REPUBLIC OF ALBANIA

REPUBLIKA E SHQIPËRISË
MINISTRIA E INFRASTRUKTURËS
DHE ENERGJISË

MINISTRY OF INFRASTRUCTURE AND ENERGY

VOLUNTARY SUBMISSION OF INFORMATION ON MET MAST INSTALLATION IN AN AUCTION FOR THE SELECTION OF ONSHORE WIND PROJECTS THAT WILL BENEFIT FROM SUPPORT MEASURES, WITH SITE-LOCATION IDENTIFIED BY DEVELOPERS

The Ministry of Infrastructure and Energy ("**Ministry**" or "**Contracting Authority**") invites Prospective Bidders to submit information regarding the met mast or other measurement equipment installation on selected sites using the template appended below, on voluntary basis. Ministry is available to provide further clarification or feedback on such information as per the form.

This is part of a broader process in which the Contracting Authority is available to facilitate any permitting or authorisation process with the different competent authorities. Prospective Bidders are invited to proactively communicate any issue encountered during bid preparation.

If Prospective Bidders wish to submit such information, please return a filled form containing relevant information as per the template to the following address:

Contracting Authority:	Ministry of Infrastructure and Energy of the Republic of Albania
Address:	Rruga "Abdi Toptani", no. 8, Tirana, Albania
Tel/Fax:	+355 4 2222245
Contact Person:	Mr. Antonio Bushati
E-Mail:	antonio.bushati@infrastruktura.gov.al
Internet Address:	www.infrastruktura.gov.al

Ministry including its advisors or consultants shall process data and information submitted by you under this voluntary submission, lawfully and fairly, solely for specified, explicit and legitimate purposes set forth under this request, the RFQ document and Applicable Laws.

Your data will be kept in a manner that ensures appropriate security against unauthorised access. Ministry shall not disclose the data and information submitted by you in the context of this voluntary submission with third parties, with the exception of its consultants and advisors for the purpose of preliminary assessment and evaluation in the context of RFQ/RFP procedure.

Prospective Bidder is entitled to request from Ministry the erasure in part or in full of the data and information so submitted and the Ministry will proceed with erasure in accordance with the Applicable Laws.

APPENDIX

Ministry of Infrastructure and Energy, Albania

Met-Mast Installation report

Location: 20, _ _ _ E; 40, _ _ _ N
Date of installation: ___, _ , 2021
Measurements commencements date: ___, _ , 2021

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1. BASICS

Site Name	
Height of tower (m)	_ _, _m
Type of tower	Lattice
City	
Province	
Village	
GPS coordinates in WGS 84/34 T Zone	_ _ _ _ _ _ _ E, _ _ _ _ _ _ _ N
Geodetic height (m)	_ _ _ _
Type of data logger	
Heating system	No
Aviation lights	Yes
Start of installation (Date/Time)	___.__.2021 __.__ am/pm
Completion of installation (Date/Time)	___.__.2021 __.__ am/pm
Commissioning (Date/Time)	___.__.2021 __.__ am/pm

2. ACCESS DATA

Logger serial no	_ _ _ _ _ _ _ _ _ _ _
Voice number SIM-card	+355 6_ _ _ _ _ _ _ _ _
Data number SIM-card	+355 6_ _ _ _ _ _ _ _ _
APN	MGBS

3. LOCATION (Google Earth Orth photo)

TP-------, Met mast coordinates MM3 – 409792 E, 4458846 N

4. CHANNEL DETERMINATION

				Recorded Data			
Sensor	**Channel Name**	**Unit**	**Denoted By**	**Mean**	**Max**	**Min**	**Std.**
Anemometer-A	Wind Speed 1	Hz	S1	√	√	√	√
Anemometer-B	Wind Speed 2	Hz	S2	√	√	√	√
Anemometer-C	Wind Speed 3	Hz	S3	√	√	√	√
Anemometer-D	Wind Speed 4	Hz	S4	√	√	√	√
Wind Wane-B	Wind Direction 2	Degrees	D1	√			√
Wind Wane-B	Wind Direction 2	Degrees	D2	√			√
Humidity	Relative Humidity	%	H1	√	√	√	√
Temperature	Air Temperature	°C	T1	√	√	√	√
Pressure	Air Pressure	hPa	B1	√	√	√	√
	Internal Temperature	°C	Ti	√			
	Ext. Supply (battery)	Volts	V_{ex}	√			

