



REQUEST TO PROCURE A QUALIFIED SERVICE PROVIDER FOR THE SUPPLY OF QUALITY OF SERVICE (QoS) BENCHMARKING EQUIPMENT (BACKPACK) TO TEST THE PERFORMANCE AND MONITOR QUALITY OF SERVICE OF THE MOBILE NETWORK OPERATORS' VOICE, DATA, VIDEO, MESSAGING SERVICES.

1. Purpose of submission

- 1.1. The purpose of this Request for Open RFQ is to appoint a service provider to procure the supply of Quality of Service (QoS) benchmarking Backpack Equipment to test the performance and quality of service of the mobile telecommunication service providers for voice, data, video and messaging services.

2. Background

- 2.1. ICASA is mandated to ensure the provision of good QoS by licensed telecommunication operators and service providers.
- 2.2. QoS is described as the ability of a mobile network to provide a service at an assured service level. QoS is very critical in mobile communication network technologies including second generation (2G/GSM), third generation (3G/WCDMA), fourth generation (4G/LTE), fifth-generation (5G), and Wi-Fi systems.
- 2.3. The Authority intends to source through an open bid from qualified bidders, a Walk Test Equipment also known as Backpack QoS Equipment which will provide benchmarking of network performance in measuring voice, data, video messaging and OTT services.

- 2.4. The proposed QoS Backpack Equipment will be used to evaluate the performance of mobile services in South Africa in terms of service availability, accessibility (blocked calls), retainability (dropped calls), network coverage (signal levels), data throughput and quality of service.

3. Scope of the work

The scope of work entails the following deliverables:

3.1. QoS Monitoring/Benchmarking solution

- 3.1.1. ICASA seeks to acquire an integrated QoS Backpack Benchmarking solution that shall assess the quality of service for voice, data, video, messaging, and OTT services in South Africa.
- 3.1.2. The Equipment shall be comprised of the following components/systems, which will include:
- a. Walk-Test/Portable system (Backpacks), with four (4) UEs that can be setup to conduct measurements in 2G/3G/4G/5G/Wi-Fi mode in an indoor environment. One backpack with capability to setup 4 UEs and one Tablet.
 - b. The four User Equipment shall supports 2G/3G/4G/5G and Wi-Fi reporting and analysis. The Logfiles recorded by UEs shall be compatible with logfile type formats; SQZ, NMF, TRP.
- 3.1.2.1. Detailed specifications are provided in Appendix A.
- 3.1.2.2. The UE's shall record QoS events including blocked calls, dropped calls, signal levels, poor quality signals, low throughput thresholds, and other significant events related to QoS KPIs.
- 3.1.2.3. The system shall be able to monitor the following voice call scenarios.
- a. Mobile to Fixed (M2F) subscriber
 - b. Mobile to Mobile (M2M) subscriber
 - c. Fixed to Mobile subscriber
- 3.1.2.4. The test measurement scenarios of the QoS Backpack Equipment shall simulate typical end-user behavior when using Voice and Data service.
- 3.1.2.5. The system shall support QoS testing of Voice, Data, Video, Messaging, and OTT services offered in the different frequency bands as specified in the National Radio Frequency Plan (NRFP) using technologies, including, but not

limited to GSM, EGSM, GPRS, EDGE, WCDMA (UMTS), HSUPA, HSPA+, HSDPA, LTE-TDD, LTE-FDD, LTE-A, Wi-Fi, VoLTE and 5G.

3.1.2.6. The system shall support QoS tests for Voice, Messaging, Video and Data services in accordance with the "ICASA quality of service parameters" as specified in SANS-1725-1 (Voice Standard), SANS-1725-2 (Data Standard), and the End-User and Subscriber Service Charter regulations as well as the respective international standards including, but not limited to, ITU-T E.804, ITU-T P.863, ITU-T P.862.1, ITU-T P.861, and ETSI 102 250-2.

