Translation

(1) # EC-Type Examination Certificate

(2) **- Directive 94/9/EC -**
Equipment and protective systems intended for use in potentially explosive atmospheres

(3) ## DMT 02 ATEX E 252 X

(4) **Equipment:** **Transmitter type 3**0A*****Z****

(5) **Manufacturer:** **Micro Motion, Inc.**

(6) **Address:** **Boulder, Co. 80301, USA**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the schedule to this type examination certificate.

(8) The certification body of Deutsche Montan Technologie GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive.
The examination and test results are recorded in the test and assessment report BVS PP 02.2130 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50018:2000	Flameproof enclosure 'd'
EN 50019:2000	Increased safety 'e'
EN 50020:1994	Intrinsic safety 'i'

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate

(12) The marking of the equipment shall include the following:

II 2G EEx de[ib] IIC T4 or **EEx de[ib] IIB T4**

Deutsche Montan Technologie GmbH
Essen, dated 11. December 2002

Signed: Jockers
DMT-Certification body

Signed: Eickhoff
Head of special services unit

Am Technologiepark 1, 45307 Essen, Telefon (0201)172-1416, Telefax (0201)172-1716

(13) Appendix to

(14) # EC-Type Examination Certificate

DMT 02 ATEX E 252 X

(15) 15.1 Subject and type

Transmitter type 3**0A*****Z****

Instead of the ** in the complete denomination letters and numerals will be inserted which identify the following variations:

Type 3**0A*****Z****

- letters for application software
- letter for language
- letter A, B, C or D for conduit connections
- numeral 3, 4, 5 or 6 for sensor interface
- numeral for additional hardware
- letter for future options
- numeral 1 or 2 for power supply
- numerals 70 or 35 for model type

15.2 Description

The transmitter is, in combination with a sensor, used for mass flow measurement and for indicating as well as entering of parameters.
The electrical components of the transmitters are mounted in a light metal housing, which is divided into three compartments. In the compartment with type of protection „flameproof enclosure" are the assemblies of the Power Board, APPS Board, PPI Barrier Board and 9-Wire or 4-Wire Sensor Interface board installed.
In the compartment „Increased safety" are the terminals for intrinsically safe and non-intrinsically safe circuits securely fixed.
In the front cover of the housing are the keypad, I.S. PPI assembly and, behind a window, a display securely fixed.
The 3**0A*****Z**** transmitter comes with different sensor interface boards. The 3**0A***3*Z**** is for 9 wire installation to a sensor with junction box. The 3**0A***4*Z**** has DSP (digital signal processing) in the sensor interface board to be compatible with T**********Z***** sensors (DMT 01 ATEX E 083 X). The 3**0A***5*Z**** is for 4 wire installation to a sensor with integral core processor (Model 700). The 3**0A***6*Z**** is for connection to the remote mount core (e. g. DMT 02 ATEX E 002).

15.3 Parameters

15.3.1 power supply circuit (terminals J18-10 and J18-9)

for type 3**0A1****Z****			
voltage		AC 85 – 265	V
for type 3**0A2****Z****			
voltage		DC 18 - 30	V
max. voltage	Um	AC/DC 265	V

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DMT

15.3.2 non-intrinsically safe data-circuits
terminals J18-1 up to J18-8 and J18-11 up to J18-20

voltage	up to	DC	29	V

15.3.3 intrinsically safe sensor circuits for type 3**0A***3*Z**** (9-wire card)

15.3.3.1 Drive circuit (terminals J19-11 – J19-12)

voltage	Uo	DC	11,4	V
current (puls)	Io		1,14	A
limited by a fuse with a rated current of			250	mA
power	Po		1,2	W
type of protection EEx ib IIC				
max. external inductance	Lo		27,4	µH
max. external capacitance	Co		1,7	µF
max. inductance/resistance ratio	Lo/Ro		< 10,9	µH/Ω
type of protection EEx ib IIB				
max. external inductance	Lo		109	µH
max. external capacitance	Co		11,7	µF
max. inductance/resistance ratio	Lo/Ro	<	43,7	µH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times \left(\frac{Ri + Ro}{1.5 \times Uo} \right)^2$$

whereby E = 40 µJ for group IIC and E = 160 µJ for group IIB will be inserted.

