

INDEPENDENT QUALITY OF SERVICE SURVEY REPORT

INTRODUCTION

1.1. In order to measure the performance and service quality of Cellular Mobile Operators (CMOs), an independent Quality of Service (QoS) Survey has been carried out in four (04) cities of Azad Jammu & Kashmir (AJK), in first quarter 2022. The name of cities along with survey dates are mentioned in **Table 1.1: QoS Survey Cities & Dates:**

S. #.	Province	City	Days	Survey Dates
1.	Azad Jammu & Kashmir (AJK)	Bhimber	3	08 ~ 10 February 2022
2.		Mirpur	2	15 ~ 16 February 2022
3.		Muzaffarabad	3	1 ~ 3 March 2022
4.		Rawlakot	3	07 ~ 09 March 2022

Table 1.1: QoS Survey Dates and Samples

DRIVE TEST DETAILS

2.1. The QoS survey was carried out using Automated QoS Monitoring & Benchmarking Tool i.e. "SMARTBENCHMARKER". Drive test teams selected survey routes in such a manner to cover main roads, service roads and majority of sectors/colonies. During the survey, mobile handsets for Voice Calls, SMS and Data Sessions, were kept in auto detect mode.

MOBILE NETWORK COVERAGE

3.1. **4G / LTE SIGNAL STRENGTH.** During the survey, while conducting data test in auto mode, 4G/LTE signal strength samples were recorded on survey routes. As per Next Generation Mobile Service (NGMS) licenses and Cellular Mobile Network Quality of Service (QoS) Regulations 2021, licensees are required to meet the threshold of -100dBm or above of Reference Signal Receive Power (RSRP) with 90% confidence level. The Confidence Level and Compliance of signal strength is shown in **Table 3.1: 4G Signal Strength -100dBm with 90% Confidence Level in AJK**

<i>4G Signal Strength -100dBm with 90% Confidence Level</i>										
City	Confidence Level					Compliant (Yes/No)				
	Jazz	Telenor	Ufone	ZonG	SCOM	Jazz	Telenor	Ufone	ZonG	SCOM
Bhimber	86.96%	91.17%	90.57%	96.41%	94.98%	No	Yes	Yes	Yes	Yes
Mirpur	91.70%	97.83%	97.92%	94.86%	98.09%	Yes	Yes	Yes	Yes	Yes
Rawlakot	94.15%	97.26%	99.84%	97.93%	98.43%	Yes	Yes	Yes	Yes	Yes
Mirpur	88.63%	90.28%	99.07%	95.63%	97.83%	No	Yes	Yes	Yes	Yes

Table 3.1: 4G Signal Strength -100dBm with 90% Confidence Level in AJK

MOBILE BROADBAND SERVICE

4.1. A total of **6,802 http download test attempts** made successfully. The company wise detail of Test Attempt Success Ratio, User Data Throughput and 4G/LTE, 3G and 2G network signal strength is mentioned in **Table 4.1: Data Tests Statistics.**

Description	Jazz	Telenor	Ufone	ZonG	SCOM
SUCCESSFUL DATA TEST ATTEMPTS	1183	1204	948	1164	2303
TEST ATTEMPTS SUCCESS RATIO (%)	2.54	18.82	0.47	75.1	22.13
USER DATA THROUGHPUT (Mbps)	0.51	4.854	16.82	8.485	3.931

Description	Jazz	Telenor	Ufone	ZonG	SCOM
AVERAGE 4G SIGNAL STRENGTH (RSRP) dBm	-83.7	-83.7	-80.4	-80.5	-81.4
AVERAGE 3G SIGNAL STRENGTH (RSCP) dBm	-	-88.15	-84.58	-80.95	-73.94
AVERAGE 2G SIGNAL STRENGTH (RXLEV) dBm	-68.65	-71.88	-68.31	-64.26	-73.29

Table4.1: Data Tests Statistics.

4.2. **4G USER DATA THROUGHPUT.** As per Next Generation Mobile Service (NGMS) licenses and Cellular Mobile Network Quality of Service (QoS) Regulations 2021, licensees are required to meet the threshold of minimum of 2Mbps of 4G User Data Throughput. The results of Data Service QoS KPI i.e. User Data Throughput is shown in **Table4.2: 4G User Data Throughput in AJK \geq 2 Mbps**.

City	4G User Data Throughput (Mbps)					Operator Position				
	Jazz	Telenor	Ufone	ZonG	SCOM	Jazz	Telenor	Ufone	ZonG	SCOM
Bhimber	0.55	10.20	29.54	20.04	4.30	Fifth	Third	First	Second	Fourth
Mirpur	0.57	4.53	0.01	7.58	3.27	Fourth	Second	Fifth	First	Third
Rawlakot	0.30	1.83	16.19	3.75	3.35	Fifth	Fourth	First	Second	Third
Mirpur	0.64	4.65	8.94	6.17	2.92	Fifth	Third	First	Second	Fourth

Table4.2.2: 4G User Data Throughput in AJK \geq 2 Mbps

4.4. During the survey, the deployed technologies by Cellular Mobile Operators (CMOs), Success Rate of http Transfer Download Tests, Data Technologies during the Data Sessions alongwith Technology Bands and Resource Block Utilization have been recorded. The details can be seen in attached graphs.

