

Spacelabs Medical

**Symbol LA-4137
installed in 91369**

April 22, 2005

Report No. SPAC0390

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: April 22, 2005
Spacelabs Medical
Model: Symbol LA-4137 installed in 91369

Emissions			
Specification	Test Method	Pass	Fail
FCC 15.247(d) Spurious Radiated Emissions:2004	ANSI C63.4:2003	<input checked="" type="checkbox"/>	<input type="checkbox"/>

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:

Greg Kiemel, Director of Engineering

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
00	None		

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 recognized 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.



200629-0
200630-0
200676-0

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, Newberg: C-1877 and R-1760, 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>

What is measurement uncertainty?

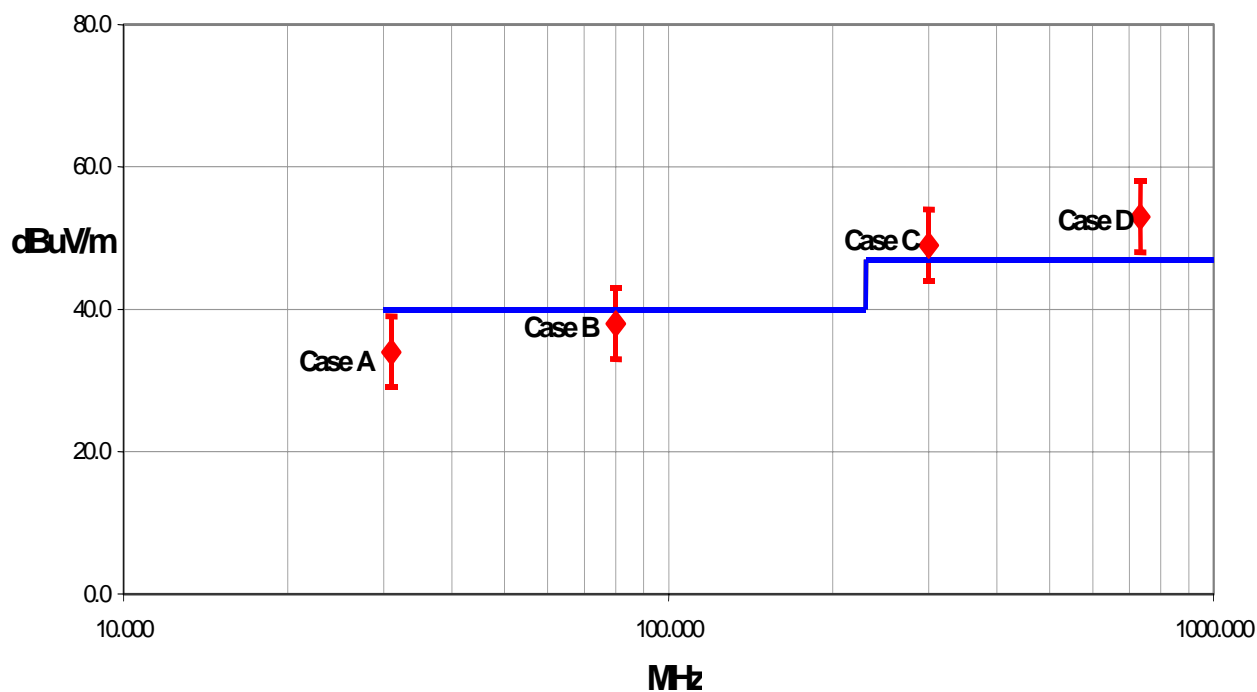
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following statement of measurement uncertainty is used to reflect the accuracy of the measured result as compared with its “true” value. In the case of transient tests (ESD, EFT, Surge, Voltage Dips and Interruptions), the test equipment has been demonstrated by calibration to provide at least a 95% confidence that it complies with the test specification requirements.

The following documents were the basis for determining the uncertainty levels of our measurements:

- “ISO Guide to the Expression of Uncertainty in Measurements”, October 1993
- “NIS81: The Treatment of Uncertainty in EMC Measurements”, May 1994
- “IEC CISPR 16-3 A1 f1 Ed.1: Radio-interference measurements and statistical techniques”, December 2000

How might measurement uncertainty be applied to test results?

