

## ANNEXURE A SPECIFICATION

# PORTABLE SPECTRUM ANALYSERS

### **Briefing Session**

There will be non-compulsory briefing session.

### **Evaluation of the Bids**

The bid will be advertised for a period of 21 calendar days in the ICASA website and e-Tender portal, on an 80/20 procurement principle.

Bidders will be evaluated on; a) Mandatory requirements, b) specific goals. Only bidders who meet all the mandatory requirements will be considered further for price evaluation. All bid proposals submitted will be evaluated in accordance with the 80/20 procurement principle.

#### **Table 1 Mandatory Requirements**

Bidders who fail to meet all mandatory requirements will be disqualified.

<b>Mandatory Requirements per Category</b>	<b>Yes</b>	<b>No</b>
1. The bidder shall provide proof for online support portal, on 24-hour basis in the form of Uniform Resource Locator (URL) or website, for the duration of the SLA.		

2. The bidder shall provide proof of a traceable track record with calibration laboratories and OEM`s, where the bidder has a history with supplying and ensuring due compliance with the applicable repair standards for similar instruments and/or devices. Letters of validation and verification within the last five (5) years.		
3. Written warranties and/ or guarantees will apply to the OEM specifications and terms and conditions. Equipment to be procured should be covered for a minimum of 1 year of any manufacturing defects/ failure. The service provider must guarantee the availability of spares for 5 years after the procurement of the equipment. After sale service support for the period of 5 years is required.		

**Table 2 Evaluation Criteria**

<b>Evaluation Criteria</b>	<b>Weight</b>	<b>Rate</b>	<b>Score</b>
<b>1</b> The bidder shall provide proof of conformity with <u>all</u> the technical specifications as stipulated in Annexure A. <ul style="list-style-type: none"> <li>• 5 = met all requirements as per Annexure A</li> <li>• 1= all requirements not met</li> </ul>	<b>50</b>		
<b>2</b> Provide at least one (1) reference in an official company letterhead, not older than five years where such products were successfully deployed by you. <ul style="list-style-type: none"> <li>• 5 = provided more than one reference.</li> </ul>	<b>20</b>		

<ul style="list-style-type: none"> <li>• 3 = provided one reference.</li> <li>• 1= No references provided.</li> </ul>			
<p><b>3</b> Training plan for 30 persons which shall cover the functionality of the units with practical hands-on sessions. The training shall be done on the actual units being supplied under this procurement process. Training plan must contain the following:</p> <p>3.1 Training sessions must be conducted in Gauteng Province.</p> <p>3.2 Training plan must be presented for a duration of a week.</p> <p>3.3 Training schedule must clearly provide topics that will be covered during the training.</p> <p>3.4 Practical hands-on session to be provided.</p> <ul style="list-style-type: none"> <li>• 5 = training plan meets all conditions above.</li> <li>• 4 = training plan meets three conditions above.</li> <li>• 3 = training plan meets two conditions above.</li> <li>• 2 = training plan meets one condition above</li> <li>• 1= No training plan provided.</li> </ul>	<b>30</b>		
<p><b>Total</b> <b>(Minimum Cut-Off Points 70)</b></p>	<b>100</b>		

**DETAILED SPECIFICATION**  
**Spectrum Analyser 9 kHz - 67 GHz Specification**

The Independent Communications Authority of South Africa (hereinafter referred to as “the Authority”) intends to procure nine (9) portable spectrum microwave analysers.

**2. BACKGROUND**

- 2.1. The Authority has currently established regional office in all nine provinces. The need exists to equip all 9 provinces with Spectrum Analysers.

**3. SCOPE OF WORK**

- 3.1. The scope of this tender is limited to the supply, and delivery of nine (9) 67 GHz Spectrum Analyser for the Authority in Centurion. This should include all accessories, measurement personalities, associated options and or firmware to provide a complete solution without the use of external mixers to 67 GHz. Sections 4 and 5 below details the technical specifications of the equipment required.

**4. EQUIPMENT REQUIRED**

- 4.1. This section defines the equipment and number of units as well as functionality required of each unit to fulfil the Authority's tender requirements as set out in this document.

