Lab Code: 200167-0

FCC PART 22H & PART 15
MEASUREMENT AND TEST REPORT

For

AnyDATA.NET, Inc.

Daego Bldg, 8th Fl., 1591-10,
Kwanyang-Dong, Dongan-Gu, Anyang City, Kyunggi-Do, Korea

FCC ID: V6VADU-520C

Model: ADU-520C

Report Type: ☒ Original Report	**Product Type:** CDMA Wireless Data Modem
Test Engineer:	James Ma
Report Number:	R0803123
Testing Date(s):	2008-03-24, 2008-03-25
Report Date:	2008-03-30
Reviewed By:	Boni Baniqued Sr. RF Engineer
Prepared By: **(12)**	Bay Area Compliance Laboratories Corp. (BACL) 1274 Anvilwood Ave. Sunnyvale, CA 94089 Tel: (408) 732-9162 Fax: (408) 732 9164

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

This Bay Area Compliance Laboratories Corp. test report has been prepared on behalf of *AnyDATA.NET, Inc.* and their product, model: ADU-520C (FCC ID: V6VADU-520C*)* or the EUT (Equipment Under Test) as referred to in the rest of this report.

The EUT is a CDMA Wireless Data Modem that operates in the cellular spectrum band from 869.04 ~ 893.97 MHz. It is designed to connect to a personal computer and uses USB 2.0 interface. The EUT has two modes, 1xRTT and EVDO. There are two identical helical type antennas attached to the EUT, one internal and the other external.

Mechanical Description

The *AnyDATA.NET, Inc.* product, FCC ID: V6VADU-520C, is of primarily plastic construction and measures approximately 78 *mm(L) x 37 mm(W) x 16 mm(H)* with a weight of approximately 44 g.

** The test data gathered are from a typical production sample, serial numbers: B1759 assigned by BACL.*

EUT Photo

Additional photos in Exhibit C

Objective

This type approval report is prepared on behalf of AnyDATA.NET, Inc. in accordance with Part 2, Subpart J, Part 22 Subpart H, of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for RF output power, modulation characteristic, occupied bandwidth, spurious emission at antenna terminal, field strength of spurious radiation, frequency stability, band edge, and conducted and radiated margin.

This report is provided on behalf of AnyDATA.NET, Inc. for confirmation of regulatory compliance. The manufacturer declares that the model: S108, serial number: *B17561* provided for testing is identical in construction and electrical operation with the post production product. Retesting is recommended for any changes to the model that might affect compliance including those with respect to software, circuitries, PCB layout, RF module, features and functionality.

Related Submittal(s)/Grant(s)

No Related Submittals

Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of Federal Regulations Title 47 Part 2, Sub-part J as well as the following parts:

Part 22 Subpart H - Public Mobile Services

Applicable Standards: TIA/EIA 603-C, ANSI C63.4-2003.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories, Corp. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the values range from $\pm$2.0 for Conducted Emissions tests and $\pm$4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL.

Detailed instrumentation measurement uncertainties can be found in BACL report QAP-018.

Test Facility

The test site used by BACL Corp. to collect radiated and conducted emissions measurement data is located at its facility in Sunnyvale, California, USA.

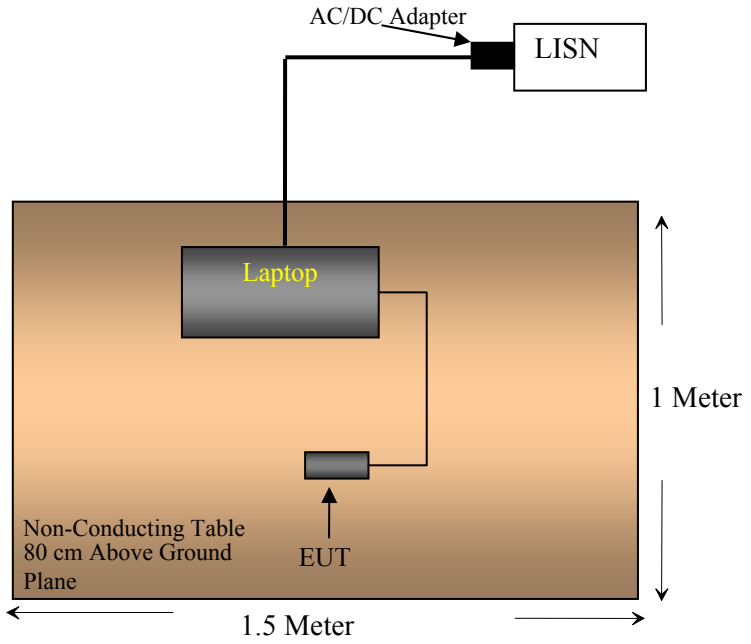
The test sites at BACL have been fully described in reports submitted to the Federal Communication Commission (FCC) and Voluntary Control Council for Interference (VCCI). The details of these reports has been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 11 and December 10, 1997 and Article 8 of the VCCI regulations on December 25, 1997. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission, Industry Canada, and Voluntary Control Council for Interference has the reports on file and is listed under FCC registration number: 90464, IC registration number: 3062A, and VCCI Registration Number: C-2463 and R-2698. The test site has been approved by the FCC, IC, and VCCI for public use and is listed in the FCC Public Access Link (PAL) database.

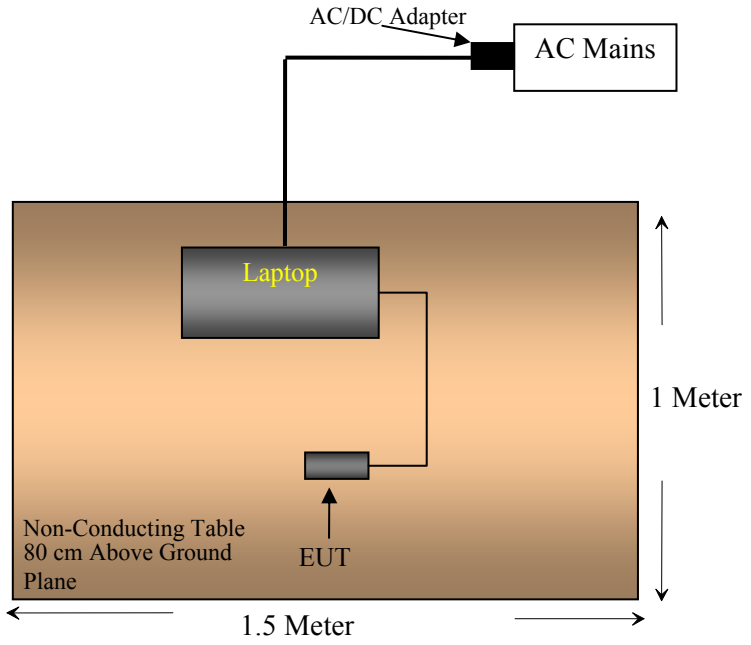
Additionally, BACL is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200167-0). The current scope of accreditations can be found at http://ts.nist.gov/Standards/scopes/2001670.htm

Test Setup Block Diagrams

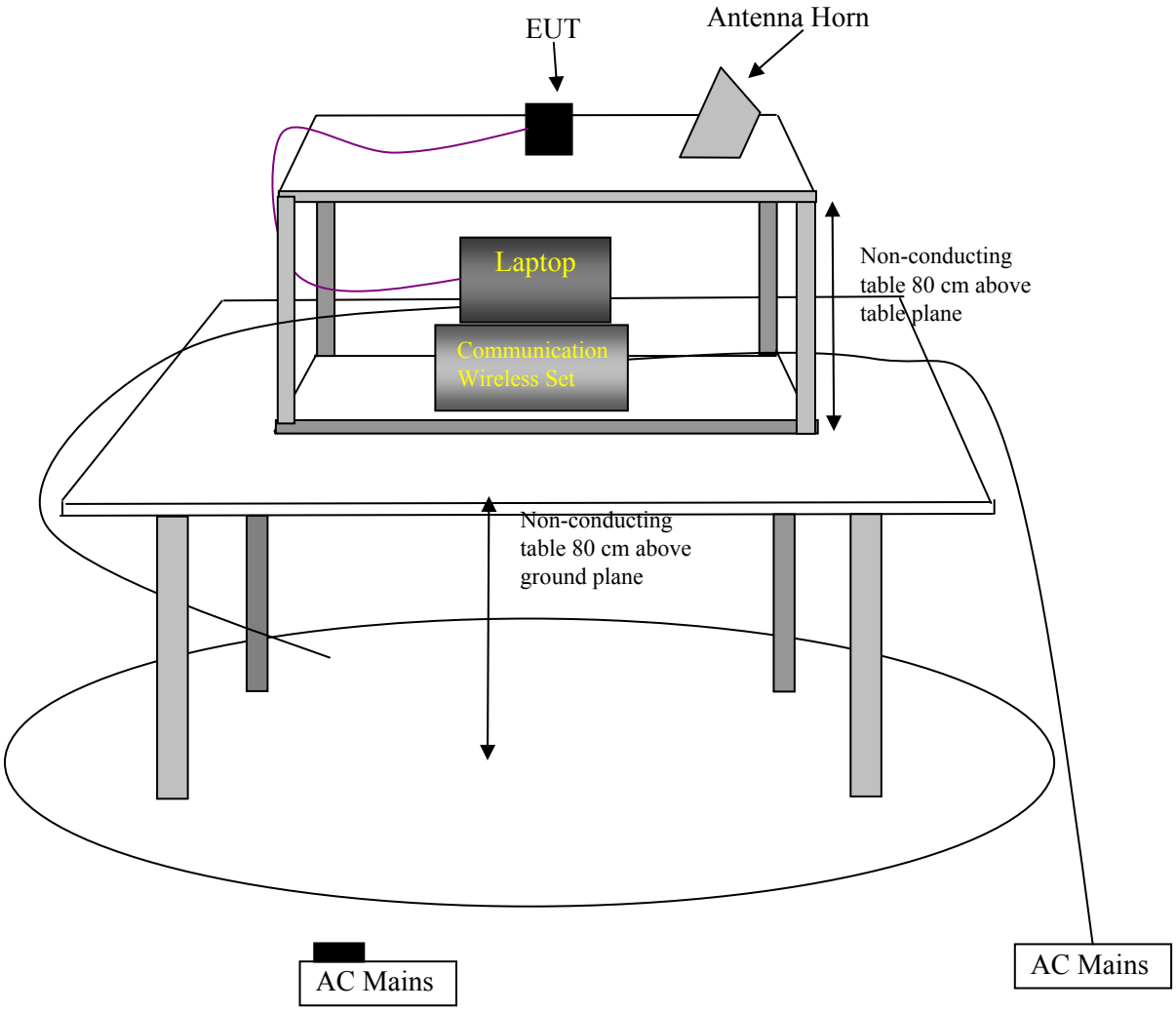
Conducted Emissions



Unintentional Radiated Emissions



Test setup Block Diagram for Spurious Radiated Emissions tests



SYSTEM TEST CONFIGURATION

Justification

The EUT was configured for testing according to TIA/EIA-603-C.

The final qualification test was performed with test software provided by the manufacturer.

Equipment Modifications

No modifications were made to the EUT.

Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
IBM	Laptop	T41	99-KHVP2

Interface Cables

Manufacturer	Cable Type	From	To
NA	USB	Laptop	EUT

SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§ 2.1047	Modulation Characteristics	N/A
§ 2.1093	RF Exposure	Compliant Please See SAR report R0803123-SAR
§ 15.107	Conducted Emissions	Compliant
§ 15.109	Radiated Emissions	Compliant
§ 2.1046, § 22.913	RF Output Power	Compliant
§ 2.1053 § 22.917	Spurious Radiated Emissions	Compliant
§ 2.1049 § 22.917	26 dB Bandwidth	Compliant
§ 2.1053, § 22.917	Spurious Emissions at Antenna Terminals	Compliant
§ 2.1055, § 22.355	Frequency stability vs. temperature Frequency stability vs. voltage	Compliant
§ 22.917	Band Edge	Compliant

§2.1047 - MODULATION CHARACTERISTICS

Applicable Standard

Requirement: FCC § 2.1047(d). FCC parts 22H do not have any specific digital modulation requirements; therefore modulation characteristics are not presented.

§1.1307(b) (1) & §2.1093 - RF EXPOSURE

Applicable Standard

According to §1.1310 and §2.1093 RF exposure is calculated.

Test Result

Compliant: The EUT is a portable device that is designed to operate within 20 cm of the user thus requiring SAR evaluation, please see BACL SAR report R0803123-SAR for measurement and testing details.

§15.107 - CONDUCTED EMISSIONS

Applicable Standard

As per CFR Part15.107, (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the band edges.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5 0.5-5 5-30	66 to 56 * 56 60	56 to 46 * 46 50

** Decreases with the logarithm of the frequency.*

Test Setup

The measurement was performed at shield room, using the setup per ANSI C63.4 – 2003 measurement procedure. The specification used was FCC Class B limits.

External I/O cables were draped along the edge of the test table and bundle when necessary.

The EUT was connected to a PC which was connected to the LISN via AC/DC adapter.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Solar Electronics CO	Artificial-Mains Network	9252-50-R-24-N	0511213	2007-07-07
Rohde & Schwarz	EMI Test Receiver	ESCI	100044	2007-03-19

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Procedure

During the conducted emissions test, the power cord of the PC was connected to the mains outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the peak detection mode, quasi-peak and average. Quasi-Peak readings are distinguished with a "QP". Average readings are distinguished with an "Ave".

Environmental Conditions

Temperature:	21 °C
Relative Humidity:	55 %
ATM Pressure:	102.0 kPa

**The testing was performed by James Ma on 2008-04-24.*

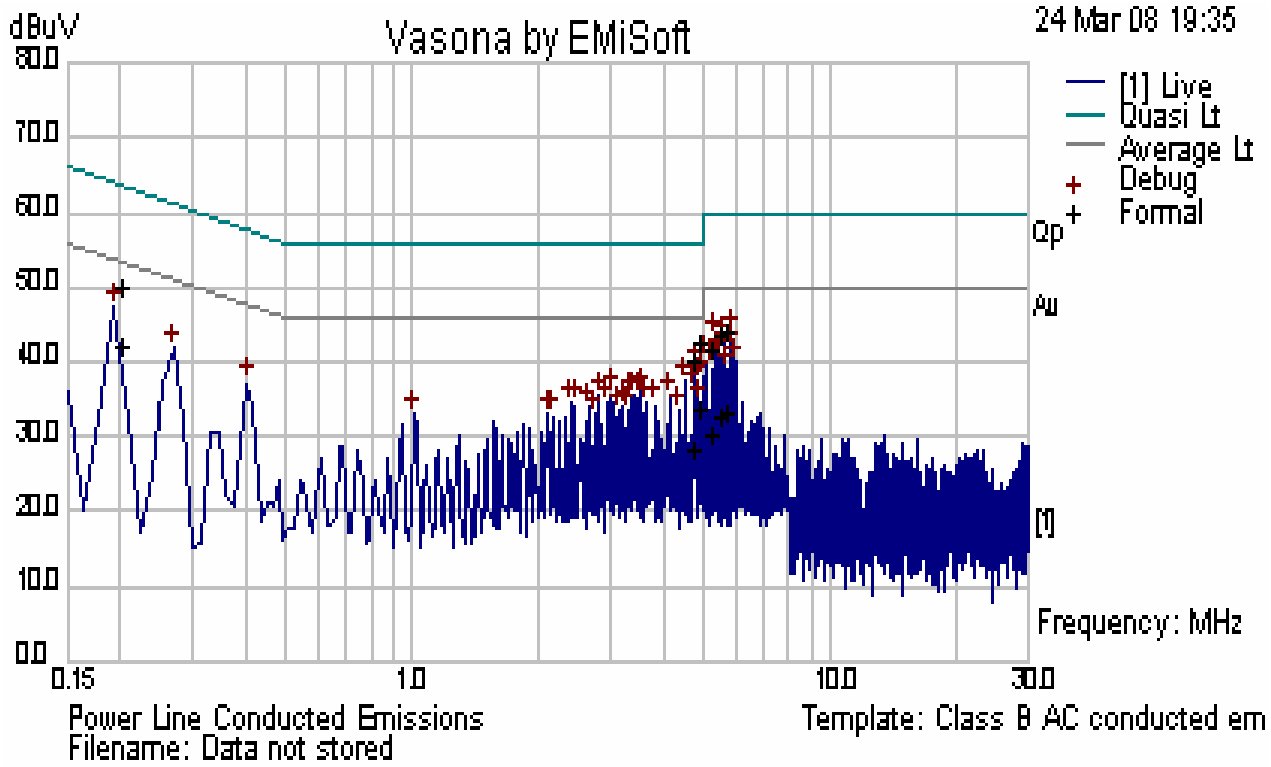
Summary of Test Results

According to the recorded data in following table, the EUT complied with the FCC standard's conducted emissions limits for Class B devices, with the *worst* margin reading of:

Connection: USB connection to Laptop connected to LISN via AC/DC adapter			
Margin (dB)	**Frequency (MHz)**	**Conductor Mode (Hot/Neutral)**	**Range (MHz)**
-13.46	0.206	Hot	0.150 MHz to 30 MHz

Conducted Emissions Test Plots and Data

120 V, 60 Hz - Hot



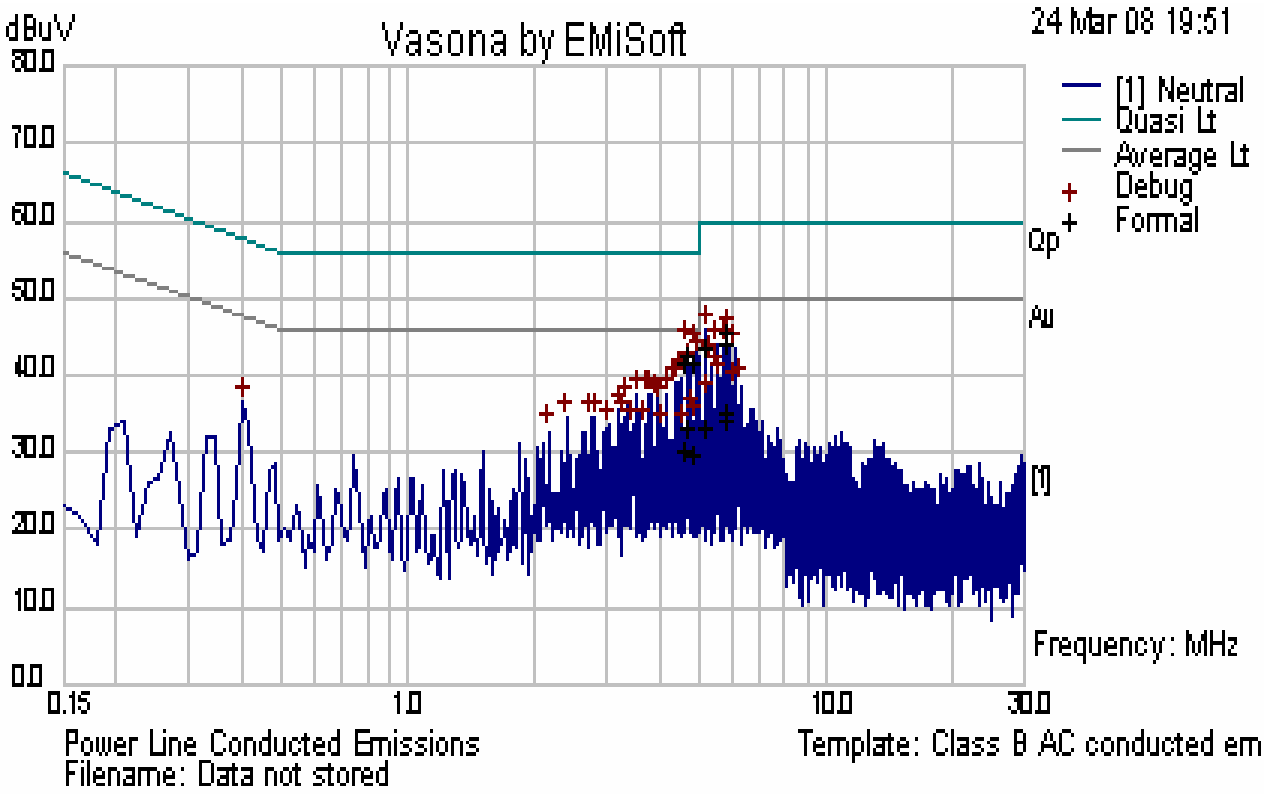
Quasi-Peak Measurements

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/ Neutral)	Limit (dBµV)	Margin (dB)
0.206	47.9	Hot	63.36	-15.46
4.998	40.33	Hot	56	-15.67
5.819	41.71	Hot	60	-18.29
4.792	37.71	Hot	56	-18.29
5.616	41.57	Hot	60	-18.43
5.343	39.56	Hot	60	-20.44

Average Measurements

Frequency (MHz)	Average (dBµV)	Conductor (Hot/ Nuetral)	Limit (dBµV)	Margin (dB)
0.206	39.9	Hot	53.36	-13.46
4.998	31.2	Hot	46	-14.80
5.819	30.9	Hot	50	-19.10
5.616	30.45	Hot	50	-19.55
4.792	26.01	Hot	46	-19.99
5.343	27.97	Hot	50	-22.03

120 V, 60 Hz – Neutral



Quasi-Peak Measurements

Frequency (MHz)	Quasi-Peak (dBµV)	Conductor (Hot/ Nuetral)	Limit (dBµV)	Margin (dB)
4.723	40.37	Neutral	56	-15.63
4.927	39.4	Neutral	56	-16.6
5.89	43.24	Neutral	60	-16.76
4.654	39.18	Neutral	56	-16.82
5.821	41.98	Neutral	60	-18.02
5.206	41.2	Neutral	60	-18.8

Average Measurements

Frequency (MHz)	Average (dBµV)	Conductor (Hot/ Nuetral)	Limit (dBµV)	Margin (dB)
4.723	31.02	Neutral	46	-14.98
5.89	33.05	Neutral	50	-16.95
5.821	32.07	Neutral	50	-17.93
4.654	27.95	Neutral	46	-18.05
4.927	27.42	Neutral	46	-18.58
5.206	31.15	Neutral	50	-18.85

§15.109 – RADIATED EMISSIONS

Applicable Standard

As per 15.109(a): (a) Except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Field Strength (micro volts/meter)	Measurement Distance (meters)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100**	3
88 - 216	150**	3
216 - 960	200**	3
Above 960	500	3

Test Setup

The radiated emissions tests were performed in the 3-meter open area test site, using the setup in accordance with ANSI C63.4-2003. The specification used was the FCC 15B limits.

EUT Setup

The radiated emissions tests were performed using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15B limits.

The spacing between the peripherals was 10 centimeters.

