

# NORTHWEST EMC

## Connected Development

**Multi-Tech MTPCIEBW (to be incorporated into the Zoll LifeVest 5000)**

**FCC 15.247:2015**

**Bluetooth Radio**

**Report # CDVE0003.1**



NVLAP Lab Code: 201049-0

# CERTIFICATE OF TEST

Last Date of Test: December 11, 2015

Connected Development

Model: Multi-Tech MTPCIEBW (to be incorporated into the Zoll LifeVest 5000)

## Radio Equipment Testing

### Standards

Specification	Method
FCC 15.247:2015	ANSI C63.10:2013

### Results

Method Clause	Test Description	Applied	Results	Comments
6.2	Powerline Conducted Emissions	No	N/A	Not required for antenna change only
6.5, 6.6	Spurious Radiated Emissions	Yes	Pass	
6.7	Spurious Conducted Emissions	No	N/A	Not required for antenna change only
6.9.1	Occupied Bandwidth	No	N/A	Not required for antenna change only
6.10.1	Output Power	No	N/A	Not required for antenna change only
7.7.2	Channel Separation	No	N/A	Not required for antenna change only
7.7.3	Number of Hopping Channels	No	N/A	Not required for antenna change only
7.7.4	Dwell Time	No	N/A	Not required for antenna change only
7.5	Duty Cycle	No	N/A	Not required for antenna change only
7.7.9	Band Edge Compliance	No	N/A	Not required for antenna change only
7.7.9	Band Edge Compliance - Hopping Mode	No	N/A	Not required for antenna change only

### Deviations From Test Standards

None

### Approved By:



Jeremiah Darden, Operations Manager

*Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information.*

# REVISION HISTORY

Revision Number	Description	Date	Page Number
00	None		

# ACCREDITATIONS AND AUTHORIZATIONS

## United States

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Accredited by A2LA to ISO / IEC 17065 as a product certifier. This allows Northwest EMC to certify transmitters to FCC and IC specifications.

**NVLAP** - Each laboratory is accredited by NVLAP to ISO 17025

## Canada

**IC** - Recognized by Industry Canada as a Certification Body (CB). Certification chambers and Open Area Test Sites are filed with IC.

## European Union

**European Commission** - Validated by the European Commission as a Conformity Assessment Body (CAB) under the EMC directive and as a Notified Body under the R&TTE Directive.

## Australia/New Zealand

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

## Korea

**MSIP / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

## Japan

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

## Taiwan

**BSMI** - Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

## Singapore

**IDA** - Recognized by IDA as a CAB for the acceptance of test data.

## Israel

**MOC** - Recognized by MOC as a CAB for the acceptance of test data.

## Hong Kong

**OFCA** - Recognized by OFCA as a CAB for the acceptance of test data.

## Vietnam

**MIC** - Recognized by MIC as a CAB for the acceptance of test data.

## SCOPE

For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/accreditations/>

<http://gsi.nist.gov/global/docs/cabs/designations.html>

# MEASUREMENT UNCERTAINTY

## Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document WP 342. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty (K=2) for each test is on each data sheet. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable), and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

Test	+ MU	- MU
Frequency Accuracy (Hz)	0.0007%	-0.0007%
Amplitude Accuracy (dB)	1.2 dB	-1.2 dB
Conducted Power (dB)	0.3 dB	-0.3 dB
Radiated Power via Substitution (dB)	0.7 dB	-0.7 dB
Temperature (degrees C)	0.7°C	-0.7°C
Humidity (% RH)	2.5% RH	-2.5% RH
Voltage (AC)	1.0%	-1.0%
Voltage (DC)	0.7%	-0.7%
Field Strength (dB)	4.9 dB	-4.9 dB
AC Powerline Conducted Emissions (dB)	2.4 dB	-2.4 dB

