EMISSIONS TEST REPORT

Report Number: 101218326BOX-002
Project Number: G101218326

Report Issue Date: 06/28/2013

Product Designation: Cot Transmitter and Receiver in POWER-LOAD System

Standards: CFR47 FCC Part 15 Subpart C:2013 Section 15.225,
Industry Canada RSS-210 Issue 8 December 2010, Annex 2 (A2.6)
Industry Canada RSS-Gen Issue 3 December 2010

Tested by:
Intertek Testing Services NA, Inc.
70 Codman Hill Road
Boxborough, MA 01719
USA

Client:
Stryker Medical
3800 E. Centre Avenue
Portage, MI 49002
USA

Report prepared by

Keith Henderson/Senior Project Engineer

Report reviewed by

Nicholas Abbondante/Transmitter Staff Engineer

1 Introduction and Conclusion

The tests indicated in section 2.0 were performed on the product constructed as described in section 4.0. The remaining test sections are the verbatim text from the actual data sheets used during the investigation. These test sections include the test name, the specified test Method, a list of the actual Test Equipment Used, documentation Photos, Results and raw Data. No additions, deviations, or exclusions have been made from the standard(s) unless specifically noted.

Based on the results of our investigation, we have concluded the product tested **complies** with the requirements of the standard(s) indicated. The results obtained in this test report pertain only to the item(s) tested.

2 Test Summary

Section	Test full name	Result
3	Client Information	
4	Description of Equipment Under Test	
5	System Setup and Method	
6	Fundamental Radiated Emissions FCC Part 15 Subpart C:2013 15.225(a), (b), (c), (d) IC RSS-210 Issue 8 December 2010 A2.6 (a), (b), (c), (d)	Pass
7	Transmitter Spurious Emissions Below 30MHz FCC Part 15 Subpart C:2013 15.209, 15.225(d), IC RSS-210 Issue 8 December 2010 A2.6(d)	Pass
8	Transmitter Spurious Emissions Above 30MHz FCC Part 15 Subpart C:2013 15.209, 15.225(d), IC RSS-210 Issue 8 December 2010 A2.6(d)	Pass
--	Receiver Spurious Emissions Below 30MHz FCC Part 15 Subpart B:2013 15.109, IC RSS-Gen Issue 3 December 2010: Section 6.0	N/A*
9	Receiver Spurious Emissions Above 30MHz FCC Part 15 Subpart B:2013 15.109, IC RSS-Gen Issue 3 December 2010: Section 6.0	Pass
10	20dB Bandwidth FCC Part 15 Subpart C:2013 15.215 IC RSS-Gen Issue 3 December 2010 Section 4.6	Pass
11	Frequency Stability FCC Part 15 Subpart C:2013 15.225(e), IC RSS-Gen Issue 3 December 2010 Section 4.7 IC RSS-210 December 2010 A2.6	Pass
12	Revision History	

*- no limits below 30MHz

3 Client Information

This EUT was tested at the request of:

Company: Stryker Medical
3800 E. Centre Avenue
Portage, MI 49002
Contact: Mr. Peter Schultz
Telephone: (269)-389-6415
Fax: (269)-329-2260
Email: peter.schultz@stryker.com

4 Description of Equipment Under Test

Equipment Under Test			
Description	Manufacturer	Model Number	Serial Number
Power-PRO XT	Stryker Medical	Model 6506	130340268

Receive Date:	06/17/2013
Received Condition:	Good
Type:	Production

Description of Equipment Under Test (provided by client)

The Power-PRO XT is a battery-powered hydraulic ambulance cot that raises and lowers a patient with the touch of a button. The Power-LOAD cot fastener system lifts and lowers a compatible cot into and out of the ambulance, providing support throughout the loading and unloading process. The Power-LOAD system wirelessly communicates with, and inductively charges a compatible Power-PRO cot for ease of operation and operator convenience.

Equipment Under Test Power Configuration			
Rated Voltage	Rated Current	Rated Frequency	Number of Phases
12-16	10A	DC	DC

Operating modes of the EUT:

No.	Descriptions of EUT Exercising
1	During testing, the 13.56MHz transmitter was operating as near to continuously as possible, except in receive mode where the transmitter was idle and waiting for messages. A modulated carrier was used, except for frequency stability testing where a standalone comm. board was used.
2	

Software used by the EUT:

No.	Descriptions of EUT Exercising
1	6500-002-100 *Comm. Board, Cot* and 6390-001-*378 Comm. Board, Trolley* Software: 6390-001-464_1.1.002
2	6500-002-014 *Control Board Assembly* (Power-PRO) Software: CSI121_MAIN_0000EE and CSI121_SAFETY_000112

5 System Setup and Method

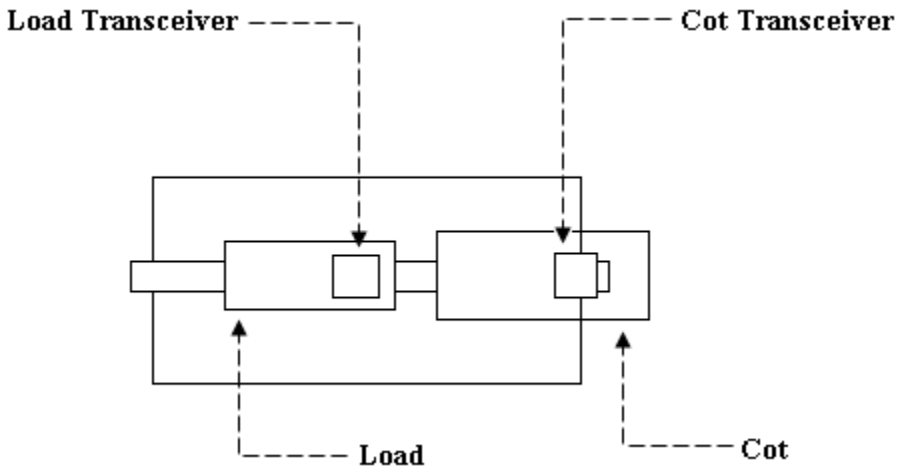
Cables					
ID	Description	Length (m)	Shielding	Ferrites	Termination
None					

Support Equipment			
Description	Manufacturer	Model Number	Serial Number
None			

5.1 Method:

Configuration as required by ANSI C63.4-2003.

5.2 EUT Block Diagram:



For this testing, the Cot portion of the Power-LOAD system was tested in a standalone configuration

6 Fundamental Frequency Radiated Emissions

6.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C:2013 15.225(a), (b), (c), (d), IC RSS-210 Issue 8 December 2010 A2.6 (a), (b), (c), (d), ANSI C63.4-2003..

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A Styrofoam table 80 cm high is used for table-top equipment.

