

FCC PART 22, 24 TYPE APPROVALS  
EMI MEASUREMENT AND TEST REPORT

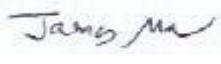

For

**AnyDATA Corporation**

18902 Bardeen Ave.  
Irvine, CA 92612

**FCC ID: P4MAGT100D**

**Model: AGT-100D**

<b>This Report Concerns:</b> <input checked="" type="checkbox"/> Original Report	<b>Product Type:</b> CDMA AGPS Tracker
<b>Test Engineer:</b> James Ma 	
<b>Report No.:</b> R0607263	
<b>Report Date:</b> 2006-08-10	
<b>Reviewed By:</b> Lab Manager: Samuil Lisinker 	
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## GENERAL INFORMATION

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### Product Description for Equipment Under Test (EUT)

The *AnyDATA Corporation.*'s product, FCC ID: *P4MAGT100D* or the "EUT" as referred to in this report is a dual-band device that operates on both Code Division Multiple Access (CDMA) frequencies: cellular services at 800 MHz, and Personal Communication Services (PCS) at 1.9 GHz. Also features soft/softer handoff, hard handoff, and dynamic RF power control technologies to reduce call interruptions.

Approximate measurement is: 81mmL x 47 mmW x 20.5mmH

*\* The test data gathered are from typical production sample, serial number: 001, provided by the manufacturer. Please see EUT photos on page 35.*

### EUT Photo:



Please see additional photos in Exhibit C

### Objective

This type approval report is prepared on behalf of *AnyDATA Corporation* in accordance with Part 2, Subpart J, Part 22 Subpart H, and Part 24 Subpart E 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.

### 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  
Part 24 Subpart E - PCS

Applicable Standards: TIA EIA 98-C, TIA603-C, ANSI C63.4-2003.

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

### **Test Facility**

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

Test site at BACL Corp. has 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 test methods and procedures set forth in ANSI C63.4-2003& TIA/EIA-603.

The Federal Communications Commission and Voluntary Control Council for Interference has the reports on file and is listed under FCC registration number: 90464 and VCCI Registration No.: C-1298 and R-1234. The test site has been approved by the FCC 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 is attached hereinafter and can also be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2001670.htm>

## **SYSTEM TEST CONFIGURATION**

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### **Justification**

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

The final qualification test was performed with the EUT operating at normal mode.

### **Equipment Modifications**

No modifications were made to the EUT.

### **Local Support Equipment List and Details**

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>
Dell	Laptop	Inspiron 300M	CN-0X0024-36521-377-00F

### **Interface Ports and Cabling**

<b>Cable Description</b>	<b>Length (M)</b>	<b>From</b>	<b>To</b>
RS-232C Cable w/ Power Adaptor Connector	0.4	AC Power supply	EUT

## **SUMMARY OF TEST RESULTS**

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<b>FCC RULE</b>	<b>DESCRIPTION OF TEST</b>	<b>RESULT</b>
§ 2.1047	Modulation Characteristics	Compliant
§ 2.1053	Field Strength of Spurious Radiation	Compliant
§2.1093	RF Exposure	*Compliant
§ 2.1046, § 22.912 (d) § 24.232	RF Output Power	Compliant
§ 2.1049 § 22.917 § 22.905 § 24.238	Out of Band Emission, Occupied Bandwidth	Compliant
§ 2.1051, § 22.917 § 24.238(a)	Spurious Emissions at Antenna Terminals	Compliant
§ 2.1055 (a) § 2.1055 (d) § 22.355 § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Compliant
§ 22.917 §24.238	Band Edge	Compliant

\* Please refer to the SAR report.

## **§2.1047 - MODULATION CHARACTERISTIC**

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### **Applicable Standard**

According to FCC § 2.1047(d), part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

## §2.1053 - SPURIOUS RADIATED EMISSIONS

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### Applicable Standard

Requirements: CFR 47, § 2.1053.

### 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 =  $10 \lg(\text{TXpwr in Watts}/0.001)$  – the absolute level

Spurious attenuation limit in dB =  $43 + 10 \text{Log}_{10}(\text{power out in Watts})$

### Environmental Conditions

Temperature:	18° C
Relative Humidity:	55%
ATM Pressure:	1020mbar

\* The testing was performed by James Ma on 2006-08-02.

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	3/6/2006
HP	Amplifier, Pre	8447D	2944A10198	8/17/2005
HP	Amplifier, Pre, Microwave	8449B	3147A00400	8/10/2005
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	4/20/2006
HP	Generator, Signal	83650B	3614A00276	5/10/2006
A.R.A.	Antenna, Horn	DRG-118/A	1132	8/17/2005

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



## Test Result

Worst case reading as follows:

Cellular Band, Part22:

**-11.0 dB** at **1673.04 MHz** in the **Vertical** polarization

PCS Band, Part24:

**-15.9 dB** at **3760.00 MHz** in the **Vertical** polarization

### Run # 1 : 30MHz -10GHz Cellular Band Mid Channel

Indicated		Table	Test Antenna		Substituted		Antenna Gain Correction	Cable Loss dB	Absolute Level dBm	Limit dBm	Margin dB
Frequency MHz	Ampl. dBuV/m	Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm					
1673.04	77.90	170	1.8	V	1673.04	-31.40	8.7	1.3	-24.0	-13	-11.0
1673.04	71.68	160	2.4	H	1673.04	-35.50	8.7	1.3	-28.1	-13	-15.1
2509.56	45.60	140	1.5	V	2509.56	-41.30	9.5	1.6	-33.4	-13	-20.4
3346.08	42.91	140	1.9	H	3346.08	-50.00	10.2	2.2	-42.0	-13	-29.0
3346.08	45.40	180	1.6	V	3346.08	-53.60	10.2	2.2	-45.6	-13	-32.6
2509.56	42.60	140	1.8	H	2509.56	-54.80	9.5	1.6	-46.9	-13	-33.9

### Run # 2 : 30MHz -20GHz PCS Band Mid Channel

Indicated		Table	Test Antenna		Substituted		Antenna Gain Correction	Cable Loss dB	Absolute Level dBm	Limit dBm	Margin dB
Frequency MHz	Ampl. dBuV/m	Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm					
3760.00	64.36	90	1.0	V	3760.00	-37.10	10.5	2.3	-28.9	-13	-15.9
3760.00	62.24	80	2.0	H	3760.00	-40.00	10.5	2.3	-31.8	-13	-18.8
5640.00	40.40	90	1.8	V	5640.00	-54.60	10.4	3.1	-47.3	-13	-34.3
5640.00	39.10	90	1.8	H	5640.00	-56.10	10.4	3.1	-48.8	-13	-35.8

## **§2.1046, §22.913(a), & §24.232 – RF OUTPUT POWER**

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### **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.

According to FCC §2.1046 and §24.232 (a), in no case may the peak output power of a base station transmitter exceed 2 watt.

