



TERMS OF REFERENCE

For the

SUPPLY AND DELIVERY OF RTK GNSS RECEIVER

1. Overview

This survey equipment will provide relevant technical support in conducting field survey, specifically for conducting siting classification, establishment of station elevation and grid coordinates of the station. Survey equipment will be needed for all technical activities in support of the targets and objectives set for the implementing year.

2. Approved Budget for the Contract (ABC)

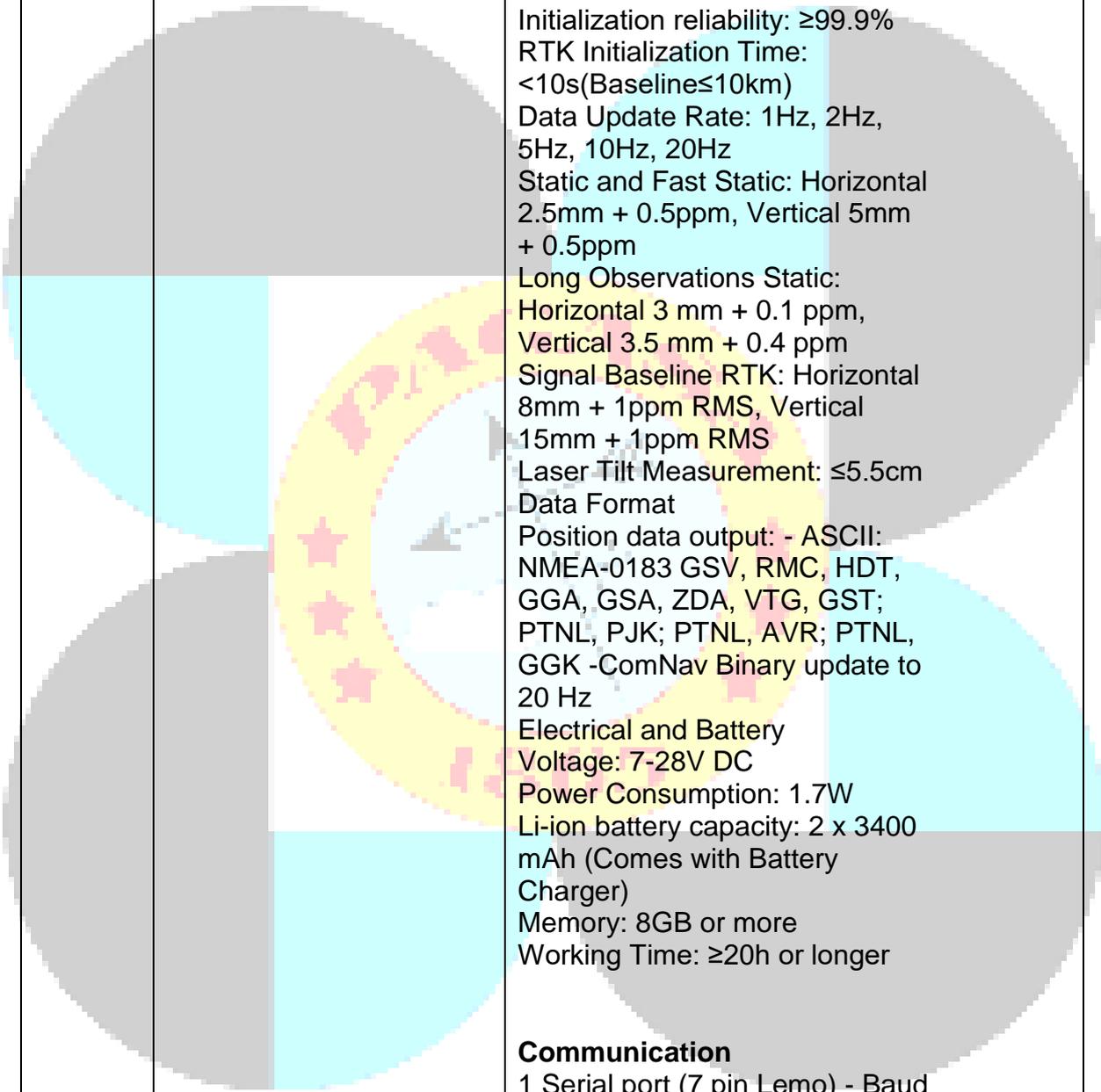
The approved budget for the contract is **One Million Six Hundred Thousand Pesos** (Php1,600,000.00) inclusive of VAT and all applicable government taxes.

3. Place and Delivery Period - The winning bidder shall complete the Supply and Delivery at the PAGASA Science Garden, Senator Miriam Defensor-Santiago Ave., Brgy, Central, Quezon City, within **45 calendar days** from the date of issuance of the Notice to Proceed.

