L. S. Compliance, Inc.
W66 N220 Commerce Court
Cedarburg, Wisconsin 53012

Phone: 262 - 375 - 4400 Fax: 262 - 375 - 4248

# L. S. Compliance, Inc.

## ***Compliance Testing of:***

*MOTOROLA Gen 6 (on-star) Cellular Phone System*

## ***Prepared for:***

*Motorola, Inc.*
*Attn.: Mr. Weidong Zhang*
*50 NW Point*
*Elk Grove Village, IL 60007*

***Test Report Number:*** *302401 RX*

***Dates of Testing:*** *November 25-27 and December 12, 2002*

# Index

# 1. DESCRIPTION OF MEASUREMENT FACILITIES

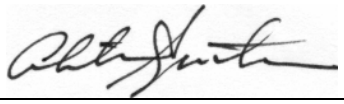
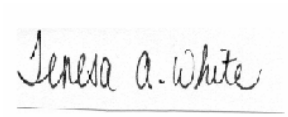
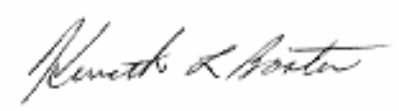
Site on File With the FCC

ID Number: 31040/SIT

Site on file with Industry Canada:

ID Number: IC 3088

*" The site referenced above has been found to comply with the test site criteria found in ANSI C63.4-2001 and 47CFR Section 2.948."*

| | | |
|---|---|---|
| Tested by: |  | December 19, 2002 |
| | *Abtin Spantman, EMC Engineer* | *Date* |
| |  | December 19, 2002 |
| Prepared By: | *Teresa A. White, Document Coordinator* | *Date* |
| |  | December 19, 2002 |
| Approved By: | *Kenneth L. Boston, EMC Lab Manager*<br>*PE #31926*<br>*Registered Professional Engineer*<br>*(State of Wisconsin)* | *Date* |

*2.. A2LA Certificate of Accreditation*

THE AMERICAN
ASSOCIATION
FOR LABORATORY
ACCREDITATION

## ACCREDITED LABORATORY

A2LA has accredited

**L.S. COMPLIANCE, INC.**
**Cedarburg, WI**

for technical competence in the field of

**Electrical (EMC) Testing**

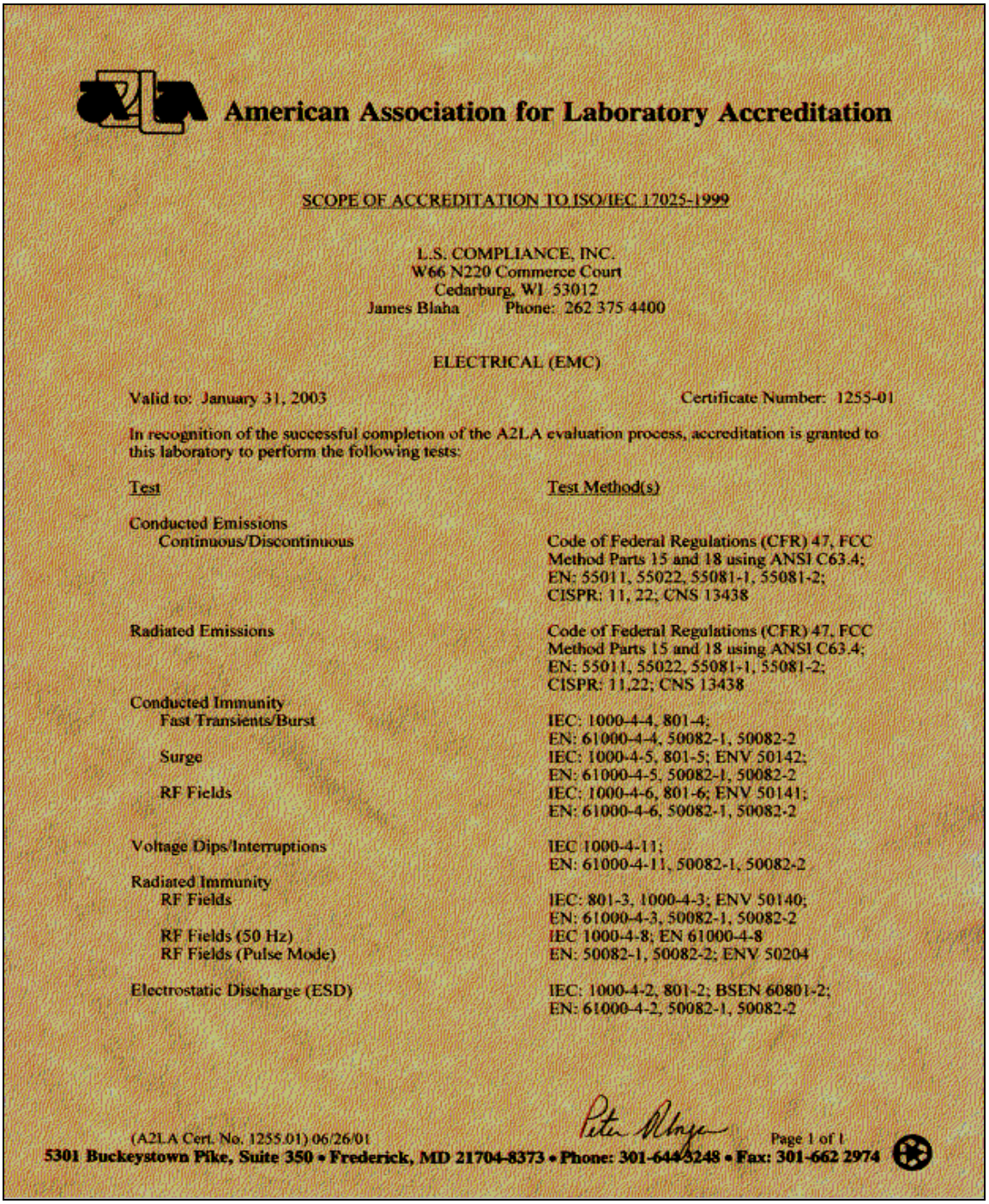
The accreditation covers the specific tests and types of tests listed on the agreed scope of accreditation. This laboratory meets the requirements of ISO/IEC 17025 - 1999 "General Requirements for the Competence of Testing and Calibration Laboratories" and any additional program requirements in the identified field of testing. Testing and calibration laboratories that comply with this International Standard also operate in accordance with ISO 9001 or ISO 9002.

Presented this 26th day of June, 2001.

President
For the Accreditation Council
Certificate Number 1255.01
Valid to January 31, 2003

For tests or types of tests to which this accreditation applies, please refer to the laboratory's Electrical (EMC) Scope of Accreditation

*3. A2LA Scope of Accreditation*



**American Association for Laboratory Accreditation**

SCOPE OF ACCREDITATION TO ISO/IEC 17025-1999

L.S. COMPLIANCE, INC.
W66 N220 Commerce Court
Cedarburg, WI 53012
James Blaha Phone: 262 375 4400

ELECTRICAL (EMC)

Valid to: January 31, 2003 Certificate Number: 1255-01

In recognition of the successful completion of the A2LA evaluation process, accreditation is granted to this laboratory to perform the following tests:

| Test | Test Method(s) |
|---|---|
| Conducted Emissions<br>Continuous/Discontinuous | Code of Federal Regulations (CFR) 47, FCC Method Parts 15 and 18 using ANSI C63.4; EN: 55011, 55022, 55081-1, 55081-2; CISPR: 11, 22; CNS 13438 |
| Radiated Emissions | Code of Federal Regulations (CFR) 47, FCC Method Parts 15 and 18 using ANSI C63.4; EN: 55011, 55022, 55081-1, 55081-2; CISPR: 11,22; CNS 13438 |
| Conducted Immunity<br>Fast Transients/Burst | IEC: 1000-4-4, 801-4; EN: 61000-4-4, 50082-1, 50082-2 |
| Surge | IEC: 1000-4-5, 801-5; ENV 50142; EN: 61000-4-5, 50082-1, 50082-2 |
| RF Fields | IEC: 1000-4-6, 801-6; ENV 50141; EN: 61000-4-6, 50082-1, 50082-2 |
| Voltage Dips/Interruptions | IEC 1000-4-11; EN: 61000-4-11, 50082-1, 50082-2 |
| Radiated Immunity<br>RF Fields | IEC: 801-3, 1000-4-3; ENV 50140; EN: 61000-4-3, 50082-1, 50082-2 |
| RF Fields (50 Hz) | IEC 1000-4-8; EN 61000-4-8 |
| RF Fields (Pulse Mode) | EN: 50082-1, 50082-2; ENV 50204 |
| Electrostatic Discharge (ESD) | IEC: 1000-4-2, 801-2; BSEN 60801-2; EN: 61000-4-2, 50082-1, 50082-2 |

(A2LA Cert. No. 1255.01) 06/26/01 Page 1 of 1

5301 Buckeystown Pike, Suite 350 • Frederick, MD 21704-8373 • Phone: 301-644-3248 • Fax: 301-662 2974

*4. Validation Letter – U. S. Competent Body for EMC Directive 89/336/EEC*

NIST CENTENNIAL 1901-2001

UNITED STATES DEPARTMENT OF COMMERCE
National Institute of Standards and Technology
Gaithersburg, Maryland 20899-

January 16, 2001

Mr. James J. Blaha
L.S. Compliance Inc.
W66 N220 Commerce Court
Cedarburg, WI 53012-2636

Dear Mr. Blaha:

I am pleased to inform you that the European Commission has validated your organization's nomination as a U.S. Conformity Assessment Body (CAB) for the following checked (✓) sectoral annex(es) of the U.S.-EU Mutual Recognition Agreement (MRA).

(✓) Electromagnetic Compatibility-Council Directive 89/336/EEC, Article 10(2)
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex III
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex III and IV
Identification Number:
( ) Telecommunication Equipment-Council Directive 98/13/EC, Annex V
Identification Number:

This validation is only for the location noted in the address block, unless otherwise indicated below.

(✓) Only the facility noted in the address block above has been approved.
( ) Additional EMC facilities:
( ) Additional R&TTE facilities:

Please note that an organization's validations for various sectors of the MRA are listed on our web site at http://ts.nist.gov/mra. You may now participate in the conformity assessment activities for the operational period of the MRA as described in the relevant sectoral annex or annexes of the U.S.-EU MRA document.

NIST will continue to work with you throughout the operational period. All CABs validated for the operational phase of the Agreement must sign and return the enclosed CAB declaration form, which states that each CAB is responsible for notifying NIST of any relevant changes such as accreditation status, liability insurance, and key staff involved with projects under the MRA. Please be sure that you fully understand the terms under which you are obligated to operate as a condition of designation as a CAB. As a designating authority, NIST is responsible for monitoring CAB performance to ensure continued competence under the terms of the MRA.

NIST

## 5. SUMMARY OF TEST REPORT

MANUFACTURER: MOTOROLA
MODEL: Gen 6 (on-star) Cellular Phone System
SERIAL: QLH6B
DESCRIPTION: Cellular Telephone, tri-mode (on-star)

FREQUENCY RANGE:

Transmit (TX): low end: Channel 991: 824.04 MHz, analog, and CDMA Channel 1013; 824.7 MHz

(TX): middle : Channel 384: 836.52 MHz, analog, and CDMA Channel 384; 836.52 MHz

(TX): top end: Channel 799: 848.97 MHz, analog, and CDMA Channel 777; 848.31MHz

(TX) low end : Channel 025: 1851.25 MHz CDMA 1900

(TX): middle: Channel 600: 1880.0 MHz CDMA 1900

(TX): top end: Channel 1175: 1908.75 MHz CDMA 1900

The Motorola Gen 6 (on-star) Cellular Telephone was found to **meet** the Radiated emission specification of Title 47 CFR FCC, Part 22, and 24, for a low power cellular telephone. The emission tests were performed with the cellphone, operating in the 800MHz cellular band; in the analog and CDMA 1900 modes, plus the CDMA 1900 mode in the PCS band (1.9 GHz).

