

Spacelabs Medical

91343-09 and 91347-09

July 10, 2006

Report No. SPAC0415 Rev. 1

Report Prepared By



www.nwemc.com

1-888-EMI-CERT

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EMC Test Report



22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test
Issue Date: July 10, 2006
Spacelabs Medical
Models: 91343-09 and 91347-09

Emissions				
Test Description	Specification	Test Method	Pass	Fail
Field Strength of Fundamental	FCC 95.1115(a):2004	TIA/EIA-603-B:2001	☒	☐
Field Strength of Spurious Emissions	FCC 95.1115(b):2004	TIA/EIA-603-B:2001	☒	☐
Occupied Bandwidth	FCC 2.1049:2004	TIA/EIA-603-B:2001	☒	☐
Frequency Stability	FCC 2.1055:2004	TIA/EIA-603-B:2001	☒	☐
Conducted Output Power	FCC 95H:2005	TIA/EIA-603-B:2002	☒	☐

Modifications made to the product

See the Modifications section of this report

Test Facility

The measurement facility used to collect the data is located at:

Northwest EMC, Inc.
22975 NW Evergreen Parkway, Suite 400; Hillsboro, OR 97124
Phone: (503) 844-4066
Fax: 844-3826

This site has been fully described in a report filed with and accepted by the FCC (Federal Communications Commission) and Industry Canada.

Approved By:

Dean Ghizzone, President

This report must not be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government of the United States of America.

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. This Report may only be duplicated in its entirety. 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.

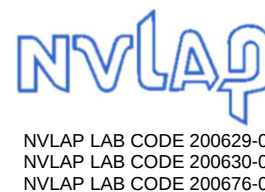
Revision Number	Description	Date	Page Number
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01	Changed report number, and date on Cover Page, and Certificate of Test.	7/10/2006	Cover Page, 2
01	Added Conducted Output Power specification to Certificate of Test.	7/10/2006	2
01	Added Conducted Output Power to modification page.	7/10/2006	11
01	Added test description, test data, and photos for Conducted Output Power to report.	7/10/2006	43-47

FCC: Accredited by NVLAP for performance of FCC radio, digital, and ISM device testing. Our Open Area Test Sites, certification chambers, and conducted measurement facilities have been fully described in reports filed with the FCC and accepted by the FCC in letters maintained in our files. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by the FCC as a Telecommunications Certification Body (TCB). This allows Northwest EMC to certify transmitters to FCC specifications in accordance with 47 CFR 2.960 and 2.962.



NVLAP: Northwest EMC, Inc. is accredited under the United States Department of Commerce, National Institute of Standards and Technology, and National Voluntary Laboratory Accreditation Program for satisfactory compliance with the requirements of ISO/IEC 17025 for Testing Laboratories. The NVLAP accreditation encompasses Electromagnetic Compatibility Testing in accordance with the European Union EMC Directive 89/336/EEC, ANSI C63.4, MIL-STD 461E, DO-160D and SAE J1113. Additionally, Northwest EMC is accredited by NVLAP to perform radio testing in accordance with the European Union R&TTE Directive 1999/5/EEC, the requirements of FCC, and the RSS radio standards for Industry Canada.



Industry Canada: Accredited by NVLAP for performance of Industry Canada RSS and ICES testing. Our Open Area Test Sites and certification chambers comply with RSS 212, Issue 1 (Provisional) and have been filed with Industry Canada and accepted. Northwest EMC has been accredited by ANSI to ISO / IEC Guide 65 as a product certifier. We have been designated by NIST and recognized by Industry Canada as a Certification Body (CB) per the APEC Mutual Recognition Arrangement (MRA). This allows Northwest EMC to certify transmitters to Industry Canada technical requirements.



CAB: Designated by NIST and validated by the European Commission as a Conformity Assessment Body (CAB) to conduct tests and approve products to the EMC directive and transmitters to the R&TTE directive, as described in the U.S. - EU Mutual Recognition Agreement.



TÜV Product Service: Included in TÜV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TÜV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TÜV's current Listing of CARAT Laboratories, available from TÜV. A certificate was issued to represent that this laboratory continues to meet TÜV's CARAT Program requirements. Certificate No. USA0401C.



TÜV Rheinland: Authorized to carryout EMC tests by order and under supervision of TÜV Rheinland. This authorization is based on "Conditions for EMC-Subcontractors" of November 1992.



NEMKO: Assessed and accredited by NEMKO (Norwegian testing and certification body) for European emissions and immunity testing. As a result of NEMKO's laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification (Authorization No. ELA 119).



Technology International: Assessed in accordance with ISO Guide 25 defining the general international requirements for the competence of calibration and testing laboratories and with ITI assessment criteria LACO196. Based upon that assessment, Interference Technology International, Ltd., has granted approval for specifications implementing the EU Directive on EMC (89/336/EEC and amendments). The scope of the approval was provided on a Schedule of Assessment supplied with the certificate and is available upon request.



Australia/New Zealand: The National Association of Testing Authorities (NATA), Australia has been appointed by the ACA as an accreditation body to accredit test laboratories and competent bodies for EMC standards. Accredited test reports or assessments by competent bodies must carry the NATA logo. Test reports made by an overseas laboratory that has been accredited for the relevant standards by an overseas accreditation body that has a Mutual Recognition Agreement (MRA) with NATA are also accepted as technical grounds for product conformity. The report should be endorsed with the respective logo of the accreditation body (NVLAP).



VCCI: Accepted as an Associate Member to the VCCI, Acceptance No. 564. Conducted and radiated measurement facilities have been registered in accordance with Regulations for Voluntary Control Measures, Article 8. (*Registration Numbers. - Hillsboro: C-1071 and R-1025, Irvine: C-2094 and R-1943, Sultan: R-871, C-1784 and R-1761.*)



BSMI: Northwest EMC has been designated by NIST and validated by C-Taipei (BSMI) as a CAB to conduct tests as described in the APEC Mutual Recognition Agreement. License No.SL2-IN-E-1017.



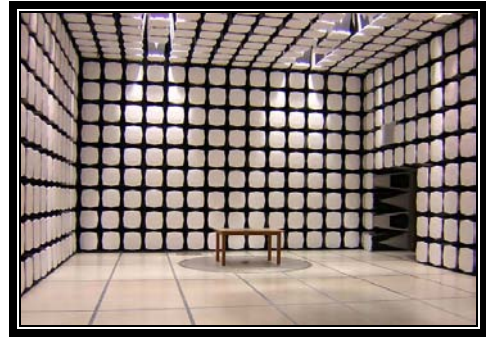
GOST: Northwest EMC, Inc. has been assessed and accredited by the Russian Certification bodies Certinform VNIINMASH, CERTINFO, SAMTES, and Federal CHEC, to perform EMC and Hygienic testing for Information Technology Products. As a result of their laboratory assessment, they will accept test results from Northwest EMC, Inc. for product certification



SCOPE

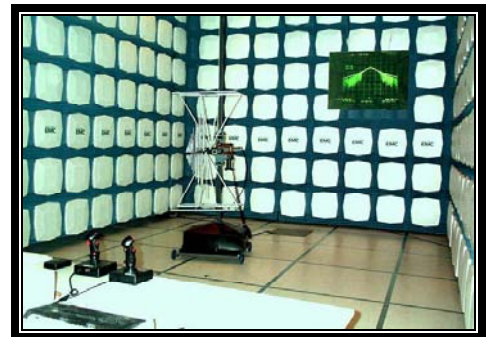
For details on the Scopes of our Accreditations, please visit:

<http://www.nwemc.com/scope.asp>



**California – Orange County Facility
Labs OC01 – OC13**

41 Tesla Ave. Irvine, CA 92618
(888) 364-2378 Fax: (503) 844-3826



**Oregon – Evergreen Facility
Labs EV01 – EV10**

22975 NW Evergreen Pkwy. Suite 400 Hillsboro, OR 97124
(503) 844-4066 Fax: (503) 844-3826



**Washington – Sultan Facility
Labs SU01 – SU07**

14128 339th Ave. SE Sultan, WA 98294
(888) 364-2378

Party Requesting the Test

Company Name:	Spacelabs Medical
Address:	5150 220 th Ave SE
City, State, Zip:	Issaquah, WA 98029
Test Requested By:	Steve Cantwell
Model:	91343-09 and 91347-09
First Date of Test:	March 22, 2006
Last Date of Test:	March 31, 2006
Receipt Date of Samples:	February 22, 2006
Equipment Design Stage:	Production
Equipment Condition:	No visual damage.

Information Provided by the Party Requesting the Test

Clocks/Oscillators:	Not provided.
I/O Ports:	91343-09: NiBP, SpO2, ECG (x5) 91347-09: ECG (x5)

Functional Description of the EUT (Equipment Under Test):

Both of the EUTs are patient worn monitors. The devices are the same except the 91343-09 unit has an additional SpO2 board and different plastic packaging.

Client Justification for EUT Selection:

The products are representative production samples. For FCC part 95, tests were performed on both units to demonstrate compliance.

Client Justification for Test Selection:

These tests are required by our customers to satisfy FCC Part 95.

EUT Photo

CONFIGURATION 1 SPAC0415

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Patient Worn Transmitter	Spacelabs Medical	91343-09	1343-000005

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Shorting Bar	Spacelabs Medical	N/A	N/A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Patient Leads (5 each)	No	1.0m	No	Patient Worn Transmitter	Shorting Bar
SpO2	Yes	1.0m	No	Patient Worn Transmitter	Terminated
NIBP	Yes	1.5m	No	Patient Worn Transmitter	Unterminated
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 2 SPAC0415

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Patient Worn Transmitter	Spacelabs Medical	91347-09	1347-000001

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Shorting Bar	Spacelabs Medical	N/A	N/A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Patient Leads (5 each)	No	1.0m	No	Patient Worn Transmitter	Shorting Bar
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 3 SPAC0415

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Patient Worn Transmitter	Spacelabs Medical	91347-09	1347-000005

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Shorting Bar	Spacelabs Medical	N/A	N/A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Patient Leads (5 each)	No	1.0m	No	Patient Worn Transmitter	Shorting Bar
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 4 SPAC0415

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Patient Worn Transmitter	Spacelabs Medical	91343-09	1343-000005

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Shorting Bar	Spacelabs Medical	N/A	N/A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Patient Leads (5 each)	No	1.0m	No	Patient Worn Transmitter	Shorting Bar
SpO2	Yes	1.0m	No	Patient Worn Transmitter	Terminated
NIBP	Yes	1.5m	No	Patient Worn Transmitter	Unterminated
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 5 SPAC0415

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Patient Worn Transmitter	Spacelabs Medical	91347-09	See comments

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Shorting Bar	Spacelabs Medical	N/A	N/A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Patient Leads (5 each)	No	1.0m	No	Patient Worn Transmitter	Shorting Bar
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

CONFIGURATION 6 SPAC0415

Software/Firmware Running during test	
Description	Version
Patient Monitoring System	Unknown

EUT			
Description	Manufacturer	Model/Part Number	Serial Number
Patient Worn Transmitter	Spacelabs Medical	91343-09	1343-000005

Peripherals in test setup boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Shorting Bar	Spacelabs Medical	N/A	N/A

Remote Equipment Outside of Test Setup Boundary			
Description	Manufacturer	Model/Part Number	Serial Number
Patient Monitor	Spacelabs Medical	90369	369-119324
DC Block	Aim	25-7901	Unknown
V-Band Module (installed in Patient Monitor)	Spacelabs Medical	90478	478-142126
Down Converter	Spacelabs Medical	Down Converter STD	N/A

Power Inserter	Unknown	Unknown	P10015012
Power Supply 1	Ault, Inc.	MW100	119-0251-01
Power Supply 2	Jerome Industries	WSL724	Unknown
Antenna	Spacelabs Medical	650-1381-01	N/A

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Patient Leads (5 each)	No	1.0m	No	Patient Worn Transmitter	Shorting Bar
SpO2	Yes	1.0m	No	Patient Worn Transmitter	Terminated
NIBP	Yes	1.5m	No	Patient Worn Transmitter	Unterminated
RG-59	Yes	200ft	No	Antenna	Down Converter
RG-59	Yes	100ft	No	Down Converter	Power inserter
RG-59	Yes	4ft	No	Power inserter	DC Block
F to BNC Adapter	Yes	0	No	DC Block	V-Band Module
DC	P/A	1.2m	No	Patient Monitor	Power Supply 1
DC	Yes	0.5m	No	Down Converter	Power Supply 2
AC	No	1.8m	No	Power Supply 1	AC Mains
AC	No	2.0m	No	Power Supply 2	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

Equipment modifications					
Item	Date	Test	Modification	Note	Disposition of EUT
1	3/22/2006	Field Strength of Spurious Emissions	Modified from delivered configuration. Initial or No Modification	Improved grounding on internal shielding on both units. Modification done by Steve Cantwell.	EUT remained at Northwest EMC following the test.
2	3/27/2006	Field Strength of Fundamental	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
3	3/28/2006	Occupied Bandwidth	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
4	3/29/2006	Frequency Stability	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
5	3/30/2006	Field Strength of the Fundamental	Tested as delivered to Test Station.	No EMI suppression devices were added or modified during this test.	EUT remained at Northwest EMC following the test.
6	3/31/2006	Field Strength of Spurious Emissions	Modified from delivered configuration. This Modification is in Addition to Previous Modifications.	This is not really an EMI modification. I removed the SpO2 board from the 91343-09. This effectively made the 91343-09 unit a 91347-09 unit, which was tested here. The boards are identical. Modification done by Holly Ashkannejhad.	EUT remained at Northwest EMC following the test.
7	6/30/2006	Conducted Output Power	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.