Equipment Description	Type	Logger Terminal	Serial No Calib.No	H	a	d1	d2	R	z	R/d1 (R/r)	z/d2	Cable	S	O
Datalogger	**Eol© Zenith**		6681506405	(m)	(°)	(mm)	(mm)	(cm)	(cm)	r=45cm		Colour	(m)	(m/s)
Data Rec. Interval	**10 min.**	**Sampling**	**1.0 Hz**						≥75	≥1	≥20			
Anemometer -A	Thies F.Cl.Adv.-4.3351.00.000	S1	11131631 1335568	61	330	433	32	252	118	5,81	36,87	RED	0,046050	0,215700
Anemometer -B	Thies F.Cl.Adv.-4.3351.10.000	S2	11136264 18705AC	61	150	433	32	251	118	5,79	36,87	WHITE	0,046280	0,243470
Anemometer -C	Thies F.Cl.Adv.-4.3351.00.000	S3	12128994 KMİ.R.0541	45	330	433	32	252	85	5,81	26,56	ORANGE	0,04599	0,226800
Anemometer -D	Thies F.Cl.Adv.-4.3351.00.000	S4	12128997 KMİ.R.0543	30	330	433	32	252	85	5,81	26,56	BLACK	0,04599	0,232800
Windvane -A	Thies Clima-4.3129.60.773 Output 0-5V	D1	12130236	58	150	433	32	252	84	5,81	26,25	BLUE	1	330
Windvane -B	Thies Clima-4.3129.60.773 Output 0-5V	D2	12130254	30	150	433	32	251	84	5,79	26,25	GRAY	1	330
Temperature	Galltec KPC 1/X	T	129544 13.ESCK.1986	9									100	-30
Humidity	Galltec KPC 1/X	H	129544 13.ESCK.1986	9									100	0
Pressure	TECH-SEN/BAP102-A	B	600283 4.31857	9									230,895	538,499
Solar Panel	20 W Monocrystalline		SL020-12P20	10										
GSM Modem	Internal Modem													
Mast	Lattice Mast		Details											

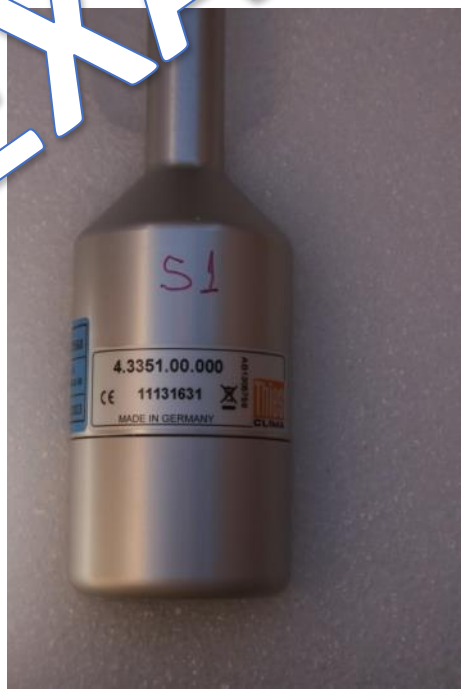
H= Sensor Heigh
a= Boom Orientation
d1= Mast Diameter (Face Width) At H
R= Horizontal Distance To Mast
z= Vertical Distance To Boom
d2= Boom Diameter
S= Slope
O= Offset
r= Required Min Distance From Mast (Based On Maximum Solidity)

