Spacelabs Medical

2.4 GHz WLAN
FCC ID CM6010-0914-00

Test Report

October 22, 2003

Report No. SPAC0347

Report Prepared By:

1-888-EMI-CERT

NORTHWEST EMC

22975 NW Evergreen Parkway
Suite 400
Hillsboro, Oregon 97124

Certificate of Test

Issue Date: October 22, 2003
Spacelabs Medical
Model: 2.4 GHz WLAN (FCC ID CM6010-0914-00)

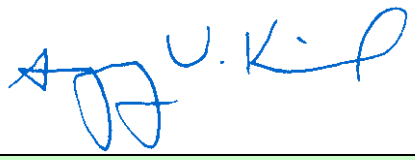
Emissions		
Description	**Pass**	**Fail**
FCC 15.247:2003, Spurious Radiated Emissions	☒	☐

Modifications made to the product
No modifications were made to the product.

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: The Open Area Test Sites, 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.

TCB: 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: Accreditation has been granted to Northwest EMC, Inc. to perform the Electromagnetic Compatibility (EMC) tests described in the Scope of Accreditation. Assessment performed to ISO/IEC 17025. Certificate Number: 200629-0, Certificate Number: 200630-0.

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)

TÜV Product Service: Included in TUV Product Service Group's Listing of Recognized Laboratories. It qualifies in connection with the TUV Certification after Recognition of Agent's Testing Program for the product categories and/or standards shown in TUV's current Listing of CARAT Laboratories available from TUV. A certificate was issued to represent that this laboratory continues to meet TUV's CARAT Program requirements. Certificate No. USA0302C

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.

Industry Canada: Accredited by Industry Canada for performance of radiated measurements. Our open area test sites comply with RSS 212, Issue 1 (Provisional).

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 Nos. - Evergreen: C-1071 and R-1025, Trails End: C-694 and R-677, Sultan: C-905, R-871 and R-1172, North Sioux City C-1246, R-1185 and R-1217)*

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.

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

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

	NVLAP	FCC	NIST	TUV PS	TUV Rheinland	Nemko	Technology International	Industry Canada	BSMI	VCCI	GOST	NATA
IEC 61000-4-2	✓			✓	✓	✓	✓					
IEC 61000-4-3	✓			✓	✓	✓	✓					
IEC 61000-4-4	✓			✓	✓	✓	✓					
IEC 61000-4-5	✓			✓	✓	✓	✓					
IEC 61000-4-6	✓			✓	✓	✓	✓					
IEC 61000-4-8	✓			✓	✓	✓	✓					
IEC 61000-4-11	✓			✓	✓	✓	✓					
IEC 61000-3-2	✓			✓	✓	✓	✓					
IEC 61000-3-3	✓			✓	✓	✓	✓					
AS/NZS 3548	✓											✓
CNS 13438	✓								✓			
ISO/IEC17025	✓			✓	✓	✓	✓		✓			
Radiated Emissions	✓			✓	✓	✓	✓	✓	✓	✓	✓	
Conducted Emissions	✓			✓	✓	✓	✓	✓	✓	✓	✓	
OATS Sites	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
Hillsboro 5-Meter Chamber (EV01)	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	
TCB for Licensed Transmitters		✓										
TCB for un-Licensed Transmitters		✓										
Cab for R&TTE			✓									
CAB for EMC			✓									

This chart represents only a partial NVLAP Scope, please reference http://ts.nist.gov/ts/htdocs/210/214/214.htm for the full NVLAP Scope of Accreditation

What is measurement uncertainty?

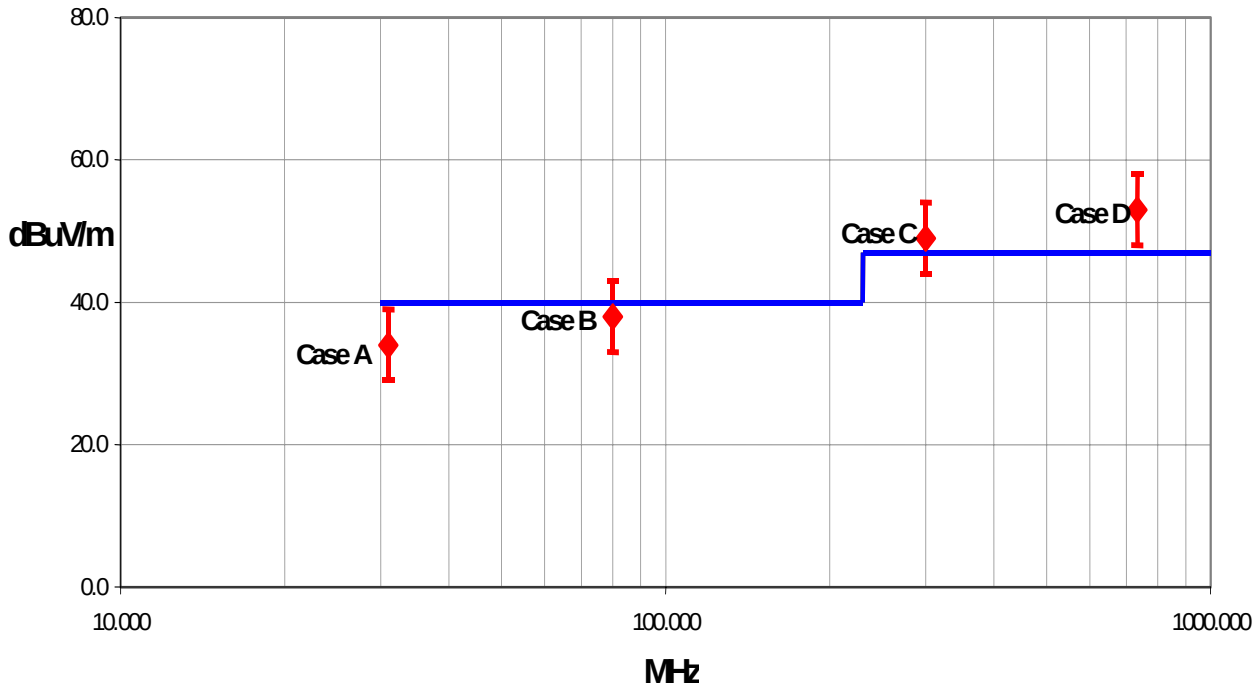
When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. The following 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)					
	Probability Distribution	Biconical Antenna		Log Periodic Antenna		Dipole Antenna	
Test Distance		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 ≈ 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)		
	Probability Distribution	Without High Pass Filter	With High Pass Filter
Combined standard uncertainty $u_c(y)$	normal	+ 1.29 - 1.25	+ 1.38 - 1.35
Expanded uncertainty ***U*** (level of confidence ≈ 95%)	normal (k=2)	+ 2.57 - 2.51	+ 2.76 - -2.70

Conducted Emissions		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.48
Expanded uncertainty ***U*** (level of confidence ≈ 95 %)	normal (k = 2)	2.97

Radiated Immunity		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.05
Expanded uncertainty ***U*** (level of confidence ≈ 95 %)	normal (k = 2)	2.11

Conducted Immunity		
	Probability Distribution	Value (+/- dB)
Combined standard uncertainty ***uc(y)***	normal	1.05
Expanded uncertainty ***U*** (level of confidence ≈ 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, uc(y) yields a confidence level of only 68%.

California

Orange County Facility

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

Oregon

Evergreen Facility

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

Oregon

Trails End Facility

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

South Dakota

North Sioux City Facility

745 N. Derby Lane
P.O. Box 217
North Sioux City, SD 57049
(605) 232-5267
FAX (605) 232-3873

Washington

Sultan Facility

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

Party Requesting the Test	
Company Name:	Spacelabs Medical
Address:	5150 220th Avenue SE
City, State, Zip:	Issaquah, WA 98027
Test Requested By:	Steve Cantwell
Model:	2.4 GHz WLAN (FCC ID CM6010-0914-00)
First Date of Test:	9/03/2003
Last Date of Test:	10/13/2003
Receipt Date of Samples:	9/03/2003
Equipment Design Stage:	Production
Equipment Condition:	No visual damage.

Information Provided by the Party Requesting the Test

Clocks/Oscillators:	Not provided at time of test
I/O Ports:	RF Output

Functional Description of the EUT (Equipment Under Test):
2.4 GHz Frequency Hopping Spread Spectrum Radio

Client Justification for EUT Selection:
The product is a representative production sample.

Client Justification for Test Selection:
New antennas will be used with this radio. This constitutes a Class II permissive change. These tests satisfy the requirements of FCC 15.247 for the addition of new antennas.

Equipment modifications				
Item #	Test	Date	Modification	Note
1	Spurious Radiated Emissions	10-13-2003	No EMI suppression devices were added or modified during this test.	Same configuration as delivered.