If the diamond marks the measured value for the test and the vertical bars bracket the range of + and – measurement uncertainty, then test results can be interpreted from the diagram below.



Test Result Scenarios:

Case A: Product complies.

Case B: Product conditionally complies. It is not possible to say with 95% confidence that the product complies.

Case C: Product conditionally does not comply. It is not possible to say with 95% confidence that the product does not comply.

Case D: Product does not comply.

Radiated Emissions ≤ 1 GHz

Value (dB)

Test Distance	Probability Distribution	Biconical Antenna		Log Periodic Antenna		Dipole Antenna	
		3m	10m	3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.86 - 1.88	+ 1.82 - 1.87	+ 2.23 - 1.41	+ 1.29 - 1.26	+ 1.31 - 1.27	+ 1.25 - 1.25
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k=2)	+ 3.72 - 3.77	+ 3.64 - 3.73	+ 4.46 - 2.81	+ 2.59 - 2.52	+ 2.61 - 2.55	+ 2.49 - 2.49

Radiated Emissions > 1 GHz

Value (dB)

Test Distance	Probability Distribution	Without High Pass Filter		With High Pass Filter	
		3m	10m	3m	10m
Combined standard uncertainty $u_c(y)$	normal	+ 1.29 - 1.25	+ 1.38 - 1.35	+ 1.29 - 1.25	+ 1.38 - 1.35
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k=2)	+ 2.57 - 2.51	+ 2.76 - 2.70	+ 2.57 - 2.51	+ 2.76 - 2.70

Conducted Emissions

Test Distance	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.48
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k = 2)	2.97

Radiated Immunity

Test Distance	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.05
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k = 2)	2.11

Conducted Immunity

Test Distance	Probability Distribution	Value (+/- dB)
Combined standard uncertainty $u_c(y)$	normal	1.05
Expanded uncertainty U (level of confidence $\approx 95\%$)	normal (k = 2)	2.10

Legend

$u_c(y)$ = square root of the sum of squares of the individual standard uncertainties

U = combined standard uncertainty multiplied by the coverage factor: k . This defines an interval about the measured result that will encompass the true value with a confidence level of approximately 95%. If a higher level of confidence is required, then $k=3$ (CL of 99.7%) can be used. Please note that with a coverage factor of one, $u_c(y)$ yields a confidence level of only 68%.

**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

**Oregon****Trails End Facility****Labs TE01 – TE03**

30475 NE Trails End Lane
Newberg, OR 97132
(503) 844-4066
FAX (503) 537-0735

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

14128 339th Ave. SE
Sultan, WA 98294
(888) 364-2378
FAX (360) 793-2536

Party Requesting the Test

Company Name:	Spacelabs Medical
Address:	PO Box 7018
City, State, Zip:	Issaquah, WA 98027-7018
Test Requested By:	Steve Cantwell
Model:	Symbol LA-4137 installed in 91369
First Date of Test:	04-15-2005
Last Date of Test:	04-15-2005
Receipt Date of Samples:	04-15-2005
Equipment Design Stage:	Production
Equipment Condition:	No visual damage.

Information Provided by the Party Requesting the Test

Clocks/Oscillators:	Not provided.
I/O Ports:	USB, LAN, Null modem, video, nurse alert

Functional Description of the EUT (Equipment Under Test):

Symbol's 802.11 radio module installed inside of Spacelabs 91369 display unit

Client Justification for EUT Selection:

Not Provided

Client Justification for Test Selection:

These tests satisfy the requirements for FCC Class II permissive change to approve the use of a new antenna with the Symbol radio module.

Equipment modifications					
Item	Test	Date	Modification	Note	Disposition of EUT
1	Spurious Radiated Emissions	04/15/2005	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.	EUT remained at Northwest EMC.

