MET Laboratories, Inc. *Safety Certification - EMI - Telecom Environmental Simulation*
33439 WESTERN AVENUE ! UNION CITY, CALIFORNIA 94587 ! PHONE (510) 489-6300 ! FAX (510) 489-6372

October 10, 2006

Advanced RF Technologies
2607 Colorado Blvd.
Los Angeles, CA 90041

Dear Sadat Chowdhury,

Enclosed is the EMC test report for compliance testing of the Advanced RF Technologies, Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band as tested to the requirements of the FCC Certification rules under Title 47 of the CFR Part 22 Subpart H for Cellular Devices.

Thank you for using the services of MET Laboratories, Inc. If you have any questions regarding these results or if MET can be of further service to you, please contact me.

Sincerely yours,
MET LABORATORIES, INC.

Jennifer Sanchez
Documentation Department

Reference: (\Advanced RF Technologies\EMCS20735-FCC22)

Electromagnetic Compatibility Criteria
Test Report

for the

Advanced RF Technologies
Model Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band

Verified under
FCC Certification Rules
Title 47 of the CFR, Part 22 Subpart H
for Cellular Devices

MET Report: EMCS20735-FCC22

October 10, 2006

Prepared For:

Advanced RF Technologies
2607 Colorado Blvd.
Los Angeles, CA 90041

Prepared By:
MET Laboratories, Inc.
4855 Patrick Henry Dr., Building 6
Santa Clara, CA 95054

Electromagnetic Compatibility Criteria
Test Report

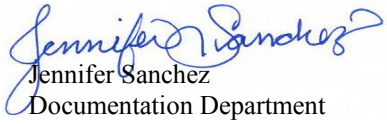
for the

Advanced RF Technologies
Model Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band

Tested Under

FCC Certification Rules
Title 47 of the CFR, Part 24 Subpart E
for Cellular Devices

Shawn McMillen, Project Engineer
Electromagnetic Compatibility Lab



Jennifer Sanchez
Documentation Department

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of Part 22 Subpart H and Part 15 Subpart B of the FCC Rules under normal use and maintenance.

Tony Permsombut, Manager
Electromagnetic Compatibility Lab

Report Status Sheet

Revision	Report Date	Reason for Revision
∅	October 10, 2006	Initial Issue.

Table of Contents

List of Tables

List of Figures

List of Photographs

List of Terms and Abbreviations

AC	**A**lternating **C**urrent
ACF	**A**ntenna **C**orrection **F**actor
Cal	**Cal**ibration
d	**M**easurement **D**istance
dB	**D**eci**b**els
dBµA	**D**eci**b**els above one **micro**amp
dBµV	**D**eci**b**els above one **micro**volt
dBµA/m	**D**eci**b**els above one **micro**amp **per m**eter
dBµV/m	**D**eci**b**els above one **micro**volt **per m**eter
DC	**D**irect **C**urrent µ
E	**E**lectric Field
DSL	**D**igital **S**ubscriber **L**ine
ESD	**E**lectro**s**tatic **D**ischarge
EUT	**E**quipment **U**nder **T**est
f	**F**requency
FCC	**F**ederal **C**ommunications **C**ommission
GR-1089-CORE	***(GR)*** **G**eneral **R**equirement(s) imposed by the NEBS standard, **(*CORE*) C**entral **O**ffice **R**ecovery **E**xpress (AT&T), ***(1089)*** specifies various parts of the General Requirements under Bellcore Technical Standard, Requirements for Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment
GRP	**G**round **R**eference **P**lane
H	Magnetic Field
HCP	**H**orizontal **C**oupling **P**lane
Hz	**H**ert**z**
IEC	**I**nternational **E**lectrotechnical **C**ommission
kHz	**k**ilo**h**ert**z**
kPa	**k**ilo**pa**scal
kV	**k**ilovolt
LISN	**L**ine **I**mpedance **S**tabilization **N**etwork
MHz	**M**ega**h**ertz
µH	**microh**enry
µ	**microf**arad
µs	**micros**econds
NEBS	**N**etwork **E**quipment-**B**uilding **S**ystem
PRF	**P**ulse **R**epetition **F**requency
RF	**R**adio **F**requency
RMS	**R**oot-**M**ean-**S**quare
TWT	**T**raveling **W**ave **T**ube
V/m	**V**olts **per m**eter
VCP	**V**ertical **C**oupling **P**lane

I. Executive Summary

A. Purpose of Test

An EMC evaluation was performed to determine compliance of the Advanced RF Technologies, Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band, with the requirements of Part 22 Subpart H and Part 15 Subpart B. All references are to the most current version of Title 47 of the Code of Federal Regulations in effect. In accordance with §2.1033, the following data is presented in support of the Certification of the Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band. Advanced RF Technologies should retain a copy of this document which should be kept on file for at least two years after the manufacturing of the Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band, has been permanently discontinued

B. Executive Summary

The following tests were conducted on a sample of the equipment for the purpose of demonstrating compliance with Part 22 Subpart H and Part 15 Subpart B, in accordance with Advanced RF Technologies, purchase order number 1153.

FCC Reference	Description	Results
Part 15 Subpart B §15.109(a)	Conducted Emissions	Compliant
Part 15 Subpart B §15.107(a)	Radiated Emissions	Compliant
§2.1046; §22.913	RF Power Output	Compliant
§2.1047	Modulation Characteristics	N/A
§2.1049	Occupied Bandwidth	Compliant
§2.1051; §22.917	Spurious Emissions at Antenna Terminals	Compliant
§2.1053; §22.917	Radiated Spurious Emissions	Compliant
§2.1055; §22.355	Frequency Stability	Compliant
2-11-04/EAB/RF	Out of Band Rejection	Compliant

Table 1 Executive Summary of EMC ComplianceTesting

II. Equipment Configuration

A. Overview

MET Laboratories, Inc. was contracted by Advanced RF Technologies to perform testing on the Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band, under Advanced RF Technologies' purchase order number 1153.

This document describes the test setups, test methods, required test equipment, and the test limit criteria used to perform compliance testing of the Advanced RF Technologies, Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band.

The results obtained relate only to the item(s) tested.

Model(s) Tested:	Epoch-M1C-FF 800 MHz band			
Model(s) Covered:	Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band			
EUT Specifications:	Primary Power: 120V/60Hz			
	FCC ID: S2OADRFTECH004			
	Modulation types:	CDMA		
		TDMA		
		GSM		
	Emission Designators:	CDMA – F9W		
		TDMA – DXW		
		GSM – GXW		
	Equipment Code:	PCB		
	RF Average Output Power:		Downlink	Uplink
		CDMA	20.03	20.07
		TDMA	20.93	20.08
		GSM	20.05	20.04
	EUT Frequency Ranges:	CDMA: 869.625 – 893.375 MHz Down Link		
		CDMA: 824.625 – 848.375 MHz Uplink		
		TDMA: 869.120 – 893.880 MHz Down Link		
		TDMA: 824.120 – 893.880 MHz Uplink		
		GSM: 869.120 – 893.880 MHz Down Link		
		GSM: 824.120 – 893.880 MHz Uplink		
Analysis:	The results obtained relate only to the item(s) tested.			
Environmental Test Conditions:	Temperature: 15-35º C			
	Relative Humidity: 30-60%			
	Barometric Pressure: 860-1060 mbar			
Evaluated by:	Shawn McMillen			
Date(s):	September 22, 2006			

B. References

CFR 47, Part 22, Subpart H	Electromagnetic Compatibility: Criteria for Radio Frequency Devices
CFR 47, Part 15, Subpart B	Electromagnetic Compatibility: Criteria for Radio Frequency Devices
ANSI C63.4:2003	Methods and Measurements of Radio-Noise Emissions from Low-Voltage Electrical And Electronic Equipment in the Range of 9 kHz to 40 GHz
ANSI/NCSL Z540-1-1994	Calibration Laboratories and Measuring and Test Equipment - General Requirements
ANSI/ISO/IEC 17025:2000	General Requirements for the Competence of Testing and Calibration Laboratories
EIA/TIA-603-A-2001	Land Mobile FM or PM Communication Equipment Measurement and Performance Standards

C. Test Site

All testing was performed at MET Laboratories, Inc., 4855 Patrick Henry Drive, Building 6, Santa Clara, California 95054. All equipment used in making physical determinations is accurate and bears recent traceability to the National Institute of Standards and Technology.

Radiated Emissions measurements were performed in a 10 meter semi-anechoic chamber (equivalent to an Open Area Test Site). In accordance with §2.948(a)(3), a complete site description is contained at MET Laboratories. In accordance with §2.948(d), MET Laboratories has been accredited by the National Voluntary Laboratory Accreditation Program
(Lab Code: 100273-0).

D. Description of Test Sample

Advanced RF Technologies Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF are RF signal amplifier systems for the wireless 800 MHz spectrum. Its main purpose is to extend wireless signal from the base station to shaded areas or to a region of poor wireless coverage. A repeater is meant to be used in conjunction with a base station.