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:
Low
Mid
High

Operating Modes Investigated:
No Hop

Antennas Investigated:
Radiall/Larsen Antenna Technologies Dipole R380500116
Radiall/Larsen Antenna Technologies Dipole R380500117
Centurion PCB (MicroBlue 2.4 Microsphere) CAF94131 (internal to host unit)

Data Rates Investigated:
Maximum

Output Power Setting(s) Investigated:
Maximum

Power Input Settings Investigated:
Host powered at 120 VAC/60 Hz

Frequency Range Investigated			
Start Frequency	30 MHz	Stop Frequency	25 GHz

Software\Firmware Applied During Test			
Exercise software	Special Test Software	Version	8.24
Description			
The system was tested using special software developed to test all functions of the device during the test.			

EUT and Peripherals

Description	Manufacturer	Model/Part Number	Serial Number
Host device	SpaceLabs Medical	90369	369-011272
AC Power Adapter	Ault, Inc.	119-0251-01	N/A
Dipole Antenna (1)	Radiall/Larsen Technologies	R380500116	N/A
Dipole Antenna (2)	Radiall/Larsen Technologies	R380500117	N/A
PCB antenna	Centurion Wireless Technologies	CAF94131	N/A
EUT – 2.4 GHz WLAN Radio	Proxim	6330	0020A647E346

Cables

Cable Type	Shield	Length (m)	Ferrite	Connection 1	Connection 2
AC Power	No	1.6	No	AC Power Adapter	AC Mains
DC Leads	PA	1.75	PA	AC Power Adapter	Host device
Antenna	Yes	1.8	PA	Dipole Antenna (2)	EUT

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	01/07/2003	12 mo
Quasi-Peak Adapter	Hewlett-Packard	85650A	AQF	01/07/2003	12 mo
Antenna, Biconilog	EMCO	3141	AXE	12/31/2001	36 mo
Pre-Amplifier	Amplifier Research	LN1000A	APS	01/06/2003	12 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APJ	01/06/2003	12 mo
Antenna, Horn	EMCO	3115	AHC	08/12/2002	15 mo
Pre-Amplifier	Miteq	AMF-4D-005180-24-10P	APC	07/09/2002	15 mo
High Pass Filter	RLC Electronics	F-100-4000-5-R (HPF>4GHz up to	HFF	05/01/2003	12 mo
Spectrum Analyzer	Tektronix	2784	AAO	02/26/2003	24 mo
Antenna, Horn	EMCO	3160-09	AHG	10/08/2003	12 mo
Pre-Amplifier	Miteq	JSD4-18002600-26-8P	APU	10/08/2003	12 mo

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 highest gain of each type of antenna to be used with the EUT was tested. The EUT was configured for low, mid, and high band transmit frequencies. The EUT was transmitting at its maximum data rate in a no-hop mode. 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 (per ANSI C63.4:1992). A preamp and high pass filter were used for this test in order to provide sufficient measurement sensitivity. Since the dwell time per channel of the hopping signal was less than 100 ms, the readings obtained with the 10 Hz VBW were further reduced by a "duty cycle correction factor" of 11.44 dB, derived from 20*log(dwell time/100ms), where the EUT's maximum dwell time in any 100mS period was measured to be 26.8 mS.

Band-edge compliance for emissions in the restricted band of 2.4835 GHz to 2.5 GHz was confirmed by using the "marker-delta" method described in FCC Public Notice DA 00-705:

1. In-band field strength of the fundamental was measured.
2. Amplitude delta between the fundamental and highest band-edge emission was measured.
3. The amplitude delta from step #2 was subtracted from the field strength level of step #1.

The resultant field strengths were used to determine compliance of emissions with band-edge requirements.

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

Completed by:

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/10/03
Customer:	Spacelabs Medical			Temperature:	73
Attendees:	Drop Off			Humidity:	42%
Cust. Ref. No.:				Barometric Pressure	30.04
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247 Class B	Year:	2001
Method:	ANSI C63.4	Year:	1992

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

Configuration 1: Radiall/Larsen Antenna Technologies PN: R380500116

EUT OPERATING MODES

No hop, high channel

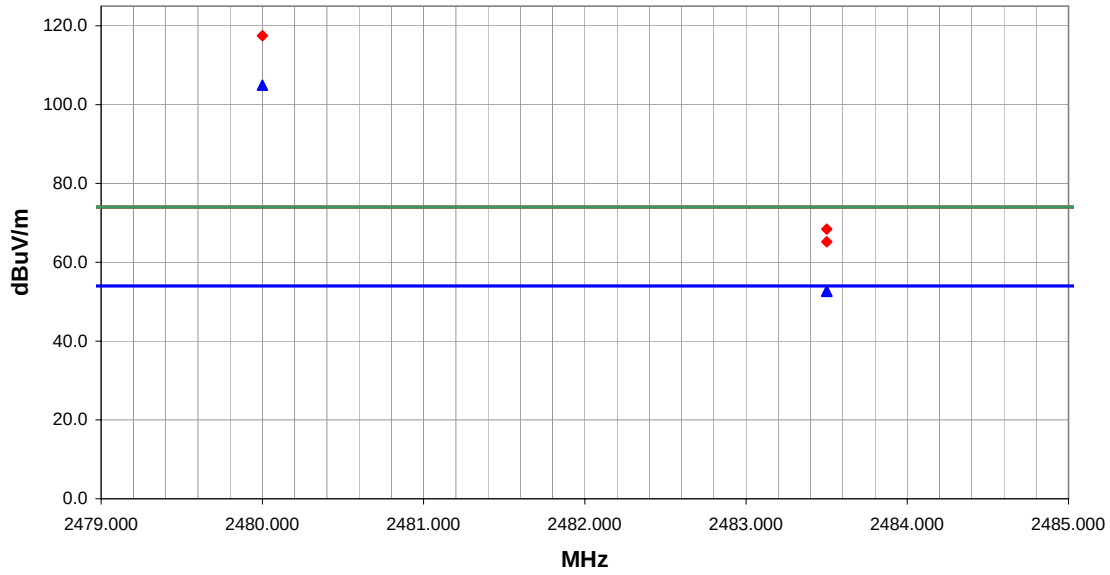
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	29 and 4

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
2480.000	86.7	29.7	273.0	1.0	11.4	0.0	V-Horn	AV	0.0	105.0	54.0	51.0	Fundamental emission
2483.500	N/A	N/A	273.0	1.0	N/A	N/A	V-Horn	AV	0.0	52.7	54.0	-1.3	Marker Delta Method used to calculate Adjusted Level: 105 dBuV - 52.3 dBuV = 52.7 dBuV.
2483.500	31.5	32.5	316.0	1.0	11.4	0.0	H-Horn	AV	0.0	52.6	54.0	-1.4	
2480.000	87.8	29.7	273.0	1.0	0.0	0.0	V-Horn	PK	0.0	117.5	74.0	43.5	Fundamental emission.
2483.500	N/A	N/A	273.0	1.0	N/A	N/A	V-Horn	PK	0.0	65.2	74.0	-8.8	Marker Delta Method used to calculate Adjusted Level: 117.5 dBuV - 52.3 dBuV= 65.2 dBuV.
2483.500	35.9	32.5	316.0	1.0	0.0	0.0	H-Horn	PK	0.0	68.4	74.0	-5.6	

NORTHWEST EMC

MARKER DELTA DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/10/03
Customer:	Spacelabs Medical			Temperature:	73
Attendees:	Drop Off			Humidity:	42%
Cust. Ref. No.:				Barometric Pressure	30.04
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247 Class B	Year:	2001
Method:	ANSI C63.4	Year:	1992

COMMENTS

Configuration #1, Radiall/Larsen Antenna Technologies PN: R380500116. Marker Delta method of Band Edge Compliance. Vertical polarity.

