

*Electromagnetic Emissions Test Report
and
Application for Grant of Equipment Authorization
pursuant to
Industry Canada RSS-Gen Issue 2 / RSS 210 Issue 7
FCC Part 15 Subpart C
on the
Animas Corporation
Transmitter
Model: Symphony DV3 insulin pump*

UPN: Not provided
FCC ID: Not provided

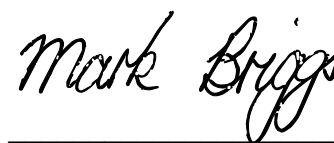
GRANTEE: Animas Corporation
200 Lawrence Dr.
West Chester, PA 19380

TEST SITE: Elliott Laboratories, Inc.
684 W. Maude Ave
Sunnyvale, CA 94086

REPORT DATE: February 15, 2008

FINAL TEST DATE: February 9 and February 11, 2008

AUTHORIZED SIGNATORY:



Mark Briggs
Principal Engineer



Testing Cert #2016-01

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REVISION HISTORY

Rev #	Date	Comments	Modified By
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SCOPE

An electromagnetic emissions test has been performed on the Animas Corporation model Symphony DV3 insulin pump pursuant to the following rules:

Industry Canada RSS-Gen Issue 2
RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15 Subpart C

Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with measurement guidelines set forth in the following reference standards and as outlined in Elliott Laboratories test procedures:

ANSI C63.4:2003

The intentional radiator above has been tested in a simulated typical installation to demonstrate compliance with the relevant Industry Canada performance and procedural standards.

Final system data was gathered in a mode that tended to maximize emissions by varying orientation of EUT, orientation of power and I/O cabling, antenna search height, and antenna polarization.

Every practical effort was made to perform an impartial test using appropriate test equipment of known calibration. All pertinent factors have been applied to reach the determination of compliance.

The test results recorded herein are based on a single type test of the Animas Corporation model Symphony DV3 insulin pump and therefore apply only to the tested sample. The sample was selected and prepared by Dave Birdsall of Animas Corporation.

OBJECTIVE

The primary objective of the manufacturer is compliance with the regulations outlined in the previous section.

Prior to marketing in the USA, all unlicensed transmitters and transceivers require certification. Receive-only devices operating between 30 MHz and 960 MHz are subject to either certification or a manufacturer's declaration of conformity, with all other receive-only devices exempt from the technical requirements.

Prior to marketing in Canada, Class I transmitters, receivers and transceivers require certification. Class II devices are required to meet the appropriate technical requirements but are exempt from certification requirements.

Certification is a procedure where the manufacturer submits test data and technical information to a certification body and receives a certificate or grant of equipment authorization upon successful completion of the certification body's review of the submitted documents. Once the equipment authorization has been obtained, the label indicating compliance must be attached to all identical units, which are subsequently manufactured.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

STATEMENT OF COMPLIANCE

The tested sample of Animas Corporation model Symphony DV3 insulin pump complied with the requirements of the following regulations:

Industry Canada RSS-Gen Issue 2
RSS 210 Issue 7 "Low-power Licence-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment"
FCC Part 15 Subpart C

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product which may result in increased emissions should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different line filter, different power supply, harnessing or I/O cable changes, etc.).

TEST RESULTS SUMMARY**DEVICES OPERATING IN THE 902 – 928 MHz BAND**

FCC Rule Part	RSS Rule Part	Description	Measured Value / Comments	Limit / Requirement	Result
15.249 (a)	RSS 210 A2.9 (1)	Fundamental Signal Strength	88.0dB μ V/m (25.1 mV/m)	50mV/m @ 3m	Complies
15.249 (a) / 15.209	RSS 210 A2.9 (1) & Table 2	Radiated Spurious Emissions, 30 – 10,000 MHz	37.8dB μ V/m (77.6 μ V/m) @ 5528.0MHz (-16.2dB)	Harmonics 500uV/m @ 3m or general limits	Complies
15.249 (a)	RSP 100 RSS GEN 4.4.1	99% Bandwidth	60kHz	Information only	N/A

GENERAL REQUIREMENTS APPLICABLE TO ALL BANDS

FCC Rule Part	RSS Rule part	Description	Measured Value / Comments	Limit / Requirement	Result (margin)
15.203	-	RF Connector	Antenna is integral to the device	Unique connector or integral antenna	Complies
15.109	RSS GEN 7.2.3 Table 1	Receiver spurious emissions	26.6dB μ V/m (21.4 μ V/m) @ 636.964MHz	46.0 dBuV/m	Complies
15.207	RSS GEN Table 2	AC Conducted Emissions	N/A – internal batteries	Refer to standard	Complies
-	RSS 102	RF Exposure Requirements	Refer to RSS 102 declaration, power is below the threshold for requiring evaluation..	Refer to OET 65, FCC Part 1 and RSS 102	Complies

MEASUREMENT UNCERTAINTIES

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with UKAS document LAB 34.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.4
Radiated Emissions	0.015 to 30	± 3.0
Radiated Emissions	30 to 1000	± 3.6
Radiated Emissions	1000 to 40000	± 6.0

EQUIPMENT UNDER TEST (EUT) DETAILS**GENERAL**

The Animas Corporation model Symphony DV3 insulin pump is an insulin pump with integrated transceiver that is designed to deliver insulin subcutaneously. The EUT is an ambulatory device worn on the patient's body. During testing the device was oriented in 3-axes to simulate the end-user environment. The electrical rating of the EUT is 1.5 Volts DC via internal battery.

The sample was received on February 9, 2008 and tested on February 9 and February 11, 2008. The EUT consisted of the following component(s):

Manufacturer	Model	Description	Serial Number	FCC ID
Animas	Symphony DV3 Insulin Pump	Insulin Pump (Tx mode)	67-01515-99	TBD
Animas	Symphony DV3 Insulin Pump	Insulin Pump (Rx mode)	63-01504-99	TBD

OTHER EUT DETAILS

One sample was configured to operate in receive mode, the other in transmit mode. RF test software version E2.1b was installed on EUT.

ANTENNA SYSTEM

The antenna system used with the Animas Corporation model Symphony DV3 insulin pump is integral to the device

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 8 cm wide by 5 cm deep by 2 cm high.

MODIFICATIONS

The EUT did not require modifications during testing in order to comply with emissions specifications.

SUPPORT EQUIPMENT AND INTERFACE CABLING

The device has no interface ports to connect to external cables and was tested stand-alone, with no support equipment.

EUT OPERATION

During emissions testing for the receiver and digital device the EUT was configured in a receive only mode, tuned to one of the three channels (top, bottom or center channel). Measurements were made with the receiver tuned to each channel. The digital device was controlling the receiver.

During emissions testing for the transmitter the EUT was configured to continuously transmit on one of the three channels (top, bottom or center channel). Measurements were made with the transmitter tuned to each channel. The transmitter sequence was a PN9 bit pattern.

TEST SITE

GENERAL INFORMATION

Final test measurements were taken on February 9 and February 11, 2008 at the Elliott Laboratories Open Area Test Site #1 located at 684 West Maude Avenue, Sunnyvale, California. Pursuant to section 2.948 of the FCC's Rules and section 3.3 of RSP-100, construction, calibration, and equipment data has been filed with the Commission.

ANSI C63.4:2003 recommends that ambient noise at the test site be at least 6 dB below the allowable limits. Ambient levels are below this requirement with the exception of predictable local TV, radio, and mobile communications traffic. The test site contains separate areas for radiated and conducted emissions testing. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements of ANSI C63.4:2003.

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4:2003. Measurements are made with the EUT connected to the public power network through a nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiation measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an open field environment or in a semi-anechoic chamber. The test sites are maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4:2003 guidelines and meet the Normalized Site Attenuation (NSA) requirements of ANSI C63.4:2003.

MEASUREMENT INSTRUMENTATION

RECEIVER SYSTEM

An EMI receiver as specified in CISPR 16-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements. If the repetition frequency of the signal being measured is below 20Hz, peak measurements are made in lieu of Quasi-Peak measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz, unless the signal is pulsed in which case the average (or video) bandwidth of the measuring instrument is reduced to onset of pulse desensitization and then increased.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer run automated data collection programs which control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

Line conducted measurements utilize a fifty microhenry Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250 uH CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A loop antenna is used below 30 MHz. For the measurement range 30 MHz to 1000 MHz either a combination of a biconical antenna and a log periodic or a bi-log antenna is used. Above 1000 MHz, horn antennas are used. The antenna calibration factors to convert the received voltage to an electric field strength are included with appropriate cable loss and amplifier gain factors to determine an overall site factor, which is then programmed into the test receivers or incorporated into the test software.

ANTENNA MAST AND EQUIPMENT TURNTABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height. Measurements below 30 MHz are made with the loop antenna at a fixed height of 1m above the ground plane.

ANSI C63.4:2003 specifies that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An exhibit of this report contains the list of test equipment used and calibration information.

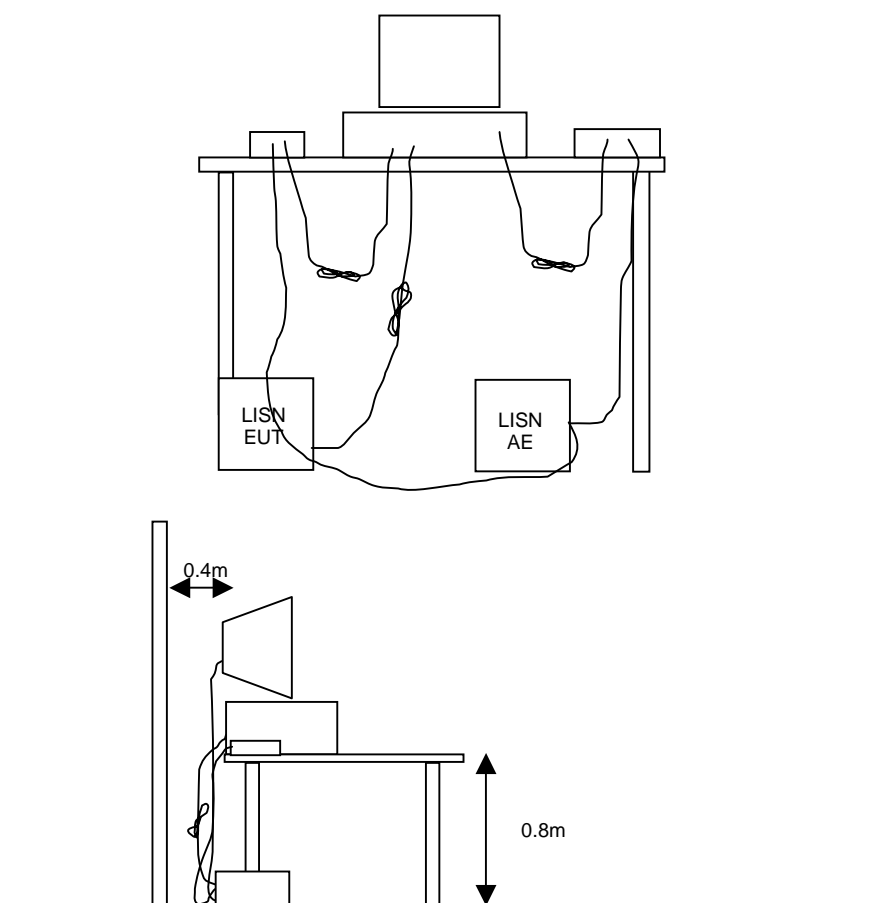
TEST PROCEDURES

EUT AND CABLE PLACEMENT

The regulations require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4:2003, and the worst-case orientation is used for final measurements.

CONDUCTED EMISSIONS

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord.



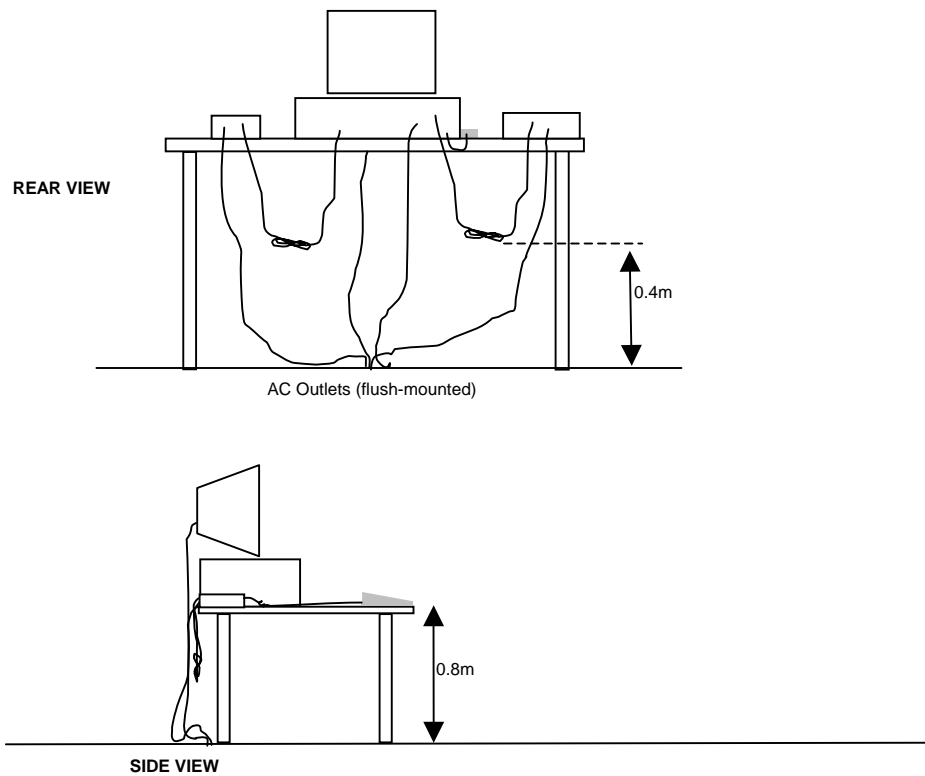
RADIATED EMISSIONS

A preliminary scan of the radiated emissions is performed in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed, one scan for each antenna polarization (horizontal and vertical; loop parallel and perpendicular to the EUT). During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied (for measurements above 30 MHz) and cable positions are varied to determine the highest emission relative to the limit. Preliminary scans may be performed in a fully anechoic chamber for the purposes of identifying the frequencies of the highest emissions from the EUT.