Measurement Uncertainty

For radiated emissions, U_{lab} (3.5 dB at 3m and 3.5 dB at 10m below 1 GHz, and 4.2 dB at 3m above 1 GHz) < U_{CISPR} (5.2 dB), which is the reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

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

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0
$UF = 10^{(32\ dB\mu V / 20)}$ = 39.8 μV/m

6.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
145128	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	09/28/2012	09/28/2013
Ets003	9kHz-30MHz Active Loop Antenna	ETS Lindgren	6502	00143396	02/26/2013	02/26/2014
145-416	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/04/2012	10/04/2013
Cblbnc2012-3	50 Ohm Coaxial Cable	Pomona	RG58C/U	CBLBNC2012-3	11/13/2012	11/13/2013
Dav004	Weather Station	Davis Instruments	7400	PE80529A61A	09/25/2012	09/25/2014

Software Utilized:

Name	Manufacturer	Version
EMI Boxborough.xls	Intertek	8/27/2010

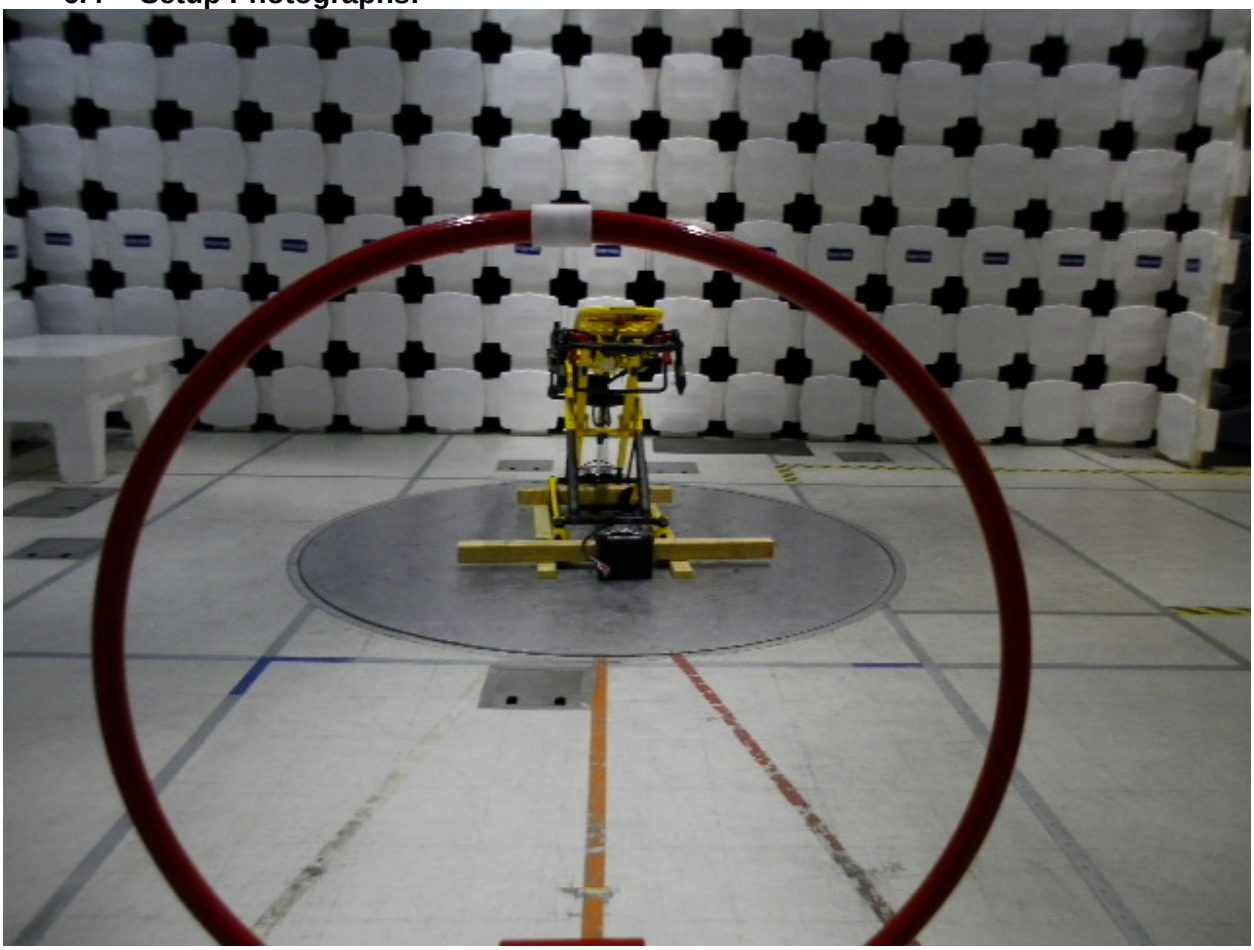
6.3 Results:

The sample tested was found to Comply.

The Field Strength of any emissions shall not exceed the limits as follows:

Frequency Bands	Field Strength Limits		Test Distance
(MHz)	µV/m	dBµV/m	(meters)
13.553-13.567	15,848	84.0	30
13.410-13.553	334	50.5	30
13.567-13.710	334	50.5	30
13.110-13.410	106	40.51	30
13.710-14.010	106	40.51	30
Outside of 13.110-14.010	§15.209		

6.4 Setup Photographs:



6.5 Plots/Data:

Intertek

Radiated Emissions

Company: Stryker
Model #: 6506 (cot)
Serial #: 130340268 (cot)
Engineers: Keith Henderson
Project #: 101218326
Standard: FCC Part 15 Subpart C 15.225
Receiver: ESI40_09-13-2013
PreAmp: NONE.
PreAmp Used? (Y or N): N
Antenna & Cables: LF Bands: N, LF, HF, SHF
Antenna: ETS003 E-Field 02-26-2014.txt ETS003 H-Field 02-26-2014.txt
Cable(s): 145-416 3mTrkB 10-04-2013.txt CBLBNC2012-3 11-13-2013.txt
Location: 10M chamber Barometer: Dav004 Filter: NONE
Date(s): 06/18/13
Temp/Humidity/Pressure: 22 52% 1003
Limit Distance (m): 3
Test Distance (m): 3
Voltage/Frequency: Battery
Frequency Range: Fundamental

Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)

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
Fundamental frequency -Cot- transmit mode											
QP	V	13.559	47.79	9.64	1.06	0.00	0.00	58.50	124.00	-65.50	9/30 kHz
QP	V	13.553	40.83	9.64	1.06	0.00	0.00	51.54	90.50	-38.96	9/30 kHz
QP	V	13.567	39.37	9.64	1.06	0.00	0.00	50.08	90.50	-40.42	9/30 kHz
QP	V	13.410	10.56	9.66	1.06	0.00	0.00	21.28	80.50	-59.22	9/30 kHz
QP	V	13.710	10.69	9.63	1.07	0.00	0.00	21.39	80.50	-59.11	9/30 kHz
QP	V	13.110	6.90	9.69	1.04	0.00	0.00	17.63	69.50	-51.87	9/30 kHz
QP	V	14.010	6.90	9.60	1.09	0.00	0.00	17.59	69.50	-51.91	9/30 kHz