EUT OPERATING MODES

No hop, high channel

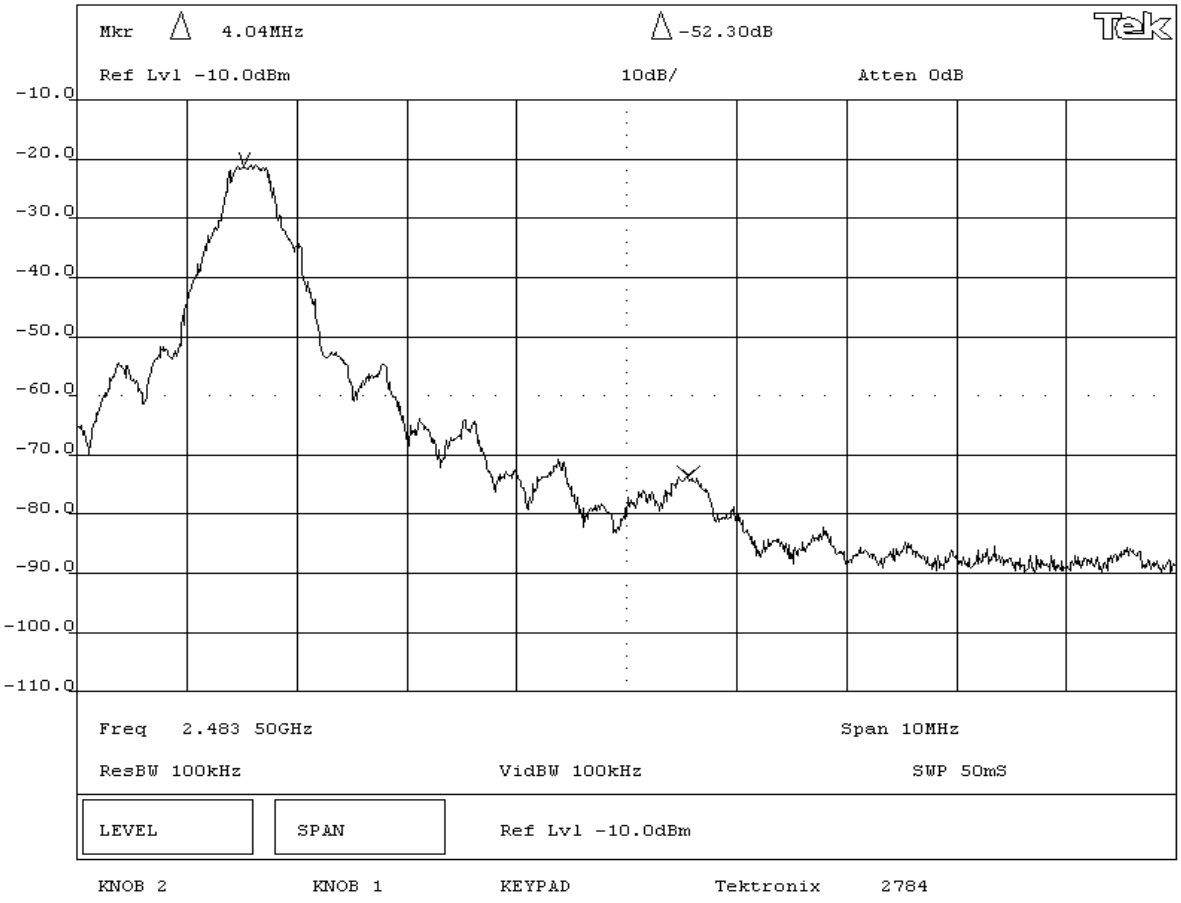
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	29 and 4

Other

Tested By:



NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.00 08/12/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	09/03/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	41%
Cust. Ref. No.:				Barometric Pressure	29.93
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2001
Method:	ANSI C63.4	Year:	1992

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

Configuration #1, Radiall/Larsen Antenna Technologies Antenna PN: R380500116

EUT OPERATING MODES

No hop, mid channel

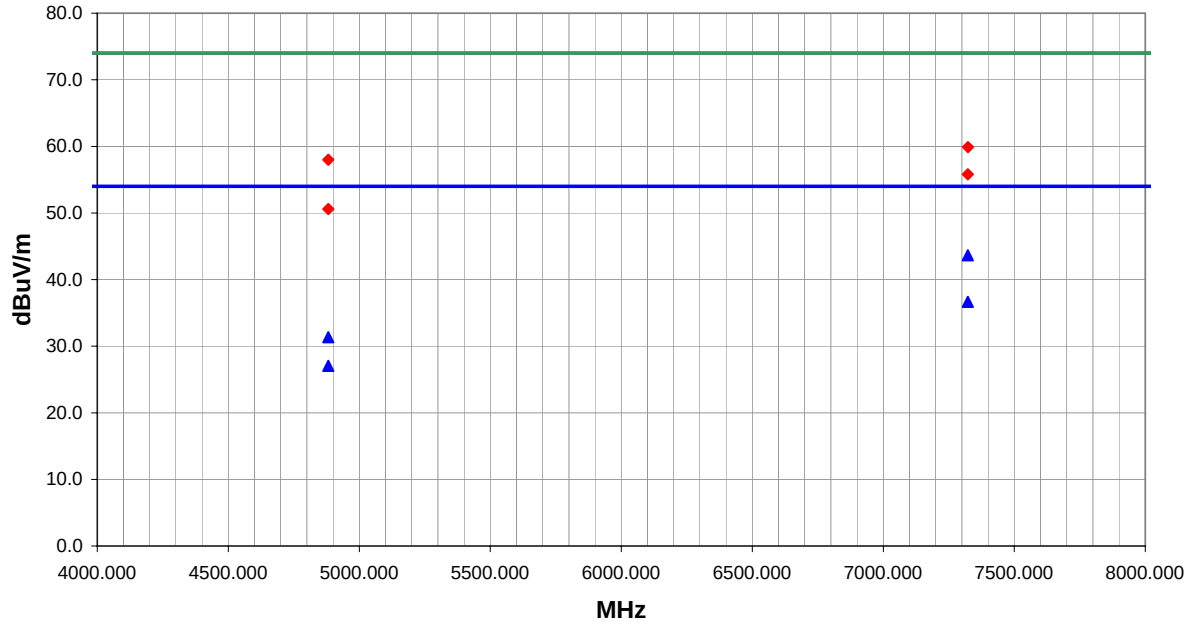
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	4

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7323.015	44.1	11.0	330.0	2.2	11.4	0.0	V-Horn	AV	0.0	43.7	54.0	-10.3
7323.015	37.1	11.0	201.0	1.3	11.4	0.0	H-Horn	AV	0.0	36.7	54.0	-17.3
4882.084	36.6	6.2	33.0	1.1	11.4	0.0	V-Horn	AV	0.0	31.4	54.0	-22.6
4881.928	32.3	6.2	213.0	1.4	11.4	0.0	H-Horn	AV	0.0	27.1	54.0	-26.9
7323.087	48.9	11.0	330.0	2.2	0.0	0.0	V-Horn	PK	0.0	59.9	74.0	-14.1
4882.084	51.8	6.2	215.0	1.2	0.0	0.0	V-Horn	PK	0.0	58.0	74.0	-16.0
7323.015	44.8	11.0	216.0	1.3	0.0	0.0	H-Horn	PK	0.0	55.8	74.0	-18.2
4882.084	44.4	6.2	293.0	1.6	0.0	0.0	H-Horn	PK	0.0	50.6	74.0	-23.4

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/09/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	41%
Cust. Ref. No.:				Barometric Pressure	30.15
Tested by:	Holly Ashkannejhad	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Configuration #1, Radiall/Larsen Antenna Technologies Antenna PN: R380500116

EUT OPERATING MODES

No hop, low channel

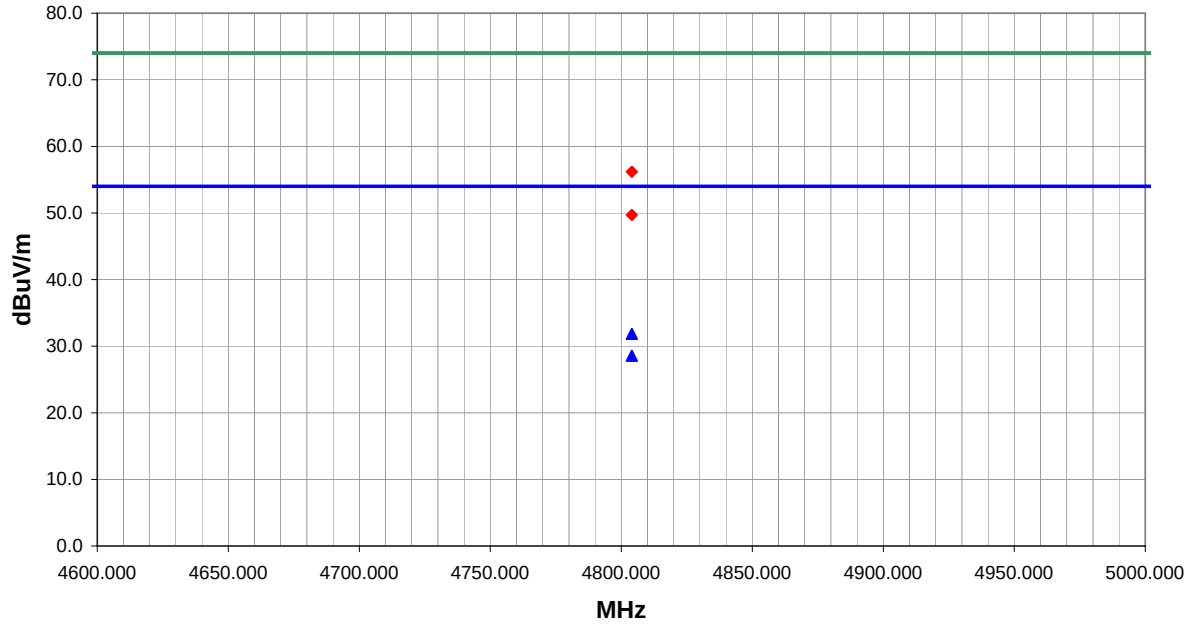
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	21

