

# GWS Summary and OneScore™ Report

Vivacom Bulgaria

December 2016



THE STANDARD FOR BENCHMARKING™

# SUMMARY – INTRODUCTION & METHODOLOGY

During October/November 2016 Global Wireless Solutions, Inc. (“GWS”) collected data for Vivacom Bulgaria.

A representative drive test was conducted in the cities of Sofia, Plovdiv, Varna, Burgas, Ruse and the Black Sea region, specifically testing the packet data network performance of Vivacom, and the other mobile operators „Operator 1”, “Operator 2”, “Operator 3” and “Operator 4”.

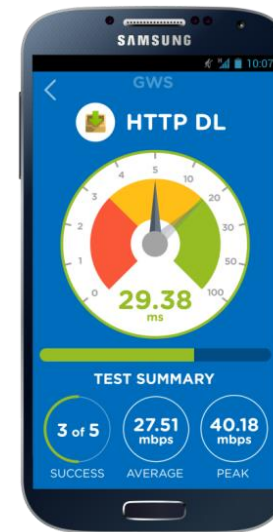
Results from these locations (markets) have been reported and the OneScore™ results are presented in this final report.

## Collection Equipment



5ea Android Samsung  
Galaxy S7 (G930F)

using the GWS Mobile  
Diagnostics APP



# SUMMARY – ONESCORE™ METHODOLOGY USED TO RANK NETWORKS

## Introduction to OneScore™

- OneScore™ provides one simplified number that is aggregated from various measured network performance metrics (voice, data, coverage, video, etc.) to determine a best-in-class operator.
- OneScore™ combines in-depth network testing data with a real understanding of how consumers are actually using their mobile device connections, to deliver the deepest insight into mobile network performance available.
- Operators use OneScore™ to not only see how their testing data fares compared to the competition, but also how this relates to actual consumer usage and behavior. This enables operators to better understand the areas where their customers are demanding top performance levels, as well as how the business can invest in its infrastructure to bring this performance to market.

## How is OneScore™ determined?

- GWS commissioned a survey to understand what network attributes are important to a typical wireless user.
- Based on this survey, different network service components have been weighted accordingly.
- Each network metric is normalized on a scale of 0 to 100 prior to weighting.



# ONESCORE™ RESULTS RANKING FOR BULGARIA

## 4G-Only Data Network Ranking

Stat-Tested OneScore Ranks									1	indicates a win for Vivacom
PACKET	Black Sea	Burgas	Plovdiv	Ruse	Sofia	Varna	Stationary	National		
Operator 1	4	4	3	5	4	4	2	4		
Operator 2	3	1	1	3	2	3	3	2		
Operator 3	5	5	5	4	5	5	5	5		
<b>Vivacom</b>	1	1	1	1	1	1	1	1		
Operator 4	2	1	4	1	3	1	4	3		
SPEED	Black Sea	Burgas	Plovdiv	Ruse	Sofia	Varna	Stationary	National		
Operator 1	4	4	3	4	3	4	2	3		
Operator 2	3	3	1	3	2	3	3	2		
Operator 3	5	5	5	5	5	5	5	5		
<b>Vivacom</b>	1	1	1	1	1	1	1	1		
Operator 4	2	1	4	2	4	1	4	4		
SOCIAL MEDIA	Black Sea	Burgas	Plovdiv	Ruse	Sofia	Varna	Stationary	National		
Operator 1	4	4	4	5	4	4	4	4		
Operator 2	3	1	3	1	3	1	3	3		
Operator 3	5	5	5	4	5	5	5	5		
<b>Vivacom</b>	1	1	1	1	1	1	1	1		
Operator 4	2	1	1	3	1	1	1	2		

\* This includes the successful tasks that were 100% 4G/LTE during tests

GWS OneScore™ is based on a significance ranking with a binominal confidence interval of 90%. In some cases, multiple OpCo's results are not statistically different enough to hit that 90% confidence level and consequently could be challenged so in these cases we rank them as a tie.