

FCC PART 22H, 24E
TEST AND MEASUREMENT REPORT

For

ADC Telecommunications Inc.

P.O. Box 1101, Minneapolis, MN 55440, USA

FCC ID: F8I-SP851970H

Report Type: Class II Permissive Change	Product Type: FlexWave™ URH Host
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Report Number: <u>R1004127-2224</u>	
Report Date: <u>2010-04-22</u>	
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* This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk “*” (Rev.2)

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	R1004127-2224	Original Report	2010-04-22

1 GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

The ADC Telecommunications, Inc. FCC ID: F8I-SP851970H, Model: FWU-28400000HU FlexWave URH/Prism Host or the "EUT" as referred to in this report is the Flexwave Universal Radio Head (URH) host, in its most basic configuration, serves as a transport between a FCC approved base station. The "host" is co-located with the base station, performs wide band digitization, fiber optic transport, and reconstruction of the RF signal. The host unit contains RF interfaces for all connected base stations, SFP fiber connectivity for all connected remotes. It supports 3 modulations (GSM, WCDMA and CDMA) in the Cellular 850 and PCS 1900 band.

1.2 Mechanical Description

(URH) measures approximately 228 mm (L) x 444 mm (W) x 133 mm (H), and weighs approximately 7.7 kg.
(DRH) measures approximately 228 mm (L) x 444 mm (W) x 133 mm (H), and weighs approximately 7.7 kg.

**The test data gathered are from production sample, serial number: MDF3018A (URH), and 7109A00S (DRH) provided by the manufacturer.*

1.3 EUT Photo



Please refer to Exhibit C for more EUT photographs.

1.4 Objective

This type approval report is prepared on behalf of *ADC Telecommunications, Inc.* 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 continuous compliance with FCC rules for RF output power, modulation characteristic, occupied bandwidth, spurious emissions at antenna terminal, field strength of spurious radiation, frequency stability, band edge, and conducted and radiated margin.

The purpose of this Class II Permissive Change report is to add a GSM modulation to the Cellular 850 and PCS 1900 band in the system. The original application (FCC ID: F8I-SP851970H, certified on 2010-01-29) included Cellular band with CDMA and WCDMA modulation, PCS band with CDMA and WCDMA modulation and 700 MHz band with LTE modulation.

1.5 Related Submittal(s)/Grant(s)

For PCS Band Conducted Measurements of GSM modulation please refer to FCC ID: F8I-SP190AWSH, Report Number: R1003011-2427, the similarity declaration has been provided in Appendix A as attached.

For CDMA and WCDMA Measurements please refer to FCC ID: F8I-SP851970H, Report Number: R1001143.

1.6 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-603-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.

1.7 Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in the 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 ranging from +2.0 dB for Conducted Emissions tests and +4.0 dB for Radiated Emissions tests are the most accurate estimates pertaining to uncertainty of EMC measurements at BACL Corp.

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

1.8 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: R-2463 and C-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/ts/htdocs/210/214/scopes/2001670.htm>

2 SYSTEM TEST CONFIGURATION

2.1 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.

2.2 EUT Exercise Software

Signal was sent through EUT using a signal generator; device was set to normal operating mode.

2.3 Equipment Modifications

No modifications were made to the EUT.

2.4 Support Equipment List

Manufacturer	Description	Model	Serial Number
MRAU	Master RAU	-	RAU 13
Unipower Corporation	AC/DC Power Supply	RPXP48122-Z	26097N0062
SRAU	Slave RAU	-	DL B2
IFEU	IF Expansion Module	-	S/N7

2.5 Local Support Equipment and Software List and Details

Manufacturer	Description	Model	Serial Number
Agilent	MXG Vector Signal Generator	N5182A	MY47420502
Agilent	Signal Generator	8648C	4108A05591