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
4804.000	39.1	4.2	99.0	1.0	11.4	0.0	V-Horn	AV	0.0	31.9	54.0	-22.1
4804.000	35.8	4.2	153.0	1.5	11.4	0.0	H-Horn	AV	0.0	28.6	54.0	-25.4
4804.000	52.0	4.2	99.0	1.0	0.0	0.0	V-Horn	PK	0.0	56.2	74.0	-17.8
4804.000	45.5	4.2	153.0	1.5	0.0	0.0	H-Horn	PK	0.0	49.7	74.0	-24.3

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/09/03
Customer:	Spacelabs Medical			Temperature:	73
Attendees:	Drop Off			Humidity:	41%
Cust. Ref. No.:				Barometric Pressure	30.04
Tested by:	Holly Ashkannejhad	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Configuration #1, Radiall/Larsen Antenna Technologies Antenna PN: R380500116

EUT OPERATING MODES

No hop, high channel

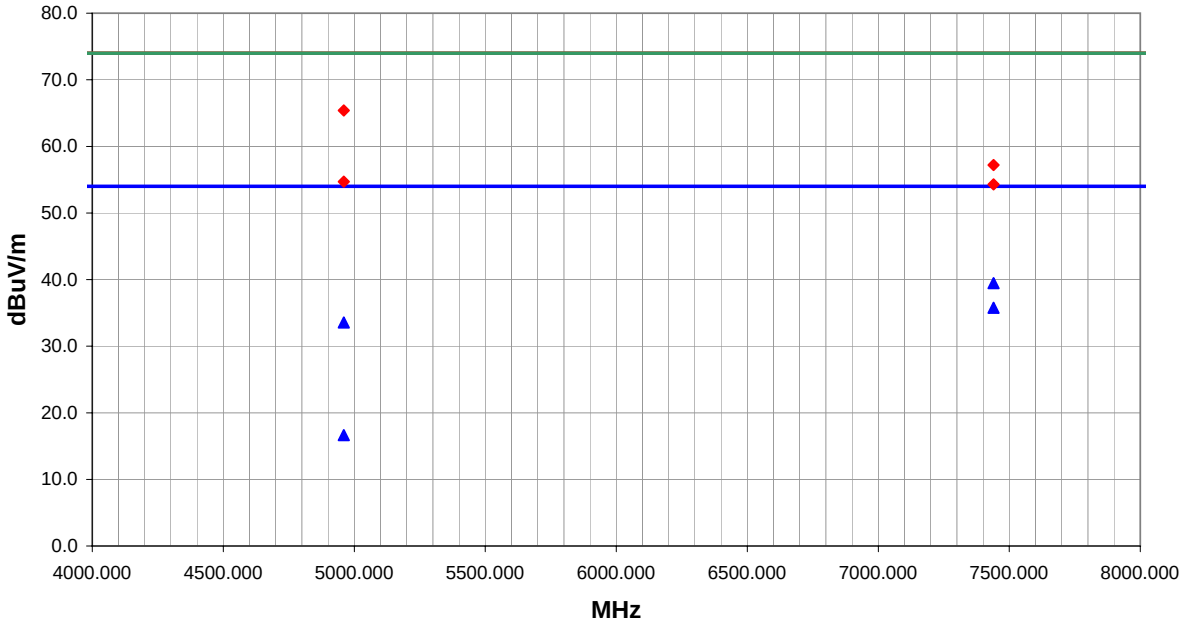
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	19

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7440.000	41.0	9.9	102.0	1.8	11.4	0.0	V-Horn	AV	0.0	39.5	54.0	-14.5
7440.000	37.3	9.9	117.0	1.1	11.4	0.0	H-Horn	AV	0.0	35.8	54.0	-18.2
4960.000	40.2	4.8	67.0	1.1	11.4	0.0	V-Horn	AV	0.0	33.6	54.0	-20.4
4960.000	23.3	4.8	241.0	1.0	11.4	0.0	H-Horn	AV	0.0	16.7	54.0	-37.3
4960.000	60.6	4.8	67.0	1.1	0.0	0.0	V-Horn	PK	0.0	65.4	74.0	-8.6
7440.000	47.3	9.9	102.0	1.8	0.0	0.0	V-Horn	PK	0.0	57.2	74.0	-16.8
4960.000	49.9	4.8	242.0	1.0	0.0	0.0	H-Horn	PK	0.0	54.7	74.0	-19.3
7440.000	44.4	9.9	117.0	1.1	0.0	0.0	H-Horn	PK	0.0	54.3	74.0	-19.7

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)	Work Order:	SPAC0347
Serial Number:		Date:	10/06/03
Customer:	Spacelabs Medical	Temperature:	75
Attendees:	Drop Off	Humidity:	35%
Cust. Ref. No.:		Barometric Pressure	29.96
Tested by:	Rod Peloquin Power: 120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Config #2a, Centurion MicroBlue Antenna PN: CAF94131 in front bezel location.

EUT OPERATING MODES

No hop, high channel

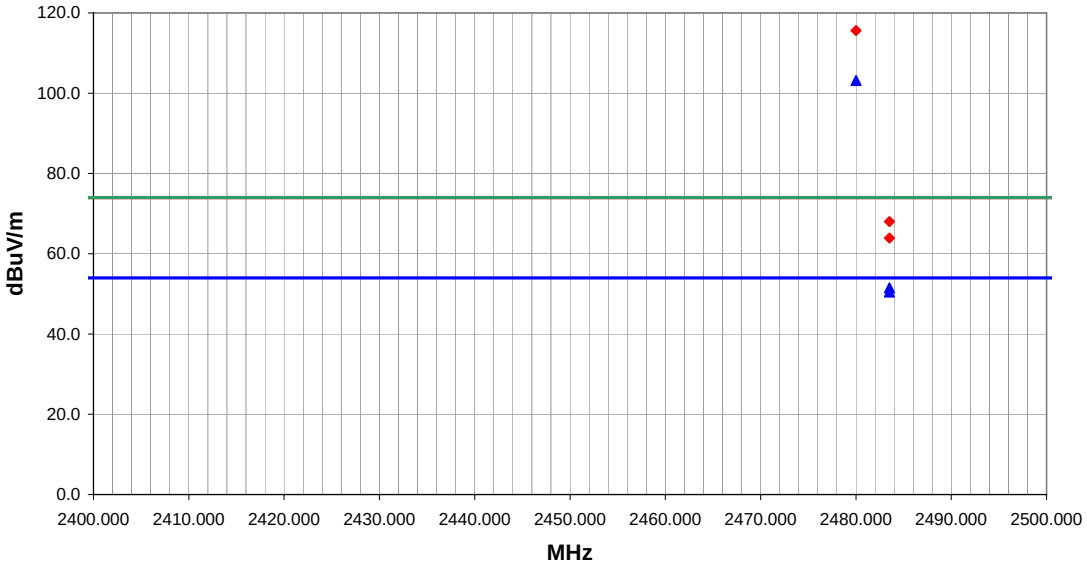
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	10

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
2480.000	82.1	32.5	23.0	1.2	11.4	0.0	V-Horn	AV	0.0	103.2	N/A	49.2	Fundamental emission
2483.518	N/A	N/A	24.0	1.2	N/A	N/A	V-Horn	AV	0.0	51.5	54.0	-2.5	Marker Delta Method used to calculate Adjusted Level: 103.2 dBµV - 51.7 dBµV = 51.5 dBµV
2483.516	29.4	32.5	47.0	2.7	11.4	0.0	H-Horn	AV	0.0	50.5	54.0	-3.5	
2480.000	83.1	32.5	23.0	1.2	0.0	0.0	V-Horn	PK	0.0	115.6	N/A	41.6	Fundamental emission
2483.518	N/A	N/A	24.0	1.2	N/A	N/A	V-Horn	PK	0.0	63.9	74.0	-10.1	Marker Delta Method used to calculate Adjusted Level: 115.6 dBµV - 51.7 dBµV = 63.9 dBµV
2483.516	35.5	32.5	47.0	2.7	0.0	0.0	H-Horn	PK	0.0	68.0	74.0	-6.0	

NORTHWEST
EMC

MARKER DELTA DATA SHEET

REV
df4.01
10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/06/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	35%
Cust. Ref. No.:				Barometric Pressure	29.96
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

COMMENTS

Config #2a, Centurion MicroBlue Antenna PN: CAF94131 in front bezel location. Marker Delta method of Band Edge Compliance, Vertical Polarity.