### **Test Procedure**

*Conducted:*

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

### **Environmental Conditions**

Temperature:	19° C
Relative Humidity:	58%
ATM Pressure:	1018mbar

*\* The testing was performed by James Ma on 2006-08-02.*

### **Test Equipment List and Details**

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Cal. Date</b>
Agilent	Analyzer, Spectrum	E4446A	US44300386	2006-03-06

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

## Test Results

### Cellular band, Part22:

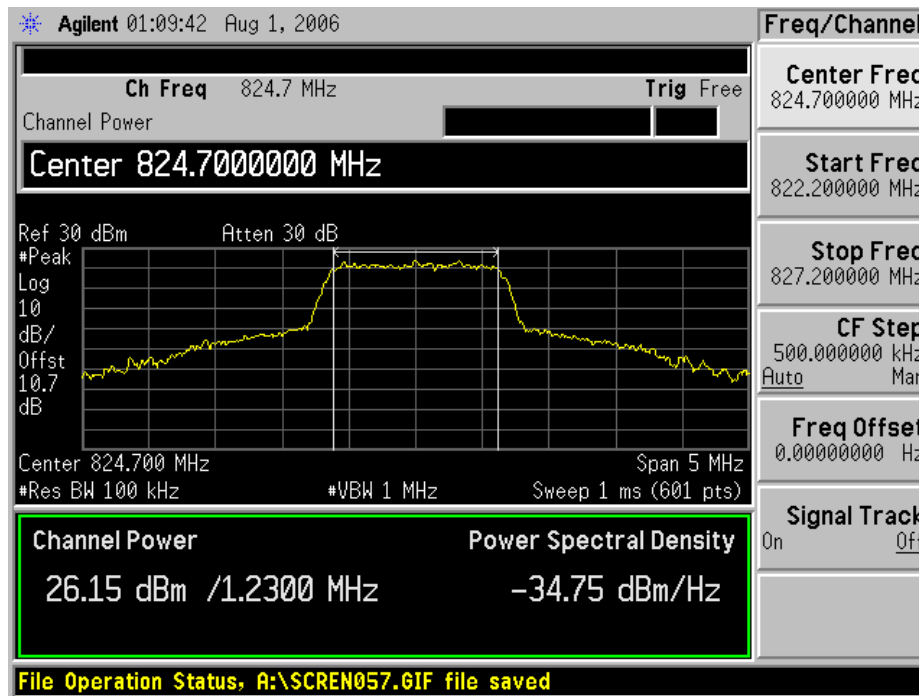
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Output Power in dBm</b>	<b>Output Power in W</b>	<b>Antenna in dBi</b>	<b>Limit in W</b>
<b>LOW</b>	824.70	26.15	0.412	0	7
<b>MIDDLE</b>	836.52	26.03	0.400	0	7
<b>HIGH</b>	848.30	25.96	0.394	0	7

### PCS band, Part24:

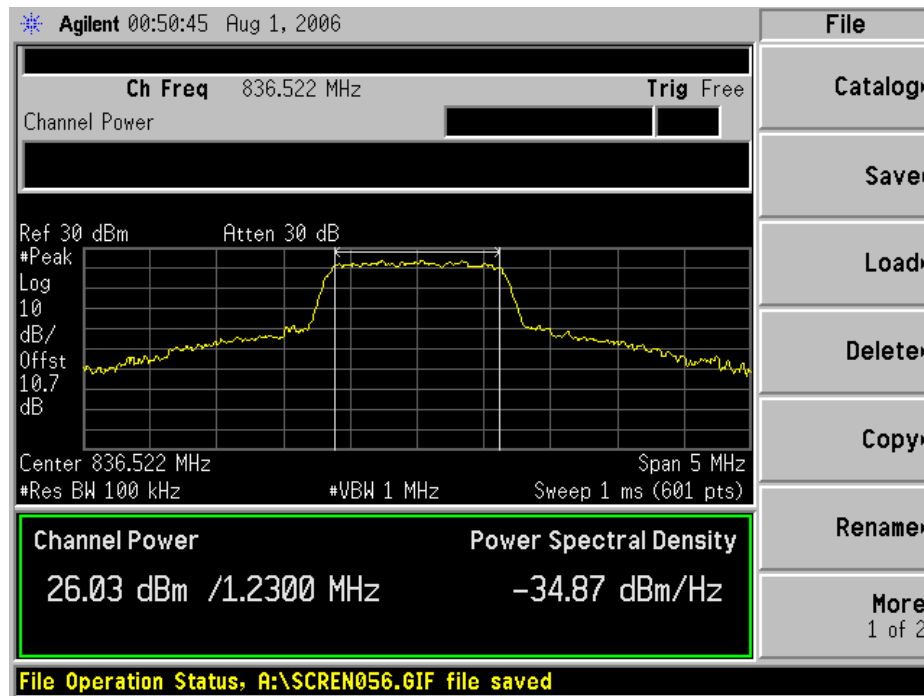
<b>Channel</b>	<b>Frequency (MHz)</b>	<b>Output Power in dBm</b>	<b>Output Power in W</b>	<b>Antenna in dBi</b>	<b>Limit in W</b>
<b>LOW</b>	1851.25	26.24	0.421	0	2
<b>MIDDLE</b>	1880.00	26.14	0.411	0	2
<b>HIGH</b>	1908.75	26.27	0.424	0	2

