# FCC Test Report

## FCC Part 22, 24 / RSS 129, 133

**SONY Corporation**

**Notebook PC**

**Model Number: VAIO-VGN TT**

**FCC ID: AK8PCG4Q1L**

**IC-ID: 409B-PCG4Q1L**

**TEST REPORT #: EMC_SONYE_025_08001_FCC22_24_PCG4Q1L**
**DATE: 2008-7-29**

Certificate # 2135.01

**Bluetooth Qualification Test Facility (BQTF)**

LAB CODE 20020328-00

**FCC listed: A2LA accredited**

**IC recognized # 3462B**


***CETECOM* Inc.**
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Board of Directors: Dr. Harald Ansorge, Dr. Klaus Matkey, Hans Peter May

# Table of Contents

# 1 Assessment

**The following is in compliance with the applicable criteria specified in FCC rules Parts 2, 22 and 24 of Title 47 of the Code of Federal Regulations and in compliance with the applicable criteria specified in Industry Canada rules RSS129 and RSS133.**

| Company | Description | Model # |
|---|---|---|
| **SONY Corporation** | **Notebook PC** | **PCQ-4Q1L** |

**Technical responsibility for area of testing:**

| Date | Section | Name | Signature |
|---|---|---|---|
| 2008-07-30 | **EMC & Radio** | **Lothar Schmidt (Director Regulatory and Antenna Services)** | Lothar Schmidt I am approving this document |

**This report is prepared by:**

| Date | Section | Name | Signature |
|---|---|---|---|
| 2008-07-30 | **EMC & Radio** | **Peter Mu (EMC Project Engineer)** | Peter Mu I am the author of this document |

The test results of this test report relate exclusively to the test item specified in Identification of the Equipment under Test. The CETECOM Inc. USA does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples of the type of the equipment represented by the test item. The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written approval of the CETECOM Inc USA.

# 2 Administrative Data

## 2.1 Identification of the Testing Laboratory Issuing the SAR Assessment Report

| | |
|---|---|
| Company Name: | **CETECOM Inc.** |
| Department: | **SAR** |
| Address: | **411 Dixon Landing Road<br>Milpitas, CA 95035<br>U.S.A.** |
| Telephone: | **+1 (408) 586 6200** |
| Fax: | **+1 (408) 586 6299** |
| Responsible Test Lab Manager: | **Lothar Schmidt** |

## 2.2 Identification of the Client

| | |
|---|---|
| Applicant's Name: | **SONY Corporation** |
| Address: | **1-7-1 Konan, Minato-ku,<br>Tokyo 108-0075, Japan** |
| Contact Person: | **Michio Kobayashi** |
| Phone No. | **+81-263-72-5696** |
| Fax: | **+81-263-72-9755** |
| e-mail: | **Michio.Kobayashi@jp.sony.com** |

## 2.3 Identification of the Manufacturer

| **MANUFACTURER (If different from Applicant)** | |
|---|---|
| Applicant (Firm Name): | **Sony EMCS Corporation** |
| Contact Person: | **Michio Kobayashi** |
| Telephone: | **+81-263-72-5696** |
| Fax: | **+81-263-72-9755** |
| Address Line 1: | **5432 Toyoshima,** |
| City: | **Azumino-shi, Nagano** |
| Postal Code: | **399-8282,** |
| Country: | **Japan** |
| e-mail: | **Michio.Kobayashi@jp.sony.com** |

# 3 Equipment under Test (EUT)

## 3.1 Specification of the Equipment under Test

| | |
|---|---|
| Product Type | **Notebook PC** |
| Marketing Name: | **VAIO-VGN TT** |
| Model No: | **PCG-4Q1L** |
| FCC-ID: | **AK8PCG4Q1L** |
| IC-ID : | **409B-PCG4Q1L** |
| Frequency Range: | **824.7 MHz to 848.31 MHz & 1851.25 MHz to 1908.75 MHz** |
| Type(s) of Modulation: | **CDMA** |
| Antenna Type: | **PIFA** |
| Output Power | **Conducted:**<br>**CDMA Cellular: 27.6dBm (0.572W)**<br>**CDMA PCS: 27.7dBm (0.588W)**<br>**Radiated:**<br>**CDMA Cellular: 20.55dBm (0.114W) ERP**<br>**CDMA PCS: 25.88dBm (0.387W) EIRP** |

# 4 Subject of Investigation

All testing was performed on the EUT listed in Section 3. The EUT was maximized in the X, Y, Z positions, all data in this report shows the worst case between horizontal and vertical polarization for above 1GHz.

The objective of the measurements done by Cetecom Inc. was to measure the performance of the EUT as specified by requirements listed in FCC rules Parts 2, 22 and 24 of Title 47 of the Code of Federal Regulations. The maximization of portable equipment is conducted in accordance with ANSI C63.4.

# 5 Measurements

## 5.1 RF Power Output

### 5.1.1 FCC 2.1046 Measurements required: RF power output.

Power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on circuit elements as specified. The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

### 5.1.2 Limits:

#### 5.1.2.1 FCC 22.913 (a) Effective radiated power limits.

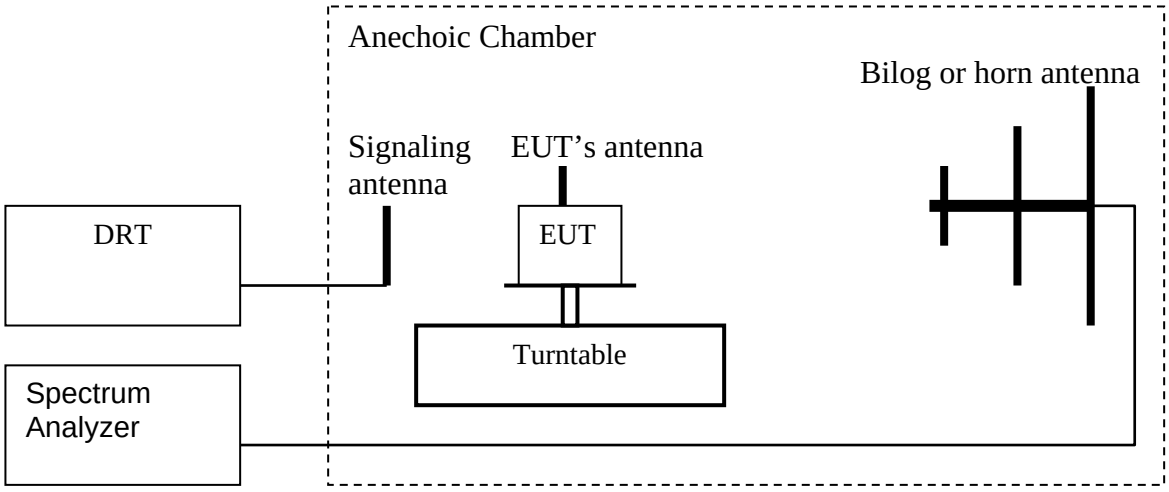
The effective radiated power (ERP) of mobile transmitters must not exceed 7 Watts.

#### 5.1.2.2 FCC 24.232 (b)(c) Power limits.

(b) Mobile/portable stations are limited to 2 Watts effective isotropic radiated power (EIRP).
(c) Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms equivalent voltage. The measurement results shall be properly adjusted for any limitations, such as detector response times, limited resolution bandwidth capability when compared to the emission bandwidth, sensitivity, etc., so as to obtain a true peak measurement over the full bandwidth of the channel.

### 5.1.3 Radiated Output Power measurement procedure:

**Based on TIA-603C 2004**
**2.2.17.2 Effective Radiated Power (ERP) or Effective Isotropic Radiated Power (EIRP)**




1. Connect the equipment as shown in the above diagram with the EUT's antenna in a vertical orientation.

2. Adjust the settings of the Digital Radiocommunication Tester (DRT) to set the EUT to its maximum power at the required channel.
3. Set the spectrum analyzer to the channel frequency. Set the analyzer to measure peak hold with the required settings.
4. Rotate the EUT 360°. Record the peak level in dBm (**LVL**).
5. Replace the EUT with a vertically polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
6. Connect the antenna to a signal generator with known output power and record the path loss in dB (**LOSS)**. **LOSS** = Generator Output Power (dBm) – Analyzer reading (dBm).
7. Determine the ERP using the following equation:
   **ERP** (dBm) = **LVL** (dBm) + **LOSS** (dB)
8. Determine the EIRP using the following equation:
   **EIRP** (dBm) = **ERP** (dBm) + 2.14 (dB)
9. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band. **Spectrum analyzer settings = rbw=vbw=3MHz**

(**note:** Steps 5 and 6 above are performed prior to testing and **LOSS** is recorded by test software. Steps 3, 4, 7 and 8 above are performed with test software.)

### 5.1.4 ERP Results 800 MHz band:

| | Burst Peak ERP |
|---|---|
| | ≤38.45dBm (7W) |

| Frequency (MHz) | Effective Radiated Power (dBm) |
|---|---|
| 824.7 | 19.68 |
| 836.6 | 20.55 |
| 848.31 | 20.4 |

### 5.1.5 EIRP Results 1900 MHz band:

| | Burst Peak EIRP |
|---|---|
| | ≤33dBm (2W) |

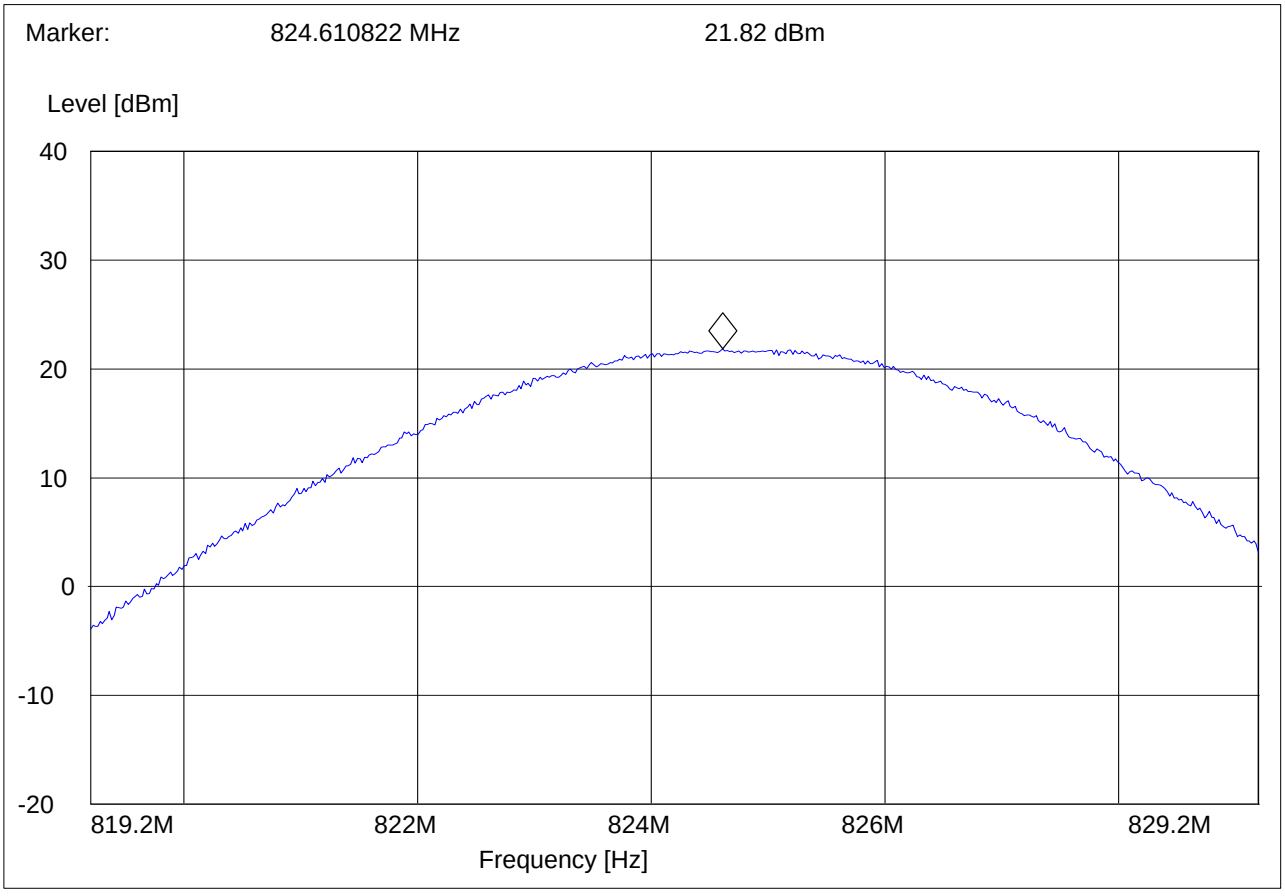
| Frequency (MHz) | Equivalent Isotropic Radiated Power (dBm) |
|---|---|
| 1851.25 | 25.88 |
| 1880.0 | 24.82 |
| 1908.25 | 23.01 |

**EIRP (800 band)** **§22.913(a)**
**CHANNEL 1013**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA   CH 1013
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@293°
```

***SWEEP TABLE: "EIRP 850 CH 128 V"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 819.2 MHz | 829.2 MHz | MaxPeak<br>MaxPeak | Coupled | 3 MHz | DUMMY-DBM |

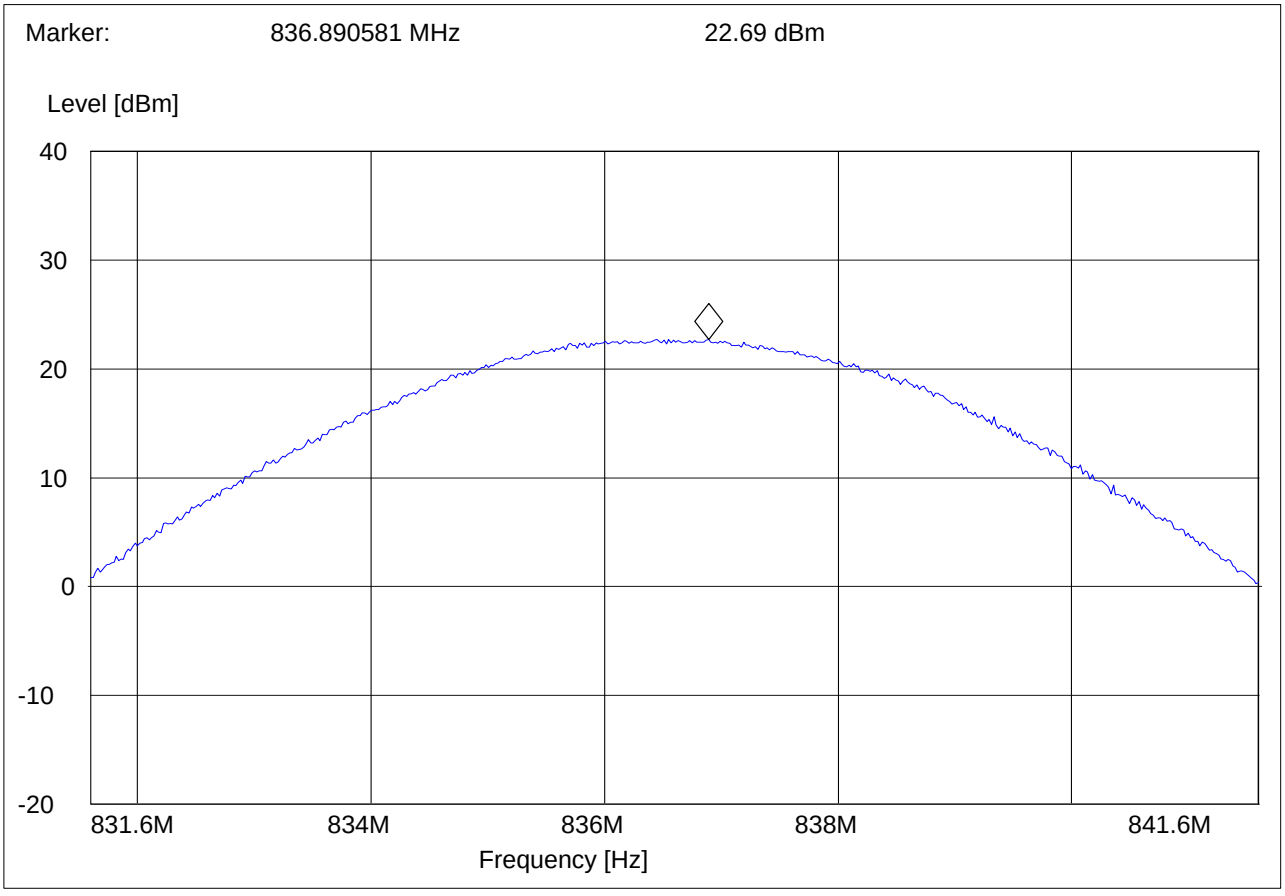


**EIRP (800 band)** **§22.913(a)**
**CHANNEL 384**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 384
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@293°
```