3.1.2.7. The Equipment shall allow flexibility for users to customize key performance indicators (KPI), test cases, and report templates.

3.1.2.8. The system shall log and decode all protocol layer messages (Layer 1, Layer 2, and Layer 3) for all technologies measured.

3.2. **Installation**

3.2.1. The QoS User Equipment must be provided in a Back pack, that compromises of four UEs, one tablet and four power banks

3.2.2. The commissioning and installation will take place at premises that are agreed on by ICASA and the Service provider.

3.3. **Product Support and Licensing**

3.3.1. The supplier shall have an online portal for logging faults and complaints and may supplement this portal with other reporting platforms.

3.3.2. All support for software/hardware required for the proper functioning of the Equipment shall be valid for a minimum of three (3) years after solution acceptance.

3.3.3. The supplier shall provide licenses, remote upgrades of software, and installation of software patches for at least three (3) years from the date of installation of the equipment at no cost to the Authority for the proper functioning of the system.

3.4. **Mandatory Requirements**

3.4.1. The bidder shall provide written proof that they are a registered and authorized OEM supplier or distributor.

3.4.2. The bidder must have a local presence including an office in South Africa with technical support staff for providing level 1 troubleshooting (e.g. valid lease agreement or 3 months municipality utility bill).

3.4.3. The bidder shall provide a product manual that relates to the offered solution.

3.5. **Guarantee**

3.5.1. The bidder shall provide three years guarantee on all the devices.

3.6. **Product Manuals and Technical description**

3.6.1. Manuals on the proposed system that guide on how to operate the system, conduct troubleshooting, and basic service maintenance of the system must be provided in soft and hard copy at the time of delivery of the solution and shall be in English.

3.6.2. Technical description (schematics and system architecture) of the proposed solution must be included in the response to this bid response.

3.7. **Acceptance and Approvals**

3.7.1. The supplier shall provide a checklist of items listed in 3.1 which will be signed by both parties after delivery of the solution components.

3.7.2. A full functional test shall be conducted on the system after installation/supply to confirm that it meets the requirements specified by ICASA.

3.8. **Training**

3.8.1. Within the context of this procurement, the supplier shall provide full training to a minimum of 10 officials of ICASA.

3.8.2. The training shall cover the functionality and maintenance of the system with practical hands-on sessions.

3.8.3. The training shall be done on the actual system being supplied under this bid.

3.9. Performance measures

3.9.1. The system should be able to measure the following mobile service KPI's: service availability, accessibility, retainability, service/network coverage and quality of service as detailed in the technical specifications in Annexure A.

4. Proposed advertising period and recommended media

4.1. The RFQ will be advertised in the e-tender portal and ICASA's website on an 80/20 procurement principle.

5. Sourcing method

5.1. The service goods/service will be procured through an open bid in terms of ICASA's Supply Chain Management policy.

6. Briefing Session

6.1. Not required at all, potential suppliers will have to contact Mr Nsizwa Gumede on 0823720333 or ngumede@icasa.org.za for more information or clarification.

7. Pre-qualification criteria

7.1. The bidders must comply with all the requirements as listed in section 3.

7.2. Bidders will be evaluated on Functionality based on the pre-qualification criteria.

7.2.1. The minimum qualifying score for functionality is 70 points out 100 points.

7.2.2. Only bidders who obtain the minimum qualification score will be evaluated in accordance with the 80/20 procurement principles as prescribed by National Treasury Regulations.

Table 1 Bid Evaluation criteria and weights

A. Functionality: Prequalification criteria	Weight	Grading
1. Completeness of project plan covering the entire scope of work as defined in Section 3. The Service Provider must provide a detailed project plan showing the following: (1) Work breakdown structure, (2) Milestones, (3) Timing, (4) Resources, (5) Project risks management with a mitigation plan, and (6) Quality control management.	30	5 = Project plan covers all 6 requirements 4 = Project plan covers any 5 of the requirements 3 = Project plan covers any 4 of the requirements 2 = Project plan covers any 3 of the requirements 1 = Project plan covers less than 3 of the requirements or no submission.