Plots of Conducted Output Power for Part 22

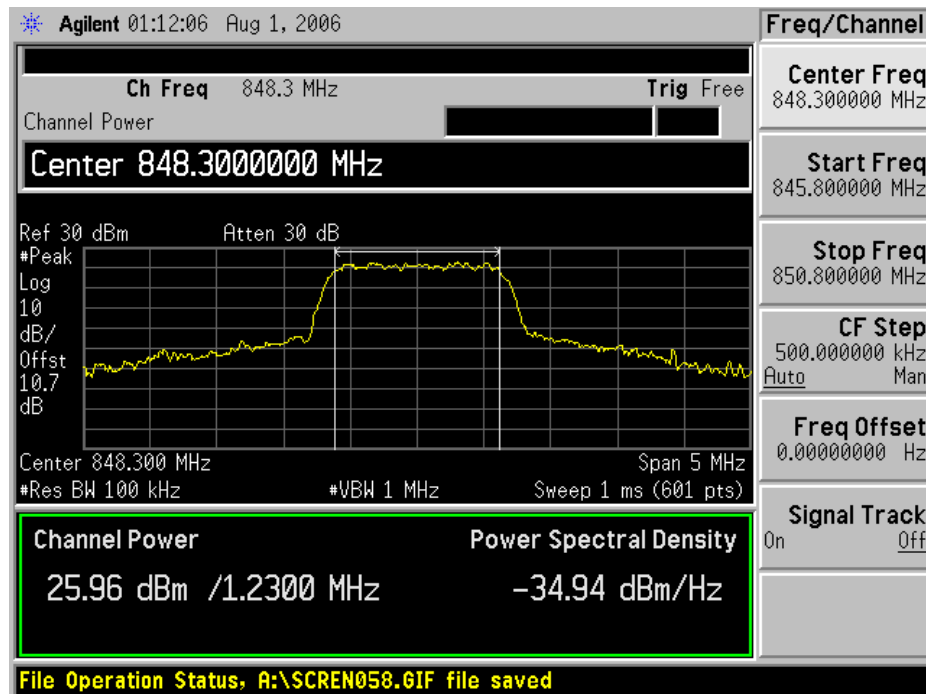
Low Channel



Middle Channel

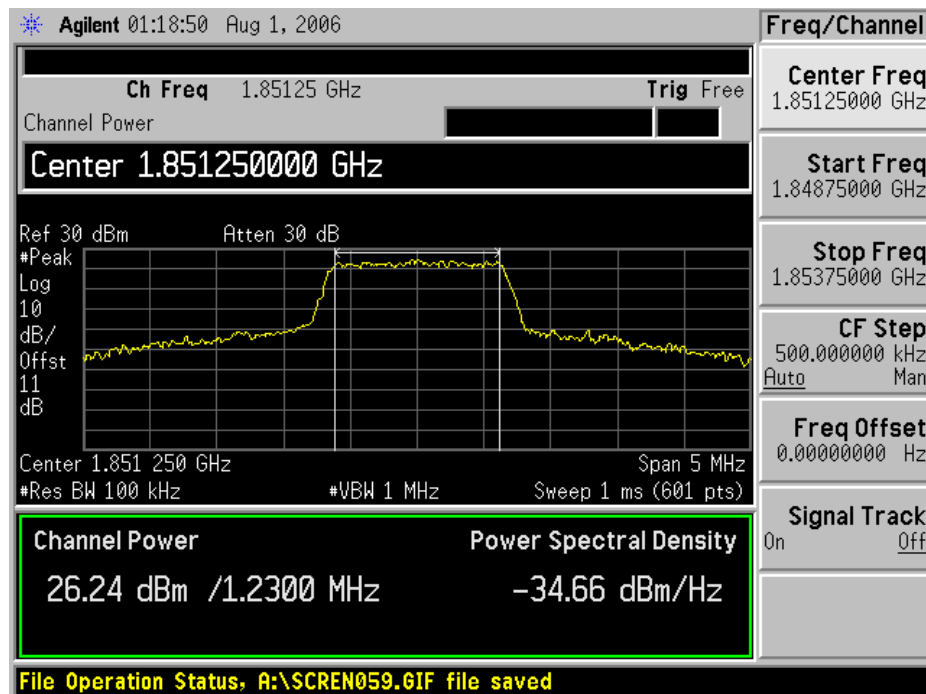


## High Channel

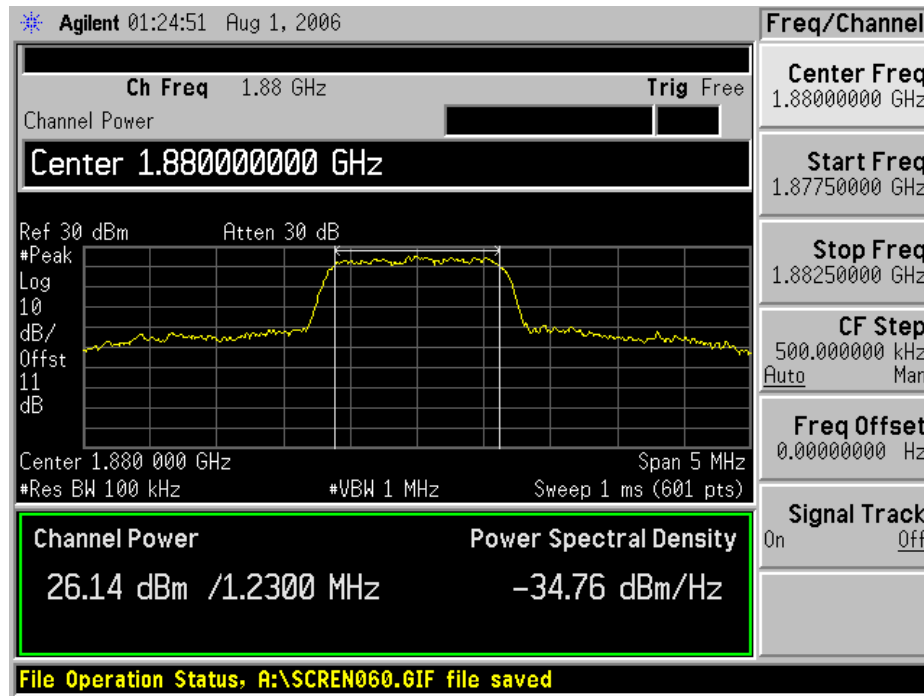


## Plots of Conducted Output Power for Part 24

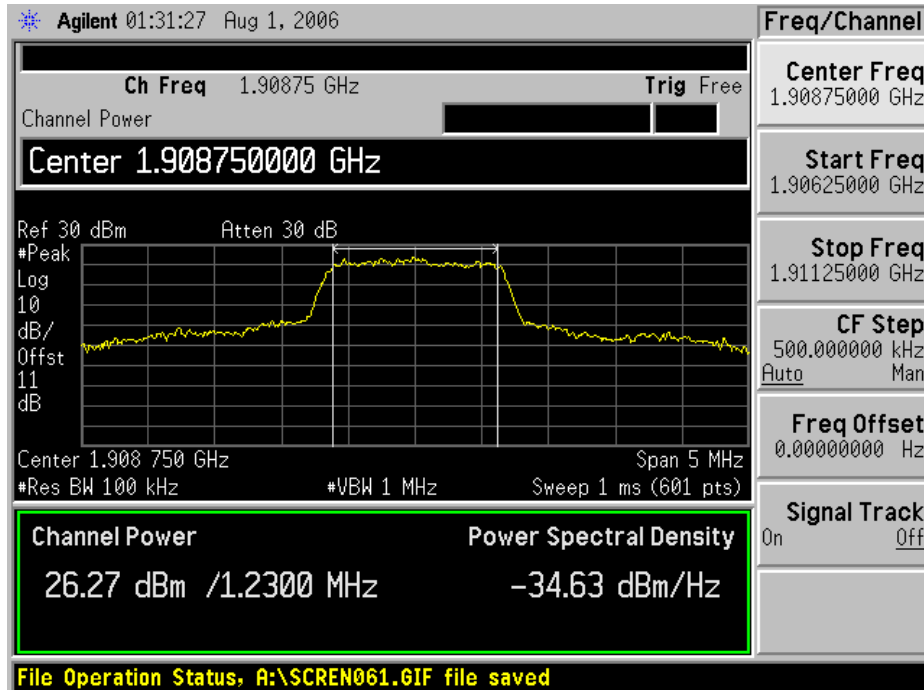
### Low Channel



Middle Channel



High Channel



## **§2.1049, §22.917, §22.905, & §24.238 - OCCUPIED BANDWIDTH**

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### **Applicable Standard**

Requirements: CFR 47, Section 2.1049, Section 22.901, Section 22.917 and Section 24.238.

### **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 & 99% bandwidth was recorded.

### **Environmental Conditions**

Temperature:	19° C
Relative Humidity:	58%
ATM Pressure:	1018 mbar

*\* The testing was performed by James Ma on 2006-08-02.*

### **Test Equipment List and Details**

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Cal. Date</b>
Agilent	Analyzer, Spectrum	E4446A	US44300386	2006-03-06

