1250 Peterson Dr., Wheeling, IL 60090

Company: Innovative Neurotronics Inc.
Model Tested: S22-42, KC21
Report Number: 15902

FCC Rules and Regulations / Intentional Radiators

Operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz, Bands

Part 15, Subpart C, Section 15.247

THE FOLLOWING **MEETS** THE ABOVE TEST SPECIFICATION

Formal Name:	Bluetooth OEM Module
FCC ID:	S2242
Kind of Equipment:	Bluetooth module
Frequency Range:	2400 MHz - 2483.5 MHz
Test Configuration:	Stand-alone (Tested at 48 vdc)
Model Number(s):	S22-42, KC21
Model(s) Tested:	S22-42, KC21
Serial Number(s):	NA
Date of Tests:	December 9, 2009
Test Conducted For:	Innovative Neurotronics Inc. 3600 N. Capital of Texas Highway Bldg B Ste 150 Austin, TX 78746

NOTICE: "This report must not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government". Please see the "Additional Description of Equipment Under Test" page listed inside of this report.

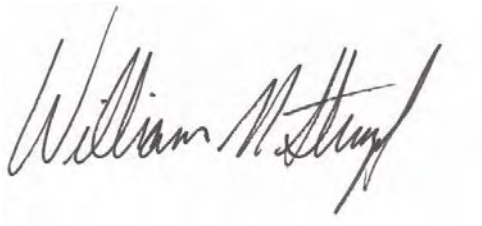
1250 Peterson Dr., Wheeling, IL 60090

SIGNATURE PAGE

Report By:

Arnom C. Rowe
Test Engineer
EMC-001375-NE

Reviewed By:



William Stumpf
OATS Manager

Approved By:

Brian Mattson
General Manager

TABLE OF CONTENTS

TABLE OF CONTENTS

United States Department of Commerce
National Institute of Standards and Technology

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Certificate of Accreditation to ISO/IEC 17025:2005

NVLAP LAB CODE: 100276-0

D.L.S. Electronic Systems, Inc.
Wheeling, IL

is accredited by the National Voluntary Laboratory Accreditation Program for specific services, listed on the Scope of Accreditation, for:

ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communique dated January 2009).

2009-10-01 through 2010-09-30
Effective dates

For the National Institute of Standards and Technology

NVLAP-01C (REV. 2009-01-28)

1.0 SUMMARY OF TEST REPORT

It was found that the Bluetooth OEM Module, Model Number(s) S22-42, KC21 **meets** the radio interference radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.247 for operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz, Bands. The AC Power Line conducted emissions test was not required because the S2242 is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

2.0 INTRODUCTION

On December 9, 2009, a series of radio frequency interference measurements was performed on Bluetooth OEM Module, Model Number(s) S22-42, KC21, Serial Number: NA. The tests were performed according to the procedures of the FCC as stated in the "Methods of Measurement of Radio-Noise Emissions for Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz" found in the American National Standards Institute, ANSI C63.4-2003 & the FCC guidance document "Measurement of Digital Transmission Systems Operating under Section 15.247 - March 23, 2005". Tests were performed by personnel of D.L.S. Electronic Systems, Inc. who are responsible to Donald L. Sweeney, Senior EMC Engineer.

D.L.S. Electronic Systems, Inc. is a full service EMC/Safety Testing Laboratory accredited to ISO 17025. NVLAP Certificate and Scope can be viewed at http://www.dlsemc.com/certificate. Our facilities are registered with the FCC, Industry Canada, and VCCI.

Main Test Facility:
D.L.S. Electronic Systems, Inc.
1250 Peterson Drive
Wheeling, Illinois 60090

O.A.T.S. Test Facility:
D.L.S. Electronic Systems, Inc.
166 S. Carter Street
Genoa City, Wisconsin 53128
FCC Registration Number: 334127

3.0 OBJECT

The purpose of this series of tests was to determine if the test sample could meet the radio frequency interference emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Sections 15.205, 15.209 & 15.247 for Intentional Radiators operating in the Bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

4.0 TEST SET-UP

All emission tests were performed at D.L.S. Electronic Systems, Inc. and set up according to the ANSI C63.4-2003, Annex H or following the guidelines in the FCC's "Measurement of Digital Transmission Systems Operating under Section 15.247 - March 23, 2005". The conducted tests were performed with the test item placed on a non-conductive table (table top equipment), located in the test room. Equipment normally operated on the floor was tested by placing it on the metal ground plane. The ground plane has an electrical isolation layer over its surface approximately 7mm thick. The power line supplied was connected to a dual line impedance stabilization network electrically bonded to the ground plane, located on the floor. The networks were constructed per the requirements of the ANSI C63.4-2003, Annex H.

All radiated emissions tests were performed with the test item placed on a 80 cm high rotating non-conductive table, located in the test room. Equipment normally operated on the floor was placed on a metal covered turntable which is flush with the surrounding conducting ground plane. The ground plane has an electrical isolation layer over its surface approximately 7 mm thick. The EUT is separated from the turntable ground plane by a non-conductive layer. The equipment under test was set up according to ANSI C63.4-2003, Sections 6 and 8 or following the guidelines in the FCC's "Measurement of Digital Transmission Systems Operating under Section 15.247 - March 23, 2005", as indicated in the test data section of this test report..

1250 Peterson Dr., Wheeling, IL 60090

5.0 TEST EQUIPMENT (Bandwidths and Detector Function)

All preliminary data below 1000 MHz was automatically plotted using the ESI 26/40 Fixed Tuned Receiver. The data was taken using Peak, Quasi-Peak or the Average Detector Functions as required. This information was then used to determine the frequencies of maximum emissions. Above 1000 MHz, final data was taken using the Average Detector.

Below 1000 MHz, final data was taken using the ESI 26/40 Fixed Tuned Receiver. These plots were made using the Peak or Quasi-Peak Detector functions, with manual measurements performed on the questionable frequencies using the Quasi-Peak or the Average Detector Function of the ESI 26/40 Fixed Tuned Receiver as required. Above 1000 MHz, final data was taken using the Average Detector on the Spectrum Analyzer.

The bandwidths shown below are specified by ANSI C63.4-2003, Section 4.2.

Frequency Range	Bandwidth (-6 dB)
10 to 150 kHz	200 Hz
150 kHz to 30 MHz	9 kHz
30 MHz to 1 GHz	120 kHz
Above 1 GHz	1 MHz

A list of the equipment used can be found in Table 1. All primary equipment was calibrated against known reference standards with a verified traceable path to NIST.

1250 Peterson Dr., Wheeling, IL 60090

6.0 AMBIENT MEASUREMENTS

For emissions measurements, broadband antennas and an EMI Test Receiver with a panoramic spectrum display are used. First the frequency range is scanned and displayed on the test receiver display. Next the scanned frequency range is divided into smaller ranges, and then it is manually tuned through to determine the emissions from the EUT. A headset or loudspeaker is connected to the test receiver's AM/FM demodulated output as an aid in detecting ambient signals and finding frequencies of significant emission from the EUT. If there is any doubt as to the source of the emission, it is further investigated by rotating the EUT, or by disconnecting the power from the EUT.

The EUT is set up in its typical configuration and operated in its various modes. For tabletop systems, cables are manipulated within the range of likely configurations. For floor-standing equipment, the cables are located in the same manner as the user would install them and no further manipulation is made. If the manner of cable installation is not known, or if it changes with each installation, cables or wires for floor-standing equipment shall be manipulated to the extent possible to produce the maximum level of emissions. For each mode of operation, the frequency spectrum is monitored. Variations in antenna height, antenna polarization, EUT azimuth, and cable or wire placement (each variable within bounds specified elsewhere) are explored to produce the emissions that have the highest amplitude relative to the limit. These methods are performed to the specifications in ANSI C63.4-2003.

7.0 DESCRIPTION OF TEST SAMPLE: (See also Paragraph 8.0)

7.1 Description:

This module provides a fully embedded, ready to use Bluetooth wireless solution. Multi-surface pads provide both bottom pads for high volume reflow soldering and edge pads for low volume hand soldering. The reprogrammable flash memory contains embedded firmware for serial cable replacement deploying the Bluetooth Serial Port Profile (SPP) or other profiles. The onboard firmware provides operational control over the chips functions.