External I/O cables were draped along the edge of the test table and bundle when necessary.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
HP	Amplifier, Pre	8447D	2944A10198	2007-12-19
HP	Amplifier, Pre, Microwave	8449B	3147A00400	2007-11-02
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2007-06-07
A.R.A.	Antenna, Horn	DRG-118/A	1132	2007-06-18
HP	Generator, Signal	83650B	3614A00276	2007-05-08

* **Statement of Traceability:** BACL attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

For the radiated emissions test, the EUT and all support equipment power cords was connected to the AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The EUT is set 3 meter away from the testing antenna, which is varied from 1-4 mete, and the EUT is placed on a turntable, which is 0.8 meter above ground plane, the table shall be rotated for 360 degrees to find out the highest emission. The receiving antenna should be changed the polarization both of horizontal and vertical.

The spectrum analyzer or receiver is set as:

Below 1000MHz:

RBW = 100 kHz / VBW = 300 kHz / Sweep = Auto

Above 1000MHz:

(1) Peak: RBW = 1MHz / VBW = 1MHz / Sweep = Auto
(2) Average: RBW = 1MHz / VBW = 10Hz / Sweep = Auto

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corrected Amplitude = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit.
The equation for margin calculation is as follows:

Margin = Corrected Amplitude - FCC Limit

Environmental Conditions

Temperature:	21 °C
Relative Humidity:	55 %
ATM Pressure:	102.0 kPa

**The testing was performed by James Ma on 2008-03-24.*

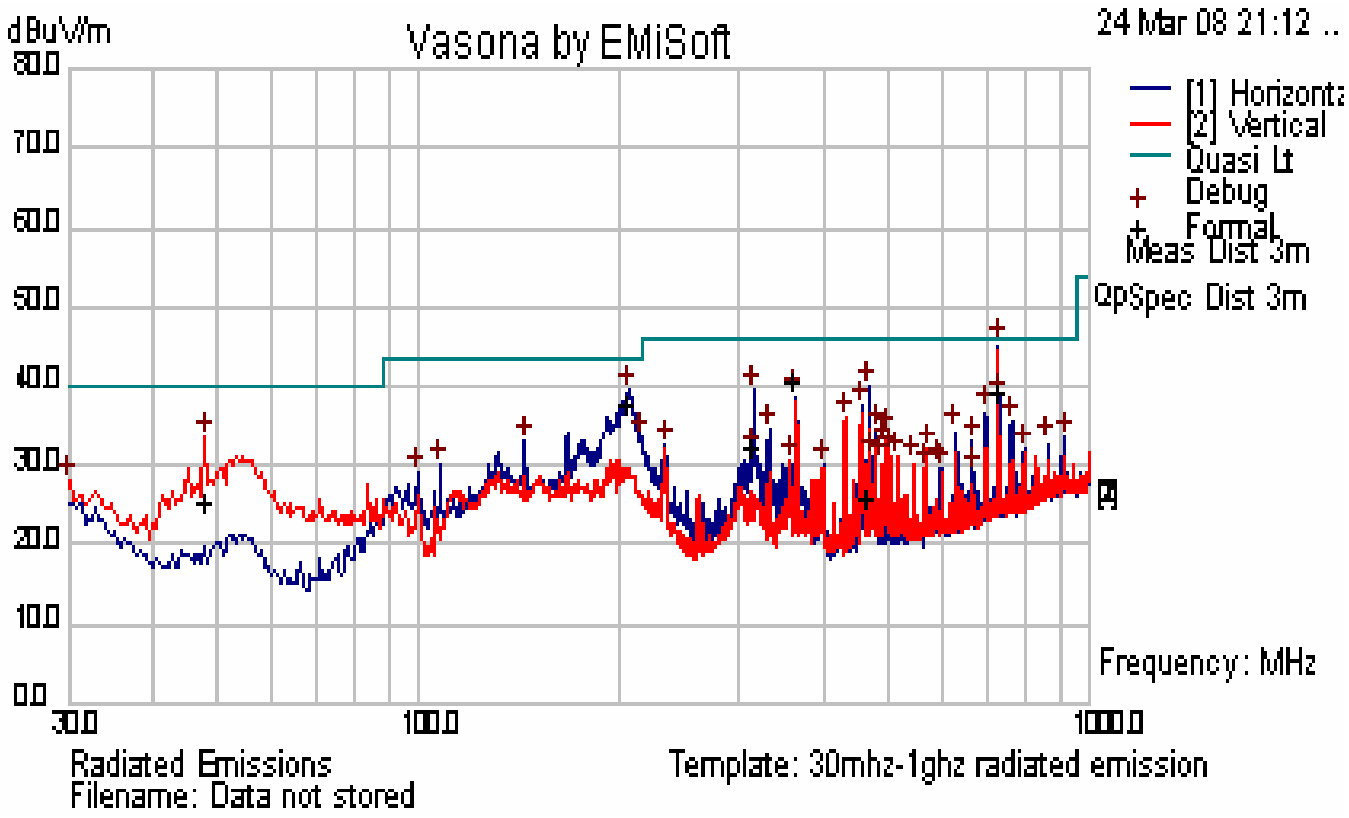
Summary of Test Results

According to the data hereinafter, the EUT complied with the limits presented in FCC Title 47, Part 15, Subpart C, section 15.205, 15.209 and 15.247, and had the worst margin of:

Unintentional Emissions, (30-1000 MHz):

Mode: Receive Mode			
Margin (dB)	**Frequency (MHz)**	**Polarization (Horizontal/Vertical)**	**Range (MHz)**
-7.76	364.511	Horizontal	30 MHz to 1000 MHz

Radiated Emissions Test plot & data:



Frequency (MHz)	Corrected Quasi - Peak (dBµV/m)	Ant. Height (cm)	Ant. Polarity (H/V)	Turntable Position (deg.)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
364.511	38.24	101	H	16	-12.49	46	-7.76
205.588	35.52	113	H	262	-14.9	43.5	-7.98
729.142	37.06	98	H	22	-7.73	46	-8.94
314	29.86	98	H	348	-13.32	46	-16.14
47.948	23.09	98	V	301	-18.99	40	-16.91
468.204	23.57	220	H	40	-11.36	46	-22.43

§2.1046, §22.913 – RF OUTPUT POWER

Applicable Standard

According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

Test Procedure

Conducted:

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

Radiated:

TIA 603-C section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
HP	Amplifier, Pre	8447D	2944A10198	2007-12-19
HP	Amplifier, Pre, Microwave	8449B	3147A00400	2007-11-02
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2007-06-07
A.R.A.	Antenna, Horn	DRG-118/A	1132	2007-06-18
HP	Generator, Signal	83650B	3614A00276	2007-05-08

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	55 %
ATM Pressure:	102.0 kPa

** The testing was performed by James Ma on 2008-03-24.*

Test Results

Conducted Output Power:

Mode, CDMA 1xEVDO

RADIO CONFIG.	OUTPUT POWER (dBm)			Limit (dBm)
	Low CH 824.70 MHz	Mid CH 836.52 MHz	High CH 848.30 MHz	
RC1, S02	24.25	24.30	24.35	38.45
RC2, S09	24.36	24.42	24.30	38.45
RC3, S055	24.82	24.65	24.66	38.45
RC4, S055	24.35	24.50	24.45	38.45
RC5, S055	24.52	24.40	24.50	38.45

Mode, CDMA 1xRTT

RADIO CONFIG.	OUTPUT POWER (dBm)			Limit (dBm)
	Low CH 824.70 MHz	Mid CH 836.52 MHz	High CH 848.30 MHz	
RC3, S055	24.90	24.62	24.70	RC3, S055

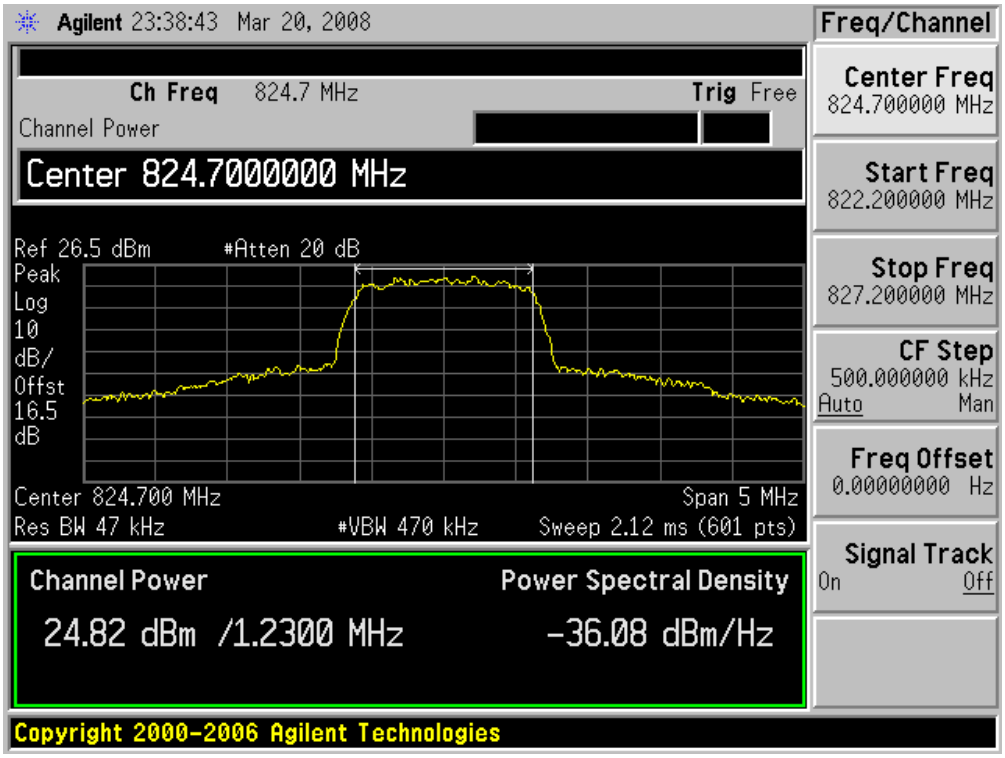
Radiated Output Power:

Indicated		Azimuth Degrees	Test Antenna		Substituted		Antenna Gain Correction	Cable Loss (dB)	Absolute Level (dBm)	Part 22H	
Freq. (MHz)	Amp. (dBuV)		Height (m)	Polar. (H/V)	Freq. (MHz)	Level (dBm)				Limit (dBm)	Margin (dB)
836.52	95.10	10	2.4	V	836.52	20.40	0.00	0.80	19.60	38.45	-18.85
824.70	95.00	15	2.2	V	824.70	20.30	0.00	0.80	19.50	38.45	-18.95
848.30	94.80	200	1.8	V	848.30	20.10	0.00	0.80	19.30	38.45	-19.15