# FACILITIES



California	Minnesota	New York	Oregon	Texas	Washington
Labs OC01-13 41 Tesla Irvine, CA 92618 (949) 861-8918	Labs MN01-08, MN10 9349 W Broadway Ave. Brooklyn Park, MN 55445 (612)-638-5136	Labs NY01-04 4939 Jordan Rd. Elbridge, NY 13060 (315) 554-8214	Labs EV01-12 22975 NW Evergreen Pkwy Hillsboro, OR 97124 (503) 844-4066	Labs TX01-09 3801 E Plano Pkwy Plano, TX 75074 (469) 304-5255	Labs NC01-05 19201 120 <sup>th</sup> Ave NE Bothell, WA 9801 (425)984-6600
<b>NVLAP</b>					
NVLAP Lab Code: 200676-0	NVLAP Lab Code: 200881-0	NVLAP Lab Code: 200761-0	NVLAP Lab Code: 200630-0	NVLAP Lab Code: 201049-0	NVLAP Lab Code: 200629-0
<b>Industry Canada</b>					
2834B-1, 2834B-3	2834E-1	N/A	2834D-1, 2834D-2	2834G-1	2834F-1
<b>BSMI</b>					
SL2-IN-E-1154R	SL2-IN-E-1152R	N/A	SL2-IN-E-1017	SL2-IN-E-1158R	SL2-IN-E-1153R
<b>VCCI</b>					
A-0029	A-0109	N/A	A-0108	A-0201	A-0110
<b>Recognized Phase I CAB for ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA</b>					
US0158	US0175	N/A	US0017	US0191	US0157



# PRODUCT DESCRIPTION

## Client and Equipment Under Test (EUT) Information

<b>Company Name:</b>	Connected Development
<b>Address:</b>	5020 Weston Parkway Suite 215
<b>City, State, Zip:</b>	Cary, NC 27513
<b>Test Requested By:</b>	Mike Thys
<b>Model:</b>	Multi-Tech MTPCIEBW (to be incorporated into the Zoll LifeVest 5000)
<b>First Date of Test:</b>	December 11, 2015
<b>Last Date of Test:</b>	December 11, 2015
<b>Receipt Date of Samples:</b>	December 03, 2015
<b>Equipment Design Stage:</b>	Prototype
<b>Equipment Condition:</b>	No Damage

## Information Provided by the Party Requesting the Test

### Functional Description of the EUT:

The EUT is the Zoll LifeVest 5000 which is a PCIE technology product that uses a Murata Wifi/Bluetooth radio module (Multi-Tech MTPCIEBW) and 2.4GHz Multi Standard Antenna (Taoglas, part number: FXP73.07.0100A).

The LifeVest is the first wearable defibrillator. It is worn outside the body rather than implanted in the chest. This device continuously monitors the patient's heart with dry, non-adhesive sensing electrodes to detect life-threatening abnormal heart rhythms. If a life-threatening rhythm is detected, the device alerts the patient prior to delivering a treatment shock, and thus allows a conscious patient to delay the treatment shock. If the patient becomes unconscious, the device releases a Blue™ gel over the therapy electrodes and delivers an electrical shock to restore normal rhythm.

### Testing Objective:

To demonstrate compliance of the Bluetooth radio module with a new antenna to FCC 15.247 requirements for a Class II Permissive Change.

# CONFIGURATIONS

## Configuration CDVE0003- 4

Software/Firmware Running during test	
Description	Version
ClearTerminal	V1.00

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Wearable Defibrillator (EUT) -Emissions	Zoll International	LifeVest 5000	93ENGVER_10

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Laptop Computer	Dell	Vostro 3550	J9Y3PP1
AC/DC Adapter (for Laptop)	Targus	APA31US	F146021351032317-0A
AC/DC Adapter (for EUT)	V-Infinity	ETSA120330UD	None
Test circuit board	Connected Development	None	19A0553-A01

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	0.9m	No	AC Mains	AC/DC Adapter (for Laptop)
DC Power	No	1.8m	Yes	AC/DC Adapter (for Laptop)	Laptop Computer
AC Power	No	1.8m	No	AC Mains	AC/DC Adapter (for EUT)
DC Power	No	1.7m	Yes	AC/DC Adapter (for EUT)	Wearable Defibrillator (EUT)
USB to Mini-USB cable	No	1m	No	Laptop Computer	Test Circuit Board
Ribbon Cable	No	0.15m	No	Test Circuit Board	Wearable Defibrillator (EUT)

# MODIFICATIONS

## Equipment Modifications

Item	Date	Test	Modification	Note	Disposition of EUT
1	12/11/2015	Spurious Radiated Emissions	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	Scheduled testing was completed.