5. PANORAMIC PHOTOS

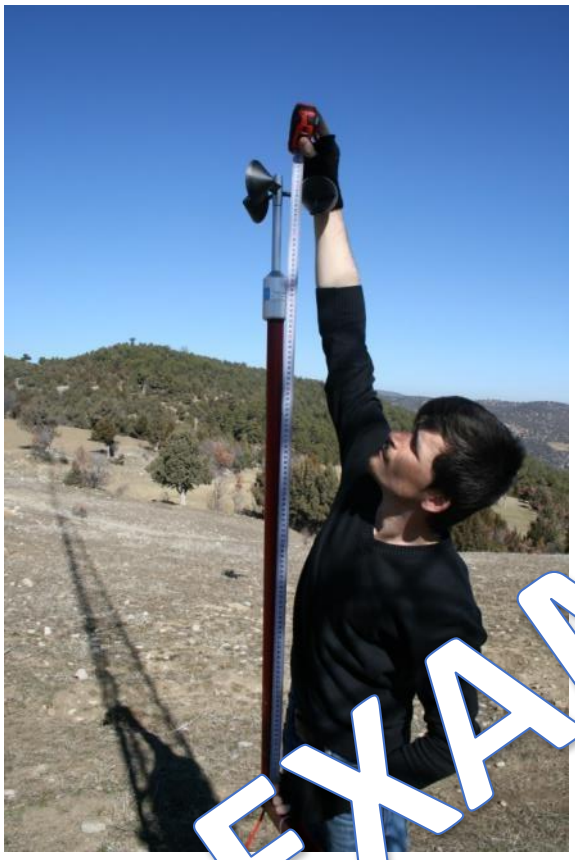
APPENDIX-1 (PICTURES)

