

**OPEN TENDER ENQUIRY (OTE)**

**CORRIGENDUM / AMENDMENT NO. 1, Date: 21/12/2021**

Tender No. : 038/SAL/PUR/2021-22, dated: 25/11/2021

**Tender Name:** SUPPLY, INSTALLATION, COMMISSIONING, TRAINING AND DEMONSTRATION OF PCB DIAGNOSTIC AND TEST EQUIPMENT WITH STANDARD ACCESSORIES

The following points of the referred tender are amended as per details given below.

Sl. No.	Description	Original details as Per Tender	Details as per Corrigendum/ Amendment no. 1 dtd. 20/12/2021	Reference Page number of Tender
1.	Date of Sale of tender documents	From 25/11/2021 to 27/12/2021 during office hours	From 25/11/2021 to 06/01/2022 during office hours	3
2.	Closing date and time for receipt of tenders	28/12/2021 at 11.30 hours	07/01/2022 at 11.30 hours	1, 3
3.	Time and date of opening of tenders	28/12/2021 at 11.45 hours	07/01/2022 at 11.45 hours	1, 3, 6, 70

**AS PER ORIGINAL TENDER**

**Section VII: Technical Specifications**

SUPPLY, INSTALLATION, COMMISSIONING, TRAINING AND DEMONSTRATION OF PCB DIAGNOSTIC AND TEST EQUIPMENT WITH STANDARD ACCESSORIES CONFORMING TO FOLLOWING TECHNICAL SPECIFICATIONS AND PARAMETERS.

**Technical Specification of PCB DIAGNOSTIC AND TEST EQUIPMENT Machine:**

**PCB TEST EQUIPMENT (BOARD WIZARD)**

1. In-Circuit Functional Test for Analog, Digital, Mixed Signal and Mixed Logic Devices.
2. Out-Circuit test for Integrated Circuits, Discrete devices, etc.
3. Analog and Digital VI Trace test facility / VI Signature analysis.
4. Functional Board Learn and Board Test facility.
5. Power on Full Board testing & Short Locator

6. Waveform display for Device Under Test.
7. Live comparison between Good PCB & Fault PCB.
8. IEEE Standard VHDL Simulator.
9. Measurement functions like Resistance, Capacitance, Inductance, Voltage, Diode, Frequency Measurements and other utilities.
10. Device Functional Library comprising of TTL, CMOS, EIA, ECL Logic, DTL Logic, Mixed Logic Device, Analog Devices including Op-amps, ADCs/DACs, SCRs, FETs, Processors, Micro-Controllers etc.
11. Testing of Memory Devices like EPROMs, ROMs, RAMs, PALs etc. Extraction of data and verification facility.
12. System built-in power supply with +5V, -5V, +12V, -12V, +3.3V with power cables.
13. Standard test clips set, test probes and other accessories for testing SMD, DIP ICs, etc.
14. Application / Diagnosis software for the above mentioned tests.
15. Apart from main application software, the system should have automated self test facility for all hardware modules and auto calibration facility.
16. Controller (Minimum Specifications)
  - i) Computer with Intel Core i7 processor or equivalent, 8GB RAM, 1TB Sata HDD/512 GB SSD, 4-USB slots,
  - ii) Preloaded Latest Windows OS along with Test Software.
  - iii) User manual – Hard copy – 2 set and Softcopy – 1 set.
  - iv) OS & Test software – 1 set of softcopy to be provided.
17. Installation of Equipment, Demonstration and Training at our site.
18. Warranty: One year from the date of commissioning of the Equipment at BRBNMPL, Salboni.
19. **Comprehensive AMC & Calibration: Supplier shall undertake Comprehensive AMC contract (CAMC) for 4 (Four) Years after expiry of guarantee / warranty period.** The CAMC shall be on yearly renewable basis subject to satisfactory performance. Offer for CAMC should be kept valid till the execution of fourth year CAMC.
20. Spare & Service Support: The supplier should provide technical support for the supplied system & accessories and **make available required spares for a period of at least 10 years from the date of expiry of warranty.**

Licenses: Wherever applicable, the supplier should provide licensed version of software and Operating system. All the licenses shall be in the name of BRBNMPL.