7.2 PHYSICAL DIMENSIONS OF EQUIPMENT UNDER TEST

26.9 mm x 15.3 mm x 2.5 mm

7.3 LINE FILTER USED:

N/A

7.4 INTERNAL CLOCK FREQUENCIES:

Switching Power Supply Frequencies:

N/A

Clock Frequencies:

7.5 DESCRIPTION OF ALL CIRCUIT BOARDS:

1. Model S22-42, KC21.6, KC Wirefree LLC module PN: KC21 Rev 1

1250 Peterson Dr., Wheeling, IL 60090

8.0 ADDITIONAL DESCRIPTION OF TEST SAMPLE:
(See also Paragraph 7.0)

1: There were no additional descriptions noted at the time of test.

NOTE:

Tested in continuous transmit mode with modulation ON.
Tested at Low, Mid, and High channels.

9.0 PHOTO INFORMATION AND TEST SET-UP

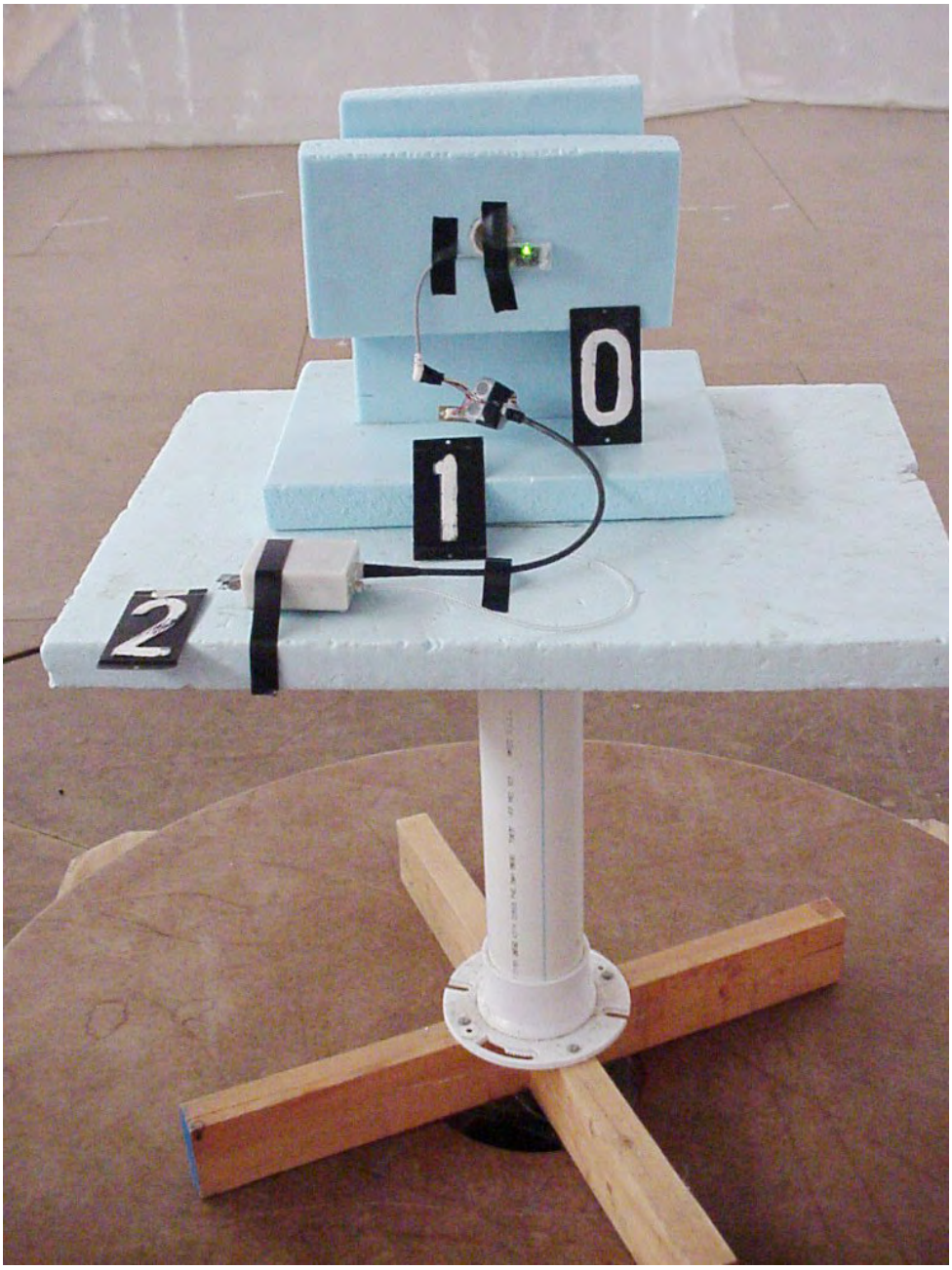
Item 0 Bluetooth OEM Module
Model Number: S22-42, KC21 Serial Number: NA

Item 1 V-Hold User Interface
Model Number: Assembly number 30-2200; Serial Number: NA

Item 2 V-Hold System Unit
Model Number: Assembly number 30-2100; Serial Number: NA

