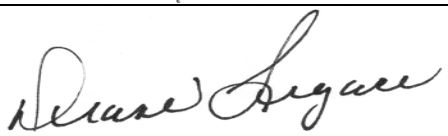
Test Report:

AMPS/TDMA/CDMA
Cellular Signal Amplifier
MODEL: SG800
FCC ID: P35ARR-800-P207

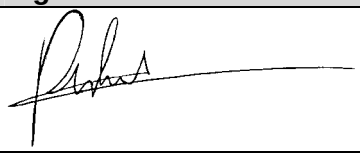
Arrista Test Report#: ATEMC000015

For:
Arrista Technologies Inc.
5-55 Henlow Bay
Winnipeg, MB, CA
R3Y 1G4

IN ACCORDANCE WITH
FCC PART 22, SUBPART H
CELLULAR BAND REPEATERS

Test Performed by:	Date	Signature
Paul Eberling	**February 4, 2001**	
Diane Legace	**February 4, 2001**	

Approvals:

Date	Name	Title	Signature
February 4, 2002	Roman Wroczynski	Director Development & Test	

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1. GENERAL INFORMATION

1.1. PURPOSE

This document details the results of the following tests performed by Arrista Technologies Inc. on Dec 21, 2001 – Jan 18, 2002 on the SG800 Cellular Band Repeater for Seamless Group Incorporated.

1.2. TEST METHODOLOGY

Arrista Technologies performed these tests on a production sample of the product to conform to FCC Part 22, Subpart H. Both the conducted and radiated testing were performed according to methods of chapter 13 of ANSI C63.4.

1.3. TEST EQUIPMENT LIST

Description	Manufacture	Model Number	Last Cal Date	Cal Interval
EMI Receiver	Dynamic Sciences	DSI-2020	01/02/2001	Annual
Turntable and Mast Controller	EMCO	2090	N/A	N/A
Coaxial Cable	Sucoflex	106A	08/02/2001	Annual
Antenna Mast	EMCO Mini-Mast	2075-2	N/A	N/A
Horn Antenna (1-18GHz)	EMCO	3115	08/03/2001	Annual
Bilog EMC Antenna (30-2000MHz)	Schaffner-Chase	CBL61112B	07/20/2001	Annual
Metal Top Turntable	EMCO	2081-2.03	N/A	N/A
3m Semi-Anechoic Chamber	EMC Test Systems 3m	N/A	05/30/2000	Two Years
Desktop Computer	Dell Optiplex	GX110	N/A	N/A
6 dB Attenuator	Hewlett-Packard	6dB	N/A	N/A
Spectrum Analyzer	Agilent	8562EC	09-Mar-01	Annual
Spectrum analyzer with tracking	Advantest	U3641	30-Jul-01	Annual
Audio PAL/NTSC/Audio Signal Generator	Tektronics	TSG 95	N/A	N/A
Directional Coupler	Weinschel	1538RA-20	N/A	N/A
Amplifier 10-4200MHz	Mini-Circuits	ZHL-42W	N/A	N/A
Signal Generator (9kHz to 3200MHz)	Hewlett Packard	8648C	04-Jul-01	Annual

Note:
All test equipment calibrations are traceable to national standards. All calibration data can be made available on request

1.4. EQUIPMENT UNDER TEST DESCRIPTION

The E.U.T. is sold under the following trade name: **SG800 Signal Amplifier**

The SG800 is a Bi-directional cellular signal amplifier. It contains two amplification stages; one in the transmit and the other in receive RF path, providing amplification of RF signals to a mobile cell phone user. The product is designed for installation in automobiles to provide added amplification to compensate for signal loss in hands free cell phone cradles. The product has two RF coaxial connection interfaces, one to an external antenna (not sold with the product) and the other the to the cell phone side, see Figure 1.1. In addition, the unit provides for a DC power connection through a fused 3-amp 18 AWG cable, which can be connected to a automobile DC power distribution system, a green LED indicates when power is applied to the unit.

Unique to the EUT design is that it incorporates gain control circuitry, which essentially levels the transmit amplifier circuitry to a safe output power level, i.e. below the 1dB compression point of the last amplification stage of the transmit path. This ensures that the transmit amplifier does not saturate, and does not cause the output signal to distort.

The EUT's input connects to an FCC approved cellular device (CDMA, TDMA, AMPS) to increase the cellular device's power output up to a maximum leveled output of 2 watts. The EUT.'s output is connected to a cellular antenna with a maximum gain of 5dBd. This ensures that the effective radiated power will not exceed 7 watts.

1.5. GENERAL EQUIPMENT SPECIFICATION

1.5.1. TRANSMITTER

Frequency Range:	824 – 849 MHz
Tunable Bands:	Not Applicable
Necessary Bandwidth:	Not Applicable
Type of Modulation:	Not Applicable
Internal/External Data Source:	Not Applicable
Emission Designator:	F9W, F8W, F1D
Output Impedance:	50 Ohms
RF Power Output (rated):	Single, leveled, up to 2 Watts
Number of Channels:	Not Applicable
Duty Cycle:	Continuous, Linear Class A
Channel Spacing:	Not Applicable
Band Selection	Duplexer

1.5.2. RECEIVER

Frequency Range:	869 – 894 MHz

Tunable Bands:	Not Applicable
Necessary Bandwidth:	Not Applicable
Type of Modulation:	Not Applicable
Local Oscillator:	Not Applicable
1st IF:	Not Applicable
2nd IF:	Not Applicable

1.5.3. EUT FUNCTIONAL BLOCK DIAGRAM

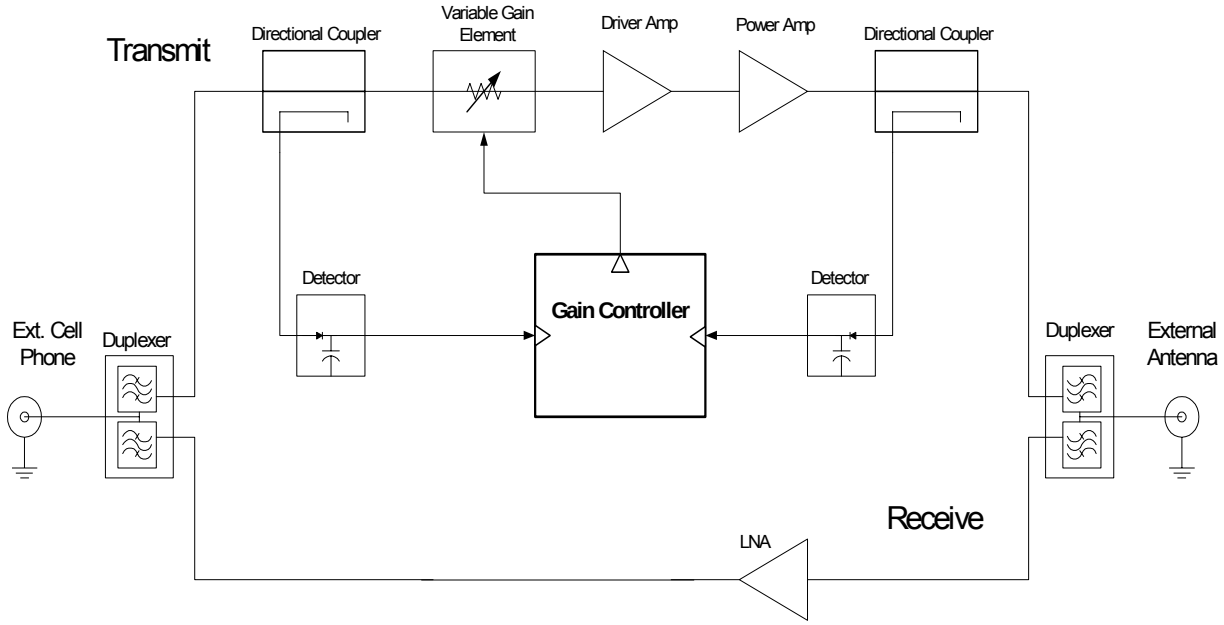


Figure 1.1 Equipment Under Test

1.6. TEST RESULT SUMMARY

NAME OF TEST	FCC PARA. NO.	SPEC.	MEAS.	RESULT
RF Power Output	2.1046(a) 22.913(a)	Mobile spec 7W ERP	1.82 W	Complies
Emissions Limitations: for Cellular AMPS/TDMA	2.1049(c) 22.917(d)	Mask	Plots	Complies
Emissions limitation: for AMPS/TDMA	2.1049(c) 22.917(d)	Mask	Plots	Complies
Emissions Limitations: CDMA Occupied Bandwidth	N/A	N/A	Plots	N/A
Conducted Spurious Emission at Antenna Terminals	2.1051 22.917(d)	-13dBm	-17.23dBm, Plots	Complies
Radiated Field Strength of Spurious Emissions	2.1053 22.917(d)	-13dBm E.I.R.P.	Plots, meas. tables	Complies
Frequency Tolerance	22.355	1.5ppm	N/A	N/A

Note:
Since the EUT does not contain modulation circuitry, modulation testing was not performed.
Since the EUT is not designed to generate or translate frequencies, and only amplifies the signal it receives, frequency stability was not tested.

1.7. DEVIATIONS

The following deviations from, additions to, or exclusions from the test specifications have been made:

None

1.8. TEST SCHEDULE DESCRIPTION

Testing was performed using the procedures and requirements of CFR 47 Part 2 for type acceptance.

1.8.1. RF POWER OUTPUT

For transmitters other than SSB, ISB and controlled carrier radiotelephone, the power output shall be measured at the RF output terminals with electrical characteristics of the RF load attached.

1.8.2. EMISSIONS LIMITATION & OCCUPIED BANDWIDTH

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean power radiated are equal to 0.5 percent of the total mean power radiated by the given emission.

1.8.3. CONDUCTED SPURIOUS EMISSIONS AT ANTENNA TERMINALS

The radio frequency voltage or power generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminal when properly loaded with a suitable artificial antenna.

1.8.4. RADIATED FIELD STRENGTH OF SPURIOUS EMISSIONS

Measurements shall be made to detect spurious emission that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal condition of installation and power.

1.9. TEST FACILITIES DESCRIPTION

1.9.1. INTERNAL FACILITIES

Arrista Technologies Product Compliance & Test (PCT) laboratory facility has test equipment for Electromagnetic Compatibility (EMC) testing i.e. ESD, EFT, Surge, and radiated emissions.

The laboratory is located at 5-55 Henlow Bay, Winnipeg, Manitoba, Canada at Arrista Technologies main facility.

The PCT Laboratory is registered with the FCC and has submitted the information required by Section 2.948 of the FCC Rules for measuring devices subject to Certification under Parts 15 & 18. Test equipment used to perform all measurements listed in paragraph 1.3 of this test report.

1.9.2. RADIATED EMISSIONS TEST SITE

Radiated emissions tests was performed in Arrista Technologies' semi-anechoic 3m test chamber.

The site consists of a 28'x 20'x 20' shielded chamber with absorptive materials on the walls and ceiling. The floor of the chamber is a raised conductive ground plane and includes a 2 m conductive top turntable. The measuring antenna is mounted on a non-conductive mast, which can be raised between 1 to 4 meters. Measurement equipment is located in the adjacent control room which is a 12' x 12' x 8' shielded structure.

2. TEST RESULTS

2.1. RF POWER OUTPUT

RF Output Power	FCC PARA NO.: 2.1046, 22.913
Tested by: Paul Eberling	Date: Dec. 21, 2001

2.1.1. SPECIFICATION REQUIREMENT:

According to § 22.913 The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

2.1.2. MEASUREMENT PROCEDURE:

The peak power at EUT antenna terminals is measured using the Advantest spectrum analyzer/tracking generator. See Appendix Figure A-1 for test set-up. Power output of multiple carriers is not measured as the EUT is designed to amplify a single carrier.

2.1.3. TEST RESULTS:

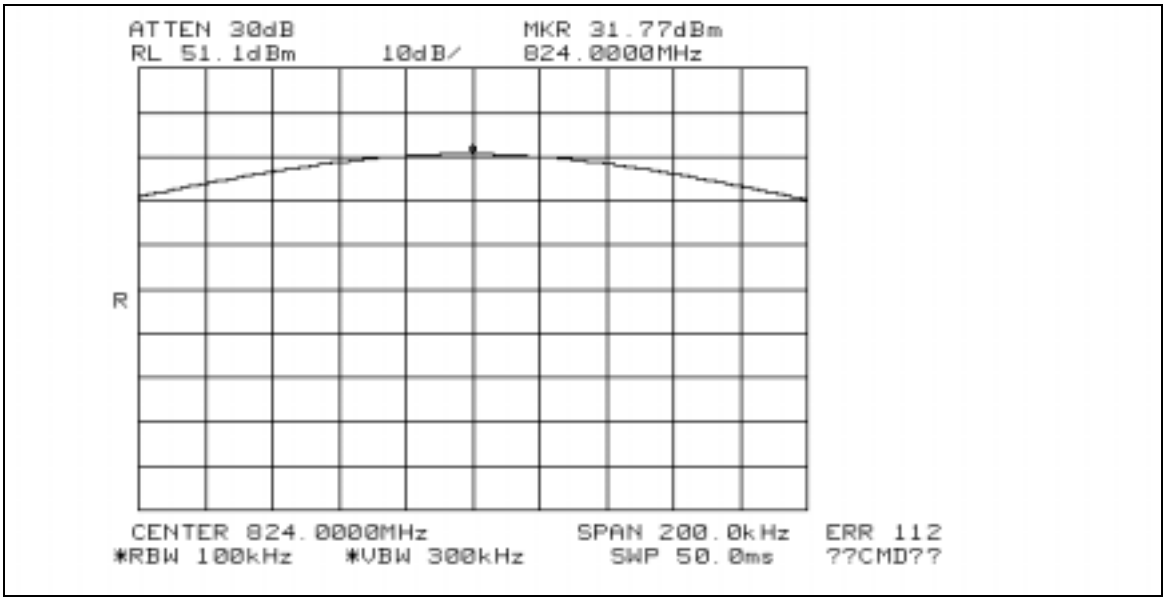
Complies

2.1.4. MEASUREMENT DATA:

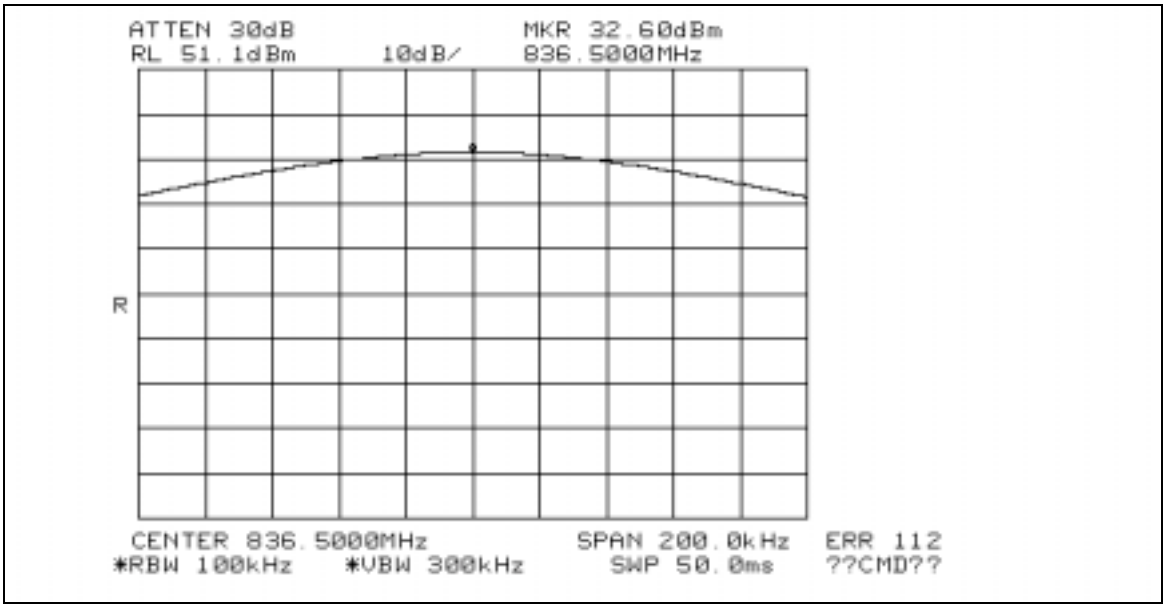
Freq (MHz)	SA Reading (dBm)	Cable (dB)	Attenuation (dB)	Result (dBm)	Output Power (W)	Limit (W)
824.0	31.8	Corrected	Corrected	31.8	1.51	7.0
836.5	32.6	Corrected	Corrected	32.6	1.82	7.0
849.0	29.4	Corrected	Corrected	29.4	0.87	7.0

