TEST RESULT SUMMARY

FCC Part 15 Subpart C Section 15.249
Industry Canada RSS-210 Issue 6
Industry Canada RSS-Gen Issue 1

MANUFACTURER'S NAME	Transoma Medical
NAME OF EQUIPMENT	Sleuth
MODEL NUMBER(S) TESTED	2010
MANUFACTURER'S ADDRESS	4358 West Round Lake Rd Arden Hills, MN 55112
TEST REPORT NUMBER	WC605218.2
TEST DATE(S)	12 September 2006

According to testing performed at TÜV America Inc, the above-mentioned unit is in compliance with the applicable electromagnetic compatibility (EMC) portions of the requirements defined in FCC Part 15 Subpart C Section 15.249 and Industry Canada RSS-210 Issue 6 and RSS-Gen Issue 1.

It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical characteristics. Any modifications necessary for compliance made during testing on the above mentioned date(s) must be implemented in all production units for compliance to be maintained.

TÜV America Inc, as an independent testing laboratory, declares that the equipment tested as specified above conforms to the applicable EMC requirements of FCC Part 15 Subpart C *"Intentional radiators"* Section 15.249 *"Operation within the bands 902–928 MHz, 2400–2483.5 MHz, 5725–5875 MHZ, and 24.0–24.25 GHz."* and IC RSS-210 Issue 6 *"Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"* and RSS-Gen Issue 1 *"General Requirements and Information for the Certification of Radiocommunication Equipment"*.

Date: 21 September 2006

Location: Taylors Falls MN
USA

Joe Sausen
EMC Senior Technician

Joel Schneider
Senior EMC Engineer

Not Transferable

EMC TEST REPORT

Test Report File No.	:	**WC605218.2**	Date of issue:	21 September 2006

Model / Serial No(s) Tested	:	2010 / 001010
Product Type	:	Sleuth - Implantable Medical Device (IMD)
Applicant	:	Transoma Medical
Manufacturer	:	Transoma Medical
License holder	:	Transoma Medical
Address	:	4358 West Round Lake Rd Arden Hills, MN 55112
Test Result	:	■ **Positive** ☐ **Negative**
Test Project Number References	:	**WC605218.2**
Total pages including Appendices	:	**39**

TÜV America Inc reports apply only to the specific samples tested under stated test conditions. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. TÜV America Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV America Inc issued reports.

This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval. This report shall not be used by the client to claim product endorsement by NVLAP, NIST, or any agency of the US government.

TÜV America Inc and its professional staff hold government and professional organization certifications and are members of AAMI, ACIL, AEA, ANSI, IEEE, NARTE, and VCCI.

D I R E C T O R Y

Sign Explanations:
☐ - not applicable
■ - applicable

EMC TEST REGULATIONS:

The tests were performed according to the following regulations :

☐ - EN 55014-2: 1997 + Amendment A1: 2001 - Category __
☐ - EN 55024: 1998 + Amendments A1: 2001 + A2: 2003
☐ - EN 60601-1-2: 2001
☐ - EN 61000-6-1: 2001
☐ - EN 61000-6-2: 2001
☐ - EN 61326: 1997 + Amendments A1: 1998 + A2: 2001 + A3: 2003
☐ - EN 61800-3: 1996 + Amendment A11: 2000
☐ - ETS 300 683: 1997
☐ - ETSI EN 301 489-3 V1.4.1: 2002
☐ - EN 300 330-2 V1.1.1 (2001-06)
■ - FCC Part 15 Subpart C Section 15.249
☐ - FCC Part 15 Subpart C Section 15.207
■ - IC RSS-210 Issue 6
■ - IC RSS-Gen Issue 1
☐ - IC RSS-Gen Issue 1

ENVIRONMENTAL CONDITIONS IN THE LAB

	Actual
Temperature:	: 23 °C
Atmospheric pressure	: 99 kPa
Relative Humidity	: 45 %

POWER SUPPLY UTILIZED

Power supply system : 3 VDC battery

Field strength of emissions - fundamental
FCC 15.249(a), IC RSS-210 A2.9

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Minimum margin of compliance is 32.32 dB at 916.479 MHz

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	19-Oct-06
3847	ZHL-1042J	Mini-Circuits	Preamplifier 10 - 3000 MHz	0607	Code B
2690	8566B	Hewlett-Packard	Spectrum Analyzer	2430A00930	12 May 07
2673	85662A	Hewlett-Packard	Analyzer Display	2152A03687	12 May 07
2684	85650A	Hewlett-Packard	Quasi-Peak Adapter	2521A01006	15 Mar 07

Code B = Calibration verification performed internally. Code Y = Calibration not required when used with other calibrated equipment

Test limit
50 mV/m or 94 dBμV/m at 3 meters

Test data
Pages 5 - 7

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 1	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:					
Data File Name:	5218.1 limit revs.dat			Page:	1 of 3

List of measurements for run #: 1

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 15.249 902-928 fund. 3m	DELTA2
8566:						
916.4 MHz maxed:						
916.472 MHz	65.05 Pk	2.52 / 22.42 / 29.76 / 0.0	60.23	H / 2.37 / 185	-33.77*	n/a
916.472 MHz	56.39 Av	2.52 / 22.42 / 29.76 / 0.0	51.57	H / 2.37 / 185	n/a	n/a
916.472 MHz	68.1 Pk	2.52 / 22.42 / 29.76 / 0.0	63.28	V / 1.33 / 175	-30.72*	n/a
916.472 MHz	59.33 Av	2.52 / 22.42 / 29.76 / 0.0	54.51	V / 1.33 / 175	n/a	n/a
ESVS20:						
916.515 MHz	63.86 Pk	2.52 / 22.42 / 29.76 / 0.0	59.04	V / 1.33 / 175	-34.96*	n/a
916.515 MHz	57.68 Av	2.52 / 22.42 / 29.76 / 0.0	52.86	V / 1.33 / 175	n/a	n/a
916.515 MHz	63.59 Qp	2.52 / 22.42 / 29.76 / 0.0	58.77	V / 1.33 / 175	-35.23	n/a
916.515 MHz	60.53 Qp	2.52 / 22.42 / 29.76 / 0.0	55.71	H / 2.40 / 185	-38.29	n/a
916.515 MHz	54.65 Av	2.52 / 22.42 / 29.76 / 0.0	49.83	H / 2.40 / 185	n/a	n/a
916.515 MHz	60.94 Pk	2.52 / 22.42 / 29.76 / 0.0	56.12	H / 2.40 / 185	-37.88*	n/a
HP 8566:						
916.479 MHz	63.65 Qp	2.52 / 22.42 / 29.76 / 0.0	58.83	H / 2.40 / 185	-35.17	n/a
916.479 MHz	66.5 Qp	2.52 / 22.42 / 29.76 / 0.0	61.68	V / 1.30 / 175	-32.32	n/a
No spurious emissions detected above noise floor. See Run # 2 for noise floor measurements.						