### Declaration By Tenderer

**COMPLIANCE STATEMENT FOR SUPPLY, INSTALLATION, COMMISSIONING, TRAINING AND DEMONSTRATION OF PCB DIAGNOSTIC AND TEST EQUIPMENT WITH STANDARD ACCESSORIES.**

**COMPLIANCE STATEMENT**

**A. TECHNICAL :**

Sl. No.	Required Specifications:	Offered by Bidder	Deviations, if any
1	In-Circuit Functional Test for Analog, Digital, Mixed Signal and Mixed Logic Devices.	Yes	
2	Out-Circuit test for Integrated Circuits, Discrete devices, etc.	Yes	
3	Analog and Digital VI Trace test facility / VI Signature analysis	Yes	
4	Functional Board Learn and Board Test facility	Yes	
5	Power on Full Board testing & Short Locator	Yes	
6	Waveform display for Device Under Test	Yes	
7	Live comparison between Good PCB & Fault PCB	Yes	
8	IEEE Standard VHDL Simulator	Yes	
9	Measurement functions like Resistance, Capacitance, Inductance, Voltage, Diode, Frequency Measurements and other utilities	Yes	
10	Device Functional Library comprising of TTL, CMOS, EIA, ECL Logic, DTL Logic, Mixed Logic Device, Analog Devices including Op-amps, ADCs/DACs, SCRs, FETs, Processors, Micro-Controllers etc.	Yes	
11	Testing of Memory Devices like EPROMs, ROMs, RAMs, PALs etc. Extraction of data and verification facility	Yes	
12	System built-in power supply with +5V, -5V, +12V, -12V, +3.3V with power cables	Yes	
13	Standard test clips set, test probes and other accessories for testing SMD, DIP ICs, etc.	Yes	
14	Application / Diagnosis software for the above mentioned tests	Yes	

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15	Apart from main application software, the system should have automated self-test facility for all hardware modules and auto calibration facility	Yes	
16	<p>Controller (Minimum Specifications)</p> <p>i) Computer with Intel Core i7 processor or equivalent, 8GB RAM, 1TB SATA HDD/512 GB SSD, 4-USB slots,</p> <p>ii) Preloaded Latest licensed Windows OS along with Test Software.</p> <p>iii) User manual – Hard copy – 2 set and Softcopy – 1 set.</p> <p>iv) OS &amp; Test software – 1 set of softcopy to be provided</p>	Yes	
17	Installation of Equipment, Demonstration and Training at our site	Yes	
19	<p>Comprehensive AMC &amp; Calibration: 4 years after completion of guarantee / warranty period.</p> <p><b><u>Post warranty CAMC &amp; calibration</u></b></p> <p>The supplier must provide quote for post warranty Comprehensive AMC for <b>four</b> years. Price offered for CAMC will also be considered for deciding L1 bidder (as mentioned in Section XI – Price Schedule). The following terms are applicable w.r.to CAMC</p> <p>1. CAMC will be on yearly renewal basis subject to satisfactory performance.</p> <p>2. Offer for CAMC should be kept valid till the execution of fourth year CAMC.</p> <p>3. It should cover the complete machine as a whole, further, this should also include the Hardware and Software support and its upgradation (such as patches, bugs etc.,) as and when required for the system.</p> <p>4. In case of machine break down the complaint should be resolved and machine should be restored to service within 48 hours from the time of lodging of complaint. In case delay in rectification from the supplier part, LD clause as per the tender will be applicable.</p>	Yes	
20	Spare & Service Support: The supplier should provide technical support for the supplied system	Yes	

	& accessories and make available required spares for a period of at least 10 years from the date of expiry of guarantee / warranty.		
21	Licenses: Wherever applicable, the supplier should provide licensed version of software and Operating system. All the licenses shall be in the name of BRBNMPL.	Yes	

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Name and Signature with date