MODES OF OPERATION

Transmitting low band, low channel 1395.05MHz
Transmitting low band, high channel 1399.95MHz
Transmitting high band, low channel 1427.05MHz
Transmitting high band, high channel 1431.45MHz

DEVICES INVESTIGATED

91347-09
91343-09

POWER SETTINGS INVESTIGATED

9V Battery

FREQUENCY RANGE INVESTIGATED

Start Frequency	1395MHz	Stop Frequency	1432MHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Antenna, Horn	EMCO	3115	AHC	8/30/2005	12
Spectrum Analyzer	Agilent	E4446A	AAQ	7/15/2005	12

MEASUREMENT BANDWIDTHS

Frequency Range	Peak Data	Quasi-Peak Data	Average Data
(MHz)	(kHz)	(kHz)	(kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

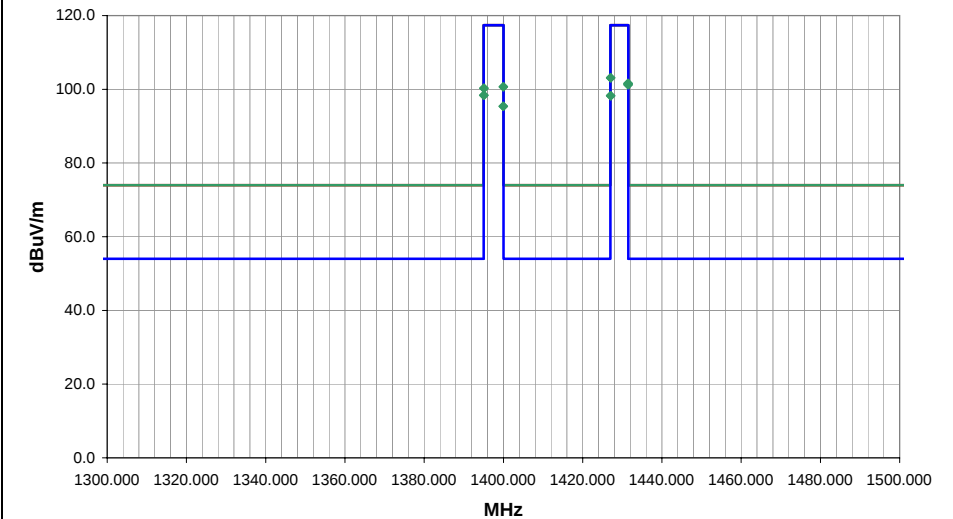
Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

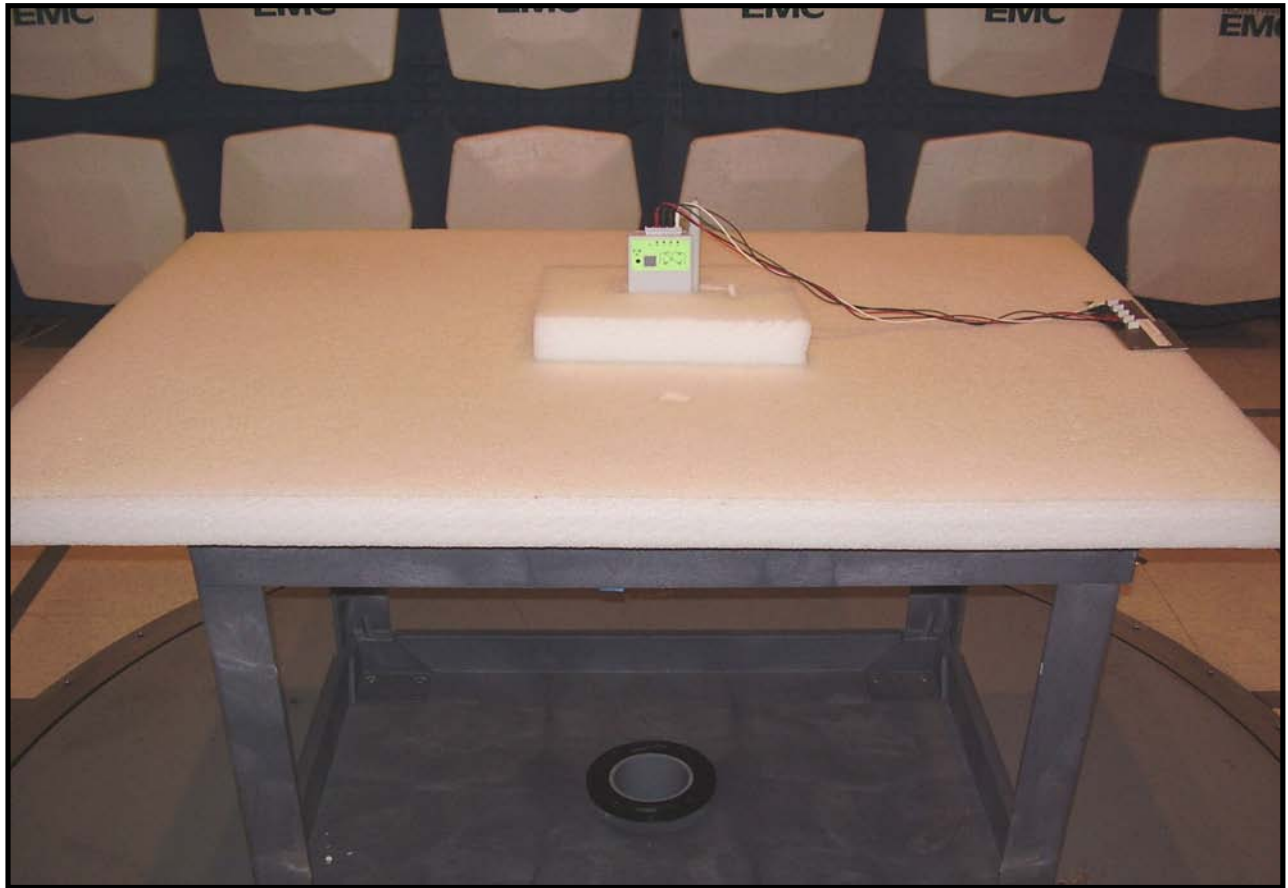
Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

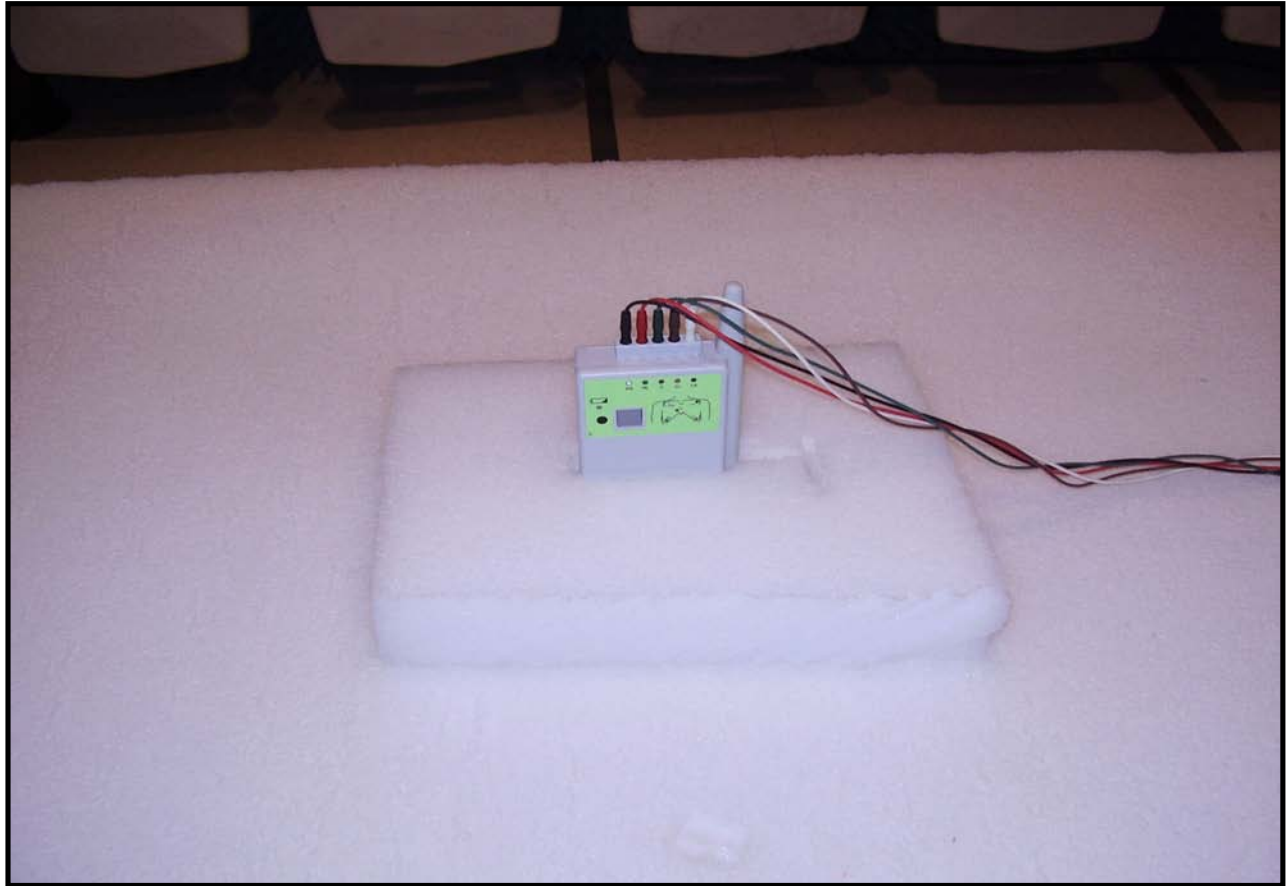
TEST DESCRIPTION

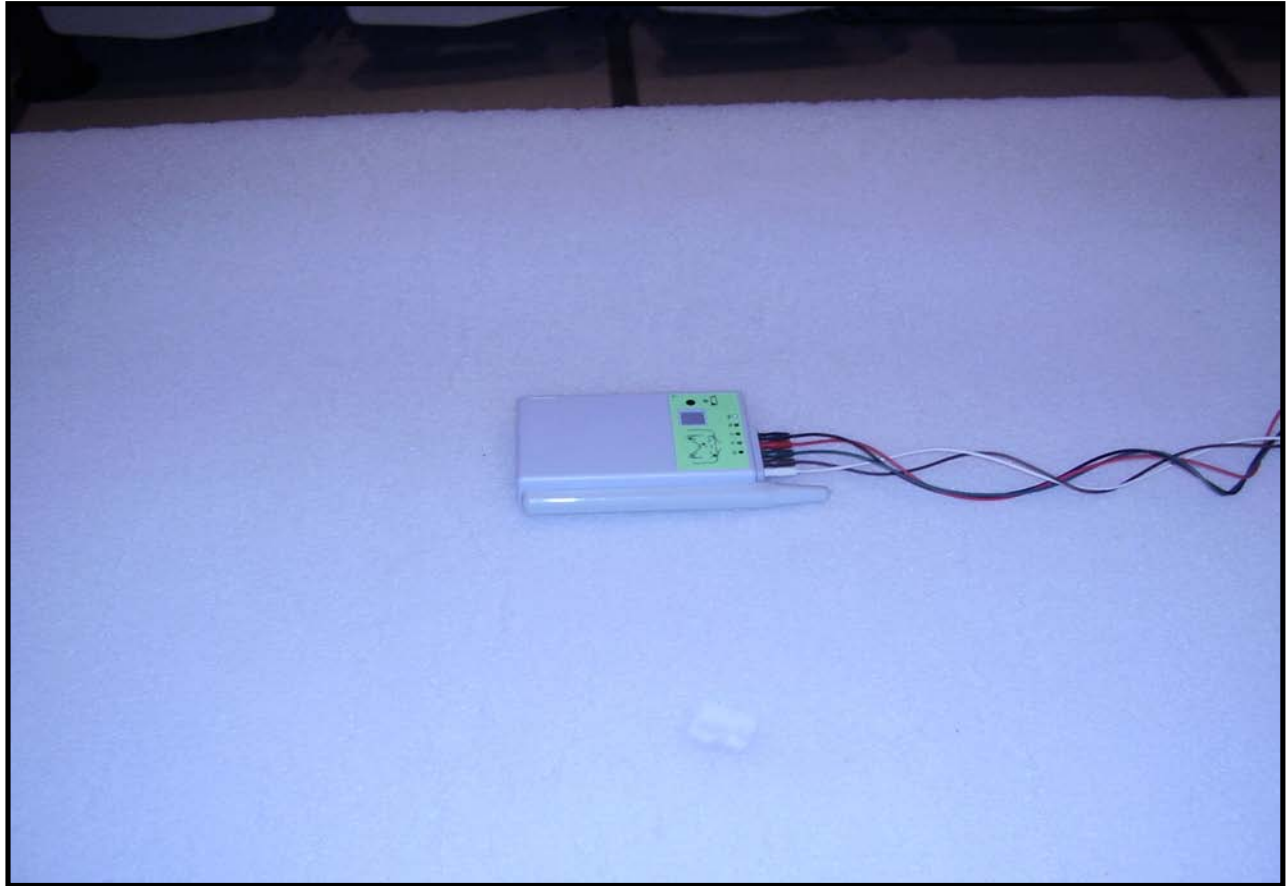
The antennas to be used with the EUT were tested. The EUT was transmitting while set at the lowest channel and the highest channel available in each band. While scanning, emissions from the EUT were maximized by rotating the EUT, adjusting the measurement antenna height and polarization, and manipulating the EUT antenna in 3 orthogonal planes.