15.3.3.2 Pick-Off circuits (terminals J19-18/17 and J19-20/19)

voltage	Uo	DC	15,6	V
current	Io		10	mA
power	Po		40	mW
type of protection EEx ib IIC				
max. external inductance	Lo		355	mH
max. external capacitance	Co		500	nF
type of protection EEx ib IIB				
max. external inductance	Lo		1,4	H
max. external capacitance	Co		3,03	µF

15.3.3.3 Temperature circuit (terminals J19-15/16/13)

voltage	Uo	DC	15,6	V
current	Io		10	mA
power	Po		40	mW
type of protection EEx ib IIC				
max. external inductance	Lo		355	mH
max. external capacitance	Co		500	nF

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	type of protection EEx ib IIB				
	max. external inductance	Lo		1,4	H
	max. external capacitance	Co		3,03	µF

15.3.4 intrinsically safe sensor circuits for type 3**0A***4*Z**** (DSP card)

15.3.4.1 Drive circuit (terminals J19-11 – J19-12)

voltage	Uo	DC	11,4	V
current (puls)	Io		1,14	A
limited by a fuse with a rated current of			250	mA
power	Po		1,2	W
type of protection EEx ib IIC				
max. external inductance	Lo		27,4	µH
max. external capacitance	Co		1,7	µF
max. inductance/resistance ratio	Lo/Ro		< 10,9	µH/Ω
type of protection EEx ib IIB				
max. external inductance	Lo		109	µH
max. external capacitance	Co		11,7	µF
max. inductance/resistance ratio	Lo/Ro	<	43,7	µH/Ω

The maximum external inductance L (sensor coil) can be calculated with the following term:

$$L = 2 \times E \times \left(\frac{Ri + Ro}{1.5 \times Uo} \right)^2$$

whereby E = 40 µJ for group IIC and E = 160 µJ for group IIB will be inserted.

15.3.4.2 Pick-off circuit (terminals J19-18/17 and J19-20/19)

voltage	Uo	DC	21,13	V
current	Io		8,45	mA
power	Po		45	mW
type of protection EEx ib IIC				
max. external inductance	Lo		490	mH
max. external capacitance	Co		180	µF
type of protection EEx ib IIB				
max. external inductance	Lo		1,9	H
max. external capacitance	Co		1,24	nF

15.3.4.3 Temperature circuit (terminals J19-15/16/13)

voltage	Uo	DC	21,13	V
current	Io		17	mA
power	Po		90	mW
type of protection EEx ib IIC				
max. external inductance	Lo		122	mH
max. external capacitance	Co		180	nF

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	type of protection EEx ib IIB				
	max. external inductance	Lo		492	mH
	max. external capacitance	Co		1,24	µF
15.3.5	intrinsically safe sensor circuits for type 3**0A***5*Z****and type 3**0A***6*Z**** (4-wire board)				
	(terminals J19-13/14 – J19-15/16 4-wire board)				
	voltage	Uo	DC	17,22	V
	current	Io		484	mA
	power	Po		2,05	W
	type of protection EEx ib IIC				
	max. external inductance	Lo		151,7	µH
	max. external capacitance	Co		333	nF
	max. inductance/resistance ratio	Lo/Ro	<	17,06	µH/Ω
	type of protection EEx ib IIB				
	max. external inductance	Lo		607	µH
	max. external capacitance	Co		2,04	µF
	max. inductance/resistance ratio	Lo/Ro	<	68,2	µH/Ω
15.3.6	ambient temperature range	Ta		-30 (- 20) °C up to + 60 °C	

(16) Test and assessment report
BVS PP 02.2130 EG as of 11.12.2002

(17) Special condition for safe use
The permissible ambient temperature range for the transmitter is -30 °C up to 60 °C.
The use of the transmitter at an ambient temperature under - 20 °C is only admissible, if the cables are suitable for that temperature and the cable entries are certified for that use.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

45307 Essen, 11.12.2002
BVS-Schu/Ar A 20020423

Deutsche Montan Technologie GmbH

DMT-Certification body

Head of special services unit

Am Technologiepark 1, 45307 Essen, Telefon (0201)172-1416, Telefax (0201)172-1716

Translation

1st Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
DMT 02 ATEX E 252 X

Equipment: **Transmitter type 3**0A*****Z******

Manufacturer: **Micro Motion, Inc.**

Address: **Boulder, Co. 80301, USA**

Description
The transmitter can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997+A1-A2	General requirements
EN 50018:2000	Flameproof enclosure 'd'
EN 50019:2000	Increased Safety 'e'
EN 50020:2002	Intrinsic safety 'i'