Picture 1. Anemometer (S1) at 61 m

EXAMPLE



Picture 2. Measurements of Anemometers



EXAMPLE

Picture 3. Windvane (D1) at 58 m

EXAMPLE

Picture 4. Measurements of Windvanes

EXAMPLE

Picture 5. Humidity-Temperature Sensor

Picture 6. Barometric Pressure

EXAMPLE

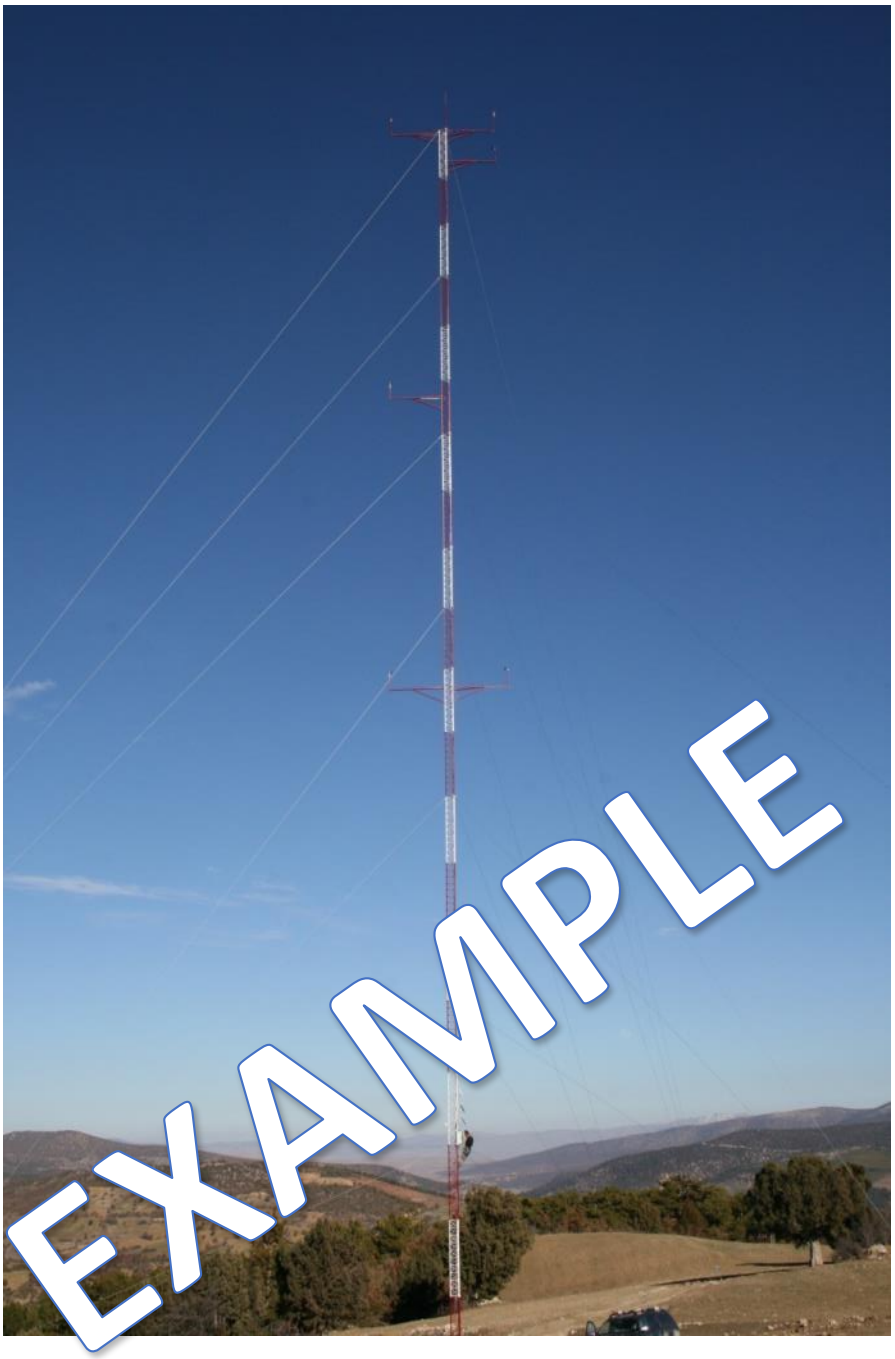
Picture 7. Solar Panel

Picture 8. Lightening Spike

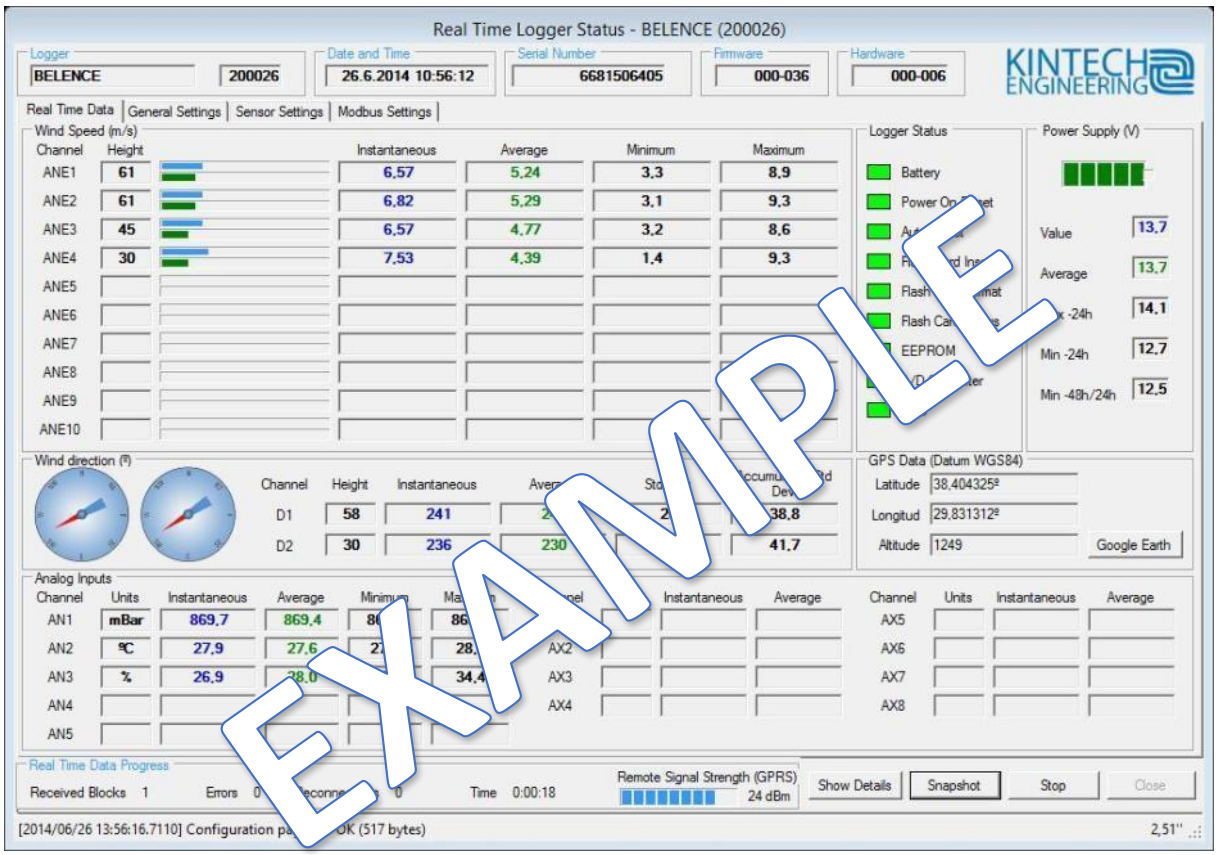
Picture 9. Data Logger

EXAMPLE

Picture 10. Wind Met Mast


EXAMPLE

APPENDIX-2 (DATALOGGER OUTPUTS)



