FCC 47 CFR PART 95 SUBPART H
INDUSTRY CANADA RSS-210 ISSUE 8

CERTIFICATION TEST REPORT

FOR

Sonicaid Freedom SF1-SL

MODEL NUMBER: SF1-SL

FCC ID: 2ABOQ-SF1SL
IC: 11744A-SF1SL

REPORT NUMBER: 7554936B

ISSUE DATE: April 17, 2014

Prepared for
Huntleigh Diagnostics
35 Portmanmoor Road
Cardiff
CF24 5HN, United Kingdom

Prepared by
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NVLAP LAB CODE 100414-0

Revision History

Rev.	Issue Date	Revisions	Revised By
--	April 17, 2014	Initial Issue	BM

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UL VERIFICATION SERVICES INC.
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: **Huntleigh Diagnostics**
35 Portmanmoor Road
Cardiff
CF24 5HN, United Kingdom

EUT DESCRIPTION: Wireless Fetal Monitoring Solution(Receiver Base)

MODEL: SF1-SL

SERIAL NUMBER: Prototype

DATE TESTED: October 2013 to February 2014

APPLICABLE STANDARDS	
STANDARD	**TEST RESULTS**
CFR 47 Part 95, Subpart H	Pass
INDUSTRY CANADA RSS-210 Issue 8 Annex 8	Pass

UL Verification Services Inc. tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by UL Verification Services Inc. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL Verification Services Inc. and all revisions are duly noted in the revisions section. Any alteration of this document not carried out byUL Verification Services Inc. will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For
UL Verification Services Inc. By:

Michael Ferrer
EMC Engineer
UL Verification Services Inc.

Tested By:

Bartlomiej Mucha
EMC ENGINEER
UL Verification Services Inc.

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.10-2009, FCC CFR 47 Part 2, FCC CFR 47 Part 9 Subpart H, RSS-GEN Issue 3, and RSS-210 Issue 8.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 333 Pfingsten Road, Northbrook, IL, USA.

UL Verification Services Inc. is accredited by NVLAP, Laboratory Code 100414-0. The full scope of accreditation can be viewed at http://ts.nist.gov/standards/scopes/1004140.htm.

Ambient Temperature, °C	22.5 ± 2.5	Relative Humidity, %	45 ± 15	Barometric Pressure, mBar	950 150

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

Measurement Uncertainty

Test	Range	Equipment	Uncertainty k=2
Conducted Emissions	150k-30MHz	LISN	2.29dB
Radiated Emissions	30-200MHz	Bicon 3m Horz	3.30dB
Radiated Emissions	30-130MHz	Bicon 3m Vert	4.84dB
Radiated Emissions	130-200MHz	Bicon 3m Vert	4.94dB
Radiated Emissions	200-1000MHz	LogP 3m Horz	3.46dB
Radiated Emissions	200-1000MHz	LogP 3m Vert	4.98dB
Radiated Emissions	30-200MHz	Bicon 10m Horz	4.27dB
Radiated Emissions	30-200MHz	Bicon 10m Vert	4.28dB
Radiated Emissions	200-1000MHz	LogP 10m Horz	3.33dB
Radiated Emissions	200-1000MHz	LogP 10m Vert	3.39dB
Radiated Emissions	1-6GHz	Horn	5.02dB
Radiated Emissions	6-18GHz	Horn	5.34dB
Radiated Emissions	18-26GHz	Horn	6.60dB
Radiated Emissions	26-40GHz	Horn	7.02dB

Uncertainty figures are valid to a confidence level of 95%.

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5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an Wireless Fetal Monitoring Solution. It consists of multiple parts of which each is covered by separate test report. This report applies to the receiver base unit 610MHz WMTS band.

5.2. MAXIMUM OUTPUT E-FIELD STRENGTH

The transmitter has a maximum output peak E-field as follows:

Frequency Range (MHz)	Mode	Output PK E-field Strength (dBuV/m)
608.03921	WMTS TX	82.57

5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an external ¼ wave flexible whip antenna.

5.4. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was R840_E35_V1_u3 testv1hi – PA test 3 setting-12-6-1

Test mode 4. Transmit at PA=1, The channel frequency is selected via the channel selection switch.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power and by moving the antenna between horizontal and vertical positions.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Support Equipment List			
Description	**Manufacturer**	**Model**	**Serial Number**
EUT - Receiver Base Unit	Huntleigh	SF1-SL	Prototype

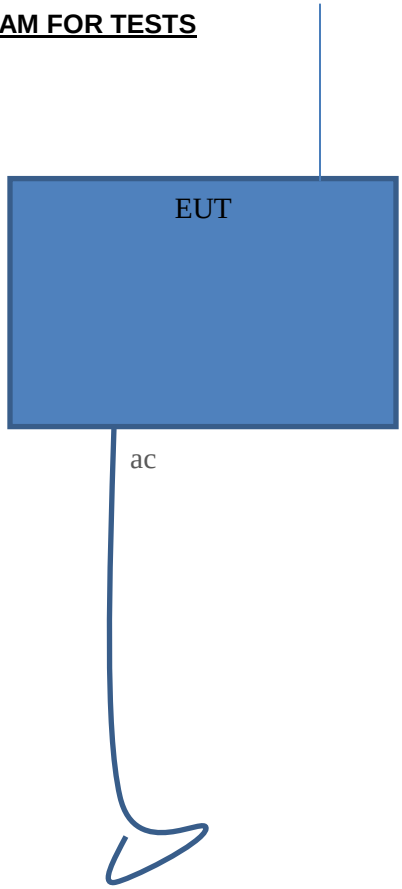
I/O CABLES

I/O Cable List						
Cable No	**Port**	**# of identical ports**	**Connector Type**	**Cable Type**	**Cable Length (m)**	**Remarks**
0	Encolsure	1	-	-	-	none
1	AC Input	1	AC	2 wire AC	1.5	none

TEST SETUP

The radio is part of the main receiver based with external antenna connected.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

Radiated Emissions – 10-Meter Chamber

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESU	EMC4323	20131227	20141231
Bicon Antenna	Chase	VBA6106A	EMC4078	20130213	20140228
Log-P Antenna	Chase	UPA6109	EMC4258	20131015	20141030
Log-P Antenna	Chase	UPA6109	EMC4313	20131003	20141003
Spectrum Analyzer	Rhode & Schwarz	FSEK	EMC4182	20131226	20141231
Spectrum Analyzer	Agilent	N9030A (PXA)	EMC4360	20131221	20141221

Line Conducted Emissions

Description	Manufacturer	Model	Identifier	Cal. Date	Cal. Due Date
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC4328	Dec 30, 2013	Dec 30, 2014
Transient Limiter	Electro-Metrics	EM7600-2	EMC4224	N/A	N/A
HighPass Filter	Solar Electronics	2803-150	885551	N/A	N/A
Attenuator	HP	8494B	2831A00838	N/A	N/A
LISN - L1	Solar	8602-50-TS-50-N	EMC4052	Jan 15, 2014	Jan 16, 2015
LISN - L2	Solar	8602-50-TS-50-N	EMC4064	Jan 15, 2014	Jan 16, 2015

7. TEST RESULTS

7.1.1. 99% BANDWIDTH & 26dB Bandwidth

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to the spectrum analyzer. The RBW is set to 10kHz. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

Channel	Frequency (MHz)	99% Bandwidth (MHz)	26dB Bandwidth (MHz)
Low	608.012	0.01798	0.02395
Middle	610.54	0.018468	0.02382
High	612.988	0.017871	0.02397

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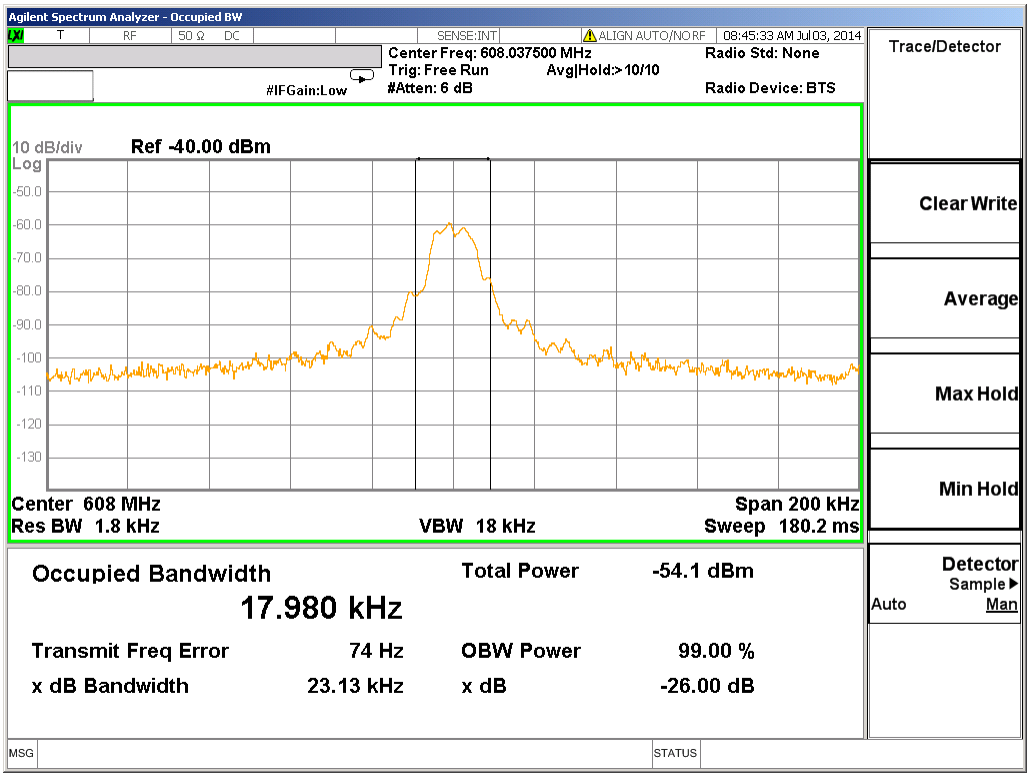
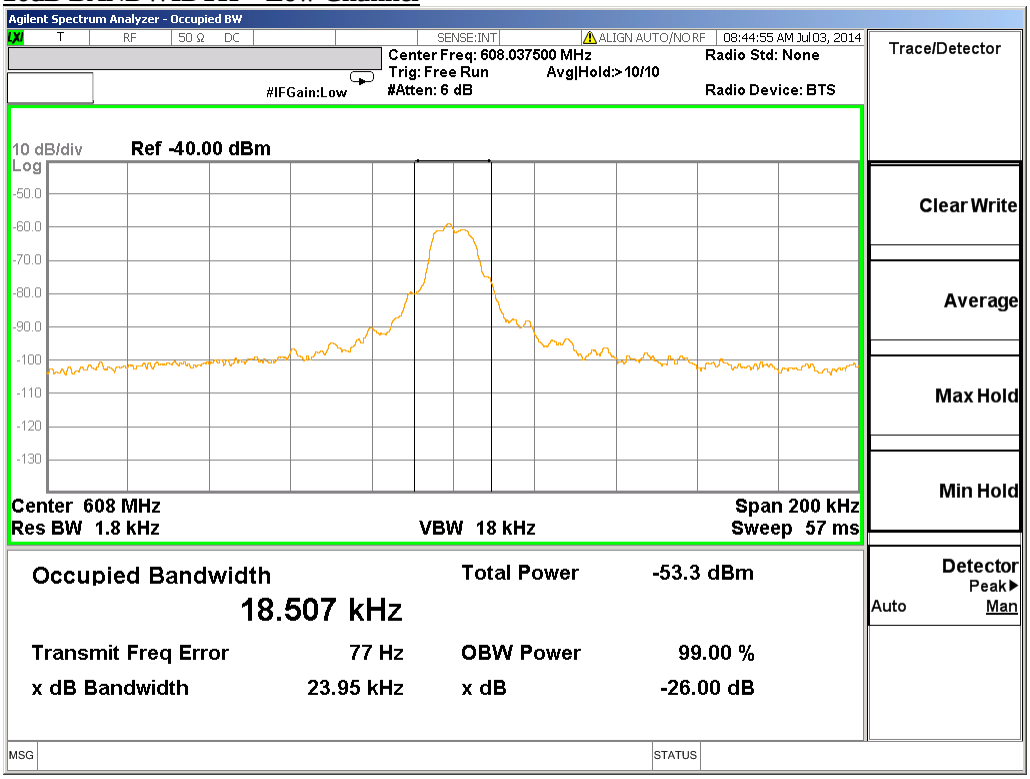
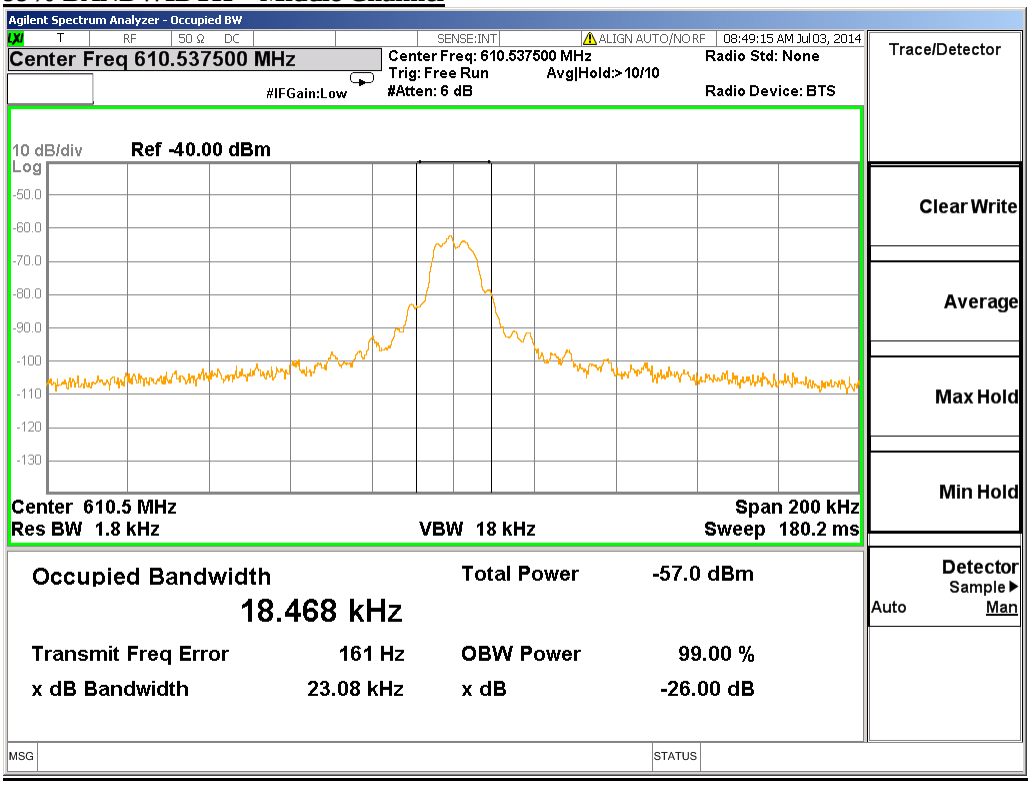
99% BANDWIDTH – Low Channel