**AMENDED AND SHOULD BE READ AS**

**Section VII: Technical Specifications**

**SUPPLY, INSTALLATION, COMMISSIONING, TRAINING AND DEMONSTRATION OF PCB DIAGNOSTIC AND TEST EQUIPMENT WITH STANDARD ACCESSORIES CONFORMING TO FOLLOWING TECHNICAL SPECIFICATIONS AND PARAMETERS.**

**Technical Specification of PCB DIAGNOSTIC AND TEST EQUIPMENT Machine:**

**PCB TEST EQUIPMENT (BOARD WIZARD)**

**A. General Test:**

1. In-Circuit Functional Test for Analog, Digital, Mixed Signal and Mixed Logic Devices.
2. Out-Circuit test for Integrated Circuits, Discrete devices, etc.
3. Analog and Digital VI Trace test facility / VI Signature analysis.
4. Functional Board Learn and Board Test facility.
5. Power on Full Board testing & Short Locator
6. Waveform display for Device Under Test.
7. Live comparison between Good PCB & Fault PCB.
8. IEEE Standard VHDL Simulator
9. Measurement functions like Resistance, Capacitance, Inductance, Voltage, Diode & Frequency measurements

10. Device Functional Library comprising of TTL, CMOS, EIA, ECL Logic, DTL Logic, Mixed Logic Device, Analog Devices including Op-amps, ADCs/DACs, SCRs, FETs, Processors, Micro-Controllers etc.
11. Testing of Memory Devices like EPROMs, ROMs, RAMs, PALs etc. Extraction of data and verification facility.
12. System built-in power supply with  $\pm 5V @ 10A$ ,  $\pm 12V @ 6A$ ,  $+3.3V @ 10A$ .

**B. Digital Test:**

1. No. of channels: Minimum 48 channels expandable up to 96 channels.
2. RAM behind each pin: Minimum 128K X 2 RAM
3. Test Data rate: Min. up to 10 MHz
4. Test Frequency at pin: Min. up to 250 KHz
5. Programmable drive / sense Amplitude:  $-12V / +12V$  in steps of 40mV
6. Drive Source current / Sink current: Up to 650mA

**C. Analog Test:**

1. No. of channels: Minimum 3 channels multiplexed to any test channel in the system.
2. Channel resolution : Min. 12 bits
3. Analog sampling rate: Min. Up to 20 MHz.
4. Drive source Impedance:  $10 \Omega$  to  $470 K\Omega$ .
5. Drive Pattern: User selectable Sine / Trigger / Ramp / Square / Triangular waveforms.
6. Drive Voltage :  $\pm 12V$
7. Drive current :  $+ / - 100$  mA per channel

**D. VI Test:**

1. No. of channels: Min. 80 channels expandable up to 160 channels.
2. Live comparison: Min. Two channel Clips & probes.
3. Test methods: Standard VI Trace, Moving reference test, Dual VI, VT and VZ.
4. Drive Frequency: DC to 6.8 KHz minimum.
5. Voltage Amplitude:  $+0.3V$  to  $24V$  peak to peak.

**E. RCV Measurement :**

1. Resistance :  $5 \Omega$  to  $5 M\Omega$
2. Capacitance : 10pf to 5,000  $\mu f$
3. Voltage :  $-12V$  to  $+12V$ , AC / DC

**F. Software capability :**

1. Application / Diagnosis software for the above mentioned tests.
2. Apart from main application software, the system should have automated self-test facility for all hardware modules and auto calibration facility.

3. Controller (Minimum Specifications)

- i) Computer with latest generation Intel Core i7 processor or equivalent, 16GB RAM, 1TB SATA HDD/512 GB SSD, Minimum 4-USB slots,
- ii) Preloaded Latest Licensed Windows OS along with Test Software.
- iii) User manual – Hard copy – 2 set and Softcopy – 1 set.
- iv) OS & Test software – 1 set of softcopy to be provided.

