

ANNEX 1

Specifications:

1. For **Pressure Chamber** with data logger, reference sensor and ambient sensors (pressure, temperature and humidity) for LIC

Pressure Chamber :

Pressure chamber, small version including vacuum pump

Heavy duty table for pressure chamber adapted for use with pressure chamber

Vibrating table

Measuring cable set for pressure chamber

Consisting of 4 each single pole cables with 4mm plugs and open ends, different colors and 6 pcs single pole cables with 4mm plugs on both ends

Table top housing for pressure chamber

Including data logger, precision barosensor with an accuracy of 0.1 pHa and power supply unit, connections at the data logger via 4mm plugs at the front panel for use as a reference devices for pressure chamber. Also including in data logger, a combined temperature/humidity sensor connected at the back plate to measure the room temperature and humidity.

Interface cable Ethernet/Network

To connect data logger, length 3 meters

RS232 to USB 3.0 connection cable

To readout data logger, length 3 meters

Power distribution unit, 8 ports with overvoltage

For mains connection, cable length 3 meters

Software for data transfer from data logger

Operating range	: 700 – 1100 hPa
Dimensions	: 760 x 560 x 685 mm (LxWxH)
Power supply	: 230 V AC, 50/60 Hz

2. For **Reference Precision Digital Barometer** with humidity and temperature measurements used as Working Standard for LIC :

Portable, battery operated transfer standard with data logging capability

Composed of **three (3) pressure sensors** module

Barometric pressure range (Class A) : 500 – 1100 hPa

Linearity : ± 0.05 hPa

Hysteresis : ± 0.03 hPa

Repeatability : ± 0.03 hPa

Calibration uncertainty : ± 0.07 hPa

Accuracy at +20 °C : ± 0.10 hPa

Resolution : 0.01 hPa

Temperature Dependence

500 hPa to 1100 hPa : ± 0.1 hPa

Total accuracy -40°C to +60°C

500 hPa to 1100 hPa : ± 0.15 hPa

Long-term stability
500 hPa to 1100 hPa : ±0.1 hPa/year

Measurement Indicator
Multi-probe operation (two probes or transmitters)
Link software and USB connection cable
Rechargeable NiMH battery pack with AC adapter

Temperature and Relative Humidity Probe
RH measurement range : 0 – 100% RH
Factory calibration : ±0.6 %RH (0 ... 40 %RH)
Uncertainty (+20 °C /+68 °F) : ±1.0 %RH (40 ... 97 %RH)
Temperature measurement range : -10 ... +40 °C (+14 ... +104 °F)
Accuracy
-10 ... +20 °C : ±(0.176 - 0.0028 x temperature) °C
+20 ... +40 °C : ±(0.07 + 0.0025 x temperature) °C

Accessories
Serial interface cable (2 meters)
USB-RJ45 serial connection cable
Software interface kit
Power supply module
Barbed fitting 1/8 in
Quick connector 1/8 in
1 meter silicon tube
Transport case with interior foams
Tabletop casing

3. **Barometer with Temperature and Humidity Sensors for LIC:**

[As travelling standard](#)

General

Operating temperature range -10 ... +40 °C (+14 ... +104)°F
Operating humidity range non-condensing
Maximum pressure limit 5000 hPa abs.
Power supply Rechargeable NiMH battery pack
with AC-adapter

Operation time
(using rechargeable battery pack)
Continuous use 11 h typical at +20 °C (+68 °F)
Datalogging use up to 30 days

Menu languages English,
Display LCD with backlight, graphic
trend display of any parameter,
character height up to 16 mm

Data logging capacity 2700 points
Alarm audible alarm function

Barometric Pressure

Measurement range 500 ... 1100 hPa
Linearity* ±0.05 hPa
Hysteresis* ±0.03 hPa
Repeatability* ±0.03 hPa
Calibration uncertainty** ±0.07 hPa
Accuracy at +20 °C (+68 °F) *** ±0.10 hPa