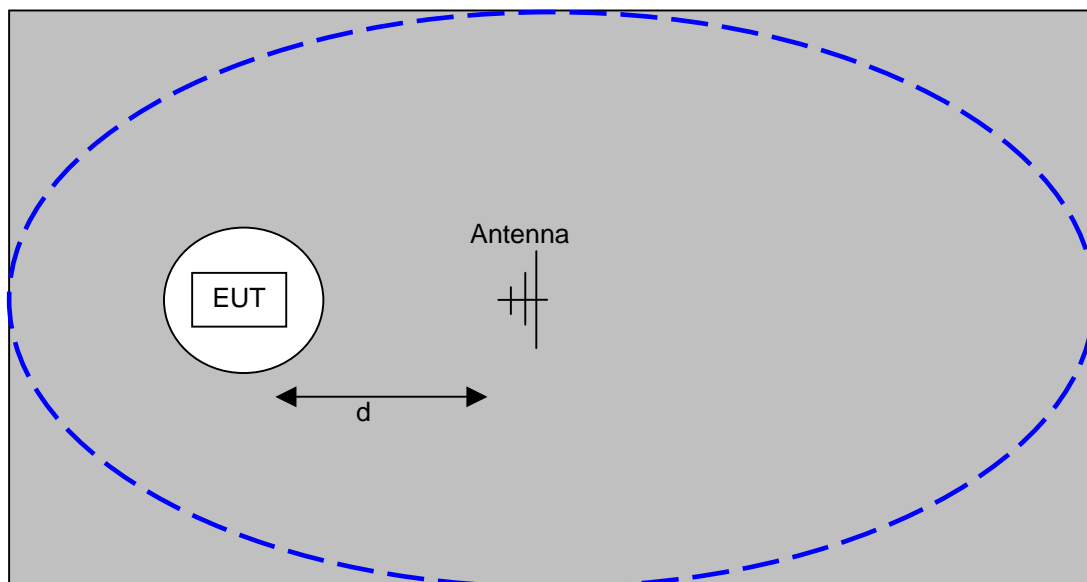
A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT.

Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth, which results in the highest emission is then maintained while varying the antenna height from one to four meters (for measurements above 30 MHz, measurements below 30 MHz are made with the loop antenna at a fixed height of 1m). The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain.

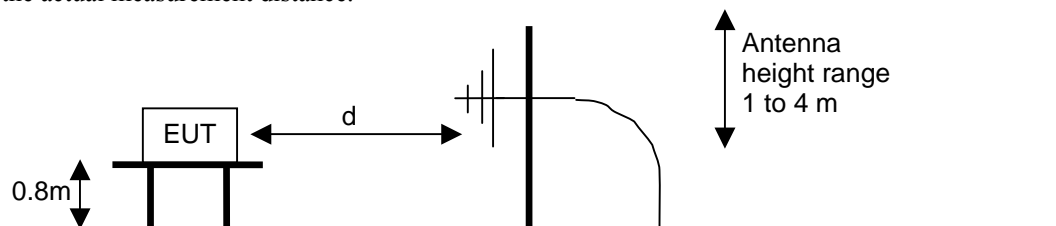
When testing above 18 GHz, the receive antenna is located at 1 meter from the EUT and the antenna height is restricted to a maximum of 2.5 meters.



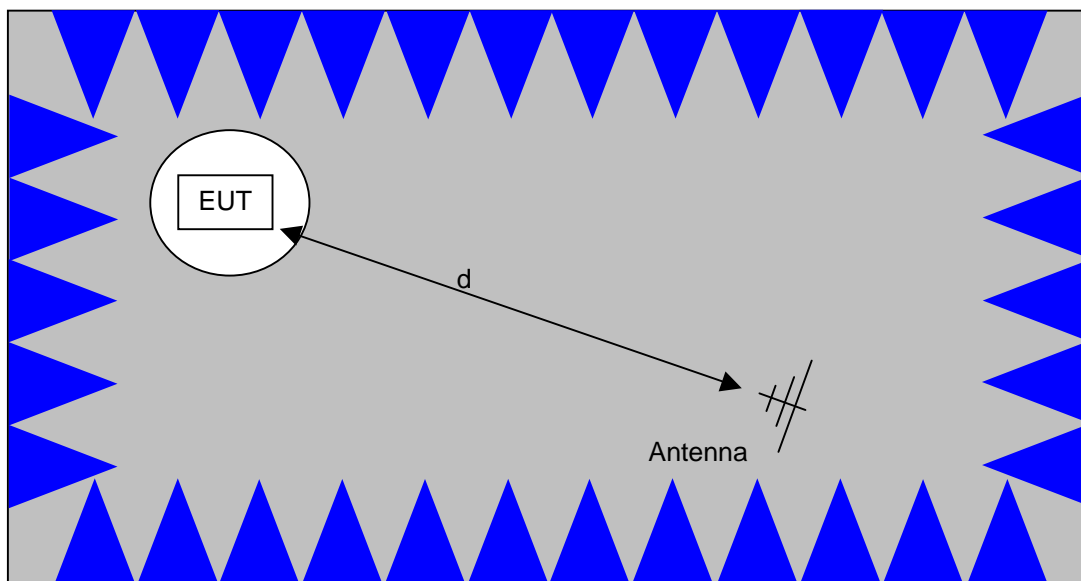
Typical Test Configuration for Radiated Field Strength Measurements



The ground plane extends beyond the ellipse defined in CISPR 16 / CISPR 22 / ANSI C63.4 and is large enough to accommodate test distances (d) of 3m and 10m. Refer to the test data tables for the actual measurement distance.

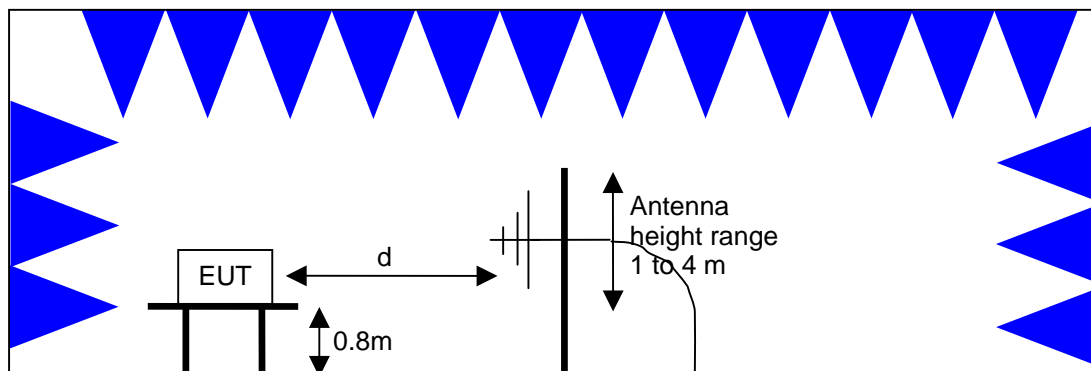


Test Configuration for Radiated Field Strength Measurements
OATS- Plan and Side Views



The anechoic materials on the walls and ceiling ensure compliance with the normalized site attenuation requirements of CISPR 16 / CISPR 22 / ANSI C63.4 for an alternate test site at the measurement distances used.

Floor-standing equipment is placed on the floor with insulating supports between the unit and the ground plane.



Test Configuration for Radiated Field Strength Measurements
Semi-Anechoic Chamber, Plan and Side Views

BANDWIDTH MEASUREMENTS

The 6dB, 20dB and/or 26dB signal bandwidth is measured in using the bandwidths recommended by ANSI C63.4. When required, the 99% bandwidth is measured using the methods detailed in RSS GEN.

SPECIFICATION LIMITS AND SAMPLE CALCULATIONS

The limits for conducted emissions are given in units of microvolts, and the limits for radiated emissions are given in units of microvolts per meter at a specified test distance. Data is measured in the logarithmic form of decibels relative to one microvolt, or dB microvolts (dBuV). For radiated emissions, the measured data is converted to the field strength at the antenna in dB microvolts per meter (dBuV/m). The results are then converted to the linear forms of uV and uV/m for comparison to published specifications.

For reference, converting the specification limits from linear to decibel form is accomplished by taking the base ten logarithm, then multiplying by 20. These limits in both linear and logarithmic form are as follows:

GENERAL TRANSMITTER RADIATED EMISSIONS SPECIFICATION LIMITS

The table below shows the limits for the spurious emissions from transmitters that fall in restricted bands¹ (with the exception of transmitters operating under FCC Part 15 Subpart D and RSS 210 Annex 9), the limits for all emissions from a low power device operating under the general rules of RSS 310 (tables 3 and 4), RSS 210 (table 2) and FCC Part 15 Subpart C section 15.209.

Frequency Range (MHz)	Limit (uV/m)	Limit (dBuV/m @ 3m)
0.009-0.490	2400/F _{KHz} @ 300m	67.6-20*log ₁₀ (F _{KHz}) @ 300m
0.490-1.705	24000/F _{KHz} @ 30m	87.6-20*log ₁₀ (F _{KHz}) @ 30m
1.705 to 30	30 @ 30m	29.5 @ 30m
30 to 88	100 @ 3m	40 @ 3m
88 to 216	150 @ 3m	43.5 @ 3m
216 to 960	200 @ 3m	46.0 @ 3m
Above 960	500 @ 3m	54.0 @ 3m

RADIATED FUNDAMENTAL & SPURIOUS EMISSIONS SPECIFICATION LIMITS – 15.249 and RSS 210 A2.9

The table below shows the limits for the fundamental emission and for its harmonics. Harmonics that fall in restricted bands² and all other spurious emissions are subject to the general limits of RSS 210 and FCC Part 15 Subpart C.

Frequency Range (MHz)	Limit for Fundamental @ 3m	Limit for Harmonics @ 3m
902 – 928	50,000 uV/m 94dBuV/m	500 uV/m 54dBuV/m
2400 – 2483.5	50,000 uV/m 94dBuV/m	500 uV/m 54dBuV/m
5725 - 5850	50,000 uV/m 94dBuV/m	500 uV/m 54dBuV/m

¹ The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

² The restricted bands are detailed in FCC 15.203, RSS 210 Table 1 and RSS 310 Table 2

SAMPLE CALCULATIONS - CONDUCTED EMISSIONS

Receiver readings are compared directly to the conducted emissions specification limit (decibel form) as follows:

$$R_T - S = M$$

where:

R_T = Receiver Reading in dBuV

S = Specification Limit in dBuV

M = Margin to Specification in +/- dB

SAMPLE CALCULATIONS - RADIATED EMISSIONS

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

A distance factor, when used for electric field measurements above 30MHz, is calculated by using the following formula:

$$F_d = 20 * \text{LOG}_{10} (D_m/D_s)$$

where:

F_d = Distance Factor in dB

D_m = Measurement Distance in meters

D_s = Specification Distance in meters

For electric field measurements below 30MHz the extrapolation factor is either determined by making measurements at multiple distances or a theoretical value is calculated using the formula:

$$F_d = 40 * \text{LOG}_{10} (D_m/D_s)$$

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The antenna factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

$$R_r = \text{Receiver Reading in dBuV/m}$$

$$F_d = \text{Distance Factor in dB}$$

$$R_c = \text{Corrected Reading in dBuV/m}$$

$$L_s = \text{Specification Limit in dBuV/m}$$

$$M = \text{Margin in dB Relative to Spec}$$

SAMPLE CALCULATIONS - FIELD STRENGTH TO EIRP CONVERSION

Where the radiated electric field strength is expressed in terms of the equivalent isotropic radiated power (eirp), or where a field strength measurement of output power is made in lieu of a direct measurement, the following formula is used to convert between eirp and field strength at a distance of 3m from the equipment under test:

$$E = \frac{1000000 \sqrt{30 P}}{3} \quad \text{microvolts per meter}$$

where P is the eirp (Watts)

