

TEST REPORT

FCC Part 15 Subpart C Section 15.249

IC RSS-210 Issue 8

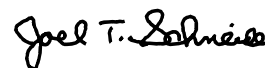
IC RSS-Gen Issue 3

MANUFACTURER'S NAME	Data Sciences International 119 14 th Street St Paul MN 55112
PRODUCT NAME	M-Series M-11 Physio Tel Digital implant transceiver
MODEL NUMBER(S) TESTED FCC ID:MHAPTDM1	M11-F1
SERIAL NUMBER(S) TESTED	726698
PRODUCT DESCRIPTION	909-921 MHz transceiver
TEST REPORT NUMBER	NC1402456.1
TEST DATE(S)	25-26 March 2014

TÜV SÜD 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 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 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment" and IC RSS-Gen "General Requirements and Information for the Certification of Radiocommunication Equipment".

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.

Date: 28 April 2014



Location: Taylors Falls MN
USA

Greg Jakubowski
Senior EMC Technician

Joel T Schneider
Senior EMC Engineer

Not Transferable

EMC TEST REPORT

Test Report No. NC1402456.1 Date of issue: 28 April 2014

Product Name M-Series M-11 Physio Tel Digital implant transceiver

Model(s) Tested M11-F1

Serial No(s) Tested 726698

Product Description 909-921 MHz transceiver

Manufacturer Data Sciences International
119 14th Street
St Paul MN 55112

Test Result ☒ **Positive** ☐ **Negative**

TÜV SÜD 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 SÜD America Inc shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD 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. TÜV SÜD America's Wild River Lab maintains A2LA accreditation to ISO/IEC 17025 for the specific tests listed in A2LA Certificate #2955.11 as an Electrical Testing Laboratory.

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

REVISION RECORD

REVISION	TOTAL NUMBER OF PAGES	DATE	DESCRIPTION
	25	28 April 2014	Initial Release



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EMC TEST REGULATIONS:

The tests were performed according to the following regulations:

FCC Part 15 Subpart C Section 15.249 Paragraph (a), (d)

FCC Part 15 Subpart C Section 15.207 Paragraphs (a)

FCC Part 15 Subpart B Section 15.109

IC RSS-210 Issue 8 Section A2.9 (a), (b)

IC RSS-Gen Issue 3 Sections 4.6.1, 7.2.5

ENVIRONMENTAL CONDITIONS IN THE LAB

	<u>Actual</u>
Temperature:	: 20°C
Atmospheric pressure	: 100kPa
Relative Humidity	: 35%

POWER SUPPLY UTILIZED

Power supply system : 3 VDC

TEST EQUIPMENT

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

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

SIGN EXPLANATIONS

- ☐ - not applicable
- ☒ - applicable

Field strength of fundamental/harmonics

FCC 15.249(a), IC RSS-210 A2.9(a)

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2009, clause 8.2.3, 8.2.4. The implantable transmitter was tested in a body simulator.

Maximum field strength of the fundamental is 78.83 dB μ V/m (8.74 mV/m) at 915.384 MHz.

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

Test equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
WRLE03204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	30-May-13
WRLE11146	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01299	04-Mar-14
WRLE03295	85662A	Hewlett-Packard	Analyzer Display	2349A06144	22-Apr-13
WRLE02689	8566B	Hewlett-Packard	Spectrum Analyzer	2416A00321	22-Apr-13
WRLE02670	8447D	Hewlett-Packard	Preamplifier	2443A03954	Code B 20-Jan-14
WRLE10527	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0001	Code B 23-Jan-14
WRLE02075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	24-Feb-14
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.71	N/A	Code Y

Test limit

Fundamental Frequency (MHz)	Field strength of fundamental mV/m	Field strength of harmonics μ V/m
902-928	50	500

Field strength limits are specified at a distance of 3 meters. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands above 1000 MHz. As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT is rotated 360 degrees. The transmitter is rotated through 3 orthogonal axes to determine worst case.

