

EMISSIONS TEST REPORT

Report Number: 3114493BOX-001

Project Number: 3114493

Testing performed on the

Medical Implant

Model: 2207DR

To

**FCC Part 95 Subpart I
IC RSS-243 Issue 2 November 2005**

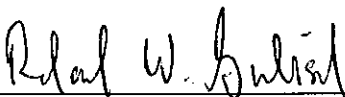
For

St. Jude Medical AB

Test Performed by:
Intertek – ETL SEMKO
70 Codman Hill Road
Boxborough, MA 01719

Test Authorized by:
St. Jude Medical AB
175 84 Järfälla
Stockholm, Sweden

Prepared by:  Date: 2/16/07
Nicholas Abbondante

Reviewed by:  Date: 2-16-2007
Roland W. Gubisch

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1.0 Job Description

1.1 Client Information

This EUT has been tested at the request of:

Company: St. Jude Medical AB
SE-175 84
Järfälla, Sweden
Contact: Hans Andersen
Telephone: +46 8 474 4567
Fax: +46 8 761 29 05
Email: handersen@sjm.com

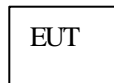
1.2 Equipment Under Test

Equipment Type: Medical Implant
Model Number(s): 2207DR
Serial number(s): 201275, UEN396
Manufacturer: St. Jude Medical
EUT receive date: 01/15/2007
EUT received condition: Prototype in Good Condition
Test start date: 01/24/2007
Test end date: 01/25/2007

1.3 Test Plan Reference: Tested according to the standards listed.

1.4 Test Configuration

1.4.1 Block Diagram



1.4.2. Cables:

Cable	Shielding	Connector	Length (m)	Qty.
No Cables				

1.4.3. Support Equipment:

Name: Laptop Computer
 Model No.: Dell Latitude
 Serial No.: WS2330

Name: RF Wand
 Model No.: 3638
 Serial No.: 85200022

1.5 Mode(s) of Operation:

The EUT was activated from a fresh battery and was transmitting a modulated carrier during testing, except for frequency error, during which a CW signal was transmitted. The EUT was programmed externally using the RF Wand and the Laptop computer. Channel 5 (403.65 MHz) was utilized for testing unless otherwise indicated.

2.0 Test Summary

TEST STANDARD	RESULTS	
FCC Part 95 Subpart I IC RSS-243 Issue 2 September 2005		
SUB-TEST	TEST PARAMETER	COMMENT
Effective Radiated Power FCC §95.639(f), RSS-243 Section 5.4	The maximum effective radiated power is 25 μ W or 18.2 mV/meter at 3m test distance (85.2 dB μ V/m at 3m).	Pass
Emission Bandwidth FCC §95.633(e), RSS-243 Section 5.1	The maximum bandwidth is 300 kHz.	Pass
Radiated Spurious Emissions FCC §95.635, RSS-243 Sections 5.5, 5.6	<p>Spurious emissions more than 250 kHz removed from the MICS band (402-405 MHz) at 3 meters test distance must not exceed 40.0 dBμV/m in the range from 30-88 MHz, 43.5 dBμV/m from 88-216 MHz, 46.0 dBμV/m from 216-960 MHz, and 54.0 dBμV/m above 960 MHz.</p> <p>Emissions within 250 kHz of the MICS band must be attenuated by at least 20 dB below the maximum permitted output power, using an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth.</p> <p>Emissions within the MICS band more than 150 kHz away from the center frequency of the spectrum the transmission is intended to occupy, will be attenuated below the transmitter output power by at least 20 dB, using an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth.</p>	Pass
Frequency Error FCC §95.628(e), RSS-243 Section 5.3	The carrier frequency must not deviate from the reference frequency by more than \pm 100 PPM.	Pass
MICS Operation FCC §95.628(a)(1-4), RSS-243 Section 5.7	The MICS communication sessions must meet operating requirements for System Threshold Power Levels, Monitoring System Bandwidth, Scan Cycle Time, Minimum Channel Monitoring Period, Channel Access, Discontinuation of a MICS Session, and Use of a Pre-Scanned Alternate Channel.	N/A, MICS Programmer/Controller Test only

REVISION SUMMARY – The following changes have been made to this Report:

<u>Date</u>	<u>Project</u> <u>No.</u>	<u>Project</u> <u>Handler</u>	<u>Page(s)</u>	<u>Item</u>	<u>Description of Change</u>
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3.0 Sample Calculations

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG$$

Where

- FS = Field Strength in dB μ V/m
- RA = Receiver Amplitude (including preamplifier) in dB μ V
- CF = Cable Attenuation Factor in dB
- AF = Antenna Factor in dB
- AG = Amplifier Gain in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows.

Assume a receiver reading of 52.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted, giving a field strength of 32 dB μ V/m. This value in dB μ V/m was converted to its corresponding level in μ V/m.

RA = 52.0 dB μ V
 AF = 7.4 dB/m
 CF = 1.6 dB
 AG = 29.0 dB
 FS = 32 dB μ V/m

$$\text{Level in } \mu\text{V/m} = [10(32 \text{ dB}\mu\text{V/m}/20)] = 39.8 \mu\text{V/m}$$

The following is how net line-conducted readings were determined:

$$NF = RF + LF + CF + AF$$

Where

- NF = Net Reading in dB μ V
- RF = Reading from receiver in dB μ V
- LF = LISN Correction Factor in dB
- CF = Cable Correction Factor in dB
- AF = Attenuator Loss Factor in dB

To convert from dB μ V to μ V or mV the following was used:

$$UF = 10^{(NF/20)} \text{ where UF = Net Reading in } \mu\text{V}$$

Example:

$$NF = RF + LF + CF + AF = 28.5 + 0.2 + 0.4 + 20.0 = 49.1 \text{ dB}\mu\text{V}$$

$$UF = 10^{(49.1 \text{ dB}\mu\text{V} / 20)} = 254 \mu\text{V/m}$$

3.1 Measurement Uncertainty

Compliance of the product is based on the measured value. However, the measurement uncertainty is included for informational purposes.

The expanded uncertainty ($k = 2$) for radiated emissions from 30 to 1000 MHz has been determined to be:
 ± 3.5 dB at 10m, ± 3.8 dB at 3m

The expanded uncertainty ($k = 2$) for mains conducted emissions from 150 kHz to 30 MHz has been determined to be:

± 2.6 dB

The expanded uncertainty ($k = 2$) for telecom port conducted emissions from 150 kHz to 30 MHz has been determined to be:

± 3.2 for ISN and voltage probe measurements

± 3.1 for current probe measurements

3.2 Site Description

Test Site(s): 2

Our OATS are 3m and 10m sheltered emissions measurement ranges located in a light commercial environment in Boxborough, Massachusetts. They meet the technical requirements of ANSI C63.4-2003 and CISPR 22:1993/EN 55022:1994 for radiated and conducted emission measurements. The shelter structure is entirely fiberglass and plastic, with outside dimensions of 33 ft x 57 ft. The structure resembles a quonset hut with a center ceiling height of 16.5 ft.

The testing floor is covered by a galvanized sheet metal groundplane that is earth-grounded via copper rods around the perimeter of the site. The joints between individual metal sheets are bridged with a 2 inch wide metal strips to provide low RF impedance contact throughout. The sheets are screwed in place with stainless steel, round-head screws every three inches. Site illumination and HVAC are provided from beneath the ground reference plane through flush entry ports, the port covers are electrically bonded to the ground plane.

