

# EMI Test Report

Tested in accordance with  
Federal Communications Commission (FCC)  
Personal Communications Services  
CFR 47 Parts 2, 22, 24 and 27  
&  
Industry Canada (IC) RSS- Gen, 132, 133 and 139



**A division of Research In Motion Limited**

**REPORT NO: RTS-5995-1205-20**

<b>PRODUCT MODEL NO:</b>	REU71UW
<b>TYPE NAME:</b>	BlackBerry® smartphone
<b>FCC ID:</b>	L6AREU70UW
<b>IC:</b>	2503A-REU70UW
<b>EMISSION DESIGNATOR (GSM):</b>	248KGXW
<b>EMISSION DESIGNATOR (EDGE):</b>	245KG7W
<b>EMISSION DESIGNATOR (UMTS):</b>	4M13F9W

**DATE:** June 26, 2012

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**Statement of Performance:**

The BlackBerry® smartphone, model REU71UW, part number CER-48921-001 Rev3 and accessories perform within the requirements of the test standards when configured and operated per RIM's instructions.

**Declaration:**

We hereby certify that:

The test data reported herein is an accurate record of the performance of the sample(s) tested. The test results are valid for the tested units only. The test equipment used was suitable for the tests performed and within manufacturer's published specifications and operating parameters. The test methods were consistent with the methods described in the relevant standards.

Documented by:

Reviewed by:

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Regulatory Compliance Specialist  
Date: June 26, 2012

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Regulatory Compliance Specialist  
Date: June 27, 2012

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Date: June 28, 2012

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## A) Scope

This report details the results of compliance tests which were performed in accordance to the requirements of:

- FCC CFR 47 Part 2, Oct, 2011
- FCC CFR 47 Part 22, Subpart H, Cellular Radiotelephone Services, Oct., 2011
- FCC CFR 47 Part 24 Subpart E, Broadband PCS, Oct., 2011
- FCC CFR 47 Part 27, Subpart C, Technical Standards, Oct, 2011
- Industry Canada, RSS-132 Issue 2, September 2005, Cellular Telephones Employing New Technologies Operating in the Bands 824-849 MHz and 869-894 MHz.
- Industry Canada, RSS-133 Issue 5, February 2009, 2 GHz Personal Communications Services.
- Industry Canada, RSS-139 Issue 2, February 2009, Advanced Wireless Services Equipment Operating in the Bands 1710-1755 MHz and 2110-2155 MHz
- Industry Canada, RSS-GEN Issue 3, December 2010, General Requirements and Information for the Certification of Radio communication Equipment

## B) Associated Documents

- None

## C) Product Identification

Manufactured by Research In Motion Limited whose headquarters is located at:

295 Phillip Street  
Waterloo, Ontario  
Canada, N2L 3W8  
Phone: 519 888 7465  
Fax: 519 888 6906

The equipment under test (EUT) was tested at the following locations:

RIM Testing Services EMI test facilities

305 Phillip Street  
Waterloo, Ontario  
Canada, N2L 3W8  
Phone: 519 888 7465  
Fax: 519 888 6906

440 Phillip Street  
Waterloo, Ontario,  
Canada , N2L 5R9  
Phone: 519 888 7465  
Fax: 519 888 6906

The testing was performed from April 18 - May 22, 2012.

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The sample EUT included:

Sample	Model	CER NUMBER	PIN	Software Information
1	REU71UW	CER-48921-001 Rev3	29D04E1B	v7.1.0.358 (Platform: 5.1.0.291) Bundle 1201
2	REU71UW	CER-48921-001 Rev3	29D05115	v7.1.0.358 (Platform: 5.1.0.291) Bundle 1201
3	REU71UW	CER-48921-001 Rev3	29D04E0F	v7.1.0.358 (Platform: 5.1.0.291) Bundle 1201
4	REU71UW	CER-48921-001 Rev3	295B07DA	v7.1.0.358 (Platform: 5.1.0.291) Bundle 1201

RF Conducted Emissions testing was performed on samples 3 and 4.  
RF Radiated Emissions testing was performed on samples 1 and 2.

#### BlackBerry® smartphone Accessories Tested

- 1) Bat. JS1, part number BAT-44582-001.
- 2) Alt. Bat. JS1, part number BAT-44582-002.

#### **D) Support Equipment Used for the Testing of the EUT**

No support equipment required; for list of equipment refer to section H, Compliance Test Equipment Used.

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## E) Test Results Chart

SPECIFICATION		TEST TYPE	RESULT	TEST DATA APPENDIX
FCC CFR 47	IC			
Part 2.1051 Part 22.917 Part 22.901	RSS-GEN, 4.9	GSM 850 Conducted Spurious Emissions	Pass	1A
Part 2.1051 Part 24.238(a)	RSS-GEN, 4.9	PCS 1900 Conducted Spurious Emissions	Pass	1A
Part 2.202 Part 22.917	RSS-GEN, 4.6	GSM 850 Occupied Bandwidth and Channel Mask	Pass	1A
Part 2.202 Part 24.238	RSS-GEN, 4.6	PCS 1900 Occupied Bandwidth and Channel Mask	Pass	1A
Part 2.1046(a)	RSS-133, 6.4 RSS-132, 4.4	GSM Conducted RF Output Power	Pass	2A
Part 2.1055(a)(d) Part 22.917	RSS-132, 4.3	GSM 850 Frequency Stability vs. Temperature and Voltage	Pass	3A
Part 2.1055(a)(d) Part 24.235	RSS-132, 4.3	PCS 1900 Frequency Stability vs. Temperature and Voltage	Pass	3A
Part 22, Subpart H, Part 24, Subpart E	RSS-GEN, 4.9	GSM ERP, EIRP	Pass	4A
Part 22, Subpart H Part 24, Subpart E	RSS-GEN, 4.9	GSM Radiated Spurious/Harmonic Emissions	Pass	4A
Part 27.53	RSS-139, 6.5	UMTS Band 4 Conducted Spurious Emissions	Pass	1B
Part 2.1051 Part 24.238(a)	RSS-GEN, 4.9	UMTS Band 2 Conducted Spurious Emissions	Pass	1B
Part 2.202 Part 27.53	RSS-GEN, 2.3	UMTS Band 4 Occupied Bandwidth and Channel Mask	Pass	1B
Part 2.202 Part 24.238	RSS-GEN, 4.6	UMTS Band 2 Occupied Bandwidth and Channel Mask	Pass	1B
Part 2.1046(a)	RSS-133, 6.4 RSS-139, 6.4	UMTS Band 2 and 4 Conducted RF Output Power	Pass	2B
Part 2.1055(a)(d) Part 22.917	RSS-139, 6.3	UMTS Band 4 Frequency Stability vs. Temperature and Voltage	Pass	3B

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Part 2.1055(a)(d) Part 24.235	RSS-GEN, 4.7	UMTS Band 2 Frequency Stability vs. Temperature and Voltage	Pass	3B
Part 27.53	RSS-139, 6.5	UMTS Band 4 Radiated Spurious/Harmonic Emissions, ERP	Pass	4B
Part 24, Subpart E	RSS-GEN, 4.9	UMTS Band 2 Radiated Spurious/Harmonic Emissions, EIRP	Pass	4B

## F) Summary of Results

### 1) Conducted Emission Measurements

a) The BlackBerry® smartphone met the requirements of the Tx Conducted Spurious Emissions requirements in the GSM850 as per 47 CFR 2.1051, CFR 22.917, CFR 22.901(d) and RSS-GEN, 4.9. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 10 GHz.

See APPENDIX 1A for test data.

The BlackBerry® smartphone met the requirements of the Tx Conducted Spurious Emissions requirements in the PCS1900 as per 47 CFR 2.1051, CFR 24.238(a) and RSS-GEN, 4.9. The EUT was on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.

See APPENDIX 1A for test data

b) The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask requirements in the GSM850 as per 47 CFR 2.202, CFR 22.917 and RSS-GEN, 4.6. The EUT was measured in GSM and EDGE mode on the low, middle and high channels. The worst case occupied bandwidth was 248.0 kHz on the high channel in GSM mode, and 245.0 kHz on low and high channels in EDGE mode.

See APPENDIX 1A for test data.

The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask requirements in the PCS1900 as per 47 CFR 2.202, CFR 24.238 and RSS-GEN, 4.6. The EUT was measured in GSM and EDGE mode on the low, middle and high channels. The worst case occupied bandwidth was 245.0 kHz on the low channel in GSM, and 245.0 kHz on the middle in EDGE mode.

See APPENDIX 1A for test data.

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c) The BlackBerry® smartphone met the requirements of the Tx Conducted RF output Power requirements in the GSM850 as per 47 CFR 2.1046, and RSS-GEN, 4.4. The EUT was measured on the low, middle and high channels.  
See APPENDIX 2A for test data.

The BlackBerry® smartphone met the requirements of the Tx Conducted RF output Power requirements in the PCS1900 as per 47 CFR 2.1046, and RSS-GEN, 6.4. The EUT was on the low, middle and high channels.  
See APPENDIX 2A for test data

d) The BlackBerry® smartphone met the requirements of the Frequency Stability requirements in the GSM850 as per 47 CFR 2.1055, CFR 22.917 and RSS-GEN, 4.3. The EUT was measured in GSM850 mode on the low, middle and high channels.  
See APPENDIX 3A for test data.

The BlackBerry® smartphone met the requirements of the Frequency Stability requirements in the PCS1900 as per 47 CFR 2.1055, CFR 24.235 and RSS-GEN, 4.7. The EUT was measured in PCS1900 mode on the low, middle and high channels.  
See APPENDIX 3A for test data.

e) The BlackBerry® smartphone met the requirements of the Tx Conducted Spurious Emissions requirements in the UMTS Band 4 as 47 CFR 27.53 and RSS-139, 6.5. The EUT was measured on the low, middle and high channels. The frequency range investigated was from 10 MHz to 10 GHz.  
See APPENDIX 1B for test data.

The BlackBerry® smartphone met the requirements of the Tx Conducted Spurious Emissions requirements in the UMTS Band 2 as per 47 CFR 2.1051, CFR 24.238(a) and RSS-GEN, 4.9. The EUT was on the low, middle and high channels. The frequency range investigated was from 10 MHz to 20 GHz.  
See APPENDIX 1B for test data

f) The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask requirements in the UMTS Band 4 as per 47 CFR 2.202, CFR 27.53 and RSS-139, 2.3. The EUT was measured in Loopback and HSUPA mode on the low, middle and high channels. The worst case occupied bandwidth was 4.125 MHz on all three channels in Loopback mode, and 4.133 MHz on the high channel in HSUPA mode.  
See APPENDIX 1B for test data.

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The BlackBerry® smartphone met the requirements of the Occupied Bandwidth and channel mask requirements in the UMTS Band 2 as per 47 CFR 2.202, CFR 24.238 and RSS-GEN, 4.6. The EUT was measured in Loopback and HSUPA mode on the low, middle and high channels. The worst case occupied bandwidth was 4.117 MHz on all three channels in Loopback mode, and 4.133 MHz on all three channels in HSUPA mode.  
See APPENDIX 1B for test data.

g) The BlackBerry® smartphone met the requirements of the Tx Conducted RF output Power requirements in the UMTS Band 4 as per 47 CFR 2.1046, and RSS-GEN, 4.4. The EUT was measured on the low, middle and high channels.  
See APPENDIX 2B for test data.

The BlackBerry® smartphone met the requirements of the Tx Conducted RF output Power requirements in the UMTS Band 2 as per 47 CFR 2.1046, and RSS-GEN, 6.4. The EUT was on the low, middle and high channels.  
See APPENDIX 2B for test data

h) The BlackBerry® smartphone met the requirements of the Frequency Stability requirements in the UMTS Band 4 as per 47 CFR 2.1055(a)(d), CFR 27.54 and RSS-139, 6.3. The EUT was measured in UMTS Band 4 mode on the low, middle and high channels.  
See APPENDIX 3B for test data.

The BlackBerry® smartphone met the requirements of the Frequency Stability requirements in the UMTS Band 2 as per 47 CFR 2.1055, CFR 24.235 and RSS-GEN, 4.7. The EUT was measured in UMTS Band 2 mode on the low, middle and high channels.  
See APPENDIX 3B for test data.

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## 2) Radiated Emission Measurements

a) The radiated spurious emissions/harmonics and ERP/EIRP were measured for GSM 850 and PCS 1900. The results are within the limits. The BlackBerry® smartphone was placed on a nonconductive styrofoam table, 100 cm high that was positioned on a remotely controlled turntable. The test distance used between the BlackBerry® smartphone and the receiving antenna was three meters. Then the emissions were maximized by elevating the antenna in the range of 1 to 4 meters. The turntable was rotated to determine the azimuth of the peak emissions. Both the horizontal and vertical polarizations of the emissions were measured. The maximum emissions level was recorded. The BlackBerry® smartphone was then substituted with an antenna placed in the same location as the BlackBerry® smartphone. A Dipole antenna was used for the ERP measurements and a Horn antenna was used for EIRP measurements. The substitution antenna was connected into a signal generator that was set to the test frequency.

The emissions were maximized by elevating the antenna in the range of 1 to 4 meters. The signal generator output was then adjusted to match the BlackBerry® smartphone output reading. The signal generator output was recorded. Both the horizontal and vertical polarizations of the emissions were measured.

The following measurements were done in a semi-anechoic chamber (SAC) below 1 GHz and a Semi-anechoic Chamber ((SAC) with floor absorber) above 1 GHz. The SAC's FCC registration number is **778487** and the Industry Canada (IC) file number is **2503B-1**. The SAC with floor absorber's FCC registration number is **959115** and the IC file number is **2503C-1**. The BlackBerry® smartphone was measured on the low, middle and high channels.

The highest ERP in the 850 band Call mode measured was 32.02 dBm (1.59 W) at 836.60 MHz (channel 190)

The highest ERP in the 850 band EDGE mode measured was 29.95 dBm (0.99 W) at 848.80 MHz (channel 251).

The highest EIRP in the PCS band Call mode measured was 32.17 dBm (1.65 W) at 1909.80 MHz (channel 810).

The highest EIRP in the PCS band EDGE mode measured was 31.06 dBm (1.28 W) at 1909.80 MHz (channel 810).

The radiated spurious emission and carrier harmonics were measured up to the 10<sup>th</sup> harmonic for low, middle, and high channels in the GSM850 and PCS 1900

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bands. Each band was measured in GSM and EDGE mode, with both the horizontal and vertical polarizations.

All margins in the 850 band harmonic emissions were greater than 25 dB below the accepted limits for all test frequencies.

All margins in the 1900 band for harmonic emissions were greater than 25 dB below the accepted limits for all test frequencies.

The highest ERP in the UMTS Band 4, Call Service mode was 26.27 dBm (0.42 W) at 1752.6 MHz (channel 1513).

The highest ERP in the UMTS Band 4, HSUPA mode was 28.18 dBm (0.66 W) at 1712.4 MHz (channel 1312).

The highest EIRP in the UMTS Band 2, Call Service mode measured was 27.77 dBm (0.60 W) at 1880.0 MHz (channel 9400).

The highest EIRP in the UMTS Band 2, HSUPA mode measured was 29.46 dBm (0.88 W) at 1880.0 MHz (channel 9400).

The radiated carrier harmonics were measured up to the 10<sup>th</sup> harmonic for low, middle and high channels in the UMTS Band 4 and UMTS Band 2. Each band was measured in Call, and HSUPA modes. Both the horizontal and vertical polarizations were measured.

All margins in the UMTS Band 4 for harmonic emissions were greater than 25 dB below the accepted limits for all test frequencies.

All margins in the UMTS Band 2 for harmonic emissions were greater than 25 dB below the accepted limits for all test frequencies.

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## b) Co-Location Measurements

The radiated emissions were measured up to 18 GHz for middle channels for simultaneous transmission in the following test configuration combinations:

- GSM 850 + Bluetooth + 802.11b.
- PCS 1900 + Bluetooth + 802.11g.
- UMTS B2 + Bluetooth + 802.11n.
- UMTS B4 + Bluetooth + 802.11b.

Both the horizontal and vertical polarizations were measured. The emissions due to different simultaneous transmission did not increase the amplitude of any emissions nor did it produce any new inter-modulation products as a result of mixing.

### **Sample Calculation:**

Corrected Signal level (CSL) is calculated as follows:

CSL (dBm) = Measured Level (dBμV) – Antenna Gain (dBi) + Free Space loss (dB) – 107(dB) + Cable Loss (dB) - Preamp (dB) + Filter Loss (dB) -2.15(dB)

See APPENDIX 4A and 4B for test data.

**Measurement Uncertainty ±4.5 dB**

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## H) Compliance Test Equipment Used

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>	<u>CAL DUE DATE</u> (YY MM DD)	<u>USE</u>
Preamplifier	Sonoma	310N/11909A	185831	12-10-17	Radiated Emissions
Preamplifier system	TDK RF Solutions	PA-02	080010	12-10-17	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA4-SP	001	12-09-01	Radiated Emissions
Preamplifier	Rohde & Schwarz	TS-ANA-SP	001	12-09-01	Radiated Emissions
Hybrid Log Antenna	EMC Automation	HLP-3003C	017301	13-08-23	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030101	12-07-20	Radiated Emissions
Horn Antenna	EMC Automation	HRN-0118	030201	12-09-22	Radiated Emissions
Horn Antenna	Emco	3117	47563	13-08-04	Radiated Emissions
Horn Antenna	ETS	3116	2538	12-09-24	Radiated Emissions
Dipole Antenna	Schwarzbeck	UHAP	974	12-11-08	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	837493/073	12-11-30	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	112394	12-11-21	Radiated Emissions
Universal Radio Communication Tester	Rohde & Schwarz	CMU 200	109747	12-11-20	RF Conducted Emissions
EMI Receiver	Rohde & Schwarz	ESIB-40	100255	12-12-08	Radiated Emissions
EMI Receiver	Rohde & Schwarz	ESU-40	100162	12-12-07	Radiated Emissions
Spectrum Analyzer	HP	8563E	3745A08112	13-10-05	RF Conducted Emissions
DC Power Supply	HP	6632B	US37472178	12-09-27	RF Conducted Emissions
Environment Monitor	Omega	iTHX-SD	0380561	12-10-20	Radiated Emissions

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### Compliance Test Equipment Used cont'd

<u>UNIT</u>	<u>MANUFACTURER</u>	<u>MODEL</u>	<u>SERIAL NUMBER</u>	<u>CAL DUE DATE</u> (YY MM DD)	<u>USE</u>
Environment Monitor	Omega	iTHX-SD	0340060	12-10-20	RF Conducted Emissions
Environment Monitor	Omega	iTHX-SD	0380567	12-10-20	Radiated Emissions
Signal Generator	Agilent	E8257D	MY45140527	12-11-18	Radiated Emissions
Signal Generator	Agilent	83630B	3844A00927	12-10-28	Radiated Emissions

## APPENDIX 1A – GSM CONDUCTED RF EMISSIONS TEST DATA/PLOTS

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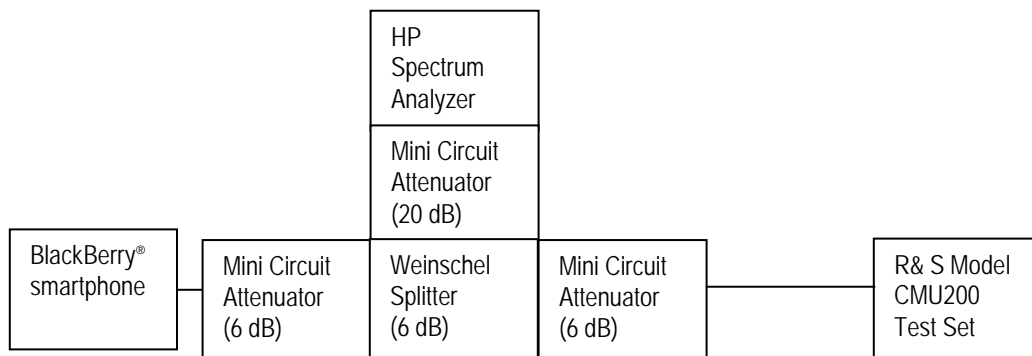
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### GSM Conducted RF Emission Test Data

This appendix contains measurement data pertaining to conducted spurious emissions, –26 dBc bandwidth, 99% power bandwidth and the channel mask on BlackBerry® smartphone.

### **Test Setup Diagram**



Date of Test: April 23, 2012

The environmental test conditions were:

Temperature: 25.0 °C  
Relative Humidity: 37.0 %

The following measurements were performed by Kevin Guo.

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### GSM Conducted RF Emission Test Data cont'd

**The conducted spurious emissions** – As per 47 CFR 2.1051, CFR 24.238(a), RSS-GEN, 4.9, CFR 22 Subpart H and RSS-132 were measured from 10 MHz to 20 GHz. The EUT emissions were in the noise floor.

### **–26 dBc Bandwidth and Occupied Bandwidth (99%)**

For each carrier frequency of low, middle and high, the modulation spectrum was measured by both methods of 99% power bandwidth and –26 dBc bandwidth.

The resolution bandwidth required for out-of-band emissions in the 1 MHz bands immediately outside and adjacent to the frequency block, was determined to be at least 1% of the emission bandwidth.

The worst case –26dBc bandwidth for the GSM850 band was measured to be 273 kHz, and for the PCS1900 band was measured to be 285 kHz as shown below. Results were derived in a 3.0 kHz resolution bandwidth.

On any frequency outside the frequency block and outside the adjacent 1 MHz bands, a resolution bandwidth of at least 1 MHz was applied.

### Test Data for 850 band and 1900 band in Call mode

<b>850 band Frequency (MHz)</b>	<b>-26dBc Bandwidth (kHz)</b>	<b>99% Occupied Bandwidth (kHz)</b>
824.2	273	247.0
837.6	273	243.0
848.8	263	248.0

<b>1900 band Frequency (MHz)</b>	<b>-26dBc Bandwidth (kHz)</b>	<b>99% Occupied Bandwidth (kHz)</b>
1850.2	285	245.0
1880.0	275	242.0
1909.8	275	243.0

### **Measurement Plots for 850 and 1900 bands in Call mode**

Refer to the following measurement plots for more detail.

See Figures 1-1a to 1-12a for the plots of the conducted spurious emissions.

See Figures 1-13a to 1-24a for the plots of 26dBc/99% Occupied Bandwidth.

See Figures 1-25a to 1-28a for the plots of the Channel mask.

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### GSM Conducted RF Emission Test Data cont'd

#### Test Data for 850 and 1900 bands in EDGE mode

850 band Frequency (MHz)	99% Occupied Bandwidth (kHz)
824.2	245.0
837.6	242.0
848.8	245.0

1900 band Frequency (MHz)	99% Occupied Bandwidth (kHz)
1850.2	243.0
1880.0	245.0
1909.8	242.0

#### ***Measurement Plots for 850 and 1900 bands in EDGE mode***

Refer to the following measurement plots for more detail:

See Figures 1-29a to 1-34a for the plots of the 99% Occupied Bandwidth EDGE results.

See Figures 1-35a to 1-38a for the plots of channel mask EDGE results.