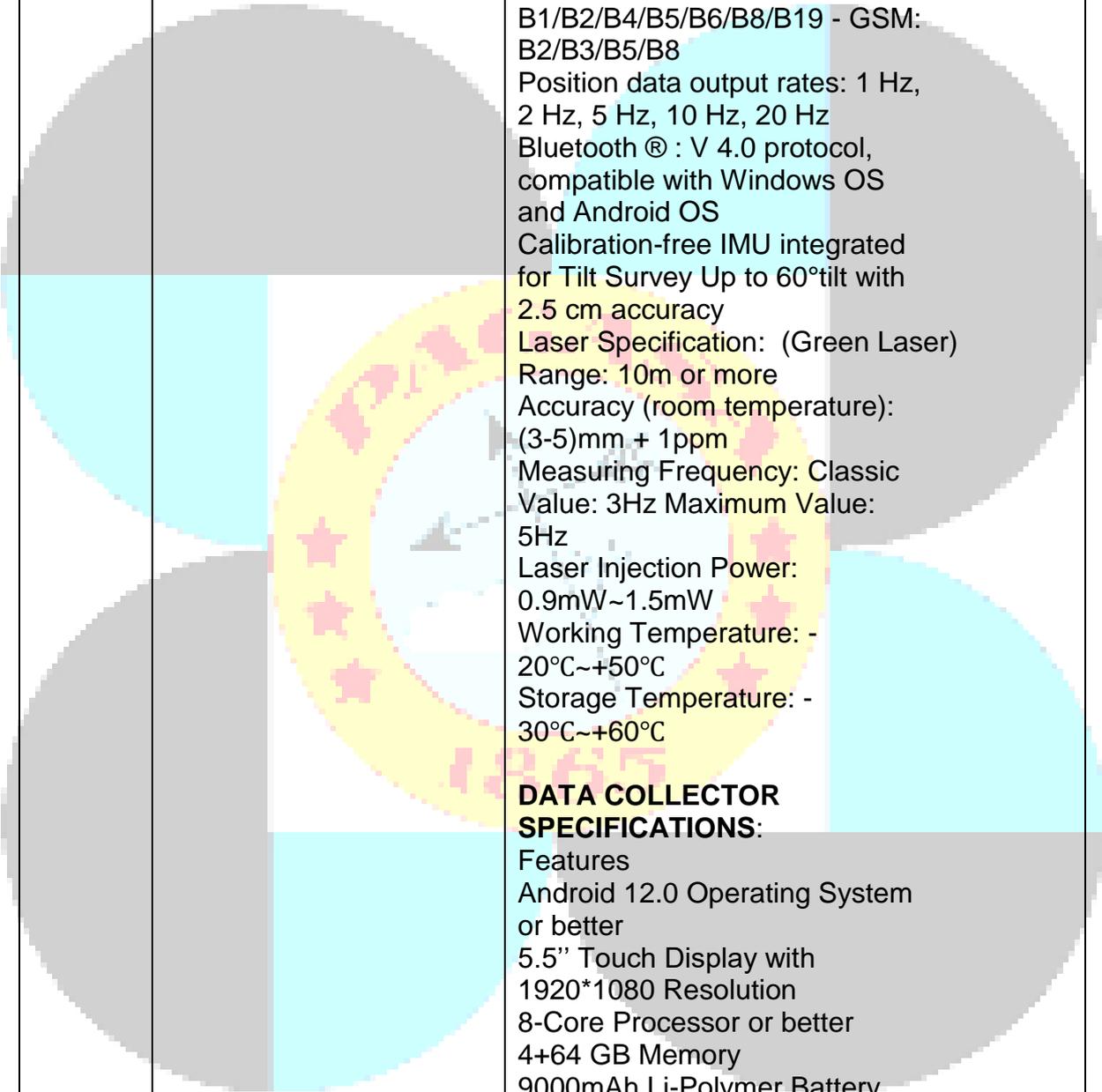
	QTY	SPECIFICATIONS
1	1 set (1 base, 2 rovers, and 2 controllers)	RTK BASE SPECIFICATIONS: Satellite: GPS, BDS, GLONASS, Galileo, QZSS, IRNSS, SBAS, L-Band Channel: 1198 or more Positioning Specifications: Static and Fast Static: 2.5mm + 0.5ppm Horizontal, 5mm + 0.5ppm Vertical Long Observations Static: 3 mm + 0.1 ppm, Horizontal 3.5 mm + 0.4 ppm Vertical Real Time Kinematic: 8 mm + 1 ppm Horizontal, 15 mm + 1 ppm Vertical Communications Specification: 1 Serial port (7 pin Lemo) - Baud rates up to 921,600 bps Enhanced UHF modem2 : Tx/Rx with full frequency range from 410-470 MHz -