The Motorola Gen 6 (on-star) Cellular Telephone was also found to **meet** the radiated emission specifications of Title 47 CFR 15, Subpart B for emissions with regards to the receiver and digital sections of the product.

## 6. INTRODUCTION

On November 25th, 26th, 27th and December 12th, 2002 a series of Radiated Emissions tests were performed on a sample model of the Motorola Gen 6 (on-star) Cellular Telephone. These tests were performed using the test procedures outlined in ANSI C63.4-2001 for intentional radiators, as called for in Section 2.1033 for a type accepted device, and in accordance with the limits set forth in FCC Parts 22.917e and 24.238. These tests were performed by Abtin Spantman EMC engineer, and Kenneth L. Boston, PE, of L. S. Compliance, Inc. and witnessed by Weidong Zhang of Motorola.

## 7. PURPOSE

The above mentioned tests were performed in order to determine the compliance of the test sample with limits contained in various provisions of Title 47 CFR, including:

| | | |
|---|---|---|
| 2.1051 | 15.109 | |
| 2.1053 | 22.917 | 24.238 |

All radiated emissions tests were performed to measure the emissions in the frequency bands described by the above sections, and to determine whether said emissions are below the limits established by the above sections. These tests were performed in accordance with the procedure described in the American National Standard for methods of measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz (ANSI C63.4-2001). Additional guidance for these tests were found in TIA/EIA 603; Industry Canada documents RSS-118, RSS-129 and RSS-133. Another document used as reference for the EMI receiver specification was the International Special Committee on Radio Interference (CISPR) number 16-1, 2002.

## 8. RADIATED EMISSION TEST SETUP

The test sample was operated within the 3 meter Semi-Anechoic, FCC listed Chamber located at L.S. Compliance in Cedarburg, WI. The sample was placed on an 80cm non-conductive table, which was centered on the flush-mounted 2m diameter metal turntable. The test sample was operated with a cable harness, providing appropriate power and control signals. The test sample was configured to run in a continuous transmit mode, with a 50 ohm termination load attached to the antenna port, during the Radiated measurements. The test sample was set to operate on one of three standard channels within the 800 MHz cellular frequency assignment: one at the low end of the band is (991), one in the middle of the band (384) and one near the top of the band (799). For testing at 1.9 GHz, the sample was set to operate at the low channel (025), middle channel (600) or high channel (1175)

## 9. RADIATED EMISSION TEST PROCEDURE

The fundamental and spurious (harmonic) emissions of the transmitter were tested for compliance to Title 47 CFR, FCC Part 22.917e limits for transmitters in the Public mobile services, and were also compared with the limits for Broadband PCS found in Part 24.238. For the calculations used to determine the limits applicable for the test sample, refer to Appendix A. These limits are expressed in decibels below carrier level. (-dBc) The samples were tested from the lowest frequency generated by the transmitter (without going below 9 kHz) to the 10th harmonic of the fundamental frequency generated by the device. The samples were placed on a nonconductive pedestal in the 3 Meter Chamber and the Antenna Mast was placed such that the antenna was 3m from the unit under test. A Biconical Antenna was used to measure emissions from 30 to 300 MHz, a Log Periodic Antenna was used to measure emissions from 300 to 1000 MHz, and a Double Ridged Wave-Guide Horn Antenna was used to measure emissions above 1 GHz. The test object was programmed to operate in continuous transmit, while generating a continuous analog modulated signal, and the resultant signals were maximized by rotating the turntable 360 degrees, and by raising and lowering the antenna between 1 and 4 meters. The test object was operated in a standard orientation, used to determine the maximum signal levels, using both horizontal and vertical antenna polarities. Measurements from a frequency of 6 GHz and up were performed at a 1 meter separation, and at a fixed antenna height of 1 meter. The microwave HP Spectrum Analyzer was located right next to the antenna in order to keep cable losses minimal.

No significant emissions were found aside from the transmitter fundamental and some low order harmonics. Other emissions that were seen were lower than 20 dB below the specified limits. The unit was scanned for emissions, over the range 30 to 9000 MHz (up to 19,000 MHz for the PCS mode) to establish compliance with Part 22.917 and 24.238 for the transmitter.

During the evaluation of the radiated emissions in the receive mode, a representative quarter wave antenna was connected to the device instead of a dummy load. The unit was operated in a scanning mode, while in receive only.

## 10. TEST EQUIPMENT UTILIZED FOR THE RADIATED EMISSION TEST

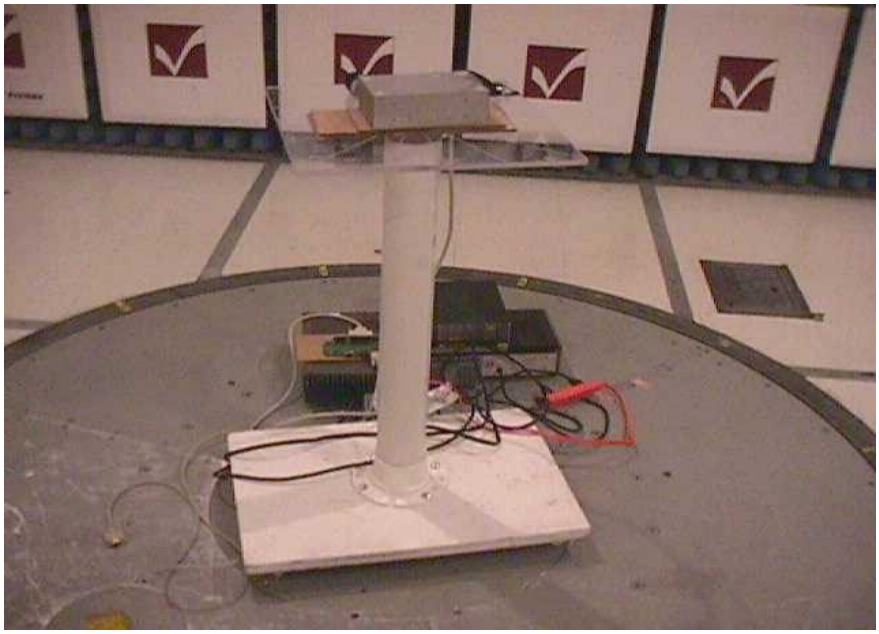
A list of the test equipment and antennas used for the tests can be found in Section 13, which includes the calibration information as well as the equipment description. All equipment is calibrated and used according to the user manuals supplied by the manufacturer. All antenna calibrations were performed at a N.I.S.T traceable site, and the resultant correction factors were entered into the Hewlett Packard 8546A EMI Receiver software database. The connecting cables used were also measured for loss using a calibrated Signal Generator and the HP 8546A EMI Receiver. The resulting loss factors were entered into the HP 8546A database. This allowed for automatic changes in the antenna correction factor, as well as cable loss or other corrections, to be added to the EMI Receiver display while taking measurements. Thus, the resulting data taken from the HP 8546A is an actual reading and can be entered into the database as a corrected meter reading. The HP 8546A EMI Receiver was operated with a bandwidth of 120 kHz when receiving signals below 1 GHz, and with a bandwidth of 1 MHz when receiving signals above 1 GHz, in accordance with CISPR 16, while performing the Part 15 measurements. Other IF and Video bandwidths, such as 30 kHz, were used where appropriate and allowable. A Hewlett Packard E4407B Microwave Spectrum Analyzer, connected to the Horn Antenna with a very short section of RG-214 cable used for measurement of frequencies above 6 GHz, at a distance of 1 meter.

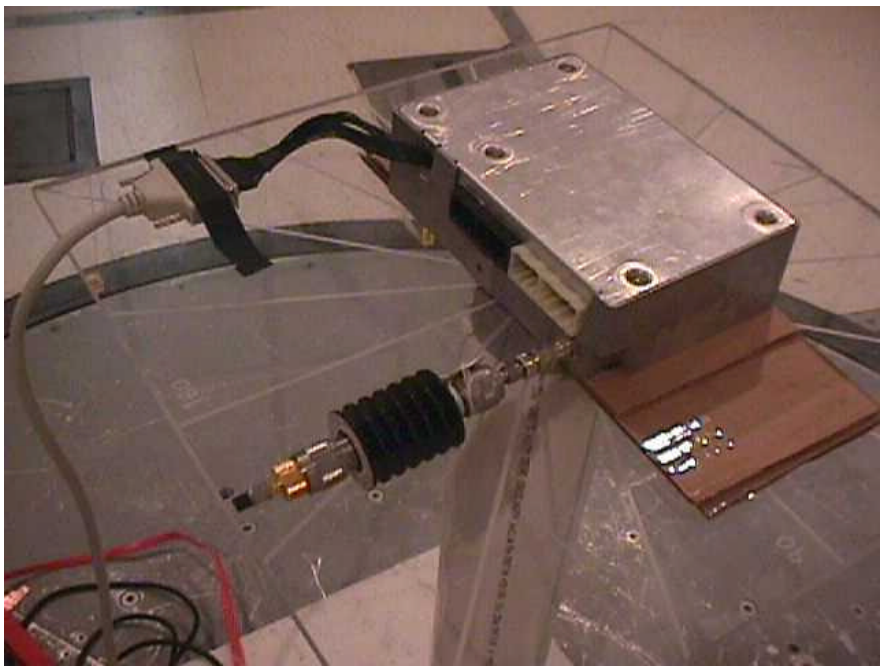
## 11. Conducted Emission Test:

For the conducted Emission tests, the Antenna port of the sample was directly coupled to the input of the HP E4407B through a special coupling cable and a 30 dB passive Attenuator. The transceiver sample was set to transmit continuously in either the Analog or CDMA mode. Scans were then performed from 2 MHz to 9 or 20 GHz, while observing the fundamental signal level, plus any harmonics or other spurious signals. The bandwidth was initially set to 1 MHz for signature scans, and then reduced to 30 kHz to measure individual signal strengths.

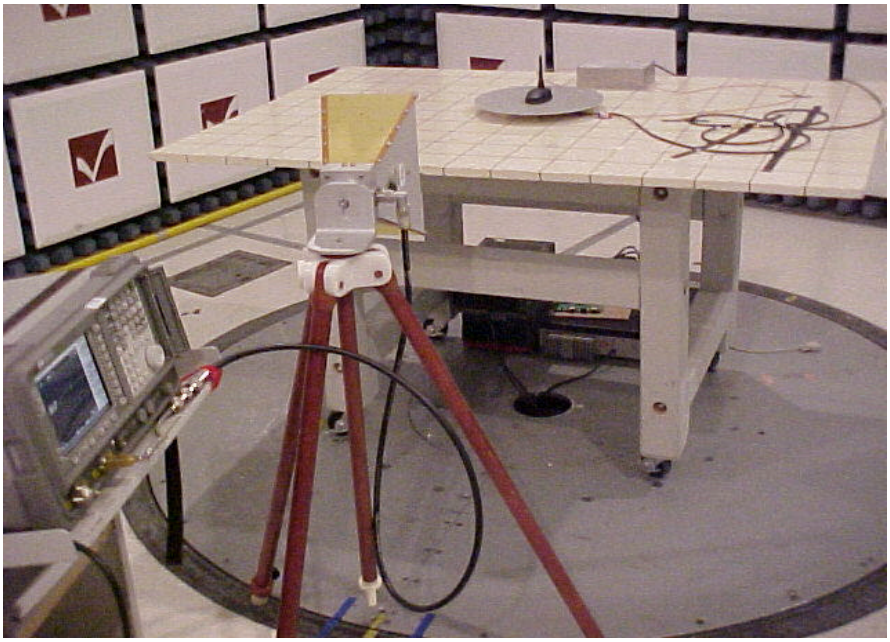
Graphs of the fundamental and harmonics can be found in Appendix C. A chart of the signal levels can be found in Appendix B.