* Peak measurement against a quasi peak limit

Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 1	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:					
Data File Name:	5218.1 limit revs.dat			Page:	2 of 3

Measurement summary for limit1: 15.249 902-928 fund. 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 15.249 902-928 fund. 3m
916.479 MHz	66.5 Qp	2.52 / 22.42 / 29.76 / 0.0	61.68	V / 1.30 / 175	-32.32
916.472 MHz	68.1 Pk	2.52 / 22.42 / 29.76 / 0.0	63.28	V / 1.33 / 175	-30.72*

* Peak measurement against a quasi peak limit

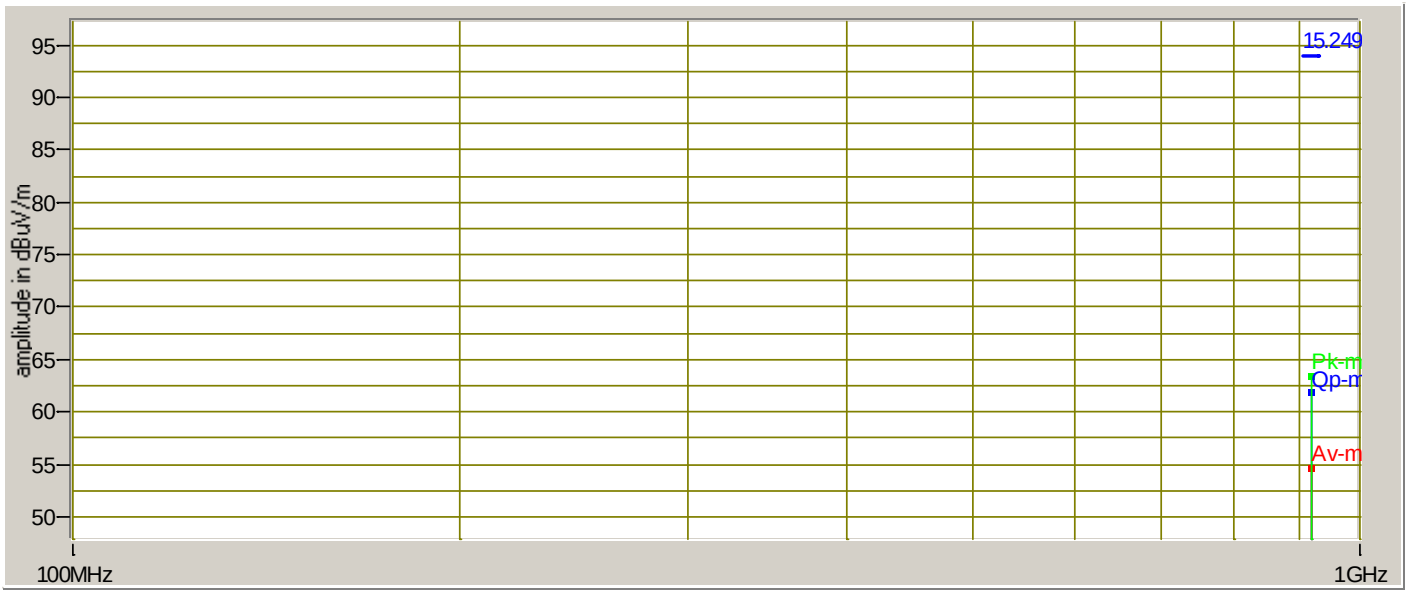
Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 1	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:					
Data File Name:	5218.1 limit revs.dat			Page:	3 of 3

Graph:



Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

Field strength of emissions - harmonics
FCC 15.249(a), IC RSS-210 A2.9

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Minimum margin of compliance is > 10 dB from 30 - 9165 MHz
No harmonics detected above the measurement noise floor

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	19-Oct-06
3847	ZHL-1042J	Mini-Circuits	Preamplifier 10 - 3000 MHz	0607	Code B
2690	8566B	Hewlett-Packard	Spectrum Analyzer	2430A00930	12 May 07
2673	85662A	Hewlett-Packard	Analyzer Display	2152A03687	12 May 07
2684	85650A	Hewlett-Packard	Quasi-Peak Adapter	2521A01006	15 Mar 07
2075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	07-Dec-06
3958	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0002	Code B

Code B = Calibration verification performed internally. Code Y = Calibration not required when used with other calibrated equipment

Test limit
500 μV/m or 54 dBμV/m at 3 meters

Test data
Pages 9 - 12

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 2	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 run 2 rev.dat			Page:	1 of 4

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 15.249 902-928 >1ghz-av 3m	DELTA2 15.249 902-928 >1ghz-pk 3m
NOISE FLOOR MEASUREMENTS:						
1.833 GHz	45.93 Av	4.04 / 27.0 / 50.55 / 0.0	26.42	V / 1.00 / 0	-27.58	n/a
1.833 GHz	52.95 Pk	4.04 / 27.0 / 50.55 / 0.0	33.44	V / 1.00 / 0	-20.56*	-40.56
2.749 GHz	46.09 Av	4.61 / 29.42 / 49.65 / 0.0	30.47	V / 1.00 / 0	-23.53	n/a
2.749 GHz	54.9 Pk	4.61 / 29.42 / 49.65 / 0.0	39.28	V / 1.00 / 0	-14.72*	-34.72
3.666 GHz	43.36 Av	5.41 / 31.5 / 48.67 / 0.0	31.59	V / 1.00 / 0	-22.41	n/a
3.666 GHz	51.25 Pk	5.41 / 31.5 / 48.67 / 0.0	39.48	V / 1.00 / 0	-14.52*	-34.52
4.582 GHz	42.11 Av	6.01 / 32.21 / 47.69 / 0.0	32.64	V / 1.00 / 0	-21.36	n/a
4.582 GHz	50.15 Pk	6.01 / 32.21 / 47.69 / 0.0	40.68	V / 1.00 / 0	-13.32*	-33.32
5.499 GHz	39.99 Av	6.85 / 33.41 / 46.7 / 0.0	33.55	V / 1.00 / 0	-20.45	n/a
5.499 GHz	47.85 Pk	6.85 / 33.41 / 46.7 / 0.0	41.41	V / 1.00 / 0	-12.59*	-32.59
6.415 GHz	42.49 Av	7.58 / 34.62 / 46.38 / 0.0	38.31	V / 1.00 / 0	-15.69	n/a
6.415 GHz	50.7 Pk	7.58 / 34.62 / 46.38 / 0.0	46.52	V / 1.00 / 0	-7.48*	-27.48
7.332 GHz	42.13 Av	8.07 / 35.82 / 47.1 / 0.0	38.93	V / 1.00 / 0	-15.07	n/a
7.332 GHz	50.1 Pk	8.07 / 35.82 / 47.1 / 0.0	46.9	V / 1.00 / 0	-7.1*	-27.1
8.248 GHz	42.36 Av	8.85 / 36.85 / 46.95 / 0.0	41.11	V / 1.00 / 0	-12.89	n/a
8.248 GHz	50.1 Pk	8.85 / 36.85 / 46.95 / 0.0	48.85	V / 1.00 / 0	-5.15*	-25.15
9.165 GHz	40.96 Av	9.7 / 37.4 / 46.65 / 0.0	41.41	V / 1.00 / 0	-12.59	n/a
9.165 GHz	49.4 Pk	9.7 / 37.4 / 46.65 / 0.0	49.85	V / 1.00 / 0	-4.15*	-24.15
End of noise floor measurements.						

