



Republic of the Philippines
DEPARTMENT OF SCIENCE AND TECHNOLOGY
Philippine Atmospheric, Geophysical and Astronomical Services
Administration (PAGASA)

02 December 2022

SUPPLEMENTAL BID BULLETIN
ADDENDUM NO. 2022-038-01

Subject: Supply and Delivery of Seven Hundred (700) pcs of Radiosonde Transmitters – GRAW Met DFM-06 with Free Met Balloons (Reference: IB No. 2022-038 / PR No. 2022-10-0818 EPA)

This Bid Bulletin is being issued to all prospective bidders to clarify, amend and/or modify certain provisions in the Bidding Documents and to answer clarificatory questions during the pre-bid conference by prospective bidders, to wit:

1. Detailed Specifications	From: GRAW MET DFM -06 To: GRAW MET DFM -17 (see: Annex A)
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This shall form an integral part of the Bid Documents.

For guidance and information of all participating bidders.

for

BONIFACIO G. PAJUELAS, Ph.D.
Chairperson, PAGASA-BAC

"tracking the sky...helping the country"

Science Garden Compound, BIR Road, Brgy. Central, Quezon City,
Metro Manila, Philippines 1100
Postal Address: P.O. Box 3278 Manila

Tel. Nos. (632) 929 48 65; (632) 434 90 40
Fax: (632) 929 48 65
Website: <http://bagong.pagasa.dost.gov.ph>

ANNEX A

E. TECHNICAL SPECIFICATIONS:

The Radiosonde Transmitter **GRAW MET. DFM-17 and the free Met. Balloons** shall have the following minimum technical specifications:

E.1 Temperature:

Type	: Resistive
Measurement Range	: -90 to +60°C
Resolution	: 0.01°C (internal)
Temperature Accuracy	: <0.2°C
Repeatability in Calibration	: <0.05°C
Reproducibility in Sounding	: <0.2°C
Response Time (63.2%, 5 m/s, 1000hPa)	: <0.6s
Stability (0.5years)	: <0.03°C

E.2 Humidity:

Type	: Thin-Film Capacitor
Measurement Range	: 0 to 100%rH
Resolution	: 0.1%rH
Uncertainty	: <3%rH
Reproducibility in Sounding	: <2%rh
Repeatability in Calibration	: <1%rH
Response Time (6m/s, 1000hPa, +20°C)	: 0.2 s
Response Time (6m/s, 1000hPa, -60°C)	: 10 s (time lag Corrected)
Optional Heating (de-icing)	: Expected availability end of 2020

E.3 Pressure:

Type	: Calculated by GPS (optional barometric)
Measurement Range	: 1100 to 1 hPa
Resolution	: 0.01 hPa (internal)
Uncertainty > 100hPa	: < 1hPa
Uncertainty 100-10hPa	: <0.2hPa
Uncertainty < 10hPa	: <0.04hPa

E.4 Geopotential Height:

Measurement Range	: -500 m to 40,000 m
Resolution	: 0.1 m
Uncertainty	: < 8 m
Reproducibility in Sounding	: <5 m

E.5 Wind Speed:

Method	: Calculated by GPS
Measurement Range	: 0 to 200 m/s

Resolution : 0.01 m/s (internal)
Uncertainty : <0.1 m/s

E.6 Wind Direction:

Method : Calculated by GPS
Measurement Range : 0 to 360°
Resolution : 0.01° (internal)
Uncertainty : <1°

E.7 Telemetry:

Transmitter Type : Synthesized
Tuning Range : 400-405.99MHz
Bandwidth : < 12 KHz
Max. Range : >250km
Frequency Stability : <1 KHz (frequency Drift < 1 KHz)
Emission Bandwidth : Acc. To EN 302 054
Output Power : <100 mW
Sideband Radiation : Acc. To EN 302 054
Modulation : GFSK
Data downlink : 1250 bit/s
Data Loss : <1%
Sampling rate : 1 Hz
Frequency Channels : 300 (tuneable in 20 KHz steps)
National Standards : ETSI (Europe), NTIA (USA)

E.8 GNSS Receiver:

Type : GPS/GLONASS/BEIDOU
Number of Channels : 72
Cold Start Acquisition Time : 26s
Reacquisition Time : 1 s
Technology : DGPS (SBAG)
Horizontal Position Accuracy : <2.5m
Horizontal Position Error : <5 m (CEP90)
Vertical Position Error : < 10 m (CEP90)
Velocity Accuracy : <0.05 m/s
Heading Accuracy : <0.3°
Maximum Altitude : Unlimited

E.9 Interface to Internal Sensors:

Protocol : Xdata
Transfer Rate : 24 bytes/s

E.10 Miscellaneous:

Battery Type : 2 x Lithium CR123A, Replaceable
Battery Capacity : 2 x 1500 mAh

Battery Operating Time	: >240 min
Battery Voltage	: 3-6 V
Battery Saving Feature	: Radiosonde Powered by Ground Station During preparation
Dimensions (Body)	: 90 x 67 x 44 mm
Weight	: 63 g
Antenna	: Soft Wire Cover to Protect from Injuries
Documentation	: Complete use documentation set is available

E.11 Unwinder:

Material of String	: Polypropylene (Optional Cotton)
Tenacity	: <120N
Length of String	: 30m
Unwinding Speed	: 0.3 m/s
Weight	: 25 g
Technical Data	: GRAW Radiosondes GmbH & Co.KG

E.12 Packing/Labeling:

Packing Type	: Robust carton with individual protective placeholders
Moisture Protectio	: Optional Sealed packing with an Appropriate Desiccant package
Quantity per Carton	: Standard (1,5,25) or customer-specific
Labeling	: Standard or customer-specific with durable legible Marking
Serial Numbers	: Standard or customer-specific
Shipping Documentation	: Standard or Customer-specific packing lists, commercial Invoices, custom documents, etc.