

TEST REPORT FROM RFI GLOBAL SERVICES LTD

Test of: XE500T1C

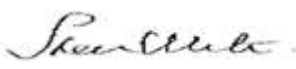
FCC ID: A3LXE500T1C-N

Industry Canada Certification Number: 649E-XE500T1C

To: FCC Part 15.225: 2011 Subpart C, RSS-210 Issue 8 December 2010
& RSS-Gen Issue 3 December 2010

Test Report Serial No.:
RFI-RPT-RP89958JD06A V3.0

Version 3.0 Supersedes All Previous Versions

This Test Report Is Issued Under The Authority Of John Newell, Group Quality Manager:		
Checked By:	Ian Watch	
Signature:	pp	
Date of Issue:	09 October 2012	

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1. Customer Information

Company Name:	Samsung Electronics Co. Ltd.
Address:	416, Maetan-3Dong, Yeongtong-Gu, Suwon-City, Gyeonggi-Do, 443-742, Korea

2. Summary of Testing

2.1. General Information

Specification Reference:	47CFR15.225
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 15 Subpart C (Radio Frequency Devices) - Section 15.225
Specification Reference:	47CFR15.107 and 47CFR15.109
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 15 Subpart B (Radio Frequency Devices) - Sections 15.107 and 15.109
Specification Reference:	47CFR15.209
Specification Title:	Code of Federal Regulations Volume 47 (Telecommunications) 2011: Part 15 Subpart C (Intentional Radiators) - Section 15.209
Specification Reference:	RSS-Gen Issue 3 December 2010
Specification Title:	General Requirements and Information for the Certification of Radio Apparatus
Specification Reference:	RSS-210 Issue 8 December 2010
Specification Title:	Licence-exempt Radio Apparatus (All Frequency Bands): Category I Equipment.
Site Registration:	FCC: 209735; Industry Canada: 3245B-2
Location of Testing:	RFI Global Services Ltd, Wade Road, Basingstoke, Hampshire, RG24 8AH.
Test Dates:	23 August 2012 to 07 September 2012

2.2. Summary of Test Results

FCC Reference (47CFR)	IC Reference	Measurement	Result
Part 15.107(a)	RSS-Gen 7.2.4	Receiver/Idle Mode AC Conducted Emissions	
Part 15.109	RSS-Gen 4.10/6.1	Receiver/Idle Mode Radiated Spurious Emissions	
Part 15.207	RSS-Gen 7.2.4	Transmitter AC Conducted Emissions	
Part 15.225(a)(b)(c)(d)	RSS-Gen 4.8 RSS-210 A2.6	Transmitter Fundamental Field Strength	
Part 15.209(a)/ 15.225(d)	RSS-Gen 4.9 RSS-210 A2.6	Transmitter Radiated Emissions	
Part 15.209(a)/ 15.225(c)(d)	RSS-Gen 4.9 RSS-210 A2.6	Transmitter Band Edge Radiated Emissions	
Part 2.1049	N/A	Transmitter 20 dB Bandwidth	
N/A	RSS-Gen 4.6.1/4.6.3	Transmitter Occupied bandwidth	
Part 15.225(e)	RSS-Gen 4.7 RSS-210 A2.6	Transmitter Frequency Stability (Temperature & Voltage Variation)	
Key to Results  = Complied  = Did not comply			

2.3. Methods and Procedures

Reference:	ANSI C63.4 (2009)
Title:	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz
Reference:	ANSI C63.10 (2009)
Title:	American National Standard for Testing Unlicensed Wireless Devices

2.4. Deviations from the Test Specification

For the measurements contained within this test report, there were no deviations from, additions to, or exclusions from the test specification identified above.

3. Equipment Under Test (EUT)

3.1. Identification of Equipment Under Test (EUT)

Brand Name:	Samsung
Model Name or Number:	XE500T1C
Serial Number:	HX2W91SC700010A (Radiated sample #1)
Hardware Version Number:	PV
Software Version Number:	Window OS
FCC ID:	A3LXE500T1C-N
Industry Canada Certification Number:	649E-XE500T1C

Brand Name:	Samsung
Model Name or Number:	XE500T1C
Serial Number:	HX2W91SC700004R (Radiated sample #2)
Hardware Version Number:	PV
Software Version Number:	Window OS
FCC ID:	A3LXE500T1C-N
Industry Canada Certification Number:	649E-XE500T1C

Brand Name:	Not stated
Description:	AC Charger
Model Name or Number:	Not stated
Serial Number:	CNS440001595DON825J00RA

3.2. Description of EUT

The equipment under test was a Tablet PC with 3G, *Bluetooth*, IEEE 802.11a,b,g,n and NFC operating at 13.56 MHz.

3.3. Modifications Incorporated in the EUT

No modifications were applied to the EUT during testing.