Photograph 1. Advanced RF Technologies Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band

Radiated & Conducted Emission

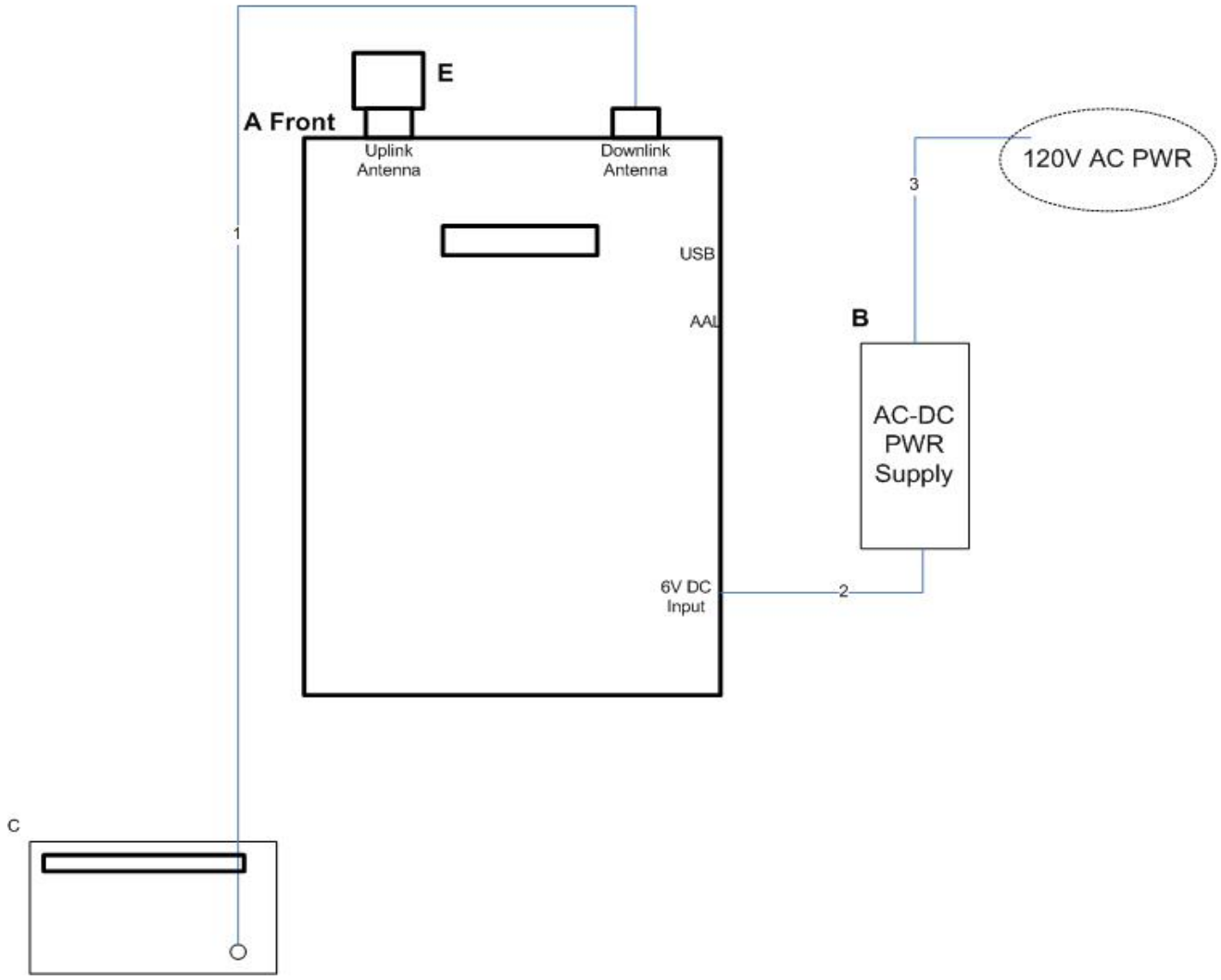


Figure 1. Block Diagram of Test Configuration (Radiated Emissions)

E. Equipment Configuration

The EUT was set up as outlined in Figure 1, Block Diagram of Test Setup. All cards, racks, etc., incorporated as part of the EUT is included in the following list.

Ref. ID	Name / Description	Model Number	Serial Number	Rev. #
A	Repeater	EPOCH-M1C-FF	M1CFF060001	N/A
B	AC-DC PWR SUPPLY, (ENG)	3A-211DN06	0545S	N/A

Table 2. Equipment Configuration

F. Support Equipment

Advanced RF Technologies supplied support equipment necessary for the operation and testing of the Epoch-M1C-AF, Epoch-M1C-BF & Epoch-M1C-FF 800 MHz band. All support equipment supplied is listed in the following Support Equipment List.

Ref. ID	Name / Description	Manufacturer	Model Number	Serial Number
C	Signal Generator	HP	E4432B	US38080117
D	Spectrum Analyzer	HP	E4407B	MY45102898
E	50 Ohms Terminator	Narda	375BNB	07
F	Temperature Chamber	Tenny Engineering	T630	11939-5

Table 3. Support Equipment

* The 'Customer Supplied Calibration Data' column will be marked as either not applicable, not available, or will contain the calibration date supplied by the customer.
** The AC/DC Adapter was use to power the EUT for testing purpose only, will not be sold with radio.

G. Ports and Cabling Information

Ref. ID	Port name on EUT	Cable Description Or Reason For No Cable	Qty.	Length (m)	Shielded?	Termination Box ID & Port ID
Radiated & Conducted Emission						
1	A Front, Downlink	Coax	1	2	Yes	C
2	A , 6V DC Input	DC PWR Cord (18AWG)	1	1	No	B
3	B	AC PWR Cord (18AWG)	1	2	No	AC PWR Outlet
Conducted Measurement (Down-Link)						
1	A Front, Downlink	Coax	1	2	Yes	C
2	A Front, Uplink	Coax	1	2	Yes	D
3	A , 6V DC Input	DC PWR Cord (18AWG)	1	1	No	B
4	B	AC PWR Cord (18AWG)	1	2	No	AC PWR Outlet
Conducted Measurement (Up-Link)						
1	A Front, Uplink	Coax	1	2	Yes	C
2	A Front, Downlink	Coax	1	2	Yes	D
3	A , 6V DC Input	DC PWR Cord (18AWG)	1	1	No	B
4	B	AC PWR Cord (18AWG)	1	2	No	AC PWR Outlet
Spurious Emission (Down-Link)						
1	A Front, Downlink	Coax	1	2	Yes	C
2	A , 6V DC Input	DC PWR Cord (18AWG)	1	1	No	B
3	B	AC PWR Cord (18AWG)	1	2	No	AC PWR Outlet
Spurious Emission (Up-Link)						
1	A Front, Uplink	Coax	1	2	Yes	C
2	A , 6V DC Input	DC PWR Cord (18AWG)	1	1	No	B
3	B	AC PWR Cord (18AWG)	1	2	No	AC PWR Outlet
Frequency Stability (Down-link)						
1	A Front, Downlink	Coax	1	2	Yes	C
2	A , 6V DC Input	DC PWR Cord (18AWG)	1	1	No	B
3	B	AC PWR Cord (18AWG)	1	2	No	AC PWR Outlet

Table 4. Ports and Cabling Information

H. Mode of Operation

There are two path links for the repeater. The downlink or forward link is the RF signal path flow from BTS-Repeater-Handset. While uplink or reverse link path is the RF signal from the Handset-Repeater-BTS.

For each link, the repeater has its own Auto Gain Control circuitry and different layers of amplifiers.

I. Method of Monitoring EUT Operation

A Spectrum Analyzer and a Power Meter was use to monitor the EUT's transmitter channel and power output.

Using the GUI software, the user can monitor any alarms that are generated by the repeater.

J. Modifications

a) Modifications to EUT

No modifications were made to the EUT.

b) Modifications to Test Standard

No modifications were made to the test standard.

K. Disposition of EUT

The test sample including all support equipment submitted to the Electro-Magnetic Compatibility Lab for testing was returned to Advanced RF Technologies upon completion of testing.

III. Electromagnetic Compatibility Criteria for Unintentional Radiators

Electromagnetic Compatibility Criteria for Unintentional Radiators

§ 15.107 Conducted Emissions Limits

Test Requirement(s): **15.107 (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 Table 5. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals."

15.107 (b) "For a Class A digital device 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 Table 5. Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminals. The lower limit applies at the band edges."

Frequency range (MHz)	15.107(b), Class A Limits (dBµV)		15.107(a), Class B Limits (dBµV)	
	Quasi-Peak	Average	Quasi-Peak	Average
0.15- 0.5	79	66	66 - 56	56 - 46
0.5 – 5.0	73	60	56	46
5.0 - 30	73	60	60	50
Note 1 — The lower limit shall apply at the transition frequencies.				

Table 5. Conducted Limits for Radio Frequency Devices calculated from FCC Part 15 Section 15.107(a) (b)

Test Procedures: The EUT was placed on a 0.8m-high wooden table inside a semi-anechoic chamber. The method of testing, test conditions, and test procedures of ANSI C63.4 were used. The EUT was powered through a 50Ω/50µH LISN. An EMI receiver, connected to the measurement port of the LISN, scanned the frequency range from 150 kHz to 30 MHz in order to find the peak conducted emissions. All peak emissions within 6 dB of the limit were measured using a quasi-peak and/or average detector as appropriate.

Test Results: The EUT was found compliant with the Class A requirement(s) of this section. Measured emissions were below applicable limits.