***SWEEP TABLE: "EIRP 850 CH 190 V"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 831.6 MHz | 841.6 MHz | MaxPeak<br>MaxPeak | Coupled | 3 MHz | DUMMY-DBM |

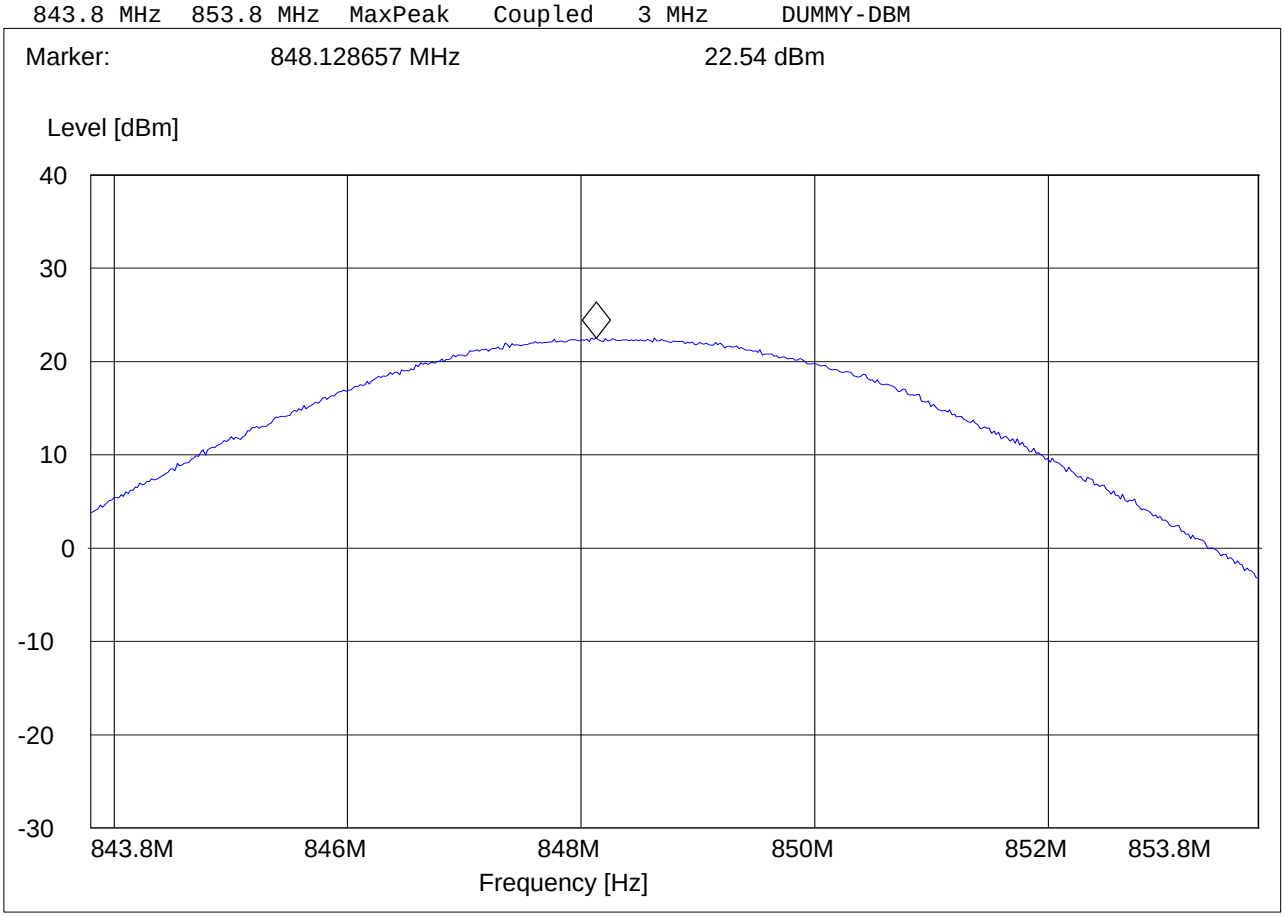


**EIRP (800 band)** **§22.913(a)**
**CHANNEL 777**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 777
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@293°
```

***SWEEP TABLE: "EIRP 850 CH 251 V"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 843.8 MHz | 853.8 MHz | MaxPeak | Coupled | 3 MHz | DUMMY-DBM |

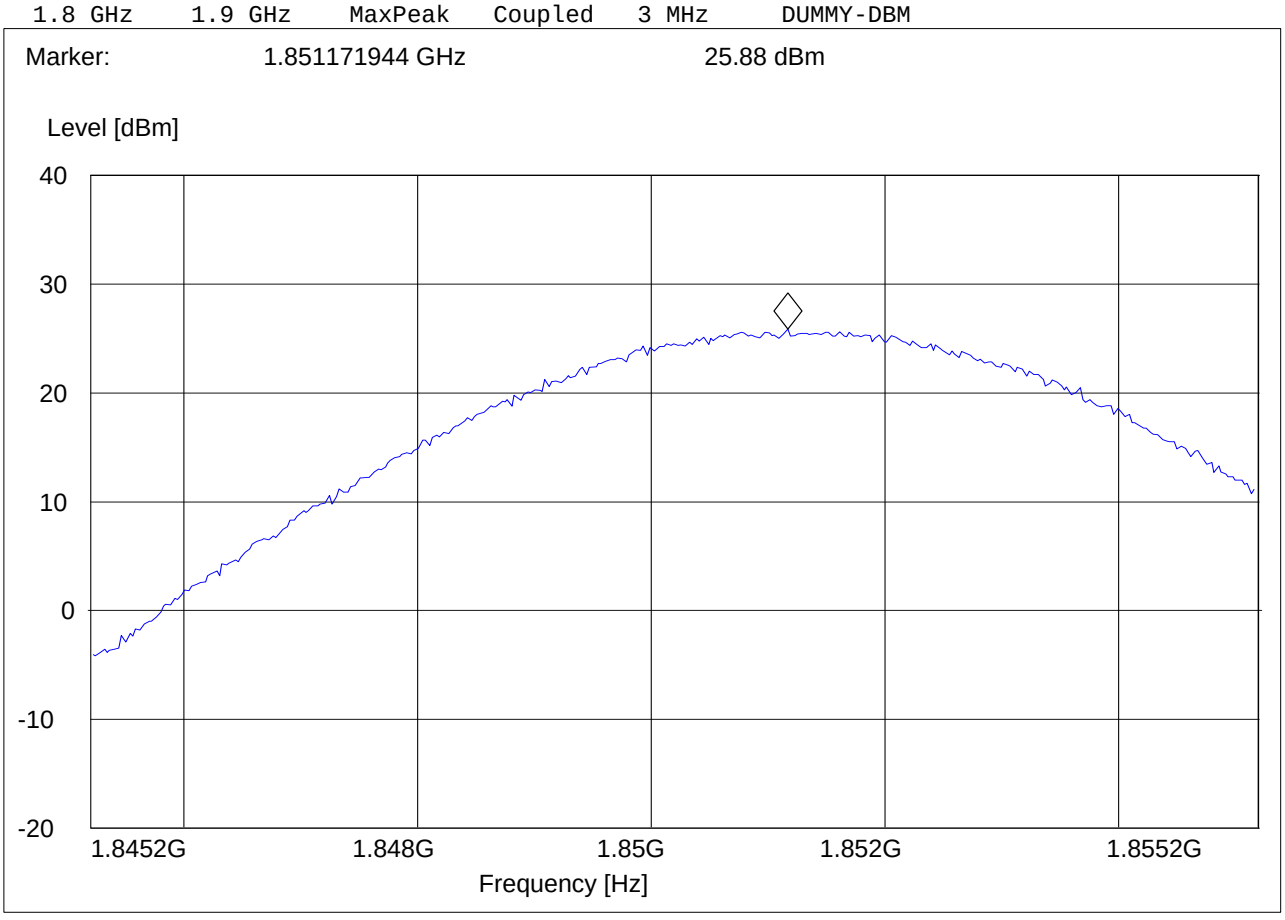


**EIRP (PCS-1900)** **§24.232(b)**
**CHANNEL 25**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 25
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "EIRP 1900  CH512"***

```
Short Description:              EIRP PCS 1900 for channel-512
Start       Stop        Detector  Meas.     IF         Transducer
Frequency   Frequency             Time      Bandw.
1.8 GHz     1.9 GHz     MaxPeak   Coupled   3 MHz      DUMMY-DBM
```

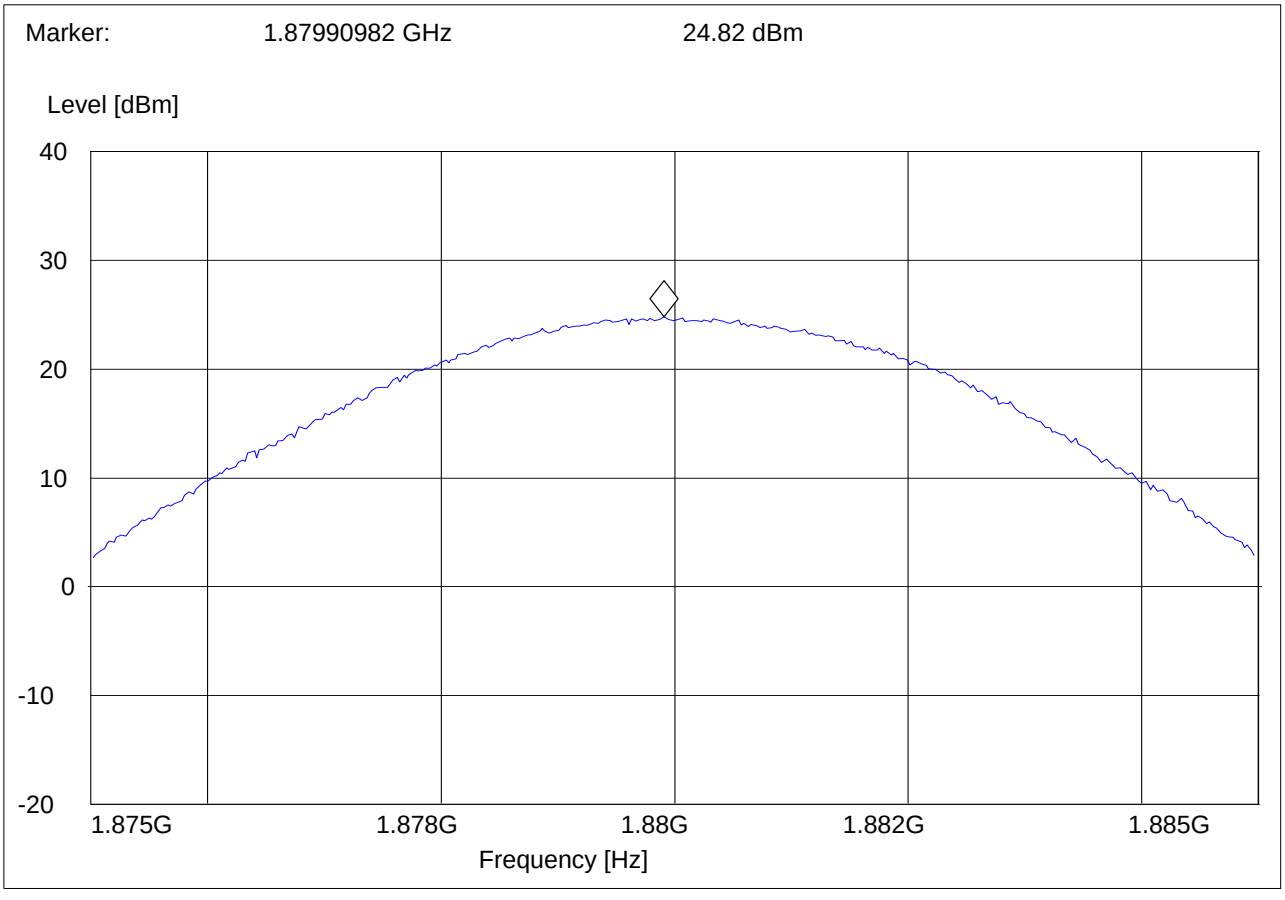


**EIRP (PCS-1900)** **§24.232(b)**
**CHANNEL 600**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 600
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "EIRP 1900  CH661"***

```
  Short Description:            EIRP PCS 1900 for channel-661
  Start      Stop       Detector  Meas.     IF        Transducer
  Frequency  Frequency            Time      Bandw.
  1.9 GHz    1.9 GHz    MaxPeak   Coupled   3 MHz     DUMMY-DBM
                        MaxPeak
```

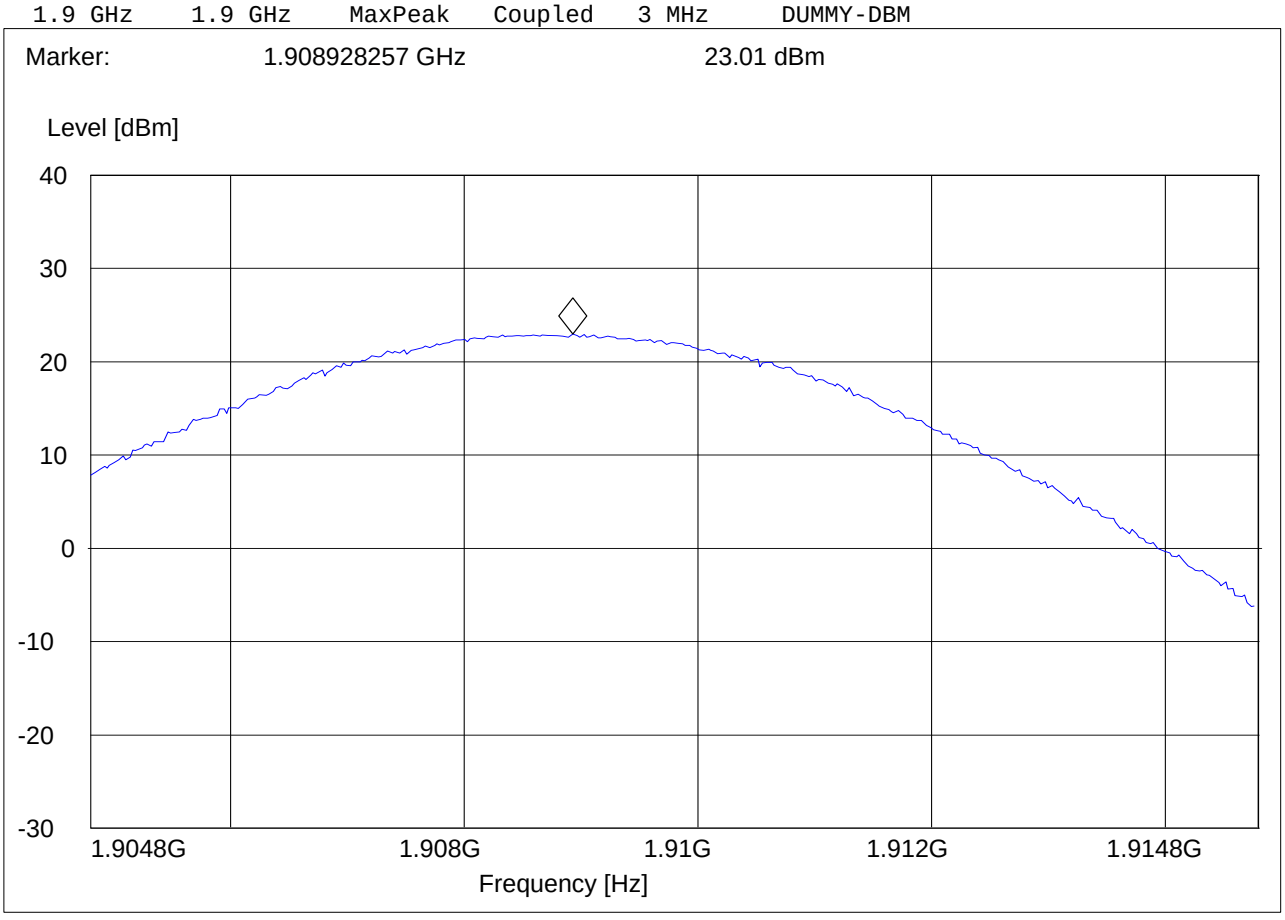


**EIRP (PCS-1900)** **§24.232(b)**
**CHANNEL 1175**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 1175
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "EIRP 1900  CH810"***