Justification

The individuals and/or the organization requesting the test provided the modes, configurations and settings available to evaluate. While scanning the radiated emissions, all of the EUT parameters listed below were investigated. This includes, but may not be limited to, antennas, tuned transmit frequency ranges, operating modes, and data rates.

Channels in Specified Band Investigated:

High
Mid
Low

Operating Modes Investigated:

Typical

Data Rates Investigated:

1Mbps
11Mbps

Output Power Setting(s) Investigated:

maximum

Power Input Settings Investigated:

120 VAC, 60 Hz.

Frequency Range Investigated

Start Frequency	30 MHz	Stop Frequency	26 GHz
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Software\Firmware Applied During Test

Exercise software	Hyperterminal	Version	1999
Description			
The system was tested using standard operating production software on a laptop to exercise the functions of the device during the testing including data rate, channel, and power.			

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
Ultraview	Spacelabs Medical	91369	1369-000932
AC Adapter	Ault Inc.	MW116KA1800F03	Unknown
Laptop	IBM	2628-DWU	78-HKYY6
AC Adapter	IBM	02K6657	Unknown
EUT- Radio module	Spacelabs Medical	LA-4137	Unknown

Cables					
Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
Nurse alert	No	2.4	No	Ultraview	Unterminated
USB	Yes	1.3	No	Ultraview	Unterminated
LAN	No	2.0	No	Ultraview	Unterminated
USB	Yes	1.5	No	Ultraview	Unterminated
Video	Yes	1.8	Yes	Ultraview	Unterminated
USB	Yes	1.8	No	Ultraview	Unterminated
SDLC	Yes	0.3	Yes	Ultraview	Termination
Null modem	Yes	2.0	No	Ultraview	Laptop
DC Leads	PA	1.4	Yes	Ultraview	AC Adapter
AC Power	No	2.0	No	AC Adapter	AC Mains
DC Leads	PA	2.0	Yes	Laptop	AC Adapter
AC Power	No	1.0	No	AC Adapter	AC Mains
PA = Cable is permanently attached to the device. Shielding and/or presence of ferrite may be unknown.					

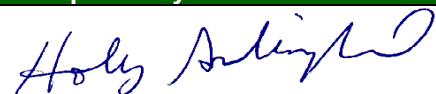
Measurement Equipment					
Description	Manufacturer	Model	Identifier	Last Cal	Interval
Spectrum Analyzer	Hewlett-Packard	8566B	AAL	12/02/2004	13 mo
Spectrum Analyzer	Tektronix	2784	AAO	01/02/2005	12 mo
Quasi-Peak Adapter	Hewlett-Packard	85650A	AQF	12/02/2004	13 mo
Attenuator	Coaxicom	66702 5910-20	RBJ	02/25/2005	13 mo
High Pass Filter	Micro-Tronics	HPM50111	HFO	03/09/2005	13 mo
Pre-Amplifier	Amplifier Research	LN1000A	APS	03/01/2005	13 mo
Antenna, Biconilog	EMCO	3141	AXE	12/03/2003	24 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APJ	01/05/2004	16 mo
Antenna, Horn	EMCO	3115	AHC	09/07/2004	12 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	02/17/2005	13 mo
Antenna, Horn	EMCO	3160-08	AHK	NCR	NA
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	02/15/2005	13 mo
Antenna, Horn	EMCO	3160-09	AHG	NCR	NA


