

EDMCAL: Processing EDM Calibrations in NSW

Volker Janssen
NSW Land and Property Information
Bathurst NSW 2795, Australia
Volker.Janssen@lpi.nsw.gov.au

Tony Watson
NSW Land and Property Information
Bathurst NSW 2795, Australia
Tony.Watson@lpi.nsw.gov.au

Abstract

The Surveyor General of New South Wales is a verifying authority under the National Measurement Act 1960 and responsible for ensuring that surveyors use verified measuring equipment. According to the Surveying and Spatial Information Regulation 2012, surveyors are required to verify their Electronic Distance Measurement (EDM) equipment in relation to an Australian standard of measurement of length at least once a year. For this purpose, Land and Property Information (LPI) provides and maintains several EDM baselines across the state. LPI is currently in the process of improving this infrastructure by upgrading existing baselines and building new baselines for the calibration of EDM instruments. This paper presents the current status of EDM baseline infrastructure in NSW and outlines the data processing performed by LPI in regards to EDM calibrations. The EDMCAL software currently employed by LPI is described and compared to a spreadsheet calculation generated by the University of New South Wales. Finally, LPI's new online EDM baseline booking system is introduced. This online system should now be used by surveyors to book access to all EDM baselines in NSW in order to allow efficient and effective use of existing and future baseline infrastructure.

Keywords: EDM calibration, EDMCAL, baseline infrastructure, online booking system, legal metrology.

1 Introduction

Legal metrology covers all measurements carried out for any legal purpose, including measurements that are subject to regulation by law or government decree. The National Measurement Act 1960 provides the legal basis for a national system of units and standards of measurement of physical quantities (Australian Government, 2014a). This Act is administered by the National Measurement Institute (NMI), which may in turn appoint organisations as verifying authorities under the provisions of Regulation 73 of the National Measurement Regulations 1999 (Australian Government, 2014b). As such, the office of the Surveyor General of New South Wales (NSW) has been appointed as a verifying authority for length measurement standards.

Practising surveyors in NSW are subject to the Surveying and Spatial Information Act 2002 (NSW Legislation, 2014a) and the Surveying and Spatial Information Regulation 2012 (NSW Legislation, 2014b). The latter states, among other things, that a surveyor must not use any Electronic Distance Measurement (EDM) equipment unless it is verified against the state primary standard of measurement of length by using pillared baselines, at least once every year and immediately after any service or repair. This instrument verification establishes traceability of its measurements to the national standard.

In this context, it is important to explain the difference between the terms verification and calibration. The verification of an EDM baseline is carried out periodically with precise EDM instrumentation carrying a current Regulation 13 certificate issued by NMI (the associated meteorological equipment is also calibrated against industry standards). This process determines the 'true' inter-pillar distances and establishes traceability because the EDM

Copyright © by the paper's authors. Copying permitted only for private and academic purposes.

In: S. Winter and C. Rizos (Eds.): Research@Locate'14, Canberra, Australia, 07-09 April 2014, published at <http://ceur-ws.org>