**G. Standard test clip set:**

1. Standard test clips set, test probes and other accessories for testing SMD (SOIC), DIP ICs, etc. Below mentioned clip set are **minimum requirements.**

- i) 8/14/16/20/28/40 Pin IC Test Clip with cable -1 no. (each).
- ii) Device under test Power clip with cable – 1 no.
- iii) VI Probe with cables – 02 sets
- iv) 2mm Guard plug with grabber – 2 Sets
- v) 4mm Guard plug with grabber- 2 sets
- vi) Miniature Test Clip Lead Set – 01 Set
- vii) SOIC Clip set with cable (8,14,16,20,24,28, 32 & 40 pin) – 1 Set
- viii) PLCC Clip set (20,28,32,44 and 68 pin) with cable and connector- 1set
- ix) AC Power Cord – 1 no.

**H.** Installation of Equipment, Demonstration and Training at our site.

**I.** Warranty: At least One year from the date of commissioning of the Equipment at BRBNMPL, Salboni.

**J.** Comprehensive AMC & Calibration: Supplier shall undertake Comprehensive AMC Contract (CMAC) for 4 (Four) years after expiry of guarantee / warranty period. The CMAC shall be on yearly renewable basis subject to satisfactory performance. Offer for CAMC should be kept valid till the execution of fourth year CAMC.

**K.** Spare & Service Support: The supplier should provide technical support for the supplied system & accessories and make available required spares for a period of atleast 10 years from the date of expiry of warranty.

**L.** Licenses: Wherever applicable, the supplier should provide licensed version of software and Operating system. All the licenses shall be in the name of BRBNMPL.

### Declaration By Tenderer

**COMPLIANCE STATEMENT FOR SUPPLY, INSTALLATION, COMMISSIONING, TRAINING AND DEMONSTRATION OF PCB DIAGNOSTIC AND TEST EQUIPMENT WITH STANDARD ACCESSORIES.**

**COMPLIANCE STATEMENT**

**A. TECHNICAL :**

Sl. No.	Required Specifications:	Offered by Bidder	Deviations, if any
<b>a. <u>General Test:</u></b>			
1	In-Circuit Functional Test for Analog, Digital, Mixed Signal and Mixed Logic Devices	Yes	
2	Out-Circuit test for Integrated Circuits, Discrete devices, etc.	Yes	
3	Analog and Digital VI Trace test facility / VI Signature analysis	Yes	
4	Functional Board Learn and Board Test facility	Yes	
5	Power on Full Board testing & Short Locator	Yes	
6	Waveform display for Device Under Test	Yes	
7	Live comparison between Good PCB & Fault PCB	Yes	
8	IEEE Standard VHDL Simulator	Yes	
9	Measurement functions like Resistance, Capacitance, Inductance, Voltage, Diode & Frequency measurements	Yes	
10	Device Functional Library comprising of TTL, CMOS, EIA, ECL Logic, DTL Logic, Mixed Logic Device, Analog Devices including Op-amps, ADCs/DACs, SCRs, FETs, Processors, Micro-Controllers etc.	Yes	
11	Testing of Memory Devices like EPROMs, ROMs, RAMs, PALs etc. Extraction of data and verification facility	Yes	
12	System built-in power supply with +/- 5V @10A, +/- 12V@6A, +3.3V@10A	Yes	
<b>b. <u>Digital Test:</u></b>			
1	No. of channels: Minimum 48 channels expandable up to 96 channels.	Yes	
2	RAM behind each pin : Minimum 128K X 2 RAM	Yes	
3	Test Data rate: Min. up to 10 MHz.	Yes	
4	Test Frequency at pin : Min. up to 250 KHz	Yes	
5	Programmable drive / sense Amplitude : -12V / +12V in steps of 40mV	Yes	
6	Drive Source current / Sink current: Up to 650mA	Yes	