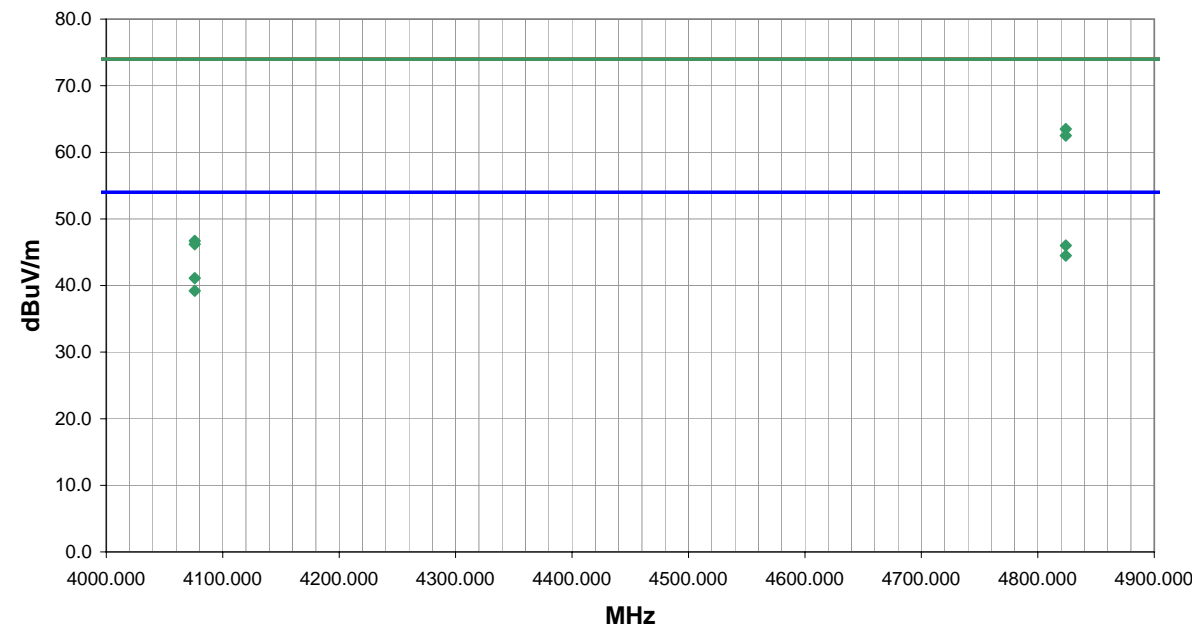
Test Description


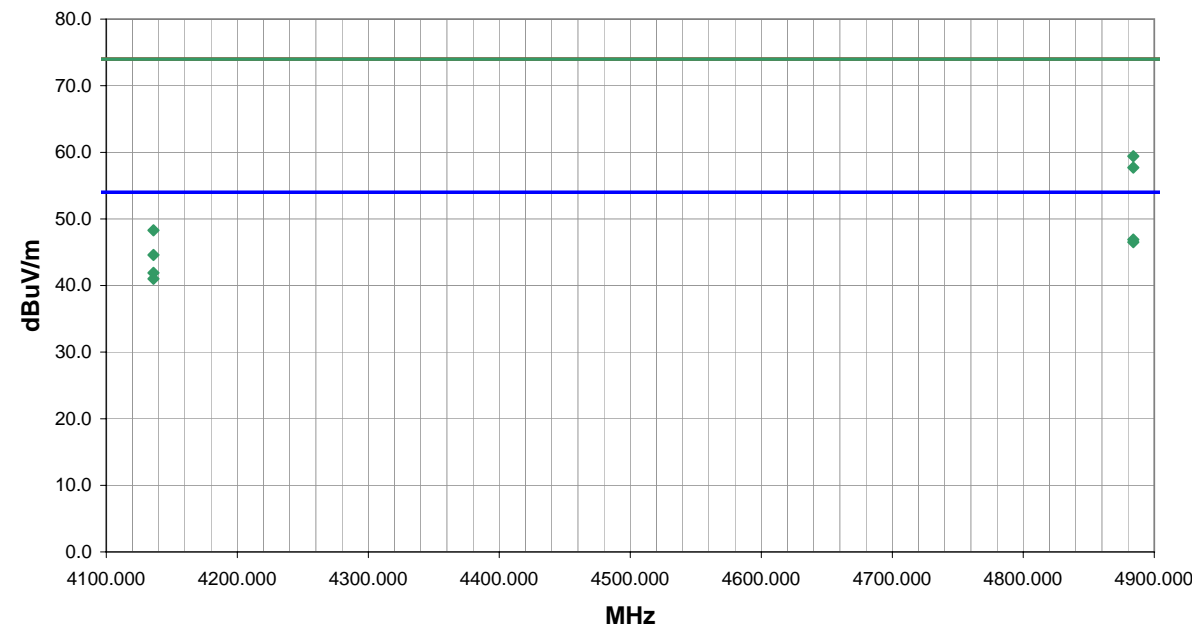
Requirement: The field strength of any spurious emissions or modulation products that fall in a restricted band, as defined in 47 CFR 15.205, is measured. The peak level must comply with the limits specified in 47 CFR 15.35(b). The average level (taken with a 10Hz VBW) must comply with the limits specified in 15.209.