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data. The test data represents the configuration / operating mode/ model that produced the highest emission levels as compared to the specification limit.

**MODES OF OPERATION**


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 Transmitting DH5, 2DH5, 3DH5 at Low, High Channel @ 2402, 2480 MHz
 

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 Transmitting DH5, 2DH5, 3DH5 at Low, Mid, High Channel @ 2402, 2440, 2480 MHz
 

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**POWER SETTINGS INVESTIGATED**


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 Battery
 

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**CONFIGURATIONS INVESTIGATED**


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 CDVE0003 - 4
 

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**FREQUENCY RANGE INVESTIGATED**


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 Start Frequency | 30 MHz | Stop Frequency | 25 GHz
 

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**SAMPLE CALCULATIONS**


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 Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation
 

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**TEST EQUIPMENT**

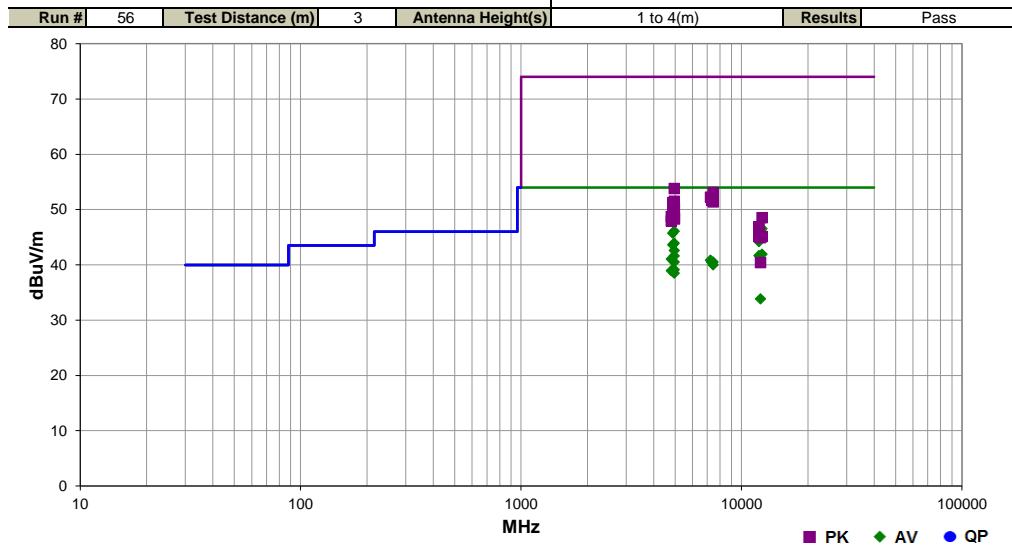
Description	Manufacturer	Model	ID	Last Cal.	Interval
Analyzer - Spectrum Analyzer	Agilent	N9010A	AFL	10/29/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-12001800-30-10P	PAL	10/22/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-08	AJG	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-6F-08001200-30-10P	PAK	10/22/2015	12 mo
Cable	Northwest EMC	8-18GHz	TXD	10/21/2015	12 mo
Antenna - Standard Gain	ETS Lindgren	3160-07	AJF	NCR	0 mo
Amplifier - Pre-Amplifier	Miteq	AMF-3D-00100800-32-13P	PAJ	9/18/2015	12 mo
Cable	Northwest EMC	1-8.2 GHz	TXC	10/21/2015	12 mo
Antenna - Double Ridge	ETS Lindgren	3115	AJL	9/15/2014	24 mo
Amplifier - Pre-Amplifier	Miteq	AM-1551	PAH	9/18/2015	12 mo
Cable	Northwest EMC	RE 9kHz - 1GHz	TXB	9/18/2015	12 mo
Antenna - Biconilog	ETS Lindgren	3143B	AYF	4/7/2014	24 mo
Attenuator	Fairview Microwave	SA18H-20	TKQ	NCR	0 mo
Filter - High Pass	Micro-Tronics	HPM50111	HHX	8/11/2015	12 mo
Filter - Low Pass	Micro-Tronics	LPM50004	HHV	8/11/2015	12 mo
Antenna - Double Ridge	A. H. Systems, Inc.	SAS-574	AXW	4/23/2014	24 mo
Cable	Northwest EMC	18-40GHz	TXE	11/20/2015	12 mo
Amplifier - Pre-Amplifier	Miteq	JSDWK42-18004000-60-5P	PAM	11/20/2015	12 mo