1250 Peterson Dr., Wheeling, IL 60090

10.0 RADIATED PHOTOS TAKEN DURING TESTING



Radiated position x

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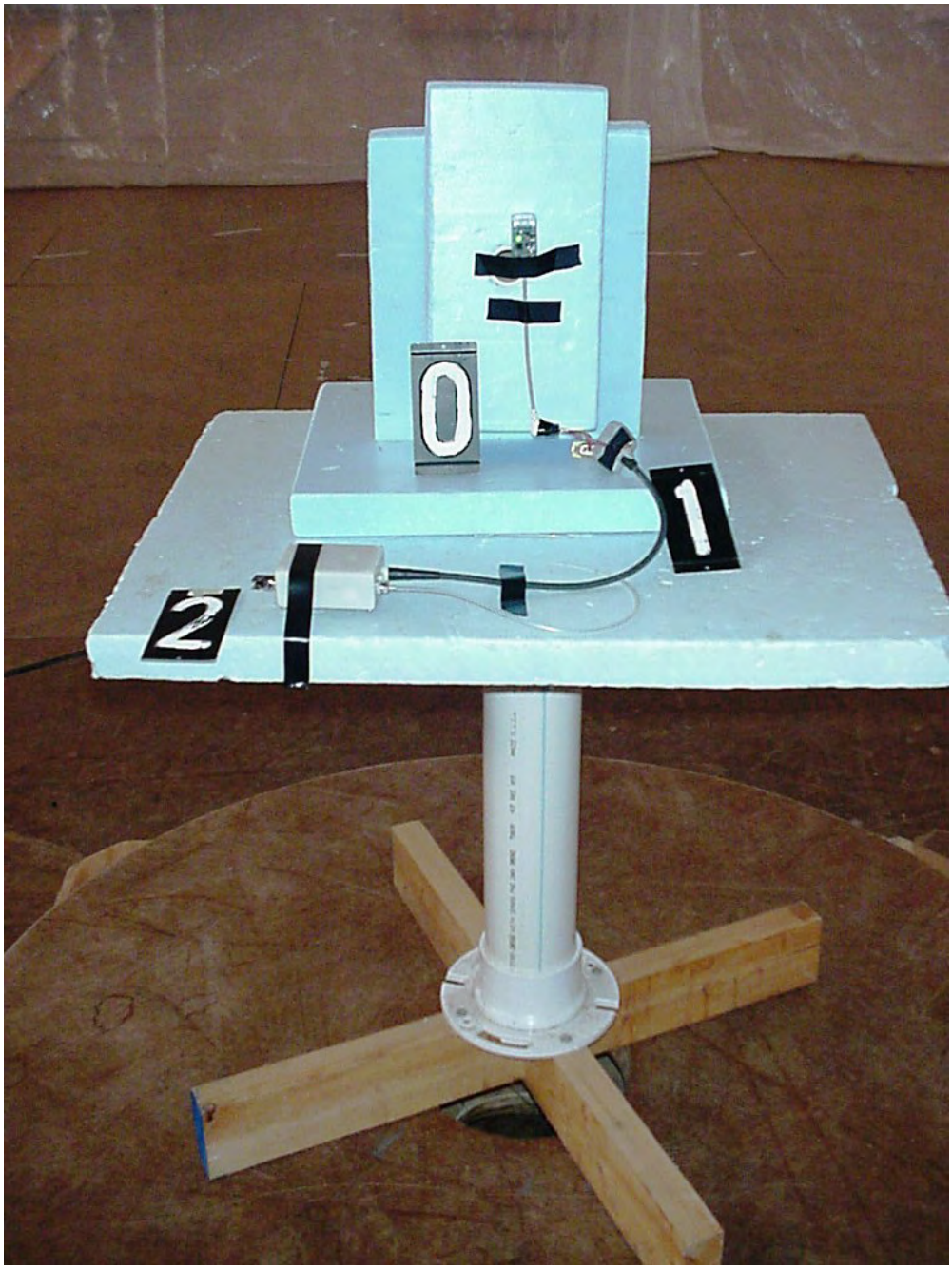
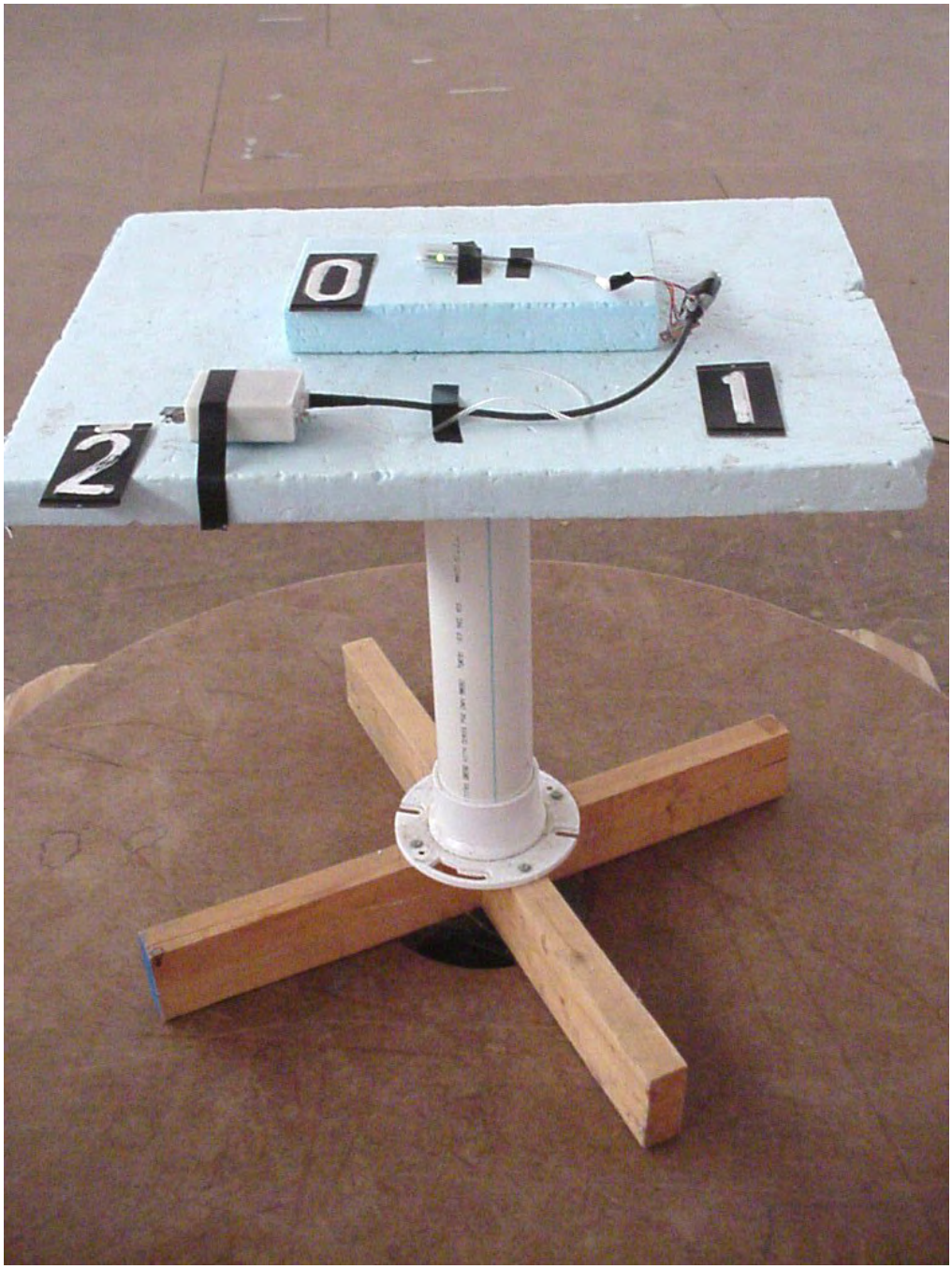
10.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)



Radiated position y

1250 Peterson Dr., Wheeling, IL 60090

10.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)