See Figures 1-39a to 1-50a for the plots of the conducted spurious emissions EDGE results

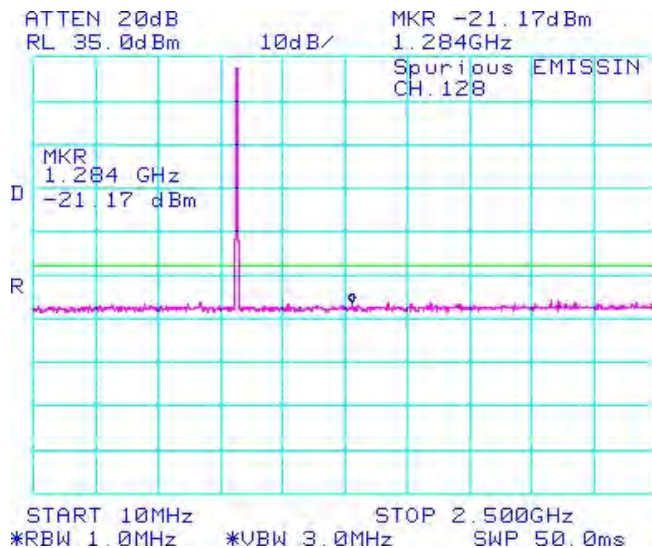
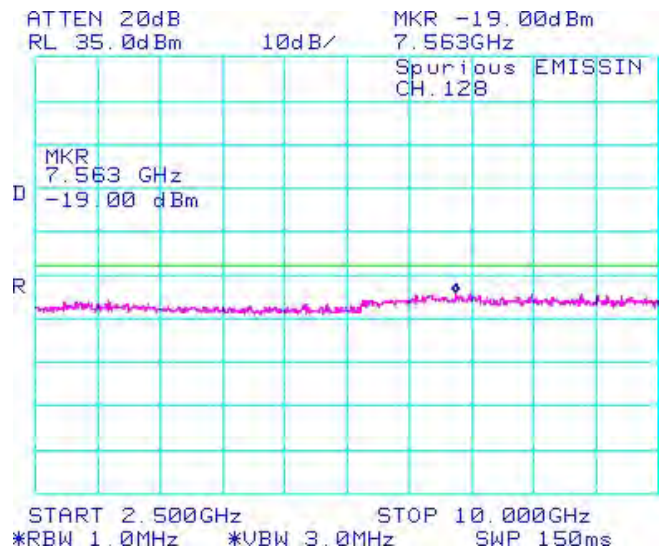
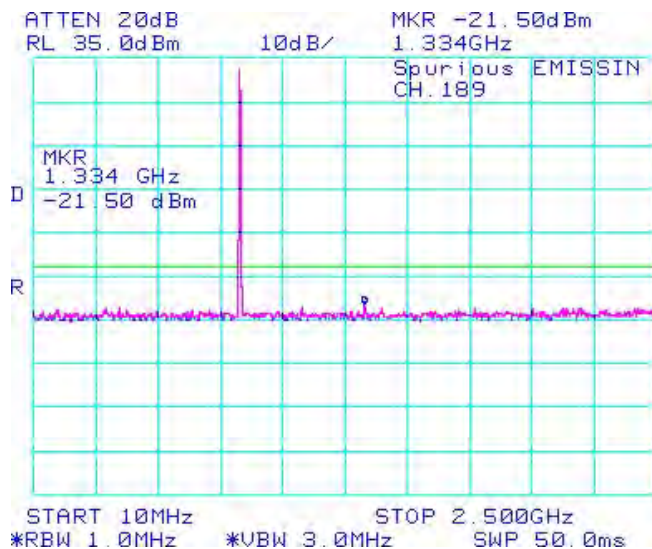
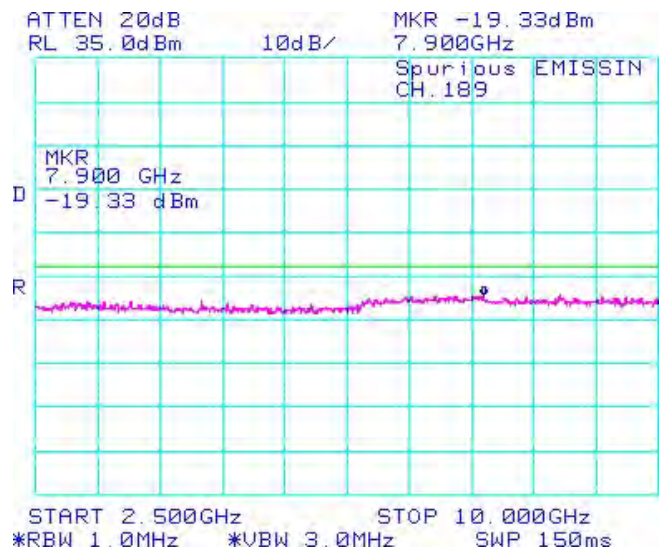
The RF power output was at maximum for all the recorded measurements shown below.

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### GSM Conducted RF Emission Test Data cont'd

**Figure 1-1a: GSM850 band, Spurious Conducted Emissions, Low channel**

**Figure 1-2a: GSM850 band, Spurious Conducted Emissions, Low channel**

**Figure 1-3a: GSM850 band, Spurious Conducted Emissions, Middle Channel**

**Figure 1-4a: GSM850 band, Spurious Conducted Emissions, Middle Channel**


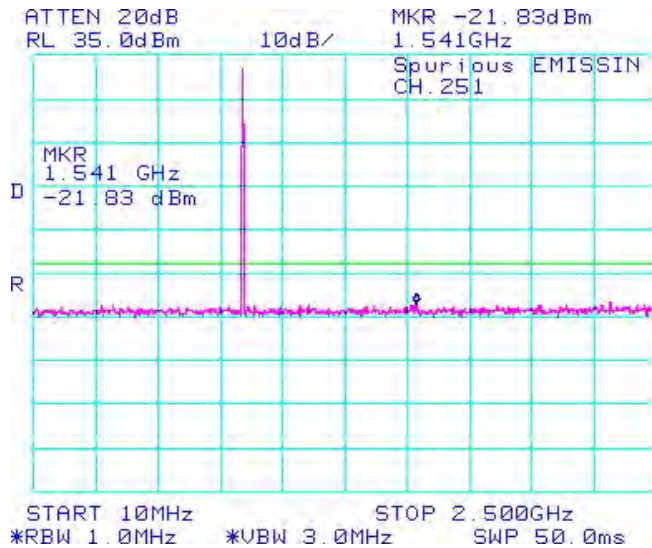
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

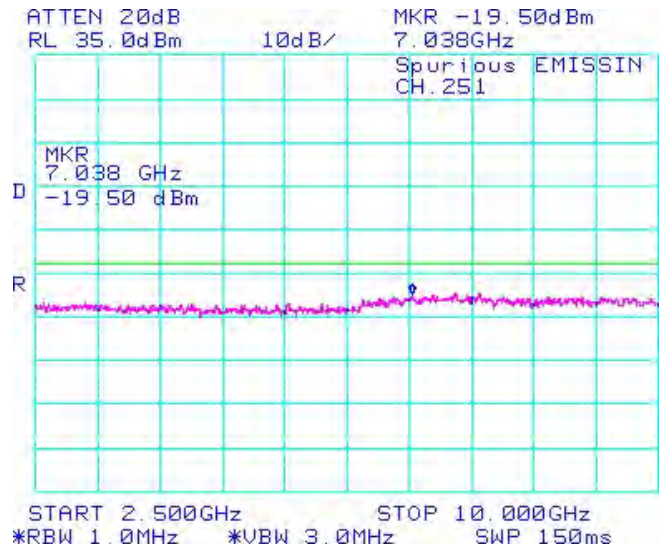
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## GSM Conducted RF Emission Test Data cont'd

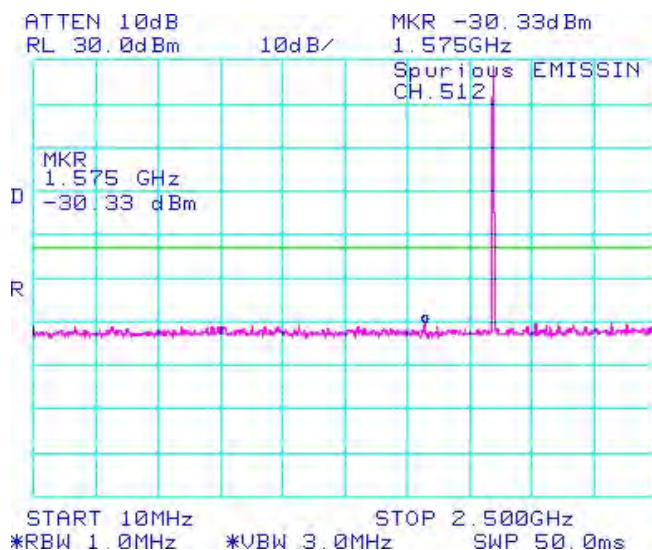
**Figure 1-5a: GSM850 band, Spurious Conducted Emissions, High Channel**



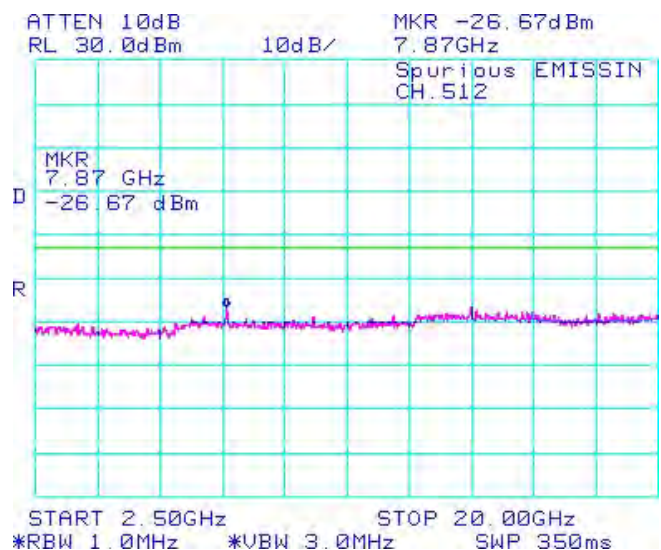
**Figure 1-6a: GSM850 band, Spurious Conducted Emissions, High Channel**



**Figure 1-7a: PCS1900 band, Spurious Conducted Emissions, Low Channel**



**Figure 1-8a: PCS1900 band, Spurious Conducted Emissions, Low Channel**



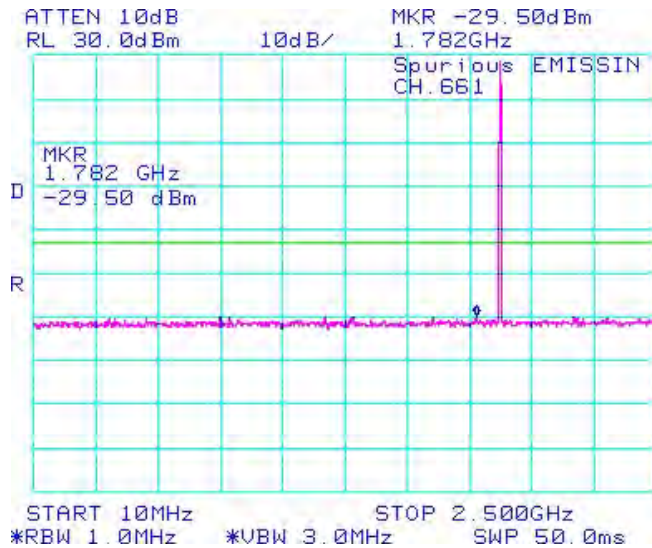
Test Report No.:  
RTS-5995-1205-20

Dates of Test:  
April 18 – May 22, 2012

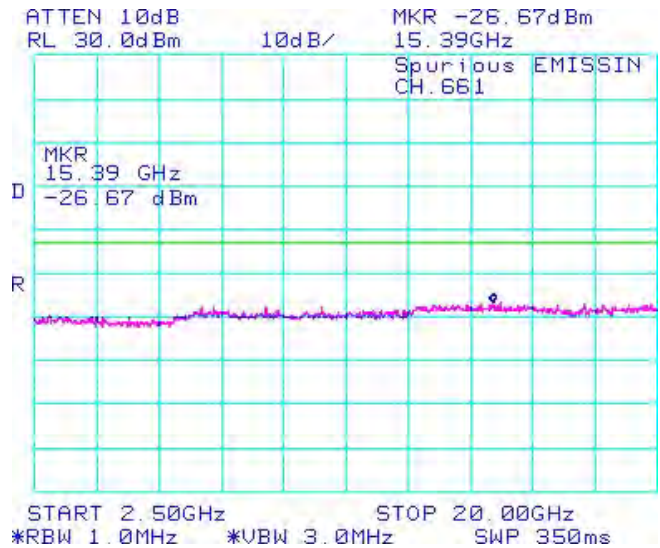
FCC ID: L6AREU70UW  
IC: 2503A-REU70UW

## GSM Conducted RF Emission Test Data cont'd

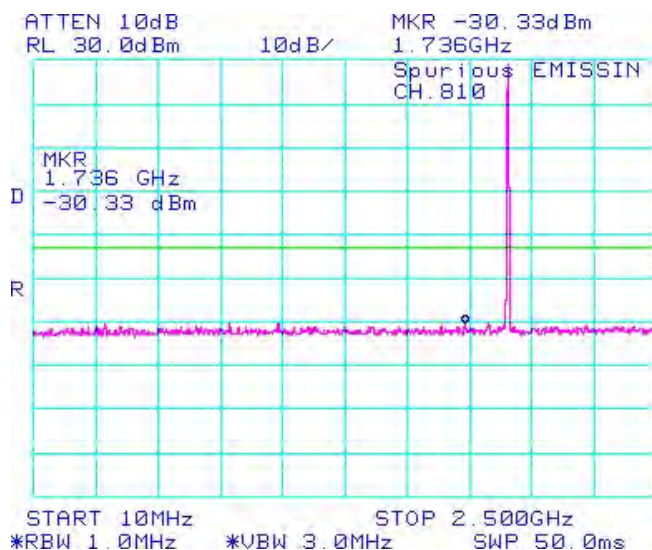
**Figure 1-9a: PCS1900 band, Spurious Conducted Emissions, Middle Channel**



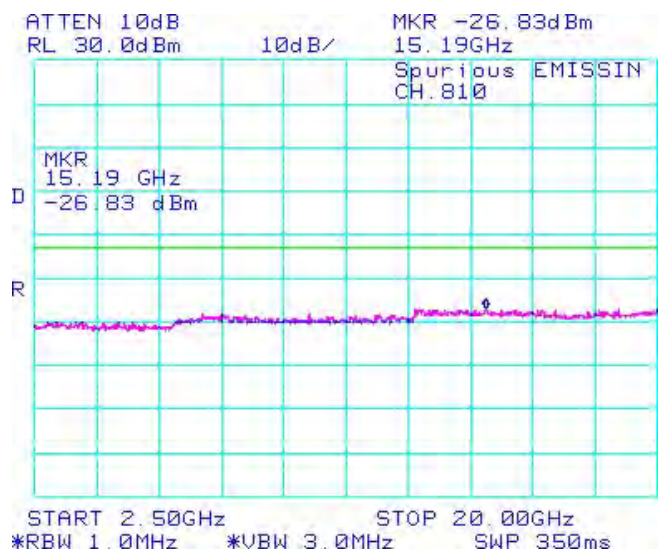
**Figure 1-10a: PCS1900 band, Spurious Conducted Emissions, Middle Channel**



**Figure 1-11a: PCS1900 band, Spurious Conducted Emissions, High Channel**



**Figure 1-12a: PCS1900 band, Spurious Conducted Emissions, High Channel**

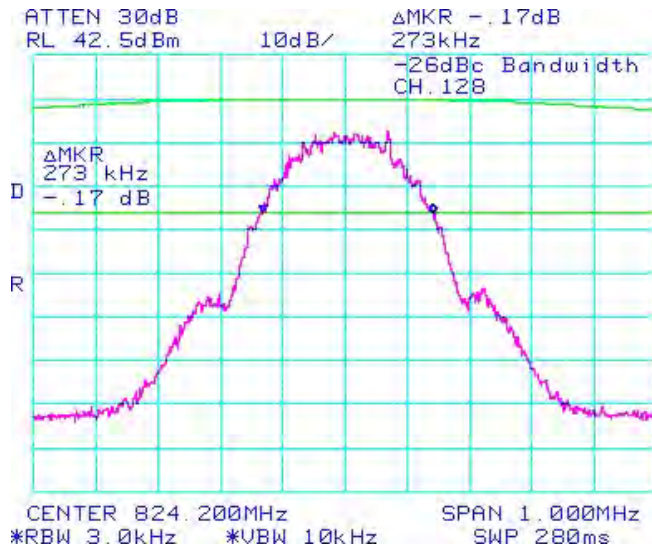
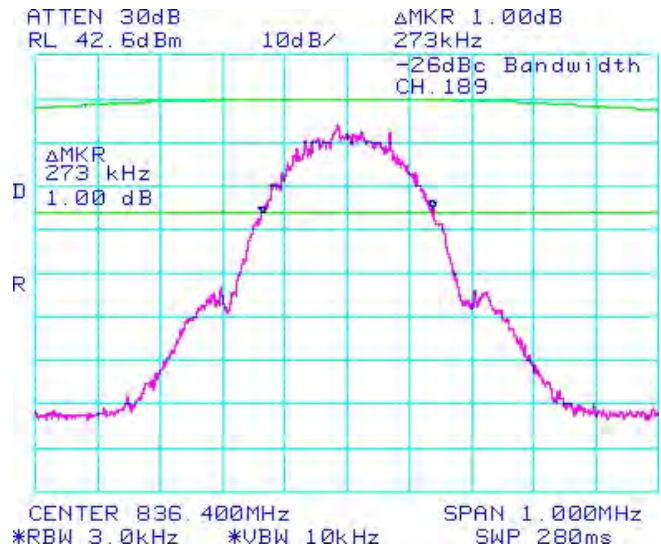
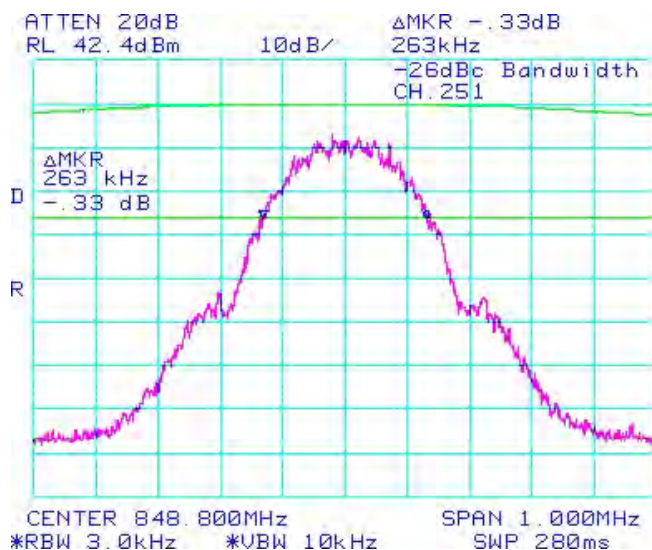
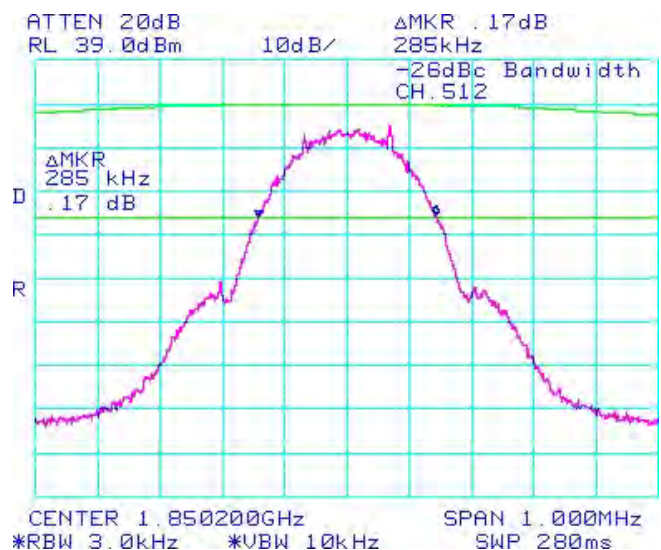


**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### GSM Conducted RF Emission Test Data cont'd

**Figure 1-13a: -26dBc bandwidth, GSM850 band  
Low Channel in GSM mode**

**Figure 1-14a: Occupied Bandwidth, GSM850 band  
Low Channel in GSM mode**

**Figure 1-15a: -26dBc bandwidth, GSM850 band  
Middle Channel in GSM mode**

**Figure 1-16a: Occupied Bandwidth, GSM850 band  
Middle Channel in GSM mode**


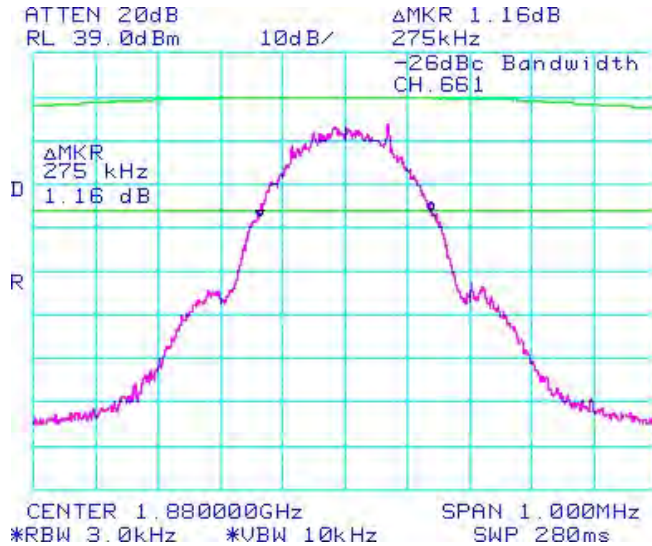
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

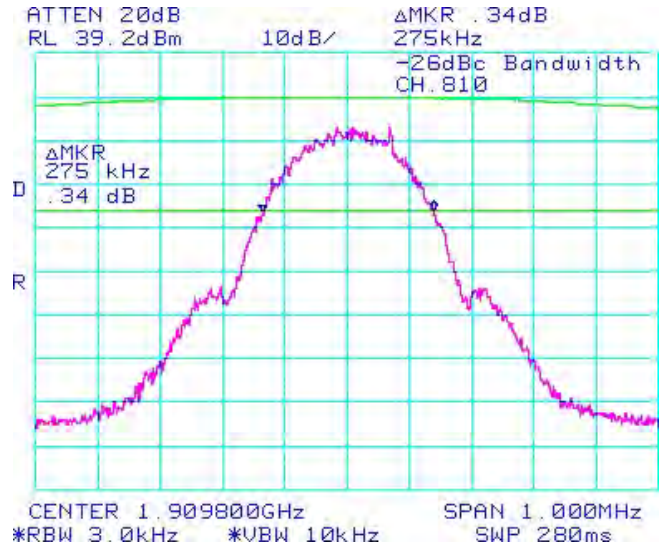
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### GSM Conducted RF Emission Test Data cont'd

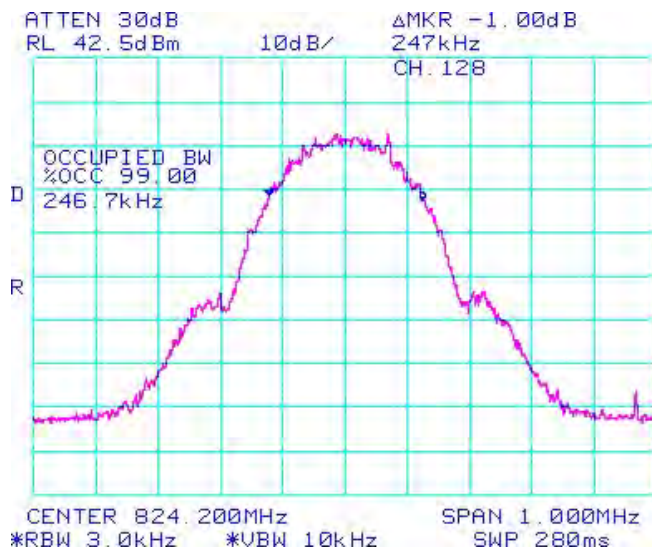
**Figure 1-17a: -26dBc bandwidth, GSM850 band High Channel in GSM mode**



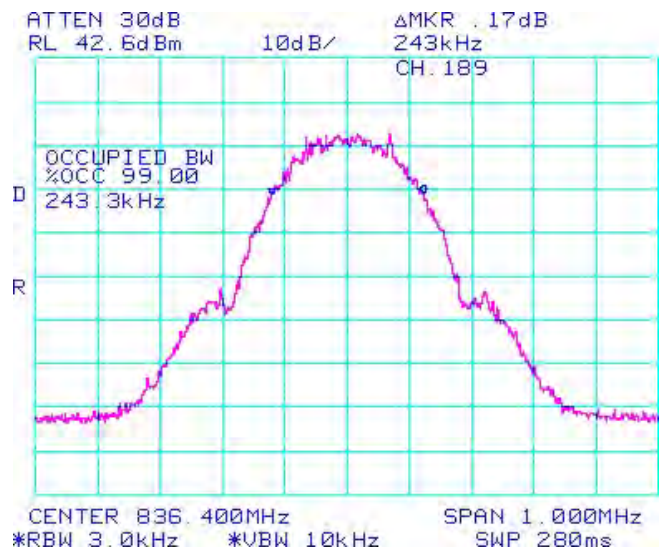
**Figure 1-18a: Occupied Bandwidth, GSM850 band High Channel in GSM mode**