```
  Short Description:            EIRP PCS 1900 for channel-810
  Start       Stop        Detector  Meas.      IF         Transducer
  Frequency   Frequency             Time       Bandw.
  1.9 GHz     1.9 GHz     MaxPeak   Coupled    3 MHz      DUMMY-DBM
```



## 5.2 Spurious Emissions Radiated

### 5.2.1 FCC 2.1053 Measurements required: Field strength of spurious radiation.

(a) Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission.

### 5.2.2 Limits:

#### 5.2.2.1 FCC 22.917 Emission limitations for cellular equipment.

The rules in this section govern the spectral characteristics of emissions in the Cellular Radiotelephone Service.

(a) *Out of band emissions.* 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.

(b) *Measurement procedure.* Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (*i.e.* 100 kHz of 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

#### 5.2.2.2 FCC 24.238 Emission limitations for Broadband PCS equipment.

The rules in this section govern the spectral characteristics of emissions in the Broadband Personal Communications Service.

(a) *Out of band emissions.* 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.

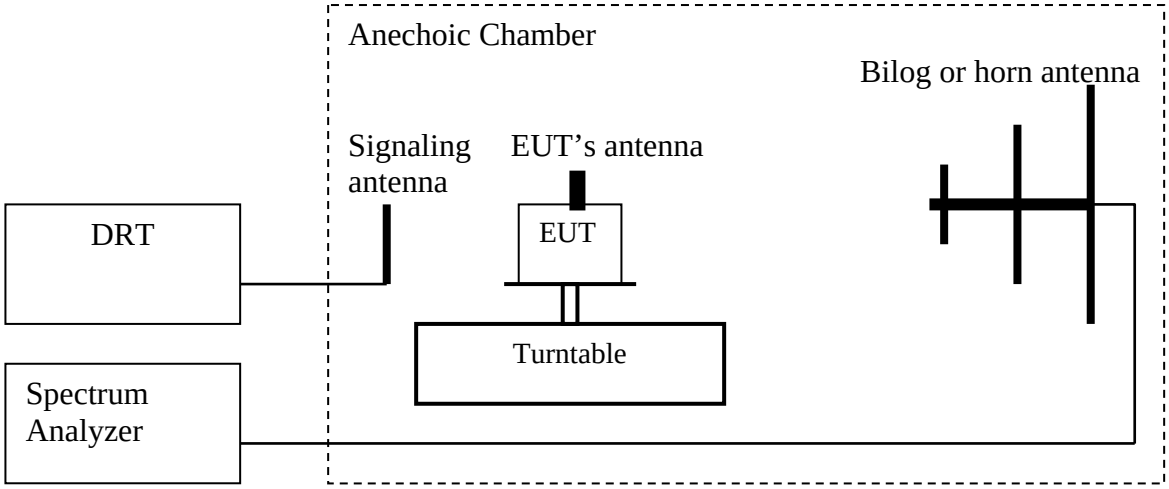
*(b) Measurement procedure.* Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required

measurement bandwidth (*i.e.* 100 kHz of 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

### 5.2.3 Radiated out of band measurement procedure:

**Based on TIA-603C 2004**

**2.2.12 Unwanted emissions: Radiated Spurious**




1. Connect the equipment as shown in the above diagram with the EUT's antenna in a horizontal orientation.
2. Adjust the settings of the Digital Radiocommunication Tester (DRT) to set the EUT to its maximum power at the required channel.
3. Set the spectrum analyzer to measure peak hold with the required settings.
4. Place the measurement antenna in a horizontal orientation. Rotate the EUT 360°. Raise the measurement antenna up to 4 meters in 0.5 meters increments and rotate the EUT 360° at each height to maximize all emissions. Measure and record all spurious emissions (**LVL**) up to the tenth harmonic of the carrier frequency.
5. Replace the EUT with a horizontally polarized half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
6. Connect the antenna to a signal generator with known output power and record the path loss in dB (**LOSS)**. **LOSS** = Generator Output Power (dBm) – Analyzer reading (dBm).
7. Determine the level of spurious emissions using the following equation: **Spurious** (dBm) = **LVL** (dBm) + **LOSS** (dB):
8. Repeat steps 4, 5 and 6 with all antennas vertically polarized.
9. Determine the level of spurious emissions using the following equation: **Spurious** (dBm) = **LVL** (dBm) + **LOSS** (dB):
10. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

(**note:** Steps 5 and 6 above are performed prior to testing and **LOSS** is recorded by test software. Steps 3, 4 and 7 above are performed with test software.)

**Spectrum analyzer settings:**
Res B/W: 1 MHz
Vid B/W: 1 MHz

**Measurement Surve**y:

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the GSM-850 & PCS-1900 bands. It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the GSM-850 & PCS-1900 band into any of the other blocks respectively. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

### 5.2.4 Radiated out of band emissions results on EUT:

#### 5.2.4.1 RESULTS OF RADIATED TESTS 800:

| Harmonics | Tx ch-1013 Freq. (MHz) | Level (dBm) | Tx ch-600 Freq. (MHz) | Level (dBm) | Tx ch-777 Freq. (MHz) | Level (dBm) |
|---|---|---|---|---|---|---|
| **2** | **1648.4** | NF | **1673.2** | NF | **1697.6** | NF |
| **3** | **2472.6** | NF | **2509.8** | NF | **2546.4** | NF |
| **4** | **3296.8** | NF | **3346.4** | NF | **3395.2** | NF |
| **5** | **4121** | NF | **4183** | NF | **4244** | NF |
| **6** | **4945.2** | NF | **5019.6** | NF | **5092.8** | NF |
| **7** | **5769.4** | NF | **5856.2** | NF | **5941.6** | NF |
| **8** | **6593.6** | NF | **6692.8** | NF | **6790.4** | NF |
| **9** | **7417.8** | NF | **7529.4** | NF | **7639.2** | NF |
| **10** | **8242** | NF | **8366** | NF | **8488** | NF |
| NF = NOISE FLOOR | | | | | | |

### 5.2.4.2 RADIATED SPURIOUS EMISSIONS (800 band)

**TX: 30MHz - 1GHz Ant Vertical**

Spurious emission limit –13dBm

**Note:**

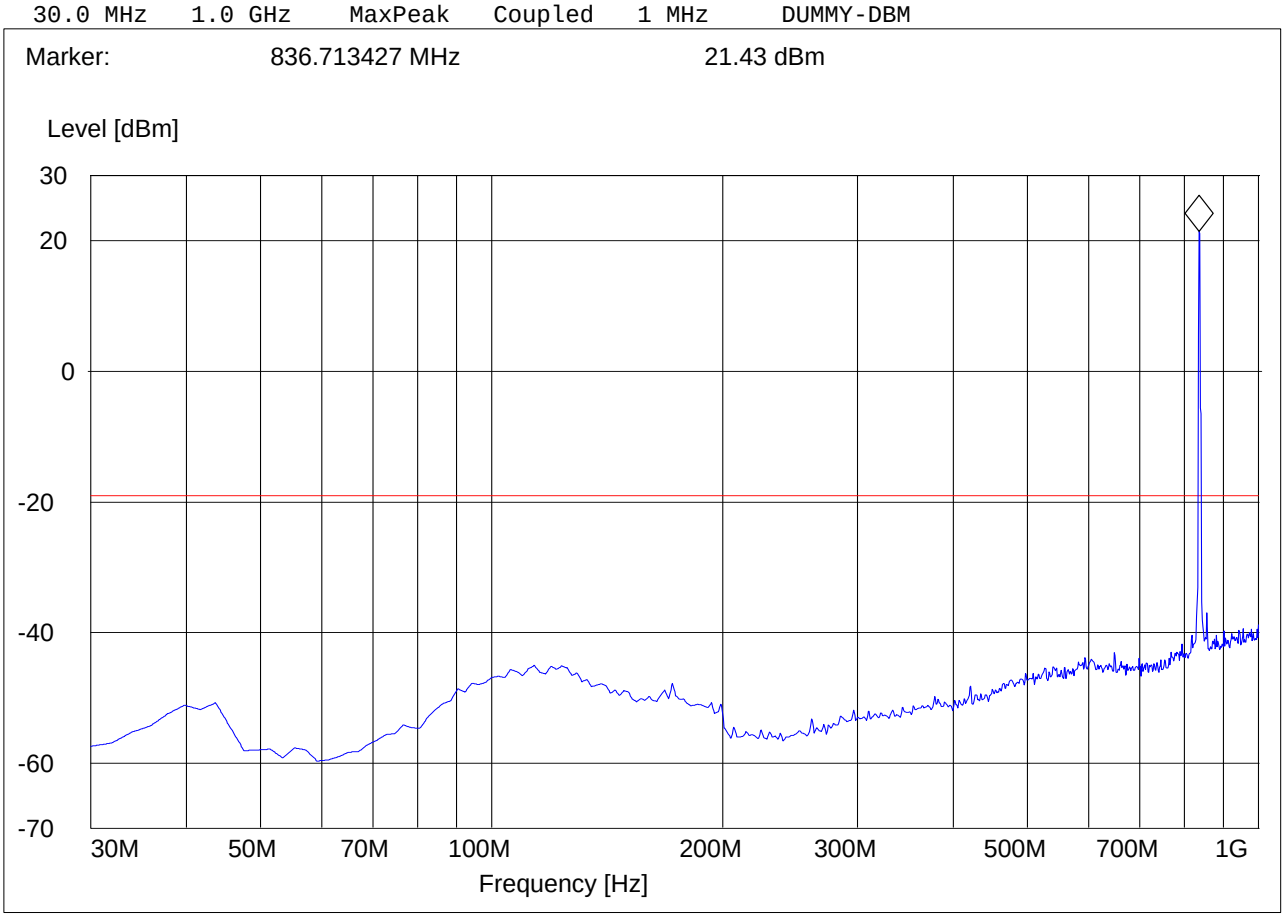
**1.The peak above the limit line is the carrier freq.**

**2.This plot is valid for low, mid & high channels (worst-case plot)**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 384
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@293°; marker placed on uplink
```

***SWEEP TABLE: "FCC 24 Spur 30M-1G_V"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |



**TX: 30MHz - 1GHz Ant Horizontal**

Spurious emission limit –13dBm

**Note:**

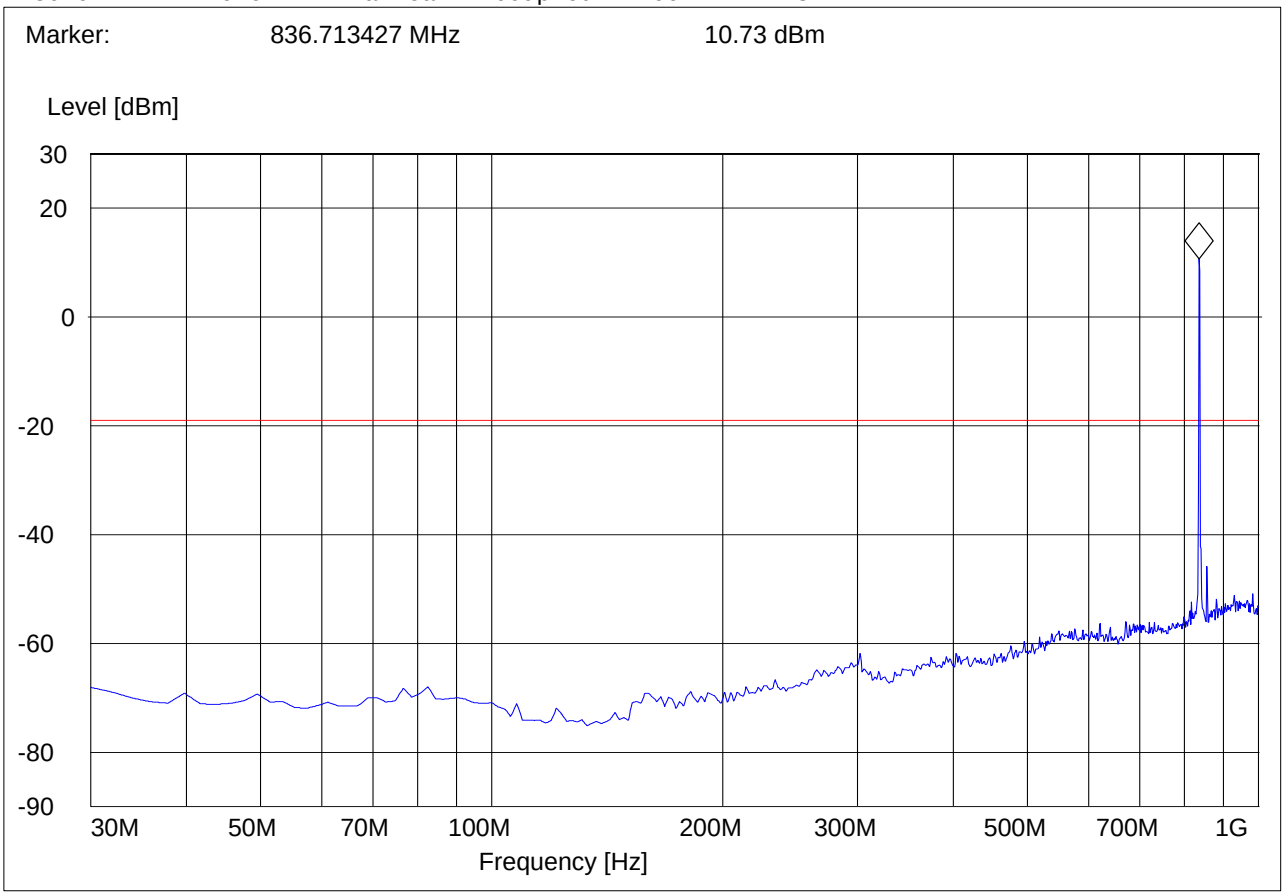
**1.The peak above the limit line is the carrier freq.**