EXHIBIT 1: Test Equipment Calibration Data

1 Page

Radiated Emissions, 30 - 10,000 MHz, 10-Feb-08**Engineer: Rafael Varelas**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Elliott Laboratories	Biconical Antenna, 30-300 MHz	EL30.300	54	26-Mar-08
EMCO	Log Periodic Antenna, 0.3-1 GHz	3146A	364	13-Dec-08
Hewlett Packard	EMC Spectrum Analyzer, 9 kHz - 6.5 GHz	8595EM	780	09-Oct-08
EMCO	Antenna, Horn, 1-18GHz	3115	868	26-Apr-08
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	08-Nov-08
Filtek	Filter, 1 GHz High Pass	HP12/1000-5BA	957	29-May-08
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Aug-08
Hewlett Packard	Preamplifier, 100 kHz - 1.3 GHz	8447D OPT 010	1826	25-May-08

Radiated Emissions, 30 - 1,000 MHz, 10-Feb-08**Engineer: Rafael Varelas**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Rohde & Schwarz	Test Receiver, 9 kHz-2750 MHz	ESCS 30	1337	21-Sep-08
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1347	17-Jan-09
EMCO	Biconical Antenna, 30-300 MHz	3110B	1498	20-Mar-08

Radio Antenna Port (Power and Spurious Emissions), 11-Feb-08**Engineer: Suhaila Khushzad**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Hewlett Packard	Microwave Preamplifier, 1-26.5GHz	8449B	870	08-Nov-08
Hewlett Packard	Spectrum Analyzer 30 Hz -40 GHz, SV (SA40) Red	8564E (84125C)	1148	24-Aug-08
Rohde & Schwarz	Test Receiver, 9 kHz-2750 MHz	ESCS 30	1337	21-Sep-08
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1347	17-Jan-09
EMCO	Antenna, Horn, 1-18 GHz	3115	487	24-May-08

EXHIBIT 2: Test Measurement Data

27 Pages



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
		Project Engineer:	Mark Briggs
Contact:	Dave Birdsall		-
Emissions Standard(s):	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A
Immunity Standard(s):	-	Environment:	-

EMC Test Data

For The

Animas

Model

Symphony DV3 Insulin Pump

Date of Last Test: 2/19/2008



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
		Account Manger:	Mark Briggs
Contact:	Dave Birdsall		
Emissions Standard(s):	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A
Immunity Standard(s):	-	Environment:	-

EUT INFORMATION

The following information was collected during the test session(s).

General Description

The EUT is an insulin pump with integrated transceiver that is designed to deliver insulin subcutaneously. The EUT is an ambulatory device worn on the patient's body. During testing the device was oriented in 3-axes to simulate the end-user environment. The electrical rating of the EUT is 1.5 Volts DC via internal battery.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
Animas	Symphony DV3 Insulin Pump	Insulin Pump (Tx mode)	67-01515-99	TBD
Animas	Symphony DV3 Insulin Pump	Insulin Pump (Rx mode)	63-01504-99	TBD

Other EUT Details

One sample was configured to operate in receive mode, the other in transmit mode. RF test software version E2.1b installed on EUT.

EUT Antenna (Intentional Radiators Only)

The antenna is integral to the device.

EUT Enclosure

The EUT enclosure is primarily constructed of plastic. It measures approximately 8 cm wide by 5 cm deep by 2 cm high.

Modification History

Mod. #	Test	Date	Modification
1	-	-	No modifications were made to the sample(s) during testing.

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
		Account Manger:	Mark Briggs
Contact:	Dave Birdsall		
Emissions Standard(s):	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A
Immunity Standard(s):	-	Environment:	-

Test Configuration #1

The following information was collected during the test session(s).

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None	-	-	-	-

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None	-	-	-	-

Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
None	-	-	-	-

EUT Operation During Emissions Tests

During emissions testing for the receiver and digital device the EUT was configured in a receive only mode, tuned to one of the three channels (top, bottom or center channel). Measurements were made with the receiver tuned to each channel. The digital device was controlling the receiver.

During emissions testing for the transmitter the EUT was configured to continuously transmit on one of the three channels (top, bottom or center channel). Measurements were made with the transmitter tuned to each channel. The transmitter sequence was a PN9 bit pattern.



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Radiated Emissions - Receiver and Digital Device

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

General Test Configuration

The EUT was located on the turntable for radiated emissions testing. The EUT was tested in all three orthogonal orientations.

The test distance and extrapolation factor (if applicable) are detailed under each run description.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Ambient Conditions: Temperature: 7 °C
 Rel. Humidity: 76 %

Summary of Results

Run #	Test Performed	Limit	Result	Value / Margin
3	RE, 30 - 3,000MHz, Maximized Emissions	RSS-210, FCC 15.109 (Receiver and Class B Digital Device)	Pass	26.6dBμV/m (21.4μV/m) @ 636.964MHz (-19.4dB)

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Run #1: Preliminary Radiated Emissions, 30-3,000 MHz, Receiver Spurious Emissions and Digital Device Emissions
1 device in Rx mode and 1 device on Tx mode (30-300MHz)

Date of Test: 2/9/2008

Test Engineer: Rafael Varelas

Test Location: Chamber #2

Config. Used: 1

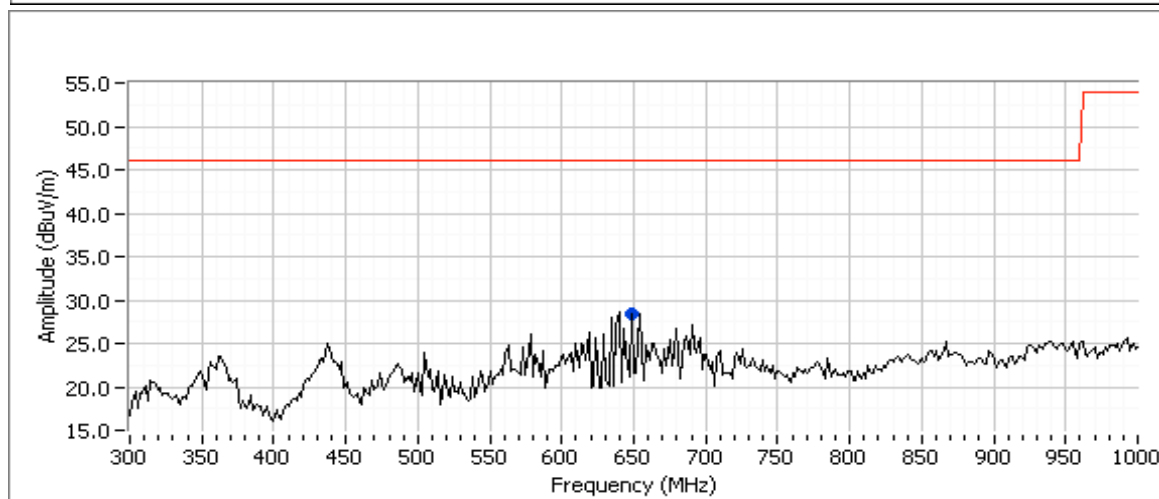
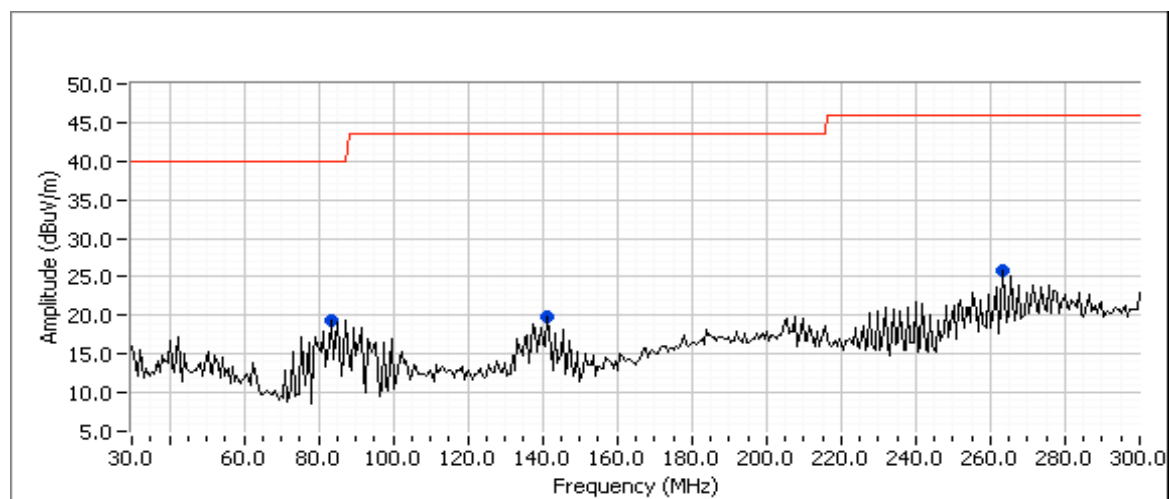
Config Change: None

EUT Voltage: 1.5V, Internal Battery

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 1,000 MHz	3	3	0.0
1000 - 3,000 MHz	1	3	-9.5

