

# 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, Balochistan and Sindh during 4<sup>th</sup> Quarter i.e. Oct ~ Dec 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	PESHAWAR	KHYBER PAKHTUNKHWA	04	23 <sup>rd</sup> ~26 <sup>th</sup> October, 2023
2	NOWSHERA		04	30 <sup>th</sup> October ~2 <sup>nd</sup> November, 2023
3	BATTAGRAM		04	27 <sup>th</sup> ~30 <sup>th</sup> November, 2023
4	BESHAM		04	20 <sup>th</sup> ~23 <sup>rd</sup> November, 2023
5	DASKA	PUNJAB	04	13 <sup>th</sup> ~16 <sup>th</sup> November, 2023
6	OKARA		04	4 <sup>th</sup> ~7 <sup>th</sup> December, 2023
7	ISLAMABAD		04	18 <sup>th</sup> ~20 <sup>th</sup> & 23 <sup>rd</sup> October, 2023
8	JHANG		05	29 <sup>th</sup> ~31 <sup>st</sup> Oct & 01 <sup>st</sup> 02 <sup>nd</sup> Nov, 2023
9	KHUSHAB		04	06 <sup>th</sup> ~09 <sup>th</sup> November, 2023
10	MUZAFARGARH	BALOCHISTAN	04	20 <sup>th</sup> ~23 <sup>rd</sup> November, 2023
11	QUETTA		03	13 <sup>th</sup> ~15 <sup>th</sup> November, 2023
12	DERA ALLAH YAR		05	29 <sup>th</sup> November ~3 <sup>rd</sup> December, 2023
13	SEHWAN	SINDH	04	06 <sup>th</sup> ~09 <sup>th</sup> November, 2023
14	THATTA		04	20 <sup>th</sup> ~23 <sup>rd</sup> November, 2023
15	MIRPUR KHAS		04	13 <sup>th</sup> ~16 <sup>th</sup> November, 2023
16	GHOTKI		03	23 <sup>rd</sup> ~25 <sup>th</sup> October, 2023
17	DADU		03	30 <sup>th</sup> October~01 <sup>st</sup> November, 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
BATTAGRAM	95.04%	97.42%	98.57%	97.83%	Yes	Yes	Yes	Yes
BESHAM	96.90%	87.44%	N/A	59.91%	Yes	No	N/A	No
DADU	89.79%	85.23%	92.40%	99.34%	No	No	Yes	Yes
DASKA	94.71%	90.39%	99.00%	98.80%	Yes	Yes	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
DERA ALLAH YAR	98.08%	97.00%	99.19%	97.80%	Yes	Yes	Yes	Yes
GHOTKI	98.39%	74.93%	94.29%	98.85%	Yes	No	Yes	Yes
ISLAMABAD	95.53%	94.68%	99.48%	99.00%	Yes	Yes	Yes	Yes
JHANG	97.08%	99.72%	97.13%	99.52%	Yes	Yes	Yes	Yes
KHUSHAB	99.68%	76.86%	90.87%	98.59%	Yes	No	Yes	Yes
MUZAFARGARH	97.43%	97.18%	94.33%	98.35%	Yes	Yes	Yes	Yes
MIRPUR KHAS	90.53%	90.30%	99.55%	98.44%	Yes	Yes	Yes	Yes
NOWSHERA	95.45%	95.47%	99.68%	97.19%	Yes	Yes	Yes	Yes
OKARA	93.97%	83.61%	93.06%	98.74%	Yes	No	Yes	Yes
PESHAWAR	95.06%	91.43%	98.78%	89.40%	Yes	Yes	Yes	No
QUETTA	99.10%	93.12%	99.91%	99.81%	Yes	Yes	Yes	Yes
SEHWAN	97.76%	100.00%	90.05%	97.51%	Yes	Yes	Yes	Yes
THATTA	98.76%	94.72%	96.96%	100.00%	Yes	Yes	Yes	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
BATTAGRAM	N/A	100%	100%	99.99%	N/A	Yes	Yes	Yes
BESHAM	N/A	100%	100%	96.11%	N/A	Yes	Yes	Yes
DADU	100%	N/A	100%	100%	Yes	N/A	Yes	Yes
DASKA	100%	N/A	100%	N/A	Yes	N/A	Yes	N/A
DERA ALLAH YAR	98.08%	97%	99.19%	97.80%	Yes	Yes	Yes	Yes
GHOTKI	100%	97.30%	100%	100%	Yes	Yes	Yes	Yes
ISLAMABAD	100%	100%	100%	100%	Yes	Yes	Yes	Yes
JHANG	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
KHUSHAB	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MUZAFARGARH	100%	100%	99.89%	100%	Yes	Yes	Yes	Yes
MIRPUR KHAS	N/A	100%	99.95%	100%	N/A	Yes	Yes	Yes
NOWSHERA	100%	100%	100%	100%	Yes	Yes	Yes	Yes
OKARA	100%	100%	99.17%	100%	Yes	Yes	Yes	Yes
PESHAWAR	N/A	100%	100%	100%	N/A	Yes	Yes	Yes
QUETTA	N/A	100%	100%	100%	N/A	Yes	Yes	Yes
SEHWAN	99.65%	100%	90.05%	99.61%	Yes	Yes	Yes	Yes
THATTA	N/A	99.91%	93.54%	100%	N/A	Yes	Yes	Yes

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