Note:
Attenuation of cable and attenuator is corrected automatically by spectrum analyzer correction function.

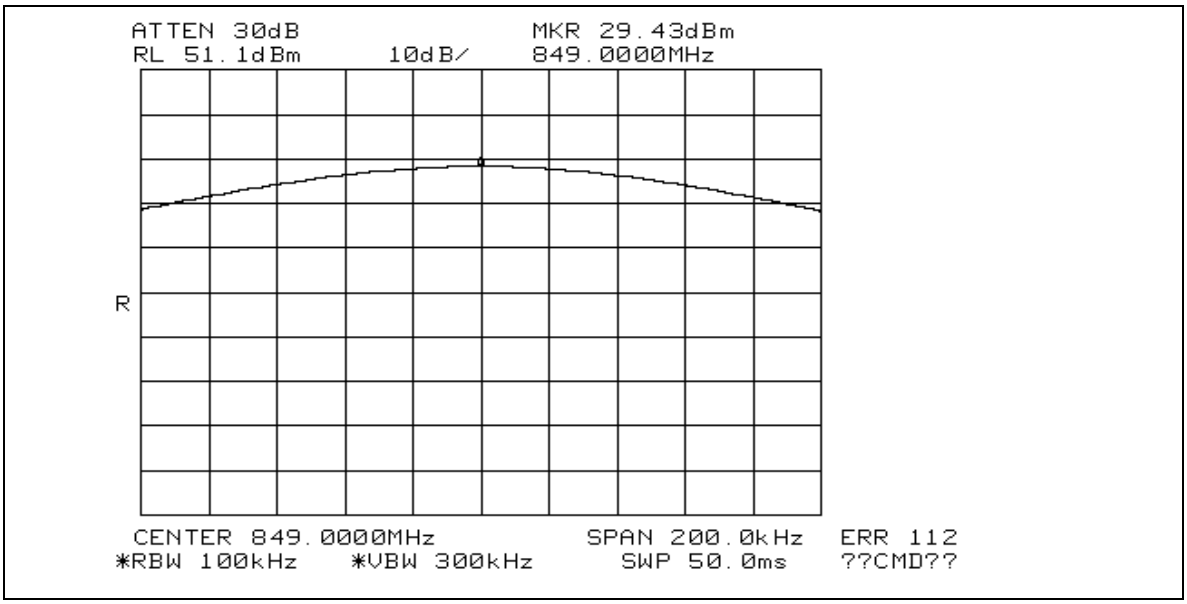
2.1.5. PLOT DATA



Power Output - Frequency 824.0 MHz



Power Output - Frequency 836.5 MHz



Power Output - Frequency 849.0 MHz

2.2. EMISSIONS LIMITATIONS FOR CELLULAR

Emissions Limitations for Cellular FID emissions mask (AMPS/TDMA)	**FCC Para No.: 22.917 (d)**
Tested by: Paul Eberling	**Date: Jan 25, 2002**

2.2.1. SPECIFICATION REQUIREMENT:

According to §22.917 (d) For F1D emissions, the mean power of emissions must be attenuated below the mean power of the un-modulated carrier (P) as follows:

(1) On any frequency removed from the carrier frequency by more than 20 kHz but not more than 45 kHz: at least 26 dB
(2) On any frequency removed from the carrier frequency by more than 45 kHz but not more than 90 kHz:at least 45 dB
(3) On any frequency removed from the carrier frequency by more than 90 kHz and up to the multiple of the carrier frequency, at least 60 dB or 43 + 10 log (P) dB, whichever is the lesser attenuation.

2.2.2. MEASUREMENT PROCEDURE:

A single FM modulated tone was used to demonstrate it operability in AMPS and TDMA cell systems. A signal generator was setup to provide a CW tone modulated with a 2.5kHz and +/-5 kHz deviation signal. The signal generator output was verified on a spectrum analyzer as shown. The signal generator output was then connected to the EUT cell phone coaxial interface connector. See Appendix A, Figure A-1 for test set-up

Advantest Spectrum Analyzer Settings:
RBW: 1kHz
VBV: 300Hz
Span: 200 kHz
Sweep: 5 sec
Mask: Cell F1D

Input Signal Characteristics:
HP 8648C Signal Generator
TektronicsTSG95 Signal Generator
Tone FM frequency: 2.5kHz@ +8dBu
Deviation: ± 5kHz.

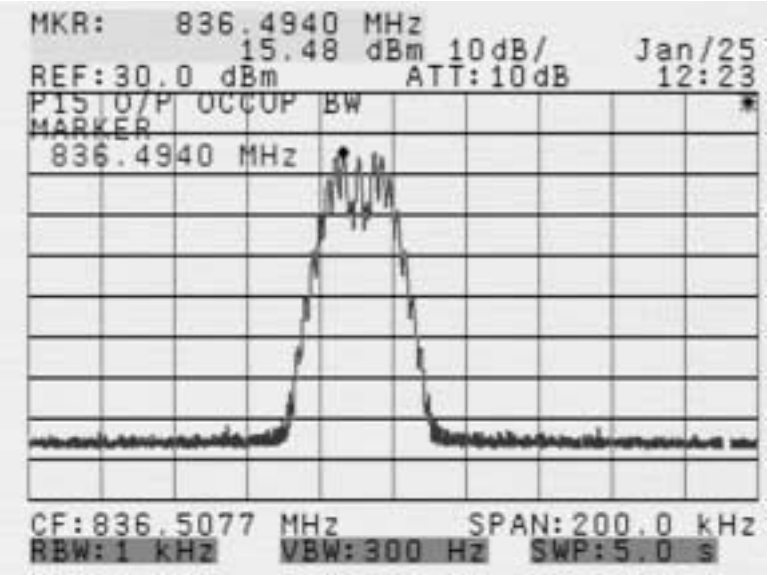
2.2.3. TEST RESULTS:

Complies

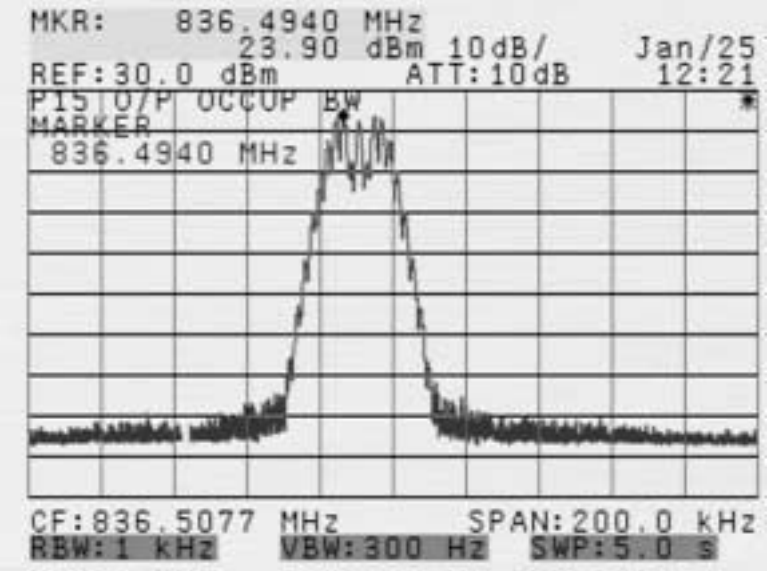
2.2.4. MEASUREMENT DATA:

As can be seen from the following plots, the EUT has not distorted the input signal, and the measured emissions are in accordance to section 22.917 (d) (1), (2), (3). Attenuation at 20kHz of center up to 45kHz is greater than 26dB. From 45kHz to 90kHz the attenuation is greater than 45dB. For emissions removed above 90kHz the attenuation is greater than at least 60 dB or 43 + 10 log (P) dB, whichever is the lesser attenuation.

AMPS/TDMA Validation



Signal generator Output Signal (2.5KHz tone +/-5kHz deviation FM Modulation)



Amplified Output Signal through EUT

2.3. CDMA OCCUPIED BANDWIDTH (DIGITALLY MODULATED SOURCE)

CDMA Occupied Bandwidth (Digital Modulation)	**FCC Para No: Not applicable**
Tested by: Paul Eberling	**Date: Jan. 25, 2002**

2.3.1. SPECIFICATION REQUIREMENT:

Not applicable

2.3.2. MEASUREMENT PROCEDURE:

A Motorola StarTac (FCC ID # IHDTSVA1 EE3) phone was used as a signal source to stimulate the EUT. The StarTac phone was mounted in a hands free automobile cradle DHF HANDSFREE model # N07110-HFCIC, the cradle output was connected to the EUT. The cradle unit incorporates a microphone interface allowing the user to communicate with the cell phone while driving.

A call was initiated on the StarTac phone, an audio signal generator (TSG95) was used to supply an audio tone to the cradles microphone interface which was then modulated by the StarTac. The non–amplified transmitted output spectrum of the phone/cradle is shown in Figure 2.3.4.1, showing the CDMA occupied bandwidth of a CDMA channel.

Next, the cell phone/cradle output was connected to the EUT's cell phone coaxial interface connector, the resulting display of occupied bandwidth at the EUT antenna coaxial connector is shown Figure 2.3.4.2. See Figure A-2 of Appendix A for test set-up.

Advantest Spectrum analyzer settings:
RBW: 300kHz
VBW: 300kHz
Span: 5MHz
Sweep: 500 ms
Mask: Not applicable

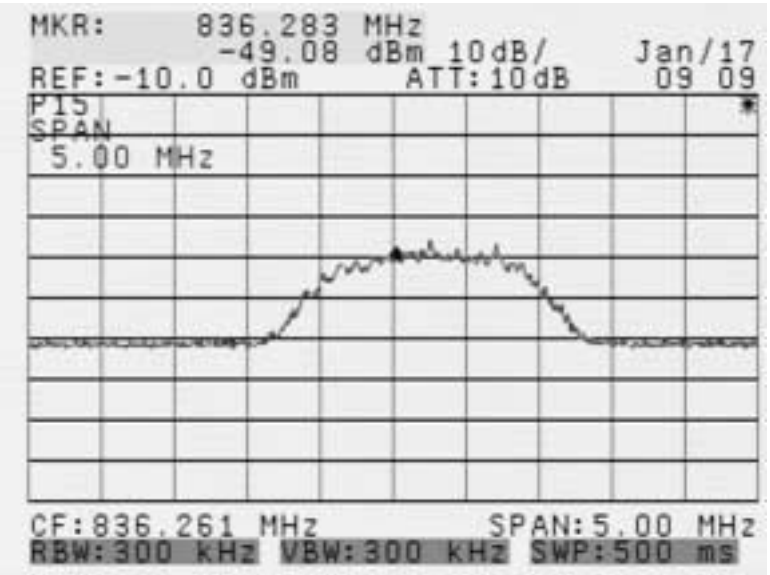
Input signal characteristics:
TSG95: 2kHz tone@ +8dBu +/-5KHz deviation
RF output level of cell phone CDMA signal to the EUT set by the cell network that the phone was connected to.

2.3.3. TEST RESULTS:

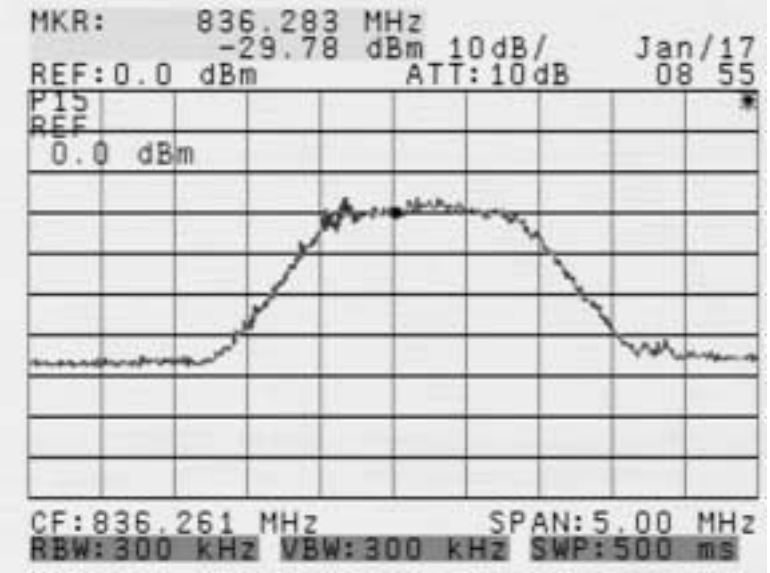
As can be seen from the amplified output, that EUT has not distorted the CDMA input signal, and has amplified it by approximately by 20 dB (as this is small signal gain of the EUT). This test was performed using an in service cell network and at no time during testing did the network drop the call.

