



Term Of Reference for the Supply, Delivery, Testing and Training of GNSS Receiver(Base and Rover)

A. OVERVIEW

PAGASA is re-establishing a more accurate and precise station elevations, Grid Coordinates (Lats & Long), Topographic survey, relocation of boundaries, and other survey related activities for all field stations by using Differential Global Positioning System (DGPS) or GNSS(Global Navigational Satellite System). With this effort, MGSS-ETSD needs to procure one set of GNSS Receiver (base & rover) to accomplish this task.

B. APPROVED BUDGET FOR THE CONTRACT (ABC)

The Approved Budget for the Contract inclusive of VAT and all applicable government taxes is Two Million pesos (**PhP 2,500,000.00**).

C. QUALIFICATIONS OF THE BIDDER

(Please refer to Section II. Instructions to Bidders, the Bid Data Sheet and Checklist of Eligibility and Technical Requirements of the Bidding Documents)

D. DELIVERY PERIOD AND PLACE OF DELIVERY

The winning bidder shall supply and deliver one set of Global Navigation Satellite System (GNSS) Receiver (base & rover) for thirty (30 c.d.) calendar days from receipt of the Notice to Proceed (NTP) at the PAGASA Central Office Science Garden Compound, BIR Road, Diliman, Quezon City.

E. BID PROPOSAL CONTENTS

The prospective bidder is expected to comply and respond in accordance with the specific instructions to bidders and submit all the documentary requirements under the Checklist of Eligibility, Technical and Financial Requirements. The submission of documentary requirements must be properly arranged in order and with label.

The prospective bidder shall respond paragraph by paragraph and shall clearly indicate compliance to all the required specifications (*Please see Section VII. Compliance Matrix*) and shall specify the number of days or schedules within which to complete the delivery of all the goods required (*Please see Section VI. Schedule of Requirements*).

The prospective bidder shall be required also to include in this proposal, original descriptive literatures and unamended brochures of all equipment/materials to be supplied.

These details will allow the **PAGASA-Bids and Awards Committee** to fully evaluate and determine compliance from the prospective bidders.

F. TECHNICAL SPECIFICATIONS

The winning bidder shall supply and deliver one set of Global Navigation Satellite System (GNSS) Receiver (base & rover) for thirty (30 c.d.) calendar days with the following minimum specifications:

BASE UNIT & ACCESSORIES DETAILS:

- ✚ 1 x GNSS Receiver
- ✚ 1 x Single Carrying Case
- ✚ 1 x ANTENNA (BNC)
- ✚ 2 x Removable Batteries
- ✚ 1 x Tribrach with adapter
- ✚ 1 x Tripod

ROVER UNIT & ACCESSORIES DETAILS:

- ✚ 1 x GNSS Receiver
- ✚ 1 x Single Carrying Case
- ✚ 1 x ANTENNA (BNC)
- ✚ 2 x Removable Batteries
- ✚ 1 x Tribrach with adapter
- ✚ 1 x Range Pole
- ✚ 1 x Bipod
- ✚ 1 x Tripod

GNSS RECEIVER SPECIFICATIONS:

➤ **GNSS Tracking**

- 452 channels with patented universal tracking channel technology
- GPS: L1 C/A, L1C, L1P(Y), L2P(Y), L2C, L5
- GLONASS: L1 C/A, L1P, L2 C/A, L2P, L3C
- Galileo: E1, E5a, E5b, E5AltBOC, E6
- BeiDou: B1, B2, B3 with ICD availability
- IRNSS: SPS-L5
- SBAS: WAAS/EGNOS/MSAS
- QZSS: L1 C/A, L1C, L2C, L5, LEX
- L-band: 1525-1560 MHz
- Satellites Tracked: All in view

➤ **Accuracy**

- (L1 + L2): H: 3.0mm + 0.3ppm
 V: 5.0mm + 0.5ppm
- Precision Static: H: 3.0mm + 0.1ppm
 V: 3.5mm + 0.4ppm
- RTK: H: 5.0mm + 0.5ppm
 V: 10mm + 0.8ppm
- Data Update / Output Rate: Up to 20Hz