**Figure 1-19a: -26dBc bandwidth, PCS1900 Low Channel in GSM mode**



**Figure 1-20a: Occupied Bandwidth, PCS1900 Low Channel in GSM mode**

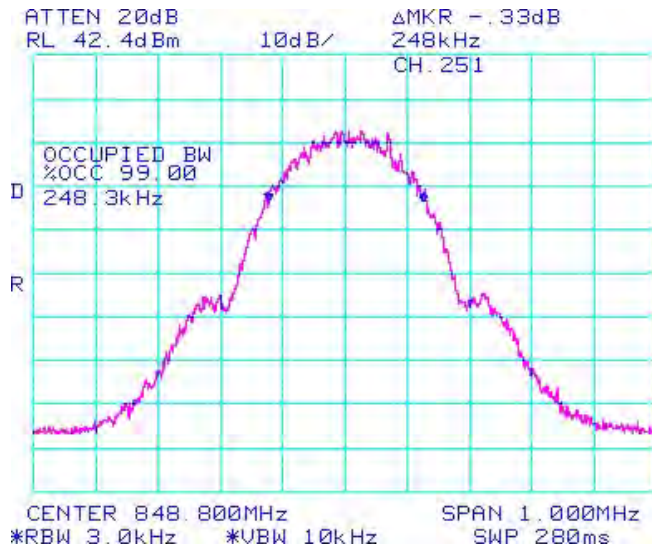
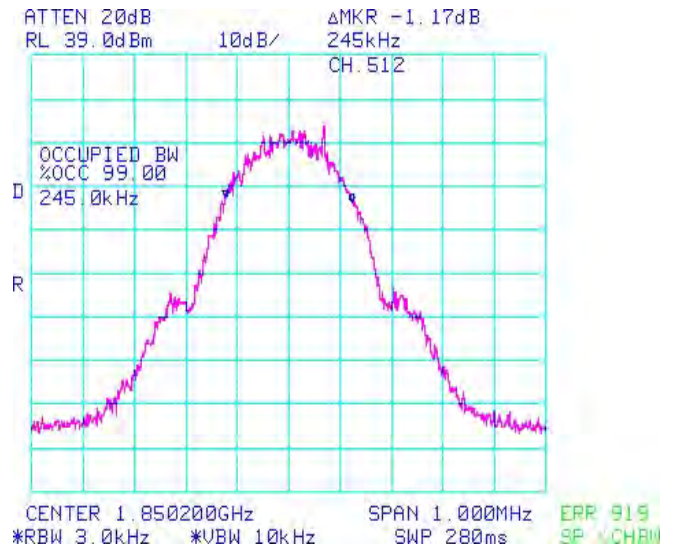
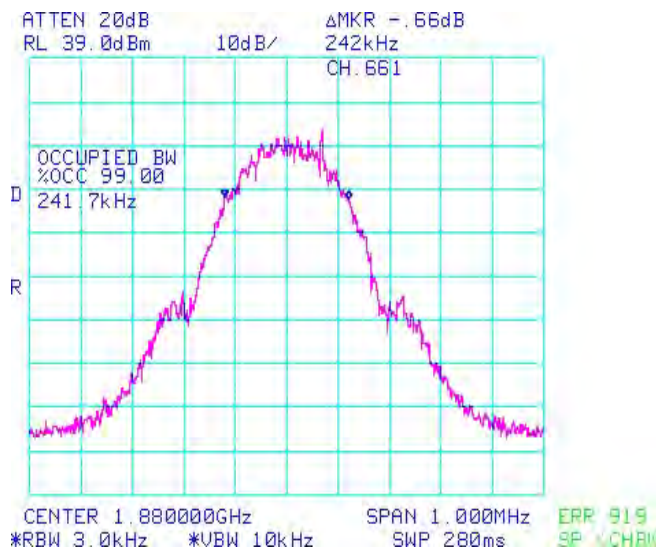
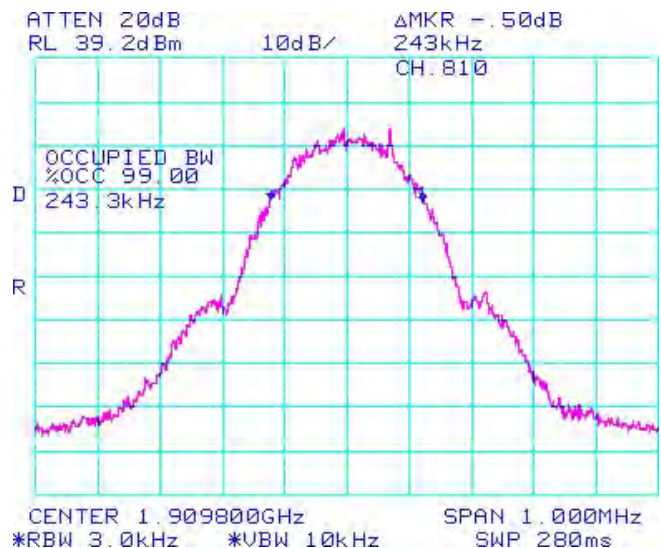


**Test Report No.:**  
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**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### GSM Conducted RF Emission Test Data cont'd

**Figure 1-21a: -26dBc bandwidth, PCS1900 Middle Channel in GSM mode**

**Figure 1-22a: Occupied Bandwidth, PCS1900 Middle Channel in GSM mode**

**Figure 1-23a: -26dBc bandwidth, PCS1900 High Channel in GSM mode**

**Figure 1-24a: Occupied Bandwidth, PCS1900 High Channel in GSM mode**


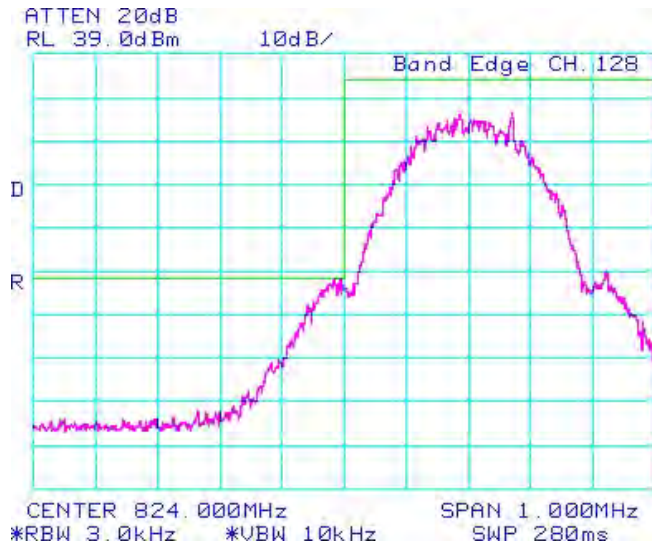
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

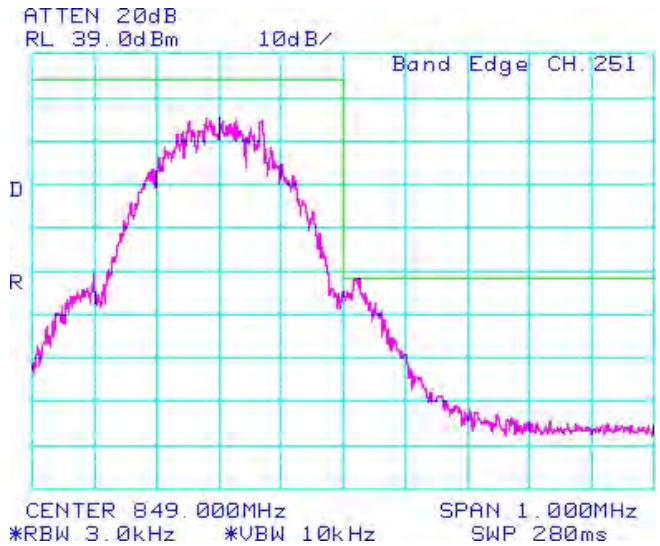
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### GSM Conducted RF Emission Test Data cont'd

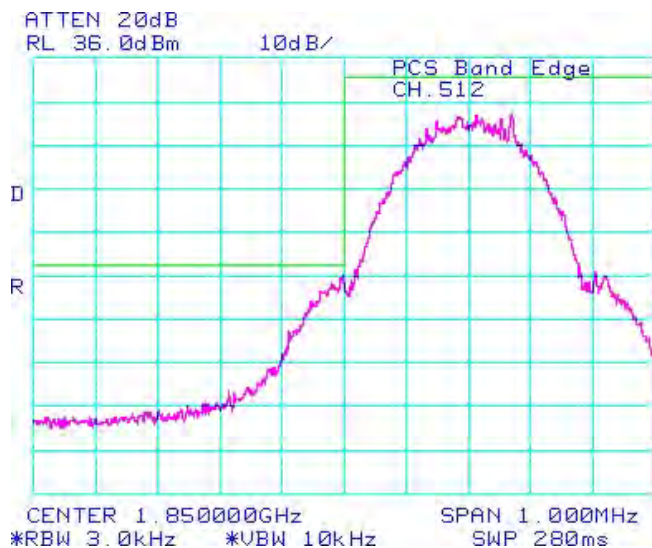
**Figure 1-25a: GSM850 band, Low Channel Mask in GSM mode**



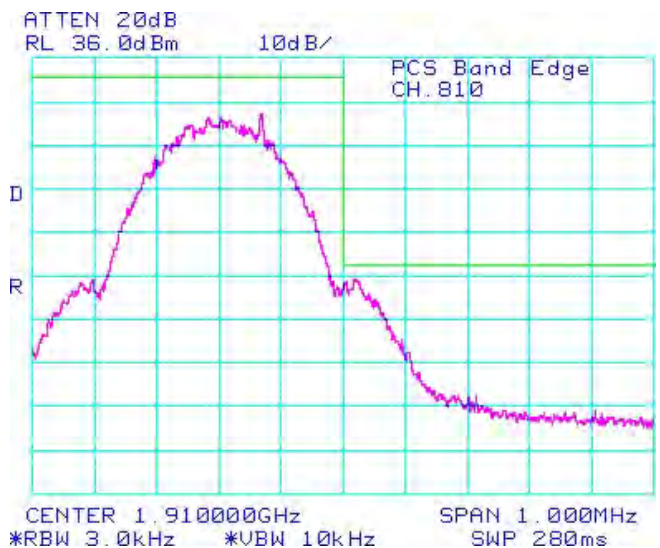
**Figure 1-26a: GSM850 band High Channel Mask in GSM mode**



**Figure 1-27a: PCS1900, Low Channel Mask in GSM mode**



**Figure 1-28a: PCS1900, High Channel Mask in GSM mode**

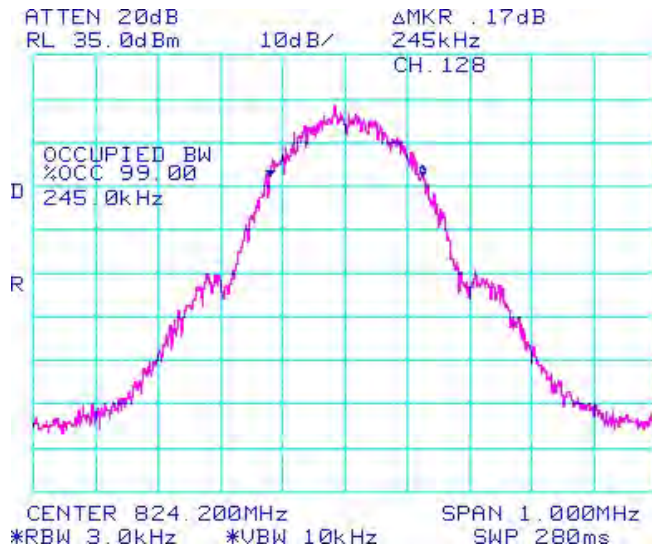
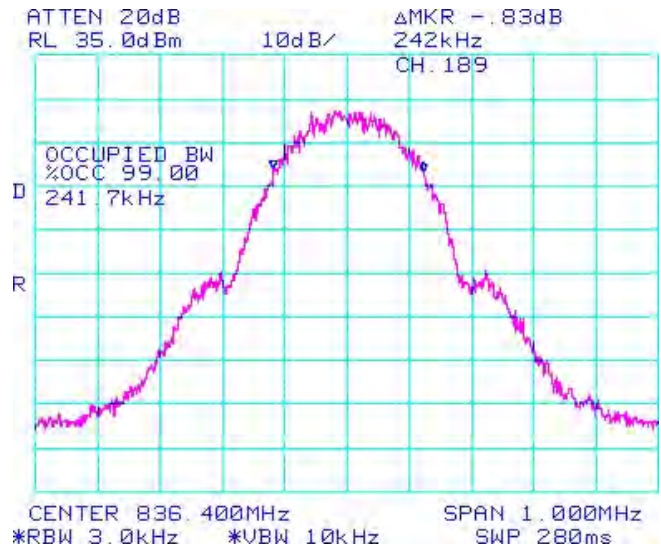
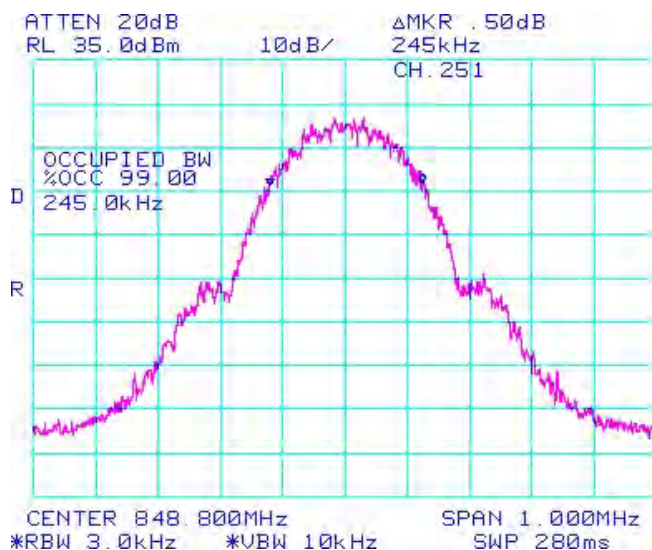
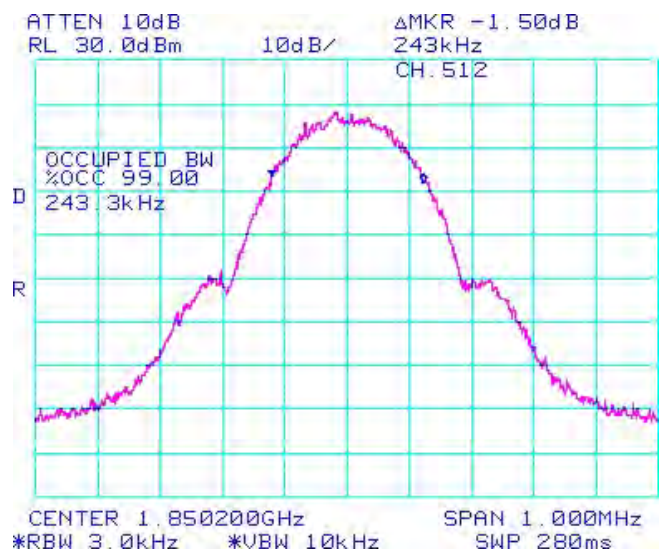


**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### GSM Conducted RF Emission Test Data cont'd

**Figure 1-29a: Occupied Bandwidth, GSM850 Band, Low Channel in EDGE mode**

**Figure 1-30a: Occupied Bandwidth, GSM850 Band, Middle Channel in EDGE mode**

**Figure 1-31a: Occupied Bandwidth, GSM850 band, High Channel in EDGE mode**

**Figure 1-32a: Occupied Bandwidth, PCS1900 Band, Low Channel in EDGE mode**


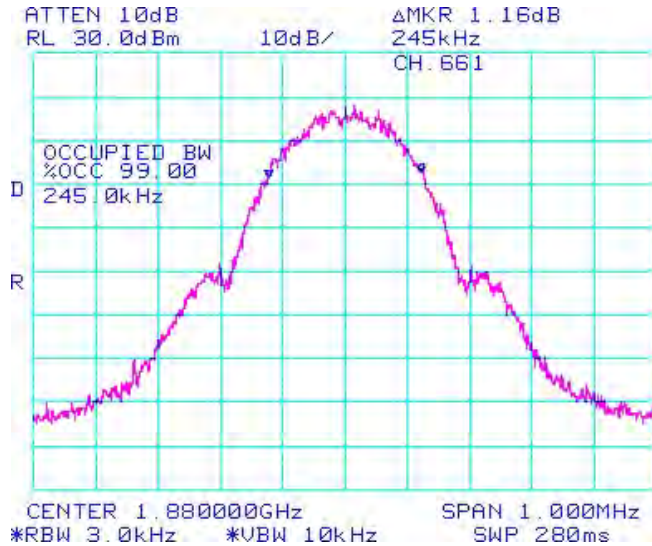
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

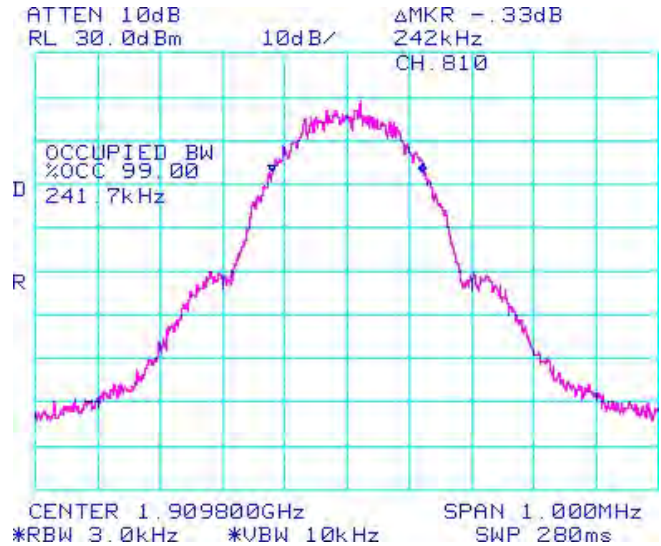
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## GSM Conducted RF Emission Test Data cont'd

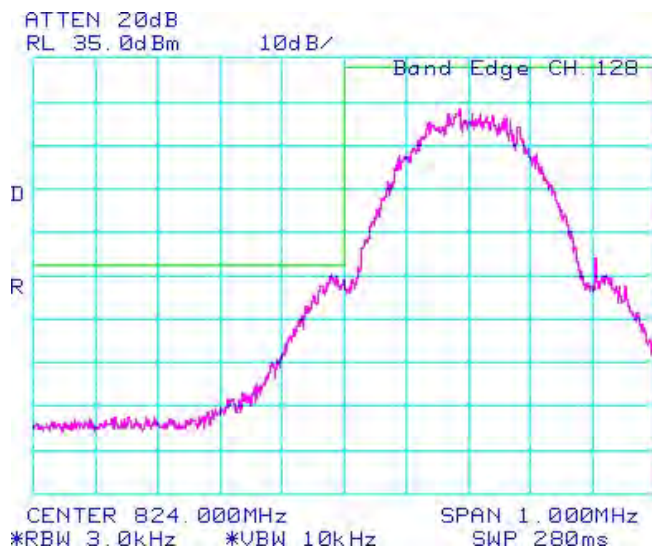
**Figure 1-33a: Occupied Bandwidth, PCS1900 Band, Middle Channel in EDGE mode**



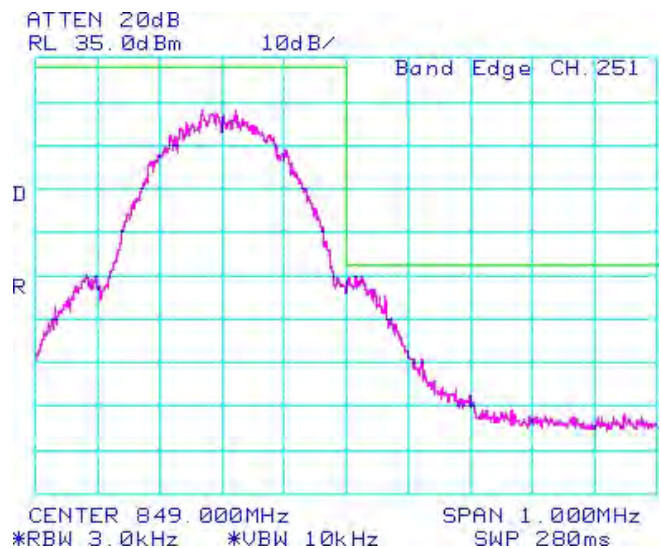
**Figure 1-34a: Occupied Bandwidth, PCS1900 Band, High Channel in EDGE mode**



**Figure 1-35a: GSM850 Band, Low Channel Mask in EDGE mode**



**Figure 1-36a: GSM850 Band, High Channel Mask in EDGE mode**



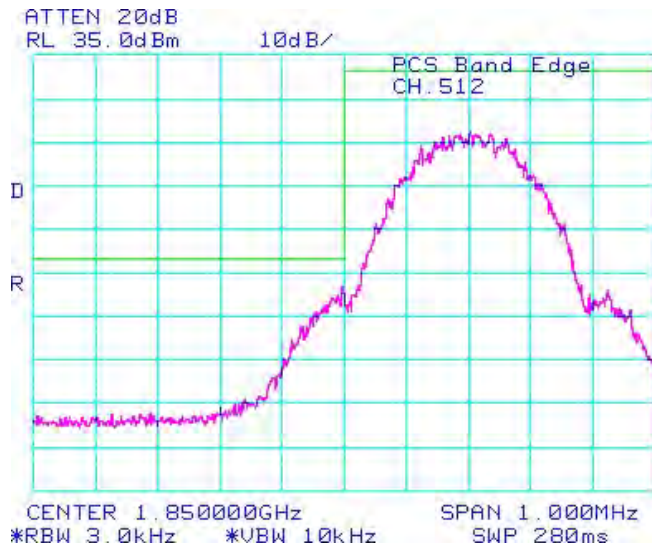
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

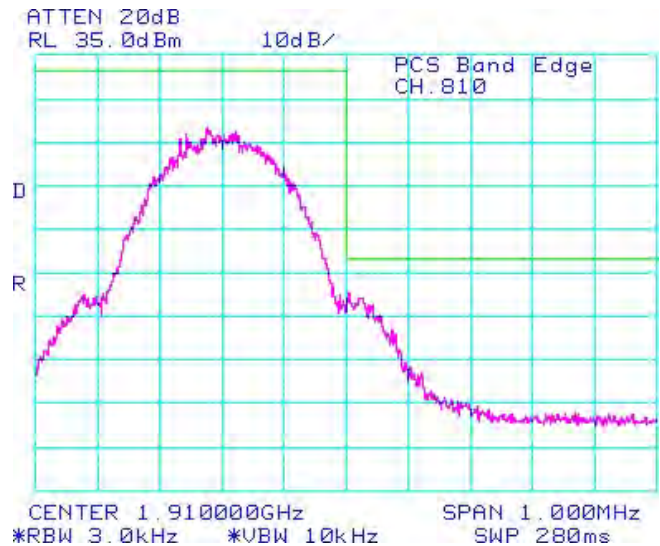
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### GSM Conducted RF Emission Test Data cont'd

**Figure 1-37a: PCS1900 Band, Low Channel Mask in EDGE mode**



**Figure 1-38a: PCS1900 Band, High Channel Mask in EDGE mode**

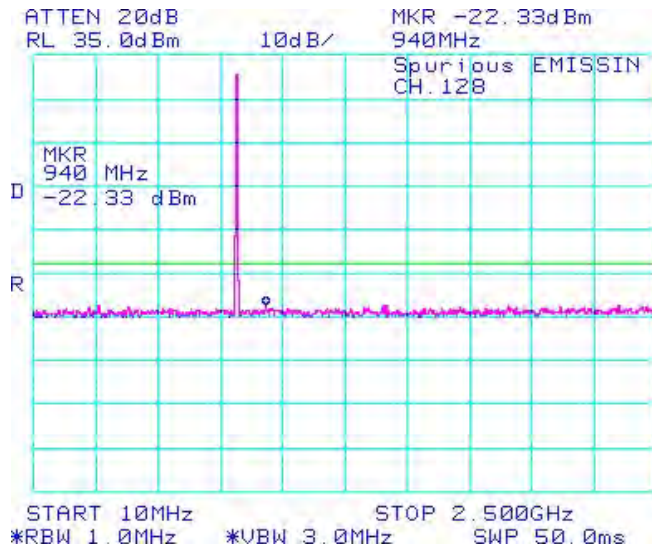
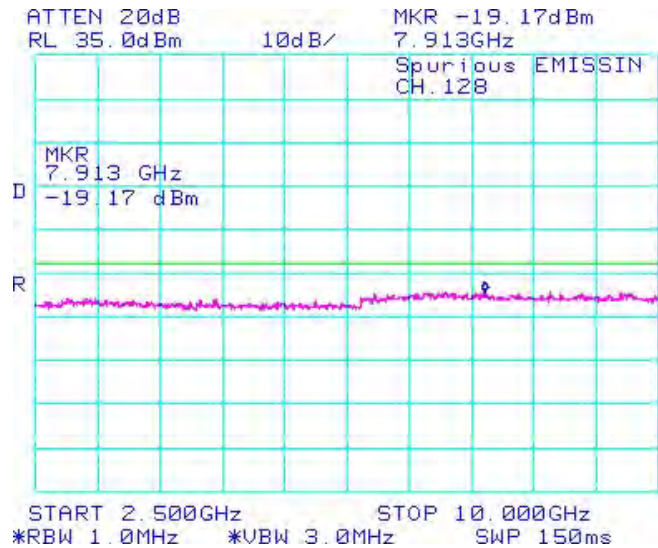
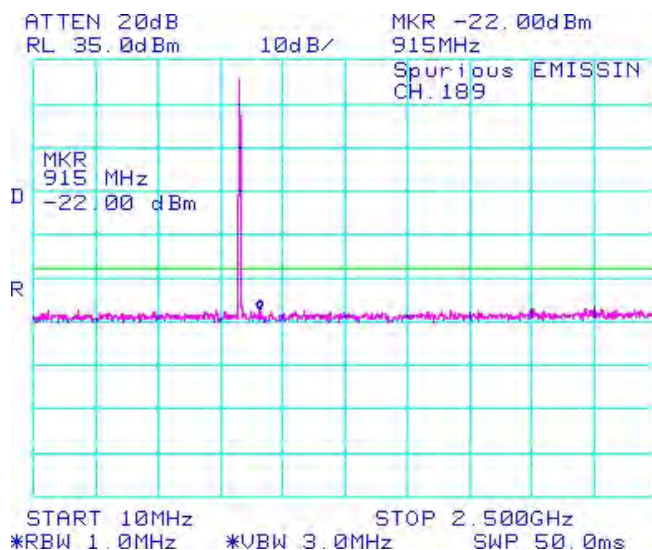
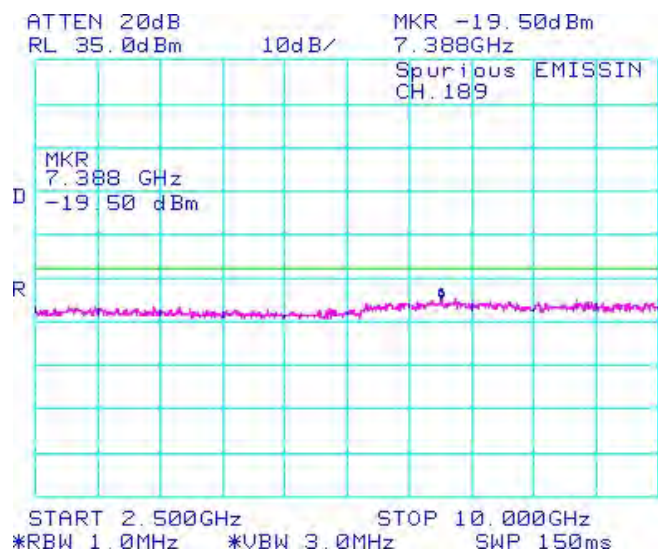