Radiated position z

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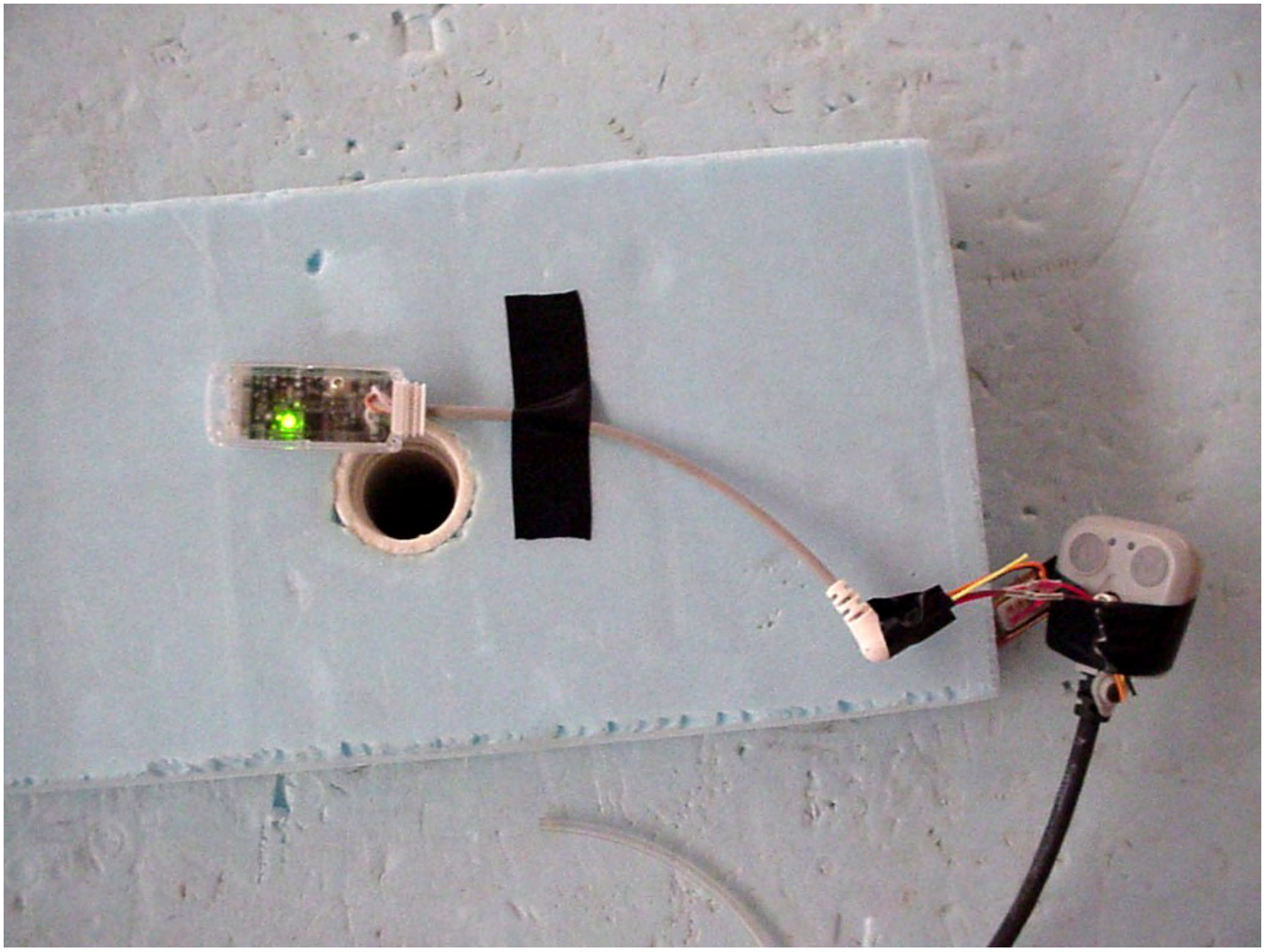
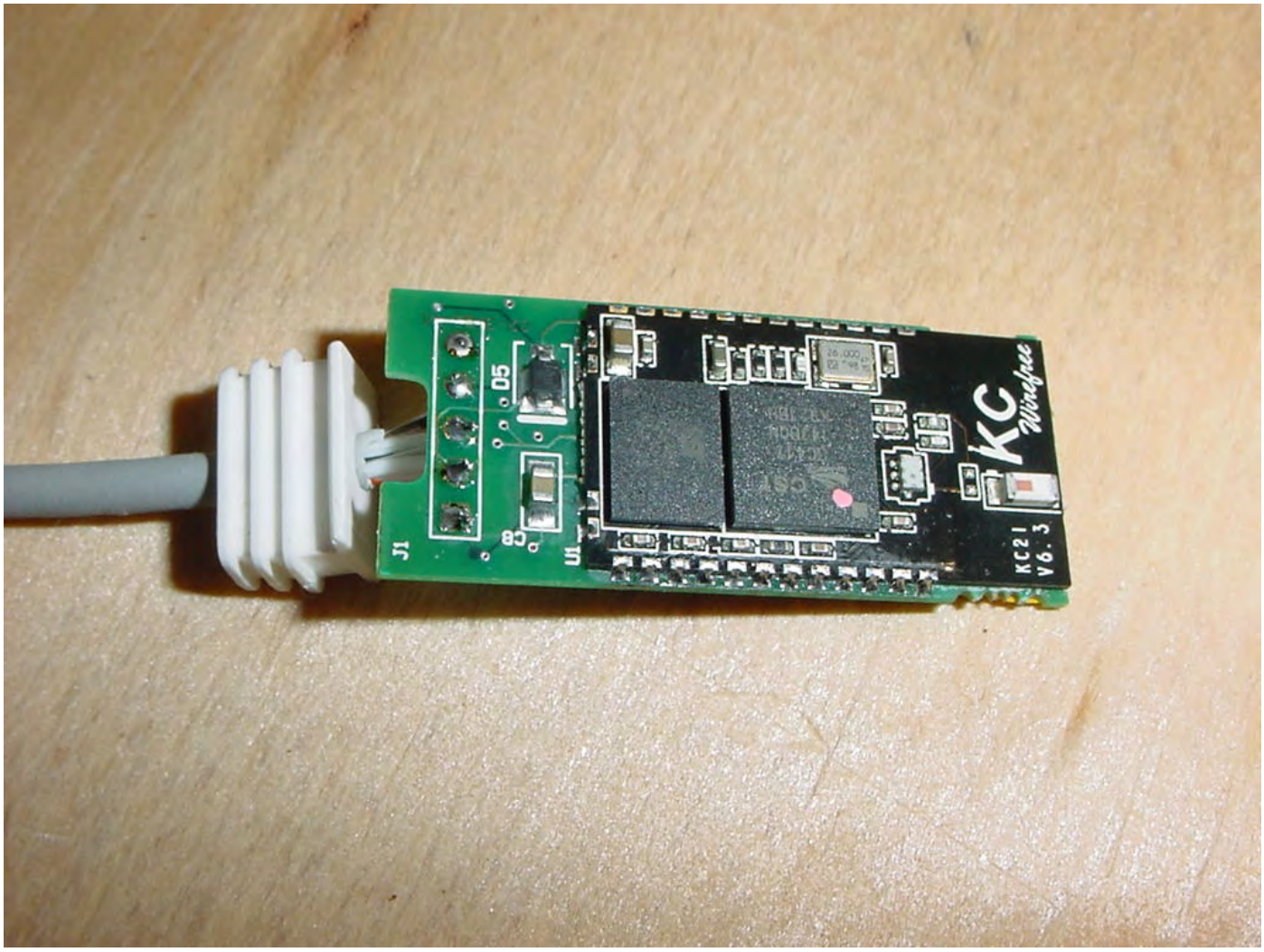
10.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)



Radiated close-up

1250 Peterson Dr., Wheeling, IL 60090

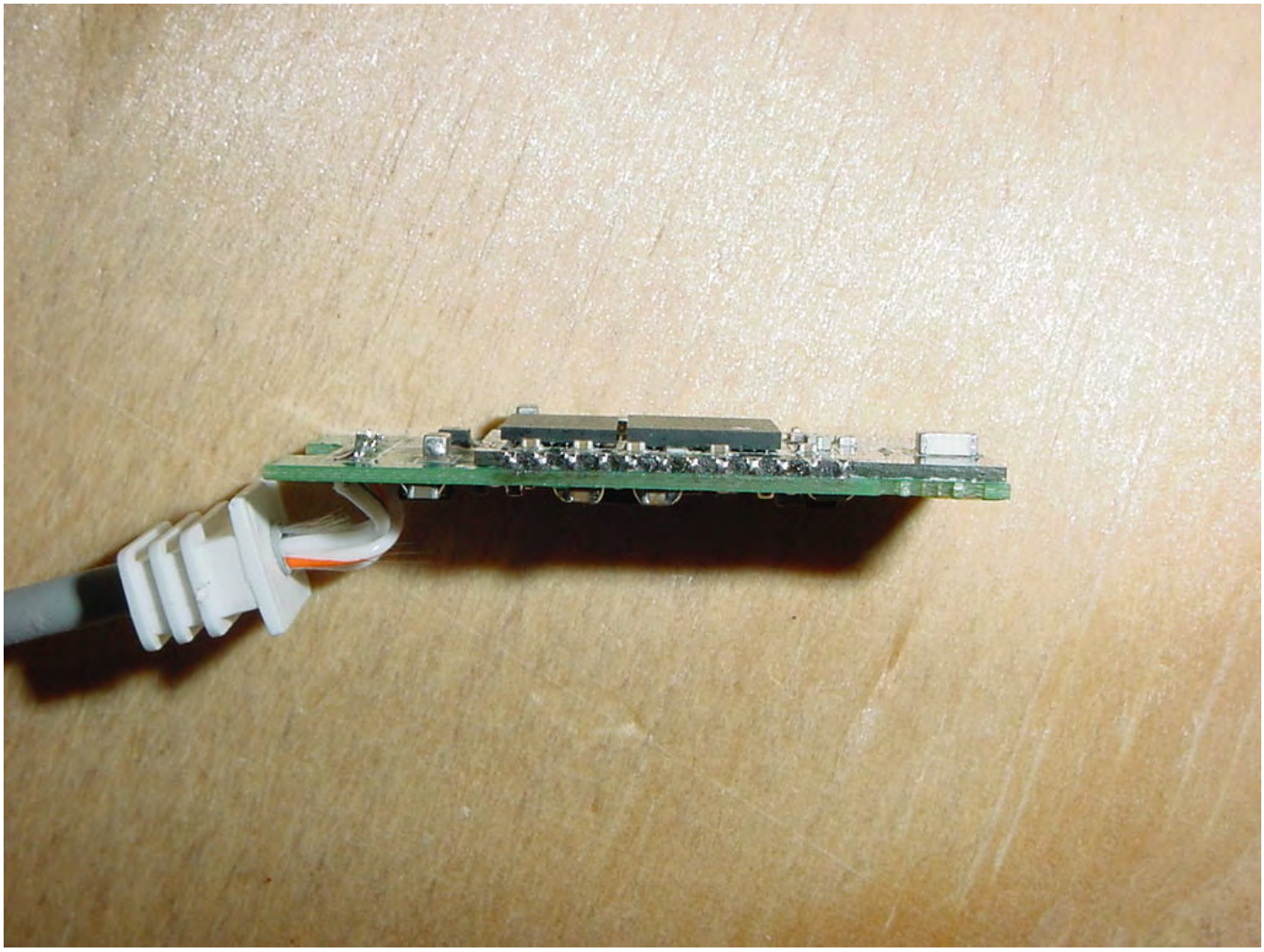
10.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)



RF Module mounted on host unit

1250 Peterson Dr., Wheeling, IL 60090

10.0 RADIATED PHOTOS TAKEN DURING TESTING (CON'T)



RF module mounted on host unit - side view

1250 Peterson Dr., Wheeling, IL 60090

11.0 RESULTS OF TESTS

The radio interference emission charts can be seen on the pages at the end of this report. Data sheets indicating the test measurements taken during testing can also be found at the end of this report.

