Quality of Service Survey

1.   SURVEY CITIES

Quality of Service Survey was conducted in 16x cities of Khyber Pakhtunkhwa, Punjab, Sindh and Balochistan form 1st January till 31st March 2024. Survey routes were selected in a manner to cover maximum population area of the respective surveyed cities. The names of cities along with survey dates are mentioned in Table 1.1: QoS Survey Cities & Dates:

S. #.	City	Province	Days	Survey Dates	KMs
1	MARDAN	KHYBER PAKHTUNKHWA	04	22nd~25th Jan, 2024	193
2	D.I KHAN		04	29th Jan~1st Feb, 2024	240
3	BAHAWALNAGAR	PUNJAB	04	23rd~26th Jan, 2024	57
4	LAHORE		04	22nd~25th Jan, 2024	174
5	CHUNIAN		04	26th~29th Feb, 2024	159
6	RAWALPINDI		04	23rd~26th Jan, 2024	236
7	SAMUNDARI		03	13th~19th Feb, 2024	133
8	JHELUM		04	20th~23rd Feb, 2024	166
9	SHARAQPUR		04	5th~8th Mar, 2024	180
10	QUETTA	BALOCHISTAN	04	20st~23rd Feb, 2024	92
11	NUSHKI		04	26th~29th Feb, 2024	50
12	SHIKARPUR	SINDH	04	22nd ~25th Jan, 2024	82
13	KARACHI MALIR		03	12th~14th Feb, 2024	221
14	HYDERABAD		03	20th~22nd Feb, 2024	89
15	NAWABSHAH		04	22nd ~25th Feb, 2024	140
16	KOTRI		03	5th~7th Mar, 2024	59

Table 1.1: QoS Survey Dates and Samples

2.   TEST STATISTICS

During the survey, Quality of Services tests were conducted in the areas of Voice, Mobile Broadband (i.e. Data (Automode), Data (Ookla), Latency (Ookla) & Web Browsing) and Short Messaging Service (SMS). Service wise tests conducted for each CMO are shown in Table 2.1: Test Statistics.

Service	Jazz	ZonG	Telenor	Ufone
Data (Download)	6116	6093	6118	6134
Data (Upload)	6120	6096	6122	6140
Ookla (Download)	10423	10928	10551	10641
Ookla (Upload)	10423	10928	10551	10641
Ookla (Latency)	10423	10928	10551	10641
Webpage Browsing	17081	16583	17118	17171
Voice Call	5320	5296	5245	5311
Short Messaging Service	5109	5021	5095	5077

Table 2.1: Test Statistics

4G Signal Confidence Level- Technology Auto Detect Mode							
RAWALPINDI	97.53	97.72	99.68	99.30	Yes	Yes	Yes	Yes
CHUNIAN	98.15	**78.93**	96.86	99.05	Yes	**No**	Yes	Yes
SHARAQPUR	97.42	**83.00**	99.59	98.43	Yes	**No**	Yes	Yes
KOTRI	98.35	90.02	94.45	98.62	Yes	Yes	Yes	Yes

Table 4.1: 4G Signal Confidence Level- Technology Auto Detect Mode

5. NETWORK COVERAGE – 3G

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. City wise compliance of 90% Confidence Level of signal strength is shown in Table 5.1: 3G Signal Confidence Level - Technology Auto Detect Mode

3G Signal Confidence Level - Technology Auto Detect Mode								
City	Confidence Level (%)				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
BAHWALNAGAR	N/A	100.00	100.0	N/A	N/A	Yes	Yes	N/A
D.I KHAN	N/A	100.00	100.00	N/A	N/A	Yes	Yes	N/A
LAHORE	N/A	100.00	100.00	N/A	N/A	Yes	Yes	N/A
MARDAN	N/A	100.00	100.00	100.00	N/A	Yes	Yes	Yes
SAMUNDARI	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SHIKARPUR	N/A	N/A	100.00	100.00	N/A	N/A	Yes	Yes
HYDERABAD	N/A	100.00	100.00	100.00	N/A	Yes	Yes	Yes
JHELUM	N/A	99.63	100.00	100.00	N/A	Yes	Yes	Yes
KARACHI MALIR	100.00	99.94	99.79	99.44	Yes	Yes	Yes	Yes
NAWABSHAH	N/A	N/A	100.00	N/A	N/A	N/A	Yes	N/A
NUSHKI	N/A	N/A	100.00	N/A	N/A	N/A	Yes	N/A
QUETTA	N/A	100.00	100.00	100.00	N/A	Yes	Yes	Yes
RAWALPINDI	N/A	100.00	100.00	100.00	N/A	Yes	Yes	Yes
CHUNIAN	N/A	99.92	100.00	N/A	N/A	Yes	Yes	N/A
SHARAQPUR	100.00	N/A	N/A	N/A	Yes	N/A	N/A	N/A
KOTRI	N/A	99.80	100.00	100.00	N/A	Yes	Yes	Yes

Table 5.1: 3G Signal Confidence Level - Technology Auto Detect Mode

6. MOBILE BROADBAND SERVICE – DATA SPEED

Automode Testing. In order to measure the performance of Mobile Broadband Services, Data Download and Upload tests were performed. During the test, a File of 10GB was downloaded and Uploaded for 3 minutes duration. Test Statistics are shown in Table 6.1: Data Tests Statistics while the Download and Upload Speed Results are shown in Table 6.2: Download Data Throughput and Table 6.3: Upload Data Throughput respectively.

DESCRIPTION		Jazz	Telenor	Ufone	Zong
DOWNLOAD	ATTEMPTS	6116	6093	6118	6134
	SPEED (Mbps)	22.60	9.19	9.52	23.37
UPLOAD	ATTEMPTS	6120	6096	6122	6140
	SPEED (Mbps)	20.77	5.65	17.07	19.53

Table 6.1: Data Tests Statistics