**4.1.1. General Data**

- The device shall be supplied in a Ruggedised Platform conforming to Mil-T 28800D Class 3 or better.
- Total instrument weight shall not exceed 5.3 kg.
- Instrument dimensions are not to exceed 314mm x 218mm x 91mm D - Supplier to state the size and weight in the offer.
- The unit shall be provided with a carrying handle/strap/harness.
- The instruments Firmware should also be upgradeable by the user through the Spectrum Analyser's communication interfaces.
- Memory Storage: better than 200 stored traces on device
- Internal memory storage minimum 3 GB
- Operating Temperature Range: 0°C to + 55 °C @ 70 % Humidity
- Storage temperature range: -20°C to +70°C
- An LAN TCP/ IP 1000/100/10BaseT- Interface (RJ 45) is required.
- An IEEE 488.2 interface is required.
- High speed USB 2.0 ports

#### 4.1.2. Power requirements

- Power consumption may not exceed 45W.
- A line cord shall be provided suitable for use in South Africa
- External AC Power Supply connection or adaptor: 220V@ 50Hz nominal
- External DC Supply connection battery pack or adaptor : 12V to 15V DC (optional)

#### 4.1.3. Frequency Requirements

- Frequency Range : 9 kHz to 67 GHz (no gaps)
- Reference frequency : Aging  $\leq 1$  ppm / Yr
- Temperature drift  $\leq 1$  ppm (+5°C to +25°C)
- SSB Phase noise: better than 75 dBc at 1 kHz from carrier at 67 GHz
- Resolution Bandwidth : selectable from 10 Hz to 5 MHz in a type sequence or percentage steps
- Accuracy better than 10 % @ 3 MHz
- Video Bandwidth : selectable from 1 Hz to 5 MHz in a type sequence or percentage steps
- Accuracy better than 6% nominal
- Marker Frequency counter : Resolution 0.1Hz  
Frequency Span 9 KHz – 67 GHz  
Accuracy  $> (\text{Marker freq} \times \text{Ref freq} + 0.5\text{Hz})$

#### 4.1.4. Amplitude requirements

- Input measurement range: Maximum + 30 dBm (1 W) to 67 GHz
- Permitted DC voltage allowed on input : 0 V
- Displayed Average Noise Level: better than -110 dBm (10 Hz RBW) @ 67 GHz
- Second harmonic Intercept point better than -60dBc @ 67 GHz
- Third order Dynamic range:  $> 75$  dBc TOI  $> 15$  dBm @ 67 GHz
- RF input attenuation : user selectable to 50 dB attenuation in 10 dB steps
- Displayed units of measurement : dBm, dBV, dBmV, dB $\mu$ V

#### 4.1.5. Display requirements

- Displayed traces : 2 ( two) or more
- Display : Colour LCD or TFT = better than 320 x 240 pixels
- Trace detector : Sample, Average, Peak , Max Peak, Max hold, Quasi-peak and RMS
- Markers : Marker to peak , Marker to next peak and Marker to centre
- Demodulation: AM and FM

#### 4.1.6. RF Input requirements

- Input impedance : 50 $\Omega$  nominal
- Coaxial Connector type: 1.85mm male to 67 GHz
- VSWR: better than or equal to 3: 1 at 67 GHz

#### **4.1.7. Output requirements**

- Audio output of demodulated signal : Internal speaker or via headphone adaptor
- An IF Output on rear panel is required

#### **4.2. Other Specifications**

- Included in this tender must be a sturdy carrying case and standard South African three way power cord with plug
- Back-pack soft carry case to be included
- Drop in battery receptacle-220 Volt
- Two batteries
- If Included must be the associated mains charger and Automotive cigarette lighter adaptor to operate @ 12V DC if option is quoted
- Included must be the associated PC based software capable of storing and displaying traces and controlling instrument. Software should be compatible with Windows® 11
- Serial interface cable shall be included
- Compatible headphones should be supplied if the instrument offered, is equipped with a headphone socket

#### **4.3. Service and Calibration**

- Each instrument shall be supplied with a Calibration certificate from an ISO 17025 Accredited laboratory.
- An indication of the availability of spares and service life offered should be indicated in the bid
- Each Unit shall carry a 1 Year factory warranty

### **5. Training and Support**

- 5.1. The supplier will be required to provide a complete solution in a single bid.
- 5.2. The supplier will be responsible for the satisfactory testing and commissioning of all equipment and software provided under the contract.
- 5.3. Training at a centralised location for 30 persons on the use of and application of the complete Spectrum analyser unit.
- 5.4. After-sales support should be provided for and be clearly indicated in the bid document.
- 5.5. The Supplier shall guarantee the operability of the equipment (i.e. both hardware and software – through necessary upgrades), for a period not less than ten (10) years.

## **6. Testing of the equipment**

This is only applicable to the successful service provider, i.e., final acceptance: Testing must be done after the supply of nine (9) portable spectrum analysers. Final acceptance will include testing functionality of the devices and will be done in accordance with the standard test procedures and representatives of ICASA and the bidder will sign all acceptance forms.

### **ICASA Delivery Details**

**To be Delivered to ICASA REGIONS DIVISION**

**Attention: Sphehile Zungu, Divisional Assistant Regions +27 12 568 3803**

**350 Witch-hazel Avenue; Eco Point Office Park**

**Eco Park, Centurion**