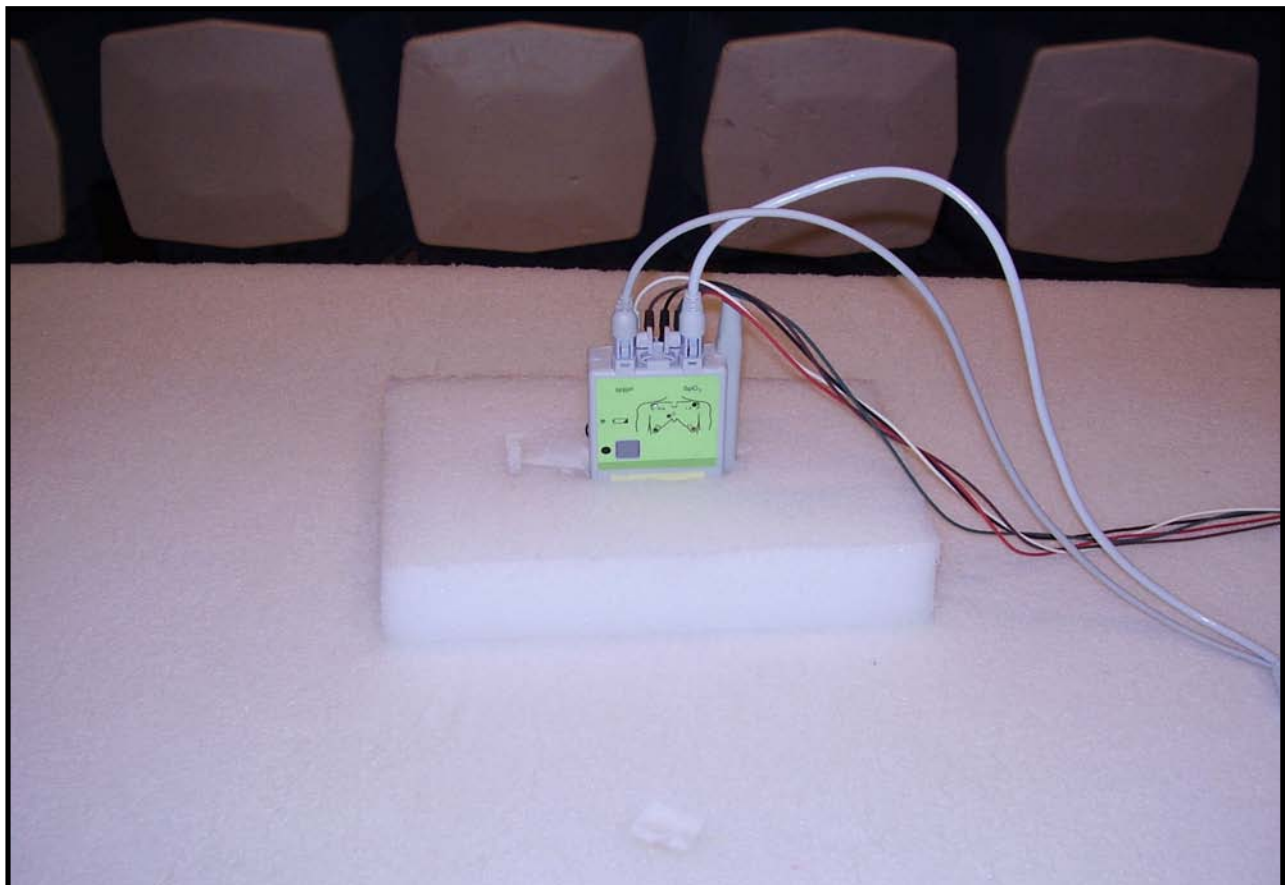
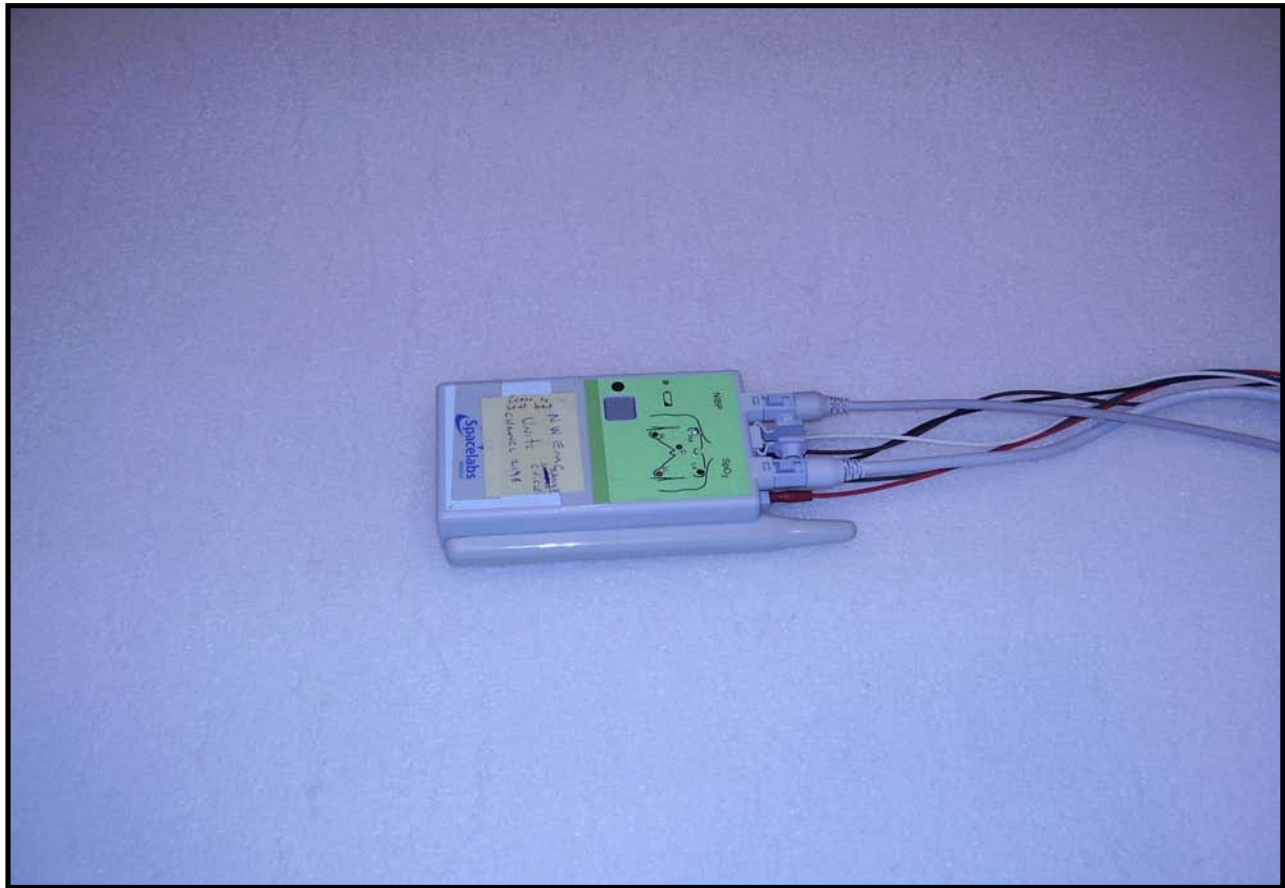
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<table><thead><tr><th>Freq (MHz)</th><th>Amplitude (dBuV)</th><th>Factor (dB)</th><th>Azimuth (degrees)</th><th>Height (meters)</th><th>Distance (meters)</th><th>External Attenuation (dB)</th><th>Polarity</th><th>Detector</th><th>Distance Adjustment (dB)</th><th>Adjusted dBuV/m</th><th>Spec. Limit dBuV/m</th><th>Compared to Spec. (dB)</th><th>Comments</th></tr></thead><tbody><tr><td>1427.085</td><td>75.8</td><td>27.3</td><td>14.0</td><td>1.4</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>103.1</td><td>117.4</td><td>-14.3</td><td>High band, low channel. EUT horizontal.</td></tr><tr><td>1427.047</td><td>75.8</td><td>27.3</td><td>14.0</td><td>1.4</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>103.1</td><td>117.4</td><td>-14.3</td><td>High band, low channel. EUT horizontal.</td></tr><tr><td>1431.488</td><td>74.3</td><td>27.3</td><td>78.0</td><td>1.5</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>101.6</td><td>117.4</td><td>-15.8</td><td>High band, high channel. EUT vertical.</td></tr><tr><td>1431.439</td><td>74.3</td><td>27.3</td><td>78.0</td><td>1.5</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>101.6</td><td>117.4</td><td>-15.8</td><td>High band, high channel. EUT vertical.</td></tr><tr><td>1431.449</td><td>74.0</td><td>27.3</td><td>8.0</td><td>1.3</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>101.3</td><td>117.4</td><td>-16.1</td><td>High band, high channel. EUT vertical.</td></tr><tr><td>1431.479</td><td>73.9</td><td>27.3</td><td>8.0</td><td>1.3</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>101.2</td><td>117.4</td><td>-16.2</td><td>High band, high channel. EUT vertical.</td></tr><tr><td>1399.984</td><td>73.5</td><td>27.2</td><td>9.0</td><td>1.4</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>100.7</td><td>117.4</td><td>-16.7</td><td>Low band, High channel. EUT horizontal.</td></tr><tr><td>1399.961</td><td>73.5</td><td>27.2</td><td>9.0</td><td>1.4</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>100.7</td><td>117.4</td><td>-16.7</td><td>Low band, High channel. EUT horizontal.</td></tr><tr><td>1395.081</td><td>73.1</td><td>27.2</td><td>17.0</td><td>1.0</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>100.3</td><td>117.4</td><td>-17.1</td><td>Low band, Low channel. EUT horizontal.</td></tr><tr><td>1395.047</td><td>73.1</td><td>27.2</td><td>17.0</td><td>1.0</td><td>0.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>100.3</td><td>117.4</td><td>-17.1</td><td>Low band, Low channel. EUT horizontal.</td></tr><tr><td>1395.086</td><td>71.2</td><td>27.2</td><td>337.0</td><td>1.2</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>98.4</td><td>117.4</td><td>-19.0</td><td>Low band, Low channel. EUT vertical.</td></tr><tr><td>1395.019</td><td>71.2</td><td>27.2</td><td>337.0</td><td>1.2</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>98.4</td><td>117.4</td><td>-19.0</td><td>Low band, Low channel. EUT vertical.</td></tr><tr><td>1427.037</td><td>71.0</td><td>27.3</td><td>276.0</td><td>1.3</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>98.3</td><td>117.4</td><td>-19.1</td><td>High band, low channel. EUT vertical.</td></tr><tr><td>1427.080</td><td>70.9</td><td>27.3</td><td>276.0</td><td>1.3</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>98.2</td><td>117.4</td><td>-19.2</td><td>High band, low channel. EUT vertical.</td></tr><tr><td>1399.982</td><td>68.2</td><td>27.2</td><td>277.0</td><td>1.3</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>95.4</td><td>117.4</td><td>-22.0</td><td>Low band, High channel. EUT on side.</td></tr><tr><td>1399.953</td><td>68.2</td><td>27.2</td><td>277.0</td><td>1.3</td><td>0.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>95.4</td><td>117.4</td><td>-22.0</td><td>Low band, High channel. EUT on side.</td></tr></tbody></table>						Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments	1427.085	75.8	27.3	14.0	1.4	0.0	0.0	H-Horn	AV	0.0	103.1	117.4	-14.3	High band, low channel. EUT horizontal.	1427.047	75.8	27.3	14.0	1.4	0.0	0.0	H-Horn	PK	0.0	103.1	117.4	-14.3	High band, low channel. EUT horizontal.	1431.488	74.3	27.3	78.0	1.5	0.0	0.0	V-Horn	AV	0.0	101.6	117.4	-15.8	High band, high channel. EUT vertical.	1431.439	74.3	27.3	78.0	1.5	0.0	0.0	V-Horn	PK	0.0	101.6	117.4	-15.8	High band, high channel. EUT vertical.	1431.449	74.0	27.3	8.0	1.3	0.0	0.0	H-Horn	PK	0.0	101.3	117.4	-16.1	High band, high channel. EUT vertical.	1431.479	73.9	27.3	8.0	1.3	0.0	0.0	H-Horn	AV	0.0	101.2	117.4	-16.2	High band, high channel. EUT vertical.	1399.984	73.5	27.2	9.0	1.4	0.0	0.0	H-Horn	AV	0.0	100.7	117.4	-16.7	Low band, High channel. EUT horizontal.	1399.961	73.5	27.2	9.0	1.4	0.0	0.0	H-Horn	PK	0.0	100.7	117.4	-16.7	Low band, High channel. EUT horizontal.	1395.081	73.1	27.2	17.0	1.0	0.0	0.0	H-Horn	AV	0.0	100.3	117.4	-17.1	Low band, Low channel. EUT horizontal.	1395.047	73.1	27.2	17.0	1.0	0.0	0.0	H-Horn	PK	0.0	100.3	117.4	-17.1	Low band, Low channel. EUT horizontal.	1395.086	71.2	27.2	337.0	1.2	0.0	0.0	V-Horn	AV	0.0	98.4	117.4	-19.0	Low band, Low channel. EUT vertical.	1395.019	71.2	27.2	337.0	1.2	0.0	0.0	V-Horn	PK	0.0	98.4	117.4	-19.0	Low band, Low channel. EUT vertical.	1427.037	71.0	27.3	276.0	1.3	0.0	0.0	V-Horn	PK	0.0	98.3	117.4	-19.1	High band, low channel. EUT vertical.	1427.080	70.9	27.3	276.0	1.3	0.0	0.0	V-Horn	AV	0.0	98.2	117.4	-19.2	High band, low channel. EUT vertical.	1399.982	68.2	27.2	277.0	1.3	0.0	0.0	V-Horn	AV	0.0	95.4	117.4	-22.0	Low band, High channel. EUT on side.	1399.953	68.2	27.2	277.0	1.3	0.0	0.0	V-Horn	PK	0.0	95.4	117.4	-22.0	Low band, High channel. EUT on side.
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments																																																																																																																																																																																																																																						
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1431.488	74.3	27.3	78.0	1.5	0.0	0.0	V-Horn	AV	0.0	101.6	117.4	-15.8	High band, high channel. EUT vertical.																																																																																																																																																																																																																																						
1431.439	74.3	27.3	78.0	1.5	0.0	0.0	V-Horn	PK	0.0	101.6	117.4	-15.8	High band, high channel. EUT vertical.																																																																																																																																																																																																																																						
1431.449	74.0	27.3	8.0	1.3	0.0	0.0	H-Horn	PK	0.0	101.3	117.4	-16.1	High band, high channel. EUT vertical.																																																																																																																																																																																																																																						
1431.479	73.9	27.3	8.0	1.3	0.0	0.0	H-Horn	AV	0.0	101.2	117.4	-16.2	High band, high channel. EUT vertical.																																																																																																																																																																																																																																						
1399.984	73.5	27.2	9.0	1.4	0.0	0.0	H-Horn	AV	0.0	100.7	117.4	-16.7	Low band, High channel. EUT horizontal.																																																																																																																																																																																																																																						
1399.961	73.5	27.2	9.0	1.4	0.0	0.0	H-Horn	PK	0.0	100.7	117.4	-16.7	Low band, High channel. EUT horizontal.																																																																																																																																																																																																																																						
1395.081	73.1	27.2	17.0	1.0	0.0	0.0	H-Horn	AV	0.0	100.3	117.4	-17.1	Low band, Low channel. EUT horizontal.																																																																																																																																																																																																																																						
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1427.037	71.0	27.3	276.0	1.3	0.0	0.0	V-Horn	PK	0.0	98.3	117.4	-19.1	High band, low channel. EUT vertical.																																																																																																																																																																																																																																						
1427.080	70.9	27.3	276.0	1.3	0.0	0.0	V-Horn	AV	0.0	98.2	117.4	-19.2	High band, low channel. EUT vertical.																																																																																																																																																																																																																																						
1399.982	68.2	27.2	277.0	1.3	0.0	0.0	V-Horn	AV	0.0	95.4	117.4	-22.0	Low band, High channel. EUT on side.																																																																																																																																																																																																																																						
1399.953	68.2	27.2	277.0	1.3	0.0	0.0	V-Horn	PK	0.0	95.4	117.4	-22.0	Low band, High channel. EUT on side.																																																																																																																																																																																																																																						

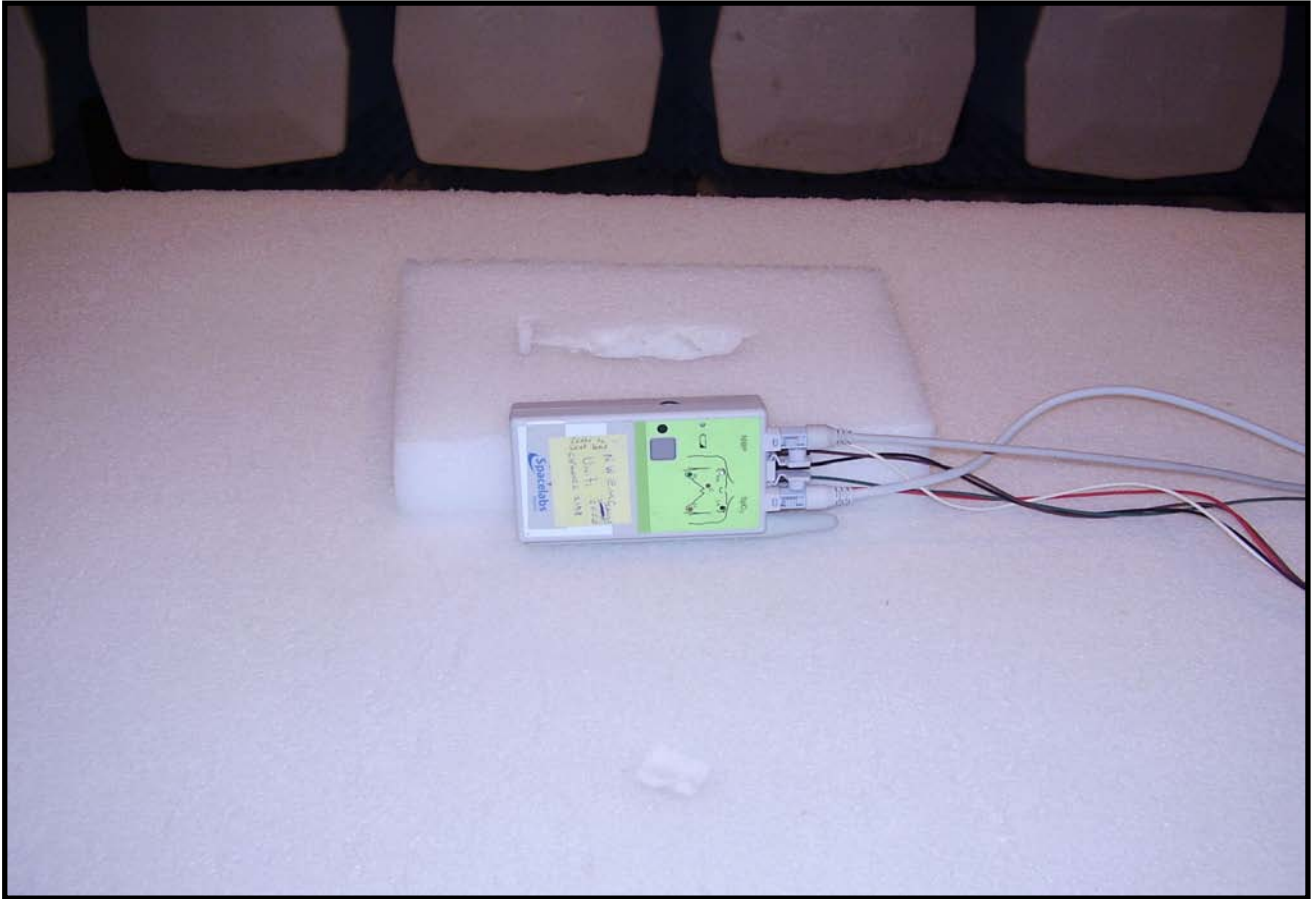
NORTHWEST		Field Strength of Fundamental Data Sheet		PSA 2006.03.15									
EMC				EMI 2006.3.27									
EUT: 91343-09		Work Order: SPAC0415											
Serial Number: 1343-000005		Date: 03/30/06											
Customer: Spacelabs Medical		Temperature: 21											
Attendees: None		Humidity: 35%											
Project: None		Barometric Pres.: 29.98											
Tested by: Holly Ashkannejhad		Power: 9V Battery		Job Site: EV01									
TEST SPECIFICATIONS		Test Method											
FCC 95.1115:2004		TIA/EIA-603-B:2001											
TEST PARAMETERS													
Antenna Height(s) (m)		1 - 4		Test Distance (m) 3									
COMMENTS													
EUT OPERATING MODES													
Transmitting, see comments for channel, band.													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #		15											
Configuration #		4											
Results		Pass NVLAP Lab Code 200630-0											
Signature Holly Ashkannejhad													
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
1427.095	74.7	27.3	164.0	1.3	3.0	0.0	H-Horn	AV	0.0	102.0	117.4	-15.4	High band, low channel. EUT horizontal.
1427.042	74.7	27.3	164.0	1.3	3.0	0.0	H-Horn	PK	0.0	102.0	117.4	-15.4	High band, low channel. EUT horizontal.
1431.492	74.5	27.3	327.0	1.4	3.0	0.0	H-Horn	AV	0.0	101.8	117.4	-15.6	High band, high channel. EUT horizontal.
1431.464	74.5	27.3	327.0	1.4	3.0	0.0	H-Horn	PK	0.0	101.8	117.4	-15.6	High band, high channel. EUT horizontal.
1399.989	73.8	27.2	5.0	1.4	3.0	0.0	H-Horn	AV	0.0	101.0	117.4	-16.4	Low band, high channel. EUT horizontal.
1399.953	73.8	27.2	5.0	1.4	3.0	0.0	H-Horn	PK	0.0	101.0	117.4	-16.4	Low band, high channel. EUT horizontal.
1395.088	73.1	27.2	163.0	1.3	3.0	0.0	H-Horn	AV	0.0	100.3	117.4	-17.1	Low band, low channel. EUT horizontal.
1395.043	73.0	27.2	163.0	1.3	3.0	0.0	H-Horn	PK	0.0	100.2	117.4	-17.2	Low band, low channel. EUT horizontal.
1431.493	72.8	27.3	255.0	1.0	3.0	0.0	V-Horn	AV	0.0	100.1	117.4	-17.3	High band, high channel. EUT vertical.
1431.454	72.8	27.3	255.0	1.0	3.0	0.0	V-Horn	PK	0.0	100.1	117.4	-17.3	High band, high channel. EUT vertical.
1395.092	72.9	27.2	132.0	1.6	3.0	0.0	V-Horn	AV	0.0	100.1	117.4	-17.3	Low band, low channel. EUT vertical.
1395.055	72.9	27.2	132.0	1.6	3.0	0.0	V-Horn	PK	0.0	100.1	117.4	-17.3	Low band, low channel. EUT vertical.
1427.088	70.7	27.3	138.0	1.0	3.0	0.0	V-Horn	AV	0.0	98.0	117.4	-19.4	High band, low channel. EUT vertical.
1427.056	70.7	27.3	138.0	1.0	3.0	0.0	V-Horn	PK	0.0	98.0	117.4	-19.4	High band, low channel. EUT vertical.
1399.995	68.8	27.2	236.0	1.0	3.0	0.0	V-Horn	AV	0.0	96.0	117.4	-21.4	Low band, high channel. EUT vertical.
1399.968	68.8	27.2	236.0	1.0	3.0	0.0	V-Horn	PK	0.0	96.0	117.4	-21.4	Low band, high channel. EUT vertical.