**TEST DESCRIPTION**

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and the EUT antenna in three orthogonal axis, and adjusting measurement antenna height and polarization. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

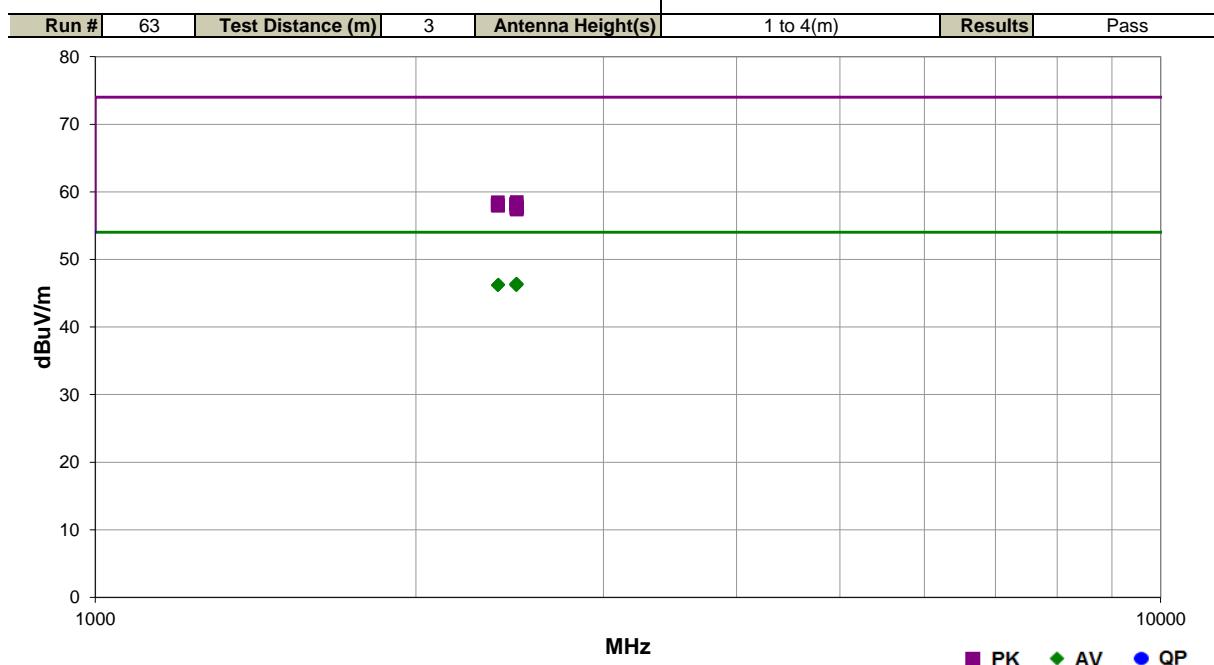
Work Order:	CDVE0003	Date:	12/11/15	
Project:	None	Temperature:	23.8 °C	
Job Site:	TX02	Humidity:	36.8% RH	
Serial Number:	93ENGVVER_10	Barometric Pres.:	1010 mbar	
EUT:	Multi-Tech MTPCIEBW (to be incorporated into the Zoll LifeVest 5000)	Tested by:	Jonathan Kiefer	
Configuration:	4			
Customer:	Connected Development			
Attendees:	None			
EUT Power:	Battery			
Operating Mode:	Transmitting DH5, 2DH5, 3DH5 at Low, Mid, High Channel @ 2402, 2440, 2480 MHz			
Deviations:	None			
Comments:	Bluetooth mode. See the comments for channel, EUT orientation and data rate information.			