Test Engineer(s): Billy Kwan

Test Date(s): September 22, 2006

Conducted Emissions - Voltage, AC Power, Phase Line (120 VAC, 60 Hz)

FREQ. (MHz)	Corrected Amplitude (dBuV) QP	Limit (dBuV) QP	Results QP	Margin (dB) QP	Corrected Amplitude (dBuV) AVG	Limit (dBuV) AVG	Results AVG	Margin (dB) AVG
0.175	42.67	79	PASS	-36.33	16.2	66	PASS	-49.8
2.95	41.72	73	PASS	-31.28	40.21	60	PASS	-19.79
4.17	36.28	73	PASS	-36.72	33.07	60	PASS	-26.93

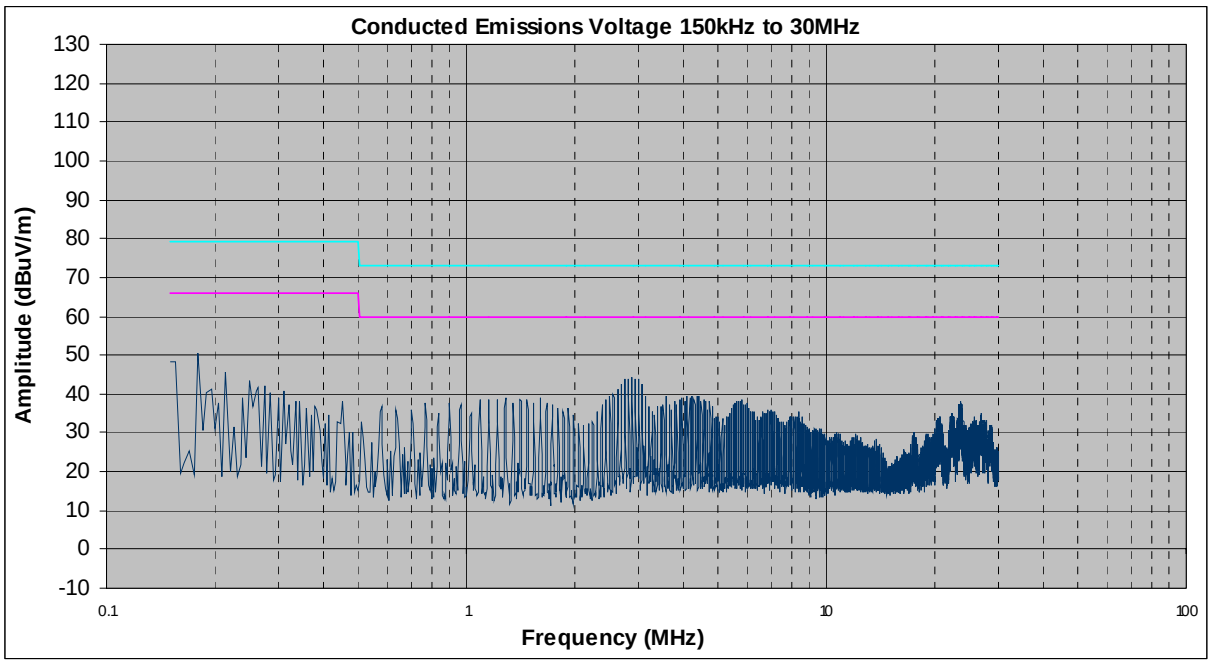
Table 6. Conducted Emissions - Voltage, AC Power, Phase Line (120 VAC, 60 Hz)

Conducted Emissions - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz)

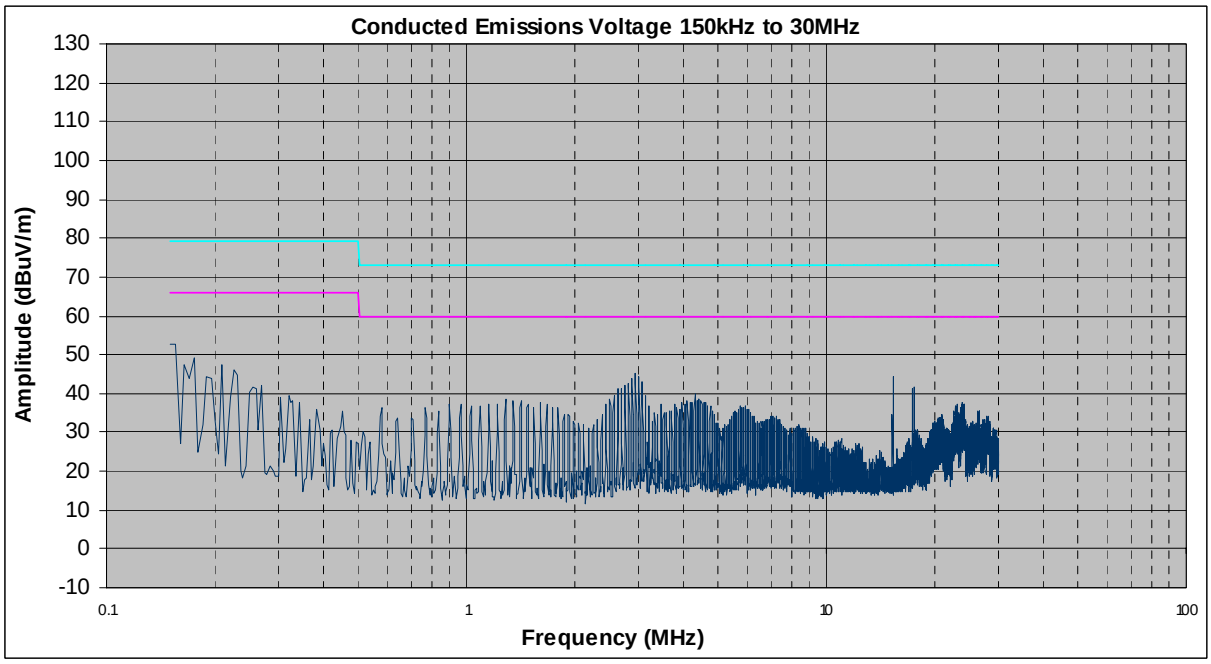
FREQ. (MHz)	Corrected Amplitude (dBuV) QP	Limit (dBuV) QP	Results QP	Margin (dB) QP	Corrected Amplitude (dBuV) AVG	Limit (dBuV) AVG	Results AVG	Margin (dB) AVG
0.15	45.68	79	PASS	-33.32	18.72	66	PASS	-47.28
3.015	40.37	73	PASS	-32.63	38.64	60	PASS	-21.36
4.425	35.94	73	PASS	-37.06	31.87	60	PASS	-28.13

Table 7. Conducted Emissions - Voltage, AC Power, Neutral Line (120 VAC, 60 Hz)

Conducted Emissions - Voltage, Worst Case Emissions, AC Power, (120 VAC, 60 Hz)

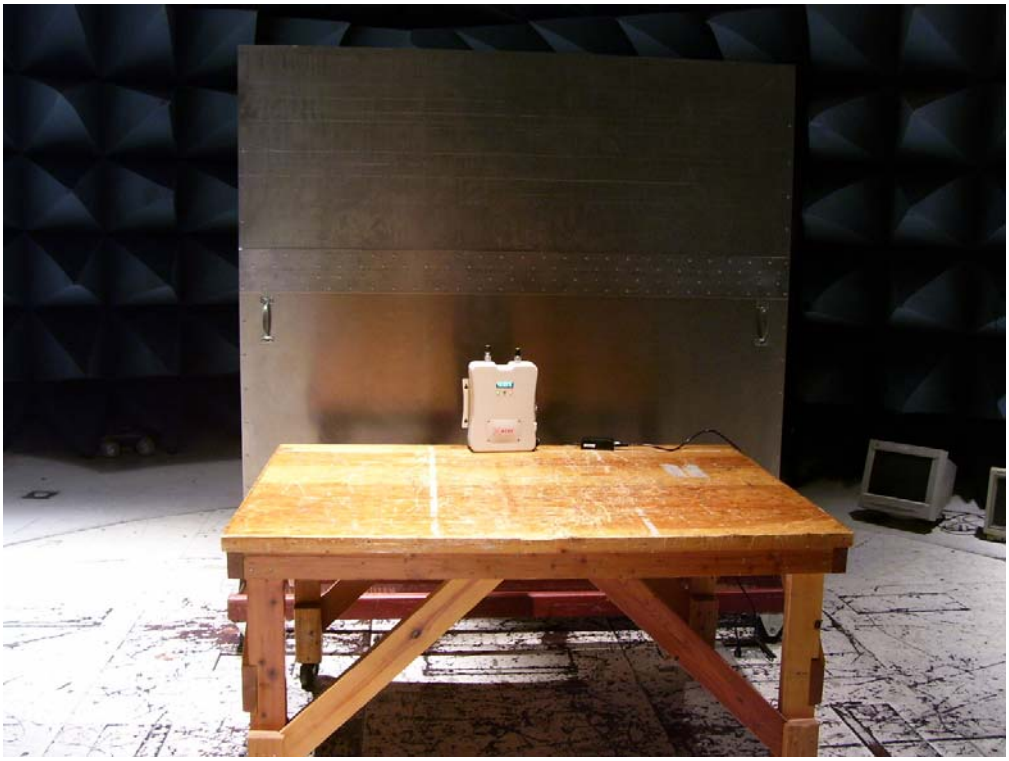


Conducted Emission, Phase Line Plots



Conducted Emission, Neutral Line Plots

Conducted Emission Limits Test Photographs



Photograph 2. Conducted Emissions Test Setup, Front View

Conducted Emission Limits Test Photographs

Photograph 3. Conducted Emissions Test Setup, Back View

Radiated Emission Limits

Test Requirement(s): **15.109 (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 Class A limits expressed in Table 8.

15.109 (b) The field strength of radiated emissions from a Class A digital device, as determined at a distance of 10 meters, shall not exceed the Class A limits expressed in Table 8.