APPENDIX-3 (CALIBRATION REPORTS)

Deutsche WindGuard
Wind Tunnel Services GmbH, Varel

Deutsche WindGuard

akkreditiert durch die / *accredited by the*

Deutsche Akkreditierungsstelle GmbH

als Kalibrierlaboratorium im / *as calibration laboratory in the*

Deutschen Kalibrierdienst DKD

DAkkS Deutsche Akkreditierungsstelle D-K-15140-01-00

Kalibrierschein
Calibration certificate

Calibration mark

1335568	
D-K-15140-01-00	
11/2013	

Gegenstand *Object*	Cup Anemometer
Hersteller *Manufacturer*	Thies Clima D-37083 Göttingen
Typ *Type*	4.3351.00.000
Fabrikat/Serien-Nr. *Serial number*	11131631
Auftraggeber *Customer*	KinTech Ingenieria S.L. ES 50004 Zaragoza
Auftragsnummer *Order No.*	VT131183
Anzahl der Seiten des Kalibrierscheines *Number of pages of the certificate*	3
Datum der Kalibrierung *Date of calibration*	28.11.2013

Dieser Kalibrierschein dokumentiert die Rückführung auf nationale Normale zur Darstellung der Einheiten in Übereinstimmung mit dem Internationalen Einheitensystem (SI).
Die DAkkS ist Unterzeichner der multilateralen Übereinkommen der European co-operation for Accreditation (EA) und der International Laboratory Accreditation Cooperation (ILAC) zur gegenseitigen Anerkennung der Kalibrierscheine.
Für die Einhaltung einer angemessenen Frist zur Wiederholung der Kalibrierung ist der Benutzer verantwortlich.
This calibration certificate documents the traceability to national standards, which realize the units of measurement according to the International System of Units (SI).
The DAkkS is signatory to the multilateral agreements of the European co-operation for Accreditation (EA) and of the International Laboratory Accreditation Cooperation (ILAC) for the mutual recognition of calibration certificates.
The user is obliged to have the object recalibrated at appropriate intervals.

Dieser Kalibrierschein darf nur vollständig und unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung sowohl der Deutschen Akkreditierungsstelle als auch des ausstellenden Kalibrierlaboratoriums. Kalibrierscheine ohne Unterschrift haben keine Gültigkeit.
This calibration certificate may not be reproduced other than in full except with the permission of both the German Accreditation Body and the issuing laboratory. Calibration certificates without signature are not valid.

Datum *Date*	Leiter des Kalibrierlaboratoriums *Head of the calibration laboratory*	Bearbeiter *Person in charge*
28.11.2013	Dipl. Phys. D. Westermann	Technikerin Bilke Engelbrecht

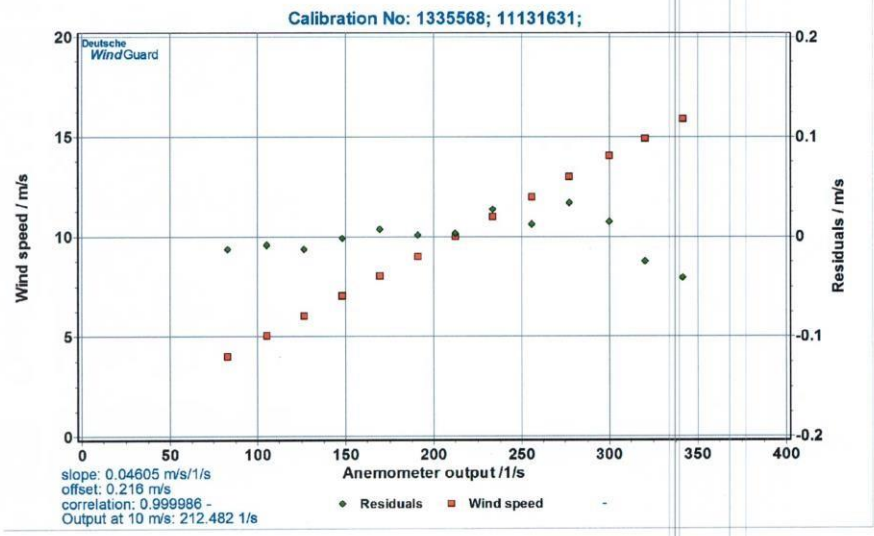
1 Detailed Calibration Results

DKD calibration no.	1335568
Serial no. 1	11131631
Serial no. 2	
Date	28.11.2013
Air temperature	21.6 °C
Air pressure	1027.5 hPa
Humidity	40.2 %