Temperature dependence****	±0.1 hPa
Total accuracy -40... +60 °C (-40...+140 °F)	±0.15 hPa
Long-term stability	±0.1 hPa/year
Settling time at power-up (one sensor)	4 s
Response time (one sensor)	2 s
Acceleration sensitivity	negligible
Relative humidity	
Measurement range	0 ... 100 %RH
Accuracy (incl. non-linearity, hysteresis and repeatability) at +15 ... +25 °C (+59 ... +77 °F)	±1 %RH (0 ... 90 %RH) ±1.7 %RH (90 ... 100 %RH) ±(1.0 + 0.008 x reading) %RH
-10 ... +40 °C (-4 ... 104 °F)	
Factory calibration uncertainty (+20 °C /+68 °F)	±0.6 %RH (0 ... 40 %RH)* ±1.0 %RH (40 ... 97 %RH)*
Response time at +20 °C in still air with a sintered PTFE filter	
63 %	20 s
90 %	60 s
Temperature	
Measurement range	-10 ... +40 °C (+14 ... +104 °F)
Accuracy	
-10 ... +20 °C	±(0.176 - 0.0028 x temperature) °C
+20 ... +40 °C	±(0.07 + 0.0025 x temperature) °C
Response time with additional temperature probe in 3 m/s air flow	
63 %	<20 s
90 %	<35 s
Inputs and outputs	
probe ports	2
data interface	RS-232 (accessible only with Link software)
Pressure sensor supply voltage	10 ... 35 VDC (if not powered by MI70)
Pressure sensor data interface	RS-232C
Pressure sensor serial I/O connectors	RJ45 (service port) Male 8-pin M12 (user port)
Temp & RH data interface	RS-485
Temp & RH serial I/O connector	Male 8-pin M12
Accessories	
<i>Pressure sensor</i>	
USB-RJ45 serial connection cable	
Barbed fitting 1/8"	
Quick Connector 1/8"	
Link software	
connection cable	
battery pack	
<i>Temp & RH Sensor</i>	

connection cable
protective plug
USB cable

4. For Climatic Chamber for Temperature in LIC:

Operating temperature range (°C)	: -40 to +180°C
Chamber Volume	: 110 liter
Rate of temperature change	
Cooling	: 3.5°C/min
Heating	: 3.5°C/min
Heat compensation at 20°C	: max 1000 W
Test space dimensions	: 630 x 560 x 350 mm (HxWxD)
Housing dimensions	: 1640 x 850 x 1030 mm (HxWxD)
Power supply	: 230V 50/60Hz
Access port (mm)	: Ø 40 standard
Glass window	: 400 x 400 mm (Customized)

Accessories

- Colour touch panel
- Pt100 temperature reference sensor, including holding clamp and accredited laboratory certificate.
- Table top housing with integrated data logger type 1022. Connection at the data logger via 4mm plugs at the front panel. Also including in data logger, a combined temperature/humidity sensor connected at the back plate to measure the room temperature and relative humidity.
- Measuring cable set. Consisting of 4 each 4-pol Teflon cable, inside connected to 4mm plugs mounted at a cross bar, outer ends with 4mm banana plugs
- Interface cable Ethernet/Network
 To connect data logger length 3 meter
- RS232 to USB 3.0 connection cable
 To readout data logger length 3 meters
- Power distribution unit, 8 ports with overvoltage
 For mains connection, cable length 3 meter
- Software for data transfer from data logger

5. For Climatic Chamber for Relative Humidity in LIC

Temperature range (°C)	: +10 to +50
Temperature display resolution (°C)	: 0.001
Temperature set resolution (°C)	: 0.1
Temperature stability (°C)	: ±0.08 @ 15°C, 75% Rh ±0.05 @ 20°C, 60% Rh ±0.05 @ 30°C, 65% Rh ±0.10 @ 50°C, 75% Rh ±0.10 @ 50°C, 15% Rh
Temperature uniformity (°C)	: ±0.30 @ 15°C, 75% Rh ±0.25 @ 20°C, 60% Rh ±0.50 @ 30°C, 75% Rh