Test Personnel: Keith Henderson
Supervising/Reviewing Engineer: (Where Applicable)
Product Standard: FCC15.225,IC RSS-210
Input Voltage: Battery
Pretest Verification w/ Ambient Signals or BB Source: **Ambient**

Test Date: 6/18/2013
Limit Applied: Per section 6.3
Ambient Temperature: 23 ºC
Relative Humidity: 17 %
Atmospheric Pressure: 1000 mbars

Deviations, Additions, or Exclusions: None

7 Transmitter Spurious Emissions Below 30MHz

7.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C:2013 15.209, 15.225(d), IC RSS-210 Issue 8 December 2010 A2.6(d), ANSI C63.4-2003.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

Measurement Uncertainty

For radiated emissions, U_{lab} (3.5 dB at 3m and 3.5 dB at 10m below 1 GHz, and 4.2 dB at 3m above 1 GHz) < U_{CISPR} (5.2 dB), which is the reference value in CISPR 16-4-2 Table 1, hence the compliance of the product is only based on the measured value, and no measurement uncertainty correction is required, based on CISPR 22 and CISPR 11 (for 2006 and later revisions) Clause 11.

Sample Calculation

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

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

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0
$UF = 10^{(32\ dB\mu V / 20)}$ = 39.8 μV/m

7.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
145128	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	09/28/2012	09/28/2013
Ets003	9kHz-30MHz Active Loop Antenna	ETS Lindgren	6502	00143396	02/26/2013	02/26/2014
145-416	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/04/2012	10/04/2013
Cblbnc2012-3	50 Ohm Coaxial Cable	Pomona	RG58C/U	CBLBNC2012-3	11/13/2012	11/13/2013
Dav004	Weather Station	Davis Instruments	7400	PE80529A61A	09/25/2012	09/25/2014

Software Utilized:

Name	Manufacturer	Version
Excel 2010	Microsoft	14.0.6129.5000 (32bit)
EMI Boxborough.xls	Intertek	08/27/2010

7.3 Results:

The sample tested was found to Comply.

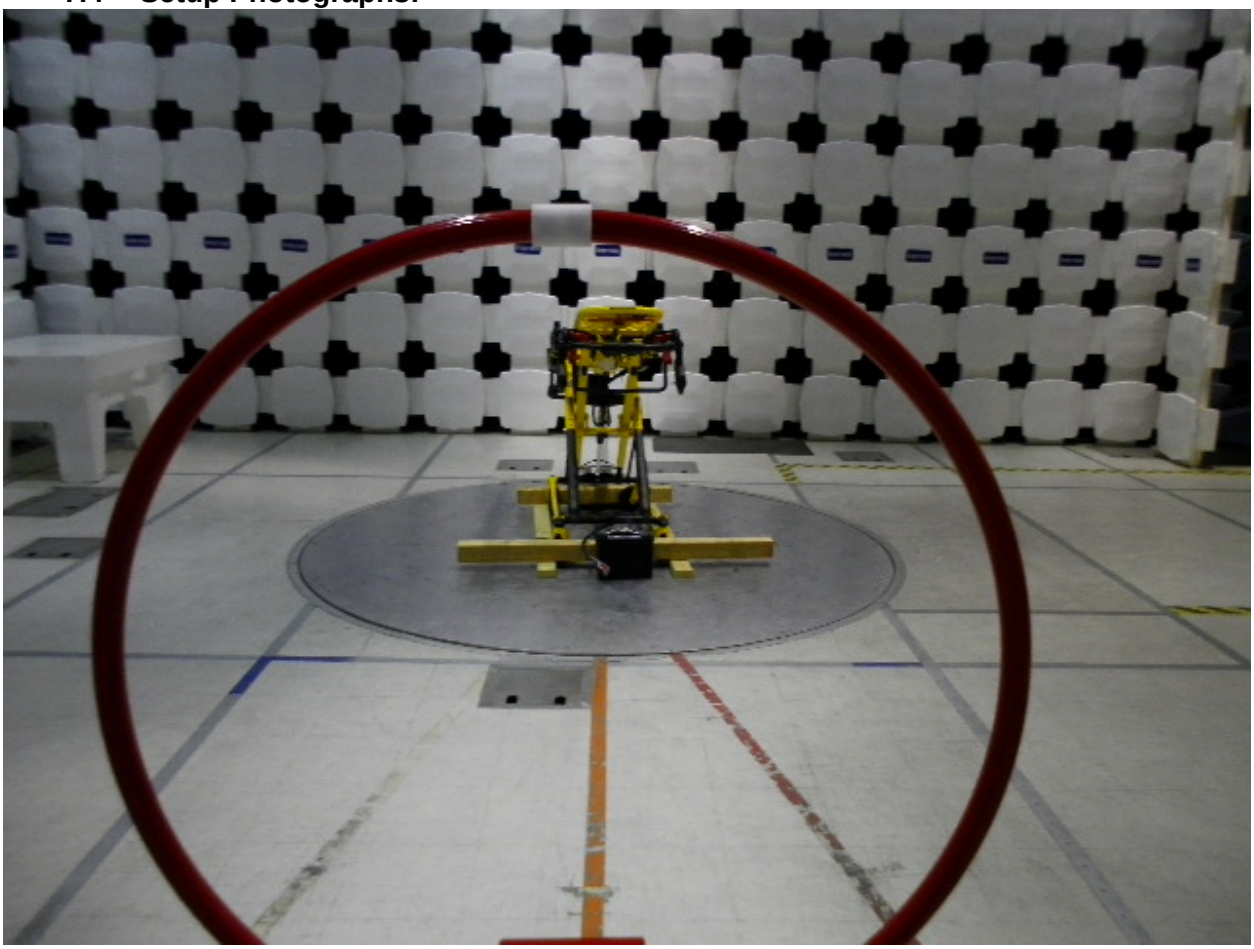
The Field Strength of any emissions shall not exceed the limits as follows:

FCC Part 15.209

Frequency	Field Strength		Test Distance
(MHz)	µV/m	dBµV/m	(meters)
0.009–0.490	2400/F(kHz)	20*Log(2400/F(kHz))	300
0.490–1.705	24000/F(kHz)	20*Log(24000/F(kHz))	30
1.705–30.0	30.00	29.54	30

IC RSS-210 A2.6(d): Emissions outside the band 13.110-14.010 must not exceed 30 microvolts/m (29.5 dBµV/m) at 30 m (69.5 dBµV/m at 3 m).