## 12. PHOTOS TAKEN DURING TESTING

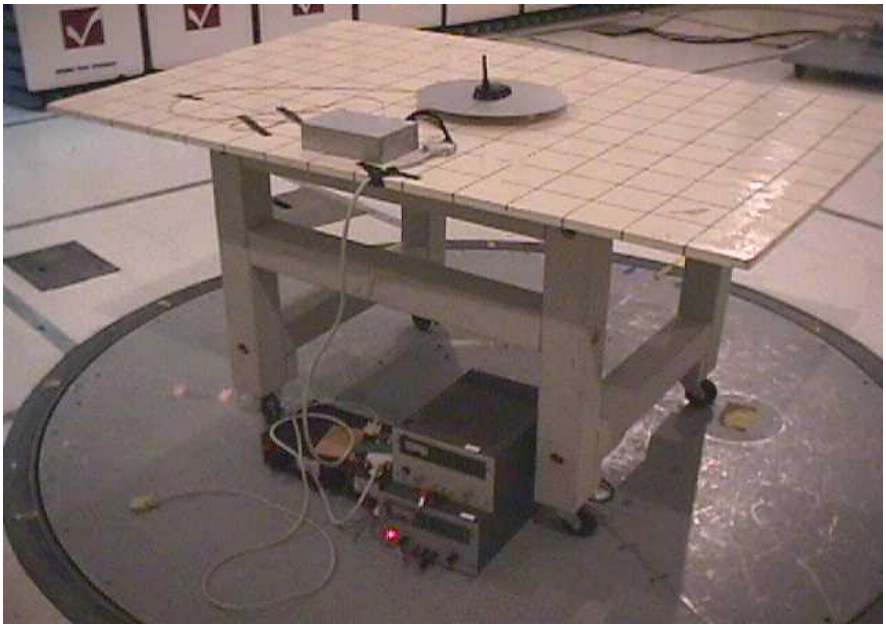




View of the Motorola Gen 6 (on-star) cellular phone in Tx mode with the 50 Ohm termination load, while performing radiated emission testing



View of the Motorola Gen 6 (on-star) cellular phone in (Rx) Receive mode with the antenna connected, while performing radiated emission testing at 1 meter. This configuration was also used for radiated measurements of transmitter spurious emissions above 5 GHz.



View of the Motorola Gen 6 (on-star) cellular phone in (Rx) Receive mode with the antenna connected, while performing radiated emission testing

## 13. Test Equipment List

| Asset # | Manufacturer | Model # | Serial# | Description | Due Date |
|---|---|---|---|---|---|
| AA960004 | EMCO | 93146 | 9512-4276 | Log Periodic Antenna | 05-09-03 |
| AA960077 | EMCO | 93110B | 9702-2918 | Bi-Conical Antenna | 09-19-03 |
| AA960081 | ETS | 3115 | 6907 | Double-Ridge Horn Antenna | 11-12-03 |
| EE960004 | EMCO | 2090 | 9607-1164 | Mast/Table controller | -- |
| EE960014 | HP | 85460 | 3617A00320 | EMI receiver | 09-24-03 |
| EE960013 | HP | 85462 | 3205A00103 | EMI receiver Pre-Selector section | 09-24-03 |
| CC000221 | HP | E4407b | Us39160256 | 26.5 GHz Spectrum Analyzer | 10-28-03 |
| N/A | LSC | Cable | 0011 | 3 meter 1/2 " Heliax Cable | 06-07-03 |
| N/A | LSC | Cable | 0038 | 1 meter RG214 Cable | 06-07-03 |
| N/A | LSC | cable | 0050 | 10 meter RG214 Cable | 06-07-03 |
| N/A | Motorola | Cert# 1000016576 | BH4478 | 30 dB Attenuator | 05-03-03 |

# APPENDIX A:

SAMPLE CALCULATIONS

## FIELD STRENGTH OF SPURIOUS/HARMONIC FREQUENCIES:

In accordance with section 22.917e:
All out of band spurious emissions must be below the mean power of the carrier by at least:

43 + 10 log(carrier power)

which for a .7 watt rating on the test sample is:

43 + 10 log(0.7)
43 – 1.55 = 41.45 dBc

-41.45dBc from 28.45 dBm = -13. dBm

## FIELD STRENGTH OF PART 22 LIMIT: AT R = 3 METERS DSTANCE

FROM THE STANDARD REFERENCE FORMULA FOR POWER TRANSMITTED VERSUS ELECTRIC FIELD:

$Pt = (R^{**}) \times |E|^{**} / 30$

Then to convert to dB:

$Pt = 20\log|E| + 20\log(R) - 10\log(30)$

Insert additional terms to convert watts to milli-watts (in dB) and volts to micro-volts (in dBuV):

$Pt = 20\log|Euv| - 20\log(1{,}000{,}000) + 10\log(1000) + 20\log(3) - 10\log(30)$

$Pt = 20\log|Euv| - 120 + 30 + 9.54 - 14.77$

$Pt = 20\log|Euv| - 95.23$

OR; $20\log|Euv| = Pt \text{ (in dBm)} + 95.23$

$|E|$ (in dBuV) = -13 dBm + 95.23 = 82.23 dBuV/m, at 3 meters

**AT R = 1 METER DSTANCE**

$|E|$ (in dBuV) = -13 dBm + 104.77= 91.77 dBuV/m, at 1 meter

**The following table depicts the Class B limits for an unintentional radiator: These limits are obtained from Title 47CFR, Part 15.109b, for radiated emissions measurements:**

| Frequency (MHz) | uV/m | 3m limit (dBuV/m) |
|---|---|---|
| 30-88 | 100 | 40.0 |
| 88-216 | 150 | 43.5 |
| 216-960 | 200 | 46 |
| 960-40000 | 500 | 54 |

# APPENDIX B:

DATA CHARTS

## RADIATED EMISSIONS IN THE 3 METER FCC LISTED CHAMBER

| | | | |
|---|---|---|---|
| Date of Test: | November 25th, 26th and 27th , 2002 | Manufacturer: | Motorola |
| Location: | L. S. Compliance, Inc. | Model No.: | Gen 6 (on-star) |
| | W66 N220 Commerce Court | | |
| | Cedarburg, WI 53012 | | |
| Specifications: | 22.917e, 24.238, 1 and 3 meters | Serial No.: | QLH6B |
| Equipment: | HP 8546A EMI Receiver | Configuration: | Continuous transmit |
| | EMCO 93110B Biconical | Detector Used: | Peak |
| | EMCO 93146 Log Periodic | | Channel 991, 384, 799, 1013, 384, 777 |
| | EMCO 3115 Waveguide Horn | | And 025, 600, 1175 (pcs) |

| Channel | Frequency (MHz) | Height (meters) | Azimuth (degrees) | Polarity | Peak (dBµV/m) | Limit (dBµV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 1013 D | 2105 | 1.25 | 0 | H | 53.5 | 82.2 | 28.7 |
| 384 D | 2130 | 1.3 | 120 | H | 52.4 | 82.2 | 29.8 |
| 384 D | 3346 | 1.05 | 245 | V | 53.8 | 82.2 | 28.4 |
| 384 A | 2130 | 1.2 | 125 | H | 53.2 | 82.2 | 29.0 |
| 799 A | 2155 | 1.2 | 170 | H | 53.1 | 82.2 | 29.1 |
| 025 | 2114 | 1.0 | 10 | H | 56.8 | 82.2 | 25.4 |
| 025 | 5550 | 1.0 | 50 | H | 59.3 | 82.2 | 22.9 |
| 025 | 7400 | 1.0 | 180 | V | 62.3 | 91.8 | 29.5 |
| 600 | 2144 | 1.25 | 35 | H | 52.3 | 82.2 | 29.9 |
| 600 | 5640 | 1.35 | 170 | H | 59.6 | 82.2 | 22.6 |
| 600 | 7520 | 1.0 | 180 | H | 61.3 | 91.8 | 30.5 |
| 600 | 9400 | 1.0 | 120 | V | 60.2 | 91.8 | 31.6 |
| 1175 | 5730 | 1.5 | 170 | H | 64.8 | 82.2 | 17.4 |

All other spurious signals were seen to be at least 30 dB below the FCC part 22 (24) limits.

## RADIATED EMISSIONS IN THE 3 METER FCC LISTED CHAMBER

| | | | |
|---|---|---|---|
| Date of Test: | December 12, 2002 | Manufacturer: | Motorola |
| Location: | L. S. Compliance, Inc. | Model No.: | Gen 6 (on-star) |
| | W66 N220 Commerce Court | | |
| | Cedarburg, WI 53012 | | |
| Specifications: | 15.109 , to 5,000 MHz | Serial No.: | QLH6B |
| Equipment: | HP 8546A EMI Receiver | Configuration: | Receive (Rx) |
| | EMCO 3110B biconical | Detector(s) Used: | Average, Quasi-peak |
| | EMCO 3146A Log Periodic | | All 3 modes in Channel Scan |
| | EMCO 3115 Wave-guide Horn | | |

| Channel | Frequency (MHz) | Height (meters) | Azimuth (degrees) | Polarity | Q-peak (dBuV/m) | Average (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|---|---|---|---|---|---|---|---|---|
| All | 72.62 | 2.25 | 205 | H | 24.9 | | 40.0 | 15.1 |
| All | 129.3 | 1.05 | 215 | V | 37.4 | | 43.5 | 6.1 |
| All | 133.9 | 1.05 | 215 | V | 34.7 | | 43.5 | 8.8 |
| All | 138.4 | 1.05 | 215 | V | 30.9 | | 43.5 | 12.6 |
| All | 147.5 | 2.3 | 180 | H | 30.9 | | 43.5 | 12.6 |
| All | 217.8 | 1.45 | 270 | H | 23.6 | | 46.0 | 22.4 |
| All | 270.0 | 1.80 | 210 | V | 30.0 | | 46.0 | 16.0 |
| All | 344.9 | 1.0 | 185 | V | 30.4 | | 46.0 | 15.6 |
| All | 462.0 | 1.0 | 170 | H | 39.0 | | 46.0 | 7.0 |
| All | 544.6 | 1.0 | 200 | H | 36.1 | | 46.0 | 9.9 |
| All | 635.4 | 1.0 | 190 | H | 37.9 | | 46.0 | 8.1 |
| All | 660.0 | 1.0 | 170 | V | 35.7 | | 46.0 | 10.3 |
| All | 907.7 | 1.0 | 245 | V | 36.9 | | 46.0 | 9.1 |
| All | 944.0 | 1.0 | 245 | V | 36.5 | | 46.0 | 9.5 |
| All | 1035.0 | 1.35 | 165 | V | | 39.6 | 54.0 | 14.4 |
| All | 1053.0 | 1.35 | 165 | V | | 39.1 | 54.0 | 14.9 |
| All | 1717.0 | 1.35 | 165 | V | | 42.1 | 54.0 | 11.9 |

All other spurious signals were seen to be at least 20 dB below the FCC 15.109 limits.