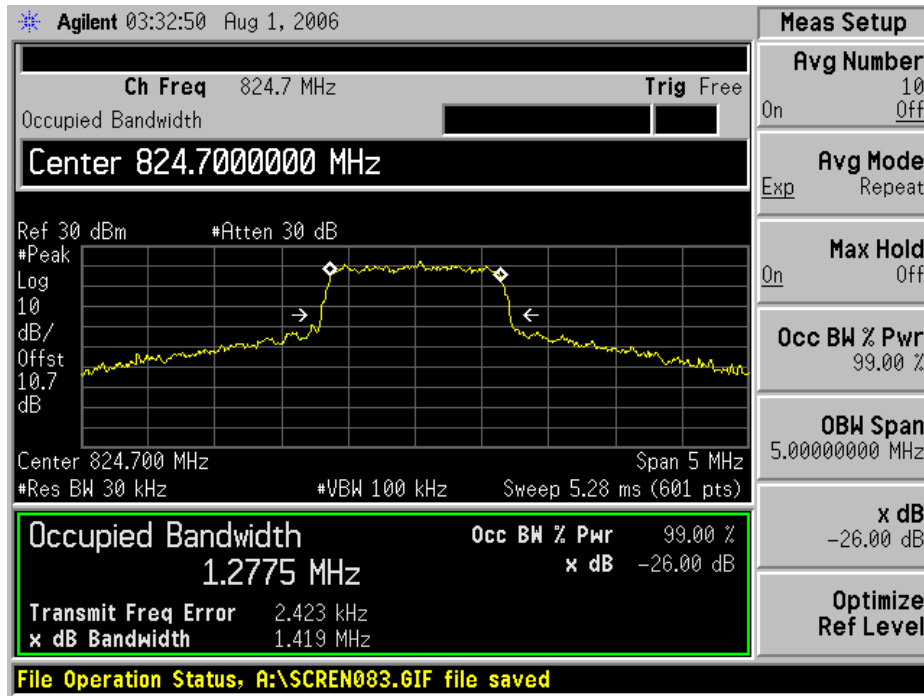
**\* Statement of Traceability: BACL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

### **Test Results**

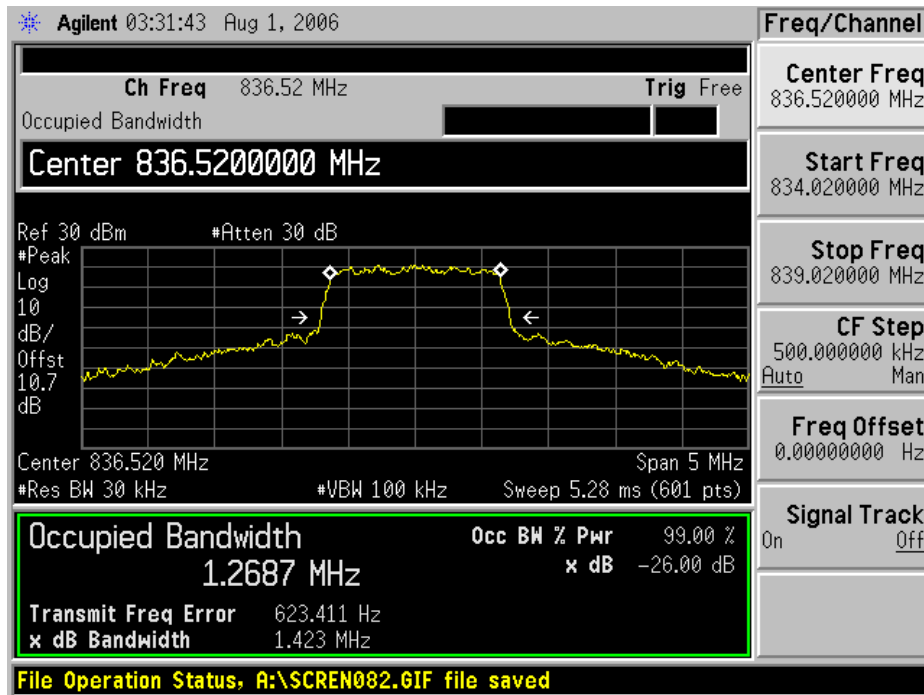
Please refer to the following plots.