* Peak measurement against an average limit

Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 2	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 run 2 rev.dat			Page:	2 of 4

Measurement summary for limit1: 15.249 902-928 >1ghz-av 3m (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 15.249 902-928 >1ghz-av 3m
9.165 GHz	40.96 Av	9.7 / 37.4 / 46.65 / 0.0	41.41	V / 1.00 / 0	-12.59
8.248 GHz	42.36 Av	8.85 / 36.85 / 46.95 / 0.0	41.11	V / 1.00 / 0	-12.89
7.332 GHz	42.13 Av	8.07 / 35.82 / 47.1 / 0.0	38.93	V / 1.00 / 0	-15.07
6.415 GHz	42.49 Av	7.58 / 34.62 / 46.38 / 0.0	38.31	V / 1.00 / 0	-15.69
5.499 GHz	39.99 Av	6.85 / 33.41 / 46.7 / 0.0	33.55	V / 1.00 / 0	-20.45
4.582 GHz	42.11 Av	6.01 / 32.21 / 47.69 / 0.0	32.64	V / 1.00 / 0	-21.36
3.666 GHz	43.36 Av	5.41 / 31.5 / 48.67 / 0.0	31.59	V / 1.00 / 0	-22.41
2.749 GHz	46.09 Av	4.61 / 29.42 / 49.65 / 0.0	30.47	V / 1.00 / 0	-23.53
1.833 GHz	45.93 Av	4.04 / 27.0 / 50.55 / 0.0	26.42	V / 1.00 / 0	-27.58
1.833 GHz	52.95 Pk	4.04 / 27.0 / 50.55 / 0.0	33.44	V / 1.00 / 0	-20.56*
2.749 GHz	54.9 Pk	4.61 / 29.42 / 49.65 / 0.0	39.28	V / 1.00 / 0	-14.72*
3.666 GHz	51.25 Pk	5.41 / 31.5 / 48.67 / 0.0	39.48	V / 1.00 / 0	-14.52*
4.582 GHz	50.15 Pk	6.01 / 32.21 / 47.69 / 0.0	40.68	V / 1.00 / 0	-13.32*
5.499 GHz	47.85 Pk	6.85 / 33.41 / 46.7 / 0.0	41.41	V / 1.00 / 0	-12.59*
6.415 GHz	50.7 Pk	7.58 / 34.62 / 46.38 / 0.0	46.52	V / 1.00 / 0	-7.48*
7.332 GHz	50.1 Pk	8.07 / 35.82 / 47.1 / 0.0	46.9	V / 1.00 / 0	-7.1*
8.248 GHz	50.1 Pk	8.85 / 36.85 / 46.95 / 0.0	48.85	V / 1.00 / 0	-5.15*
9.165 GHz	49.4 Pk	9.7 / 37.4 / 46.65 / 0.0	49.85	V / 1.00 / 0	-4.15*

* Peak measurement against an average limit

Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 2	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 run 2 rev.dat			Page:	3 of 4

Measurement summary for limit2: 15.249 902-928 >1ghz-pk 3m (Pk)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA2 15.249 902-928 >1ghz-pk 3m
9.165 GHz	49.4 Pk	9.7 / 37.4 / 46.65 / 0.0	49.85	V / 1.00 / 0	-24.15
8.248 GHz	50.1 Pk	8.85 / 36.85 / 46.95 / 0.0	48.85	V / 1.00 / 0	-25.15
7.332 GHz	50.1 Pk	8.07 / 35.82 / 47.1 / 0.0	46.9	V / 1.00 / 0	-27.1
6.415 GHz	50.7 Pk	7.58 / 34.62 / 46.38 / 0.0	46.52	V / 1.00 / 0	-27.48
5.499 GHz	47.85 Pk	6.85 / 33.41 / 46.7 / 0.0	41.41	V / 1.00 / 0	-32.59
4.582 GHz	50.15 Pk	6.01 / 32.21 / 47.69 / 0.0	40.68	V / 1.00 / 0	-33.32
3.666 GHz	51.25 Pk	5.41 / 31.5 / 48.67 / 0.0	39.48	V / 1.00 / 0	-34.52
2.749 GHz	54.9 Pk	4.61 / 29.42 / 49.65 / 0.0	39.28	V / 1.00 / 0	-34.72
1.833 GHz	52.95 Pk	4.04 / 27.0 / 50.55 / 0.0	33.44	V / 1.00 / 0	-40.56

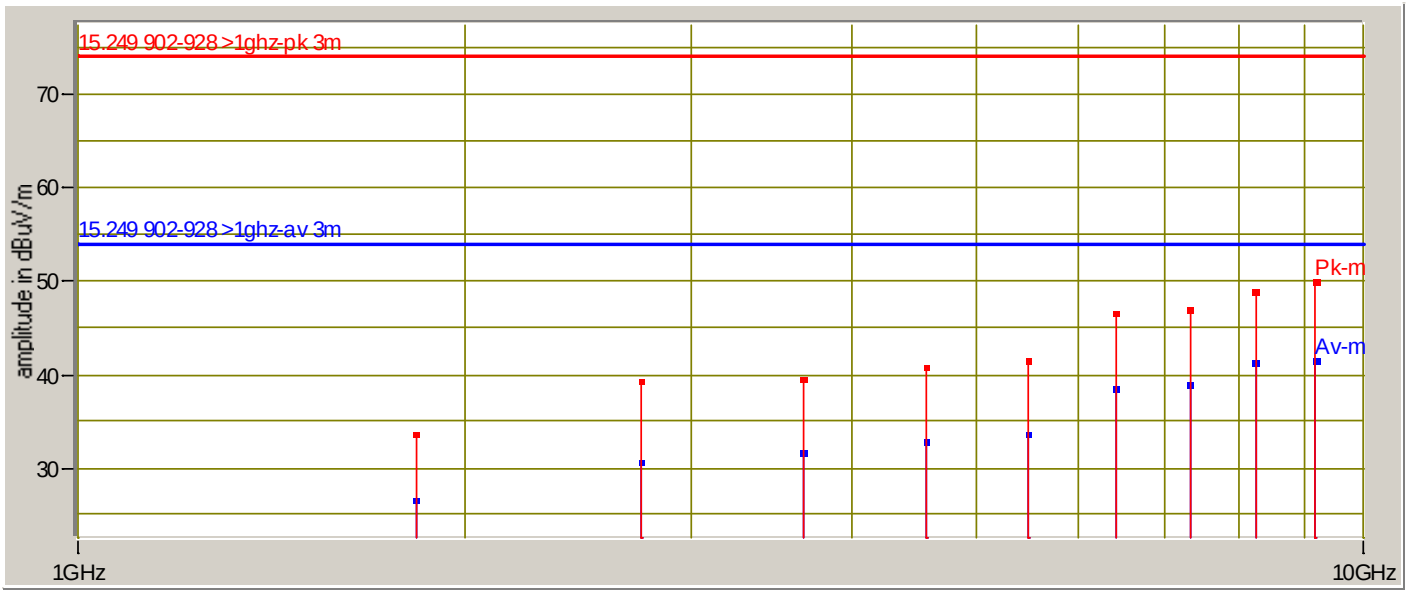
Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 2	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 run 2 rev.dat			Page:	4 of 4

Graph:



Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

Field strength of emissions - spurious
FCC 15.249(d), , IC RSS-210 A2.9

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Minimum margin of compliance is > 10 dB from 30 - 9165 MHz
No spurious emissions detected above the measurement noise floor

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	19-Oct-06
3847	ZHL-1042J	Mini-Circuits	Preamplifier 10 - 3000 MHz	0607	Code B
2690	8566B	Hewlett-Packard	Spectrum Analyzer	2430A00930	12 May 07
2673	85662A	Hewlett-Packard	Analyzer Display	2152A03687	12 May 07
2684	85650A	Hewlett-Packard	Quasi-Peak Adapter	2521A01006	15 Mar 07
2075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	07-Dec-06
3958	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0002	Code B
3371	E4440A	Agilent	Spectrum Analyzer	MY43362222	03 Nov 06

Code B = Calibration verification performed internally. Code Y = Calibration not required when used with other calibrated equipment

Test limit

Frequncy (MHz)	Field strength (μV/meter)	Field strength (dB μV/meter)
30 - 88	100	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

Test data
Pages 14 - 20

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 3	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 r2 spurious.dat			Page:	1 of 7

