

<i>Pindi Bhatian To Multan</i>	91.04%	85.07%	80.38%	79.96%	Yes	No	No	No
<i>Multan to Sukkur</i>	87.47%	61.28%	66.56%	73.63%	No	No	No	No
<i>Nowshera To Chitral</i>	85.46%	87.47%	88.16%	86.41%	No	No	No	No
<i>Swabi To Katlang</i>	69.27%	94.27%	0.00%	61.56%	No	Yes	No	No
<i>Islamabad To Kohala</i>	82.58%	70.40%	74.68%	79.54%	No	No	No	No
<i>Islamabad To Peshawar</i>	80.14%	84.65%	92.80%	88.05%	No	No	Yes	No
<i>Lahore to Abdul Hakeem</i>	94.57%	93.80%	N/A	94.78%	Yes	Yes	N/A	Yes
<i>Lahore to Islamabad</i>	87.69%	78.30%	92.28%	79.08%	No	No	Yes	No
<i>Lahore To Sialkot</i>	98.90%	99.30%	N/A	98.35%	Yes	Yes	N/A	Yes
<i>Rawalpindi To Turkham</i>	87.38%	89.81%	93.05%	86.49%	No	No	Yes	No

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 Locked Mode								
Road Name	Operators				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
<i>Hazara Motorway</i>	78.79%	68.53%	67.99%	76.76%	No	No	No	No
<i>Haripur To Taxila</i>	60.52%	62.81%	67.09%	71.24%	No	No	No	No
<i>Pindi Bhatian To Multan</i>	87.73%	84.66%	73.25%	77.71%	No	No	No	No
<i>Multan to Sukkur</i>	88.77%	67.51%	67.76%	82.64%	No	No	No	No
<i>Nowshera To Chitral</i>	83.57%	84.66%	85.87%	88.62%	No	No	No	No
<i>Swabi To Katlang</i>	63.10%	94.49%	78.69%	74.07%	No	Yes	No	No
<i>Islamabad To Kohala</i>	82.94%	70.66%	79.67%	84.77%	No	No	No	No
<i>Islamabad To Peshawar</i>	85.58%	87.15%	94.03%	87.24%	No	No	Yes	No
<i>Lahore to Abdul Hakeem</i>	97.65%	91.03%	93.52%	96.08%	Yes	Yes	Yes	Yes
<i>Lahore to Islamabad</i>	92.01%	83.88%	87.56%	85.31%	Yes	No	No	No
<i>Lahore To Sialkot</i>	98.64%	98.86%	96.12%	97.09%	Yes	Yes	Yes	Yes
<i>Rawalpindi To Turkham</i>	89.81%	86.31%	90.35%	86.05%	No	No	Yes	No

Table 3.2: 4G Signal Strength Technology Locked Mode -100 dBm with 90% Confidence Level

3.2. **3G SIGNAL STRENGTH IN TECHNOLOGY AUTO DETECT MODE.** During the survey, the signal strength samples were recorded on survey routes, wherever network switched to 3G while keeping the mobile handset in technology auto detect mode and also in technology locked 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. Road wise compliance of 90% confidence level of signal strength is shown in (i). **Table 3.3: 3G Signal Strength Technology Auto Detect Mode -100 dBm with 90% Confidence Level** (ii). **Table 3.4: 3G Signal Strength Technology Locked Mode -100 dBm with 90% Confidence Level.**

3G Signal Strength -100dBm with 90% Confidence Level – Technology Auto Detect Mode								
Road Name	Operators				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
<i>Hazara Motorway</i>	72.54%	93.62%	78.23%	78.79%	No	Yes	No	No
<i>Quetta To Karachi</i>	89.56%	86.36%	97.19%	91.39%	No	No	Yes	Yes