7.4 Setup Photographs:



7.5 Plots/Data:

Intertek

Radiated Emissions

Company: Stryker
Model #: 6506 (cot)
Serial #: 130340268 (cot)
Engineers: Keith Henderson
Project #: 101218326
Standard: FCC Part 15 Subpart C 15.225
Receiver: ESI40_09-13-2013
PreAmp: NONE.
PreAmp Used? (Y or N): N
Antenna & Cables: LF
Antenna: ETS003 E-Field 02-26-2014.txt
Cable(s): 145-416 3mTrkB 10-04-2013.txt
Location: 10M chamber
Date(s): 06/18/13
Limit Distance (m): 3
Test Distance (m): 3
Voltage/Frequency: internal battery
Barometer: DAV004
Temp/Humidity/Pressure: 22
Bands: N, LF, HF, SHF
ETS003 H-Field 02-26-2014.txt
CBLBNC2012-3 11-13-2013.txt
Filter: NONE
55%
1003
Frequency Range: 0.009-30MHz

Net = Reading (dBuV/m) + Antenna Factor (dB1/m) + Cable Loss (dB) - Preamp Factor (dB) - Distance Factor (dB)

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
Spurious emissions_ cot transmit mode											
QP	V	0.383	50.70	10.50	0.05	0.00	0.00	61.25	95.94	-34.69	9/30 kHz
QP	V	0.757	34.70	10.50	0.04	0.00	0.00	45.24	70.02	-24.78	9/30 kHz
QP	V	1.151	32.60	10.43	0.10	0.00	0.00	43.13	66.38	-23.25	9/30 kHz
QP	V	1.918	26.20	10.58	0.36	0.00	0.00	37.14	69.50	-32.36	9/30 kHz
QP	V	2.303	25.90	10.60	0.41	0.00	0.00	36.91	69.50	-32.59	9/30 kHz
QP	V	27.120	30.00	7.79	1.59	0.00	0.00	39.38	69.50	-30.12	9/30 kHz

Test Personnel: Keith Henderson
Test Date: 06/17/2013
Supervising/Reviewing Engineer: (Where Applicable)
Product Standard: FCC 15.225, IC RSS-210
Limit Applied: Per Section 7.3
Input Voltage: Internal battery
Ambient Temperature: 23 ºC
Pretest Verification w/ Ambient Signals or BB Source: **Ambient signals**
Relative Humidity: 48 %
Atmospheric Pressure: 1000 mbars

Deviations, Additions, or Exclusions: None

8 Transmitter Spurious Above 30MHz

8.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C:2013 15.209, 15.225(d), IC RSS-210 Issue 8 December 2010 A2.6(d), ANSI C63.4:2003.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

Sample Calculation

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 dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
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 dBμV 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 dBμV/m. This value in dBμV/m was converted to its corresponding level in μV/m.

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

To convert from dBμV to μV or mV the following was used:

$UF = 10^{(NF / 20)}$ where UF = Net Reading in μV
NF = Net Reading in dBμV

Example:

FS = RA + AF + CF – AG = 52.0 + 7.4 + 1.6 – 29.0 = 32.0
$UF = 10^{(32\ dB\mu V / 20)}$ = 39.8 μV/m

8.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
145003	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2443A04077	10/04/2012	10/04/2013
145106	Bilog Antenna (30MHz - 5GHz)	Sunol Sciences	JB5	A111003	09/04/2012	09/04/2013
145128	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	09/28/2012	09/28/2013
145-410	Cables 145-400 145-403 145-405 145-406 145-407	Huber + Suhner	10m Track A Cables	multiple	10/04/2012	10/04/2013
Dav004	Weather Station	Davis Instruments	7400	PE80529A61A	09/25/2012	09/25/2014

Software Utilized:

Name	Manufacturer	Version
C5	Teseq	5.02.00 Build 5.26.46.46.

8.3 Results:

The sample tested was found to Comply.

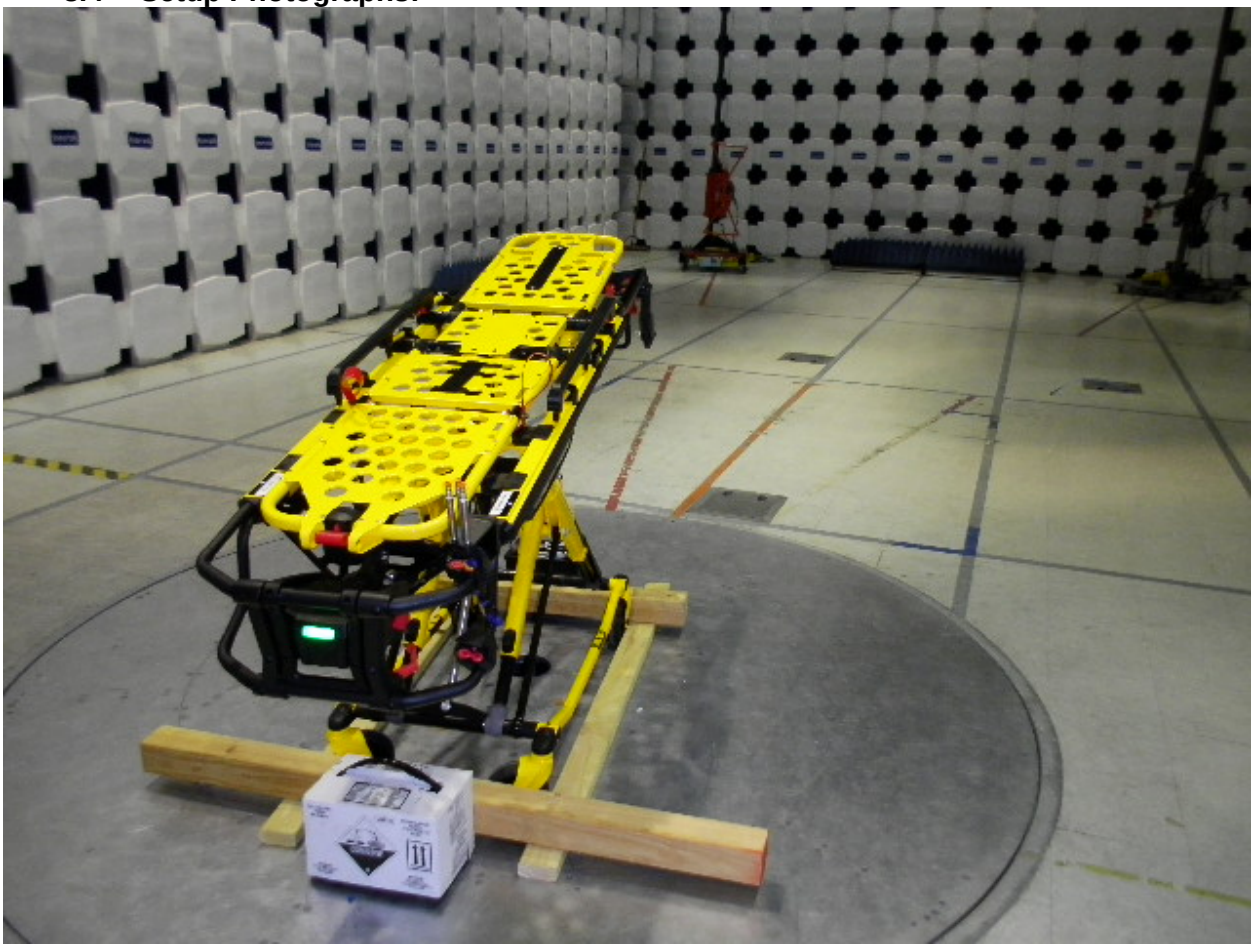
FCC Part 15.209

Frequency	Field Strength		Test Distance
(MHz)	µV/m	dBµV/m	(meters)
30-88	100	40.00	3
88-216	150	43.52	3
216-960	200	46.02	3
Above 960	500	53.98	3