Plots of Occupied Bandwidth for Part22

Low Channel

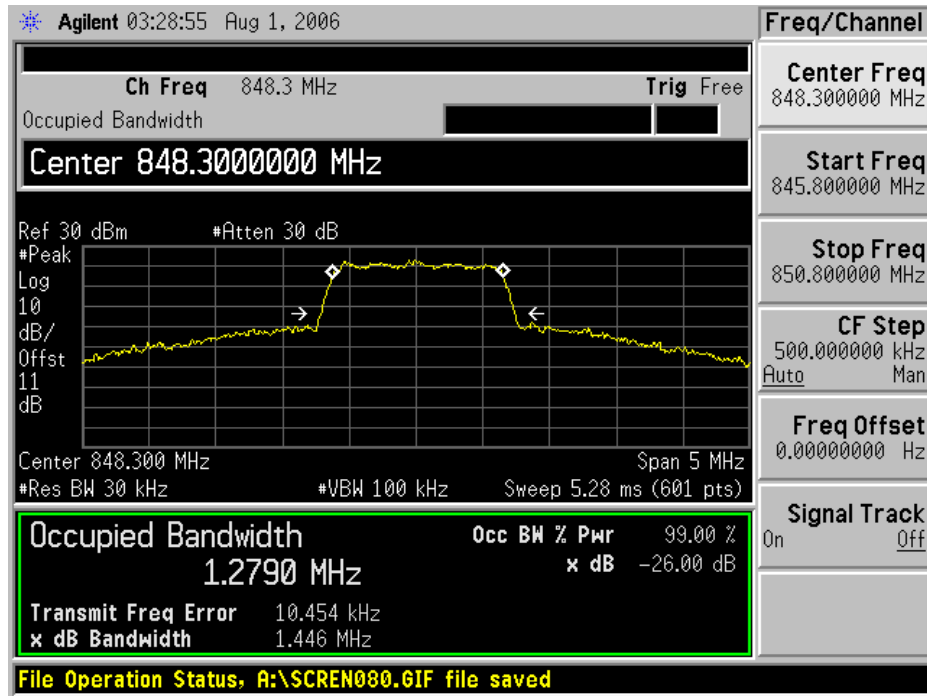


Middle Channel



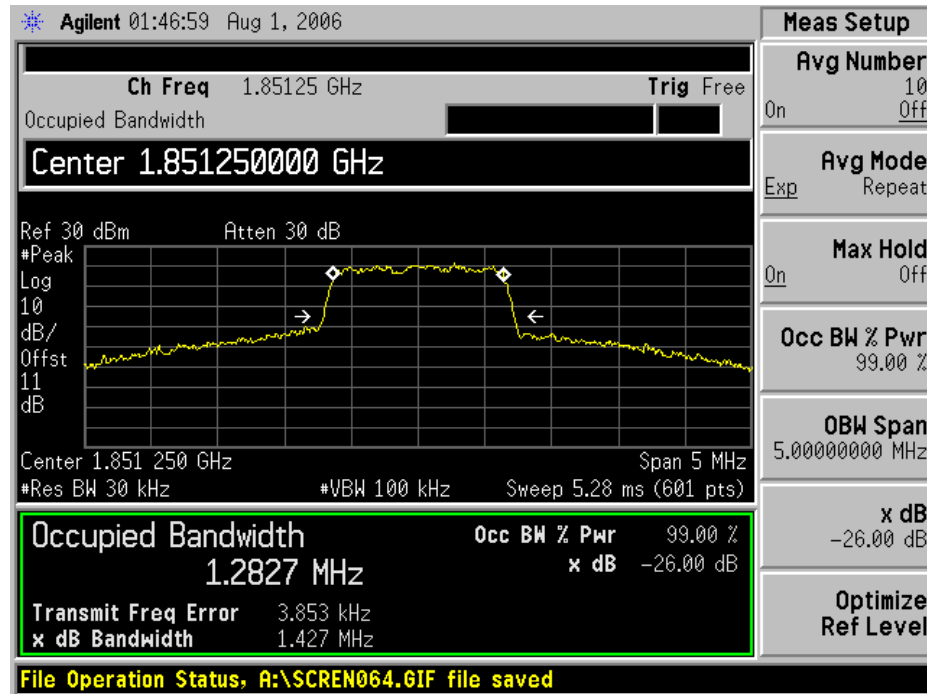


High Channel

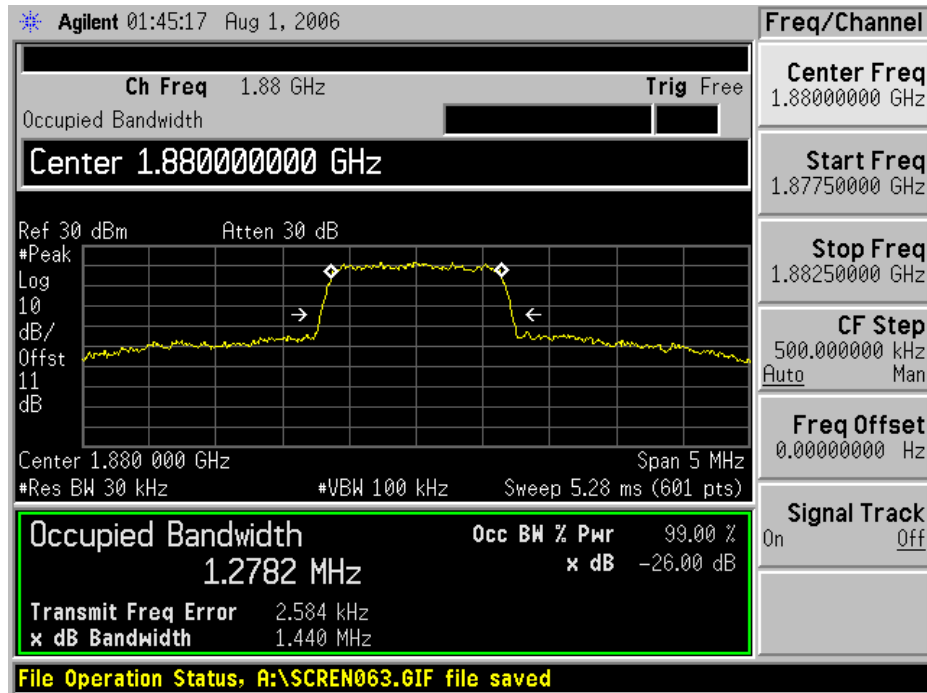


Plots of Occupied Bandwidth for Part24

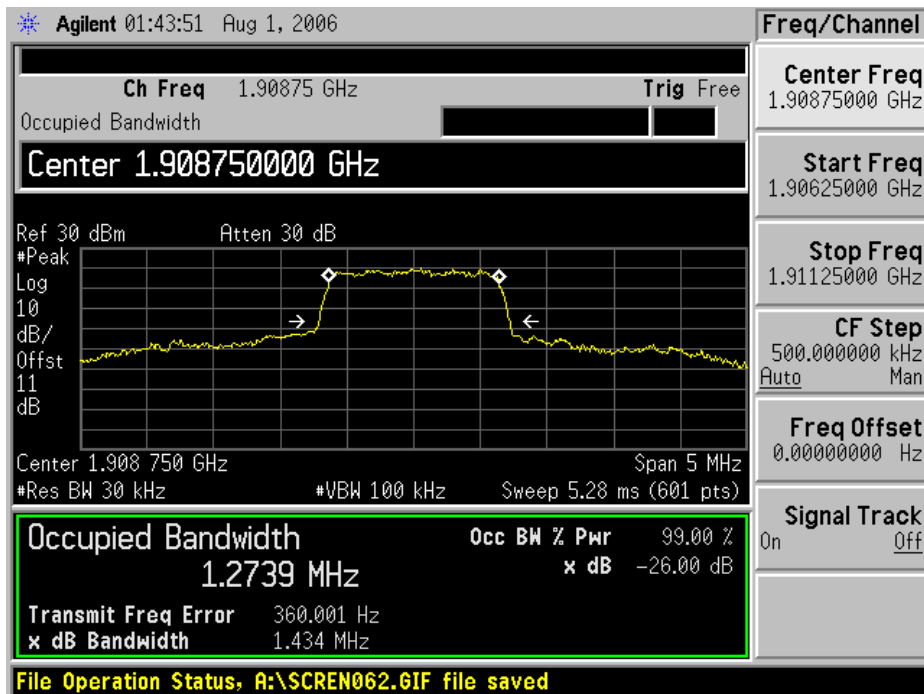
Low Channel



Middle Channel



High Channel



## §2.1051, §22.917, & §24.238(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

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### Applicable Standard

Requirements: CFR 47, § 2.1051. § 22.917 & §24.238(a).

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1057.

### 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 10<sup>th</sup> harmonic.

### Environmental Conditions

Temperature:	19° C
Relative Humidity:	58%
ATM Pressure:	1018 mbar

\* *The testing was performed by James Ma on 2006-08-02.*

### Test Equipment List and Details

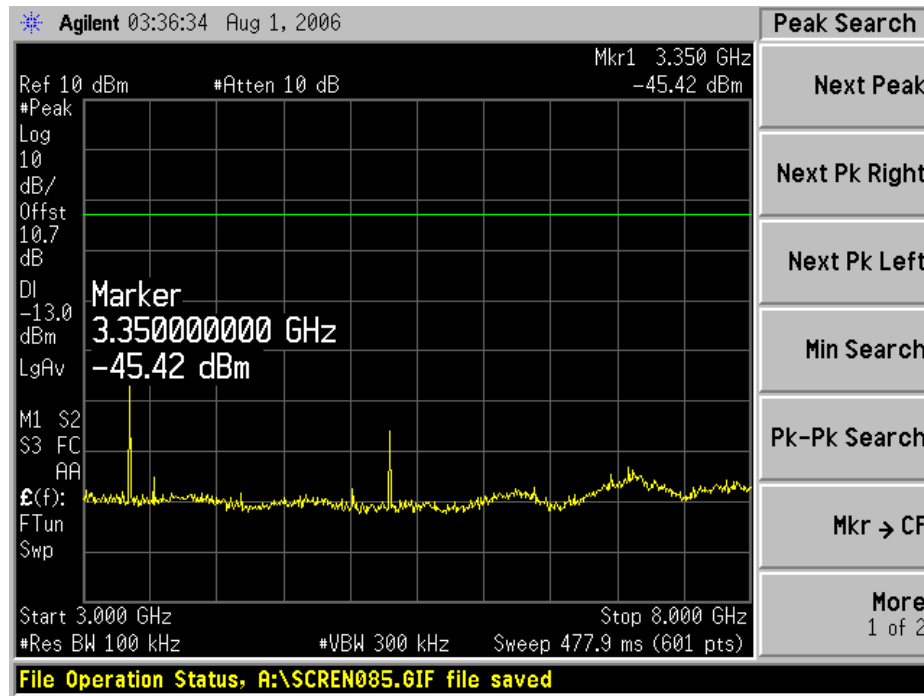
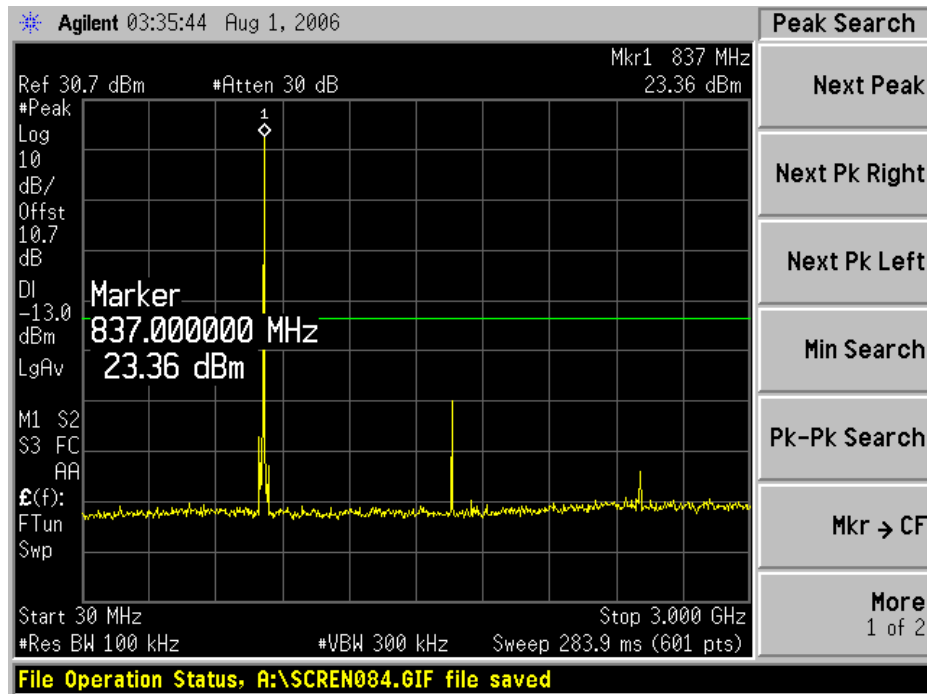
Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2006-03-06