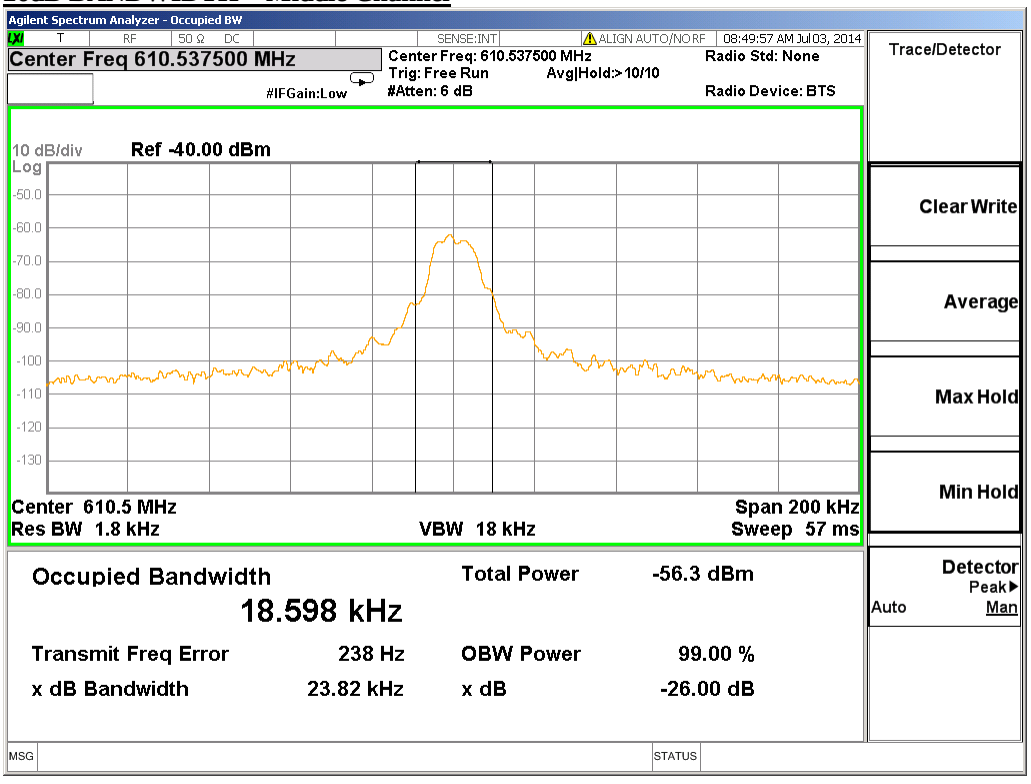
26dB BANDWIDTH – Low Channel



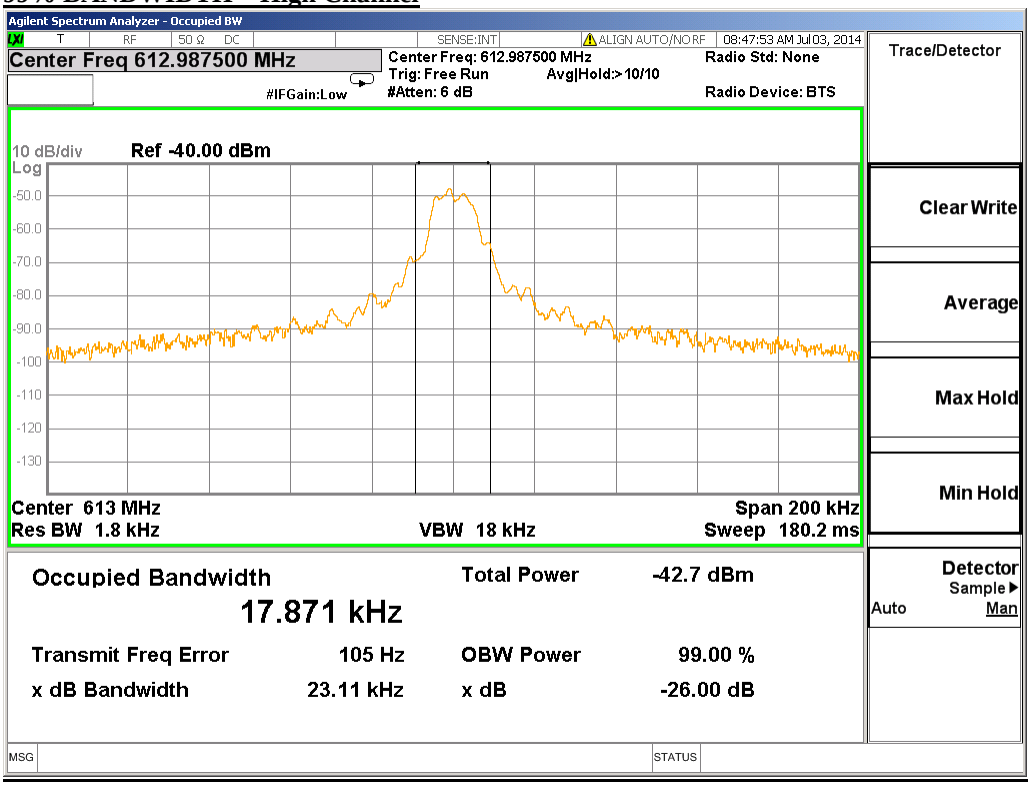
99% BANDWIDTH – Middle Channel



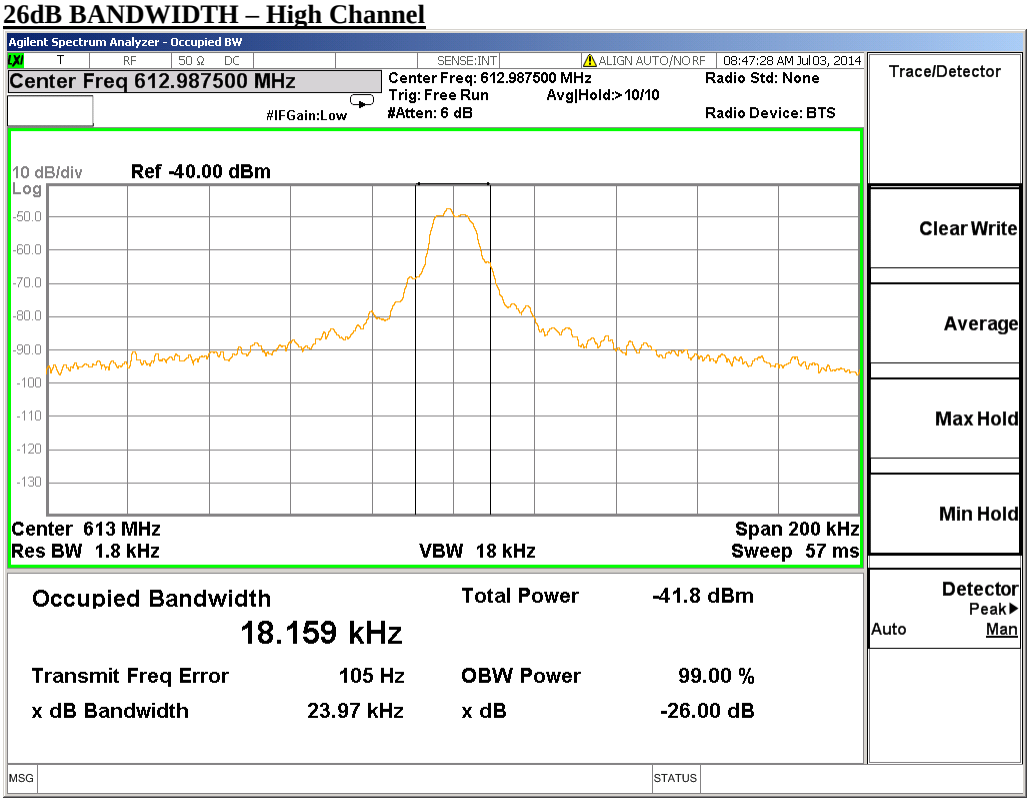
26dB BANDWIDTH – Middle Channel



99% BANDWIDTH – High Channel



26dB BANDWIDTH – High Channel



7.2. RADIATED EMISSIONS

TEST PROCEDURE

ANSI C63.4

LIMIT

IC RSS-210, A4
FCC 95.1101, Subpart H

In the 608MHz – 614MHz band, the maximum allowable field strength is 200mV/m, as measured at a distance of 3 meters, using measuring instrumentation with CISPR quasi-peak detector

Undesired emissions

Out of band emissions below 960MHz are limited to 200 microvolts/meter, as measured at a distance of 3 meters, using measuring instrumentation with a CISPR quasi-peak detector.