3.4. Additional Information Related to Testing

Tested Technology:	RFID	
Category of Equipment:	Transceiver	
Channel Spacing:	Single channel device	
Transmit Frequency Range:	13.56 MHz	
Receive Frequency Range:	13.56 MHz	
Power Supply Requirement:	Nominal	7.8 VDC via 120 VAC 60 Hz adaptor
	Minimum	6.63 VDC
	Maximum	8.97 VDC
Tested Temperature Range:	Minimum	-20°C
	Maximum	50°C

3.5. Support Equipment

The following support equipment was used to exercise the EUT during testing:

Description:	USIM
Brand Name:	Comprion
Model Name or Number:	Micro USIM

Description:	SD RAM
Brand Name:	San Disk
Model Name or Number:	8 GB

Description:	USB Hub
Brand Name:	Belkin
Model Name or Number:	F5U404-BLK
Serial Number:	D12-00047182

Brand Name:	Not stated
Description:	Micro USB to USB cable
Model Name or Number:	Not stated

Brand Name:	Not stated
Description:	HDMI cable
Model Name or Number:	Not stated

Description:	Cyclone Micro Media Player Adaptor
Brand Name:	Sumvision
Model Name or Number:	Cyclone Micro
Serial Number:	RFI Asset No. A1986

4. Operation and Monitoring of the EUT during Testing

4.1. Operating Modes

The EUT was tested in the following operating mode(s):

- Receiver/Idle mode
- Constantly transmitting at full power with a modulated carrier in RFID test mode.

4.2. Configuration and Peripherals

The EUT was tested in the following configuration(s):

- Controlled using a test application on the EUT, by pressing sequence of buttons on the front panel display which placed the unit into test mode. The application was used to enable continuous transmission and receive mode and to select the test channels, data rates and modulation schemes as required.
- The EUT with serial number HX2W91SC700010A was set to continuous transmit with 100% duty cycle. This sample was used for all transmit tests.
- The EUT with serial number HX2W91SC700004R was set used for receiver/idle tests.
- All unused ports were terminated during emissions testing.
- AC conducted emissions tests were performed with the AC charger output connected to the EUT. The AC charger input was connected to a 120 VAC 60 Hz single phase supply via a LISN.

5. Measurements, Examinations and Derived Results

5.1. General Comments

Measurement uncertainties are evaluated in accordance with current best practice. Our reported expanded uncertainties are based on standard uncertainties, which are multiplied by an appropriate coverage factor to provide a statistical confidence level of approximately 95%. Please refer to *Section 6: Measurement Uncertainties* for details.

5.2. Test Results**5.2.1. Receiver/Idle Mode AC Conducted Spurious Emissions****Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	23 August 2012
Test Sample Serial Number:	HX2W91SC700004R		

FCC Reference:	Part 15.107(a)
Industry Canada Reference:	RSS-Gen 7.2.4
Test Method Used:	ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	25
Relative Humidity (%):	45

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Results: Live / Quasi Peak**

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.155	Live	51.0	65.8	14.8	Complied
0.168	Live	51.5	65.1	13.6	Complied
0.222	Live	42.0	62.7	20.7	Complied
14.361	Live	24.6	60.0	35.4	Complied
16.899	Live	32.3	60.0	27.7	Complied
19.280	Live	31.3	60.0	28.7	Complied

Results: Live / Average

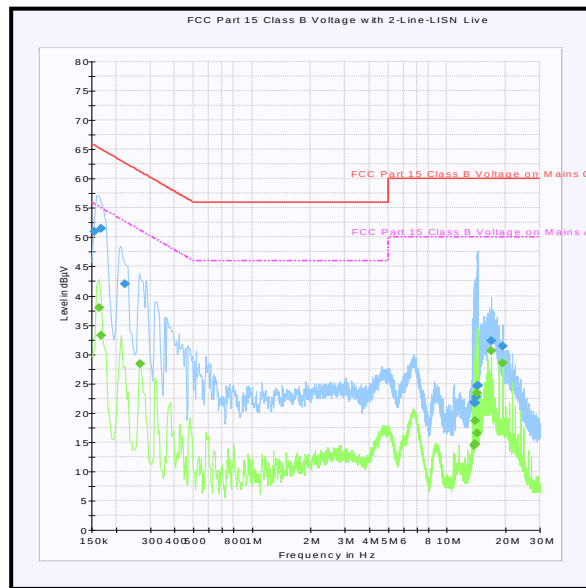
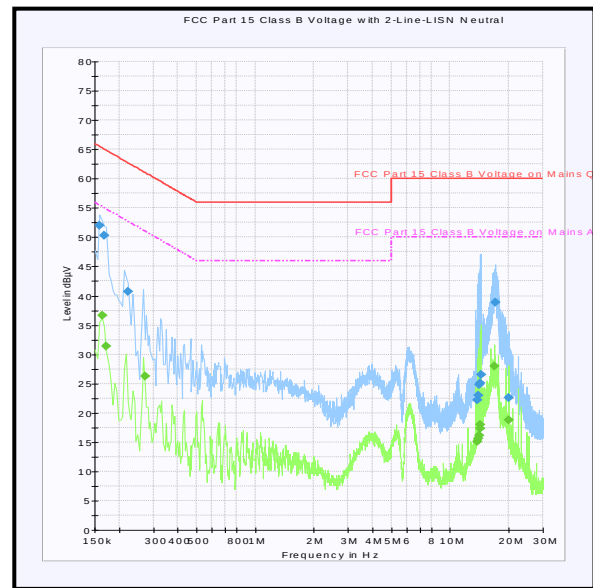
Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.164	Live	37.9	55.3	17.4	Complied
0.168	Live	33.3	55.1	21.8	Complied
0.267	Live	28.4	51.2	22.8	Complied
14.028	Live	18.6	50.0	31.4	Complied
14.276	Live	23.3	50.0	26.7	Complied
19.284	Live	28.4	50.0	21.6	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Results: Neutral / Quasi Peak**