**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### GSM Conducted RF Emission Test Data cont'd

**Figure 1-39a: GSM850 band, Spurious Conducted Emissions, Low channel in Edge Mode**

**Figure 1-40a: GSM850 band, Spurious Conducted Emissions, Low channel in Edge Mode**

**Figure 1-41a: GSM850 band, Spurious Conducted Emissions, Middle channel in Edge Mode**

**Figure 1-42a: GSM850 band, Spurious Conducted Emissions, Middle channel in Edge Mode**


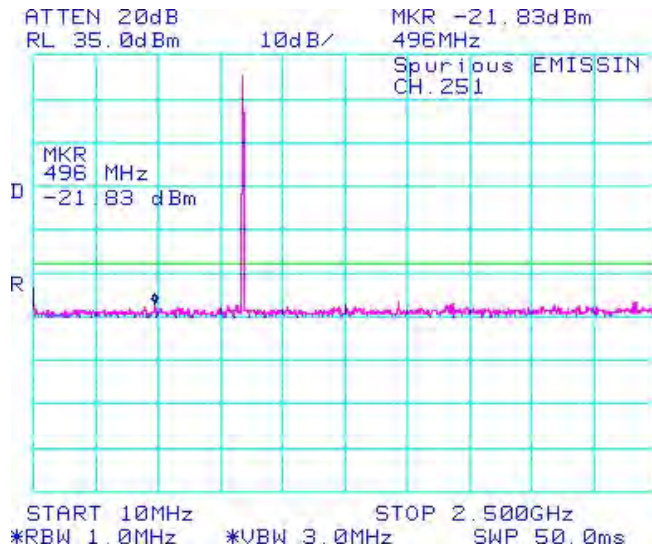
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

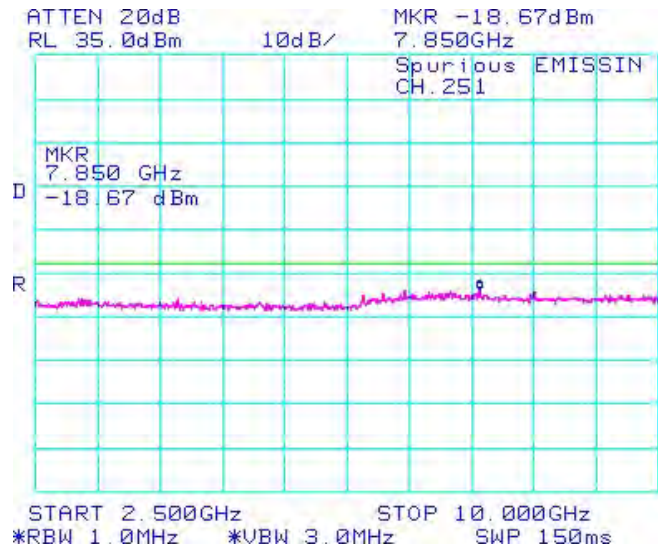
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## GSM Conducted RF Emission Test Data cont'd

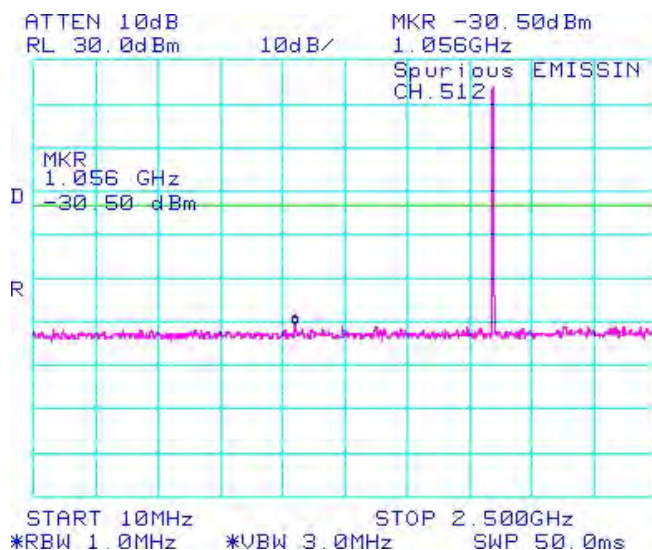
**Figure 1-43a: GSM850 band, Spurious Conducted Emissions, High channel in Edge Mode**



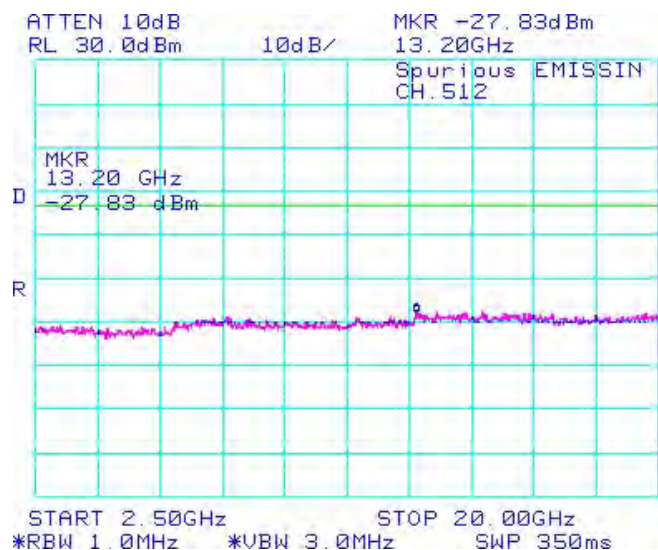
**Figure 1-44a: GSM850 band, Spurious Conducted Emissions, High channel in Edge Mode**



**Figure 1-45a: PCS1900 band, Spurious Conducted Emissions, Low channel in Edge Mode**



**Figure 1-46a: PCS1900 band, Spurious Conducted Emissions, Low channel in Edge Mode**



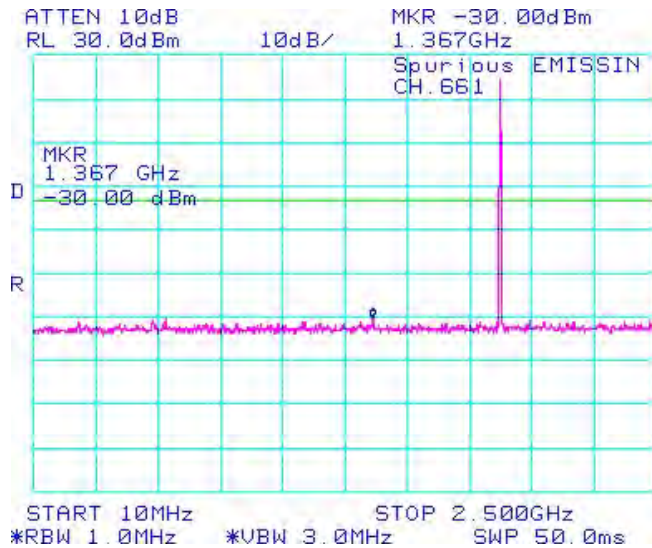
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

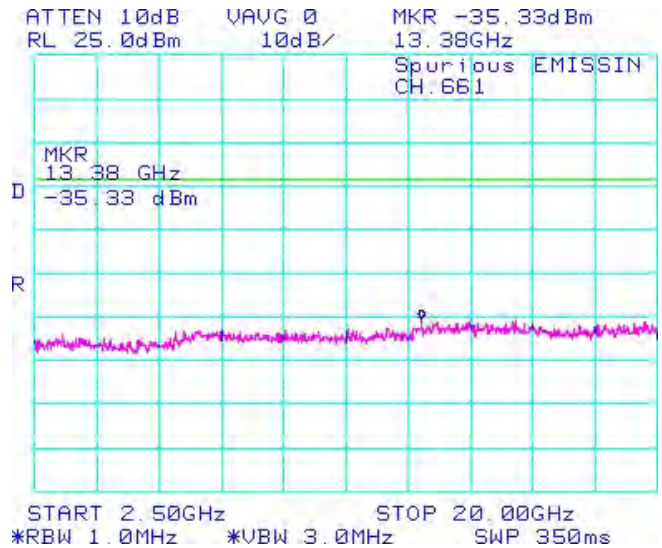
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## GSM Conducted RF Emission Test Data cont'd

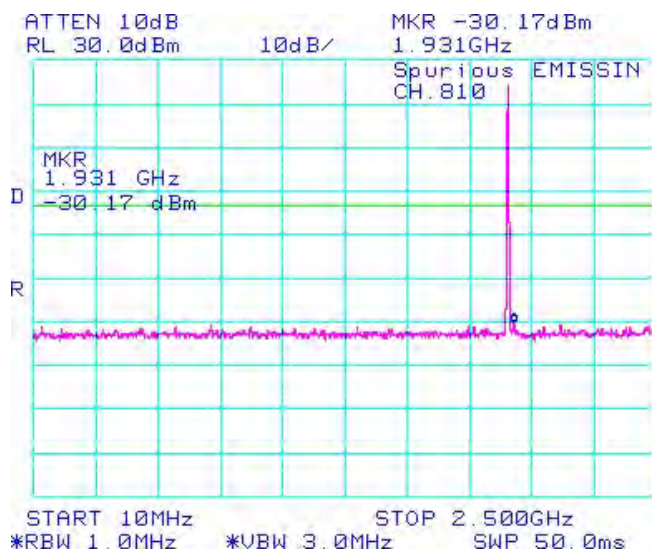
**Figure 1-47a: PCS1900 band, Spurious Conducted Emissions, middle channel in Edge Mode**



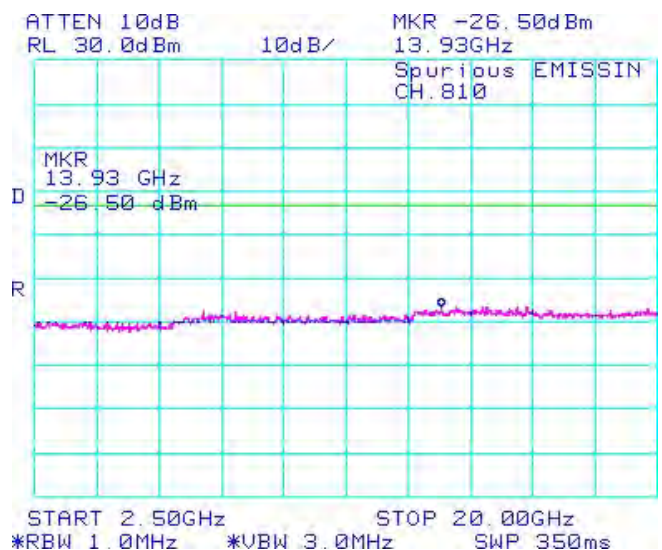
**Figure 1-48a: PCS1900 band, Spurious Conducted Emissions, middle channel in Edge Mode**



**Figure 1-49a: PCS1900 band, Spurious Conducted Emissions, High channel in Edge Mode**



**Figure 1-50a: PCS1900 band, Spurious Conducted Emissions, High channel in Edge Mode**



## APPENDIX 1B– UMTS Band 2/4 CONDUCTED RF EMISSIONS TEST DATA/PLOTS

**Test Report No.:**  
RTS-5995-1205-20

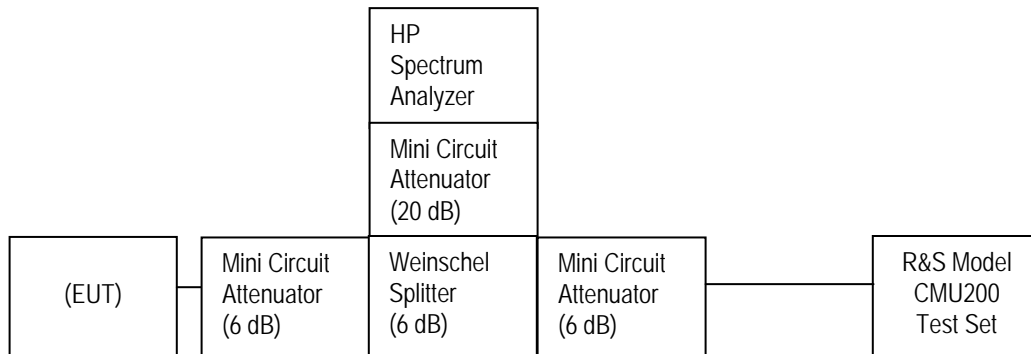
**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### UMTS BAND 2/4 Conducted RF Emission Test Data

This appendix contains measurement data pertaining to conducted spurious emissions, 99% power bandwidth and the channel mask.

### **Test Setup Diagram**



Date of Test: April 23, 2012

The environmental test conditions were: Temperature: 25.0°C  
Relative Humidity: 37.0 %

The following measurements were performed by Kevin Guo.

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
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**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

### UMTS Conducted RF Emission Test Data cont'd

**The conducted spurious emissions** – As per 47 CFR 2.1051, CFR 24.238(a), CFR 4.202, CFR 22 Subpart H, RSS-132 and RSS - 133 were measured from 10 MHz to 20 GHz.

#### **–26 dBc Bandwidth and Occupied Bandwidth (99%)**

For each carrier frequency of low, middle and high, the modulation spectrum was measured by both methods of 99% power bandwidth and –26 dBc bandwidth.

The resolution bandwidth required for out-of-band emissions in the 1 MHz bands immediately outside and adjacent to the frequency block, was determined to be at least 1% of the emission bandwidth.

The worst case –26dBc bandwidth for UMTS Band 4 was measured to be 4.558 MHz, and for UMTS band 2 was measured to be 4.608 MHz as shown below. Results were derived in a 3.0 kHz resolution bandwidth.

On any frequency outside the frequency block and outside the adjacent 1 MHz bands, a resolution bandwidth of at least 1 MHz was applied.

#### **Test Data for UMTS Band 2/4 selected Frequencies in Loopback mode**

<b>UMTS Band 4 Frequency (MHz)</b>	<b>26dBc Occupied Bandwidth (MHz)</b>	<b>99% Occupied Bandwidth (MHz)</b>
1712.400	4.558	4.125
1732.600	4.550	4.125
1752.600	4.558	4.125

<b>UMTS Band 2 Frequency (MHz)</b>	<b>26dBc Occupied Bandwidth (MHz)</b>	<b>99% Occupied Bandwidth (MHz)</b>
1852.400	4.592	4.117
1880.000	4.608	4.117
1907.600	4.592	4.117

#### ***Measurement Plots for UMTS Band 4 and UMTS BAND 2 in Loopback mode***

Refer to the following measurement plots for more detail:

See Figures 1-1b to 1-12b for the plots of the conducted spurious emissions.

See Figures 1-13b to 1-24b for the plots of 99% Occupied Bandwidth and -26 dBc Bandwidth.

See Figures 1-25b to 1-28b for the plots of the Channel mask.

The RF power output was at maximum for all the recorded measurements shown below.

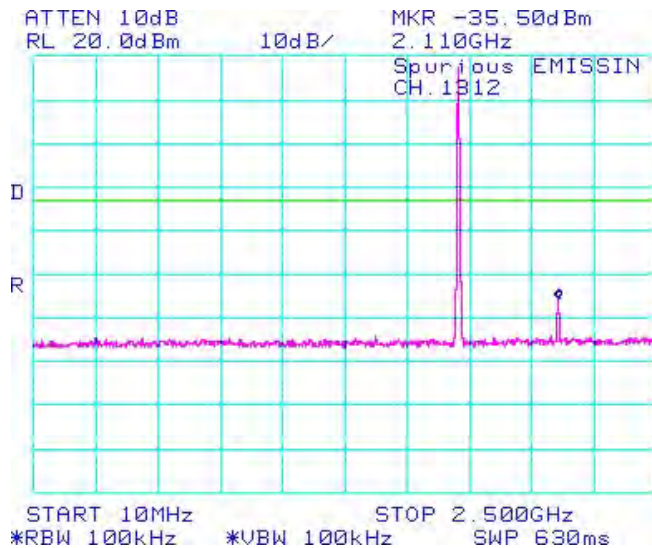
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

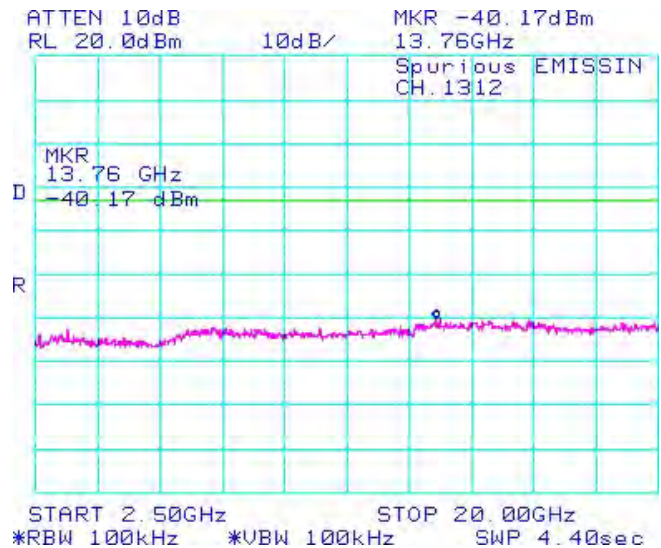
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

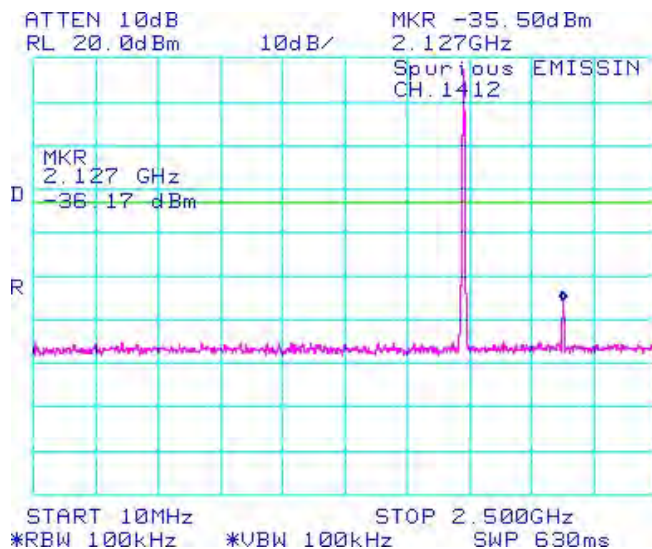
**Figure 1-1b: Band 4, Spurious Conducted Emissions, Low channel**



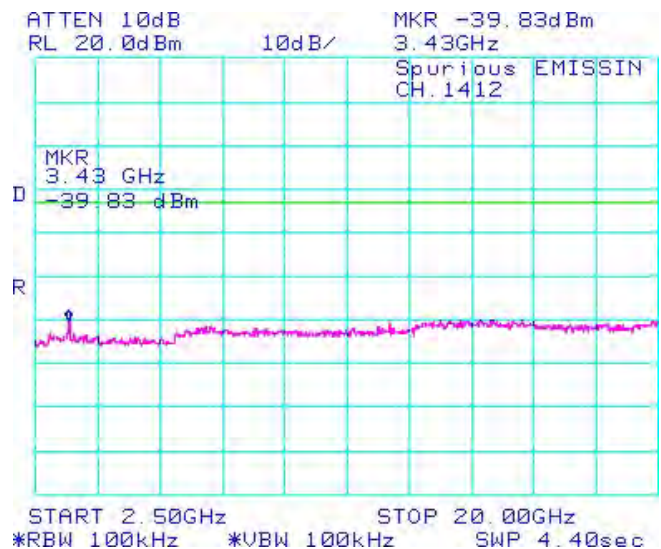
**Figure 1-2b: Band 4, Spurious Conducted Emissions, Low channel**



**Figure 1-3b: Band 4, Spurious Conducted Emissions, Middle channel**



**Figure 1-4b: Band 4, Spurious Conducted Emissions, Middle channel**



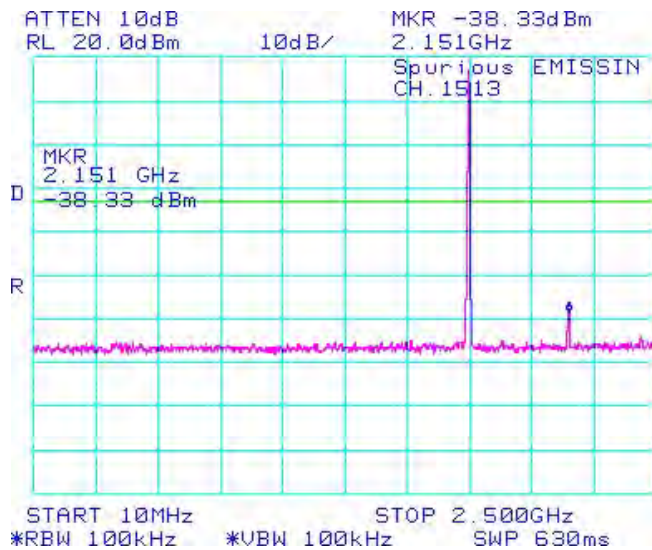
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

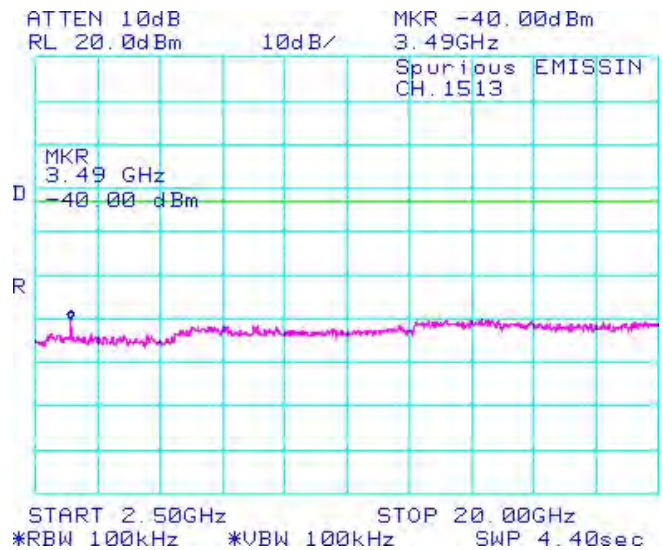
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

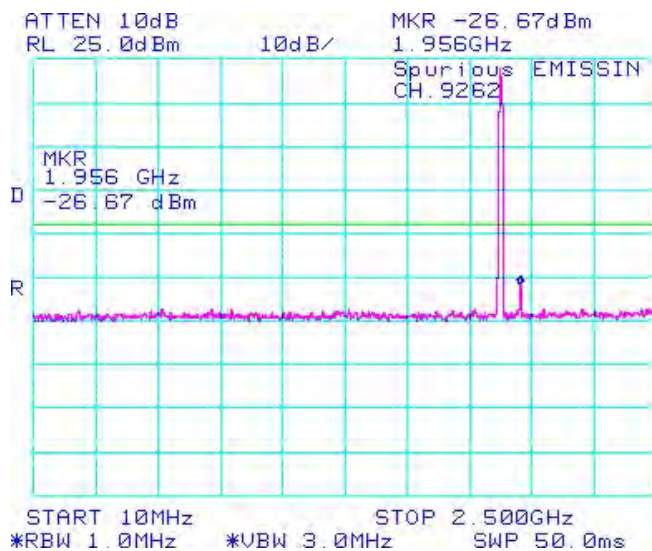
**Figure 1-5b: Band 4, Spurious Conducted Emissions, High Channel**



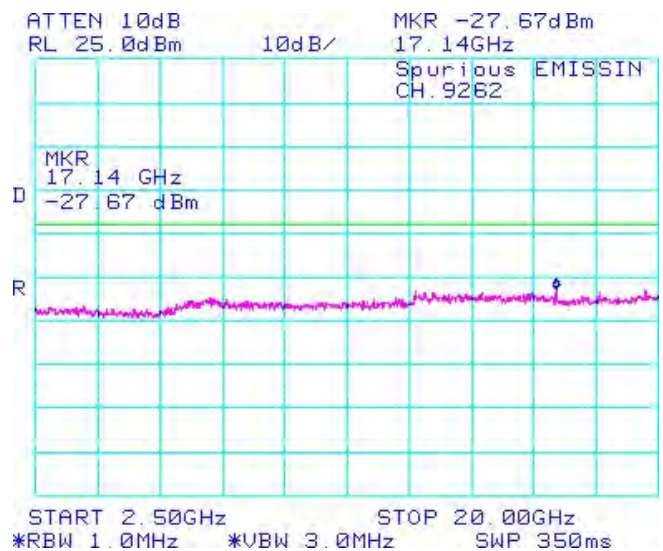
**Figure 1-6b: Band 4, Spurious Conducted Emissions, High Channel**