A flush metal turntable with 12 ft. diameter and 5000 lb. load capacity (12,000 lb. in Site 3) is provided for floor-standing equipment. A wooden table 80 cm high is used for table-top equipment. The turntable is electrically connected to the ground plane with three copper straps. The straps are connected to the turntable at the center of it with ground braid. The copper strap is directly connected to the groundplane at the edges of the turntable. The turntable is located on the south end of the structure and the antennas are mounted 3 and 10 meters away to the north. The antenna mast is a non-conductive with remote control of antenna height and polarization. The antenna height is adjustable from 1 to 4 meters.

All final radiated emission measurements are performed with the testing personnel and measurement equipment located below the ground reference plane. The site has a full basement underneath the turntable where support equipment may be remotely located. Operation of the antenna, turntable and equipment under test is controlled by remote controls that manipulate the antenna height and polarization and with a turntable control. Test personnel are located below the ellipse when measurements are performed, however the site maintains the ability of having personnel manipulate cables while monitoring test equipment. Ambient radiated emissions are 6 dB or more below the relevant FCC emission limits.

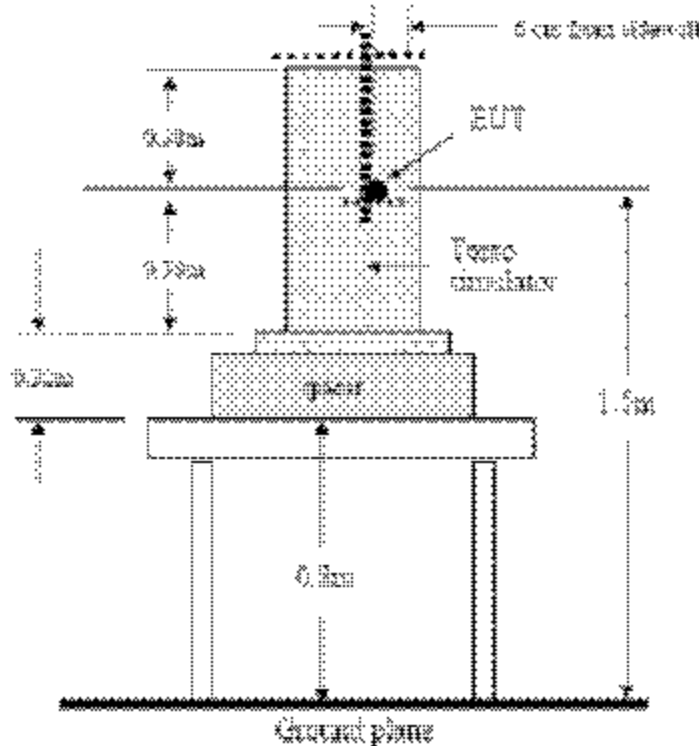
AC mains power is brought to the equipment under test through a power line filter, to remove ambient conducted noise. 50 Hz (240 VAC single phase), 60 Hz power (120 VAC single phase, 208 VAC three phase), and 60 Hz (480 VAC three phase) are available. Conducted emission measurements are performed with a Line Impedance Stabilization Network (LISN) or Artificial Mains Network (AMN) bonded to the ground reference plane. A removable vertical groundplane (2 meter X 2 meter area) is used for line-conducted measurements for table top equipment. The vertical groundplane is electrically connected to the reference groundplane.

The EMC Lab has two Semi-anechoic Chambers and one Shielded Chamber. AC Mains Power is available at 120, 230, and 277 Single Phase; 208, 400, and 480 3-Phase. Large reference groundplanes are installed in the general lab area to facilitate EMC work not requiring a shielded environment.

3.2.1 Torso simulator

For radiated emissions testing, the EUT was suspended in a Plexiglas torso simulator comprised of a vertical cylinder 30 cm diameter by 76 cm height, with a sidewall thickness of 0.635 cm, bonded to a liquid-tight Plexiglas base. The simulator was constructed in accordance with FCC 95.639(a)(2)(i), EN 301 839-1 A1.1.3 and EN 301 489-27 Annex B. These are also the references for the simulator fluid.

During the testing, the EUT was centered vertically in the Plexiglas cylinder and 6 cm from the sidewall. Plastic grid supported the EUT from below, and nylon screw stock was used to position the EUT vertically in the cylinder. The torso cylinder was mounted on a standard 0.8m-high emissions test table, with non-conductive spacers added so that the EUT was 1.5m vertically above the ground reference plane, according to the diagram below.



For emissions testing of the implant EUT, the torso simulator was filled with a fluid formulated in accordance with Hartsgrove, Kraszewski and Surowiec, “Simulated Biological Materials for Electromagnetic Radiation Absorption Studies,” *Bioelectromagnetics*, v8, pp29-36 (1987). The fluid temperature was maintained between 20°C and 25°C.

The fluid values for human muscle dielectric and conductivity from Table 2 of the reference above were interpolated to 403.5 MHz, using a quadratic regression from the values given in the table for 100 MHz, 400 MHz and 900 MHz. The target values were calculated as: Dielectric constant or relative permittivity, 62.42; conductivity, 0.903 S/m.

Prior to testing, the properties of the fluid were validated by measurement in accordance with IEEE Std 1528 Annex B, at the Intertek test laboratory in Lexington, KY. The measurements are within 5% of the target values as indicated in the table below.

parameter	target value	measurement	deviation
Dielectric constant	62.42	59.7	-4.4%
Conductivity	0.903	0.92	+ 1.9%

Test Results: Pass

Test Standard: FCC Part 95 Subpart I, IC RSS-243 Issue 2 September 2005

Test: Effective Radiated Power, FCC §95.639(f), RSS-243 Section 5.4

Performance Criterion: The maximum effective radiated power is 25µW or 18.2 mV/meter at 3m test distance (85.2 dBµV/m at 3m).

Test Environment:

Environmental Conditions During Testing:	Humidity (%):	See Table	Pressure (hPa):	See Table	Ambient (°C):	See Table
Pretest Verification Performed	Yes		Equipment under Test:		2207DR	

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR2	08/02/2007
2	ANTENNA	EMCO	3142	9711-1223	02/06/2008
3	EMI Receiver Set W/RF Filter	Hewlett Packard	8542E	3520A00125	02/28/2007
4	RF FILTER	Hewlett Packard	85420E	3427A00126	02/28/2007
5	3 Meter In floor cable for site 2	ITS	RG214B/U	S2 3M FLR	09/26/2007

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	9/20/06 Revision

Test Details:

Special Radiated Emissions														
Company: St. Jude Medical						Antenna & Cables: N		Bands: N, LF, HF, SHF						
Model #: 2207DR						LF Antenna: HORN3 V3m 6-12-07.txt		HORN3 H3m 6-12-07.txt						
Serial #: 201275						N Antenna: LOG2 2-06-08 V3.txt		LOG2 2-06-08 H3.txt						
Engineers: Nicholas Abbondante			Location: Site 2			HF Antenna: HORN3 V3m 6-12-07.txt		HORN3 H3m 6-12-07.txt						
Project #: 3114493			Date(s): 01/24/07			SHF Antenna: EMC04 V 1m 12-13-2007.txt		EMC04 H 1m 12-13-2007.txt						
Standard: FCC Part 95/IC RSS-243						LF Cable(s): CBL029 12-04-2007.txt		CBL030 12-04-2007.txt						
Receiver: HP 8542E (REC2/RECFL2)			Limit Distance (m): 3			N Cable(s): S2 3M FLR 9-26-07.txt		NONE.						
PreAmp: PRE8 11-14-07.txt			Test Distance (m): 3			HF Cable(s): CBL030 12-04-2007.txt		NONE.						
Barometer: BAR2		Temp/Humidity/Pressure: 22c 25%		1001mB		SHF Cable(s): CBL029 12-04-2007.txt		CBL030 12-04-2007.txt						
PreAmp Used? (Y or N): N			Voltage/Frequency: Fresh Battery			Frequency Range: 30-1000 MHz								
Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS: NF = Noise Floor. RB = Restricted Band. Bandwidth denoted as RBW/VBW														
Detector	Ant.	Pol.	Frequency	Reading	Antenna	Cable	Pre-amp	Distance	Net	Limit	Margin	Bandwidth	FCC	IC
Type	(V/H)		MHz	dB(uV)	dB(1/m)	dB	dB	dB	dB(uV/m)	dB(uV/m)	dB			
Note: Implant MICS testing measured with fundamental at channel 5 (403.65 MHz)														
PK	V		403.650	44.8	15.8	2.6	0.0	0.0	63.2	85.2	-22.0	300kHz/1MHz	RB	RB

Test Results: Pass

Test Standard: FCC Part 95 Subpart I, IC RSS-243 Issue 2 September 2005

Test: Emission Bandwidth, FCC §95.633(e), RSS-243 Section 5.1

Performance Criterion: The maximum bandwidth is 300 kHz.

Test Environment:

Environmental Conditions During Testing:	Humidity (%):	N/A	Pressure (hPa):	N/A	Ambient (°C):	N/A
Pretest Verification Performed	Yes		Equipment under Test:		2207DR	

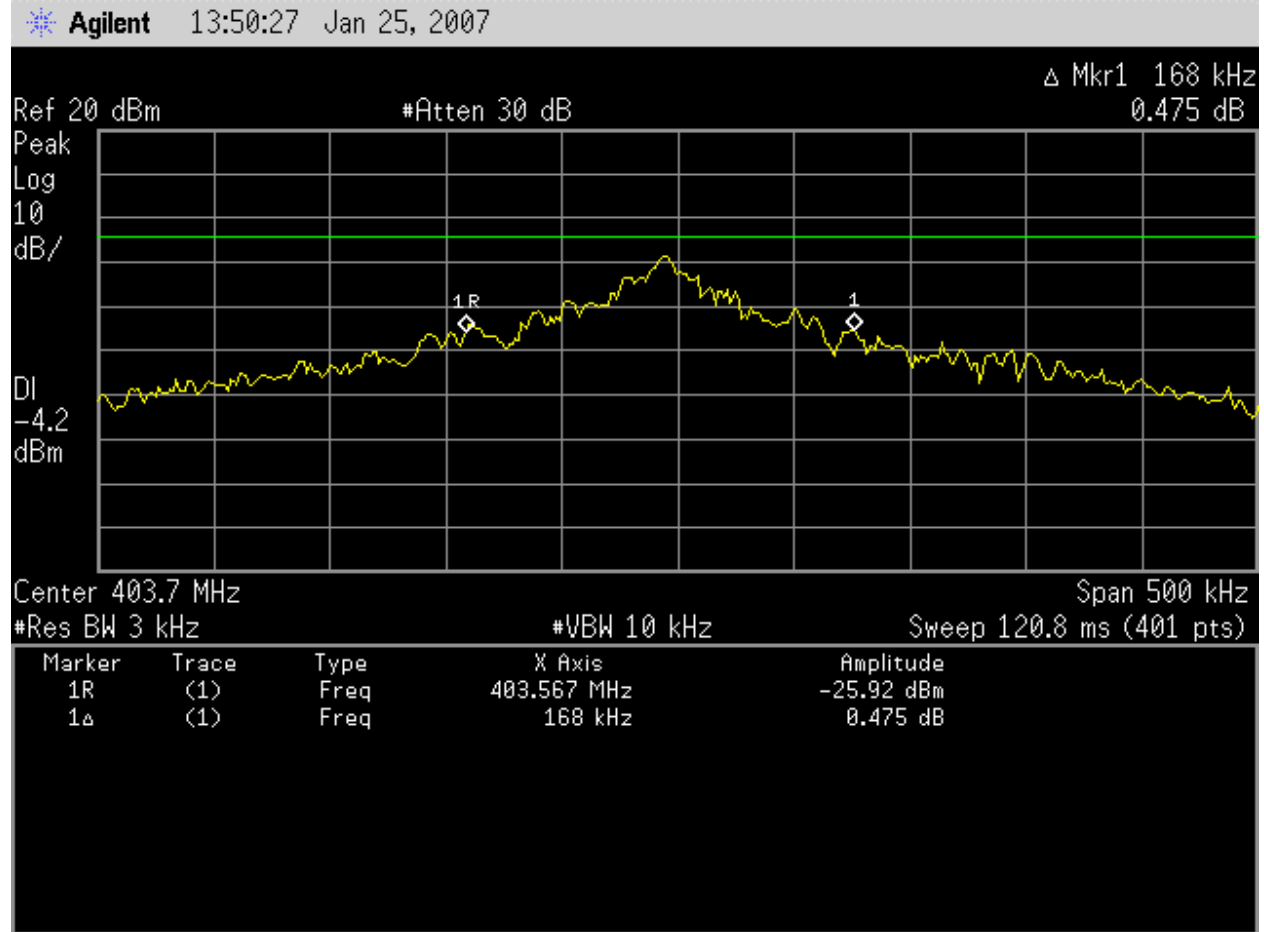
Test Equipment Used:

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	Spectrum Analyzer	Agilent	E7405A	US40240205	08/16/2007
2	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 197	CBL027	12/04/2007

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	9/20/06 Revision

Test Details:



Notes: The 20 dB bandwidth is 168 kHz.

Test Results: Pass

Test Standard: FCC Part 95 Subpart I, IC RSS-243 Issue 2 September 2005

Test: Radiated Spurious Emissions, FCC §95.635, RSS-243 Sections 5.5, 5.6

Performance Criterion: Spurious emissions more than 250 kHz removed from the MICS band (402-405 MHz) at 3 meters test distance must not exceed 40.0 dBµV/m in the range from 30-88 MHz, 43.5 dBµV/m from 88-216 MHz, 46.0 dBµV/m from 216-960 MHz, and 54.0 dBµV/m above 960 MHz.

Emissions within 250 kHz of the MICS band must be attenuated by at least 20 dB below the maximum permitted output power, using an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth.

Emissions within the MICS band more than 150 kHz away from the center frequency of the spectrum the transmission is intended to occupy, will be attenuated below the transmitter output power by at least 20 dB, using an instrument resolution bandwidth approximately equal to 1.0 percent of the emission bandwidth.