➤ **Communication**

- Optional Radio Type: UHF (410-470 MHz)
 SS (915 MHz)
- Additional Comms: Internal cellular modem
 Wi-Fi
 Bluetooth
 LongLink
- Cellular: Integrated HSPA+/CDMA

➤ **Data and Memory**

- Real Time Data Output: TPS, RTCM SC104 v2.x,
 3.x, CMR/CMR+, RINEX
- NMEA 0183 Output: Version 2.x, 3.x and 4.x
- On-board Memory: 8GB Internal

➤ **Power**

- Power Source: External Power (6 to 28 VDC)
 internal battery (3.7 V, 5200mAh)
 removable battery (7.2 V, 2900 mAh)
- Operating Time: Up to 9 hrs. w/ included batteries

➤ **Environmental and Physical**

- Dimensions (w x h): 115 x 132 mm
- Operating Temp.: -40°C to 80°C
- Water/Dust Rating: IP67
- Drop and Topple: 2-meter pole-drop
- Weight: 1.172g (including internal & hot
 swappable external batteries)

DATA COLLECTOR SPECIFICATIONS

➤ Hardware

- CPU: Intel Atom Z3745
- OS: Windows 10
- Memory: 4GB LPDDR3 RAM
SD slot, user-accessible
- Display: 7in. Sharp screen
Wide XGA at 1280 x 800
- GPS: Type:uBlox NEO MBM
Accuracy: 2-5m
Channels: 72
Update Rate: 5Hz
- Camera: Rear: 8MP w/ LED illumination
Front: 2MP

➤ Wireless Connectivity

- Bluetooth: Long-range Bluetooth
Smart Ready wireless technology
v4.0 +EDR, Class 1.5, BLE support
- Wi-Fi: 802.11 a/b/g/n
2.4 GHz and 5 GHz
- Cellular: Internal GSM 4G LTE

➤ Environmental

- Water/Dust Rating: IP68 certified
- Operating Temp.: -20°C to 50°C
- Temperature Shock: MIL-STD 810G
- MIL-STD 810G: 1.2m Drop, vibration
Humidity, tumble spec:
1,000 0.5m tumbles
(2,000 drops)
- Dimensions: 13.71 x 3.45 x 21.5 cm
- Operating Time: Up to 15 hrs
(5hrs internal batteries,
10hrs w/ hot swappable batteries)

SOFTWARE

- 1 x licensed proprietary (same as GNSS brand) software for controller
- 1 x licensed proprietary (same as GNSS brand) software for post processing

G. MISCELLANEOUS

1. TRAINING

Prior to acceptance, the winning bidder shall provide three (3) day training for five (5) PAGASA/project personnel, all expenses including food and training materials shall be shouldered by the winning bidder. Training certificates shall be provided together with the end-user approval and shall form part of the acceptance and completion certificate.

2. The winning bidder shall provide additional one(1) unit LapTop Computer (High End) for data storage and processing

Specifications:

Processor : Intel Core i7-8750H 2.20 GHz (9M Cache, up to 4.10 GHz)
Graphics : GeForce GTX 1060, 6GB GDDR5
Connectivity : Intel Wireless-AC 9560 (2*2 a/c) + BT5
OS : Window 10 Home
Display : 15.6" FHD (1920*1080), 144Hz
Memory : 16GB DDR4-2400 (8GBx2)
Storage : 256GB NVMe SSD+1TB SATA HDD 7200rpm
Battery : 4 cell/5280mAH

3. WARRANTIES

- a. The bidder warrants that it shall strictly conform to all the Terms and Conditions of this Terms of Reference.
b. All equipment are subject to **one (1) year warranty**.

Requested by:

EDWIN F. MANRESA
Chief, ETSD

Approved/Disapproved:

CATALINO L. DAVIS, MPA
Deputy Administrator
Office of the Deputy Administrator, AES