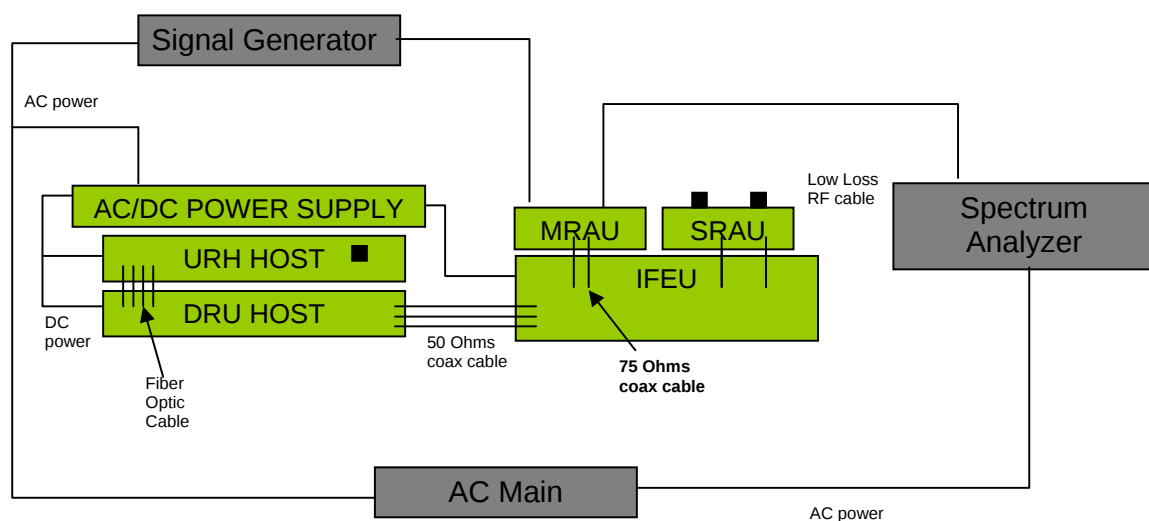
2.6 Internal Configurations of EUT

Manufacturer	Description	Model	Serial Number
ADC Telecommunication	URH Host PCS RF Dart PCB Board	MD0302L	225509852
ADC Telecommunication	URH Host Cell RF Dart PCB Board	1425438-33	225509760
ADC Telecommunication	URH Host SERF II (NETWORK) PCB Board	TR220J7	0020A723461718
ADC Telecommunication	URH Host System II PCB Board	DAC-146028G REV20	BTW180120013
ADC Telecommunication	URH Host DC Power Supply PCB Board	1432282G REV22	BTW16021059
ADC Telecommunication	DRU PCS IF Dart PCB Board	1466348G REV30	BTW183690002
ADC Telecommunication	DRU Cell IF Dart PCB Board	1466349G REV20	BTW181700003
ADC Telecommunication	DRU Host SERF II (NETWORK) PCB Board	ADC-1460280G	BTW180120005
ADC Telecommunication	DRU Host DC Power Supply PCB Board	1432282G REV22	BTW16021115

2.7 Interface Ports and Cables

Cable Description	Length (m)	To	From
Shielded Cable (Duplex Fiber Optic)	3	Host Unit	DRU (Dart Remote Unit)
75 Ohm Coax Cable	3	IF Expansion Unit (IFEU)	SRAU
75 Ohm Coax Cable	100	IF Expansion Unit (IFEU)	MRAU
50 ohm CATV cable	< 1	DRU	IF Expansion Unit
RF Cable	< 1	Main Hub/RAU	Spectrum Analyzer
RF Cable	< 1	Main Hub/RAU	Signal Generator

2.8 Test Setup Block Diagram



3 SUMMARY OF TEST RESULTS

FCC Rules	Description of Tests	Results
§ 2.1046, §22.913, § 24.232	RF Output Power	Compliant*
§2.1047	Modulation Characteristics	N/A
§2.1049, §22.917, § 24.238	Occupied Bandwidth / Out of Band Emissions	Compliant*
§ 2.1053, §22.917, §24.238	Spurious Radiated Emissions	Compliant
§ 2.1051, §22.917, §24.238	Spurious Emissions at Antenna Terminals	Compliant*
§22.917, §24.238	Band Edge	Compliant*
§2.1055	Frequency Stability	Compliant*
§2.1091	RF Exposure	Compliant*

Note: * For PCS Band Conducted Measurements of GSM modulation please refer to FCC ID: F8I-SP190AWSH, Report Number: R1003011

Please refer to the Appendix A for the declaration of similarity.

4 FCC §2.1046, §22.913 & §24.232 – RF OUTPUT POWER

4.1 Applicable Standard

FCC §22.913 & §24.232

4.2 Test Procedure

Conducted:

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

4.3 Test Environmental Conditions

Temperature:	21-24°C
Relative Humidity:	50-59 %
ATM Pressure:	99-102kPa

** The testing was performed by Dennis Huang on 2010-04-05 at RF Site.*

4.4 Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	MY44303352	2009-04-27
Agilent	MXG Vector Signal Generator	N5182A	MY47420502	2009-09-18

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

4.5 Test Results

Maximum Output Power – Modulated Signal

(Uplink)

Radio Mode	Band	Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)
GSM	Cellular 850 MHz	Low	824.2	-10.03	0.0993
		Middle	836.6	-10.06	0.0986
		High	848.8	-10.05	0.0989
GSM	PCS 1900 MHz	Low	1850.2	-10.02	0.0995
		Middle	1880.0	-10.03	0.0993
		High	1909.8	-10.02	0.0995

Note: For PCS Band Conducted Measurements of GSM modulation please refer to FCC ID: F8I-SP190AWSH, Report Number: R1003011-2427.

5 FCC §2.1047 - MODULATION CHARACTERISTIC

5.1 Applicable Standard

According to FCC §2.1047(d), there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

5.2 Test Result

N/A

6 FCC §2.1049, §22.917 & §24.238 - OCCUPIED BANDWIDTH

6.1 Applicable Standard

Requirements: FCC §2.1049, §22.917 and §24.238.

6.2 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 to at least 1% of the BW (Cellular/PCS) and the 26 dB & 99% bandwidth was recorded.

6.3 Test Environmental Conditions

Temperature:	21-24°C
Relative Humidity:	50-59 %
ATM Pressure:	99-102kPa

* The testing was performed by Dennis Huang on 2010-04-05 at RF Site.