Test Data

see next page

Measurement summary for limit1: FCC 15.249 <1GHz 902-928 3m (Qp)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (mV/m)	LIMIT (mV/m)
915.384 MHz	46.86 Qp	3.52 / 28.45 / 0.0 / 0.0	78.83	V / 1.19 / 2	8.74	50
909.015 MHz	76.46 Qp	3.51 / 28.3 / 30.4 / 0.0	77.87	V / 1.20 / 6	7.82	50
920.85 MHz	75.26 Qp	3.53 / 28.57 / 30.4 / 0.0	76.96	V / 1.14 / 8	7.04	50

Tx on, determine worst case orientation

DUT in dielectric fluid, 1/2" from bucket wall

DUT and its antenna vertical

915.384 MHz	46.86 Qp	3.52 / 28.45 / 0.0 / 0.0	78.83	V / 1.19 / 2	-15.17	n/a
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DUT and its antenna horizontal

maximized

915.384 MHz	45.68 Qp	3.52 / 28.45 / 0.0 / 0.0	77.65	H / 1.00 / 64	-16.35	n/a
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DUT and its antenna vertical for rest of test

Measurement summary for limit1: FCC 15.209 >1GHz 3m av (Av)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μV/m)	LIMIT (μV/m)
4.577 GHz	46.75 Av	8.62 / 32.44 / 43.93 / 0.0	43.88	V / 1.10 / 342	156	500
4.545 GHz	46.55 Av	8.59 / 32.39 / 43.97 / 0.0	43.56	V / 1.10 / 345	151	500
2.746 GHz	51.09 Av	6.24 / 29.09 / 43.66 / 0.0	42.76	V / 1.00 / 0	137	500
4.604 GHz	43.25 Av	8.65 / 32.49 / 43.9 / 0.0	40.48	V / 1.10 / 336	106	500
5.492 GHz	39.78 Av	9.55 / 33.89 / 43.12 / 0.0	40.1	V / 1.00 / 0	101	500
2.763 GHz	46.8 Av	6.26 / 29.13 / 43.68 / 0.0	38.5	V / 1.00 / 353	84	500
2.727 GHz	45.38 Av	6.22 / 29.05 / 43.64 / 0.0	37.01	V / 1.00 / 0	70	500
3.661 GHz	47.1 Pk	7.39 / 31.51 / 43.6 / 0.0	42.4	V / 2.00 / 0	132	500

Measurement summary for limit2: FCC 15.209 >1GHz 3m pk (Pk)

FREQ	LEVEL (dBuV)	CABLE / ANT / PREAMP / ATTEN (dB)	FINAL (dBuV / m)	POL / HGT / AZ (m)(DEG)	FINAL (μV/m)	LIMIT (μV/m)
4.577 GHz	52.1 Pk	8.62 / 32.44 / 43.93 / 0.0	49.23	V / 1.10 / 342	289	5000
4.545 GHz	52.15 Pk	8.59 / 32.39 / 43.97 / 0.0	49.16	V / 1.10 / 345	287	5000
4.604 GHz	50.95 Pk	8.65 / 32.49 / 43.9 / 0.0	48.18	V / 1.10 / 336	256	5000
5.492 GHz	47.25 Pk	9.55 / 33.89 / 43.12 / 0.0	47.57	V / 1.00 / 0	239	5000
2.746 GHz	54.9 Pk	6.24 / 29.09 / 43.66 / 0.0	46.57	V / 1.00 / 0	213	5000
2.763 GHz	51.65 Pk	6.26 / 29.13 / 43.68 / 0.0	43.35	V / 1.00 / 353	147	5000
3.661 GHz	47.1 Pk	7.39 / 31.51 / 43.6 / 0.0	42.4	V / 2.00 / 0	132	5000
2.727 GHz	49.2 Pk	6.22 / 29.05 / 43.64 / 0.0	40.83	V / 1.00 / 0	110	5000

End scan 30 MHz - 10 GHz

Spurious Radiated Emissions 30 - 9300 MHz

FCC 15.249(d), IC RSS-210 A2.9(b)

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 8.2.3, 8.2.4.

No spurious emissions were detected within 10 dB of the limit.

Test limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

15.209

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

All measurements made at 3 meters. The emission limits shown in the above tables are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.255, and 15.509–15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT is rotated 360 degrees.