**Figure 1-7b: Band 2 Spurious Conducted Emissions, Low Channel**



**Figure 1-8b: Band 2, Spurious Conducted Emissions, Low Channel**



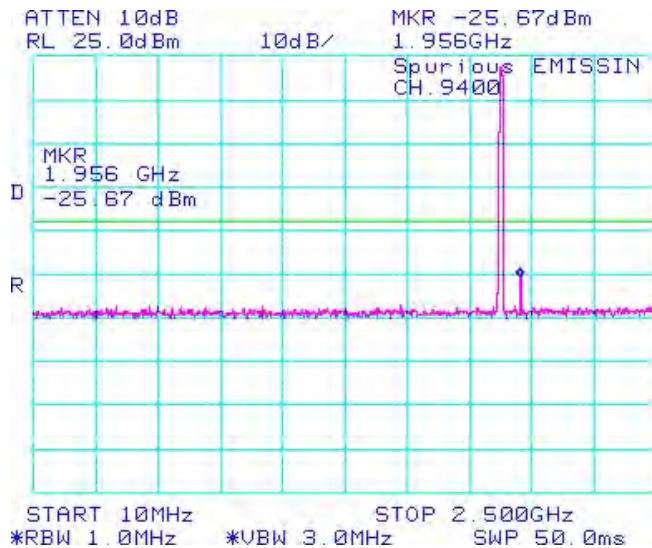
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

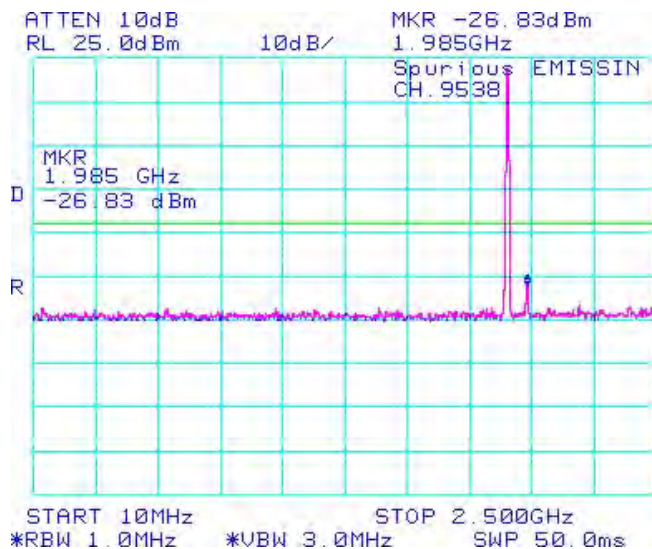
**Figure 1-9b: Band 2, Spurious Conducted Emissions, Middle Channel**



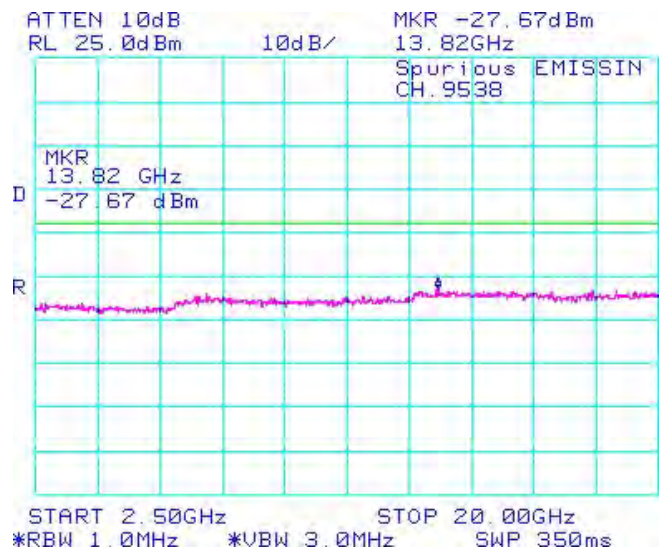
**Figure 1-10b: Band 2, Spurious Conducted Emissions, Middle Channel**



**Figure 1-11b: Band 2, Spurious Conducted Emissions, High Channel**



**Figure 1-12b: Band 2, Spurious Conducted Emissions, High Channel**



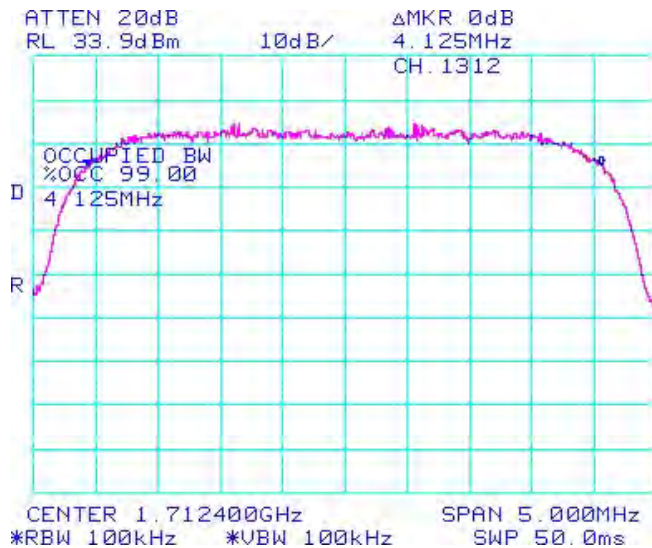
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

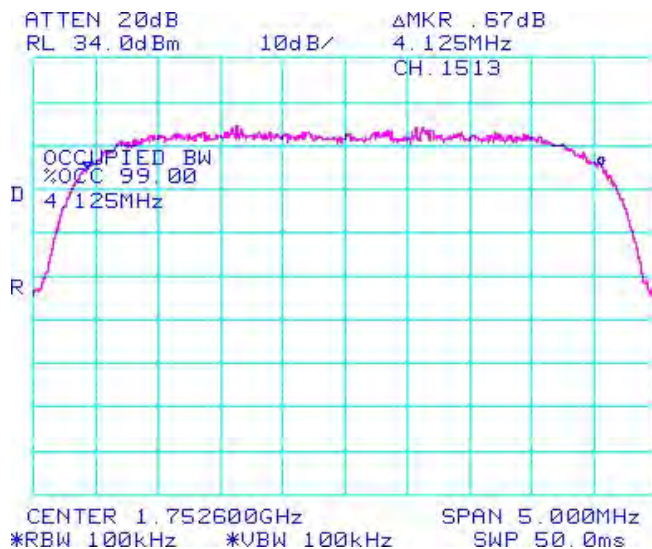
**Figure 1-13b: Occupied Bandwidth, Band 4 Low Channel**



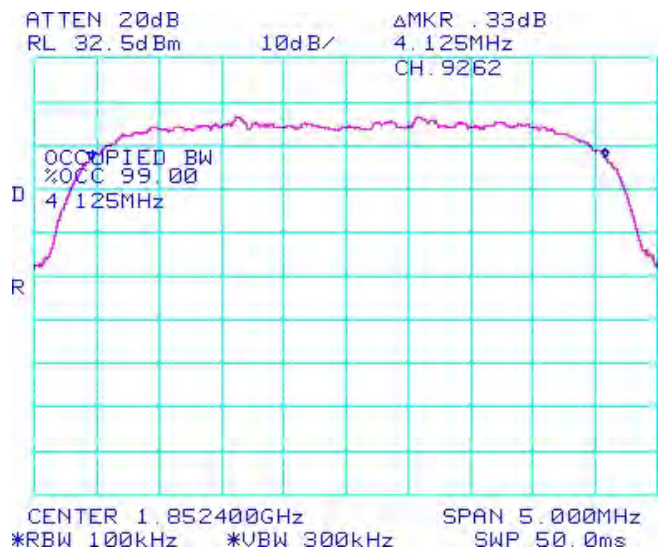
**Figure 1-14b: Occupied Bandwidth, Band 4 Middle Channel**



**Figure 1-15b: Occupied Bandwidth, Band 4 High Channel**



**Figure 1-16b: Occupied Bandwidth, Band 2 Low Channel**



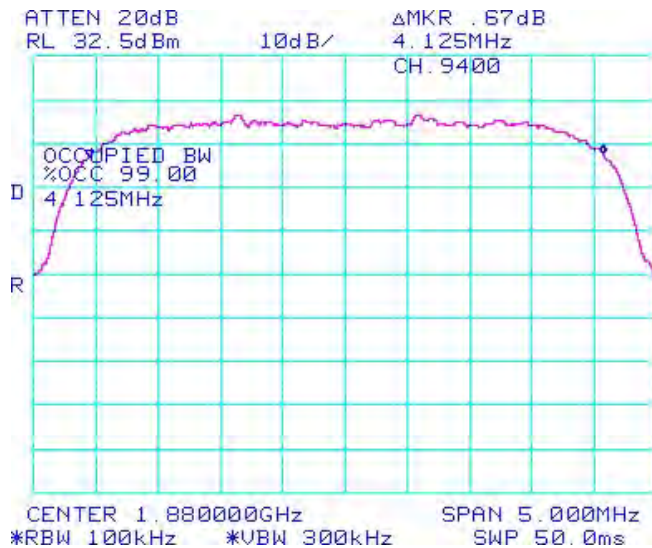
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

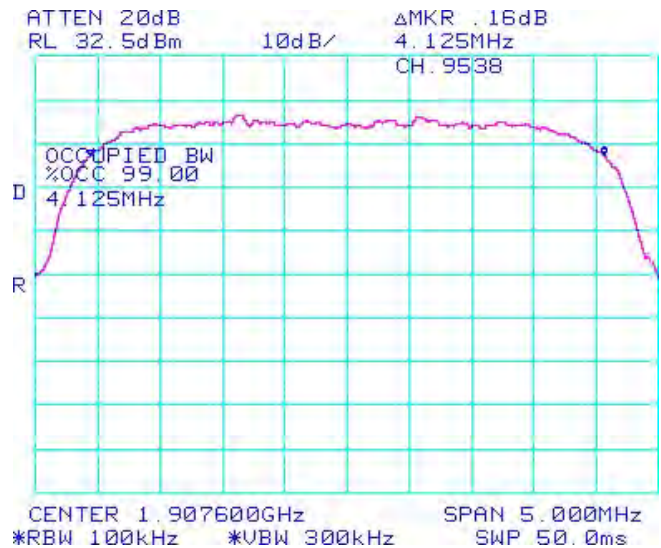
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

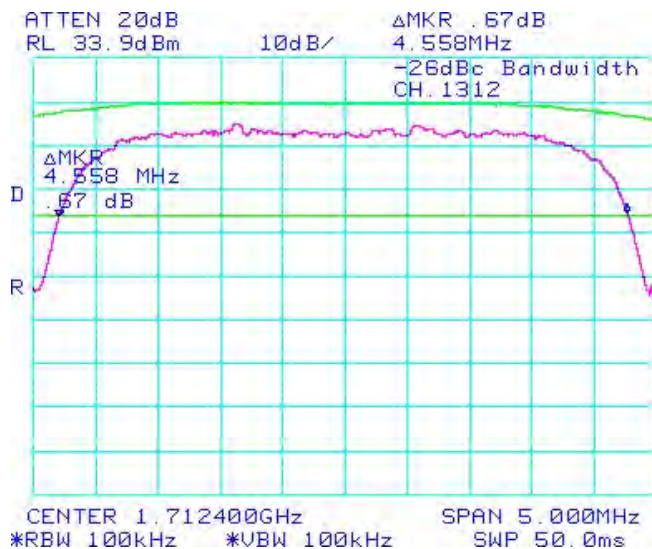
**Figure 1-17b: Occupied Bandwidth, Band 2 Middle Channel**



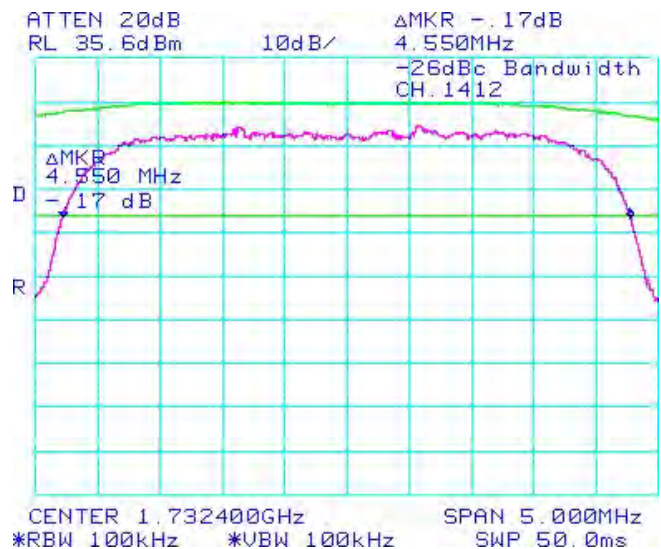
**Figure 1-18b: Occupied Bandwidth, Band 2 High Channel**



**Figure 1-19b: -26 dBc Bandwidth, Band 4 Low Channel**



**Figure 1-20b: -26 dBc Bandwidth, Band 2 Low Channel**



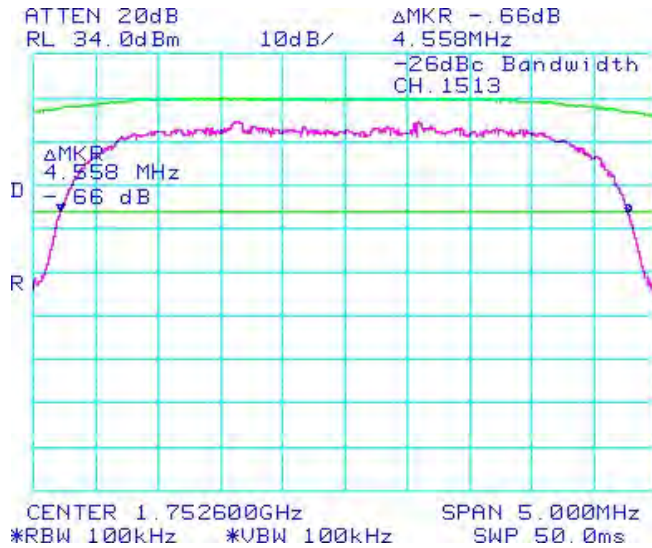
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

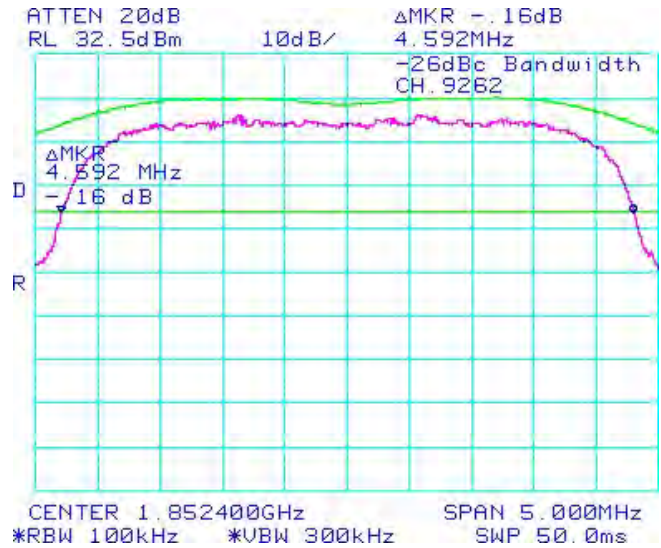
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

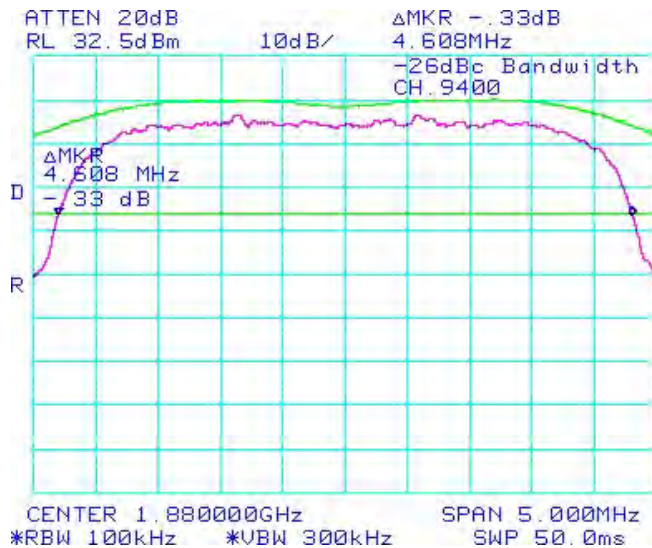
**Figure 1-21b: -26 dBc Bandwidth, Band 4 Middle Channel**



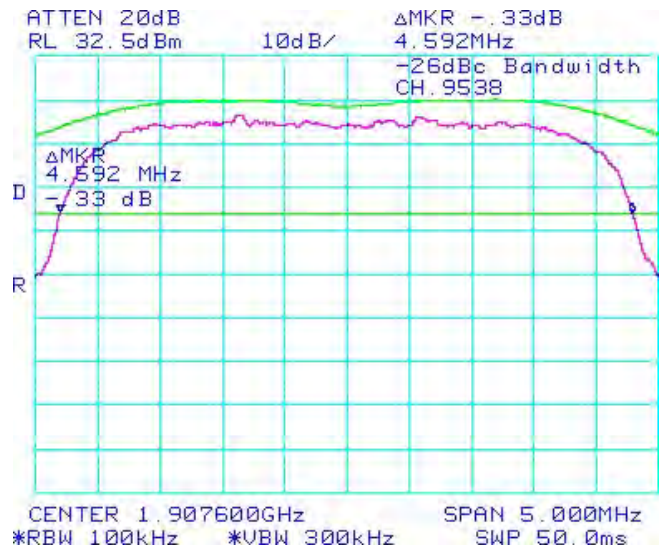
**Figure 1-22b: -26 dBc Bandwidth, Band 2 Middle Channel**



**Figure 1-23b: -26 dBc Bandwidth, Band 4 High Channel**



**Figure 1-24b: -26 dBc Bandwidth, Band 2 High Channel**



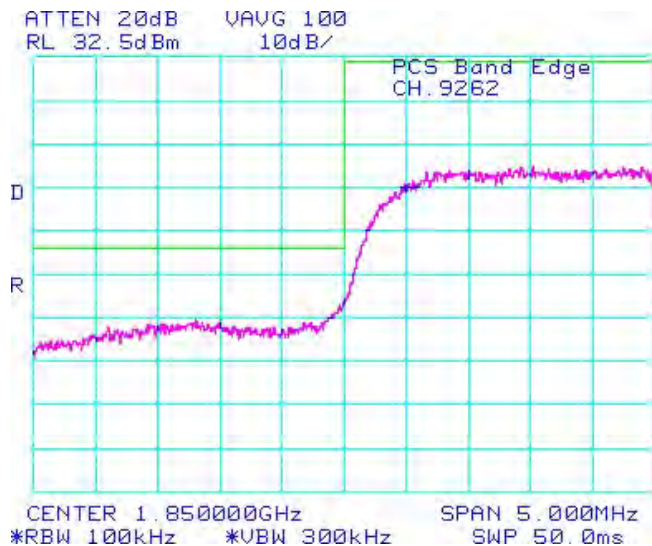
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

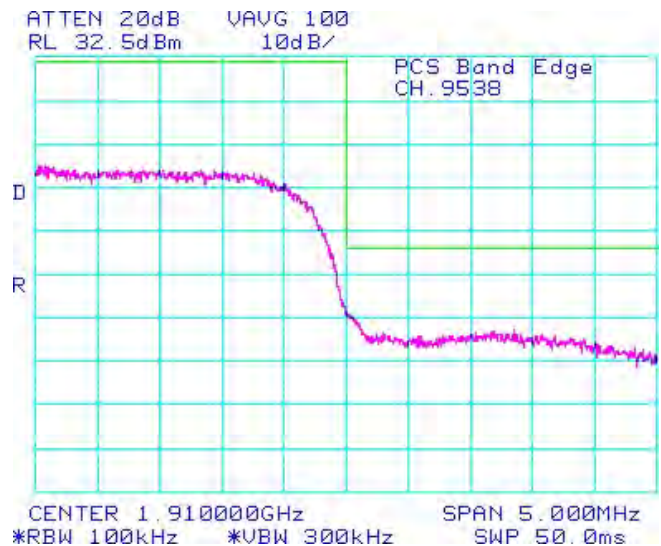
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

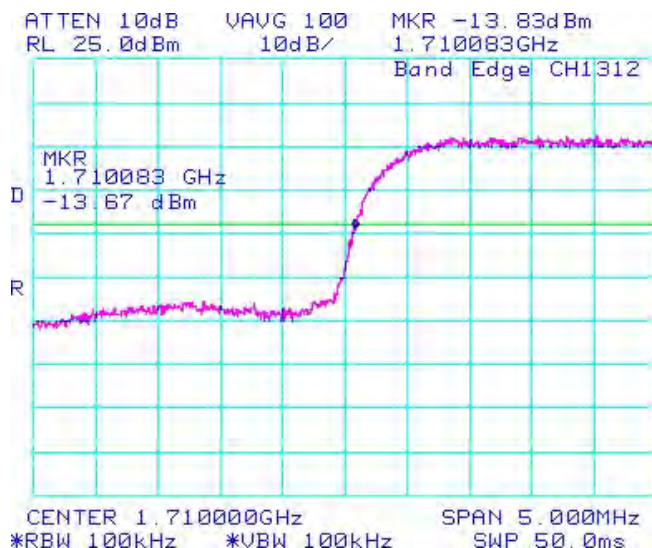
**Figure 1-25b: Band 2 Low Channel Mask**



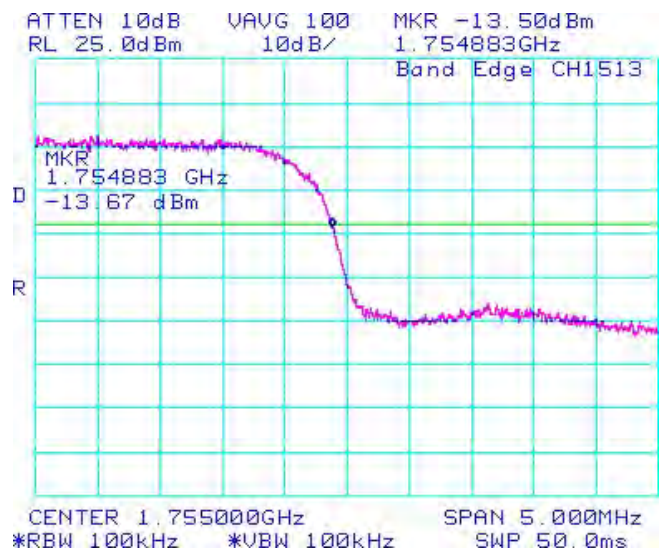
**Figure 1-26b: Band 2 High Channel Mask**



**Figure 1-27b: Band 4 Low Channel Mask**



**Figure 1-28b: Band 4 High Channel Mask**



<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW
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### UMTS Conducted RF Emission Test Data cont'd

**The conducted spurious emissions** – As per 47 CFR 2.1051, CFR 24.238(a), CFR 22 Subpart H, RSS-132 and RSS - 133 were measured from 10 MHz to 20 GHz.

Date of Test: April 23, 2012

The environmental test conditions were:

Temperature:	25.0 °C
Relative Humidity:	37.0 %

### Test Data for UMTS Band 4 and UMTS Band 2 selected Frequencies in HSUPA mode

<b>Band 4 Frequency (MHz)</b>	<b>99% Occupied Bandwidth (MHz)</b>
1712.400	4.117
1732.600	4.125
1752.600	4.133

<b>BAND 2 Frequency (MHz)</b>	<b>99% Occupied Bandwidth (MHz)</b>
1852.400	4.133
1880.000	4.133
1907.600	4.133

### Measurement Plots for UMTS Band 4 and UMTS Band 2 in HSUPA mode

Refer to the following measurement plots for more detail:

See Figures 1-29b to 1-40b for the plots of the conducted spurious emissions.

See Figures 1-41b to 1-46b for the plots of 99% Occupied Bandwidth.

See Figures 1-47b to 1-50b for the plots of the Channel mask.

The RF power output was at maximum for all the recorded measurements shown below.