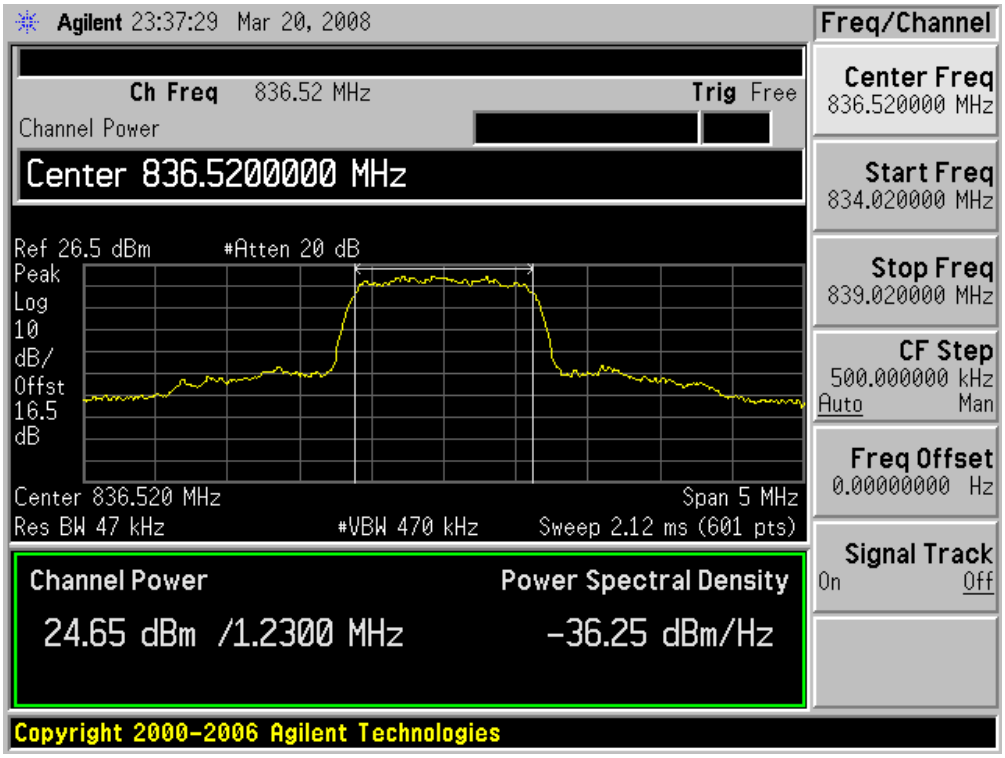
**Note: Data Measured With Pre-Amp*

Plots of Conducted Output Power for Part 22H

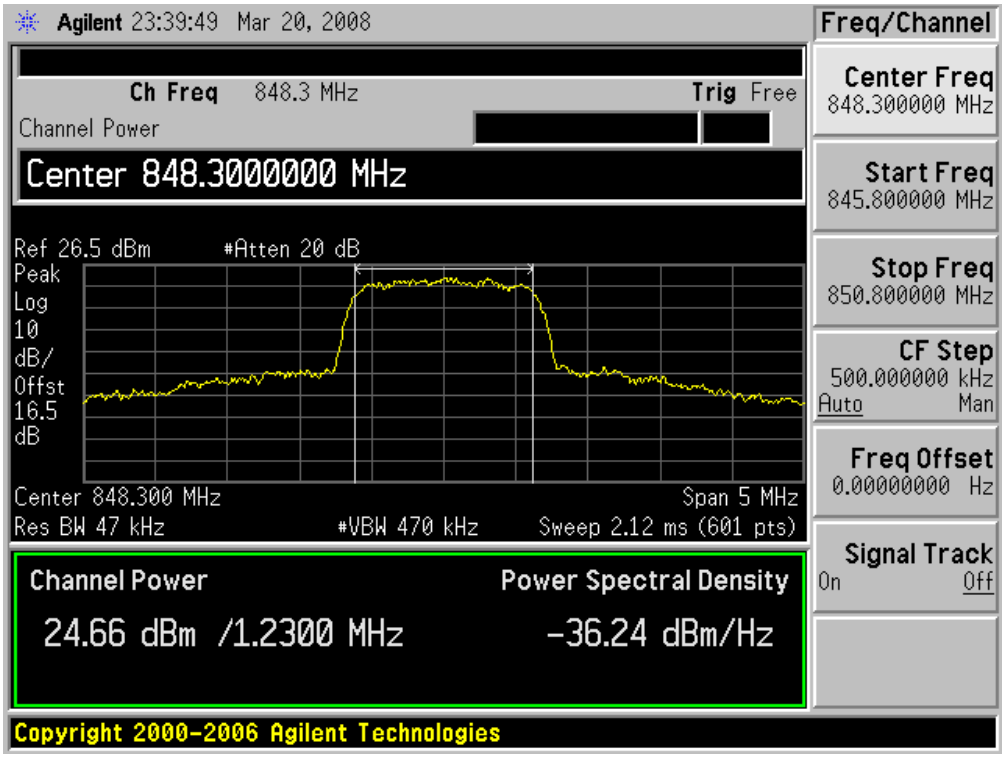
Low Channel



Middle Channel



High Channel



§2.1053 & §22.917- SPURIOUS RADIATED EMISSIONS

Applicable Standard

Requirements: CFR 47, § 2.1053, § 22.917.

Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to tenth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 Log_{10} (power out in Watts)

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	55 %
ATM Pressure:	102.0 kPa

** The testing was performed by James Ma on 2008-03-24.*

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
HP	Amplifier, Pre	8447D	2944A10198	2007-12-19
HP	Amplifier, Pre, Microwave	8449B	3147A00400	2007-11-02
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2007-06-07
A.R.A.	Antenna, Horn	DRG-118/A	1132	2007-06-18
HP	Generator, Signal	83650B	3614A00276	2007-05-08

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Test Results

Worst case readings as follows:

-22.97 dBm at 1673.04 MHz

Run # 1: 30MHz -10GHz - Mid Channel 836.52 MHz

Indicated		Azimuth Degrees	Test Antenna		Substituted		Antenna Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H	
Freq. (MHz)	Amp. dBuV		Height (m)	Polar. (H/V)	Freq. (MHz)	Level (dBm)				Limit (dBm)	Margin (dB)
1673.04	80.70	160	2.4	H	1673.04	-30.10	8.70	1.57	-22.97	-13	-9.97
1673.04	81.10	200	1.8	V	1673.04	-31.20	8.70	1.57	-24.07	-13	-11.07
2509.56	51.60	120	1.5	V	2509.56	-54.30	9.50	2.00	-46.80	-13	-33.80
2509.56	49.70	140	1.8	H	2509.56	-57.50	9.50	2.00	-50.00	-13	-37.00

**Note: Data Measured With Pre-Amp*

§2.1049, §22.917 – 26 dB BANDWIDTH

Applicable Standards

Requirements: CFR 47, Section 2.1049, Section 22.917.

Test Procedure

The RF output of the transmitter was connected to the simulator and the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 30 kHz (Cellular /PCS) and the -26 dB bandwidth was recorded.

Environmental Conditions

Temperature:	20 °C
Relative Humidity:	55 %
ATM Pressure:	102.0 kPa

** The testing was performed by James Ma on 2008-03-24.*

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
Agilent	Wireless Communication Test Set	8960 Series 10	GB44051221	2007-08-08

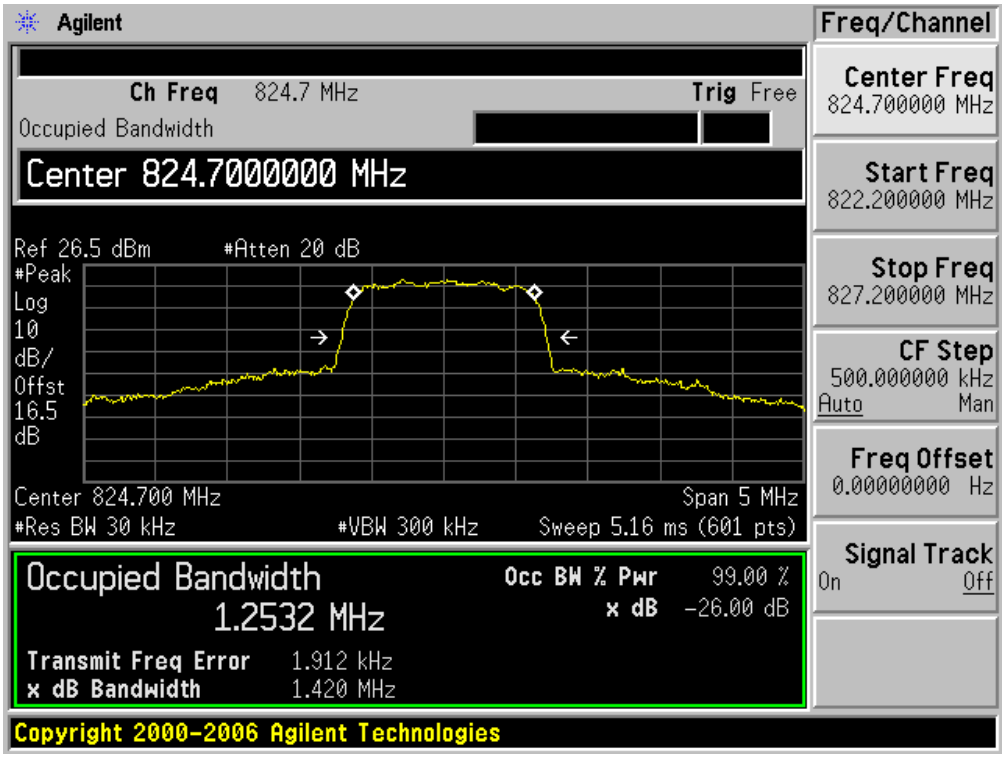
*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Summary of Test Results

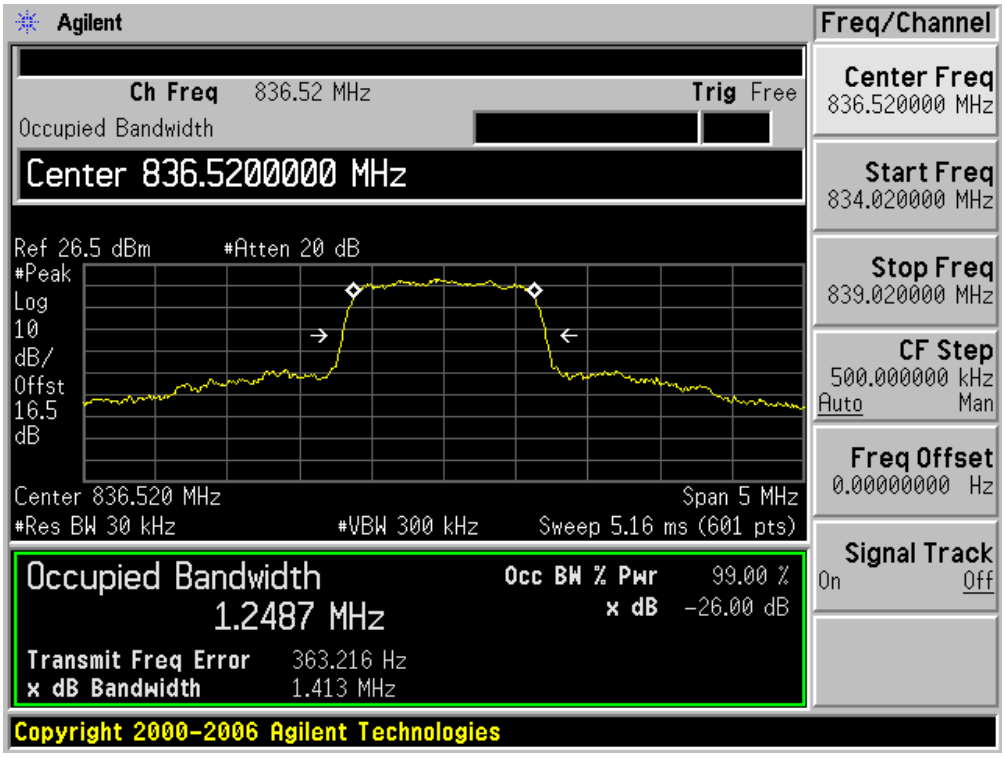
Channel	Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
LOW	824.70	1.420	1.2532
MIDDLE	836.52	1.413	1.2487
HIGH	848.30	1.422	1.2467

Please refer to the following plots for detailed test results.