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.159	Neutral	52.1	65.5	13.4	Complied
0.168	Neutral	50.3	65.1	14.8	Complied
0.222	Neutral	40.7	62.7	22.0	Complied
14.267	Neutral	25.1	60.0	34.9	Complied
14.388	Neutral	26.6	60.0	33.4	Complied
17.025	Neutral	38.9	60.0	21.1	Complied

Results: Neutral / Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.164	Neutral	36.6	55.3	18.7	Complied
0.173	Neutral	31.3	54.8	23.5	Complied
0.272	Neutral	26.2	51.1	24.9	Complied
14.357	Neutral	17.9	50.0	32.1	Complied
16.962	Neutral	28.0	50.0	22.0	Complied
20.058	Neutral	18.7	50.0	31.3	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Live****Neutral**

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Equipment Used:

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
M1263	EMI Test Receiver	ESIB 7	04 Apr 2013	12
A1830	Pulse Limiter	ESH3-Z2	25 Feb 2013	12
A649	Single Phase LISN	ESH3-Z5	19 Feb 2013	12

5.2.2. Receiver/Idle Mode Radiated Spurious Emissions**Test Summary:**

Test Engineers:	Andrew Edwards & Nick Steele	Test Date:	21 August 2012
Test Sample Serial Number:	HX2W91SC700004R		

FCC Reference:	15.109
Industry Canada Reference:	RSS-Gen 4.10/6.1
Test Method Used:	ANSI C63.10 Sections 6.3, 6.4 and 6.5 referencing ANSI C63.4
Frequency Range:	9 kHz to 1000 MHz

Environmental Conditions:

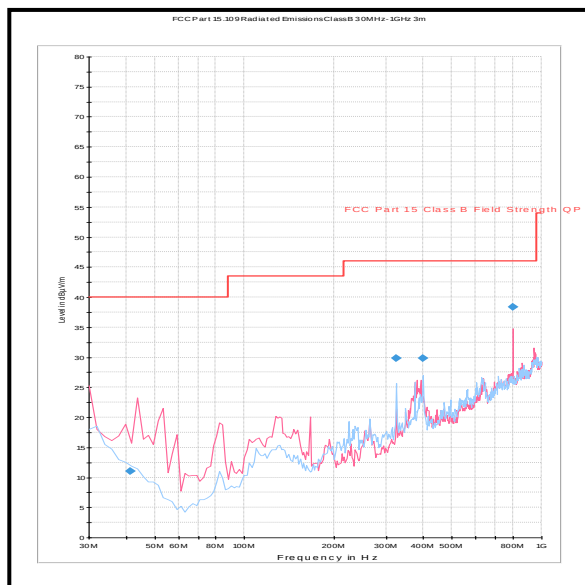
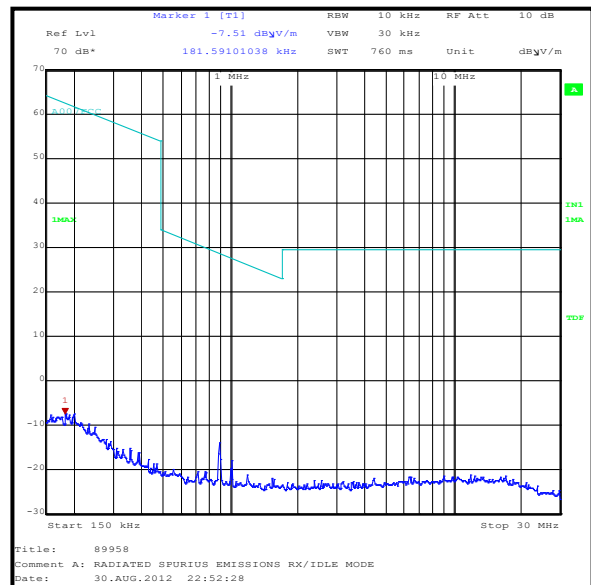
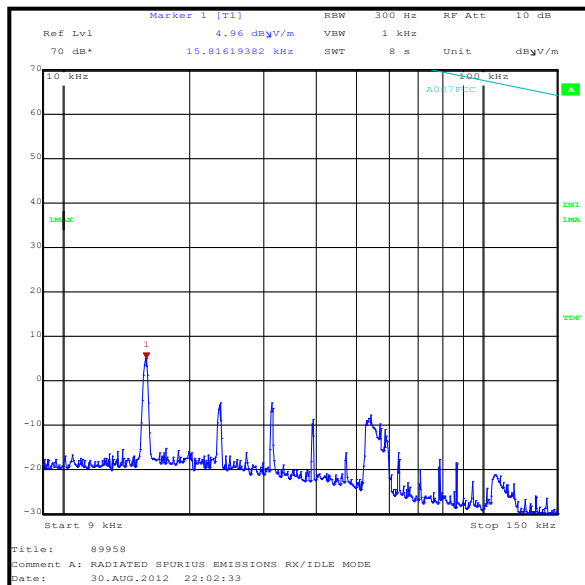
Temperature (°C):	29
Relative Humidity (%):	35

Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
41.486	Vertical	11.1	40.0	28.9	Complied
324.484	Horizontal	29.9	46.0	16.1	Complied
399.372	Horizontal	29.8	46.0	16.2	Complied
798.745	Vertical	38.3	46.0	7.7	Complied

Note(s):

- Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by using the square of an inverse linear distance extrapolation factor (40dB/decade).
- A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required. A distance extrapolation factor of 40 dB was used.
- Final measurement values include corrections for antenna factor and cable losses.
- All emissions on the 9 kHz to 150 kHz plot were investigated and found to be radiating from the test site turntable.
- All other emissions shown on the pre-scan plots were investigated and found to be >20 dB below the applicable limit or below the measurement system noise floor.
- Measurements in the range 30 MHz to 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Receiver/Idle Mode Radiated Spurious Emissions (continued)

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying table.

Receiver/Idle Mode Radiated Spurious Emissions (continued)**Test Equipment Used:**

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
K0001	5m Semi-Anechoic Chamber	N/A	31 Sep 2012	12
A007	Mag Loop Antenna	HFH2-Z2	20 Apr 2013	12
M1273	Test Receiver	ESIB 26	03 Feb 2013	12
A1834	Attenuator	8491B	29 Jan 2013	12
G0543	Amplifier 9KHz - 1GHz	310N	15 Oct 2012	12
A553	Bi-log Antenna	CBL6111A	15 Feb 2013	12

5.2.3. Transmitter AC Conducted Spurious Emissions**Test Summary:**

Test Engineer:	Nick Steele	Test Date:	31 August 2012
Test Sample Serial No:	HX2W91SC700010A		

FCC Reference:	15.207
Industry Canada Reference:	RSS-Gen 7.2.4
Test Method Used:	As detailed in ANSI C63.10 Section 6.2 referencing ANSI C63.4

Environmental Conditions:

Temperature (°C):	23
Relative Humidity (%):	40

Transmitter AC Conducted Spurious Emissions (continued)**Results: Live / Quasi Peak**

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150	Live	45.7	66.0	20.3	Complied
0.150	Live	45.6	66.0	20.4	Complied
3.570	Live	32.0	56.0	24.0	Complied
4.097	Live	31.7	56.0	24.3	Complied
4.704	Live	34.1	56.0	21.9	Complied
4.709	Live	31.9	56.0	24.1	Complied
16.233	Live	34.2	60.0	25.8	Complied
16.238	Live	35.1	60.0	24.9	Complied
18.839	Live	34.7	60.0	25.3	Complied
18.843	Live	35.5	60.0	24.5	Complied

Results: Live / Average

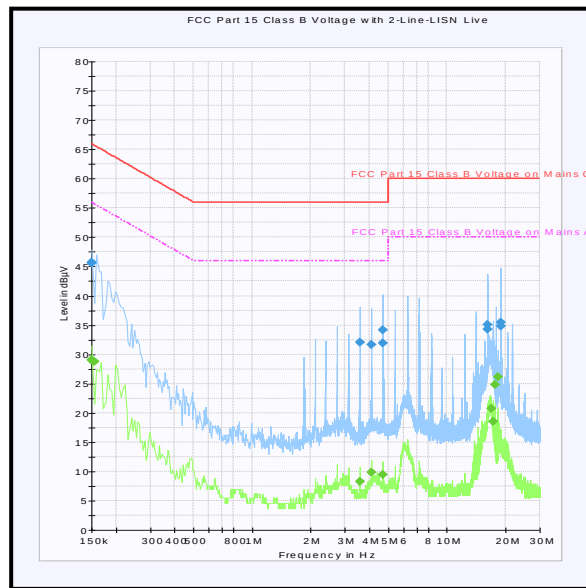
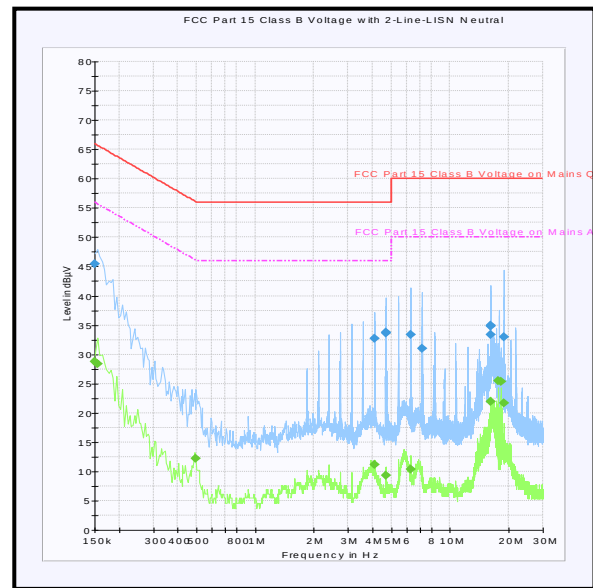
Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150	Live	29.0	56.0	27.0	Complied
0.150	Live	29.0	56.0	27.0	Complied
0.155	Live	28.8	55.8	27.0	Complied
3.570	Live	8.2	46.0	37.8	Complied
4.101	Live	9.9	46.0	36.1	Complied
4.704	Live	9.4	46.0	36.6	Complied
16.836	Live	20.7	50.0	29.3	Complied
17.327	Live	18.6	50.0	31.4	Complied
17.696	Live	24.9	50.0	25.1	Complied
18.245	Live	26.2	50.0	23.8	Complied

