



ASTI-FM 03-11
REV 0/2 APR 2018

**DOST-ASTI Bids and Awards Committee
Invitation to Bid (Public Bidding)**

ITB No:	19-08-2656	Date:	August-16-2019
PR No:	EPIIC P2-19-07-8206	Date:	July-31-2019
Source of Funds:			
Total ABC:		Php 1,854,074.97	
Time, Date & Venue of Pre-bid Conference:		September 05, 2019, 1:30 PM at DOST-ASTI	
Time and Date of Submission of Bids:		September 17, 2019, 12:00 PM	
Time, Date & Venue of Opening Bids:		September 17, 2019, 1:30 PM at DOST-ASTI	
Date of availability of Complete Set of Documents:		August 28, 2019	
Deadline of Potential Bidder's Clarifications:		September 07, 2019	
Deadline of ASTI's Supplemental Bid Bulletin:		September 10, 2019	
Delivery Schedule:			

The Advanced Science and Technology Institute (ASTI), through its Bids and Awards Committee (BAC), hereby invites all interested bidders to submit their bids for the item(s) listed below. Guidelines regarding the format, eligibility, technical and financial documents needed are described in the Instruction to Bidders of the Philippine Bidding Documents

Bidding will be conducted through open competitive bidding procedures using a non discretionary "pass/fail" criterion as specified in the 2016 R-IRR of RA 9184.

A complete set of Bidding Documents may be purchased by interested bidders upon payment of a fee for the Bidding Documents. It is also downloadable for free of charge at DOST-ASTI's website - www.asti.dost.gov.ph

For further inquiries, contact ASTI's BAC Secretariat via email at bac-sec@asti.dost.gov.ph. Interested bidders may also call the number - (632)-426-7423 and look for ASTI's BAC Secretariat.

Respectfully,


PEDRITO B. MANGAHAS
Chairperson, BAC-1

NO.	TECHNICAL SPECIFICATIONS	QTY	UNIT	UNIT PRICE(Php)	TOTAL PRICE(Php)
1	Supply and Delivery of Test Instruments Supply and Delivery of 300Mhz Mixed Signal Oscilloscope Specifications: 1. 300MHz Bandwidth, 4 Input Channels 2. 2GSa/s Maximum Real-Time Sampling Rate and 100GSa/s Equivalent Time Sampling Rate 3. 2M points Maximum Record length 4. VPO Technology to Display Less Frequently-Occurring Signals 5. Fast Update Rate of 80,000 Waveform Per Second 6. Segmented Memory Acquisition and Waveform Search Function 7. Standard Model Provides I C, UART, SPI Serial Bus Trigger and Analysis Functionality 8. 16 Additional Digital Channels with Logic Analyzer(MSO) 9. Upgradable CAN/LIN Bus, DVM, H-Expansion, Data	1	unit	275000.00	275,000.00

ASTI Bldg., U.P. Technology Park Complex, C.P. Garcia Ave., Diliman, Quezon City, Philippines 1101