Test Environment:

Environmental Conditions During Testing:	Humidity (%):	See Tables	Pressure (hPa):	See Tables	Ambient (°C):	See Tables
Pretest Verification Performed	Yes		Equipment under Test:		2207DR	

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	Digital 4 Line Barometer	Mannix	0ABA116	BAR2	08/02/2007
2	EMI Receiver Set W/RF Filter	Hewlett Packard	8542E	3520A00125	02/28/2007
3	RF FILTER	Hewlett Packard	85420E	3427A00126	02/28/2007
4	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	10/23/2007
5	1GHz High Pass Filter	Reactel, Inc	7HS-1G/10G-S11	06-1	09/06/2007
6	ANTENNA	EMCO	3142	9711-1223	02/06/2008
7	3 Meter In floor cable for site 2	ITS	RG214B/U	S2 3M FLR	09/26/2007
8	HORN ANTENNA	EMCO	3115	9610-4980	06/12/2007
9	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL029	12/04/2007
10	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 80	CBL030	12/04/2007
11	Spectrum Analyzer	Agilent	E7405A	US40240205	08/16/2007
12	PREAMPLIFIER 1-40 GHz	MITEQ	NSP4000-NF	507145	11/14/2007

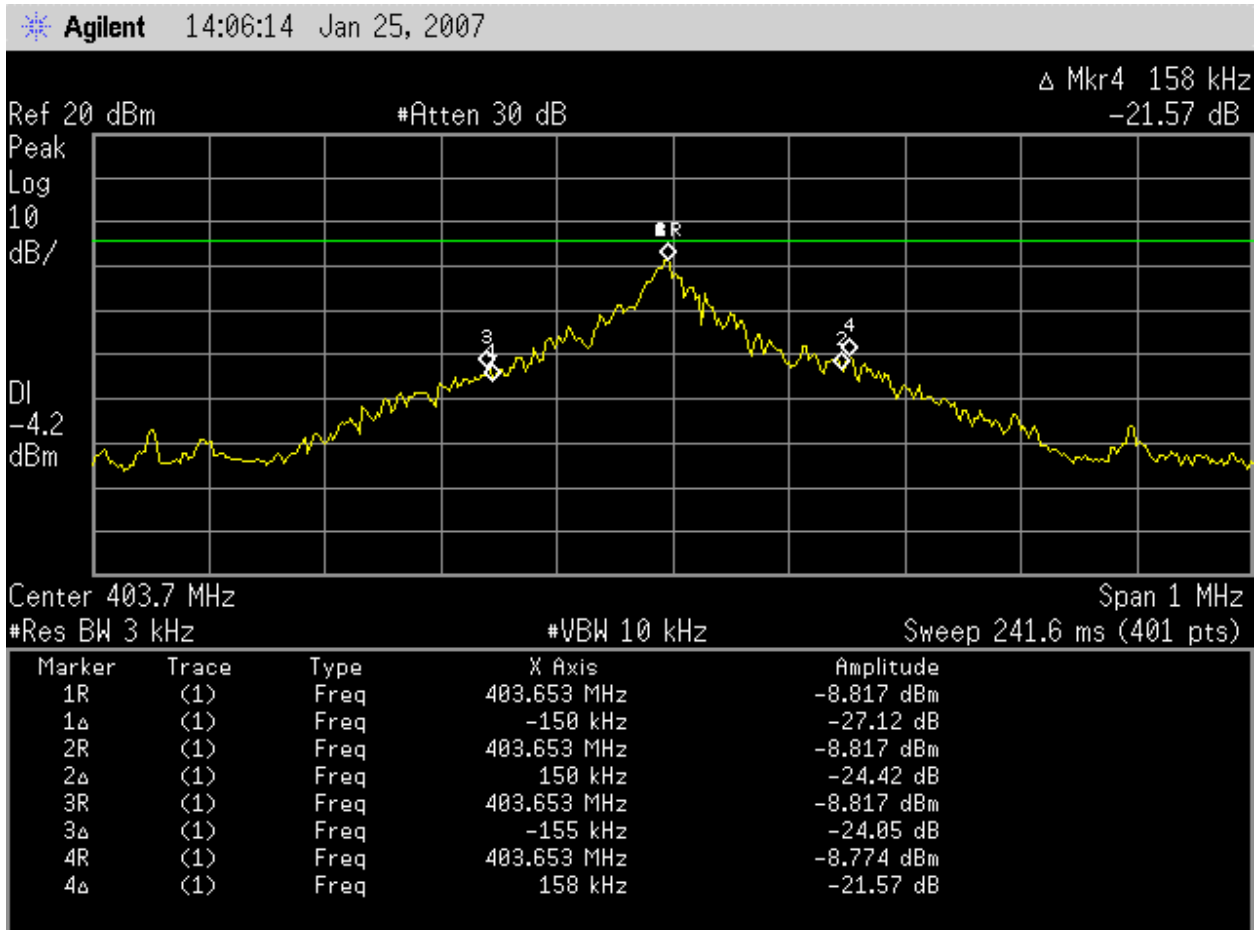
Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	9/20/06 Revision

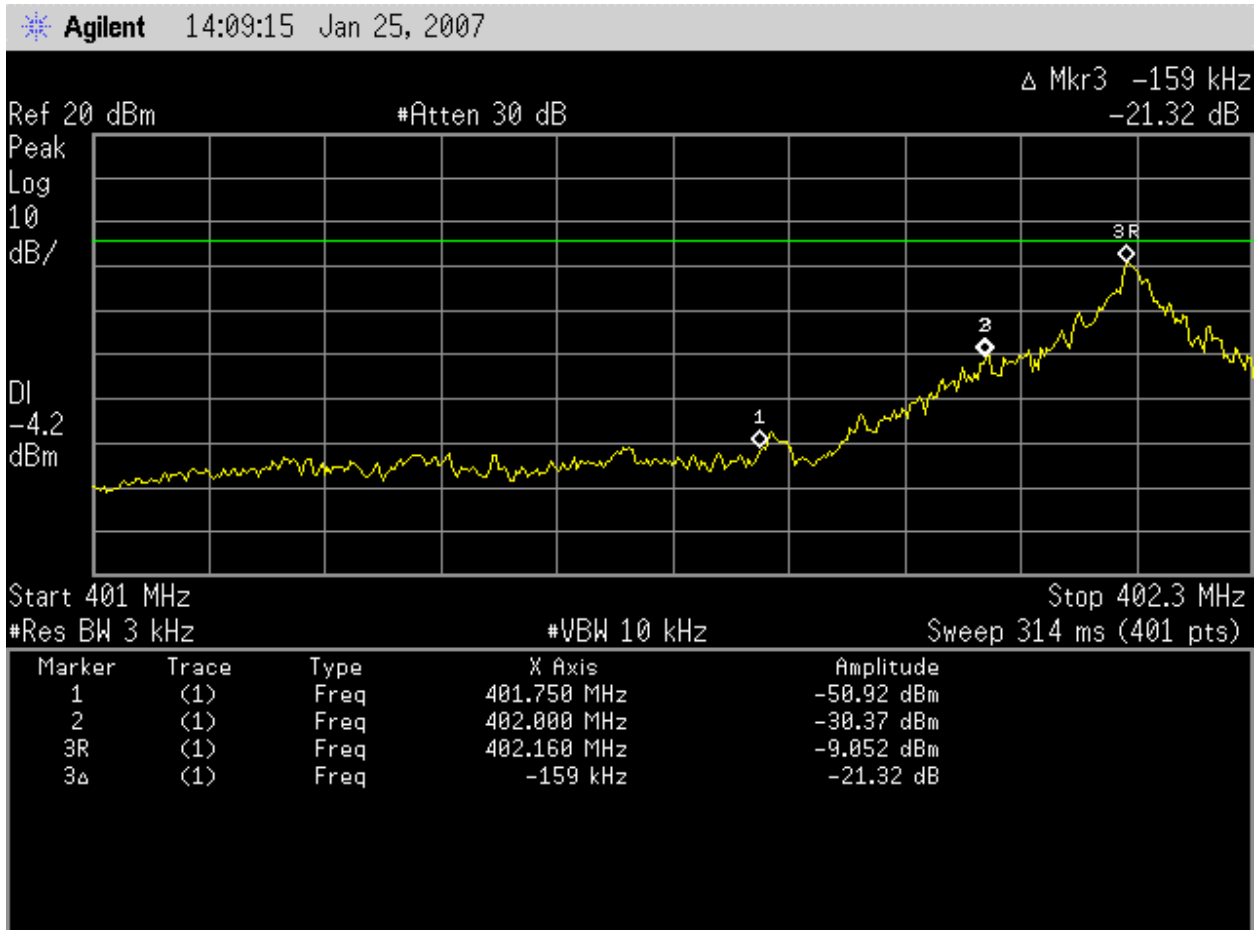
Test Details:

Special Radiated Emissions													
Company: St. Jude Medical				Antenna & Cables: N				Bands: N, LF, HF, SHF					
Model #: 2207DR				LF Antenna: HORN3 V3m 6-12-07.txt				HORN3 H3m 6-12-07.txt					
Serial #: 201275				N Antenna: LOG2 2-06-08 V3.txt				LOG2 2-06-08 H3.txt					
Engineers: Nicholas Abbondante			Location: Site 2			HF Antenna: HORN3 V3m 6-12-07.txt			HORN3 H3m 6-12-07.txt				
Project #: 3114493		Date(s): 01/24/07		SHF Antenna: EMC04 V 1m 12-13-2007.txt			EMC04 H 1m 12-13-2007.txt						
Standard: FCC Part 95/IC RSS-243				LF Cable(s): CBL029 12-04-2007.txt				CBL030 12-04-2007.txt					
Receiver: HP 8542E (REC2/RECFL2)			Limit Distance (m): 3			N Cable(s): S2 3M FLR 9-26-07.txt			NONE.				
PreAmp: PRE8 11-14-07.txt			Test Distance (m): 3			HF Cable(s): CBL030 12-04-2007.txt			NONE.				
Barometer: BAR2		Temp/Humidity/Pressure: 22c 25%		1001mB		SHF Cable(s): CBL029 12-04-2007.txt		CBL030 12-04-2007.txt					
PreAmp Used? (Y or N): N				Voltage/Frequency: Fresh Battery				Frequency Range: 30-1000 MHz					
Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW													
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC	IC
Note: Implant MICS testing measured with fundamental at channel 5 (403.65 MHz)													
QP	V	37.890	10.5	12.4	0.9	0.0	0.0	23.8	40.0	-16.2	120/300 kHz	RB	RB
QP	V	63.450	11.1	8.3	1.1	0.0	0.0	20.5	40.0	-19.5	120/300 kHz		
QP	V	150.600	7.8	8.2	1.6	0.0	0.0	17.6	43.5	-25.9	120/300 kHz		
QP	V	208.400	5.6	11.0	2.1	0.0	0.0	18.7	43.5	-24.8	120/300 kHz		
QP	V	232.600	1.4	12.2	2.1	0.0	0.0	15.7	46.0	-30.3	120/300 kHz		
QP	V	250.000	3.9	12.6	2.2	0.0	0.0	18.7	46.0	-27.3	120/300 kHz	RB	RB
QP	V	292.100	3.6	14.0	2.4	0.0	0.0	20.0	46.0	-26.0	120/300 kHz		
QP	V	327.600	4.6	14.5	2.4	0.0	0.0	21.5	46.0	-24.5	120/300 kHz	RB	RB
QP	V	360.000	3.9	15.2	2.7	0.0	0.0	21.8	46.0	-24.2	120/300 kHz		
QP	V	367.000	1.5	15.2	2.9	0.0	0.0	19.6	46.0	-26.4	120/300 kHz		
QP	V	372.000	3.1	15.2	3.1	0.0	0.0	21.4	46.0	-24.6	120/300 kHz		
QP	V	384.000	5.4	15.4	2.8	0.0	0.0	23.6	46.0	-22.4	120/300 kHz		
QP	V	396.000	7.3	15.6	2.7	0.0	0.0	25.6	46.0	-20.4	120/300 kHz		
QP	V	432.000	10.8	16.5	3.0	0.0	0.0	30.2	46.0	-15.8	120/300 kHz		
QP	V	807.300	2.8	21.4	4.2	0.0	0.0	28.4	46.0	-17.6	120/300 kHz		