Test Specifications	Test Method
FCC 15.247:2015	ANSI C63.10:2013



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
4959.650	41.9	7.2	2.1	75.9	3.0	0.0	Horz	AV	0.0	49.1	54.0	-4.9	High Ch, EUT On Side, DH5
12399.120	49.6	-3.1	1.4	247.0	3.0	0.0	Vert	AV	0.0	46.5	54.0	-7.5	High Ch, EUT Vert, DH5
4959.658	38.9	7.2	1.0	225.0	3.0	0.0	Vert	AV	0.0	46.1	54.0	-7.9	High Ch, EUT Vert, DH5
4879.642	39.0	6.7	1.9	75.0	3.0	0.0	Horz	AV	0.0	45.7	54.0	-8.3	Mid Ch, EUT On Side, DH5
12009.130	47.5	-3.3	2.1	156.0	3.0	0.0	Horz	AV	0.0	44.2	54.0	-9.8	Low Ch, EUT On Side, DH5
4959.658	36.7	7.2	3.5	122.0	3.0	0.0	Horz	AV	0.0	43.9	54.0	-10.1	High Ch, EUT Horz, DH5
4879.650	36.9	6.7	3.5	213.0	3.0	0.0	Vert	AV	0.0	43.6	54.0	-10.4	Mid Ch, EUT Vert, DH5
4959.633	35.4	7.2	3.7	69.9	3.0	0.0	Vert	AV	0.0	42.6	54.0	-11.4	High Ch, EUT Horz, DH5
12399.080	45.0	-3.1	1.7	229.0	3.0	0.0	Horz	AV	0.0	41.9	54.0	-12.1	High Ch, EUT On Side, DH5
12009.110	45.0	-3.3	1.3	247.0	3.0	0.0	Vert	AV	0.0	41.7	54.0	-12.3	Low Ch, EUT Vert, DH5
4959.617	34.4	7.2	1.6	176.0	3.0	0.0	Horz	AV	0.0	41.6	54.0	-12.4	High Ch, EUT Vert, DH5
12199.120	44.6	-3.5	1.3	243.0	3.0	0.0	Vert	AV	0.0	41.1	54.0	-12.9	Mid Ch, EUT Vert, DH5
4803.592	34.8	6.2	2.2	69.0	3.0	0.0	Horz	AV	0.0	41.0	54.0	-13.0	Low Ch, EUT On Side, DH5
7231.117	29.0	11.8	1.3	279.0	3.0	0.0	Horz	AV	0.0	40.8	54.0	-13.2	Mid Ch, EUT On Side, DH5
7319.608	28.7	11.8	1.3	296.0	3.0	0.0	Vert	AV	0.0	40.5	54.0	-13.5	Mid Ch, EUT Vert, DH5
4960.208	33.3	7.2	1.8	342.0	3.0	0.0	Horz	AV	0.0	40.5	54.0	-13.5	High Ch, EUT On Side, 2DH5
7441.308	28.7	11.8	1.3	196.9	3.0	0.0	Vert	AV	0.0	40.5	54.0	-13.5	High Ch, EUT Vert, DH5
7439.600	28.2	11.8	1.3	190.9	3.0	0.0	Horz	AV	0.0	40.0	54.0	-14.0	High Ch, EUT On Side, DH5
4960.058	31.9	7.2	3.0	334.9	3.0	0.0	Horz	AV	0.0	39.1	54.0	-14.9	High Ch, EUT On Side, 3DH5
4803.650	32.7	6.2	1.1	198.0	3.0	0.0	Vert	AV	0.0	38.9	54.0	-15.1	Low Ch, EUT Vert, DH5
4959.625	31.3	7.2	1.3	76.9	3.0	0.0	Vert	AV	0.0	38.5	54.0	-15.5	High Ch, EUT On Side, DH5