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• Fax No.: +632 925-8598

	<p>Log and Advanced Logic Functionality</p> <p>10. 25MHz Single Channel Function Generator</p> <p>11. Flexible Remote Control Connectivity (Standard : USB ; Optional : LAN/GPIB)</p> <p>12. Waveform Signal Process: + , - , x , ÷ , FFT , FFTrms , d/dt(, dt(, sqr(, FFT: Spectral magnitude. Set - FFT Vertical Scale to Linear RMS or dBV RMS, and FFT Window to Rectangular, Hamming, Hanning, or Blackman-Harris.</p> <p>13. Must include 350MHz passive probes for each channel.</p> <p>14. 1mV /div to 10V/div of Vertical Range</p> <p>15. 1ns/div to 100s/div of Time Base Range</p> <p>16. 80,000 wfm/s of Waveform Update Rate</p> <p>17. 8 inch 800*600 High Resolution TFT LCD Display</p> <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fee, taxes and duties. Delivery Date: On or before November 29, 2019</p>				
2	<p>Supply and Delivery of Spectrum Analyzer</p> <p>Specifications:</p> <ol style="list-style-type: none"> 1. Frequency Range: 9kHz ~ 3 GHz 2. 0.025ppm Frequency Stability and 1ppm aging Rate 3. Resolution Bandwidth (RBW) Filter Bandwidth: 1 Hz to 1 MHz in 1-3-10 sequence -3dB bandwidth, 200 Hz, 9 kHz, 120 kHz, 1 MHz -6dB bandwidth 4. Displayed Average Noise Level (DANL): 9 kHz to 100 kHz < -93 dBm, 100 kHz to 1 MHz < -90 dBm - 3 x (f/100 kHz) dB, 1 MHz to 2.7 GHz < -122 dBm 5. Sweep Time Range: 204 us to 1000 s (Span > 0 Hz), 50 us to 1000 s (Span = 0 Hz; Min Resolution = 10 us) 6. Phase Noise Offset from Carrier (Fc =1 GHz; RBW = 1 kHz, VBW = 10 Hz; Average = 40): <-88 dBc/Hz@10 kHz, <-95 dBc/Hz@100 kHz, <-113 dBc/Hz@1 MHz 7. Built-in Preamplifier Frequency Range: 1 MHz to 3 GHz, Gain: 18 dB Nominal 8. Built-in 50dB Attenuator, and Sequence Function 9. Built-in P1dB point, Harmonic, Channel Power, N-dB bandwidth, OCBW, ACPR, SEM, TOI, CNR, CTB, Noise Marker, Frequency Counter, Time Domain Power, Gated Sweep 10. Built-in Spectrogram, Topographic and Dual-View Display Modes 11. Remote Control Interface: LAN, USB, RS-232 12. Tracking Generator: <ol style="list-style-type: none"> a. Frequency Range: 100 kHz to 3 GHz b. Output Power: -50 dBm to 0 dBm in 0.5 dB steps c. Absolute Accuracy: ± 0.5 dB @160 MHz, -10 dBm, Source attenuation 10 dB, 20 to 30°C d. Output Flatness (Referenced to 160 MHz -10 dBm): 100 kHz to 2 GHz ± 1.5 dB; 2 GHz to 3 GHz ± 2 dB e. Output Level Switching Uncertainty: ± 0.8 dB Referenced to -10 dBm f. Harmonics: < -30 dBc Typical, output level = -10 dBm g. Reverse Power: +30 dBm max. h. Connector type: N-type female 	1	unit	330000.00	330,000.00

	<p>i. Impedance: 50 ohm Nominal j. Output VSWR: < 1.6:1 300 kHz to 3 GHz, source attenuation = 12 dB</p> <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fee, taxes and duties. Delivery Date: On or before November 29, 2019</p>				
3	<p>Supply and Delivery of Arbitrary Function Generator Specifications: 1. Frequency Range Sinewave: 1μHz ~ 160MHz 2. High sine wave purity with low phase noise and jitter, audio band THD down to 0.05% 3. Maximum Frequency Range Square Pulse and Arbitrary Waveform: 20 MHz, 50 MHz, 80 MHz 4. Minimum Frequency Range Square Pulse and Arbitrary Waveform: 1μHz, 1 mHz, 1 μHz 5. Frequency Range Triangle/Saw: 1μHz ~ 5MHz 6. Square waves has variable duty cycle, edge speeds down to 5ns 7. Digital Frequency: Yes 8. Digital Amplitude and Offset: Yes 9. Internal Linear and Log Sweep: Yes 10. Variable Sweep: Yes 11. Internal and External Amplitude Modulation: Yes 12. FM Modulation: Yes 13. Time Base Accuracy: ±1ppm 14. Width: 213.5 mm, 250 mm 15. Height: 86.5 mm, 97 mm 16. Output Impedance: 50 17. Output Amplitude: 20V Pk-Pk 18. Length: 269 mm, 295 mm 19. CMOS Output Level: 3V 20. Operating Temperature: +5°C ~ +40°C 21. Frequency Range Square Pulse and Arbitrary Waveform: 1 mHz ~ 20 MHz (Pulse), 1 μHz ~ 50 MHz (Square), 1 μHz ~ 80 MHz (Arbitrary) 22. Interface Type: LAN, USB 23. Attenuation: 42dB 24. Input Impedance: 10 kΩ 25. Two identical channels - independent or linked with coupled and tracking modes 26. Inter-channel phase offset of -360deg to +360deg with 0.001deg resolution 27. Pulse generation with 100ps width resolution, <30ps jitter, and variable rise/fall times 28. Wideband noise generator with up to 100MHz noise bandwidth 29. PRBS pseudo-random bit sequence generation with 8 sequence lengths 30. Harmonics generation using up to 16 harmonics 31. Wide range of standard and arbitrary waveforms built-in (triangles, ramps, sinc, logarithmics, exponentials, gaussians and cardiac) 32. Arbitrary waveforms of 16-bits / 800MSa/s 33. Waveform Manager Plus for Windows editing software included 34. Front USB host socket for waveform storage and</p>	1	unit	137500.00	137,500.00