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
NOISE FLOOR MEASUREMENTS:						
30.0 MHz	32.65 Qp	0.45 / 21.1 / 30.14 / 0.0	24.06	V / 1.00 / 0	-15.94	n/a
75.0 MHz	32.8 Qp	0.7 / 8.72 / 29.5 / 0.0	12.72	V / 1.00 / 0	-27.28	n/a
115.0 MHz	30.7 Qp	0.88 / 9.1 / 29.56 / 0.0	11.12	V / 1.00 / 0	-32.38	n/a
200.0 MHz	30.85 Qp	1.17 / 9.87 / 29.56 / 0.0	12.33	V / 1.00 / 0	-31.17	n/a
280.0 MHz	28.55 Qp	1.4 / 12.32 / 29.69 / 0.0	12.58	V / 1.00 / 0	-33.42	n/a
380.0 MHz	28.4 Qp	1.62 / 15.38 / 29.85 / 0.0	15.55	V / 1.00 / 0	-30.45	n/a
480.0 MHz	28.4 Qp	1.84 / 17.43 / 30.01 / 0.0	17.66	V / 1.00 / 0	-28.34	n/a
550.0 MHz	28.55 Qp	1.98 / 18.0 / 30.12 / 0.0	18.41	V / 1.00 / 0	-27.59	n/a
650.0 MHz	28.35 Qp	2.12 / 19.42 / 30.13 / 0.0	19.76	V / 1.00 / 0	-26.24	n/a
750.0 MHz	28.15 Qp	2.31 / 20.78 / 29.99 / 0.0	21.25	V / 1.00 / 0	-24.75	n/a
850.0 MHz	28.05 Qp	2.41 / 21.79 / 29.85 / 0.0	22.4	V / 1.00 / 0	-23.6	n/a
950.0 MHz	27.95 Qp	2.57 / 22.9 / 29.72 / 0.0	23.7	V / 1.00 / 0	-22.3	n/a
1.833 GHz	45.93 Av	4.04 / 27.0 / 50.55 / 0.0	26.42	V / 1.00 / 0	n/a	-27.58
1.833 GHz	52.95 Pk	4.04 / 27.0 / 50.55 / 0.0	33.44	V / 1.00 / 0	n/a	-20.56*
2.749 GHz	46.09 Av	4.61 / 29.42 / 49.65 / 0.0	30.47	V / 1.00 / 0	n/a	-23.53
2.749 GHz	54.9 Pk	4.61 / 29.42 / 49.65 / 0.0	39.28	V / 1.00 / 0	n/a	-14.72*
3.666 GHz	43.36 Av	5.41 / 31.5 / 48.67 / 0.0	31.59	V / 1.00 / 0	n/a	-22.41
3.666 GHz	51.25 Pk	5.41 / 31.5 / 48.67 / 0.0	39.48	V / 1.00 / 0	n/a	-14.52*
4.582 GHz	42.11 Av	6.01 / 32.21 / 47.69 / 0.0	32.64	V / 1.00 / 0	n/a	-21.36
4.582 GHz	50.15 Pk	6.01 / 32.21 / 47.69 / 0.0	40.68	V / 1.00 / 0	n/a	-13.32*
5.499 GHz	39.99 Av	6.85 / 33.41 / 46.7 / 0.0	33.55	V / 1.00 / 0	n/a	-20.45
5.499 GHz	47.85 Pk	6.85 / 33.41 / 46.7 / 0.0	41.41	V / 1.00 / 0	n/a	-12.59*
6.415 GHz	42.49 Av	7.58 / 34.62 / 46.38 / 0.0	38.31	V / 1.00 / 0	n/a	-15.69
6.415 GHz	50.7 Pk	7.58 / 34.62 / 46.38 / 0.0	46.52	V / 1.00 / 0	n/a	-7.48*
7.332 GHz	42.13 Av	8.07 / 35.82 / 47.1 / 0.0	38.93	V / 1.00 / 0	n/a	-15.07
7.332 GHz	50.1 Pk	8.07 / 35.82 / 47.1 / 0.0	46.9	V / 1.00 / 0	n/a	-7.1*

Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 3	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 r2 spurious.dat			Page:	2 of 7

List of measurements for run #: 2

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m	DELTA2 FCC B >1GHz 3m
8.248 GHz	42.36 Av	8.85 / 36.85 / 46.95 / 0.0	41.11	V / 1.00 / 0	n/a	-12.89
8.248 GHz	50.1 Pk	8.85 / 36.85 / 46.95 / 0.0	48.85	V / 1.00 / 0	n/a	-5.15*
9.165 GHz	40.96 Av	9.7 / 37.4 / 46.65 / 0.0	41.41	V / 1.00 / 0	n/a	-12.59
9.165 GHz	49.4 Pk	9.7 / 37.4 / 46.65 / 0.0	49.85	V / 1.00 / 0	n/a	-4.15*
End of noise floor measurments.						

* Peak measurement against an average limit

Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 3	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 r2 spurious.dat			Page:	3 of 7

Measurement summary for limit1: FCC-B <1GHz 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA1 FCC-B <1GHz 3m
30.0 MHz	32.65 Qp	0.45 / 21.1 / 30.14 / 0.0	24.06	V / 1.00 / 0	-15.94
950.0 MHz	27.95 Qp	2.57 / 22.9 / 29.72 / 0.0	23.7	V / 1.00 / 0	-22.3
850.0 MHz	28.05 Qp	2.41 / 21.79 / 29.85 / 0.0	22.4	V / 1.00 / 0	-23.6
750.0 MHz	28.15 Qp	2.31 / 20.78 / 29.99 / 0.0	21.25	V / 1.00 / 0	-24.75
650.0 MHz	28.35 Qp	2.12 / 19.42 / 30.13 / 0.0	19.76	V / 1.00 / 0	-26.24
75.0 MHz	32.8 Qp	0.7 / 8.72 / 29.5 / 0.0	12.72	V / 1.00 / 0	-27.28
550.0 MHz	28.55 Qp	1.98 / 18.0 / 30.12 / 0.0	18.41	V / 1.00 / 0	-27.59
480.0 MHz	28.4 Qp	1.84 / 17.43 / 30.01 / 0.0	17.66	V / 1.00 / 0	-28.34
380.0 MHz	28.4 Qp	1.62 / 15.38 / 29.85 / 0.0	15.55	V / 1.00 / 0	-30.45
200.0 MHz	30.85 Qp	1.17 / 9.87 / 29.56 / 0.0	12.33	V / 1.00 / 0	-31.17
115.0 MHz	30.7 Qp	0.88 / 9.1 / 29.56 / 0.0	11.12	V / 1.00 / 0	-32.38
280.0 MHz	28.55 Qp	1.4 / 12.32 / 29.69 / 0.0	12.58	V / 1.00 / 0	-33.42

Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 3	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 r2 spurious.dat			Page:	4 of 7