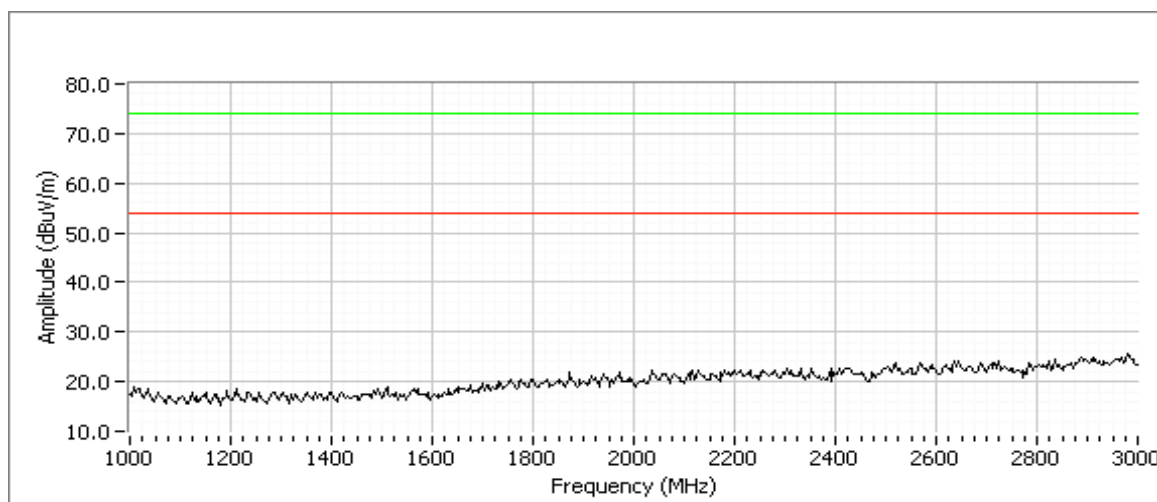
Low Channel

EUT Upright

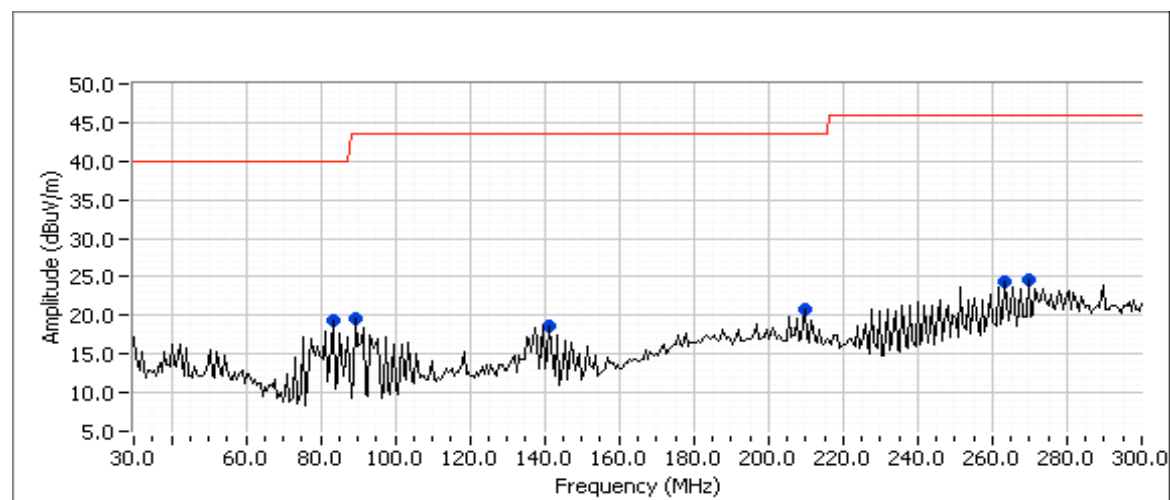


Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Run #1: Continued



Low Channel EUT Side

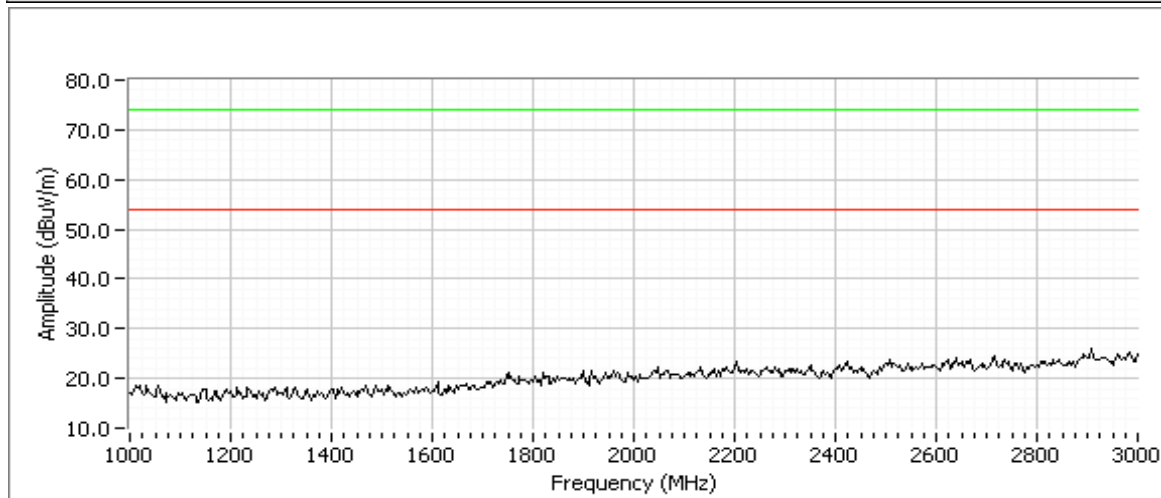
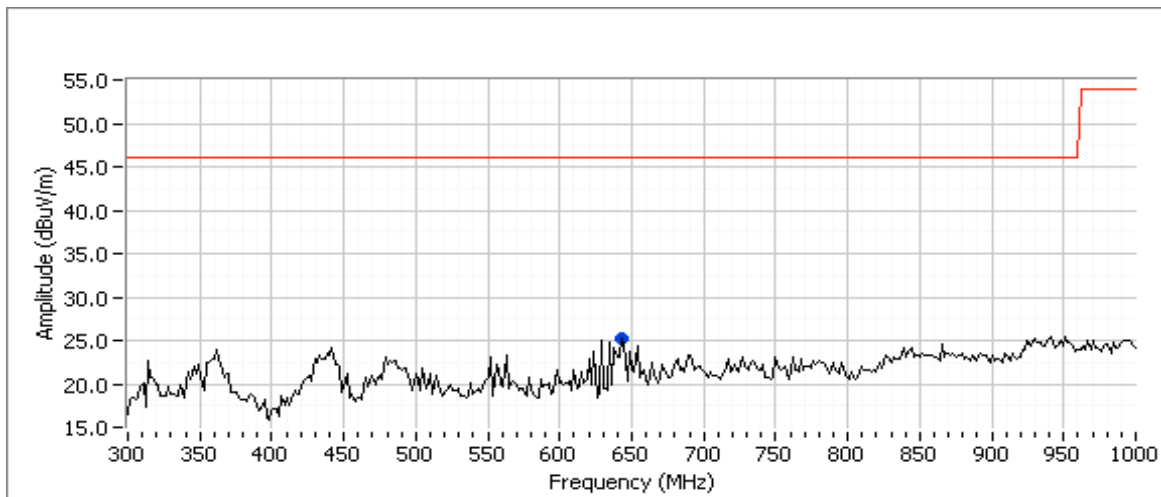




EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

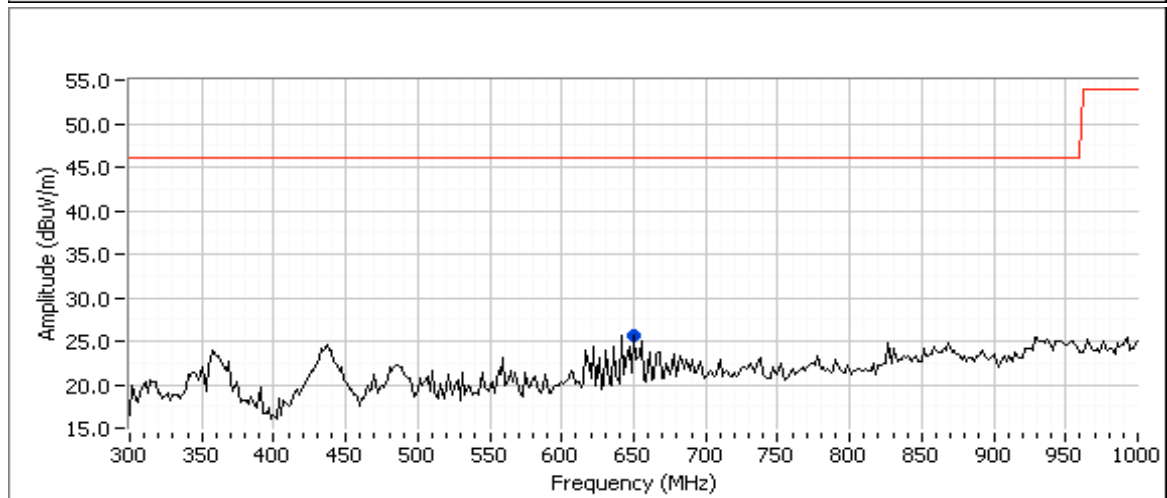
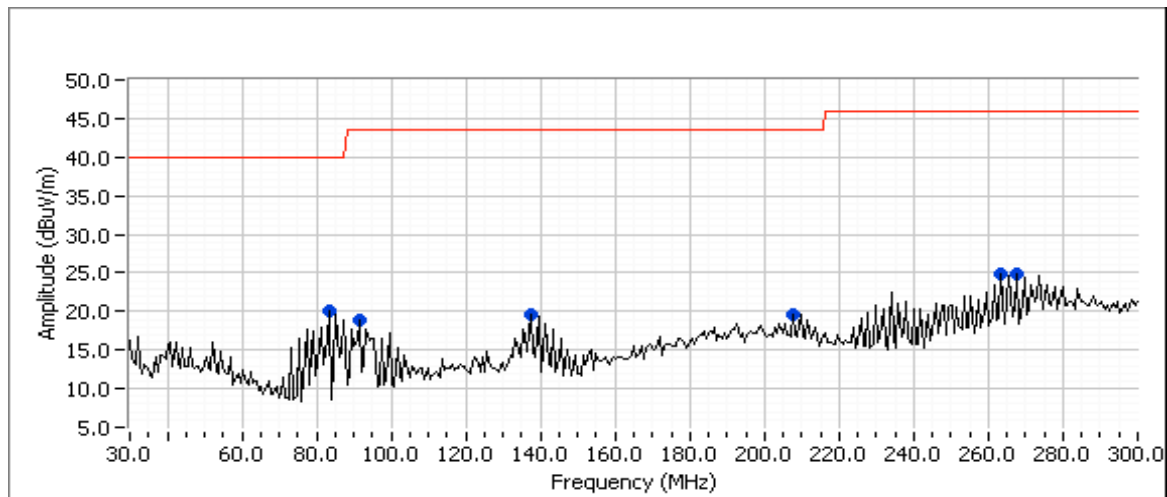
Run #1: Continued



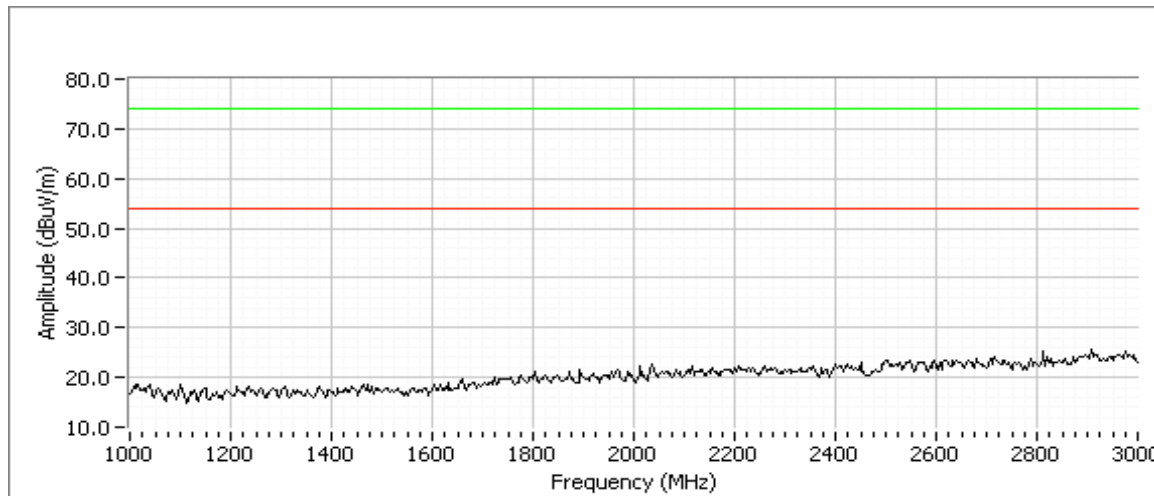
Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Low Channel

EUT Flat



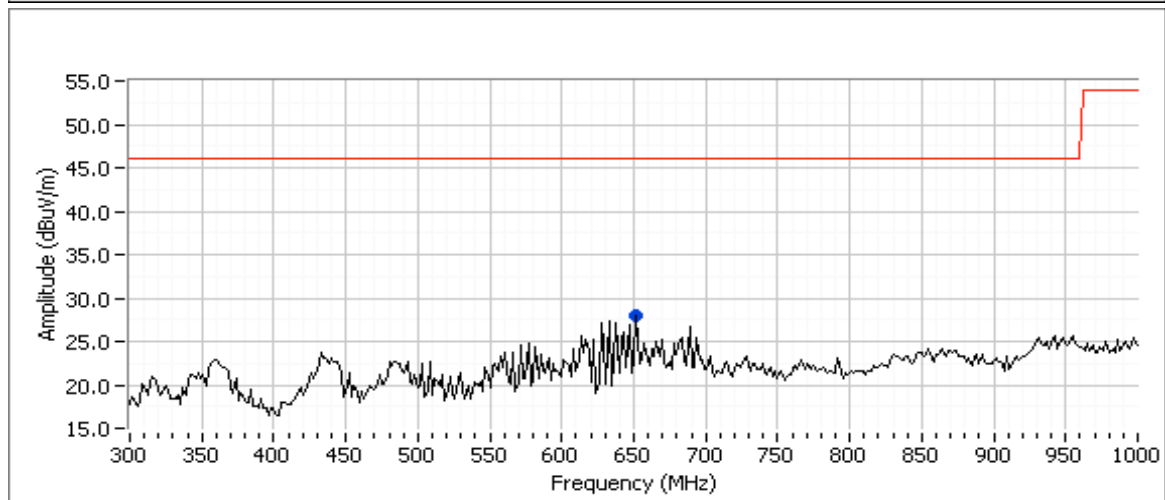
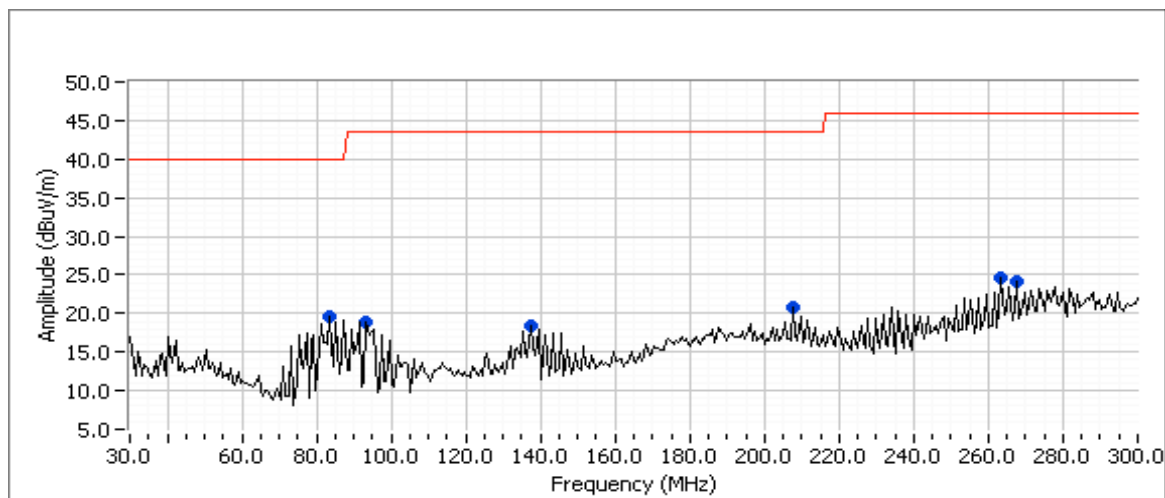
Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A