2.3.4. MEASUREMENT DATA:

Figure 2.3.4.1



Output Signal of StarTac cell phone non-amplified (CDMA Digital Modulation)
Figure 2.3.4.2



Plot of Star Tac Output Signal amplified by EUT (CDMA Digital Modulation)

2.4. CONDUCTED SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Spurious Emissions at Antenna Terminals	**FCC Para No.: 2.1051(e), 22.917(d)**
TESTED BY: Paul Eberling	**Date: December 21, 2001**

2.4.1. SPECIFICATION REQUIREMENT:

More specifically **§ 2.1051** (e) *Out of band emissions.* The mean power of emissions must be attenuated below the mean power of the un-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by: at least 43+10 log P dB.

§22.917 (d) For F1D emissions, the mean power of emissions must be attenuated below the mean power of the un-modulated carrier (P) as follows:

3) On any frequency removed from the carrier frequency by more than 90 kHz, up to the first multiple of the carrier frequency, at least 60 dB or 43 + 10 log (P) dB, whichever is the lesser attenuation.

2.4.2. MEASUREMENT PROCEDURE:

For this test a signal generator was set up to provide a CW tone at 824, 836.5 and 849Mhz. The generator signal was connected to the EUT cell phone coaxial interface connector. The output of the EUT was connected to a spectrum analyzer and the emissions spectrum of the EUT was measured from 30MHz to the 10th harmonic of the fundamental of the CW input signal. See Figure A-1 of Appendix A for test set-up

Agilent Spectrum Analyzer Settings:
RBW: 300kHz < 1GHz, 1MHz > 1GHz
VBW: various
Bandwidth of measurement: 30MHz to 9GHz
Span: various
Sweep: 2 sec
Mask: Cell F1D

Input Signal Characteristics:
CW Frequency: 824, 836.5 and 849 MHz
RF level input of the signal to produce maximum EUT output through Mini-Circuits amplifier
See Figure A-1 in Appendix A for test set-up.

Spur limit = Po – (43 + 10logP) = 31.8 – [43 + 10log(Po in Watts)]= -13.0 dBm

2.4.3. TEST RESULTS:

Complies

2.4.4. MEASUREMENT DATA:

2.4.4.1. LOWER FREQUENCY: 824.0 MHZ

Harmonic/ Spur	MHz	Corrected SA (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Limit (dBm)	Margin (dB)
Spur	959	-27.57	Corrected	Corrected	-27.57	-13.0	14.57
2nd	1648	-23.07	Corrected	Corrected	-23.07	-13.0	10.01
3rd	2472	-17.23	Corrected	Corrected	-17.23	-13.0	4.2
4th	3296	-28.40	Corrected	Corrected	-28.40	-13.0	15.4
5th	4120	-32.40	Corrected	Corrected	-32.40	-13.0	19.4
6th	4944	-34.07	Corrected	Corrected	-34.07	-13.0	21.1
7th	5768	-34.40	Corrected	Corrected	-34.40	-13.0	21.4
Spur	6460	-22.07	Corrected	Corrected	-22.07	-13.0	9.07
8th	6592	-34.07	Corrected	Corrected	-34.07	-13.0	21.1
9th	7416	-32.57	Corrected	Corrected	-32.57	-13.0	19.6
10th	8240	-33.23	Corrected	Corrected	-33.23	-13.0	20.2

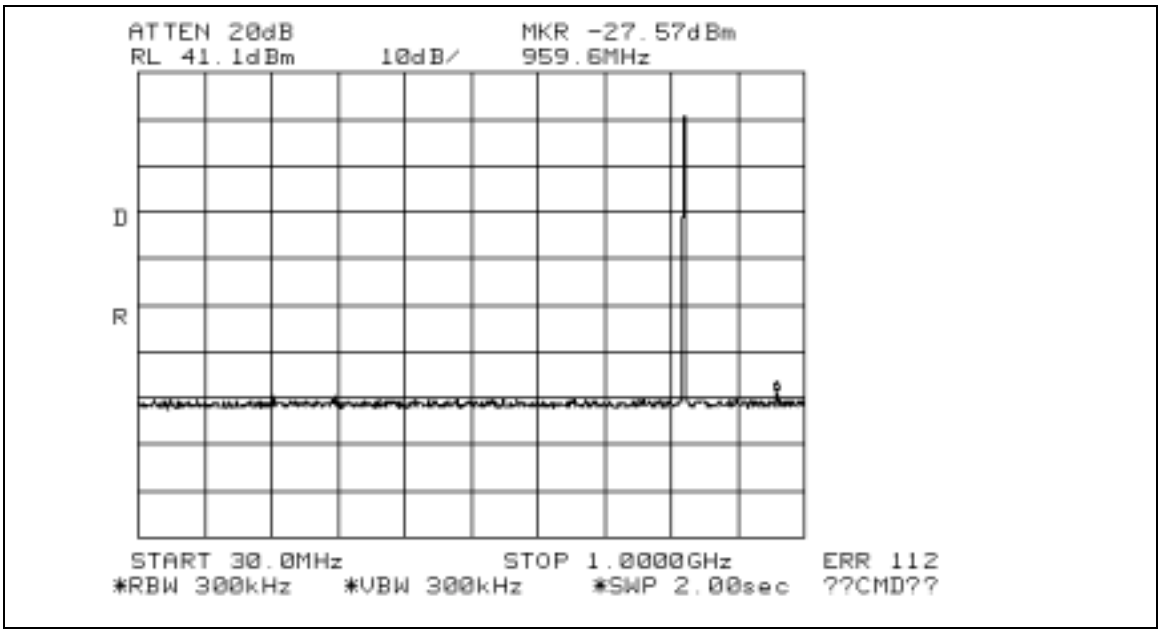
2.4.4.2. MIDDLE FREQUENCY: 836.5 MHZ

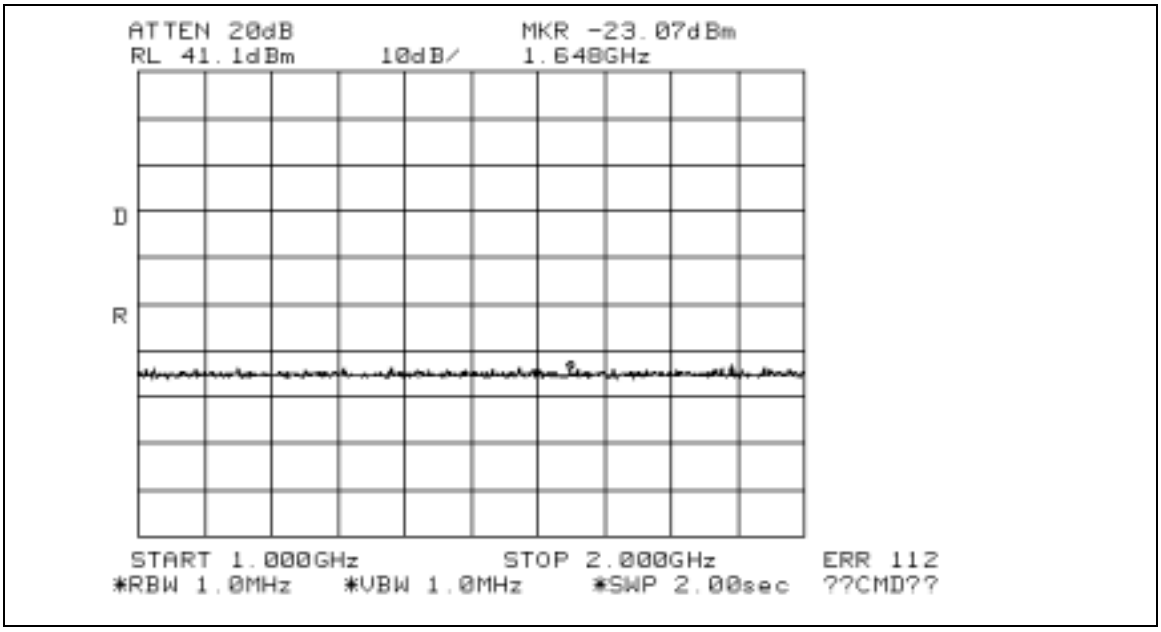
Harmonic/ Spur	MHz	Corrected SA (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Limit (dBm)	Margin (dB)
Spur	852.9	-28.57	Corrected	Corrected	-28.57	-13.0	15.57
2nd	1673	-22.90	Corrected	Corrected	-22.90	-13.0	8.9
3rd	2510	-30.57	Corrected	Corrected	-30.57	-13.0	17.6
4th	2510	-32.90	Corrected	Corrected	-32.90	-13.0	19.9
Spur	3400	-22.07	Corrected	Corrected	-22.07	-13.0	8.07
5th	4183	-33.57	Corrected	Corrected	-33.57	-13.0	20.6
6th	5019	-34.40	Corrected	Corrected	-34.40	-13.0	21.4
7th	5856	-35.90	Corrected	Corrected	-35.90	-13.0	22.9
8th	6692	-33.90	Corrected	Corrected	-33.90	-13.0	20.9
Spur	7267	-20.90	Corrected	Coprrected	-20.90	-13.0	6.9
9th	7529	-31.73	Corrected	Corrected	-31.73	-13.0	18.7
10th	8365	-31.90	Corrected	Corrected	-31.90	-13.0	18.9

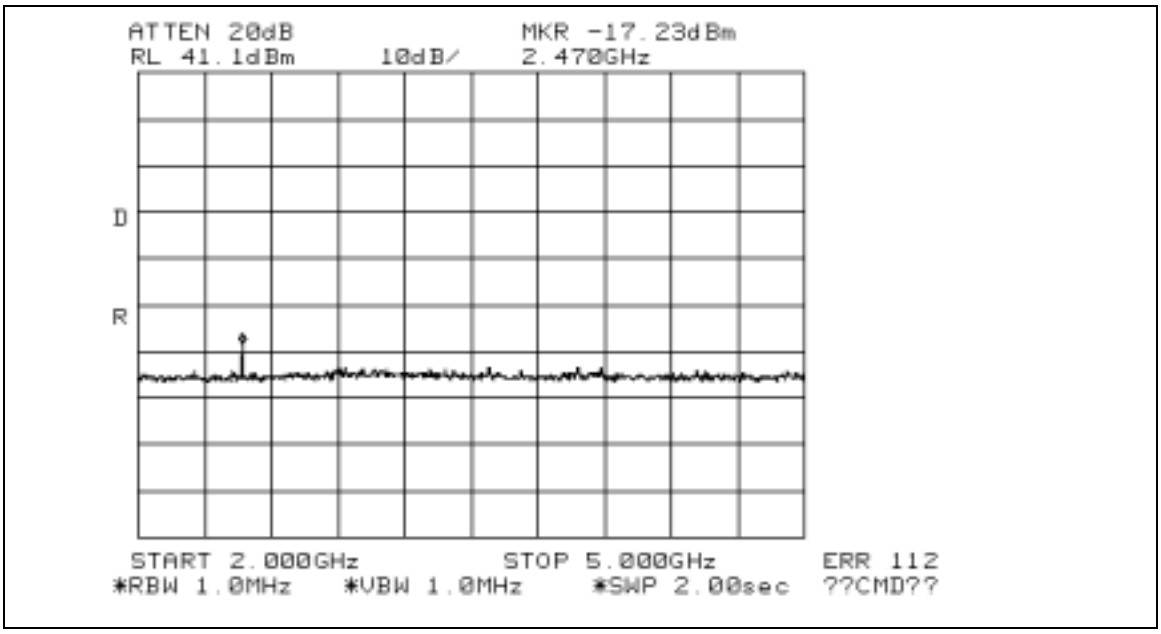
2.4.4.3. UPPER FREQUENCY: 849.0 MHZ

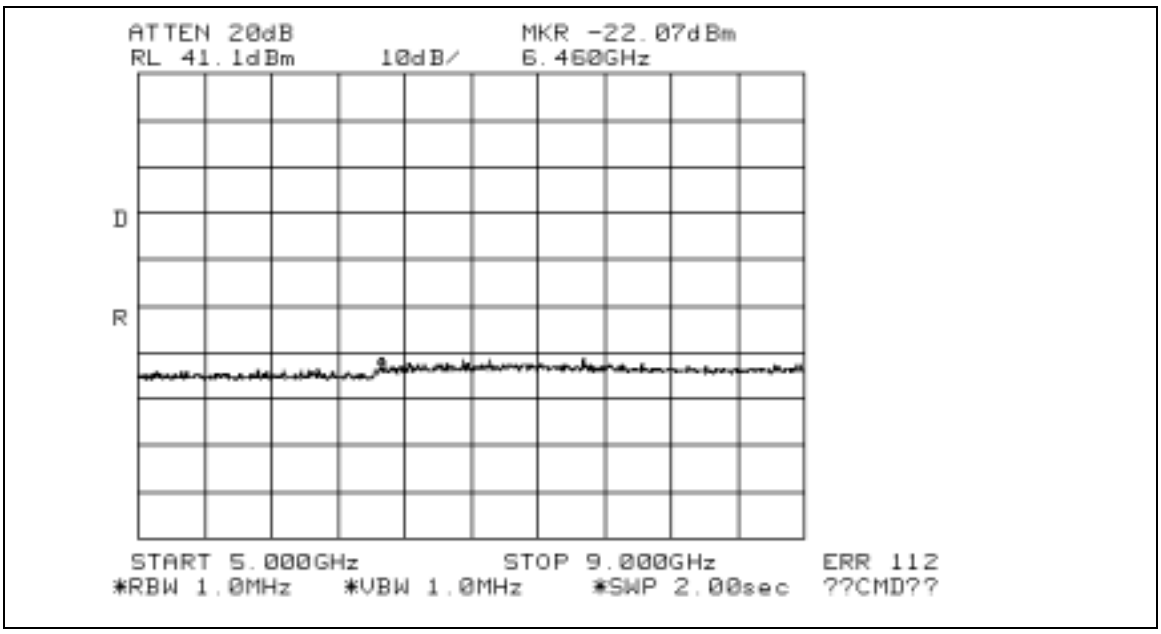
Harmonic/ Spur	MHz	Corrected SA (dBm)	Cable Loss (dB)	Attenuator (dB)	Result (dBm)	Limit (dBm)	Margin (dB)
Spur	275	-28.07	Corrected	Corrected	-28.07	-13.0	15.07
2nd	1698	-21.73	Corrected	Corrected	-21.73	-13.0	7.73
3rd	2547	-28.40	Corrected	Corrected	-28.40	-13.0	15.4
Spur	2900	-22.90	Corrected	Corrected	-22.90	-13.0	9.9
4th	3396	-34.90	Corrected	Corrected	-34.90	-13.0	21.9
5th	4245	-33.40	Corrected	Corrected	-33.40	-13.0	20.4
6th	5094	-34.90	Corrected	Corrected	-34.90	-13.0	21.9
7th	5943	-34.90	Corrected	Corrected	-34.90	-13.0	21.9
8th	6792	-33.40	Corrected	Corrected	-33.40	-13.0	20.4
Spur	7053	-21.40	Corrected	Corrected	-21.40	-13.0	8.40
9th	7641	-33.90	Corrected	Corrected	-33.90	-13.0	20.9
10th	8490	-33.57	Corrected	Corrected	-33.57	-13.0	20.6