Frequency (MHz)	Field Strength (dBµV/m)	
	§15.109 (b), Class A Limit (dBµV) @ 10m	§15.109 (a),Class B Limit (dBµV) @ 3m
30 - 88	39.00	40.00
88 - 216	43.50	43.50
216 - 960	46.40	46.00
Above 960	49.50	54.00

Table 8. Radiated Emissions Limits calculated from FCC Part 15, §15.109 (a) (b)

Test Procedures: The EUT was placed on a 0.8m-high wooden table inside a semi-anechoic chamber. The method of testing and test conditions of ANSI C63.4 were used. An antenna was located 3 m from the EUT on an adjustable mast. A pre-scan was first performed in order to find prominent radiated emissions. For final emissions measurements at each frequency of interest, the EUT was rotated and the antenna height was varied between 1 m and 4 m in order to maximize the emission. Measurements in both horizontal and vertical polarities were made and the data was recorded. Unless otherwise specified, measurements were made using a quasi-peak detector with a 120 kHz bandwidth.

(Emissions measured at 3m were normalized using an inverse proportionality factor of 20dB per decade for comparison to the 10 m limit.)

Test Results: The EUT was found Compliant with the Class A requirement(s) of this section. Measured emissions were below applicable limits

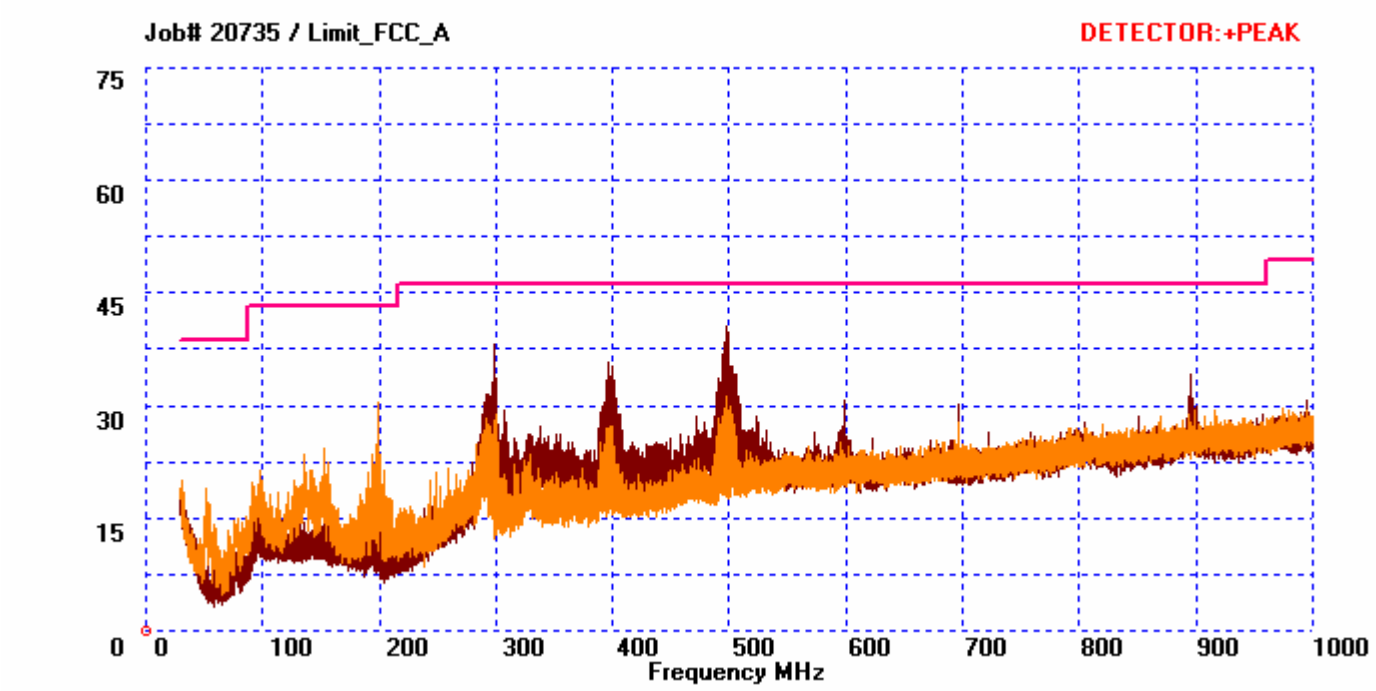
Test Engineer(s): Billy Kwan

Test Date(s): September 22, 2006

Radiated Emissions Limits Test Results, Class A

Frequency (MHz)	Antenna Polarity (H/V)	EUT Azimuth (Degrees)	Antenna Height (m)	Uncorrected Amplitude QP Detector (dBuV)	Antenna Correction Factor (dB/m) (+)	Cable Loss (dB) (+)	Corrected Amplitude (dBuV/m)	Limit (dBuV/m)	Margin (dB)
155.6	V	159	1	8.86	10.24	2.27	21.37	43.50	-22.13
199.04	V	229	1	15.25	9.46	2.52	27.24	43.50	-16.26
298.6	H	65	3.3	22.56	12.81	2.92	38.29	46.40	-8.11
395.56	H	77	2.29	16.66	15.53	3.47	35.67	46.40	-10.73
497.64	H	70	1.81	20.49	17.68	4.02	42.18	46.40	-4.22
897.32	H	0	1	12.37	21.08	5.90	39.35	46.40	-7.05

Table 9. Radiated Emissions Limits Test Results



Radiated Emission Limits Test Setup

Photograph 4. Radiated Emission Limits Test Setup

IV. Electromagnetic Compatibility Criteria for Intentional Radiators

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 15.207 Conducted Emissions Limits

Test Requirement(s): **§ 15.207 (a):** For an intentional radiator 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 30MHz, shall not exceed the limits in the following table, as measured using a 50 μH/50 Σ 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 boundary between the frequency ranges.

Frequency range (MHz)	§ 15.207(a), Conducted Limit (dBμV)	
	Quasi-Peak	Average
* 0.15- 0.45	66 - 56	56 - 46
0.45 - 0.5	56	46
0.5 - 30	60	50

Table 10. Conducted Limits for Intentional Radiators from FCC Part 15 § 15.207(a)

Electromagnetic Compatibility Criteria for Intentional Radiators

§ 2.1046 RF Power Output

Test Requirements: **§ 2.1046 Measurements required: RF power output:**

§ 2.1046 (a) For transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in § 2.1033(c)(8).The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

§ 2.1046 (b) For single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters, the procedure specified in paragraph (a) of this section shall be employed and, in addition, the transmitter shall be modulated during the test as specified and as applicable in § 2.1046 (b) (1-5). In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

§ 2.1046 (c) For measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

§ 22.913 Power and antenna height limits.

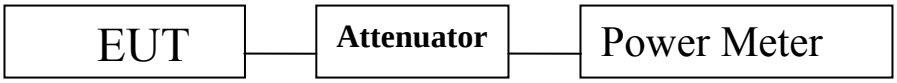
§ 22.913(a): The Effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 watts.

Test Procedures: As required by 47 CFR 2.1046, RF power output measurements were made at the RF output terminals using an attenuator and spectrum analyzer or power meter. This test was performed in all applicable modulations.

Test Results: The EUT complies with the requirements of this section. The EUT conducted power does not exceed limit at the carrier frequency.

Test Engineer(s): Shawn McMillen

Test Date(s): September 21, 2006



Block Diagram 1. RF Power Output Test Setup

RF Power Output Test Results

Downlink				
CDMA Modulation	**Frequency (MHz)**	**Input Power dBm**	**Modulated Output Power dBm**	**Peak Output Power dBm**
Low	869.625	-60.3	20.01	28.50
Mid	881.500	-60.7	20.03	28.90
High	893.375	-59.4	19.99	28.81

Uplink				
CDMA Modulation	**Frequency (MHz)**	**Input Power dBm**	**Modulated Output Power dBm**	**Peak Output Power dBm**
Low	824.625	-56.2	20.05	29.52
Mid	836.500	-57.2	20.07	29.41
High	848.375	-55.7	20.05	28.88

Downlink				
GSM Modulation	**Frequency (MHz)**	**Input Power dBm**	**Modulated Output Power dBm**	**Peak Output Power dBm**
Low	869.12	-56.6	20.14	22.72
Mid	881.50	-56.7	20.07	22.54
High	893.88	-55.9	20.93	23.04

Uplink				
GSM Modulation	**Frequency (MHz)**	**Input Power dBm**	**Modulated Output Power dBm**	**Peak Output Power dBm**
Low	824.12	-53.3	20.12	22.52
Mid	836.50	-56.7	20.00	21.78
High	848.88	-53.0	20.08	22.33

RF Power Output Test Results

Downlink				
TDMA Modulation	**Frequency (MHz)**	**Input Power dBm**	**Modulated Output Power dBm**	**Peak Output Power dBm**
Low	869.12	-57.4	19.42	23.22
Mid	881.50	-57.2	20.05	23.74
High	893.88	-56.7	20.03	23.68

Uplink				
TDMA Modulation	**Frequency (MHz)**	**Input Power dBm**	**Modulated Output Power dBm**	**Peak Output Power dBm**
Low	824.12	-53.5	20.00	23.62
Mid	836.50	-56.8	20.01	23.45
High	848.88	-53.0	20.04	23.64

§ 2.1049 Occupied Bandwidth

Test Requirement(s): **§ 2.1049 Measurements required: Occupied bandwidth:** The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the specified conditions of § 2.1049 (a) through (i) as applicable.