Low Channel

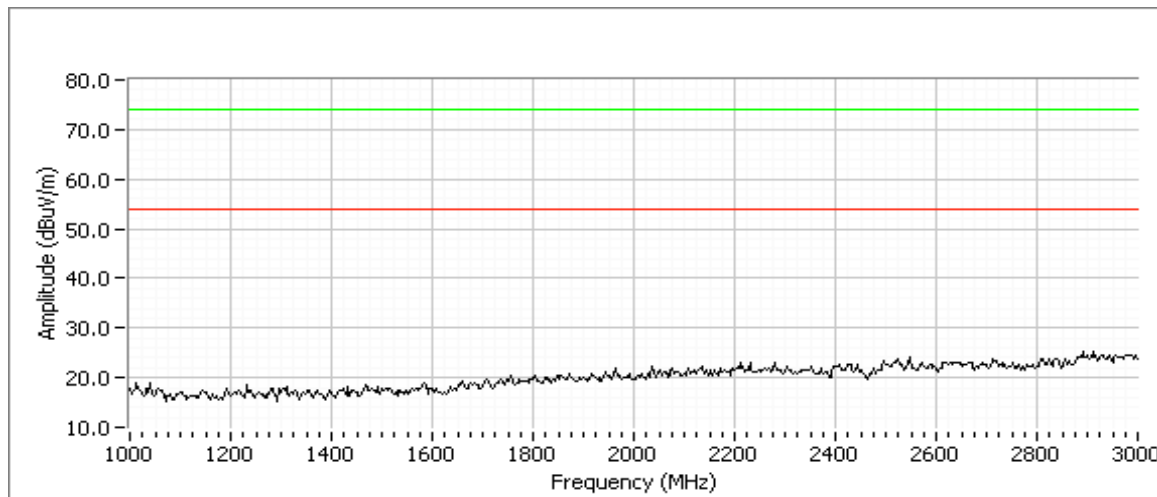
Frequency	Level	Pol	RSS 210 / FCC 15.109		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
647.805	28.5	V	46.0	-17.5	Peak	194	1.7	EUT Upright, Low Channel
82.992	20.0	V	40.0	-20.0	Peak	179	1.7	EUT Flat, Low Channel
265.014	25.9	H	46.0	-20.1	Peak	241	1.7	EUT Upright
650.105	25.7	H	46.0	-20.3	Peak	181	1.7	EUT Flat
83.002	19.4	V	40.0	-20.6	Peak	271	1.7	EUT Side
83.002	19.3	V	40.0	-20.7	Peak	179	1.7	EUT Upright
643.026	25.3	H	46.0	-20.7	Peak	337	1.7	EUT Side
263.005	24.8	H	46.0	-21.2	Peak	0	1.7	EUT Flat
267.004	24.8	H	46.0	-21.2	Peak	181	1.7	EUT Flat
271.019	24.6	H	46.0	-21.4	Peak	239	1.7	EUT Side
265.004	24.5	H	46.0	-21.5	Peak	239	1.7	EUT Side
208.995	20.8	H	43.5	-22.7	Peak	269	1.7	EUT Side
143.011	19.8	V	43.5	-23.7	Peak	59	1.7	EUT Upright
209.020	19.7	H	43.5	-23.8	Peak	121	1.7	EUT Flat
91.006	19.6	V	43.5	-23.9	Peak	61	1.7	EUT Side
137.002	19.5	V	43.5	-24.0	Peak	59	1.7	EUT Flat
90.799	19.0	V	43.5	-24.5	Peak	89	1.7	EUT Flat
141.001	18.7	V	43.5	-24.8	Peak	91	1.7	EUT Side

Client: Animas	Job Number: J70452
Model: Symphony DV3 Insulin Pump	T-Log Number: T70704
Contact: Dave Birdsall	Account Manager: Mark Briggs
Standard: FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class: N/A

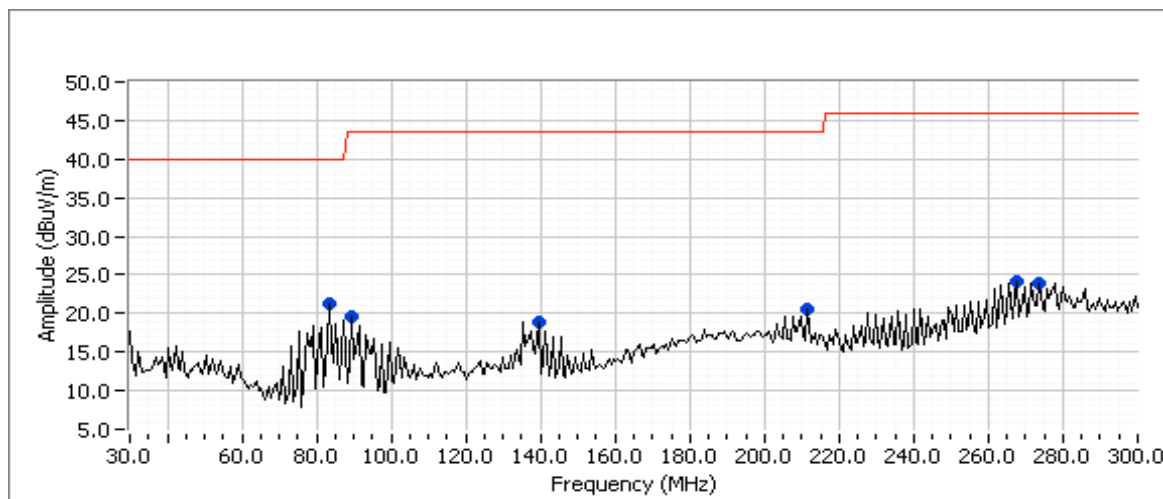
Center Channel
EUT Upright



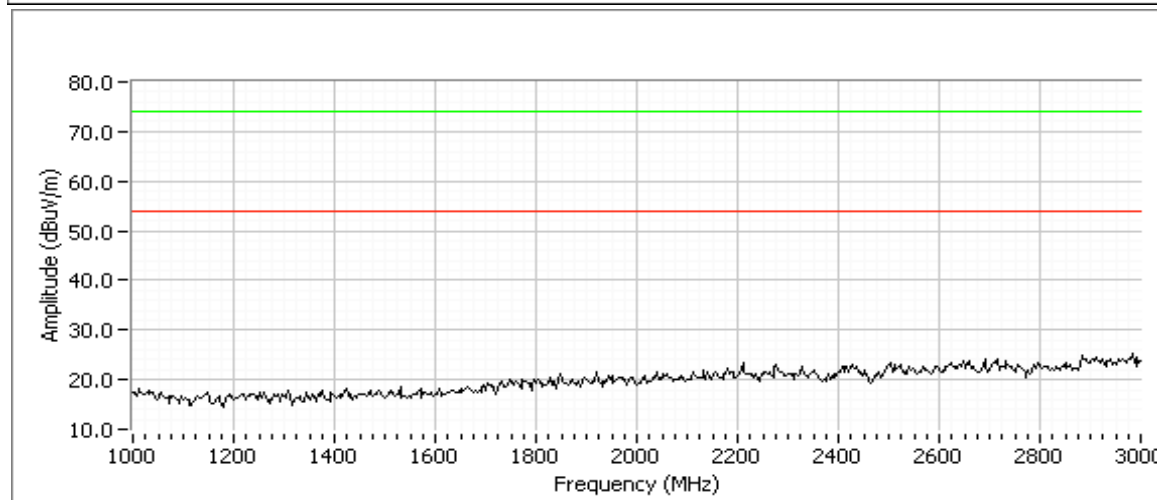
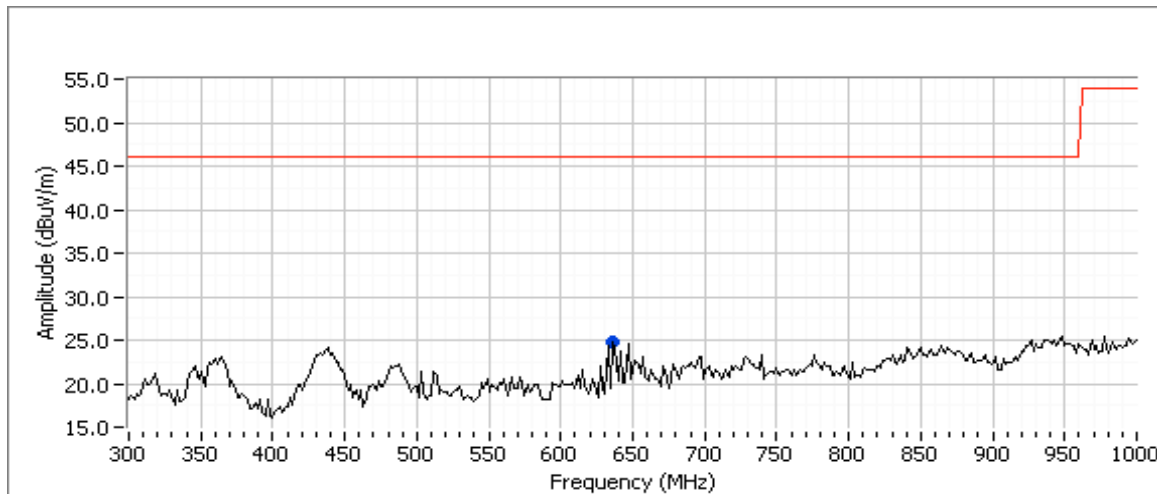
Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A



Center Channel
EUT Side

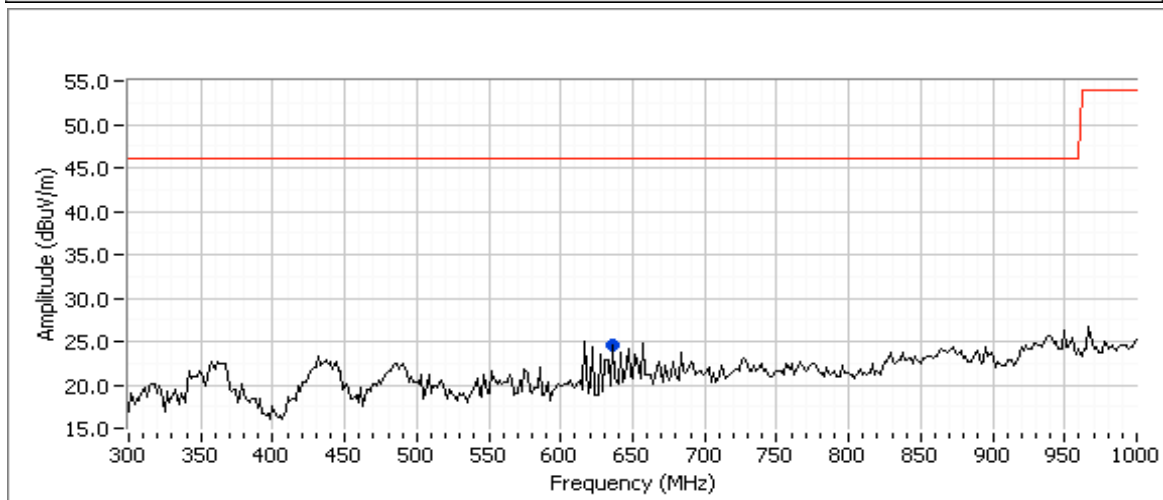
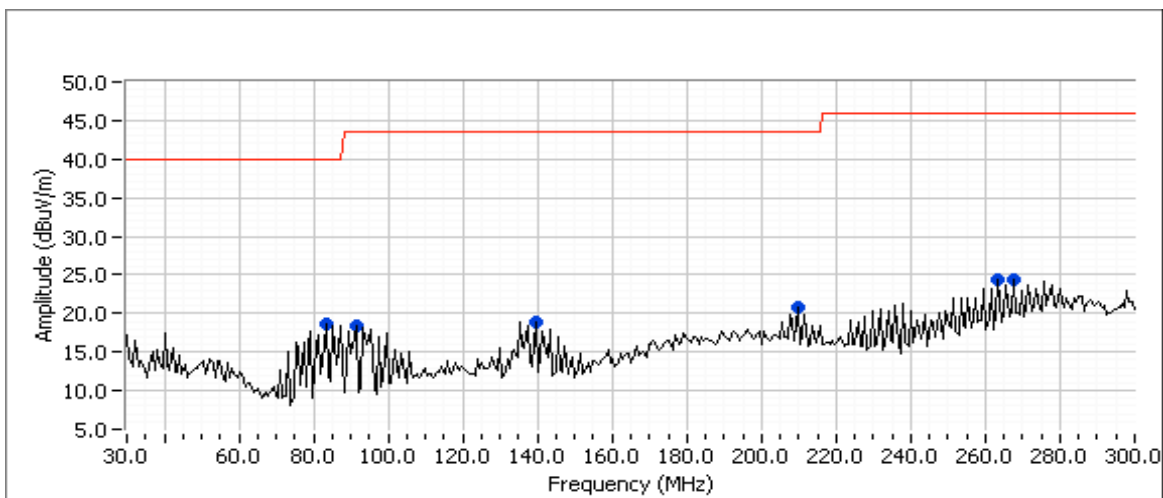


Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

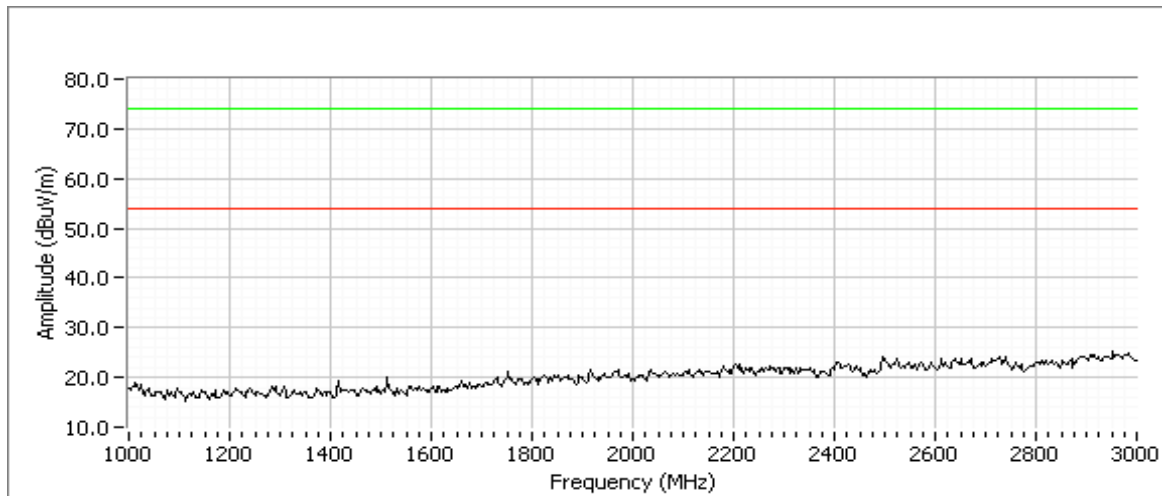


Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Center Channel
EUT Flat



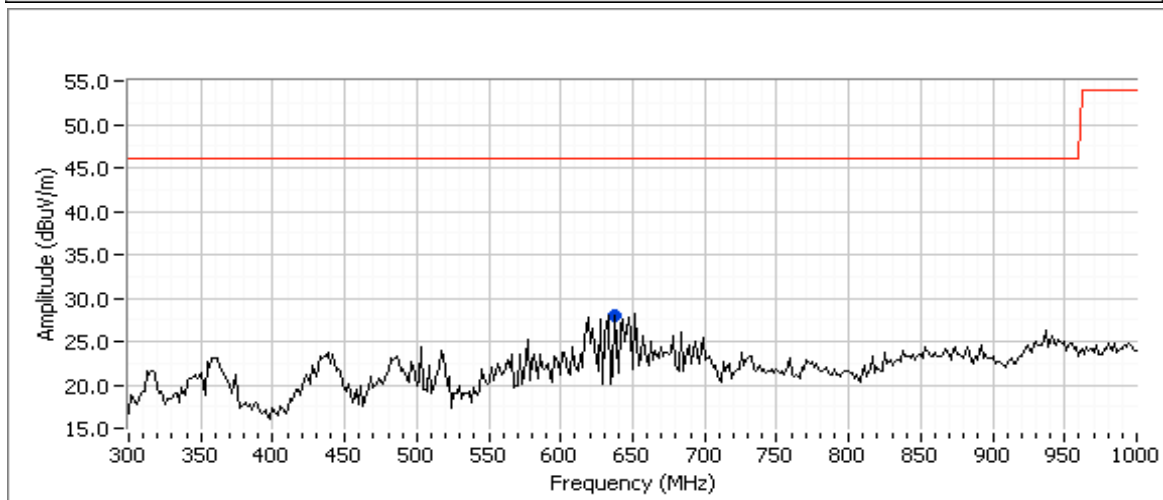
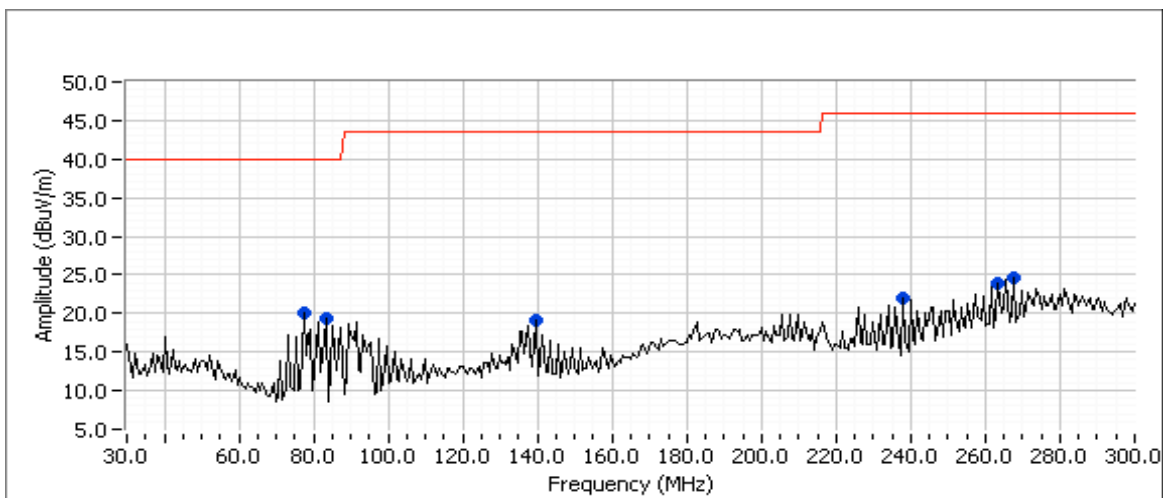
Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A


Center Channel

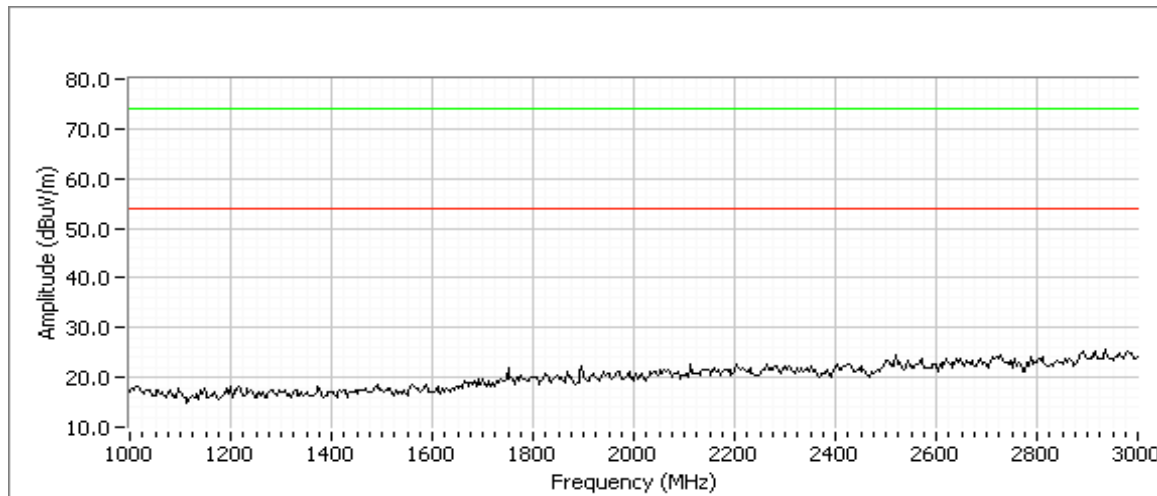
Frequency	Level	Pol	RSS 210 / FCC 15.109		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
651.959	27.9	V	46.0	-18.1	Peak	16	1.7	EUT Upright, Center Channel
83.002	21.2	V	40.0	-18.8	Peak	149	1.7	EUT Side, Center Channel
83.002	19.6	V	40.0	-20.4	Peak	181	1.7	EUT Upright
636.576	24.7	H	46.0	-21.3	Peak	202	1.7	EUT Side
83.002	18.7	V	40.0	-21.3	Peak	301	1.7	EUT Flat
265.014	24.6	H	46.0	-21.4	Peak	269	1.7	EUT Upright
635.921	24.6	H	46.0	-21.4	Peak	210	1.7	EUT Flat
267.004	24.4	H	46.0	-21.6	Peak	0	1.7	EUT Flat
263.005	24.3	H	46.0	-21.7	Peak	0	1.7	EUT Flat
269.014	24.1	H	46.0	-21.9	Peak	239	1.7	EUT Upright
266.994	24.1	H	46.0	-21.9	Peak	61	1.7	EUT Side
272.998	23.8	H	46.0	-22.2	Peak	241	1.7	EUT Side
209.020	20.8	H	43.5	-22.7	Peak	119	1.7	EUT Upright
209.005	20.8	H	43.5	-22.7	Peak	149	1.7	EUT Flat
210.989	20.6	H	43.5	-22.9	Peak	151	1.7	EUT Side
90.834	19.6	V	43.5	-23.9	Peak	89	1.7	EUT Side
93.006	19.0	V	43.5	-24.5	Peak	0	1.7	EUT Upright
138.997	18.9	V	43.5	-24.6	Peak	89	1.7	EUT Side
139.007	18.9	V	43.5	-24.6	Peak	31	1.7	EUT Flat
139.002	18.5	V	43.5	-25.0	Peak	61	1.7	EUT Upright
91.001	18.5	V	43.5	-25.0	Peak	121	1.7	EUT Flat

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

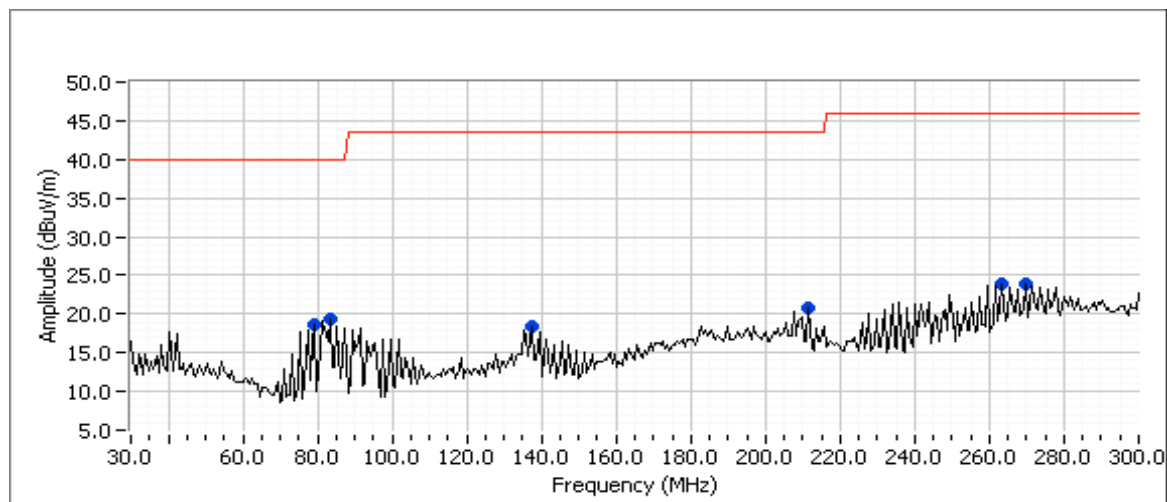
High Channel
EUT Upright



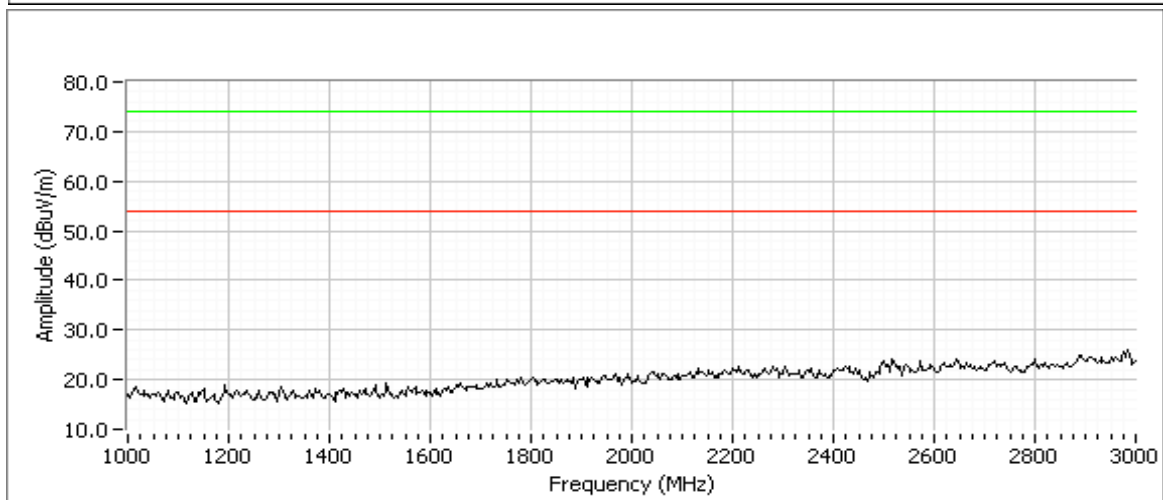
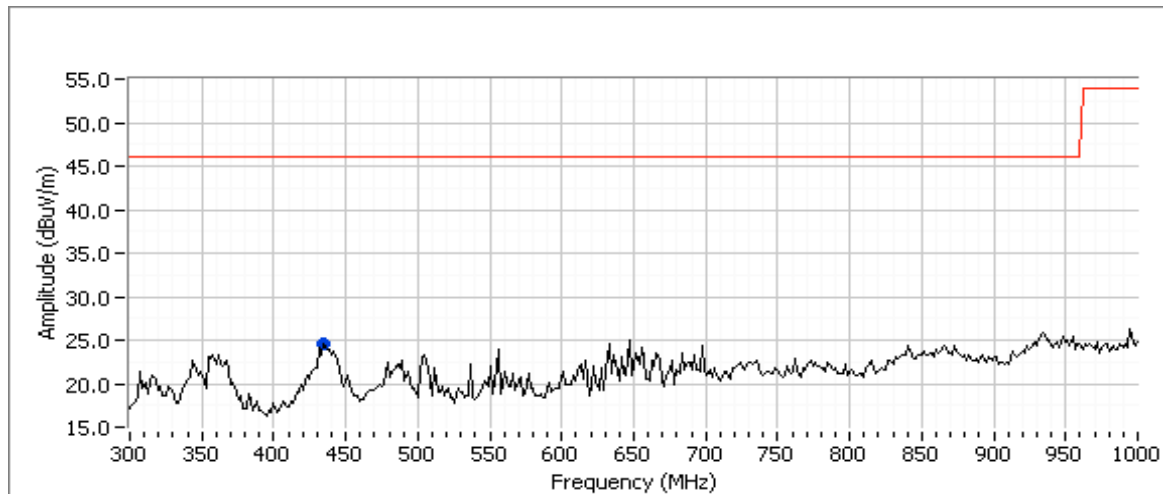
Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A