EUT OPERATING MODES

No hop, high channel

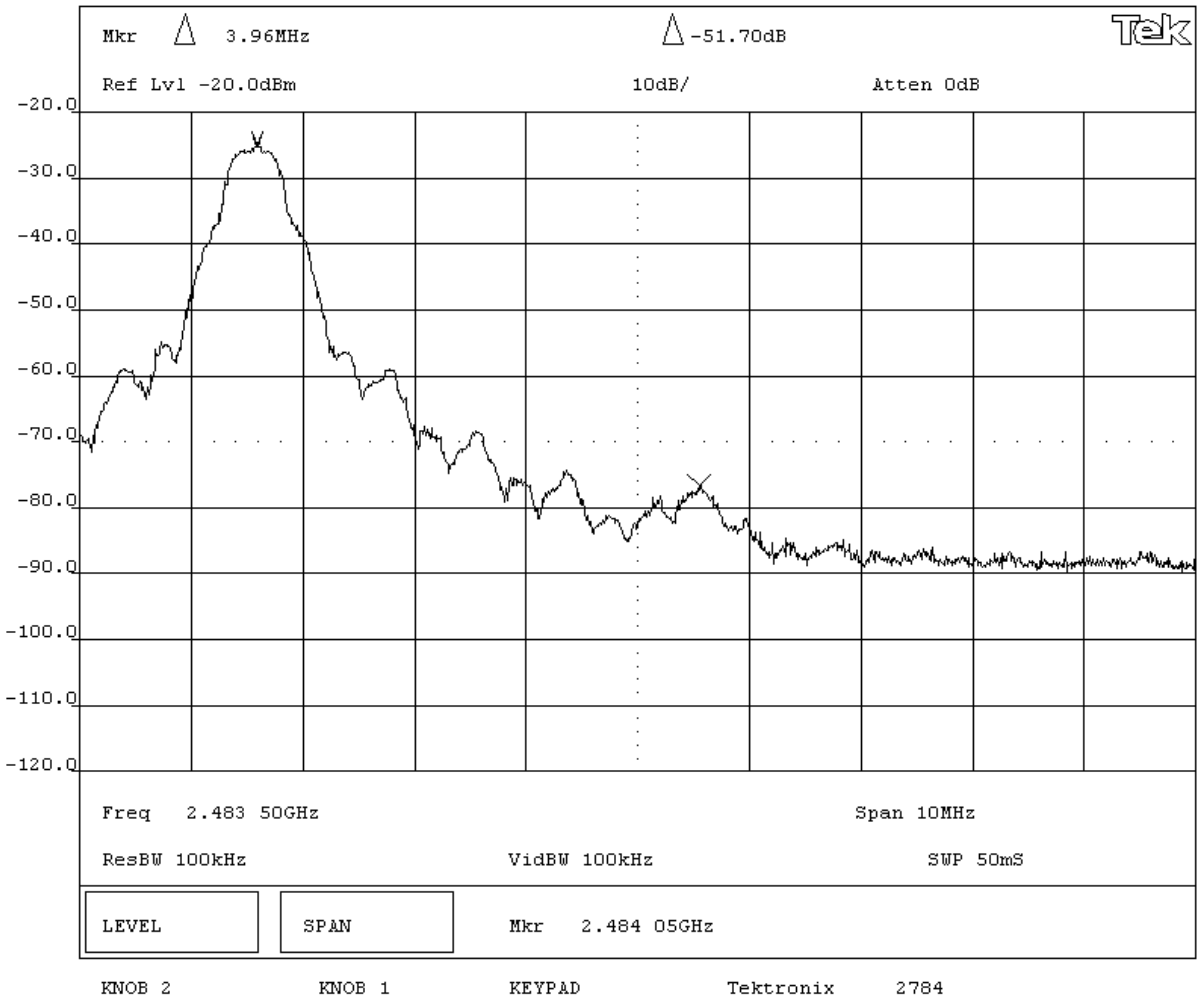
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	10

Other

Tested By:



NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/06/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	35%
Cust. Ref. No.:				Barometric Pressure	29.96
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Config #2a, Centurion MicroBlue Antenna PN: CAF94131 in front bezel location.

EUT OPERATING MODES

No hop, low channel

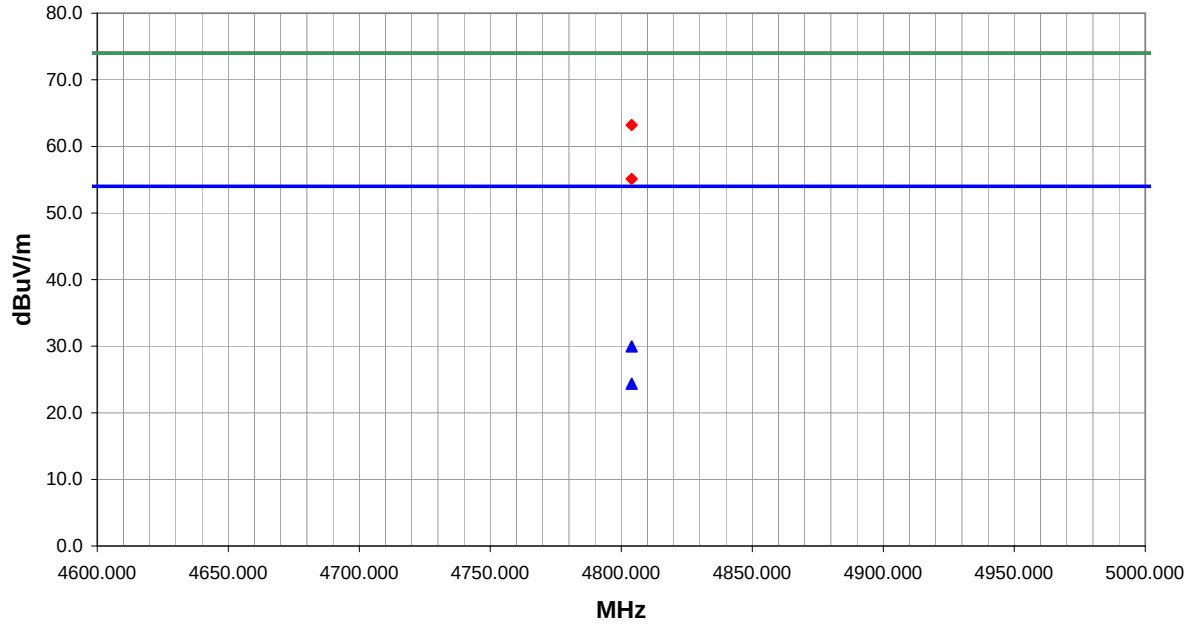
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	12

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
4803.995	37.2	4.2	24.0	1.1	11.4	0.0	V-Horn	AV	0.0	30.0	54.0	-24.0
4803.995	31.6	4.2	356.0	1.3	11.4	0.0	H-Horn	AV	0.0	24.4	54.0	-29.6
4803.995	59.0	4.2	24.0	1.1	0.0	0.0	V-Horn	PK	0.0	63.2	74.0	-10.8
4803.995	50.9	4.2	356.0	1.3	0.0	0.0	H-Horn	PK	0.0	55.1	74.0	-18.9

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/06/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	35%
Cust. Ref. No.:				Barometric Pressure	29.96
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Config #2a, Centurion MicroBlue Antenna PN: CAF94131 in front bezel location.