**2.This plot is valid for low, mid & high channels (worst-case plot)**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 384
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@293°; marker placed on uplink
```

***SWEEP TABLE: "FCC 24 Spur 30M-1G_H"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | DUMMY-DBM |

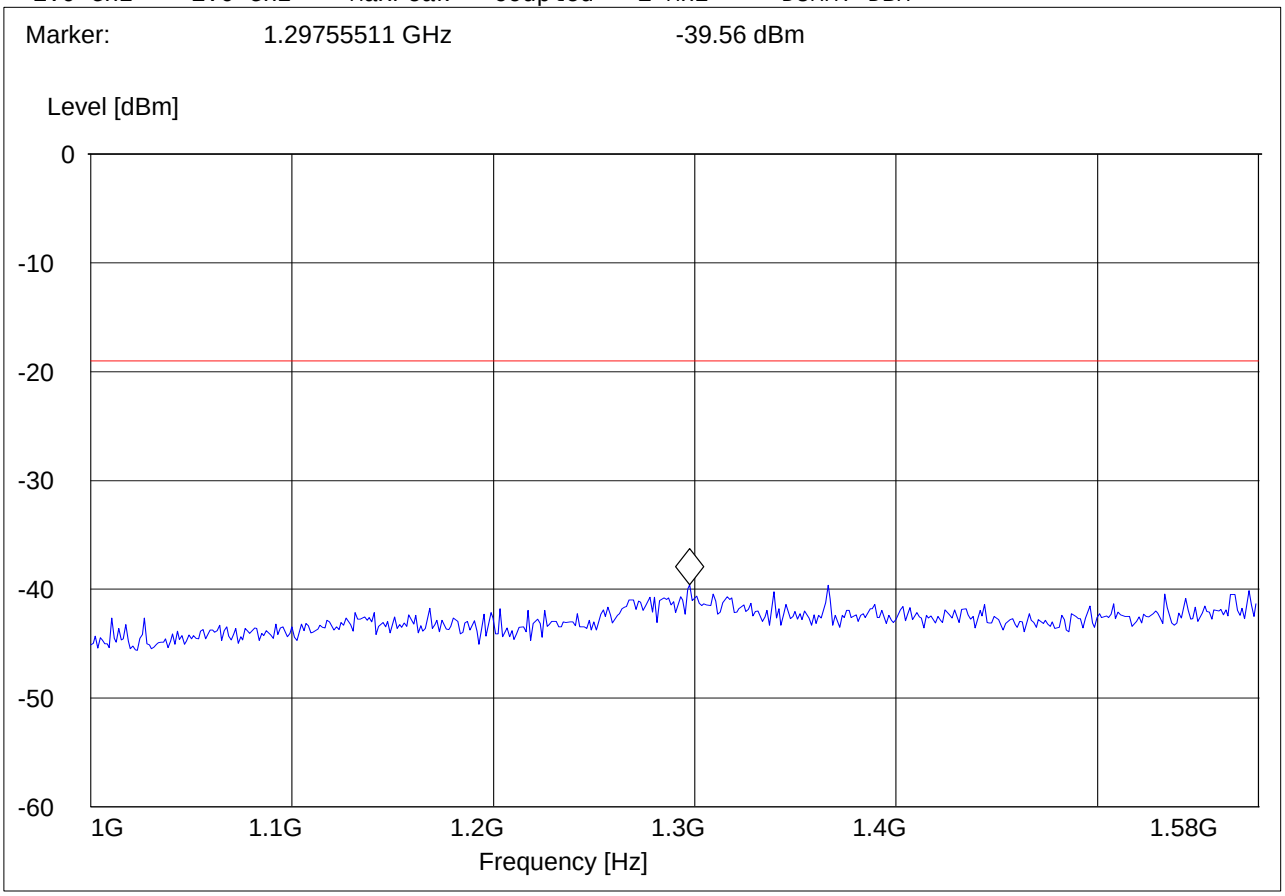


**RADIATED SPURIOUS EMISSIONS (800 band)**
**Ch 1013**
**1GHz – 1.58GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 1013
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri  1-1.58G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 1.6 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

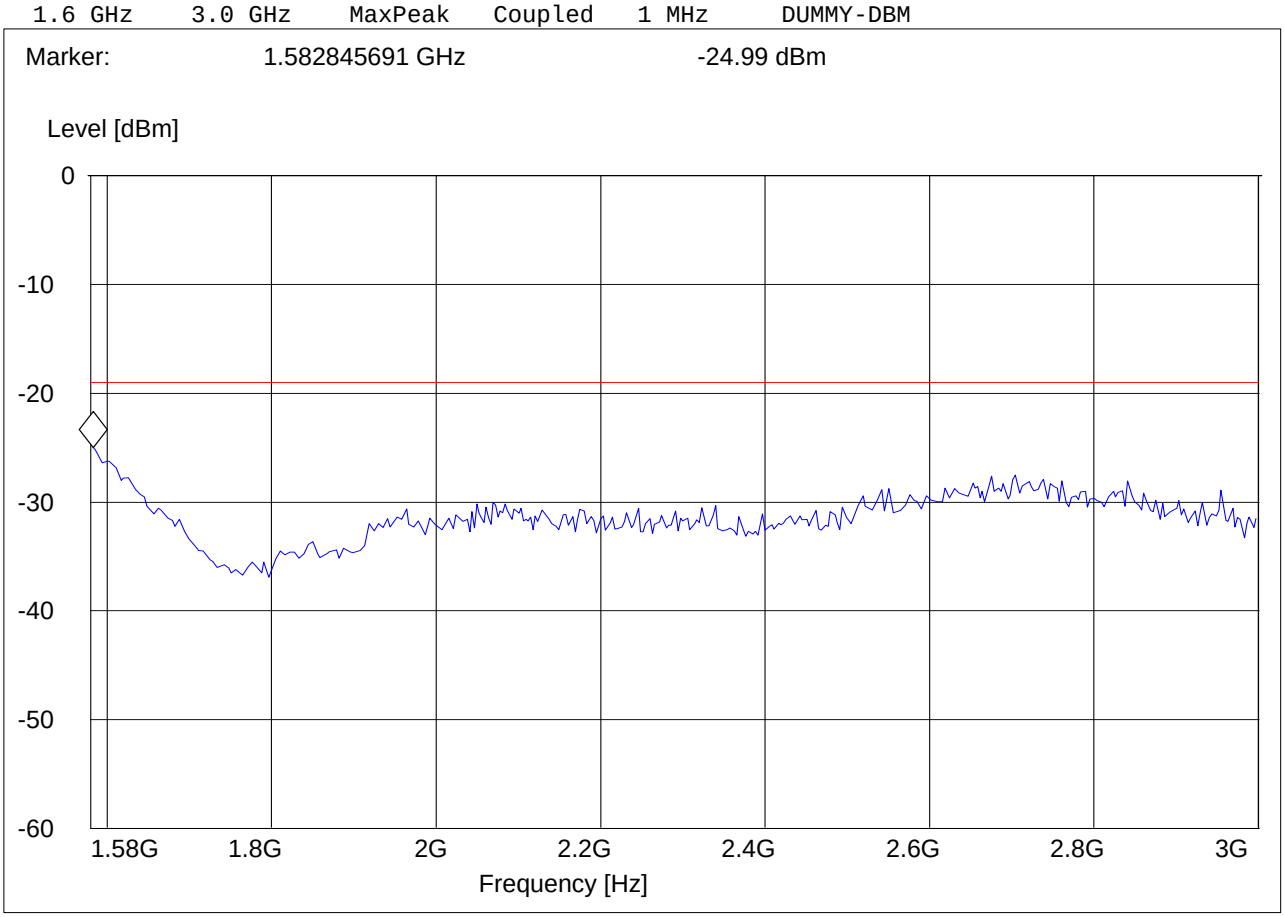


**RADIATED SPURIOUS EMISSIONS (800 band)**
**Ch1013**
**1.58GHz – 3GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 1013
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri 1.58-3G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.6 GHz | 3.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

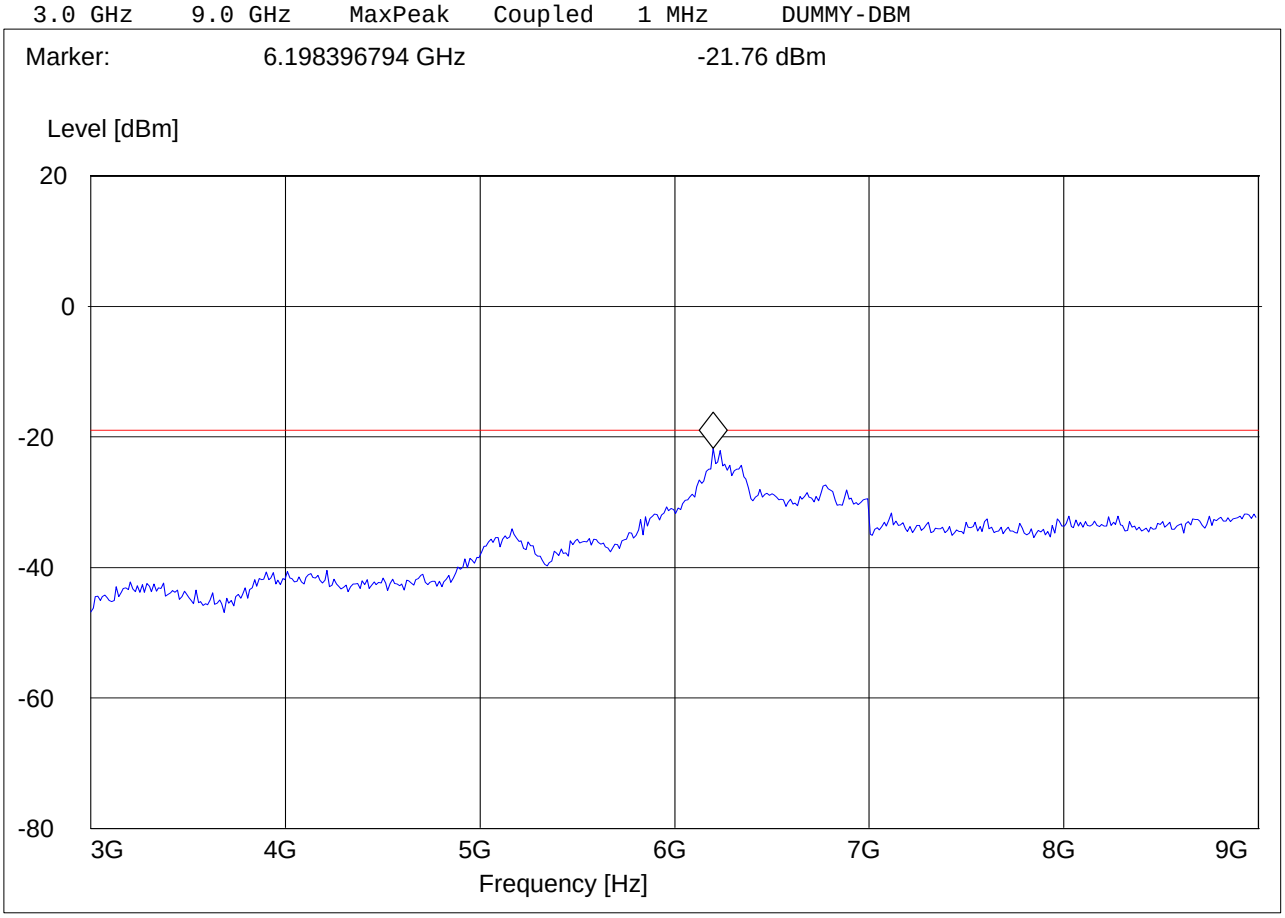


**RADIATED SPURIOUS EMISSIONS (800 band)**
**Ch 1013**
**3GHz – 9GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 1013
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri 3-9G"***

```
Short Description:            FCC  24 1GHz-8GHz
Start      Stop       Detector  Meas.     IF        Transducer
Frequency  Frequency             Time      Bandw.
3.0 GHz    9.0 GHz    MaxPeak   Coupled   1 MHz     DUMMY-DBM
```

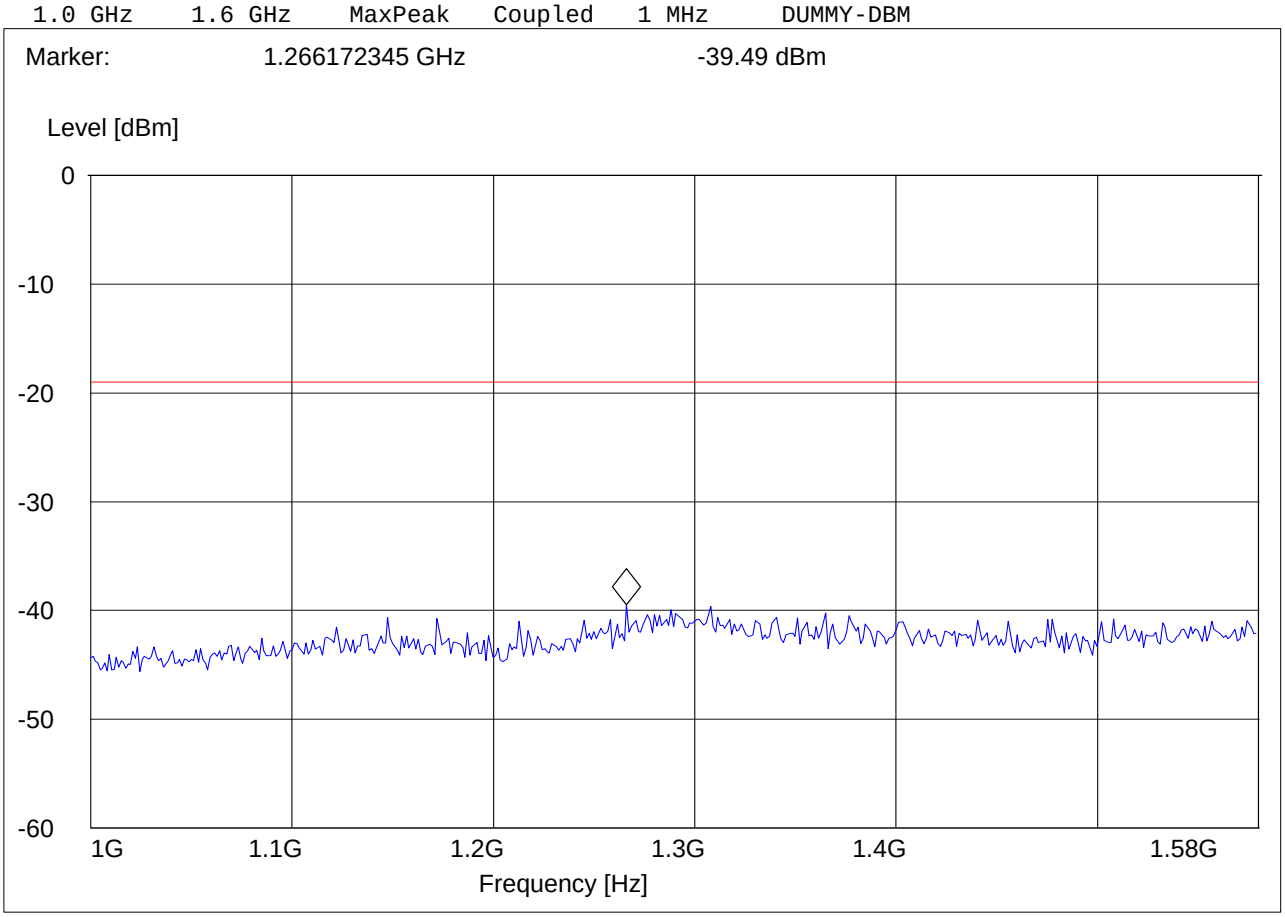


**RADIATED SPURIOUS EMISSIONS (800 band)**
**Ch 384**
**1GHz – 1.58GHz**
Spurious emission limit –13dBm

```
EUT:             Laptop
Customer::       Sony
Test Mode:       CDMA CH 384
ANT Orientation: H
EUT Orientation: H
Test Engineer:   SAM
Voltage:         AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri 1-1.58G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 1.6 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