12.0 CONCLUSION

It was found that the Bluetooth OEM Module, Model Number(s) S22-42, KC21 **meets** the radio interference radiated emission requirements of the FCC "Rules and Regulations", Part 15, Subpart C, Section 15.247 for operational in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz Bands. The conducted emissions test was not required because the Bluetooth OEM Module is powered from a D.C. power source. It does not have a line cord to plug into the A.C. power line.

TABLE 1 – EQUIPMENT LIST

Description	Manufacturer	Model Number	Serial Number	Frequency Range	Cal Due Dates
Receiver	Rohde & Schwarz	ESI 40	837808/005	20 Hz – 40 GHz	7/10
Preamplifier	Rohde & Schwarz	TS-PR10	032001/003	9 kHz – 1 GHz	1/10
Antenna	EMCO	3104C	9810-4849	20 MHz – 200 MHz	4/10
Antenna	Electro-Metrics	LPA-25	1114	200 MHz – 1 GHz	7/11
Receiver	Rohde & Schwarz	ESI 26	837491/010	20 Hz – 26 GHz	5/10
Preamp	Miteq	AMF-6D-100200-50	313936	1 GHz-10 GHz	5/10
Preamp	Miteq	AMF-6D-010100-50	213976	10 GHz-18 GHz	5/10
Horn Antenna	EMCO	3115	6204	1-18 GHz	5/11
Filter- High-Pass	Q-Microwave	100462	1	4.2 GHz-18 GHz	5/10
Preamp	Miteq	AMF-8B-180265-40-10P-H/S	438727	18 GHz-26 GHz	8/10
Horn Antenna	AH Systems	SAS-574	222	18 – 40 GHz	5/10
High Pass Filter	Planar	CL22500-9000-CD-SS	PF1229/0728	15-40 GHz	7/10

All primary equipment is calibrated against known reference standards with a verified traceable path to NIST.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX A

TEST PROCEDURE

Part 15, Subpart C, Section 15.207

ANSI C63.4-2003

1250 Peterson Dr., Wheeling, IL 60090

1.0 AC POWER LINE CONDUCTED EMISSION MEASUREMENTS

If applicable, the conducted emissions were measured over the frequency range from 150 kHz to 30 MHz in accordance with the power line measurements as specified in the American National Standards Institute, ANSI C63.4-2003, Section 12. Since the device is operated from the public utility lines, the 115 Vac 60 Hz power leads, high and low sides, were to be measured by connecting the measuring equipment to the appropriate meter terminal of the LISN. All signals were then recorded. The allowed levels for Intentional Radiators cannot exceed the following:

Frequency of Emissions (MHz)	Conducted Limits (dBuV)	
	Quasi Peak	Average
.15 to .5	66 to 56	56 to 46
.5 to 5	56	46
5 to 30	60	50

All conducted emissions measurements were made at a test room temperature of **°F** at **%** relative humidity.

NOTE:

This test was not run because the device is battery operated.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

TEST PROCEDURE

Part 15, Subpart C, Section 15.247 (a-h)

OPERATION WITHIN THE BAND 902-928 MHz,

2400-2483.5 MHz AND 5725-5857 MHz

ANSI C63.4-2003

AND

FCC Public Notice DA 00-705, March 30, 2000 (DSS)

NOTE:

Per the FCC's Public Notice "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems under DA 00-705 - March 30, 2000", as indicated in the test data section of this test report.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

1.0 SPURIOUS EMISSIONS AT ANTENNA TERMINALS – PART 15.247(d), 15.203 & Per the FCC's Public Notice "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems under DA 00-705 - March 30, 2000", as indicated in the test data section of this test report.

Spurious conducted emissions were measured at the antenna terminals. Plots were made showing the amplitude of each harmonic emission with the equipment operated. As shown by the radiated charts there was no reason to believe that there were any spurious emissions other than the harmonics that were than individually investigated when doing the conducted test at the antenna terminals. Measurements were made up to the 10^{th} harmonic of the fundamental.

As stated in 15.203 the Bluetooth OEM Module was designed to ensure that no antenna other than that furnished by Innovative Neurotronics Inc. will be used with the EUT. The use of a permanently attached antenna or antenna that uses an unique coupling to the intentional radiator was considered to comply with section 15.203.

The allowed emissions for transmitters operating in the 2400 MHz - 2483.5 MHz bands for Bluetooth OEM Module equipment are found under Part 15, Section 15.247(d). This paragraph states that in any 100 kHz bandwidth outside the frequency band which the spread spectrum intentional radiator is operating, the radio frequency power produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power.

NOTE:

Limited Module Approval was originally run, thereby this test does not have be done, only the spurious emissions have to be rerun.

2.0 RF CONDUCTED EMISSIONS (ANTENNA TERMINAL) PHOTOS TAKEN DURING TESTING

NOTE:

Limited Module Approval was originally run, thereby this test does not have be done, only the spurious emissions have to be rerun.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

3.0 RESTRICTED BANDS

As stated in Section 15.205a, the fundamental emission from the Bluetooth OEM Module shall not fall within any of the bands listed below:

Frequency in MHz	Frequency in MHz	Frequency in MHz	Frequency in GHz
.0900 to .1100	162.0125 to 167.17	2310.0 to 2390	9.30 to 9.50
.4900 to .5100	167.7200 to 173.20	2483.5 to 2500	10.60 to 12.70
2.1735 to 2.1905	240.000 to 285.00	2655.0 to 2900	13.25 to 13.40
8.362 to 8.3660	322.200 to 335.40	3260.0 to 3267	14.47 to 14.50
13.36 to 13.410	399.900 to 410.00	3332.0 to 3339	15.35 to 16.20
25.50 to 25.670	608.000 to 614.00	3345.8 to 3358	17.70 to 21.40
37.50 to 38.250	960.000 to 1240.00	3600.0 to 4400	22.01 to 23.13
73.00 to 75.500	1300.000 to 1427.00	4500.0 to 5250	23.60 to 24.00
108.00 to 121.94	1435.000 to 1626.50	5350.0 to 5450	31.20 to 31.80
123.00 to 138.00	1660.000 to 1710.00	7250.0 to 7750	36.43 to 36.50
149.90 to 150.00	1718.800 to 1722.20	8025.0 to 8500	ABOVE 38.60
156.70 to 156.90	2200.000 to 2300.00	9000.0 to 9200	

NOTE:

The noise floor within the Restricted Bands for the EMC Receiver will typically lay 20 dB below the limit.

4.0 RESTRICTED BAND AND BAND EDGE COMPLIANCE

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the attenuation below the general limits specified in 15.209 is not required.

The field strength of any **radiated emissions** which fall within the restricted bands shall not exceed the general radiated emissions limits as stated Section 15.209.