<i>Haripur To Taxila</i>	56.56%	76.36%	85.62%	67.35%	No	No	No	No
<i>Pindi Bhatian To Multan</i>	N/A	100.00%	95.85%	100.00%	N/A	Yes	Yes	Yes
<i>Multan to Sukkur</i>	N/A							
<i>Nowshera To Chitral</i>	91.36%	91.36%	90.10%	91.44%	Yes	Yes	Yes	Yes
<i>Swabi To Katlang</i>	N/A	100.00%	98.24%	100.00%	N/A	Yes	Yes	Yes
<i>Islamabad To Kohala</i>	99.74%	100.00%	96.12%	N/A	Yes	Yes	Yes	N/A
<i>Islamabad To Peshawar</i>	80.14%	84.65%	92.80%	88.05%	No	No	Yes	No
<i>Lahore to Abdul Hakeem</i>	N/A	100.00%	95.38%	100.00%	N/A	Yes	Yes	Yes
<i>Lahore to Islamabad</i>	99.68%	98.75%	96.95%	94.74%	Yes	Yes	Yes	Yes
<i>Lahore To Sialkot</i>	98.90%	99.30%	N/A	98.35%	Yes	Yes	N/A	Yes
<i>Rawalpindi To Turkham</i>	87.38%	89.81%	93.05%	86.49%	No	No	Yes	No

Table 3.3: 3G Signal Strength Technology Auto Detect Mode -100 dBm with 90% Confidence Level

3G Signal Strength -100dBm with 90% Confidence Level – Technology Locked Mode								
Road Name	Operators				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
<i>Hazara Motorway</i>	87.81%	93.83%	91.90%	95.90%	No	Yes	Yes	Yes
<i>Haripur To Taxila</i>	73.26%	97.81%	93.90%	97.51%	No	Yes	Yes	Yes
<i>Pindi Bhatian To Multan</i>	99.98%	100.00%	95.09%	99.93%	Yes	Yes	Yes	Yes
<i>Multan to Sukkur</i>	96.90%	97.76%	69.19%	98.66%	Yes	Yes	No	Yes
<i>Nowshera To Chitral</i>	84.74%	98.14%	89.87%	97.25%	No	Yes	No	Yes
<i>Swabi To Katlang</i>	82.41%	99.92%	95.47%	98.42%	No	Yes	Yes	Yes
<i>Islamabad To Kohala</i>	92.94%	98.15%	95.79%	99.75%	Yes	Yes	Yes	Yes
<i>Islamabad To Peshawar</i>	95.14%	99.33%	100.00%	99.81%	Yes	Yes	Yes	Yes
<i>Lahore to Abdul Hakeem</i>	99.95%	100.00%	94.13%	100.00%	Yes	Yes	Yes	Yes
<i>Lahore to Islamabad</i>	99.60%	98.17%	99.73%	99.67%	Yes	Yes	Yes	Yes
<i>Lahore To Sialkot</i>	100.00%	100.00%	99.90%	100.00%	Yes	Yes	Yes	Yes
<i>Rawalpindi To Turkham</i>	98.01%	97.71%	97.33%	98.04%	Yes	Yes	Yes	Yes

Table 3.4: 3G Signal Strength Technology Locked Mode -100 dBm with 90% Confidence Level

MOBILE BROADBAND SERVICE

4.1. **DATA SESSIONS IN TECHNOLOGY AUTO DETECT MODE & LOCKED MODE.** A series of data tests including Capacity Tests, Data Transfer Tests, Web Browsing and Ping were carried out wherein Key Performance Indicators (KPIs) of Upload and Download User Data Throughput (i.e. Speed), Webpage Loading Time and Latency have been measured. In Fixed Duration Testing, a File of 10GB was downloaded and Uploaded for 3 minutes duration whereas in Fixed Size Testing, a File of 5MB and 2MB was completely downloaded and uploaded respectively. In order to measure Webpage Loading Time, different national webpages were checked and in case of Latency international and national host were pinged to measure Round Trip Time (RTT)/Latency. The 4G/LTE, 3G and 2G signal strength, Number of Tests, Upload and Download User Data Throughput, Webpage Loading Time and Latency detail is mentioned in **Table 4.1: Data Tests Statistics**.