Measurement summary for limit2: FCC B >1GHz 3m (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	DELTA2 FCC B >1GHz 3m
9.165 GHz	40.96 Av	9.7 / 37.4 / 46.65 / 0.0	41.41	V / 1.00 / 0	-12.59
8.248 GHz	42.36 Av	8.85 / 36.85 / 46.95 / 0.0	41.11	V / 1.00 / 0	-12.89
7.332 GHz	42.13 Av	8.07 / 35.82 / 47.1 / 0.0	38.93	V / 1.00 / 0	-15.07
6.415 GHz	42.49 Av	7.58 / 34.62 / 46.38 / 0.0	38.31	V / 1.00 / 0	-15.69
5.499 GHz	39.99 Av	6.85 / 33.41 / 46.7 / 0.0	33.55	V / 1.00 / 0	-20.45
4.582 GHz	42.11 Av	6.01 / 32.21 / 47.69 / 0.0	32.64	V / 1.00 / 0	-21.36
3.666 GHz	43.36 Av	5.41 / 31.5 / 48.67 / 0.0	31.59	V / 1.00 / 0	-22.41
2.749 GHz	46.09 Av	4.61 / 29.42 / 49.65 / 0.0	30.47	V / 1.00 / 0	-23.53
1.833 GHz	45.93 Av	4.04 / 27.0 / 50.55 / 0.0	26.42	V / 1.00 / 0	-27.58
1.833 GHz	52.95 Pk	4.04 / 27.0 / 50.55 / 0.0	33.44	V / 1.00 / 0	-20.56*
2.749 GHz	54.9 Pk	4.61 / 29.42 / 49.65 / 0.0	39.28	V / 1.00 / 0	-14.72*
3.666 GHz	51.25 Pk	5.41 / 31.5 / 48.67 / 0.0	39.48	V / 1.00 / 0	-14.52*
4.582 GHz	50.15 Pk	6.01 / 32.21 / 47.69 / 0.0	40.68	V / 1.00 / 0	-13.32*
5.499 GHz	47.85 Pk	6.85 / 33.41 / 46.7 / 0.0	41.41	V / 1.00 / 0	-12.59*
6.415 GHz	50.7 Pk	7.58 / 34.62 / 46.38 / 0.0	46.52	V / 1.00 / 0	-7.48*
7.332 GHz	50.1 Pk	8.07 / 35.82 / 47.1 / 0.0	46.9	V / 1.00 / 0	-7.1*
8.248 GHz	50.1 Pk	8.85 / 36.85 / 46.95 / 0.0	48.85	V / 1.00 / 0	-5.15*
9.165 GHz	49.4 Pk	9.7 / 37.4 / 46.65 / 0.0	49.85	V / 1.00 / 0	-4.15*

* Peak measurement against an average limit

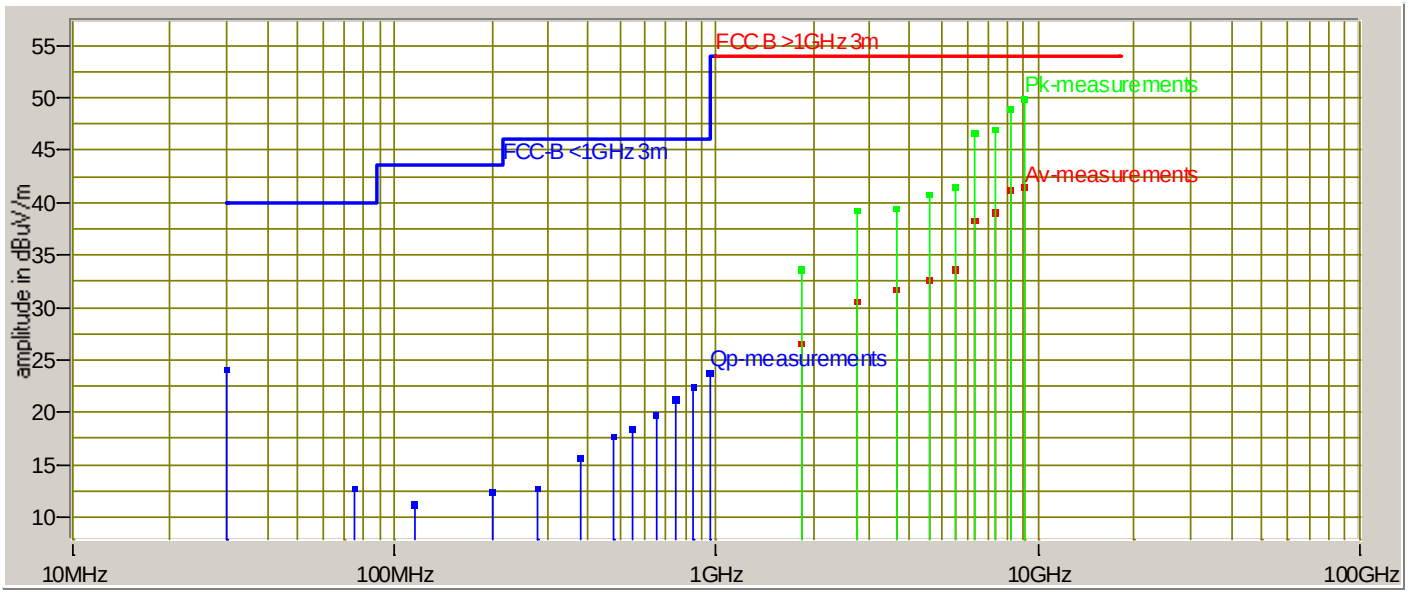
Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 3	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 r2 spurious.dat			Page:	5 of 7

Graph:

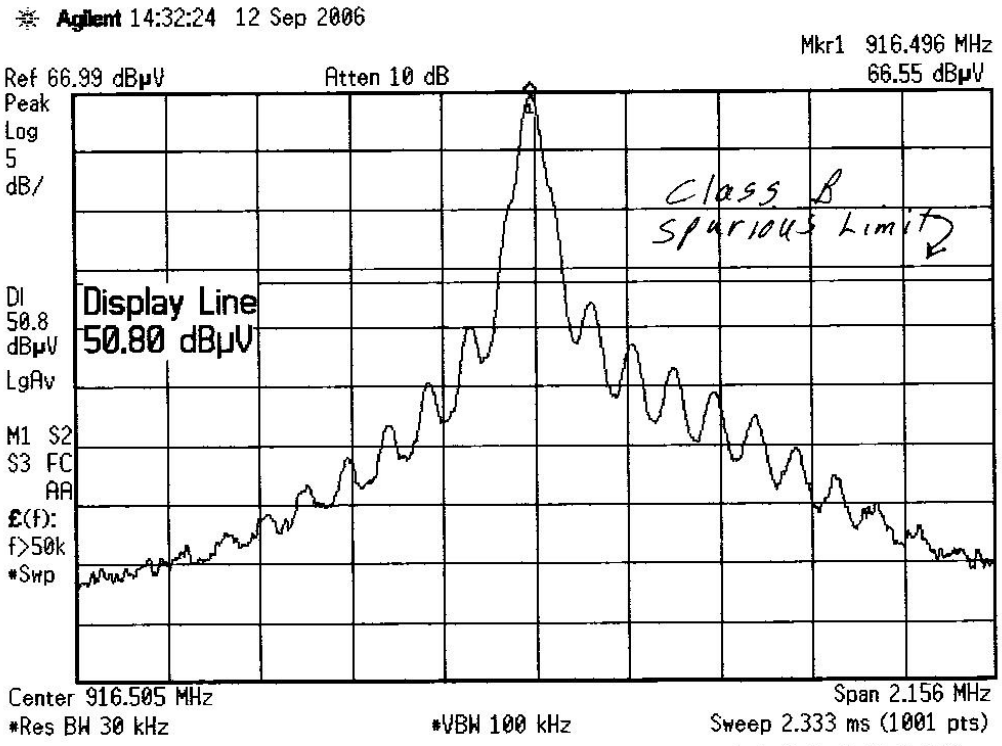


Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 3	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 r2 spurious.dat			Page:	6 of 7