6.4 Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	MY44303352	2009-04-27
Agilent	MXG Vector Signal Generator	N5182A	MY47420502	2009-09-18

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

6.5 Summary of Test Results

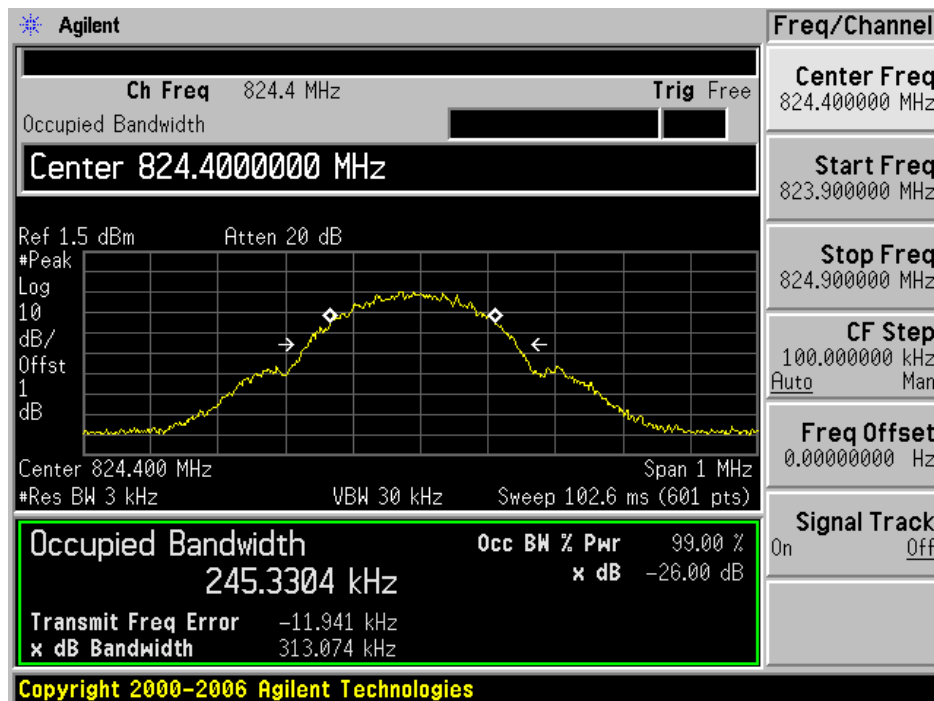
GSM Modulation:

Mode		Channel	Frequency (MHz)	Emission Bandwidth (kHz)
GSM (Cellular)	Downlink	Low	824.2	313.07
		Middle	836.6	315.45
		High	848.8	314.75
GSM (PCS)	Downlink	Low	1850.2	313.94
		Middle	1880.0	311.49
		High	1909.8	312.25

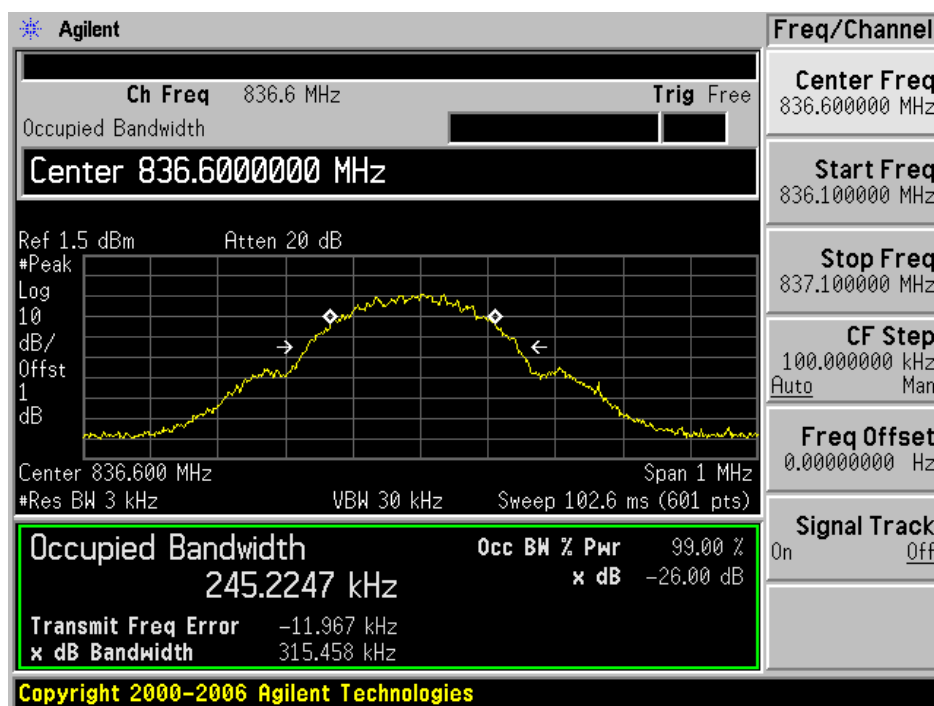
Note: For PCS Band Conducted Measurements of GSM modulation please refer to FCC ID: F8I-SP190AWSH, Report Number: R1003011-2427

Please refer to the following plots for details.

