

JOINT QUALITY OF SERVICE SURVEY REPORT

INTRODUCTION

1.1 In order to measure the performance and service quality of Cellular Mobile Operators (CMOs), a Joint Quality of Service (QoS) Survey has been carried out in eight (08) x cities of Gilgit Baltistan, in Third Quarter 2022. The name of cities along with survey dates are mentioned in **Table 1.1: QoS Survey Cities & Dates**.

S. #	Province	City	Days	Survey Dates
1.	Gilgit Baltistan (GB)	Gilgit	2	18 ~ 19 July 2022
2.		Jaglot	1	20 July 2022
3.		Hunza	2	21 ~ 22 July 2022
4.		Ghakuch	2	25 ~ 26 July 2022
5.		Astore	2	27 ~ 28 July 2022
6.		Skardu	2	1 ~ 2 August 2022
7.		Shigar	1	3 August 2022
8.		Khaplu	2	4 ~ 5 August 2022

Table 1.1: QoS Survey Dates and Samples

DRIVE TEST DETAILS

2.1 The QoS survey/drive tests were conducted using **NEMO QoS Tool** of CMOs. Drive test survey teams selected survey routes in such a manner to cover main roads, service roads and majority of sectors/colonies. During the survey, mobile handsets for Voice Calls, SMS and Data Sessions, were kept in 3G/4G locked mode.

VOICE SERVICE

3.1. A total of 5,000 Call attempts were made to analyze the performance of Cellular Voice services in 8 x cities of Gilgit Baltistan. 7x Voice Service QoS KPIs (i.e. Network Accessibility, Call Setup Success Rate, Call Setup Time, Call Completion Rate, Mean Opinion Score, Inter System Handover Success Rate & RAB Setup Success Rate) have been measured while testing voice services in 8 x surveyed cities of Gilgit Baltistan CMO wise call statistics are shown in **Table 3.1: Call Statistics**. The overall compliance level of threshold values of voice QoS KIs in 8 x cities is shown in in **Table 3.2: City Wise Voice QoS KPIs Compliance Level**.

DESCRIPTION	Jazz	Telenor	Ufone	ZonG	SCOM
TOTAL CALLS ATTEMPTS	1000	1000	1000	1000	1000
NETWORK ACESSEBILITY	99.94%	99.74%	100%	100%	100%
CALL SETUP SUCCESS RATE	99.94%	99.93%	100%	100%	100%
CALL SETUP TIME	7.4	10.1	6.81	8.2	5.94
CALL COMPLETION RATIO	100%	99.88%	100%	100%	100%
MEAN OPINION SCORE	3.8	3.38	3.32	3.3	3.6
ISHO SUCCESS RATE	N/A	N/A	N/A	N/A	100%
RAB SETUP SUCCESS RATE	N/A	N/A	N/A	N/A	95%

Table 3.1: Call Statistics.

Voice Service Cities - Compliance (Yes/No)									
Operator	KPIs	Astore	Gilgit	Ghakuch	Hunza	Jaglot	Khaplu	Shigar	Skardu
Jazz	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	SA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	CCT	Yes	No	Yes	No	Yes	Yes	No	Yes
	CCR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	MOS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RSSR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Telenor	NA	Yes	Yes	Yes	Yes	Yes	No	Yes	Yes
	SA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	CCT	No	No	No	No	No	No	No	No
	CCR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	MOS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RSSR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Ufone	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	SA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	CCT	Yes	No	Yes	Yes	Yes	No	Yes	Yes
	CCR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	MOS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RSSR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Zong	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	SA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	CCT	No	Yes	Yes	No	Yes	Yes	Yes	No
	CCR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	MOS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	RSSR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SCOM	NA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	SA	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	CCT	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	CCR	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	MOS	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	ISHO	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	RSSR	No	No	No	No	No	Yes	No	No

Table 3.2: City Wise Voice QoS KPIs Compliance Level.

SMS SERVICE

4.1 A total of 5000 SMS sending attempts were conducted to gauge the performance of SMS service in Gilgit Baltistan. CMO wise SMS statistics are shown in **Table 4.1: CMO Wise SMS Statistics**.

DESCRIPTION	Jazz	Telenor	Ufone	Zong	SCOM
SMS SEND REQUEST	1000	1000	1000	1000	1000
SMS RECEIVE SUCCESS RATE	99.81%	100%	100%	100%	100%
END-TO-END DELIVERY TIME	10.5	10.98	7.48	11.46	5.58

Table 4.1: CMO Wise SMS Statistics

DATA SERVICES SIGNAL STRENGTH

5.1 During the survey, SCOM data services were tested in technology locked mode, wherein 4G and 3G signal strength samples were recorded on survey routes. As per Next Generation Mobile Service (NGMS) Licenses and Cellular Mobile Network Quality of Service (QoS) Regulations 2021, licensees are required to meet the threshold of -100dBm or above with 90% confidence level for RSRP and RSCP.