2.4.4.4. LOWER FREQUENCY PLOTS: CARRIER AT 824.0 MHZ

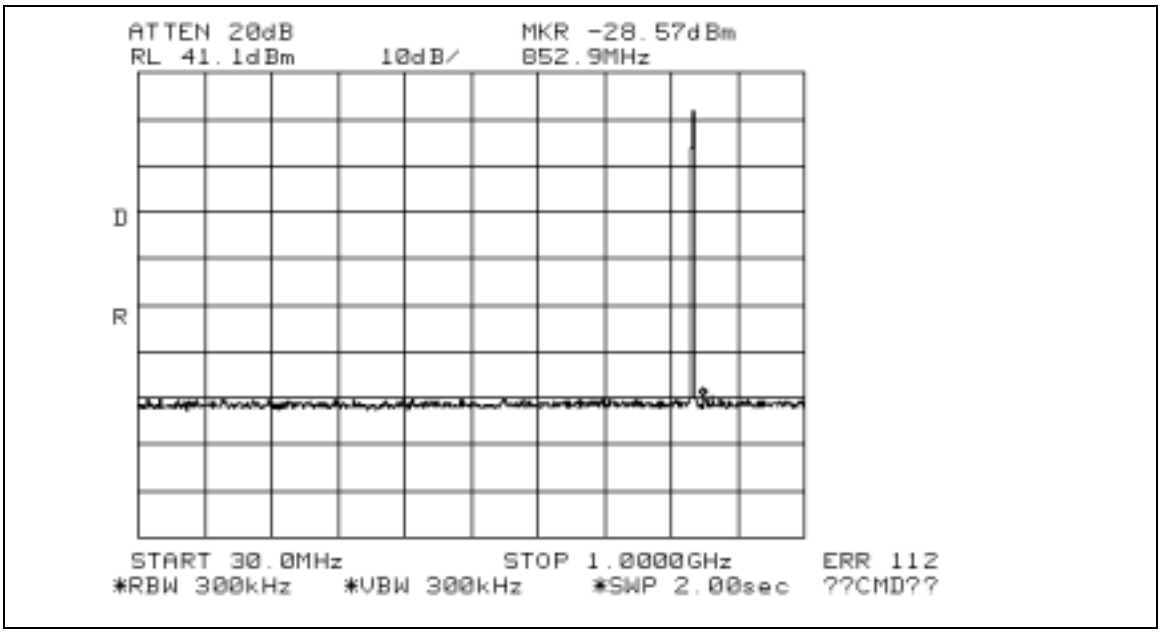


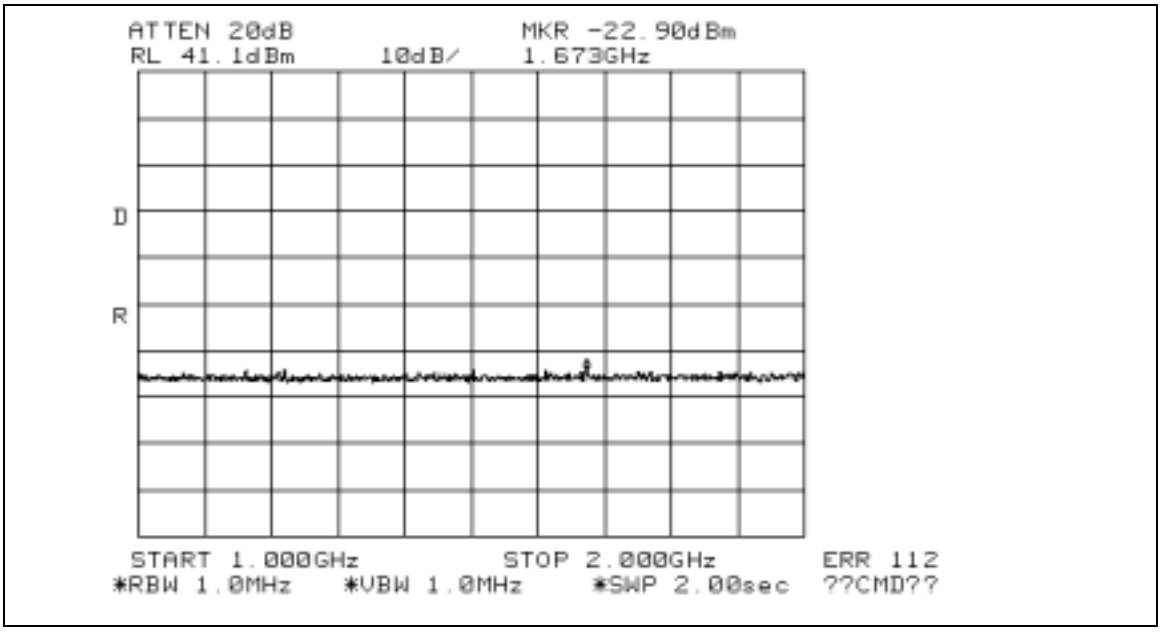


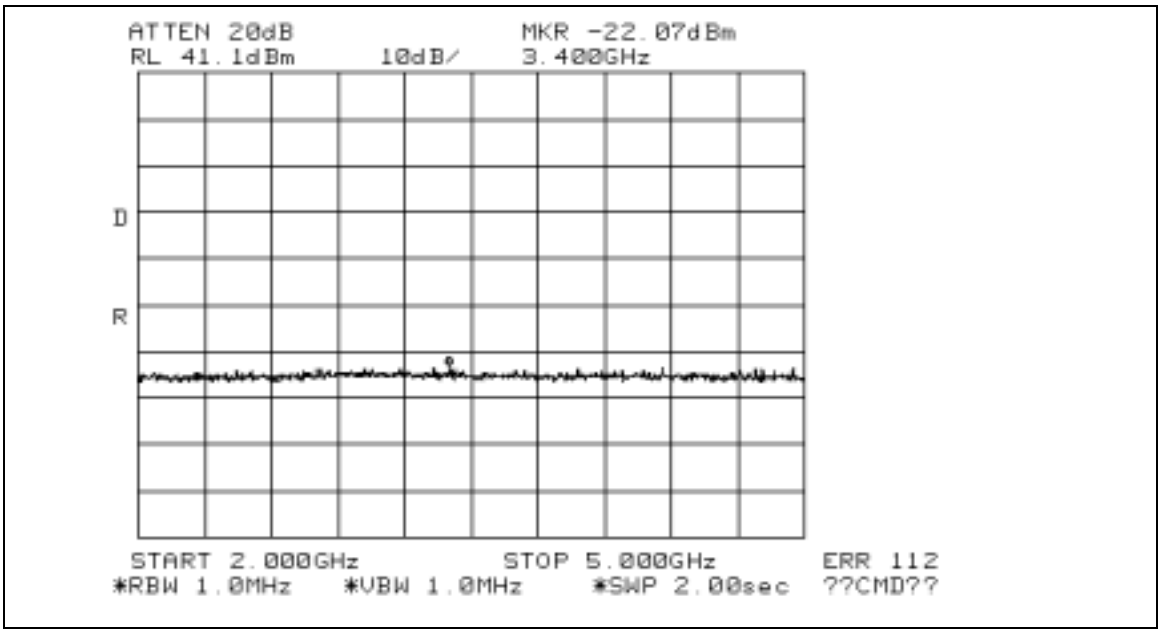


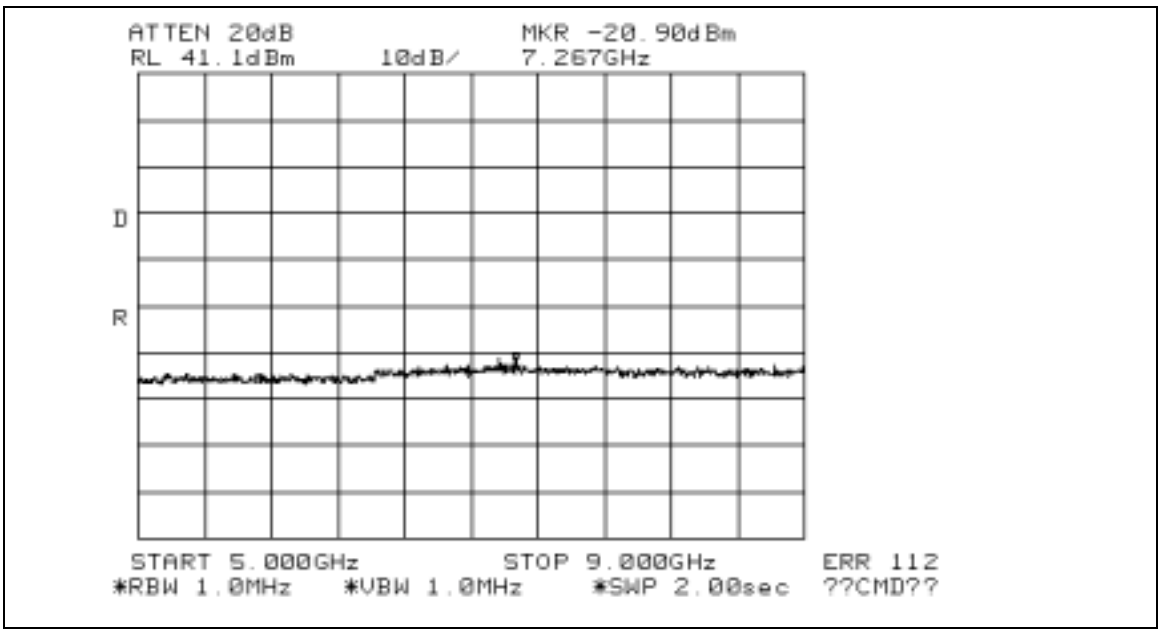


2.4.4.5. MIDDLE FREQUENCY PLOTS: CARRIER AT 836.5 MHZ

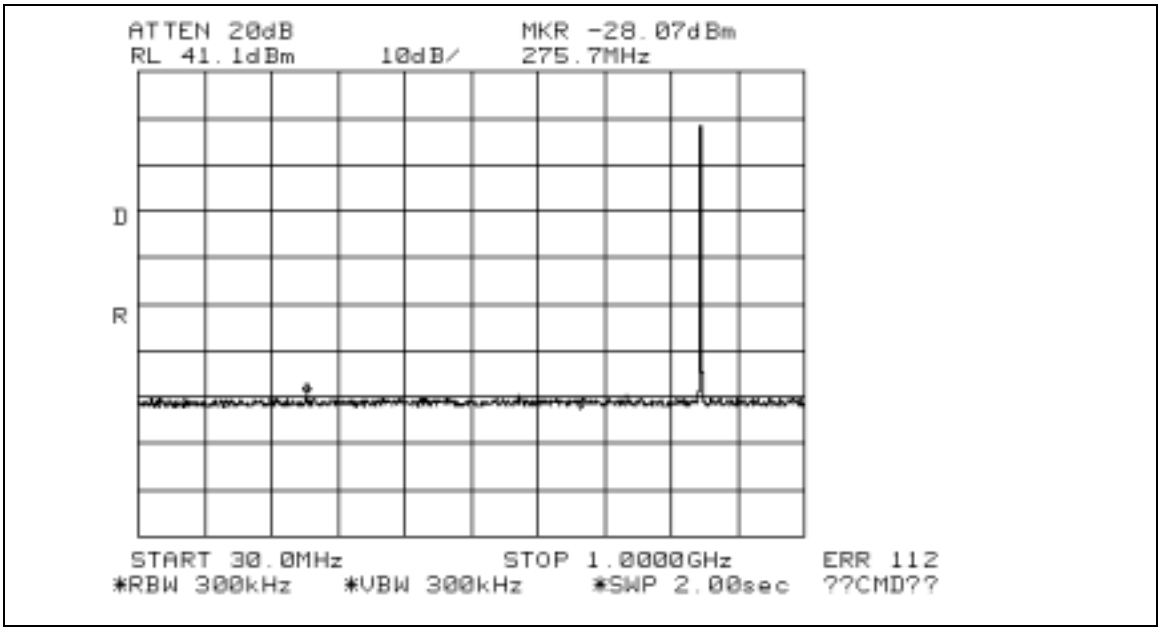


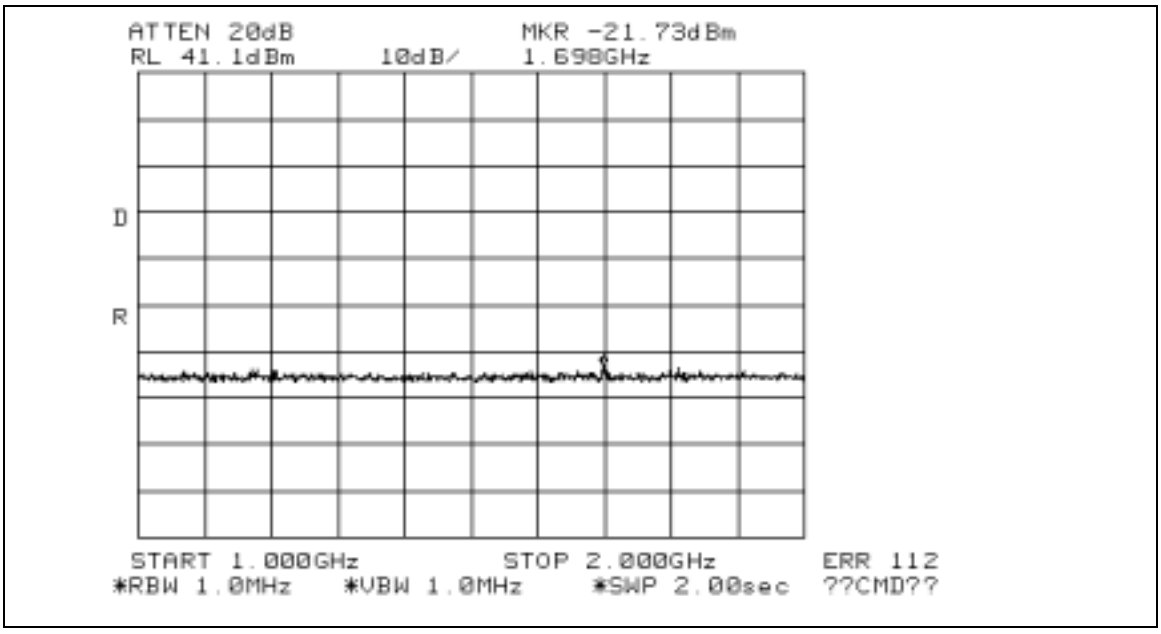


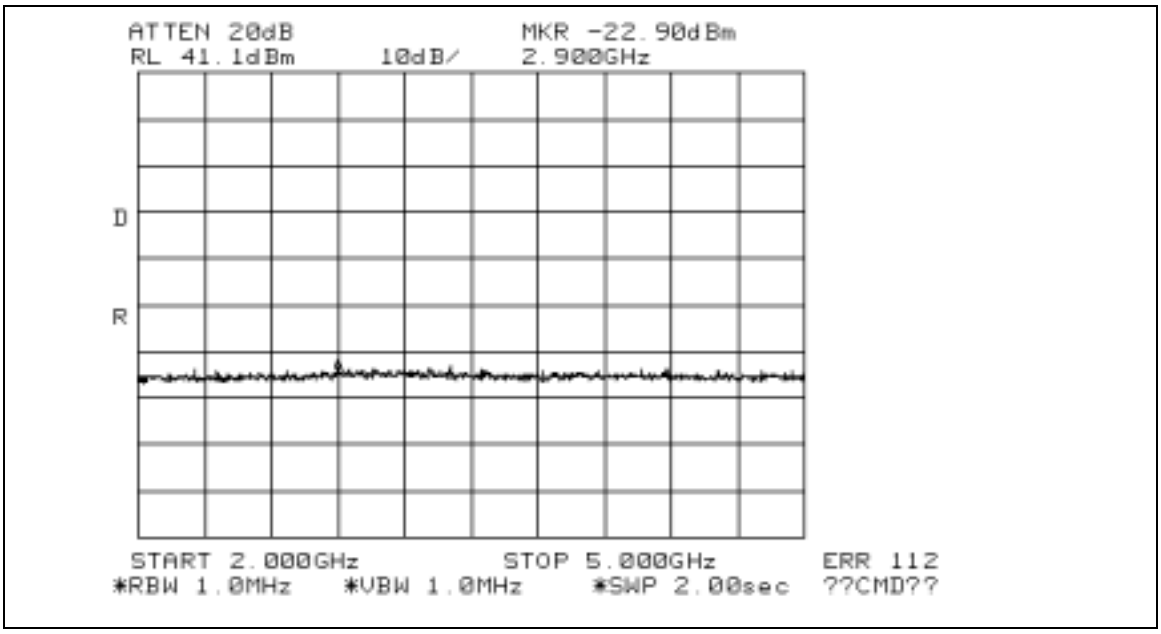


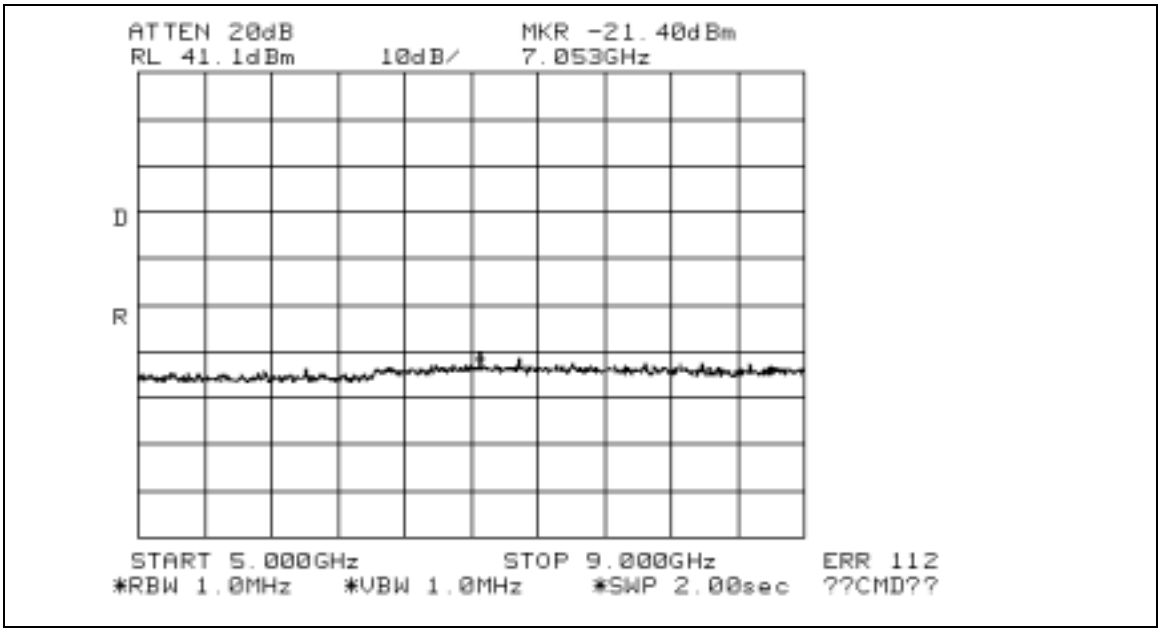


2.4.4.6. UPPER FREQUENCY PLOTS: CARRIER AT 849.0 MHZ









2.5. FIELD STRENGTH OF EMISSIONS

Radiated Emissions	FCC Para No.: 2.1053, 22.917
Tested by: Paul Eberling	Date: January 18, 2002

2.5.1. SPECIFICATION REQUIREMENT:

The mean power of emissions must be attenuated below the mean power of the un-modulated carrier on any frequency twice or more than twice the fundamental emission by at least 43 + 10 log P. This is equivalent to –13 dBm absolute power.

2.5.2. MEASUREMENT PROCEDURE:

The EUT is placed in a 3-meter semi anechoic chamber on a wooden table resting on the metal turntable. The EUT is stimulated by a CW tone from a signal generator at three discrete frequencies 824, 836.5 and 849MHz.

The EUT is not designed with an integral antenna nor sold with one, thus for this test, the EUT's output antenna interface coaxial connector is terminated into a coaxial cable with a 50 ohm load attached to it.

The EUT's radiated field strength emissions is measured from 30MHz to the tenth harmonic of the CW input signal. A CISPR 16 compliant receiver is used to for scans between 30MHz to 2GHz. A spectrum analyzer is used for measurements above 2GHz. A calculation follows to convert the spec limit power level (i.e.-13dBm) to an E field measurement limit. See Figure A-3 of Appendix A for test set-up