	±0.60 @ 50°C, 75% Rh
	±1.30 @ 50°C, 15% Rh
Relative humidity range (%)	: 10 to 98
Relative humidity display resolution (%)	: 0.1
Relative humidity set resolution (%)	: 0.1
Relative humidity stability (%)	: ±0.3 @ 15°C, 75% Rh
	±0.3 @ 20°C, 60% Rh
	±0.3 @ 30°C, 65% Rh
	±0.3 @ 50°C, 75% Rh
	±0.3 @ 50°C, 15% Rh
Temperature control	: proportional integral derivative (PID)
Relative humidity control	: Dew point humidity control / dry air purge for extended
Power supply	: 230 V AC 50/60 Hz
Internal dimensions	: 500 x 500 x 500 (WxHxD)
External dimensions	: 670 x 1135 x 755 (WxHxD)
Access port (mm)	: Ø 40 standard
Door with 2 flanged ports & 1 multilayer isolative glass	
USB & Ethernet interface	
Software monitoring and history	
Trolley	

6. For **Mobile Humidity Chamber for LIC** :

- Temperature and RH control
- Maintaining superior temperature & RH stability
- Data loggers and sensors calibration
- World-class metrology performance

Temperature Range: +10 C 55 C

Temperature Stability: ±0.05 C @ +21 C, 50%RH (better than ±0,08 C in full range)

Temperature uniformity: ±0.2 C @ +21 C, 50% RH

Door with flanged ports & 1 multilayer isolative glass (left) & 1 isolative block with ports

Exterior dimensions (WxHxD): 570 x 800 x 615 mm

Interior dimensions (WxHxD): 400 x 400 x 360 mm

Power supply: 230V 50/60 Hz

7. Specification for **Dew point mirror** as Standard for Relative Humidity for LIC:

Measuring range

Frost/Dew Point	: -20 to +70 °C
% RH	: 5 to 100% Rh
Temperature	: -50 to +100 °C

Accuracy

Frost/Dew point	: ±0.1 °C
Temperature	: ±0.07 °C

Reproducibility

Frost/Dew point : ± 0.05 °C
Temperature : ± 0.05 °C

Standard Features

Digital I/O : RS-232
Display : LCD with color touch screen
Mirror temperature sensor : Platinum Resistance Thermometer
(Pt-100)
Transport case
Power cable
Calibration Certificate (ISO 17025)
Internal Barometric Pressure sensor
Calibration Upgrade
Power Supply : 230V AC, 50/60Hz

8. Specification for **Thermometer Test Bath for LIC:**

- Temperature test bath, 24L content with electronic temperature control unit
- Continuous flow cooler
- Special lighting device
- Precision measuring resistance PT100-70 with manufacturer's calibration certificate
- Bath liquid 40 L water glycol solution (down to -20°C)
- Table top housing with integrated data logger. Connection at the data logger via 4mm plugs at the front panel. Also including in data logger, a combined temperature/humidity sensor connected at the back plate to measure the room temperature and relative humidity.
- Interface cable Ethernet/network to readout data logger (3 meters)
- RS232 to USB 3.0 connection cable to readout data logger (3 meters)
- Power distribution unit
- Interface software of data logger

9. **PORTABLE TEMPERATURE CALIBRATOR (DRY BLOCK) for LIC:**

Portable Temperature Calibrator (Dry Block)
Calibration and checking of all kinds of thermometers
Temperature range: $(-50.0 \dots \text{to} \dots 150)^{\circ}\text{C}$

With two inputs for External Reference and test specimen.
Accuracy of temperature reading: $\pm 0.15^{\circ}\text{C}$
Integrated reference probe: Resistance thermometer (3-wire), class A
Display resolution: $0.01 / 0.1^{\circ}\text{C}$ (display switchable to °F and K)
Stability of regulated temperature: $\pm 0.03^{\circ}\text{C}$ (at 0°C)
Uniformity (at 0°C): radial $\pm 0.02^{\circ}\text{C}$, axial $\pm 0.1^{\circ}\text{C}$
RS232 interface: included (built-in)

Dry block: 140 mm dept or greater, 35 mm diameter
Usable depth: 130 mm or greater
Power Supply: 230 VAC, 50/60Hz
Power consumption: 300 VA

Case: metal casing

With Software

Power supply cable, fuses kit, thermostats connection cables, operating manual, certificate of calibration (traceable), tweezers for inserts removing, USB to serial (RS-232) cable.