Out-of-band emissions above 960MHz are limited to 500 microvolts/meter as measured at a distance of 3 meters, using measuring equipment with an averaging detector and a 1MHz measurement bandwidth.

RESULTS

7.2.1. FUNDAMENTAL FREQUENCY RADIATED EMISSION

Low Channel, Antenna Vertical

Radiated Emission Data

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	10m to 3m Factor dB	Level dBuV/m	Limit 3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
608.039603	70.84	QP	20.1	-24.4	10.5	77.04	106	-28.96	44	156	H
608.039603	71.02	PK	20.1	-24.4	10.5	77.22	106	-28.78	44	156	H
608.036392	68.94	QP	20.1	-24.4	10.5	75.14	106	-30.86	267	203	V
608.036392	69.05	PK	20.1	-24.4	10.5	75.25	106	-30.75	267	203	V

PK - Peak detector
QP - Quasi-Peak detector

Middle Channel, Antenna Vertical

Radiated Emission Data

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	10m to 3m Factor dB	Level dBuV/m	Limit 3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
610.53881	70.92	QP	20.1	-24.5	10.5	77.02	106	-28.98	45	156	H
610.53881	71.11	PK	20.1	-24.5	10.5	77.21	106	-28.79	45	156	H
610.54081	70.22	QP	20.1	-24.5	10.5	76.32	106	-29.68	13	237	V
610.54081	70.4	PK	20.1	-24.5	10.5	76.5	106	-29.5	13	237	V

PK - Peak detector
QP - Quasi-Peak detector

High Channel, Antenna Vertical

Radiated Emission Data

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	10m to 3m Factor dB	Level dBuV/m	Limit 3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
612.9876	70.46	QP	20.1	-24.5	10.5	76.56	106	-29.44	39	164	H
612.9876	70.63	PK	20.1	-24.5	10.5	76.73	106	-29.27	39	164	H
612.9872	70.69	QP	20.1	-24.5	10.5	76.79	106	-29.21	34	237	V
612.9872	70.84	PK	20.1	-24.5	10.5	76.94	106	-29.06	34	237	V

PK - Peak detector
QP - Quasi-Peak detector

Low Channel, Antenna Sideways

Radiated Emission Data

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	10m to 3m Factor dB	Level dBuV/m	Limit 3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
608.03921	76.22	QP	20.1	-24.4	10.5	82.42	106	-23.58	57	150	H
608.03921	76.37	PK	20.1	-24.4	10.5	82.57	106	-23.43	57	150	H
608.03921	63	QP	20.1	-24.4	10.5	69.2	106	-36.8	335	184	V
608.03921	63.2	PK	20.1	-24.4	10.5	69.4	106	-36.6	335	184	V

PK - Peak detector
QP - Quasi-Peak detector

Middle Channel, Antenna Sideways

Radiated Emission Data

Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	10m to 3m Factor dB	Level dBuV/m	Limit 3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
610.5368	76.3	QP	20.1	-24.5	10.5	82.4	106	-23.6	57	150	H
610.5368	76.41	PK	20.1	-24.5	10.5	82.51	106	-23.49	57	150	H
610.5368	62.54	QP	20.1	-24.5	10.5	68.64	106	-37.36	335	184	V
610.5368	62.76	PK	20.1	-24.5	10.5	68.86	106	-37.14	335	184	V

PK - Peak detector
QP - Quasi-Peak detector

High Channel, Antenna Sideways

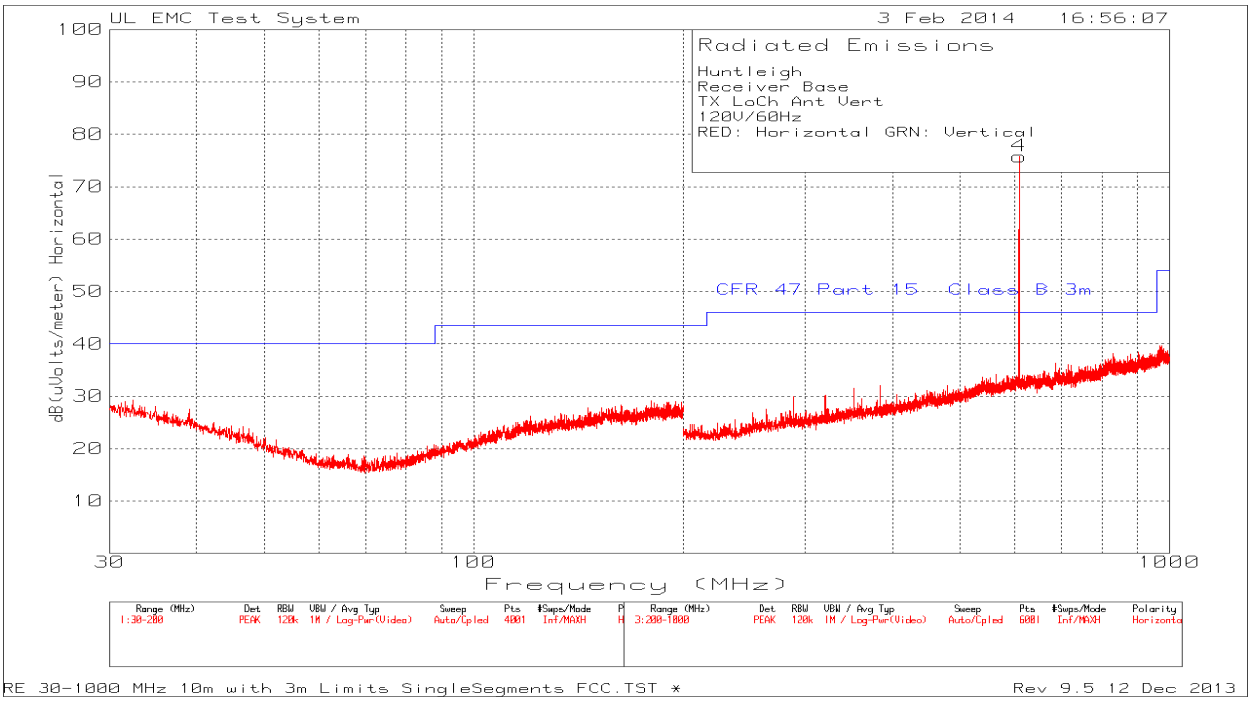
Radiated Emission Data

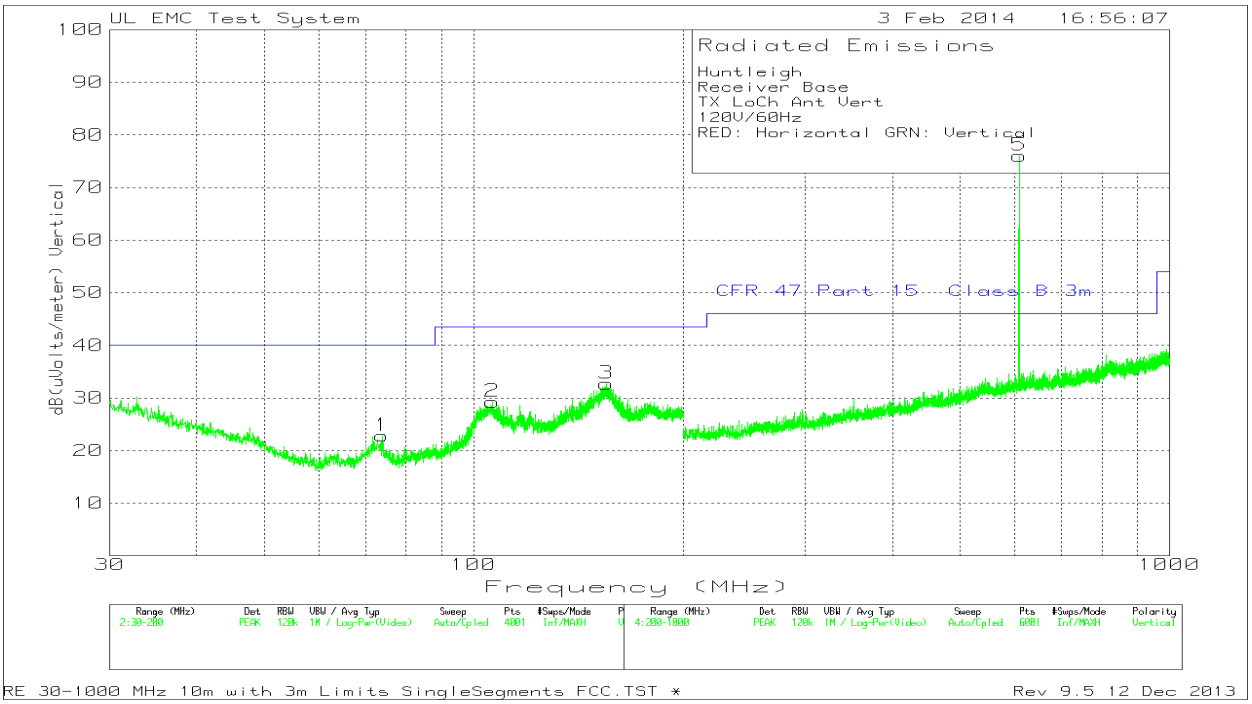
Test Frequency (MHz)	Meter Reading (dBuV)	Detector	Antenna Factor dB/m	Path Factor dB	10m to 3m Factor dB	Level dBuV/m	Limit 3m dBuV/m	Margin (dB)	Azimuth [Degs]	Height [cm]	Polarity
612.986805	62.95	QP	20.1	-24.5	10.5	69.05	106	-36.95	333	400	V
612.986805	63.15	PK	20.1	-24.5	10.5	69.25	106	-36.75	333	400	V
612.986805	75.91	QP	20.1	-24.5	10.5	82.01	106	-23.99	49	129	H
612.986805	76.05	PK	20.1	-24.5	10.5	82.15	106	-23.85	49	129	H