Calculation of field strength limit corresponding to a power limit of –13dBm

An example of attenuation requirement of 43 + 10 Log P is equivalent to –13 dBm ($5x10^{-5}$ Watts) at the antenna terminal. We determine the field strength limit by using the plane wave relation.

$GP/4\pi R^2 = E^2/120\pi$

For emissions $\leq$ 1 GHz:

G = 1.64 (Dipole Gain)
P = 10^{-5} Watts (Maximum spurious output power)
R = 3m (Measurement Distance)

E = 0.016533 V/m = 84.4 dBµV/m *@3m*

For emissions >1 GHz:

G = 1 (Isotropic Gain)
P = 1 x 10^{-5} Watts (Maximum spurious output power)
R = 3m (Measurement Distance)

E = 84.4 – 20 Log = 82.3dBµV/m *@3m*

DSI Receiver/Agilent Spectrum Analyzer Settings:
RBW: 120kHz @ f< 1GHz, 1MHz @ f > 1GHz
VBW: various
Bandwidth of measurement: 30MHz to 9GHz
Span: various

Input signal characteristics:
CW RF level input of the signal to produce maximum EUT leveled output
CW Frequencies: 824, 836.5 and 849 MHz

2.5.3. TEST RESULTS:

Complies

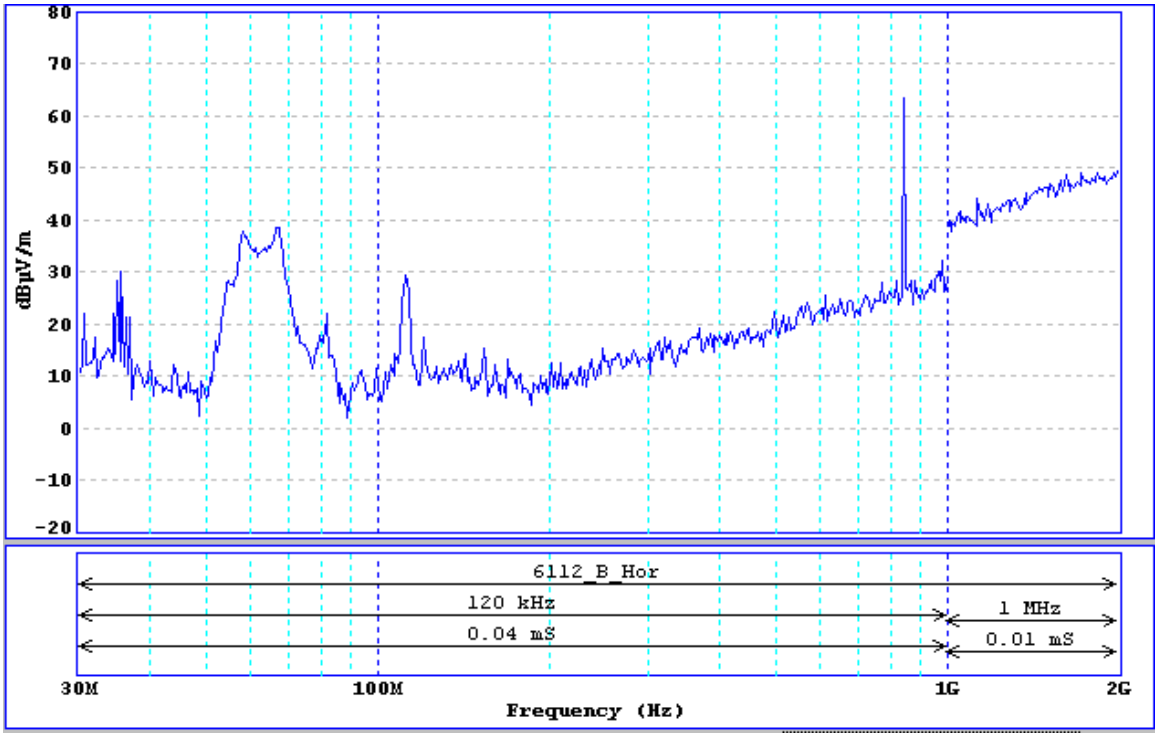
2.5.4. MEASUREMENT DATA:

Data was collected using carrier frequencies of 824, 836.5, and 849MHz for measurements below 1GHz. Data for measurements taken using a carrier frequency of 836.5MHz are displayed in following plots. Additional data can be supplied upon request. Measurements above 1GHz are recorded in the following tables, at 824, 836, and 849MHz. Above frequencies of 1 GHz only harmonic emissions were measurable, all non harmonic spurious emissions were not measurable, as they were below the noise floor of the instrument.

See Tables and Plot Data below:

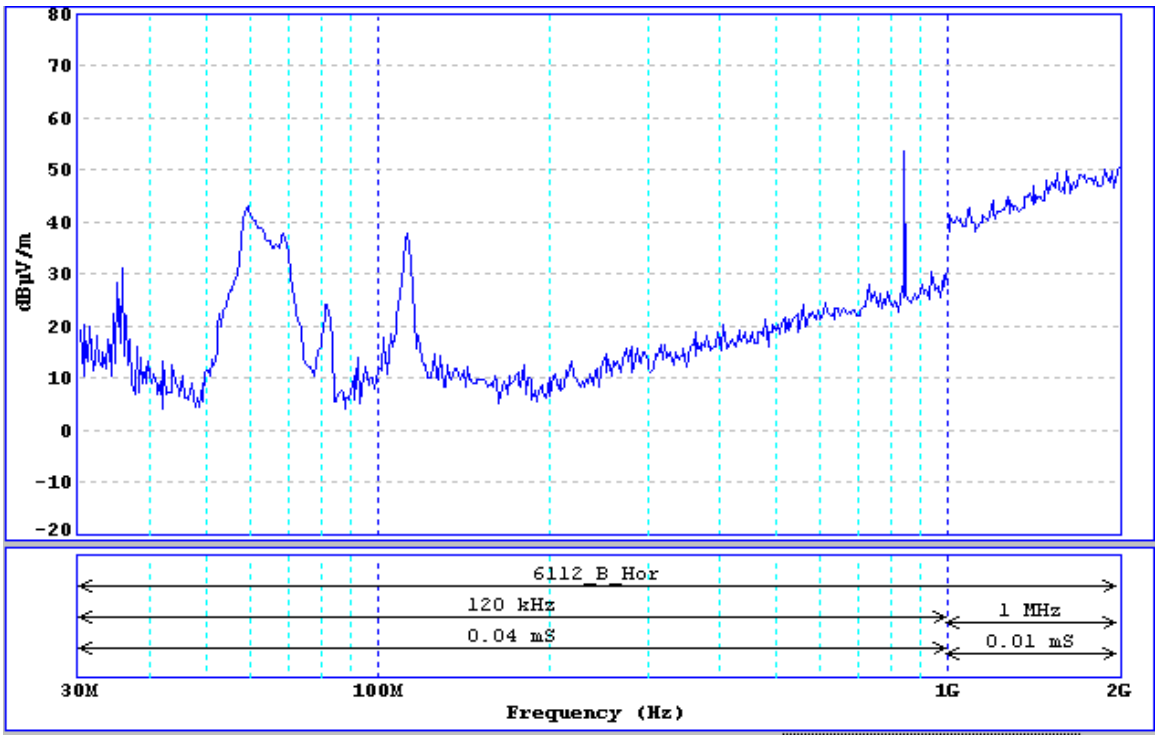
2.5.4.1. HORIZONTAL 0 DEGREES

Model:	SG800
Scan Polarization:	Horizontal
Antenna Height:	2m
Turntable Position:	0 degrees
Detector Type:	Peak
Voltage Supply:	13.8 VDC