1 insert with 6 holes (3.5 - 4.5 - 5.5 - 6.5 - 8.5 - 10.5 mm).
With soft carrying bag and aluminum case.

10. Specification of standard for Automated Tipping Bucket Rain Gauge Calibrator for LIC:

Features

- Automated Laboratory Calibration Device Model (TB340A)
- Up to two Tipping Bucket Rain Gauges (TBRGs) calibrated simultaneously.
- Support of up to 5 nozzles for up to 31 rainfall rates without changing nozzles.
- Height adjustable platform for different TBRGs
- PC software can run a series of tests without user interaction
- PC software supports many stations through MODBUS on RS-485
- Automated report generation at test completion.
- Support for third-party TBRGs through custom setups.

- Construction
 - Frame : aluminum
 - Valves : brass
 - Vessels : polycarbonate
- Power
 - Operating voltage : 110/240 VAC, 50/60 Hz
- Performance
 - Dispensed Mass : 653g
 - Dispensed Accuracy : ± 0.3 %F.S. (± 2 g)
 - Load Cell SWL : 3 kg
 - Max. Dispense Rate : 4 x 300 mm/hr,
1 x 1000 mm/hr
- Overall Dimensions : 2000mm x 700mm x 500mm (HxWxD)

[Local training](#) should be conducted for a minimum of seven (7) technical personnel from RIC Manila and Cebu station within two days (7 hours) for the duration of the training after the installation/commissioning of the instruments/equipment. Training manuals including meals shall be provided by the winning bidder.

11. **Field Calibration Device for LIC (2 units) (FCD)** (for calibration of rain gauge) - 653 ml., (nozzles- 50, 100, 200, 300) mm. with 3 legs adaptor & metal casing:

12. PROJECTOR for LIC:

Specifications:

3200 ANSI Lumens
Native Resolution: XGA
Horizontal keystone adjuster
HDMI connectivity
VGA, composite and S-video inputs
Multi-PC Projection
Split screen projection
10,000 Hours lamp life

13. DESKTOP COMPUTER for LIC:

Specifications:

Processor - Intel Core i7-2600 Processor, 3.4GHz, 8M Cache
RAM - 8 GB DDR4
Hard Drive - 500 GB solid state hard drive
Graphics Card - any with DisplayPort/HDMI or DVI support
Monitor - 23" widescreen LCD with DisplayPort/HDMI or DVI support
Operating System - Windows 10 Home or Professional editions
Software: Microsoft Office Professional 2016
Keyboard - Full Size - US English
Pointing device - Optical Mouse with Scroll Button
CDRW/DVDRW - DVDRW
Power Supply – 600 watts
UPS - 1500VA
Printer – All in One Printer
Backup Device - External hard drive
Computer Table
Warranty - 3 Years parts and labor, Onsite Support Warranty.

14. COMPUTER NOTEBOOKS for LIC (2 units):

Specifications:

Processor: i7 7700HQ
Memory: 8GB DDR4
Hard Drive: 1TB
SSD: 128GB SSD

GPU: 4GB DDR5 128-bit
Screen: 15.6-inch UHD (3840 x 2160) IPS Anti-Glare LED-Backlit
Operating System: Windows 10 Home or Professional editions
Software: Microsoft Office Professional 2016
Accessories: with Backpack
Warranty - 4 year warranty with accidental damage protection

15. WIND MONITOR / ANEMOMETER for LIC:

- High Resolution Display
- Fully Programmable
- Large Data Storage Capacity
- Wide Variety of Inputs and Outputs
- Compact Design
- USB port

Specifications:

Dimensions: 200 mm (7.8 in) x 144 mm (5.7 in) x 54 mm (2.1 in)

Weight: 0.8 kg (1.8 lb)

Operating Temperature: 0° C to 50° C

Storage Temperature: -30° C to 50° C

Display: Adjustable high-brightness, high-contrast with 8 user programmable screens.

