

LATENCY IN 4G/LTE TECHNOLOGY LOCKED MODE								
City	Latency [milliseconds]				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
SUKKUR	41	41	32	53	Yes	Yes	Yes	Yes
BAHAWALPUR	81	65	81	64	No	Yes	No	Yes
CHARSADDA	92	68	50	87	No	Yes	Yes	No
GWADAR	232	68	65	86	No	Yes	Yes	No
QUETTA	61	78	42	91	Yes	No	Yes	No
ISLAMABAD	65	73	61	110	Yes	Yes	Yes	No
KOT RADHA KISHAN	83	50	61	55	No	Yes	Yes	Yes
SHEIKHUPURA	93	56	72	58	No	Yes	Yes	Yes
HANGU	80	99	88	86	No	No	No	No
KUCHLAK	46	60	57	59	Yes	Yes	Yes	Yes
ABBOTTABAD	84	54	68	69	No	Yes	Yes	Yes
LOWER DIR	119	83	75	108	No	No	Yes	No
MANSEHRA	80	74	68	78	No	Yes	Yes	No
MATIARI	50	38	47	44	Yes	Yes	Yes	Yes
MACH	74	71	65	51	Yes	Yes	Yes	Yes
PASROOR	164	60	114	53	No	Yes	No	Yes
PISHIN	46	64	61	56	Yes	Yes	Yes	Yes
SARGODHA	69	84	80	57	Yes	No	No	Yes
UMERKOT	43	68	30	34	Yes	Yes	Yes	Yes

Table 4.12: Latency in 4G/LTE Technology Locked Mode < 75 milliseconds

LATENCY IN 3G TECHNOLOGY LOCKED MODE								
City	Latency [milliseconds]				Compliant (Yes/No)			
	Jazz	Telenor	Ufone	ZonG	Jazz	Telenor	Ufone	ZonG
SUKKUR	164	915	420	165	No	No	No	No
BAHAWALPUR	846	1067	479	107	No	No	No	Yes
CHARSADDA	533	203	462	135	No	No	No	Yes
GWADAR	833	750	515	312	No	No	No	No
QUETTA	164	914	492	117	No	No	No	Yes
ISLAMABAD	488	347	455	170	No	No	No	No
KOT RADHA KISHAN	504	445	478	63	No	No	No	Yes
SHEIKHUPURA	529	591	517	77	No	No	No	Yes
HANGU	537	424	501	130	No	No	No	Yes
KUCHLAK	131	875	499	107	Yes	No	No	Yes
ABBOTTABAD	558	248	538	132	No	No	No	Yes
LOWER DIR	564	368	419	135	No	No	No	Yes
MANSEHRA	563	216	464	147	No	No	No	Yes
MATIARI	208	823	520	76	No	No	No	Yes
MACH	N/A	777	490	75	N/A	No	No	Yes
PASROOR	581	407	518	60	No	No	No	Yes
PISHIN	103	1006	105	100	Yes	No	Yes	Yes
SARGODHA	424	969	487	74	No	No	No	Yes
UMERKOT	N/A	729	506	61	N/A	No	No	Yes

Table 4.13: Latency in 3G Technology Locked Mode < 150 milliseconds

4.6. The overall Download/Upload speed, Latency, Web Page Loading Time and Resource Block Utilization were measured in different tests. The detailed results can be seen in attached graphs.

CMO	KPIS	THRESHOLD	SUKKUR	BAHAWALPUR	CHARSADDA	GWADAR	QUETTA	ISLAMABAD
Jazz	NA	$\geq 99\%$	Yes	Yes	Yes	Yes	Yes	Yes
	CSSR	$\geq 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
	CCT	≤ 7.5 sec	Yes	Yes	Yes	Yes	Yes	Yes
	CCR	$> 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
	MOS	≥ 3	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	$\geq 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
	RSSR	$> 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
Telenor	NA	$\geq 99\%$	Yes	Yes	Yes	Yes	Yes	Yes
	CSSR	$\geq 98\%$	No	Yes	Yes	Yes	No	No
	CCT	≤ 7.5 sec	Yes	Yes	Yes	Yes	Yes	Yes
	CCR	$> 98\%$	Yes	Yes	Yes	Yes	Yes	No
	MOS	≥ 3	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	$\geq 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
	RSSR	$> 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
Ufone	NA	$\geq 99\%$	Yes	Yes	Yes	Yes	Yes	Yes
	CSSR	$\geq 98\%$	Yes	No	Yes	Yes	Yes	Yes
	CCT	≤ 7.5 sec	Yes	Yes	Yes	Yes	Yes	Yes
	CCR	$> 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
	MOS	≥ 3	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	$\geq 98\%$	Yes	No	Yes	Yes	Yes	No
	RSSR	$> 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
ZonG	NA	$\geq 99\%$	Yes	Yes	Yes	Yes	Yes	Yes
	CSSR	$\geq 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
	CCT	≤ 7.5 sec	Yes	Yes	Yes	Yes	Yes	Yes
	CCR	$> 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
	MOS	≥ 3	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	$\geq 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
	RSSR	$> 98\%$	Yes	Yes	Yes	Yes	Yes	Yes
* Note Voice QoS KPIS: Network Accessibility (NA) $> 99\%$, Service Accessibility (SA) $> 98\%$, Call Connection Time (CCT) ≤ 7.5 Seconds, Call Completion Ratio (CCR) $\geq 98\%$, Mean Opinion Score (MOS) > 3 , Inter System Hand Over (ISHO) $> 98\%$ & RAB Setup Success Rate (RSSR) $> 98\%$								

Table 5.2: Voice QoS KPIS Compliance Level