		<p>Transmit power: 0.5-2 W adjustable -</p> <p>Range: 15-20 km</p> <p>WIFI: 802.11b/g/n</p> <p>4G modem -LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/ B18/B19/B20/B25/B26/B28 - LTE-TDD: B38/B39/B40/B41</p> <p>WCDMA: B1/B2/B4/B5/B6/B8/B19</p> <p>GSM: B2/B3/B5/B8</p> <p>Position data output rates: 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz</p> <p>Measuring Range: 15-20 km with Enhanced UHF Modem</p> <p>Data Format: Position data output: - ASCII: NMEA-0183 GSV, RMC, HDT, VHD, GGA, GSA, ZDA, VTG, GST; PTNL, PJK; PTNL, AVR; PTNL, GGK -ComNav Binary update to 20 Hz</p> <p>Electrical and Memory: Input voltage: 6-28 V DC Power consumption: 1.7 W Li-ion battery capacity: 2 x 3400 mAh, 7.4V, up to 24 hours typically (Comes with Battery Charger)</p> <p>Memory: 8 GB or more</p> <p>Environmental: Operating temperature: -40 °C to + 65 °C (-40 °F to 149 °F) Storage temperature: -40 °C to + 85 °C (-40 °F to 185 °F) Humidity: 100% non-condensing Waterproof and dustproof: IP67, protected from temporary immersion to depth of 1 m Shock: Designed to survive a 2 m drop onto concrete</p> <p>ROVER WITH LASER SPECIFICATIONS: Satellite: GPS, BDS, GLONASS, Galileo, QZSS, IRNSS, SBAS</p>
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"tracking the sky...helping the country"

		<p>Channel: 1590 or more</p> <p>Performance Specification Signal Re-acquisition: ≤1s Cold Start: ≤45s Hot Start: ≤15s Initialization reliability: ≥99.9% RTK Initialization Time: <10s (Baseline ≤10km) Data Update Rate: 1Hz, 2Hz, 5Hz, 10Hz, 20Hz Static and Fast Static: Horizontal 2.5mm + 0.5ppm, Vertical 5mm + 0.5ppm Long Observations Static: Horizontal 3 mm + 0.1 ppm, Vertical 3.5 mm + 0.4 ppm Signal Baseline RTK: Horizontal 8mm + 1ppm RMS, Vertical 15mm + 1ppm RMS Laser Tilt Measurement: ≤5.5cm Data Format Position data output: - ASCII: NMEA-0183 GSV, RMC, HDT, GGA, GSA, ZDA, VTG, GST; PTNL, PJK; PTNL, AVR; PTNL, GGK -ComNav Binary update to 20 Hz Electrical and Battery Voltage: 7-28V DC Power Consumption: 1.7W Li-ion battery capacity: 2 x 3400 mAh (Comes with Battery Charger) Memory: 8GB or more Working Time: ≥20h or longer</p> <p>Communication 1 Serial port (7 pin Lemo) - Baud rates up to 921,600 bps Enhanced UHF modem1 : Tx/Rx with full frequency range from 410-470 MHz2 - Transmit power: 0.5-2 W adjustable -</p>
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		<p>Range: 15 km WIFI/4G modem - LTE-FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/ B18/B19/B20/B25/B26/B28 - LTE-TDD: B38/B39/B40/B41 - WCDMA: B1/B2/B4/B5/B6/B8/B19 - GSM: B2/B3/B5/B8 Position data output rates: 1 Hz, 2 Hz, 5 Hz, 10 Hz, 20 Hz Bluetooth® : V 4.0 protocol, compatible with Windows OS and Android OS Calibration-free IMU integrated for Tilt Survey Up to 60°tilt with 2.5 cm accuracy Laser Specification: (Green Laser) Range: 10m or more Accuracy (room temperature): (3-5)mm + 1ppm Measuring Frequency: Classic Value: 3Hz Maximum Value: 5Hz Laser Injection Power: 0.9mW~1.5mW Working Temperature: - 20°C~+50°C Storage Temperature: - 30°C~+60°C</p> <p>DATA COLLECTOR SPECIFICATIONS: Features Android 12.0 Operating System or better 5.5” Touch Display with 1920*1080 Resolution 8-Core Processor or better 4+64 GB Memory 9000mAh Li-Polymer Battery, QC Super-Fast Charging White Backlight Keyboard with Full QWERTY Support 4G, Ultra-Distance Bluetooth®, Wi-Fi, NFC IP67 Waterproof and Dustproof</p>
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	<p>Electrical Specification</p> <p>Processor: 8-core processor or better</p> <p>Keypad: QWERTY with white backlight</p> <p>Li-battery capacity: 9000 mAh, working 30+ hours or longer</p> <p>Comes with Fast Charger</p> <p>Charging: Fast charging, no more than 4 hours of charging time</p> <p>Camera: 13-megapixel camera or better with autofocus</p> <p>ROM: 64 GB</p> <p>RAM: 4 GB</p> <p>Expansion: SD Card slot, up to 128 GB</p> <p>LED: High light Flash LED</p> <p>Display: 5.5" capacitive touch screen 500 nits brightness 1920 * 1080 resolution</p>
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4. General Note:

In advocacy for a green environmental approach and promoting climate change adaptation for a sustainable environment, the winning bidder shall include in the specification of each deliverable:

- The winning bidder shall supply products with a visible On/Off switch.
- The winning bidder shall use recyclable packages upon delivery.
- The winning bidder shall conduct at least three (3) days on site instrument demonstration (inclusive of food) on the operation and features of the proposed hardware and software.

5. Warranty

- One (1) year warranty on all proposed hardware and accessories.
- Availability of technical support 24/7 via email, phone, or SMS during the warranty period.

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