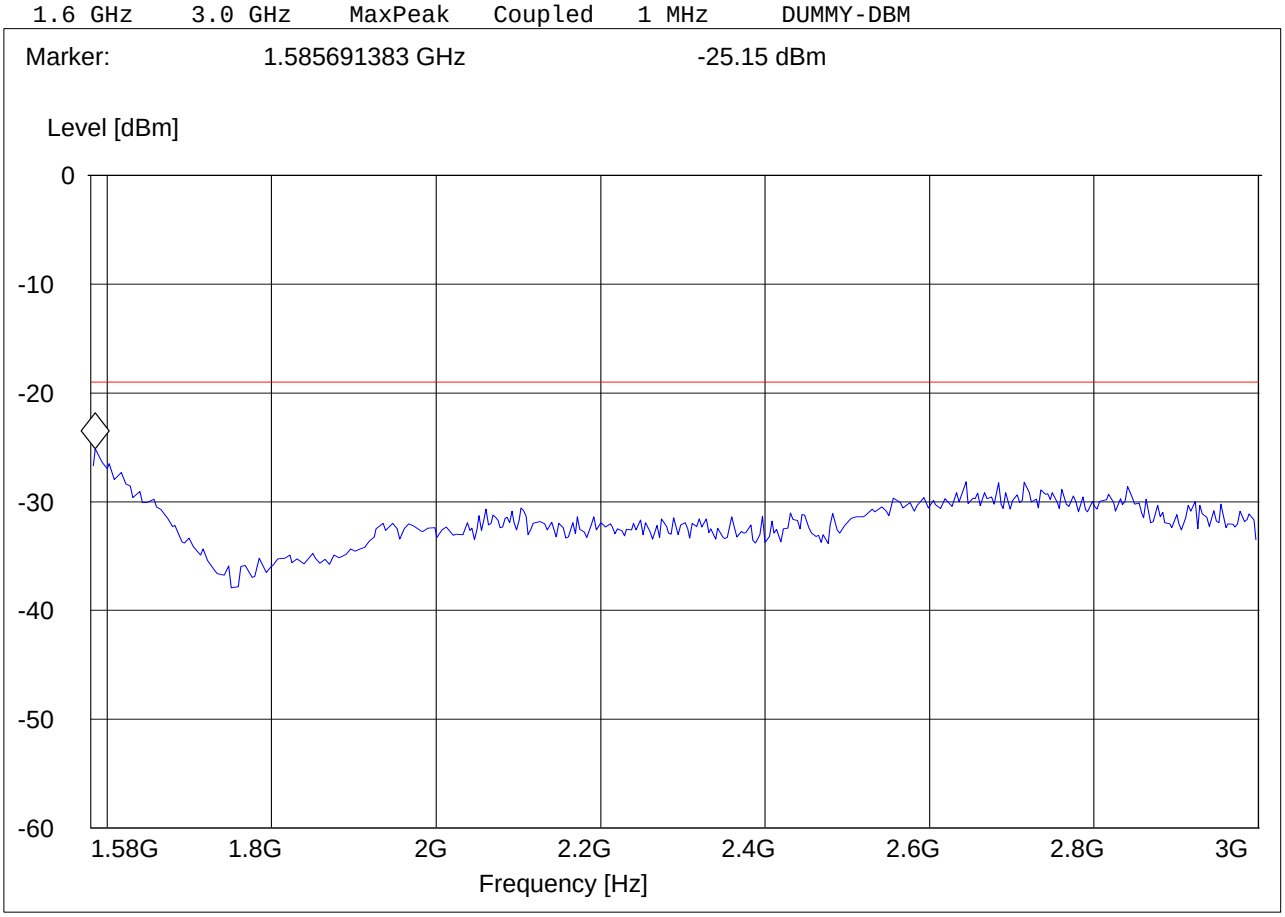


**RADIATED SPURIOUS EMISSIONS (800 band)**
**Ch 384**
**1.58GHz – 3GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 384
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri 1.58-3G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.6 GHz | 3.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

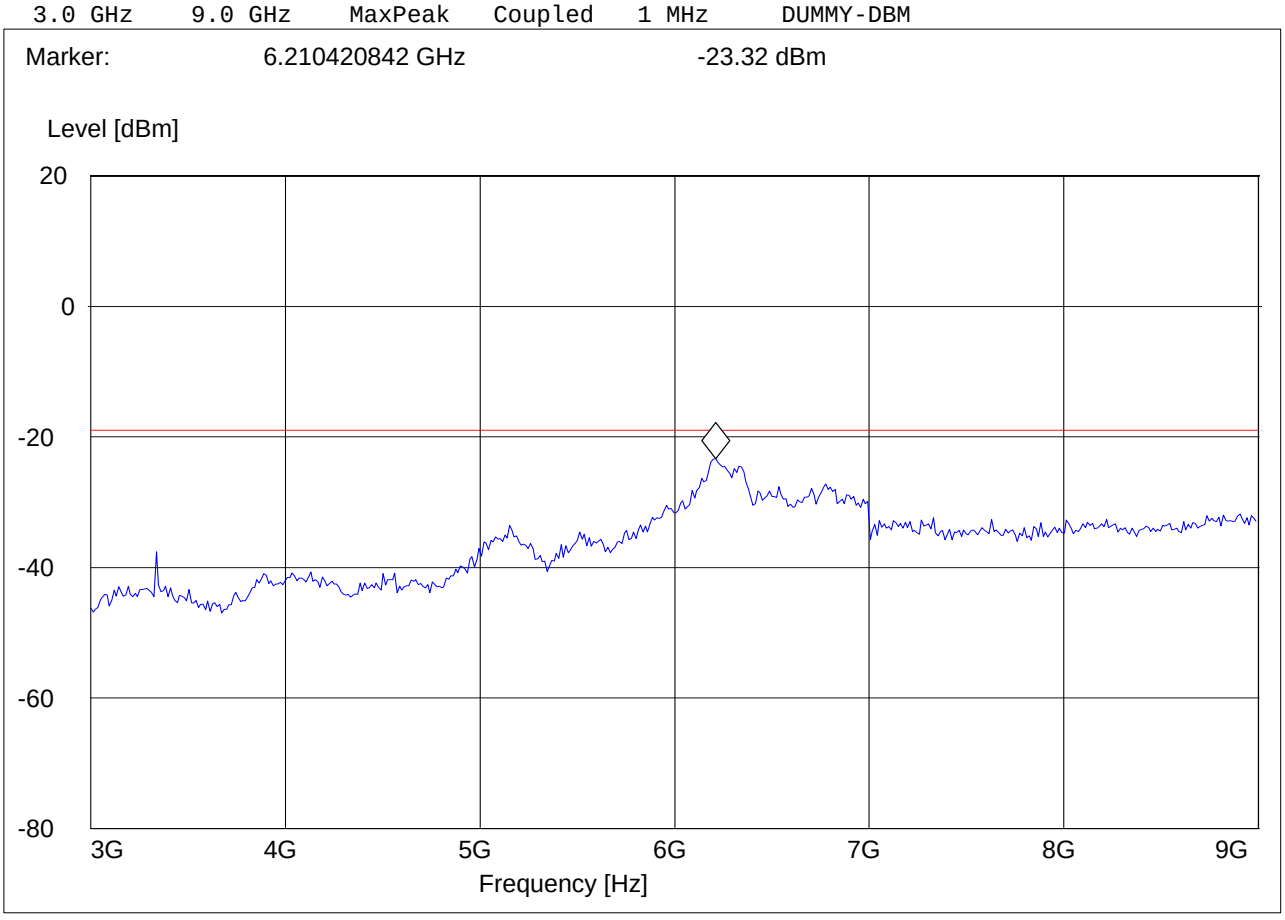


**RADIATED SPURIOUS EMISSIONS (800 band)**
**Ch 384**
**3GHz – 9GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 384
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri 3-9G"***

```
Short Description:            FCC  24 1GHz-8GHz
Start      Stop       Detector  Meas.     IF        Transducer
Frequency  Frequency             Time      Bandw.
3.0 GHz    9.0 GHz    MaxPeak   Coupled   1 MHz     DUMMY-DBM
```

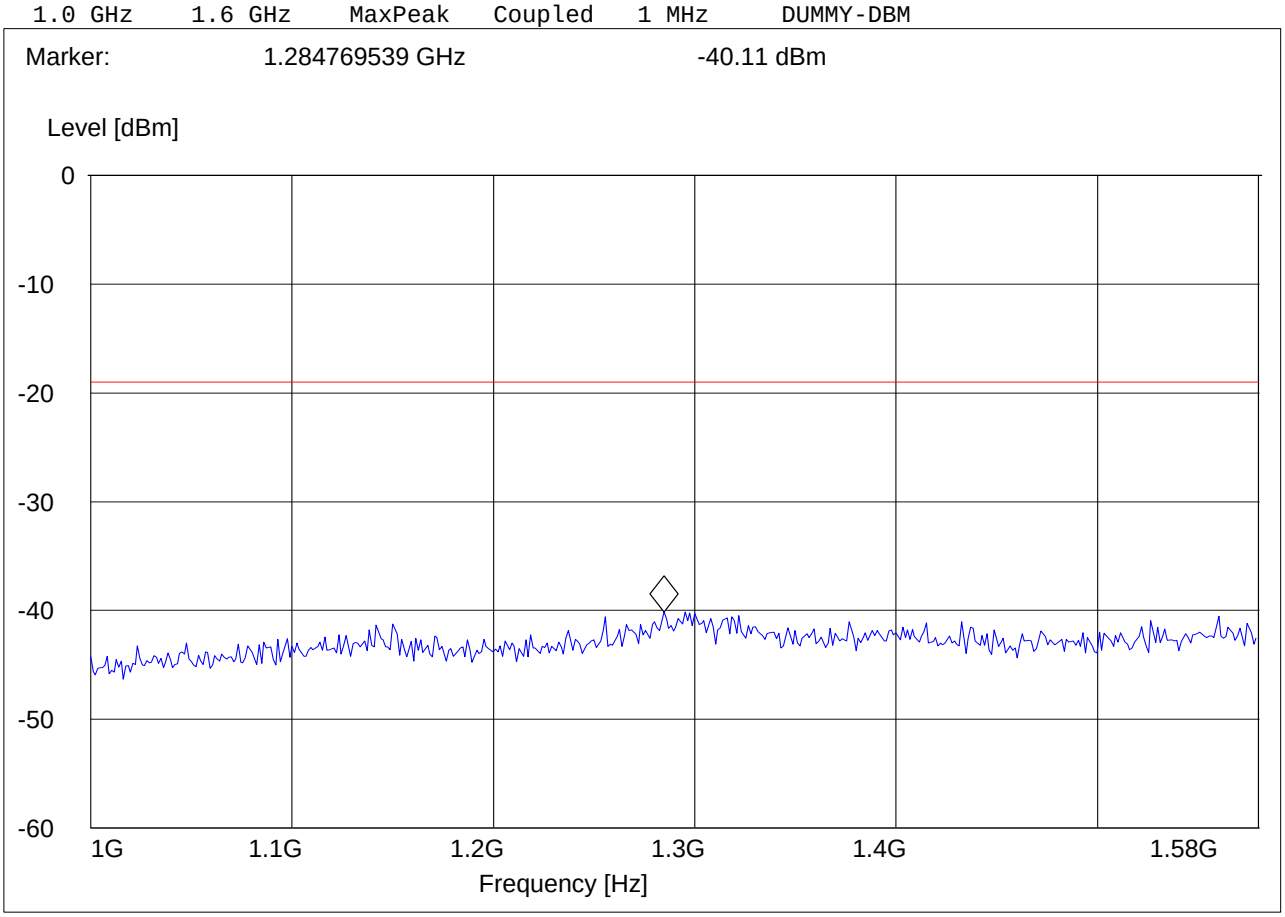


**RADIATED SPURIOUS EMISSIONS (800 band)**
**Ch 777**
**1GHz – 1.58GHz**
Spurious emission limit –13dBm

```
EUT:             Laptop
Customer::       Sony
Test Mode:       CDMA CH 777
ANT Orientation: H
EUT Orientation: H
Test Engineer:   SAM
Voltage:         AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri  1-1.58G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 1.6 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

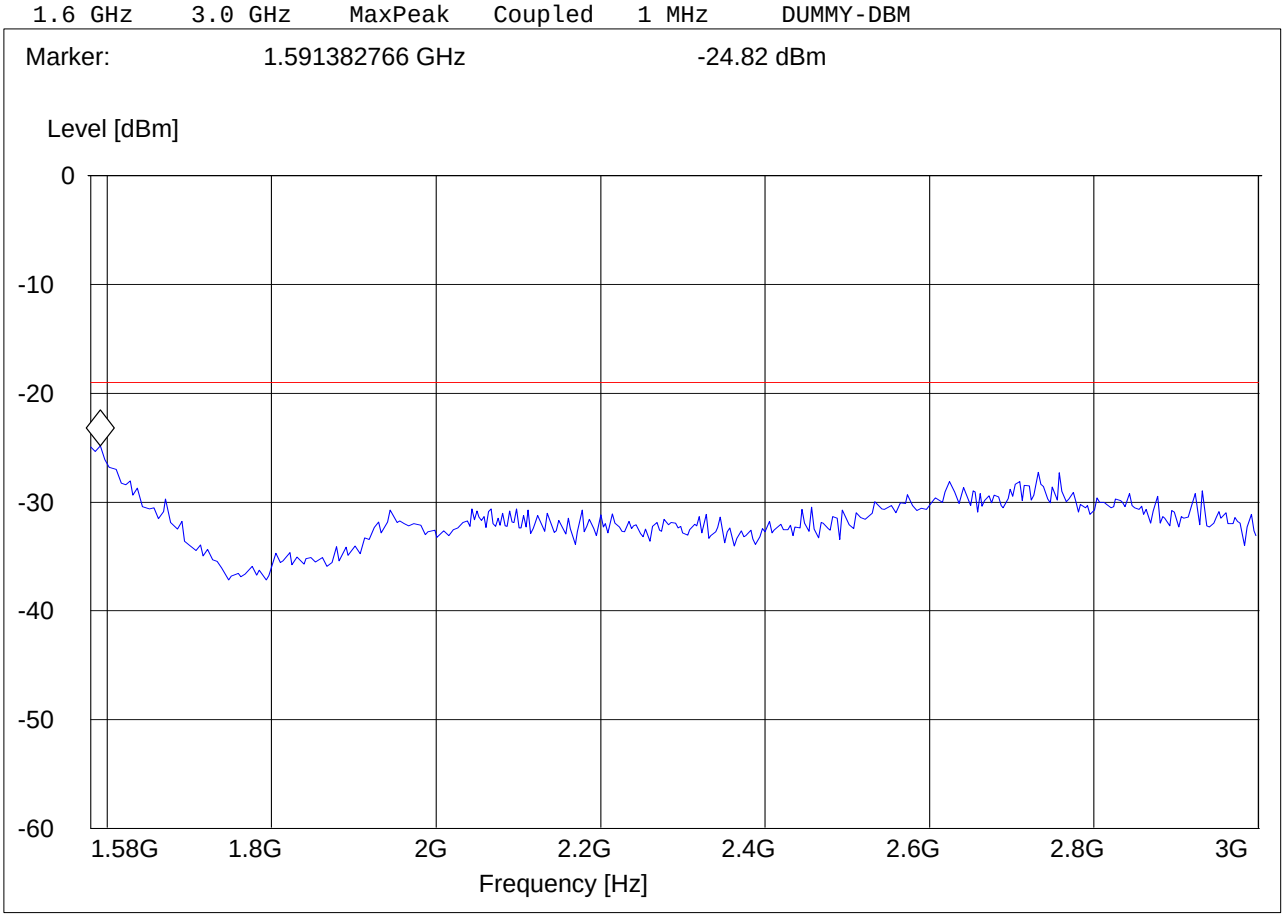


**RADIATED SPURIOUS EMISSIONS (800)**
**Ch 777**
**1.58GHz – 3GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 777
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri 1.58-3G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.6 GHz | 3.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

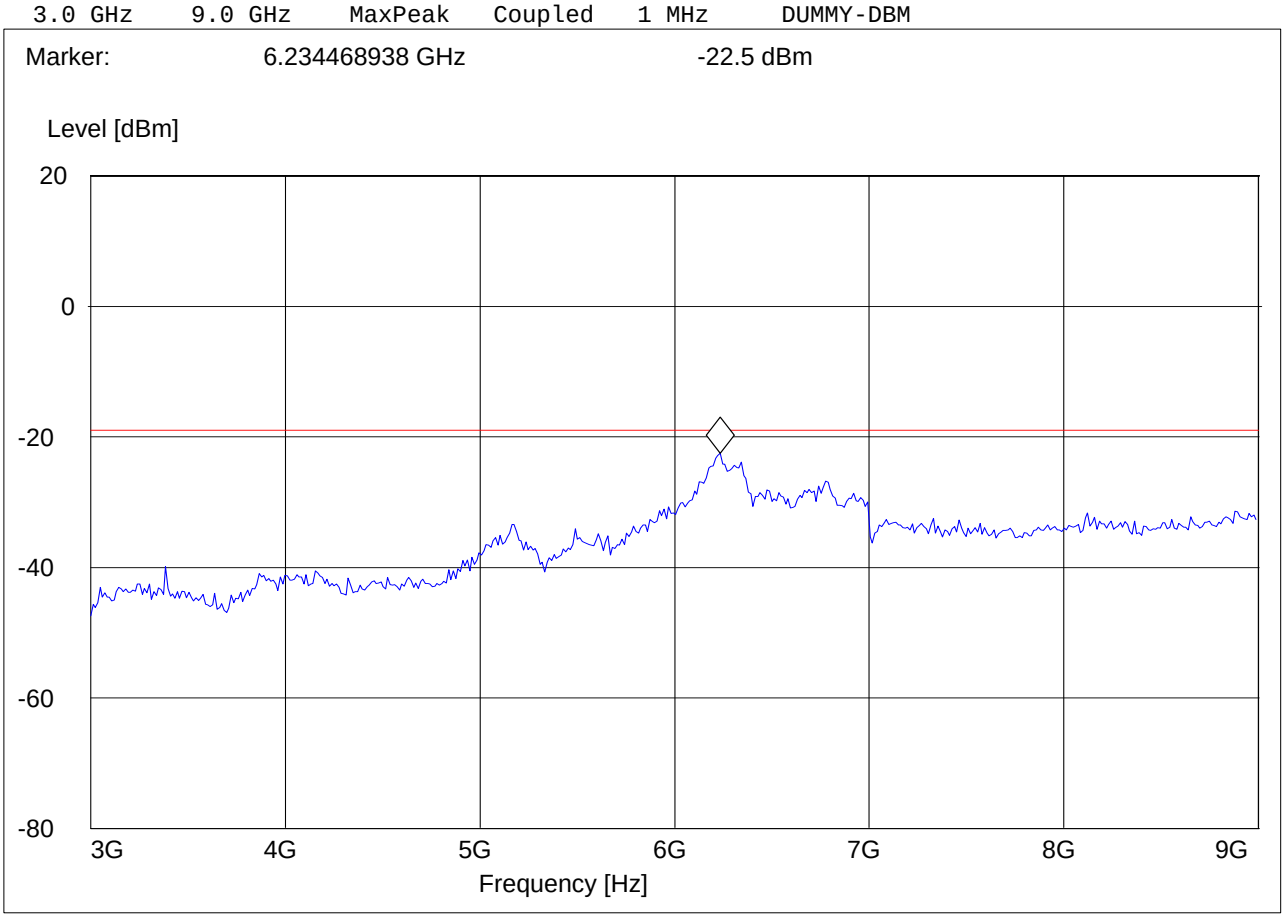


**RADIATED SPURIOUS EMISSIONS (800 band)**
**Ch 777**
**3GHz – 9GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA CH 777
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "FCC 22Spuri 3-9G"***