Test and assessment report
BVS PP 02.21301 EG as of 23.04.2003

Deutsche Montan Technologie GmbH
Essen, dated 23. April 2003

signed: Jockers
DMT-Certification body

signed: Eickhoff
Head of special services unit

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

45307 Essen, 23.04.2003
BVS-Schu/Ar A 20030140

Deutsche Montan Technologie GmbH

DMT-Certification body

Head of special services unit

Am Technologiepark 1, 45307 Essen, Telefon (0201)172-1416, Telefax (0201)172-1716

Translation

2nd Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
DMT 02 ATEX E 252 X

Equipment: **Transmitter type 3**0A*****Z******

Manufacturer: **Micro Motion, Inc.**

Address: **Boulder, Co. 80301, USA**

Description
The transmitter can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:
EN 50014:1997+A1-A2 General requirements
EN 50018:2000 Flameproof enclosure´d´
EN 50019:2000 Increased safety ´e´
EN 50020:2002 Intrinsic safety ´i´

Test and assessment report
BVS PP 02.2130 EG as of 26. November 2003

Deutsche Montan Technologie GmbH
Bochum, dated 26. November 2003

Dr. Jockers
Certification body

Dr. Eickhoff
special services

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 26. November 2003
BVS-Schu/Kw A 20030855

Deutsche Montan Technologie GmbH

Certification body

special services

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(until 31.05.2003: Deutsche Montan Technologie GmbH Am Technologiepark 1 45307 Essen Germany)

EXAM
BBG Prüf- und Zertifizier GmbH

Translation

3rd Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
DMT 02 ATEX E 252 X

Equipment: **Transmitter type 3**0A*****Z****

Manufacturer: **Micro Motion, Inc.**

Address: **Boulder, Co. 80301, USA**

Description
The transmitter can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 50014:1997 + A1 – A2	General requirements
EN 50018:2000	Flameproof enclosure 'd'
EN 50019:2000	Increased safety 'e'
EN 50020:2002	Intrinsic safety 'i'

Test and assessment report
BVS PP 02.2130 EG as of 07.06.2004

Special conditions for safe use
- The permissible ambient temperature range for the transmitter is -30 °C up to 60 °C. The use of the transmitter at an ambient temperature under -20 °C is only admissible, if the cables are suitable for that temperature and the cable entries are certified for that use.
- The keypad in the front cover of the enclosure was tested corresponding to the low risk of mechanical danger (4 Joule) according to table 4 of EN50014:1997 A1 + A2.

EXAM BBG Prüf- und Zertifizier GmbH
Bochum, dated 07. June 2004

Signed: Dr. Jockers
Certification body

Signed: Dr. Eickhoff
Special services unit

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(until 31.05.2003: Deutsche Montan Technologie GmbH Am Technologiepark 1 45307 Essen)

EXAM
BBG Prüf- und Zertifizier GmbH

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 07.06.2004
BVS-Ehr/Mi A 20030937

EXAM BBG Prüf- und Zertifizier GmbH

Certification body

Special services unit

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(until 31.05.2003: Deutsche Montan Technologie GmbH Am Technologiepark 1 45307 Essen)

DEKRA

Translation

4th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
DMT 02 ATEX E 252 X

Equipment: **Transmitter type 3**0A*****Z******

Manufacturer: **Micro Motion, Inc.**

Address: **Boulder, Co. 80301, USA**

Description

The purpose of this supplement is to test the transmitter in accordance with the standards EN 60079-0 :2006, EN 60079-1 :2004, EN 60079-7 :2007 and EN 60079-11 :2007. Additionally some electronic components have been modified.

The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 60079-0:2006	General requirements
EN 60079-1:2004	Flameproof enclosure 'd'
EN 60079-7:2007	Increased safety 'e'
EN 60079-11:2007	Intrinsic safety 'i'

The marking of the equipment shall include the following:

II 2G Ex de [ib] IIB/IIC T4

DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Germany Phone +49 234/3696-105 Fax +49 234/3696-110 E-mail zs-exam@dekra.com
(until 31.05.2003: Deutsche Montan Technologie GmbH Am Technologiepark 1 45307 Essen Germany)

Parameters

Unchanged

Special conditions for safe use

The use of the transmitter at an ambient temperature under -20 °C is only admissible if the cables are suitable for the temperature and the cable entries must be certified for that use.

