Australian Government
Geoscience Australia

Certificate of Verification of a Reference Standard of a Position-Measurement in Accordance with Regulation 13 of the National Measurement Regulations 1999 and the National Measurement Act 1960

Name of Verifying Authority:

Name: National Positioning Infrastructure Branch
Organisation: Geoscience Australia
Address: Corner Jerrabomberra Ave and Hindmarsh Drive, Symonston ACT 2609 Australia
Telephone: (02) 6249 9111
Email: geodesy@ga.gov.au

Client detail:

Name: Kris Halewood
Organisation: Department of Environment, Land, Water and Planning
Address: Level 11, 2 Lonsdale Street Melbourne, Victoria, 3000
Telephone: (03) 9194 0261
Email: kris.halewood@delwp.vic.gov.au
Date of request: 28 September 2022

Description and denomination of standard of measurement:

The measurement was undertaken using an antenna `TRM57971.00 NONE` (International GNSS Service antenna naming convention) with the serial number 1441107493 and refers to a point located 0.0000 m below the antenna reference point. The antenna is attached to a steel mast on roof via a stainless steel plate, threaded spigot. The station (4 character ID: BALL) is located at Ballarat, Victoria. The certificate was determined using data from 02 October 2022 to 08 October 2022 inclusive. Analysis was undertaken following the procedures detailed in Geoscience Australia's GPS Analysis Manual for the Verification of Position issue 2.2. The reference number of this certificate is BALL02112022.

Permanent distinguishing marks:

Exempt under Regulation 16 (4)

Date of verification: 02 November 2022

Date of expiry of certificate: 02 November 2027

NATA
Accredited for compliance with ISO/IEC 17025 - Calibration. Accreditation No. 15002.

Value of standard of measurement:

Station (4 character ID): BALL

South Latitude and its uncertainty of value:

37° 33' 31.95349" ± 0.00029" (0.009 m)

East Longitude and its uncertainty of value:

143° 51' 17.72206" ± 0.00026" (0.008 m)

Elevation above Ellipsoid and its uncertainty of value:

463.173 ± 0.022 m

Geocentric Datum of Australia (GDA2020) coordinates referred to the GRS80 ellipsoid being in the ITRF2014 reference frame at the epoch 2020. The uncertainties are calculated in accordance with the principles of the ISO/IEC 98-3 Uncertainty of Measurement - Part 3: Guide to the Expression of Uncertainty in Measurement (2008), with an interval estimated to have a confidence level of 95% at the time of verification. The combined standard uncertainty was converted to an expanded uncertainty using a coverage factor, k, of 2. Measurement traceability is ensured against the recognised value standard for position of the Australian Fiducial Network.

Details of any relevant environmental or other influence factor(s) at the time of verification:

Uncertainty of the coordinates of the recognized-value standard of measurement of position (i.e. GDA2020); and Uncertainty due to instability of the GPS antenna mounting and modelling of the antenna phase centre variations.



Signature:
02 November 2022
Dr Guorong Hu
Geoscience Australia approved signatory
National Positioning Infrastructure Branch
Geoscience Australia

Being a person, or a person representing a body, appointed as a verifying authority under Regulations 71 and 73 of the National Measurement Regulations 1999 in accordance with the National Measurement Act 1960, I hereby certify that the above standard is verified as a reference standard of measurement in accordance with the Regulations, by the above-named authority.