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 **Table4.1: Data Tests Statistics.**

DESCRIPTION				JAZZ	TELENOR	UFONE	ZONG
AUTO DETECT MODE	*CAPACITY TEST*	*DOWNLOAD*	*ATTEMPTS*	2763	2758	2752	2771
			SPEED (Mbps)	13.04	6.68	14.26	14.33
		UPLOAD	*ATTEMPTS*	2768	2765	2753	2774
			SPEED (Mbps)	19.24	6.16	19.64	20.47
	DATA TRANSFER TEST	*DOWNLOAD*	*ATTEMPTS*	2797	2793	2781	2795
			SPEED (Mbps)	7.12	5.09	7.43	7.79
		UPLOAD	*ATTEMPTS*	2793	2790	2777	2794
			SPEED (Mbps)	6.918	5.462	7.693	7.554
	BROWSING TEST	*ATTEMPTS*		13900	13891	13828	13924
		LOADING TIME (Seconds)		**6.93**	**6.9**	**6.07**	**6.12**
	PING TEST	*ATTEMPTS*		5610	5607	5580	5610
		LATENCY (msec)		**238.22**	**228.75**	**215.36**	**228.21**
	AVERAGE 4G SIGNAL STRENGTH (RSRP) dBm			-78.5	-82.9	-79	-78.8
	AVERAGE 3G SIGNAL STRENGTH (RSCP) dBm			-69.89	-75.94	-71.11	**N/A**
LOCKED MODE	*4G*	*DATA TRANSFER TEST*	*DOWNLOAD*	*ATTEMPTS*	1890	1659	1862	1879
				SPEED (Mbps)	10.39	7.59	22.58	15.73
			UPLOAD	*ATTEMPTS*	1634	1402	1605	1633
				SPEED (Mbps)	17.901	4.928	20.726	19.037
		PING TEST	*ATTEMPTS*	1663	1429	1633	1662
			LATENCY (msec)	**79.69**	**85.76**	**71.48**	**101.81**
		AVERAGE 4G SIGNAL STRENGTH (RSRP) dBm		-78.9	-83.9	-80.9	-80.7
	3G	*DATA TRANSFER TEST*	*DOWNLOAD*	*ATTEMPTS*	1162	1806	1825	1856
				SPEED (Mbps)	1.828	2.915	4.327	1.789
			UPLOAD	*ATTEMPTS*	792	1542	1567	1605
				SPEED (Mbps)	0.71	1.49	2.49	1.42
		PING TEST	*ATTEMPTS*	1628	1809	1639	1629
			LATENCY (msec)	**467.26**	**488.22**	**476.08**	**155.07**
		AVERAGE 3G SIGNAL STRENGTH (RSCP) dBm		-66.47	-70.38	-67.17	-65.06

Table 4.1: Data Tests Statistics

4.2.   DOWNLOAD USER DATA THROUGHPUT. As per Next Generation Mobile Service (NGMS) licenses, licensees are required to meet the threshold of minimum of 2Mbps of 4G/LTE & 256Kbps of 3G Download User Data Throughput. The results of Data Service QoS KPI i.e. Download User Data Throughput is shown in (i). **Table 4.2: Download User Data Throughput Technology Auto Detect Mode [Fixed Duration] ≥ 2Mbps,** (ii). **Table 4.3: Download User Data Throughput Technology Auto Detect Mode [Fixed Size] ≥ 2Mbps,** (iii). **Table 4.4: Download User Data Throughput IN 4G/LTE Technology Locked Mode [Fixed Duration] ≥ 2Mbps &** (iv). **Table 4.5: Download User Data Throughput IN 3G Technology Locked Mode [Fixed Duration] ≥ 256Kbps.**

City	*DOWNLOAD USER DATA THROUGHPUT IN TECHNOLOGY AUTO DETECT MODE (FIXED DURATION)*							
	User Data Throughput [Mbps]				**Operator Position**			
	Jazz	**Telenor**	**Ufone**	**ZonG**	**Jazz**	**Telenor**	**Ufone**	**ZonG**
Attock	9.34	4.49	9.93	8.89	Second	Fourth	First	Third
Hafizabad	7.11	2.68	16.10	11.98	Third	Fourth	First	Second
Rawalpindi	13.16	5.74	7.22	15.98	Second	Fourth	Third	First
Hyderabad	13.42	7.38	11.22	14.28	Second	Fourth	Third	First
Karachi East	22.36	13.61	13.43	21.60	First	Third	Fourth	Second
Pakpattan	10.64	10.33	29.76	10.40	Second	Fourth	First	Third