Power: 10 to 30 VDC at 4 W max

Memory: 2,162,688 data records. 512 User Program Instructions.

Voltage Input

Channels: 16 max.

Measurement Range: -5 to 5 VDC

Accuracy: 0.1% from 0 to 40° C

Pulse / Frequency Input

Channels: 4 Inputs. 0 to 2500 Hz

Excitation

Channels 2 Outputs Regulated 5VDC at 10mA

Voltage / Current Output

Channels: 4 Outputs.

Range: Voltage 0 to 5VDC. Current 0 to 20mA.

Resolution 12-bits (1.25 mV or 0.005 mA)

Serial I/O

Channels: 2 ports. One for RS-232, one for RS-485. Both channels are full duplex with no handshaking, 1 start, 8 data, 1 stop, no parity.

Baud Rate: 1200 to 230,400 Baud

Switch Output

Channels: 4 Solid State Switch outputs.

Voltage/Current: Each switch can handle 60VDC at 5A.

Range: Wind speed: 0-100 m/s (224 mph); Wind direction: 0-360 degrees; Resolution: Wind speed: 0.1 unit (m/s, kts, mph, km/h); Wind direction: 1 degree; Accuracy: Wind speed: ± 0.3 m/s (0.6 mph) or 1% of reading; Wind direction: ± 2 degrees; Dynamic Response: Damping ratio: 0.3; Damped natural wavelength: 7.4 m (24.3 ft); Undamped natural wavelength: 7.2 m (23.6 ft); Threshold:* Propeller: 1.0 m/s (2.2 mph); Vane: 1.1 m/s (2.5 mp); Available Outputs: Voltage Output: WS: 0-5 VDC for 0-100 m/s; WD: 0-5 VDC for 0-540°; Serial RS-485: RMY, NCAR, or NMEA protocols; Polled or continuous output; Power Requirement: 11-24 VDC, 20 mA; Dimensions: Overall height: 37 cm (14.6 in); Overall length: 55 cm (21.6 in); Propeller: 18 cm (7.0 in) diameter; Mounting: 34 mm (1.34 in) diameter (standard 1 inch pipe); Weight: Sensor weight: 1.0 kg (2.2 lbs); Shipping weight: 2.3 kg (5 lbs); Operating Temperature: -50 to 50° C; **12 meters cable**

16. HANDHELD GPS for LIC:

Specifications:

Display resolution, WxH - 240 x 400 pixels
Display type transfective color TFT touchscreen
Battery rechargeable NiMH pack (included) or 2 AA batteries (not included); NiMH or Lithium recommended
Battery life up to 16 hours
Water rating IPX7
High-sensitivity receiver
Interface high-speed USB and NMEA 0183 compatible
Camera (8 megapixel with autofocus; digital zoom)
Barometric altimeter
Electronic compass (tilt-compensated 3-axis)
Unit-to-unit transfer (shares data wirelessly with similar units)(plus images and custom maps)
Basemap
Ability to add maps
Built-in memory - 4 GB
Accepts data cards microSD™ card up to 32 GB
Custom POIs (ability to add additional points of interest)
Automatic routing (turn by turn routing on roads) (with optional mapping for detailed roads)
Sun and moon information
Tide tables (with optional Bluechart)
Area calculation
Wireless compatible: yes (Wi-Fi, Bluetooth and ANT+)
Map segments: 1500
Connect IQ compatible: yes (data fields)
Flashlight: yes

17. DIGITAL High Precision GPS for establishment of elevation and other features (Global Navigation Satellite System) for LIC:

One (1) Base + One (1) Rover + One (3) Data Controllers with complete set of accessories

Technical Features:

BASE/ROVER

No. of Channels	394 or higher
Satellite Tracked	A.) GPS: L1 CA, L1P, L1C, L2P, L2C, L5 B.) GLONASS: L1, L1P, L2, L2P, C.) GALILEO: E1, E5A, E5B, D.) BEIDOU: B1, B2, B3, E.) SBAS: L1CA, L5 F.) QZSS: L1CA, L1C, L2C, L5,
L-Band	Atlas H10 / H30 / H100
Signal Reacquisition	<1 sec
RTK Signal Initialization	Typically < 10 s or better