Transmitter AC Conducted Spurious Emissions (continued)**Results: Neutral / Quasi Peak**

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150	Neutral	45.5	66.0	20.5	Complied
4.097	Neutral	32.7	56.0	23.3	Complied
4.704	Neutral	33.7	56.0	22.3	Complied
4.704	Neutral	33.8	56.0	22.2	Complied
6.279	Neutral	33.4	60.0	26.6	Complied
7.215	Neutral	31.0	60.0	29.0	Complied
16.229	Neutral	34.8	60.0	25.2	Complied
16.233	Neutral	34.9	60.0	25.1	Complied
16.247	Neutral	33.4	60.0	26.6	Complied
18.825	Neutral	33.0	60.0	27.0	Complied

Results: Neutral / Average

Frequency (MHz)	Line	Level (dB μ V)	Limit (dB μ V)	Margin (dB)	Result
0.150	Neutral	28.7	56.0	27.3	Complied
0.155	Neutral	28.4	55.8	27.4	Complied
0.492	Neutral	12.2	46.1	33.9	Complied
4.097	Neutral	11.2	46.0	34.8	Complied
4.704	Neutral	9.4	46.0	36.6	Complied
6.284	Neutral	10.4	50.0	39.6	Complied
16.229	Neutral	21.9	50.0	28.1	Complied
17.691	Neutral	25.5	50.0	24.5	Complied
18.245	Neutral	25.4	50.0	24.6	Complied
18.915	Neutral	21.6	50.0	28.4	Complied

Receiver/Idle Mode AC Conducted Spurious Emissions (continued)**Live****Neutral**

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying tables.

Test Equipment Used:

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
M1263	EMI Test Receiver	ESIB 7	04 Apr 2013	12
A1830	Pulse Limiter	ESH3-Z2	25 Feb 2013	12
A649	Single Phase LISN	ESH3-Z5	19 Feb 2013	12

5.2.4. Transmitter Fundamental Field Strength**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	30 August 2012
Test Sample Serial No:	HX2W91SC700010A		

FCC Reference:	15.225(a)(b)(c)(d)
Industry Canada Reference:	RSS-Gen 4.8/RSS-210 A2.6
Test Method Used:	ANSI C63.10 Section 6.4

Environmental Conditions:

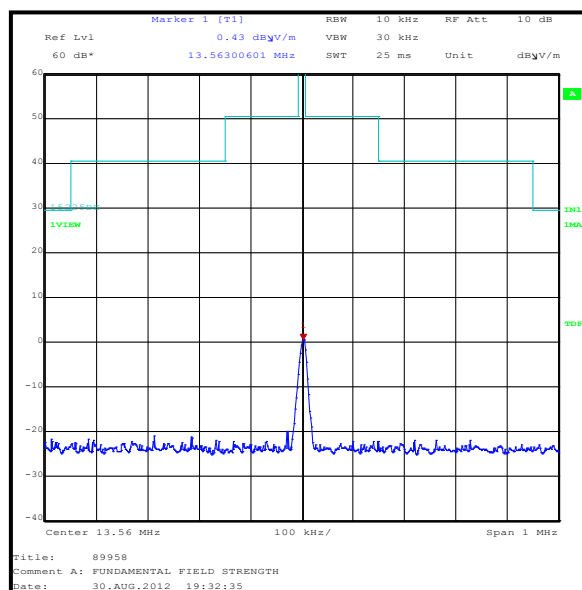
Temperature (°C):	27
Relative Humidity (%):	39

Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit at 30 m (dB μ V/m)	Margin (dB)	Result
13.56	45° to EUT	-5.8	84.0	89.8	Complied

Note(s):

1. The limit is specified at a test distance of 30 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by using the square of an inverse linear distance extrapolation factor (40dB/decade).
2. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres. A distance extrapolation factor of 40 dB was used.
3. Pre-scans were performed with a peak detector. Final measurements were performed with a quasi peak detector.



Transmitter Fundamental Field Strength (continued)**Test Equipment Used:**

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
K0001	5m Semi-Anechoic Chamber	N/A	31 Sep 2012	12
A007	Mag Loop Antenna	HFH2-Z2	20 Apr 2013	12
M1273	Test Receiver	ESIB 26	03 Feb 2013	12

5.2.5. Transmitter Radiated Spurious Emissions**Test Summary:**

Test Engineer:	Andrew Edwards & Nick Steele	Test Date:	30 August 2012
Test Sample Serial No:	HX2W91SC700010A		

FCC Reference:	15.225(d) & 15.209(a)
Industry Canada Reference:	RSS-Gen 4.9 & RSS-210 A2.6
Test Method Used:	As detailed in ANSI C63.10 Sections 6.3, 6.4 and 6.5 referencing ANSI C63.4
Frequency Range:	9 kHz to 1000 MHz

Environmental Conditions:

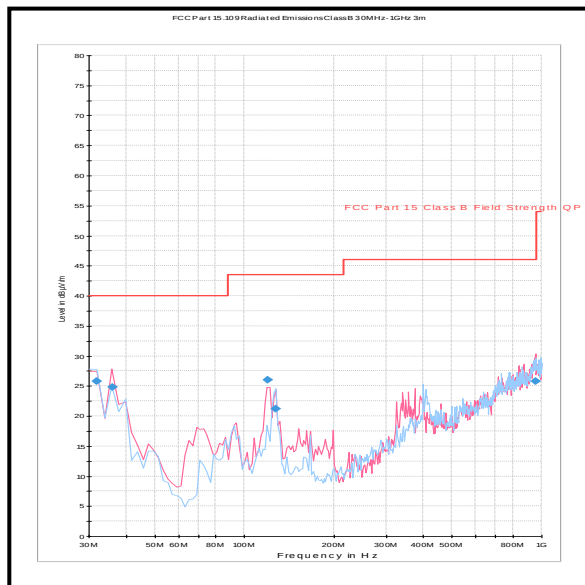
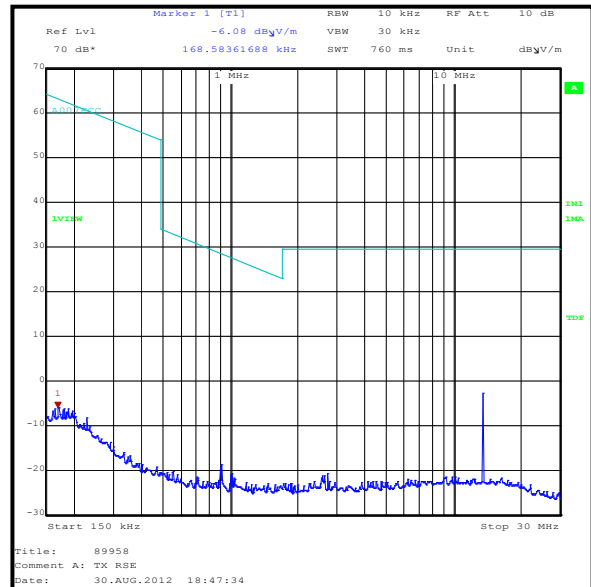
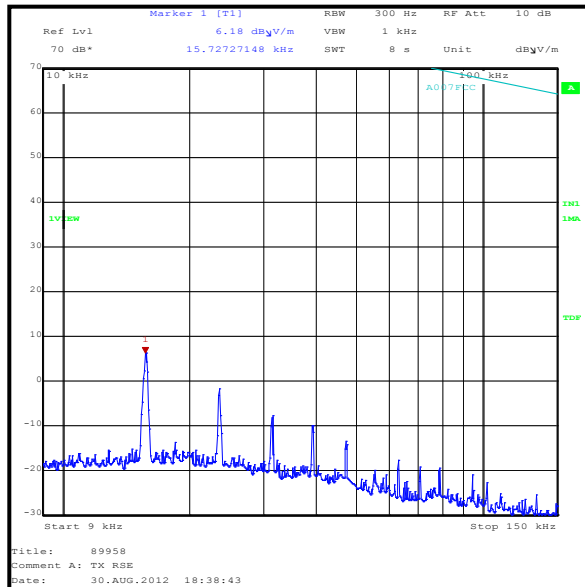
Temperature (°C):	27
Relative Humidity (%):	40

Results: Quasi Peak

Frequency (MHz)	Antenna Polarity	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
31.986	Horizontal	25.8	40.0	14.2	Complied
36.125	Vertical	24.8	40.0	15.2	Complied
120.319	Vertical	26.1	43.5	17.4	Complied
127.873	Horizontal	21.2	43.5	22.3	Complied
954.006	Vertical	25.8	46.0	20.2	Complied

Note(s):

- Limits below 30 MHz are specified at a test distance of 30 metres, whilst below 0.49 MHz they are specified at a test distance of 300 metres. However, as specified by FCC Section 15.31 (f)(2), measurements may be performed at a closer distance and the measured level corrected to the specified measurement distance by using the square of an inverse linear distance extrapolation factor (40dB/decade).
- A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required. A distance extrapolation factor of 40 dB was used.
- Final measurement values include corrections for antenna factor and cable losses.
- The emission shown at approximately 13.56 MHz is the fundamental.
- All emissions on the 9 kHz to 150 kHz plot were investigated and found to be radiating from the test site turntable.
- All other emissions shown on the pre-scan plots were investigated and found to be >20 dB below the applicable limit or below the measurement system noise floor.
- Measurements in the range 30 MHz to 1 GHz were performed in a semi-anechoic chamber (RFI Asset Number K0001) at a distance of 3 metres. The EUT was placed at a height of 80 cm above the reference ground plane in the centre of the chamber turntable. Maximum emission levels were determined by height searching the measurement antenna over the range 1 metre to 4 metres.

Transmitter Radiated Spurious Emissions (continued)

Note: These plots are pre-scans and for indication purposes only. For final measurements, see accompanying table.