IC RSS-210 A2.6(d): emissions outside the band 13.110-14.010 MHz must not exceed 30 microvolts/m (29.5 dBµV/m) at 30 m (49.5 dBµV/m at 3m)

Since the IC RSS-210 limits are less stringent than the FCC 15.209 limits under 960 MHz, the FCC limits were used.

8.4 Setup Photographs:

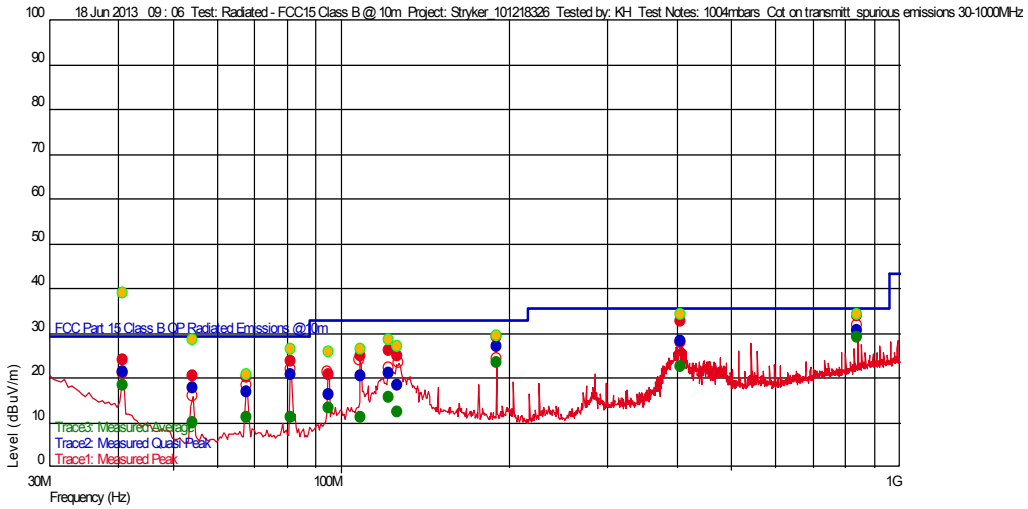


8.5 Plots/Data:

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC15 Class B @ 10m	
Project:	Stryker_101218326	
Test Notes:	1004mbars Cot on transmit, spurious emissions 30-1000MHz	
Temperature:	22	
Humidity:	58	
Tested by:	KH	
Test Started:	18 Jun 2013 09 : 06	

Prescan Emission Graph



- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

Trace2: Measured Quasi Peak

Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)
94.977355172 M	16.15	8.895	-24.924	33.040	-16.89	|	360	1.15	120 k
126.046292752 M	18.49	13.909	-24.663	33.040	-14.55	|	158	1.59	120 k
108.500400836 M	20.41	12.400	-24.695	33.040	-12.63	|	180	1.70	120 k
67.79839717 M	16.95	8.060	-26.021	29.540	-12.59	|	205	2.90	120 k
122.046692992 M	21.13	13.905	-24.670	33.040	-11.91	|	190	1.55	120 k
54.235270347 M	17.90	6.924	-26.211	29.540	-11.64	|	0	3.56	120 k
81.358316581 M	20.90	7.464	-25.505	29.540	-8.64	|	161	2.16	120 k
40.684168571 M	21.38	13.653	-26.338	29.540	-8.16	|	138	2.25	120 k
405.819038451 M	28.07	15.933	-24.207	35.540	-7.47	|	266	1.05	120 k
189.829459379 M	27.08	11.500	-24.429	33.040	-5.96	|	202	1.15	120 k
840.707815226 M	30.74	21.914	-23.321	35.540	-4.80	|	8	1.54	120 k

Test Date: 06/17/2013

Test Personnel: Keith Henderson

Supervising/Reviewing Engineer: (Where Applicable)

Product Standard: FCC part 15 subpart C15.225

Limit Applied: Per section 8.3

Input Voltage: Battery

Ambient Temperature: 23 ºC

Pretest Verification w/ BB Source: **Yes**

Relative Humidity: 48 %

Atmospheric Pressure: 1000 mbars

Deviations, Additions, or Exclusions: None

9 Receiver Spurious Emissions Above 30MHz

9.1 Method

Tests are performed in accordance with FCC Part 15 Subpart B:2013 15.109, IC RSS-Gen Issue 3 December 2010: Section 6.0, ANSI C63.4-2003.

TEST SITE: 10m ALSE

The 10m ALSE is 13m (Length) x 21m (Depth) x 10m (Height) with the effective size in terms of space from the tips of the absorber is 12m (Length) x 20m (Depth) x 8.5m (Height). This chamber achieves broadband performance using a unique arrangement of hybrid and ferrite tile absorber. This chamber has a built in 3m diameter turntable (Embedded type). The metal structure of the table makes electrical connection around the entire circumference of the turntable to the ground plane with a metal brush type connection. The turntable is located on one end of the chamber and the antennas are mounted 3 and 10 meters away at the other end of the chamber on the adjustable an Antenna Mast. The antenna mast is a non-conductive bore sighted type with remote control of antenna height and polarization. The Antenna Mast and the turntable can be remotely controlled through the controller located in the adjacent Control room. A wooden table 80 cm high is used for table-top equipment.

9.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
145128	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	09/28/2012	09/28/2013
145003	Preamplifier (150 KHz to 1.3 GHz)	Hewlett Packard	8447D	2443A04077	10/04/2012	10/04/2013
145106	Bilog Antenna (30MHz - 5GHz)	Sunol Sciences	JB5	A111003	09/04/2012	09/04/2013
Dav004	Weather Station	Davis Instruments	7400	PE80529A61A	09/25/2012	09/25/2014
145-410	Cables 145-400 145-403 145-405 145-406 145-407	Huber + Suhner	10m Track A Cables	multiple	10/04/2012	10/04/2013

Software Utilized:

Name	Manufacturer	Version
Excel 2010	Microsoft	14.0.6129.5000 (32bit)
EMI Boxborough.xls	Intertek	08/27/2010

9.3 Results:

The sample tested was found to Comply.

