



TERMS OF REFERENCE
FOR THE
SUPPLY AND DELIVERY OF FOUR THOUSAND TWO
HUNDRED (4,200) PCS. RADIOSONDE TRANSMITTER –
METEOMODEM with Free Met. Balloons

A. BACKGROUND

Upper-air soundings complete the required weather parameters in 3 dimensions which are necessary for weather analysis and prediction. Its importance is so great that the equipment used should be of great quality such as the transmitters and weather balloons which measure the different weather parameters up to 12,000 meters above mean sea level and send these data to the receiving stations in the country. The upper-air soundings can be used to deliver real-time data required for local-area weather forecasts such as thunderstorms and rainy days' name a few. These can be of additional help in the formulation of the localized weather forecast in the newly formed five (5) PAGASA Regional Services Divisions in NCR, Northern and Southern Luzon, Visayas, and Mindanao.

B. APPROVED BUDGET FOR THE CONTRACT (ABC)

The Approved Budget for the Contract is **Seventy-One Million Four Hundred Thousand Pesos (PhP71,400,000.00)** only inclusive of VAT and all applicable government taxes.

C. TECHNICAL SPECIFICATIONS:

Radiosonde Transmitter **METEOMODEM with free Met. Balloons** shall have the following minimum technical specifications:

General:

Dimensions: 98*63*42mm
Weight: 36g (including battery)

Temperature:

Sensor type: Thermistor
Measurement range: +60°C to -100°C
Resolution: 0.01 °C
Absolute accuracy: 0.3°C
Repeatability: 0.1°C
Reproducibility: 0.2°C
Response Time: <1s
Measurement rate: 1 Hz

Humidity:

Sensor Type: Capacitor
Measurement range: 0% to 100%
Resolution: 0.1%
Absolute accuracy: 3%
Repeatability: 2%
Reproducibility: 2%
Response time: <0.3s (1000hPa, 20°C)
Measurement rate: 1 Hz
Heated sensor: Icing prevention

Pressure:

Calculated from GNSS altitude
Range: 1100 hPa to 3 hPa
Resolution: 0.1 hPa
Accuracy barometer: <0.4 hPa from 1100 to 700 hPa
Accuracy GNSS: <1,0 from 700 to 100 hPa
 : 0.3 hPa from 100 hPa to 10 hPa
 : 0.1 hPa < 10 hPa
Reproducibility: 0.2 hPa at 100 hPa
 : 0.05 hPa at 10 hPa

Batteries

Technology: 3V lithium
Autonomy: >4 h in flight
Package: 1 battery

Geopotential Height

Altitude range: >45 km
Position accuracy: ± 5 m
Position resolution: 0.01m

Wind Measurement

Horizontal wind accuracy: 0.05 m/s
Wind direction accuracy: 0.3°
Horizontal wind resolution: 0.01 m/s
Wind direction resolution: 0.1°
Measurement: 1 Hz

Transmitter

Complaint with European standard ETSI EN 302054
Frequency Range: 400.15 MHz to 406 MHz
Frequency Step: 200 KHz
Frequency Setting: by infrared
Maximum drift: 1 KHz

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Typical output power: 110 mW
Modulation: FSK
Transmission rate: 1 Hz

Calibration

Factory Calibration: Stored on flash memory
Ground check: before launch

METEOROLOGICAL BALLOONS SPECIFICATIONS:

Weight : 350 grams Uncolored
Neck Size & Diameter: : 120±20mm
32±3mm
Brand : **TOTEX (Japan)**

PACKAGING

Must be individually packed in a hermetically sealed aluminum bag with anti-insect powder inside.

Note: *A certification from the manufacturer must be attached and submitted by the winning bidder/supplier.*

D. DELIVERY PERIOD AND PLACE OF DELIVERY

The winning bidder shall supply and deliver the **Four thousand Two Hundred (4,200) pcs. of Radiosonde Transmitters - Meteomodem with Free Met Balloons** on-site in the following **PAGASA Stations**: Before delivery transmitters and Met. balloons shall be inspected by the PAGASA and COA inspectors at PAGASA Central Office Science Garden Complex, Senator Miriam P. Defensor-Santiago Ave., Brgy. Central, Quezon City.

