

# 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 Seventeen (17) x Cities of Khyber Pakhtunkhwa, Punjab and Sindh during 3<sup>rd</sup> Quarter i.e. July~ Sep 2023. The names of cities along with survey dates are mentioned in **Table 1.1: QoS Survey Cities & Dates**:

S. #.	City	Province	Days	Survey Dates
1	SWABI	KHYBER PAKHTUNKHWA	3	15 <sup>th</sup> ~17 <sup>th</sup> August 2023
2	UPPER DIR		3	21 <sup>st</sup> ~23 <sup>rd</sup> August 2023
3	ABBOTTABAD		4	5 <sup>th</sup> ~8 <sup>th</sup> September 2023
4	BUNER		3	11 <sup>th</sup> ~13 <sup>th</sup> September 2023
5	SHAHKOT	PUNJAB	4	15 <sup>th</sup> ~18 <sup>th</sup> August 2023
6	WAH/ TAXILA		4	16 <sup>th</sup> ~18 <sup>th</sup> & 21 <sup>st</sup> August 2023
7	LAHORE		4	21 <sup>st</sup> ~24 <sup>th</sup> August 2023
8	KAHROR PACCA		3	22 <sup>nd</sup> ~24 <sup>th</sup> August 2023
9	GUJAR KHAN		4	22 <sup>nd</sup> ~25 <sup>th</sup> August 2023
10	SHUJABAD		4	28 <sup>th</sup> ~31 <sup>st</sup> August 2023
11	RAWALPINDI		4	29 <sup>th</sup> August~1 <sup>st</sup> September 2023
12	MURIDKE		4	12 <sup>th</sup> ~15 <sup>th</sup> September 2023
13	LARKANA	SINDH	3	22 <sup>nd</sup> ~24 <sup>th</sup> August 2023
14	KHAIRPUR		3	29 <sup>th</sup> ~31 <sup>st</sup> August 2023
15	JACOBABAD		3	4 <sup>th</sup> ~6 <sup>th</sup> September 2023
16	SUJAWAL		3	13 <sup>th</sup> ~15 <sup>th</sup> September 2023
17	MITHI		3	19 <sup>th</sup> ~21 <sup>st</sup> September 2023

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 Mobile Broadband/Data Sessions were kept in technology auto detect mode.

## MOBILE NETWORK COVERAGE

3.1. **4G / LTE SIGNAL STRENGTH**. During the survey, while conducting data test in technology auto detect mode, 4G/LTE signal strength samples were recorded on survey routes. As per Next Generation Mobile Service (NGMS) licenses, licensees are required to meet the threshold of -100 dBm or above of Reference Signal Receive Power (RSRP) with 90% confidence level. City wise compliance of 90% Confidence Level of signal strength is shown in **Table 3.1: 4G Signal Strength Technology Auto Detect Mode -100 dBm with 90% Confidence Level**.

4G Signal Strength -100dBm with 90% Confidence Level – Technology Auto Detect Mode								
City	Confidence Level (%)				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
UPPER DIR	83.87%	89.27%	95.20%	95.70%	No	No	Yes	Yes
LARKANA	99.10%	87.30%	99.27%	99.90%	Yes	No	Yes	Yes
LAHORE	99.72%	92.65%	98.51%	99.82%	Yes	Yes	Yes	Yes
KHAIRPUR	98.20%	78.58%	94.67%	96.84%	Yes	No	Yes	Yes

4G Signal Strength -100dBm with 90% Confidence Level – Technology Auto Detect Mode								
City	Confidence Level (%)				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
KAHROR PACCA	97.51%	62.73%	77.12%	97.86%	Yes	No	No	Yes
SHAHKOT	96.90%	94.23%	96.48%	97.46%	Yes	Yes	Yes	Yes
GUJAR KHAN	98.91%	96.07%	99.28%	98.26%	Yes	Yes	Yes	Yes
WAH/ TAXILA	94.11%	94.19%	99.21%	94.53%	Yes	Yes	Yes	Yes
RAWALPINDI	94.46%	95.21%	99.71%	99.01%	Yes	Yes	Yes	Yes
BUNER	89.79%	86.59%	91.94%	78.32%	No	No	Yes	No
JACOBABAD	95.54%	91.06%	99.83%	99.28%	Yes	Yes	Yes	Yes
SUJAWAL	96.27%	98.59%	95.72%	98.13%	Yes	Yes	Yes	Yes
MITHI	96.53%	93.51%	97.78%	73.51%	Yes	Yes	Yes	No
ABBOTTABAD	96.05%	97.51%	99.27%	96.58%	Yes	Yes	Yes	Yes
SHUJABAD	94.98%	83.44%	81.25%	97.92%	Yes	No	No	Yes
SWABI	84.01%	90.01%	97.73%	98.88%	No	Yes	Yes	Yes
MURIDKE	99.14%	81.35%	88.68%	95.39%	Yes	No	No	Yes

Table 3.1: 4G Signal Strength Technology Auto Detect Mode -100 dBm with 90 Confidence Level

3.2. **3G SIGNAL STRENGTH IN TECNHOLOGY AUTO DETECT MODE.** During the survey, 3G signal strength samples were also recorded on survey routes, wherever network switched to 3G while keeping the mobile handset in technology auto detect mode. As per Next Generation Mobile Service (NGMS) licenses, licensees are required to meet the threshold of -100 dBm or above of Received Signal Code Power (RSCP) with 90% confidence level. City wise compliance of 90% Confidence Level of signal strength is shown in **Table 3.2: 3G Signal Strength Technology Auto Detect Mode -100 dBm with 90% Confidence Level**

3G Signal Strength -100dBm with 90% Confidence Level – Technology Auto Detect Mode								
City	Confidence Level (%)				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
UPPER DIR	71.0%	84.85%	88.91%	90.45%	No	No	No	Yes
LARKANA	N/A	100.0%	100.0%	N/A	N/A	Yes	Yes	N/A
LAHORE	N/A	99.51%	100.0%	N/A	N/A	Yes	Yes	N/A
KHAIRPUR	N/A	100.0%	83.55%	100.0%	N/A	Yes	No	Yes
KAHROR PACCA	N/A	74.55%	N/A	N/A	N/A	No	N/A	N/A
SHAHKOT	N/A	N/A	100.0%	N/A	N/A	N/A	Yes	N/A
GUJAR KHAN	N/A	N/A	100.0%	N/A	N/A	N/A	Yes	N/A
WAH/ TAXILA	N/A	100.0%	100.0%	N/A	N/A	Yes	Yes	N/A
RAWALPINDI	N/A	100.0%	N/A	100.0%	N/A	Yes	N/A	Yes
BUNER	85.10%	100.0%	100.0%	44.68%	No	Yes	Yes	No
JACOBABAD	N/A	N/A	100.0%	N/A	N/A	N/A	Yes	N/A
SUJAWAL	N/A	N/A	100.0%	100.0%	N/A	N/A	Yes	Yes
MITHI	N/A	38.59%	93.57%	77.73%	N/A	No	Yes	No
ABBOTTABAD	100.0%	100.0%	99.79%	N/A	Yes	Yes	Yes	N/A
SHUJABAD	N/A	100.0%	N/A	N/A	N/A	Yes	N/A	N/A
SWABI	N/A	91.67%	100.0%	N/A	N/A	Yes	Yes	N/A
MURIDKE	N/A	N/A	100.0%	N/A	N/A	N/A	Yes	N/A

Note: N/A means No Fallback to 3G Network

Table 3.2: 3G Signal Strength Technology Auto Detect Mode -100 dBm with 90% Confidence Level