Khanpur	4.28	4.59	9.49	6.19	Fourth	Third	First	Second
Lodhran	3.45	3.26	2.74	4.65	Second	Third	Fourth	First
Wazirabad	26.51	7.31	25.28	27.43	Second	Fourth	Third	First

Table4.2: Download User Data Throughput Technology Auto Detect Mode [Fixed Duration] ≥ 2Mbps

DOWNLOAD USER DATA THROUGHPUT IN TECHNOLOGY AUTO DETECT MODE (FIXED SIZE)								
City	User Data Throughput [Mbps]				Operator Position			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
Attock	4.24	2.93	3.91	4.38	Second	Fourth	Third	First
Hafizabad	4.20	3.43	6.88	6.37	Third	Fourth	First	Second
Rawalpindi	7.16	4.31	5.29	8.53	Second	Fourth	Third	First
Hyderabad	7.62	4.57	6.47	8.69	Second	Fourth	Third	First
Karachi East	11.40	9.29	9.67	12.29	Second	Fourth	Third	First
Pakpattan	6.65	7.82	14.18	7.98	Fourth	Third	First	Second
Khanpur	3.46	2.38	3.37	2.95	First	Fourth	Second	Third
Lodhran	**1.79**	**1.81**	**1.93**	**1.63**	**Third**	**Second**	**First**	**Fourth**
Wazirabad	12.74	6.29	12.55	12.94	Second	Fourth	Third	First

Table4.3: Download User Data Throughput Technology Auto Detect Mode [Fixed Size] ≥ 2Mbps

DOWNLOAD USER DATA THROUGHPUT IN 4G/LTE TECHNOLOGY LOCKED MODE (FIXED DURATION)								
City	User Data Throughput [Mbps]				Operator Position			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
Attock	11.30	2.42	**0.61**	4.19	First	Third	**Fourth**	Second
Hafizabad	6.10	2.25	23.67	18.49	Third	Fourth	First	Second
Rawalpindi	13.28	3.42	7.69	15.72	Second	Fourth	Third	First
Hyderabad	17.71	8.80	14.16	18.39	Second	Fourth	Third	First
Karachi East	12.12	12.24	13.34	20.64	Fourth	Third	Second	First
Pakpattan	5.10	10.16	28.36	8.98	Fourth	Second	First	Third
Khanpur	4.93	9.26	16.85	7.63	Fourth	Second	First	Third
Lodhran	9.31	6.41	**1.86**	9.04	First	Third	**Fourth**	Second
Wazirabad	17.34	4.54	22.69	23.07	Third	Fourth	Second	First

Table 4.4: Download User Data Throughput 4G/LTE Technology Locked Mode [Fixed Duration] ≥ 2Mbps

DOWNLOAD USER DATA THROUGHPUT IN 3G TECHNOLOGY LOCKED MODE (FIXED DURATION)								
City	User Data Throughput [Kbps]				Operator Position			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
Attock	1834.6	3412.95	1923.16	1098.75	Third	First	Second	Fourth
Hafizabad	2280.07	1293.84	4783.55	1999.91	Second	Fourth	First	Third
Rawalpindi	4501.05	2439.69	3350.17	1871.2	First	Third	Second	Fourth
Hyderabad	2133.61	3387.4	3468.7	1391.58	Third	Second	First	Fourth
Karachi East	2233.88	4018.89	4373.47	2526.04	Fourth	Second	First	Third
Pakpattan	3594.84	3923.9	8898.88	1938.59	Third	Second	First	Fourth
Khanpur	1851.68	2796.31	3331.04	1292.49	Third	Second	First	Fourth
Lodhran	2278.56	2781.33	2854.97	1742.59	Third	Second	First	Fourth
Wazirabad	1708.86	2906.23	5171.48	2067.32	Fourth	Second	First	Third

Table 4.5: Download User Data Throughput IN 3G Technology Locked Mode [Fixed Duration] ≥ 256Kbps

4.3.   UPLOAD USER DATA THROUGHPUT. As per Cellular Mobile Network Quality of Service (QoS) Regulations 2021, licensees are required to meet the threshold of minimum of 512Kbps of 4G/LTE & 64Kbps of 3G of Upload User Data Throughput. The results of Data Service QoS KPI i.e. Upload User Data Throughput is shown in (i). **Table 4.6: Upload User Data Throughput Technology Auto Detect Mode [Fixed Duration] ≥ 512Kbps,** (ii). **Table 4.7: Upload User Data Throughput Technology Auto Detect Mode [Fixed Size] ≥ 512Kbps,** (iii). **Table 4.8: Upload User Data Throughput in 4G/LTE Technology Locked Mode [Fixed Duration] ≥ 512Kbps** & (iv). **Table 4.9: Upload User Data Throughput in 3G Technology Locked Mode [Fixed Duration] ≥ 64Kbps.**