Name of Station	Address
1. PAGASA-Basco Upper Air Station.	Basco, Batan Island, Batanes
2. PAGASA-Tuguegarao Upper Air Station.	Capitol Site, Tuguegarao City, Cagayan
3. PAGASA- Camiling Upper Air Station.	PAGASA Agromet Station, Camiling, Tarlac.
4. PAGASA-Baler Upper Air Station.	Brgy. Dikisit, Baler, Aurora
5. PAGASA-Tanay Upper Air Station.	Sitio Mayagay, Sampaloc, Tanay Rizal
6. PAGASA-Iloilo Upper Air Station	PAGASA Synoptic Station, Airport Manduriao, Iloilo City
7. PAGASA-Pto. Princesa Upper Air Station	Puerto Princesa City, Palawan

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8. PAGASA-Guiuan Upper Air Station Synoptic and Radar Station Sapao, Guiuan Eastern Samar
9. PAGASA-Davao Upper Air Station Brgy. Sasa, Davao City
10. PAGASA-Lagindingan Upper Air Station. El Salvador City, Misamis Oriental.

Delivery of the total **4,200 pcs. Radiosonde Transmitters - Meteomodem** shall be made by the following schedule:

1st Tranche: First Week of February 2025.

Name of Station	Qty/Unit
PAGASA-Basco Upper Air Station	190
PAGASA-Tuguegarao Upper Air Station	0
PAGASA-Camiling Upper Air Station	0
PAGASA-Baler Upper Air Station	190
PAGASA-Tanay Upper Air Station	365
PAGASA-Iloilo Upper Air Station	0
PAGASA-Palawan Upper Air Station	365
PAGASA-Guiuan Upper Air Station	150
PAGASA-Davao Upper Air Station	365
PAGASA-Laguindingan Upper Air Station	0
Sub-Total	1,625

2nd Tranche: 1st week of July 2025.

Name of Station	Qty/Unit
PAGASA-Basco Upper Air Station	250
PAGASA-Tuguegarao Upper Air Station	150
PAGASA-Camiling Upper Air Station	260
PAGASA-Baler Upper Air Station	250
PAGASA-Tanay Upper Air Station	405
PAGASA-Iloilo Upper Air Station	150
PAGASA-Palawan Upper Air Station	405
PAGASA-Guiuan Upper Air Station	200
PAGASA-Davao Upper Air Station	405
PAGASA-Laguindingan Upper Air Station	100
Sub-Total	2,575

Failure to deliver within the prescribed period without valid and justifiable reason shall constitute a delay on the part of the winning bidder/supplier which is a ground for the imposition of liquidated damages by Section 68 and Section 3 (Annex "D") of the Revised IRR of RA 9184.

E. PAYMENT TERMS

The winning bidder/supplier may be allowed to collect partial payment commensurate to the number of goods/items delivered, provided that said deliveries are made according to the schedule of requirements specified above and subject to the complete submission of the documentary requirements prescribed under the accounting and auditing rules and regulations.

F. WARRANTIES

1. To assure that manufacturing defects shall be corrected by the winning bidder/supplier, warranty security shall be required from the contract awardee for a minimum period of **one (1) year** after acceptance by PAGASA of the delivered goods/supplies.
2. Either retention money shall cover the obligation for the warranty in an amount equivalent to at least one percent (1%) of every progress payment, or a special bank guarantee equivalent to at least one percent (1%) of the total contract price. The said amounts shall only be released after the lapse of the warranty period: Provided, however: That the supplies delivered are free from patent and latent defects and that all the conditions imposed under the contract have been fully met.
3. The winning bidder likewise warrants that it shall strictly conform to all the Terms and Conditions of this Terms of Reference.