

MOBILE NETWORK COVERAGE

6.1. Mobile Network Signal Strength is measured in decibels (dBm). Signal Strength can range from approximately -30 dBm upto -120 dBm. The closer that number is to -30dBm, the stronger the signal. In general, anything better than -100 decibel is considered a usable signal. The different ranges of signal strength and its effects can be categorized **Table 6.1: Signal Strength and Broadband Speed.**:

S. #.	Signal Strength (dBm)	Signal Strength
1.	-65 to 0	Strong Signal with Maximum Data Speed
2.	-75 to -65	Strong Signal with Good Data Speed
3.	-85 to -75	Fair, Useful & Reliable Data Speed is Attainable
4.	-100 to -85	Marginal Data Speed with Possibility of Drop-Out
5.	-140 to -100	Performance will Drop Drastically

Table 6.1: Signal Strength and Broadband Speed

6.2. **4G / LTE SIGNAL STRENGTH.** During the survey 4G/LTE signal strength samples were recorded on survey routes. As per Next Generation Mobile Service (NGMS) licenses awarded in Pakistan, licensees are required to meet **the threshold of -100dBm or above of Reference Signal Receive Power (RSRP) with 90% confidence level.** Keeping in view the same threshold, the analysis of recorded signal strength revealed following:

- a. **COMPLIANCE.** The cities and roads where CMOs remained compliant is mentioned in **Table 6.2: Compliance of 4G/LTE (RSRP) Signal Strength.**

S. #.	Operator	Cities	
		Count	Names
1.	Jazz	3	Muzaffarabad, Islamabad to Muzaffarabad Road, Rawalpindi to Mirpur Road
2.	Telenor	5	Muzaffarabad, Mirpur, Bagh, Islamabad to Muzaffarabad Road, Rawalpindi to Mirpur Road
3.	Ufone	2	Islamabad to Muzaffarabad Road, Rawalpindi to Mirpur Road
4.	ZonG	4	Muzaffarabad, Mirpur, Bagh, Islamabad to Muzaffarabad Road,
5.	SCOM	4	Muzaffarabad, Mirpur, Islamabad to Muzaffarabad Road, Rawalpindi to Mirpur Road

Table 6.2: Compliance of 4G/LTE (RSRP) Signal Strength

- b. **NON-COMPLIANCE.** The cities and roads where CMOs remained non-compliant is mentioned in **Table 6.3: Non-Compliance of 4G/LTE (RSRP) Signal Strength.**

S. #.	Operator	Cities	
		Count	Names
1.	Jazz	2	Mirpur, Bagh
2.	ZonG	1	Rawalpindi to Mirpur Road
3.	SCOM	1	Bagh

Table 6.3: Non-Compliance of 4G/LTE (RSRP) Signal Strength

SURVEY MAPS & GRAPHICAL RESULTS

7.1 The 4G/LTE Signal Strength (RSRP) samples recorded during drive test on survey routes plotted on maps along-with Voice & SMS QoS KPIs survey results in graphical form are placed at **Annex-A & Annex-B** for Cities and Roads respectively.