TERMS OF REFERENCE

FOR THE

SUPPLY AND DELIVERY OF THREE THOUSAND SIX HUNDRED EIGHTY-FOUR (3,684) PCS. RADIOSONDE TRANSMITTER - LOCKHEED MARTIN SIPPICAN - With Free Met. Balloon

A. BACKGROUND

Upper- air soundings complete the required weather parameters in 3 dimensions which are necessary for the purpose of 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 measures 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 a real time data required for local-area weather forecast such as thunderstorm and rainy days-to name a few. These can be of additional help in the formulation of 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 inclusive of VAT and all applicable government taxes is **Sixty-Two Million Six Hundred Twenty-Eight Thousand Pesos (PhP62, 628,000.00).**

C. BID PROPOSAL CONTENTS

The prospective bidder is expected to comply and respond accordingly to the specific instructions to bidders and completely 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. Absence or lack of any of the bidder's documentary submissions shall be a ground for outright rejection of bids.

Furthermore, the prospective bidder is expected to respond "paragraph by paragraph" into this Terms of Reference (TOR); and, shall clearly indicate compliance to the required specifications (*Please see Section VII. Compliance Matrix*) and specify the number of days or schedules within which to complete the delivery of all the goods/services required using the prescribed bidding form. (*Please see Section VI. Schedule of Requirements*).

The prospective bidder is likewise required to include in its proposal, **original descriptive literatures** and/or **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.

D. QUALIFICATIONS OF THE BIDDER

(Instructions to Bidders, the Bid Data Sheet and Checklist of Eligibility and Technical Requirements of the Bidding Documents)

E. TECHNICAL SPECIFICATIONS:

The Radiosonde Transmitter **LOCKHEED MARTIN SIPPICAN, INC. MODEL 1848-611 403 MHZ GPS LMS6 and the free Met. Balloons** shall have the following minimum technical specifications:

Unit		Specification
A. RADIOSONDE TRANSMITTER SPECIFICATIONS		
Type:	:	Digitally Synthesized
Frequency Range:	:	400 to 406 MHz
Frequency Stability, 90 percent Probability	:	In accordance with EN302054V1 1.1
Daviation, Poak to Poak	:	5 KHz
Emission Bandwidth	:	In accordance with EN302043V1 1.1
Out Put Power	:	63 mW (nominal)
Modulation	:	GFSK
Data Downlink	:	4800 Baud Digital
Operation Selectable Frequencies	:	Sixteen (16) Nominally 125KHz Steps: Set by Switch
Sampling Rate	:	All parameters once per second
Power Source	:	Lithium battery pack; suitable for 130 minutes of operation

B. SENSOR CALIBRATION

Polynomial coefficients resident in sonde EEPROM are transmitted continuously in digital data-stream.

Pressure (Derived from Differentially Corrected GPS Geometric Height Values)

Measuring Range	:	1080 hPa to 3 hPa
Accuracy	:	Better than 0.5 hPa (rms)
Resolution	:	0.1 hPa

C. TEMPERATURE SENSOR

Type	:	Chip Thermistor
Range	:	-90°C + 60°C
Accuracy	:	0.2°C * 0.3°C* in daylight above 20 kms
Response Time (63.2%, 6 m/s)		
1000 hPa	:	<0.75 Secs
10 hPa	:	<8 Secs
Resolution:	:	0.1°C

D. HUMIDITY SENSOR

Type	:	Capacitance
Range:	:	0 to 100% RH;
	:	+45°C to -60°C
Accuracy	:	+/-5% RH * up to 20 hPa
Response Time:		
1000 hPa, 6 m/s, +25°C	:	<1.5 Secs
1000 hPa, 6 m/s, -10°C	:	<10 Secs
1000 hPa, 6 m/s, -40°C	:	<50 Secs
Resolution:	:	1% RH

E. CODE CORRELATING GPS RECEIVER

Number of Channels	:	12
Cold Start Acquisition Time	:	45 Secs (nominal)
Reacquisition Time	:	0.1 Secs (nominal)
Range	:	0 to 100% RH
Dimensions	:	127 x 152 x 76 (mm)
Weight	:	235 grams (including battery & cord)
		*2 Sigma

F. METEOROLOGICAL BALLOONS

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

G. PACKAGING

Must be individually packed with 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***

DELIVERY PERIOD AND PLACE OF DELIVERY

The winning bidder shall supply and deliver the **Three Thousand Six Hundred Eighty-Four (3,684) pcs. Of Radiosonde Transmitters with Free Met Balloons** on-site in the following **PAGASA Stations:** Prior to delivery all transmitters and balloons shall be inspected by the PAGASA and COA inspector.