PK - Peak detector
QP - Quasi-Peak detector

7.2.2. WORST-CASE BELOW 1 GHz

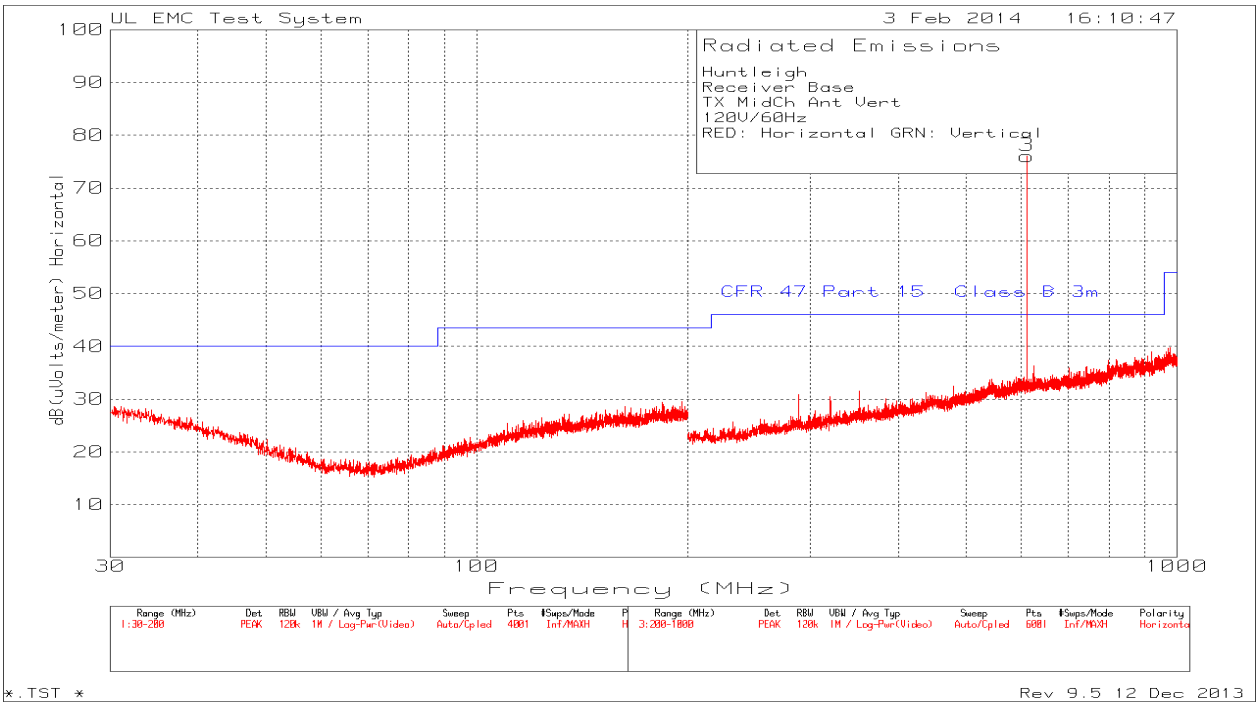
SPURIOUS EMISSIONS 30 TO 1000 MHz – Low Channel

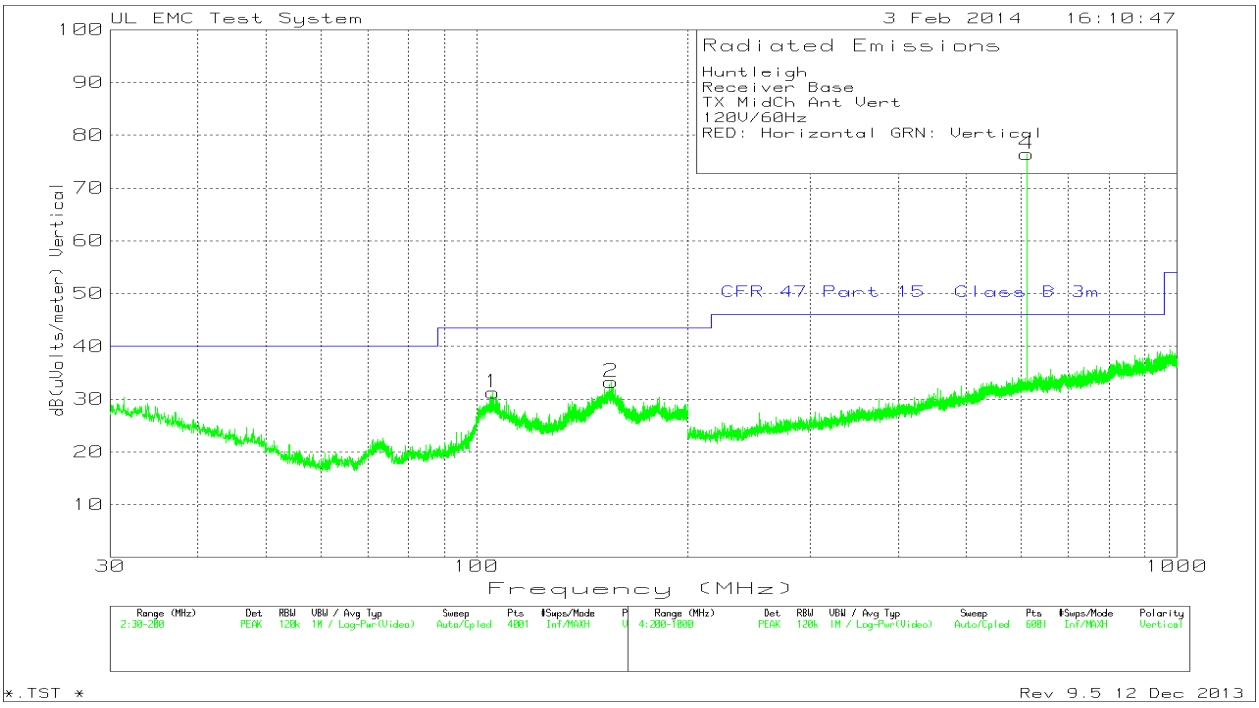




* The actual limit below 960MHz is 46dBuV/m @ 3m and above 960Mhz 54dBuV/m @ 3m. No Emissions recorded within 6dB of the limit.

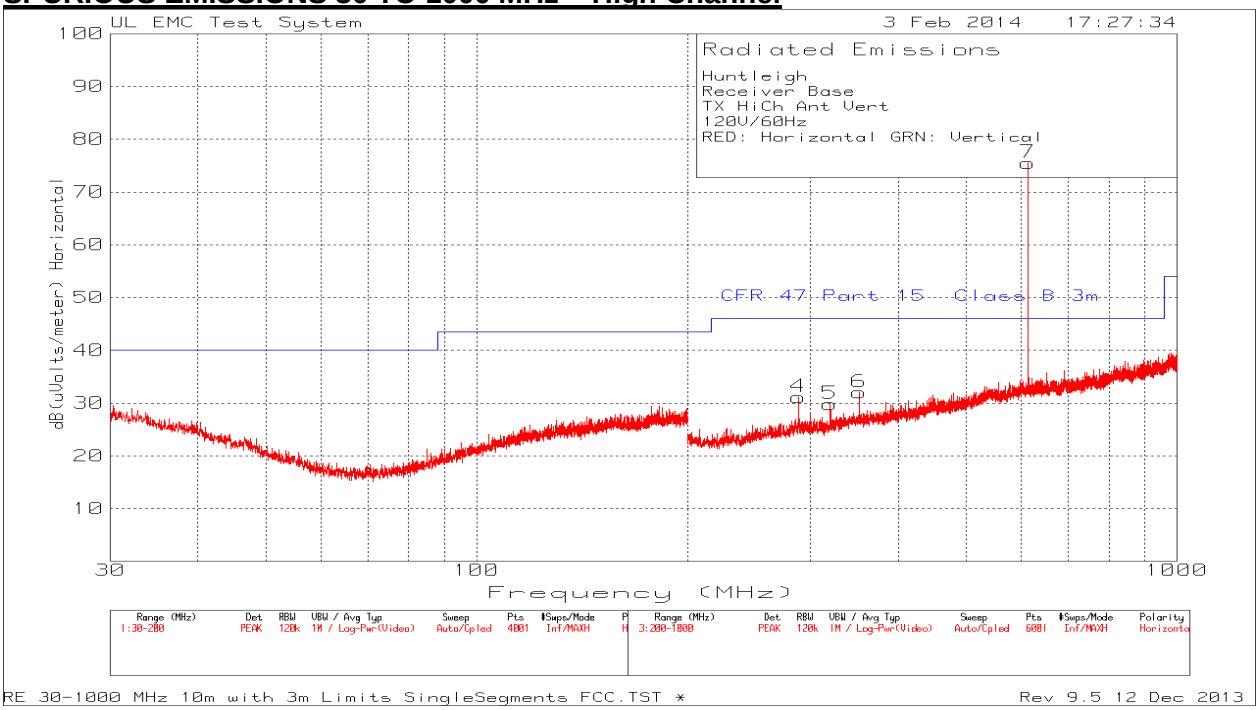
SPURIOUS EMISSIONS 30 TO 1000 MHz – Middle Channel

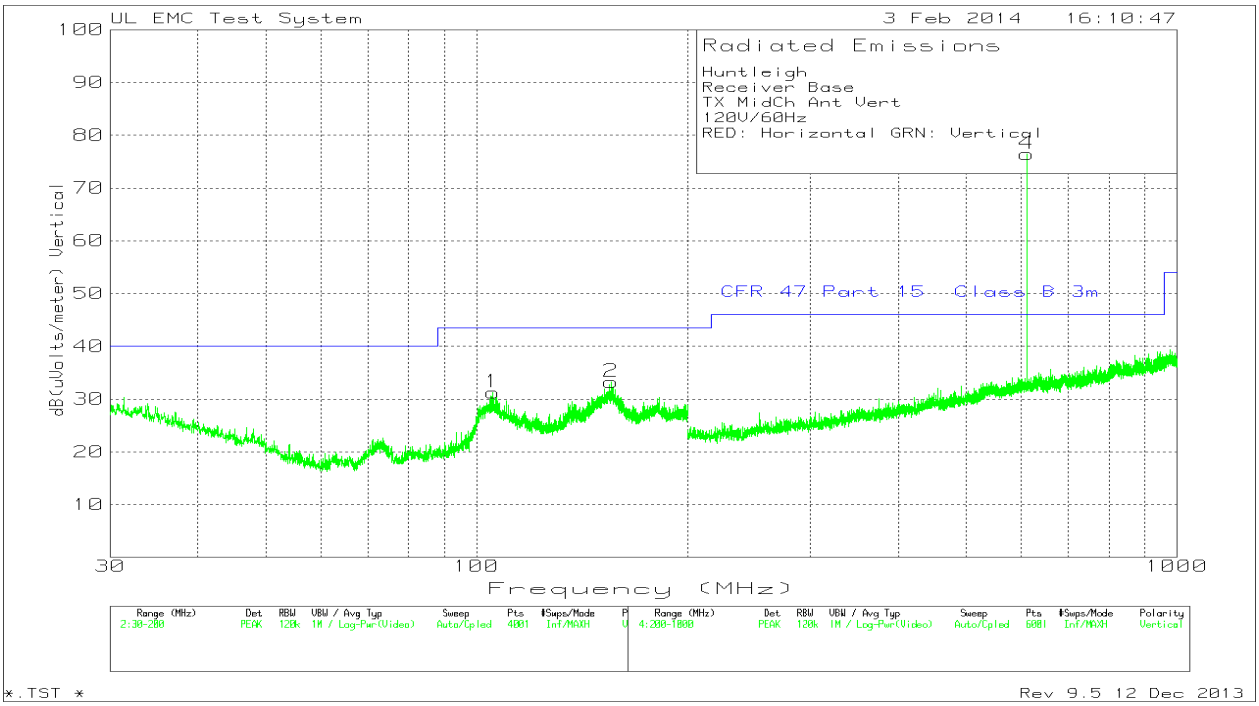




* The actual limit below 960MHz is 46dBuV/m @ 3m and above 960Mhz 54dBuV/m @ 3m. No Emissions recorded within 6dB of the limit.