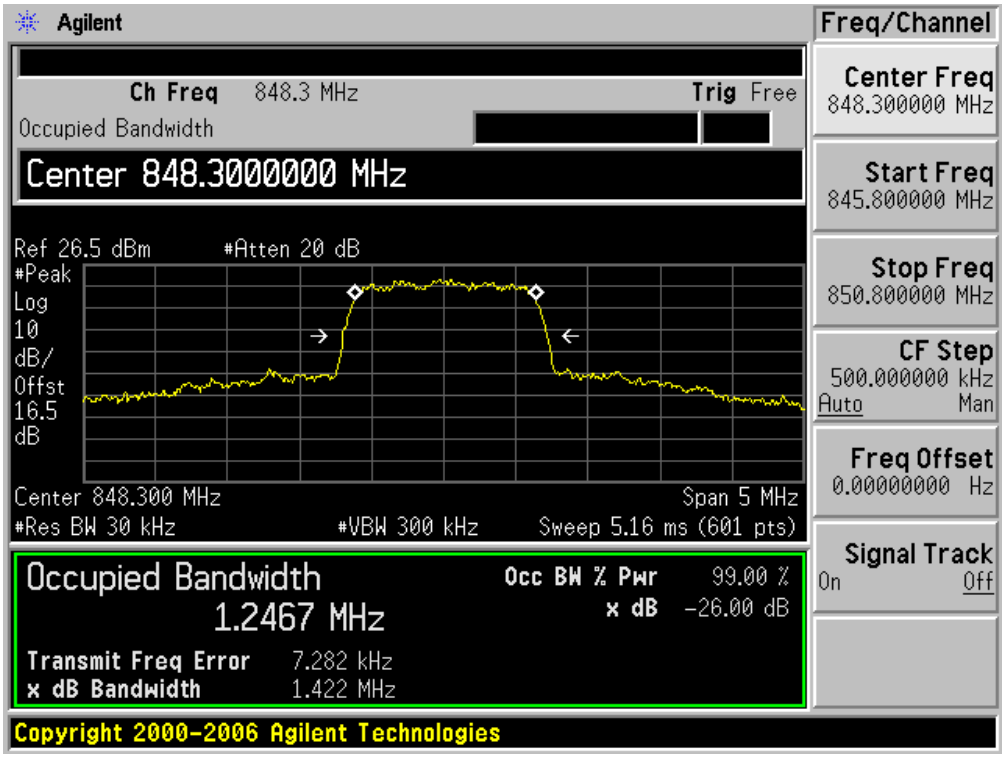
Low Channel



Middle Channel



High Channel



§2.1053, §22.917 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standards

As per FCC §2.1053:

The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

As per FCC §22.917, Emissions Limitations for Cellular Equipment:

(a) *Out of band emissions.* The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

(b) *Measurement procedure.* Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.* 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

(c) *Alternative out of band emission limit.* Licensees in this service may establish an alternative out of band emission limit to be used at specified band edge(s) in specified geographical areas, in lieu of that set forth in this section, pursuant to a private contractual arrangement of all affected licensees and applicants. In this event, each party to such contract shall maintain a copy of the contract in their station files and disclose it to prospective assignees or transferees and, upon request, to the FCC.

(d) *Interference caused by out of band emissions.* If any emission from a transmitter operating in this service results in interference to users of another radio service, the FCC may require a greater attenuation of that emission than specified in this section.

§ 2.1057 Frequency spectrum to be investigated.

(a) In all of the measurements set forth in §§2.1051 and 2.1053, the spectrum shall be investigated from the lowest radio frequency signal generated in the equipment, without going below 9 kHz, up to at least the frequency shown below:

(1) If the equipment operates below 10 GHz: to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

(2) If the equipment operates at or above 10 GHz and below 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 100 GHz, whichever is lower.

(3) If the equipment operates at or above 30 GHz: to the fifth harmonic of the highest fundamental frequency or to 200 GHz, whichever is lower.

(b) Particular attention should be paid to harmonics and sub harmonics of the carrier frequency as well as to those frequencies removed from the carrier by multiples of the oscillator frequency. Radiation at the frequencies of multiplier stages should also be checked.

(c) The amplitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be reported.

(d) Unless otherwise specified, measurements above 40 GHz shall be performed using a minimum resolution bandwidth of 1 MHz.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer and simulator through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
Agilent	Wireless Communication Test Set	8960 Series 10	GB44051221	2007-08-08

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Environmental Conditions

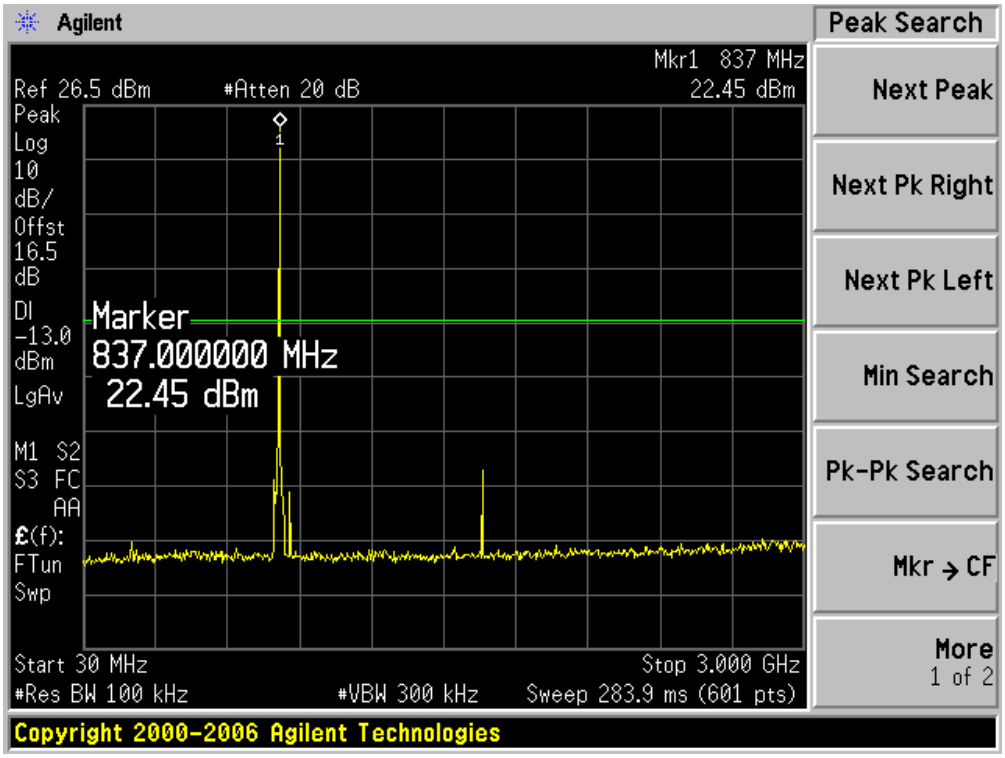
Temperature:	20 ° C
Relative Humidity:	59 %
ATM Pressure:	102.3 kPa

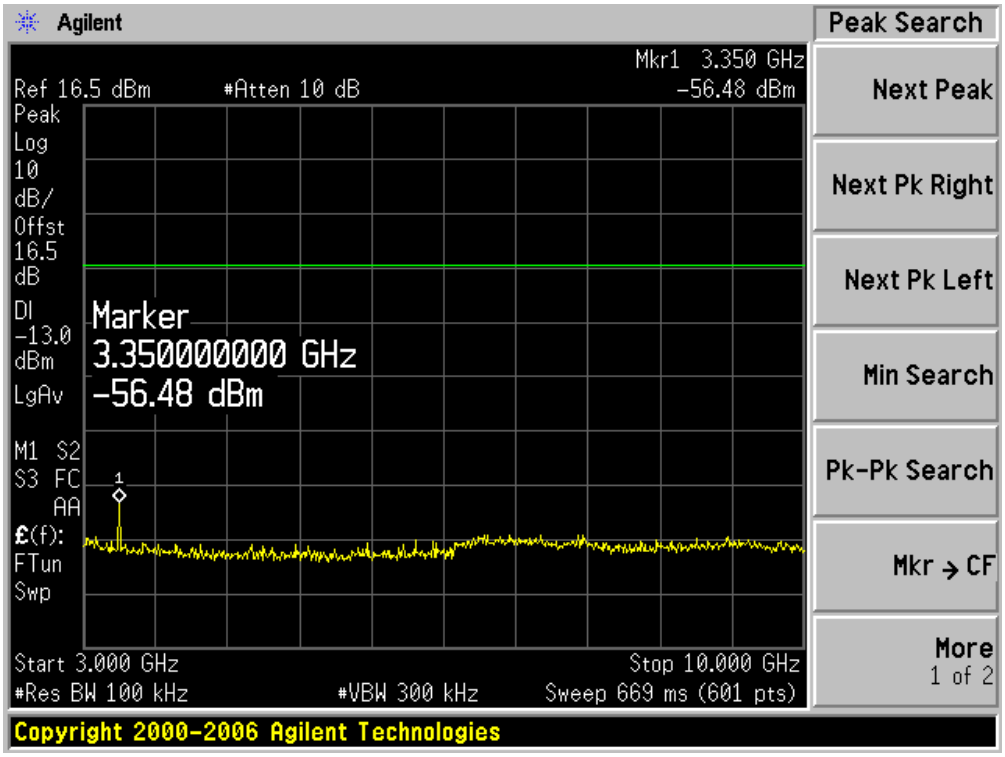
** The testing was performed by James Ma on 2008-03-25.*

Test Results

Plots of Spurious Emission for Part22

Middle Channel





§2.1055, §22.355 - FREQUENCY STABILITY

Applicable Standard

As per FCC §2.1055(a) and FCC§2.1055(d)

(a) The frequency stability shall be measured with variation of ambient temperature as follows:

(1) From −30° to +50° centigrade for all equipment except that specified in paragraphs (a) (2) and (3) of this section.

(2) From −20° to +50° centigrade for equipment to be licensed for use in the Maritime Services under part 80 of this chapter, except for Class A, B, and S Emergency Position Indicating Radiobeacons (EPIRBS), and equipment to be licensed for use above 952 MHz at operational fixed stations in all services, stations in the Local Television Transmission Service and Point-to-Point Microwave Radio Service under part 21 of this chapter, equipment licensed for use aboard aircraft in the Aviation Services under part 87 of this chapter, and equipment authorized for use in the Family Radio Service under part 95 of this chapter.

(3) From 0° to +50° centigrade for equipment to be licensed for use in the Radio BroaDCast Services under part 73 of this chapter.

(b) Frequency measurements shall be made at the extremes of the specified temperature range and at intervals of not more than 10° centigrade through the range. A period of time sufficient to stabilize all of the components of the oscillator circuit at each temperature level shall be allowed prior to frequency measurement. The short term transient effects on the frequency of the transmitter due to keying (except for broaDCast transmitters) and any heating element cycling normally occurring at each ambient temperature level also shall be shown. Only the portion or portions of the transmitter containing the frequency determining and stabilizing circuitry need be subjected to the temperature variation test.

(c) In addition to all other requirements of this section, the following information is required for equipment incorporating heater type crystal oscillators to be used in mobile stations, for which type acceptance is first requested after March 25, 1974, except for battery powered, hand carried, portable equipment having less than 3 watts mean output power.

(1) Measurement data showing variation in transmitter output frequency from a cold start and the elapsed time necessary for the frequency to stabilize within the applicable tolerance. Tests shall be made after temperature stabilization at each of the ambient temperature levels; the lower temperature limit, 0° centigrade and +30° centigrade with no primary power applied.

(2) Beginning at each temperature level specified in paragraph (c)(1) of this section, the frequency shall be measured within one minute after application of primary power to the transmitter and at intervals of no more than one minute thereafter until ten minutes have elapsed or until sufficient measurements are obtained to indicate clearly that the frequency has stabilized within the applicable tolerance, whichever time period is greater. During each test, the ambient temperature shall not be allowed to rise more than 10° centigrade above the respective beginning ambient temperature level.