Configuration: The new antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. For each configuration, the spectrum was scanned throughout the specified range. In addition, measurements were made in the restricted bands to verify compliance. While scanning, emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis, and adjusting the measurement antenna height and polarization (per ANSI C63.4:2003). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity.


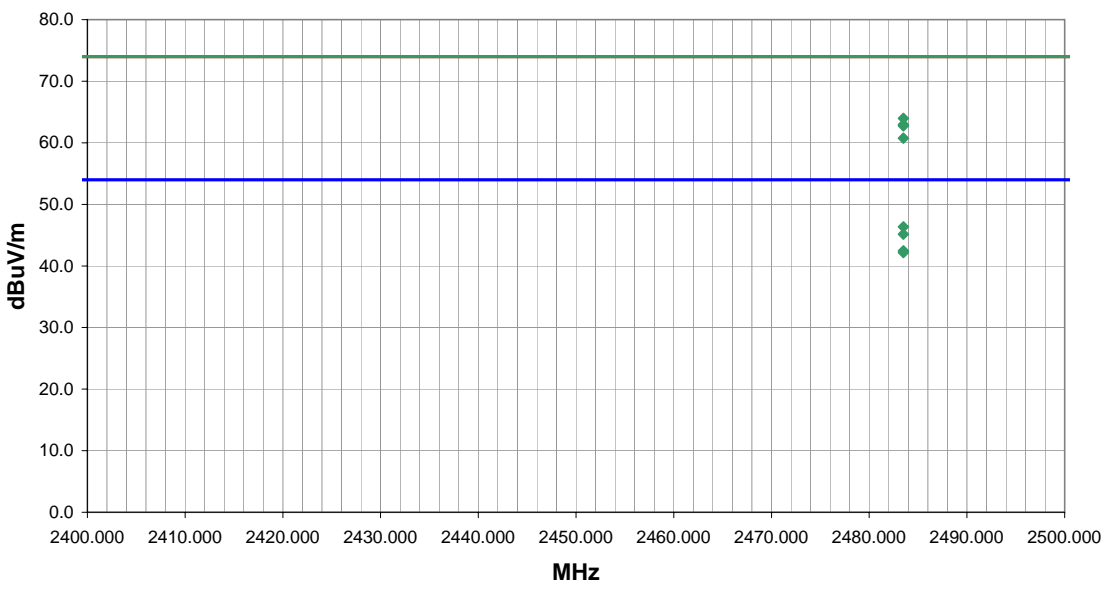
Bandwidths Used for Measurements			
Frequency Range (MHz)	Peak Data (kHz)	Quasi-Peak Data (kHz)	Average Data (kHz)
0.01 – 0.15	1.0	0.2	0.2
0.15 – 30.0	10.0	9.0	9.0
30.0 – 1000	100.0	120.0	120.0
Above 1000	1000.0	N/A	1000.0
<i>Measurements were made using the bandwidths and detectors specified. No video filter was used.</i>			

Completed by:

NORTHWEST EMC		RADIATED EMISSIONS DATA SHEET				ACQ 2005.1.4 EMI 2005.4.13							
EUT: Symbol LA-3147 installed in 91369		Work Order: SPAC0390											
Serial Number:		Date: 04/15/05											
Customer: Spacelabs Medical		Temperature: 21											
Attendees: None		Humidity: 35%											
Cust. Ref. No.:		Barometric Pressure: 30.07											
Tested by: Holly Ashkannejhad		Power: 120VAC, 60Hz		Job Site: EV01									
TEST SPECIFICATIONS													
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004				Method: ANSI C63.4:2003									
SAMPLE CALCULATIONS													
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation													
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator													
COMMENTS													
EUT OPERATING MODES													
Transmitting 802.11(b), 11Mbps, low channel													
DEVIATIONS FROM TEST STANDARD													
No deviations.													
RESULTS						Run #							
Pass						1							
Other				 Tested By: _____									
													