Test and assessment report

BVS PP 02.2130 EG as of 22.01.2009

DEKRA EXAM GmbH
Bochum, dated 22. January 2009

Signed: Dr. Jockers
Certification body

Signed: Dr. Eickhoff
Special services unit

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 22. January 2009
BVS-Kem / Her A 20070744

DEKRA EXAM GmbH

Certification body

Special services unit

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(until 31.05.2003: Deutsche Montan Technologie GmbH Am Technologiepark I 45307 Essen Germany)

DEKRA

Translation

5th Supplement

(Supplement in accordance with Directive 94/9/EC Annex III number 6)

to the EC-Type Examination Certificate
DMT 02 ATEX E 252 X

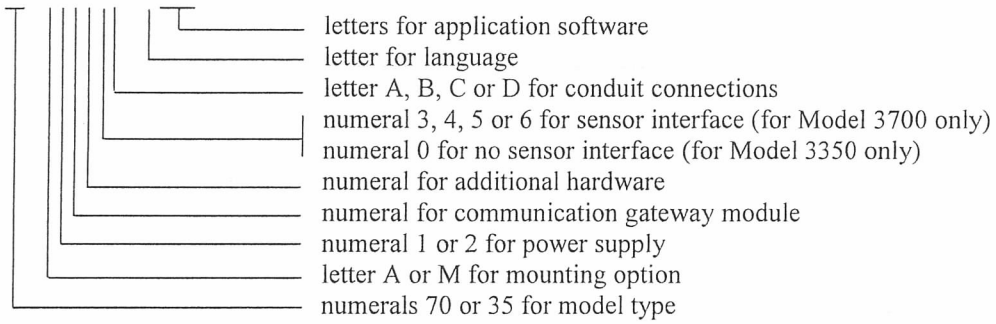
Equipment:	**Transmitter type 3**0******Z**** **
Manufacturer:	**Micro Motion, Inc.**
Address:	**Boulder, Co. 80301, USA**

Description

The transmitter can be modified according to the descriptive documents as mentioned in the pertinent test and assessment report. The purpose of this supplement is to test the transmitter in accordance with the standards EN 60079-0:2009, EN 60079-1:2007, EN 60079-7:2007 and EN 60079-11:2007.
Additionally the variation type 3**0M*****Z**** has been added.

Instead of the *** in the complete denomination letters and numerals will be inserted which identify the following variations:

Type 3**0******Z****



The Essential Health and Safety Requirements of the modified equipment are assured by compliance with:

EN 60079-0:2009	General requirements
EN 60079-1:2007	Flameproof enclosure 'd'
EN 60079-7:2007	Increased safety 'e'
EN 60079-11:2007	Intrinsic safety 'i'

The marking of the equipment shall include the following:

II 2G Ex de [ib] IIB/IIC T4 Gb

DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Germany Phone +49 234/3696-105 Fax +49 234/3696-110 E-mail zs-exam@dekra.com

DEKRA

Special conditions for safe use

1 The use of the transmitter at an ambient temperature under -20 °C is only admissible if the cables are suitable for the temperature and the cable entries must be certified for that use.

2 The keypad in the front cover of the enclosure was tested corresponding to the low risk of mechanical danger (4 Joule) according to table 12 of EN 60079-0:2009.

Test and assessment report

BVS PP 02.2130 EG as of 02.09.2010

DEKRA EXAM GmbH
Bochum, dated 02. September 2010

Signed: Simanski
Certification body

Signed: Leiendecker
Special services unit

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

44809 Bochum, 02.09.2010
BVS-Schu/Ar A 20100208

DEKRA EXAM GmbH

Certification body

Special services unit

DEKRA EXAM GmbH Dinnendahlstrasse 9 44809 Bochum Germany Phone +49 234/3696-105 Fax +49 234/3696-110 E-mail zs-exam@dekra.com

Translation

(1) 6th Supplement to the EC-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres - Directive 94/9/EC
Supplement accordant with Annex III number 6

(3) No. of EC-Type Examination Certificate: **DMT 02 ATEX E 252 X**

(4) Equipment: **Transmitter type 3350/3700**

(5) Manufacturer: **Micro Motion Inc.**

(6) Address: **7070 Winchester Circle, Boulder, Co. 80301, USA**

(7) The design and construction of this equipment and any acceptable variation thereto are specified in the appendix to this supplement.