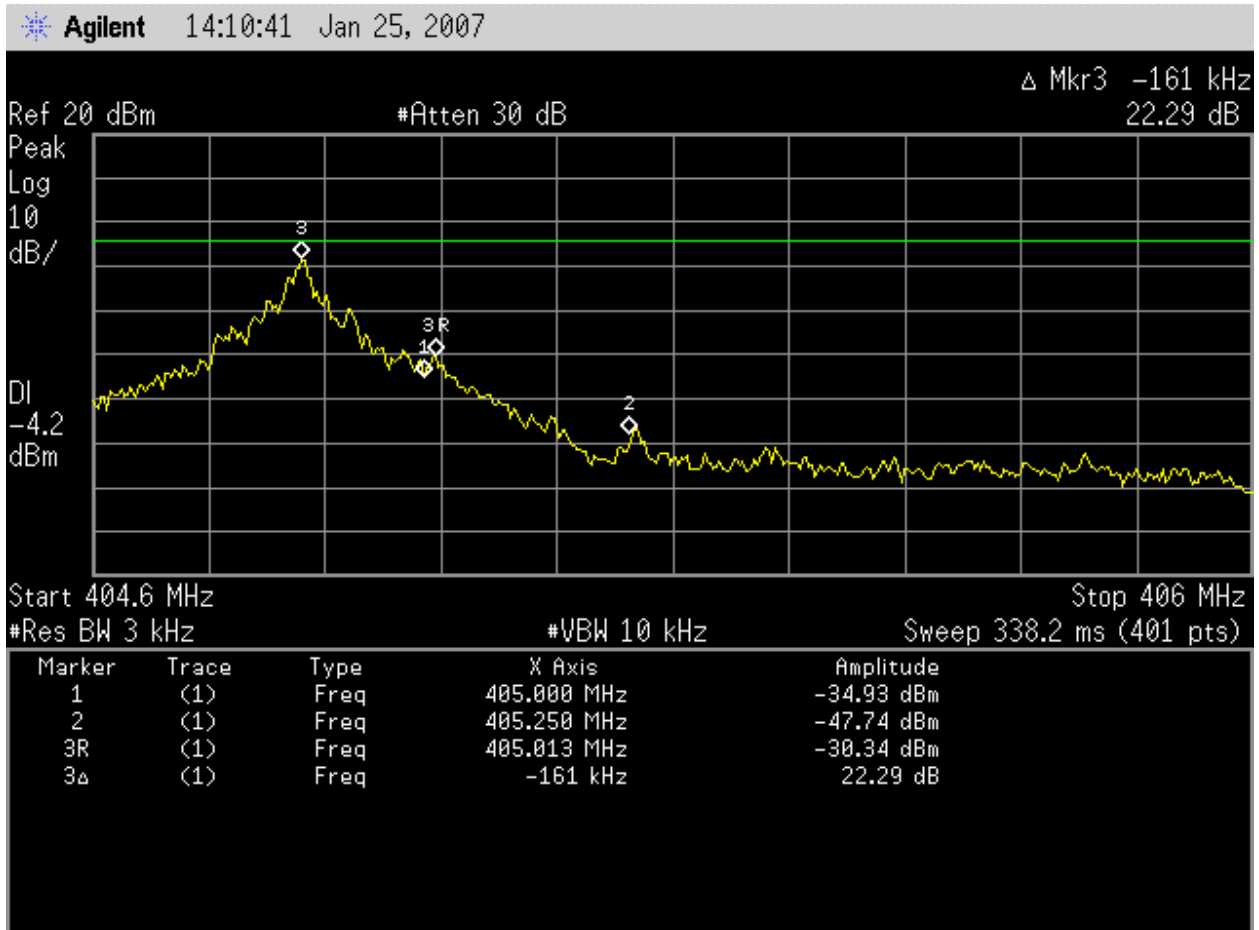
Special Radiated Emissions													
Company: St. Jude Medical				Antenna & Cables: LF				Bands: N, LF, HF, SHF					
Model #: 2207DR				LF Antenna: HORN3 V3m 6-12-07.txt				HORN3 H3m 6-12-07.txt					
Serial #: 201275				N Antenna: LOG2 2-06-08 V3.txt				LOG2 2-06-08 H3.txt					
Engineers: Nicholas Abbondante			Location: Site 2			HF Antenna: HORN3 V3m 6-12-07.txt			HORN3 H3m 6-12-07.txt				
Project #: 3114493		Date(s): 01/24/07		SHF Antenna: EMC04 V 1m 12-13-2007.txt			EMC04 H 1m 12-13-2007.txt						
Standard: FCC Part 95/IC RSS-243				LF Cable(s): CBL029 12-04-2007.txt				CBL030 12-04-2007.txt					
Receiver: R&S FSEK-30 (ROS001)			Limit Distance (m): 3			N Cable(s): S2 3M FLR 9-26-07.txt			NONE.				
PreAmp: PRE8 11-14-07.txt			Test Distance (m): 3			HF Cable(s): CBL030 12-04-2007.txt			NONE.				
Barometer: BAR2		Temp/Humidity/Pressure: 22c 25%		1001mB		SHF Cable(s): CBL029 12-04-2007.txt		CBL030 12-04-2007.txt					
PreAmp Used? (Y or N): Y				Voltage/Frequency: Fresh Battery				Frequency Range: 1-4.1 GHz					
Peak: PK Quasi-Peak: QP Average: AVG RMS: RMS; NF = Noise Floor, RB = Restricted Band; Bandwidth denoted as RBW/VBW													
Detector Type	Ant. Pol. (V/H)	Frequency MHz	Reading dB(uV)	Antenna Factor dB(1/m)	Cable Loss dB	Pre-amp Factor dB	Distance Factor dB	Net dB(uV/m)	Limit dB(uV/m)	Margin dB	Bandwidth	FCC	IC
Note: Implant MICS testing measured with fundamental at channel 5 (403.65 MHz) and high-pass filter REA003 passband 1-10 GHz													
PK	V	1210.950	32.8	25.1	1.7	19.9	0.0	39.7	74.0	-34.3	1/3 MHz	RB	RB
AVG	V	1210.950	22.3	25.1	1.7	19.9	0.0	29.2	54.0	-24.8	1/3 MHz	RB	RB
PK	V	1614.600	30.8	26.7	2.0	20.0	0.0	39.5	74.0	-34.5	1/3 MHz	RB	RB
AVG	V	1614.600	22.4	26.7	2.0	20.0	0.0	31.1	54.0	-22.9	1/3 MHz	RB	RB
PK	V	2018.250	31.2	28.7	2.3	20.1	0.0	42.1	74.0	-31.9	1/3 MHz		
AVG	V	2018.250	21.7	28.7	2.3	20.1	0.0	32.6	54.0	-21.4	1/3 MHz		
PK	V	2421.900	32.3	29.9	2.8	20.2	0.0	44.7	74.0	-29.3	1/3 MHz		
AVG	V	2421.900	24.9	29.9	2.8	20.2	0.0	37.3	54.0	-16.7	1/3 MHz		
PK	V	2825.550	31.9	31.0	2.9	20.4	0.0	45.3	74.0	-28.7	1/3 MHz	RB	RB
AVG	V	2825.550	23.2	31.0	2.9	20.4	0.0	36.7	54.0	-17.3	1/3 MHz	RB	RB