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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Chamber Temp. & Humidity Controller	ESZ / Eurotherm	Dimension II	TBC	8/24/2005	12
Chamber, Temp./Humidity Chamber	Cincinnati Sub Zero (CSZ)	ZH-32-2-2-H/AC	TBA	8/24/2005	12
Multimeter	Tektronix	DMM912	MMH	12/8/2005	13
DC Power Supply	Topward	TPS-2000	TPD	NCR	0
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	1/25/2006	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

Variation of Supply Voltage

The primary supply voltage was varied from 85% to 115% of nominal. The EUT can only be battery operated, so a DC lab supply was used to vary the supply voltage up to 115% of 9V and down to the EUT's voltage end point.

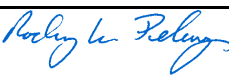
Variation of Ambient Temperature

Using a temperature chamber, the transmit frequency was recorded at the extremes of the specified temperature range (-30° to +50° C) and at 10°C intervals.

The antenna is integral to the EUT, so a radiated measurement was made using a spectrum analyzer and a near field probe. The spectrum analyzer is equipped with a precision frequency reference that exceeds the stability requirement of the EUT.

EMC

FREQUENCY STABILITY

EUT: 91343-09		Work Order: SPAC0415	
Serial Number: 1343-000005		Date: 03/29/06	
Customer: Spacelabs Medical		Temperature: 22°C	
Attendees: None		Humidity: 33%	
Project: None		Barometric Pres.: 29.78	
Tested by: Rod Peloquin		Power: 9V Battery	Job Site: EV06 & EV09
TEST SPECIFICATIONS		Test Method	
FCC 2.1055 Frequency Stability 2004		TIA/EIA-603 1998	
COMMENTS			
DEVIATIONS FROM TEST STANDARD			
Configuration #	3	 Signature	

Modes of Operation and Test Conditions

	Value	Limit	Result
Low Channel, 1395-1400MHz Band	0.82 ppm	In Band	Pass
High Channel, 1395-1400MHz Band	0.88 ppm	In Band	Pass
Low Channel, 1427-1429.5MHz Band	0.36 ppm	In Band	Pass
High Channel, 1427-1429.5MHz Band	0.39 ppm	In Band	Pass

Low Channel, 1395-1400MHz Band

Result: Pass

Value: 0.82 ppm

Limit: In Band

Frequency Stability with Variation of Ambient Temperature (Primary Supply = 9VDC)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
50	1395.050000	1395.051140	0.82	N/A
40	1395.050000	1395.050590	0.42	N/A
30	1395.050000	1395.050764	0.55	N/A
20	1395.050000	1395.050639	0.46	N/A
10	1395.050000	1395.050014	0.01	N/A
0	1395.050000	1395.050164	0.12	N/A
-10	1395.050000	1395.050014	0.01	N/A
-20	1395.050000	1395.049760	0.17	N/A
-30	1395.050000	1395.049801	0.14	N/A

Frequency Stability with Variation of Battery Voltage (Ambient Temperature = 22°C)

Voltage (VDC)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
10.35 (115%)	1395.050000	1395.050752	0.54	N/A
9.9 (110%)	1395.050000	1395.050740	0.53	N/A
9.45 (105%)	1395.050000	1395.050765	0.55	N/A
9 (100%)	1395.050000	1395.050740	0.53	N/A
8.55 (95%)	1395.050000	1395.050740	0.53	N/A
8.1 (90%)	1395.050000	1395.050740	0.53	N/A
7.65 (85%)	1395.050000	1395.050752	0.54	N/A
5.3 (end point)	1395.050000	1395.050815	0.58	N/A

High Channel, 1395-1400MHz Band

Result: Pass

Value: 0.88 ppm

Limit: In Band

Frequency Stability with Variation of Ambient Temperature (Primary Supply = 9VDC)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
50	1399.950000	1399.951230	0.88	N/A
40	1399.950000	1399.950707	0.51	N/A
30	1399.950000	1399.950720	0.51	N/A
20	1399.950000	1399.950067	0.05	N/A
10	1399.950000	1399.950012	0.01	N/A
0	1399.950000	1399.950024	0.02	N/A
-10	1399.950000	1399.949950	0.04	N/A
-20	1399.950000	1399.950087	0.06	N/A
-30	1399.950000	1399.949587	0.30	N/A

Frequency Stability with Variation of Battery Voltage (Ambient Temperature = 22°C)

Voltage (VDC)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
10.35 (115%)	1399.950000	1399.950752	0.54	N/A
9.9 (110%)	1399.950000	1399.950737	0.53	N/A
9.45 (105%)	1399.950000	1399.950742	0.53	N/A
9 (100%)	1399.950000	1399.950812	0.58	N/A
8.55 (95%)	1399.950000	1399.950747	0.53	N/A
8.1 (90%)	1399.950000	1399.950807	0.58	N/A
7.65 (85%)	1399.950000	1399.950807	0.58	N/A
5.3 (end point)	1399.950000	1399.950802	0.57	N/A

Low Channel, 1427-1429.5MHz Band

Result: Pass**Value:** 0.36 ppm**Limit:** In Band

Frequency Stability with Variation of Ambient Temperature (Primary Supply = 9VDC)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
50	1427.050000	1427.050510	0.36	N/A
40	1427.050000	1427.050188	0.13	N/A
30	1427.050000	1427.050200	0.14	N/A
20	1427.050000	1427.050250	0.18	N/A
10	1427.050000	1427.050000	0.00	N/A
0	1427.050000	1427.049987	0.01	N/A
-10	1427.050000	1427.049987	0.01	N/A
-20	1427.050000	1427.049975	0.02	N/A
-30	1427.050000	1427.050125	0.09	N/A

Frequency Stability with Variation of Battery Voltage (Ambient Temperature = 22°C)

Voltage (VDC)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
10.35 (115%)	1427.050000	1427.050330	0.23	N/A
9.9 (110%)	1427.050000	1427.050330	0.23	N/A
9.45 (105%)	1427.050000	1427.050330	0.23	N/A
9 (100%)	1427.050000	1427.050300	0.21	N/A
8.55 (95%)	1427.050000	1427.050280	0.20	N/A
8.1 (90%)	1427.050000	1427.050280	0.20	N/A
7.65 (85%)	1427.050000	1427.050250	0.18	N/A
5.3 (end point)	1427.050000	1427.050130	0.09	N/A

High Channel, 1427-1429.5MHz Band

Result: Pass**Value:** 0.39 ppm**Limit:** In Band

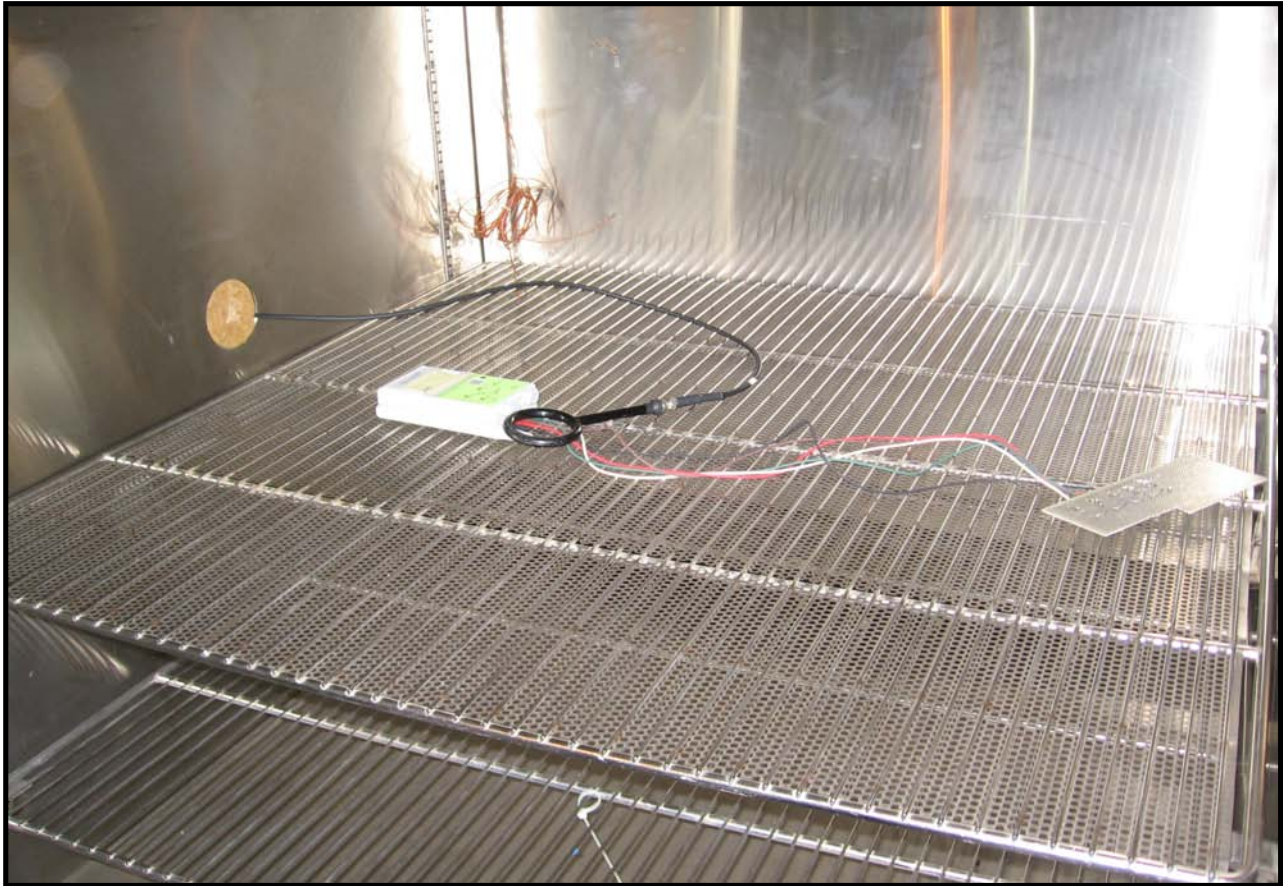
Frequency Stability with Variation of Ambient Temperature (Primary Supply = 9VDC)

Temp (°C)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
50	1431.450000	1431.450560	0.39	N/A
40	1431.450000	1431.450188	0.13	N/A
30	1431.450000	1431.450163	0.11	N/A
20	1431.450000	1431.450188	0.13	N/A
10	1431.450000	1431.449997	0.00	N/A
0	1431.450000	1431.449885	0.08	N/A
-10	1431.450000	1431.449910	0.06	N/A
-20	1431.450000	1431.449735	0.19	N/A
-30	1431.450000	1431.449023	0.68	N/A

Frequency Stability with Variation of Battery Voltage (Ambient Temperature = 22°C)

Voltage (VDC)	Assigned Frequency (MHz)	Measured Frequency (MHz)	Tolerance (ppm)	Specification (ppm)
10.35 (115%)	1431.450000	1431.450290	0.20	N/A
9.9 (110%)	1431.450000	1431.450260	0.18	N/A
9.45 (105%)	1431.450000	1431.450260	0.18	N/A
9 (100%)	1431.450000	1431.450260	0.18	N/A
8.55 (95%)	1431.450000	1431.450260	0.18	N/A
8.1 (90%)	1431.450000	1431.450260	0.18	N/A
7.65 (85%)	1431.450000	1431.450260	0.18	N/A
5.3 (end point)	1431.450000	1431.450110	0.08	N/A





Field Strength of Spurious Emissions

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.

MODES OF OPERATION

Transmitting low channel, 1395.05MHz, low band.

Transmitting high channel, 1399.95MHz, low band.

Transmitting low channel, 1427.05MHz, high band.

Transmitting high channel, 1431.45MHz, high band.