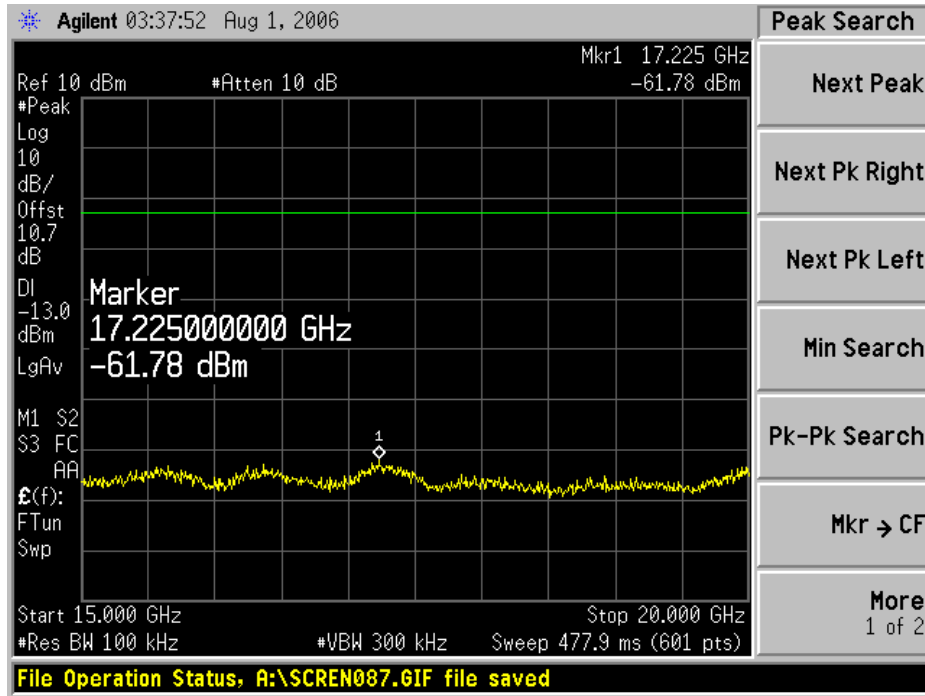
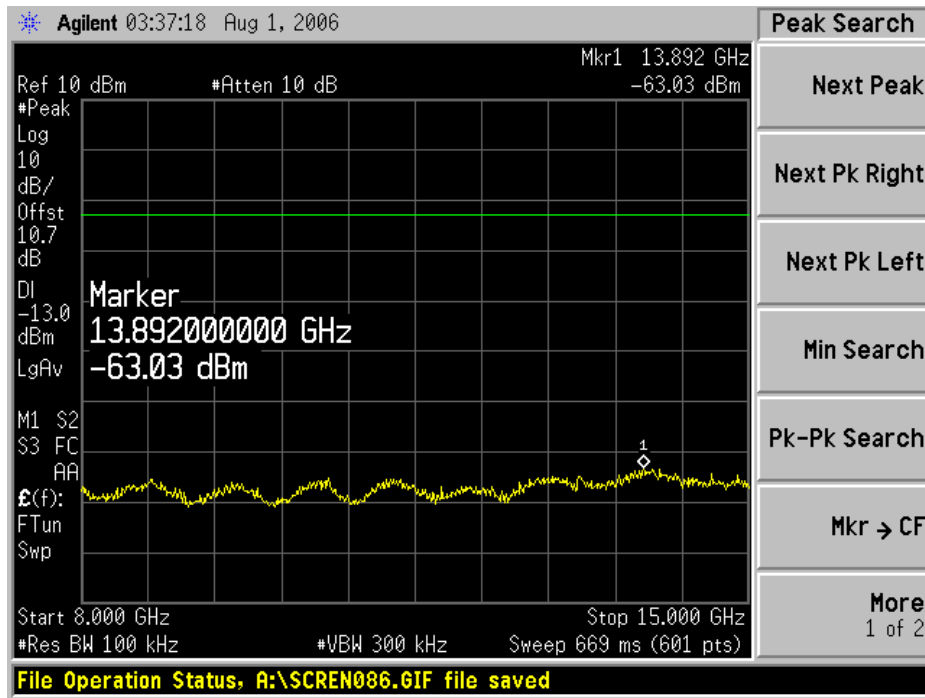
\* **Statement of Traceability: BA CL Corp.** attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