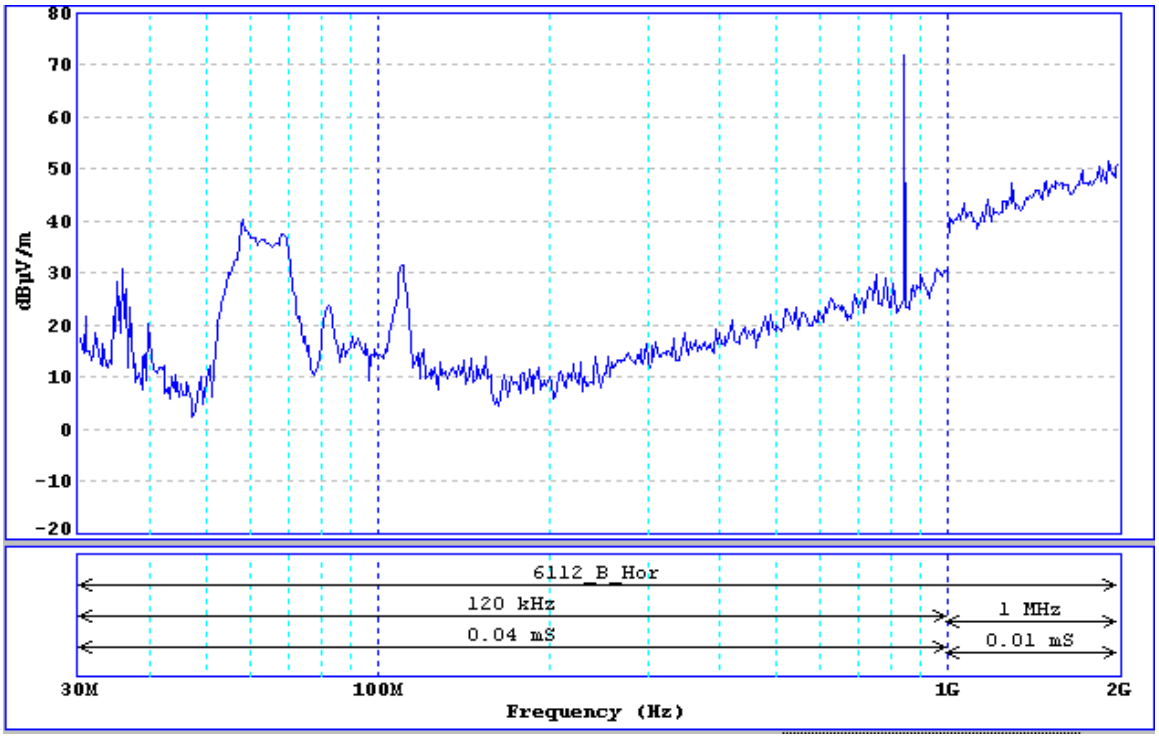
2.5.4.2. HORIZONTAL 90 DEGREES

Model:	SG800
Scan Polarization:	Horizontal
Antenna Height:	2m
Turntable Position:	90 degrees
Detector Type:	Peak
Voltage Supply:	13.8 VDC



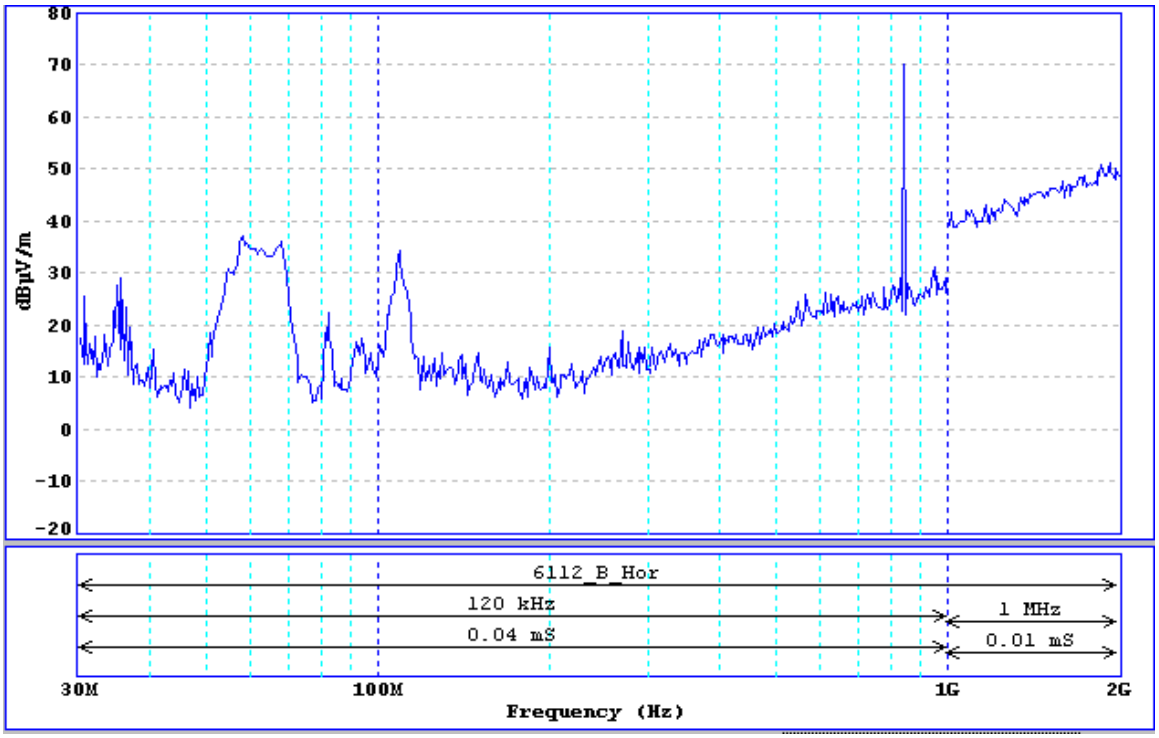
2.5.4.3. HORIZONTAL 180 DEGREES

Model:	SG800
Scan Polarization:	Horizontal
Antenna Height:	2m
Turntable Position:	180 degrees
Detector Type:	Peak
Voltage Supply:	13.8 VDC



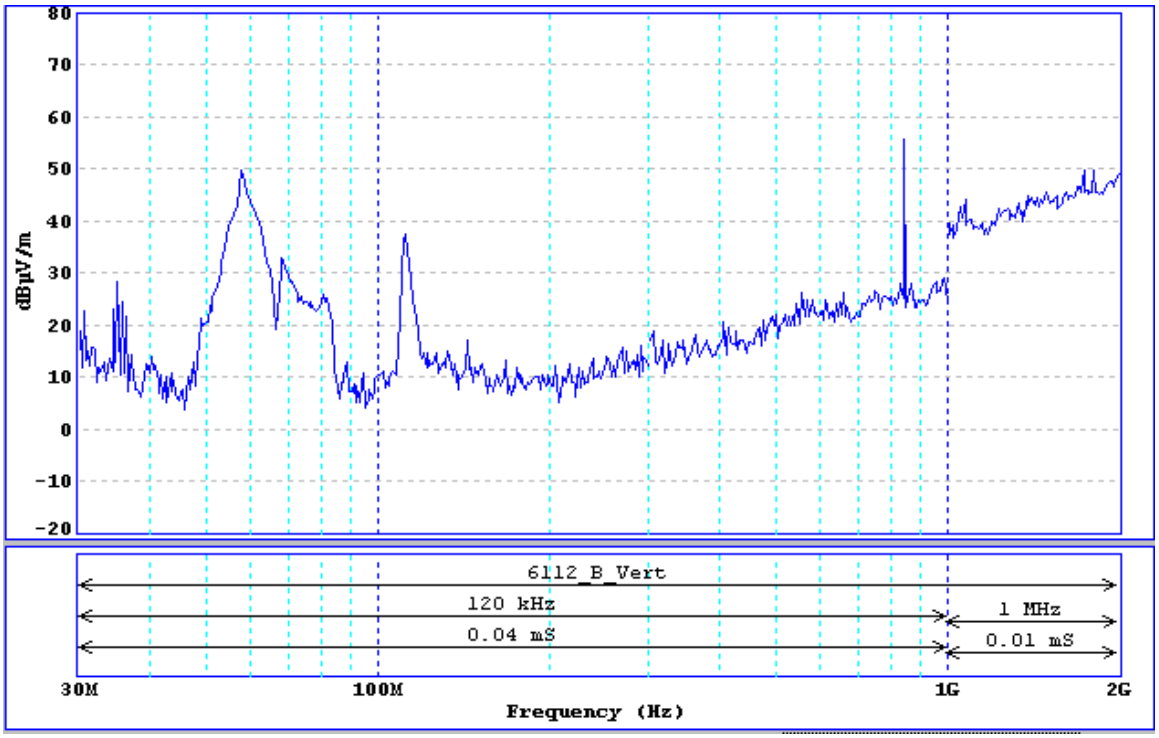
2.5.4.4. HORIZONTAL 270 DEGREES

Model:	SG800
Scan Polarization:	Horizontal
Antenna Height:	2m
Turntable Position:	270 degrees
Detector Type:	Peak
Voltage Supply:	13.8 VDC



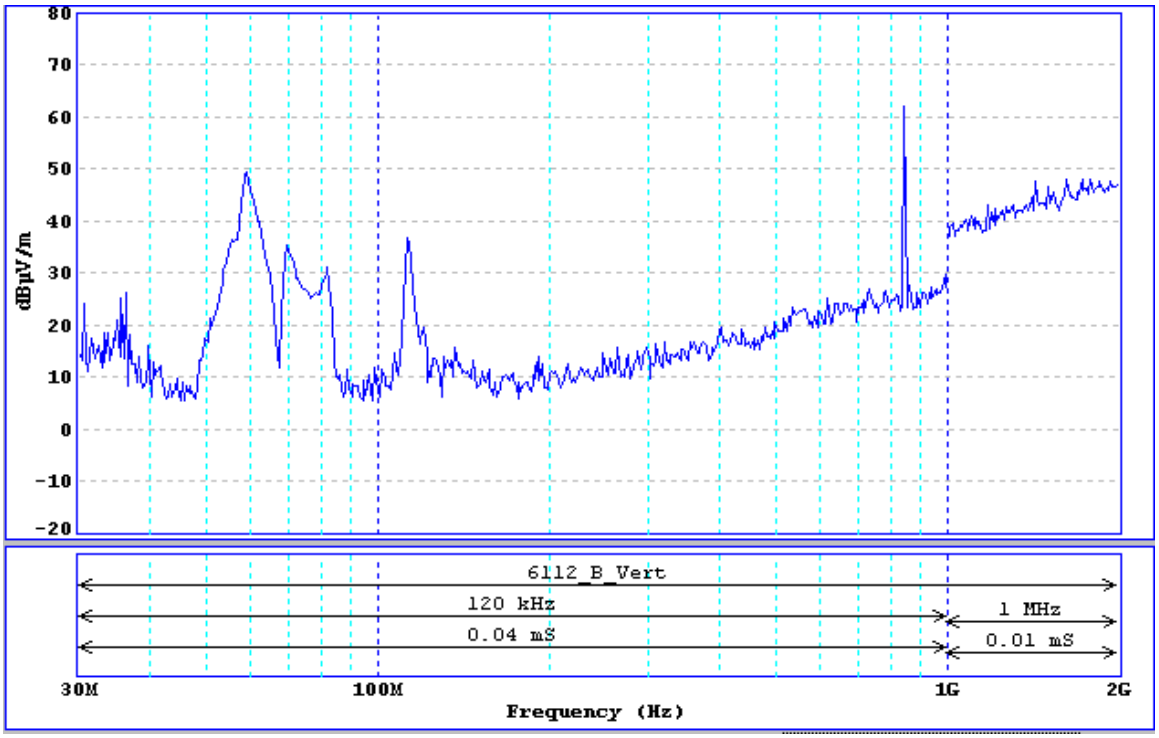
2.5.4.5. VERTICAL 0 DEGREES

Model:	SG800
Scan Polarization:	Horizontal
Antenna Height:	2m
Turntable Position:	0 degrees
Detector Type:	Peak
Voltage Supply:	13.8 VDC



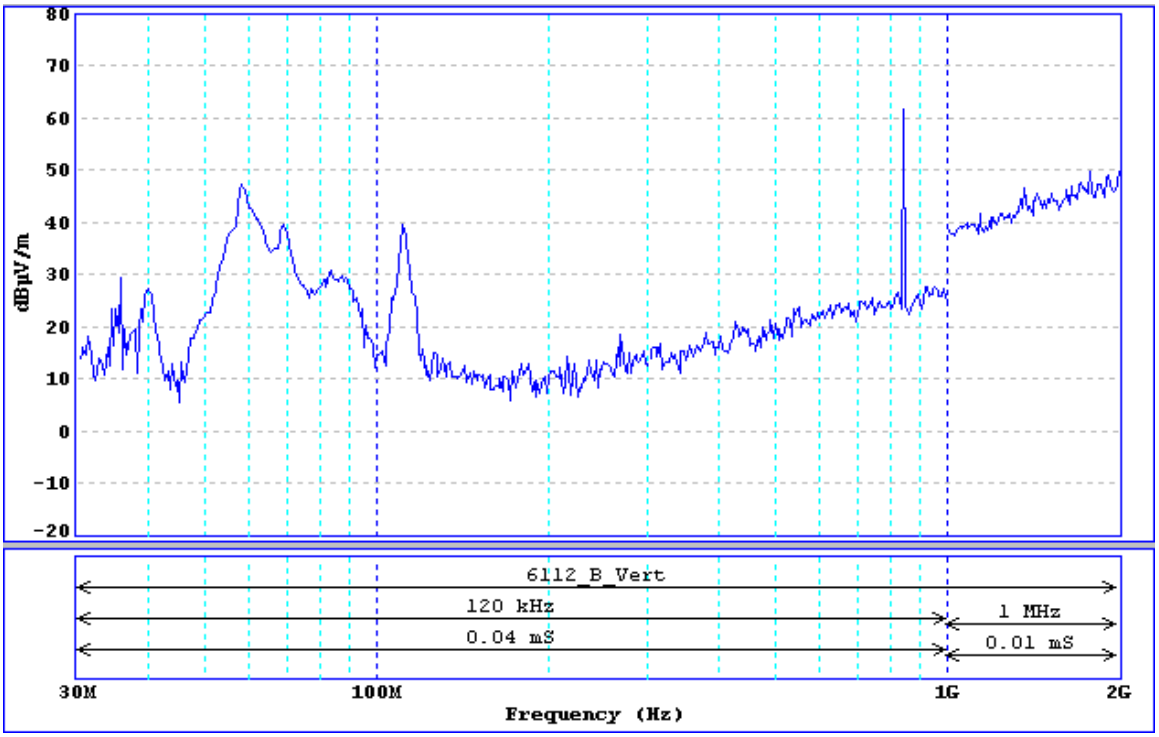
2.5.4.6. VERTICAL 90 DEGREES

Model:	SG800
Scan Polarization:	Horizontal
Antenna Height:	2m
Turntable Position:	90 degrees
Detector Type:	Peak
Voltage Supply:	13.8 VDC