## CONDUCTED EMISSIONS DIRECTLY INTO THE H.P. ANALYZER

| | | | |
|---|---|---|---|
| Date of Test: | November 25,27, 2002 | Manufacturer: | Motorola |
| Location: | L. S. Compliance, Inc. | Model No.: | Gen 6 |
| | W66 N220 Commerce Court | | |
| | Cedarburg, WI 53012 | | |
| Specifications: | 22.917e, 24.133 (a) | Serial No.: | QLH6B |
| Equipment: | | Configuration: | Continuous transmit |
| | HP-E4407B Spectrum Analyzer | Detector Used: | peak |
| | | | BW-30 kHz |

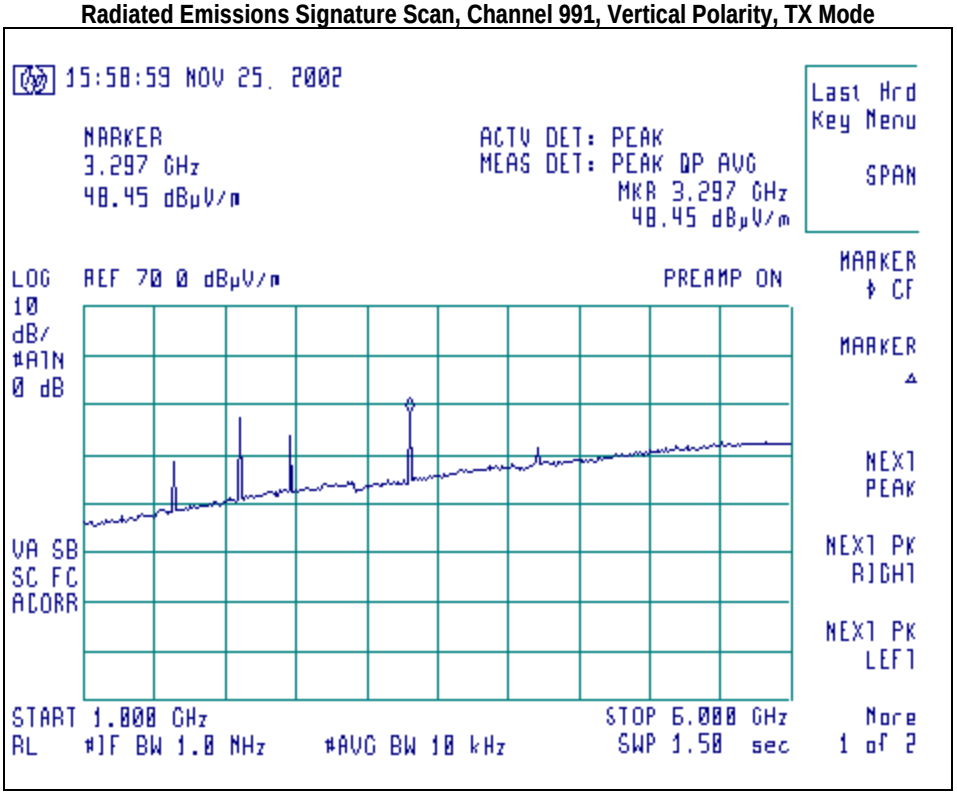
| Channel | Frequency (MHz) | Level(dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|
| 991A | 821.6 | -25.5 | -13 | 12.5 |
| 991A | 826.45 | -25.9 | -13 | 12.9 |
| 991A | 834.65 | -26.0 | -13 | 13.0 |
| 991A * | 1648.1 | -33.1 | -13 | 20.1 |
| 384A | 827.85 | -30.3 | -13 | 17.3 |
| 384A | 835.3 | -22.8 | -13 | 9.8 |
| 384A | 838.9 | -26.2 | -13 | 13.2 |
| 384A | 845.15 | -30.4 | -13 | 17.4 |
| 384A * | 1673.0 | -32.8 | -13 | 19.8 |
| 799A | 829.9 | -28.6 | -13 | 15.6 |
| 799A | 838.5 | -26.6 | -13 | 13.6 |
| 799A | 846.7 | -26.2 | -13 | 13.2 |
| 799A * | 1697.9 | -36.5 | -13 | 23.5 |
| | | | | |
| 025 | 1869.3 | -34.0 | -13 | 21.0 |
| 025 | 1870.4 | -35.4 | -13 | 22.4 |
| 600 | 1859.8 | -33.6 | -13 | 20.6 |
| 600 | 1860.8 | -32.7 | -13 | 19.7 |
| 600 | 1899.2 | -34.7 | -13 | 21.7 |
| 600 | 1900.2 | -35.2 | -13 | 22.2 |
| 1175 | 1889.8 | -33.8 | -13 | 20.8 |
| 1175 | 1891.0 | -34.9 | -13 | 21.9 |

* 2nd harmonic signal, all other signals are spurious emissions.
**All other harmonics and spurs were greater than 25 dB below the limit, in a 30 kHz Bandwidth.

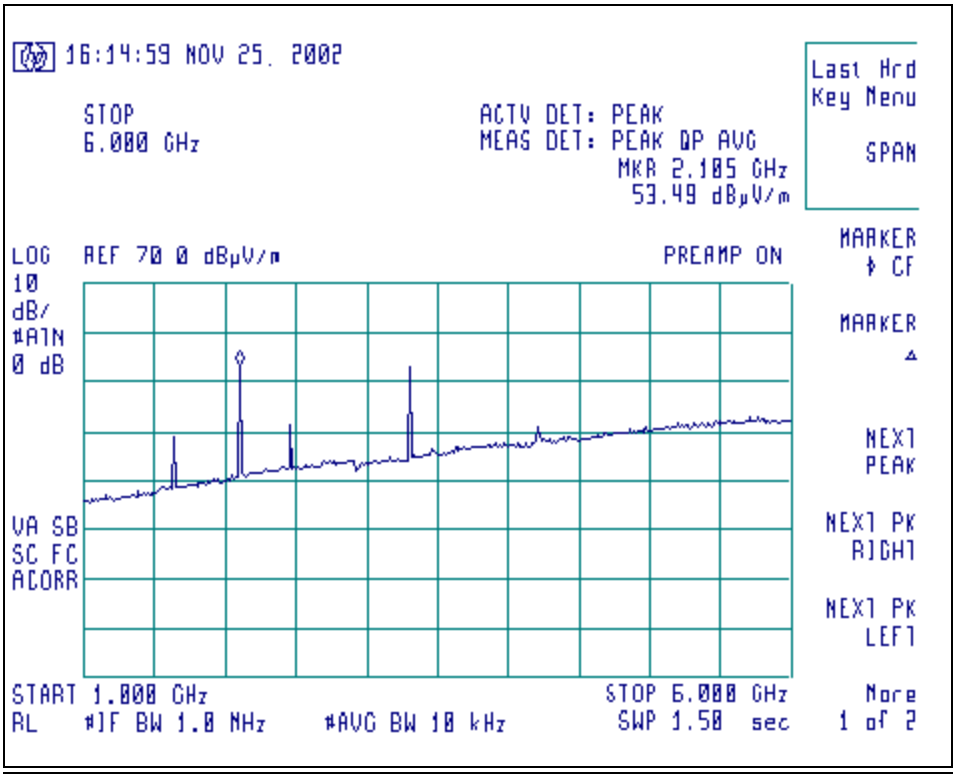
# APPENDIX C:

GRAPHS

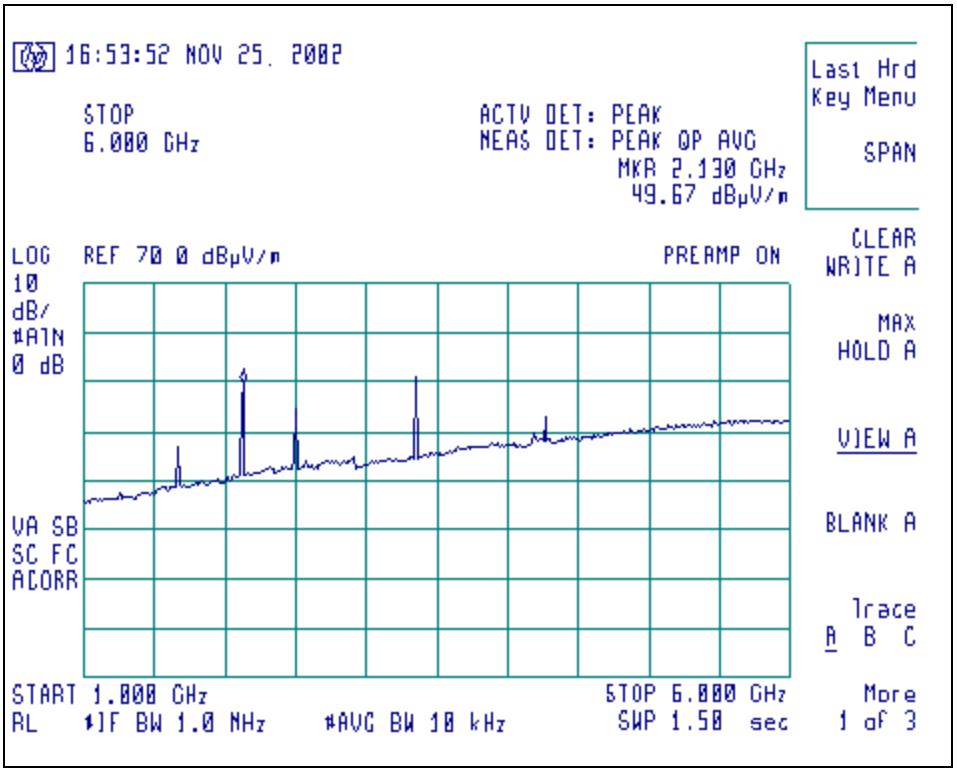
**Radiated Emissions Signature Scan, Channel 991, Vertical Polarity, TX Mode**