```
Short Description:            FCC  24 1GHz-8GHz
Start      Stop       Detector  Meas.     IF        Transducer
Frequency  Frequency             Time      Bandw.
3.0 GHz    9.0 GHz    MaxPeak   Coupled   1 MHz     DUMMY-DBM
```



### 5.2.4.3 RESULTS OF RADIATED TESTS PCS-1900:

| Harmonic | Tx ch-25 Freq.(MHz) | Level (dBm) | Tx ch-600 Freq. (MHz) | Level (dBm) | Tx ch-1175 Freq. (MHz) | Level (dBm) |
|---|---|---|---|---|---|---|
| **2** | **3700.4** | NF | **3760** | NF | **3819.6** | NF |
| **3** | **5550.6** | NF | **5640** | NF | **5729.4** | NF |
| **4** | **7400.8** | NF | **7520** | NF | **7639.2** | NF |
| **5** | **9251** | NF | **9400** | NF | **9549** | NF |
| **6** | **11101.2** | NF | **11280** | NF | **11458.8** | NF |
| **7** | **12951.4** | NF | **13160** | NF | **13368.6** | NF |
| **8** | **14801.6** | NF | **15040** | NF | **15278.4** | NF |
| **9** | **16651.8** | NF | **16920** | NF | **17188.2** | NF |
| **10** | **18502** | NF | **18800** | NF | **19098** | NF |
| NF = NOISE FLOOR | | | | | | |

### 5.2.4.4 RADIATED SPURIOUS EMISSIONS(PCS 1900)

**TX: 30MHz - 1GHz**

Spurious emission limit –13dBm

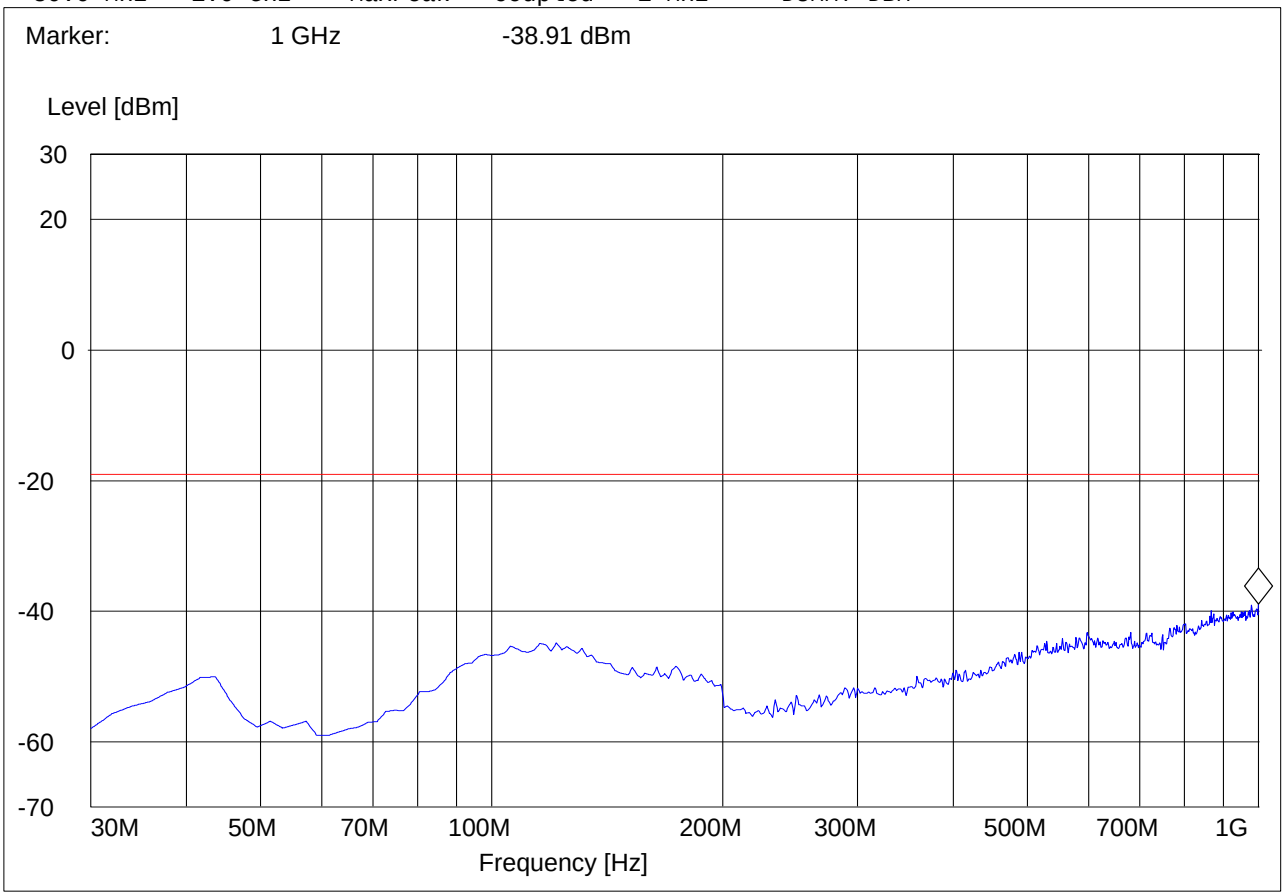
**Antenna: vertical**

**Note: This plot is valid for low, mid & high channels (worst-case plot)**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 600
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "FCC 24 Spur 30M-1G_V"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

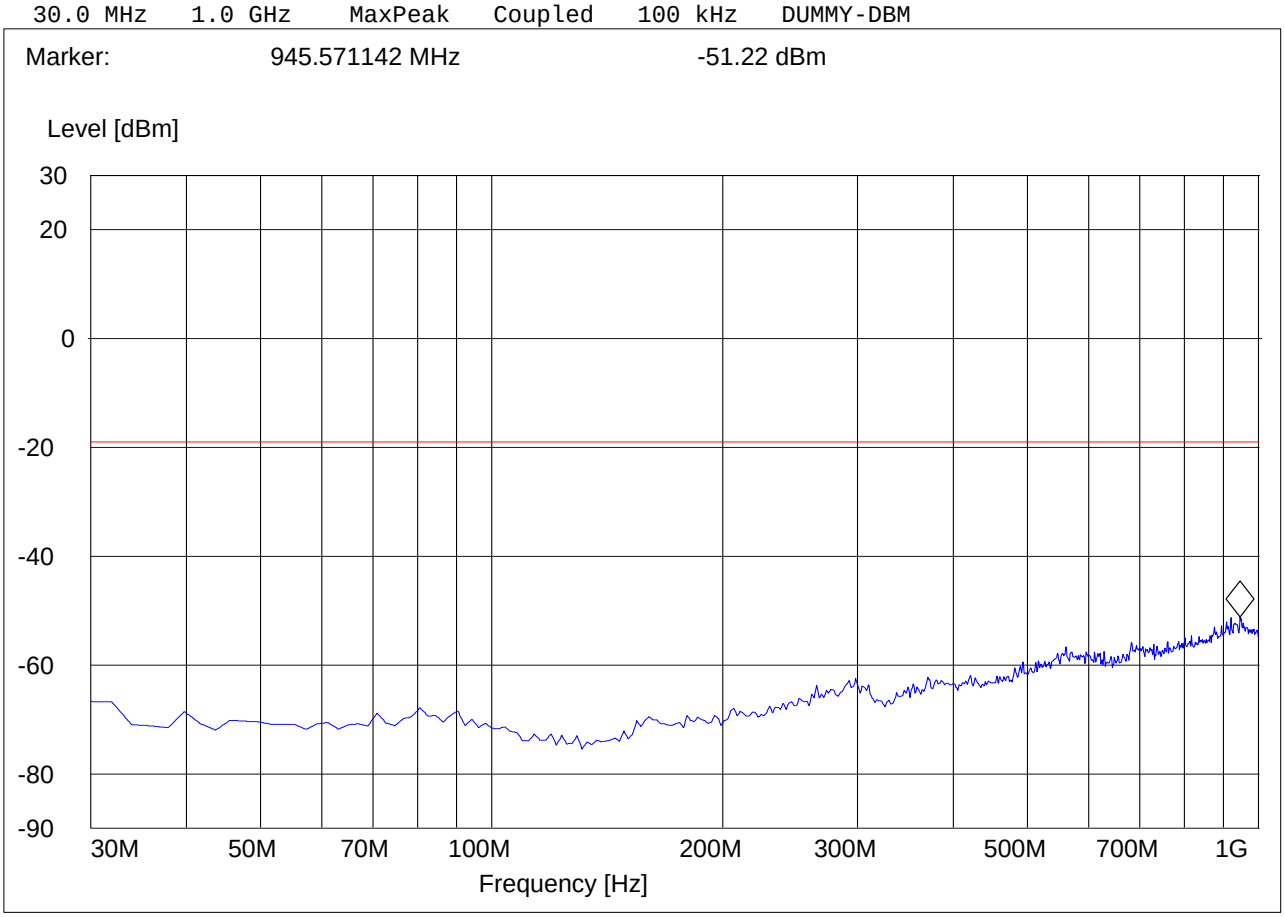


**TX: 30MHz - 1GHz**
Spurious emission limit –13dBm
**Antenna: Horizontal**
**Note: This plot is valid for low, mid & high channels (worst-case plot)**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 600
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "FCC 24 Spur 30M-1G_H"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | DUMMY-DBM |

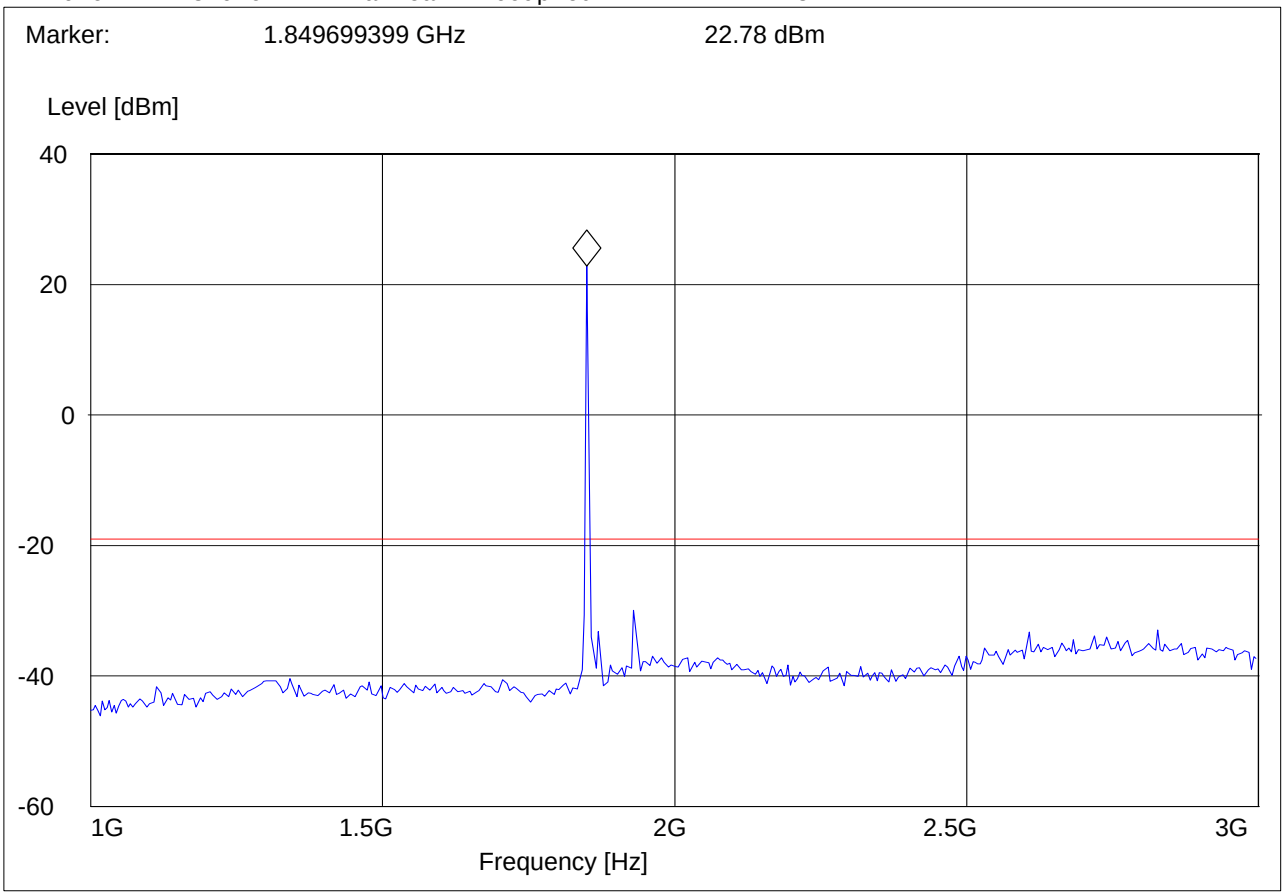


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 25**
**1GHz – 3GHz**
Spurious emission limit –13dBm
**Note: The peak above the limit line is the carrier freq. at ch-25.**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 25
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°  marker placed on uplink
```

***SWEEP TABLE: "FCC 24Spuri 1-3G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 3.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