2. The Service Provider must provide a the following: Acceptance Test plans (i.e., User Acceptance Test Cases). <u>User Cases:</u> a. Voice Test Cases b. Data Test Cases c. Video Test Cases d. Signal Strength Cases	30	The Acceptance Test plan covers the following: 5 = Voice Test, Data Test, Video Test, Signal Strength, 3 = Voice Test, Data Test, Signal Strength, 1 = Provided two or less requirements or did not respond to any of the requirements.
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3. Proof of support (written confirmation by OEM) from the Original Equipment Manufacturer (OEM) regarding the availability of spares and repair facilities. Proof of support should cover all listed requirements below: 1. Licenses, 2. Software upgrades, and 3. Installation of software patches 4. Ticket logging process and system	20	5= Proof of Support (written confirmation by OEM) for 3 years including Local presence/office, with electronic fault logging system 3= Proof of Support (written confirmation by OEM) for less than 3 years including Local Presence/ office. 1 = No Proof of Support provided
4. Provide reference letters with company letterheads from companies where the proposed or similar QoS Benchmarking Equipment was deployed.	10	5 = Provide more than three (>3) testimonial reference letters 4 = Provide three (3) testimonial reference letters 3 = Provide two (2) testimonial reference letters 2 = Provide one (1) testimonial reference letter 1 = No submission of testimonial reference letters

5. Provide skills transfer plan for twenty (10) ICASA staff members with timeframes.	10	A skills transfer plan covering the following skills area: Hands-on training on; (a)Test Equipment & Configuration, (b) Running Test Scripts for Voice and Data, (c) Support and maintenance procedures 5 = A skills transfer plan covering training on (a), (b) and (c) 3 = A skills transfer plan covering (a) and (b) 1 = No skills transfer plan provided or skill transfer plan provided without (a) or (b)
TOTAL FOR FUNCTIONAL PRE-QUALIFICATION CRITERIA.	100	
B. Price	80	
C. Specific goals	20	
TOTAL	100	

APPENDIX A: DETAILED TECHNICAL SPECIFICATIONS

A.1. Walk Test Equipment (Backpack)

Walk-Test/Portable system (Backpacks), with four (4) UEs that can be setup to conduct measurements in 2G/3G/4G/5G/Wi-Fi mode in an indoor environment. A total of 4 UEs are required for the Walk Test system. One backpack with capability to setup 4 UEs per backpack, and 1 Tablet.

Table 2: Walk Test Equipment

Features	Description	Compliant (Yes or No)
UE Technologies	2G, 3G, 4G, 5G, and Wi-Fi	
Number of Devices	4 UEs, 1 tablet	
Number of Backpacks	1	
UEs in Backpack operational mode	a. UEs must be carried in Backpack for indoor and outdoor environments.	
Dashboard	Real-time local or remote monitoring of measurements including actual route trail and measurement events, using a local controller e.g., Tablet.	
Tracking	GPS positioning and trail mapping	
Power supply	a. UEs are powered from their own battery source (e.g., internal device battery).	

	b. Backpacks with own built-in backup power supply or separate power-banks.	
Minimum Measurements Capability	a. Data: Ping, FTP/FTPS DL/UL, HTTP/HTTPS, Capacity, Network Performance Test, Video streaming and OTT applications. b. Voice Circuit Switch and VoLTE: Call Setup Success Ratio, Call Drop Ratio, Speech Quality, Call Setup Time: c. Signal Strength and Quality for 2G/3G/4G/5G/Wi-Fi d. Messaging: SMS Delivery Time	e.
Logfiles	The Logfiles recorded by UEs shall be compatible with logfile type formats; SQZ, NMF, TRP.	