12199.070	37.3	-3.5	1.3	255.0	3.0	0.0	Horz	AV	0.0	33.8	54.0	-20.2	Mid Ch, EUT On Side, DH5
4959.708	46.6	7.2	2.1	75.9	3.0	0.0	Horz	PK	0.0	53.8	74.0	-20.2	High Ch, EUT On Side, DH5
7439.442	41.3	11.8	1.3	196.9	3.0	0.0	Vert	PK	0.0	53.1	74.0	-20.9	High Ch, EUT Vert, DH5
7232.117	40.4	11.8	1.3	279.0	3.0	0.0	Horz	PK	0.0	52.2	74.0	-21.8	Mid Ch, EUT On Side, DH5
7319.250	39.9	11.8	1.3	296.0	3.0	0.0	Vert	PK	0.0	51.7	74.0	-22.3	Mid Ch, EUT Vert, DH5
4959.525	44.3	7.2	1.0	225.0	3.0	0.0	Vert	PK	0.0	51.5	74.0	-22.5	High Ch, EUT Vert, DH5
7438.033	39.6	11.8	1.3	190.9	3.0	0.0	Horz	PK	0.0	51.4	74.0	-22.6	High Ch, EUT On Side, DH5
4879.583	44.5	6.7	1.9	75.0	3.0	0.0	Horz	PK	0.0	51.2	74.0	-22.8	Mid Ch, EUT On Side, DH5
4959.633	43.3	7.2	3.5	122.0	3.0	0.0	Horz	PK	0.0	50.5	74.0	-23.5	High Ch, EUT Horz, DH5
4959.708	42.8	7.2	1.6	176.0	3.0	0.0	Horz	PK	0.0	50.0	74.0	-24.0	High Ch, EUT Vert, DH5
4959.675	42.8	7.2	3.7	69.9	3.0	0.0	Vert	PK	0.0	50.0	74.0	-24.0	High Ch, EUT Horz, DH5
4880.167	42.8	6.7	3.5	213.0	3.0	0.0	Vert	PK	0.0	49.5	74.0	-24.5	Mid Ch, EUT Vert, DH5
4803.442	42.5	6.2	2.2	69.0	3.0	0.0	Horz	PK	0.0	48.7	74.0	-25.3	Low Ch, EUT On Side, DH5
4960.325	41.5	7.2	1.8	342.0	3.0	0.0	Horz	PK	0.0	48.7	74.0	-25.3	High Ch, EUT On Side, 2DH5
12399.120	51.6	-3.1	1.4	247.0	3.0	0.0	Vert	PK	0.0	48.5	74.0	-25.5	High Ch, EUT Vert, DH5
4960.342	41.3	7.2	1.3	76.9	3.0	0.0	Vert	PK	0.0	48.5	74.0	-25.5	High Ch, EUT On Side, DH5
4960.617	41.1	7.2	3.0	334.9	3.0	0.0	Horz	PK	0.0	48.3	74.0	-25.7	High Ch, EUT On Side, 3DH5
4803.492	41.7	6.2	1.1	198.0	3.0	0.0	Vert	PK	0.0	47.9	74.0	-26.1	Low Ch, EUT Vert, DH5
12009.030	50.2	-3.3	2.1	156.0	3.0	0.0	Horz	PK	0.0	46.9	74.0	-27.1	Low Ch, EUT On Side, DH5
12009.080	48.5	-3.3	1.3	247.0	3.0	0.0	Vert	PK	0.0	45.2	74.0	-28.8	Low Ch, EUT Vert, DH5
12399.200	48.2	-3.1	1.7	229.0	3.0	0.0	Horz	PK	0.0	45.1	74.0	-28.9	High Ch, EUT On Side, DH5
12199.200	48.4	-3.5	1.3	243.0	3.0	0.0	Vert	PK	0.0	44.9	74.0	-29.1	Mid Ch, EUT Vert, DH5
12199.210	43.9	-3.5	1.3	255.0	3.0	0.0	Horz	PK	0.0	40.4	74.0	-33.6	Mid Ch, EUT On Side, DH5