Test location

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

Test distance

■ - 3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
WRLE03204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	30-May-13
WRLE11146	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01299	04-Mar-14
WRLE03295	85662A	Hewlett-Packard	Analyzer Display	2349A06144	22-Apr-13
WRLE02689	8566B	Hewlett-Packard	Spectrum Analyzer	2416A00321	22-Apr-13
WRLE02670	8447D	Hewlett-Packard	Preamplifier	2443A03954	Code B 20-Jan-14
WRLE10527	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0001	Code B 23-Jan-14
WRLE02075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	24-Feb-14
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion Software Version 3.4.71	N/A	Code Y

Cal Code B = Calibration verification performed internally.

Test data No spurious emissions detected within 10 dB of the limit.

Receiver Radiated Emissions 30 - 9300 MHz

FCC 15.109, IC RSS Gen Section 6

Test summary

The requirements are: ■ - MET □ - NOT MET

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 8.2.3, 8.2.4.

No receiver emissions were detected.

Test limits 15.109

Frequency (MHz)	Field strength (μV/m)	Field strength (dBμV/m)	Measurement distance (m)
30 – 88	100	40	3
88 – 216	150	43.5	3
216 – 960	200	46	3
Above 960	500	54	3

All measurements made at 3 meters. The emission limits shown in the above tables are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector. When average radiated emission measurements are specified in this part, including average emission measurements below 1000 MHz, there also is a limit on the peak level of the radio frequency emissions. Unless otherwise specified, e.g., see §§ 15.250, 15.252, 15.255, and 15.509–15.519, the limit on peak radio frequency emissions is 20 dB above the maximum permitted average emission limit applicable to the equipment under test. Radiated emissions from the EUT are measured in the frequency range of 30 to 1000 MHz using a spectrum analyzer and appropriate broadband linearly polarized antennas. Measurements between 30 MHz and 1000 MHz are made with a 120 kHz / 6 dB bandwidth and quasi-peak detection and measurements above 1000 MHz are made with a 1 MHz RBW/VBW / 6 dB bandwidth and peak detection, 1 MHz RBW/ 10 Hz VBW for average detection. Table top equipment is placed on a non-conductive support 80 cm above the ground plane. Interface cables that are closer than 40 centimeters to the ground plane are bundled in the center in a serpentine fashion so they are at least 40 centimeters from the ground plane. Cables to simulators/testers (if used in this test) are routed through the center of the table and to a screen room located outside the test area. The antenna is positioned 3, 10 or 30 meters horizontally from the EUT. To locate maximum emissions from the test sample the antenna is varied in height from 1 to 4 meters, measurement scans are made with both horizontal and vertical antenna polarizations and the EUT is rotated 360 degrees.

Test location

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

Test distance

■ - 3 meters

Test Equipment

TUV ID	Model	Manufacturer	Description	Serial	Cal Due
WRLE03204	EM-6917B	Electro-Metrics	Biconicalog Periodic	102	30-May-13
WRLE11146	85650A	Hewlett-Packard	Quasi-Peak Adapter	2811A01299	04-Mar-14
WRLE03295	85662A	Hewlett-Packard	Analyzer Display	2349A06144	22-Apr-13
WRLE02689	8566B	Hewlett-Packard	Spectrum Analyzer	2416A00321	22-Apr-13
WRLE02670	8447D	Hewlett-Packard	Preamplifier	2443A03954	Code B 20-Jan-14
WRLE10527	SL18B4020	Phase One Microwave	Preamplifier 1 – 18 GHz	0001	Code B 23-Jan-14
WRLE02075	3115	EMCO	Ridge Guide Ant. 1-18 GHz	9001-3275	24-Feb-14
WRLE10863	N/A	TÜV SÜD America Inc	Test Companion N/A Software Version 3.4.71		Code Y

Cal Code B = Calibration verification performed internally.

Test data

No receiver emissions were detected.

Occupied bandwidth

RSS-Gen 4.6.1

Test summary

The requirements are: ☒ - MET ☐ - NOT MET

Test was performed in accordance with the article "The Measurement of Occupied Bandwidth" by Industry Canada's certification bureau.