NOTE: See the following page(s) for the graph(s) made showing compliance for Restricted Band and Band Edge Compliance:

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

DATA AND GRAPH(S) TAKEN SHOWING

THE RESTRICTED BAND COMPLIANCE

PART 15.247(d) & 15.205

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz

30 MHz to 10 GHz: Tested at a 3 Meter Distance and 10 GHz to 25 GHz: Tested at a 1 Meter Distance

EUT: V-Hold Prosthetic Vacuum Attachment device
Manufacturer: Innovative Neurotronics Inc.
Operating Condition: 68 deg F; 25% R.H.
Test Site: Site 3
Operator: Craig B
Test Specification: FCC Part 15.247(d) and FCC Part 15.205
Comment: Continuous transmit.
Date: 12/09/2009

Notes: **(1)** Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

Low Channel (2402 MHz)

Frequency (GHz)	Measurement Type	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Comment
4.804	Average	Vert	45.69	32.93	-29.2	49.4	-41.33	8.1	54	45.9	Res. Band
4.804	Max Peak	Vert	52.74	32.93	-29.2	56.5	---	56.5	74	17.5	Res. Band
4.804	Average	Horz	47.32	32.93	-29.2	51.1	-41.33	9.7	54	44.3	Res. Band
4.804	Max Peak	Horz	54.80	32.93	-29.2	58.5	---	58.5	74	15.5	Res. Band

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz

30 MHz to 10 GHz: Tested at a 3 Meter Distance and 10 GHz to 25 GHz: Tested at a 1 Meter Distance

EUT: V-Hold Prosthetic Vacuum Attachment device
Manufacturer: Innovative Neurotronics Inc.
Operating Condition: 68 deg F; 25% R.H.
Test Site: Site 3
Operator: Craig B
Test Specification: FCC Part 15.247(d) and FCC Part 15.205
Comment: Continuous transmit.
Date: 12/09/2009

Notes: **(1)** Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

Mid Channel (2441 MHz)

Frequency (GHz)	Measurement Type	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Comment
4.882	Average	Vert	47.16	33.07	-29.1	51.1	-41.33	9.8	54	44.2	Res. Band
4.882	Max Peak	Vert	54.90	33.07	-29.1	58.9	---	58.9	74	15.1	Res. Band
4.882	Average	Horz	48.49	33.07	-29.1	52.5	-41.33	11.1	54	42.9	Res. Band
4.882	Max Peak	Horz	56.41	33.07	-29.1	60.4	---	60.4	74	13.6	Res. Band

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz

30 MHz to 10 GHz: Tested at a 3 Meter Distance and 10 GHz to 25 GHz: Tested at a 1 Meter Distance

EUT: V-Hold Prosthetic Vacuum Attachment device
Manufacturer: Innovative Neurotronics Inc.
Operating Condition: 68 deg F; 25% R.H.
Test Site: Site 3
Operator: Craig B
Test Specification: FCC Part 15.247(d) and FCC Part 15.205
Comment: Continuous transmit.
Date: 12/09/2009

Notes: **(1)** Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

High Channel (2480 MHz)

Frequency (GHz)	Measurement Type	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Comment
4.960	Average	Vert	49.87	33.20	-28.9	54.2	-41.33	12.8	54	41.2	Res. Band
4.960	Max Peak	Vert	58.05	33.20	-28.9	62.4	---	62.4	74	11.7	Res. Band
4.960	Average	Horz	48.84	33.20	-28.9	53.1	-41.33	11.8	54	42.2	Res. Band
4.960	Max Peak	Horz	57.27	33.20	-28.9	61.6	---	61.6	74	12.4	Res. Band

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

DATA AND GRAPH(S) TAKEN SHOWING

THE LOWER BAND EDGE

PART 15.247

BAND EDGE FALLS ON THE RESTRICTED

FREQUENCY BAND

NOTE:

Per the FCC's Public Notice "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems under DA 00-705 - March 30, 2000", as indicated in the test data section of this test report.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Test Methodology

Because the upper band-edge coincides with a restricted band, bandedge compliance for the upper band-edge was determined using the radiated mark-delta method as outlined in FCC DA 00-705. The radiated field strength of the fundamental emission was first determined and then the mark-delta method was used to determine the field strength of the band-edge emissions.

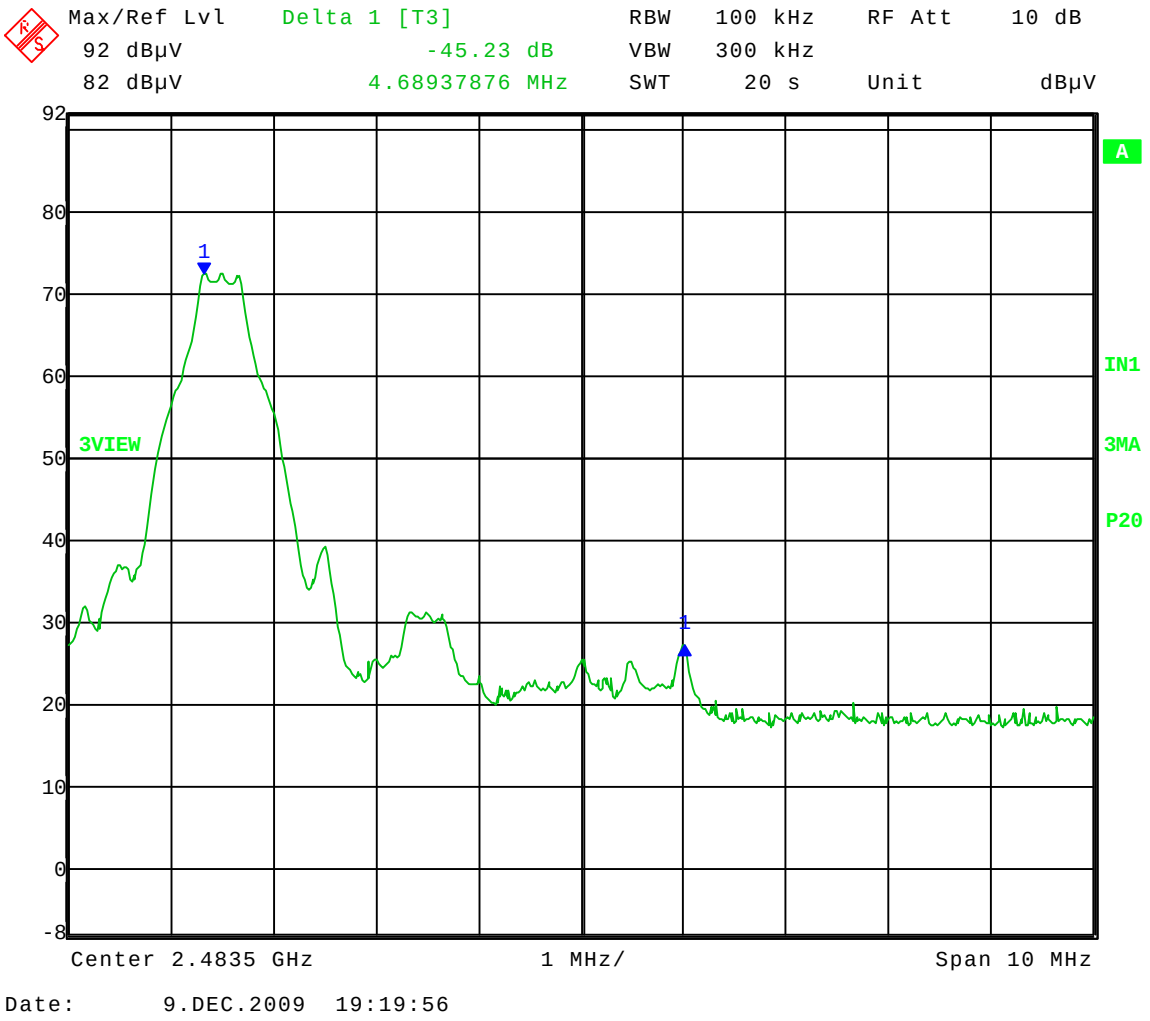
Upper Band-Edge Marker Delta Method

Frequency (MHz)	Antenna Polarity (H/V)	Fundamental Field Strength (dBμV/m)	Duty Cycle Correction (dB)	Delta-Marker (dB)	Band-Edge Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2480 (Peak)	V	102.80	N/A	-45.23	57.57	74	16.43
2480 (Avg)	V	75.35	-41.33	-45.23	-11.21	54	65.21

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Test Date: 12-09-2009
Company: Innovative Neurotronics
EUT: V-Hold Prosthetic Vacuum Attachment device
Test: Upper Band-Edge Radiated – Marker Delta Method
Operator: Craig B
Comment: High Channel: Frequency – 2.480 GHz



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

DATA AND GRAPH(S) TAKEN SHOWING

UPPER BAND EDGE

COMPLIANCE WITH RESTRICTED BAND

PART 15.247

NOTE:

Per the FCC's Public Notice "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems under DA 00-705 - March 30, 2000", as indicated in the test data section of this test report.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Test Methodology

Because the upper band-edge coincides with a restricted band, bandedge compliance for the upper band-edge was determined using the radiated mark-delta method as outlined in FCC DA 00-705. The radiated field strength of the fundamental emission was first determined and then the mark-delta method was used to determine the field strength of the band-edge emissions.