(3) The elapsed time necessary for the frequency to stabilize within the applicable tolerance from each beginning ambient temperature level as determined from the tests specified in this paragraph shall be specified in the instruction book for the transmitter furnished to the user.

(4) When it is impracticable to subject the complete transmitter to this test because of its physical dimensions or power rating, only its frequency determining and stabilizing portions need be tested.

(d) The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

(3) The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided. Effects on frequency of transmitter keying (except for broaDCast transmitters) and any heating element cycling at the nominal supply voltage and at each extreme also shall be shown.

(e) When deemed necessary, the Commission may require tests of frequency stability under conditions in addition to those specifically set out in paragraphs (a), (b), (c), and (d) of this section. (For example measurements showing the effect of proximity to large metal objects, or of various types of antennas, may be required for portable equipment.)

According to FCC §22.355: The carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table C-1 of this section.

Table C-1_Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.00
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929	5.0	n/a	n/a
929 to 960	1.5	n/a	n/a
2110 to 2220	10.0	n/a	n/a

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to communication test set via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the communication test set.

Frequency Stability vs. Voltage: An external variable DC power supply was connected to the battery terminals of the equipment under test. The voltage was set to 110% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the battery end point. The output frequency was recorded for each battery voltage.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
Agilent	Wireless Communication Test Set	8960 Series 10	GB44051221	2007-08-08
ESPEC	Oven, Temperature	ESL-4CA	18010	NR

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Environmental Conditions

Temperature:	20 ° C
Relative Humidity:	59 %
ATM Pressure:	102.3 kPa

** The testing was performed by James Ma on 2008-03-25.*

Test Results

Frequency Stability Versus Temperature

Reference Frequency: 836.52 MHz, Limit: 2.5 ppm				
Test Environment		Frequency Measured (MHz)	Frequency Measure with Time Elapsed	
Temperature (°C)	Power Supplied (Vdc)		Frequency Error (ppm)	Limit (ppm)
50	5.0 V	836.52113	1.350834	2.5
30	5.0 V	836.52094	1.123703	2.5
20	5.0 V	836.52050	0.597714	2.5
0	5.0 V	836.52060	0.717257	2.5
-20	5.0 V	836.51912	-1.051977	2.5
-30	5.0 V	836.51900	-1.195429	2.5

§22.917 – BAND EDGE

Applicable Standard

According to § 22.917, the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Test Procedure

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The center of the spectrum analyzer was set to block edge frequency, RBW set to 10 kHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2007-04-26
Agilent	Wireless Communication Test Set	8960 Series 10	GB44051221	2007-08-08

*** Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

Environmental Conditions

Temperature:	20 ° C
Relative Humidity:	59 %
ATM Pressure:	102.3 kPa

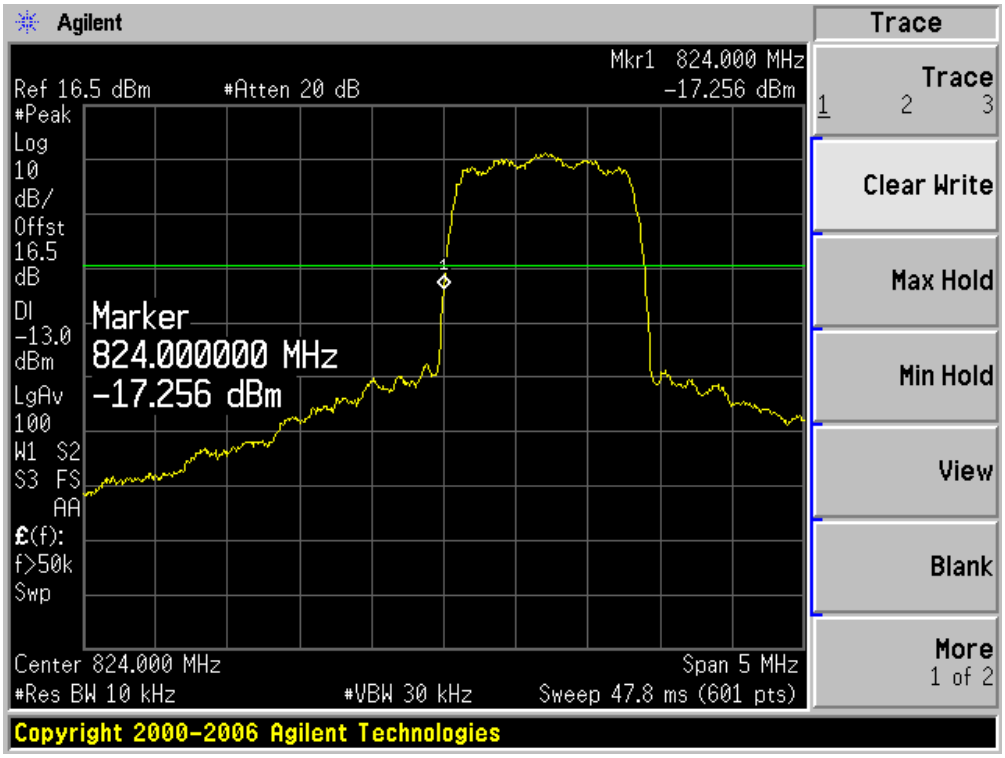
** The testing was performed by James Ma on 2008-03-25.*

Test Results

Please refer to the following plots.

Plots of Band Edge for Part 22

Lowest Channel



Highest Channel

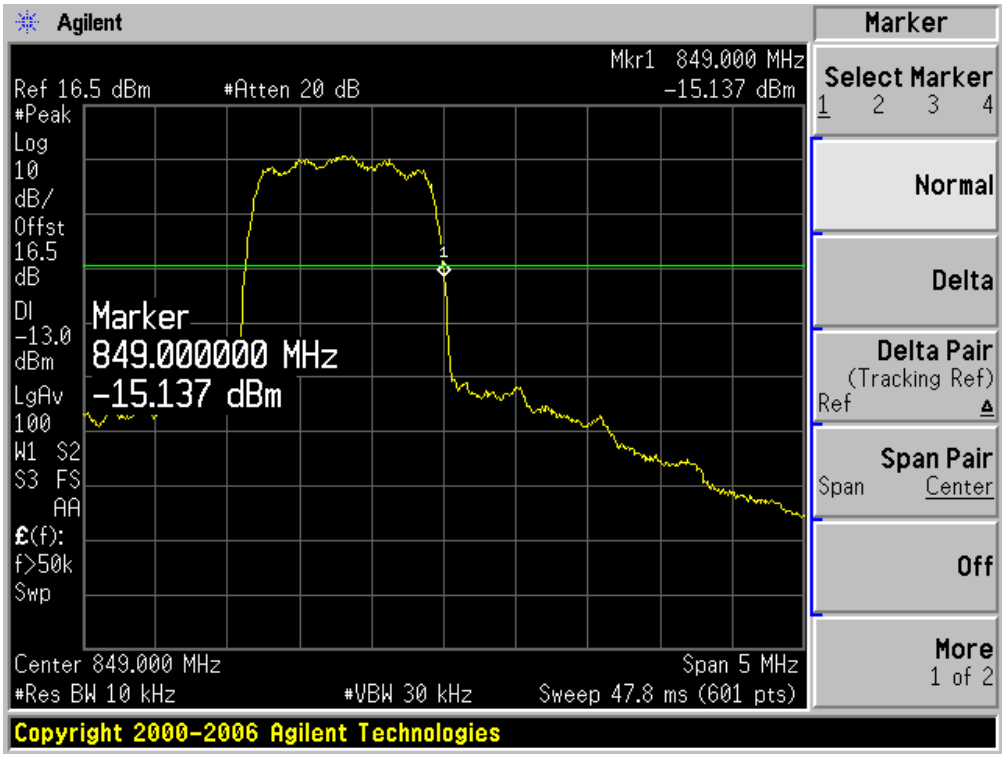


EXHIBIT A - FCC ID LABELING AND WARNING STATEMENT

FCC § 2.925 Identification of equipment

(a) Each equipment covered in an application for equipment authorization shall bear a nameplate or label listing the following:

(1) FCC Identifier consisting of the two elements in the exact order specified in §2.926. The FCC Identifier shall be preceded by the term *FCC ID* in capital letters on a single line, and shall be of a type size large enough to be legible without the aid of magnification.
Example: FCC ID XXX123. XXX—Grantee Code 123—Equipment Product Code

