



NGS

Electronic Distance Measuring Instrumentation Calibration Base Line Program Policy

Policy Document National Geodetic Survey National Ocean Service National Oceanic and Atmospheric Administration	
AUTHORIZED BY: <hr/> Director, National Geodetic Survey Juliana P. Blackwell	Tracking Number: NGS YYYY-0000-00 Effective Date:
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Official Policy Title:

NGS Electronic Distance Measuring Instrumentation Calibration Base Line Program Policy

Tracking Number:**Date Reviewed by ESC:****Effective Date:** Upon acceptance by the NGS Executive Steering Committee**Internal or External:** External**Associated Procedures/Policies:**

NOS NGS-8 Establishment of Calibration Base Lines

NOS NGS-10 Use of Calibration Base Lines

NGS Electronic Distance Measuring Instrumentation Calibration Base Line Program Policy

Authority/Reference: none**Supersedes:** NGS Electronic Distances Measuring Instrument Calibration Base Line Policy, October 2, 2010**Review Schedule:** 2 years**Responsible Office/Position:** Geodetic Services Division's Instrumentation & Methodologies Branch/ Chief – Instrumentation & Methodologies Branch**Purpose/Scope:**

The National Geodetic Survey (NGS) conducts an Electronic Distance Measuring Instrumentation (EDMI) Calibration Base Line (CBL) program (hereafter referred to as the CBL Program) to provide the surveying and engineering community with a means to detect and quantify errors in EDM in their local area. Additionally, these high-accuracy CBLs provide a locally accessible standard for measuring length. Since the CBL Program began in 1974, NGS has established more than 400 CBLs (now recognized as Tier 1 CBLs) throughout the United States in cooperation with various government agencies, universities, professional societies, and others. All data and products associated with this nationwide program are available at the NGS EDM CBL webpage:

<http://www.ngs.noaa.gov/CBLINES/calibration.shtml>

Any interested parties are encouraged to participate in the CBL Program. However, participation is strictly voluntary. NGS will not solicit the installation of any new CBLs, except when it might serve to benefit the NGS in its stated mission and goals. It is the responsibility of any interested parties to contact NGS and request support in establishing, or reestablishing a Tier 2 CBL in their local area, following procedures as outlined in the associated "NGS Electronic Distance Measuring Instrumentation Calibration Base Line Program Procedures" document.

Background:

This policy and associated procedures help the CBL Program meet a number of organizational goals:

- Maintain the high standards of accuracy expected for CBLs.
- Maintain consistency of CBL information appearing in the NGS EDMC CBL database.
- Provide calibration software, support, procedures documentation and final published values to the public.
- Provide local public access to the national standard unit of length designed for EDMC.

Definition of Terms:

EDMC – A 2 part system for measuring distances made up of 1) a light wave emitting device and return signal interpreter and 2) a remote reflector or reflective surface.

CBL – A Calibration Base Line consists of 4 or more survey marks set in a straight line, at predetermined spacing, from 1000 to 1400 meters in total length for which the distances between all combinations of marks are known very accurately and are traceable to a national standard unit of length.

Tier 1 CBL - A CBL for which the associated distances were measured by, or with the direct participation of, NGS Calibration personnel.

Tier 2 CBL - A CBL for which the associated distances were measured by NGS partners following NGS specifications and procedures but without direct participation by NGS Calibration personnel.

Electronic Distance Measurement Instrument Calibration Base Line Policy:

The National Geodetic Survey (NGS) will serve the high-precision needs of the U.S. surveying and engineering communities by providing a mechanism for the calibration of EDMC through the use of CBLs. NGS will provide software and procedures documents for use in the calibration of EDMC and for the establishment of Tier 2 CBLs.

All CBL information published on the CBL Program web page <http://www.ngs.noaa.gov/CBLINES/calibration.html> has been approved by NGS for use in all its products and services.

The CBL Program reserves the right to accept CBL information under special circumstances.

RECORD OF REVIEW AND CHANGES

This policy is a living document that is reviewed biannually. It will be updated, when appropriate, to reflect changes in controlling Federal policies, organizational strategic goals/objectives, technology, or other matters that may have an impact on this policy. Modifications made to this document are recorded in the below table. This record shall be maintained throughout the life of the document.

Version Number	Date	Section/ Page Affected	Summary of Change or Annual Review	Author / Reviewer
1.0	9/6/2016	All	New Document	Kendall Fancher, Steven Breidenbach, Charles Geoghegan