High Channel
EUT Side

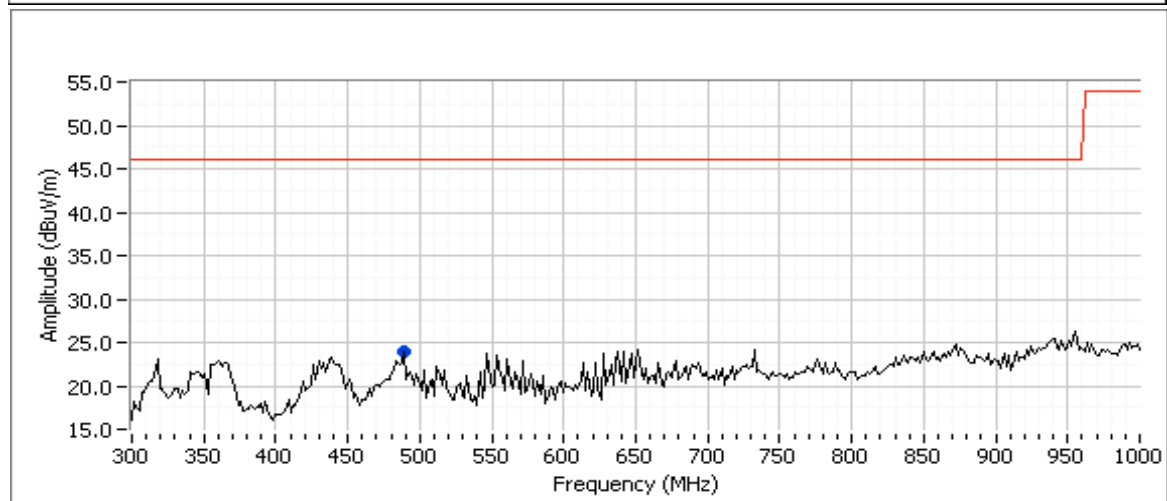
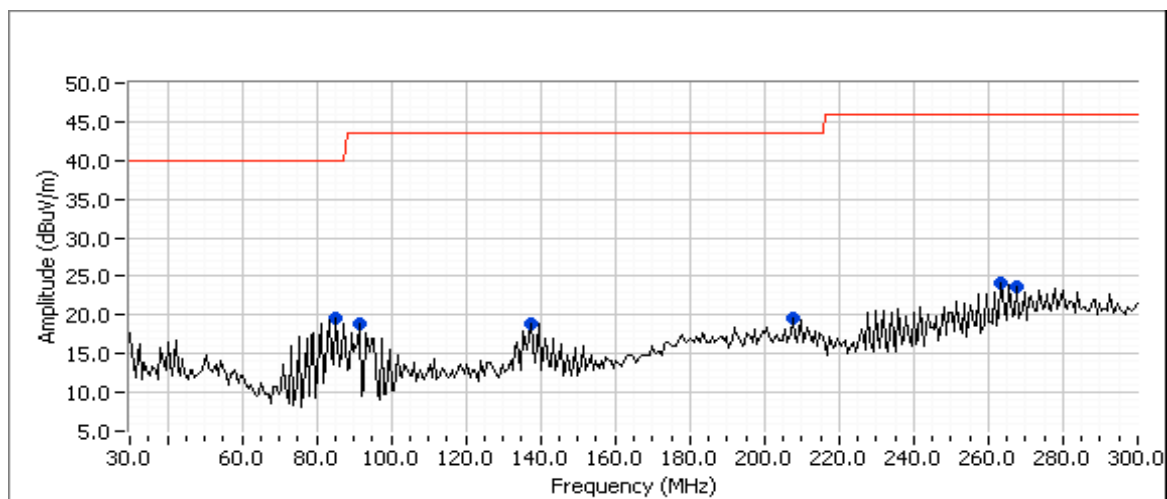


Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

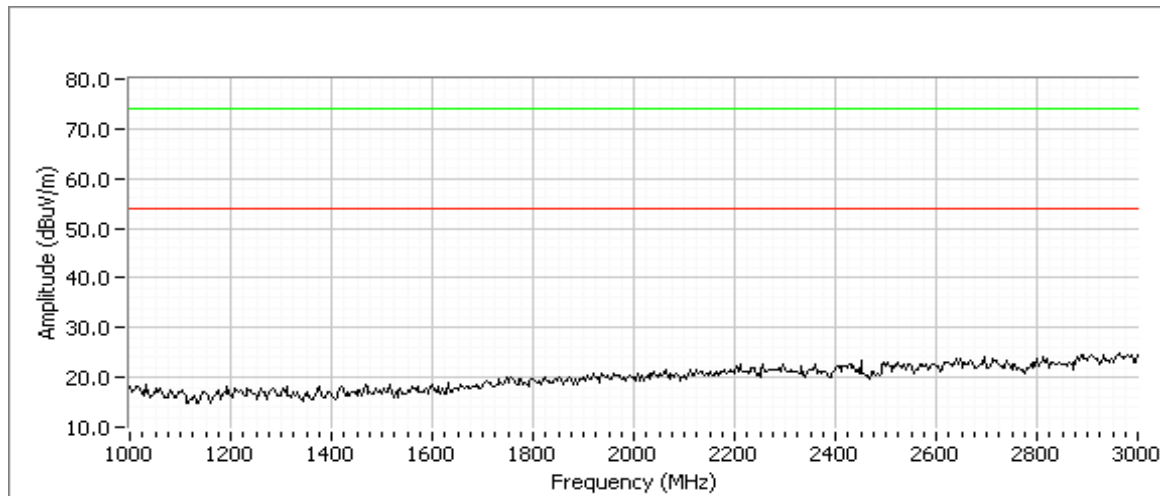


Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

High Channel
EUT Flat



Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A


High Channel

Frequency	Level	Pol	RSS 210 / FCC 15.109		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
636.964	27.9	V	46.0	-18.1	Peak	220	1.7	EUT Upright, High Channel
78.987	20.1	V	40.0	-19.9	Peak	59	1.7	EUT Upright, High Channel
85.007	19.7	V	40.0	-20.3	Peak	179	1.7	EUT Flat
83.002	19.4	H	40.0	-20.6	Peak	0	1.7	EUT Upright
83.002	19.3	V	40.0	-20.7	Peak	151	1.7	EUT Side
267.004	24.7	H	46.0	-21.3	Peak	0	1.7	EUT Upright
79.002	18.7	V	40.0	-21.3	Peak	271	1.7	EUT Side
432.053	24.5	H	46.0	-21.5	Peak	211	1.7	EUT Side
263.005	24.1	H	46.0	-21.9	Peak	181	1.7	EUT Flat
263.005	24.0	H	46.0	-22.0	Peak	271	1.7	EUT Upright
268.999	24.0	H	46.0	-22.0	Peak	179	1.7	EUT Side
488.057	23.9	V	46.0	-22.1	Peak	277	1.7	EUT Flat
265.014	23.8	H	46.0	-22.2	Peak	269	1.7	EUT Side
267.004	23.6	H	46.0	-22.4	Peak	181	1.7	EUT Flat
210.989	20.9	H	43.5	-22.6	Peak	341	1.7	EUT Side
239.021	22.1	H	46.0	-23.9	Peak	341	1.7	EUT Upright
207.000	19.6	H	43.5	-23.9	Peak	181	1.7	EUT Flat
139.007	19.1	V	43.5	-24.4	Peak	59	1.7	EUT Upright
92.031	19.0	V	43.5	-24.5	Peak	149	1.7	EUT Flat
139.012	19.0	V	43.5	-24.5	Peak	59	1.7	EUT Flat
139.012	18.5	V	43.5	-25.0	Peak	91	1.7	EUT Side



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Run #2: OATS Preliminary Measurements

Date of Test: 2/9/2008
Test Engineer: Rafael Varelas
Test Location: OATS #1

Config. Used: 1
Config Change: None
EUT Voltage: 1.5V, Internal Batteries

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 3000 MHz	3	3	0.0

Center Channel

Frequency	Level	Pol	FCC / RSS 210		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
636.576	23.9	H	46.0	-22.1	QP	356	2.0	EUT Side, Center Channel
83.002	16.8	V	40.0	-23.2	QP	239	1.0	EUT Side, Center Channel
83.002	16.7	V	40.0	-23.3	QP	27	1.0	EUT Upright, Center Channel
83.002	16.5	V	40.0	-23.5	QP	37	1.0	EUT Flat, Center Channel
651.959	22.4	V	46.0	-23.6	QP	0	2.4	EUT Upright, Center Channel
264.974	22.1	H	46.0	-23.9	QP	44	1.0	EUT Upright, Center Channel

Note Digital device and receiver emissions measured with device on center channel

Note QP detector used below 1GHz, Peak and average detectors above 1GHz.

Low Channel

Frequency	Level	Pol	FCC / RSS 210		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
647.805	25.7	V	46.0	-20.3	QP	288	1.0	EUT Upright, Low Channel
650.105	23.4	V	46.0	-22.6	QP	0	2.1	EUT Flat, Low Channel
83.002	17.3	V	40.0	-22.7	QP	115	1.0	EUT Upright, Low Channel
82.992	17.2	V	40.0	-22.8	QP	100	1.0	EUT Side, Low Channel
82.992	17.1	V	40.0	-22.9	QP	104	1.0	EUT Flat, Low Channel
264.954	21.1	H	46.0	-24.9	QP	139	1.2	EUT Upright, Low Channel

Note QP detector used below 1GHz, Peak and average detectors above 1GHz.



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Run #2: Continued

High Channel

Frequency	Level	Pol	FCC / RSS 210		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
636.964	26.6	V	46.0	-19.4	QP	288	1.0	EUT Upright, High Channel
267.000	26.1	H	46.0	-19.9	QP	0	1.0	EUT Upright, High Channel
83.000	17.3	V	40.0	-22.7	QP	121	1.0	EUT Side, High Channel
78.897	16.9	V	40.0	-23.1	QP	152	1.4	EUT Upright, High Channel
85.000	16.5	V	40.0	-23.5	QP	152	1.4	EUT Flat, High Channel
83.000	16.4	H	40.0	-23.6	QP	152	1.4	EUT Upright, High Channel

Note QP detector used below 1GHz, Peak and average detectors above 1GHz.

Run #3: Maximized readings, 30 - 1000 MHz

Date of Test: 2/9/2008

Test Engineer: Rafael Varelas

Test Location: OATS #1

Config. Used: 1

Config Change: None

EUT Voltage: 1.5V, Internal Batteries

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 3000 MHz	3	3	0.0

Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
636.964	26.6	V	46.0	-19.4	QP	288	1.0	EUT Upright, High Channel
636.964	26.6	V	46.0	-19.4	QP	288	1.0	EUT Upright, High Channel
267.000	26.1	H	46.0	-19.9	QP	0	1.0	EUT Upright, High Channel
647.805	25.7	V	46.0	-20.3	QP	288	1.0	EUT Upright, Center Channel
647.805	25.7	V	46.0	-20.3	QP	288	1.0	EUT Upright, Low Channel
650.105	23.4	V	46.0	-22.6	QP	0	2.1	EUT Flat, Low Channel
83.002	17.3	V	40.0	-22.7	QP	115	1.0	EUT Upright, Low Channel

Note 1: Above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Note 2: QP detector used below 1GHz, Peak and average detectors above 1GHz.



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Radiated Emissions

Test Specific Details

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

General Test Configuration

The EUT was located on the turntable for radiated emissions testing. The EUT was tested in all three orthogonal orientations.