	Name of Station	Address
1.	PAGASA-Tanay Upper Air Station	Sitio Mayagay, Sampaloc, Tanay, Rizal
2.	PAGASA-Palawan Upper Air Station	Puerto Princesa City, Palawan
3.	PAGASA-Davao Upper Air Station	Brgy. Sasa, Davao City
4.	PAGASA-Baguio Upper Air Station	Government Center, Baguio City
5.	PAGASA-El Salvador Upper Air Stn.	El Salvador City, Misamis Oriental

6. PAGASA-Tuguegarao — Synoptic Station, Capitol Site, Tuguegarao City, Cagayan

Delivery of the total **3,600 pcs. Radiosonde Transmitters** shall be in accordance with the following schedule:

1st Tranche: 1st week of January 2020.

Name of Station	Qty/Unit
PAGASA-Tuguegarao Upper Air Station	**154 pcs.**
PAGASA-Baguio Upper Air Station	**154 pcs.**
PAGASA-Tanay Upper Air Station	**154 pcs.**
PAGASA-Palawan Upper Air Station	**154 pcs.**
PAGASA-Davao Upper Air Station	**154 pcs.**
PAGASA-El Salvador Upper Air Station	**154 pcs.**
Sub-Total	**924 pcs.**

2nd Tranche: 1st week of April 2020.

Name of Station	Qty/Unit
PAGASA-Tuguegarao Upper Air Station	**154 pcs.**
PAGASA-Baguio Upper Air Station	**154 pcs.**
PAGASA-Tanay Upper Air Station	**154 pcs.**
PAGASA-Palawan Upper Air Station	**154 pcs.**
PAGASA-Davao Upper Air Station	**154 pcs.**
PAGASA-El Salvador Upper Air Station	**154 pcs.**
Sub-Total	**924 pcs.**

3rd Tranche: 1st week of July 2020

Name of Station	Qty/Unit
PAGASA-Tuguegarao Upper Air Station	**153 pcs.**
PAGASA-Baguio Upper Air Station	**153 pcs.**
PAGASA-Tanay Upper Air Station	**153 pcs.**
PAGASA-Palawan Upper Air Station	**153 pcs.**
PAGASA-Davao Upper Air Station	**153 pcs.**
PAGASA-El Salvador Upper Air Station	**153 pcs.**
Sub-Total	**918 pcs.**

4th Tranche: 1st week of October 2020

Name of Station	Qty/Unit
PAGASA-Tuguegarao Upper Air Station	**153 pcs.**
PAGASA-Baguio Upper Air Station	**153 pcs.**
PAGASA-Tanay Upper Air Station	**153 pcs.**
PAGASA-Palawan Upper Air Station	**153 pcs.**
PAGASA-Davao Upper Air Station	**153 pcs.**
PAGASA-El Salvador Upper Air Station	**153 pcs.**
Sub-Total	**918 pcs.**

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 in accordance with Section 68 and Section 3 (Annex "D") of the Revised IRR of RA 9184.

F. 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 in accordance with the schedule of requirements specified above and subject further to the complete submission of the documentary requirements prescribed under the accounting and auditing rules and regulations.

G. PERFORMANCE SECURITY

The winning bidder/supplier shall post the required Performance Security in accordance with Section 39 of the Revised Implementing Rules and Regulations (IRR) of RA 9184. The amount of the Performance Security shall be equivalent to the total contract cost of the Project which shall be denominated in Philippine Peso and payable to PAGASA.

H. WARRANTIES

1. In order to assure that manufacturing defects shall be corrected by the winning bidder/supplier, a 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. The obligation for the warranty shall be covered by either retention money 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 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**.**