FCC ID: V6VADU-520C

Proposed Label Location on EUT

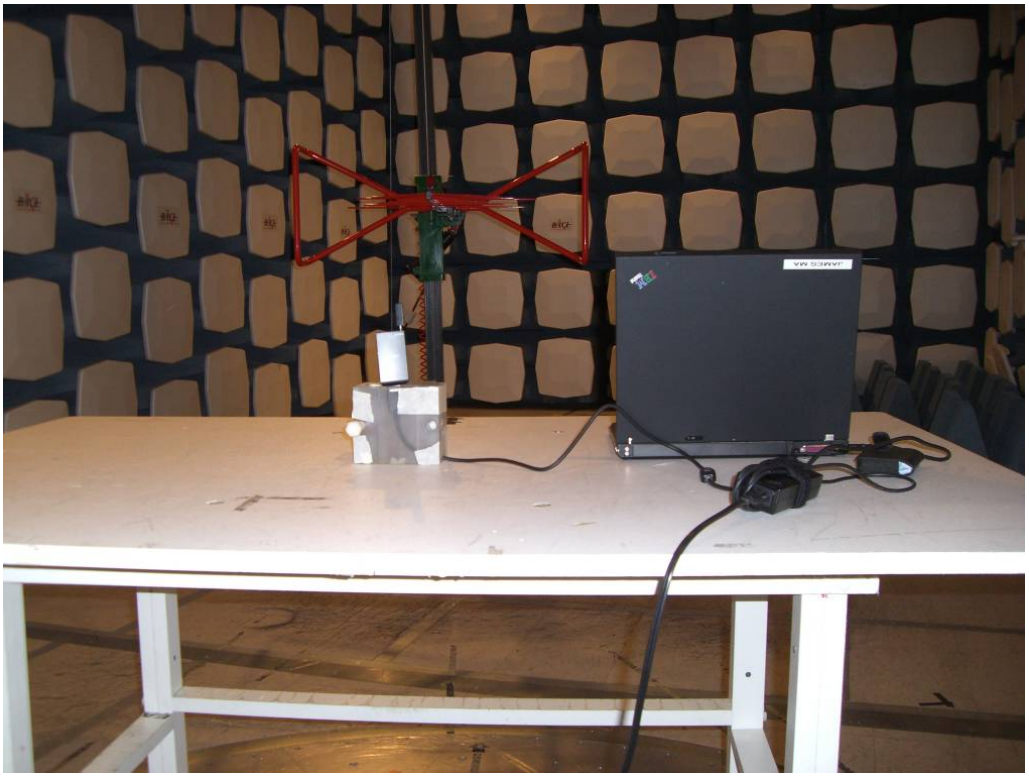
EXHIBIT B - TEST SETUP PHOTOGRAPHS

Conducted Emissions – Front View

Conducted Emissions – Side View

Field Strength of Unintentional Radiated Emissions – Front View

Field Strength of Unintentional Radiated Emissions – Rear View



Radiated Emissions – Front View

Radiated Emissions – Rear View

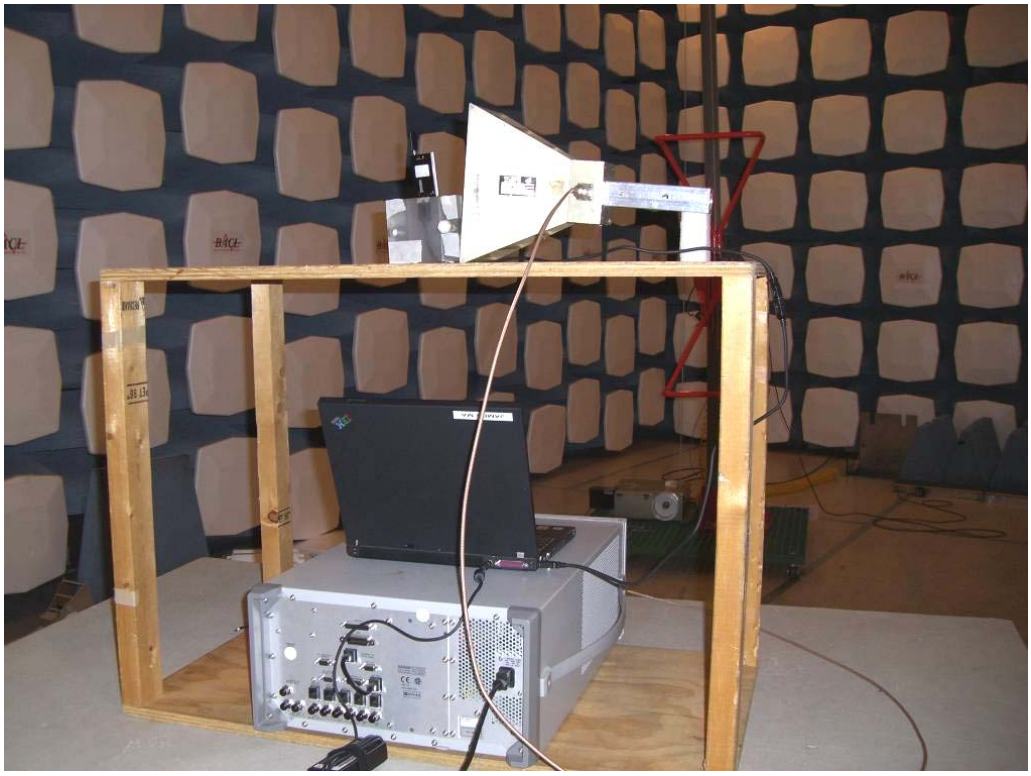
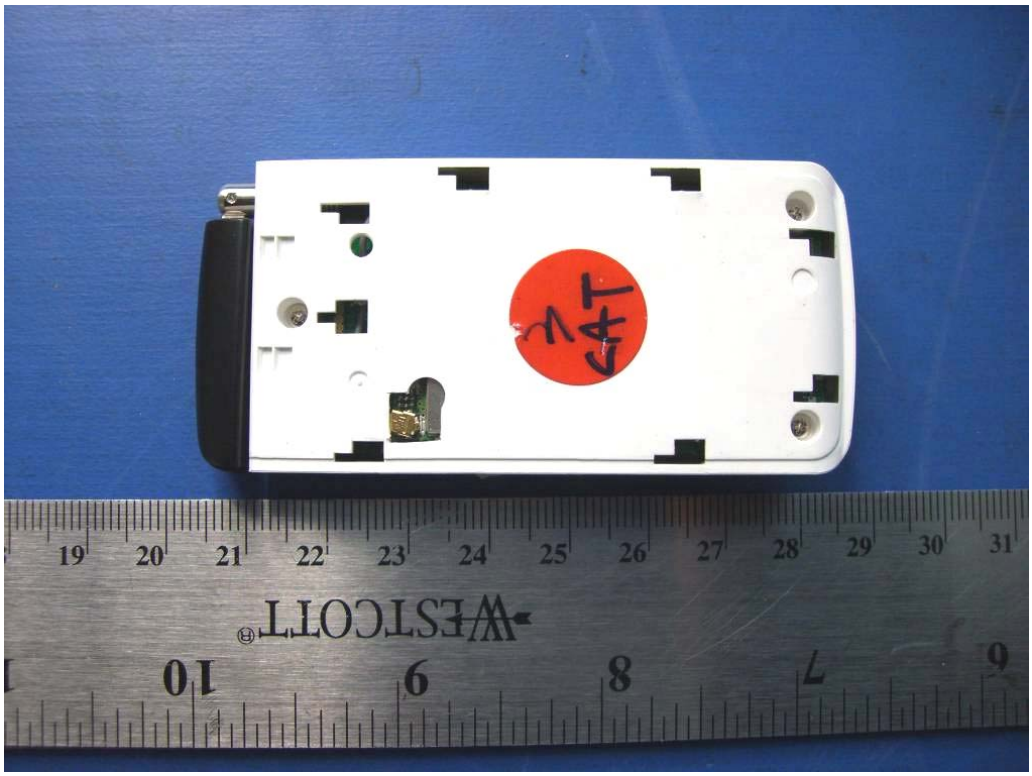