Hot Start	Typically < 15 s or better
Initialization Reliability	>99.9 %
Initial Memory	8GB (minimum)
Micro SD	Expansion slot up to 32 GB or better
Base and Rover	INTERCHANGEABLE

**HIGH PRECISION STATIC SURVEYING
(Long Time Observations)**

Horizontal	2.5 mm + 0.1 ppm RMS or better
Vertical	3.5 mm + 0.4 ppm RMS or better

FAST STATIC

Horizontal	3 mm + 0.5 ppm RMS or better
Vertical	5 mm + 0.5 ppm RMS or better

CODE DIFFERENTIAL POSITIONING

Horizontal	0.25 m + 1 ppm RMS or better
Vertical	0.45 m + 1 ppm RMS or better

SBAS POSITIONING (Typical)

Horizontal	0.5 m RMS 2 or better
Vertical	0.85 m + 1 ppm RMS 2 or better

**REAL TIME KINEMATIC (< 30 Km)
NETWORK SURVEYING³**

Fixed RTK Horizontal	8 mm + 0.8 ppm RMS or better
Fixed RTK Vertical	15 mm + 1 ppm RMS or better

INTERNAL RADIO

Frequency Range 410 - 470 MHz
Maximum Range 3-4 Km in urban environment, Up to 10 Km with optimal conditions ⁴

Waterproof / Dustproof	IP67 or IP68 Standard
Vibration	Vibration resistant
Battery life	7 hours (minimum)

DATA CONTROLLER 1 (1 UNIT)

Operating System --WINDOWS 10 RAM -- 8Gb Flash Memory-- 128Gb SSD
Camera Rear 8 MP Front 2MP

Waterproof/Dustproof --- IP68 Standard Shock
Resistance up to 1.2 m drop resistant

DISPLAY 10.1" CONNECTIONS: Mini USB,
Pen Drive, WiFi, Bluetooth, HDMI, NFC, Serial RS232 (optional)

GSM-YES GPS-YES G-SENSOR-YES

Connector for GPS External Antenna-Yes; Battery Life 8 hours or longer
Hotswap Change Battery—Yes

CPU Intel Core Skylake i5-6200 Processor 2.3GHz up to 2.8GHz(w/ turbo boost)
3MB Intel Smart Cache

Sensors: GNSS,Accelerometer,Ambient light,Proximity,Gyroscope,Compass,Fingerprint

DATA CONTROLLER 2 (2 UNITS)

8000 mAh QC3.0 Battery	Dual Sim
Qualcomm Octa-core 2.2GHZ CPU	32gb Internal Memory
4GB Ram	1.5M Concrete Drop Resistance
13MP Rear Camera 2 MP Front Camera	screen size 6" 1080 x 1920

Additional Requirement:

1. GNSS Receiver must be mountable for Terrestrial 3D Laser Scanner to attain WGS84 and PRS 92 Scan Positioning for future surveying equipment purchases.
2. Must be compatible with current Auto CAD Civil 3D.
3. Preferably European brand with 2 years warranty against factory defect.

4. GNSS must work with base and rover sim card connection and must be tiltable up to 30 degrees.
5. Supplier must show prior to award on how to pair GNSS with drone quadcopter and software to provide base map output that can be integrated with GIS for future surveying equipment purchases.
6. Supplier must conduct actual demo (training) prior to award.
7. After Sales Support with three (3) days hands-on training on hardware and software (office & field).

Local training should be conducted for a minimum of total seven (7) technical personnel from RIC Manila and Cebu station within three days (7 hours) for the duration of the training after the installation/commissioning of the instruments/equipment. Training manuals including meals shall be provided by the winning bidder.