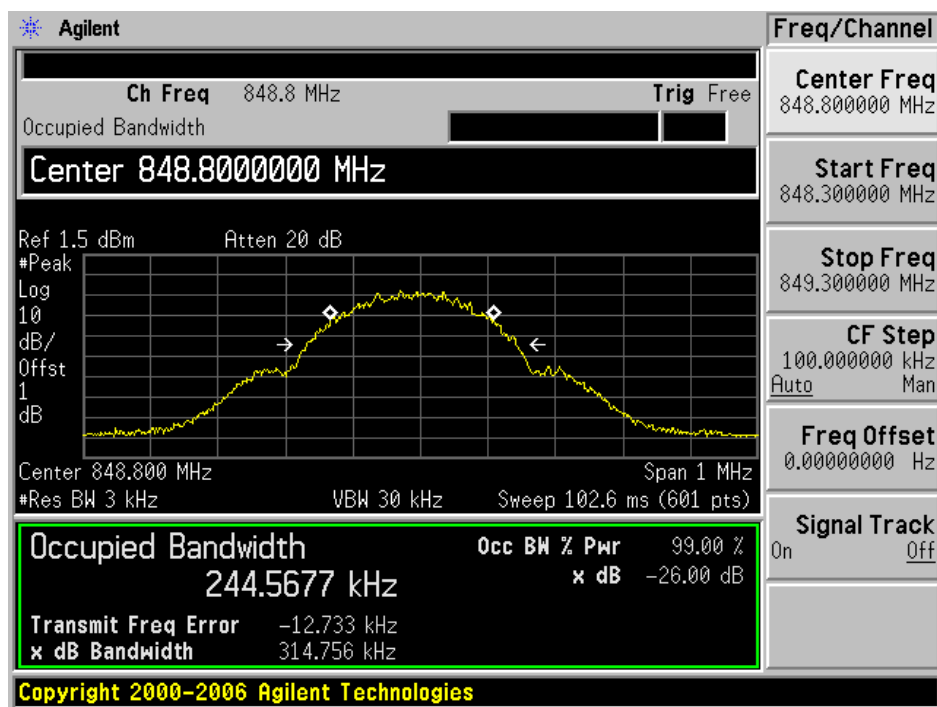
GSM, Cellular Band, Uplink, Low Channel: 824.2 MHz



GSM, Cellular Band, Uplink, Middle Channel: 836.6 MHz



GSM, Cellular Band, Uplink, High Channel: 848.8 MHz



7 FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS

7.1 Applicable Standard

Requirements: FCC §2.1053, §22.917 § 22.238 and §24.238.

7.2 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 = $10 \log (\text{TX Power in Watts}/0.001)$ – the absolute level

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

7.3 Test Environmental Conditions

Temperature:	21~23.5 °C
Relative Humidity:	43~59 %
ATM Pressure:	98~101.7kPa

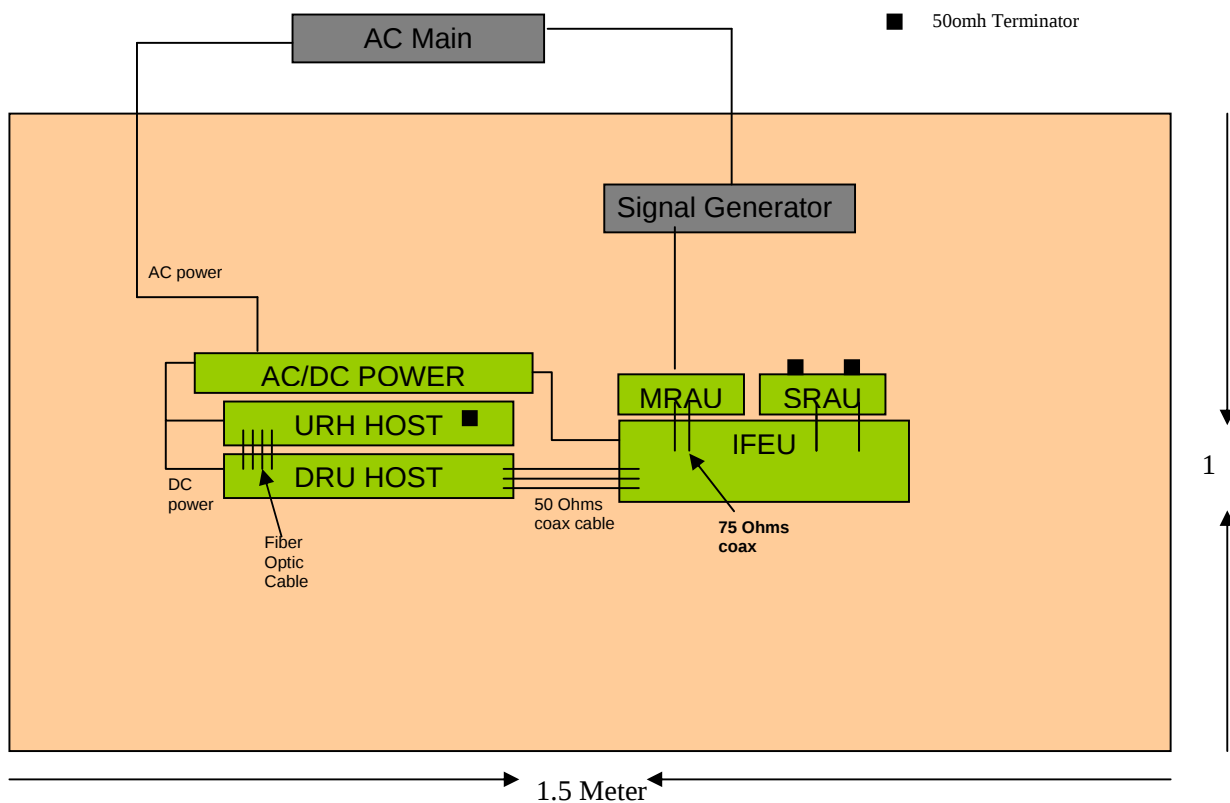
**The testing was performed by Dennis Huang on 2010-03-26 in 5 Meter Chamber #3.*