EXHIBIT C - EUT PHOTOGRAPHS

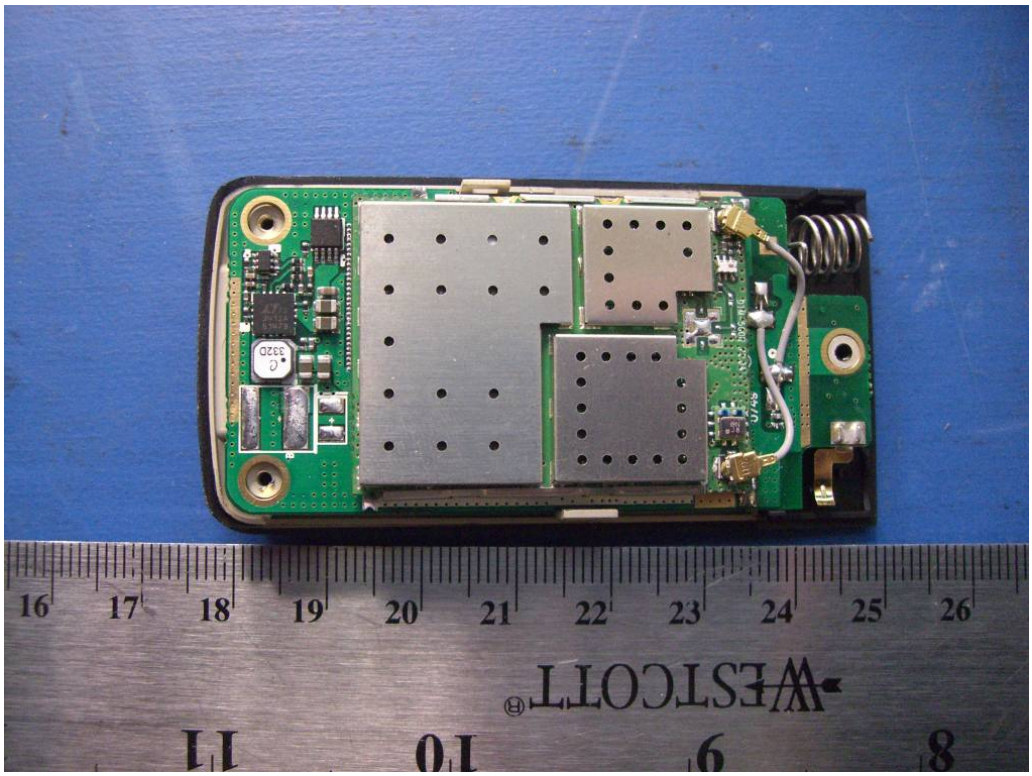
EUT – Front View

EUT – Back View

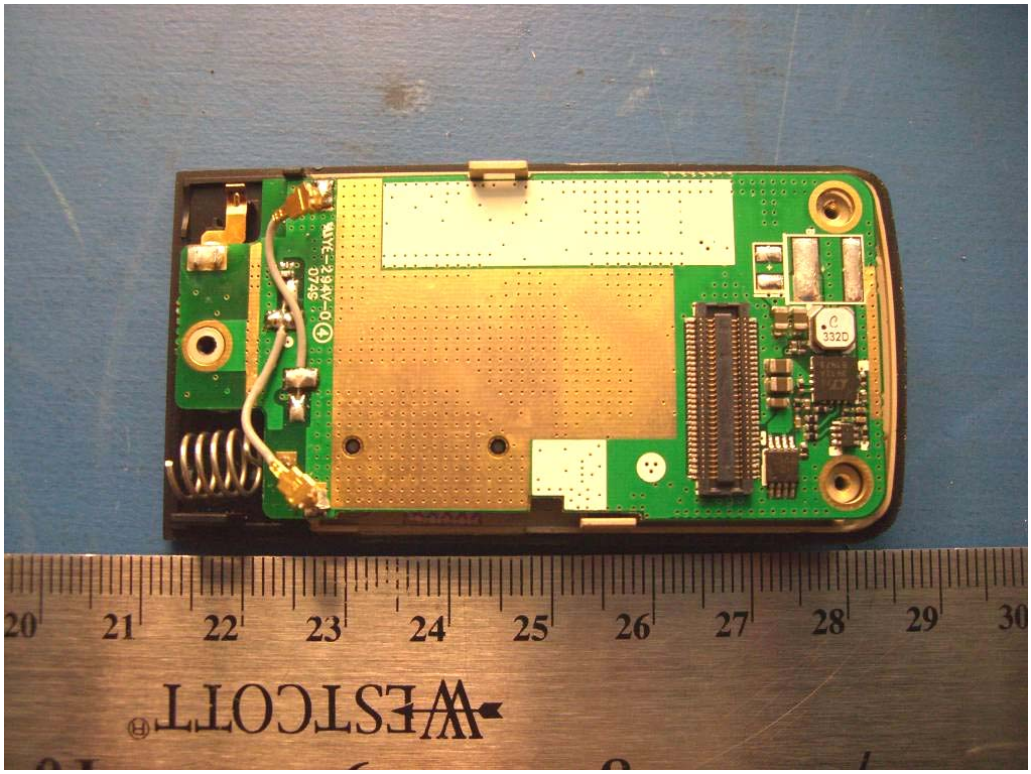
EUT – Front Cover Removed



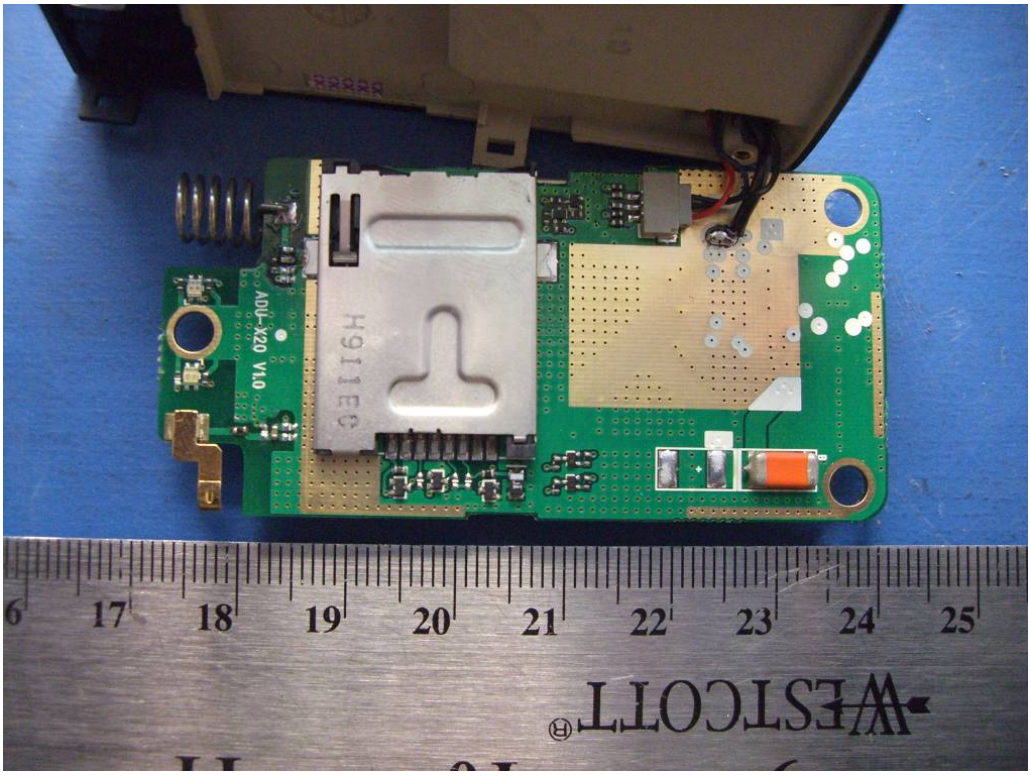
EUT – Chassis Cover Removed



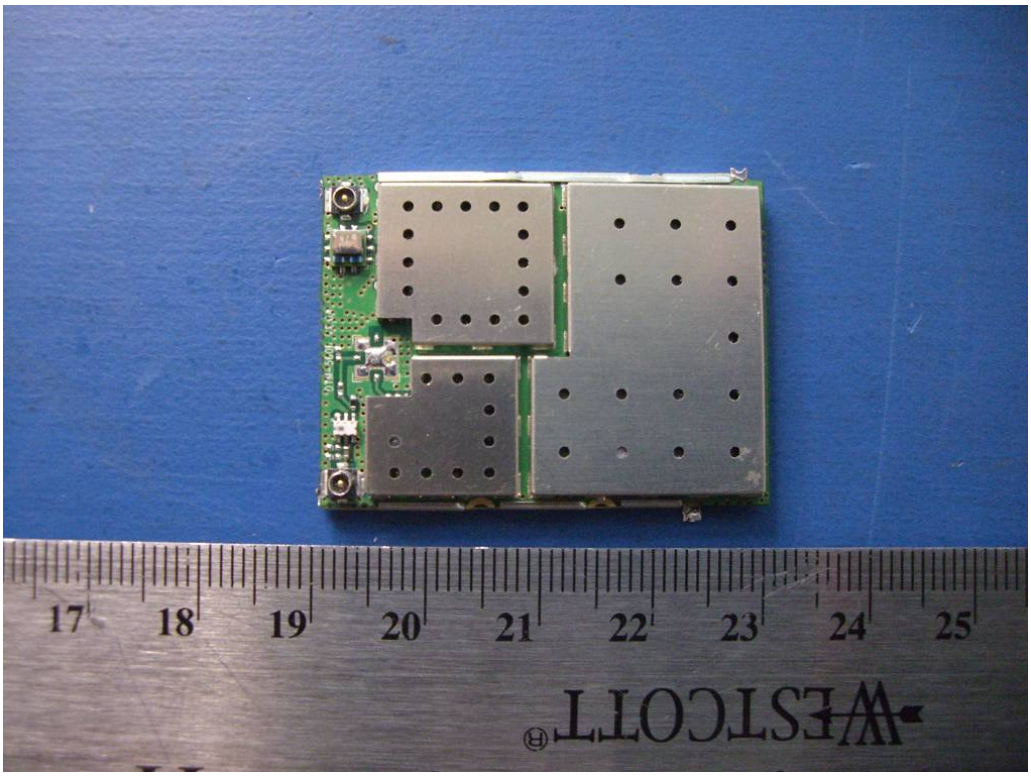
EUT Internal – Interface Board Side 1 View



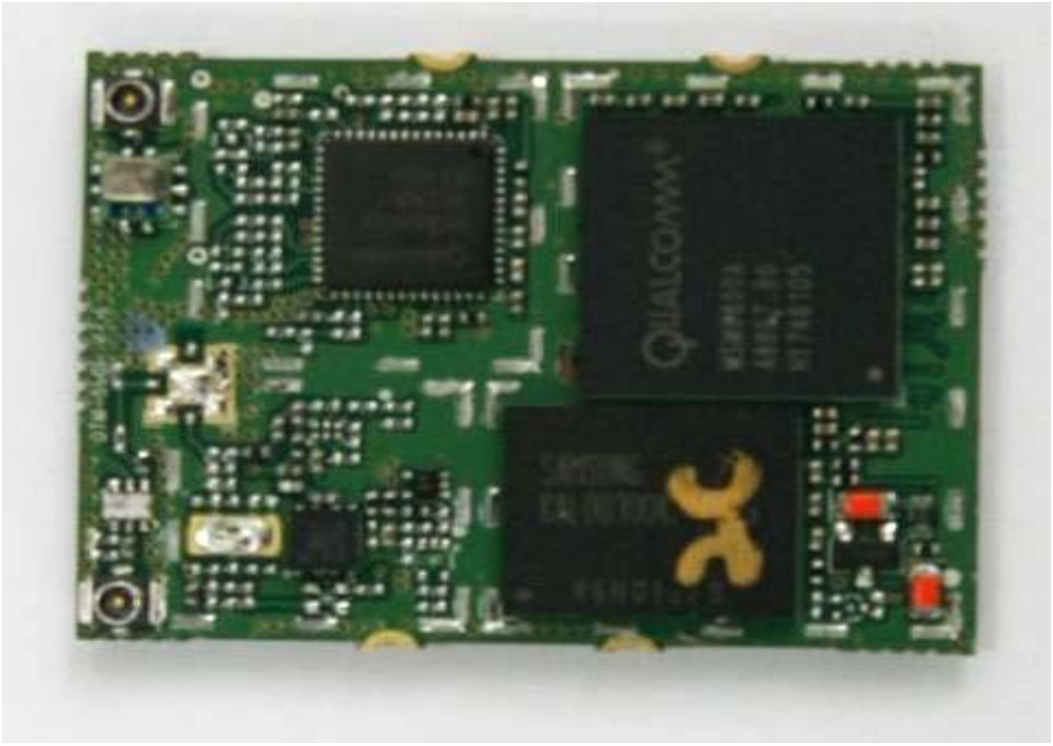
EUT Internal – Interface Board Side 2 View



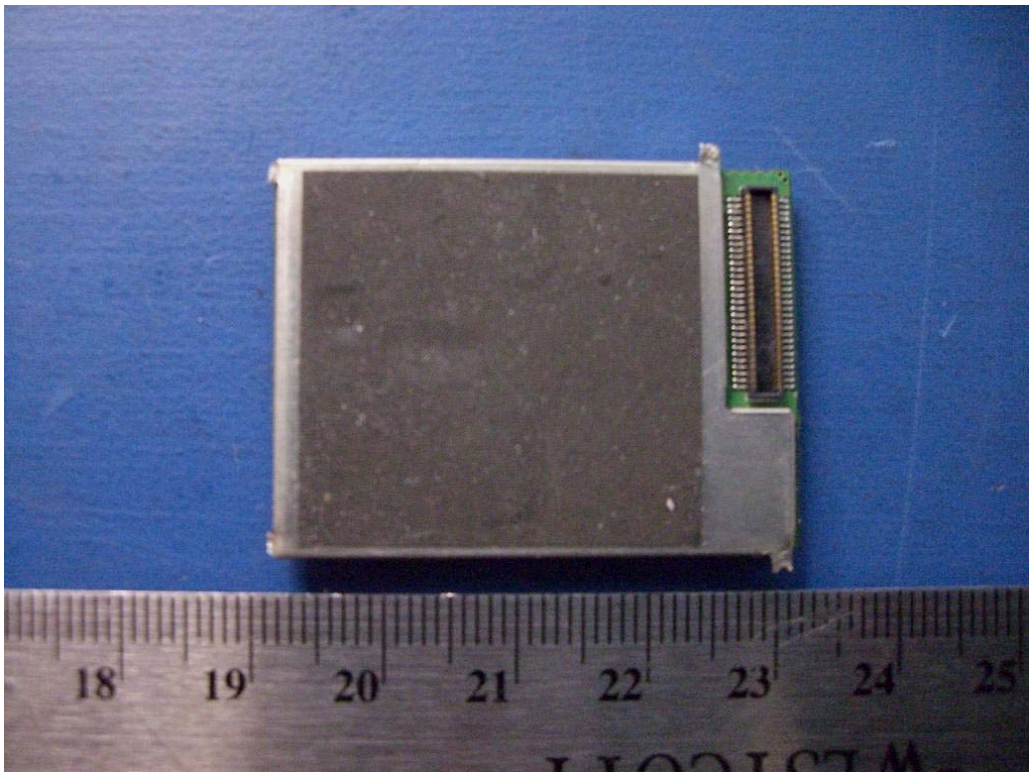
EUT Internal – RF Board Side 1 View (With Shielding)



EUT Internal – RF Board Side 1 View (Shielding Removed)

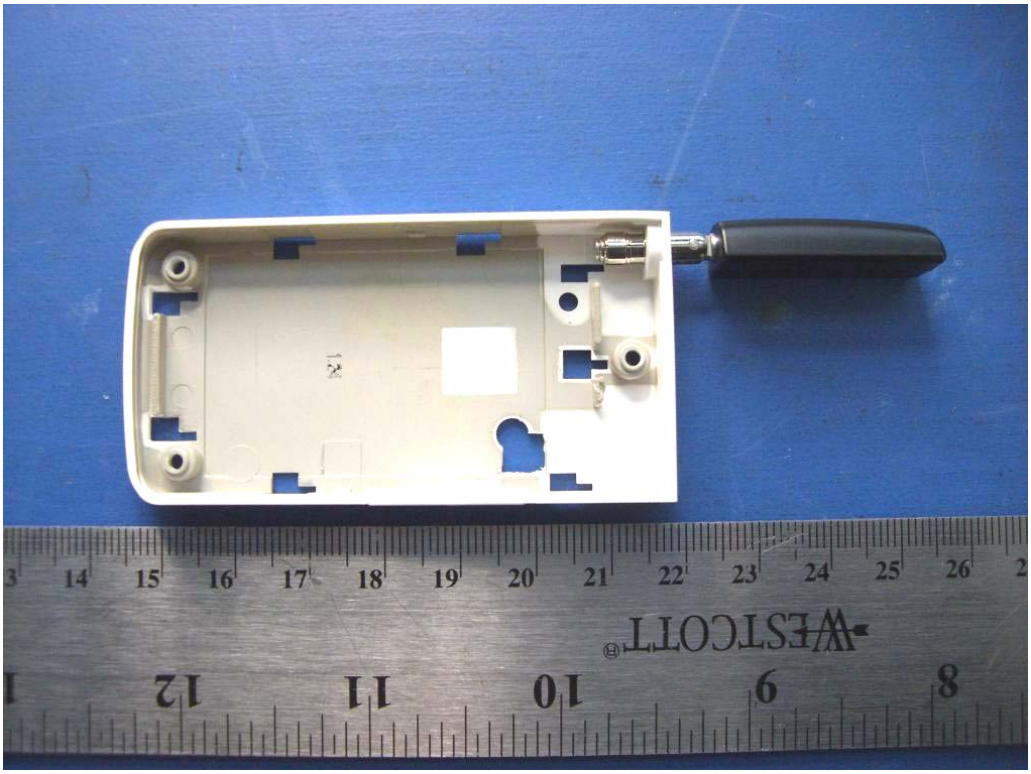


EUT Internal – RF Board Side 2 View (With Shielding)



EUT Internal – RF Board Side 2 View (Shielding Removed)

EUT Internal, Front Cover Back Side View, External Antenna Detail



******* END OF REPORT *******