POWER SETTINGS INVESTIGATED

9V Battery

FREQUENCY RANGE INVESTIGATED

Start Frequency	30MHz	Stop Frequency	15GHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Low Pass Filter 0-1000 MHz	Micro-Tronics	LPM50004	LFD	9/28/2005	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	3/9/2005	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	8/2/2005	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	1/4/2006	13
Antenna, Horn	EMCO	3115	AHC	8/30/2005	12
Antenna, Biconilog	EMCO	3141	AXE	12/28/2005	24
Spectrum Analyzer	Agilent	E4446A	AAQ	7/15/2005	12

MEASUREMENT BANDWIDTHS

Frequency Range	Peak Data	Quasi-Peak Data	Average Data
(MHz)	(kHz)	(kHz)	(kHz)
0.01 - 0.15	1.0	0.2	0.2
0.15 - 30.0	10.0	9.0	9.0
30.0 - 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low and high channels in both frequency bands. 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, and manipulating the EUT antenna in 3 orthogonal planes. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NORTHWEST		FIELD STRENGTH OF SPURIOUS EMISSIONS DATA SHEETS										PSA 2006.03.15					
EMC												EMI 2006.3.14					
EUT: 91343-09												Work Order: SPAC0415					
Serial Number: 1343-000005												Date: 03/22/06					
Customer: Spacelabs Medical												Temperature: 21					
Attendees: None												Humidity: 33%					
Project: None												Barometric Pres.: 30.11					
Tested by: Holly Ashkannejhad												Power: 9V Battery		Job Site: EV01			
TEST SPECIFICATIONS												Test Method					
FCC 95.1115:2004												TIA/EIA-603-B:2001					
TEST PARAMETERS																	
Antenna Height(s) (m)												1 - 4		Test Distance (m)		3	
COMMENTS																	
Low band.																	
EUT OPERATING MODES																	
Transmitting high channel, 1399.95MHz																	
DEVIATIONS FROM TEST STANDARD																	
No deviations.																	
Run #		8		<i>Holly Ashkannejhad</i> Signature													
Configuration #		1															
Results		Pass															
NVLAP Lab Code 200630-0																	
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments				
8399.729	27.9	15.3	158.0	1.9	3.0	0.0	V-Horn	AV	0.0	43.2	54.0	-10.8	EUT on side				
9799.685	27.1	16.1	136.0	1.0	3.0	0.0	V-Horn	AV	0.0	43.2	54.0	-10.8	EUT on side				
9799.658	26.1	16.1	78.0	1.0	3.0	0.0	H-Horn	AV	0.0	42.2	54.0	-11.8	EUT vertical				
8399.755	26.3	15.3	347.0	1.0	3.0	0.0	H-Horn	AV	0.0	41.6	54.0	-12.4	EUT vertical				
9799.644	37.2	16.1	136.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.3	74.0	-20.7	EUT on side				
8399.622	37.7	15.3	158.0	1.9	3.0	0.0	V-Horn	PK	0.0	53.0	74.0	-21.0	EUT on side				
9800.039	36.4	16.1	78.0	1.0	3.0	0.0	H-Horn	PK	0.0	52.5	74.0	-21.5	EUT vertical				
8399.525	37.1	15.3	347.0	1.0	3.0	0.0	H-Horn	PK	0.0	52.4	74.0	-21.6	EUT vertical				

EMC

FIELD STRENGTH OF SPURIOUS EMISSIONS DATA SHEETS

EUT: 91343-09	Work Order: SPAC0415
Serial Number: 1343-000005	Date: 03/22/06
Customer: Spacelabs Medical	Temperature: 21
Attendees: None	Humidity: 32%
Project: None	Barometric Pres.: 29.85
Tested by: Holly Ashkannejhad	Power: 9V Battery
	Job Site: EV01

TEST SPECIFICATIONS

Test Method

FCC 95.1115:2004

TIA/EIA-603-B:2001

TEST PARAMETERS

Antenna Height(s) (m) 1 - 4 Test Distance (m) 0

COMMENTS

High band.

EUT OPERATING MODES

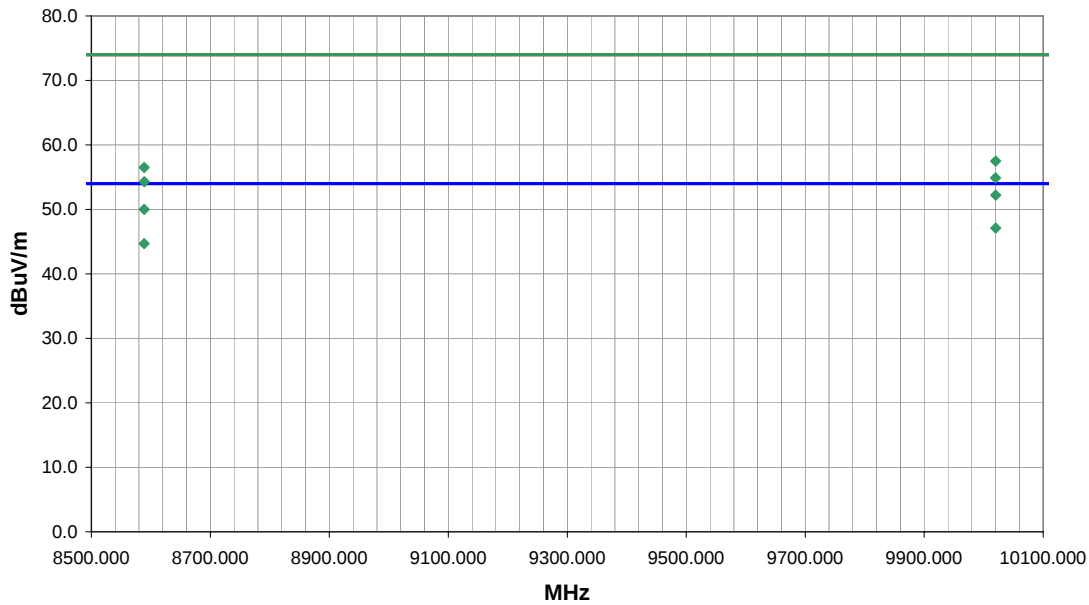
Transmitting high channel, 1431.45MHz

DEVIATIONS FROM TEST STANDARD

No deviations.

Run #	9	NVLAP Lab Code 200630-0
Configuration #	1	
Results	Pass	

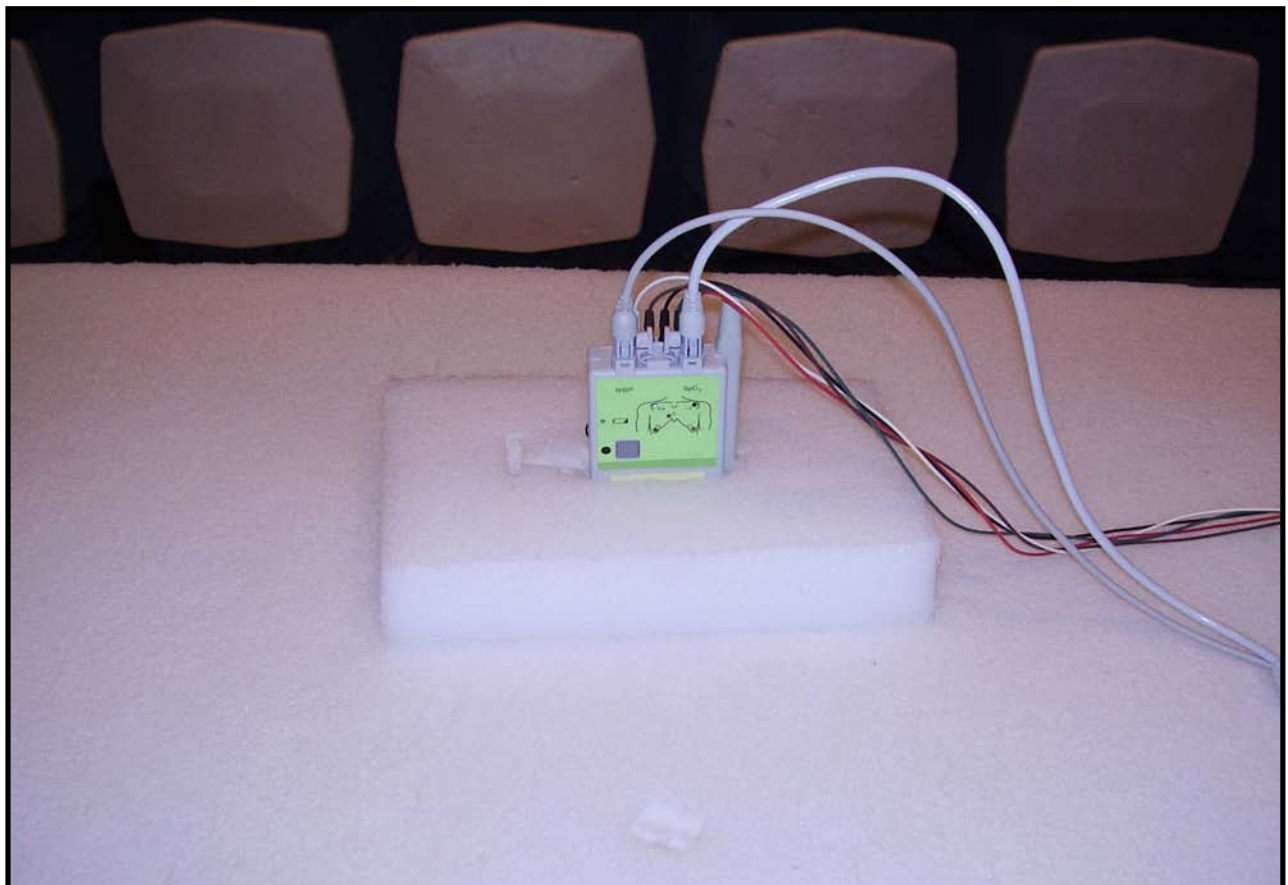
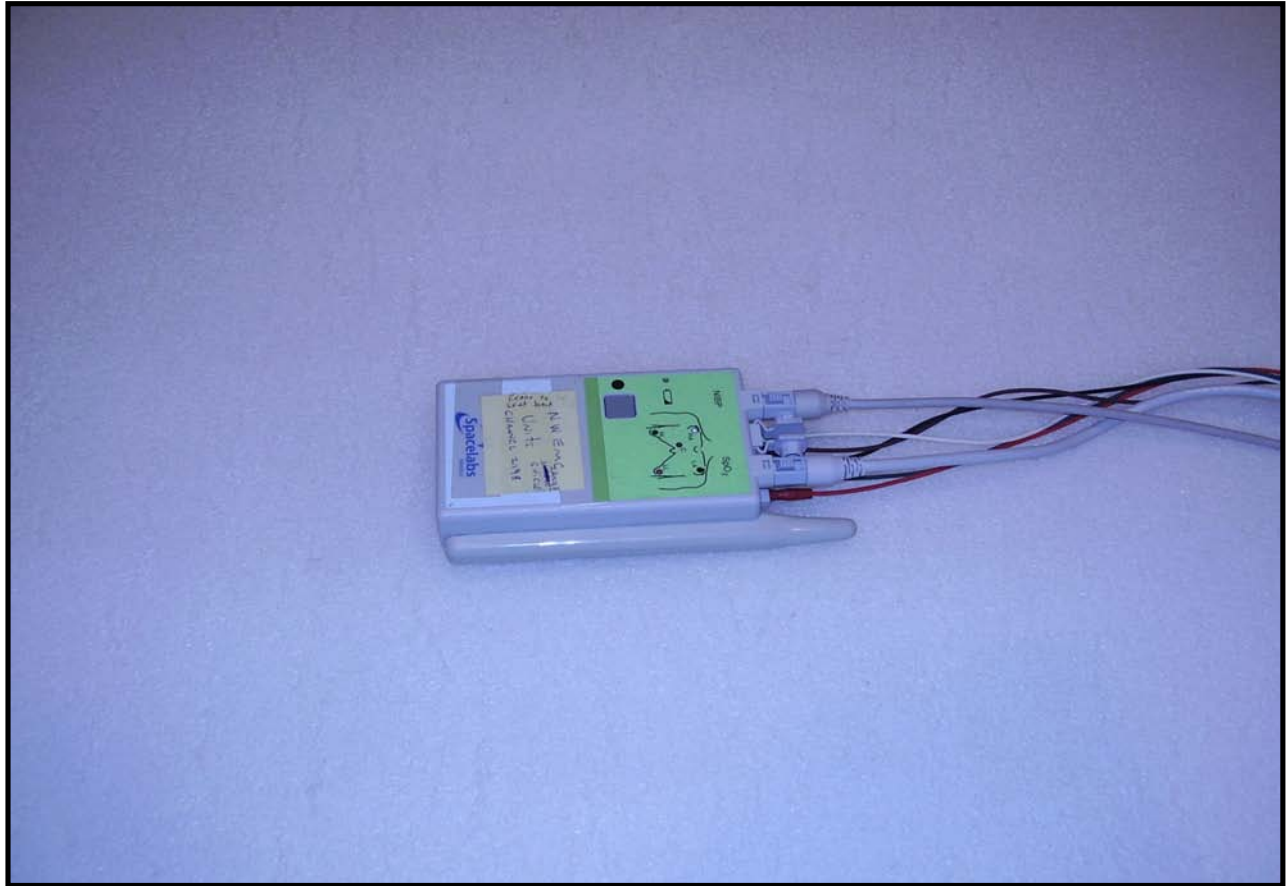
Signature

Holly Ashkannejhad

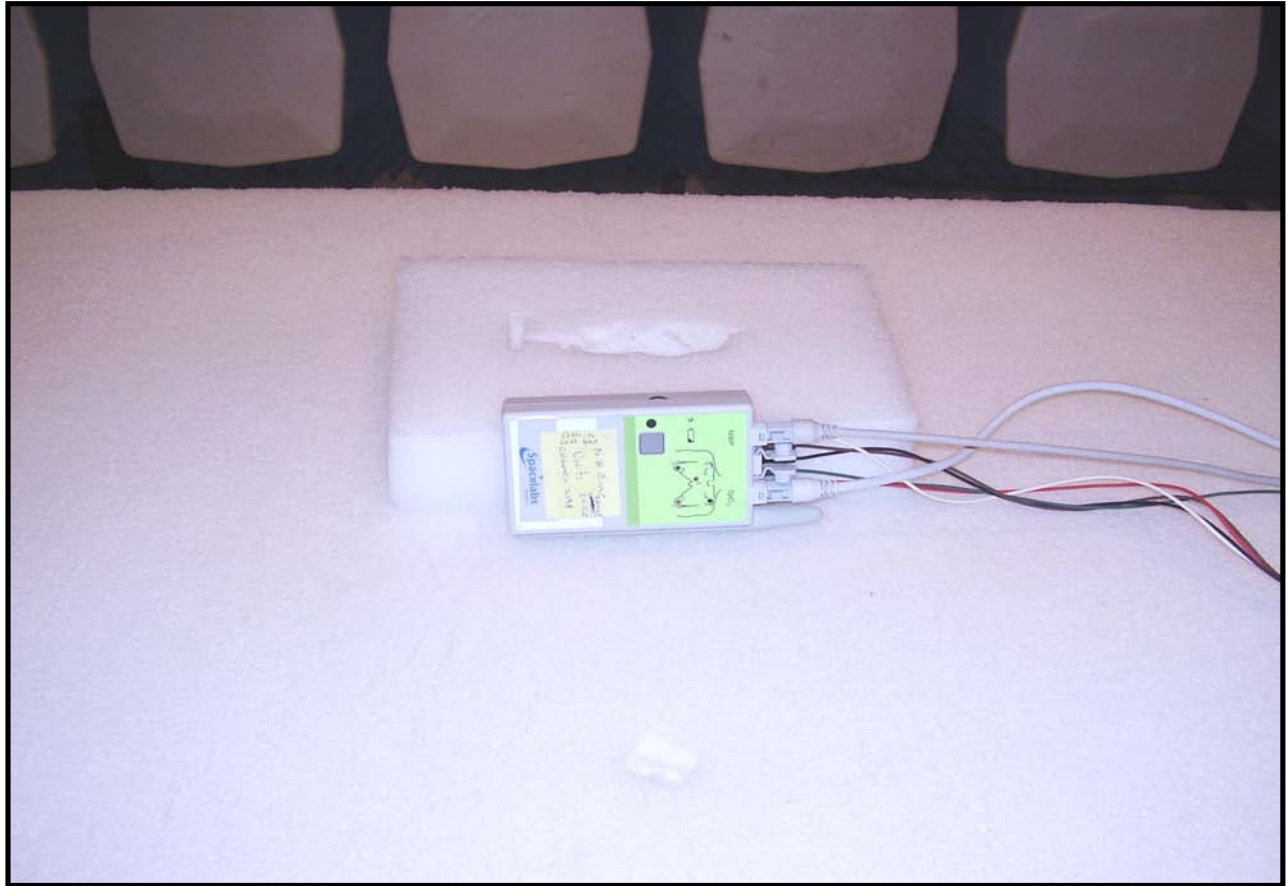
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
10020.200	35.9	16.3	133.0	1.2	0.0	0.0	H-Horn	AV	0.0	52.2	54.0	-1.8	EUT on side
8588.743	34.6	15.4	219.0	1.0	0.0	0.0	H-Horn	AV	0.0	50.0	54.0	-4.0	EUT vertical
10020.170	30.8	16.3	192.0	1.1	0.0	0.0	V-Horn	AV	0.0	47.1	54.0	-6.9	EUT vertical
8588.710	29.3	15.4	142.0	1.0	0.0	0.0	V-Horn	AV	0.0	44.7	54.0	-9.3	EUT on side
10020.250	41.2	16.3	133.0	1.2	0.0	0.0	H-Horn	PK	0.0	57.5	74.0	-16.5	EUT on side
8588.732	41.1	15.4	219.0	1.0	0.0	0.0	H-Horn	PK	0.0	56.5	74.0	-17.5	EUT vertical
10019.880	38.6	16.3	192.0	1.1	0.0	0.0	V-Horn	PK	0.0	54.9	74.0	-19.1	EUT vertical
8588.904	38.9	15.4	142.0	1.0	0.0	0.0	V-Horn	PK	0.0	54.3	74.0	-19.7	EUT on side