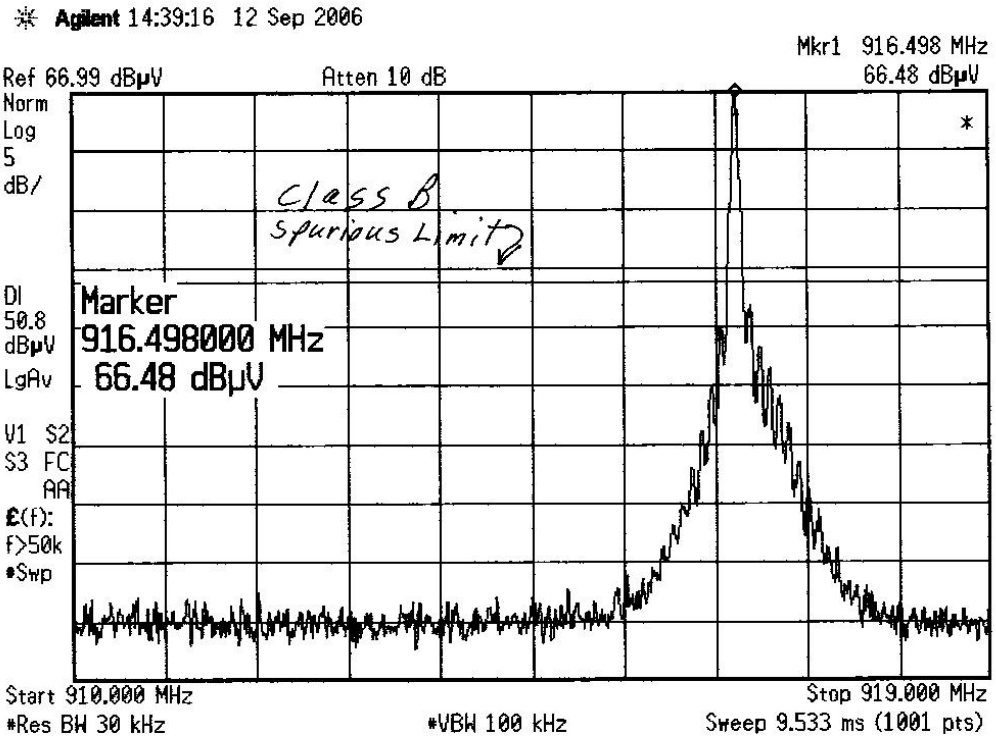


Bandedge Plot.

Tested by:	J. C. Sausen	J C Sausen	
	Printed	Signature	
Reviewed by:	Greg Jakubowski	G Jakubowski	
	Printed	Signature	

RADIATED EMISSIONS

Test Report #:	WC605218.1 Run 3	Test Area:	LTS		
EUT Model #:	2010	Date:	9/12/2006		
EUT Serial #:	1010	EUT Power:	Internal battery	Temperature:	23.0 °C
Test Method:	FCC 15.249			Air Pressure:	99.0 kPa
Customer:	Transoma Medical			Rel. Humidity:	45.0 %
EUT Description:	916.5 MHz transmitter				
Notes:	NOISE FLOOR MEASUREMENTS:				
Data File Name:	5218.1 r2 spurious.dat			Page:	7 of 7



Bandedge Plot.

Tested by: J. C. Sausen — Printed — Signature

Reviewed by: Greg Jakubowski — Printed — Signature

Peak field strength of any emission > 1 GHz
FCC 15.249(e)

Test summary
The requirements are: ■ - MET ☐ - NOT MET
No emissions detected above the measurement noise floor
All peak measurements are within 20 dB of the average noise floor measurements

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test Distance
■ - 3 meters
☐ - 10 meters

Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	19-Oct-06
2075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	07-Dec-06
3847	ZHL-1042J	Mini-Circuits	Preamplifier 10 - 3000 MHz	0607	Code B
3958	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0002	Code B
2684	85650A	Hewlett-Packard	Quasi-Peak Adapter	2521A01006	15 Mar 07
2690	8566B	Hewlett-Packard	Spectrum Analyzer	2430A00930	12 May 07
2673	85662A	Hewlett-Packard	Analyzer Display	2152A03687	12 May 07

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

Test limit
Peak field strength shall not exceed the average limits by more than 20 dB

Test data
Pages 14 - 18

Occupied bandwidth
RSS-Gen 4.4.1

Test summary
The requirements are: ■ - MET ☐ - NOT MET
Occupied Bandwidth = 316 kHz

Test location
■ - Wild River Lab Large Test Site (Open Area Test Site)
☐ - Wild River Lab Small Test Site (Open Area Test Site)

Test Distance
■ - 3 meters
☐ - 10 meters

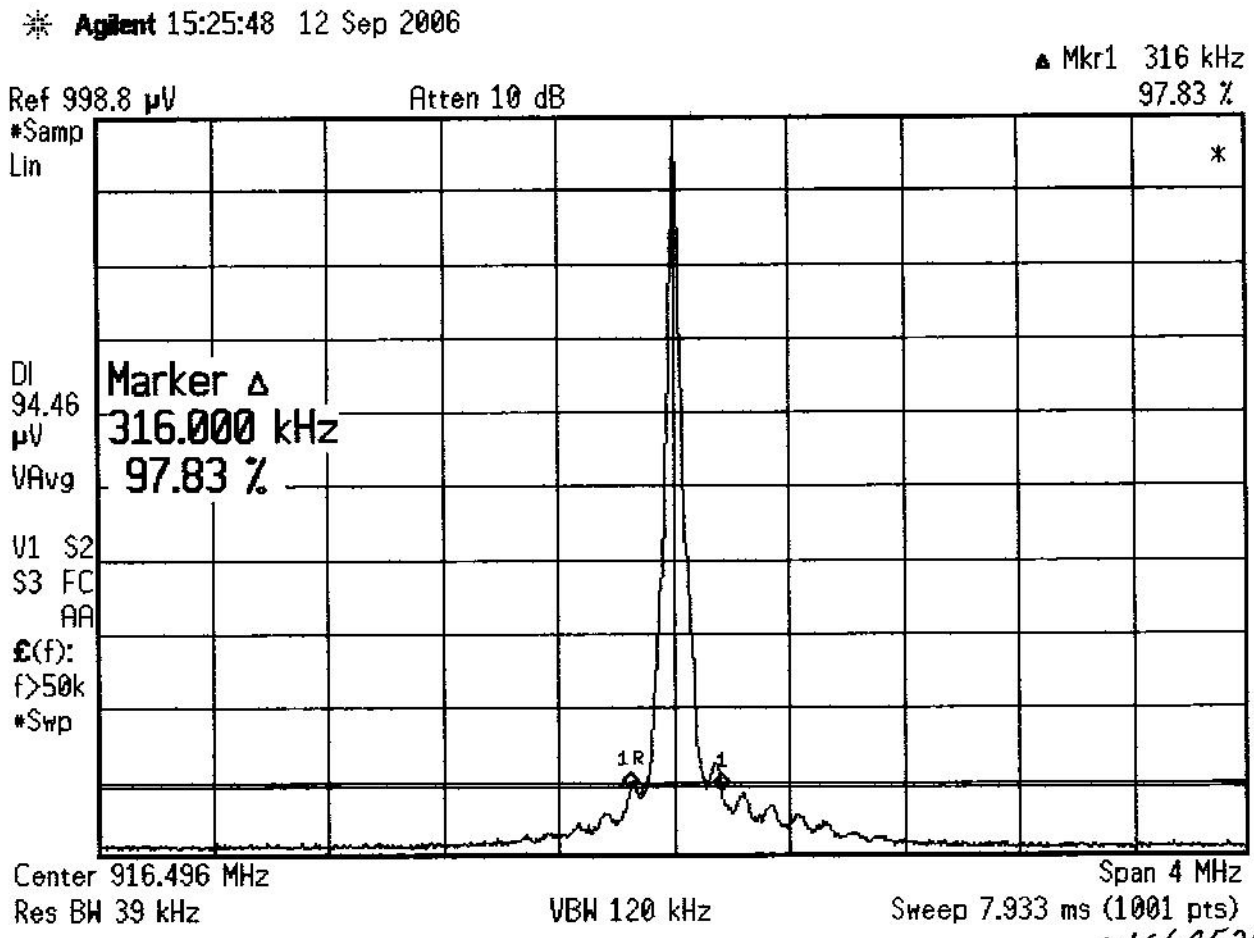
Test equipment

TUV ID	Model Number	Manufacturer	Description	Serial Number	Cal Due
3204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	19-Oct-06
3847	ZHL-1042J	Mini-Circuits	Preamplifier 10 - 3000 MHz	0607	Code B
3371	E4440A	Agilent	Spectrum Analyzer	MY43362222	03 Nov 06

Cal Code B = Calibration verification performed internally. Cal Code Y = Calibration not required when used with other calibrated equipment.