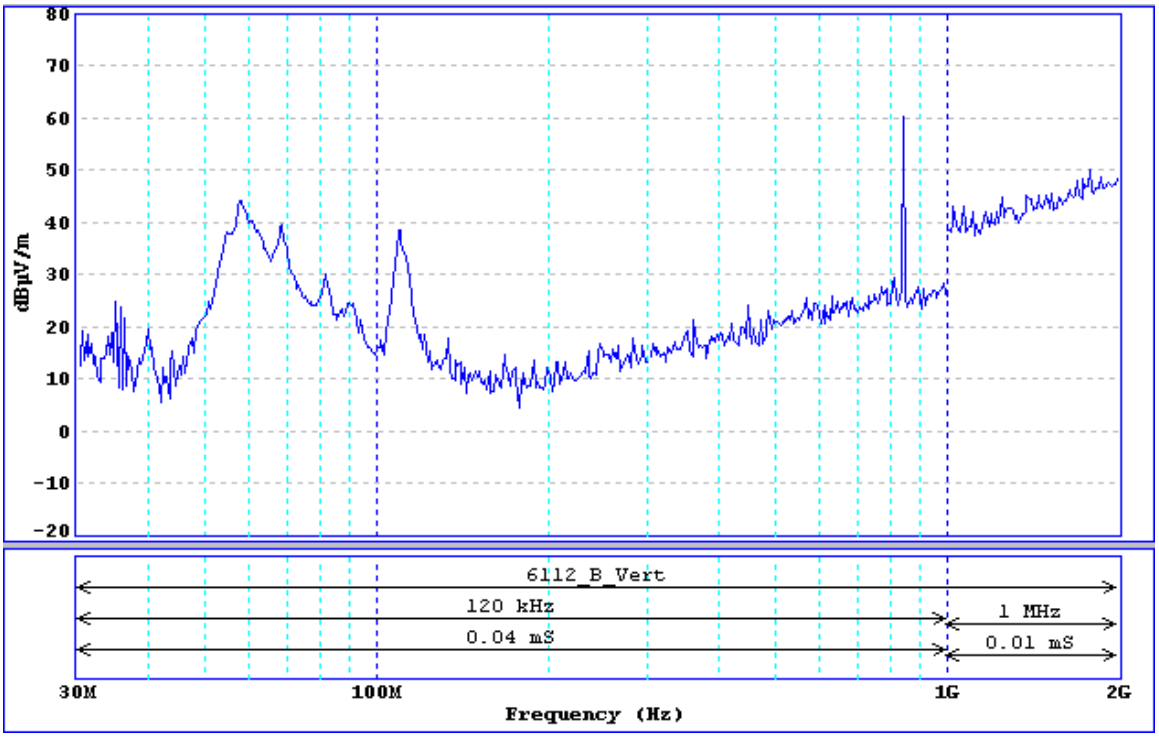
2.5.4.7. VERTICAL 180 DEGREES

Model:	SG800
Scan Polarization:	Horizontal
Antenna Height:	2m
Turntable Position:	180 degrees
Detector Type:	Peak
Voltage Supply:	13.8 VDC



2.5.4.8. VERTICAL 270 DEGREES

Model:	SG800
Scan Polarization:	Horizontal
Antenna Height:	2m
Turntable Position:	270 degrees
Detector Type:	Peak
Voltage Supply:	13.8 VDC



2.5.4.9. HARMONIC EMISSIONS 1GHZ – 10GHZ (824MHZ)

Model:	SG800
Carrier Frequency:	824MHz
Detector Type:	Peak
Voltage Supply:	13.8 VDC

Harmonic	MHz	TT Pos(deg)	Ant Pos(m)	Polar	Ant Corr(dB/m)	Cable Corr(dB)	Rec Sig(dBuV)	Corr Amp(dBuV/m)	Limit(dBuV/m)	Margin(dB)
2nd	1648	186	1.3	H	26.9	2	25.8	54.7	82.2	27.5
	1648	186	1.3	V	26.7	2	26.7	55.4	82.2	26.8
3rd	2472	186	1.3	H	30.4	2.5	29.5	62.4	82.2	19.8
	2472	186	1.3	V	30.4	2.5	26.8	59.7	82.2	22.5
4th	3296	186	1.3	H	31.5	2.83	28.8	63.1	82.2	19.1
	3296	186	1.3	V	31.5	2.83	26.3	60.6	82.2	21.6
5th	4120	186	1.3	H	34.4	3.34	26.8	64.5	82.2	17.7
	4120	186	1.3	V	34.4	3.34	27	64.7	82.2	17.5
6th	4944	186	1.3	H	35.1	3.67	25.7	64.5	82.2	17.7
	4944	186	1.3	V	35.3	3.67	28.1	67.1	82.2	15.1
7th	5768	186	1.3	H	36.2	3.83	27.5	67.5	82.2	14.7
	5768	186	1.3	V	35.9	3.83	26.7	66.4	82.2	15.8
8th	6592	186	1.3	H	36.3	4	30.2	70.5	82.2	11.7
	6592	186	1.3	V	36.3	4	29.5	69.8	82.2	12.4
9th	7416	186	1.3	H	38	4.67	31.3	74	82.2	8.2
	7416	186	1.3	V	38	4.67	30.1	72.8	82.2	9.4
10th	8240	186	1.3	H	37.7	4.84	29.7	72.2	82.2	10
	8240	186	1.3	V	37.5	4.84	29.3	71.6	82.2	10.6

2.5.4.10. HARMONIC EMISSIONS 1GHZ – 10GHZ (836.5MHZ)

Model:	SG800
Carrier Frequency:	836.5MHz
Detector Type:	Peak
Voltage Supply:	13.8 VDC

Harmonic	MHz	TT Pos(deg)	Ant Pos(m)	Polar	Ant Corr(dB/m)	Cable Corr(dB)	Rec Sig(dBuV)	Corr Amp(dBuV/m)	Limit(dBuV/m)	Margin(dB)
2nd	1673	202	1.00	H	26.9	2.00	27.5	56.4	82.2	25.8
	1673	202	1.00	V	26.7	2.00	26.5	55.2	82.2	27.0
3rd	2509.5	202	1.00	H	30.4	2.50	27.8	60.7	82.2	21.5
	2509.5	202	1.00	V	30.4	2.50	26.7	59.6	82.2	22.6
4th	3346	202	1.00	H	32.8	2.83	27.2	62.8	82.2	19.4
	3346	202	1.00	V	32.6	2.83	28.3	63.7	82.2	18.5
5th	4182.5	202	1.00	H	34.4	3.34	26.7	64.4	82.2	17.8
	4182.5	202	1.00	V	34.4	3.34	27.0	64.7	82.2	17.5
6th	5019	202	1.00	H	35.1	3.67	28.0	66.8	82.2	15.4
	5019	202	1.00	V	35.3	3.67	27.7	66.7	82.2	15.5
7th	5855.5	202	1.00	H	36.9	3.83	26.7	67.4	82.2	14.8
	5855.5	202	1.00	V	36.9	3.83	26.5	67.2	82.2	15.0
8th	6692	202	1.00	H	36.3	4.00	30.7	71.0	82.2	11.2
	6692	202	1.00	V	36.3	4.00	29.8	70.1	82.2	12.1
9th	7528.5	202	1.00	H	38.0	4.67	29.7	72.4	82.2	9.8
	7528.5	202	1.00	V	38.0	4.67	30.0	72.7	82.2	9.5
10th	8365	202	1.00	H	38.1	4.66	29.5	72.3	82.2	9.9
	8365	202	1.00	V	38.1	4.66	29.3	72.1	82.2	10.1

2.5.4.11. HARMONIC EMISSIONS 1GHZ – 10GHZ (849MHZ)

Model:	SG800
Carrier Frequency:	849MHz
Detector Type:	Peak
Voltage Supply:	13.8 VDC

Harmonic	MHz	TT Pos(deg)	Ant Pos(m)	Polar	Ant Corr(dB/m)	Cable Corr(dB)	Rec Sig(dBuV)	Corr Amp(dBuV/m)	Limit(dBuV/m)	Margin(dB)
2nd	1698	182	1.00	H	26.9	2.00	27.3	56.2	82.2	26.0
	1698	182	1.00	V	26.7	2.00	28.2	56.9	82.2	25.3
3rd	2547	182	1.00	H	30.4	2.50	28.2	61.1	82.2	21.1
	2547	182	1.00	V	30.4	2.50	28.3	61.2	82.2	21.0
4th	3396	182	1.00	H	32.8	2.83	27.8	63.4	82.2	18.8
	3396	182	1.00	V	32.6	2.83	27.7	63.1	82.2	19.1
5th	4245	182	1.00	H	34.4	3.34	27.3	65.0	82.2	17.2
	4245	182	1.00	V	34.4	3.34	27.0	64.7	82.2	17.5
6th	5094	182	1.00	H	35.1	3.67	26.2	65.0	82.2	17.2
	5094	182	1.00	V	35.3	3.67	27.3	66.3	82.2	15.9
7th	5943	182	1.00	H	36.9	3.83	27.0	67.7	82.2	14.5
	5943	182	1.00	V	36.9	3.83	28.3	69.0	82.2	13.2
8th	6792	182	1.00	H	36.3	4.00	31.5	71.8	82.2	10.4
	6792	182	1.00	V	36.3	4.00	29.3	69.6	82.2	12.6
9th	7641	182	1.00	H	38	4.34	30.2	72.5	82.2	9.7
	7641	182	1.00	V	38	4.34	29.5	71.8	82.2	10.4
10th	8490	182	1.00	H	37.7	4.84	29.5	72.0	82.2	10.2
	8490	182	1.00	V	37.5	4.84	28.7	71.0	82.2	11.2

APPENDIX A: TEST SET-UP DIAGRAMS

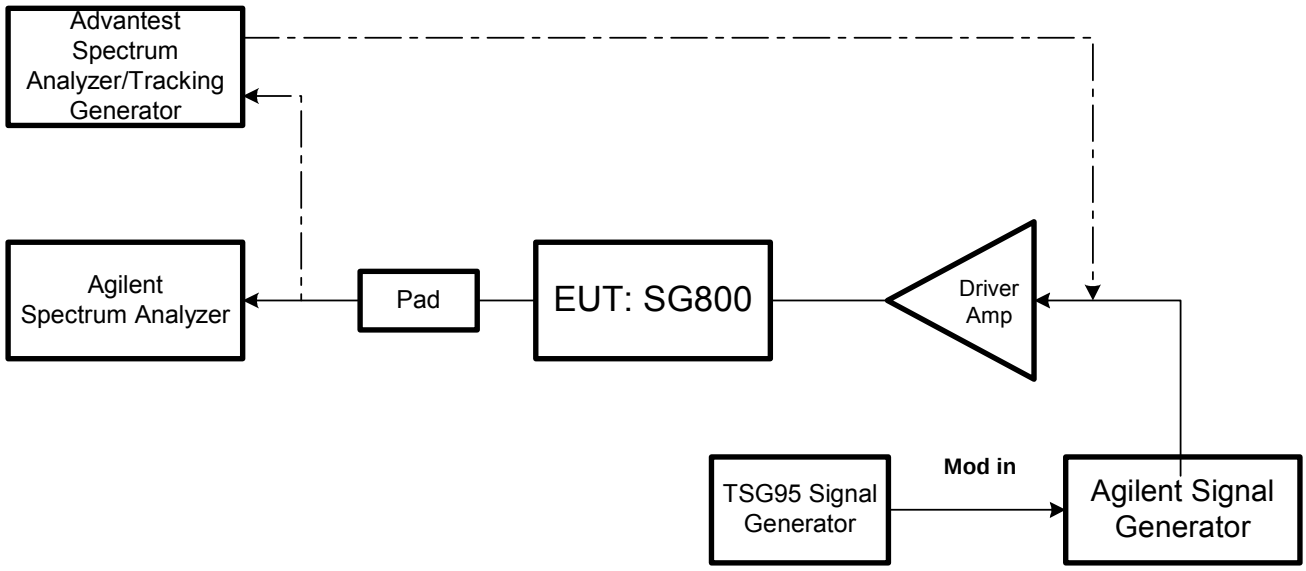


Figure A-1: Test –Set-up for Output Power Measurements, Emissions MASK and Conducted Emissions Testing at A