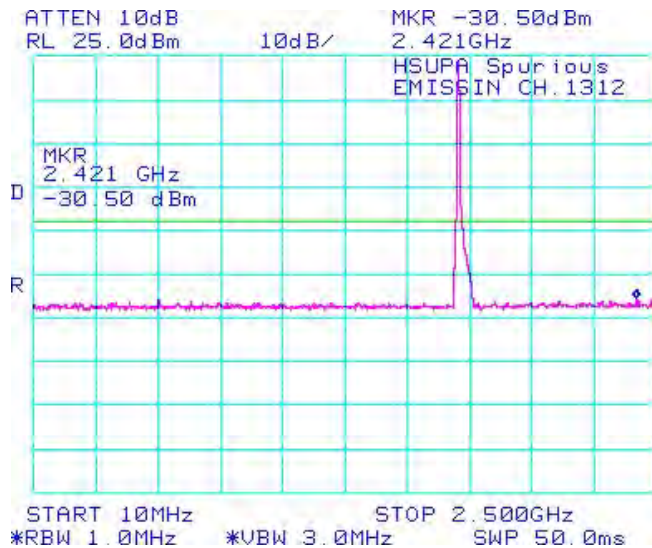
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

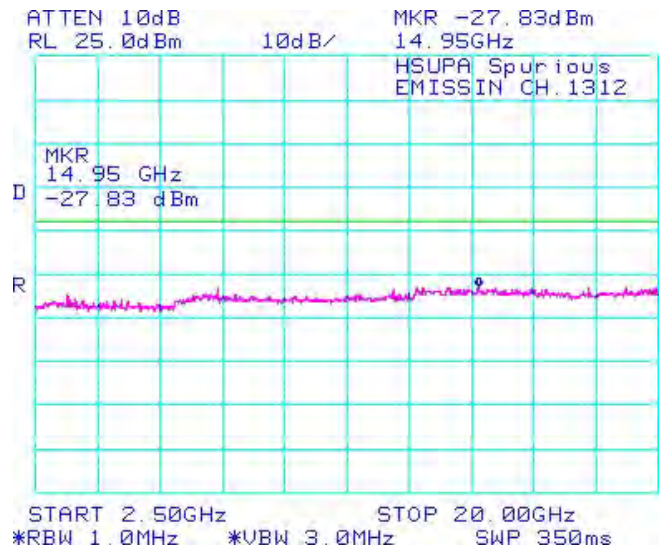
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

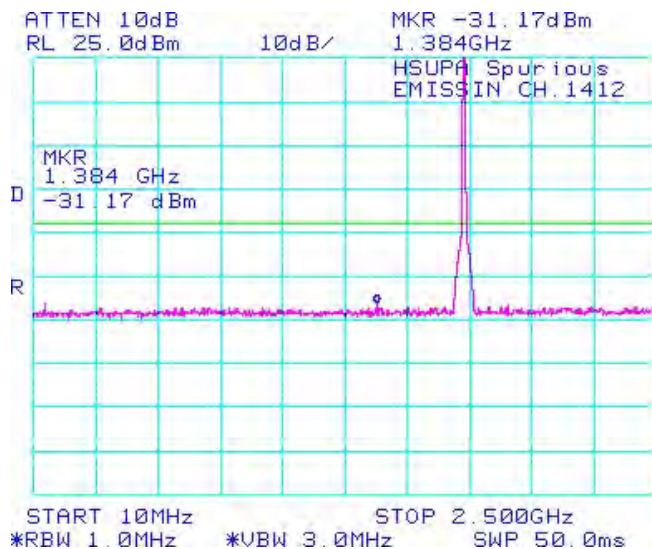
**Figure 1-29b: Band 4, HSUPA , Spurious Conducted Emissions, Low channel**



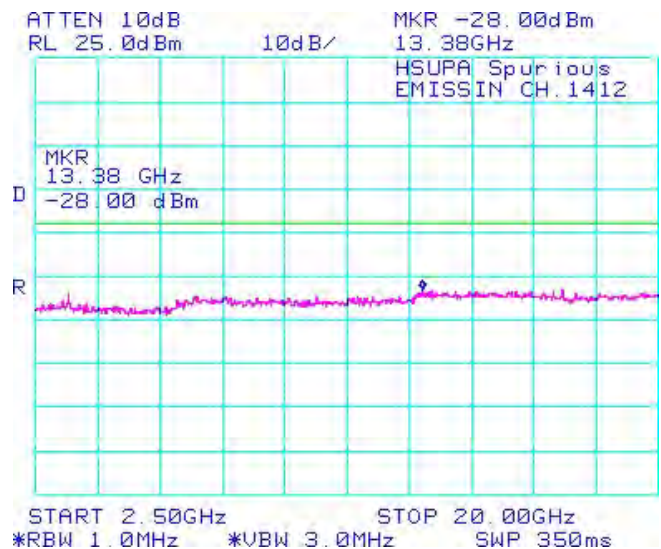
**Figure 1-30b: Band 4 , Spurious Conducted Emissions, Low channel**



**Figure 1-31b: Band 4 , Spurious Conducted Emissions, Middle channel**



**Figure 1-32b: Band 4 , Spurious Conducted Emissions, Middle channel**



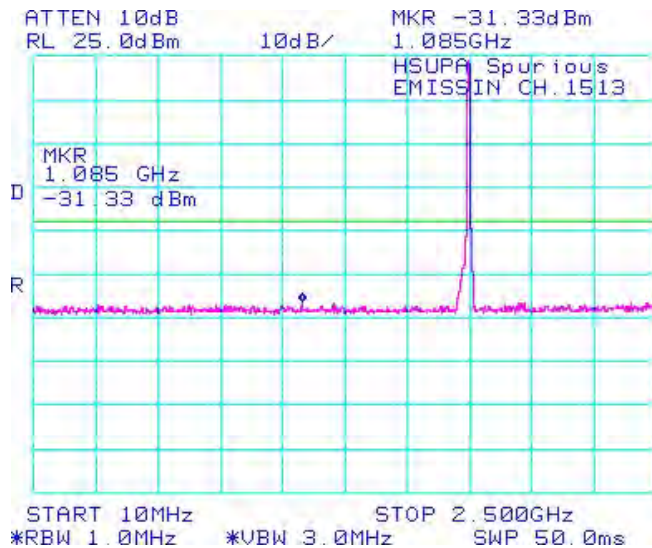
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

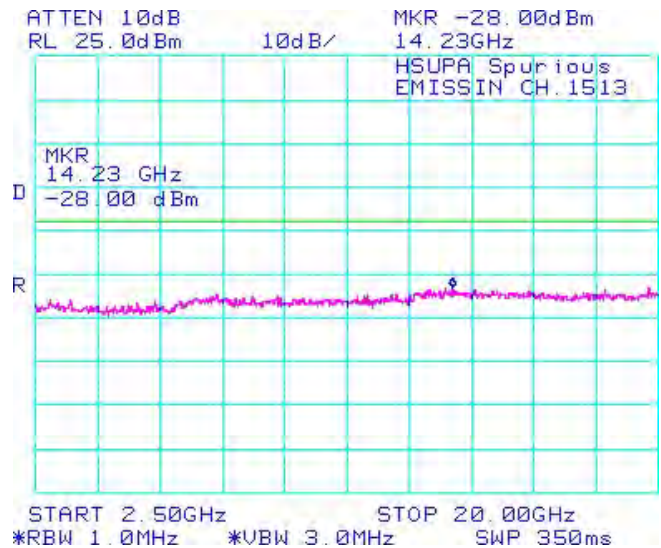
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

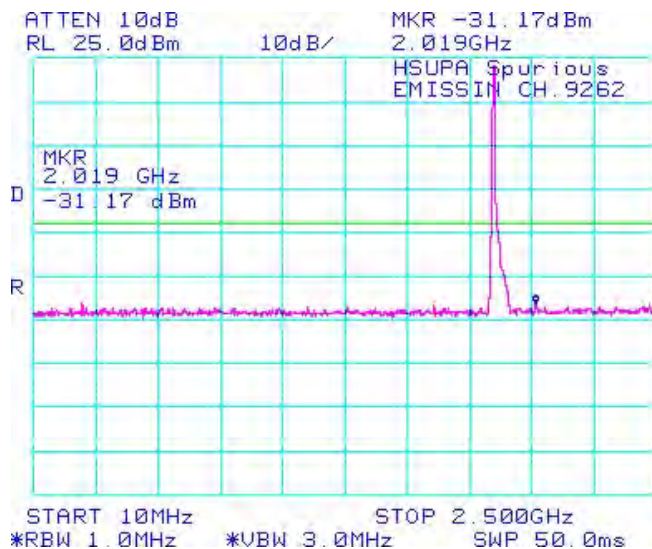
**Figure 1-33b: Band 4 , Spurious Conducted Emissions, High Channel**



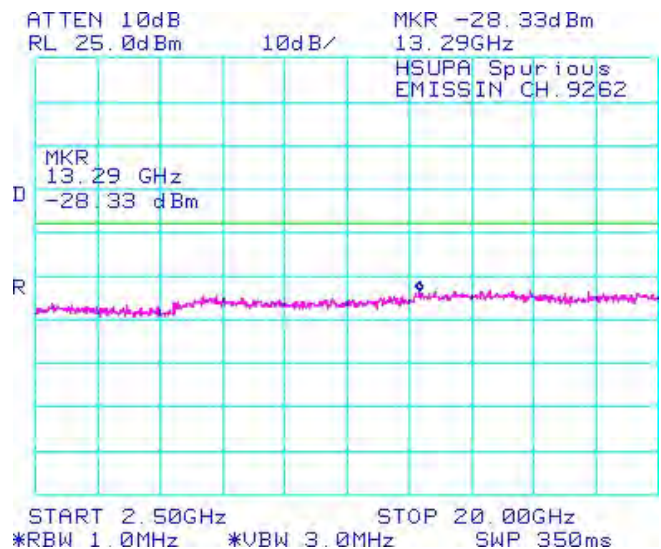
**Figure 1-34b: Band 4 , Spurious Conducted Emissions, High Channel**



**Figure 1-35b: Band 2, Spurious Conducted Emissions, Low Channel**



**Figure 1-36b: Band 2, Spurious Conducted Emissions, Low Channel**



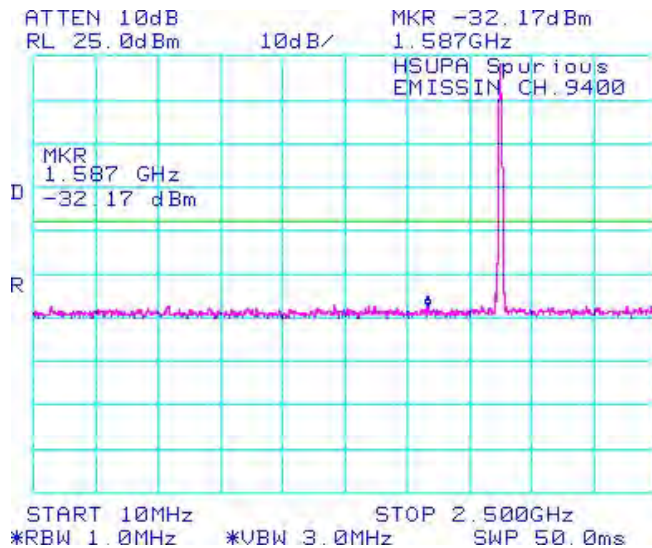
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

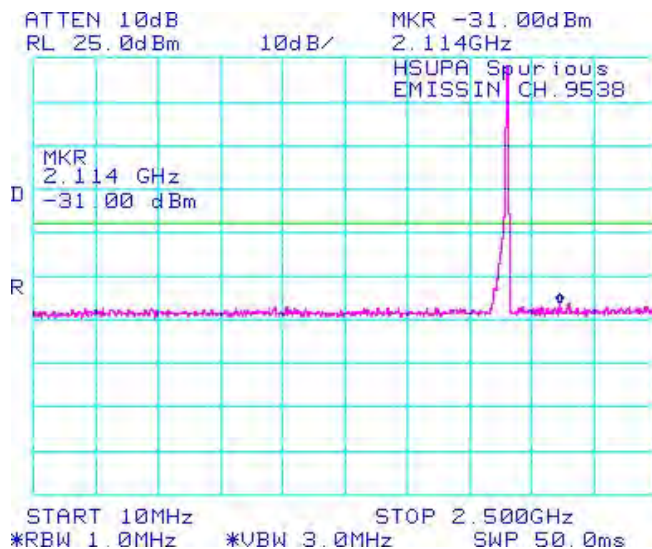
**Figure 1-37b: Band 2, Spurious Conducted Emissions, Middle Channel**



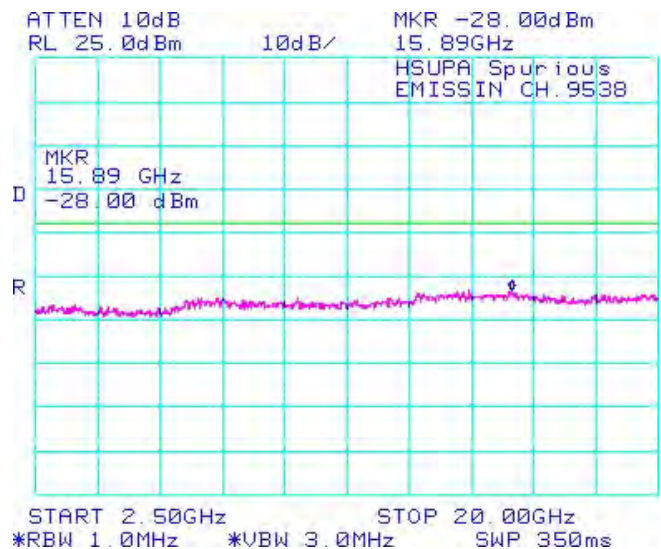
**Figure 1-38b: Band 2, Spurious Conducted Emissions, Middle Channel**



**Figure 1-39b: Band 2, Spurious Conducted Emissions, High Channel**



**Figure 1-40b: Band 2, Spurious Conducted Emissions, High Channel**



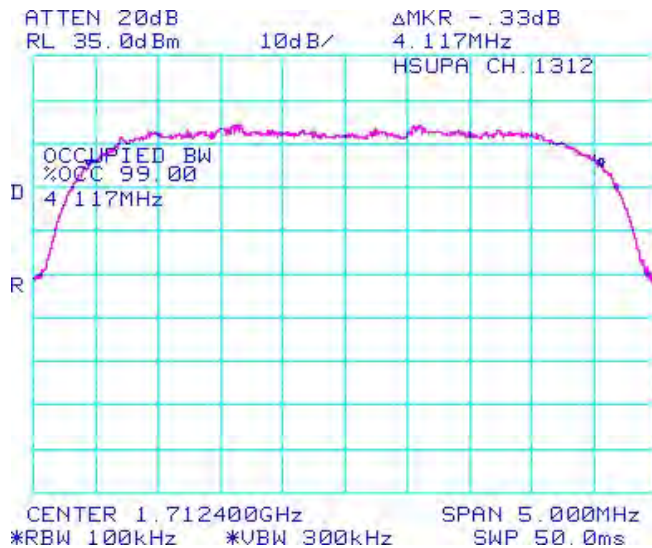
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

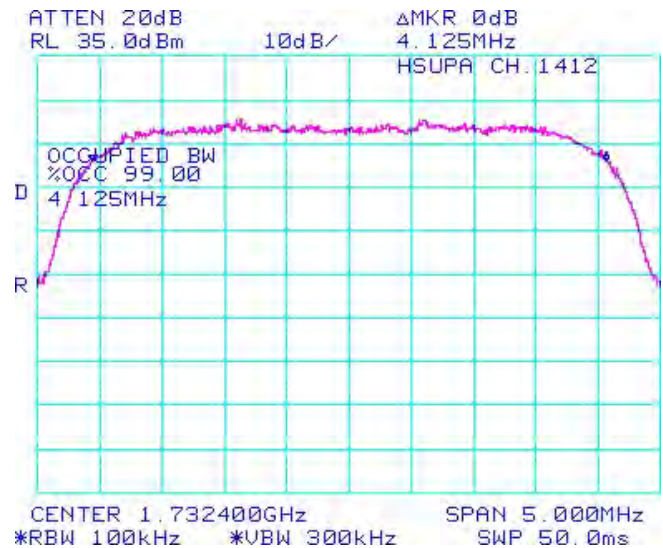
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

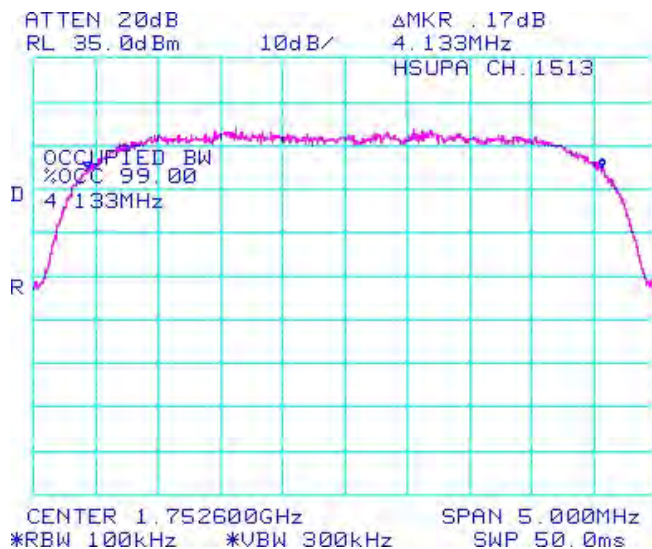
**Figure 1-41b: Occupied Bandwidth, Band 4 Low Channel**



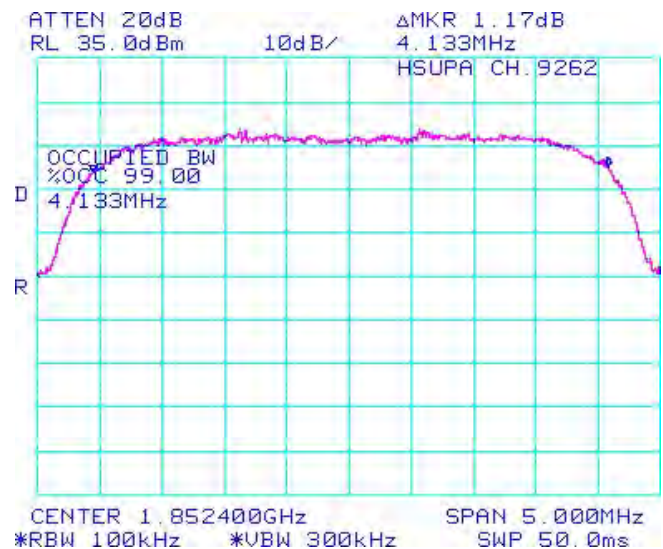
**Figure 1-42b: Occupied Bandwidth, Band 4 Middle Channel**



**Figure 1-43b: Occupied Bandwidth, Band 4 High Channel**



**Figure 1-44b: Occupied Bandwidth, Band 2 Low Channel**



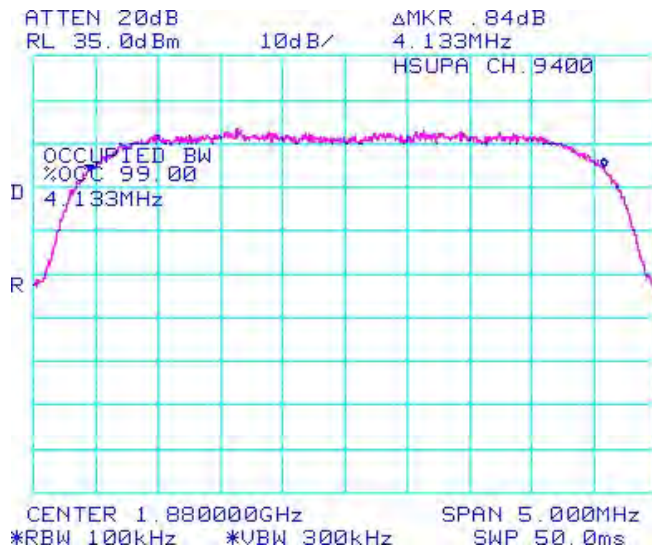
**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

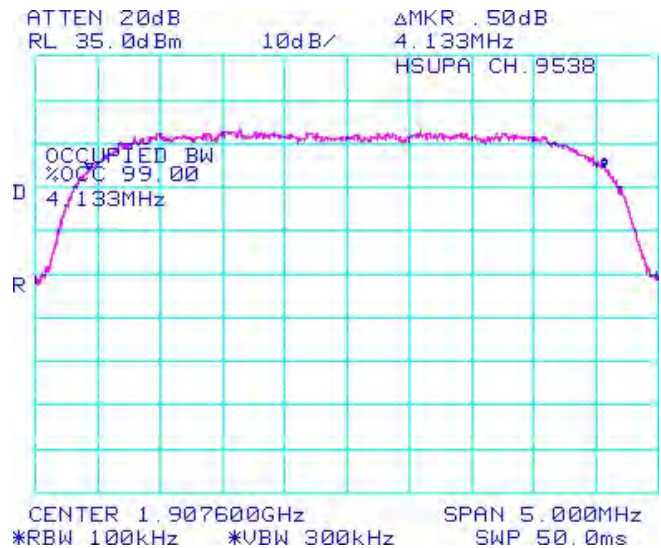
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

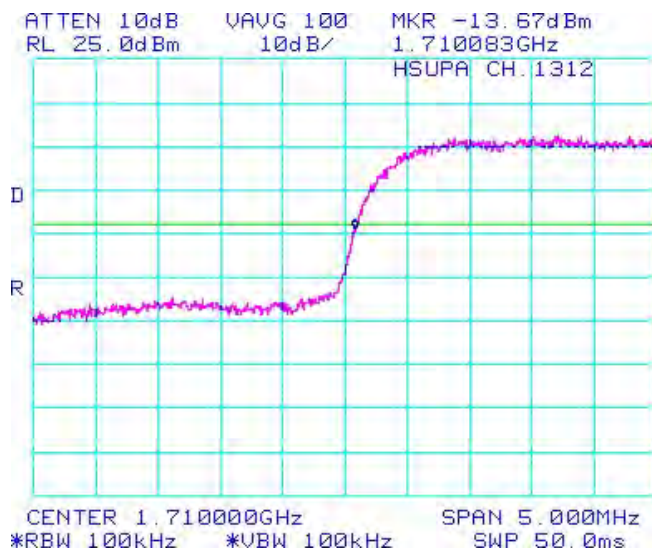
**Figure 1-45b: Occupied Bandwidth, Band 2 Middle Channel**



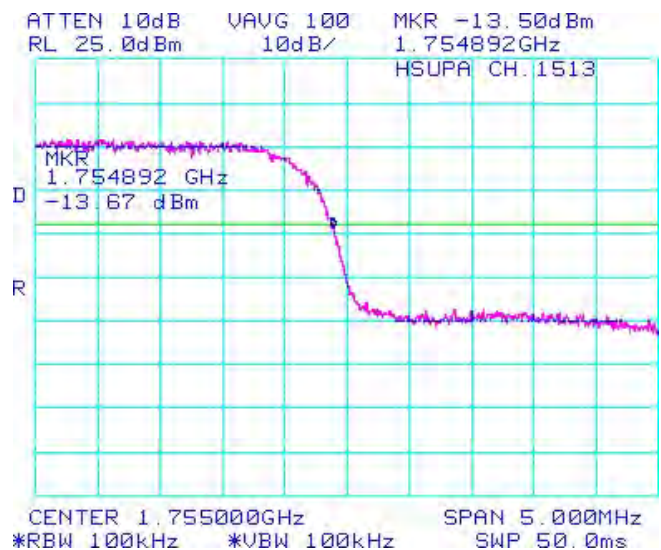
**Figure 1-46b: Occupied Bandwidth, Band 2 High Channel**



**Figure 1-47b: Band 4 , Low Channel Mask**



**Figure 1-48b: Band 4 , High Channel Mask**



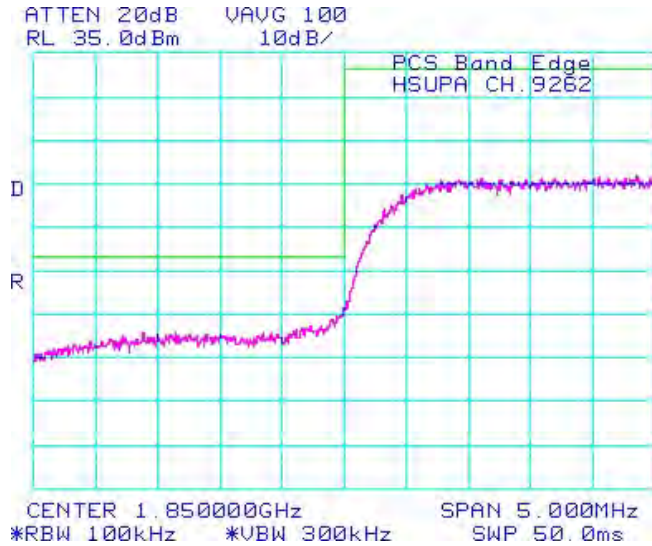
**Test Report No.:**  
 RTS-5995-1205-20

**Dates of Test:**  
 April 18 – May 22, 2012

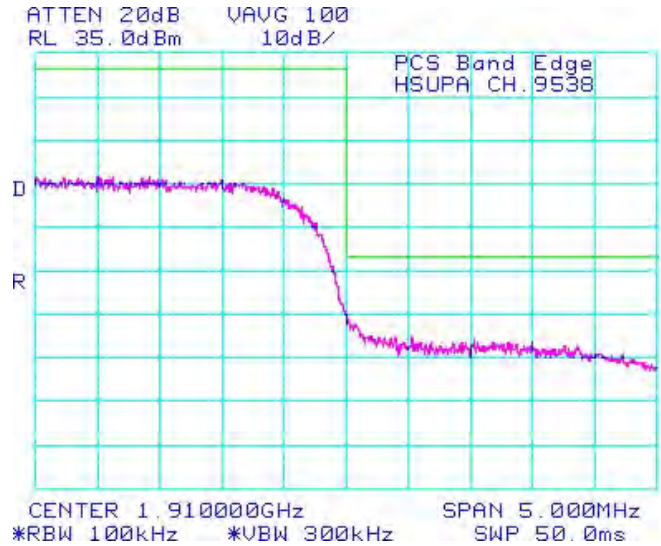
**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## UMTS Conducted RF Emission Test Data cont'd

**Figure 1-49b: Band 2, Low Channel Mask**



**Figure 1-50b: Band 2, High Channel Mask**





**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

## APPENDIX 2A – GSM CONDUCTED RF OUTPUT POWER TEST DATA

<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW
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### GSM Conducted RF Output Power Test Data

The conducted RF output power was measured on the BlackBerry® smartphone using the Communication Tester, Rohde & Schwarz, model CMU 200. The low, middle and high channels were measured at maximum output power. The insertion loss of the coaxial cable from the CMU 200 to the BlackBerry® smartphone was compensated for in the measurements.

