)	Average	2.0	1.9	1.8
Call Setup Time (s) long samples	10% longest	4.8	4.3	3.9
Voice Quality				
Voice Quality Score	Average	4.3	4.3	4.3
Voice Quality Score low samples	10% lowest	3.8	3.7	3.9

Table 19: Overview of the voice call KPIs for both regular and WhatsApp voice calls during the shopping centre tests.

B. Regular Voice Call only:

KPIs Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	100.0%	100.0%	100.0%
Successfully established calls completion rate	%	98.4%	100.0%	100.0%
Call Setup Time				
Call Setup Time (s)	Average	1.8	1.6	1.4
Call Setup Time (s) long samples	10% longest	3.8	2.9	2.5
Voice Quality				
Voice Quality Score	Average	4.5	4.5	4.5
Voice Quality Score low samples	10% lowest	4.2	4.1	4.4

Table 20: Overview of the regular voice call KPIs during the shopping centre tests.

Technology	Orange	Proximus	Telenet
2G	0.3%	0.3%	0.0%
4G	99.7%	99.7%	100.0%

Table 21: Technology distribution for regular voice calls during the shopping centre tests.

C. WhatsApp Voice Call only:

KPIs Voice Call Summary		Orange	Proximus	Telenet
Success Rates				
Call setup success rate	%	98.8%	98.8%	100.0%
Successfully established calls completion rate	%	97.5%	98.8%	96.3%
Call Setup Time				
Call Setup Time (s)	Average	2.5	2.6	2.5
Call Setup Time (s) long samples	10% longest	5.2	5.8	4.2
Voice Quality				
Voice Quality Score	Average	4.0	4.0	4.0
Voice Quality Score low samples	10% lowest	3.5	3.4	3.6

Table 22: Overview of the WhatsApp voice call KPIs during the shopping centre tests.

Technology	Orange	Proximus	Telenet
4G	22.8%	11.1%	22.8%
5G	77.2%	88.9%	77.2%

Table 23: Technology distribution for WhatsApp voice calls during the shopping centre tests.

5.3. Data Results

A. Data Summary:

KPIs Data Summary		Orange	Proximus	Telenet
Throughput				
DL throughput (Mbps)	Average	85.5	96.9	77.2
	10% slowest	7.6	14.1	13.0
UL throughput (Mbps)	Average	39.5	43.8	41.4
	10% slowest	7.5	6.9	9.6
File Transfer				
File download	Median time (s)	5.7	5.2	6.5
	Success rate (%)	98.0%	98.0%	100.0%
File upload[4]	Median time (s)	3.4	2.6	2.6
	Success rate (%)	98.6%	96.5%	97.1%
Web Browsing				
Web Browsing	Median time (s)	1.9	1.7	1.9
_	Success rate (%)	96.8%	98.6%	98.7%
Video Streaming				
YouTube Buffered Streaming	Success rate (%)	84.6%	84.6%	81.5%
	Time to 1st picture (s)	0.7	0.7	0.9
Messaging				
WhatsApp messaging	Success rate (%)	91.8%	98.0%	79.6%

Table 24: Overview of the data KPIs during the shopping centre tests.

Technology	Orange	Proximus	Telenet
4G	33.3%	31.4%	35.5%
5G	66.7%	68.6%	64.5%

Table 25: Technology distribution for data results during the shopping centre tests.

	Orange	Proximus	Telenet
THRESHOLD SPEED 3 Mbps	97.3%	97.3%	98.6%
THRESHOLD SPEED 10 Mbps	94.5%	95.9%	97.2%
THRESHOLD SPEED 30 Mbps	79.5%	89.1%	83.9%

Table 26: Download speed thresholds for data results during the shopping centre tests.

B. Performance per shopping centres

This section presents the download and upload performance in the tested shopping centres, showing how reliably and efficiently data services operate in indoor commercial environments.