Emissions outside 150 kHz offset from the intended frequency



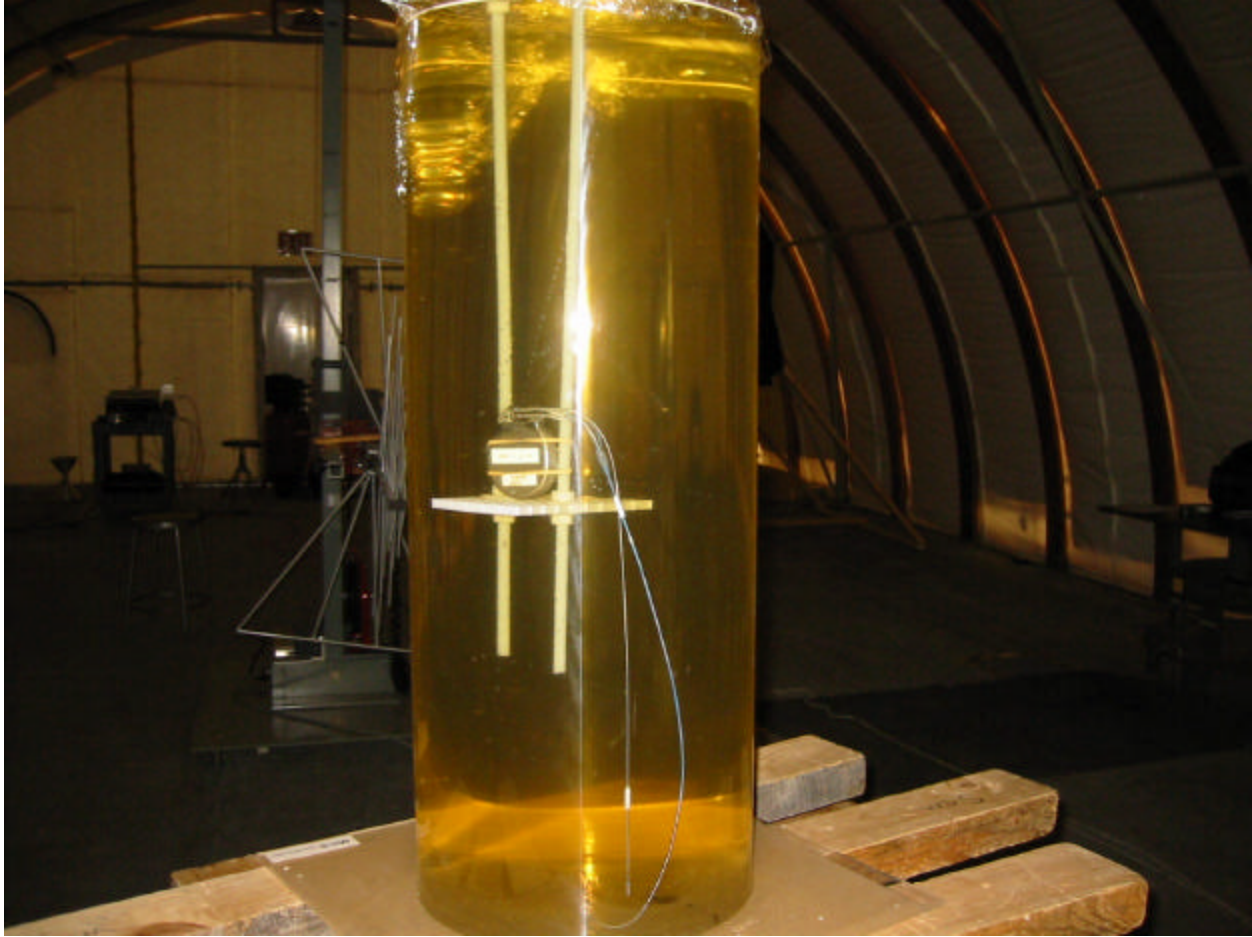
Lower 250 kHz band edge

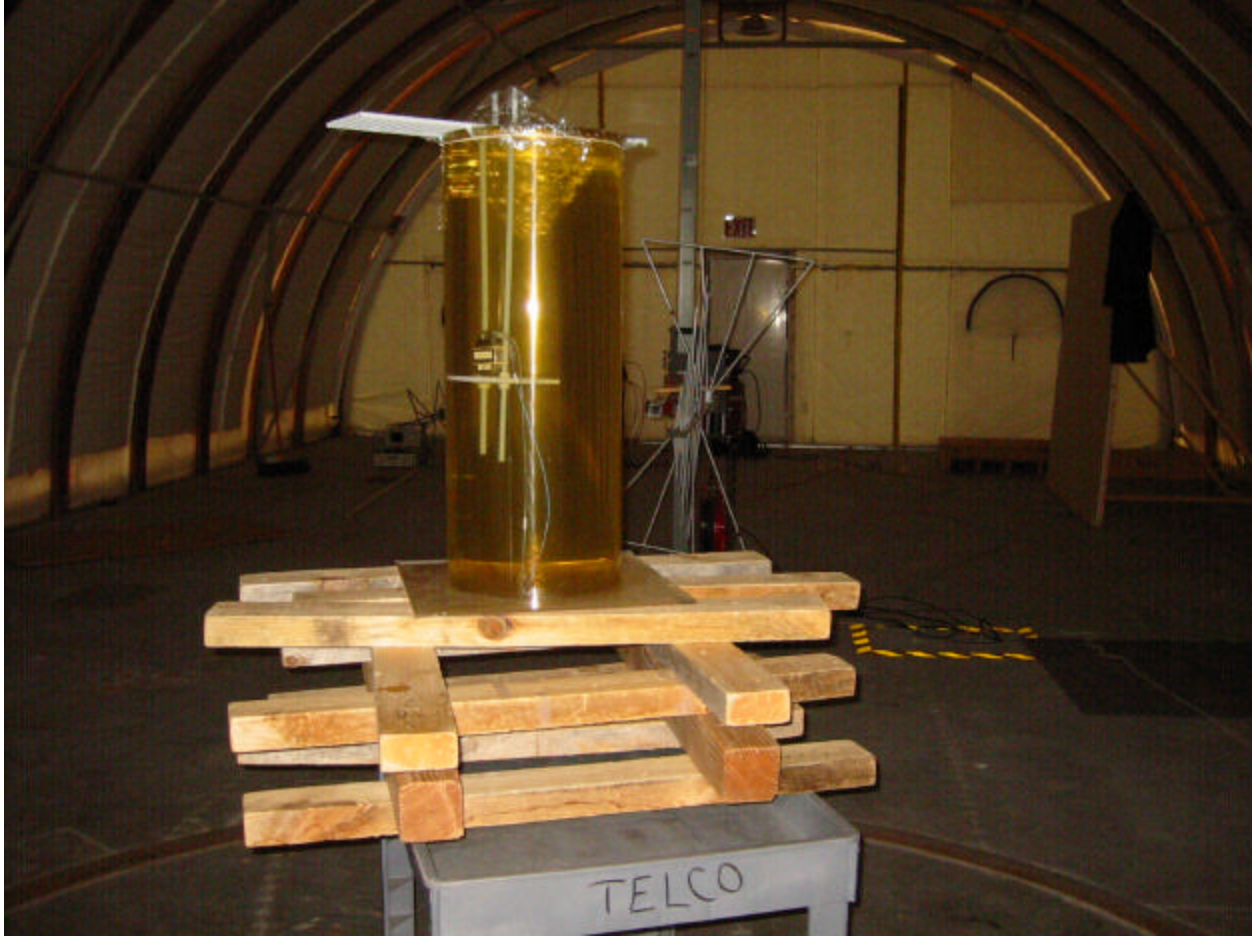


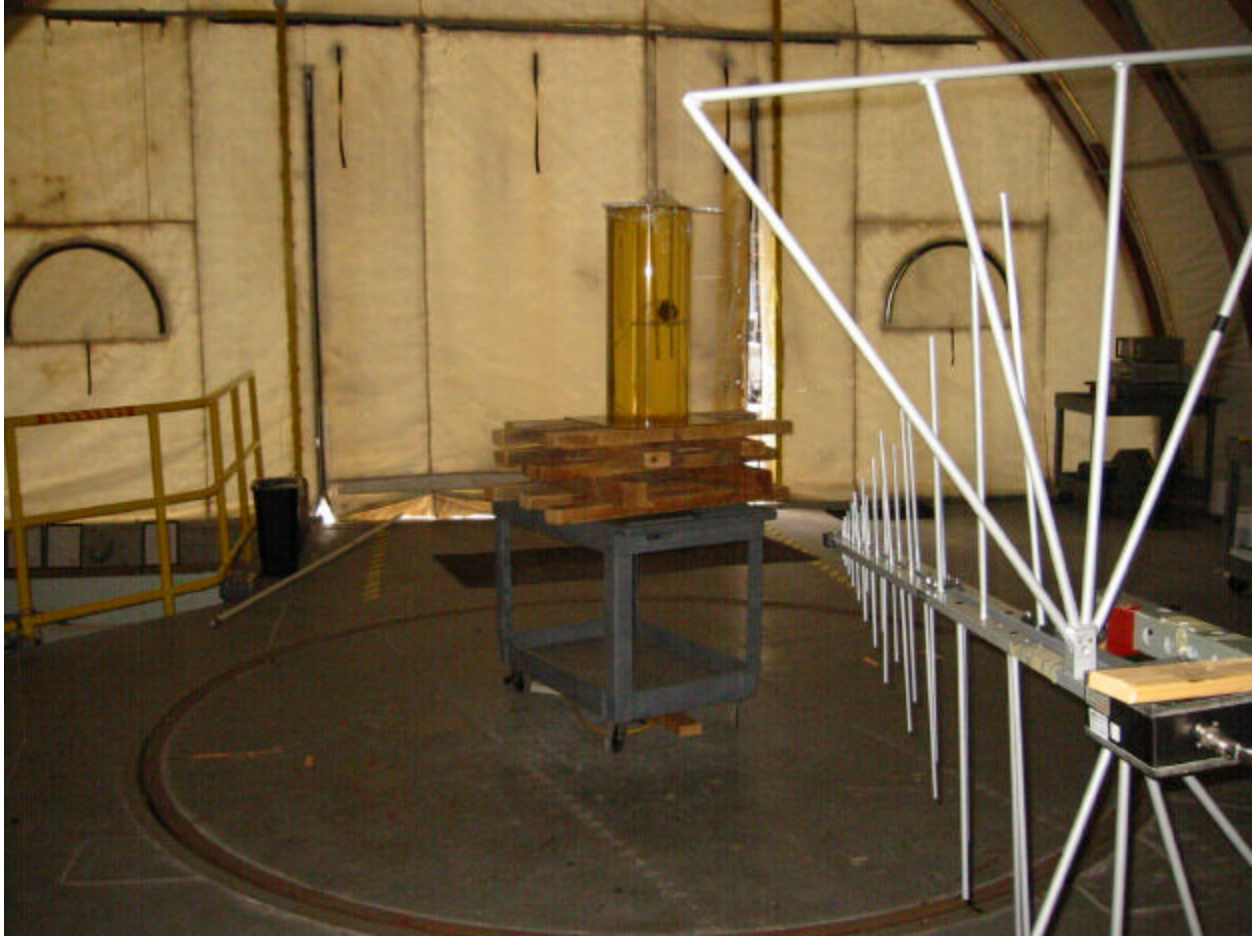
Upper 250 kHz band edge

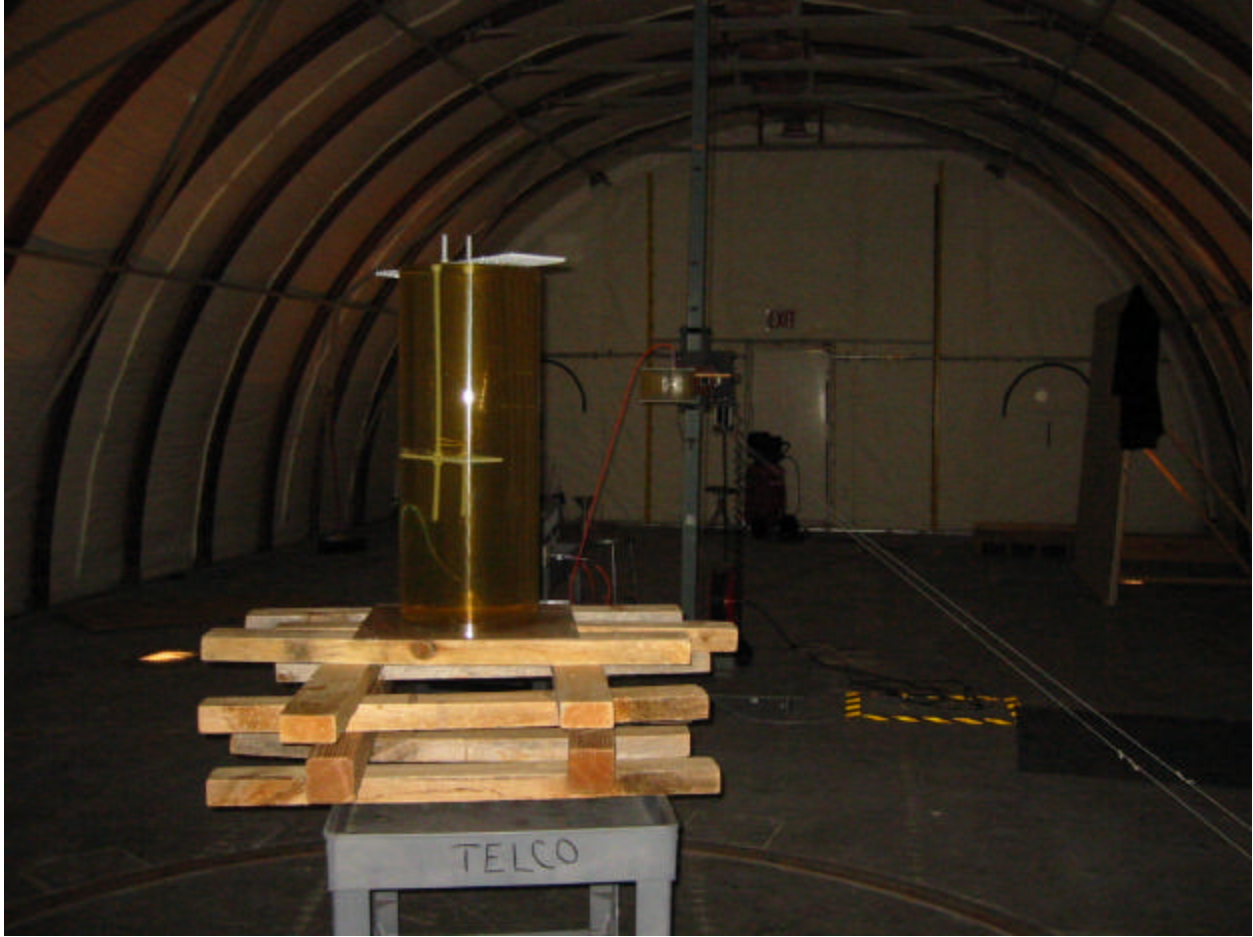
Setup Photos













Test Results: Pass

Test Standard: FCC Part 95 Subpart I, IC RSS-243 Issue 2 September 2005

Test: Frequency Error, FCC §95.628(e), RSS-243 Section 5.3

Performance Criterion: The carrier frequency must not deviate from the reference frequency by more than ± 100 PPM.

Test Environment:

Environmental Conditions During Testing:	Humidity (%):	N/A	Pressure (hPa):	N/A	Ambient (°C):	See Table
Pretest Verification Performed	Yes		Equipment under Test:		2207DR	

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	Small Temperature/Humidity Chamber	Bryant Manufacturing	TH-5S	1207	04/06/2007
2	Spectrum Analyzer	Agilent	E7405A	US40240205	08/16/2007
3	High Frequency Cable 40GHz	Megaphase	TM40 K1K1 197	CBL027	12/04/2007
4	Digital Multimeter	Meterman	15XP	050407779	08/03/2007
5	DC Power Supply	Lambda	LQD-423	N/L	Verified

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	9/20/06 Revision

Test Results: N/A, Applies to MICS Programmers/Controllers only

Test Standard: FCC Part 95 Subpart I, IC RSS-243 Issue 2 September 2005

Test: MICS Operation, FCC §95.628(a)(1-4), RSS-243 Section 5.7

Performance Criterion: The MICS communication sessions must meet operating requirements for System Threshold Power Levels, Monitoring System Bandwidth, Scan Cycle Time, Minimum Channel Monitoring Period, Channel Access, Discontinuation of a MICS Session, and Use of a Pre-Scanned Alternate Channel.

Test Environment:

Environmental Conditions During Testing:	Humidity (%):	N/A	Pressure (hPa):	N/A	Ambient (°C):	N/A
Pretest Verification Performed	N/A		Equipment under Test:	2207DR		

Test Equipment Used:

TEST EQUIPMENT LIST					
Item	Equipment Type	Make	Model No.	Serial No.	Next Cal. Due
1	None				

Software Utilized:

Name	Manufacturer	Version
EXCEL 2000	Microsoft Corporation	9.0.6926 SP-3
EMI BOXBOROUGH	Intertek	9/20/06 Revision

Test Details:

Notes: Not applicable, required for MICS programmers/controllers only.