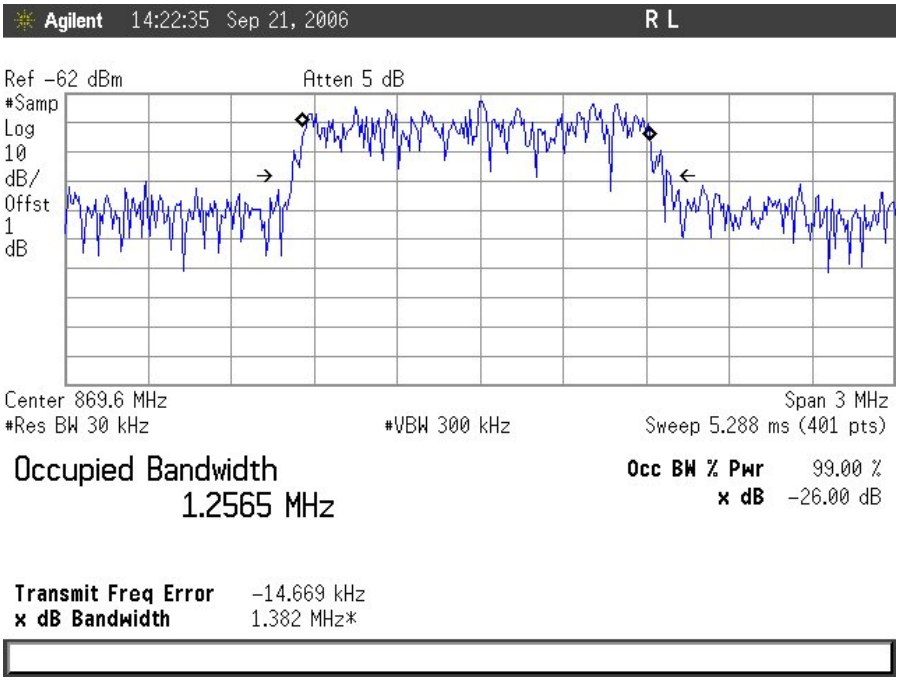
Test Procedures: As required by 47 CFR 2.1049, *occupied bandwidth measurements* were made with a Spectrum Analyzer connected to the RF ports for both Uplink and Downlink

The modulation characteristics of signal generator's carrier was measured first at a maximum RF level prescribed by the OEM. The signal generator was then connected to either the Uplink or Downlink input at the appropriate RF level. The resulting modulated signal through the EUT was measured and compared against the original signal.

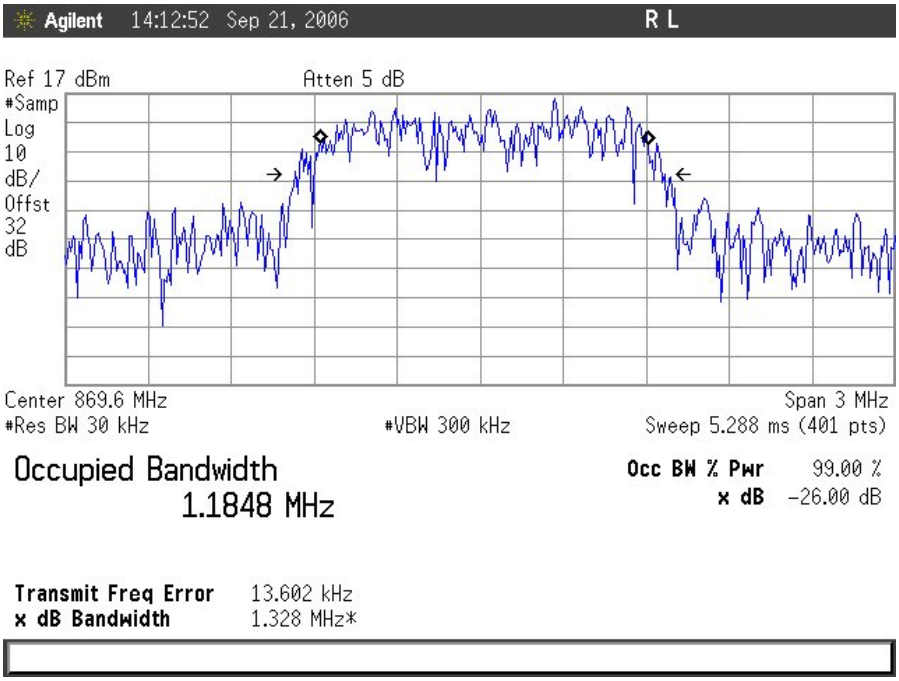
Test Results: The EUT complies with the requirements of this section.

Test Engineer(s): Shawn McMillen

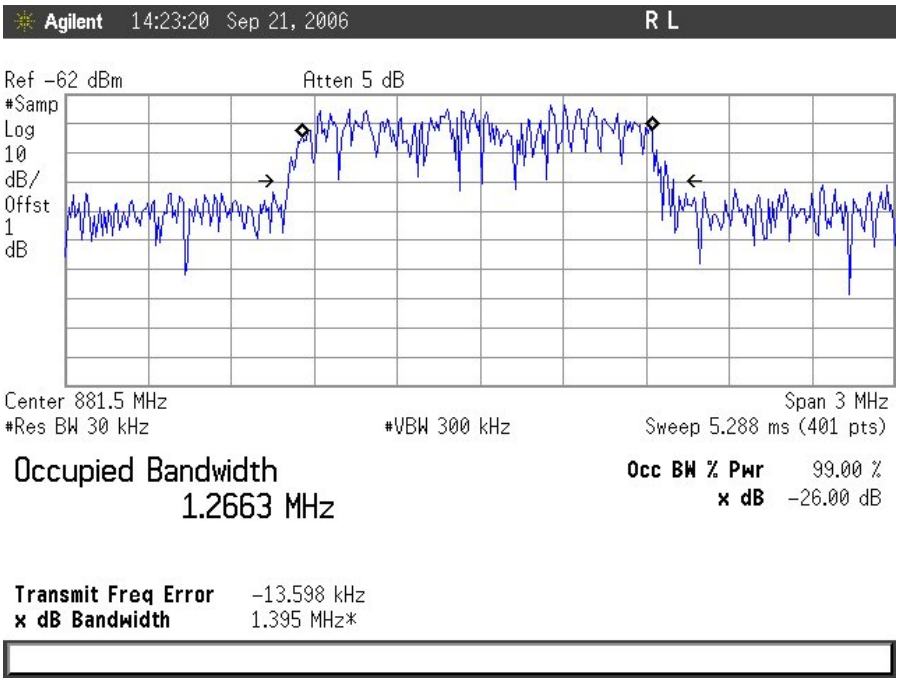
Test Date(s): September 21, 2006



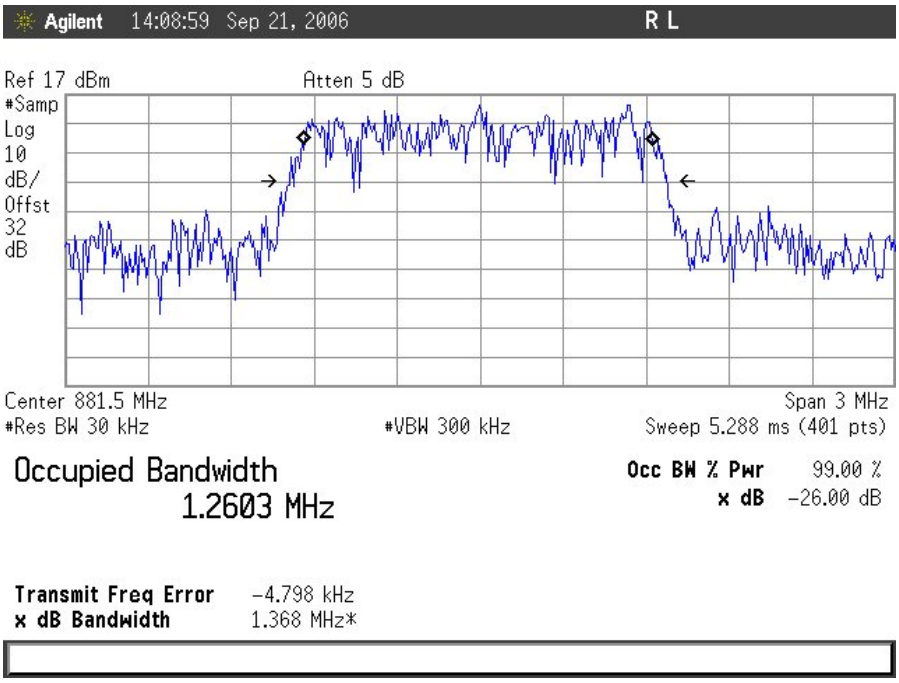
CDMA Downlink Input (Low Channel)