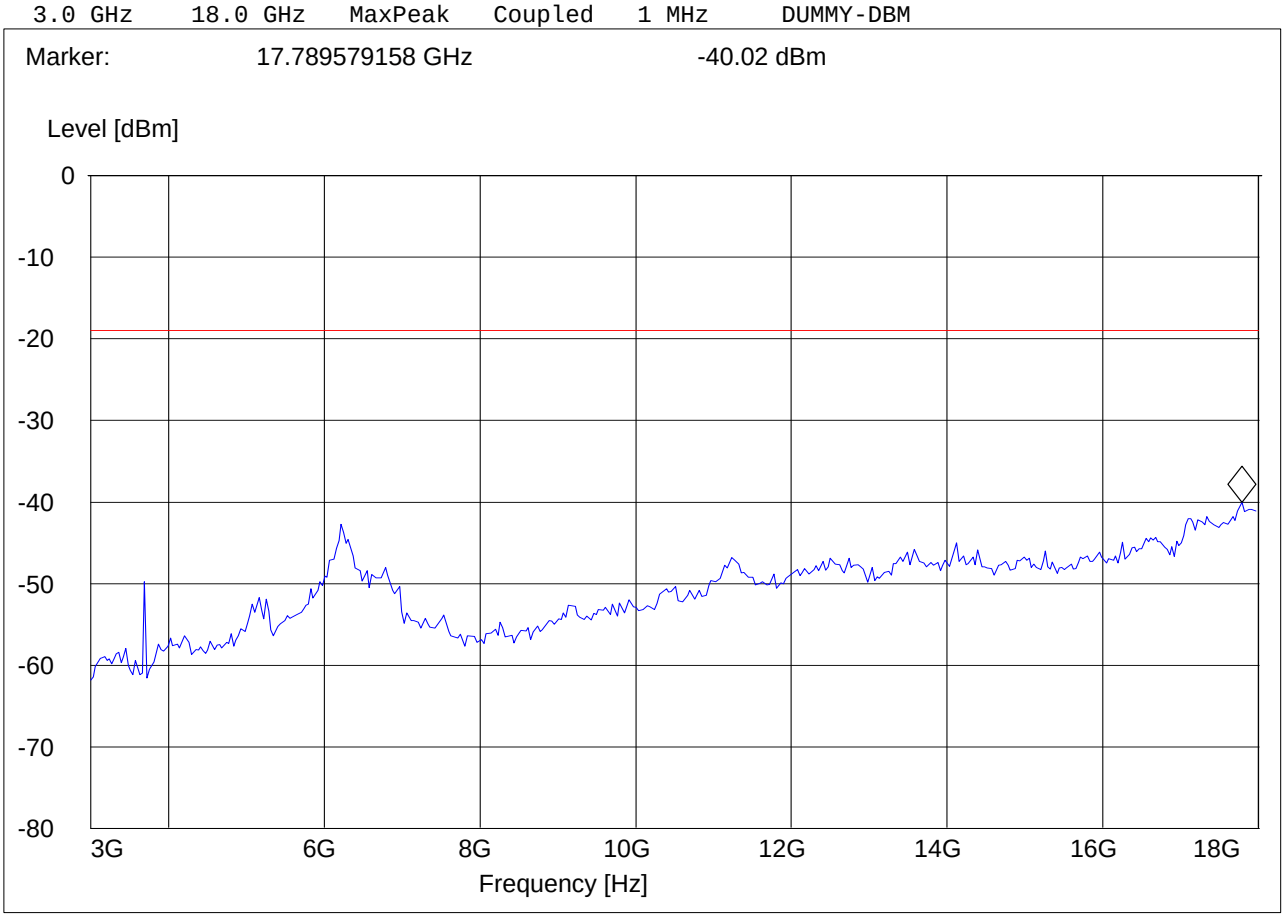


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 25**
**3GHz – 18GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 25
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "FCC 24Spuri 3-18G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 3.0 GHz | 18.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

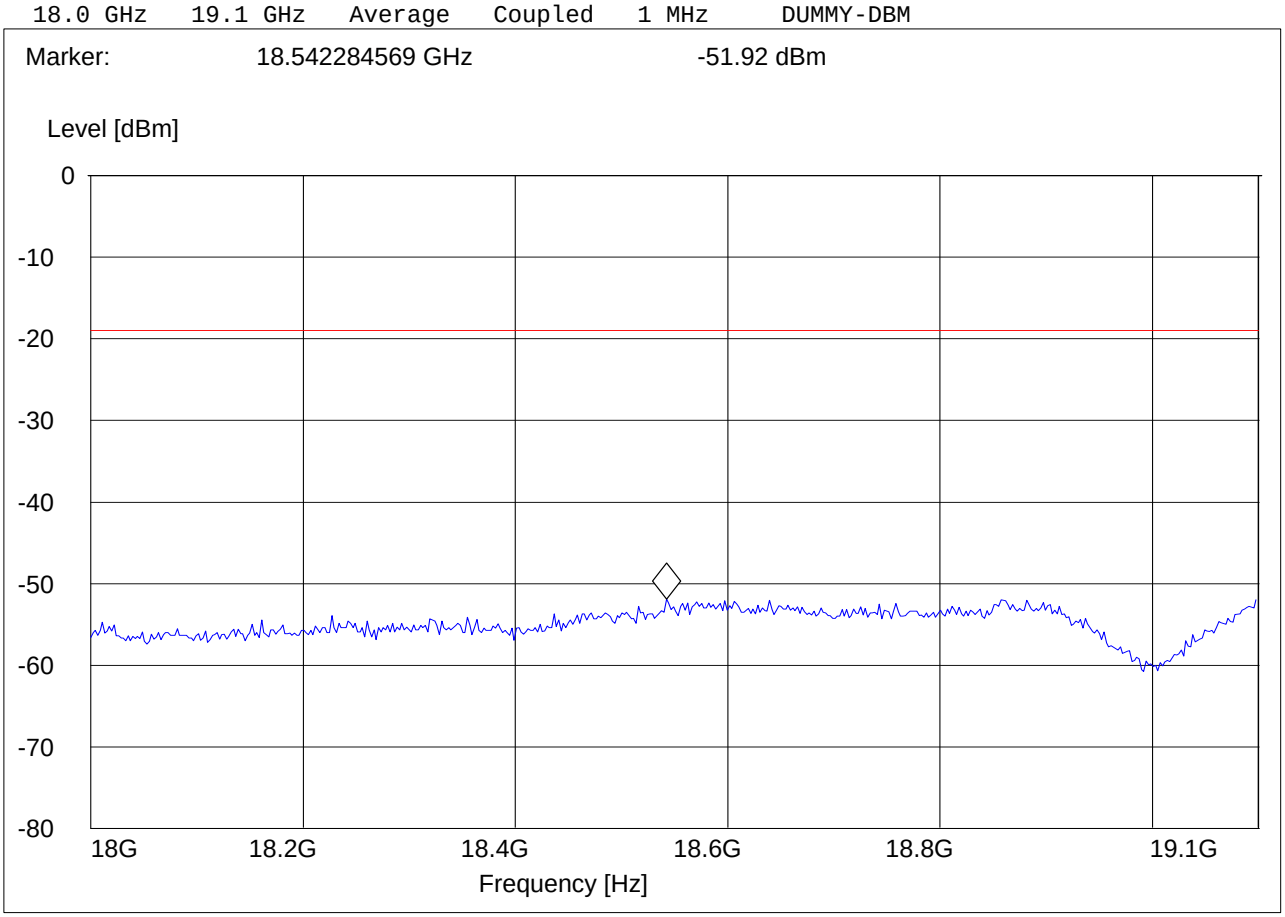


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 25**
**18GHz – 19GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 25
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "FCC 24spuri 18-19.1G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 18.0 GHz | 19.1 GHz | Average | Coupled | 1 MHz | DUMMY-DBM |