NORTHWEST EMC		FIELD STRENGTH OF SPURIOUS EMISSIONS DATA SHEETS		PSA 2006.03.15 EMI 2006.3.27									
EUT: 91343-09		Work Order: SPAC0415											
Serial Number: 1343-000005		Date: 03/31/06											
Customer: Spacelabs Medical		Temperature: 24											
Attendees: None		Humidity: 32%											
Project: None		Barometric Pres.: 29.97											
Tested by: Holly Ashkannejhad		Power: 9V Battery		Job Site: EV01									
TEST SPECIFICATIONS		Test Method											
FCC 95.1115:2004		EIA/TIA-603-B:2001											
TEST PARAMETERS													
Antenna Height(s) (m)		1 - 4		Test Distance (m) 3									
COMMENTS													
EUT OPERATING MODES													
Transmitting in the low band. See comments for channel.													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
Run #	16												
Configuration #	1												
Results	Pass NVLAP Lab Code 200630-0 Signature <i>Holly Ashkannejhad</i>												
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
4185.179	38.1	5.7	89.0	1.0	3.0	0.0	H-Horn	AV	0.0	43.8	54.0	-10.2	Low band, low channel. EUT horizontal.
9765.364	26.4	16.1	30.0	1.0	3.0	0.0	V-Horn	AV	0.0	42.5	54.0	-11.5	Low band, low channel. EUT vertical.
8370.291	26.4	15.2	109.0	1.0	3.0	0.0	H-Horn	AV	0.0	41.6	54.0	-12.4	Low band, low channel. EUT horizontal.
8370.325	26.3	15.2	134.0	1.7	3.0	0.0	V-Horn	AV	0.0	41.5	54.0	-12.5	Low band, low channel. EUT vertical.
4199.869	35.5	5.7	215.0	1.1	3.0	0.0	V-Horn	AV	0.0	41.2	54.0	-12.8	Low band, high channel. EUT vertical.
4185.171	34.4	5.7	305.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.1	54.0	-13.9	Low band, low channel. EUT vertical.
9765.418	24.0	16.1	13.0	1.0	3.0	0.0	H-Horn	AV	0.0	40.1	54.0	-13.9	Low band, low channel. EUT horizontal.
4199.865	33.2	5.7	142.0	1.0	3.0	0.0	H-Horn	AV	0.0	38.9	54.0	-15.1	Low band, high channel. EUT horizontal.
5599.796	27.6	8.2	349.0	1.0	3.0	0.0	H-Horn	AV	0.0	35.8	54.0	-18.2	Low band, high channel. EUT horizontal.
5580.221	27.3	8.2	140.0	1.0	3.0	0.0	H-Horn	AV	0.0	35.5	54.0	-18.5	Low band, low channel. EUT horizontal.
5580.178	26.9	8.2	196.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.1	54.0	-18.9	Low band, low channel. EUT vertical.
5599.773	26.7	8.2	46.0	1.0	3.0	0.0	V-Horn	AV	0.0	34.9	54.0	-19.1	Low band, high channel. EUT vertical.
9765.172	37.0	16.1	30.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.1	74.0	-20.9	Low band, low channel. EUT vertical.
8370.117	37.8	15.2	134.0	1.7	3.0	0.0	V-Horn	PK	0.0	53.0	74.0	-21.0	Low band, low channel. EUT vertical.
8370.235	37.3	15.2	109.0	1.0	3.0	0.0	H-Horn	PK	0.0	52.5	74.0	-21.5	Low band, low channel. EUT horizontal.
9765.833	36.0	16.1	13.0	1.0	3.0	0.0	H-Horn	PK	0.0	52.1	74.0	-21.9	Low band, low channel. EUT horizontal.
4185.102	42.2	5.7	89.0	1.0	3.0	0.0	H-Horn	PK	0.0	47.9	74.0	-26.1	Low band, low channel. EUT horizontal.
4185.260	41.7	5.7	305.0	1.0	3.0	0.0	V-Horn	PK	0.0	47.4	74.0	-26.6	Low band, low channel. EUT vertical.
4199.921	41.4	5.7	215.0	1.1	3.0	0.0	V-Horn	PK	0.0	47.1	74.0	-26.9	Low band, high channel. EUT vertical.
5599.952	38.0	8.2	349.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.2	74.0	-27.8	Low band, high channel. EUT horizontal.

NORTHWEST EMC										FIELD STRENGTH OF SPURIOUS EMISSIONS DATA SHEETS										PSA 2006.03.15 EMI 2006.3.27																																																																																																																																																																																																																																																																																																							
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Serial Number: 1343-000005										Date: 03/31/06																																																																																																																																																																																																																																																																																																																	
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<table border="1"> <thead> <tr> <th>Freq (MHz)</th> <th>Amplitude (dBuV)</th> <th>Factor (dB)</th> <th>Azimuth (degrees)</th> <th>Height (meters)</th> <th>Distance (meters)</th> <th>External Attenuation (dB)</th> <th>Polarity</th> <th>Detector</th> <th>Distance Adjustment (dB)</th> <th>Adjusted dBuV/m</th> <th>Spec. Limit dBuV/m</th> <th>Compared to Spec. (dB)</th> <th>Comments</th> </tr> </thead> <tbody> <tr><td>9989.405</td><td>34.5</td><td>16.2</td><td>179.0</td><td>1.2</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>50.7</td><td>54.0</td><td>-3.3</td><td>High band, low channel. EUT vertical.</td></tr> <tr><td>8562.321</td><td>30.3</td><td>15.3</td><td>277.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>45.6</td><td>54.0</td><td>-8.4</td><td>High band, low channel. EUT horizontal.</td></tr> <tr><td>8562.306</td><td>29.2</td><td>15.4</td><td>355.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>44.6</td><td>54.0</td><td>-9.4</td><td>High band, low channel. EUT vertical.</td></tr> <tr><td>9989.343</td><td>27.3</td><td>16.2</td><td>66.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>43.5</td><td>54.0</td><td>-10.5</td><td>High band, low channel. EUT horizontal.</td></tr> <tr><td>4294.367</td><td>31.7</td><td>5.7</td><td>294.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>37.4</td><td>54.0</td><td>-16.6</td><td>High band, high channel. EUT horizontal.</td></tr> <tr><td>9988.674</td><td>40.4</td><td>16.2</td><td>179.0</td><td>1.2</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>56.6</td><td>74.0</td><td>-17.4</td><td>High band, low channel. 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EUT horizontal.	8562.306	29.2	15.4	355.0	1.0	3.0	0.0	V-Horn	AV	0.0	44.6	54.0	-9.4	High band, low channel. EUT vertical.	9989.343	27.3	16.2	66.0	1.0	3.0	0.0	H-Horn	AV	0.0	43.5	54.0	-10.5	High band, low channel. EUT horizontal.	4294.367	31.7	5.7	294.0	1.0	3.0	0.0	H-Horn	AV	0.0	37.4	54.0	-16.6	High band, high channel. EUT horizontal.	9988.674	40.4	16.2	179.0	1.2	3.0	0.0	V-Horn	PK	0.0	56.6	74.0	-17.4	High band, low channel. EUT vertical.	5725.836	28.2	8.3	27.0	1.0	3.0	0.0	V-Horn	AV	0.0	36.5	54.0	-17.5	High band, high channel. EUT vertical.	4281.185	30.2	5.7	35.0	1.2	3.0	0.0	V-Horn	AV	0.0	35.9	54.0	-18.1	High band, low channel. EUT vertical.	5708.202	27.4	8.3	343.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.7	54.0	-18.3	High band, low channel. EUT vertical.	4294.370	29.8	5.7	218.0	1.0	3.0	0.0	V-Horn	AV	0.0	35.5	54.0	-18.5	High band, high channel. EUT vertical.	8562.119	39.4	15.3	277.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.7	74.0	-19.3	High band, low channel. EUT horizontal.	5725.861	26.3	8.3	269.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.6	54.0	-19.4	High band, high channel. EUT horizontal.	5708.178	26.2	8.3	222.0	1.0	3.0	0.0	H-Horn	AV	0.0	34.5	54.0	-19.5	High band, high channel. EUT horizontal.	8563.033	38.6	15.3	355.0	1.0	3.0	0.0	V-Horn	PK	0.0	53.9	74.0	-20.1	High band, low channel. EUT vertical.	9989.444	37.3	16.2	66.0	1.0	3.0	0.0	H-Horn	PK	0.0	53.5	74.0	-20.5	High band, low channel. EUT horizontal.	4281.089	25.5	5.7	158.0	1.1	3.0	0.0	H-Horn	AV	0.0	31.2	54.0	-22.8	High band, low channel. EUT horizontal.	5726.040	37.6	8.3	27.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.9	74.0	-28.1	High band, high channel. EUT vertical.	5708.088	37.2	8.3	222.0	1.0	3.0	0.0	H-Horn	PK	0.0	45.5	74.0	-28.5	High band, low channel. EUT horizontal.	5708.431	37.2	8.3	343.0	1.0	3.0	0.0	V-Horn	PK	0.0	45.5	74.0	-28.5	High band, low channel. EUT vertical.	4294.313	39.2	5.7	294.0	1.0	3.0	0.0	H-Horn	PK	0.0	44.9	74.0	-29.1	High band, high channel. EUT horizontal.												
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Field Strength of Spurious Emissions



Field Strength of Spurious Emissions

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.

MODES OF OPERATION

Transmitting low channel, 1395.05MHz, low band.
 Transmitting high channel, 1399.95MHz, low band.
 Transmitting low channel, 1427.05MHz, high band.
 Transmitting high channel, 1431.45MHz, high band.

POWER SETTINGS INVESTIGATED

9V Battery

FREQUENCY RANGE INVESTIGATED

Start Frequency	30 MHz	Stop Frequency	15 GHz
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SAMPLE CALCULATIONS

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

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Low Pass Filter 0-1000 MHz	Micro-Tronics	LPM50004	LFD	9/28/2005	13
High Pass Filter	Micro-Tronics	HPM50111	HFO	3/9/2005	13
Pre-Amplifier	Miteq	AMF-4D-010100-24-10P	APW	8/2/2005	13
Pre-Amplifier	Miteq	AM-1616-1000	AOL	1/4/2006	13
Antenna, Horn	EMCO	3115	AHC	8/30/2005	12
Antenna, Biconilog	EMCO	3141	AXE	12/28/2005	24
Spectrum Analyzer	Agilent	E4446A	AAQ	7/15/2005	12

MEASUREMENT BANDWIDTHS

	Frequency Range	Peak Data	Quasi-Peak Data	Average Data
	(MHz)	(kHz)	(kHz)	(kHz)
	0.01 - 0.15	1.0	0.2	0.2
	0.15 - 30.0	10.0	9.0	9.0
	30.0 - 1000	100.0	120.0	120.0
	Above 1000	1000.0	N/A	1000.0

Measurements were made using the bandwidths and detectors specified. No video filter was used.

MEASUREMENT UNCERTAINTY

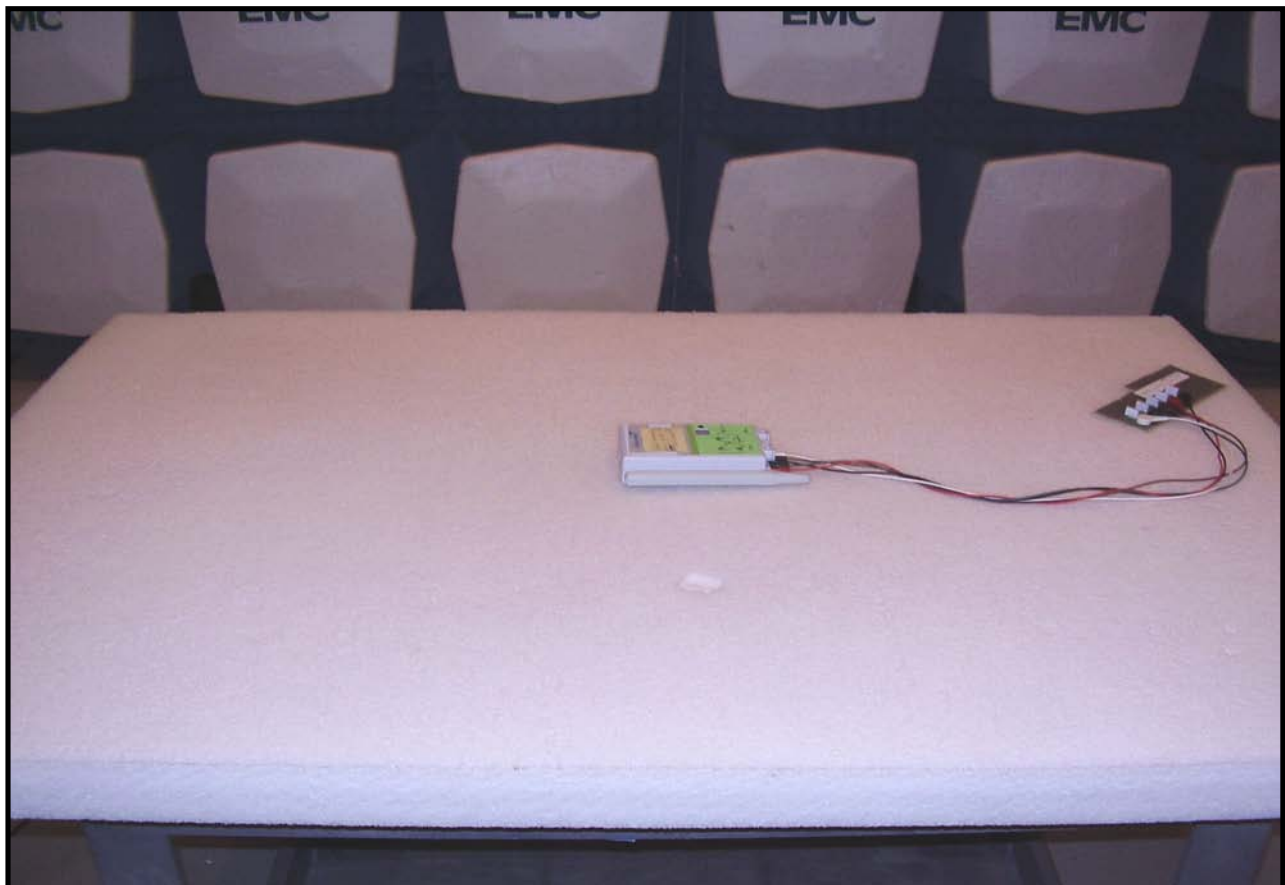
Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