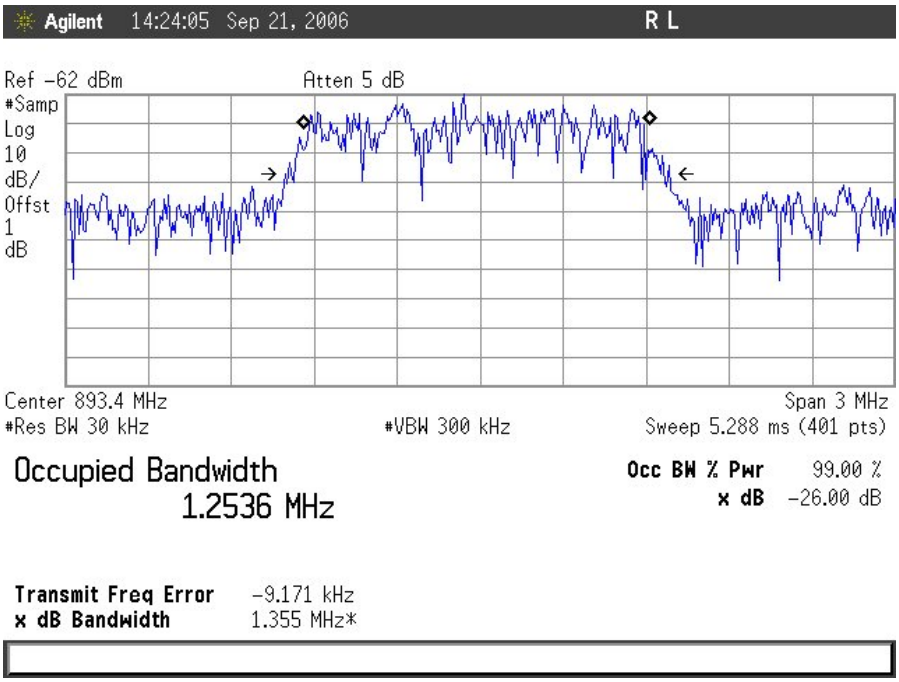
CDMA Downlink Output (Low Channel)



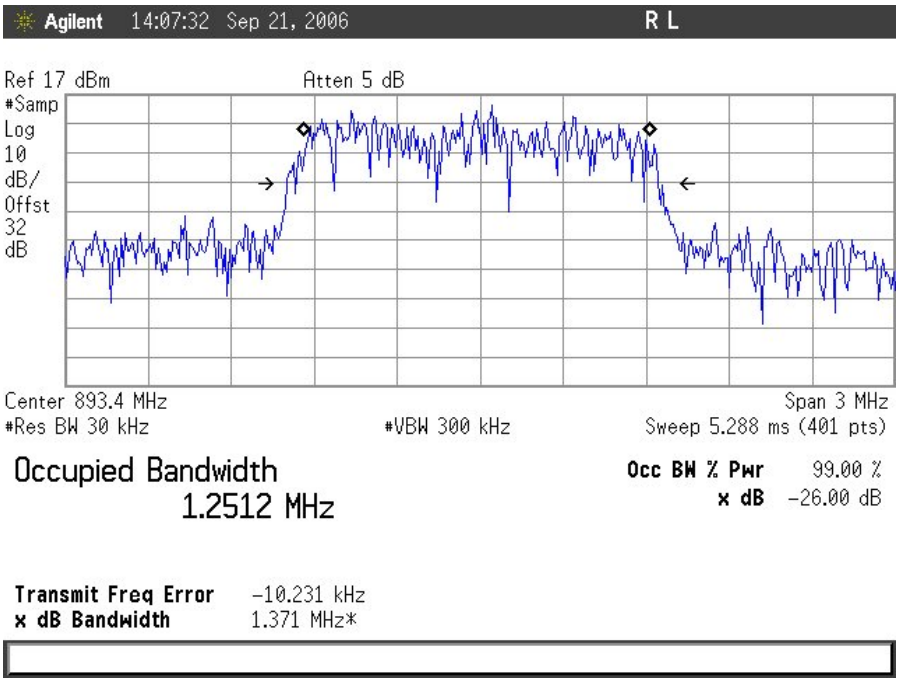
CDMA Downlink Input (Mid Channel)



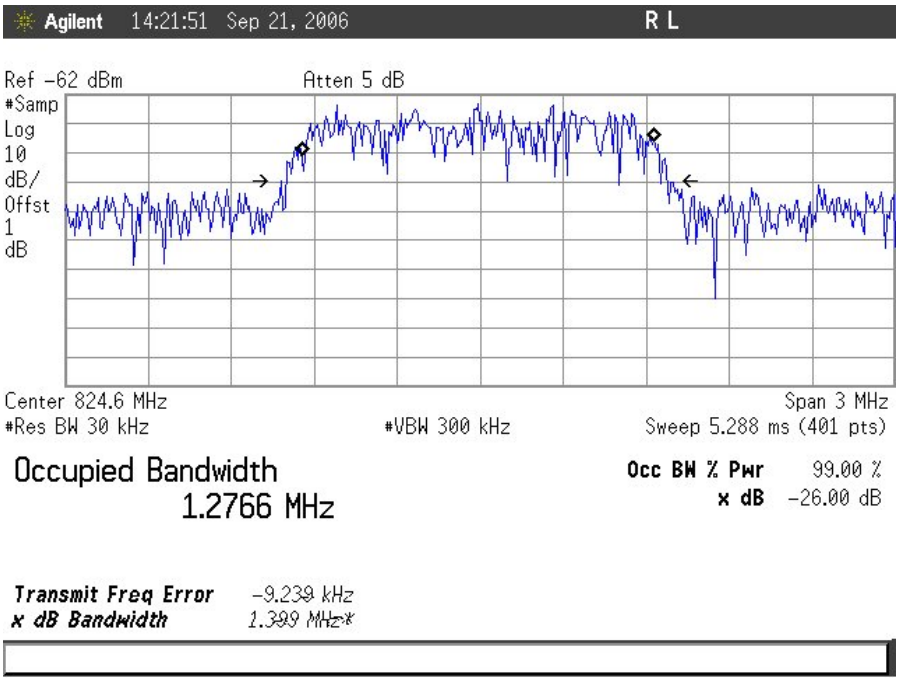
CDMA Downlink Output (Mid Channel)



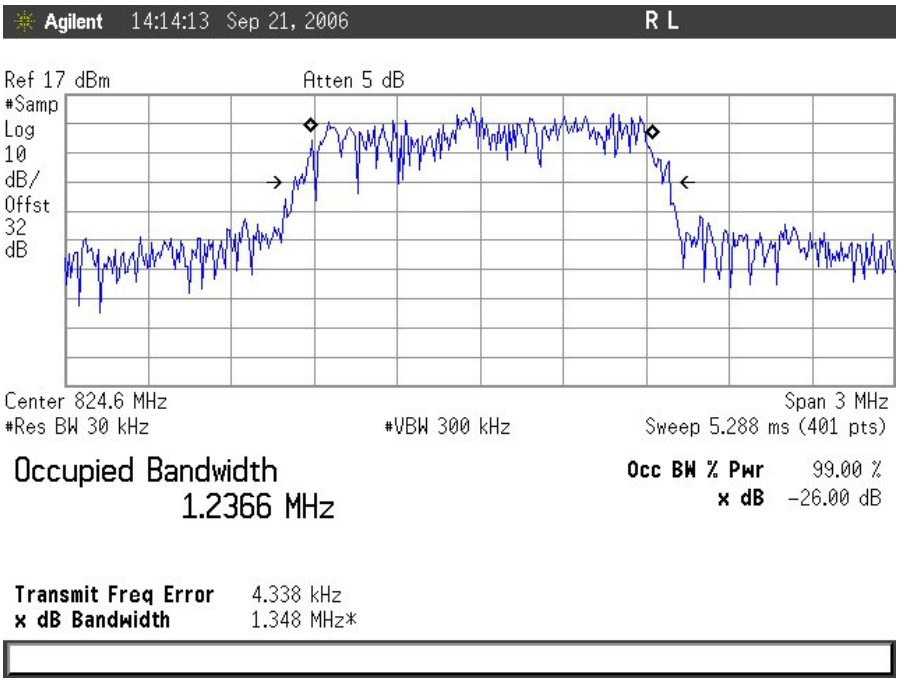
CDMA Downlink Input (High Channel)



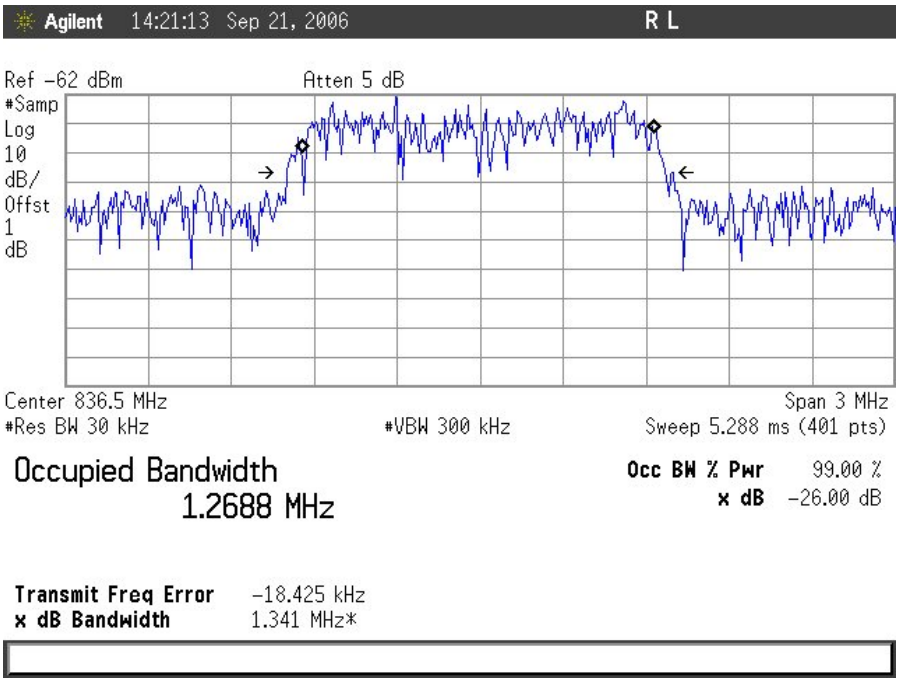
CDMA Downlink Output (High Channel)