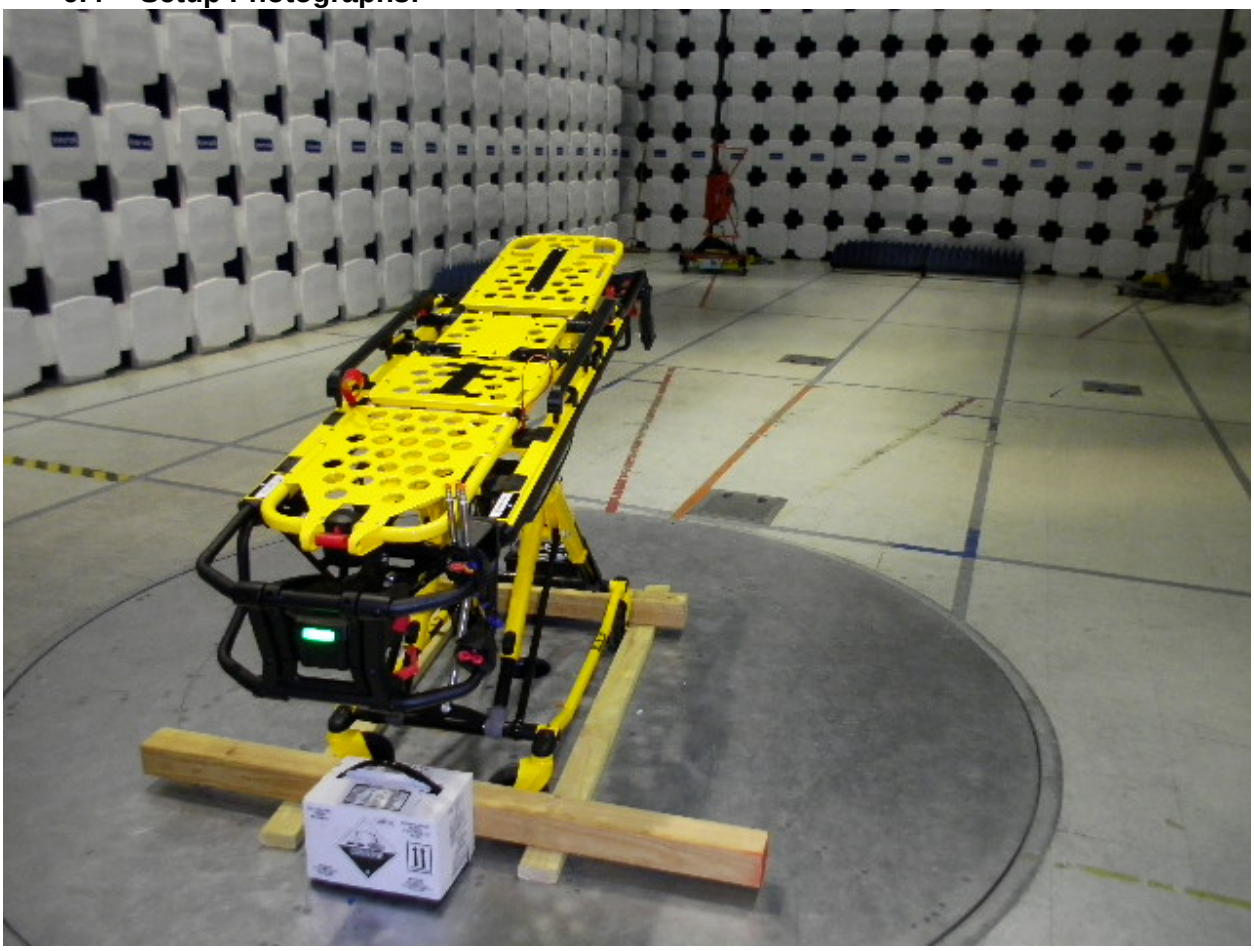
FCC Part 15.109

Frequency	Field Strength		Test Distance
(MHz)	µV/m	dBµV/m	(meters)
30-88	100	40.00	3
88-216	150	43.52	3
216-960	200	46.02	3
Above 960	500	53.98	3

IC RSS-Gen Table 2:

Frequency (MHz)	Field Strength (microvolts/m at 3 metres)*
30-88	100
88-216	150
216-960	200
Above 960	500

9.4 Setup Photographs:

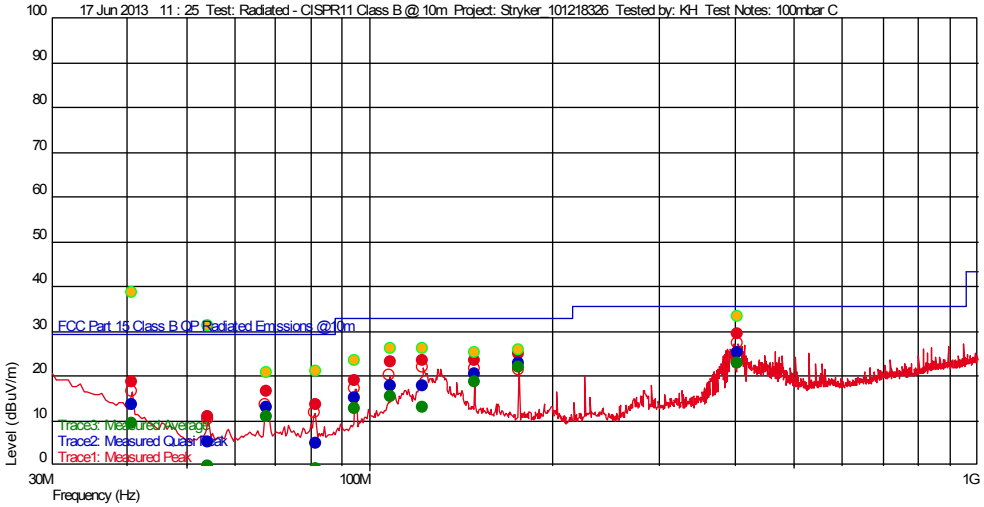


9.5 Plots/Data:

Test Information

Test Details	User Entry	Additional Information
Test:	Radiated - FCC Class B @ 10m	
Project:	Stryker_101218326	
Test Notes:	1000mbar Cot receive mode--spurious emissions	
Temperature:	23	
Humidity:	48	
Tested by:	KH	
Test Started:	17 Jun 2013 11 : 25	

Prescan Emission Graph



- Measured Peak Value
- Measured Quasi Peak Value
- Measured Average Value
- Maximum Value of Mast and Turntable
- Swept Peak Data
- Swept Quasi Peak Data
- Swept Average Data