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)	
4823.978	42.7	3.3	331.0	1.3	3.0	0.0	V-Horn	AV	0.0	46.0	54.0	-8.0	
4823.978	41.2	3.3	232.0	1.3	3.0	0.0	H-Horn	AV	0.0	44.5	54.0	-9.5	
4823.978	60.2	3.3	331.0	1.3	3.0	0.0	V-Horn	PK	0.0	63.5	74.0	-10.5	
4823.978	59.2	3.3	232.0	1.3	3.0	0.0	H-Horn	PK	0.0	62.5	74.0	-11.5	
4075.974	38.7	2.4	335.0	1.6	3.0	0.0	V-Horn	AV	0.0	41.1	54.0	-12.9	
4075.974	36.8	2.4	35.0	1.0	3.0	0.0	H-Horn	AV	0.0	39.2	54.0	-14.8	
4075.974	44.3	2.4	335.0	1.6	3.0	0.0	V-Horn	PK	0.0	46.7	74.0	-27.3	
4075.974	43.8	2.4	35.0	1.0	3.0	0.0	H-Horn	PK	0.0	46.2	74.0	-27.8	

NORTHWEST EMC		RADIATED EMISSIONS DATA SHEET		ACQ 2005.1.4 EMI 2005.4.13								
EUT: Symbol LA-3147 installed in 91369			Work Order: SPAC0390									
Serial Number:			Date: 04/15/05									
Customer: Spacelabs Medical			Temperature: 21									
Attendees: None			Humidity: 35%									
Cust. Ref. No.:			Barometric Pressure: 30.07									
Tested by: Holly Ashkannejhad		Power: 120VAC, 60Hz		Job Site: EV01								
TEST SPECIFICATIONS												
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004			Method: ANSI C63.4:2003									
SAMPLE CALCULATIONS												
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator												
COMMENTS												
EUT OPERATING MODES												
Transmitting 802.11(b), 11Mbps, mid channel												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS					Run #							
Pass					2							
Other												
					 Tested By:							
												
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)
4883.965	43.3	3.6	333.0	1.2	3.0	0.0	V-Horn	AV	0.0	46.9	54.0	-7.1
4883.965	42.9	3.6	5.0	1.3	3.0	0.0	H-Horn	AV	0.0	46.5	54.0	-7.5
4135.975	39.5	2.4	4.0	1.2	3.0	0.0	V-Horn	AV	0.0	41.9	54.0	-12.1
4135.975	38.6	2.4	299.0	1.3	3.0	0.0	H-Horn	AV	0.0	41.0	54.0	-13.0
4883.965	55.8	3.6	333.0	1.2	3.0	0.0	V-Horn	PK	0.0	59.4	74.0	-14.6
4883.965	54.1	3.6	5.0	1.3	3.0	0.0	H-Horn	PK	0.0	57.7	74.0	-16.3
4135.975	45.9	2.4	4.0	1.2	3.0	0.0	V-Horn	PK	0.0	48.3	74.0	-25.7
4135.975	42.2	2.4	299.0	1.3	3.0	0.0	H-Horn	PK	0.0	44.6	74.0	-29.4