EUT OPERATING MODES

No hop, mid channel

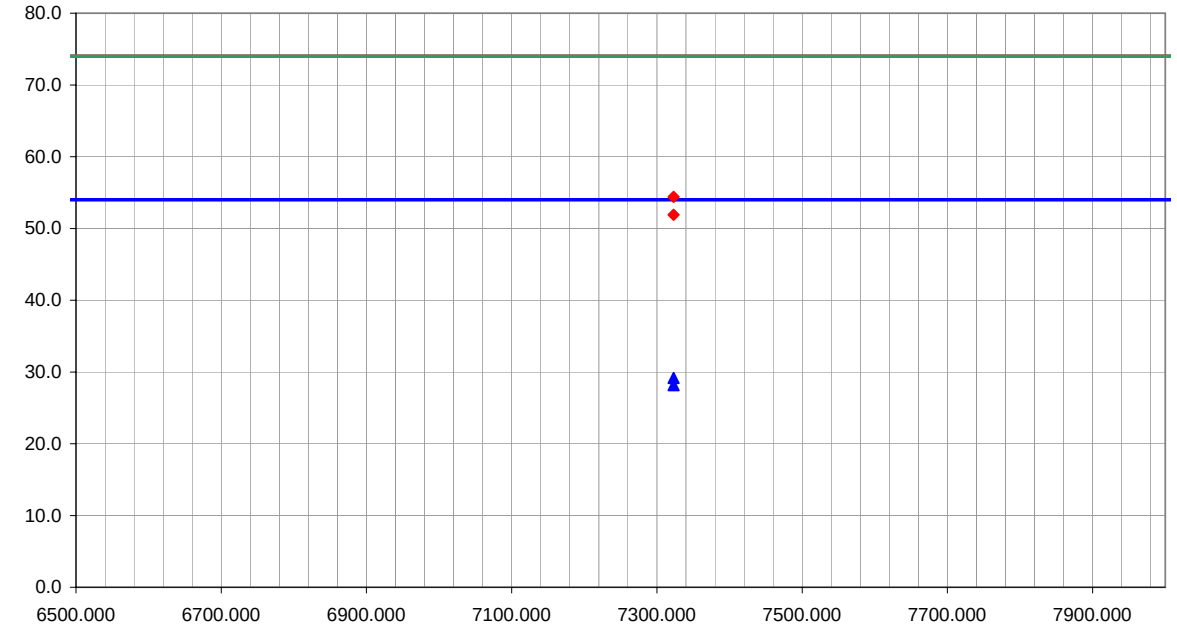
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	14

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7323.000	31.1	9.5	329.0	1.3	11.4	0.0	H-Horn	AV	0.0	29.2	54.0	-24.8
7323.000	30.1	9.5	352.0	1.1	11.4	0.0	V-Horn	AV	0.0	28.2	54.0	-25.8
7323.000	44.9	9.5	352.0	1.1	0.0	0.0	V-Horn	PK	0.0	54.4	74.0	-19.6
7323.000	42.4	9.5	329.0	1.3	0.0	0.0	H-Horn	PK	0.0	51.9	74.0	-22.1

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/06/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	35%
Cust. Ref. No.:				Barometric Pressure	29.96
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Config #2a, Centurion MicroBlue Antenna PN: CAF94131 in front bezel location.

EUT OPERATING MODES

No hop, high channel

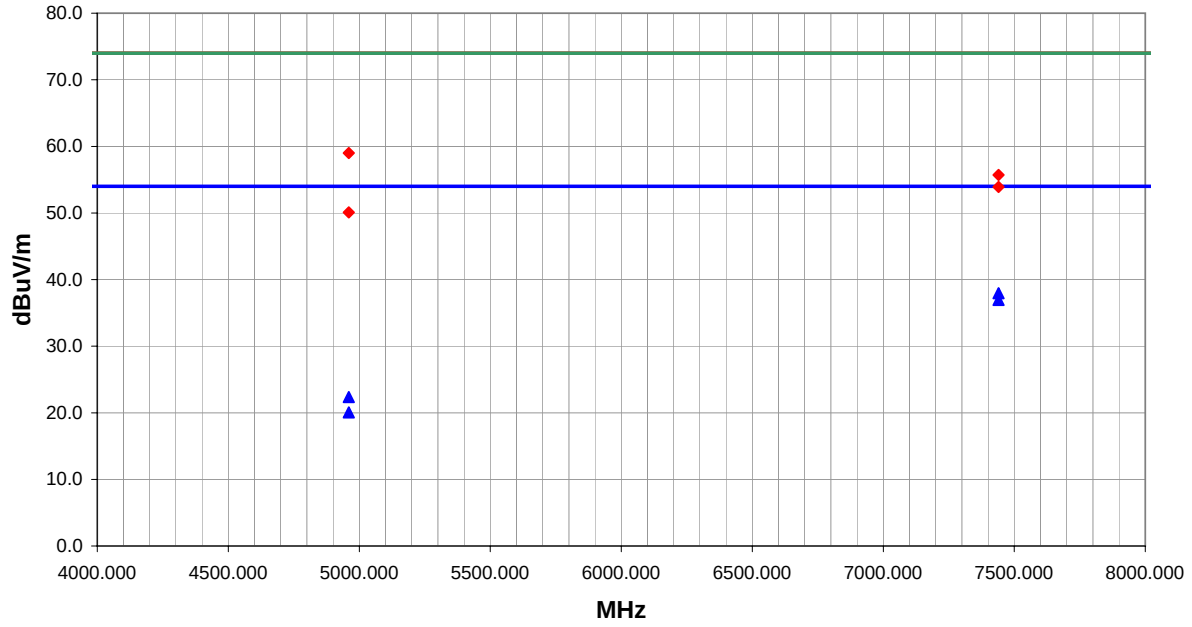
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	17

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7439.980	39.5	9.9	331.0	1.2	11.4	0.0	V-Horn	AV	0.0	38.0	54.0	-16.0
7439.980	38.5	9.9	35.0	1.6	11.4	0.0	H-Horn	AV	0.0	37.0	54.0	-17.0
4959.988	29.0	4.8	26.0	1.1	11.4	0.0	V-Horn	AV	0.0	22.4	54.0	-31.6
4959.988	26.7	4.8	302.0	1.7	11.4	0.0	H-Horn	AV	0.0	20.1	54.0	-33.9
4959.988	54.2	4.8	26.0	1.1	0.0	0.0	V-Horn	PK	0.0	59.0	74.0	-15.0
7439.980	45.8	9.9	331.0	1.2	0.0	0.0	V-Horn	PK	0.0	55.7	74.0	-18.3
7439.980	44.0	9.9	35.0	1.6	0.0	0.0	H-Horn	PK	0.0	53.9	74.0	-20.1
4959.988	45.3	4.8	302.0	1.7	0.0	0.0	H-Horn	PK	0.0	50.1	74.0	-23.9

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHZ WLAN (FCC ID CM6010-0914-00)	Work Order:	spac0347
Serial Number:		Date:	10/10/03
Customer:	Spacelabs Medical	Temperature:	73
Attendees:	Drop Off	Humidity:	42%
Cust. Ref. No.:		Barometric Pressure	30.04
Tested by:	Rod Peloquin Power: 120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247 Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Configuration 3: Radiall/Larsen Antenna Technologies PN: R380500117

EUT OPERATING MODES

No hop, high channel

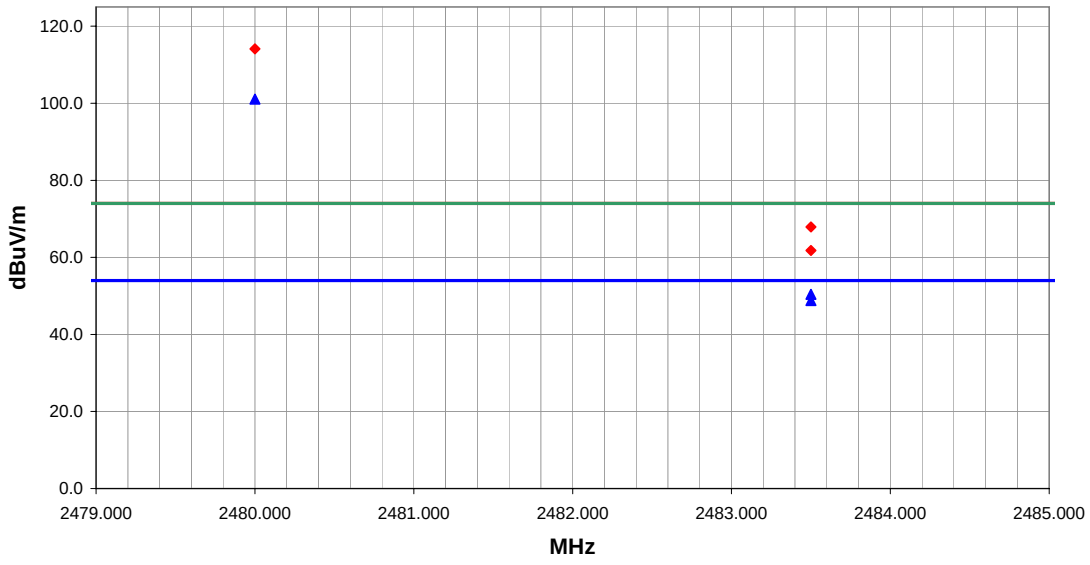
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	27 and 6