18. PORTABLE INTERNET BROADBAND for LIC:

Specifications:

Speeds of up to 42 Mbps

LTE 700MHz ready for better indoor coverage

Network - 3G/HSPA/HSPA+/LTE+

Battery - 2000mAh removable battery

Connectivity - Can support up to 5 WiFi users

Memory - Up to 32GB SD Card support

19. CAMERA for LIC:

Specifications

Body + 16–50 mm Power Zoom Lens

Lens

- LENS MOUNT : E-mount lenses
- LENS COMPATIBILITY : E-mount lenses

SENSOR

- SENSOR TYPE : APS-C
- SENSOR : APS-C type (23.5 x 15.6 mm)
- NUMBER OF PIXELS (EFFECTIVE) : 24.3MP
- NUMBER OF PIXELS (TOTAL) : Approx. 24.7 megapixels
- IMAGE SENSOR ASPECT RATIO : 3:02
- ANTI-DUST SYSTEM : Charge protection coating on Optical Filter and ultrasonic vibration mechanism

Recording (movie)

- RECORDING FORMAT (MOVIE) : AVCHD 2.0 / MP4

Noise Reduction

- MULTI FRAME NR : Auto/ISO 100 to 51200

Focus

- FOCUS TYPE : Fast Hybrid AF (phase-detection AF/contrast-detection AF)
- TYPE : Built-in flash
- AF ILLUMINATOR RANGE : Approx. 0.3 - approx. 3.0 m (with E PZ 16-50 mm F3.5-5.6 OSS lens attached)

Exposure

- METERING TYPE : 1200-zone evaluative metering
- METERING SENSOR : APS HD CMOS sensor
- METERING SENSITIVITY : EV0 to EV20

	(at ISO100 equivalent with F2.8 lens attached)
• EXPOSURE COMPENSATION	: +/-5.0 EV (1/3 EV, 1/2 EV steps selectable)
• ISO SENSITIVITY (RECOMMENDED EXPOSURE INDEX)	: ISO 100-25600
Viewfinder	
• VIEWFINDER TYPE	: 0.39 in electronic viewfinder (color)
• NUMBER OF DOTS	: 1,440,000 dots
• FIELD COVERAGE	: 100%
• DIOPTRE ADJUSTMENT	: -4.0 to +3.0 m-1
LCD Screen	
• MONITOR TYPE	: 3.0" wide type TFT LCD
• TOTAL NUMBER OF DOTS	: 921,600 dots
• FOCUS MAGNIFIER	: Yes (5.9x, 11.7x)
• QUICK NAVI	: Yes
Other Features	
• CLEAR IMAGE ZOOM	: Approx. 2x
• DIGITAL ZOOM (STILL IMAGE)	: L: approx. 4x; M: approx. 5.7x; S: approx. 8x
• DIGITAL ZOOM (MOVIE)	: Approx. 4x
• SMILE SHUTTER	: Yes (selectable from 3 steps)
Shutter	
• SHUTTER SPEED	: Still images:1/4000 to 30 sec, Bulb, Movies: 1/4000 to 1/4 (1/3 steps) up to 1/60 in AUTO mode (up to 1/30 in Auto slow shutter mode)
• FLASH SYNC. SPEED	: 1/160 s
• ELECTRONIC FRONT SHUTTER CURTAIN	: Yes (On/Off)
Image Stabilization	
• STEADYSHOT lens)	:Not supported (image stabilization supported on lens)
Flash Control	
• FLASH COMPENSATION	: +/-3.0 EV (switchable between 1/3 and 1/2 EV steps)
Drive	
• CONTINUOUS DRIVE SPEED (APPROX. MAX.)	: 11 fps (in High Continuous shooting)
Interface	
• PC INTERFACE	: Mass-storage, MTP, PC remote
• MULTI INTERFACE SHOE	: Yes
• INTERFACES	: 4K still image PB, HDMI micro connector (Type-D), Multi/Micro USB Terminal, Multi Interface Shoe, NFC, PC Remote, PhotoTV HD, Wireless LAN (built-in)
Power	
• SUPPLIED BATTERY	: NP-FW50 W-series Rechargeable Battery Pack
• BATTERY LIFE (STILL IMAGES)	: Up to 360 shots
• INTERNAL BATTERY CHARGE	: Yes
Size & Weight	
• DIMENSIONS (W X H X D)	: 66.9 x 120 x 45.1 mm
• WEIGHT (WITH BATTERY AND MEMORY CARD INCLUDED)	: 285 g (Body Only)/344 g (With battery and media)
Wi-Fi®	
• VIEW ON SMARTPHONE	: Yes
• VIEW ON TV	: Yes
• WIRELESS & NETWORK CAPABILITIES	: Downloadable Camera Apps, Wi-Fi

