



**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 Geospatial Reference Systems  
**Organisation:** Geoscience Australia  
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**Client detail:**

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**Date of request:** 4 September 2013

**Description and denomination of standard of measurement:**

The measurement was undertaken using an antenna ASH701945C\_M NONE (International GNSS Service antenna naming convention) with the serial number CR620023911 and refers to a point located 0.0040 m below the antenna reference point. This antenna is attached to a steel plate on a 3.0 metres high and 2.5 metres deep concrete pillar via a spigot thread. The station (4 character ID: STR1) is located at Stromlo SLR Observatory in Australian Capital Territory, and has the inscription National Geodetic Fiducial Network AU052.

**Permanent distinguishing marks:**

Exempt under Regulation 16 (4)

**Date of verification:**

04 November 2013

**Date of expiry of certificate:**

03 November 2018



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

**Value of standard of measurement:**

Station (4 character ID): STR1

South Latitude and its uncertainty of value:

35° 18' 55.93953"  $\pm$  0.007 m

East Longitude and its uncertainty of value:

149° 0' 36.17982"  $\pm$  0.007 m

Elevation above Ellipsoid and its uncertainty of value:

800.0323  $\pm$  0.017 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.

Signature: \_\_\_\_\_

04 November 2013

Dr John Dawson  
NATA approved signatory

Section Leader  
National Geospatial Reference Systems Section  
Geoscience Australia

Signature: \_\_\_\_\_

04 November 2013

Mr Gary Johnston  
Geoscience Australia approved signatory

Group Leader  
Earth Monitoring and Hazards Group  
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.