Emissions Test Data

Trace2: Measured Quasi Peak

Frequency(Hz)	Level(dBuV/m)	AF	PA+CL	Limit(dBuV/m)	Margin(dBuV/m)	Hor (--), Ver (|)	Azimuth (deg)(Deg)	Mast Height(m)	RBW(Hz)
81.907414778 M	4.85	7.409	-25.482	29.54	-25.15	|	321	2.38	120 k
54.27615211 M	5.24	6.928	-26.210	29.54	-24.76	|	360	2.58	120 k
67.77735503 M	13.00	8.055	-26.021	29.54	-17.00	|	191	3.38	120 k
40.684168571 M	13.69	13.653	-26.338	29.54	-16.31	|	204	2.49	120 k
94.935671806 M	14.96	8.887	-24.926	33.04	-15.04	|	340	2.06	120 k
108.506813661 M	17.72	12.401	-24.695	33.04	-12.28	|	191	2.29	120 k
122.612224166 M	17.86	13.961	-24.669	33.04	-12.14	|	343	1.65	120 k
403.45891793 M	25.19	15.838	-24.184	35.54	-11.81	|	267	1.16	120 k
149.153707162 M	20.50	12.800	-24.622	33.04	-9.50	|	254	1.98	120 k
176.262324539 M	22.78	11.500	-24.494	33.04	-7.22	|	83	1.14	120 k

		Test Date:	06/17/2013
Test Personnel:	Keith Henderson		
Supervising/Reviewing Engineer: (Where Applicable)			
Product Standard:	FCC Part 15 Subpart B IC RSS-Gen	Limit Applied:	Per section 9.3
Input Voltage:	battery		
		Ambient Temperature:	23 ºC
Pretest Verification w/ BB Source:	**Yes**	Relative Humidity:	48 %
		Atmospheric Pressure:	1000 mbars

Deviations, Additions, or Exclusions: None

10 20dB Bandwidth

10.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C:2013 15.215, IC RSS-Gen Issue 3 December 2010 Section 4.6, ANSI C63.4-2003.

TEST SITE: 10m ALSE

10.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
145-416	Cables 145-400 145-402 145-404 145-408	Huber + Suhner	3m Track B cables	multiple	10/04/2012	10/04/2013
145128	EMI Receiver 40 GHz (20 Hz - 40 Ghz)	Rohde & Schwarz	ESI	8392831001	09/28/2012	09/28/2013
Ets003	9kHz-30MHz Active Loop Antenna	ETS Lindgren	6502	00143396	02/26/2013	02/26/2014
Dav004	Weather Station	Davis Instruments	7400	PE80529A61A	09/25/2012	09/25/2014
Cblbnc2012-2	50 Ohm Coaxial Cable	Pomona	RG-58 C/U	CBLBNC2012-2	09/14/2012	09/14/2013

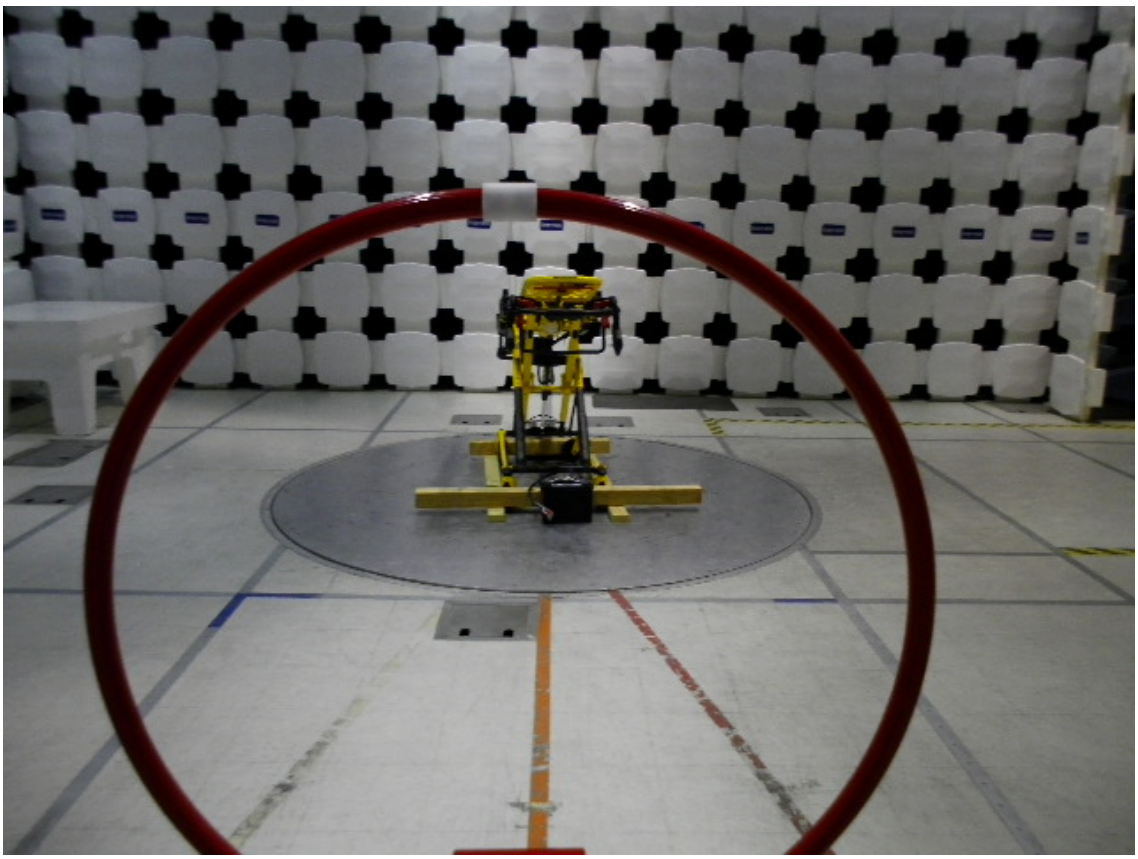
Software Utilized:

Name	Manufacturer	Version
None (Spectrum Analyzer Firmware)		