Occupied bandwidth = 345.227 kHz

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
WRLE10435	E4440A	Agilent	Spectrum Analyzer	MY44304483	20-Nov-14

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

Test limit

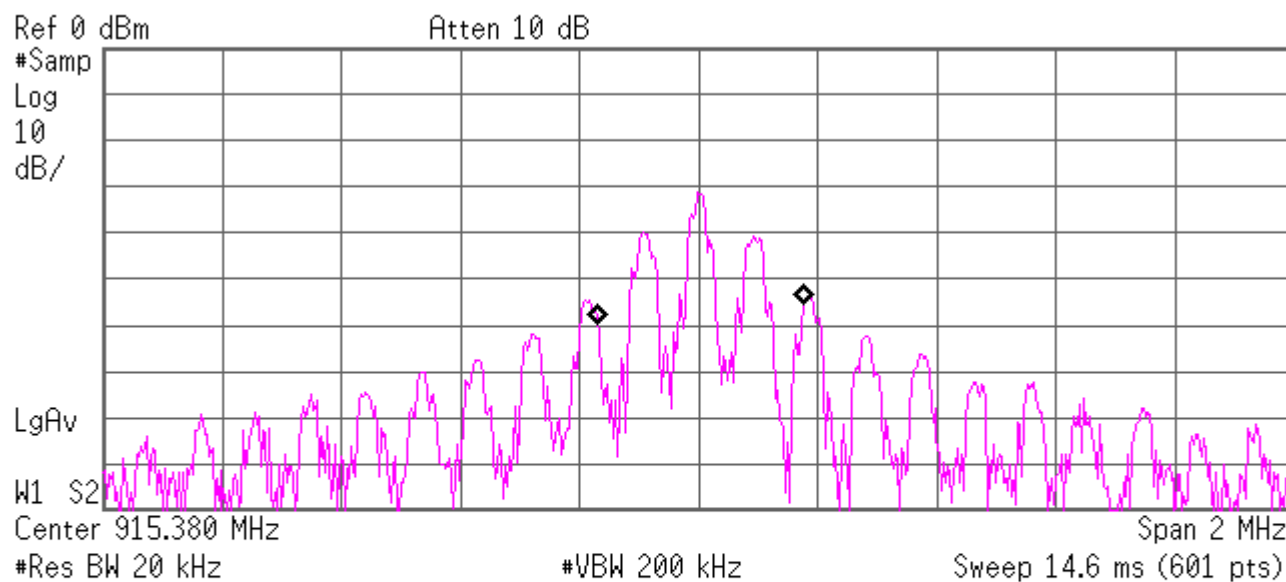
No limit specified

Test data

See following pages

Agilent 14:55:00 Mar 25, 2014

L



Occupied Bandwidth
345.5227 kHz

Occ BW % Pwr 99.00 %
x dB -26.00 dB

Transmit Freq Error 3.902 kHz
x dB Bandwidth 391.968 kHz*

Conducted Emissions - AC Power Lines

FCC 15.207(a), IC RSS-Gen 7.2.4

Test summary

The requirements are: ☐ - MET ☒ - NOT APPLICABLE

Testing was performed in accordance with the test procedure of ANSI C63.4 2003, clause 7.2

Test location

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

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

Test limits, dB μ V

Frequency (MHz)	dB μ V Quasi Peak	dB μ V Average
0.15 - 0.5	66 - 56*	56 - 46*
0.5 - 5	56	46
5 - 30	60	50

*Decreases with the logarithm of the frequency

Conducted emissions on the 50 Hz and/or 60 Hz power interface of the EUT are measured in the frequency range of 150 kHz to 30 MHz. The measurements are performed using a receiver, which has CISPR characteristic bandwidth (9 kHz resolution bandwidth) and quasi-peak/average detection, and a Line Impedance Stabilization Network (LISN), with 50 Ω /50 μ H (CISPR 16) characteristics. Table top equipment is placed on a non-conducting table 80 centimeters above the floor and is positioned 40 centimeters from the vertical ground plane (wall) of the screen room. In some cases, a pre-scan using a spectrum analyzer is initially performed on the units comprising the system under test to locate the highest emissions. Conducted emissions were measured on the Communication Link Controller, which powers the transceiver over Ethernet.

Test data

Battery operated implantable – not applicable

Equipment Under Test (EUT) Test Operation Mode:

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

- ☐ - Standby
- ☐ - Test program (H - Pattern)
- ☐ - Test program (color bar)
- ☐ - Test program (customer specific)
- ☐ - Practice operation
- ☒ - Normal operating mode – implantable transmitter tested in body simulator.

Configuration of the device under test:

- ☒ - See Appendix A and test setup photos
- ☐ - See Product Information Form(s) in Appendix B

DEVIATIONS FROM STANDARD:

None.