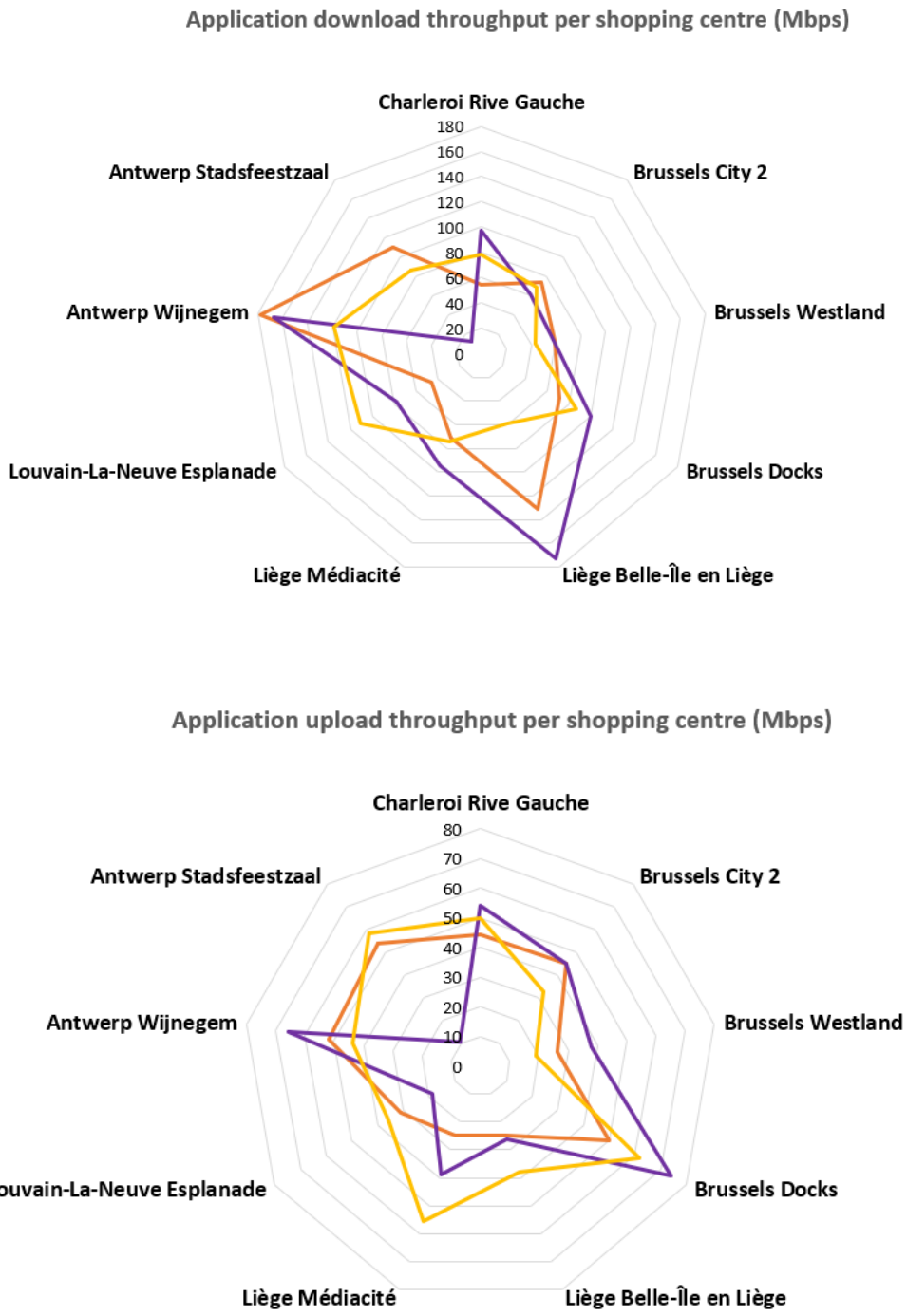


Figure 8: Overview of the data results (download and upload) during the shopping centre tests by each shopping centre.

OVERALL CONCLUSION

The 2025 measurement campaign provides a comprehensive view of the real customer experience across Belgium for both voice and data services. The results reflect the performance of mobile networks in a wide variety of environments, including roads, trains, and major indoor commercial areas. All measurements were conducted using the standardized BIPT methodology, ensuring neutrality, reproducibility, and consistent testing conditions for all mobile operators.

Across the different environments, the tested mobile networks in Belgium generally showed high levels of service availability for both voice calls and data usage meeting international quality levels. Voice services remained reliable in most situations, with strong call setup success rates and good audio quality scores. Data services also demonstrated high success rates for web browsing, file transfers, messaging, and video streaming, although performance naturally varied depending on geographical conditions, indoor environments, and mobility constraints.

As expected, radio conditions were more challenging in trains and inside shopping centres due to mobility, metallic structures, underground sections, or building materials. These factors led to lower throughput levels and more variability in streaming performance, particularly in areas with weaker coverage or complex propagation conditions. Despite these constraints, the networks maintained a generally stable user experience, with web browsing and messaging services showing high reliability.

The results collected during this campaign provide an accurate representation of the customer experience during everyday usage. They also highlight the areas where operators may continue strengthening their networks to improve both indoor and mobility performance. The data collected during this campaign will support BIPT's ongoing monitoring of mobile network quality and contribute to better transparency for Belgian consumers.