

D3: DAE

Client

ADT (Auden)

CALIBRATION CERTIFICATE

Object(s)

DAE3 - SN:510

Calibration procedure(s)

QA CAL-06.v2

Calibration procedure for the data acquisition unit (DAE)

Calibration date:

June 2, 2003

Condition of the calibrated item

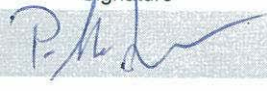
In Tolerance (according to the specific calibration document)

This calibration statement documents traceability of M&TE used in the calibration procedures and conformity of the procedures with the ISO/IEC 17025 international standard.

All calibrations have been conducted in the closed laboratory facility: environment temperature 22 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date	Scheduled Calibration
Fluke Process Calibrator Type 702	SN: 6295803	3-Sep-01	Sep-03

	Name	Function	Signature
Calibrated by:	Philipp Storchenegger	Technician	

Approved by:	Fin Bornholt	R&D Director	
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Date issued: June 2, 2003

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

1. DC Voltage Measurement

DA - Converter Values from DAE

High Range: 1LSB = $6.1\mu\text{V}$, full range = 400 mV
 Low Range: 1LSB = 61nV , full range = 4 mV

Software Set-up: Calibration time: 3 sec Measuring time: 3 sec

Setup	X	Y	Z
High Range	403.2306258	403.4757894	403.8449771
Low Range	3.95687	3.92485	3.95853
Connector Position	44 °		

High Range	Input	Reading in μV	% Error
Channel X + Input	200mV	200000.2	0.00
	20mV	19993.79	-0.03
Channel X - Input	20mV	-19980.99	-0.10
Channel Y + Input	200mV	200000.4	0.00
	20mV	20001.85	0.01
Channel Y - Input	20mV	-19996.06	-0.02
Channel Z + Input	200mV	200000	0.00
	20mV	20005.1	0.03
Channel Z - Input	20mV	-19995.49	-0.02

Low Range	Input	Reading in μV	% Error
Channel X + Input	2mV	1999.96	0.00
	0.2mV	200.262	0.13
Channel X - Input	0.2mV	-200.476	0.24
Channel Y + Input	2mV	1999.94	0.00
	0.2mV	199.654	-0.17
Channel Y - Input	0.2mV	-200.567	0.28
Channel Z + Input	2mV	1999.94	0.00
	0.2mV	199.089	-0.46
Channel Z - Input	0.2mV	-200.866	0.43

2. Common mode sensitivity

Software Set-up

Calibration time: 3 sec, Measuring time: 3 sec

High/Low Range

in μV	Common mode Input Voltage	High Range Reading	Low Range Reading
Channel X	200mV	17.0932	16.4097
	- 200mV	-16.4559	-16.8147
Channel Y	200mV	14.0608	14.2761
	- 200mV	-17.3783	-16.0218
Channel Z	200mV	-10.1267	-10.289
	- 200mV	9.00246	9.53265

3. Channel separation

Software Set-up

Calibration time: 3 sec, Measuring time: 3 sec

High Range

in μV	Input Voltage	Channel X	Channel Y	Channel Z
Channel X	200mV	-	2.61579	-0.0916442
Channel Y	200mV	0.799878	-	4.96696
Channel Z	200mV	-0.930035	0.207589	-

4. AD-Converter Values with inputs shorted

in LSB	Low Range	High Range
Channel X	16987	15970
Channel Y	17091	16204
Channel Z	16130	16170

5. Input Offset Measurement

Measured after 15 min warm-up time of the Data Acquisition Electronic.
Every Measurement is preceded by a calibration cycle.

Software set-up:

Calibration time: 3 sec
Measuring time: 3 sec
Number of measurements: 100, Low Range

Input 10M Ω

in μV	Average	min. Offset	max. Offset	Std. Deviation
Channel X	0.28	-0.35	1.12	0.25
Channel Y	-2.13	-3.88	-1.32	0.34
Channel Z	-0.46	-1.98	0.32	0.30

Input shorted

in μV	Average	min. Offset	max. Offset	Std. Deviation
Channel X	0.08	-0.98	0.82	0.20
Channel Y	-0.67	-2.26	2.04	0.37
Channel Z	-0.82	-1.30	-0.37	0.19

6. Input Offset Current

in fA	Input Offset Current
Channel X	< 25
Channel Y	< 25
Channel Z	< 25

7. Input Resistance

	Calibrating	Measuring
Channel X	200.1 k Ω	200.28 M Ω
Channel Y	200.07 k Ω	197.89 M Ω
Channel Z	200.06 k Ω	198.39 M Ω

8. Low Battery Alarm Voltage

in V	Alarm Level
Supply (+ Vcc)	7.86 V
Supply (- Vcc)	-7.69 V

9. Power Consumption

in mA	Switched off	Stand by	Transmitting
Supply (+ Vcc)	0.000	5.28	14.2
Supply (- Vcc)	-0.012	-7.47	-8.76

10. Functional test

Touch async pulse 1	ok
Touch async pulse 2	ok
Touch status bit 1	ok
Touch status bit 2	ok
Remote power off	ok
Remote analog Power control	ok
Modification Status	B – C



D4: 2450MHZ SYSTEM VALIDATION DIPOLE

Schmid & Partner Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Calibration Certificate

2450 MHz System Validation Dipole

Type:

D2450V2

Serial Number:

716

Place of Calibration:

Zurich

Date of Calibration:

September 26, 2002

Calibration Interval:

24 months

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:

N. Vella

Approved by:

Volker Kaya