Test limit
No limit specified

Test data
Page 23



WC605218

I.C. RSS-210 Bandwidth Plot

RSS-Gen Sect. 4.4.1

TEST SETUP FOR EMISSIONS TESTING

WILD RIVER LAB
Large Test Site

Notes:

1. Items shown in dotted lines are located on the floor below the test area. It is 5 meters vertically from the ground floor to the test area.

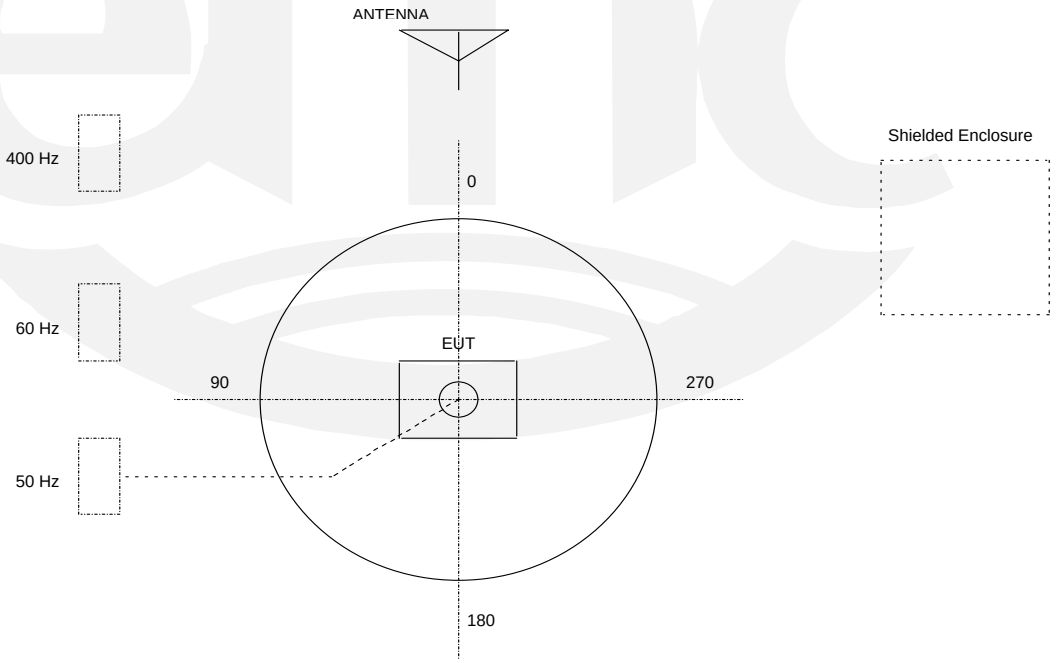
2. 50 Hz, 60 Hz, and 400 Hz are power panels for alternating current.

3. The antenna may be positioned horizontally 3, 10 or 30 meters from the center of the turntable.

4. The circle is a 6.7 meter diameter turntable.

5. A ground plane is in the plane of this sheet.

6. The test sample is shown in the azimuthal position representing zero degrees.



Equipment Under Test (EUT) Test Operation Mode:

The device under test was operated under the following conditions during immunity testing :

☐ - Standby

☐ - Test program (H - Pattern)

☐ - Test program (color bar)

☐ - Test program (customer specific)

☐ - Practice operation

■ - Transmitting data at 916 MHz

Configuration of the device under test:

■ - See Appendix A & Test setup photos

☐ - See Product Information Form(s) in Appendix B

DEVIATIONS FROM STANDARD:

None.

GENERAL REMARKS:

Modifications required to pass:

■ None

☐ As indicated on the data sheet(s)

Test Specification Deviations: Additions to or Exclusions from:

■ None

☐ As indicated in the Test Plan

SUMMARY:

The requirements according to the technical regulations are

■ - met and the device under test does fulfill the general approval requirements.

☐ - **not** met and the device under test does **not** fulfill the general approval requirements..

EUT Received Date:	12 September 2006
Condition of EUT:	Normal
Testing Start Date:	12 September 2006
Testing End Date:	12 September 2006

TÜV AMERICA INC

Joe Sausen
EMC Senior Technician

Joel Schneider
Senior EMC Engineer

Appendix A

Constructional Data Form

Form

EMC Test Plan and Constructional Data Form

PLEASE COMPLETE THIS DOCUMENT IN FULL, ENTERING N/A IF THE FIELD IS NOT APPLICABLE. IF TESTING RESULTS IN MODIFICATIONS TO THE EQUIPMENT, PLEASE SUBMIT A REVISED TP/CDF INDICATING THOSE MODIFICATIONS.
NOTE: This information will be input into your test report as shown below. Press the F1 key at any time to get HELP for the current field selected.

Company:	Transoma Medical		
Address:	4358 West Round Lake Rd		
	Arden Hills, MN 55112		
Contact:	Luke Strawn	Position:	Electrical Design Engineer
Phone:	651-481-7410	Fax:	651-481-7416
E-mail Address:	lstrawn@transomamedical.com		

General Equipment Description -- ***NOTE: This information will be input into your test report as shown below.***

EUT Description	Implantable Medical Device (IMD)
EUT Name	Sleuth
Model No.:	2010 Serial No.: 001010
Product Options:	
Configurations to be tested:	Transmitting at 916MHz

Equipment Modification (*If applicable, indicate modifications since EUT was last tested. If modifications are made during this testing, submit revised TP/CDF after testing is complete.)*

Modifications since last test:

Modifications made during test:

Test Objective(s): ***Please indicate the tests to be performed, entering the applicable standard(s) where noted.***

- ☐ EMC Directive 89/336/EEC (EMC) Std:
- ☐ Machinery Directive 89/392/EEC (EMC Std:
- ☐ Medical Device Directive 93/42/EEC (EMC) Std: IEC 60601-1-2
- ☐ Vehicle Directive 72/245/EEC (EMC) Std:
- ☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC)

- ☒ FCC: Class ☐ A ☒ B Part 15
- ☐ VCCI: Class ☐ A ☐ B
- ☐ BSMI: Class ☐ A ☐ B
- ☐ Canada: Class ☐ A ☐ B
- ☐ Australia: Class ☐ A ☐ B
- ☐ Other:

Third Party Certification, if applicable (*Signature on Page 6 Required)

- ☐ Attestation of Conformity (AoC)*
- ☐ Certificate of Conformity (CoC)*
- Protection Class (N/A for vehicles) ☐ Class I ☐ Class II ☐ Class III
  (Press **F1** when field is selected to show additional information on Protection Class.)
- ☒ FCC / TCB Certification
- ☐ E-Mark Certification
- ☐ EMC Certification (used with Octagon Mark)*
- ☐ Compliance Document*
- ☐ Industry Canada / FCB Certification
- ☐ Taiwan Certification

Form

EMC Test Plan and Constructional Data Form

Attendance

Test will be: ☒ Attended by the customer ☐ Unattended by the customer

Failure - *Complete this section if testing will not be attended by the customer.*

If a failure occurs, TÜV America should:

☐ Call contact listed above, if not available then stop testing. (After hrs phone): _____

☐ Continue testing to complete test series.

☐ Continue testing to define corrective action.

☐ Stop testing.