SPURIOUS EMISSIONS 30 TO 1000 MHz – High Channel



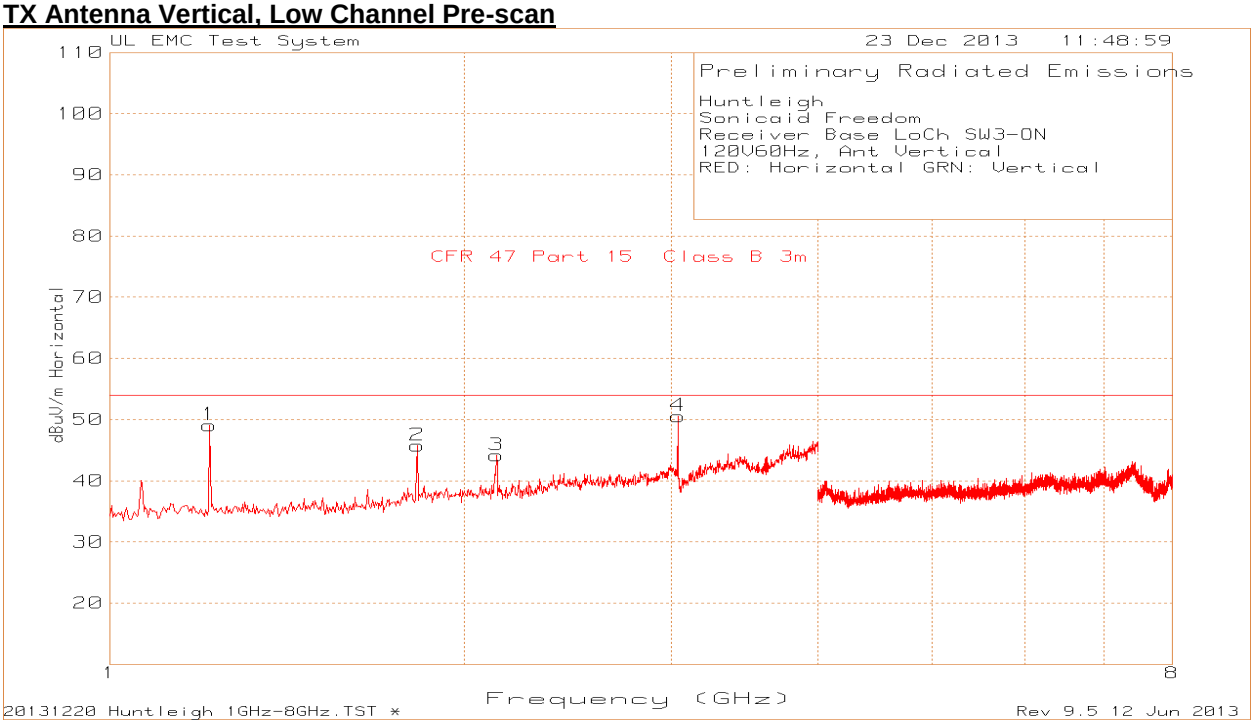


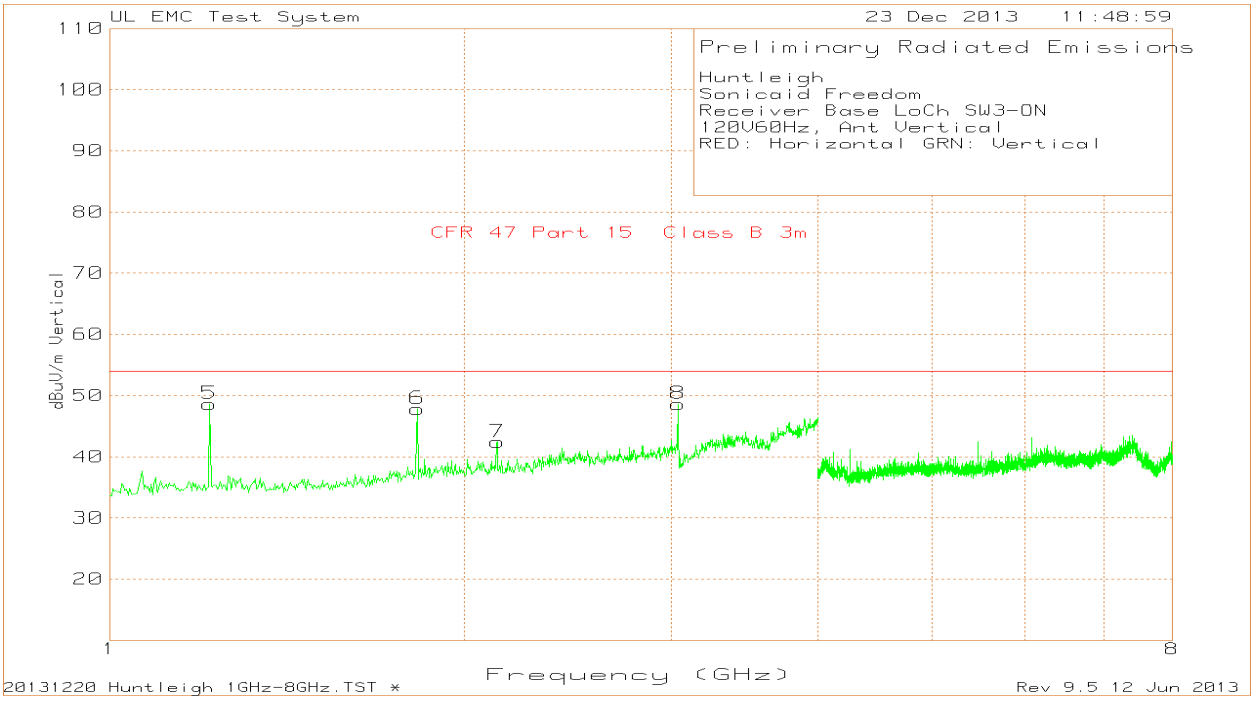
* The actual limit below 960MHz is 46dBuV/m @ 3m and above 960Mhz 54dBuV/m @ 3m. No Emissions recorded within 6dB of the limit.

****** Above two plots for High Channel are mislabelled. Those should be labeled as TX HighCh.

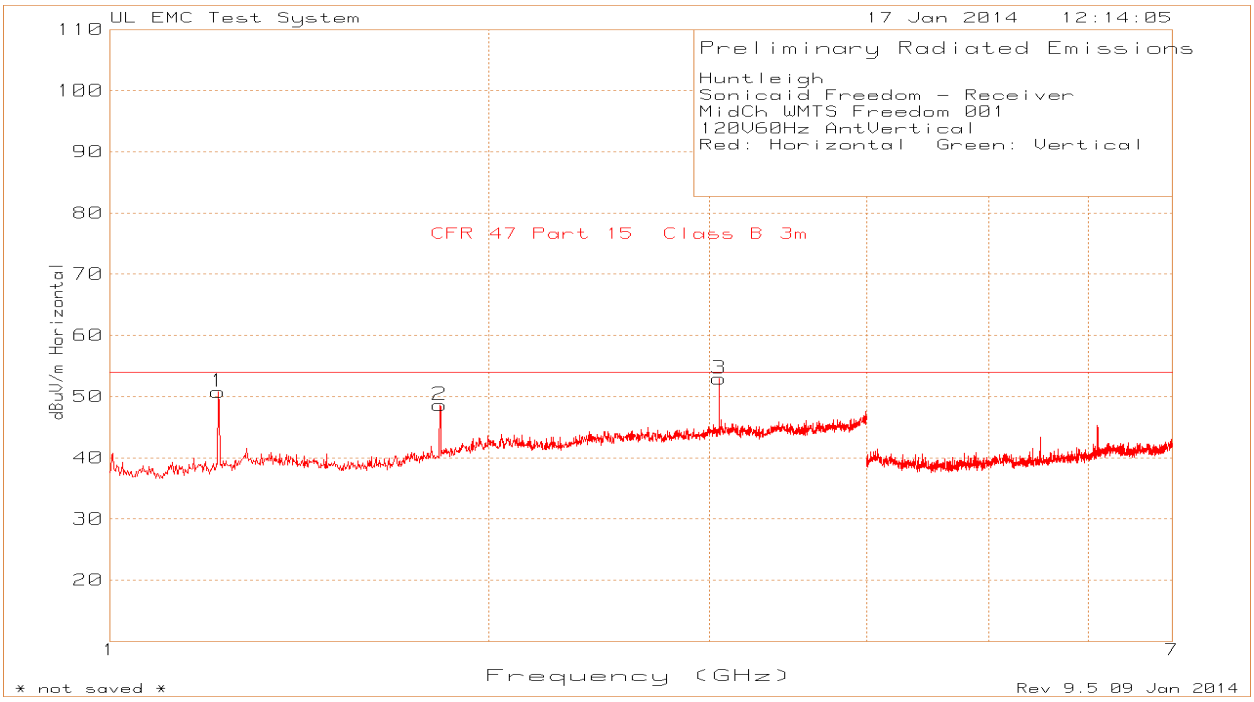
7.2.3. HARMONICS AND SPURIOUS EMISSIONS ABOVE 1GHz

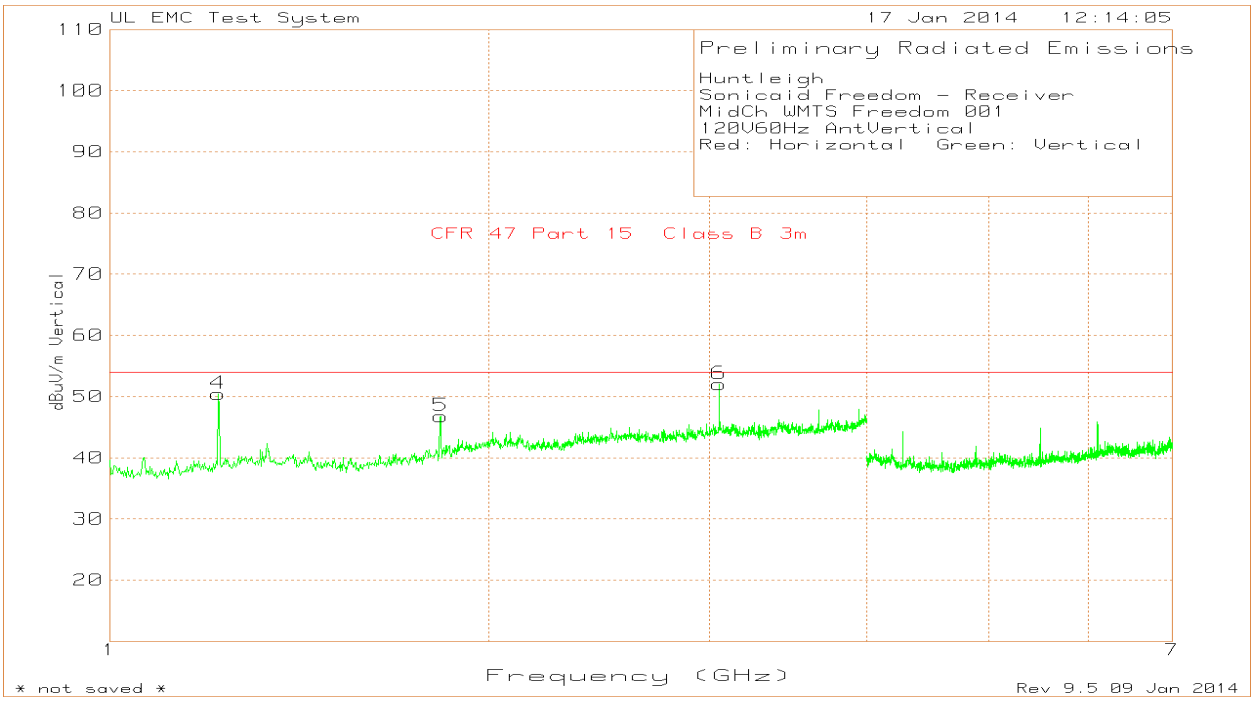
TX Antenna Vertical, Low Channel Pre-scan