<b>c. <u>Analog Test:</u></b>			
1.	No. of channels : Minimum 3 channels multiplexed to any test channel in the system		
2.	Channel resolution : Min. 12 bits		
3.	Analog sampling rate : Min. up to 20 MHz		
4.	Drive source Impedance: 10 $\Omega$ to 470 K $\Omega$		
5.	Drive Pattern : User selectable Sine / Trigger / Ramp / Square / Triangular waveforms		
6.	Drive Voltage : +/- 12V		
7.	Drive current : + / - 100 mA per channel		
<b>d. <u>VI Test:</u></b>			
1.	No. of channels: Min. 80 channels expandable upto 160 channels		
2.	Live comparison: Min. Two channel Clips & probes		
3.	Test methods: Standard VI Trace, Moving reference test, Dual VI, VT and VZ		
4.	Drive Frequency: DC to 6.8KHz minimum		
5.	Voltage Amplitude: +0.3V to 24V peak to peak		
<b>e. <u>RCV Measurement:</u></b>			
1.	Resistance : 5 $\Omega$ to 5 M $\Omega$		
2.	Capacitance : 10pf to 5,000 $\mu$ f		
3.	Voltage : -12V to + 12V, AC / DC		
<b>f. <u>Software capability:</u></b>			
1.	Application / Diagnosis software for the above mentioned tests	Yes	
2.	Apart from main application software, the system should have automated self-test facility for all hardware modules and auto calibration facility	Yes	
3.	Controller (Minimum Specifications)		
	i) Computer with latest generation Intel Core i7 processor or equivalent, ii) 16GB RAM, iii) 1TB SATA HDD/512 GB SSD, iv) Minimum 4-USB slots		
4.	Preloaded Latest Licensed Windows OS along with Test Software		
5.	User manual – Hard copy – 2 set and Softcopy – 1 set		
6.	OS & Test software – 1 set of softcopy to be provided		
<b>g. <u>Standard test clip set:</u></b>			

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	Standard test clips set, test probes and other accessories for testing SMD (SOIC), DIP ICs, etc. Below mentioned clip set are <b>minimum requirements</b>		
i)	8/14/16/20/28/40 Pin IC Test Clip with cable -1 No (each)		
ii)	Device under test Power clip with cable – 1 No		
iii)	VI Probe with cables – 02 sets		
iv)	2mm Guard plug with grabber – 2 Sets		
v)	4mm Guard plug with grabber- 2 sets		
vi)	Miniature Test Clip Lead Set – 01 Set		
vii)	SOIC Clip set with cable (8,14,16,20,24,28, 32 & 40 pin) – 1 Set		
viii)	PLCC Clip set (20,28,32,44 and 68 pin) with cable and connector – 1 set.		
ix)	AC Power Cord – 1 No.		
<b>h.</b>	Installation of Equipment, Demonstration and Training at our site	Yes	
<b>i.</b>	<p>Comprehensive AMC &amp; Calibration: 4 years after completion of guarantee / warranty period.</p> <p><b><u>Post warranty CAMC &amp; calibration</u></b></p> <p>The supplier must provide quote for post warranty Comprehensive AMC for <b>four</b> years. Price offered for CAMC will also be considered for deciding L1 bidder (as mentioned in Section XI – Price Schedule). The following terms are applicable w.r.to CAMC</p> <ol style="list-style-type: none"> <li>1. CAMC will be on yearly renewal basis subject to satisfactory performance.</li> <li>2. Offer for CAMC should be kept valid till the execution of fourth year CAMC.</li> <li>3. It should cover the complete machine as a whole, further, this should also include the Hardware and Software support and its upgradation (such as patches, bugs etc.,) as and when required for the system.</li> <li>4. In case of machine break down the complaint should be resolved and machine should be restored to service within 48 hours from the time of lodging of complaint. In case delay in rectification from the supplier part, LD clause as per the tender will be applicable.</li> </ol>	Yes	
<b>j.</b>	Spare & Service Support: The supplier should provide technical support for the supplied system & accessories and make available required spares for a period of at least 10 years from the date of expiry of guarantee / warranty.	Yes	

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<b>k.</b>	Licenses: Wherever applicable, the supplier should provide licensed version of software and Operating system. All the licenses shall be in the name of BRBNMPL.	Yes	
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Name and Signature with date

**Note: These changes are applicable at all other places of tender including Page Nos. given above**  
**All other terms and conditions remain unchanged.**

***Bidders who have already submitted their sealed offer may submit the corrected tender Fees as mentioned above.***

For & on behalf of BRBNMPL, Salboni

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(P.K.Biswal)

Deputy General Manager (MMD)

BRBNMPL, Salboni