Work Order:	CDVE0003	Date:	12/11/15	<i>Jonathan Kiefer</i>
Project:	None	Temperature:	23.8 °C	
Job Site:	TX02	Humidity:	36.8% RH	
Serial Number:	93ENGVER_10	Barometric Pres.:	1010 mbar	Tested by: Jonathan Kiefer
EUT:	Multi-Tech MTPCIEBW (to be incorporated into the Zoll LifeVest 5000)			
Configuration:	4			
Customer:	Connected Development			
Attendees:	None			
EUT Power:	Battery			
Operating Mode:	Transmitting DH5, 2DH5, 3DH5 at Low, High Channel @ 2402, 2480 MHz			
Deviations:	None			
Comments:	Bluetooth mode. Transmit Band Edge. 20 dB external attenuation. See the comments for channel, EUT orientation and data rate information.			
Test Specifications		Test Method		
FCC 15.247:2015		ANSI C63.10:2013		



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Antenna Height (meters)	Azimuth (degrees)	Test Distance (meters)	External Attenuation (dB)	Polarity/Transducer Type	Detector	Distance Adjustment (dB)	Adjusted (dBuV/m)	Spec. Limit (dBuV/m)	Compared to Spec. (dB)	Comments
2487.833	31.2	-4.8	1.3	278.0	3.0	20.0	Horz	AV	0.0	46.4	54.0	-7.6	High Ch, EUT Vert, DH5
2483.875	31.2	-4.8	1.3	247.0	3.0	20.0	Horz	AV	0.0	46.4	54.0	-7.6	High Ch, EUT Vert, 3DH5
2487.733	31.1	-4.8	1.3	236.0	3.0	20.0	Horz	AV	0.0	46.3	54.0	-7.7	High Ch, EUT Vert, 2DH5
2487.375	31.1	-4.8	1.3	339.0	3.0	20.0	Vert	AV	0.0	46.3	54.0	-7.7	High Ch, EUT On Side, DH5
2484.992	31.1	-4.8	1.3	96.0	3.0	20.0	Vert	AV	0.0	46.3	54.0	-7.7	High Ch, EUT Vert, DH5
2484.550	31.1	-4.8	2.3	206.0	3.0	20.0	Vert	AV	0.0	46.3	54.0	-7.7	High Ch, EUT Vert, DH5
2390.183	31.2	-4.9	1.3	339.9	3.0	20.0	Horz	AV	0.0	46.3	54.0	-7.7	Low Ch, EUT Vert, DH5
2389.708	31.2	-4.9	3.6	258.0	3.0	20.0	Horz	AV	0.0	46.3	54.0	-7.7	Low Ch, EUT Vert, 3DH5
2485.500	31.0	-4.8	1.3	129.0	3.0	20.0	Horz	AV	0.0	46.2	54.0	-7.8	High Ch, EUT Horz, DH5
2484.567	31.0	-4.8	1.3	344.0	3.0	20.0	Horz	AV	0.0	46.2	54.0	-7.8	High Ch, EUT On Side, DH5
2386.875	31.1	-4.9	1.3	315.0	3.0	20.0	Horz	AV	0.0	46.2	54.0	-7.8	Low Ch, EUT Vert, 2DH5
2486.092	43.3	-4.8	1.3	236.0	3.0	20.0	Horz	PK	0.0	58.5	74.0	-15.5	High Ch, EUT Vert, 2DH5
2386.742	43.4	-4.9	1.3	339.9	3.0	20.0	Horz	PK	0.0	58.5	74.0	-15.5	Low Ch, EUT Vert, DH5
2484.517	43.0	-4.8	1.3	344.0	3.0	20.0	Horz	PK	0.0	58.2	74.0	-15.8	High Ch, EUT On Side, DH5
2483.225	43.0	-4.8	1.3	278.0	3.0	20.0	Horz	PK	0.0	58.2	74.0	-15.8	High Ch, EUT Vert, DH5
2386.008	43.0	-4.9	3.6	258.0	3.0	20.0	Horz	PK	0.0	58.1	74.0	-15.9	Low Ch, EUT Vert, 3DH5
2387.642	42.9	-4.9	1.3	315.0	3.0	20.0	Horz	PK	0.0	58.0	74.0	-16.0	Low Ch, EUT Vert, 2DH5
2487.475	42.5	-4.8	1.3	247.0	3.0	20.0	Horz	PK	0.0	57.7	74.0	-16.3	High Ch, EUT Vert, 3DH5
2485.833	42.5	-4.8	1.3	129.0	3.0	20.0	Horz	PK	0.0	57.7	74.0	-16.3	High Ch, EUT Horz, DH5
2486.250	42.4	-4.8	2.3	206.0	3.0	20.0	Vert	PK	0.0	57.6	74.0	-16.4	High Ch, EUT Horz, DH5
2485.625	42.4	-4.8	1.3	96.0	3.0	20.0	Vert	PK	0.0	57.6	74.0	-16.4	High Ch, EUT Vert, DH5
2486.217	42.2	-4.8	1.3	339.0	3.0	20.0	Vert	PK	0.0	57.4	74.0	-16.6	High Ch, EUT On Side, DH5