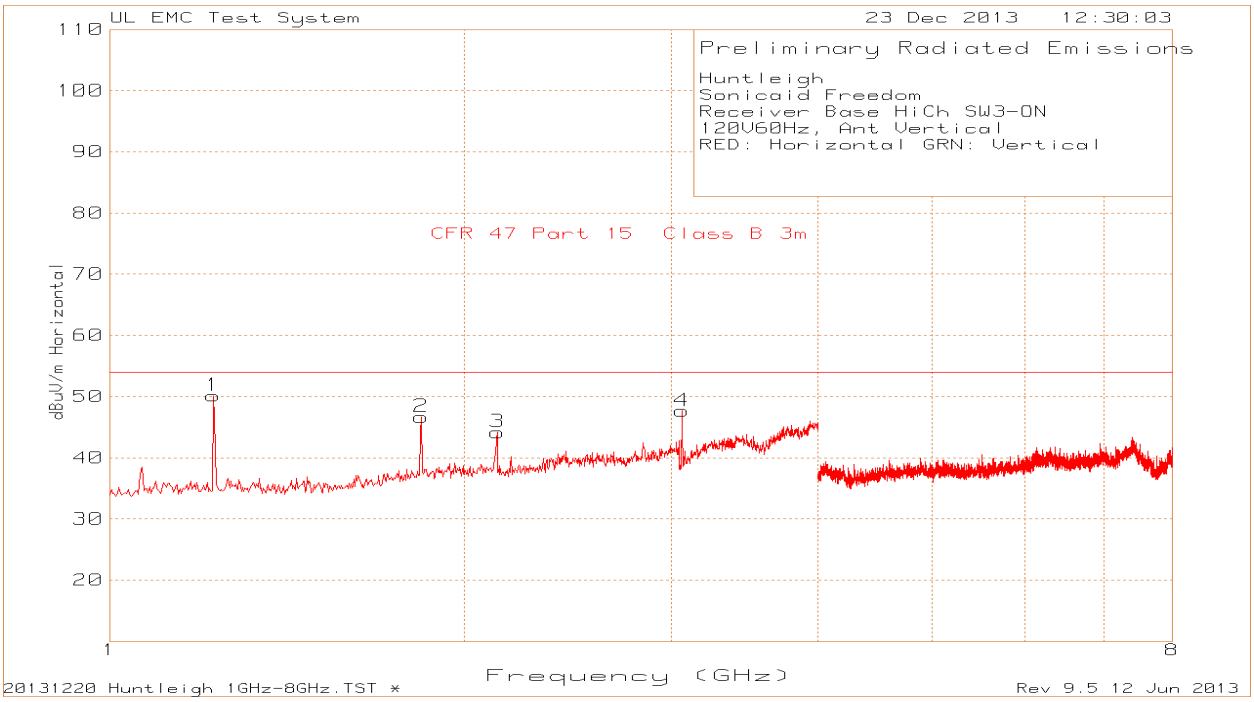


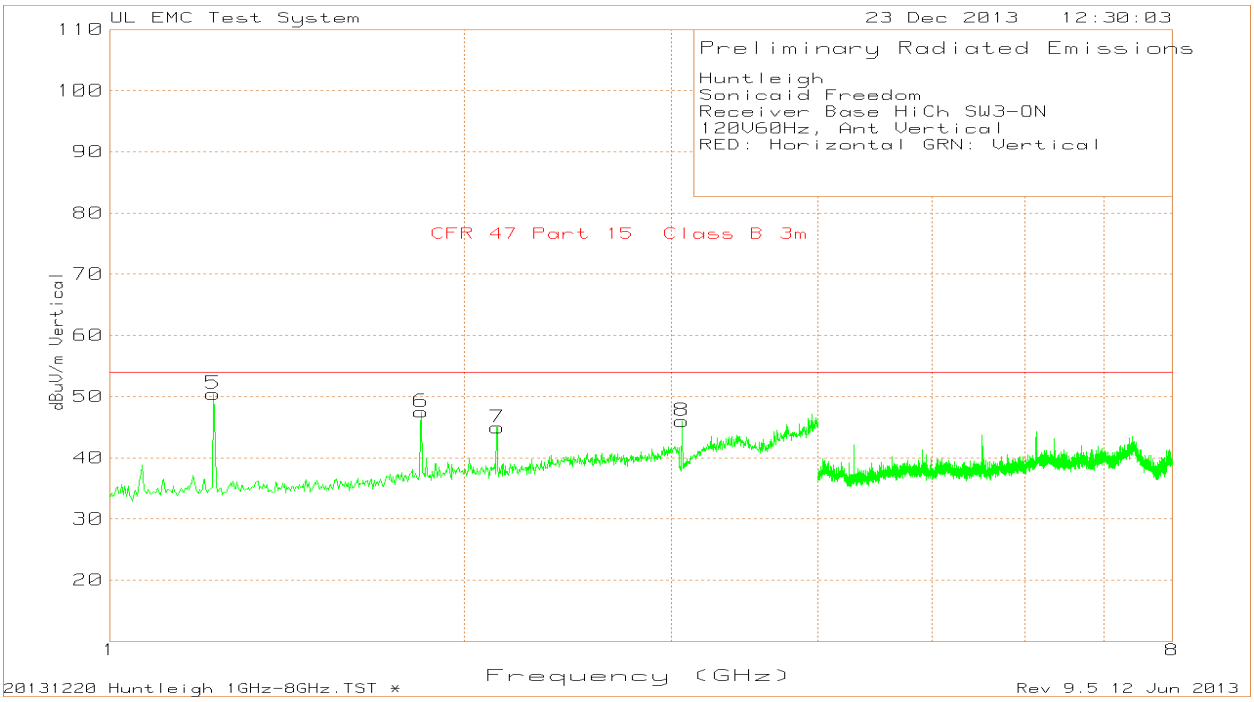
TX Antenna Vertical, Middle Channel Pre-scan





TX Antenna Vertical, High Channel Pre-scan





Harmonic Measurements

Test Frequency (GHz)	Meter Reading dBuV	Detector	Antenna Factor dB/m	Path Factor dB	Level dBuV/m	CFR 47 Part 15 Class B 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity	Notes
1.216	78.75	PK	28.6	-55.69	51.66	74	-22.34	338	151	H	1
1.2161	76.54	LnAv	28.6	-55.69	49.45	54	-4.55	338	151	H	1
1.2161	79.6	PK	28.6	-55.69	52.51	74	-21.49	290	137	V	1
1.2161	77.79	LnAv	28.6	-55.69	50.7	54	-3.3	290	137	V	1
3.0402	71.51	PK	33.1	-49.79	54.82	74	-19.18	51	106	H	1
3.0402	68.41	LnAv	33.1	-49.79	51.72	54	-2.28	51	106	H	1
3.0403	68.02	PK	33.1	-49.79	51.33	74	-22.67	180	116	V	1
3.0402	63.56	LnAv	33.1	-49.79	46.87	54	-7.13	180	116	V	1
1.824	73.27	PK	30.2	-53.54	49.93	74	-24.07	265	100	V	1
1.8242	70.03	LnAv	30.2	-53.54	46.69	54	-7.31	265	100	V	1
1.8241	74.06	PK	30.2	-53.54	50.72	74	-23.28	104	100	H	1
1.8242	70.84	LnAv	30.2	-53.54	47.5	54	-6.5	104	100	H	1
3.0527	71.02	PK	33.2	-49.91	54.31	74	-19.69	49	124	H	2
3.0527	67.76	LnAv	33.2	-49.91	51.05	54	-2.95	49	124	H	2
3.0529	68.18	PK	33.2	-49.91	51.47	74	-22.53	181	117	V	2
3.0527	63.89	LnAv	33.2	-49.91	47.18	54	-6.82	181	117	V	2
1.221	79.48	PK	28.6	-55.68	52.4	74	-21.6	44	100	V	2
1.2211	77.3	LnAv	28.6	-55.68	50.22	54	-3.78	44	100	V	2
1.221	79.71	PK	28.6	-55.68	52.63	74	-21.37	46	139	H	2
1.2211	78.02	LnAv	28.6	-55.68	50.94	54	-3.06	46	139	H	2
1.8316	74.2	PK	30.3	-53.52	50.98	74	-23.02	97	100	H	2
1.8317	70.93	LnAv	30.3	-53.52	47.71	54	-6.29	97	100	H	2
1.8317	72.64	PK	30.3	-53.52	49.42	74	-24.58	265	100	V	2
1.8317	68.86	LnAv	30.3	-53.52	45.64	54	-8.36	265	100	V	2
3.0648	71.36	PK	33.3	-50.04	54.62	74	-19.38	50	105	H	3
3.065	68.37	LnAv	33.3	-50.05	51.62	54	-2.38	50	105	H	3
3.0649	69.07	PK	33.3	-50.05	52.32	74	-21.68	178	116	V	3
3.065	64.26	LnAv	33.3	-50.05	47.51	54	-6.49	178	116	V	3
1.2259	80.23	PK	28.7	-55.69	53.24	74	-20.76	62	100	V	3
1.226	78.41	LnAv	28.7	-55.69	51.42	54	-2.58	62	100	V	3
1.2258	79.51	PK	28.7	-55.69	52.52	74	-21.48	205	152	H	3
1.226	77.44	LnAv	28.7	-55.69	50.45	54	-3.55	205	152	H	3
1.8389	73.83	PK	30.3	-53.51	50.62	74	-23.38	99	100	H	3
1.839	70.88	LnAv	30.3	-53.51	47.67	54	-6.33	99	100	H	3
1.839	72.26	PK	30.3	-53.51	49.05	74	-24.95	324	100	V	3
1.839	68.44	LnAv	30.3	-53.51	45.23	54	-8.77	324	100	V	3

PK - Peak detector
LnAv - Linear Average detector
Notes:
1 - Low Channel Ant Vert
2 - Middle Channel Ant Vert
3 - High Channel Ant Vert
4 - High Channel Ant Horz
5 - Middle Channel Ant Horz
6 - Low Channel Ant Horz