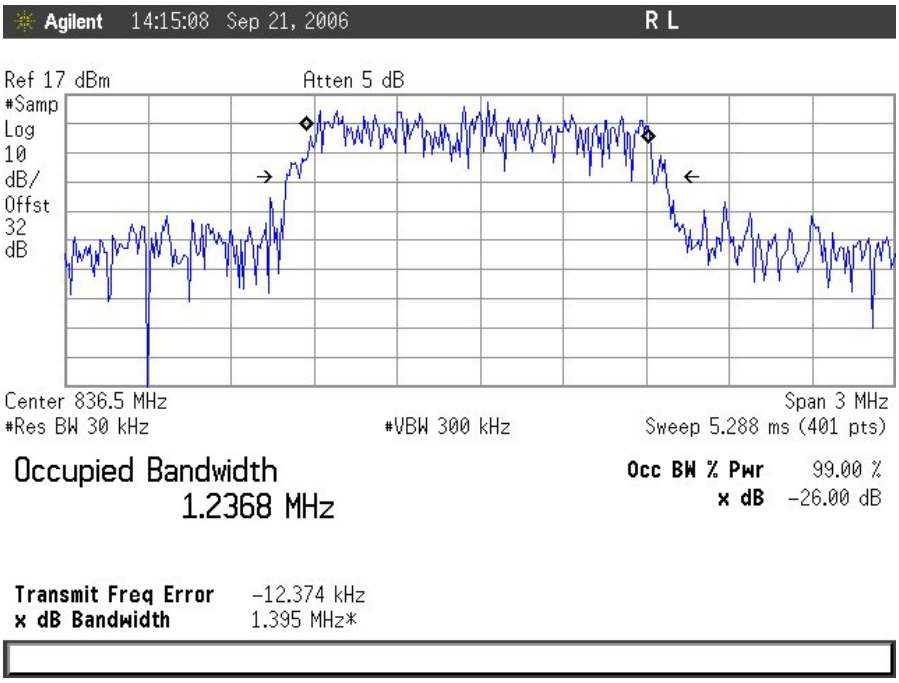
CDMA Uplink Input (Low Channel)



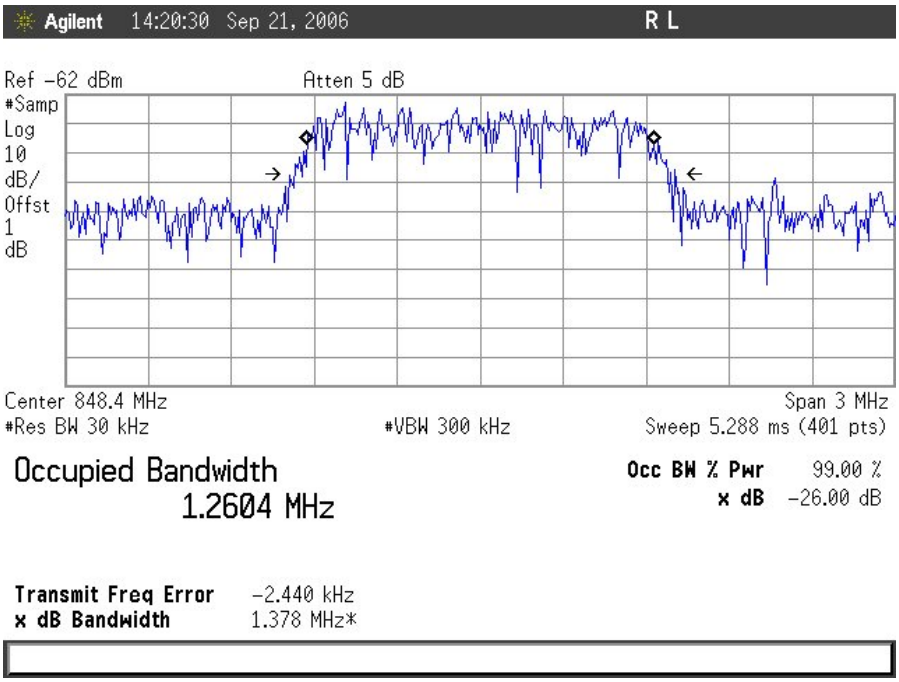
CDMA Uplink Output (Low Channel)



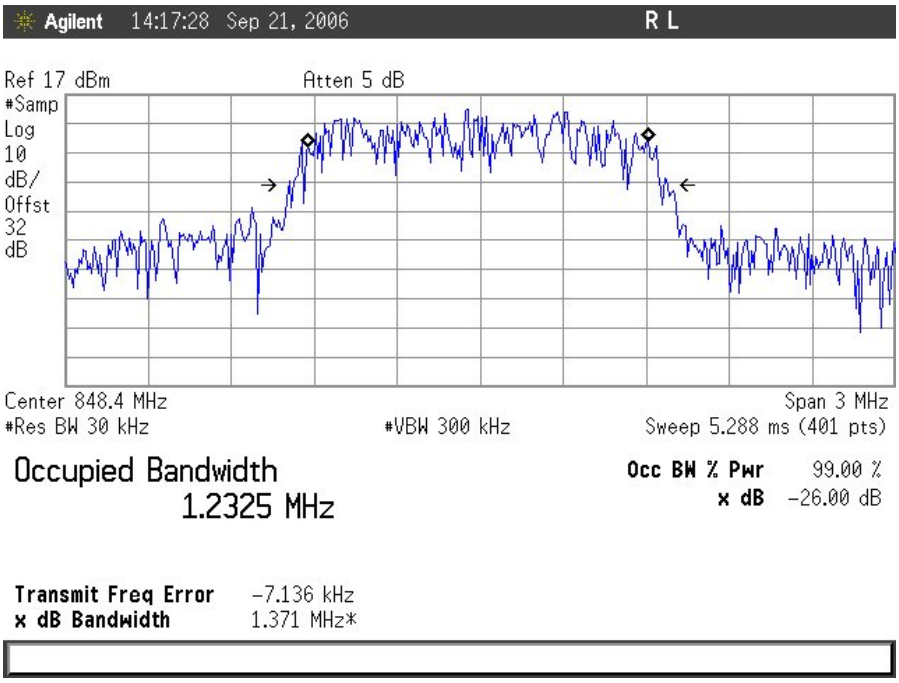
CDMA Uplink Input (Mid Channel)



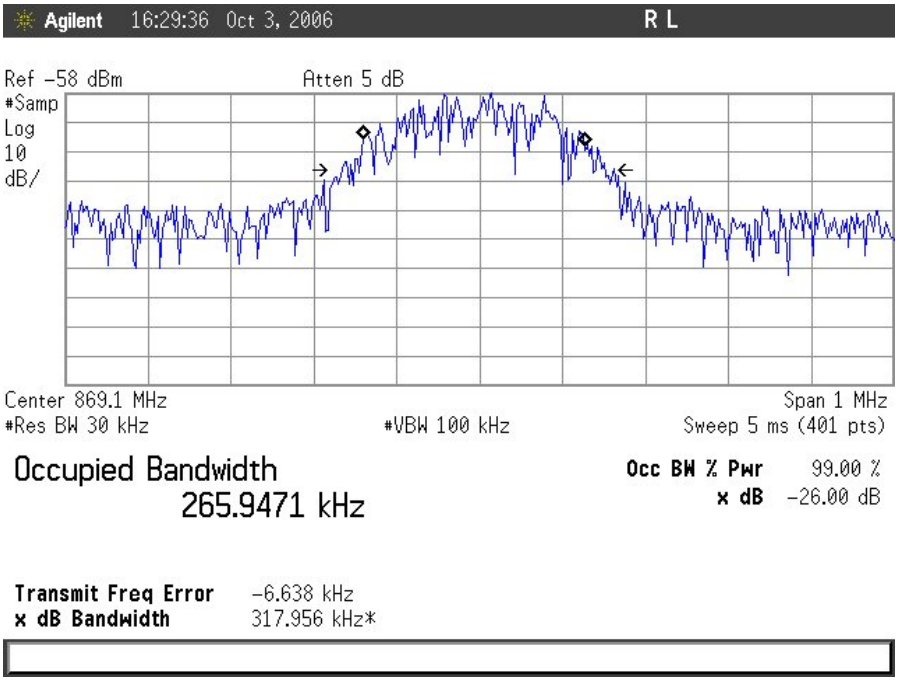
CDMA Uplink Output (Mid Channel)



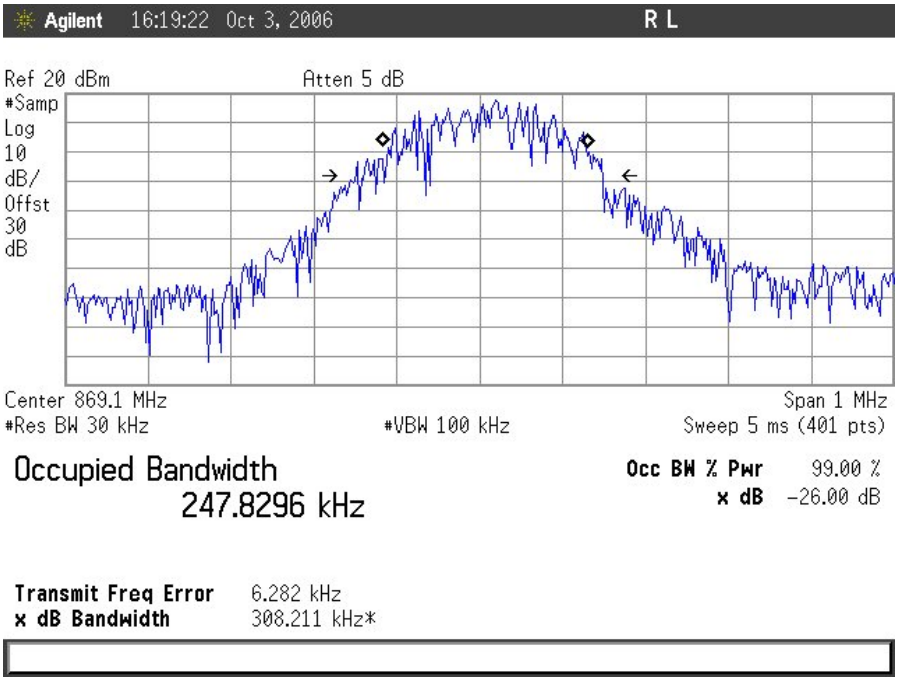
CDMA Uplink Input (High Channel)