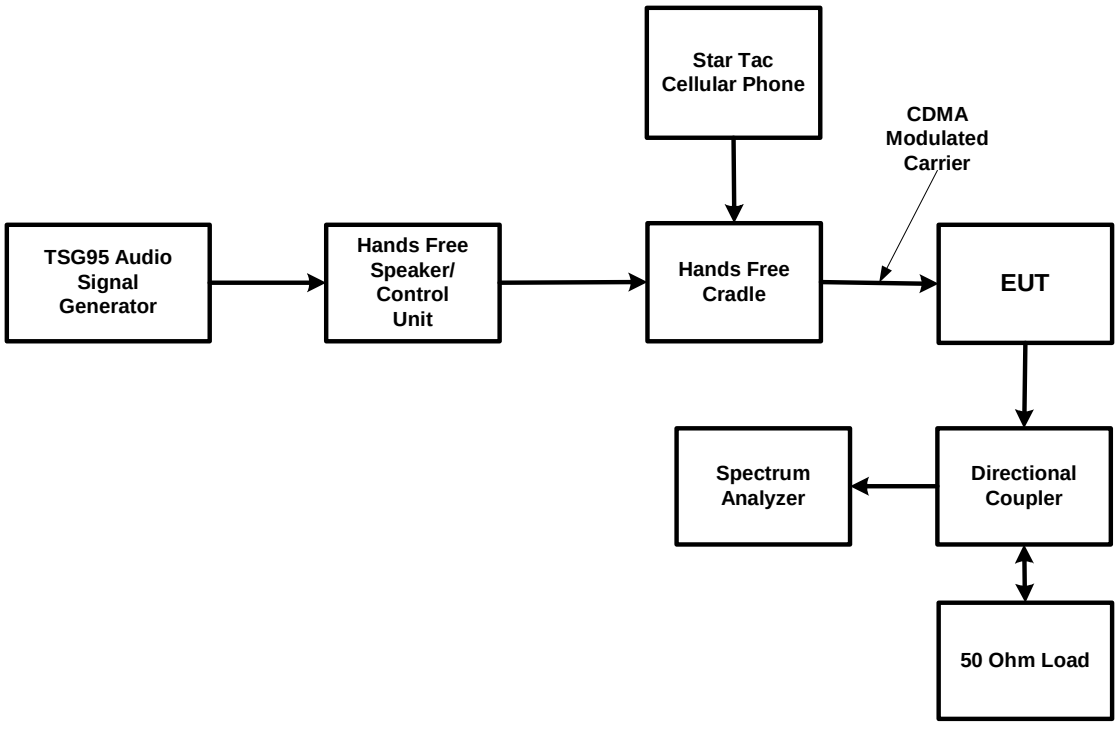


Figure A-2: Test –Set-up for CDMA Occupied Bandwidth Test

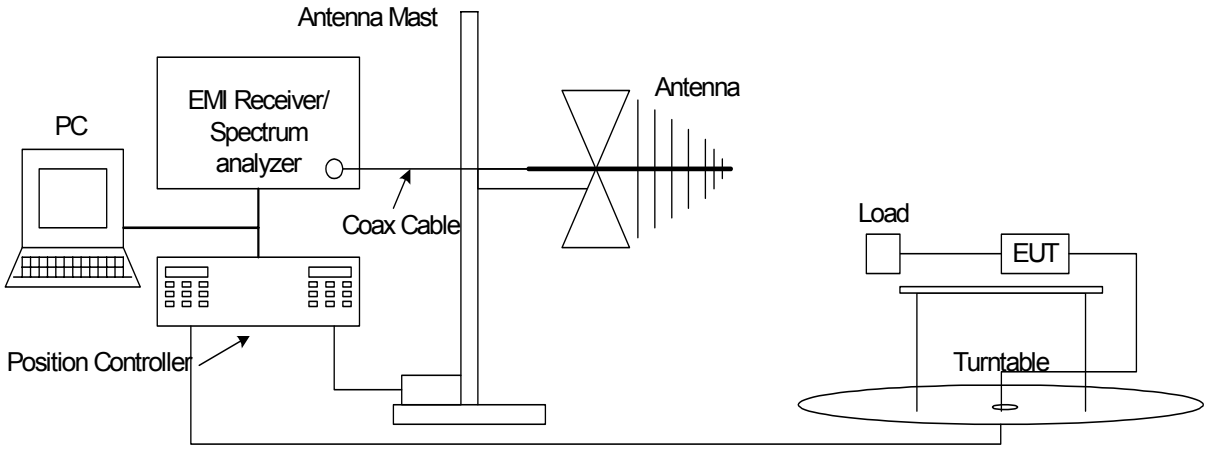
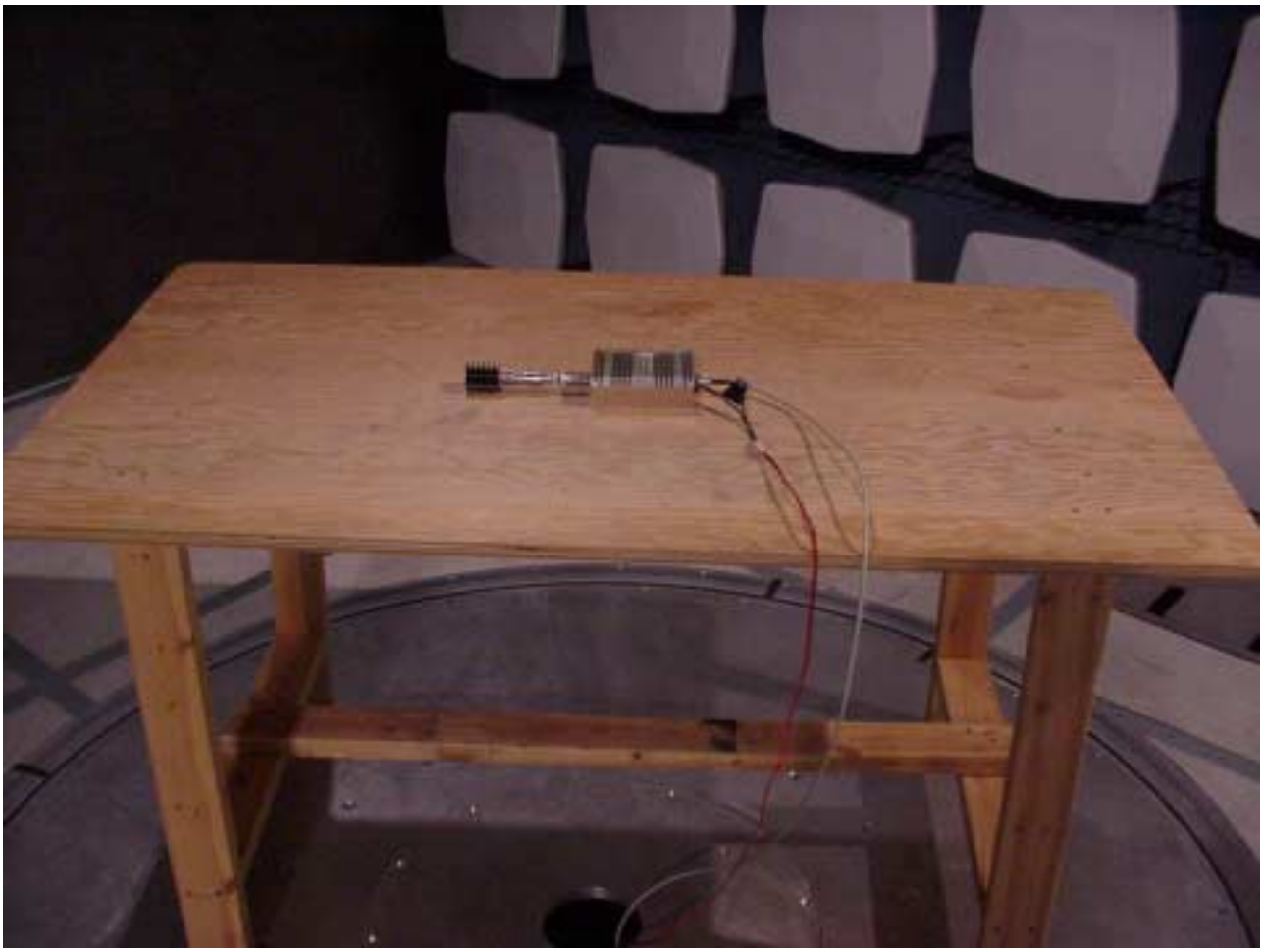
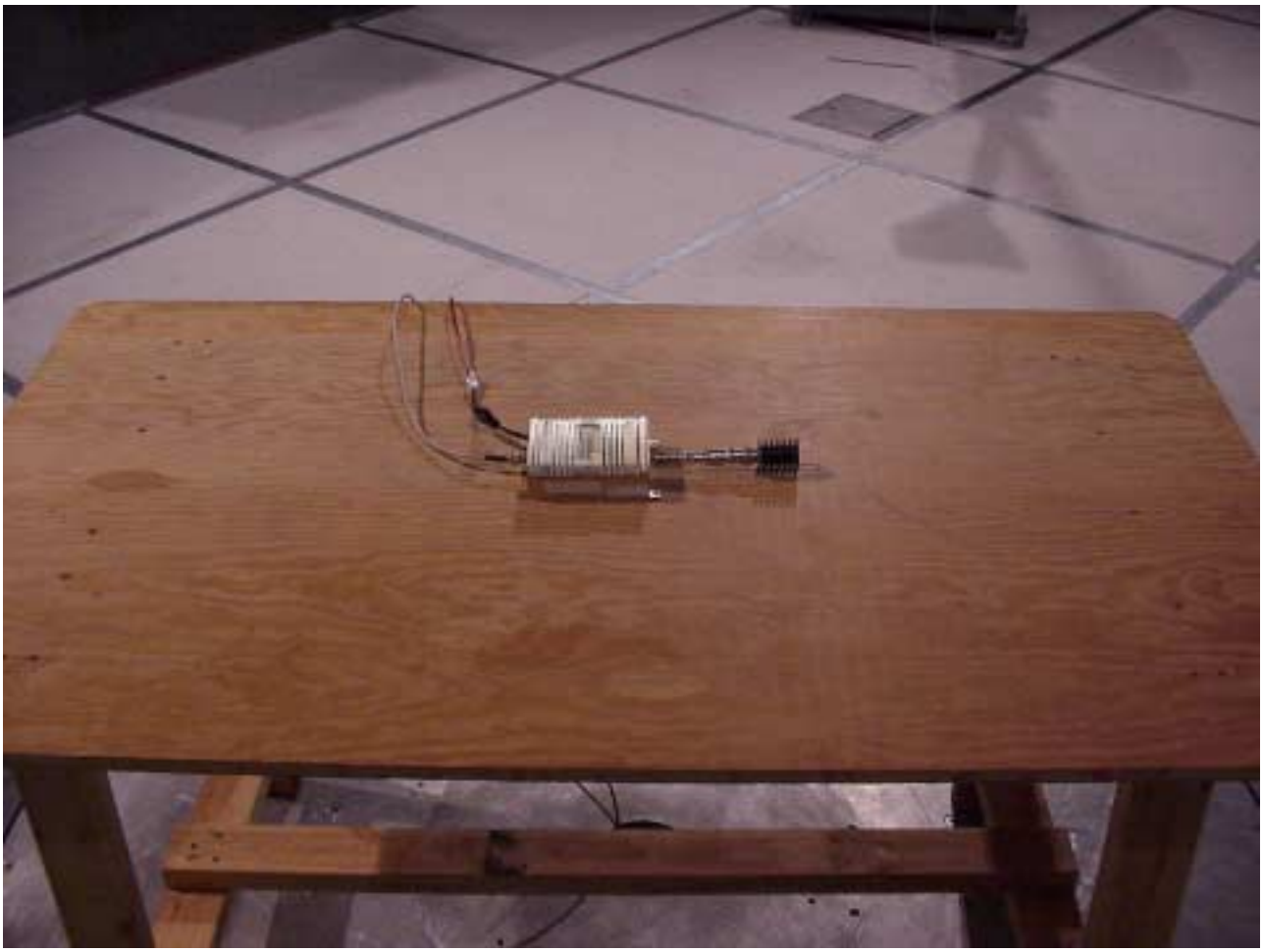


Figure A-3: Test –Set-up for Radiated Emissions Limitations in 3-meter Semi Anechoic Chamber

APPENDIX B: PICTURES OF EUT



Picture B-1: EUT Set-up in 3-meter Anechoic

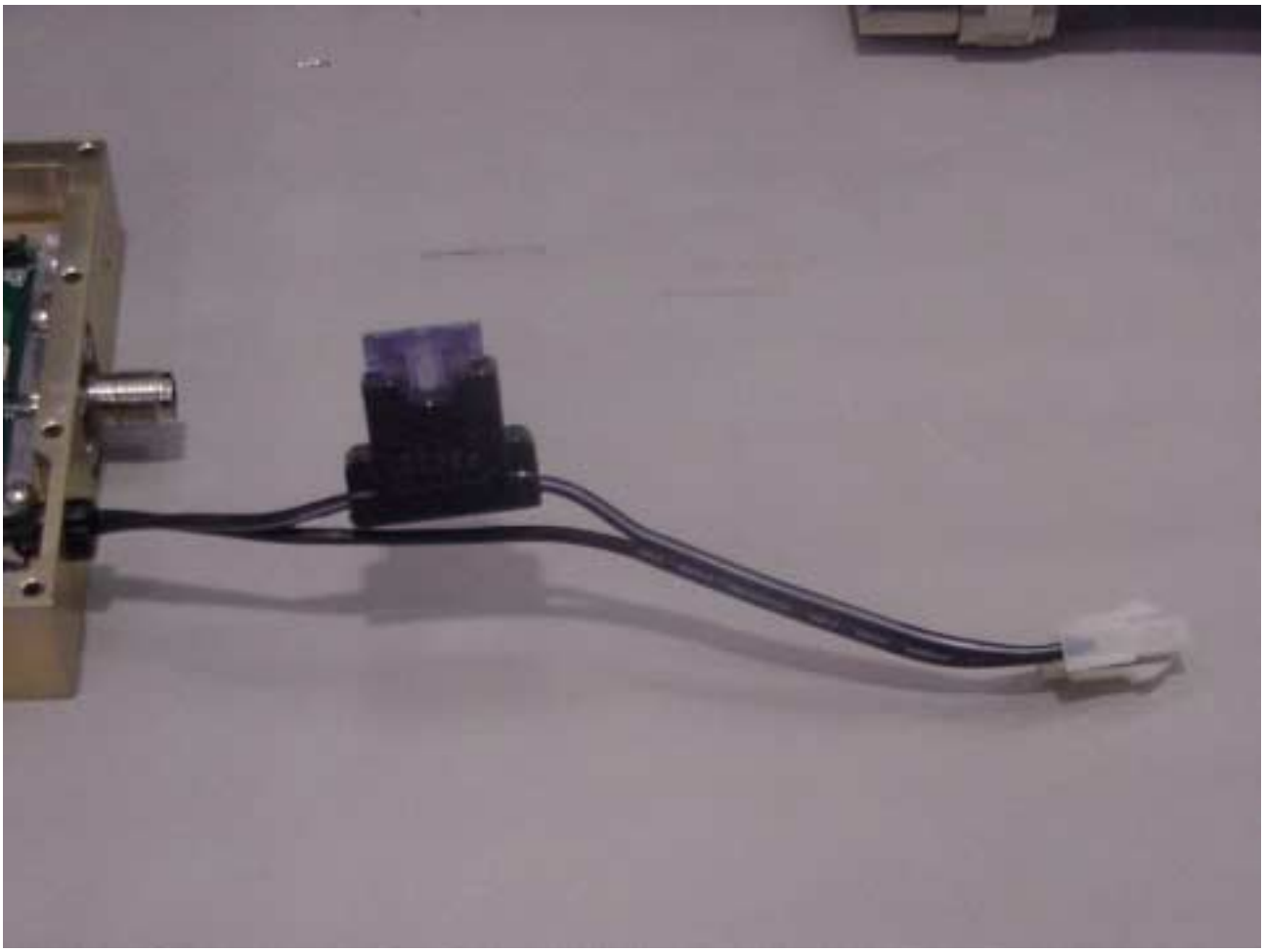


Picture B-2: EUT Set-up in 3-meter Anechoic

Picture B-3: EUT Set-up for Bench Top Testing, For Conducted Emissions, Power Output Testing.

Picture B-4 SG800 Printed Circuit Board Top View

Picture B-5 SG800 Printed Circuit Board Bottom View



Picture B-6 SG800 DC Power Cable with 3-Amp Fuse