7.4 Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Dates
Agilent	Analyzer, Spectrum	E4446A	US44300386	2009-06-29
HP	Generator, Signal	83650B	3614A00276	2009-05-28
Sunol Science Corp	System Controller	SC99V	122303-1	N/R
Sunol Science Corp	Combination Antenna	JB3	A0020106-3	2009-05-05
HP	Amplifier, Pre	1-26.5GHz	3147A00400	2010-1-29
A. H. Systems	Antenna, Horn, DRG	SAS-200/571	261	2009-09-23
A.R.A.	Antenna, Horn	DRG-118/A	1132	2009-07-28
Agilent	MXG Vector Signal Generator	N5182A	MY47420502	2009-09-18

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

7.5 Test Setup Block Diagram



7.6 Summary of Test Results

The worst case reading as follows:

Cellular Band:

Mode: GSM, Downlink		
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)
-24.55	7362	Horizontal

PCS Band:

Mode: GSM, Downlink		
Margin (dB)	Frequency (MHz)	Polarization (Horizontal/Vertical)
-24.45	7362	Horizontal

Please refer to the following tables for detailed results.

7.7 Test Results

Cellular Band

GSM ~ Uplink (Input frequency = 836.6 MHz)

Indicated		Table Azimuth (degree)	Test Antenna		Substituted					Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Amp. (dBuV)		Height (m)	Polarity (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain Correction (dB)	Cable Loss (dB)	Absolute Level (dBm)		
1105.9	61.78	357	1.22	V	1105.9	-50.85	6.6	1	-51.85	-13	-38.85
1105.9	61.71	9	1.33	H	1105.9	-50.92	6.6	1	-51.92	-13	-38.92
3072	50.46	343	171	V	3072	-53.44	9.6	1.68	-55.12	-13	-42.12
3072	55.48	19	150	H	3072	-48.42	9.6	1.68	-50.1	-13	-37.1
4869	50.75	64	1.32	V	4869	-44.25	10.7	2	-46.25	-13	-33.25
4869	46.95	348	1.0	H	4869	-48.05	10.7	2	-50.05	-13	-37.05
7362	58	9	1.0	V	7362	-35.91	8.5	3	-38.91	-13	-25.91
7362	59.36	314	1.05	H	7362	-34.55	8.5	3	-37.55	-13	-24.55
50	67.89	355	1.0	V	50	-41.98	0	0.5	-42.48	-13	-29.48
50	59.19	360	2.17	H	50	-50.68	0	0.5	-51.18	-13	-38.18
106.75	64.15	88	1.81	V	106.75	-45.51	0	0.5	-46.01	-13	-33.01
106.75	62.2	255	1.0	H	106.75	-47.46	0	0.5	-47.96	-13	-34.96

PCS Band

GSM ~ Uplink (Input frequency = 1880 MHz)

Indicated		Table Azimuth (degree)	Test Antenna		Substituted					Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Amp. (dBuV)		Height (m)	Polarity (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain Correction (dB)	Cable Loss (dB)	Absolute Level (dBm)		
1105.9	62.78	356	1.22	V	1105.9	-49.85	6.6	1	-50.85	-13	-37.85
1105.9	61.62	9	1.33	H	1105.9	-51.01	6.6	1	-52.01	-13	-39.01
3072	50.23	342	171	V	3072	-53.67	9.6	1.68	-55.35	-13	-42.35
3072	55.56	19	150	H	3072	-48.34	9.6	1.68	-50.02	-13	-37.02
4869	50.95	66	1.32	V	4869	-44.05	10.7	2	-46.05	-13	-33.05
4869	46.88	345	1.0	H	4869	-48.12	10.7	2	-50.12	-13	-37.12
7362	58.22	9	1.0	V	7362	-35.69	8.5	3	-38.69	-13	-25.69
7362	59.46	314	1.04	H	7362	-34.45	8.5	3	-37.45	-13	-24.45
50	68.94	355	1.0	V	50	-40.93	0	0.5	-41.43	-13	-28.43
50	57.33	360	2.17	H	50	-52.54	0	0.5	-53.04	-13	-40.04
106.75	65.59	88	1.81	V	106.75	-44.07	0	0.5	-44.57	-13	-31.57
106.75	62.61	255	1.0	H	106.75	-47.05	0	0.5	-47.55	-13	-34.55

8 FCC §2.1051, §22.917 & §24.238 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

8.1 Applicable Standard

Requirements: FCC §2.1051, §22.917 & §24.238.

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

§22.917, and §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

8.2 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.

8.3 Test Environmental Conditions

Temperature:	21-24°C
Relative Humidity:	50-59 %
ATM Pressure:	99-102kPa

* The testing was performed by Dennis Huang on 2010-04-05 at RF Site.