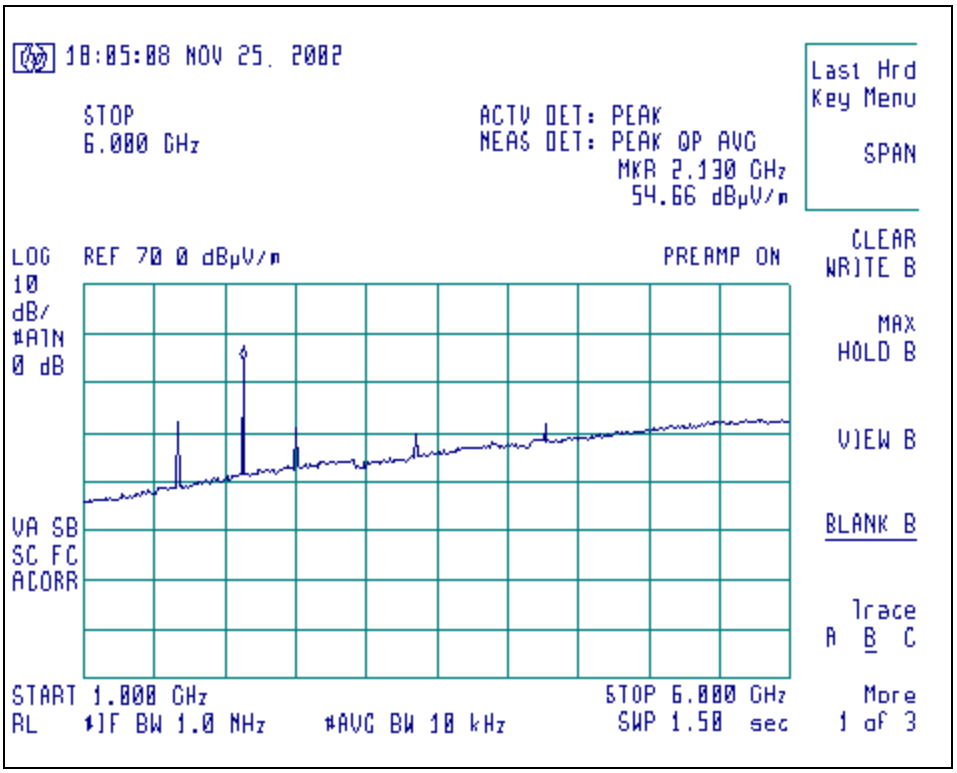

**Radiated Emissions Signature Scan, Channel 991, Horizontal Polarity, TX Mode**



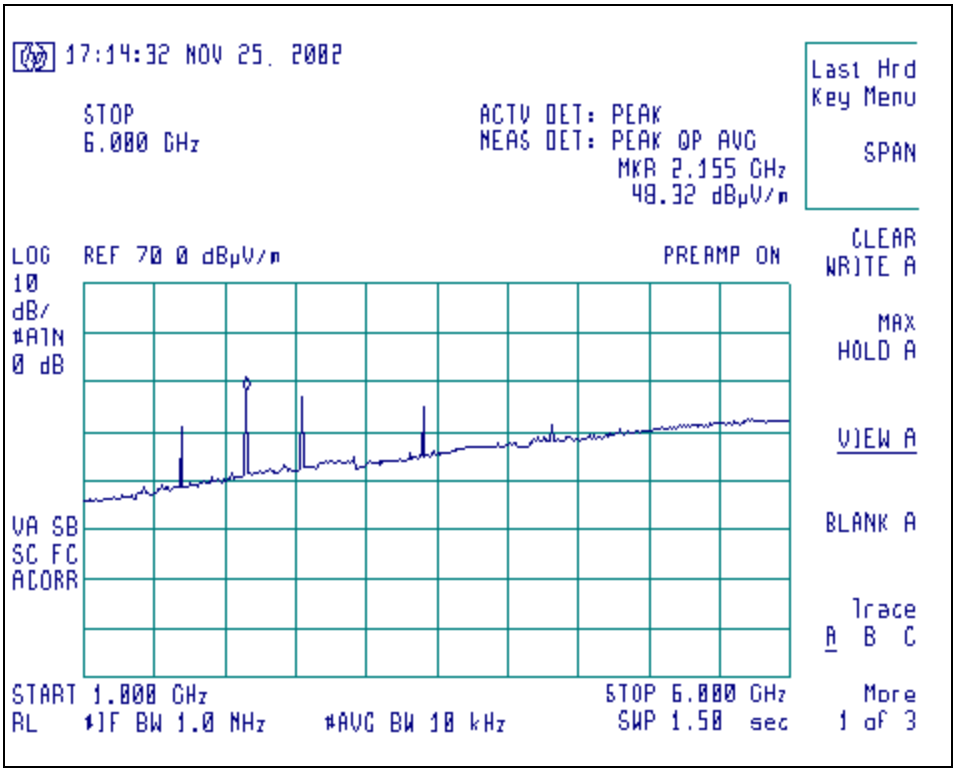
**Radiated Emissions Signature Scan, Channel 384, Vertical Polarity, TX Mode**



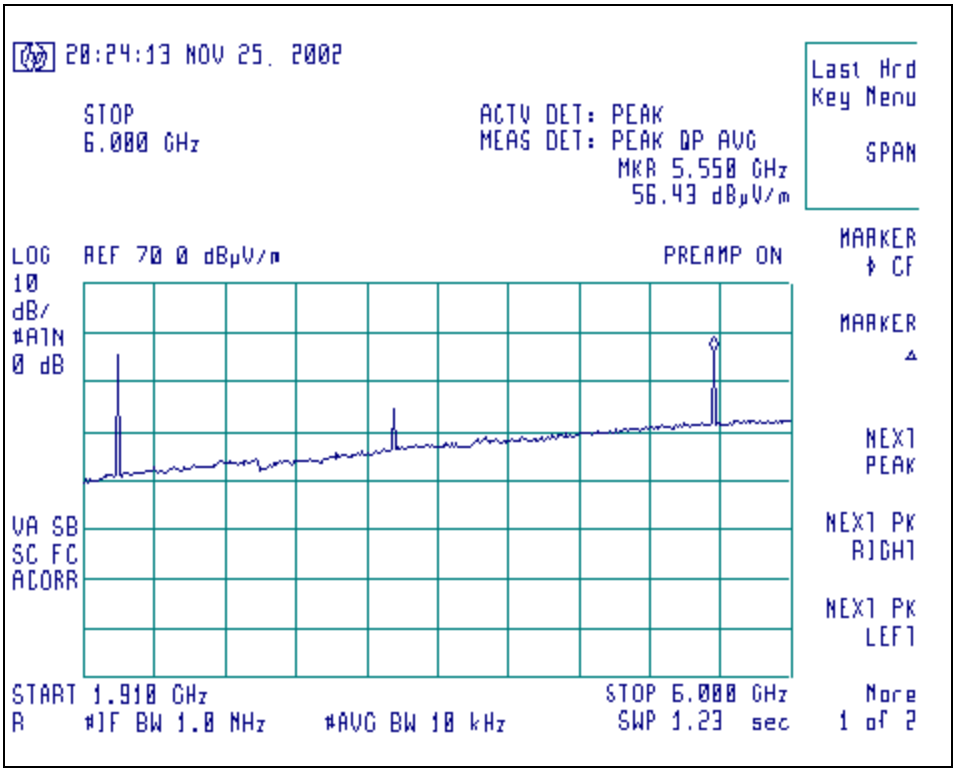

**Radiated Emissions Signature Scan, Channel 384, Horizontal Polarity, TX Mode**



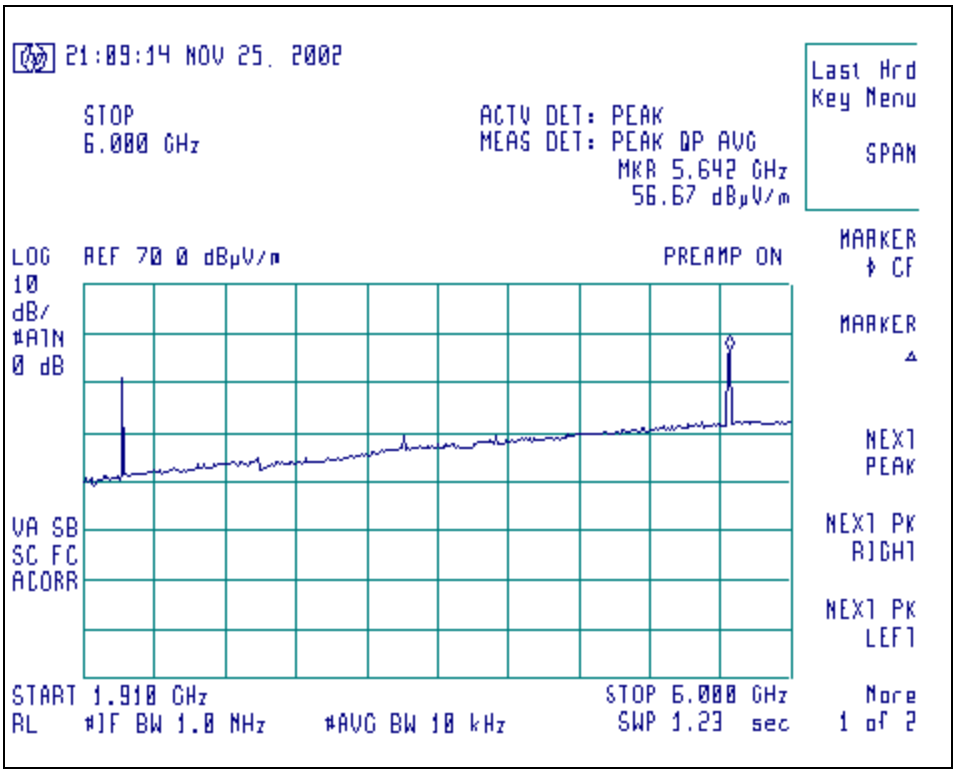
**Radiated Emission Signature Scan, Channel 799, Horizontal Polarity, TX Mode**



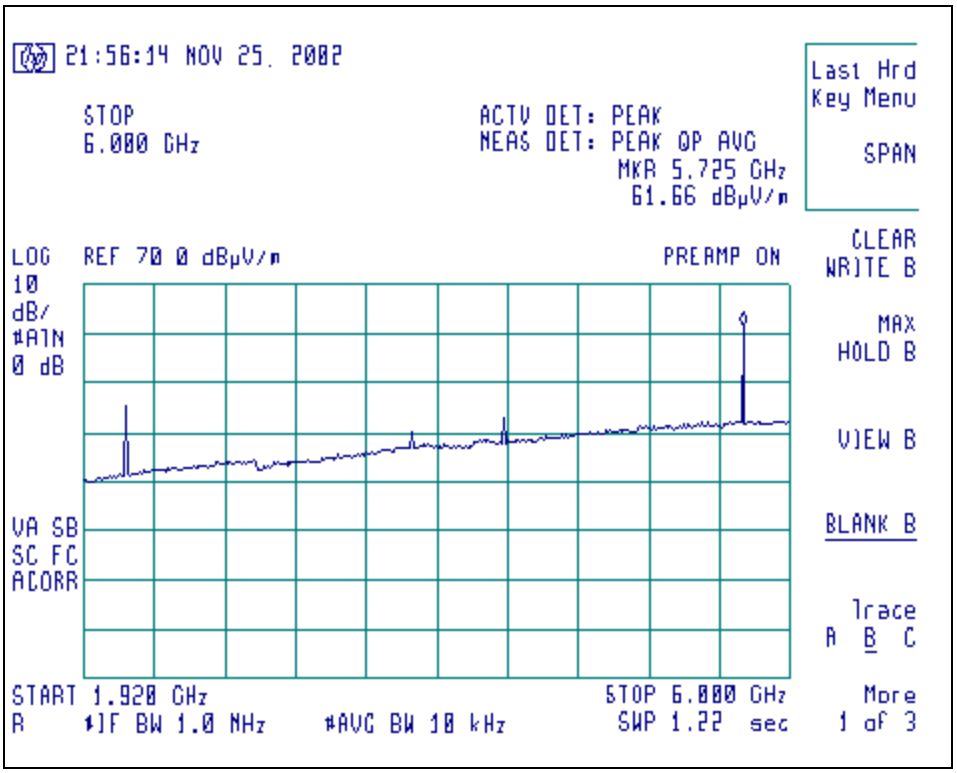
**Radiated Emission Signature Scan, Channel 025, Horizontal Polarity, TX Mode**