Test Frequency (GHz)	Meter Reading dBuV	Detector	Antenna Factor dB/m	Path Factor dB	Level dBuV/m	CFR 47 Part 15 Class B 3m dBuV/m	Margin dB	Azimuth [Degs]	Height [cm]	Polarity	Notes
1.8388	74.38	PK	30.3	-53.51	51.17	74	-22.83	95	100	H	4
1.839	71.62	LnAv	30.3	-53.51	48.41	54	-5.59	95	100	H	4
1.2261	81.46	PK	28.7	-55.69	54.47	74	-19.53	167	141	H	4
1.226	79.94	LnAv	28.7	-55.69	52.95	54	-1.05	167	141	H	4
3.0649	71.77	PK	33.3	-50.05	55.02	74	-18.98	47	106	H	4
3.065	68.94	LnAv	33.3	-50.05	52.19	54	-1.81	47	106	H	4
3.0648	69.57	PK	33.3	-50.04	52.83	74	-21.17	183	115	V	4
3.065	65.57	LnAv	33.3	-50.05	48.82	54	-5.18	183	115	V	4
1.2261	78.39	PK	28.7	-55.69	51.4	74	-22.6	95	100	V	4
1.226	76.42	LnAv	28.7	-55.69	49.43	54	-4.57	95	100	V	4
1.839	72.97	PK	30.3	-53.51	49.76	74	-24.24	150	161	V	4
1.839	69.63	LnAv	30.3	-53.51	46.42	54	-7.58	150	161	V	4
1.2211	77.84	PK	28.6	-55.68	50.76	74	-23.24	92	100	V	5
1.2211	75.64	LnAv	28.6	-55.68	48.56	54	-5.44	92	100	V	5
1.8316	73.3	PK	30.3	-53.52	50.08	74	-23.92	152	167	V	5
1.8317	69.87	LnAv	30.3	-53.52	46.65	54	-7.35	152	167	V	5
3.0528	70.03	PK	33.2	-49.91	53.32	74	-20.68	179	137	V	5
3.0528	65.66	LnAv	33.2	-49.91	48.95	54	-5.05	179	137	V	5
3.0529	71.46	PK	33.2	-49.91	54.75	74	-19.25	48	105	H	5
3.0528	68.56	LnAv	33.2	-49.91	51.85	54	-2.15	48	105	H	5
1.8317	74.33	PK	30.3	-53.52	51.11	74	-22.89	95	100	H	5
1.8317	71.4	LnAv	30.3	-53.52	48.18	54	-5.82	95	100	H	5
1.2211	80.97	PK	28.6	-55.68	53.89	74	-20.11	199	146	H	5
1.2211	79.29	LnAv	28.6	-55.68	52.21	54	-1.79	199	146	H	5
1.2161	79.98	PK	28.6	-55.69	52.89	74	-21.11	199	141	H	6
1.2161	78.19	LnAv	28.6	-55.69	51.1	54	-2.9	199	141	H	6
1.8243	74.37	PK	30.2	-53.54	51.03	74	-22.97	96	100	H	6
1.8242	71.55	LnAv	30.2	-53.54	48.21	54	-5.79	96	100	H	6
3.0401	71.24	PK	33.1	-49.79	54.55	74	-19.45	48	106	H	6
3.0402	68.61	LnAv	33.1	-49.79	51.92	54	-2.08	48	106	H	6
3.0402	68.85	PK	33.1	-49.79	52.16	74	-21.84	175	117	V	6
3.0403	64.71	LnAv	33.1	-49.79	48.02	54	-5.98	175	117	V	6
1.8241	73.59	PK	30.2	-53.54	50.25	74	-23.75	159	160	V	6
1.8242	70.48	LnAv	30.2	-53.54	47.14	54	-6.86	159	160	V	6
1.2161	77.18	PK	28.6	-55.69	50.09	74	-23.91	108	100	V	6
1.2161	74.92	LnAv	28.6	-55.69	47.83	54	-6.17	108	100	V	6

PK - Peak detector
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Notes:
1 - Low Channel Ant Vert
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4 - High Channel Ant Horz
5 - Middle Channel Ant Horz
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7.2.4. FREQUENCY STABILITY

LIMIT

§2.1055 & 95.1115 (e) Manufacturers of wireless medical telemetry devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all of the manufacturer's specific conditions.

TEST PROCEDURE

RSS-132, RSS-133, & ANSI / TIA / EIA 603C Clause 2.3.1 and 2.3.2

RESULTS

No non-compliance noted.

Middle Channel Frequency Stability

	Temperature deg C	Center Frequency MHz	Frequency Error MHz from 610.5375MHz	Frequency Error PPM from 610.5375 MHz	**Low Channel Error - Edge Frequency MHz**	**High Channel Error - Edge Frequency Error**
Temperature Variation	-30	610.5376000	0.0001000	0.163790103	**608.025625**	**612.999585**
	-20	610.5376125	0.0001125	0.184263866	**608.025638**	**612.999598**
	-10	610.5376375	0.0001375	0.225211392	**608.025663**	**612.999623**
	0	610.5376875	0.0001875	0.307106443	**608.025713**	**612.999673**
	10	610.5378875	0.0003875	0.634686649	**608.025913**	**612.999873**
	20	610.5380000	0.0005000	0.818950515	**608.026025**	**612.999985**
	25	610.5378625	0.0003625	0.593739123	**608.025888**	**612.999848**
	30	610.5379250	0.0004250	0.696107938	**608.025950**	**612.999910**
	40	610.5377500	0.0002500	0.409475257	**608.025775**	**612.999735**
	50	610.5374625	-0.0000375	-0.061421289	**608.025488**	**612.999448**
Voltage Variation	Vnom 120V	610.5380750	0.0005750	0.942	**608.026100**	**613.000060**
	Vnom - 10%	610.5380625	0.0005625	0.921	**608.026088**	**613.000048**
	Vnom + 10%	610.5380625	0.0005625	0.921	**608.026088**	**613.000048**

Low Channel Frequency MHz	**High Channel Frequency MHz**
608.0375000	**612.9875000**
Low Channel 26dB BW MHz	**High Channel 26dB BW MHz**
0.02395	**0.02397**
Low Channel Lower Edge MHz	**High Channel Upper Edge MHz**
608.025525	**612.999485**

* Temperature stability was measured only while the device was operating on the middle channel. The frequency change along with the 26dB Bandwidth of the low and high channels was used to determine if the device will operate within allocated frequency band of 608MHz to 614MHz. In all cases it was found that the device operated within specified frequency range.

8. AC MAINS LINE CONDUCTED EMISSIONS

LIMITS

§15.207 (a)
IC RSS-GEN, Section 7.2.2

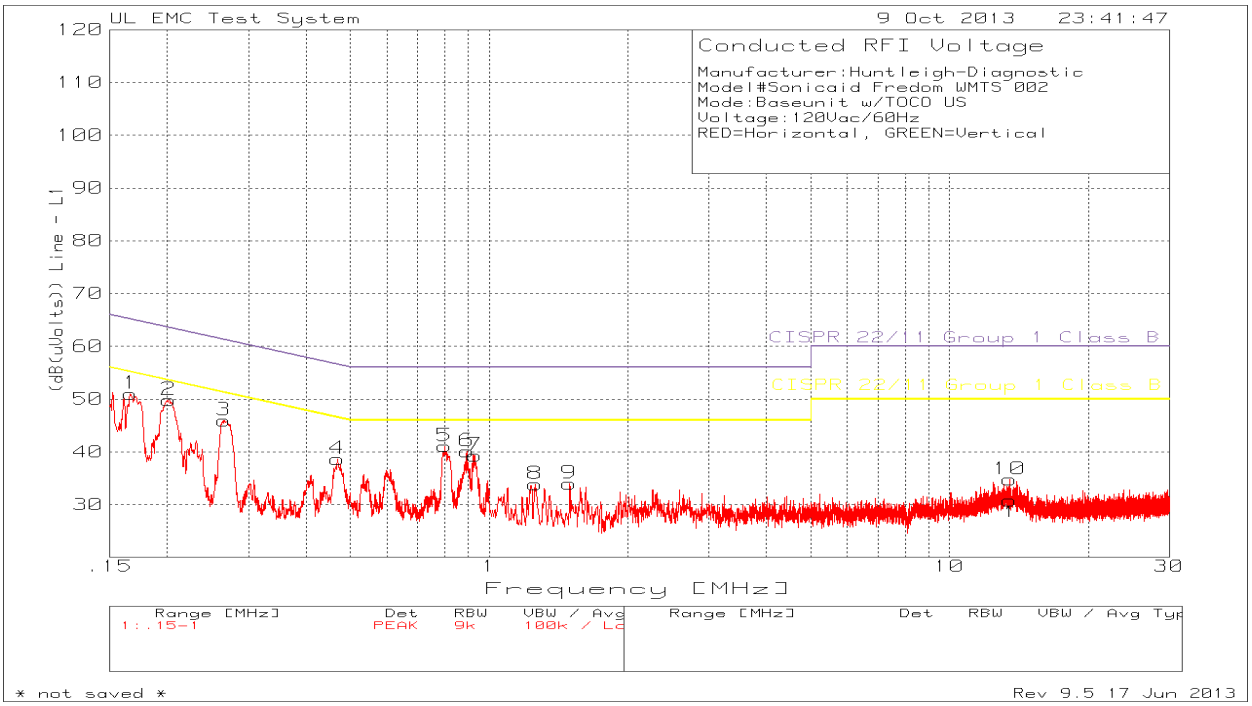
Frequency of emission (MHz)	Conducted Limit (dBµV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56*	56 to 46*
0.50 to 5	56	46
5 to 30	60	50
* Decreases with the logarithm of the frequency.		

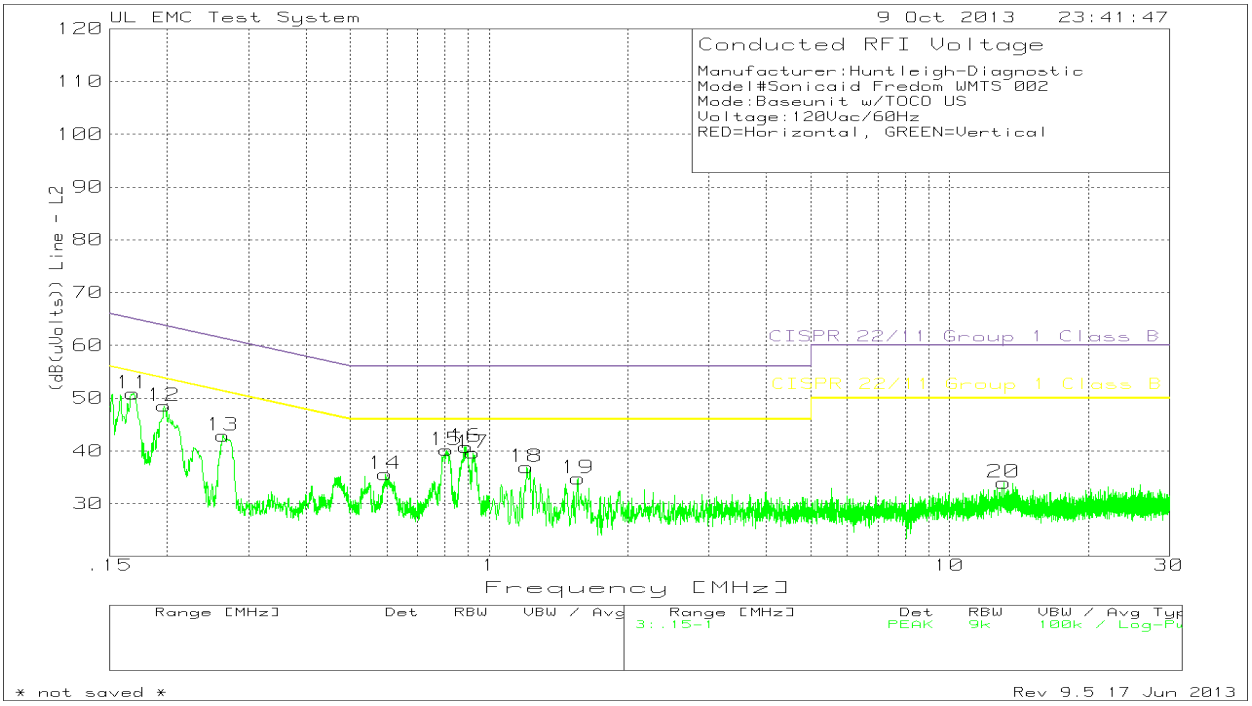
TEST PROCEDURE

ANSI C63.4

RESULTS

No non-compliance noted:





Manufacturer:Huntleigh-Diagnostic
Model#Sonicaid Fredom WMTS 002
Mode:Baseunit w/TOCO US
Voltage:120Vac/60Hz
RED=Horizontal, GREEN=Vertical