(8) The certification body of DEKRA EXAM GmbH, notified body no. 0158 in accordance with Article 9 of the Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II to the Directive. The examination and test results are recorded in the Test and Assessment Report BVS PP 02.2130 EG.

(9) The Essential Health and Safety Requirements are assured by compliance with:

EN 60079-0:2012 + A11:2013	**General requirements**
EN 60079-1:2007	**Flameproof enclosure "d"**
EN 60079-7:2007	**Increased safety "e"**
EN 60079-11:2012	**Intrinsic safety "i"**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the appendix to this certificate.

(11) This supplement to the EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment in accordance to Directive 94/9/EC.
Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the equipment shall include the following:

Ex II 2G Ex d e [ib] IIB/IIC T4 Gb

DEKRA EXAM GmbH
Bochum, dated 2015-12-09

Signed: Simanski
Certification body

Signed: Dr. Wittler
Special services unit

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telephone +49.234.3696-105, Fax +49.234.3696-110, zs-exam@dekra.com

(13) Appendix to

(14) **6th Supplement to the EC-Type Examination Certificate**
DMT 02 ATEX E 252 X

(15) 15.1 Subject and type

Transmitter type 3**0******Z****
Instead of the *** in the complete denomination letters and numerals will be inserted which identify the following variations:

Type 3**0******Z****

- letters for application software
- letter for language
- letter A, B, C or D for conduit connections
- numeral 5, 6 or 7 for sensor interface (for Model 3700 only)
- numeral 0 for no sensor interface (for Model 3350 only)
- numeral for additional hardware
- numeral for communication gateway module
- numeral 1 or 2 for power supply
- letter A or M for mounting option
- numerals 70 or 35 for model type

15.2 Description

The transmitter can be modified according to the descriptive documents as mentioned in the pertinent Test and Assessment Report.

The purpose of this supplement is to test the transmitter in accordance with the standards EN 60079 0:2012 + A11:2013 and EN 60079-11:2012.

The variation type 3**0*****7Z**** has been added; the variations type 3**0*****3Z**** and type 3**0*****4Z**** have been removed.

15.3 Parameters

15.3.1 Power supply circuit (terminals J18-10 and J18-9)

for type 3**0*1****Z****				
Voltage		AC	85 – 265	V
for type 3**0*2****Z****				
Voltage		DC	18 - 30	V
Max. voltage	Um	AC/DC	265	V

15.3.2 Non-intrinsically safe data-circuits
terminals J18-1 up to J18-8 and J18-11 up to J18-20

Voltage	up to	DC	29	V

15.3.3 Intrinsically safe sensor circuits for type 3**0****0*Z****, type 3**0****5*Z****, type 3**0****6*Z**** and type 3**0****7*Z**** (4-wire board)
(terminals J19-13/14 – J19-15/16 4-wire board)

Voltage	Uo	DC	17.22	V
Current	Io		484	mA
Power	Po		2.05	W
Level of protection Ex ib IIC				
Max. external inductance	Lo		151.7	µH
Max. external capacitance	Co		333	nF

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	Max. inductance/resistance ratio	Lo/Ro	<	17.06 µH/Ω
	Level of protection Ex ib IIB			
	Max. external inductance	Lo		607 µH
	Max. external capacitance	Co		2.04 µF
	Max. inductance/resistance ratio	Lo/Ro	<	68.2 µH/Ω
15.3.4	Ambient temperature range	Ta		-30 (-20) °C up to + 60 °C

(16) Test and Assessment Report

BVS PP 02.2130 EG as of 2015-12-09

(17) Special conditions for safe use

17.1 The use of the transmitter at an ambient temperature under -20 °C is only admissible if the cables are suitable for the temperature and the cable entries must be certified for that use.

17.2 The keypad in the front cover of the enclosure was tested corresponding to the low risk of mechanical danger (4 Joule) according to table 13 of EN 60079-0:2012.

We confirm the correctness of the translation from the German original.
In the case of arbitration only the German wording shall be valid and binding.

DEKRA EXAM GmbH
44809 Bochum, 2015-12-09
BVS-Schu/Mu A20150379

Certification body

Special services unit

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