8.4 Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	MY44303352	2009-04-27
Agilent	MXG Vector Signal Generator	N5182A	MY47420502	2009-09-18

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

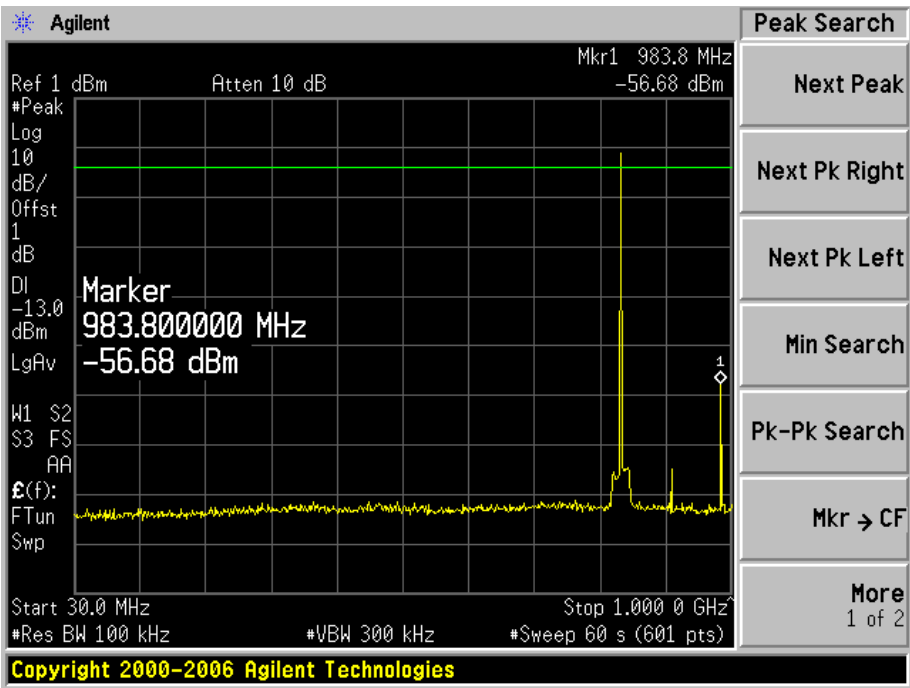
8.5 Test Results

Please refer to the following plots for test results of Cellular band GSM modulation.

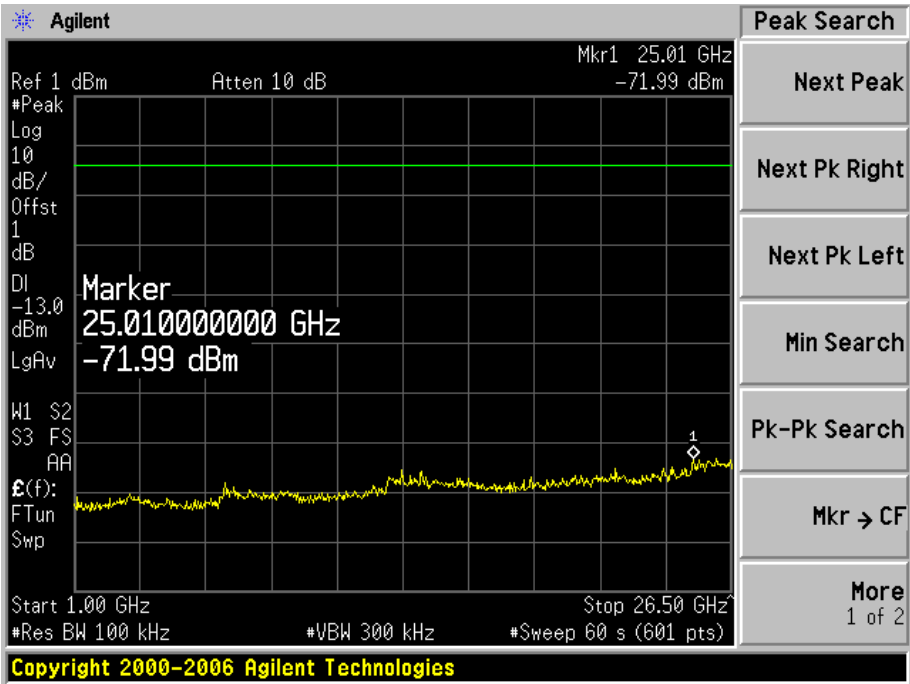
Note: For PCS Band Conducted Measurements of GSM modulation please refer to FCC ID: F8I-SP190AWSH,
Report Number: R1003011-2427

GSM Cellular Band Uplink, Middle Channel: 836.6 MHz:

Plot 1: 30 MHz to 1 GHz

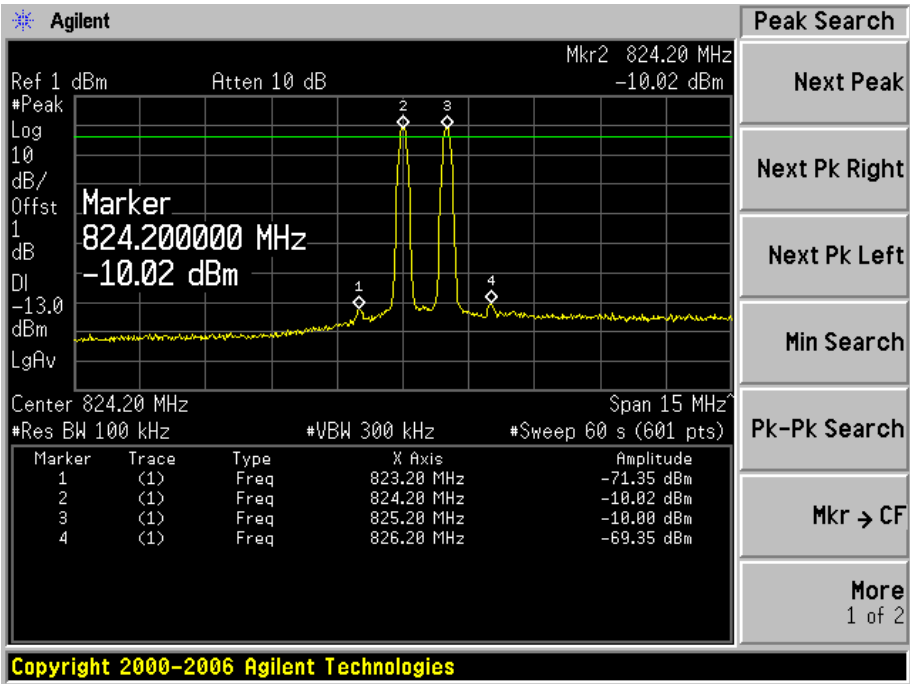


Plot 2: Above 1 GHz

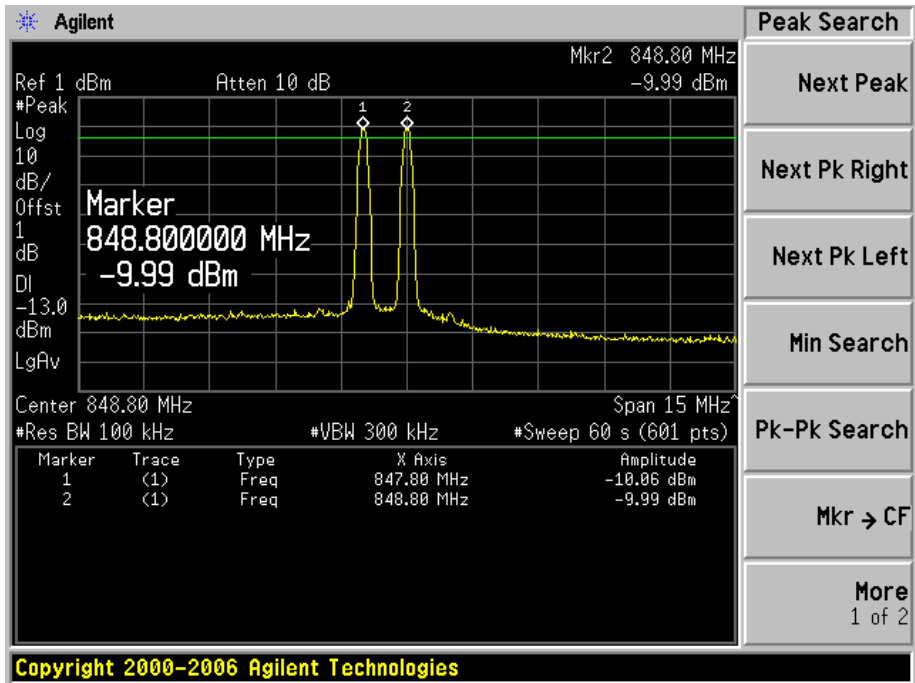


Inter-modulation:

GSM Cellular Band Uplink, Low Channel: 824.2MHz



GSM Cellular Band Uplink, High Channel: 848.8 MHz:



9 FCC §22.917 & §24.238– BAND EDGE

9.1 Applicable Standard

According to FCC §22.917 and §24.238, the power of any emissions 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.

9.2 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.

9.3 Test Environmental Conditions

Temperature:	21-24°C
Relative Humidity:	50-59 %
ATM Pressure:	99-102kPa

* The testing was performed by Dennis Huang on 2010-04-05 at RF Site.

9.4 Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	MY44303352	2009-04-27
Agilent	MXG Vector Signal Generator	N5182A	MY47420502	2009-09-18

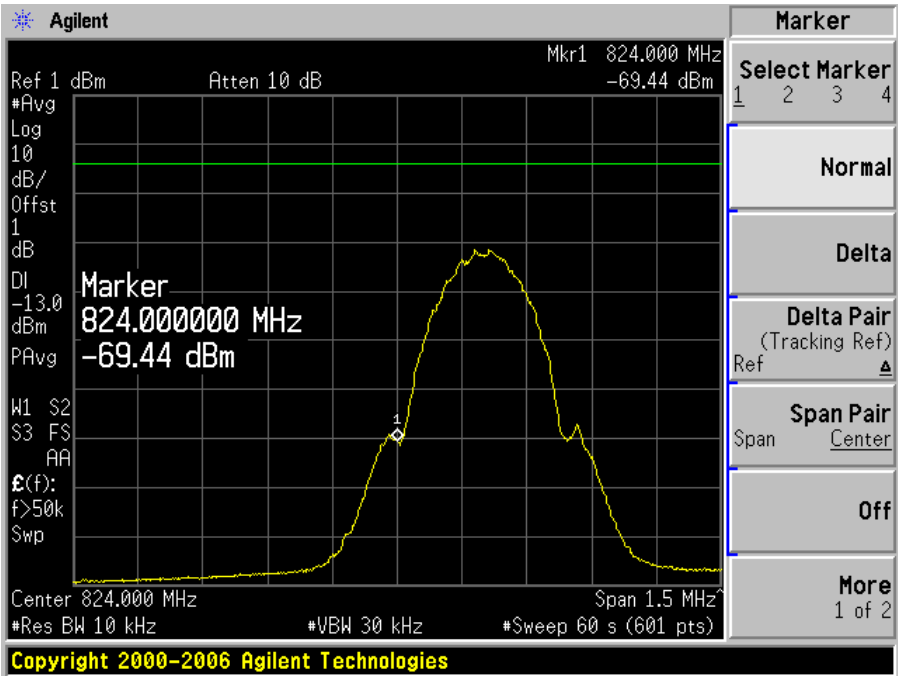
* **Statement of Traceability:** BACL Corp. attests that all calibrations have been performed per the NVLAP requirements, traceable to the NIST.