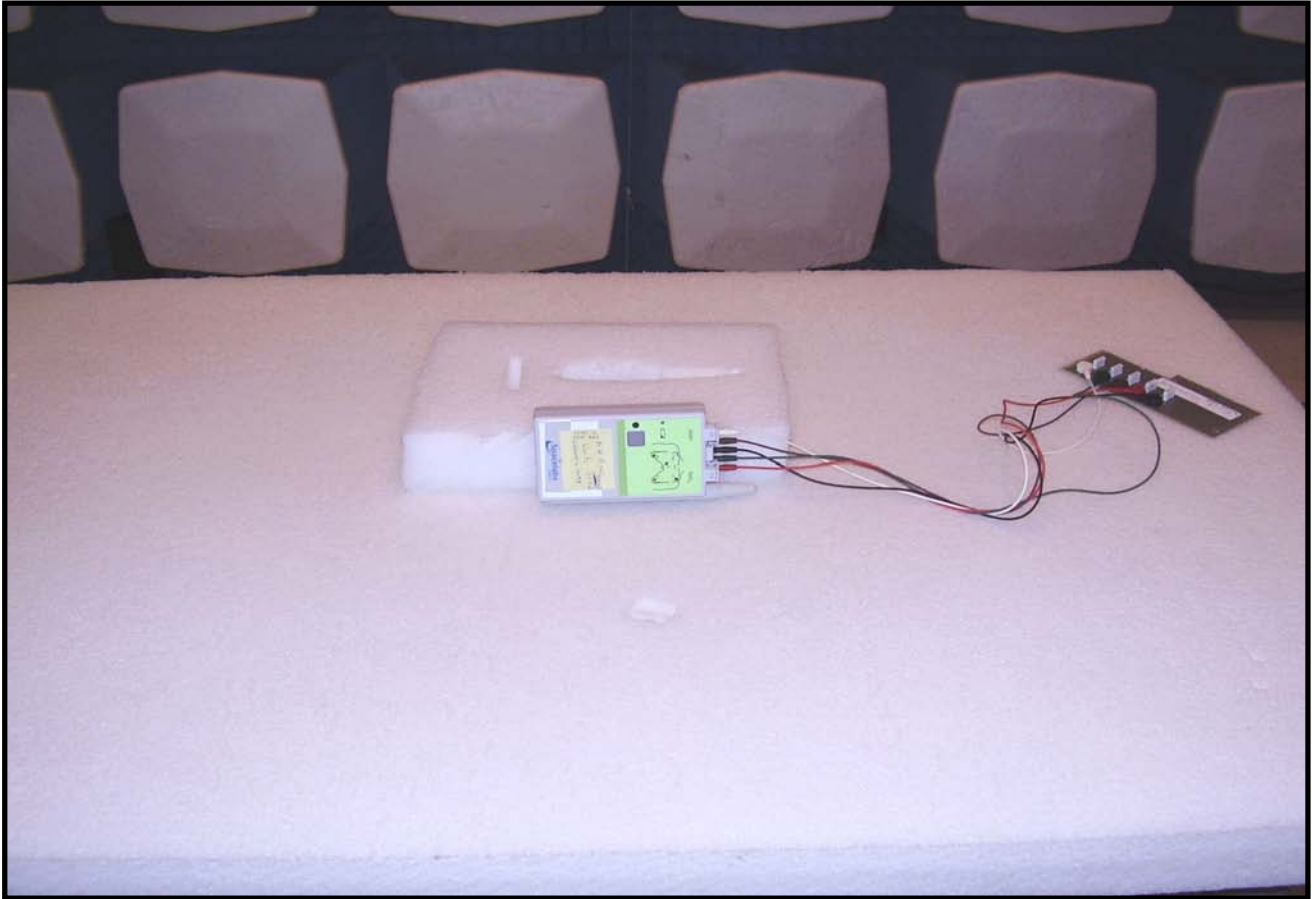
TEST DESCRIPTION

The highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low and high channels in both frequency bands. 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, and manipulating the EUT antenna in 3 orthogonal planes. A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.

NORTHWEST		Field Strength of Spurious Emissions		PSA 2006.03.15																																																																																																																																																																																																																																																																																																							
EMC				EMI 2006.3.27																																																																																																																																																																																																																																																																																																							
EUT: 91347-09		Work Order: SPAC0415																																																																																																																																																																																																																																																																																																									
Serial Number: See comments		Date: 03/31/06																																																																																																																																																																																																																																																																																																									
Customer: Spacelabs Medical		Temperature: 24																																																																																																																																																																																																																																																																																																									
Attendees: None		Humidity: 32%																																																																																																																																																																																																																																																																																																									
Project: None		Barometric Pres.: 29.97																																																																																																																																																																																																																																																																																																									
Tested by: Holly Ashkannejhad		Power: 9V Battery		Job Site: EV01																																																																																																																																																																																																																																																																																																							
TEST SPECIFICATIONS		Test Method																																																																																																																																																																																																																																																																																																									
FCC 95.1115:2004		TIA/EIA-603-B:2001																																																																																																																																																																																																																																																																																																									
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Antenna Height(s) (m)		1 - 4		Test Distance (m)																																																																																																																																																																																																																																																																																																							
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The 91347-09 and 91343-09 share the same board, however the 91343-09 has an additional SpO2 board. The EUT tested here is a 91343 with the SpO2 board removed. So, the plastic packaging is incorrect, but the board is the same as the 91347 unit.																																																																																																																																																																																																																																																																																																											
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EUT horizontal.</td></tr><tr><td>8588.534</td><td>41.8</td><td>15.4</td><td>27.0</td><td>1.6</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>57.2</td><td>74.0</td><td>-16.8</td><td>High channel, high band. EUT vertical.</td></tr><tr><td>4294.355</td><td>31.3</td><td>5.7</td><td>51.0</td><td>1.2</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>37.0</td><td>54.0</td><td>-17.0</td><td>High channel, high band. EUT vertical.</td></tr><tr><td>8588.409</td><td>41.6</td><td>15.4</td><td>173.0</td><td>1.2</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>57.0</td><td>74.0</td><td>-17.0</td><td>High channel, high band. EUT horizontal.</td></tr><tr><td>4281.172</td><td>30.6</td><td>5.7</td><td>255.0</td><td>1.1</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>36.3</td><td>54.0</td><td>-17.7</td><td>Low channel, high band. 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EUT vertical.	8588.732	36.1	15.4	173.0	1.2	3.0	0.0	V-Horn	AV	0.0	51.5	54.0	-2.5	High channel, high band. EUT horizontal.	8562.337	33.3	15.3	23.0	1.2	3.0	0.0	H-Horn	AV	0.0	48.6	54.0	-5.4	Low channel, high band. EUT vertical.	10020.180	29.1	16.3	220.0	1.6	3.0	0.0	V-Horn	AV	0.0	45.4	54.0	-8.6	High channel, high band. EUT vertical.	9989.374	28.8	16.2	353.0	1.2	3.0	0.0	V-Horn	AV	0.0	45.0	54.0	-9.0	Low channel, high band. EUT horizontal.	10020.170	28.2	16.3	42.0	1.0	3.0	0.0	H-Horn	AV	0.0	44.5	54.0	-9.5	High channel, high band. EUT vertical.	9989.387	27.5	16.2	345.0	1.0	3.0	0.0	H-Horn	AV	0.0	43.7	54.0	-10.3	Low channel, high band. EUT vertical.	5708.251	31.7	8.3	180.0	1.0	3.0	0.0	V-Horn	AV	0.0	40.0	54.0	-14.0	Low channel, high band. EUT horizontal.	4294.395	34.0	5.7	182.0	1.3	3.0	0.0	H-Horn	AV	0.0	39.7	54.0	-14.3	High channel, high band. EUT vertical.	5725.836	31.1	8.3	162.0	1.5	3.0	0.0	H-Horn	AV	0.0	39.4	54.0	-14.6	High channel, high band. EUT vertical.	5708.205	30.1	8.3	152.0	1.0	3.0	0.0	H-Horn	AV	0.0	38.4	54.0	-15.6	Low channel, high band. EUT vertical.	8562.373	42.7	15.3	17.0	1.0	3.0	0.0	V-Horn	PK	0.0	58.0	74.0	-16.0	Low channel, high band. EUT horizontal.	5725.845	28.9	8.3	79.0	1.5	3.0	0.0	V-Horn	AV	0.0	37.2	54.0	-16.8	High channel, high band. EUT horizontal.	8588.534	41.8	15.4	27.0	1.6	3.0	0.0	H-Horn	PK	0.0	57.2	74.0	-16.8	High channel, high band. EUT vertical.	4294.355	31.3	5.7	51.0	1.2	3.0	0.0	V-Horn	AV	0.0	37.0	54.0	-17.0	High channel, high band. EUT vertical.	8588.409	41.6	15.4	173.0	1.2	3.0	0.0	V-Horn	PK	0.0	57.0	74.0	-17.0	High channel, high band. EUT horizontal.	4281.172	30.6	5.7	255.0	1.1	3.0	0.0	H-Horn	AV	0.0	36.3	54.0	-17.7	Low channel, high band. EUT vertical.	8562.169	40.3	15.3	23.0	1.2	3.0	0.0	H-Horn	PK	0.0	55.6	74.0	-18.4	Low channel, high band. EUT vertical.	10020.380	38.7	16.3	220.0	1.6	3.0	0.0	V-Horn	PK	0.0	55.0	74.0	-19.0	High channel, high band. EUT vertical.
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments																																																																																																																																																																																																																																																																																														
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8562.337	33.3	15.3	23.0	1.2	3.0	0.0	H-Horn	AV	0.0	48.6	54.0	-5.4	Low channel, high band. EUT vertical.																																																																																																																																																																																																																																																																																														
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10020.170	28.2	16.3	42.0	1.0	3.0	0.0	H-Horn	AV	0.0	44.5	54.0	-9.5	High channel, high band. EUT vertical.																																																																																																																																																																																																																																																																																														
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		Signature Holly Ashkannejhad																																																																																																																																																																																																																																																																																																									
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EUT horizontal.</td></tr><tr><td>9799.684</td><td>30.5</td><td>16.1</td><td>195.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>46.6</td><td>54.0</td><td>-7.4</td><td>High channel, low band. EUT vertical.</td></tr><tr><td>8370.322</td><td>31.2</td><td>15.2</td><td>316.0</td><td>1.6</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>46.4</td><td>54.0</td><td>-7.6</td><td>Low channel, low band. EUT vertical.</td></tr><tr><td>8399.690</td><td>28.7</td><td>15.3</td><td>143.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>44.0</td><td>54.0</td><td>-10.0</td><td>High channel, low band. EUT horizontal.</td></tr><tr><td>9765.383</td><td>26.8</td><td>16.1</td><td>7.0</td><td>1.3</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>42.9</td><td>54.0</td><td>-11.1</td><td>Low channel, low band. EUT on side.</td></tr><tr><td>9765.376</td><td>26.4</td><td>16.1</td><td>270.0</td><td>1.4</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>42.5</td><td>54.0</td><td>-11.5</td><td>Low channel, low band. EUT horizontal.</td></tr><tr><td>4199.869</td><td>36.2</td><td>5.7</td><td>208.0</td><td>1.1</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>41.9</td><td>54.0</td><td>-12.1</td><td>High channel, low band. EUT horizontal.</td></tr><tr><td>4185.170</td><td>36.0</td><td>5.7</td><td>111.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>41.7</td><td>54.0</td><td>-12.3</td><td>Low channel, low band. EUT vertical.</td></tr><tr><td>4199.885</td><td>35.4</td><td>5.7</td><td>75.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>41.1</td><td>54.0</td><td>-12.9</td><td>High channel, low band. EUT vertical.</td></tr><tr><td>8370.317</td><td>25.6</td><td>15.2</td><td>43.0</td><td>1.2</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>40.8</td><td>54.0</td><td>-13.2</td><td>Low channel, low band. EUT vertical.</td></tr><tr><td>4185.197</td><td>33.8</td><td>5.7</td><td>333.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>AV</td><td>0.0</td><td>39.5</td><td>54.0</td><td>-14.5</td><td>Low channel, low band. EUT vertical.</td></tr><tr><td>5599.810</td><td>29.4</td><td>8.2</td><td>153.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>37.6</td><td>54.0</td><td>-16.4</td><td>High channel, low band. EUT horizontal.</td></tr><tr><td>5580.200</td><td>28.9</td><td>8.2</td><td>25.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>AV</td><td>0.0</td><td>37.1</td><td>54.0</td><td>-16.9</td><td>Low channel, low band. EUT vertical.</td></tr><tr><td>8399.517</td><td>40.9</td><td>15.3</td><td>133.0</td><td>1.8</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>56.2</td><td>74.0</td><td>-17.8</td><td>High channel, low band. EUT vertical.</td></tr><tr><td>9799.460</td><td>38.8</td><td>16.1</td><td>172.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>V-Horn</td><td>PK</td><td>0.0</td><td>54.9</td><td>74.0</td><td>-19.1</td><td>High channel, low band. EUT horizontal.</td></tr><tr><td>8370.374</td><td>39.6</td><td>15.2</td><td>316.0</td><td>1.6</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>54.8</td><td>74.0</td><td>-19.2</td><td>Low channel, low band. EUT vertical.</td></tr><tr><td>9799.586</td><td>38.3</td><td>16.1</td><td>195.0</td><td>1.0</td><td>3.0</td><td>0.0</td><td>H-Horn</td><td>PK</td><td>0.0</td><td>54.4</td><td>74.0</td><td>-19.6</td><td>High channel, low band. 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EUT horizontal.	9799.684	30.5	16.1	195.0	1.0	3.0	0.0	H-Horn	AV	0.0	46.6	54.0	-7.4	High channel, low band. EUT vertical.	8370.322	31.2	15.2	316.0	1.6	3.0	0.0	H-Horn	AV	0.0	46.4	54.0	-7.6	Low channel, low band. EUT vertical.	8399.690	28.7	15.3	143.0	1.0	3.0	0.0	V-Horn	AV	0.0	44.0	54.0	-10.0	High channel, low band. EUT horizontal.	9765.383	26.8	16.1	7.0	1.3	3.0	0.0	V-Horn	AV	0.0	42.9	54.0	-11.1	Low channel, low band. EUT on side.	9765.376	26.4	16.1	270.0	1.4	3.0	0.0	H-Horn	AV	0.0	42.5	54.0	-11.5	Low channel, low band. EUT horizontal.	4199.869	36.2	5.7	208.0	1.1	3.0	0.0	V-Horn	AV	0.0	41.9	54.0	-12.1	High channel, low band. EUT horizontal.	4185.170	36.0	5.7	111.0	1.0	3.0	0.0	V-Horn	AV	0.0	41.7	54.0	-12.3	Low channel, low band. EUT vertical.	4199.885	35.4	5.7	75.0	1.0	3.0	0.0	H-Horn	AV	0.0	41.1	54.0	-12.9	High channel, low band. EUT vertical.	8370.317	25.6	15.2	43.0	1.2	3.0	0.0	V-Horn	AV	0.0	40.8	54.0	-13.2	Low channel, low band. EUT vertical.	4185.197	33.8	5.7	333.0	1.0	3.0	0.0	H-Horn	AV	0.0	39.5	54.0	-14.5	Low channel, low band. EUT vertical.	5599.810	29.4	8.2	153.0	1.0	3.0	0.0	V-Horn	AV	0.0	37.6	54.0	-16.4	High channel, low band. EUT horizontal.	5580.200	28.9	8.2	25.0	1.0	3.0	0.0	V-Horn	AV	0.0	37.1	54.0	-16.9	Low channel, low band. EUT vertical.	8399.517	40.9	15.3	133.0	1.8	3.0	0.0	H-Horn	PK	0.0	56.2	74.0	-17.8	High channel, low band. EUT vertical.	9799.460	38.8	16.1	172.0	1.0	3.0	0.0	V-Horn	PK	0.0	54.9	74.0	-19.1	High channel, low band. EUT horizontal.	8370.374	39.6	15.2	316.0	1.6	3.0	0.0	H-Horn	PK	0.0	54.8	74.0	-19.2	Low channel, low band. EUT vertical.	9799.586	38.3	16.1	195.0	1.0	3.0	0.0	H-Horn	PK	0.0	54.4	74.0	-19.6	High channel, low band. EUT vertical.	8399.693	39.0	15.3	143.0	1.0	3.0	0.0	V-Horn	PK	0.0	54.3	74.0	-19.7	High channel, low band. EUT horizontal.	9764.354	37.8	16.1	270.0	1.4	3.0	0.0	H-Horn	PK	0.0	53.9	74.0	-20.1	Low channel, low band. EUT horizontal.
Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Distance (meters)	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments																																																																																																																																																																																																																																																																																														
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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.