### Test Results

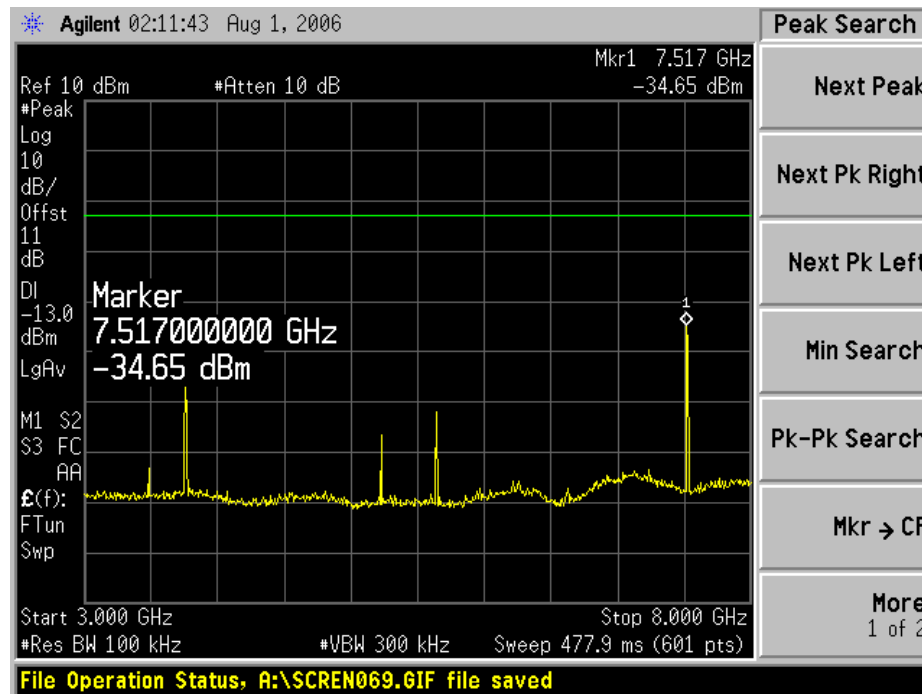
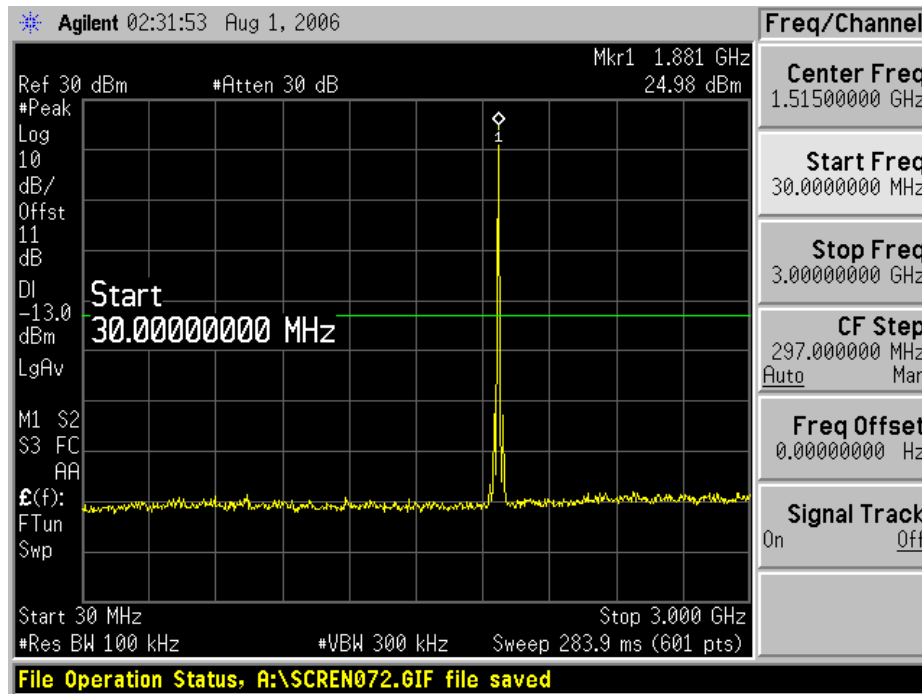
Please refer to the hereinafter plots.

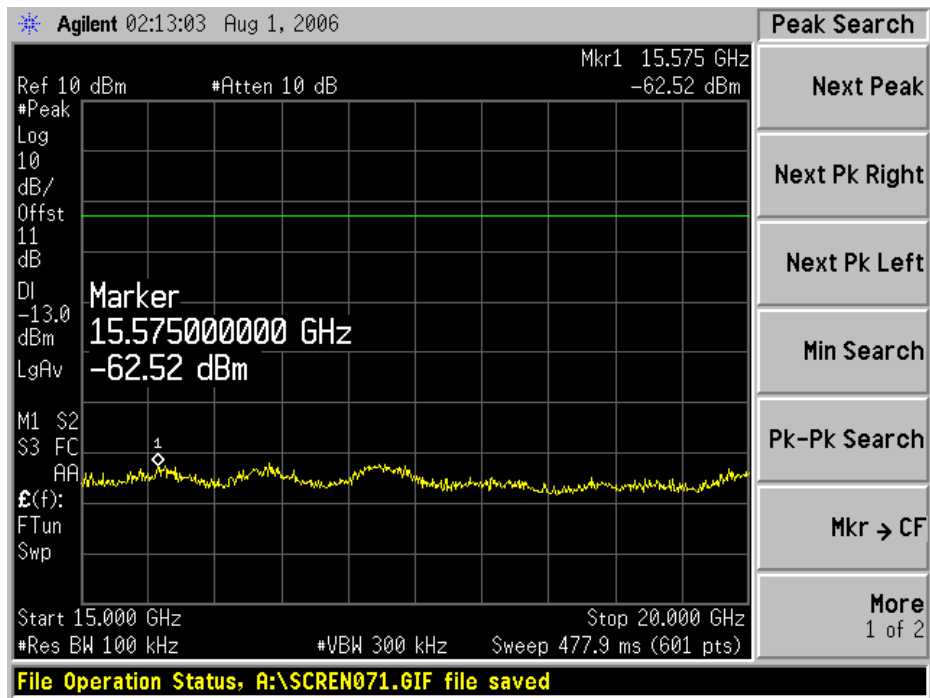
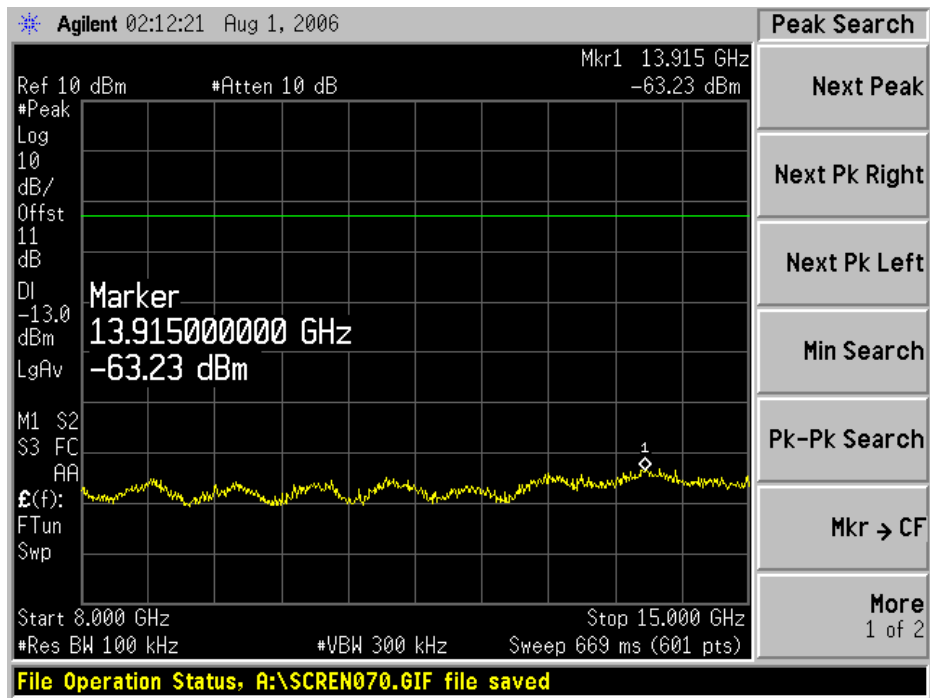
Plots of Spurious Emission for Part22





*Plots of Spurious Emission for Part24*





## **§2.1055 (a), §2.1055 (d), §22.355, & §24.235 - FREQUENCY STABILITY**

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### **Applicable Standard**

Requirements: FCC § 2.1055 (a), § 2.1055 (d) & following:

According to §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

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

Frequency range (MHz)	Base, fixed (ppm)	Mobile [le]3 watts (ppm)	Mobile [le]3 watts (ppm)
25 to 50.....	20.0	20.0	50.0
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

According to §24.235, The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

### **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 115% 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.

### **Environmental Conditions**

Temperature:	19° C
Relative Humidity:	58%
ATM Pressure:	1018 mbar

\* The testing was performed by James Ma on 2006-08-02.



## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Frequency Counter	5342A	2232A06380	2005-12-12
Agilent	Analyzer, Spectrum	E4446A	US44300386	2006-03-06
Tenney	Oven, Temperature	VersaTenn	12.222-193	2006-06-27

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

## Test Results

### Cellular Band

Reference Frequency: 836.52 MHz, Limit: 2.5ppm			
Environment Temperature (°C)	Power Supplied (VDC)	Frequency Measure with Time Elapsed	
		Frequency error (MHz)	PPM Error
50	5.0	836.520041	0.049013
40	5.0	836.520037	0.044231
30	5.0	836.520040	0.047817
20	5.0	836.520038	0.045426
10	5.0	836.520039	0.046622
0	5.0	836.520037	0.044231
-10	5.0	836.520040	0.047817
-20	5.0	836.520027	0.032277
-30	5.0	836.520039	0.046622

### Frequency Stability Versus Voltage

Reference Frequency: 836.52 MHz, Limit: 2.5ppm			
Power Supplied (VDC)	Environment Temperature (°C)	Frequency error (MHz)	PPM Error
4.5	20	836.520037	0.044470

## PCS Band

### *Frequency Stability Versus Temperature*

<b>Reference Frequency: 1880 MHz, Limit: 2.5ppm</b>			
<b>Environment Temperature (°C)</b>	<b>Power Supplied (VDC)</b>	<b>Frequency Measure with Time Elapsed</b>	
		<b>Frequency error (MHz)</b>	<b>PPM Error</b>
50	5.0	1880.000322	0.171277
40	5.0	1880.001357	0.721809
30	5.0	1880.000431	0.229255
20	5.0	1880.000358	0.190426
10	5.0	1880.001279	0.680319
0	5.0	1880.001030	0.547872
-10	5.0	1880.000903	0.480319
-20	5.0	1880.001833	0.975000
-30	5.0	1880.000887	0.471809

### *Frequency Stability Versus Voltage*

<b>Reference Frequency: 1880 MHz, Limit: 2.5ppm</b>			
<b>Power Supplied (VDC)</b>	<b>Environment Temperature (°C)</b>	<b>Frequency error (MHz)</b>	<b>PPM Error</b>
4.5	20	1880.000432	0.229787

## §22.917 & §24.238 – BAND EDGE

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### 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.

According to §24.238, 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.

### Environmental Conditions

Temperature:	19° C
Relative Humidity:	58%
ATM Pressure:	1018 mbar

*\* The testing was performed by James Ma on 2006-08-02.*

### Test Equipment List and Details

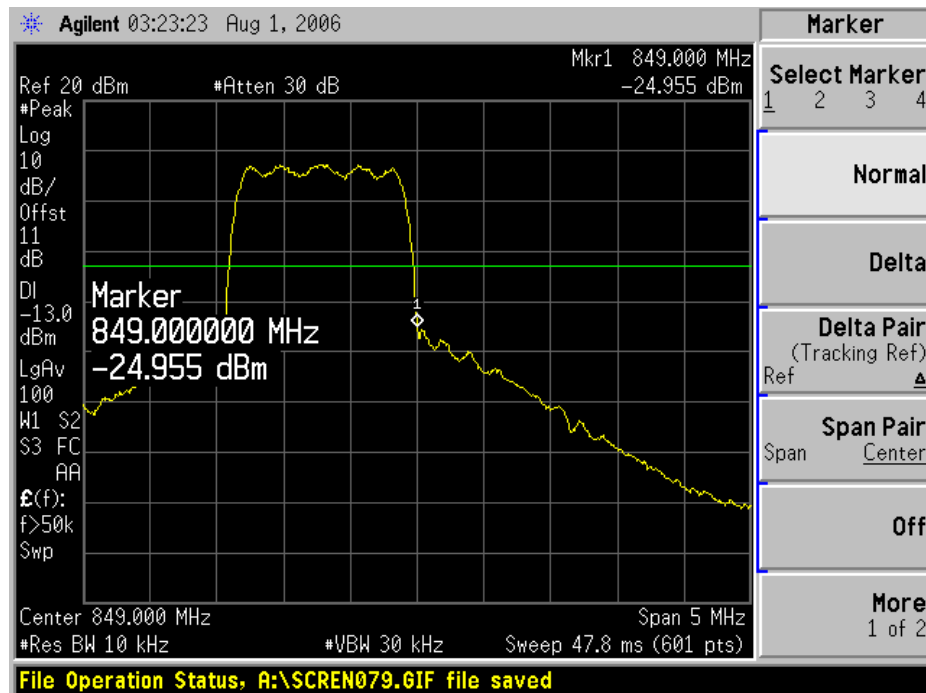
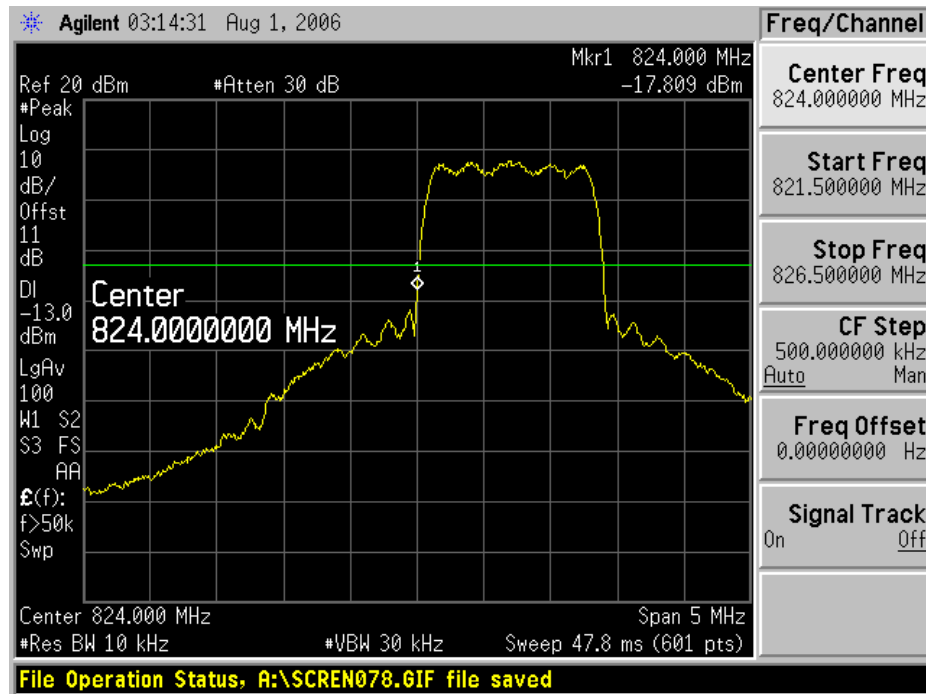
Manufacturer	Description	Model	Serial Number	Cal. Date
Agilent	Analyzer, Spectrum	E4446A	US44300386	2006-03-06

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

### Test Results

Please refer to the following plots.

Plots of Band Edge for Part 22



Plots of Band Edge for Part 24