	<p>file transfers using Flash drives</p> <p>35. Comprehensive internal/external digital and analog modulation set including Sum modulation</p> <p>36. Modulation frequencies up to 10MHz internal and 5MHz external</p> <p>37. Gate and Burst modes with internal and external triggering</p> <p>38. Bi-directional linear and logarithmic sweep using internal or external triggering</p> <p>39. 125MHz frequency counter/timer with five measurement modes</p> <p>40. Compact half-rack 2U casing with protective buffers and handle</p> <p>41. Programmable via USB and LAN (LXI) interfaces</p> <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fee, taxes and duties. Delivery Date: On or before November 29, 2019</p>				
4	<p>Supply and Delivery of Bench Power Supply</p> <p>Specifications:</p> <ol style="list-style-type: none"> At least four (4) independent isolated output Power: 212W Output voltage: 2x 0-32V, 1x 0-5V, 1x 0-15V Output current: 2x 0-3A, 2x 0-1A 4.3 inch LCD Display Setting and read-back resolution: with maximum 100 mV / 10 mA Output: ON / OFF Analog Control (Remote I/O) for Output ON / OFF Set View function for checking an original V / I setting during Output ON Key lock function Smart cooling fan achieves low noise <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019</p>	1	unit	44000.00	44,000.00
5	<p>Supply and Delivery of Vector Signal Generator</p> <p>Specifications:</p> <ol style="list-style-type: none"> Frequency Range: 1MHz to 6.1GHz (RF band) 100Hz to 1MHz (Low band), 1Hz resolution, 0.5PPM clock accuracy Output level range: -100dBm~+10dBm (1MHz ~4GHz), -100dBm~+0dBm (4GHz ~6.1GHz), -50dBm~0dBm (Low band), 0.25dB resolution Working mode: CW mode, frequency sweeping, frequency hopping, pulse modulation and simultaneous I&Q modulation (100KB data buffer) Analog modulation: AM, FM, PM Digital modulation: ASK, FSK, 4FSK, GFSK, MSK, GMSK, SFSK, and more modulation signal based on the I&Q engine Phase modulation: BPSK, 4PSK, 8PSK, 16QAM, 32QAM, 64QAM and more modulation signal based on the I&Q engine 	1	unit	77000.00	77,000.00