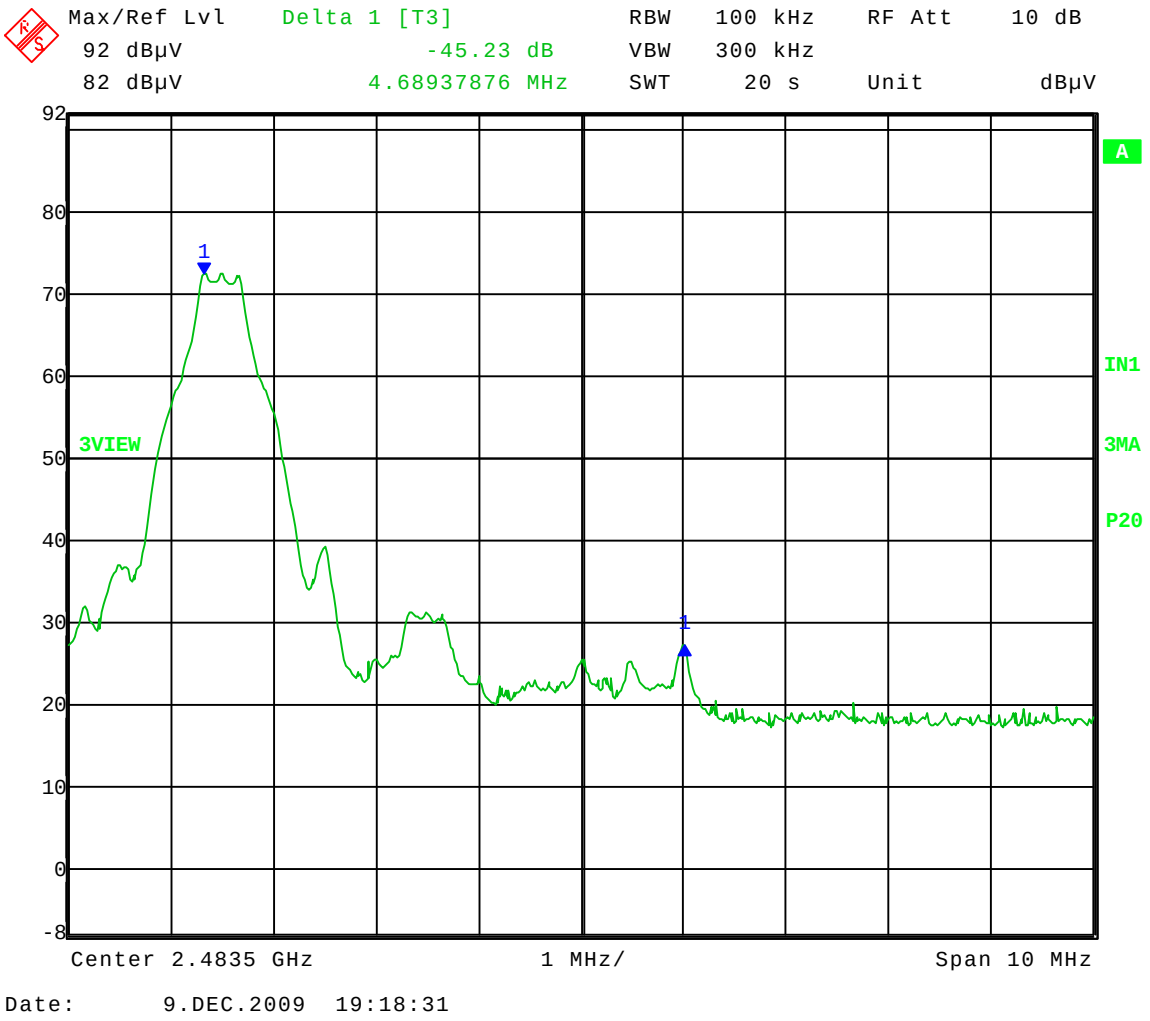
Upper Band-Edge Marker Delta Method

Frequency (MHz)	Antenna Polarity (H/V)	Fundamental Field Strength (dBμV/m)	Duty Cycle Correction (dB)	Delta-Marker (dB)	Band-Edge Field Strength (dBμV/m)	Limit (dBμV/m)	Margin (dB)
2480 (Peak)	H	103.56	N/A	-45.23	58.33	74	15.67
2480 (Avg)	H	75.65	-41.33	-45.23	-10.91	54	64.91

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Test Date: 12-09-2009
Company: Innovative Neurotronics
EUT: V-Hold Prosthetic Vacuum Attachment device
Test: Upper Band-Edge Radiated – Marker Delta Method
Operator: Craig B
Comment: High Channel: Frequency – 2.480 GHz



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

5.0 FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSION MEASUREMENTS

The radiated measurements made at D.L.S. Electronic Systems, Inc., for the Bluetooth OEM Module, Model Number: S22-42, KC21, are shown in tabulated and graph form. Preliminary radiation measurements were performed at a 3 meter test distance with the limits adjusted linearly when required. The frequency range from 30 MHz to over 960 MHz, depending upon the fundamental frequency as stated in Part 15.33a, was automatically scanned and plotted at various angles.

Measurements for the Bluetooth OEM Module were made up to 25000 MHz, in accordance with Section 15.33a for Intentional Radiators with a fundamental frequency of 2402 - 2480 MHz. For intentional radiators, the frequency range to be investigated is determined by the lowest radio frequency generated by the device without going below 30 MHz, up to at least the tenth harmonic of the highest fundamental frequency or 10 GHz, whichever is lower. At those frequencies where significant signals were detected, measurements were made over the entire frequency range specified in FCC Part 15, Subpart C, Section 15.247 at the open field test site, located at Genoa City, Wisconsin, FCC file number **31040/SIT**. When required, limits were extrapolated using a linear extrapolation.

All signals in the frequency range of 30 MHz to 2000 MHz were measured with a Biconical Antenna or tuned dipoles and from 200 MHz to 1000 MHz, a Log Periodic or Tuned Dipoles were used. From 1000 MHz to 25 GHz Horn Antennas were used. During the test the equipment was rotated and the antenna was raised and lowered from 1 meter to 4 meters to find the maximum level of emissions. In order to find maximum emissions, the cables were moved through all the positions the equipment would be expected to experience in the field. The EUT, peripheral equipment and cables were configured to meet the conditions in ANSI C63.4-2003, Clauses 6 & 8, Test procedures for the radiated field strength of spurious emissions is per the FCC's Public Notice "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems under DA 00-705 - March 30, 2000", as indicated in the test data section of this test report. Tests were made with the receive antenna(s) in both the horizontal and vertical planes of polarization. In each case, the table was rotated to find the maximum emissions.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

5.0 FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSION MEASUREMENTS (CON'T)

As stated in Section 15.247(b) the allowed maximum peak output power of the transmitter shall not exceed 1 Watt. In any 100 kHz bandwidth outside these frequency bands (the power that is produced by the modulation products of the spreading sequence), the information sequence and the carrier frequency shall be either at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power. Attenuation below the general limits specified in 15.209 is not required.

Field strength limits are at a distance of 3 meters. The emission limits shown are based on measurement instrumentation employing an average detector.

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

Preliminary radiated emission measurements were performed at a 3 meter test distance. The frequency range from 30 MHz to 1000 MHz was automatically scanned and plotted at various angles.

NOTE:

All radiated emissions measurements were made at a test room temperature of 68°F at 25% relative humidity.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

RADIATED DATA AND GRAPH(S) TAKEN FOR FIELD STRENGTH OF FUNDAMENTAL AND SPURIOUS EMISSION MEASUREMENTS

PART 15.247

30 MHz – 1000 MHz

NOTE:

Per the FCC's Public Notice "Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems under DA 00-705 - March 30, 2000", as indicated in the test data section of this test report.