The test distance and extrapolation factor (if applicable) are detailed under each run description.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Ambient Conditions:

Temperature: 8.3 °C
Rel. Humidity: 75 %

Summary of Results

Run #	Test Performed	Limit	Result	Value / Margin
1	Fundamental Signal Field Strength	FCC 15.249	Pass	88.0dBμV/m (25118.9μV/m) @ 921.302MHz (-6.0dB)
2	Transmitter Radiated Spurious Emissions, 30 - 10,000MHz	RSS-210 / FCC 15.209 / FCC 15.249	Pass	37.8dBμV/m (77.6μV/m) @ 5528.0MHz (-16.2dB)
3	99% Bandwidth (center channel)	RSS-GEN	N/A	62 kHz

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Run #1: Maximized readings, Fundamental signal

Power Setting : -5dBm, Transmitting PN9 Data

Date of Test: 2/11/2008

Config. Used: 8.3

Test Engineer: Suhaila Khushzad

Config Change: 75

Test Location: OATS # 1

EUT Voltage: 1.5 DC (battery)

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
903 - 921.3 MHz	3	3	0.0

Note: The limit for the fundamental signal in the 902 - 928 MHz is 50mV/m (94.0 dBuV/m)

Low Channel

Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
903.022	85.3	V	94.0	-8.7	QP	360	1.0	EUT Upright
903.022	72.0	H	94.0	-22.0	QP	225	1.1	EUT Upright
903.022	69.1	V	94.0	-24.9	QP	199	2.0	EUT on its back
903.022	78.8	H	94.0	-15.2	QP	199	1.0	EUT on its back
903.022	77.1	V	94.0	-16.9	QP	216	1.1	EUT on its Side
903.022	78.7	H	94.0	-15.3	QP	127	2.9	EUT on its Side

Center Channel

Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
911.554	85.9	V	94.0	-8.1	QP	109	1.0	EUT Upright
911.554	74.8	H	94.0	-19.2	QP	207	2.9	EUT Upright
911.554	76.5	V	94.0	-17.5	QP	259	1.0	EUT on its back
911.554	81.0	H	94.0	-13.0	QP	215	1.0	EUT on its back
911.554	79.9	V	94.0	-14.1	QP	121	1.1	EUT on its Side
911.554	80.7	H	94.0	-13.3	QP	144	2.9	EUT on its Side

High Channel

Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
921.302	88.0	V	94.0	-6.0	QP	77	1.0	EUT Upright
921.302	76.2	H	94.0	-17.8	QP	29	1.0	EUT Upright
921.302	76.2	V	94.0	-17.8	QP	61	3.5	EUT on its back
921.302	81.1	H	94.0	-12.9	QP	127	2.9	EUT on its back
921.302	80.8	V	94.0	-13.2	QP	96	1.1	EUT on its Side
921.302	81.9	H	94.0	-12.1	QP	127	3.0	EUT on its Side
960.000	30.9	H	46.0	-15.1	QP	29	1.0	EUT Upright(Bandedge)
960.000	31.5	V	46.0	-14.5	QP	77	1.0	EUT Upright(Bandedge)



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Run #2: Maximized Readings on OATS - Spurious Transmitter Emissions, 30 - 10,000 MHz

Power Setting : -5dBm, Transmitting PN9 Data

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 10,000 MHz	3	3	0.0

Note:	The limit for the fundamental signal in the 902 - 928 MHz is 50mV/m (94.0 dBuV/m)
Note:	The limits for all other spurious emissions, including harmonics of the fundamental signal, are the general limits of 15.209.
Note:	All spurious emissions, other than the harmonics of the transmitted signal, were covered by the digital device/receiver spurious emissions measurements. Preliminary scans confirmed that there were no other spurious emissions that could be attributed to the transmitter other than harmonics of the fundamental signal.

Center Channel @ 911.554 MHz

Transmitter Spurious Emissions

Frequency	Level	Pol	RSS 210 / FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5469.160	36.5	V	54.0	-17.5	AVG	212	1.1	EUT upright
9114.640	35.1	H	54.0	-18.9	AVG	229	1.0	EUT upright
9119.030	34.8	V	54.0	-19.2	AVG	0	1.0	EUT upright
5469.160	34.4	H	54.0	-19.6	AVG	236	1.5	EUT upright
8204.130	33.5	V	54.0	-20.5	AVG	0	1.0	EUT upright
7292.590	33.2	V	54.0	-20.8	AVG	78	1.0	EUT upright
7291.570	33.1	H	54.0	-20.9	AVG	229	1.0	EUT upright
6380.500	31.3	V	54.0	-22.7	AVG	112	1.0	EUT upright
3645.250	28.9	V	54.0	-25.1	AVG	275	1.5	EUT upright
4558.010	28.9	V	54.0	-25.1	AVG	274	2.5	EUT upright
9114.640	46.8	H	74.0	-27.2	PK	229	1.0	EUT upright
9119.030	46.2	V	74.0	-27.8	PK	0	1.0	EUT upright
2734.690	25.2	V	54.0	-28.8	AVG	338	1.5	EUT upright
8204.130	45.1	V	74.0	-28.9	PK	0	1.0	EUT upright
5469.160	45.0	V	74.0	-29.0	PK	212	1.1	EUT upright
7291.570	44.9	H	74.0	-29.1	PK	229	1.0	EUT upright
7292.590	44.4	V	74.0	-29.6	PK	78	1.0	EUT upright
5469.160	43.5	H	74.0	-30.5	PK	236	1.5	EUT upright
1823.140	23.1	H	54.0	-30.9	AVG	214	1.5	EUT upright
1823.140	23.0	V	54.0	-31.0	AVG	214	1.1	EUT upright
6380.500	42.9	V	74.0	-31.1	PK	112	1.0	EUT upright
1823.660	21.5	H	54.0	-32.5	AVG	310	1.0	EUT upright
2734.690	40.7	V	74.0	-33.3	PK	338	1.5	EUT upright
4558.010	40.5	V	74.0	-33.5	PK	274	2.5	EUT upright
3645.250	40.4	V	74.0	-33.6	PK	275	1.5	EUT upright
1823.140	34.9	H	74.0	-39.1	PK	214	1.5	EUT upright
1823.140	34.7	V	74.0	-39.3	PK	214	1.1	EUT upright
1823.660	33.1	H	74.0	-40.9	PK	310	1.0	EUT upright



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Run #2: Maximized Readings on OATS - Spurious Transmitter Emissions, 30 - 10,000 MHz

Power Setting : -5dBm, Transmitting PN9 Data

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 10,000 MHz	3	3	0.0

Note:	The limit for the fundamental signal in the 902 - 928 MHz is 50mV/m (94.0 dBuV/m)
Note:	The limits for all other spurious emissions, including harmonics of the fundamental signal, are the general limits of 15.209.
Note:	All spurious emissions, other than the harmonics of the transmitted signal, were covered by the digital device/receiver spurious emissions measurements. Preliminary scans confirmed that there were no other spurious emissions that could be attributed to the transmitter other than harmonics of the fundamental signal.

High Channel @ 921.302

Transmitter Spurious Emissions

Frequency	Level	Pol	RSS 210 / FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5527.990	37.8	H	54.0	-16.2	AVG	209	1.2	EUT upright
5528.050	35.3	V	54.0	-18.7	AVG	221	1.0	EUT upright
9211.010	35.0	V	54.0	-19.0	AVG	360	1.7	EUT upright
9210.160	34.6	H	54.0	-19.4	AVG	333	1.0	EUT upright
7365.920	33.3	V	54.0	-20.7	AVG	269	1.0	EUT upright
7366.940	33.2	H	54.0	-20.8	AVG	239	1.0	EUT upright
9211.010	48.2	V	74.0	-25.8	PK	360	1.7	EUT upright
9210.160	46.8	H	74.0	-27.2	PK	333	1.0	EUT upright
5527.990	46.3	H	74.0	-27.7	PK	209	1.2	EUT upright
7366.940	44.8	H	74.0	-29.2	PK	239	1.0	EUT upright
7365.920	44.4	V	74.0	-29.6	PK	269	1.0	EUT upright
5528.050	43.6	V	74.0	-30.4	PK	221	1.0	EUT upright
1836.190	23.3	H	54.0	-30.7	AVG	220	1.0	EUT upright
1842.640	22.3	V	54.0	-31.7	AVG	215	1.0	EUT upright
1836.190	34.7	H	74.0	-39.3	PK	220	1.0	EUT upright
1842.640	33.8	V	74.0	-40.2	PK	215	1.0	EUT upright



EMC Test Data

Client:	Animas	Job Number:	J70452
Model:	Symphony DV3 Insulin Pump	T-Log Number:	T70704
Contact:	Dave Birdsall	Account Manager:	Mark Briggs
Standard:	FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class:	N/A

Run #2: Maximized Readings on OATS - Spurious Transmitter Emissions, 30 - 10,000 MHz

Power Setting : -5dBm, Transmitting PN9 Data

Frequency Range	Test Distance	Limit Distance	Extrapolation Factor
30 - 10,000 MHz	3	3	0.0

Note:	The limit for the fundamental signal in the 902 - 928 MHz is 50mV/m (94.0 dBuV/m)
Note:	The limits for all other spurious emissions, including harmonics of the fundamental signal, are the general limits of 15.209.
Note:	All spurious emissions, other than the harmonics of the transmitted signal, were covered by the digital device/receiver spurious emissions measurements. Preliminary scans confirmed that there were no other spurious emissions that could be attributed to the transmitter other than harmonics of the fundamental signal.

Low Channel @ 903.022 MHz

Transmitter Spurious Emissions

Frequency	Level	Pol	RSS 210 / FCC 15.209		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
5418.300	35.9	H	54.0	-18.1	AVG	226	1.9	EUT upright
9029.300	35.1	H	54.0	-18.9	AVG	12	1.0	EUT upright
9028.320	35.1	V	54.0	-18.9	AVG	295	1.0	EUT upright
5418.130	34.2	V	54.0	-19.8	AVG	321	2.1	EUT upright
7224.730	33.0	H	54.0	-21.0	AVG	285	1.0	EUT upright
7221.840	32.9	V	54.0	-21.1	AVG	0	1.0	EUT upright
9029.300	47.5	H	74.0	-26.5	PK	12	1.0	EUT upright
9028.320	47.2	V	74.0	-26.8	PK	295	1.0	EUT upright
7224.730	45.1	H	74.0	-28.9	PK	285	1.0	EUT upright
7221.840	44.4	V	74.0	-29.6	PK	0	1.0	EUT upright
5418.300	44.2	H	74.0	-29.8	PK	226	1.9	EUT upright
5418.130	43.6	V	74.0	-30.4	PK	321	2.1	EUT upright
1806.060	23.0	H	54.0	-31.0	AVG	0	1.0	EUT upright
1804.910	22.8	V	54.0	-31.2	AVG	323	1.0	EUT upright
1804.910	34.8	V	74.0	-39.2	PK	323	1.0	EUT upright
1806.060	34.6	H	74.0	-39.4	PK	0	1.0	EUT upright

Note 1: Measurements on harmonic frequencies on low and high channels only made on the EUT orientation that produced the highest emission at that frequency on the center channel if the orientation was clearly worst-case.

Note 2: QP detector used below 1GHz, Peak and average detectors above 1GHz.



EMC Test Data

Client: Animas	Job Number: J70452
Model: Symphony DV3 Insulin Pump	T-Log Number: T70704
Contact: Dave Birdsall	Account Manager: Mark Briggs
Standard: FCC Part 15 Subpart B, FCC 15.249, RSS-210	Class: N/A

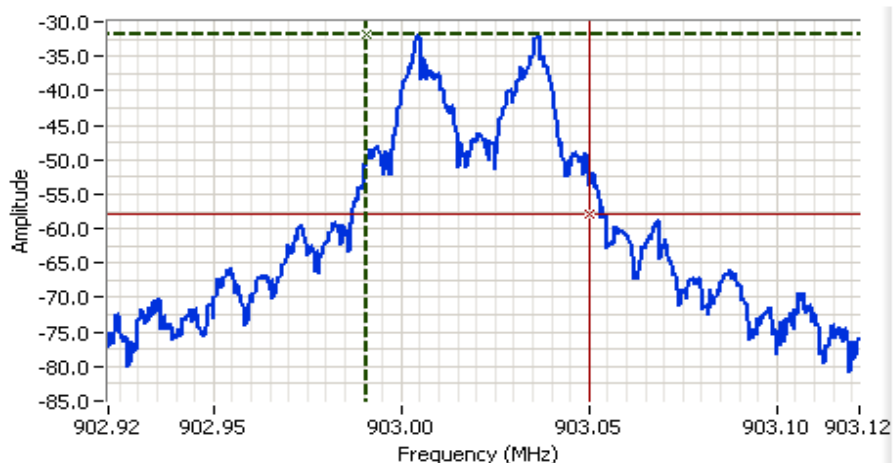
Run #3: 99% Bandwidth Measurement
Power Setting : -5dBm, Transmitting PN9 Data

Note 1: 99% bandwidth measured in accordance with RSS GEN, with RB > 1% of the span and VB > 3xRB. Plot and measurement for low channel provided below. Verified center and high channel had the same bandwidth.

Date of Test: 2/11/2008
Test Engineer: Suhaila Khushzad
Test Location: OATS #1

Config. Used: 1
Config Change: None
EUT Voltage: 1.5 DC (battery)

Power Setting	Frequency (MHz)	Resolution Bandwidth	Bandwidth (kHz)	
			6dB	99%
-5dBm	903.022	3kHz	-	60.0



Analyzer Settings
HP8564E,006,EMI,UK6
CF: 903.02 MHz
SPAN:200 kHz
RB 3 kHz
VB 10 kHz
Detector Normal
Att 10
RL Offset 0.00
Sweep Time 67.0ms
Ref Lvl:-17.30DBM

Comments
99%: 60 kHz

Cursor 1	902.991	-31.80	↕	↕	↕
Cursor 2	903.050	-57.80	↕	↕	↕

Delta Freq. 60 kHz
Delta Amplitude 26.00