Date of Test: April 18, 2012

The environmental conditions were: Temperature: 23.0 °C  
Humidity: 29.7 %

The measurements were performed by Daoud Attayi

Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (Watts)	Channel	Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (Watts)
<u>GSM850</u>				<u>GSM850 EDGE</u>			
128	824.20	33.5	2.24	128	824.20	30.3	1.07
189	837.60	33.5	2.24	189	837.60	30.3	1.07
251	848.80	33.5	2.24	251	848.80	30.2	1.05
<u>PCS</u>				<u>PCS EDGE</u>			
512	1850.2	28.8	0.76	512	1850.2	26.7	0.47
661	1880.0	28.7	0.74	661	1880.0	26.8	0.48
810	1909.8	28.7	0.74	810	1909.8	26.5	0.45

## APPENDIX 2B – UMTS Band 2/4 CONDUCTED RF OUTPUT POWER TEST DATA

## UMTS Band 2/4 Conducted RF Output Power Test Data

The conducted RF output power was measured using the CMU200 base station simulator. Low, middle and high channels were measured at maximum radio output power at different service options and modes.


Date of Test: April 18, 2012

The environmental conditions were: Temperature: 23.0 °C  
Humidity: 29.7 %

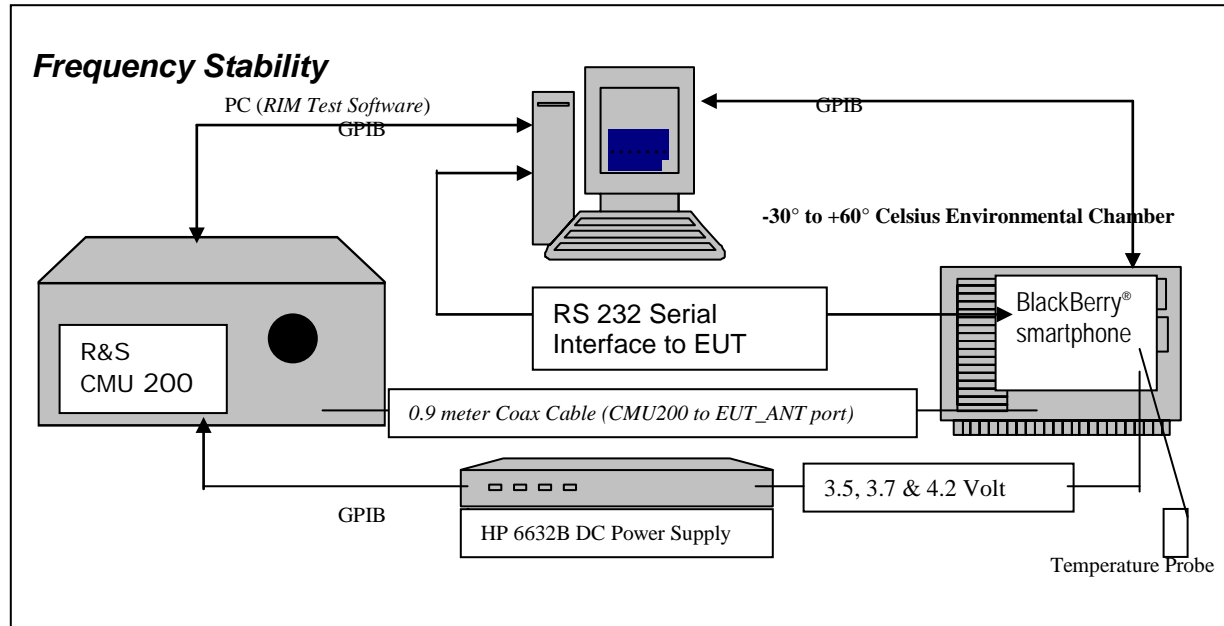
The measurements were performed by Daoud Attayi.

	Band	FDD IV (1700)			FDD II (1900)		
	Channel	1312	1413	1513	9262	9400	9538
	Freq (MHz)	1712.4	1732.6	1752.6	1852.4	1880.0	1907.6
Mode	Subtest	Max burst averaged conducted power (dBm)			Max burst averaged conducted power (dBm)		
Rel99	12.2 kbps RMC	22.9	23.6	22.7	23.7	23.6	23.6
Rel99	12.2 kbps AMR, SRB 3.4 kbps	22.9	23.5	22.7	23.7	23.6	23.6
Rel5 HSDPA	1	22.8	23.5	22.7	23.6	23.5	23.4
Rel5 HSDPA	2	22.8	23.5	22.7	23.6	23.5	23.4
Rel5 HSDPA	3	22.9	23.6	22.7	23.6	23.5	23.4
Rel5 HSDPA	4	22.9	23.6	22.7	23.6	23.5	23.4
Rel6 HSUPA	1	22.9	23.6	22.6	23.6	23.4	23.4
Rel6 HSUPA	2	22.9	23.6	22.7	23.6	23.4	23.4
Rel6 HSUPA	3	22.9	23.6	22.6	23.5	23.4	23.5
Rel6 HSUPA	4	22.8	23.6	22.7	23.6	23.5	23.4
Rel6 HSUPA	5	22.8	23.6	22.7	23.5	23.5	23.5

## APPENDIX 3A – GSM FREQUENCY STABILITY TEST DATA

	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 3A</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

### GSM Frequency Stability Test Data



The measurements were performed by Kevin Guo.

CFR 47 Chapter 1 - Federal Communications Commission Rules

#### Part 2 Required Measurements

2.995 Frequency Stability - Procedures

(a,b) Frequency Stability - Temperature Variation

(d) Frequency Stability - Voltage Variation


#### **24.235/22.917 Frequency Stability**

*The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.*

*The EUT meets the requirements as stated in CFR 47 chapter 1, Section 24.235, CFR 47 chapter 1, Section 22.917 RSS-132, 4.3 Frequency Stability, and RSS-133, 6.3 Frequency Stability.*

Frequency Stability measurement devices were configured as presented in the block diagram recording frequency, power, data, temperatures, and stepped voltages controlled via a GPIB interface linked to the Environmental chamber, a DC power supply, and the Communications Test Set. A 0.9-metre coax cable was calibrated to characterize the insertion loss for the transmitted frequencies between the RF input/output of the CMU 200 and the EUT antenna port.

Calibration for the Cable Loss was performed in the RF Laboratory using the Agilent power meter and Agilent Signal Generator.

	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 3A</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

### ***Test setup:***


The EUT was placed in the Temperature chamber and connected to CMU 200 outside as shown in the figure above. Dry air was pumped inside the temperature chamber to maintain a backpressure during the test. The EUT was kept in the off condition at all times except when the measurements were to be made.

The chamber was switched on and the temperature was set to -30°C. After the chamber stabilized at -30 °C there was a soak period of one hour to alleviate moisture in the chamber, the EUT voltage was enabled. The system software recorded the frequency, power, and associated measurements.

A Computer system controlled the automated software. This application was given the command of activating all machines intrinsic to the temperature and voltage tests controlling the CMU 200 via the GPIB Bus. The Environmental Chamber was instructed through an RS-232 serial line. The EUT dialogue was passed through a serial connection.

The EUT repetitively transmitted 100 bursts for each set of programmed parameters recording temperature, voltage settings, and systematically selected frequencies. The power supply was cycled from minimum voltage 3.6 volts, to 3.7 volts to 4.2 volts maximum voltage. The frequency error was measured at a maximum output power and recorded by the automated system test software.

The EUT output power and frequency was measured at 3.6 volts, 3.7 volts and 4.2 volts. The transmit frequency was varied in 3 steps consisting of 824.2, 836.4, and 848.8 MHz for the GSM850 band, 1850.2, 1880.0 and 1909.8 MHz for the PCS1900 band. This frequency was recorded in MHz and deviation from nominal, in Parts Per Million. After the initial one-hour soak at the beginning of the tests, a period of thirty minutes soak was initialized between each ascending temperature step, before proceeding to the next measurement test cycle.

	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 3A</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

***Procedure:***

The test system software for commencing the Frequency Stability Tests carried through the following cycle.

1. Switch on the HP 6632B power supply; CMU 200 Communications test Set, and Environmental Chamber.
2. Start test program
3. Set the Temperature to –30°C and maintain a period of one- hour soak time, with the EUT supply voltage disabled.
4. Set power supply voltage to 3.6 volts.
5. Set up CMU 200 Radio Communication Tester.
6. Command the CMU 200 to switch to the low channel.
7. Enable the voltage to the EUT, and connect a link to the CMU 200 test set.
8. EUT is commanded to Transmit 100 Bursts.
9. Software logs the following data from the CMU 200, power supply and temperature chamber: Traffic Channel Number, Traffic Channel Frequency, Power Level, Chamber Temperature, Supply Voltage, Power and Frequency Error.
10. The CMU 200 commands the EUT to change frequency to the middle channel and high channel and repeats steps 7 to 9.
11. Repeat steps 5 to 10 changing the supply voltage to 3.7 Volts
12. Increase temperature by 10°C and soak for 1/2 hour.
13. Repeat steps 4 - 12 for temperatures –30°C to 60°C.
14. Repeat steps 5 to 10 changing the supply voltage to 4.2 volts

Procedure 5 to 10 was repeated at room temperature (20°C) with the power supply voltage set to 3.6, 3.7 and 4.2 volts.

The maximum frequency error in the GSM850 band measured was **0.0376 PPM**.  
The maximum frequency error in the PCS1900 band measured was **-0.0293 PPM**.

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

Date of Test: April 25, 2012

GSM850 results: channels 128, 189 and 251 @ 20°C maximum transmitted power

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.6	20	-21	-0.0255
189	836.40	3.6	20	-23	-0.0275
251	848.60	3.6	20	-26	-0.0306

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.7	20	-20	-0.0243
189	836.40	3.7	20	25	0.0299
251	848.60	3.7	20	21	0.0251

Traffic Channel Number	GSM850 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	4.2	20	27	0.0328
189	836.40	4.2	20	21	0.0251
251	848.60	4.2	20	24	0.0283

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

GSM850 Results: channel 128 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.6	-30	-26	-0.0315
128	824.20	3.6	-20	-20	-0.0243
128	824.20	3.6	-10	-25	-0.0303
128	824.20	3.6	0	20	0.0243
128	824.20	3.6	10	29	0.0352
128	824.20	3.6	20	-21	-0.0255
128	824.20	3.6	30	31	<b>0.0376</b>
128	824.20	3.6	40	-20	-0.0243
128	824.20	3.6	50	-24	-0.0291
128	824.20	3.6	60	24	0.0291

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	3.7	-30	-27	-0.0328
128	824.20	3.7	-20	-26	-0.0315
128	824.20	3.7	-10	20	0.0243
128	824.20	3.7	0	21	0.0255
128	824.20	3.7	10	22	0.0267
128	824.20	3.7	20	-20	-0.0243
128	824.20	3.7	30	26	0.0315
128	824.20	3.7	40	-18	-0.0218
128	824.20	3.7	50	27	0.0328
128	824.20	3.7	60	25	0.0303

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
128	824.20	4.2	-30	-20	-0.0243
128	824.20	4.2	-20	-27	-0.0328
128	824.20	4.2	-10	30	0.0364
128	824.20	4.2	0	25	0.0303
128	824.20	4.2	10	21	0.0255
128	824.20	4.2	20	27	0.0328
128	824.20	4.2	30	-17	-0.0206
128	824.20	4.2	40	18	0.0218
128	824.20	4.2	50	29	0.0352
128	824.20	4.2	60	26	0.0315

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

GSM850 Results: channel 189 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	3.6	-30	-21	-0.0251
189	836.40	3.6	-20	-29	-0.0347
189	836.40	3.6	-10	27	0.0323
189	836.40	3.6	0	27	0.0323
189	836.40	3.6	10	19	0.0227
189	836.40	3.6	20	-23	-0.0275
189	836.40	3.6	30	-21	-0.0251
189	836.40	3.6	40	21	0.0251
189	836.40	3.6	50	24	0.0287
189	836.40	3.6	60	24	0.0287

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	3.7	-30	-29	-0.0347
189	836.40	3.7	-20	31	0.0371
189	836.40	3.7	-10	28	0.0335
189	836.40	3.7	0	23	0.0275
189	836.40	3.7	10	21	0.0251
189	836.40	3.7	20	25	0.0299
189	836.40	3.7	30	-24	-0.0287
189	836.40	3.7	40	29	0.0347
189	836.40	3.7	50	-27	-0.0323
189	836.40	3.7	60	27	0.0323

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
189	836.40	4.2	-30	-26	-0.0311
189	836.40	4.2	-20	26	0.0311
189	836.40	4.2	-10	22	0.0263
189	836.40	4.2	0	25	0.0299
189	836.40	4.2	10	22	0.0263
189	836.40	4.2	20	21	0.0251
189	836.40	4.2	30	-28	-0.0335
189	836.40	4.2	40	28	0.0335
189	836.40	4.2	50	18	0.0215
189	836.40	4.2	60	-19	-0.0227

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

GSM850 Results: channel 251 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
251	848.8	3.6	-30	-21	-0.0247
251	848.8	3.6	-20	22	0.0259
251	848.8	3.6	-10	25	0.0295
251	848.8	3.6	0	20	0.0236
251	848.8	3.6	10	27	0.0318
251	848.8	3.6	20	-26	-0.0306
251	848.8	3.6	30	-27	-0.0318
251	848.8	3.6	40	22	0.0259
251	848.8	3.6	50	19	0.0224
251	848.8	3.6	60	25	0.0295

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
251	848.8	3.7	-30	-20	-0.0236
251	848.8	3.7	-20	31	0.0365
251	848.8	3.7	-10	24	0.0283
251	848.8	3.7	0	22	0.0259
251	848.8	3.7	10	28	0.0330
251	848.8	3.7	20	-18	-0.0212
251	848.8	3.7	30	-27	-0.0318
251	848.8	3.7	40	20	0.0236
251	848.8	3.7	50	24	0.0283
251	848.8	3.7	60	24	0.0283

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
251	848.8	4.2	-30	-33	-0.0389
251	848.8	4.2	-20	28	0.0330
251	848.8	4.2	-10	21	0.0247
251	848.8	4.2	0	20	0.0236
251	848.8	4.2	10	-20	-0.0236
251	848.8	4.2	20	24	0.0283
251	848.8	4.2	30	-20	-0.0236
251	848.8	4.2	40	-21	-0.0247
251	848.8	4.2	50	25	0.0295
251	848.8	4.2	60	23	0.0271

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

PCS Channel results: channels 512, 661, & 810 @ 20°C maximum transmitted power

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.20	3.6	20	30	0.0162
661	1880.00	3.6	20	-33	-0.0176
810	1909.80	3.6	20	32	0.0168

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.20	3.7	20	28	0.0151
661	1880.00	3.7	20	29	0.0154
810	1909.80	3.7	20	31	0.0162

Traffic Channel Number	PCS Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.20	4.2	20	26	0.0141
661	1880.00	4.2	20	-31	-0.0165
810	1909.80	4.2	20	27	0.0141

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

PCS1900 Results: channel 512 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.20	3.6	-30	27	0.0146
512	1850.20	3.6	-20	-28	-0.0151
512	1850.20	3.6	-10	-34	-0.0184
512	1850.20	3.6	0	29	0.0157
512	1850.20	3.6	10	31	0.0168
512	1850.20	3.6	20	30	0.0162
512	1850.20	3.6	30	28	0.0151
512	1850.20	3.6	40	-31	-0.0168
512	1850.20	3.6	50	-41	-0.0222
512	1850.20	3.6	60	-50	-0.0270

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.20	3.7	-30	30	0.0162
512	1850.20	3.7	-20	-27	-0.0146
512	1850.20	3.7	-10	31	0.0168
512	1850.20	3.7	0	24	0.0130
512	1850.20	3.7	10	29	0.0157
512	1850.20	3.7	20	28	0.0151
512	1850.20	3.7	30	33	0.0178
512	1850.20	3.7	40	38	0.0205
512	1850.20	3.7	50	-46	-0.0249
512	1850.20	3.7	60	-44	-0.0238

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
512	1850.20	4.2	-30	26	0.0141
512	1850.20	4.2	-20	-31	-0.0168
512	1850.20	4.2	-10	35	0.0189
512	1850.20	4.2	0	26	0.0141
512	1850.20	4.2	10	37	0.0200
512	1850.20	4.2	20	26	0.0141
512	1850.20	4.2	30	37	0.0200
512	1850.20	4.2	40	33	0.0178
512	1850.20	4.2	50	-40	-0.0216
512	1850.20	4.2	60	50	0.0270

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

PCS1900 Results: channel 661 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880.00	3.6	-30	29	0.0154
661	1880.00	3.6	-20	-26	-0.0138
661	1880.00	3.6	-10	-37	-0.0197
661	1880.00	3.6	0	28	0.0149
661	1880.00	3.6	10	30	0.0160
661	1880.00	3.6	20	-33	-0.0176
661	1880.00	3.6	30	28	0.0149
661	1880.00	3.6	40	31	0.0165
661	1880.00	3.6	50	-53	-0.0282
661	1880.00	3.6	60	-41	-0.0218

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880.00	3.7	-30	31	0.0165
661	1880.00	3.7	-20	-31	-0.0165
661	1880.00	3.7	-10	30	0.0160
661	1880.00	3.7	0	29	0.0154
661	1880.00	3.7	10	34	0.0181
661	1880.00	3.7	20	29	0.0154
661	1880.00	3.7	30	25	0.0133
661	1880.00	3.7	40	32	0.0170
661	1880.00	3.7	50	-55	<b>-0.0293</b>
661	1880.00	3.7	60	49	0.0261

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
661	1880.00	4.2	-30	-26	-0.0138
661	1880.00	4.2	-20	30	0.0160
661	1880.00	4.2	-10	37	0.0197
661	1880.00	4.2	0	22	0.0117
661	1880.00	4.2	10	21	0.0112
661	1880.00	4.2	20	-31	-0.0165
661	1880.00	4.2	30	32	0.0170
661	1880.00	4.2	40	35	0.0186
661	1880.00	4.2	50	-42	-0.0223
661	1880.00	4.2	60	-42	-0.0223

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW


PCS1900 Results: channel 810 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.80	3.6	-30	30	0.0157
810	1909.80	3.6	-20	28	0.0147
810	1909.80	3.6	-10	34	0.0178
810	1909.80	3.6	0	-27	-0.0141
810	1909.80	3.6	10	-27	-0.0141
810	1909.80	3.6	20	32	0.0168
810	1909.80	3.6	30	25	0.0131
810	1909.80	3.6	40	30	0.0157
810	1909.80	3.6	50	-38	-0.0199
810	1909.80	3.6	60	-43	-0.0225

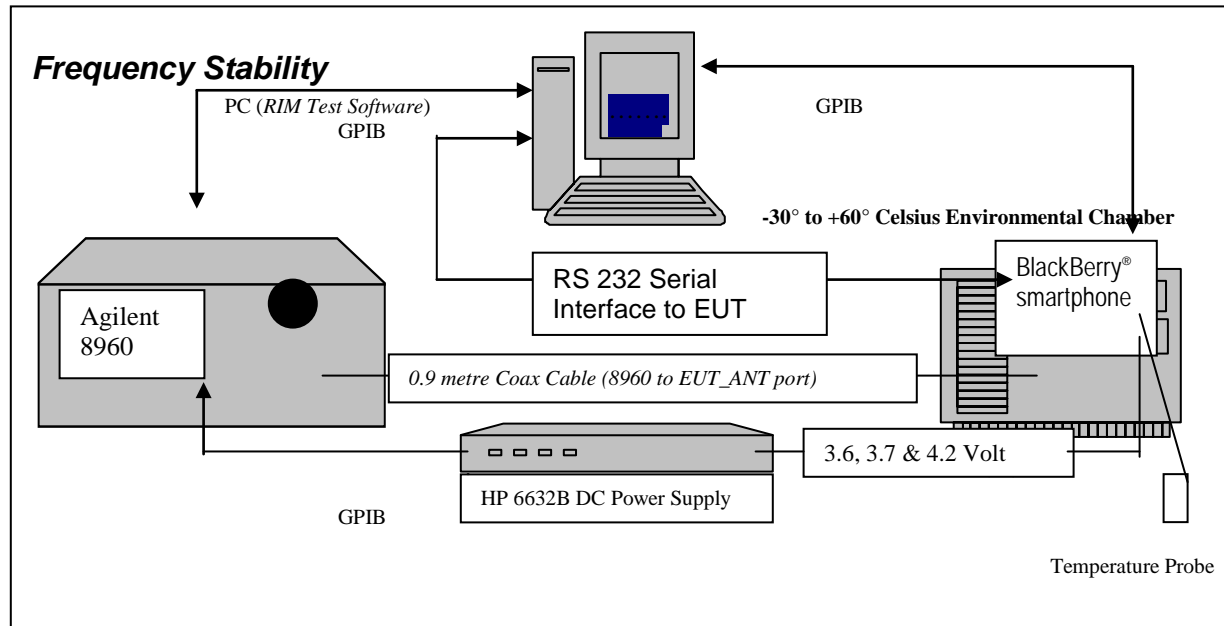
Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.80	3.7	-30	-23	-0.0120
810	1909.80	3.7	-20	33	0.0173
810	1909.80	3.7	-10	33	0.0173
810	1909.80	3.7	0	-30	-0.0157
810	1909.80	3.7	10	26	0.0136
810	1909.80	3.7	20	31	0.0162
810	1909.80	3.7	30	29	0.0152
810	1909.80	3.7	40	28	0.0147
810	1909.80	3.7	50	-39	-0.0204
810	1909.80	3.7	60	-51	-0.0267

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
810	1909.80	4.2	-30	-27	-0.0141
810	1909.80	4.2	-20	29	0.0152
810	1909.80	4.2	-10	35	0.0183
810	1909.80	4.2	0	-28	-0.0147
810	1909.80	4.2	10	31	0.0162
810	1909.80	4.2	20	27	0.0141
810	1909.80	4.2	30	24	0.0126
810	1909.80	4.2	40	-34	-0.0178
810	1909.80	4.2	50	-41	-0.0215
810	1909.80	4.2	60	-47	-0.0246

## APPENDIX 3B – UMTS Band 2/4 FREQUENCY STABILITY TEST DATA

	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 3B</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

### UMTS Frequency Stability Test Data



The following measurements were performed by Kevin Guo.

CFR 47 Chapter 1 - Federal Communications Commission Rules

Part 2 Required Measurements

**2.1055** Frequency Stability - Procedures

(a,b) Frequency Stability - Temperature Variation


(d) Frequency Stability - Voltage Variation

**24.235** *Frequency Stability.*

*The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.*

*The EUT meets the requirements as stated in CFR 47 chapter 1, Section 27.54, CFR 47 and RSS-139, 6.3 Frequency Stability.*

Frequency Stability measurement devices were configured as presented in the block diagram recording frequency, power, data, temperatures, and stepped voltages controlled via a GPIB interface linked to the Environmental chamber, a DC power supply, and the Communications Test Set. A 0.9-metre coax cable was calibrated to characterize the insertion loss for the transmitted frequencies between the RF input/output of the CMU 200 and the EUT antenna port.

	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 3B</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

## Test Setup:

The EUT was placed in the Temperature chamber and connected to CMU 200 outside as shown in the figure above. Dry air was pumped inside the temperature chamber to maintain a backpressure during the test. The EUT was kept in the off condition at all times except when the following measurements were to be made.

---


The chamber was switched on and the temperature was set to -30°C. After the chamber stabilized at -30 °C there was a soak period of one hour to alleviate moisture in the chamber, the EUT voltage was enabled. The system software recorded the frequency, power, and associated measurements.

A Computer system controlled the automated software. This application was given the command of activating all machines intrinsic to the temperature and voltage tests controlling the CMU 200 via the GPIB Bus. The Environmental Chamber was instructed through an RS-232 serial line. The EUT dialogue was passed through a serial connection.

The EUT repetitively transmitted 100 bursts for each set of programmed parameters recording temperature, voltage settings, and systematically selected frequencies. The power supply was cycled from minimum voltage 3.6 volts, to 3.7 volts to 4.2 volts maximum voltage. The frequency error was measured at a maximum output power and recorded by the automated system test software.

The EUT output power and frequency was measured at 3.6 volts, 3.7 volts and 4.2 volts. The transmit frequency was varied in 3 steps consisting of 1852.4, 1880.0 and 1907.6 MHz for the UMTS Band 2. This frequency was recorded in MHz and deviation from nominal, in Parts Per Million.

After the initial one-hour soak at the beginning of the tests, a period of thirty minutes soak was initialized between each ascending temperature step, before proceeding to the next measurement test cycle.

	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 3B</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

Procedure:

The test system software for commencing the Frequency Stability Tests carried through the following cycle.