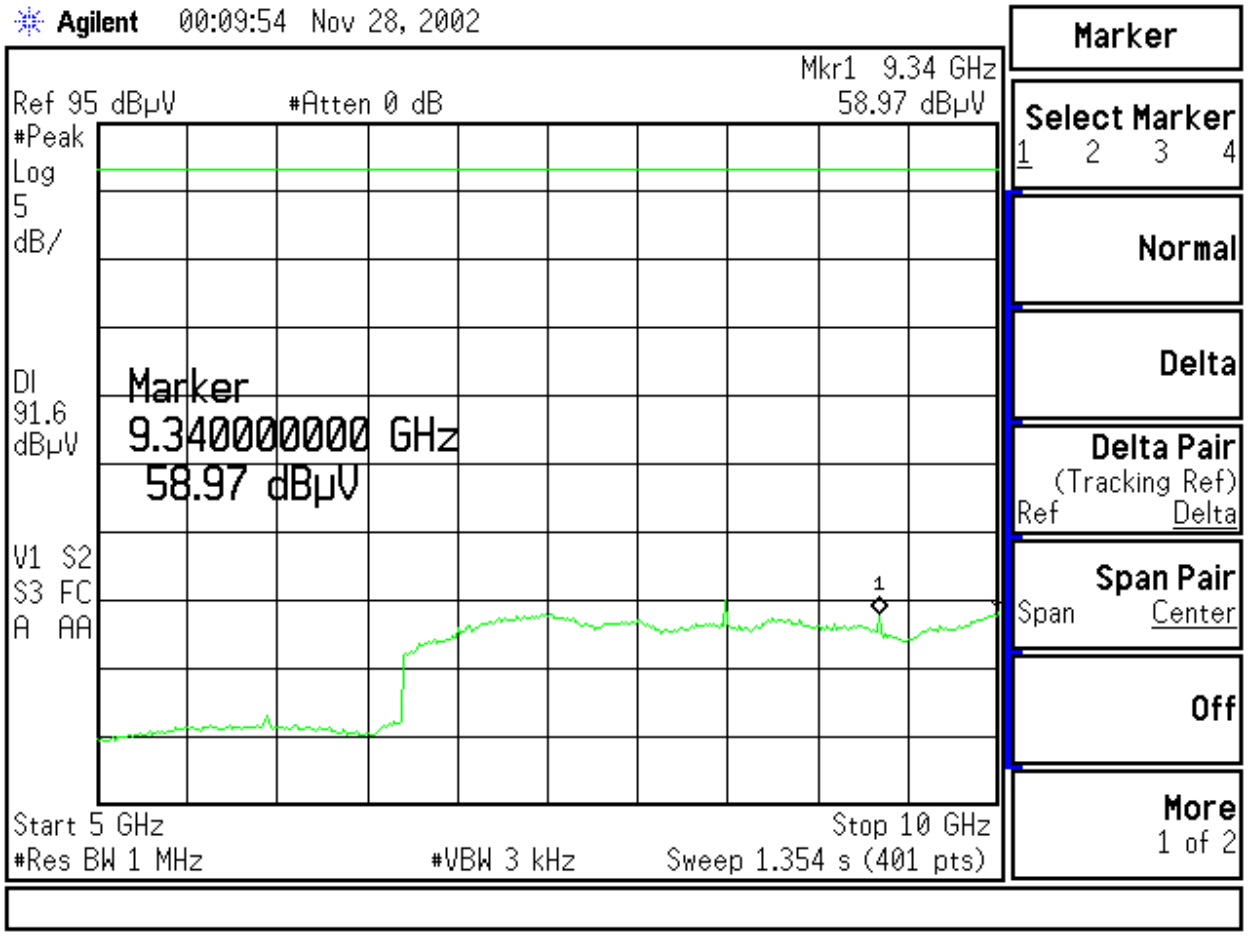

**Radiated Emission Signature Scan, Channel 600, Horizontal Polarity, TX Mode**



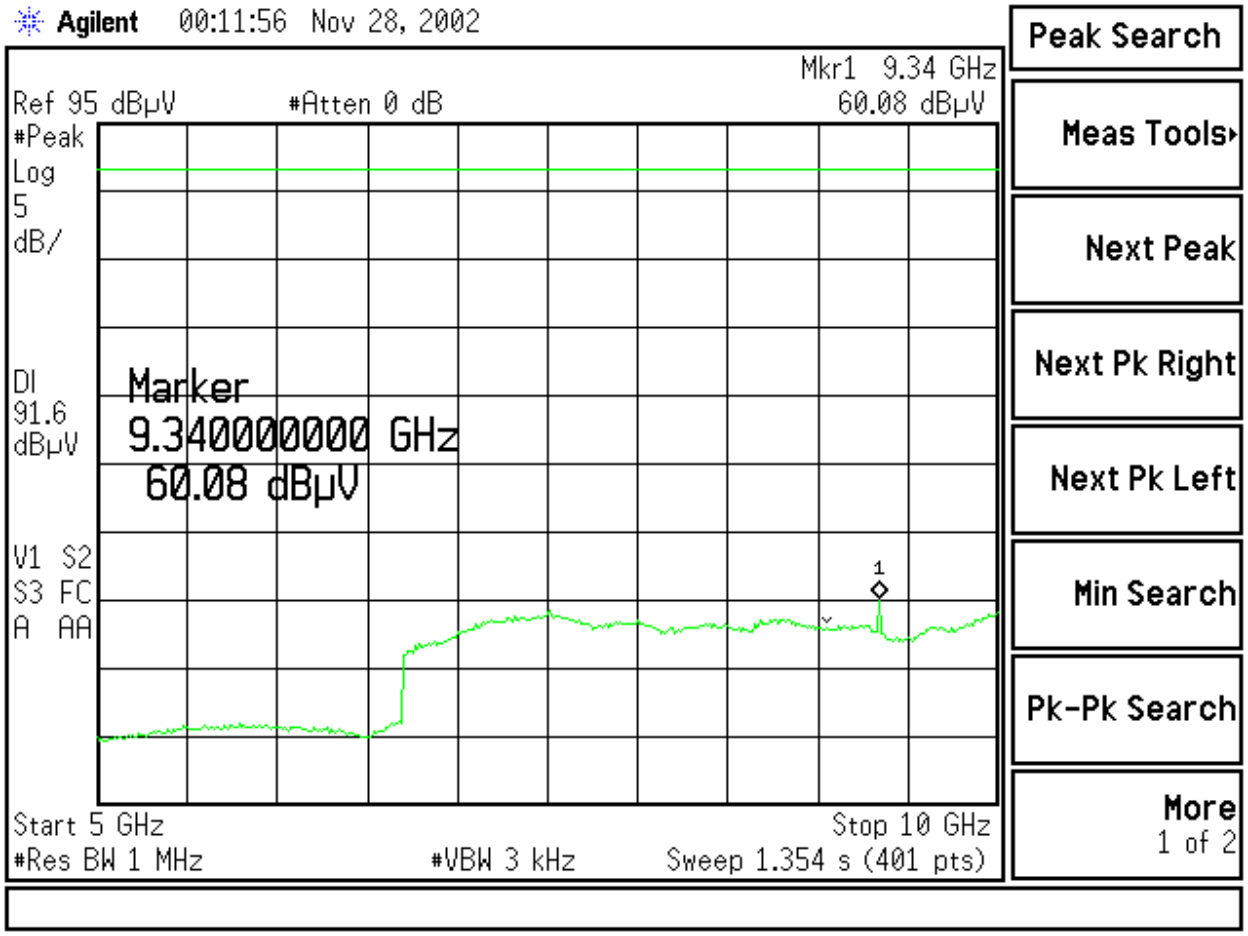
**Radiated Emission Signature Scan, Channel 1175, Horizontal Polarity, TX Mode**



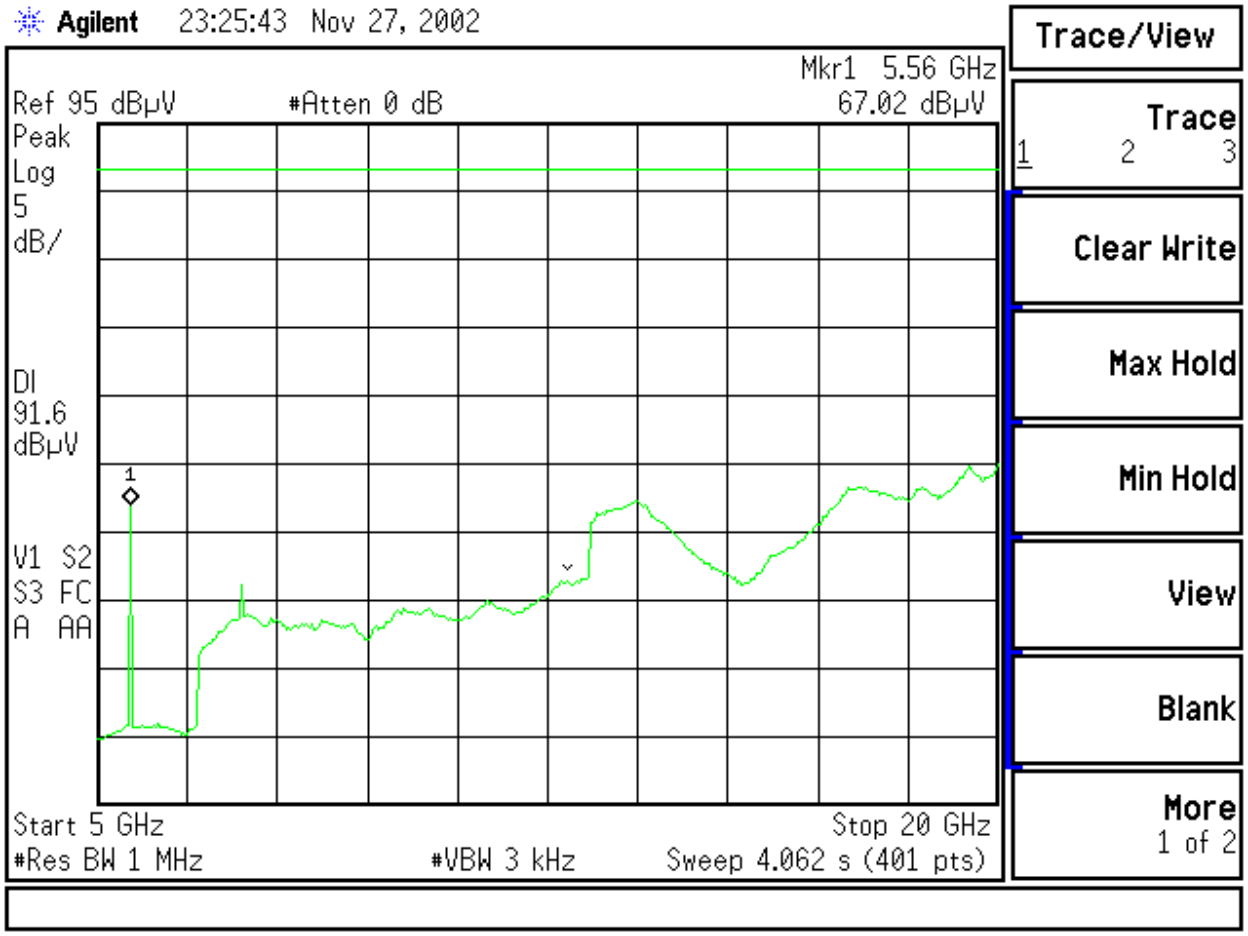
**Radiated Emission Signature Scan, Channel 799, Horizontal Polarity, TX Mode**