TEST EQUIPMENT

Description	Manufacturer	Model	ID	Last Cal.	Interval
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	1/25/2006	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

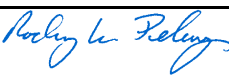
Per 47 CFR 2.1049, the 99% bandwidth was measured utilizing the analyzer's peak detector and measuring the carrier's 20 dB occupied bandwidth.

The antenna is integral to the EUT, so a radiated measurement was made using a spectrum analyzer and a near field probe. At 300Hz the spectrum analyzer's resolution bandwidth was sufficiently narrow to plot the actual bandwidth of the signal and not the filter response curve of the spectrum analyzer. The resolution bandwidth was >1% of the 20dB bandwidth and the video bandwidth was greater than or equal to the resolution bandwidth.

The occupied bandwidth was measured with the EUT configured for continuous modulated operation at the low and high channel of each of the operational bands.

EMC

OCCUPIED BANDWIDTH

EUT: 91347-09		Work Order: SPAC0415	
Serial Number: 1347-000005		Date: 03/28/06	
Customer: Spacelabs Medical		Temperature: 22°C	
Attendees: None		Humidity: 33%	
Project: None		Barometric Pres.: 29.78	
Tested by: Rod Peloquin		Power: 9V Battery	Job Site: EV06
TEST SPECIFICATIONS		Test Method	
FCC 2.1049 Occupied Bandwidth 2004		TIA/EIA-603-B 2001	
COMMENTS			
DEVIATIONS FROM TEST STANDARD			
Configuration #	3	 Signature	

Modes of Operation and Test Conditions

	Value	Limit	Result
Low Channel, 1395-1400MHz Band	25.7 kHz	N/A	Pass
High Channel, 1395-1400MHz Band	21.9 kHz	N/A	Pass
Low Channel, 1427-1429.5MHz Band	18.8 kHz	N/A	Pass
High Channel, 1427-1429.5MHz Band	18.9 kHz	N/A	Pass

Low Channel, 1395-1400MHz Band

Result: Pass

Value: 25.7 kHz

Limit: N/A

09:40:42 MAR 28, 2006

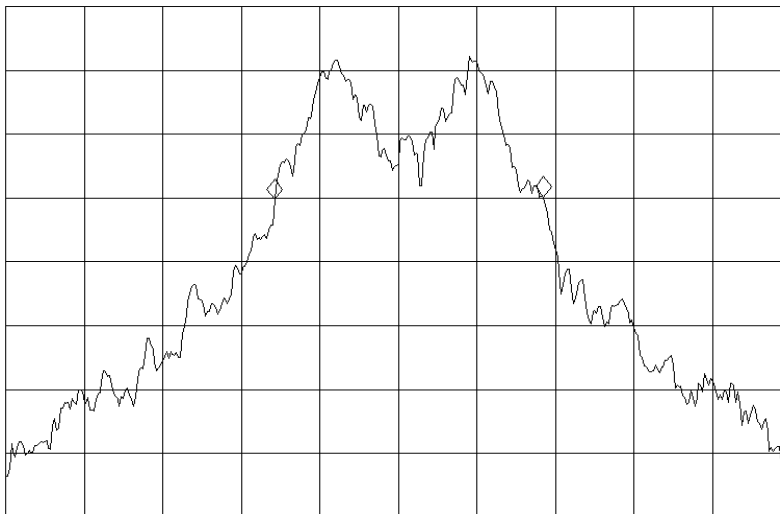
hp

MKR 25.69 kHz

REF 5.0 dBm

AT 10 dB

.38 dB

PEAK
LOG
10
dB/
OFFST
12.0
dBVA SB
SC FC
CORR

High Channel, 1395-1400MHz Band

Result: Pass

Value: 21.9 kHz

Limit: N/A

09:57:23 MAR 28, 2006

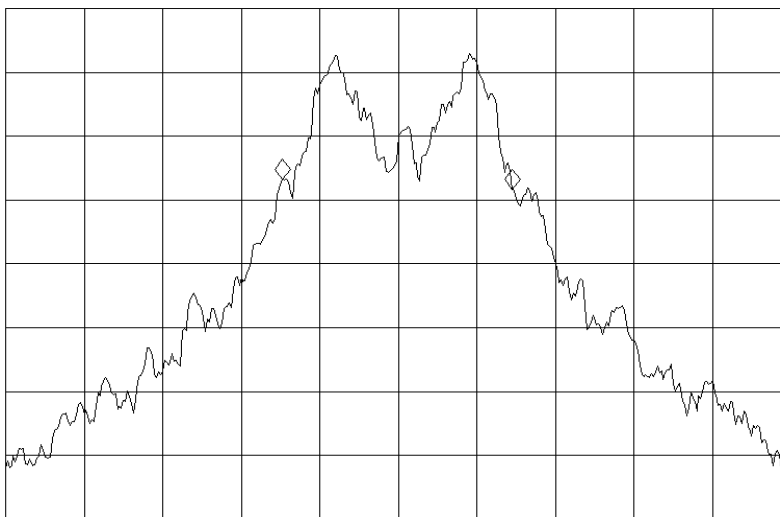
hp

MKR 21.94 kHz

REF 5.5 dBm

AT 10 dB

-1.58 dB

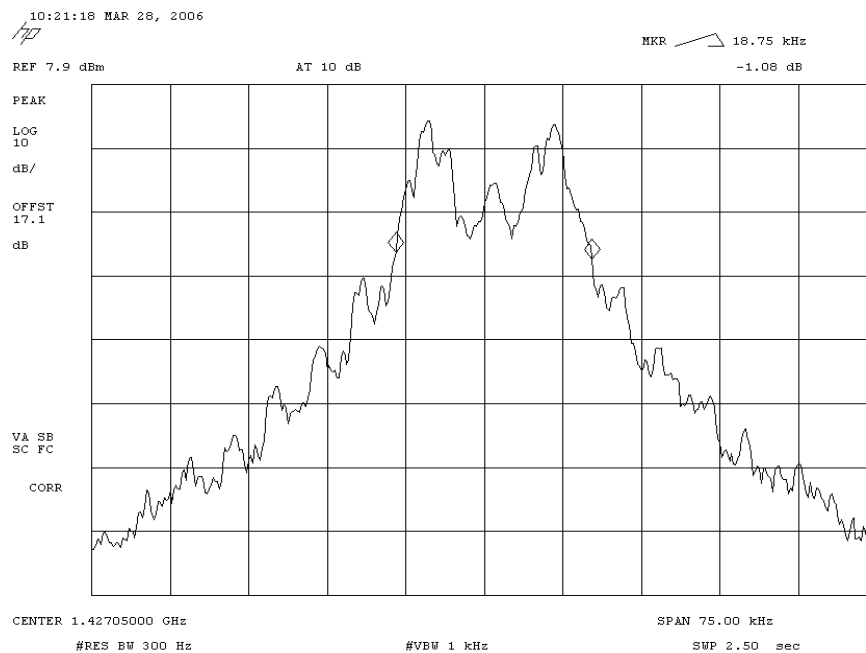
PEAK
LOG
10
dB/
OFFST
14.3
dBVA SB
SC FC
CORR

Low Channel, 1427-1429.5MHz Band

Result: Pass

Value: 18.8 kHz

Limit: N/A

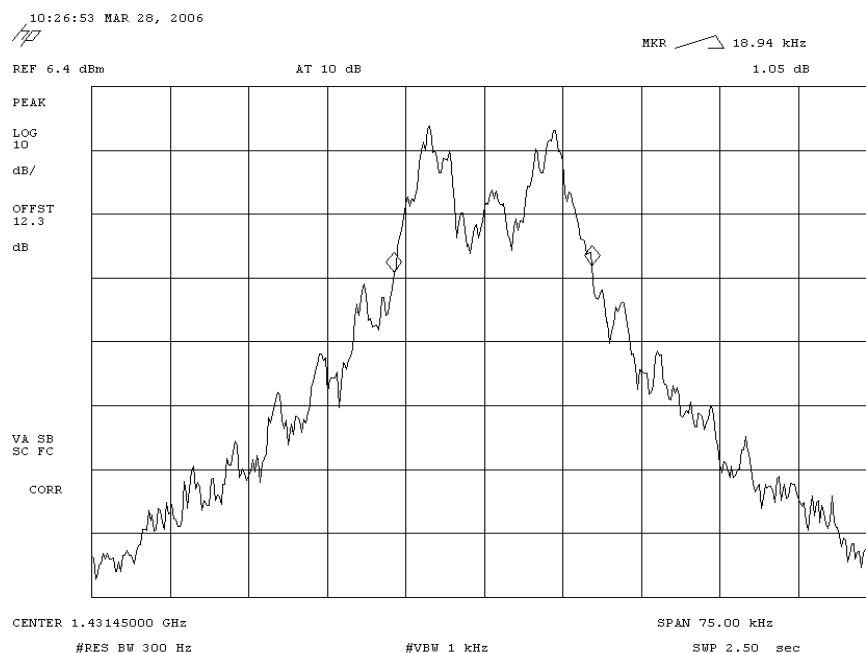


High Channel, 1427-1429.5MHz Band

Result: Pass

Value: 18.9 kHz

Limit: N/A





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.

TEST EQUIPMENT					
Description	Manufacturer	Model	ID	Last Cal.	Interval
Signal Generator	Hewlett-Packard	8648D	TGC	1/27/2006	13
Power Sensor	Hewlett-Packard	8481H	SPB	7/23/2004	24
Power Meter	Hewlett Packard	E4418A	SPA	7/23/2004	24
Spectrum Analyzer	Hewlett-Packard	8593E	AAN	1/25/2006	13

MEASUREMENT UNCERTAINTY

Measurement uncertainty is used to reflect the accuracy of the measured result as compared with its "true" or theoretically correct value. Our measurement data meets or exceeds the measurement uncertainty requirements of CISPR 16-4. In the case of transient tests our test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements. The measurement uncertainty for any test is available upon request.

TEST DESCRIPTION

The peak output power was measured with the EUT set to the lowest and highest transmit frequencies in each band. The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer. The EUT was transmitting at its maximum data rate.

EMC

Conducted Output Power

EUT:	91343-09 / 91347-09	Work Order:	SPAC0418
Serial Number:	1343-000005	Date:	06/30/06
Customer:	Spacelabs Medical	Temperature:	24°C
Attendees:	none	Humidity:	39%
Project:		Barometric Pres.:	30.04
Tested by:	Greg Kiemel	Power:	9V Battery
TEST SPECIFICATIONS		Job Site:	
FCC 95H:2005		Test Method	
		ANSI/TIA/EIA-603-B-2002	

COMMENTS

DEVIATIONS FROM TEST STANDARD

Configuration #	1	Signature 
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		Value	Limit	Results
Low Band	Low Channel	4.98 dBm	N/A	Pass
	High Channel	5.05 dBm	N/A	Pass
High Band	Low Channel	5.42 dBm	N/A	Pass
	High Channel	5.46 dBm	N/A	Pass

Conducted Output Power

Low Band, Low Channel

Result: Pass

Value: 4.98 dBm

Limit: N/A

13:33:16 JUN 30, 2006

HP

MKR 1.39490 GHz

REF 10.0 dBm

#AT 20 dB

4.98 dBm

No user
MenuPEAK
LOG
S
dB/
OFFST
21.6
dBVA SB
SC FC
CORR

CENTER 1.39505 GHz

SPAN 10.00 MHz

#RES BW 3.0 MHz

#VBW 3 MHz

SWP 20.0 msec

Low Band, High Channel

Result: Pass

Value: 5.05 dBm

Limit: N/A

13:37:15 JUN 30, 2006

HP

MKR 1.39980 GHz

REF 10.0 dBm

#AT 20 dB

5.05 dBm

No user
MenuPEAK
LOG
S
dB/
OFFST
21.6
dBVA SB
SC FC
CORR

CENTER 1.39995 GHz

SPAN 10.00 MHz

#RES BW 3.0 MHz

#VBW 3 MHz

SWP 20.0 msec

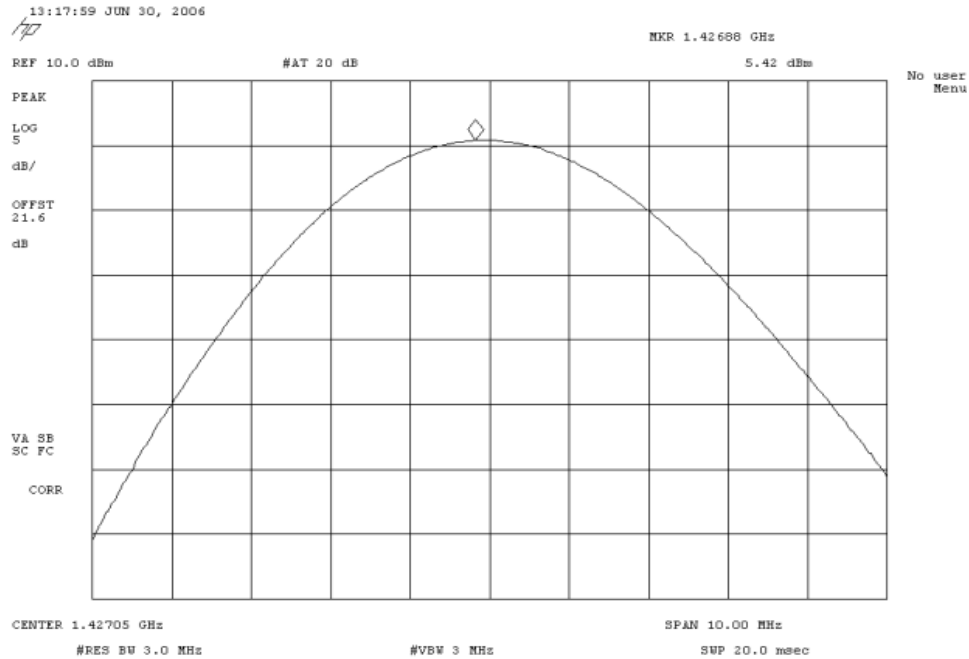
Conducted Output Power

High Band, Low Channel

Result: Pass

Value: 5.42 dBm

Limit: N/A



High Band, High Channel

Result: Pass

Value: 5.46 dBm

Limit: N/A