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)	Comments
2480.000	82.80	30	180	1	11.4	0	V-Horn	AV	0	101.10	54.00	47	Fundamental Emission.
2483.500	N/A	N/A	180	1	N/A	N/A	V-Horn	AV	0	48.80	54.00	-5	Market Delta Method used to calculate Adjusted level: 101.1 dBuV - 52.3 dBuV = 48.8 dBuV.
2483.500	29.3	32.5	143.0	1.0	11.4	0.0	H-Horn	AV	0.0	50.4	54.0	-3.6	
2480.000	84.4	29.7	180.0	1.0	0.0	0.0	V-Horn	PK	0.0	114.1	74.0	40.1	Fundamental Emission.
2483.500	N/A	N/A	180.0	1.0	N/A	N/A	V-Horn	PK	0.0	61.8	74.0	-12.2	Market Delta Method used to calculate Adjusted Level: 114.1 dBuV - 52.3 dBuV = 61.8 dBuV.
2483.500	35.4	32.5	143	1	0	0	H-Horn	PK	0	67.9	74	-6.1	

NORTHWEST EMC

MARKER DELTA DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHZ WLAN (FCC ID CM6010-0914-00)			Work Order:	spac0347
Serial Number:				Date:	10/10/03
Customer:	Spacelabs Medical			Temperature:	73
Attendees:	Drop Off			Humidity:	42%
Cust. Ref. No.:				Barometric Pressure	30.04
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247 Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

COMMENTS

Configuration 3: Radiall/Larsen Antenna Technologies PN: R380500117. Marker Delta method of Band Edge Compliance, Vertical Polarity.

EUT OPERATING MODES

No hop, high channel

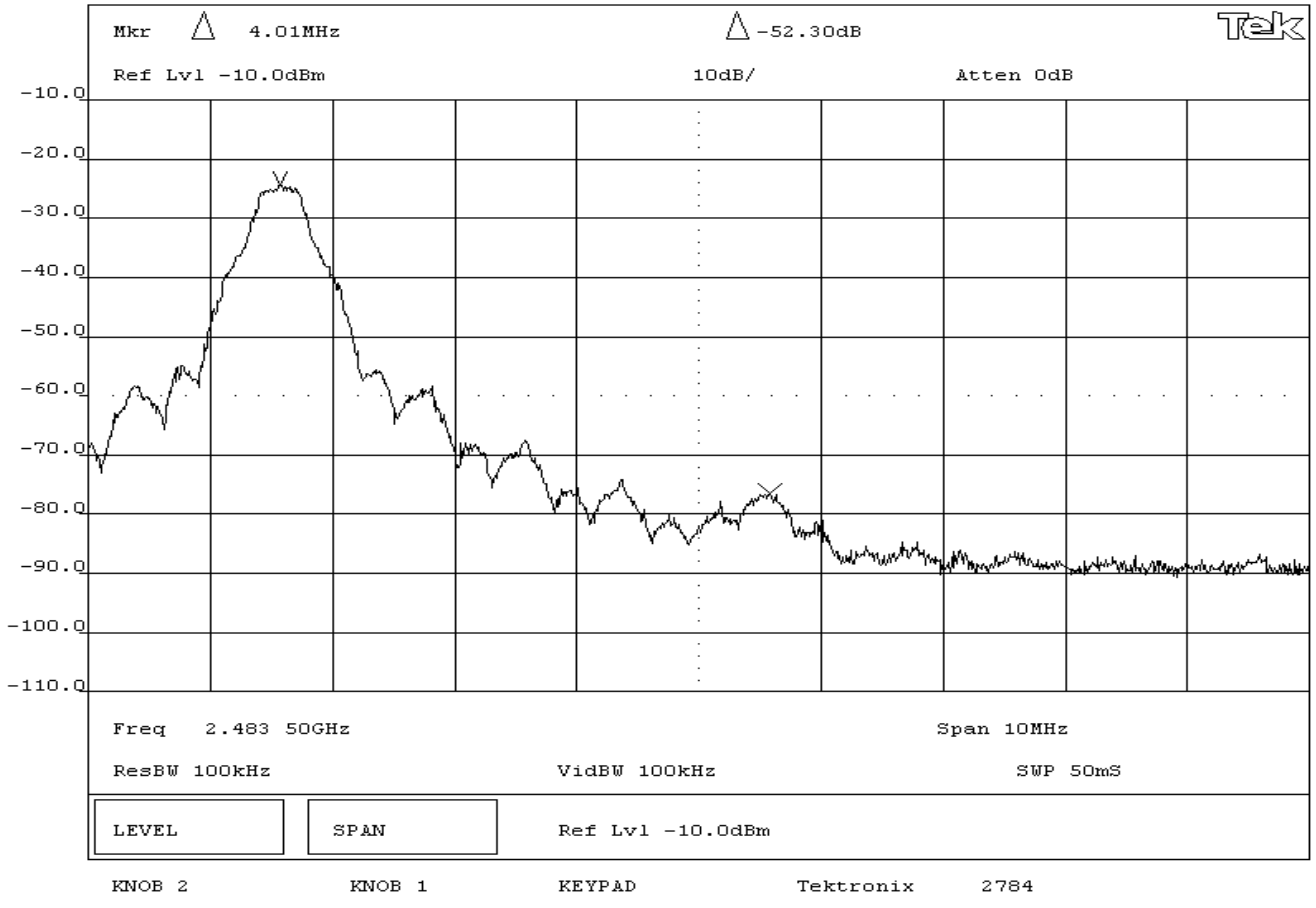
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	27 and 6

Other

Tested By:



NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/09/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	39%
Cust. Ref. No.:				Barometric Pressure	30.15
Tested by:	Holly Ashkannejhad	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Configuration #3, Radiall/Larsen Antenna Technologies PN: R380500117.

EUT OPERATING MODES

No hop, low channel

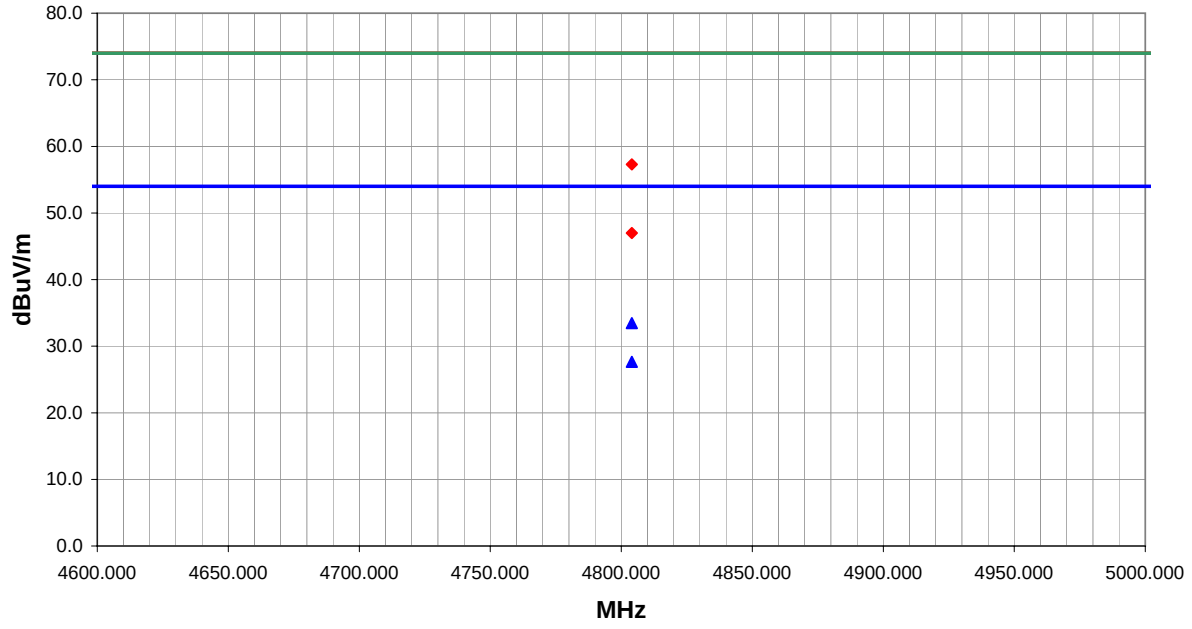
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	23

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
4804.000	40.7	4.2	91.0	1.0	11.4	0.0	V-Horn	AV	0.0	33.5	54.0	-20.5
4804.000	34.9	4.2	170.0	1.0	11.4	0.0	H-Horn	AV	0.0	27.7	54.0	-26.3
4804.000	53.1	4.2	91.0	1.0	0.0	0.0	V-Horn	PK	0.0	57.3	74.0	-16.7
4804.000	42.8	4.2	170.0	1.0	0.0	0.0	H-Horn	PK	0.0	47.0	74.0	-27.0

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.00 08/12/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	09/03/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	41%
Cust. Ref. No.:				Barometric Pressure	30.15
Tested by:	Rod Peloquin	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Configuration #3, Radiall/Larsen Antenna Technologies PN: R380500117.