9.5 Test Results

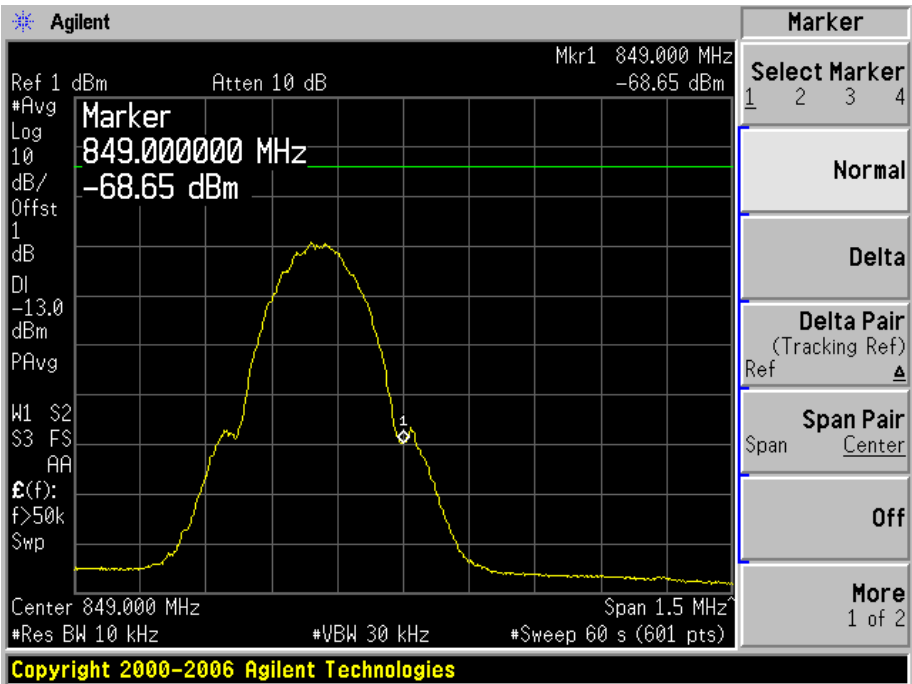
Please refer to the following plots for test results of Cellular band GSM modulation.

Note: For PCS Band Conducted Measurements of GSM modulation please refer to FCC ID: F8I-SP190AWSH,
Report Number: R1003011-2427

GSM Cellular Band Uplink: Lowest Channel



GSM Cellular Band Uplink: Highest Channel



10 FCC §2.1055 – FREQUENCY STABILITY

10.1 Applicable Standard

According to FCC §2.1055 the frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

10.2 Test Procedure

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from battery end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

Specification — the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within $\pm 0.000\ 25\ %$ ($\pm 2.5\ \text{ppm}$) of the center frequency.

CW was tested as worst case.

10.3 Test Environmental Conditions

Temperature:	21-24°C
Relative Humidity:	50-59 %
ATM Pressure:	99-102kPa

* The testing was performed by Dennis Huang on 2010-04-05 at RF Site.

10.4 Test Equipment List and Details

Manufacturers	Descriptions	Models	Serial Numbers	Calibration Dates
Agilent	Spectrum Analyzer	E4440A	MY44303352	2009-04-27
Agilent	MXG Vector Signal Generator	N5182A	MY47420502	2009-09-18
Tenney	Temperature Oven	Versa Tenn	12.431-8	N/A

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

10.5 Test Results

Cellular 850 Band, Uplink

The EUT is tested at 836.6 MHz with CW

(Frequency Drift with Supply Voltage Variation)

Voltage (Vac)	Frequency Error (Hz)	Frequency Error (ppm)
102	12	0.0143
120	14	0.0167
138	14	0.0167

(Frequency Drift with Supply Temperature Variation)

Temperature (°C)	Frequency Error (Hz)	Frequency Error (ppm)
50	98	0.1171
-20	9	0.0107

11 FCC §1.1307(b)(1) & §2.1091 - RF EXPOSURE

11.1 Applicable Standard

According to §1.1310 and §2.1091 (Mobile Devices) RF exposure is calculated.

Limits for General Population/Uncontrolled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Averaging Time (minute)
Limits for General Population/Uncontrolled Exposure				
0.3-1.34	614	1.63	*(100)	30
1.34-30	824/f	2.19/f	*(180/f ²)	30
30-300	27.5	0.073	0.2	30
300-1500	/	/	f/1500	30
1500-100,000	/	/	1.0	30

f = frequency in MHz

* = Plane-wave equivalent power density

11.2 MPE Prediction

Predication of MPE limit at a given distance, Equation from OET Bulletin 65, Edition 97-01

$$S = PG/4\pi R^2$$

Where: S = power density

P = power input to antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

11.3 Test Result

Cellular 850 Band ~ Uplink:

Maximum peak output power at antenna input terminal (dBm): -10.03
 Maximum peak output power at antenna input terminal (mW): 0.099
 Prediction distance (cm): 20
 Prediction frequency (MHz): 836.6
 Antenna Gain, typical (dBi): 8.0
 Maximum Antenna Gain (numeric): 6.310
 Power density at predication frequency and distance (mW/cm²): 0.00012
 MEP Limit (mW/cm²): 0.558