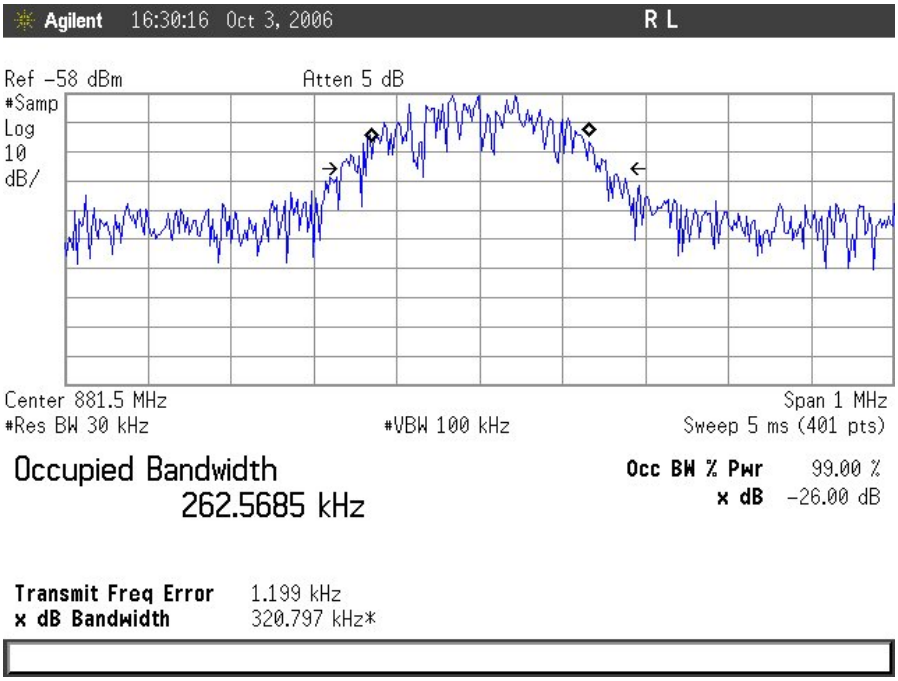
CDMA Uplink Output (High Channel)



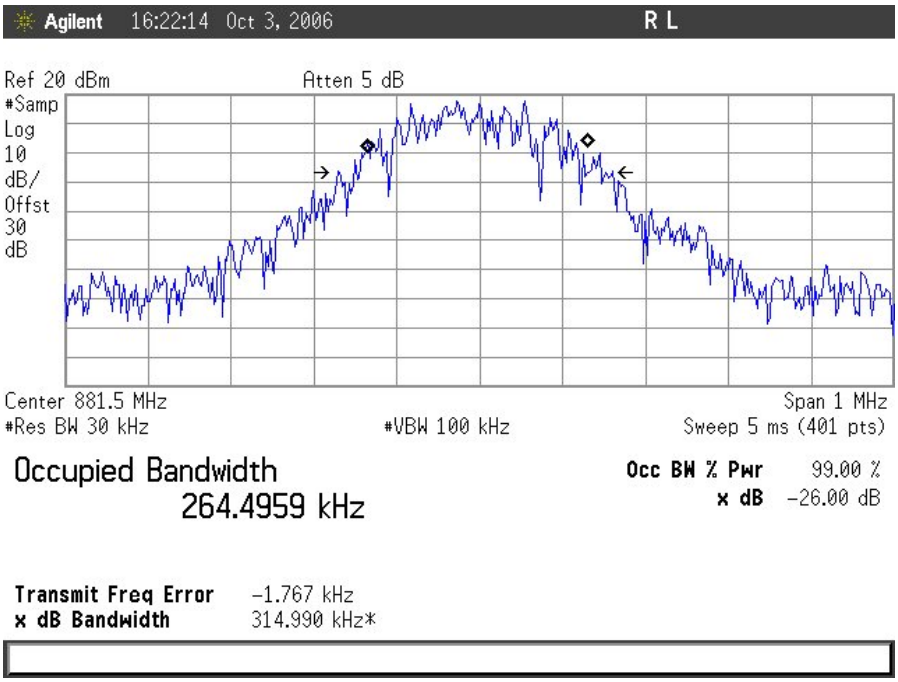
GSM Downlink Input (Low Channel)



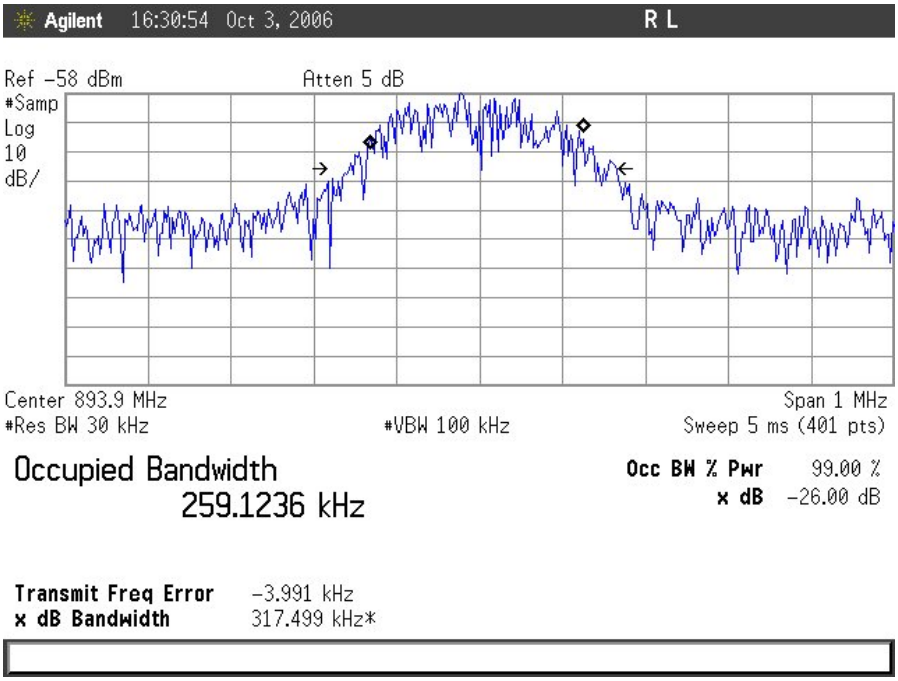
GSM Downlink Output (Low Channel)



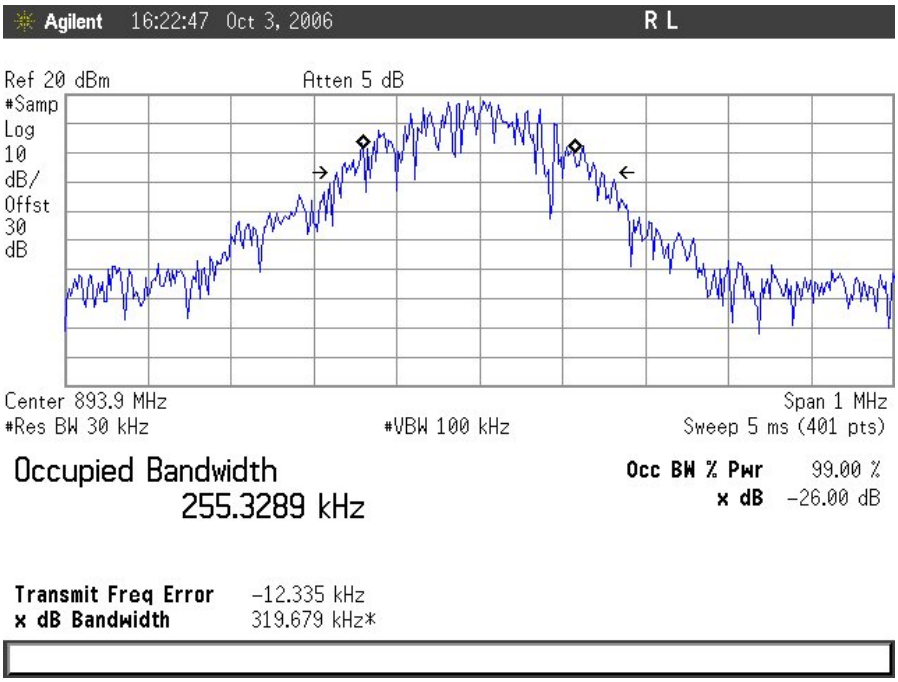
GSM Downlink Input (Mid Channel)



GSM Downlink Output (Mid Channel)



GSM Downlink Input (High Channel)



GSM Downlink Output (High Channel)