



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 in Accordance with the National
Measurement Act 1960.

Name of verifying authority:

Geoscience Australia – National Geospatial Reference Systems
Corner Jerrabomberra Ave and Hindmarsh Drive
Symonston ACT 2609 Australia
Telephone: (02) 6249 9111 Facsimile: (02) 6249 9969 Email: geodesy@ga.gov.au

Client detail:

Name: Mr Ryan Ruddick
Organisation: National Geospatial Reference Systems, Geoscience Australia
Address: Symonston ACT 2609 Australia
Telephone: (02) 6249 9111 Facsimile: (02) 6249 9969 Email: ryan.ruddick@ga.gov.au
Date of request: 10 April 2010

Description and denomination of standard of measurement:

Position of a steel plate and centred threaded spigot mounted on a 1.5 metre tall and 10.0 metre deep pillar, National Measurement Institute (4 character ID: SYDN). The monument has the inscription National Geodetic Fiducial Network AU065. Measurement of this mark's position was undertaken using an Ashtech Dorne Margolin Element L1/L2 GNSS Antenna (International GNSS Service Antenna description ASH701945C_M) Serial No. CR519994908. This antenna is attached to the centred threaded spigot and 0.0300m above the mark's position.

Permanent distinguishing marks:

Exempt under Regulation 16 (4)

Date of verification:

31 May 2010

Date of expiry of certificate:

30 May 2015

Value of standard of measurement:

South Latitude and its uncertainty of value:

33° 46' 51.18413" ± 0.032 m

East Longitude and its uncertainty of value:

151° 09' 01.35698" ± 0.032 m

Elevation above Ellipsoid and its uncertainty of value:

85.676 m ± 0.054 m

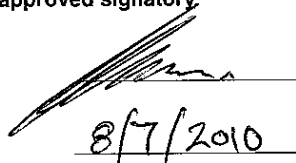
Geocentric Datum of Australia (GDA94) coordinates referred to the GRS80 ellipsoid being in the ITRF92 reference frame at the epoch 1994. The uncertainties are calculated in accordance with the principles of the ISO Guide to the Expression of Uncertainty in Measurement (1995), with an interval estimated 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.

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. GDA94); and
Uncertainty due to instability of the GPS antenna mounting and modelling of the antenna phase centre variations.

NATA approved signatory

Signature:



Date:

8/7/2010

Name of signatory:

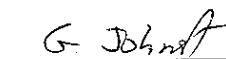
John Dawson

Position held:

Research Scientist,
National Geospatial
Reference Systems

Geoscience Australia approved signatory

Signature:



Date:

8/7/2010

Name of signatory:

Gary Johnston

Position held:

Project Leader,
National Geospatial
Reference Systems

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