Transmitter Radiated Spurious Emissions (continued)**Test Equipment Used:**

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
K0001	5m Semi-Anechoic Chamber	N/A	31 Sep 2012	12
A007	Mag Loop Antenna	HFH2-Z2	20 Apr 2013	12
M1273	Test Receiver	ESIB 26	03 Feb 2013	12
A1834	Attenuator	8491B	29 Jan 2013	12
G0543	Amplifier 9KHz - 1GHz	310N	15 Oct 2012	12
A553	Bi-log Antenna	CBL6111A	15 Feb 2013	12

5.2.6. Transmitter Band Edge Radiated Emissions**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	30 August 2012
Test Sample Serial No:	HX2W91SC700010A		

FCC Reference:	15.225(c)(d) & 15.209(a)
Industry Canada Reference:	N/A
Test Method Used:	ANSI C63.10 Section 6.9.2

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	39

Results: Quasi Peak Lower Band Edge

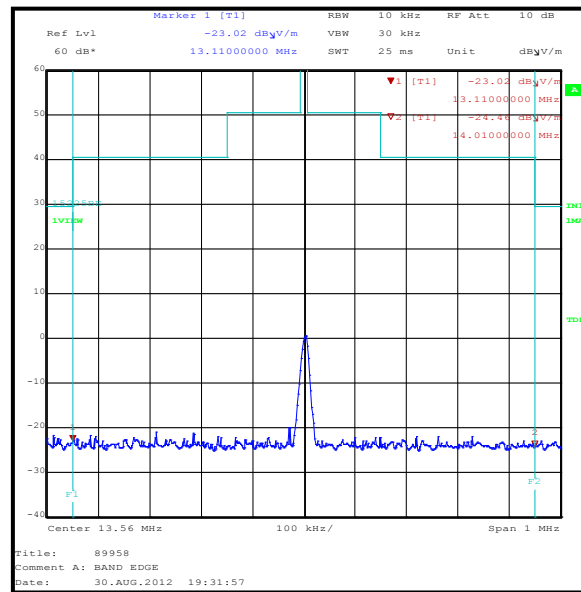
Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
13.11	-32.4	29.5	61.9	Complied

Results: Quasi Peak Upper Band Edge

Frequency (MHz)	Level (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Result
14.01	-32.5	29.5	62.0	Complied

Note(s):

1. A transducer factor on the measuring instrument was used to extrapolate the results at 3 metres to a distance of 30 metres where required. A distance extrapolation factor of 40 dB was used.

Transmitter Band Edge Radiated Emissions (continued)**Test Equipment Used:**

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
K0001	5m Semi-Anechoic Chamber	N/A	31 Sep 2012	12
A007	Mag Loop antenna	HFH2-Z2	20 Apr 2013	12
M1273	Test Receiver	ESIB 26	03 Feb 2013	12

5.2.7. Transmitter 20 dB Bandwidth**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	30 August 2012
Test Sample Serial No:	HX2W91SC700010A		

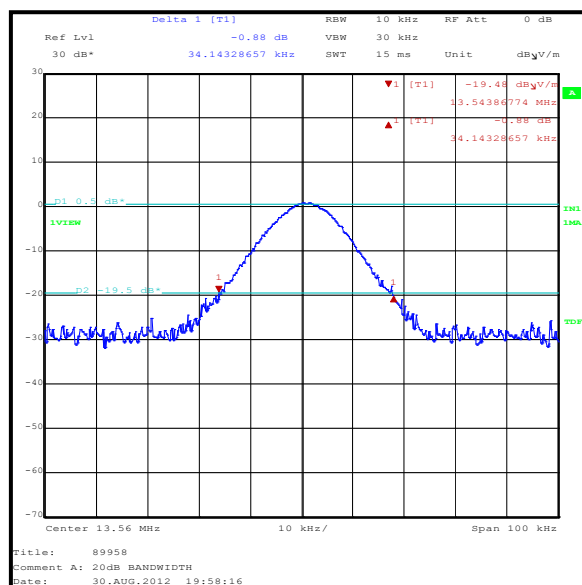
FCC Reference:	2.1049
Industry Canada Reference:	N/A
Test Method Used:	ANSI C63.10 Section 6.9.1

Environmental Conditions:

Temperature (°C):	27
Relative Humidity (%):	38

Results:

20 dB Bandwidth (kHz)
34.143

**Test Equipment Used:**

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
K0001	5m Semi-Anechoic Chamber	N/A	31 Sep 2012	12
A007	Mag Loop antenna	HFH2-Z2	20 Apr 2013	12
M1273	Test Receiver	ESIB 26	03 Feb 2013	12

5.2.8. Transmitter Occupied Bandwidth**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	30 August 2012
Test Sample Serial Number:	HX2W91SC700010A		

FCC Part:	N/A
Industry Canada Reference:	RSS-Gen 4.6.1
Test Method Used:	Tested using the occupied bandwidth function of a test receiver

Environmental Conditions:

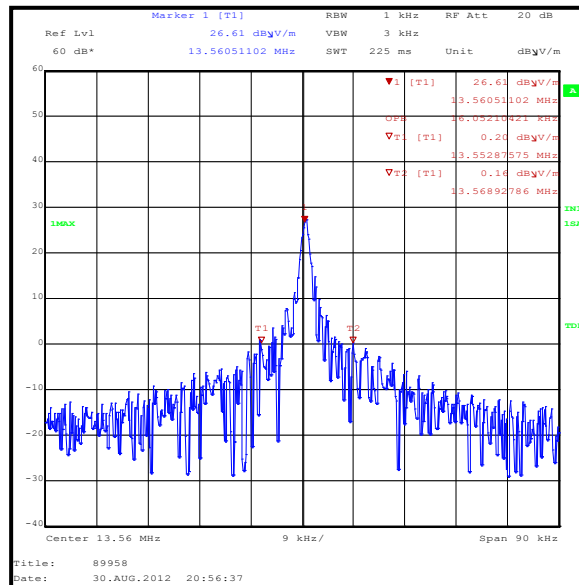
Temperature (°C):	26
Relative Humidity (%):	37

Note(s):

1. Occupied bandwidth (99% bandwidth) was measured using a test receiver occupied bandwidth function with the test receiver set to the appropriate bandwidth according to the channel width under test. Measurement bandwidths were set automatically by the test receiver.

Transmitter Occupied Bandwidth (continued)

Occupied Bandwidth (kHz)
16.052

**Test Equipment Used:**

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
K0001	5m Semi-Anechoic Chamber	N/A	31 Sep 2012	12
A007	Mag Loop antenna	HFH2-Z2	20 Apr 2013	12
M1273	Test Receiver	ESIB 26	03 Feb 2013	12

5.2.9. Transmitter Frequency Stability (Temperature & Voltage Variation)**Test Summary:**

Test Engineer:	Andrew Edwards	Test Date:	07 September 2012
Test Sample Serial No:	HX2W91SC700010A		

FCC Reference:	15.225(e)
Industry Canada Reference:	RSS-Gen 4.7 & RSS-210 A2.6
Test Method Used:	As detailed in ANSI C63.10 Section 6.8.1 and 6.8.2

Environmental Conditions:

Ambient Temperature (°C):	20
Ambient Relative Humidity (%):	42

Results: Maximum frequency error of the EUT with variations in ambient temperature

Temperature (°C)	Time after Start-up			
	0 minutes	2 minutes	5 minutes	10 minutes
-20	13.560545 MHz	13.560601 MHz	13.5606012 MHz	13.560602 MHz
20	13.560525 MHz	13.560526 MHz	13.560545 MHz	13.560521 MHz
50	13.560456 MHz	13.560480 MHz	13.560367 MHz	13.560357 MHz

Frequency with Worst Case Deviation (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Margin (%)	Result
13.560602	602	0.0044	0.01	0.0056	Complied

Results: Maximum frequency error of the EUT with variations in nominal operating voltage at an ambient temperature of 20°C

Supply Voltage (V)	Nominal Frequency (MHz)	Measured Frequency (MHz)	Frequency Error (Hz)	Frequency Error (%)	Limit (%)	Margin (%)	Result
6.63	13.56	13.560632	632	0.0047	0.01	0.0053	Complied
7.8	13.56	13.560521	521	0.0038	0.01	0.0062	Complied
8.97	13.56	13.560378	378	0.0028	0.01	0.0072	Complied

Transmitter Frequency Stability (Temperature & Voltage Variation) (continue)**Test Equipment Used:**

RFI ID	Instrument Description	Model Number	Calibration Due	Calibration Interval (Months)
M1251	Digital Multimeter	175	30 Jul 2013	12
E012	Environmental Chamber	MTH-4200PR	Calibrated before use	-
M1642	Thermometer	52II	21 Feb 2013	12
S0537	DC Power Supply Unit	EL302D	Calibrated before use	-
M127	Spectrum Analyser	FSEB 30	13 Aug 2013	12

6. Measurement Uncertainty

No measurement or test can ever be perfect and the imperfections give rise to error of measurement in the results. Consequently the result of a measurement is only an approximation to the value of the measurand (the specific quantity subject to measurement) and is only complete when accompanied by a statement of the uncertainty of the approximation.

The expression of uncertainty of a measurement result allows realistic comparison of results with reference values and limits given in specifications and standards.

The uncertainty of the result may need to be taken into account when interpreting the measurement results.

The reported expanded uncertainties below are based on a standard uncertainty multiplied by an appropriate coverage factor such that a confidence level of approximately 95% is maintained. For the purposes of this document “approximately” is interpreted as meaning “effectively” or “for most practical purposes”.

Measurement Type	Range	Confidence Level (%)	Calculated Uncertainty
AC Conducted Spurious Emissions	0.15 MHz to 30 MHz	95%	±3.25 dB
20 dB Bandwidth	13 MHz to 14 MHz	95%	±0.92 ppm
Frequency Stability	13 MHz to 14 MHz	95%	±0.92 ppm
Radiated Spurious Emissions	9 kHz to 30 MHz	95%	±3.53 dB
Radiated Spurious Emissions	30 MHz to 1000 MHz	95%	±2.94 dB
Transmitter Fundamental Field Strength	13 MHz to 14 MHz	95%	±3.53 dB

The methods used to calculate the above uncertainties are in line with those recommended within the various measurement specifications. Where measurement specifications do not include guidelines for the evaluation of measurement uncertainty the published guidance of the appropriate accreditation body is followed.

7. Report Revision History

Version Number	Revision Details		
	Page No(s)	Clause	Details
1.0	-	-	Initial Version
2.0	1		Correction to FCC ID
3.0	1,7		Correction to FCC ID