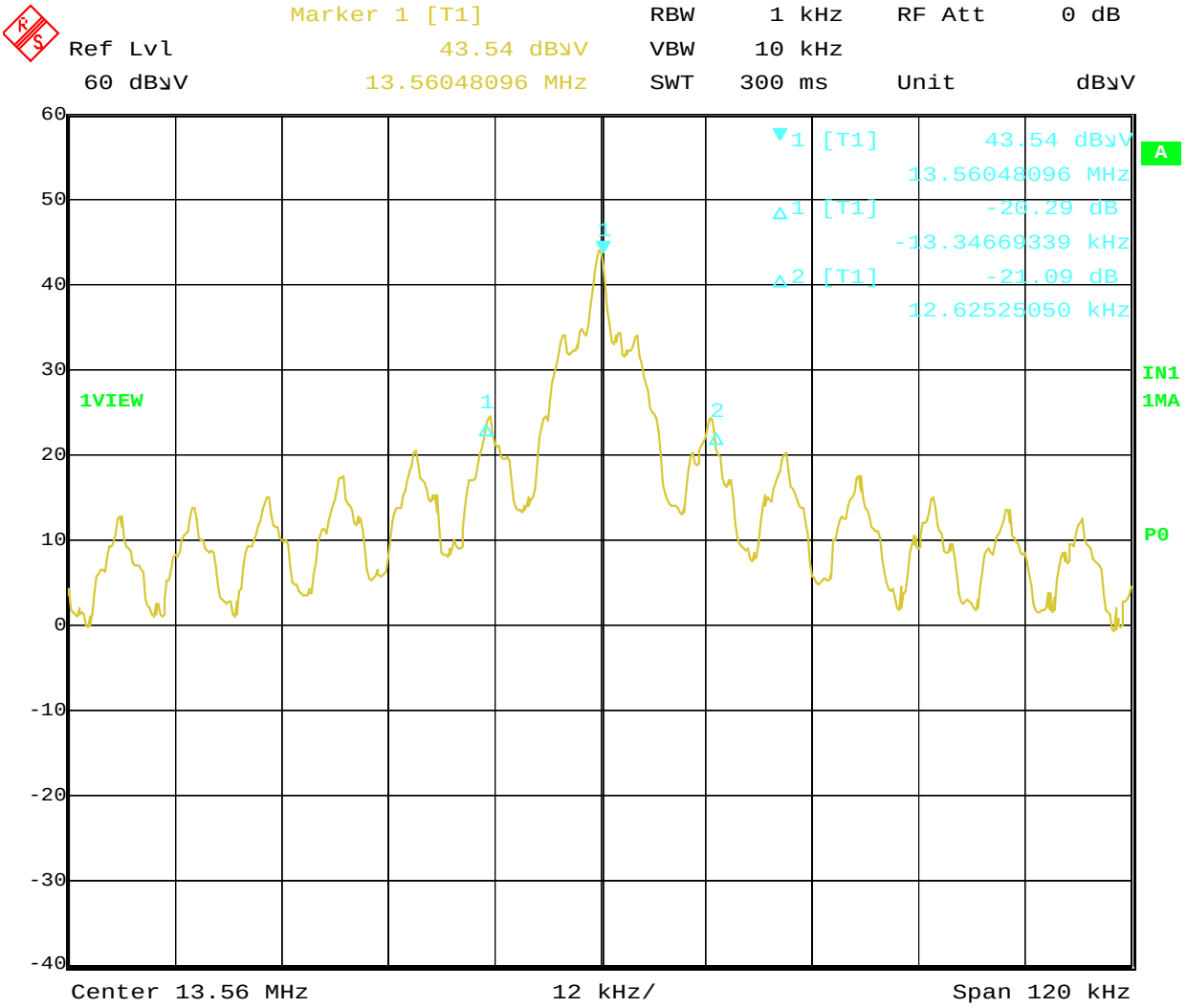
10.3 Results:

The sample tested was found to Comply. The 20 dB bandwidth remains within the assigned band from 13.110 to 14.010 MHz.

10.4 Setup Photographs:



10.5 Plots/Data:



Test Personnel:	Keith Henderson	Test Date:	06/17/2013
Supervising/Reviewing Engineer: (Where Applicable)			
Product Standard:	FCC 15.225, IC RSS-210	Limit Applied:	Per section 10.3
Input Voltage:	battery	Ambient Temperature:	22ºC
Pretest Verification w/ BB Source:	**Yes**	Relative Humidity:	38 %
		Atmospheric Pressure:	1004 mbars

Deviations, Additions, or Exclusions: None

11 Frequency Stability

11.1 Method

Tests are performed in accordance with FCC Part 15 Subpart C:2012 15.225(e), IC RSS-Gen Issue 3 December 2010 Section 4.7, IC RSS-210 December 2010 A2.6, ANSI C63.4-2003.

TEST SITE: Temperature/humidity chamber in the Safety Lab

11.2 Test Equipment Used:

Asset	Description	Manufacturer	Model	Serial	Cal Date	Cal Due
148012	Temp/Humidity Chamber	Envirotronics	SH27C	08015563S11263	10/18/2012	10/18/2013
Ros001	Spectrum Analyzer 20Hz - 40 GHz	Rohde & Schwartz	FSEK-30	100225	04/25/2013	04/25/2014
Saf1083	Weather condition station	Davis Instruments	Vue / 6351	G120802D010	01/29/2013	01/29/2014
Saf942	Single Output DC Power Supply	Agilent	U800A	MY52010015	03/28/2012	Verified
Met1	Digital Multimeter	Meterman	15XP	050407785	04/24/2013	04/24/2014

Software Utilized:

Name	Manufacturer	Version
None (Spectrum Analyzer Firmware)		

11.3 Results:

The sample tested was found to Comply.

The fundamental frequency shall remain within ±0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees. Voltage variations of ±15% were also performed.

11.4 Setup Photographs:

11.5 Plots/Data:

Intertek

Frequency Stability

Company: Stryker
Model #: 6506 (cot) and 6390 (Load)
Serial #: 130340268 (cot) 130640344 (Load)
Engineer(s): Keith Henderson
Project #: 101218326
Standard: FCC Part 15 Subpart C 15.225
Limit: 100 PPM

Test Equipment Used:

Location: Safety
Date(s): 06/19/13

Nominal f: 13.56 MHz

Voltage: 9 VDC

%	Voltage Volts	Frequency MHz	Deviation kHz	Limit kHz
-15%	7.65	13.559853	-0.003	1.36
-10%	8.1	13.559852	-0.004	1.36
-5%	8.55	13.559853	-0.003	1.36
+0%	9	13.559856	0	1.36
+5%	9.45	13.559853	-0.003	1.36
+10%	9.9	13.559854	-0.002	1.36
+15%	10.35	13.559852	-0.004	1.36

Temp Celsius	Frequency MHz	Deviation kHz	Limit kHz
-20	13.559897	0.005	1.36
-10	13.559902	0.01	1.36
0	13.559902	0.01	1.36
10	13.559888	-0.004	1.36
20	13.559892	0	1.36
30	13.559833	-0.059	1.36
40	13.559804	-0.088	1.36
50	13.559803	-0.089	1.36

Test Personnel: Keith Henderson
Supervising/Reviewing Engineer: (Where Applicable)
Product Standard: FCC 15.225, IC RSS-210
Input Voltage: 7.65VDC-to-10.35VDC
Pretest Verification w/ Ambient Signals or BB Source: Ambient signals

Test Date: 06/19/2013
Limit Applied: Per section 11.3
Ambient Temperature: 23 ºC
Relative Humidity: 36 %
Atmospheric Pressure: 1006 mbars

Deviations, Additions, or Exclusions: None

12 Revision History

Revision Level	Date	Report Number	Prepared By	Reviewed By	Notes
0	06/28/2013	101218326BOX-002	KH		Original Issue