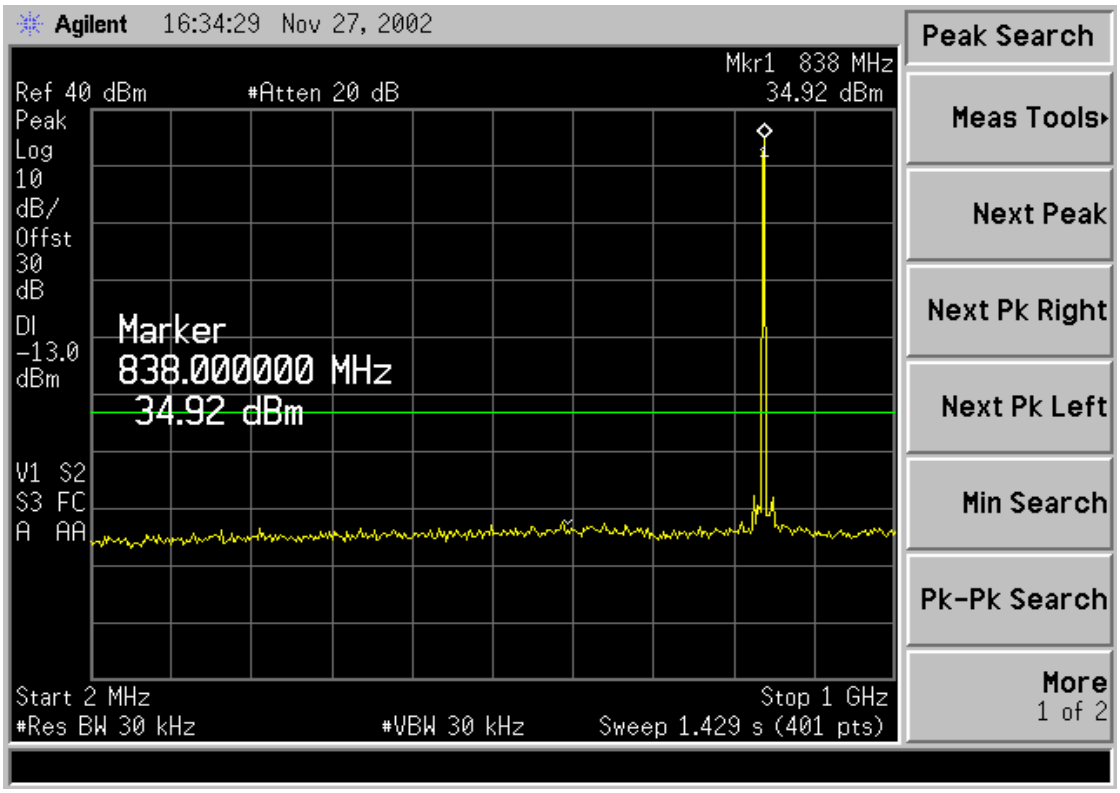
**Radiated Emission Signature Scan, Channel 799, Vertical Polarity, TX**

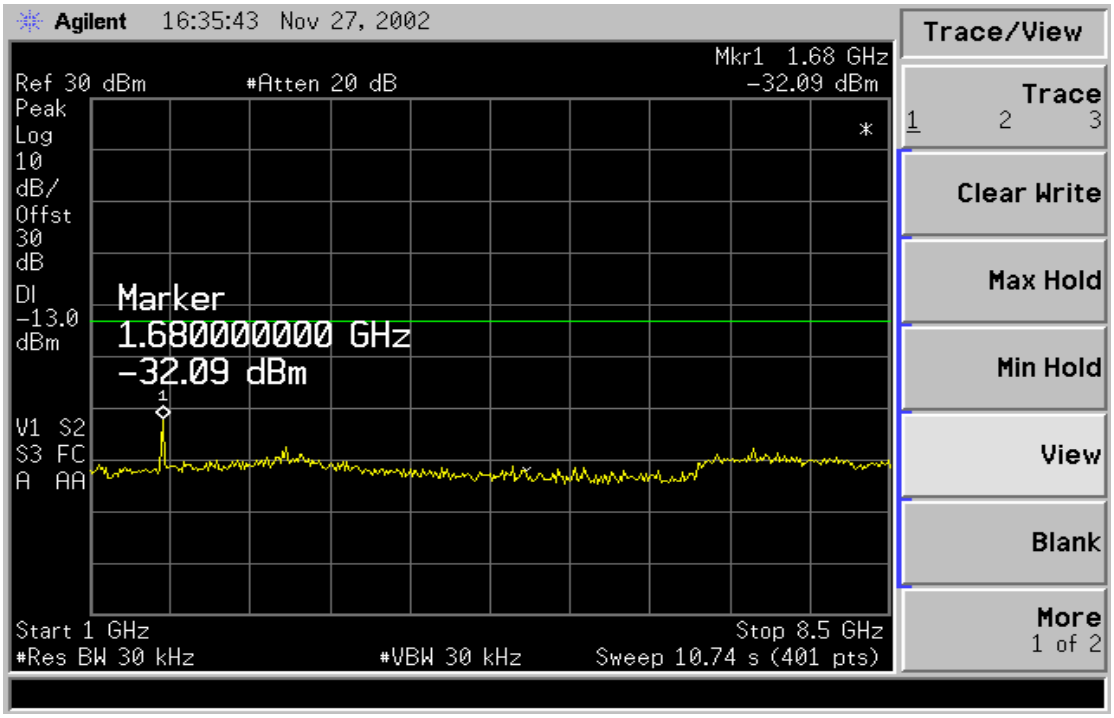


**Radiated Emission Signature Scan, Channel 025, Horizontal Polarity, TX**

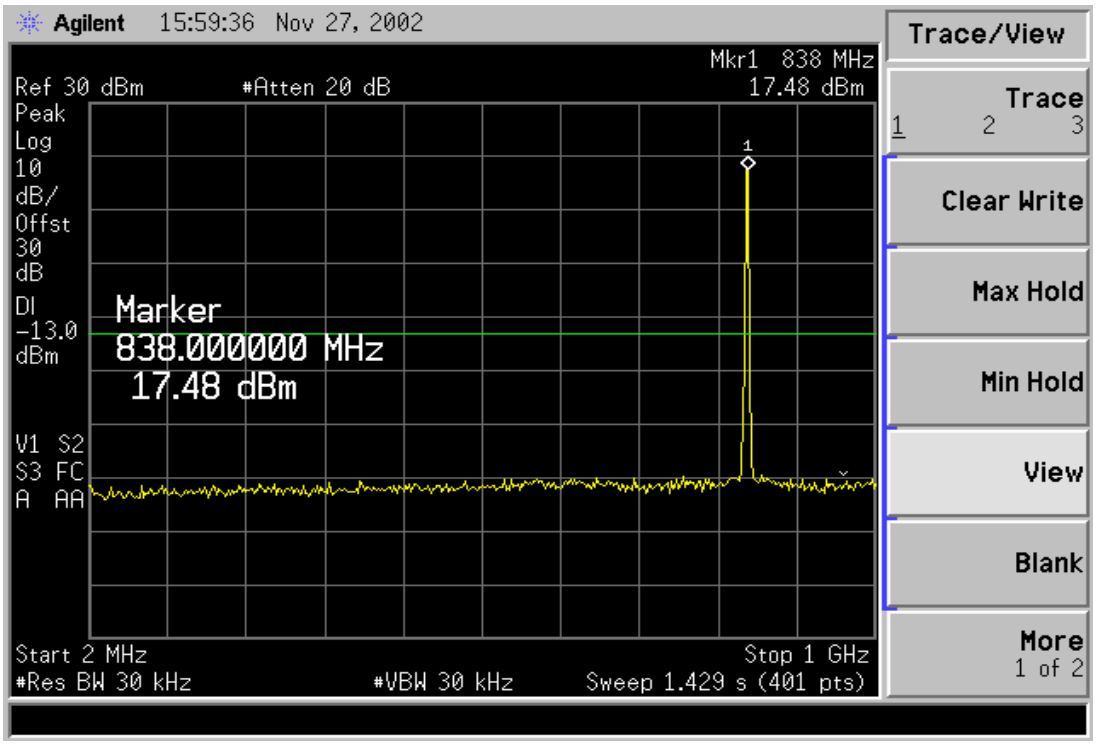


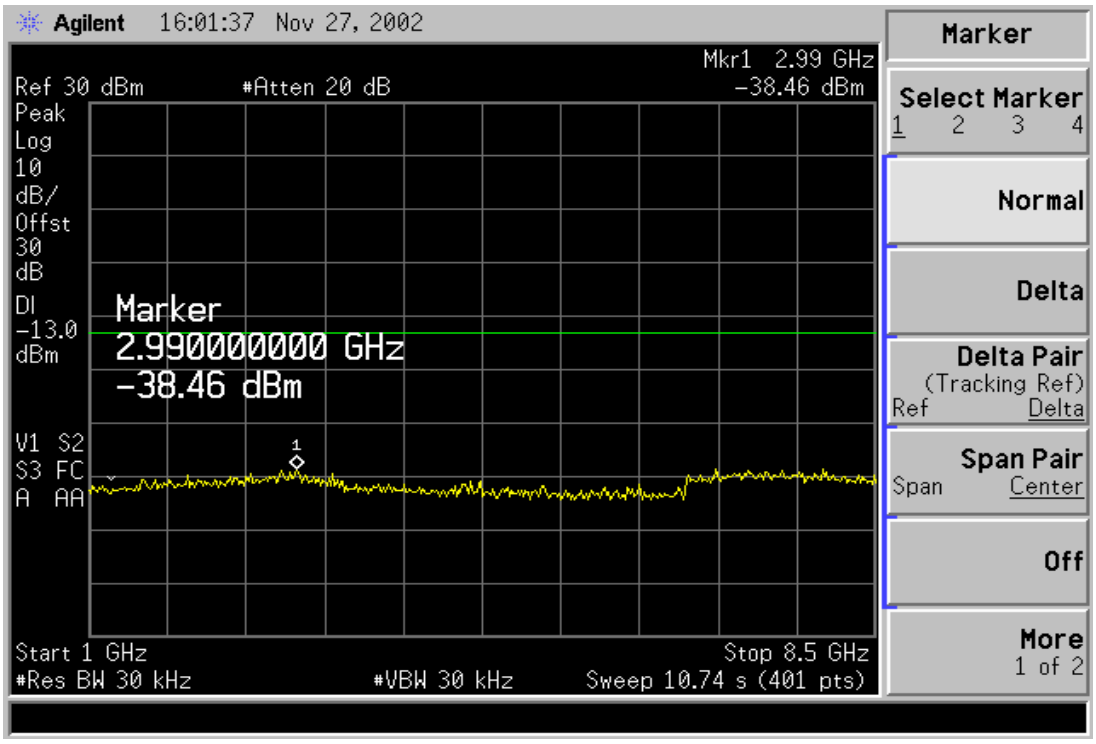
**Conducted Emissions Direct into the Analyzer, Channel 384 Analog, TX**