1. Switch on the HP 6632B power supply; CMU 200 Communications test Set, and Environmental Chamber.
2. Start test program
3. Set the Temperature to –30°C and maintain a period of one- hour soak time, with the EUT supply voltage disabled.
4. Set power supply voltage to 3.6 volts.
5. Set up CMU 200 Radio Communication Tester.
6. Command the CMU 200 to switch to the low channel.
7. Enable the voltage to the EUT, and connect a link to the CMU 200 test set.
8. EUT is commanded to Transmit 100 Bursts.
9. Software logs the following data from the CMU 200, power supply and temperature chamber: Traffic Channel Number, Traffic Channel Frequency, Power Level, Chamber Temperature, Supply Voltage, Power and Frequency Error.
10. The CMU 200 commands the EUT to change frequency to the middle channel and high channel and repeats steps 7 to 9.
11. Repeat steps 5 to 10 changing the supply voltage to 3.7 Volts
12. Increase temperature by 10°C and soak for 1/2 hour.
13. Repeat steps 4 - 12 for temperatures –30°C to 60°C.
14. Repeat steps 5 to 10 changing the supply voltage to 4.2 volts

Procedure 5 to 10 was repeated at room temperature (20°C) with the power supply voltage set to 3.6, 3.7 and 4.2 volts

The maximum frequency error in the UMTS Band 4 measured was **0.0380 PPM**.  
The maximum frequency error in the UMTS Band 2 measured was **-0.0340 PPM**.

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

Date of Test: April 25, 2012

UMTS Band 4 results: channels 1312, 1412 and 1512 @ 20°C maximum transmitted power

Traffic Channel Number	UMTS Band 4 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	3.6	20	32	0.0187
1412	1732.6	3.6	20	29	0.0167
1512	1752.6	3.6	20	-33	-0.0188

Traffic Channel Number	UMTS Band 4 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	3.7	20	-31	-0.0181
1412	1732.6	3.7	20	26	0.0150
1512	1752.6	3.7	20	21	0.0120

Traffic Channel Number	UMTS Band 4 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	4.2	20	25	0.0146
1412	1732.6	4.2	20	-29	-0.0167
1512	1752.6	4.2	20	22	0.0126

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

UMTS Band 4 Results: channel 1312 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	3.6	-30	-26	-0.0152
1312	1712.4	3.6	-20	28	0.0164
1312	1712.4	3.6	-10	-32	-0.0187
1312	1712.4	3.6	0	25	0.0146
1312	1712.4	3.6	10	32	0.0187
1312	1712.4	3.6	20	32	0.0187
1312	1712.4	3.6	30	-21	-0.0123
1312	1712.4	3.6	40	33	0.0193
1312	1712.4	3.6	50	36	0.0210
1312	1712.4	3.6	60	36	0.0210

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	3.7	-30	18	0.0105
1312	1712.4	3.7	-20	-28	-0.0164
1312	1712.4	3.7	-10	28	0.0164
1312	1712.4	3.7	0	-29	-0.0169
1312	1712.4	3.7	10	39	0.0228
1312	1712.4	3.7	20	-31	-0.0181
1312	1712.4	3.7	30	31	0.0181
1312	1712.4	3.7	40	38	0.0222
1312	1712.4	3.7	50	46	0.0269
1312	1712.4	3.7	60	34	0.0199

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1312	1712.4	4.2	-30	29	-0.0134
1312	1712.4	4.2	-20	-31	-0.0181
1312	1712.4	4.2	-10	-23	-0.0134
1312	1712.4	4.2	0	-29	-0.0169
1312	1712.4	4.2	10	29	0.0169
1312	1712.4	4.2	20	25	0.0146
1312	1712.4	4.2	30	23	0.0134
1312	1712.4	4.2	40	43	0.0251
1312	1712.4	4.2	50	65	<b>0.0380</b>
1312	1712.4	4.2	60	32	0.0187

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

UMTS Band 4 Results: channel 1413 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1412	1732.6	3.6	-30	23	0.0133
1412	1732.6	3.6	-20	-23	-0.0133
1412	1732.6	3.6	-10	-35	-0.0202
1412	1732.6	3.6	0	29	0.0167
1412	1732.6	3.6	10	29	0.0167
1412	1732.6	3.6	20	29	0.0167
1412	1732.6	3.6	30	-26	-0.0150
1412	1732.6	3.6	40	-24	-0.0139
1412	1732.6	3.6	50	-26	-0.0150
1412	1732.6	3.6	60	22	0.0127

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1412	1732.6	3.7	-30	-23	-0.0133
1412	1732.6	3.7	-20	27	0.0156
1412	1732.6	3.7	-10	-24	-0.0139
1412	1732.6	3.7	0	33	0.0190
1412	1732.6	3.7	10	-33	-0.0190
1412	1732.6	3.7	20	26	0.0150
1412	1732.6	3.7	30	29	0.0167
1412	1732.6	3.7	40	36	0.0208
1412	1732.6	3.7	50	28	0.0162
1412	1732.6	3.7	60	-26	-0.0150

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1412	1732.6	4.2	-30	33	0.0190
1412	1732.6	4.2	-20	-29	-0.0167
1412	1732.6	4.2	-10	19	0.0110
1412	1732.6	4.2	0	37	0.0214
1412	1732.6	4.2	10	25	0.0144
1412	1732.6	4.2	20	-29	-0.0167
1412	1732.6	4.2	30	26	0.0150
1412	1732.6	4.2	40	35	0.0202
1412	1732.6	4.2	50	-27	-0.0156
1412	1732.6	4.2	60	-31	-0.0179

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

UMTS Band 4 Results: channel 1512 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1512	1752.6	3.6	-30	28	0.0160
1512	1752.6	3.6	-20	-33	-0.0188
1512	1752.6	3.6	-10	30	0.0171
1512	1752.6	3.6	0	-31	-0.0177
1512	1752.6	3.6	10	-33	-0.0188
1512	1752.6	3.6	20	-33	-0.0188
1512	1752.6	3.6	30	23	0.0131
1512	1752.6	3.6	40	26	0.0148
1512	1752.6	3.6	50	-36	-0.0205
1512	1752.6	3.6	60	32	0.0183

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1512	1752.6	3.7	-30	23	0.0131
1512	1752.6	3.7	-20	33	0.0188
1512	1752.6	3.7	-10	27	0.0154
1512	1752.6	3.7	0	-35	-0.0200
1512	1752.6	3.7	10	34	0.0194
1512	1752.6	3.7	20	21	0.0120
1512	1752.6	3.7	30	-34	-0.0194
1512	1752.6	3.7	40	-29	-0.0165
1512	1752.6	3.7	50	-39	-0.0223
1512	1752.6	3.7	60	-38	-0.0217

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
1512	1752.6	4.2	-30	-30	-0.0171
1512	1752.6	4.2	-20	25	0.0143
1512	1752.6	4.2	-10	-33	-0.0188
1512	1752.6	4.2	0	-35	-0.0200
1512	1752.6	4.2	10	-24	-0.0137
1512	1752.6	4.2	20	22	0.0126
1512	1752.6	4.2	30	-27	-0.0154
1512	1752.6	4.2	40	-36	-0.0205
1512	1752.6	4.2	50	-34	-0.0194
1512	1752.6	4.2	60	-52	-0.0297

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

UMTS Band 2 results: channels 9262, 9400, & 9538 @ 20°C maximum transmitted power

Traffic Channel Number	UMTS1900 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.40	3.6	20	-33	-0.0178
9400	1880.00	3.6	20	38	0.0202
9538	1907.60	3.6	20	-29	-0.0152

Traffic Channel Number	UMTS1900 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.40	3.7	20	43	0.0232
9400	1880.00	3.7	20	38	0.0202
9538	1907.60	3.7	20	-42	-0.0220

Traffic Channel Number	UMTS1900 Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.40	4.2	20	48	0.0259
9400	1880.00	4.2	20	-35	-0.0186
9538	1907.60	4.2	20	44	0.0231

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

UMTS Band 2 Results: channel 9262 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.40	3.6	-30	33	0.0178
9262	1852.40	3.6	-20	-35	-0.0189
9262	1852.40	3.6	-10	-38	-0.0205
9262	1852.40	3.6	0	-35	-0.0189
9262	1852.40	3.6	10	-32	-0.0173
9262	1852.40	3.6	20	-33	-0.0178
9262	1852.40	3.6	30	-33	-0.0178
9262	1852.40	3.6	40	35	0.0189
9262	1852.40	3.6	50	30	0.0162
9262	1852.40	3.6	60	-31	-0.0167

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.40	3.7	-30	27	0.0146
9262	1852.40	3.7	-20	-46	-0.0248
9262	1852.40	3.7	-10	39	0.0211
9262	1852.40	3.7	0	-35	-0.0189
9262	1852.40	3.7	10	-38	-0.0205
9262	1852.40	3.7	20	43	0.0232
9262	1852.40	3.7	30	-42	-0.0227
9262	1852.40	3.7	40	30	0.0162
9262	1852.40	3.7	50	39	0.0211
9262	1852.40	3.7	60	-39	-0.0211

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9262	1852.40	4.2	-30	-50	-0.0270
9262	1852.40	4.2	-20	-44	-0.0238
9262	1852.40	4.2	-10	-34	-0.0184
9262	1852.40	4.2	0	-47	-0.0254
9262	1852.40	4.2	10	44	0.0238
9262	1852.40	4.2	20	48	0.0259
9262	1852.40	4.2	30	38	0.0205
9262	1852.40	4.2	40	-36	-0.0194
9262	1852.40	4.2	50	-28	-0.0151
9262	1852.40	4.2	60	-28	-0.0151

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

UMTS Band 2 Results: channel 9400 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9400	1880.00	3.6	-30	34	0.0181
9400	1880.00	3.6	-20	-25	-0.0133
9400	1880.00	3.6	-10	28	0.0149
9400	1880.00	3.6	0	32	0.0170
9400	1880.00	3.6	10	29	0.0154
9400	1880.00	3.6	20	38	0.0202
9400	1880.00	3.6	30	-46	-0.0245
9400	1880.00	3.6	40	-32	-0.0170
9400	1880.00	3.6	50	-42	-0.0223
9400	1880.00	3.6	60	-36	-0.0191

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9400	1880.00	3.7	-30	-43	-0.0229
9400	1880.00	3.7	-20	-29	-0.0154
9400	1880.00	3.7	-10	-38	-0.0202
9400	1880.00	3.7	0	26	0.0138
9400	1880.00	3.7	10	39	0.0207
9400	1880.00	3.7	20	38	0.0202
9400	1880.00	3.7	30	-37	-0.0197
9400	1880.00	3.7	40	-28	-0.0149
9400	1880.00	3.7	50	35	0.0186
9400	1880.00	3.7	60	-41	-0.0218

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9400	1880.00	4.2	-30	-64	<b>-0.0340</b>
9400	1880.00	4.2	-20	40	0.0213
9400	1880.00	4.2	-10	-40	-0.0213
9400	1880.00	4.2	0	29	0.0154
9400	1880.00	4.2	10	-35	-0.0186
9400	1880.00	4.2	20	-35	-0.0186
9400	1880.00	4.2	30	29	0.0154
9400	1880.00	4.2	40	-27	-0.0144
9400	1880.00	4.2	50	32	0.0170
9400	1880.00	4.2	60	-33	-0.0176

**Test Report No.:**  
RTS-5995-1205-20

**Dates of Test:**  
April 18 – May 22, 2012

**FCC ID:** L6AREU70UW  
**IC:** 2503A-REU70UW

UMTS Band 2 Results: channel 9538 @ maximum transmitted power

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	21BPPM
9538	1907.60	3.6	-30	-31	-0.0163
9538	1907.60	3.6	-20	32	0.0168
9538	1907.60	3.6	-10	-29	-0.0152
9538	1907.60	3.6	0	34	0.0178
9538	1907.60	3.6	10	-42	-0.0220
9538	1907.60	3.6	20	-29	-0.0152
9538	1907.60	3.6	30	44	0.0231
9538	1907.60	3.6	40	-43	-0.0225
9538	1907.60	3.6	50	-41	-0.0215
9538	1907.60	3.6	60	30	0.0157

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9538	1907.60	3.7	-30	-30	-0.0157
9538	1907.60	3.7	-20	31	0.0163
9538	1907.60	3.7	-10	-30	-0.0157
9538	1907.60	3.7	0	29	0.0152
9538	1907.60	3.7	10	42	0.0220
9538	1907.60	3.7	20	-42	-0.0220
9538	1907.60	3.7	30	-40	-0.0210
9538	1907.60	3.7	40	36	0.0189
9538	1907.60	3.7	50	31	0.0163
9538	1907.60	3.7	60	33	0.0173

Traffic Channel Number	Frequency (MHz)	Voltage (Volts)	Temperature (Celsius)	Frequency Error (Hz)	PPM
9538	1907.60	4.2	-30	-37	-0.0194
9538	1907.60	4.2	-20	-28	-0.0147
9538	1907.60	4.2	-10	32	0.0168
9538	1907.60	4.2	0	26	0.0136
9538	1907.60	4.2	10	-29	-0.0152
9538	1907.60	4.2	20	44	0.0231
9538	1907.60	4.2	30	-25	-0.0131
9538	1907.60	4.2	40	-34	-0.0178
9538	1907.60	4.2	50	-35	-0.0183
9538	1907.60	4.2	60	-29	-0.0152

## APPENDIX 4A – GSM RADIATED EMISSIONS TEST DATA

## Radiated Power Test Data Results

Date of test: April 20, 2012

The following measurements were performed by Savtej Sandhu.

The environmental tests conditions were:

Temperature:	26.2 °C
Relative Humidity:	25.4 %

The BlackBerry® smartphone was standalone, horizontal with LCD down and top pointing to RX antenna when the turntable is at 0 degree position.

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height.

## GSM850 Band Call Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
								Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol.  Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole)		Limit (dBm)	Diff. To Limit (dB)
										(dBm)	(W)		
F0	128	824.20	850	Dipole	V	71.27	80.87	V-V	13.11	30.87	1.22	38.50	7.63
F0	128	824.20	850	Dipole	H	80.87		H-H	11.96				
F0	190	836.60	850	Dipole	V	71.95	81.41	V-V	13.95	31.39	1.38	38.50	7.11
F0	190	836.60	850	Dipole	H	81.41		H-H	13.90				
F0	251	848.80	850	Dipole	V	71.42	81.72	V-V	14.50	32.02	1.59	38.50	6.48
F0	251	848.80	850	Dipole	H	81.72		H-H	13.95				

## GSM850 Band EDGE Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
								Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol.  Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole)		Limit (dBm)	Diff. To Limit (dB)
										(dBm)	(W)		
F0	128	824.20	850	Dipole	V	68.50	77.60	V-V	9.88	27.64	0.58	38.50	10.86
F0	128	824.20	850	Dipole	H	77.60		H-H	8.62				
F0	190	836.60	850	Dipole	V	69.35	78.94	V-V	11.46	28.90	0.78	38.50	9.60
F0	190	836.60	850	Dipole	H	78.94		H-H	11.37				
F0	251	848.80	850	Dipole	V	69.67	79.59	V-V	12.43	29.95	0.99	38.50	8.55
F0	251	848.80	850	Dipole	H	79.59		H-H	11.80				

## Radiated Power Test Data Results cont'd

Date of test: May 03, 2012

The following measurements were performed by Shuo Wang.

The environmental tests conditions were: Temperature: 25.2 °C  
Relative Humidity: 34.4 %

The BlackBerry® smartphone was standalone, horizontal with LCD down and head pointing to RX antenna when the turntable is at 0 degree position.

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height.


## PCS1900 Band Call Mode

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
Type	Ch	Frequency	Band	Type	Pol.	Reading	Max (V,H)	Pol.	Reading	Corrected Reading (relative to Isotropic Radiator)		Limit	Diff to Limit
		(MHz)				(dBuV)				(dBm)	(W)		
F0	512	1850.20	1900	Horn	V	80.02	90.16	V-V	-3.63	31.23	1.62	33.00	1.33
F0	512	1850.20	1900	Horn	H	90.16		H-H	-3.58				
F0	661	1880.00	1900	Horn	V	80.93	90.62	V-V	-3.11	31.70	1.69	33.00	1.48
F0	661	1880.00	1900	Horn	H	90.62		H-H	-3.22				
F0	810	1909.80	1900	Horn	V	80.48	90.28	V-V	-2.64	32.17	1.88	33.00	1.65
F0	810	1909.80	1900	Horn	H	90.28		H-H	-2.75				

## PCS1900 Band EDGE Mode

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
		Frequency				Reading	Max (V,H)	Pol.	Reading	Corrected Reading (relative to Isotropic Radiator)		Limit	Diff to Limit
Type	Ch	(MHz)	Band	Type	Pol.	(dBuV)	dBuV	Tx-Rx	(dBm)	(dBm)	(W)	(dBm)	(dB)
F0	512	1850.20	1900	Horn	V	78.56	89.41	V-V	-4.38	30.48	1.12	33.00	2.52
F0	512	1850.20	1900	Horn	H	89.41		H-H	-4.33				
F0	661	1880.00	1900	Horn	V	79.24	89.59	V-V	-4.14	30.67	1.17	33.00	2.33
F0	661	1880.00	1900	Horn	H	89.59		H-H	-4.25				
F0	810	1909.80	1900	Horn	V	78.38	89.17	V-V	-3.75	31.06	1.28	33.00	1.94
F0	810	1909.80	1900	Horn	H	89.17		H-H	-3.86				



	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 4A</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

### Radiated Emissions Test Data Results cont'd

#### **GSM850 EDGE Mode**

Date of Test: April 23, 2012

The following measurements were performed by Savtej Sandhu.

The environmental test conditions were:   Temperature:       26.0 °C  
Relative Humidity:   11.3 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was standalone, horizontal with LCD facing down and top pointing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in GSM850 EDGE Tx mode, channels 128, 190, 251.  
All emissions had test margins greater than 25.0 dB.

Date of Test: April 23, 2012

The following measurements were performed by Shuo Wang


The environmental test conditions were: Temperature:       25.3 °C  
Relative Humidity:   38.7 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height,, and a frequency range of 1 GHz to 9 GHz.

The BlackBerry® smartphone was standalone vertical, with LCD facing the RX antenna when the turntable is at 0 degree position.

Measurements were performed in GSM850 EDGE Tx mode, channels 128, 190, 251.  
All emissions had test margins greater than 25.0 dB.



	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 4A</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

### Radiated Emissions Test Data Results cont'd

#### **PCS1900 EDGE Mode**

Date of Test: April 23, 2012

The following measurements were performed by Savtej Sandhu.

The environmental test conditions were:    Temperature:        26.0 °C  
Relative Humidity:    11.3 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 30 MHz to 1000 MHz.

The BlackBerry® smartphone was standalone, horizontal with LCD facing down and top pointing to the RX antenna when the turntable is at 0 degree position.

Measurements were performed in PCS1900 EDGE Tx mode, channels 512, 661, 810.  
All emissions had test margins greater than 25.0 dB.

Date of Test: April 23, 2012


The following measurements were performed by Shuo Wang

The environmental test conditions were:    Temperature:        25.3 °C  
Relative Humidity:    38.7 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1 GHz to 20 GHz.

The BlackBerry® smartphone was standalone, horizontal with LCD facing down and top pointing the RX antenna when the turntable is at 0 degree position.

Measurements were performed in PCS1900 EDGE Tx mode, channels 512, 661, 810.  
All emissions had test margins greater than 25.0 dB.

	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 4B</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

## APPENDIX 4B – UMTS Band 2/4 RADIATED EMISSIONS TEST DATA

## Radiated Power Test Data Results

Date of Test: April 20, 2012

The following measurements were performed by Savtej Sandhu.

The environmental tests conditions were: Temperature: 26.2 °C  
Relative Humidity: 25.4 %

The BlackBerry® smartphone was standalone, horizontal with LCD facing up and top pointing the RX antenna when the turntable is at 0 degree position.

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height.

## UMTS Band 4 Call Service Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
								Tracking Generator					
Type	Ch	Frequency	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol.	Reading	Corrected Reading (relative to Dipole)		Limit (dBm)	Diff. To Limit (dB)
		(MHz)						Tx-Rx	(dBm)	(dBm)	(W)		
F0	1312	1712.4	5	Dipole	V	69.59	76.03	V-V	-13.53	26.04	0.40	39	6.96
F0	1312	1712.4	5	Dipole	H	76.03		H-H	-13.77				
F0	1413	1732.6	5	Dipole	V	69.49	76.07	V-V	-13.98	25.87	0.39	39	7.13
F0	1413	1732.6	5	Dipole	H	76.07		H-H	-13.78				
F0	1513	1752.6	5	Dipole	V	69.69	76.00	V-V	-13.16	26.27	0.42	39	6.73
F0	1513	1752.6	5	Dipole	H	76.00		H-H	-13.77				

## UMTS Band 4 HSUPA Mode

EUT				Rx Antenna		Spectrum Analyzer		Substitution Method					
								Tracking Generator					
Type	Ch	Frequency (MHz)	Band	Type	Pol.	Reading (dBuV)	Max (V,H) (dBuV)	Pol.  Tx-Rx	Reading (dBm)	Corrected Reading (relative to Dipole)		Limit (dBm)	Diff. To Limit (dB)
										(dBm)	(W)		
F0	1312	1712.4	5	Dipole	V	70.42	78.10	V-V	-11.39	<b>28.18</b>	<b>0.66</b>	39	4.82
F0	1312	1712.4	5	Dipole	H	78.10		H-H	-11.68				
F0	1413	1732.6	5	Dipole	V	70.58	77.75	V-V	-12.21	27.69	0.59	39	5.31
F0	1413	1732.6	5	Dipole	H	77.75		H-H	-11.96				
F0	1513	1752.6	5	Dipole	V	70.94	77.86	V-V	-11.27	28.16	0.65	39	4.84
F0	1513	1752.6	5	Dipole	H	77.86		H-H	-11.95				

## Radiated Power Test Data Results cont'd

Date of Test: May 25, 2012

The following measurements were performed by Savtej Sandhu.

The environmental test conditions were: Temperature: 24.4 °C

Relative Humidity: 33.7 %

The BlackBerry® smartphone was standalone, horizontal with LCD facing down and top pointing the RX antenna when the turntable is at 0 degree position.

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height.

## UMTS Band 2 Call Service Mode

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
		Frequency				Reading	Max (V,H)	Pol.	Reading			Limit	Diff to Limit
Type	Ch	(MHz)	Band	Type	Pol.	(dBuV)	(dBuV)	Tx-Rx	(dBm)	(dBm)	(W)		
F0	9262	1852.40	2	Horn	V	72.28	77.60	V-V	-14.11	27.56	0.57	33.00	5.44
F0	9262	1852.40	2	Horn	H	77.60		H-H	-11.53				
F0	9400	1880.00	2	Horn	V	72.52	77.41	V-V	-12.74	27.77	0.60	33.00	5.23
F0	9400	1880.00	2	Horn	H	77.41		H-H	-11.16				
F0	9538	1907.60	2	Horn	V	69.35	75.41	V-V	-14.29	25.94	0.39	33.00	7.06
F0	9538	1907.60	2	Horn	H	75.41		H-H	-13.09				


## UMTS Band 2 HSUPA Mode

								Substitution Method					
EUT				Receive Antenna		Spectrum Analyzer		Tracking Generator					
		Frequency				Reading	Max (V,H)	Pol.	Reading			Limit	Diff to Limit
Type	Ch	(MHz)	Band	Type	Pol.	(dBuV)	(dBuV)	Tx-Rx	(dBm)	(dBm)	(W)		
F0	9262	1852.40	2	Horn	V	71.66	78.40	V-V	-13.33	28.27	0.67	33.00	4.73
F0	9262	1852.40	2	Horn	H	78.40		H-H	-10.82				
F0	9400	1880.00	2	Horn	V	72.35	79.10	V-V	-11.01	29.46	0.88	33.00	3.54
F0	9400	1880.00	2	Horn	H	79.10		H-H	-9.47				
F0	9538	1907.60	2	Horn	V	71.61	77.81	V-V	-11.85	28.31	0.68	33.00	4.69
F0	9538	1907.60	2	Horn	H	77.81		H-H	-10.72				







	EMI Test Report for the BlackBerry® smartphone Model REU71UW <b>APPENDIX 4B</b>	
<b>Test Report No.:</b> RTS-5995-1205-20	<b>Dates of Test:</b> April 18 – May 22, 2012	<b>FCC ID:</b> L6AREU70UW <b>IC:</b> 2503A-REU70UW

Radiated Emissions Test Data Results cont'd  
**UMTS Band 2 HSUPA Mode**

Date of Test: May 11, 2012

The following measurements were performed by Savtej Sandhu.

The environmental test conditions were:   Temperature:       25.3 °C  
Relative Humidity:   21.0 %

The BlackBerry® smartphone was standalone, horizontal with LCD facing down and top pointing the RX antenna when the turntable is at 0 degree position.

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and the frequency range scanned was 30MHz – 1GHz.

Measurements were performed in UMTS Band 2 HSUPA mode on channels 9262, 9400, and 9538.

All emissions had test margins greater than 25.0 dB.

Date of Test: April 30, 2012

The following measurements were performed by Shuo Wang

The environmental test conditions were:   Temperature:       25.2°C  
Relative Humidity:   34.4 %

Test Distance was 3.0 meters with the RX antenna height scans between 1-4 meters height, and a frequency range of 1GHz to 20 GHz.

The BlackBerry® smartphone was standalone, horizontal with LCD facing up and top pointing the RX antenna when the turntable is at 0 degree position.

Measurements were performed in UMTS Band 2 HSUPA mode on channels 9262, 9400, 9538.

All emissions had test margins greater than 25.0 dB.