NORTHWEST EMC		RADIATED EMISSIONS DATA SHEET		ACQ 2005.1.4 EMI 2005.4.13								
EUT: Symbol LA-3147 installed in 91369		Work Order: SPAC0390										
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Customer: Spacelabs Medical		Temperature: 21										
Attendees: None		Humidity: 35%										
Cust. Ref. No.:		Barometric Pressure: 30.07										
Tested by: Holly Ashkannejhad		Power: 120VAC, 60Hz		Job Site: EV01								
TEST SPECIFICATIONS												
Specification: FCC 15.247(d) Spurious Radiated Emissions:2004			Method: ANSI C63.4:2003									
SAMPLE CALCULATIONS												
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation												
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator												
COMMENTS												
EUT OPERATING MODES												
Transmitting 802.11(b), 11Mbps, high channel												
DEVIATIONS FROM TEST STANDARD												
No deviations.												
RESULTS					Run #							
Pass					3							
Other												
					Tested By:							
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)
4175.987	44.5	2.4	337.0	1.3	3.0	0.0	V-Horn	AV	0.0	46.9	54.0	-7.1
4923.974	42.6	3.5	333.0	1.2	3.0	0.0	V-Horn	AV	0.0	46.1	54.0	-7.9
4923.974	40.2	3.5	254.0	1.1	3.0	0.0	H-Horn	AV	0.0	43.7	54.0	-10.3
4175.987	37.9	2.4	118.0	1.3	3.0	0.0	H-Horn	AV	0.0	40.3	54.0	-13.7
4923.974	55.1	3.5	254.0	1.1	3.0	0.0	H-Horn	PK	0.0	58.6	74.0	-15.4
4923.974	54.7	3.5	333.0	1.2	3.0	0.0	V-Horn	PK	0.0	58.2	74.0	-15.8
4175.987	47.2	2.4	337.0	1.3	3.0	0.0	V-Horn	PK	0.0	49.6	74.0	-24.4
4175.987	43.4	2.4	118.0	1.3	3.0	0.0	H-Horn	PK	0.0	45.8	74.0	-28.2

NORTHWEST EMC										ACQ 2005.1.4 EMI A2.13				RADIATED EMISSIONS DATA SHEET			
EUT: Symbol LA-3147 installed in 91369										Work Order: SPAC0390							
Serial Number:										Date: 04/15/05							
Customer: Spacelabs Medical										Temperature: 21							
Attendees: None										Humidity: 35%							
Cust. Ref. No.:										Barometric Pressure: 30.07							
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TEST SPECIFICATIONS																	
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SAMPLE CALCULATIONS																	
Radiated Emissions: Field Strength = Measured Level + Antenna Factor + Cable Factor - Amplifier Gain + Distance Adjustment Factor + External Attenuation																	
Conducted Emissions: Adjusted Level = Measured Level + Transducer Factor + Cable Attenuation Factor + External Attenuator																	
COMMENTS																	
EUT OPERATING MODES																	
Transmitting 802.11(b), high channel, see comments for data rate																	
DEVIATIONS FROM TEST STANDARD																	
No deviations.																	
RESULTS																	
Pass												Run #		4			
Other																	
										 Tested By:							
																	
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				
2483.500	25.5	30.4	109.0	1.1	1.0	0.0	H-Horn	AV	-9.5	46.4	54.0	-7.6	1Mbps				
2483.500	24.3	30.4	328.0	1.1	1.0	0.0	V-Horn	AV	-9.5	45.2	54.0	-8.8	1Mbps				
2483.500	43.1	30.4	168.0	1.0	1.0	0.0	H-Horn	PK	-9.5	64.0	74.0	-10.0	11Mbps				
2483.500	42.1	30.4	334.0	1.1	1.0	0.0	V-Horn	PK	-9.5	63.0	74.0	-11.0	11Mbps				
2483.500	41.9	30.4	328.0	1.1	1.0	0.0	V-Horn	PK	-9.5	62.8	74.0	-11.2	1Mbps				
2483.500	21.6	30.4	168.0	1.0	1.0	0.0	H-Horn	AV	-9.5	42.5	54.0	-11.5	11Mbps				
2483.500	21.3	30.4	334.0	1.1	1.0	0.0	V-Horn	AV	-9.5	42.2	54.0	-11.8	11Mbps				
2483.500	39.9	30.4	109.0	1.1	1.0	0.0	H-Horn	PK	-9.5	60.8	74.0	-13.2	1Mbps				