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz

30 MHz to 10 GHz: Tested at a 3 Meter Distance and 10 GHz to 25 GHz: Tested at a 1 Meter Distance

EUT: V-Hold Prosthetic Vacuum Attachment device
Manufacturer: Innovative Neurotronics Inc.
Operating Condition: 68 deg F; 25% R.H.
Test Site: Site 3
Operator: Craig B
Test Specification: FCC Part 15.247(d) and FCC Part 15.205
Comment: Continuous transmit.
Date: 12/09/2009

Notes: **(1)** Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

Low Channel (2402 MHz)

Frequency (GHz)	Measurement Type	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Comment
4.804	Average	Vert	45.69	32.93	-29.2	49.4	-41.33	8.1	54	45.9	Res. Band
4.804	Max Peak	Vert	52.74	32.93	-29.2	56.5	---	56.5	74	17.5	Res. Band
4.804	Average	Horz	47.32	32.93	-29.2	51.1	-41.33	9.7	54	44.3	Res. Band
4.804	Max Peak	Horz	54.80	32.93	-29.2	58.5	---	58.5	74	15.5	Res. Band

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz

30 MHz to 10 GHz: Tested at a 3 Meter Distance and 10 GHz to 25 GHz: Tested at a 1 Meter Distance

EUT: V-Hold Prosthetic Vacuum Attachment device
Manufacturer: Innovative Neurotronics Inc.
Operating Condition: 68 deg F; 25% R.H.
Test Site: Site 3
Operator: Craig B
Test Specification: FCC Part 15.247(d) and FCC Part 15.205
Comment: Continuous transmit.
Date: 12/09/2009

Notes: **(1)** Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

Mid Channel (2441 MHz)

Frequency (GHz)	Measurement Type	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Comment
4.882	Average	Vert	47.16	33.07	-29.1	51.1	-41.33	9.8	54	44.2	Res. Band
4.882	Max Peak	Vert	54.90	33.07	-29.1	58.9	---	58.9	74	15.1	Res. Band
4.882	Average	Horz	48.49	33.07	-29.1	52.5	-41.33	11.1	54	42.9	Res. Band
4.882	Max Peak	Horz	56.41	33.07	-29.1	60.4	---	60.4	74	13.6	Res. Band

1250 Peterson Dr., Wheeling, IL 60090

Company: Innovative Neurotronics Inc.
Model Tested: S22-42, KC21
Report Number: 15902

APPENDIX B

Radiated Spurious Emissions in Restricted Bands - 30 MHz to 25 GHz

30 MHz to 10 GHz: Tested at a 3 Meter Distance and 10 GHz to 25 GHz: Tested at a 1 Meter Distance

EUT: V-Hold Prosthetic Vacuum Attachment device
Manufacturer: Innovative Neurotronics Inc.
Operating Condition: 68 deg F; 25% R.H.
Test Site: Site 3
Operator: Craig B
Test Specification: FCC Part 15.247(d) and FCC Part 15.205
Comment: Continuous transmit.
Date: 12/09/2009

Notes: **(1)** Peak measurements were taken with RBW = 1 MHz, VBW = 3 MHz
(2) Average measurements were taken with RBW = 1 MHz, VBW = 10 Hz
(3) All other restricted band emissions at least 20 dB under the limit.

High Channel (2480 MHz)

Frequency (GHz)	Measurement Type	Ant. Pol.	Level (dBuV)	Antenna Factor (dB/m)	System Loss (dB)	Total Level (dBuV/m)	Duty Cycle Correction (dB)	Final Corrected (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Comment
4.960	Average	Vert	49.87	33.20	-28.9	54.2	-41.33	12.8	54	41.2	Res. Band
4.960	Max Peak	Vert	58.05	33.20	-28.9	62.4	---	62.4	74	11.7	Res. Band
4.960	Average	Horz	48.84	33.20	-28.9	53.1	-41.33	11.8	54	42.2	Res. Band
4.960	Max Peak	Horz	57.27	33.20	-28.9	61.6	---	61.6	74	12.4	Res. Band

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

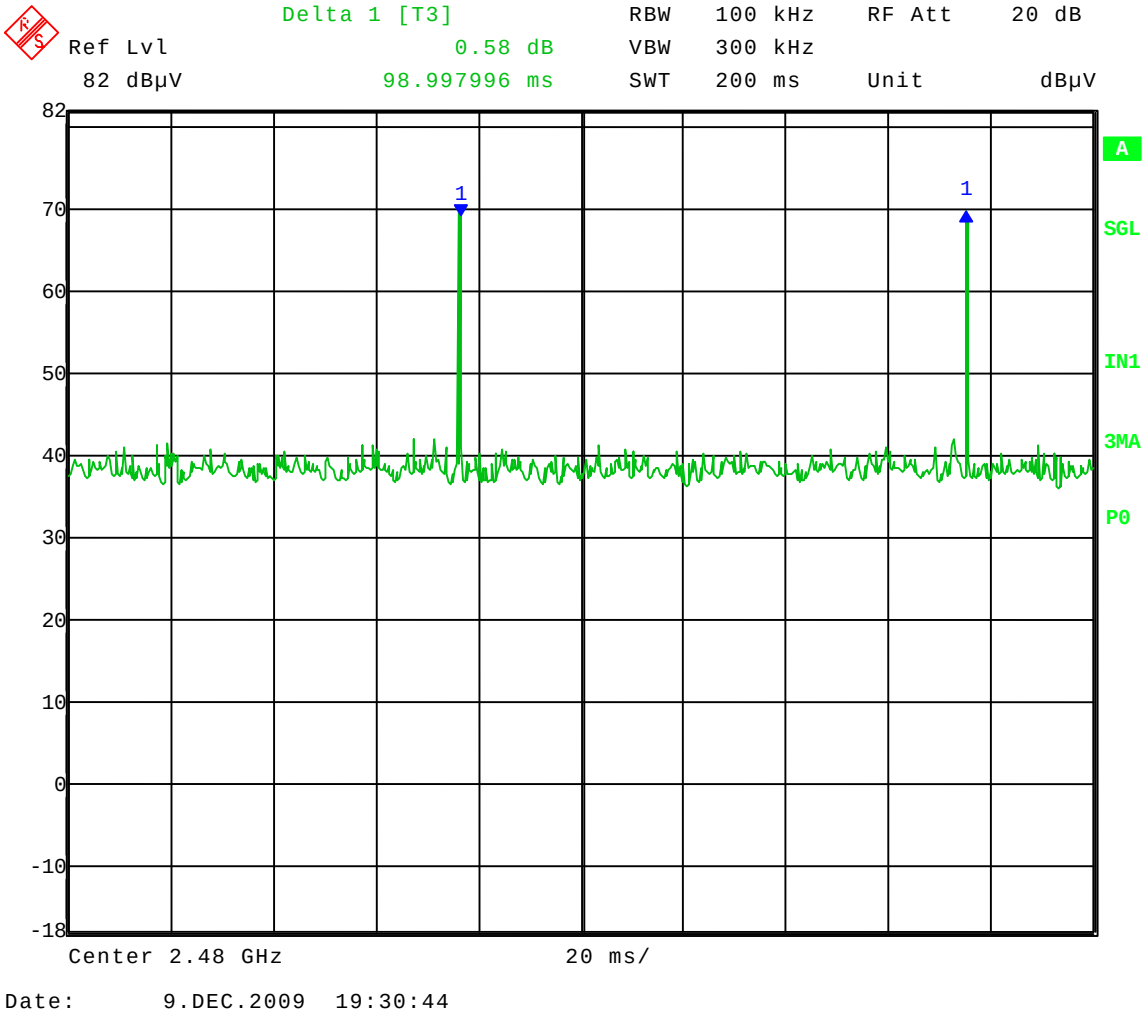
TRANSMITTER DUTY CYCLE GRAPHS

PART 15.35(c)

1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Test Date: 12-09-2009
Company: Innovative Neurotronics
EUT: V-Hold Prosthetic Vacuum Attachment device
Test: Duty Cycle – normal operation - FCC Pt. 15.35(c)
Operator: Craig B
Comment: Two pulses possible during 100 ms.
Each pulse = 428.86 µs.
Total on Time in 100 ms = 2 x 428.86 µs = 0.85772 ms.
20 log (0.85772/100) = -41.33
Duty Cycle Correction Factor = 41.33 dB



1250 Peterson Dr., Wheeling, IL 60090

APPENDIX B

Test Date: 12-09-2009
Company: Innovative Neurotronics
EUT:
Test: Duty Cycle – normal operation
Operator: Craig B

Comment: On Time for one pulse