	<p>7. Low band function: Sin wave, I&Q modulation, arbitrary signal waveform (raw data file) and modulated any low band signal into RF signal with AM, FM and PM.</p> <p>8. Pulse signal modulation: pulse width 0.25us~5s, repeat time: 40us~20S (single frequency), 400us~20s (Sweeping and hopping)</p> <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019</p>				
6	<p>Supply and Delivery of Benchtop Precision Digital Multimeter</p> <p>Specifications:</p> <ol style="list-style-type: none"> 1. Type: Bench 2. Absolute Maximum DC Current Measurement: 10.1A dc 3. Absolute Maximum AC Current Measurement: 10.1A ac 4. Absolute Maximum AC Voltage Measurement: 750V ac 5. Absolute Maximum Resistance Measurement: 120MΩ 6. Absolute Maximum DC Voltage Measurement: 1010Vdc 7. Absolute Maximum Temperature Measurement: +400 °C, +760 °C, +1000 °C, +1300 °C, +1372 °C, +1768 °C, +1820 °C 8. Absolute Maximum Capacitance Measurement: 120μF 9. Functions Measured: AC Current, AC Voltage, Capacitance, Continuity, DC Current, DC Voltage, Diode, Frequency, Period, Resistance, Temperature 10. True RMS: Yes 11. Maximum Frequency: 300kHz 12. Resistance Measurement Resolution: 1μΩ 13. Temperature Measurement Resolution: 0.001 °C 14. Capacitance Measurement Resolution: 0.01pF 15. Maximum Operating Temperature: +50 °C 16. Battery Type: Li-Ion 17. Safety Category Voltage: 1000V 18. Minimum Operating Temperature: 0 °C 19. Battery Life: 3 years 20. Safety Category Level: CAT II <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019</p>	1	unit	104500.00	104,500.00
7	<p>Supply and Delivery of Soldering Station</p> <p>Specifications:</p> <ol style="list-style-type: none"> 1. Plug Type: Type F - Philippine Standard 2. Primary Application Category Soldering & Reworking 3. Input Voltage 100 ~ 240V ac 4. Output Power: 40W 5. Maximum Operating Temperature: +40 °C 	1	unit	93457.06	93,457.06

	<p>6. Minimum Operating Temperature: +10°C 7. Number of Outputs: 2 8. Display Type: Digital 9. ESD Safe: Yes 10. With Integrated Power Indication Meter 11. With User Programmable PowerSave Mode 12. With Ground Fault Interrupt 13. With Universal Power Supply</p> <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019</p>				
8	<p>Supply and Delivery of Dual Display Handheld Digital Multimeter Specifications:</p> <ol style="list-style-type: none"> 1. Measurement Function: DC voltage, AC voltage, DCV+ACV, DC current, AC current, DCA+ACA, resistance, frequency, temperature, capacitance, duty cycle, decibel calculation, continuity check, diode test, low-power resistance <ol style="list-style-type: none"> 1.1. For AC voltage/current, RMS/MEAN detection can be switched . 1.2. For AC voltage/current, the low-pass filter can be turned on/off. 2. Data hold/auto hold/peak hold, range hold, maximum/minimum/average values resistance, capacitance zero, relative and percentage value calculation, manual-mode memory, logging-mode memory, auto power off, backlight (white LED) 3. Display: 5-digit LCD 7-segment 4. Digital display: Main display; [50,000] counts 5. Sub-display; [50,000] counts 6. Bar graph display: 51-segment 7. Polarity indicator: "-" appears automatically when the polarity is negative 8. Overrange indicator: "OL" 9. Basic accuracy: 0.020% 10. True RMS measurement 11. Simultaneous measurement and display of DC and AC 12. Switchable RMS/MEAN detection 13. Low-pass Filter (LPF) 14. AC50mV range 15. Low-Power resistance measurement 16. With full Support for Data Management 17. With large-capacity logging-mode memory 18. USB communication, application software (Optional DMM communication package) 19. Conforms to safety standards EN61010-1 1000V CAT, 600V CAT. 20. Safety shutters for preventing erroneous insertion of test leads into current measurement terminals 21. Operating temperature range: -20 to +55°C 22. Storage temperature range: -40 to +70°C 23. Closed Case Calibration <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p>	1	unit	60500.00	60,500.00

	Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019				
9	<p>Supply and Delivery of Handheld Digital Multimeter</p> <p>I. Specifications:</p> <ol style="list-style-type: none"> 1. Maximum voltage between any terminal and earth ground: 600 V 2. Surge protection: 6 kV peak per IEC 61010-1 600 V CAT III, Pollution Degree 2 3. Fuse for A input: 11 A, 1000 V FAST 17 kA Fuse 4. Display: <ol style="list-style-type: none"> 4.1. Digital: 6,000 counts, updates 4/sec 4.2. Bar Graph: 33 segments, updates 32/sec 5. Operating Temperature: -10 °C to +50 °C; Storage: -40 °C to +60 °C 6. Operating altitude: 2,000 m 7. Battery: <ol style="list-style-type: none"> 7.1. Type: 9 Volt Alkaline, NEDA 1604A/IEC 6LR61 7.2. Life: 400 hours typical, without backlight 8. Safety compliances: ANSI/ISA 82.02.01 (61010-1) 2004, CAN/CSA C22.2 No 61010-1-04, UL 6101B (2003) and IEC/EN 61010-1 2nd Edition for measurement Category III, 600 V, Pollution Degree 2, EMC EN61326-1 9. Certifications: UL, CSA, TUV, N10140, VDE 10. IP rating (dust and water protection): IP42 <p>II. Features:</p> <ol style="list-style-type: none"> 1. With integrated technology for non-contact voltage detection similar or better than VoltAlert 2. With automatic AC/DC voltage selection modes to provide faster and more accurate readings 3. Provides low input impedance to help prevent false readings due to ghost voltage 4. With large white LED backlight for working in poorly lit areas 5. True RMS capabilities for accurate measurements on non-linear loads 6. Measures 10 A (20 A overload for 30-seconds) 7. Measures resistance, continuity, frequency, and capacitance 8. Provides Min/Max/Average to record signal fluctuations 9. Includes holster with probe holders for easy storage 10. With compact ergonomic design for one-handed operation 11. Fits into magnetic hanger for hands-free operation <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019</p>	10	unit	15868.16	158,681.60
10	<p>Supply and Delivery of Low Noise Amplifier</p> <p>Specifications:</p> <ol style="list-style-type: none"> 1. 1.4 dB NF Low Noise Amplifier 2. Operating from 10 MHz to 3 GHz with 34 dB Gain, 11 dBm P1dB and SMA 3. Frequency Range: 0.01 ~ 3GHz 	1	unit	66000.00	66,000.00

	<p>4. Small Signal Gain: 32.53 ~ 436.5dB 5. Gain Flatness: $\pm 0.75 \sim \pm 1$dB 6. Gain Variance at OTR: 1.25dB 7. Output at 1 dB Compression Point: +10 ~ +11dBm 8. Output 3rd Intercept Point: +25dBm 9. Noise Figure (50 MHz to 3 GHz): 1.4 ~ 1.7dB 10. Input VSWR: 1.4:1 ~ 1.6:1 11. Output VSWR: 1.4:1 ~ 1.6:1 12. Reverse Isolation: 40 ~ 50dB 13. Operating DC Voltage: 10, 12, 15 Volts 14. Operating DC Current: 85, 95, 105 mA 15. Operating Temperature Range: -40 ~ +85°C</p> <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019</p>				
11	<p>Supply and Delivery of 3GHz Active Oscilloscope Probe</p> <p>Specifications:</p> <ol style="list-style-type: none"> 1. 3.0 GHz Bandwidth 2. ± 8 V Max input voltage (± 12 V offset compensation) 3. 10:1 Attenuation factor 4. 1 MΩ 0.8 pF Input impedance 5. Spare accessory set containing: <ol style="list-style-type: none"> a. 10 x Signal pin b. 5 x Ground pin (pogo) c. 10 x Ground pin (solderable, offset) d. 2 x Ground adapter (square pin) e. Marker band kit f. 2 x Mini clip g. 2 x Micro clip h. 2 x Lead, 6 cm / 2.4 in i. 2 x Lead, 15 cm / 5.9 in j. Accessory box and vials k. Carrying case with foam inlay <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019</p>	1	unit	320000.00	320,000.00
12	<p>Supply and Delivery of Benchtop DC Electronic Load</p> <p>I. Specifications:</p> <ol style="list-style-type: none"> 1. Input rating <ol style="list-style-type: none"> 1.1. Voltage: 0.1 → 120 V 1.2. Current: 0 → 30 A 1.3. Resistance: 0.1 → 10 Ω 1.4. Power: 300 W 2. Operating temperature: 32 °F - 104 °F (0 - 40 °C) 3. Voltage/current or resistance/power values are measured and displayed in real time 4. Load terminals are isolated and floating. 5. Over temperature, over power, over voltage, over current and reverse polarity protection to help safeguard prototype and circuits. 6. Includes RS 232 interface cable and software 	1	unit	85685.17	85,685.17