Linear regression analysis

Slope	0.04605 (m/s)/(1/s) ±0.00007 (m/s)/(1/s)
Offset	0.2157 m/s ±0.017 m/s
St.err(Y)	0.021 m/s
Correlation coefficient	0.999986

Remarks	no



Deutsche WindGuard Wind Tunnel Services is accredited by MEASNET and by the Deutsche Akkreditierungsdienst – DAkkS (German Accreditation Service). Registration: D-K-15140-01-00

CERTIFICADO DE CALIBRACION

Certificate of Calibration

ENAC
CALIBRACIÓN
Nº 134/LC10.095

Número 18705AC
Number

Página 1 de 5 páginas
Page 1 of 5 pages

Instituto Universitario de Microgravedad "Ignacio Da Riva"
Laboratorio de Calibración en Túnel Aerodinámico, LAC, IDR/UPM
c/o E.T.S.I. Aeronáuticos
Plaza del Cardenal Cisneros, 3, E-28040 Madrid
Tel.: 91 336 63 53, Fax: 91 336 63 63
http://www.idr.upm.es, email: lac@idr.upm.es

OBJETO *Item*	Cup Anemometer
MARCA *Mark*	THIES CLIMA
MODELO *Model*	4.3351.10.000
IDENTIFICACION *Identification*	11136264
SOLICITANTE *Applicant*	KINTECH INGENIERIA, S.L. Avda. Anselmo Clavé, nº 37-45, local bajo 50004 Zaragoza
FECHA DE CALIBRACION *Date of Calibration*	November 26, 2013

Signatarios autorizados
Authorized signatories

Firmado digitalmente por VEGA RAMIRO, ENRIQUE (FIRMA)
Fecha: 2013.11.27 12:14:36 +01'00'

Fecha de emisión:
Date of issue

November 27, 2013

IDR
UPM

Sello/Seal

Dirección Técnica
Technical Direction

Linear Regression Results**

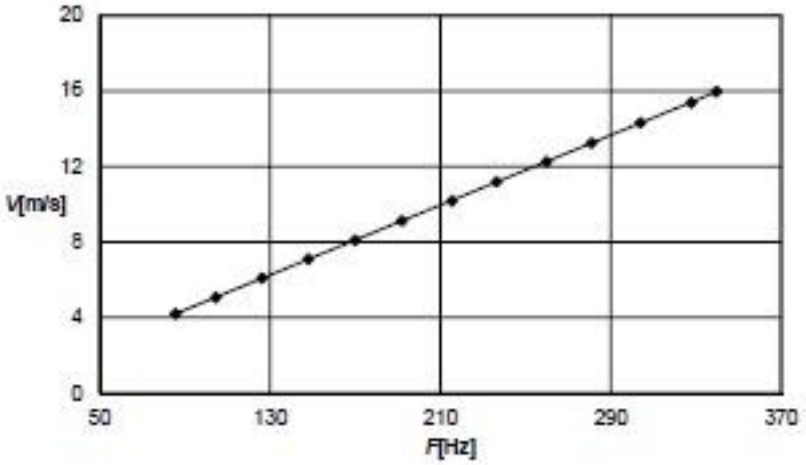
The statistical uncertainty is given by

$$\sigma(y_a) = \left\{ x_a^2 \ \sigma_A^2 + \sigma_B^2 + 2x_a \ \mathrm{COV}(A,B) \right\}^{1/2}.$$

For 10 m/s wind speed the statistical uncertainty $\sigma(y_a)$ is 0.0045 [m/s].

Table 2. Linear Regression Results

V[m/s] = A ([m/s]/[Hz])*F [Hz]+B [m/s]

Parameter	Value	sd	Comments
A	0.04628	0.00006	Slope
B	0.24347	0.01266	Offset
r	0.99999		Regression Coefficient
sd(V)	0.01624		Standard Deviation

**The linear regression has been carried out by using a least squares fitting. These calculations are not covered by the accreditation.