EUT OPERATING MODES

No hop, mid channel

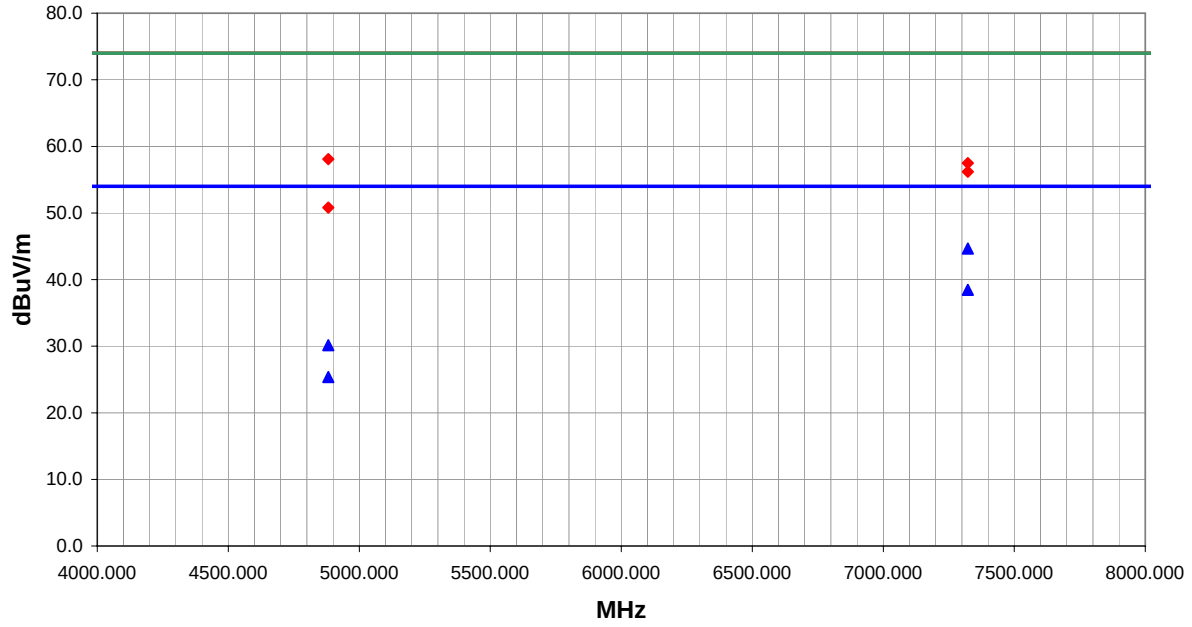
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	8

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7323.015	45.1	11.0	328.0	2.2	11.4	0.0	V-Horn	AV	0.0	44.7	54.0	-9.3
7323.015	38.9	11.0	237.0	1.4	11.4	0.0	H-Horn	AV	0.0	38.5	54.0	-15.5
4882.018	35.4	6.2	157.0	1.1	11.4	0.0	V-Horn	AV	0.0	30.2	54.0	-23.8
4882.084	30.6	6.2	319.0	1.3	11.4	0.0	H-Horn	AV	0.0	25.4	54.0	-28.6
4882.084	51.9	6.2	118.0	1.2	0.0	0.0	V-Horn	PK	0.0	58.1	74.0	-15.9
7323.015	46.5	11.0	121.0	2.7	0.0	0.0	V-Horn	PK	0.0	57.5	74.0	-16.5
7323.015	45.2	11.0	237.0	1.4	0.0	0.0	H-Horn	PK	0.0	56.2	74.0	-17.8
4882.084	44.6	6.2	319.0	1.4	0.0	0.0	H-Horn	PK	0.0	50.8	74.0	-23.2

NORTHWEST EMC

RADIATED EMISSIONS DATA SHEET

REV df4.01 10/02/2003

EUT:	2.4 GHz WLAN (FCC ID CM6010-0914-00)			Work Order:	SPAC0347
Serial Number:				Date:	10/09/03
Customer:	Spacelabs Medical			Temperature:	75
Attendees:	Drop Off			Humidity:	39%
Cust. Ref. No.:				Barometric Pressure	30.15
Tested by:	Holly Ashkannejhad	Power:	120VAC/60Hz	Job Site:	EV01

TEST SPECIFICATIONS

Specification:	FCC Part 15.247(c) Class B	Year:	2003
Method:	ANSI C63.4	Year:	1992

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

Configuration #3, Radiall/Larsen Antenna Technologies PN: R380500117.

EUT OPERATING MODES

No hop, high channel

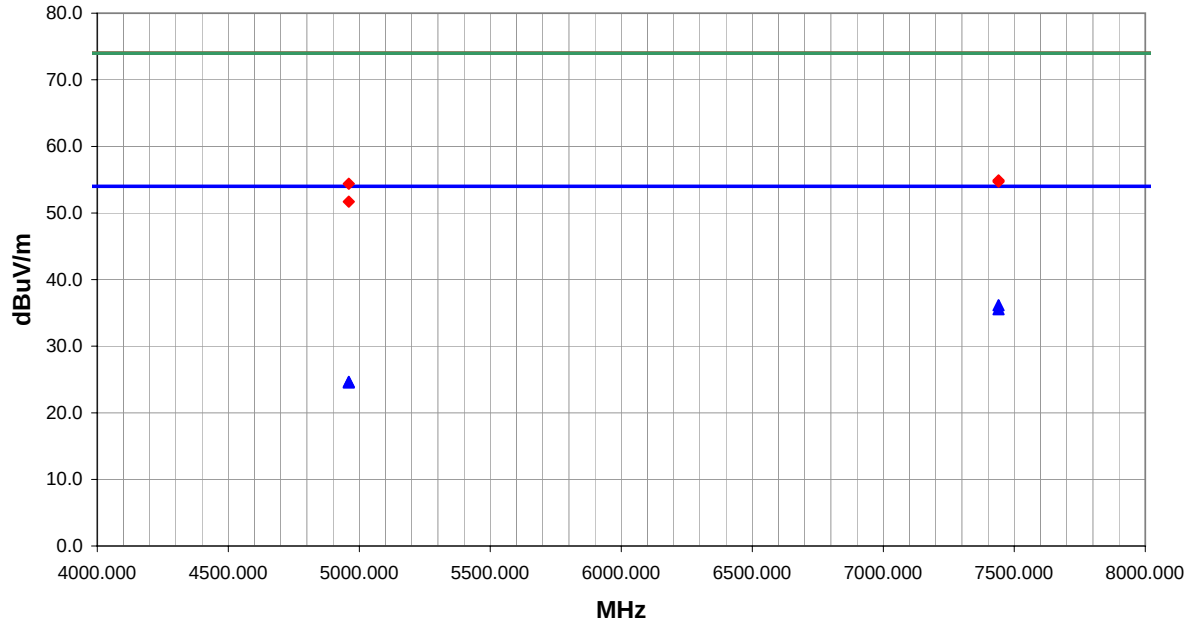
DEVIATIONS FROM TEST STANDARD

No deviations.

RESULTS	Run #
Pass	25

Other

Tested By:



Freq (MHz)	Amplitude (dBuV)	Factor (dB)	Azimuth (degrees)	Height (meters)	Duty Cycle Correction Factor	External Attenuation (dB)	Polarity	Detector	Distance Adjustment (dB)	Adjusted dBuV/m	Spec. Limit dBuV/m	Compared to Spec. (dB)
7440.000	37.7	9.9	53.0	1.0	11.4	0.0	H-Horn	AV	0.0	36.2	54.0	-17.8
7440.000	37.1	9.9	54.0	2.7	11.4	0.0	V-Horn	AV	0.0	35.6	54.0	-18.4
4960.000	31.3	4.8	84.0	1.0	11.4	0.0	V-Horn	AV	0.0	24.7	54.0	-29.3
4960.000	31.2	4.8	309.0	1.0	11.4	0.0	H-Horn	AV	0.0	24.6	54.0	-29.4
7440.000	45.0	9.9	54.0	2.7	0.0	0.0	V-Horn	PK	0.0	54.9	74.0	-19.1
7440.000	44.8	9.9	53.0	1.0	0.0	0.0	H-Horn	PK	0.0	54.7	74.0	-19.3
4960.000	49.6	4.8	84.0	1.0	0.0	0.0	V-Horn	PK	0.0	54.4	74.0	-19.6
4960.000	46.9	4.8	309.0	1.0	0.0	0.0	H-Horn	PK	0.0	51.7	74.0	-22.3