GENERAL REMARKS:

None

Modifications required to pass:

- ☒ None
- ☐ As indicated on the data sheet(s)

Test Specification Deviations: Additions to or Exclusions from:

- ☒ Implantable transmitter tested in body simulator.
- ☐ 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: 25 March 2014

Condition of EUT: Normal

Testing Start Date: 25 March 2014

Testing End Date: 26 March 2014

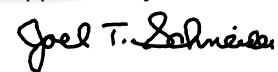
TÜV SÜD AMERICA INC

Tested by:



Greg Jakubowski
Senior EMC Technician

Approved by:



Joel T Schneider
Senior EMC Engineer

Appendix A

Constructional Data 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: Data Sciences International
 Address: 119 14th St.
St. Paul, MN 55112
 Contact: Luke Strawn Position: Electrical Engineering Manager
 Phone: 651-414-5493 Fax: _____
 E-mail Address: lstrawn@datasci.com

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

EUT Description PhysioTel Digital Implant
 EUT Name M-Series M-11 Implants
 Model No.: Multiple (recorded on data sheet) Serial No.: Multiple (recorded on data sheet)
 Product Options: M-11, M-01, M10, M00
 Configurations to be tested: M-11 in constant output mode

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 2004/108/EC (EMC)
Std: _____ | ☒ FCC: Class ☐ A ☒ B Part _____ |
| ☐ Machinery Directive 89/392/EEC (EMC)
Std: _____ | ☐ VCCI: Class ☐ A ☐ B |
| ☐ Medical Device Directive 93/42/EEC (EMC)
Std: _____ | ☐ BSMI: Class ☐ A ☐ B (Separate Report) |
| ☐ Vehicle Directive - 2004/104/EC (EMC)
☐ Other Vehicle Std: _____ | ☐ Canada: Class ☐ A ☐ B |
| ☐ FDA Reviewers Guidance for Premarket Notification Submissions (EMC) | ☐ Australia: Class ☐ A ☐ B |
| | ☐ Other: _____ |
| | ☐ Ag Directive *2009/64/EC (EMC) |



EMC Test Plan and Constructional Data Form

Third Party Certification (contact TÜV for quote), if applicable (*Signature on last page required).

☐ Attestation of Compliance (AoC)*	☐ EMC Certification (used with Octagon Mark)*
☐ Statement of Compliance (SoC, previously CoC)* - All aspects of the essential requirements were assessed	
Protection Class (Req'd for AoC, SoC, EMC Cert. 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	☐ Taiwan Certification
☐ Industry Canada / FCB Certification	☐ Korean Certification
☐ e-Mark Certification	

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 SÜD 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: _____ Width: _____ Height: _____ Weight: _____

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: 3.0V DC (If battery powered, make sure battery life is sufficient to complete testing.)
Battery _____

of Phases: _____

Current (Amps/phase(max)): _____ Current (Amps/phase(nominal)): _____

Other _____

Other Special Requirements

Typical Installation and/or Operating Environment

(ie. Hospital, Small Business, Industrial/Factory, etc.)
Lab Equipment/ Controlled Environment

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

EUT Software.

Description:

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. Implant will be commanded by external hardware (CLC Version 0.1.24) to transmit at a constant output for ~ 4 minutes at a time.
- 2.
- 3.

Description	Model #	Serial #	FCC ID #
M-11 F1	43265	726698	
M-11 F2	43266	726702	



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.

<i>Description</i>	<i>Model #</i>	<i>Serial #</i>	<i>FCC ID #</i>
CLC			
TRX			
Router			
Switch			

Oscillator Frequencies

<i>Manufacturer</i>	<i>Frequency</i>	<i>Derived Frequency</i>	<i>Component # / Location</i>	<i>Description of Use</i>

Power Supply

<i>Manufacturer</i>	<i>Model #</i>	<i>Serial #</i>	<i>Type</i>
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____
			☐ Switched-mode: (Frequency) _____ ☐ Linear ☐ Other: _____

Power Line Filters

<i>Manufacturer</i>	<i>Model #</i>	<i>Location in EUT</i>

**EMC Test Plan and Constructional Data Form****Critical EMI Components (Capacitors, ferrites, etc.)**

<i>Description</i>	<i>Manufacturer</i>	<i>Part # or Value</i>	<i>Qty</i>	<i>Component # / Location</i>

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

PLEASE ENTER NAMES BELOW (INSERT ELECTRONIC SIGNATURE IF POSSIBLE)

Authorization (Signature Required if a Third Party Certification is checked on pg 1)

Customer authorization to perform tests
according to this test plan.