Trace Markers

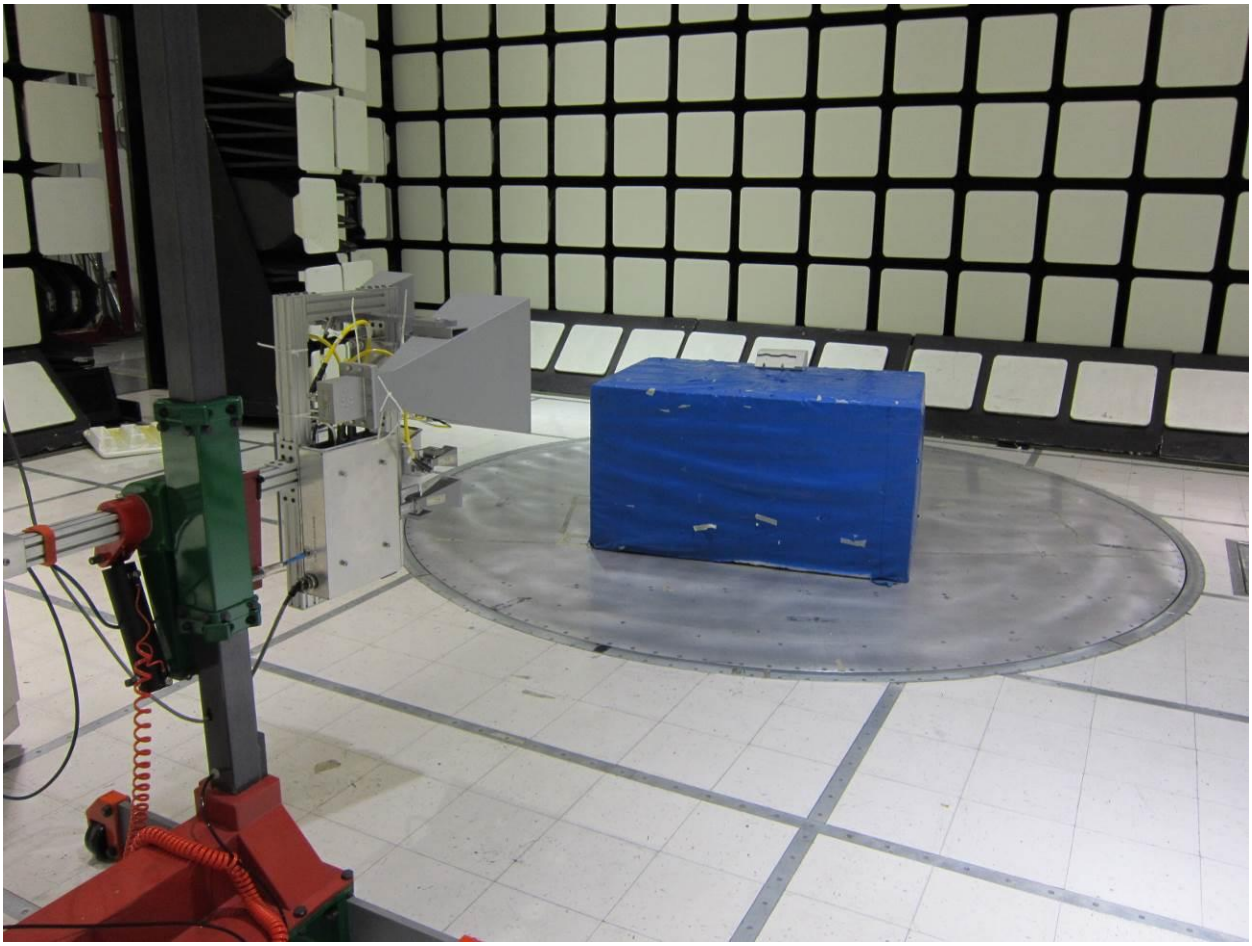
No.	Test Frequency [MHz]	Meter Reading	Transducer Factor [dB]	Gain/Loss Factor [dB]	Corrected Reading (dB(uVolts))	Limit:1	2	3	4	5	6
Line - L1 .15 - 1MHz											
1	.16635	37.57dBuV PK	.1	13.3	50.97	-	-	65.14	55.14	-	-
				Margin [dB]		-	-	-14.17	-4.17	-	-
2	.2016	38.25dBuV PK	.1	11.5	49.85	-	-	63.54	53.54	-	-
				Margin [dB]		-	-	-13.69	-3.69	-	-
3	.26551	34.77dBuV PK	.1	11.1	45.97	-	-	61.26	51.26	-	-
				Margin [dB]		-	-	-15.29	-5.29	-	-
4	.4683	27.89dBuV PK	.1	10.7	38.69	-	-	56.54	46.54	-	-
				Margin [dB]		-	-	-17.85	-7.85	-	-
5	.79976	30.4dBuV PK	.1	10.6	41.1	-	-	56	46	-	-
				Margin [dB]		-	-	-14.9	-4.9	-	-
6	.89362	29.43dBuV PK	.1	10.6	40.13	-	-	56	46	-	-
				Margin [dB]		-	-	-15.87	-5.87	-	-
7	.93057	28.57dBuV PK	.1	10.6	39.27	-	-	56	46	-	-
				Margin [dB]		-	-	-16.73	-6.73	-	-
Line - L1 1 - 30MHz											
8	1.25715	23.12dBuV PK	.1	10.6	33.82	-	-	56	46	-	-
				Margin [dB]		-	-	-22.18	-12.18	-	-
9	1.49619	23.27dBuV PK	.1	10.6	33.97	-	-	56	46	-	-
				Margin [dB]		-	-	-22.03	-12.03	-	-
10	13.52429	23.44dBuV PK	.2	11.1	34.74	-	-	60	50	-	-
				Margin [dB]		-	-	-25.26	-15.26	-	-
Line - L2 .15 - 1MHz											
11	.16858	37.62dBuV PK	.1	13.2	50.92	-	-	65.03	55.03	-	-
				Margin [dB]		-	-	-14.11	-4.11	-	-
12	.19693	36.94dBuV PK	.1	11.5	48.54	-	-	63.74	53.74	-	-
				Margin [dB]		-	-	-15.2	-5.2	-	-
13	.26424	31.71dBuV PK	.1	11.1	42.91	-	-	61.3	51.3	-	-
				Margin [dB]		-	-	-18.39	-8.39	-	-
14	.59443	24.85dBuV PK	.1	10.6	35.55	-	-	56	46	-	-
				Margin [dB]		-	-	-20.45	-10.45	-	-
15	.80847	29.47dBuV PK	.1	10.6	40.17	-	-	56	46	-	-
				Margin [dB]		-	-	-15.83	-5.83	-	-
16	.89213	30.06dBuV PK	.1	10.6	40.76	-	-	56	46	-	-
				Margin [dB]		-	-	-15.24	-5.24	-	-
17	.92377	28.94dBuV PK	.1	10.6	39.64	-	-	56	46	-	-
				Margin [dB]		-	-	-16.36	-6.36	-	-
Line - L2 1 - 30MHz											
18	1.20644	26.25dBuV PK	.1	10.6	36.95	-	-	56	46	-	-
				Margin [dB]		-	-	-19.05	-9.05	-	-
19	1.55776	24.05dBuV PK	.1	10.6	34.75	-	-	56	46	-	-
				Margin [dB]		-	-	-21.25	-11.25	-	-
20	13.12951	22.67dBuV PK	.2	11.1	33.97	-	-	60	50	-	-
				Margin [dB]		-	-	-26.03	-16.03	-	-

LIMIT 3: CISPR 22/11 Group 1 Class B QP
LIMIT 4: CISPR 22/11 Group 1 Class B AV

PK - Peak detector

9. SETUP PHOTOS

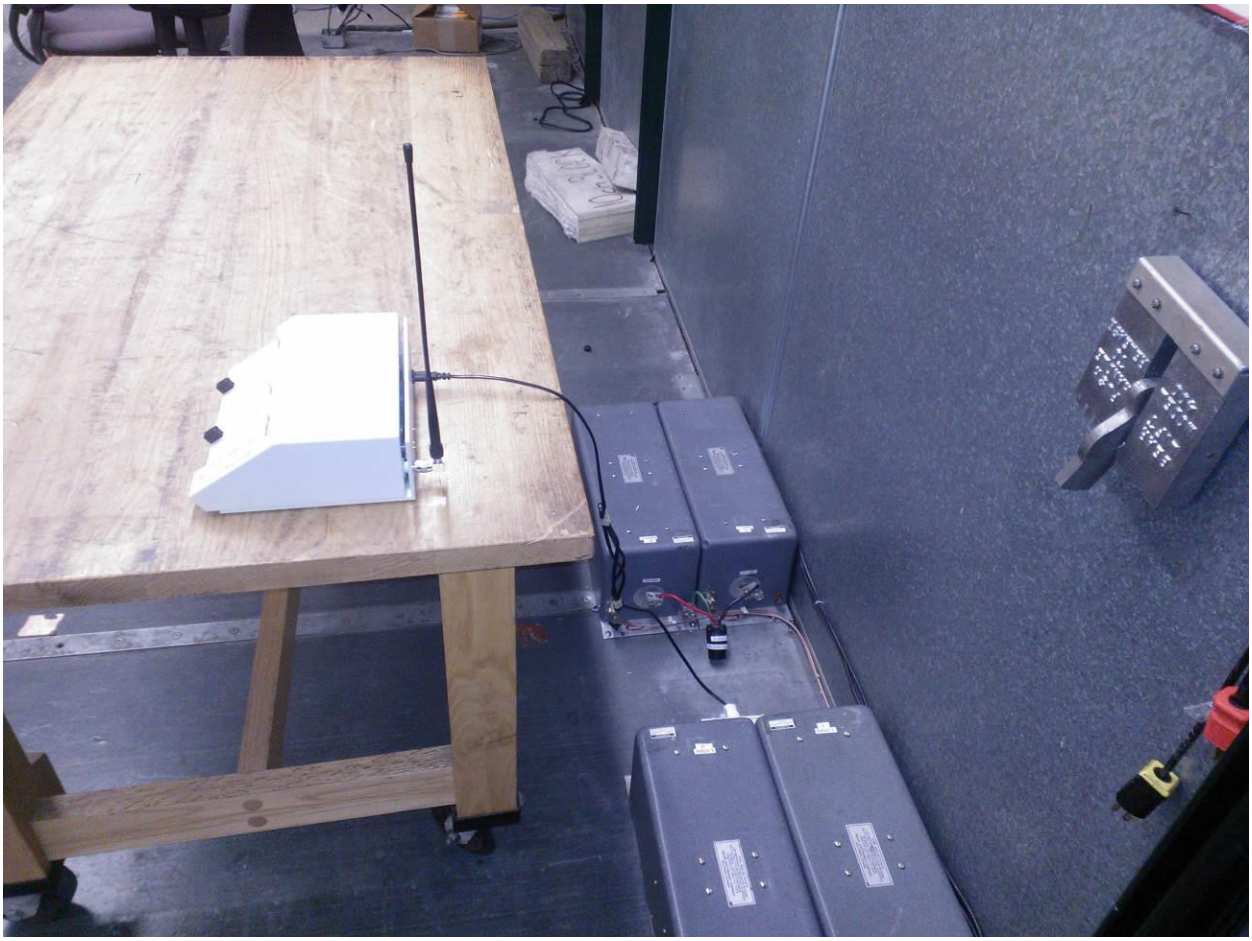
Radiated Emissions



Radiated Emissions – Antenna Vertical

Radiated Emissions – Antenna Horizontal

Line Conducted Emissions



END OF REPORT

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333 Pfingsten Road, Northbrook, IL 60062 TEL: (847) 272-8800