EUT Specifications and Requirements

Length: 39mm Width: 6.8mm Height: 41.05mm Weight: 16 g

Power Requirements

Regulations require testing to be performed at typical power ratings in the countries of intended use. (i.e., European power is typically 230 VAC 50 Hz or 400 VAC 50 Hz, single and three phase, respectively)

Voltage: 3V DC Battery (If battery powered, make sure battery life is sufficient to complete testing.)

# of Phases: _____

Current (Amps/phase(max)): 8mA Current (Amps/phase(nominal)): 15uA

Other _____

Other Special Requirements

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)

The IMD is intended to be implanted in a human chest cavity

EUT Power Cable

☐ Permanent OR ☐ Removable Length (in meters): _____

☐ Shielded OR ☐ Unshielded

☒ Not Applicable

EMC Test Plan and Constructional Data Form

EUT Interface Ports and Cables

Type	Analog	Digital	During Test: Active	During Test: Passive	Qty	Shielding: Yes	Shielding: No	Shielding: Type	Termination	Connector Type	Port Termination	Length tested (in meters)	Removable	Permanent
EXAMPLE: *RS232*	☐	☒	☒	☐	*2*	☒	☐	*Foil over braid*	*Coaxial*	*Metallized 9-pin D-Sub*	*Characteristic Impedance*	*6*	☒	☐
NA	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐
	☐	☐	☐	☐		☐	☐						☐	☐

EMC Test Plan and Constructional Data Form

EUT Software.

Revision Level:

Description:

Equipment Under Test (EUT) Operating Modes to be Tested -- list the operating modes to be used during test. It is recommended the equipment be tested while operating in a typical operation mode. FCC testing of personal computers and/or peripherals requires that a simple program generate a complete line of upper case H's. Provide a general description of all software, firmware, and PLD algorithms used in the equipment. List all code modules as described above, with the revision level used during testing. Consult with your TÜV Product Service Representative if additional assistance is required.

1. The IMD will be tested transmitting data at 916MHz.

2.

3.

Equipment Under Test (EUT) System Components -- List and describe all components which are part of the EUT. For FCC & Taiwan testing a minimum configuration is required. (ie. Mouse, Printer, Monitor, External Disk Drive, Motherboard, etc)

Description	Model #	Serial #	FCC ID #

EMC Test Plan and Constructional Data Form

Support Equipment -- List and describe all support equipment which is not part of the EUT. (i.e. peripherals, simulators, etc) This information is required for FCC & Taiwan testing.

Description	*Model #*	*Serial #*	*FCC ID #*

Oscillator Frequencies

Frequency	*Derived Frequency*	*Component # / Location*	*Description of Use*
32.768kHz		Y1	ASIC Oscillator

Power Supply

Manufacturer	*Model #*	*Serial #*	*Type*
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____

Power Line Filters

Manufacturer	*Model #*	*Location in EUT*

EMC Test Plan and Constructional Data Form

Critical EMI Components (Capacitors, ferrites, etc.)				
Description	***Manufacturer***	***Part # or Value***	***Qty***	***Component # / Location***
TVS Diode	Rohm	RSB6.8S	1	D1

EMC Critical Detail -- Describe other EMC Design details used to reduce high frequency noise.

(PLEASE INSERT "**ELECTRONIC SIGNATURE**" BELOW IF POSSIBLE)

Authorization Signatures (Signature Required for Certifications checked on pg 1)

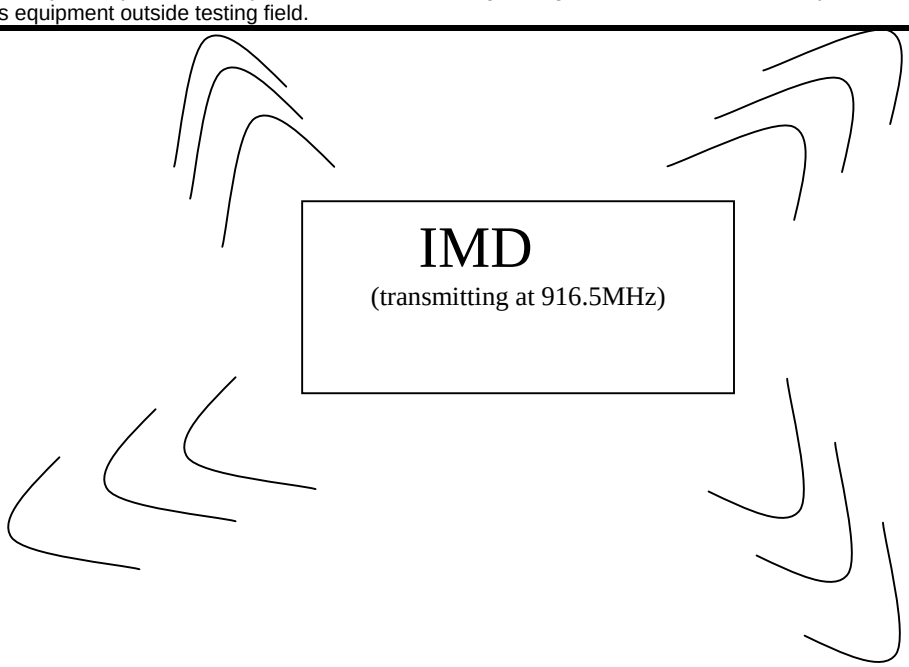
Customer authorization to perform tests according to this test plan. — Date

Test Plan/CDF Prepared By (please print) — Date

Form

EMC Block Diagram Form

System Configuration Block Diagram -- Provide a line drawing identifying the EUT, simulators, support equipment, I/O cables, power cables, and any other pertinent components to be used during testing. Use a dashed line to separate the equipment in the testing field versus equipment outside testing field.



Authorization Signatures

Customer authorization to perform tests according to this test plan.	Date
Test Plan/CDF Prepared By (please print)	Date

Appendix B

Measurement Protocol

MEASUREMENT PROTOCOL

GENERAL INFORMATION

Test Methodology

Emissions testing is performed according to the procedures in ANSI C63.4-2003.

Measurement Uncertainty

The test system for conducted emissions is defined as the LISN, tuned receiver or spectrum analyzer, and coaxial cable. The test system has a measurement uncertainty of ±1.8 dB. The test system for radiated emissions is defined as the antenna, the pre-amplifier, the spectrum analyzer and the coaxial cable. The test system has a measurement uncertainty of ±4.8 dB. The equipment comprising the test systems is calibrated on an annual basis.

Justification

The Equipment Under Test (EUT) is configured in a typical user arrangement in accordance with the manufacturer's instructions. A cable is connected to each available port and either terminated with a peripheral into its characteristic impedance or left unterminated. When appropriate, the cables are manually manipulated with respect to each other to obtain maximum emissions from the unit.

Conducted Emissions

The final level, in dBμV, equals the EMI receiver level plus the cable loss and LISN factor.

Radiated Emissions

The final level, in dBμV/m, equals the reading from the spectrum analyzer (Level dBμV), adding the antenna correction factor and cable loss factor (Factor dB) to it, and subtracting the preamp gain (and duty cycle correction factor, if applicable). This result then has the limit subtracted from it to provide the Delta, which gives the tabular data as shown in the data sheets in Attachment A.

Example:

FREQ (MHz)	LEVEL (dBuV)		CABLE/ANT/PREAMP (dB)	(dB/m)	(dB)		FINAL (dBuV/m)	POL/HGT/AZ	(m)	(deg)	DELTA1
60.80	42.5Qp	+	1.2	+ 10.9	- 25.5	=	29.1	V	1.0	0.0	-10.9

Test Equipment

All measurement instrumentation is traceable to the National Institute of Standards and Technology and is calibrated according to internal procedure.