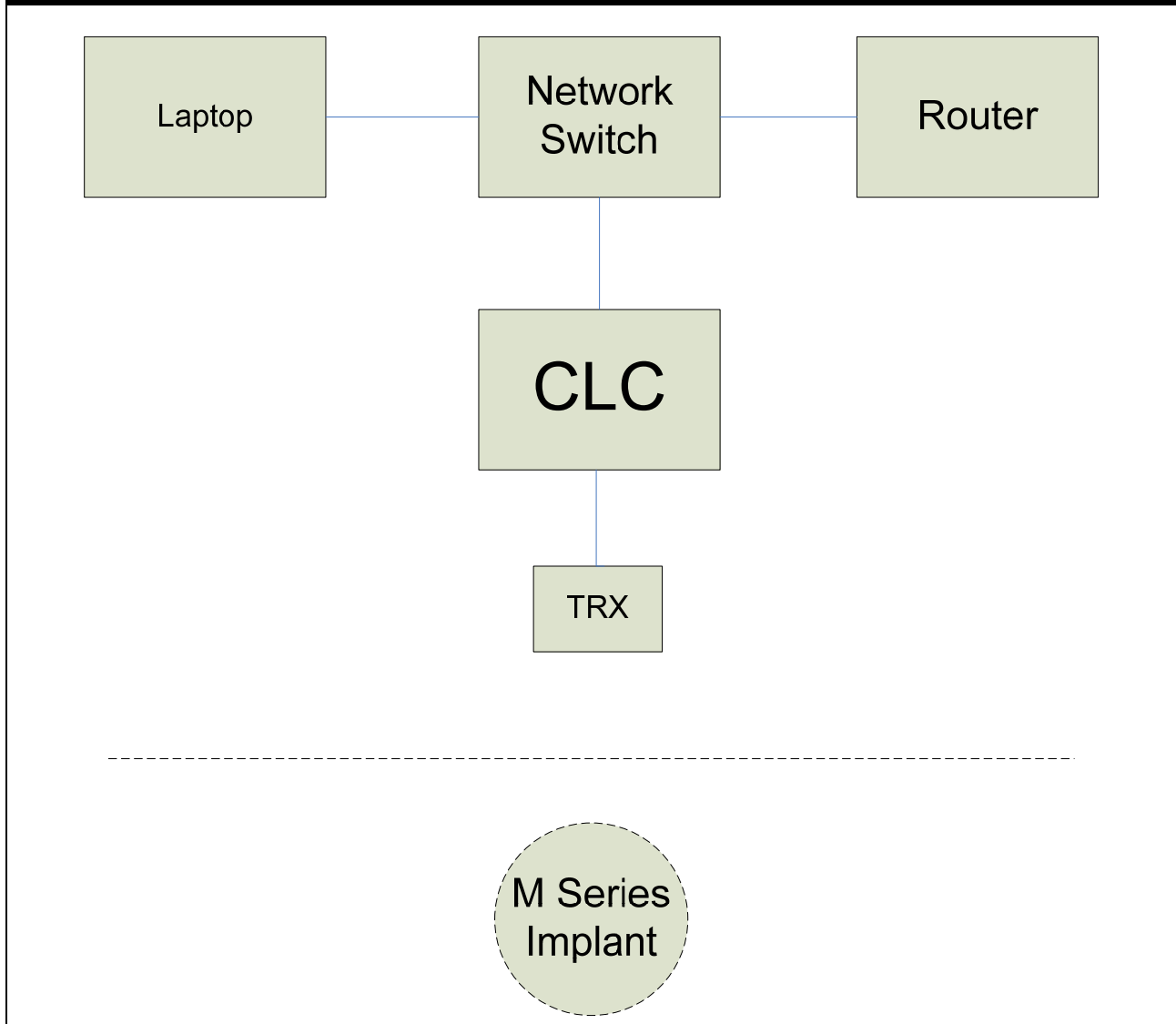
Date

Test Plan/CDF Prepared By (please print)

Date

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