Color Options

- black

What's In The Box

Micro USB cable

AC adaptor (AC-UB10)

Rechargeable battery pack (NP-FW50)

Shoulder strap

Eyepiece cup

SELP1650

Lens cap

Power cord

20. Four (4) tables w/ filing cabinets and chairs (working and office) for LIC : (160 x 70) cm.,

21. Two (2) steel cabinets w/ glass & sliding doors for LIC (2 each): (176 X 118 x 40) cm.,

22. Two (2) cabinet & one window air-conditioning for LIC (Cebu):

Cabinet air-conditioning:

- Supply, Delivery, Installation, testing and commissioning of two (2) Units of 3.0T Air-con floor standing split type
- Non-inverter type
- carrying capacity -37,980 kj/hr
- 17.7 Amp, 208/230 Vac, single phase
- 4,180 watts
- Including separate circuit breaker for each unit, and with materials/wirings and labor

Window air-conditioning: 2 HP window type aircon.; 240V/60Hz; Single phase
To include supply, delivery, installation, testing and commissioning with materials and labor and separate circuit breaker

23. One Mobile Service Van for LIC:

Internal Dimension: (3.05 x 1.7 x 2.0) meters

Four wheelers

Weight capacity: 2.6 Tons

With Aircon: Driver side and inside the Van

Table made of steel; chairs with cushion and foldable

See Internal Design of the Van

24. Specification for Reference Precision Barometer used as National Standard for RIC-Manila:

Air piston gauge-type Barometer

Barometric pressure range (Class A)	: 50 – 1100 hPa
Minimum Classification	: 10 hPa
Standard temperature	: 20 °C
Standard gravity	: 9.80665 m/s ²
Accuracy	: 0.03% (at gauge pressure 0.01%)
With Accessories	

Local training should be conducted for a minimum of seven (7) technical personnel from RIC Manila within two days (7 hours) for the duration of the training after the installation/commissioning of the instruments/equipment. Training manuals including meals shall be provided by the winning bidder.

25. Specification of National standard for wind speed in Wind Tunnel for RIC Laser Doppler Anemometry:

- Optical head
 - Laser power 150 mW
 - Laser wavelengths 532, 561 nm (1D and 2D)
660 nm (third component)
 - Focal length 750 mm
 - Beam spacing 60 mm
 - Probe volume length 7.1 mm (f=750 mm)
(at 532 nm)
 - Dimensions (cm) 56 (L) x 23 (w) x 15 (H)
Including front lens
 - Weight 12 kg
- Signal Processor
 - Velocity range -166 to 1064 m/s
 - Velocity uncertainty 0.11% (coverage factor 2)
 - Velocity resolution 0.002% of selected velocity range
 - Max. data rate >100 kHz
 - Min. transit rate 50 ns
 - Burst detection Signal/noise and amplitude based
 - Burst sampling rate 600 MHz
 - Velocity measurement FFT with auto-adaptive sampling interval
- With Seeding Generator (Liquid)

Local training should be conducted for a minimum of seven (7) technical personnel from RIC Manila within two days (7 hours) for the duration of the training after the installation/commissioning of the instruments/equipment. Training manuals including meals shall be provided by the winning bidder.

26. Two (2) cabinet air-conditioning for RIC Manila:

Cabinet air-conditioning:

- Supply, Delivery, Installation, testing and commissioning of two (2) Units of 3.0T Air-con floor standing split type
- Non-inverter type
- carrying capacity -37,980 kj/hr
- 17.7 Amp, 208/230 Vac, single phase
- 4,180 watts
- Including separate circuit breaker for each unit, and with materials/wirings and labor