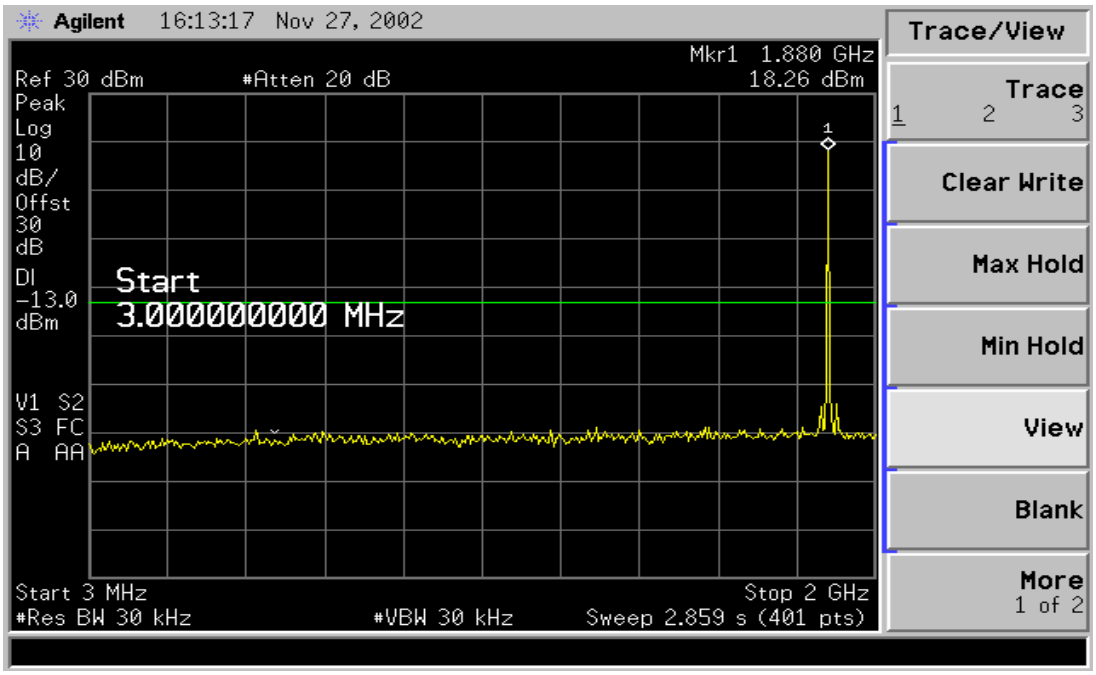



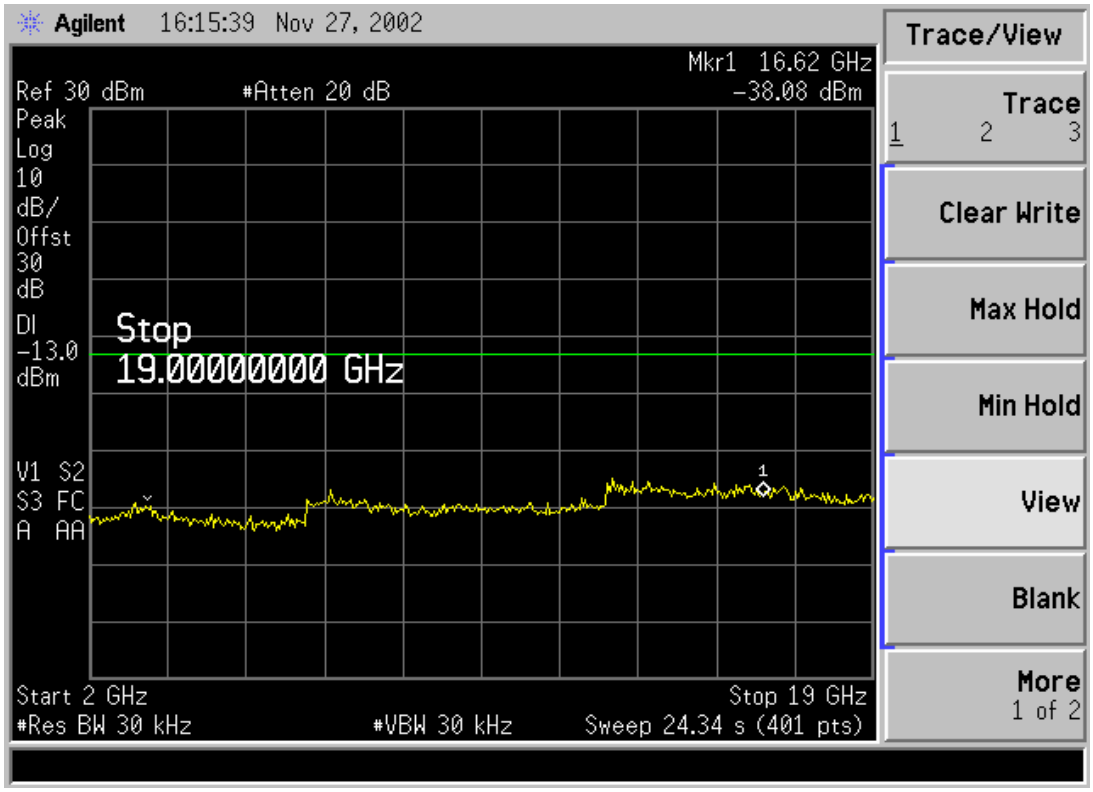
**Conducted Emissions Direct into the Analyzer, Channel 384 CDMA, TX**



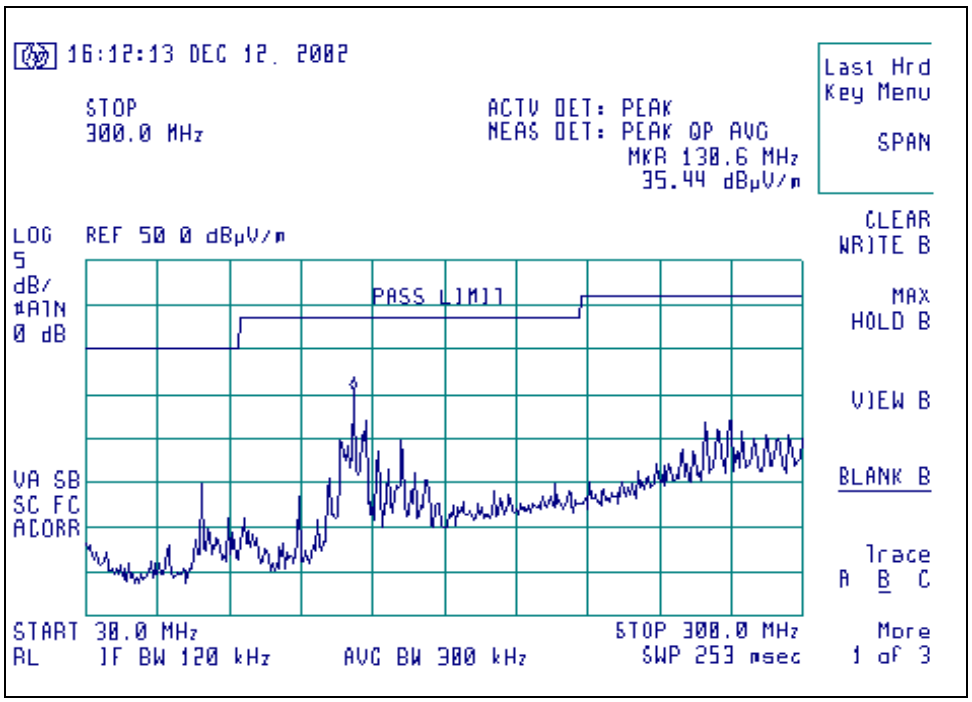



**Conducted Emissions Direct into the Analyzer, Channel 600 CDMA (PCS), TX**

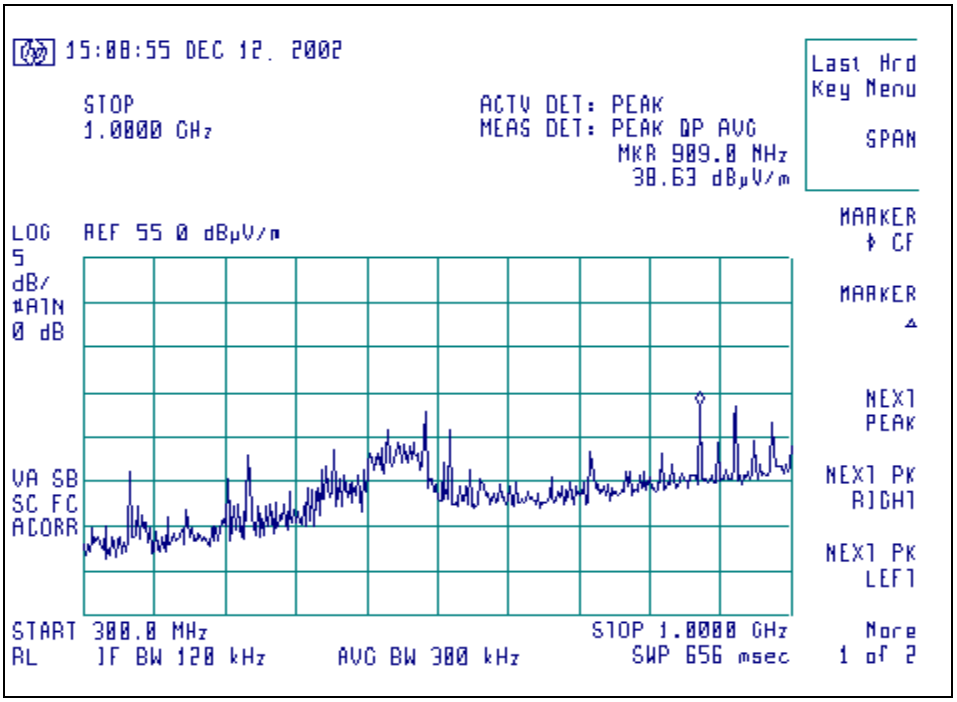


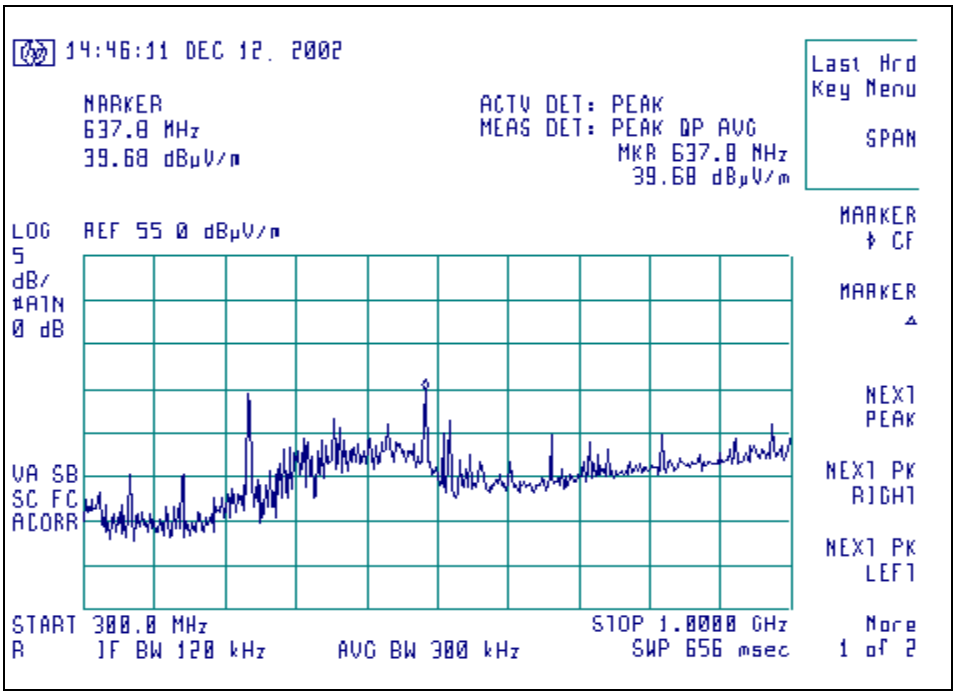
**Radiated Emissions, Signature Scan, All Channels**
**Vertical Polarity, RX, 30 MHz – 300 MHz**




**Radiated Emissions Signature Scan, All Channels**
**Vertical Polarity, RX, 300 MHz- 1000 MHz**



**Radiated Emissions Signature Scan, All Channels**
**Horizontal Polarity, RX, 300 MHz – 1000 MHz**




**Radiated Emissions Signature Scan, All Channels**
**Vertical Polarity, RX, 1000 MHz – 5000 MHz**