Certificate STS

Classification of geodetic instruments to measure Land Parcel Areas

Testing laboratory accredited by the Swiss Accreditation Service (SAS)

Accreditation No.: STS 549

The Swiss Accreditation Service (SAS) is one of the signatories to the European cooperation for Accreditation (EA) Multilateral Agreement for the recognition of calibration certificates

Swiss Testing Service (STS)
Schweizerischer Prüfdienst
Service suisse d'essai
Servizio svizzero di prova

Product:	**Leica CS25 GNSS + G5 Helix**
Article no:	**805721**
Serial no:	**1W1160003658**
Antenna:	**G5 Helix, external, SNo. 332587**
Manufacturer:	**Leica Geosystems AG**
Software:	**ZenoField v3.11 / FW v6.114S**
Meas-Mode:	**vertex, 1Hz, 15 epochs**
Parameter settings:	**Elevation Mask=15°, max. PDOP=none** **Min. Number of Satellites= 4**
Differential correction:	**L1 Post Processed (with Leica Zeno Office v3.2)**
Classification date:	**Jan. 16, 2014**
Ordered by:	**Leica Geosystems AG**
Order number:	

Certificate. No.:
LAM_TC14_0015.doc

Classification:

The product described above has been classified as:

Avg. **Buffer Width:**	**0.42m ±0.06m**	☑
Class:	**< 0.50m**	☑

Product suited for area measurement of land parcels according to COMMISSION REGULATION (EC) No 1122/2009, of 30 November 2009: Buffer width of product must be <1.50m.

Leica Geosystems AG
STS Testing Laboratory

Peter Maier
Testing Laboratory Surveying

January 16, 2014

Wolfgang Hardegen
Head of accredited laboratories

Leica Geosystems AG
Heinrich-Wild-Strasse
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Test-Procedure:
5 parcels between 0.2ha and 1.8ha and of different shape are marked on the ground. Each parcel is measured 36 times (9 sets for each parcel and 4 runs per set at different conditions to reproduce typical situations of the real life). 36 areas are computed and analyzed for each parcel, which finally results in the buffer width.

The reported results and the certification of the product refers to its suitability for area measurement of parcels as described in the EU regulation and the IPSC- - JRC (Joint and Research Center documents:
- COMMISSION REGULATION (EC) No 1122/2009
- JRC: IPSC/G03/P/SKA/asi D(2007)(8307), Area measurement validation scheme
- JRC: IPSC/G03/P/SKA D(2006)(5834), Technical tolerances for on the spot checks

The product is classified depending on the experimentally determined reproducibility limit at 95% confidence level, expressed as buffer width:
Class (1): buffer width < 1.50 m
Class (2): buffer width < 1.25 m
Class (3): buffer width < 1.00 m
Class (4): buffer width < 0.75 m
Class (5): buffer width < 0.50 m

Class (0): buffer width ≥ 1.50 m, exceeding the maximum value imposed by EU Regulation

The above reported expanded uncertainty is stated as the standard uncertainty of measurement multiplied by the coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The standard uncertainty has been determined in accordance with EA-4/02.