	<p>7. Safety: Must be EN61010-1:2001 certified, EU Low Voltage Directive 73/23/EEC amended by 93/68/EEC</p> <p>8. Electromagnetic compatibility: Must meet EMC Directive 89/336/EEC amended by 93/68/EEC, EN50081-1, EN50082-1</p> <p>II. Features:</p> <ol style="list-style-type: none"> 1. Constant current (CC), resistance (CR), voltage (CV) and power (CP) operation 2. Built-in transient generator 3. Short circuit test 4. Built-in high resolution (0.1 mA/1 mV) voltage and current measurement 5. <p>6. Includes USB to TTL serial converter cables and application software</p> <ol style="list-style-type: none"> 7. List mode operation for increased throughput 8. Battery testing mode to provide A*hr rating of battery (adjustable ending voltage level) 9. Flexible triggering (create trigger events by front panel keystroke, back panel TTL signal, or software) 10. Remote voltage sensing to compensate for the effect of voltage drop in wires <p>Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.</p> <p>Inclusive of all government fees, taxes and duties. Delivery Date: On or before November 29, 2019</p>				
13	<p>Supply and Delivery of Benchtop LCR Meter</p> <p>I. Specifications:</p> <ol style="list-style-type: none"> 1. Max Capacitance Measurement: 9999F 2. Max Resistance Measurement: 9.999 GΩ 3. Max Inductance Measurement: 9999H 4. Type: Bench 5. Display Type: LCD 6. Power Source: Mains 7. Operating Temperature: 0 - 40°C 8. SCPI-compliant programming (can be programmed remotely via USB (virtual COM), GPIB, and LAN interface using SCPI commands) 9. with compact 2U half-rack form factor with 4.3" color display <p>II. Features:</p> <ol style="list-style-type: none"> 1. Measurement parameters: L, C, R, Z, G, B, Y, D, Q, θ, DCR 2. with 0.05% best impedance accuracy 3. with test frequency from 20 Hz - 300 kHz and 4-digit resolution 4. with 0.5 Vrms and 1 Vrms selectable test levels 5. Adjustable measurement speed for fast readout or better accuracy 6. 300-point linear and logarithmic sweep function 7. Bin sorting function (9 primary, one secondary and one out-of-spec bin) 	1	unit	101751.14	101,751.14

8. Save/recall up to 100 setups (10 internal) including 1000 measurements and screenshots

III. Accessories:

1. Kelvin clip test leads for 4-wire measurements
2. Test fixture which allows users to conveniently measure axial and radial lead type components

Note: The Bidder shall supply all items with the specifications equal to or better than as shown above.

Inclusive of all government fees, taxes and duties.
Delivery Date: On or before November 29, 2019

TOTAL APPROVED BUDGET FOR THE CONTRACT (ABC):

Php 1,854,074.97

RESERVATION CLAUSE

The Advanced Science and Technology Institute reserves the right to accept or reject any proposal, to annul the bidding process, and to reject all proposals at any time prior to contract award, without thereby incurring any liability to the affected proponent or proponents.