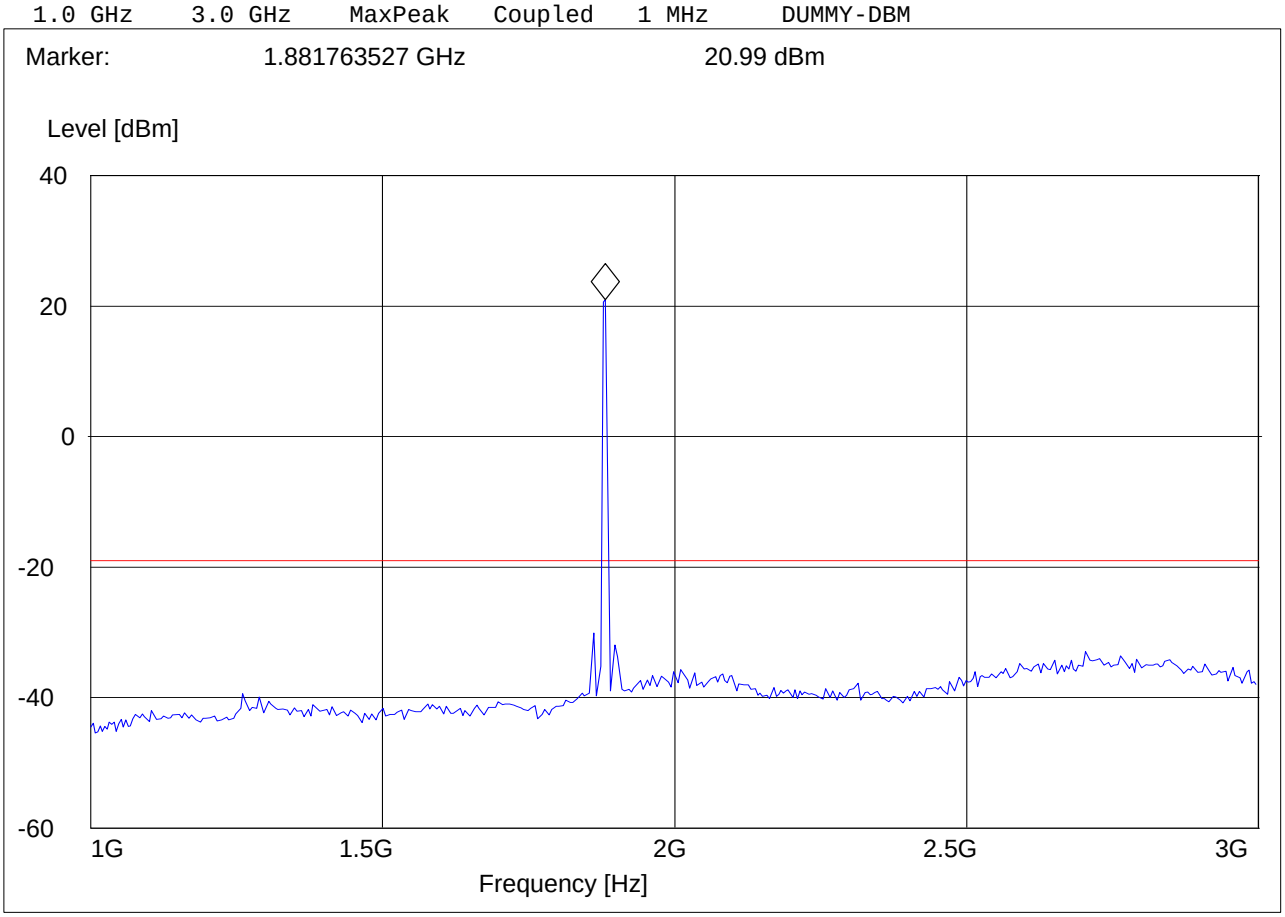


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 600**
**1GHz – 3GHz**
Spurious emission limit –13dBm
**Note: The peak above/close to the limit line is the carrier freq. at ch-600.**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 600
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318° marker placed on uplink
```

***SWEEP TABLE: "FCC 24Spuri  1-3G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 3.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

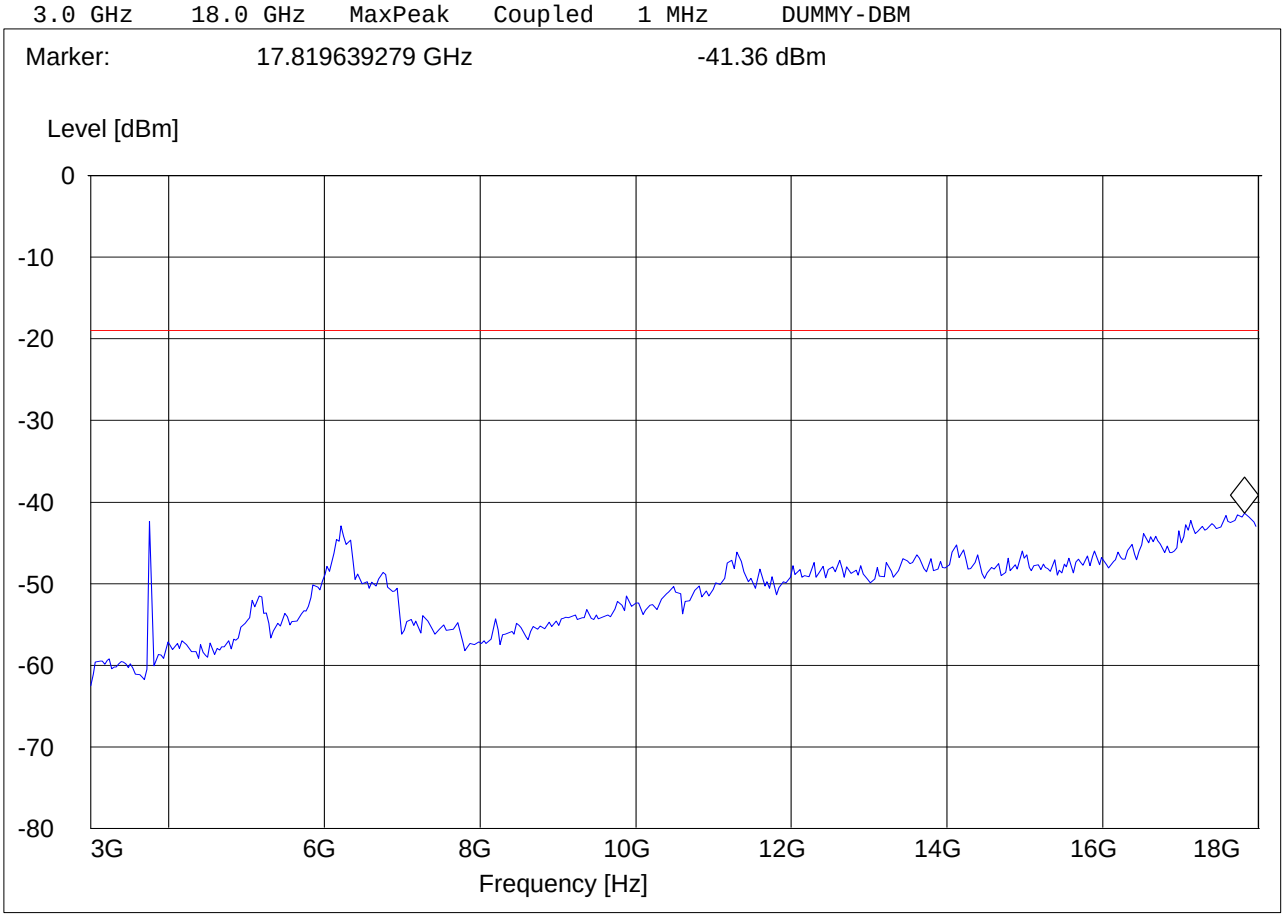


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 600**
**3GHz – 18GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 600
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "FCC 24Spuri  3-18G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 3.0 GHz | 18.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

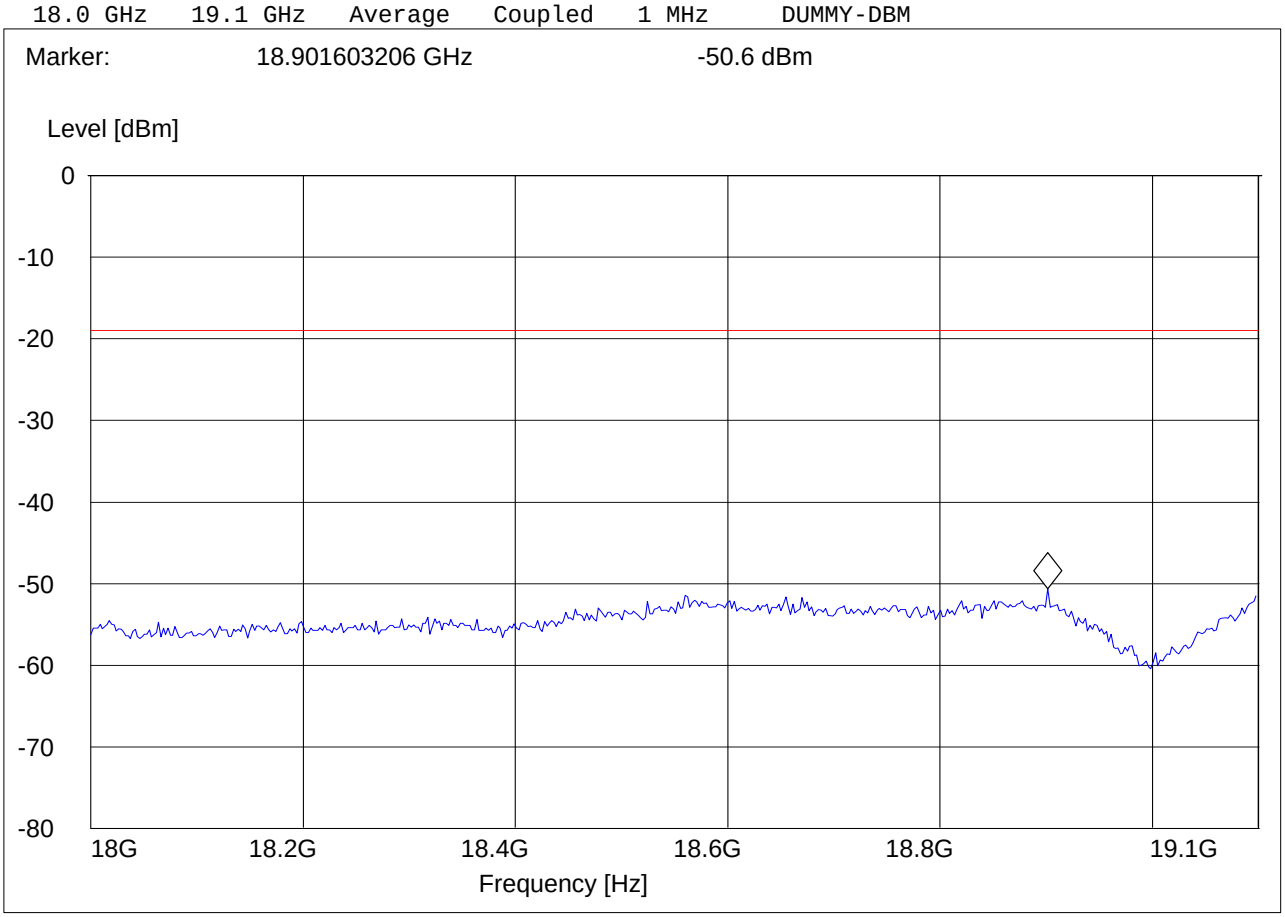


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 600**
**18GHz – 19GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 600
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "FCC 24spuri 18-19.1G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 18.0 GHz | 19.1 GHz | Average | Coupled | 1 MHz | DUMMY-DBM |

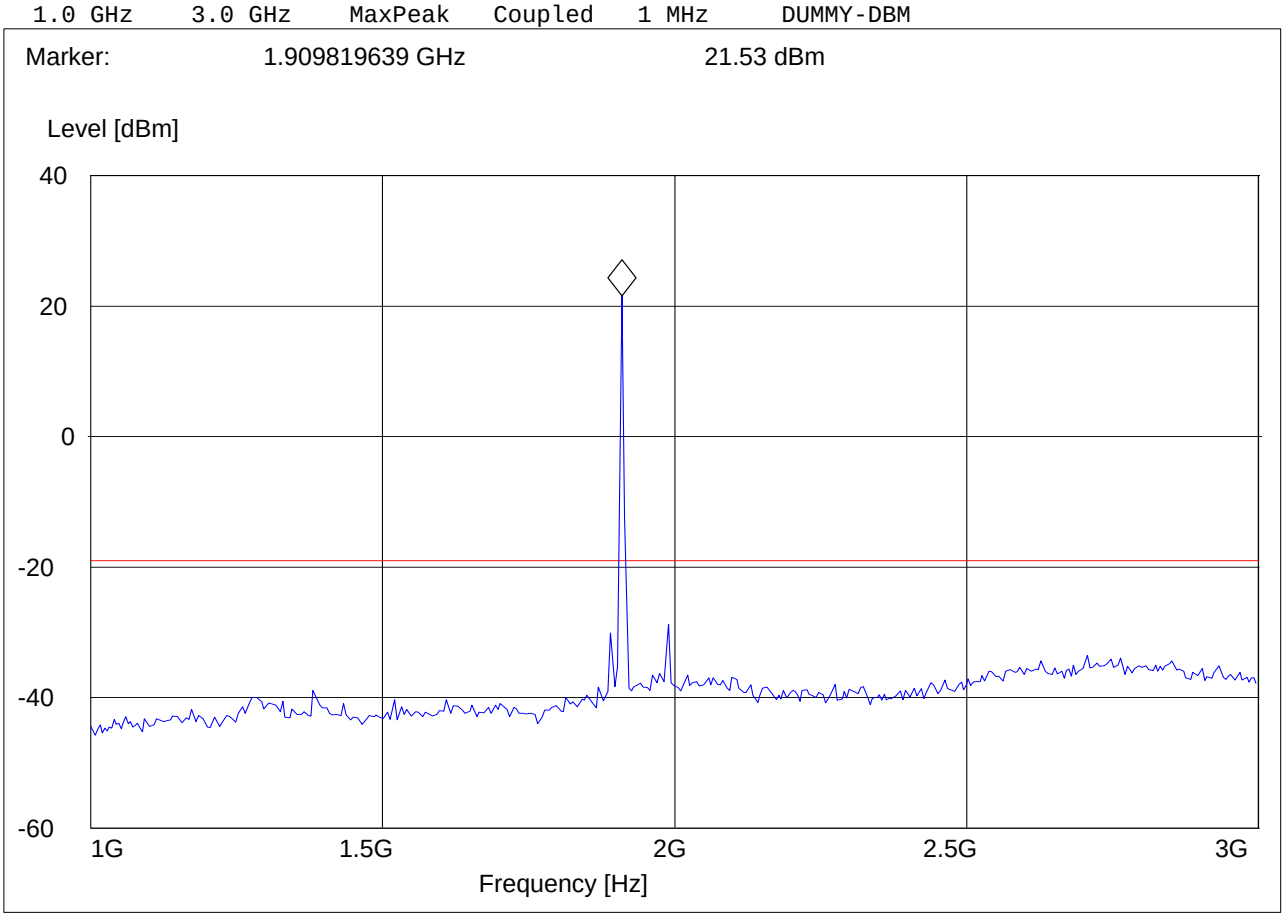


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 1175**
**1GHz – 3GHz**
Spurious emission limit –13dBm
**Note: The peak above the limit line is the carrier freq. at ch-1175.**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 1175
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°  marker placed on uplink
```

***SWEEP TABLE: "FCC 24Spuri  1-3G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 3.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

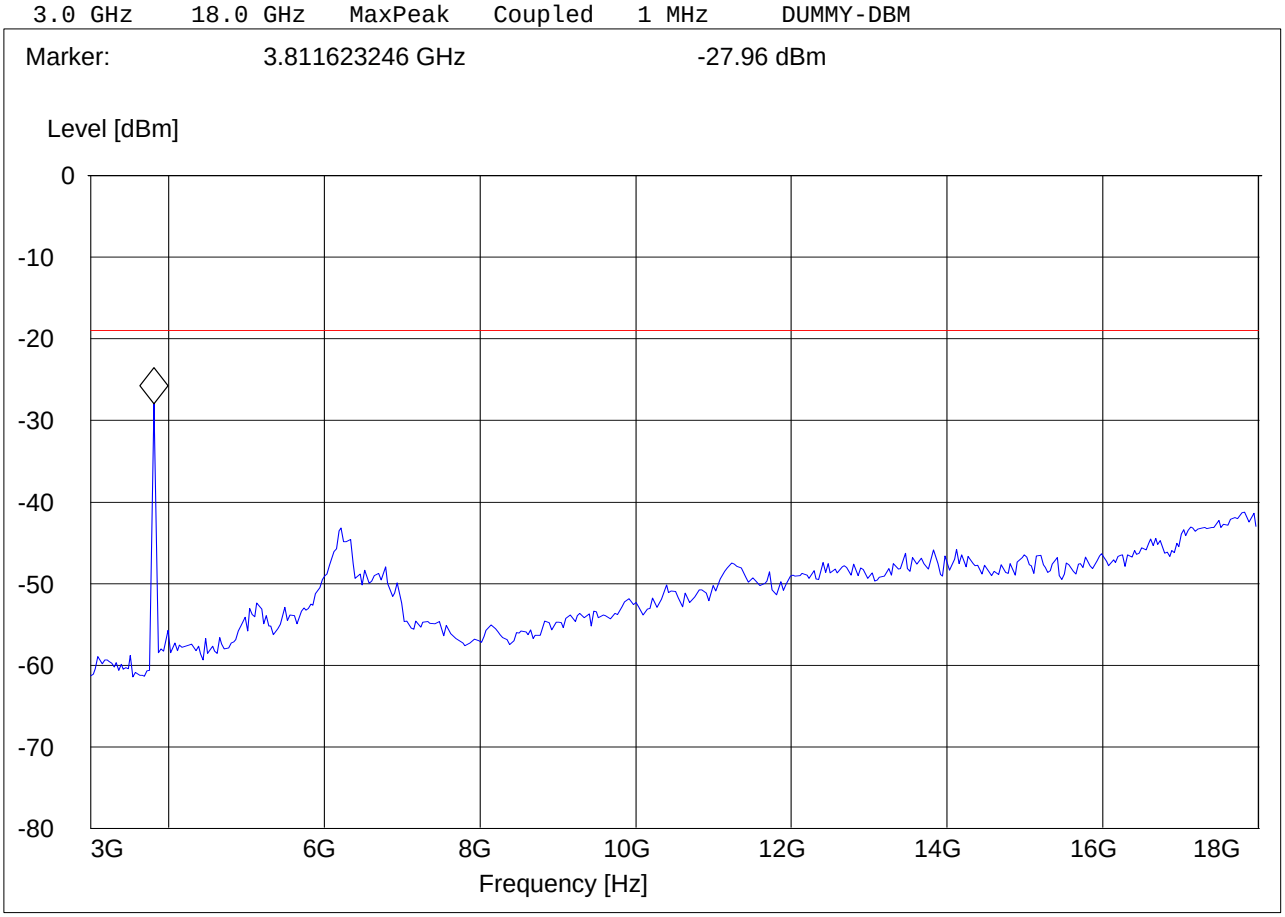


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 1175**
**3GHz – 18GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 1175
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "FCC 24Spuri  3-18G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 3.0 GHz | 18.0 GHz | MaxPeak | Coupled | 1 MHz | DUMMY-DBM |

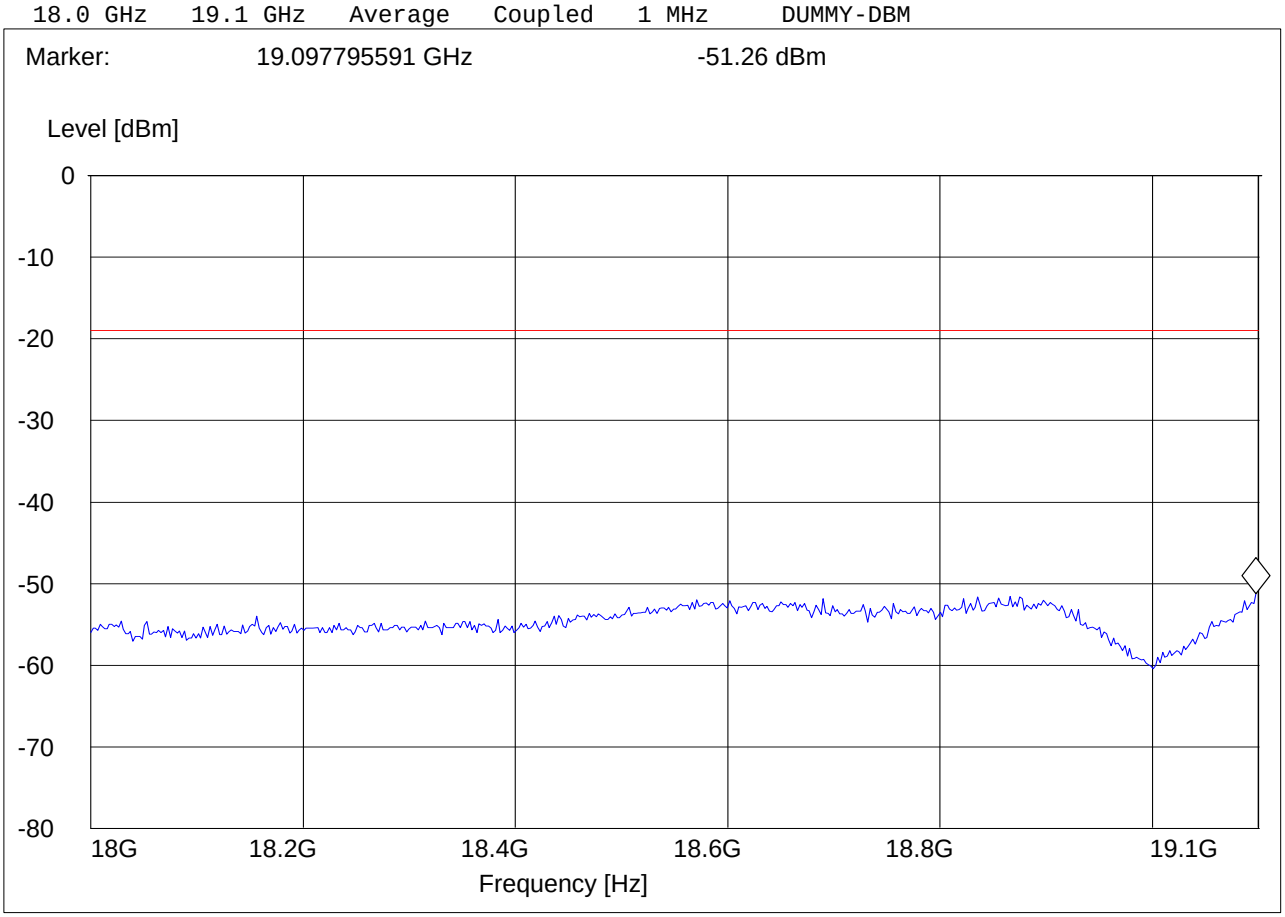


**RADIATED SPURIOUS EMISSIONS(PCS 1900)**
**Ch 1175**
**18GHz – 19.1GHz**
Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  CH 1175
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:         TT@318°
```

***SWEEP TABLE: "FCC 24spuri 18-19.1G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 18.0 GHz | 19.1 GHz | Average | Coupled | 1 MHz | DUMMY-DBM |



## 5.3 RECEIVER RADIATED EMISSIONS § 2.1053 / RSS-129 & 133

**NOTE:**

1. **The radiated emissions were done with different settings, using the relevant pre-amplifiers for the relevant frequency ranges. This is the reason that the graphs show different noise levels. In the range between 3GHz and 26.5GHz very short cable connections to the antenna was used to minimize the noise level.**

**Limits** **SUBCLAUSE § RSS-133**

| Frequency (MHz) | Field strength (µV/m) | Measurement distance (m) |
|---|---|---|
| 0.009 - 0.490 | 2400/F (kHz) | 300 |
| 0.490 - 1.705 | 24000/F (kHz) | 30 |
| 1.705 - 30.0 | 30 | 30 |
| 30 - 88 | 100 | 3 |
| 88 - 216 | 150 | 3 |
| 216 - 960 | 200 | 3 |
| Above 960 | 500 | 3 |

### 5.3.1 Receiver Radiated Spurious Emissions Results

Measurements were performed with the EUT in X, Y and Z orientations with the measurement antenna in both horizontal and vertical polarity. The plots below show the results of the worst case orientation and polarity.

## RECEIVER RADIATED SPURIOUS EMISSIONS

### RX: 30MHz - 1GHz

Spurious emission limit –13dBm

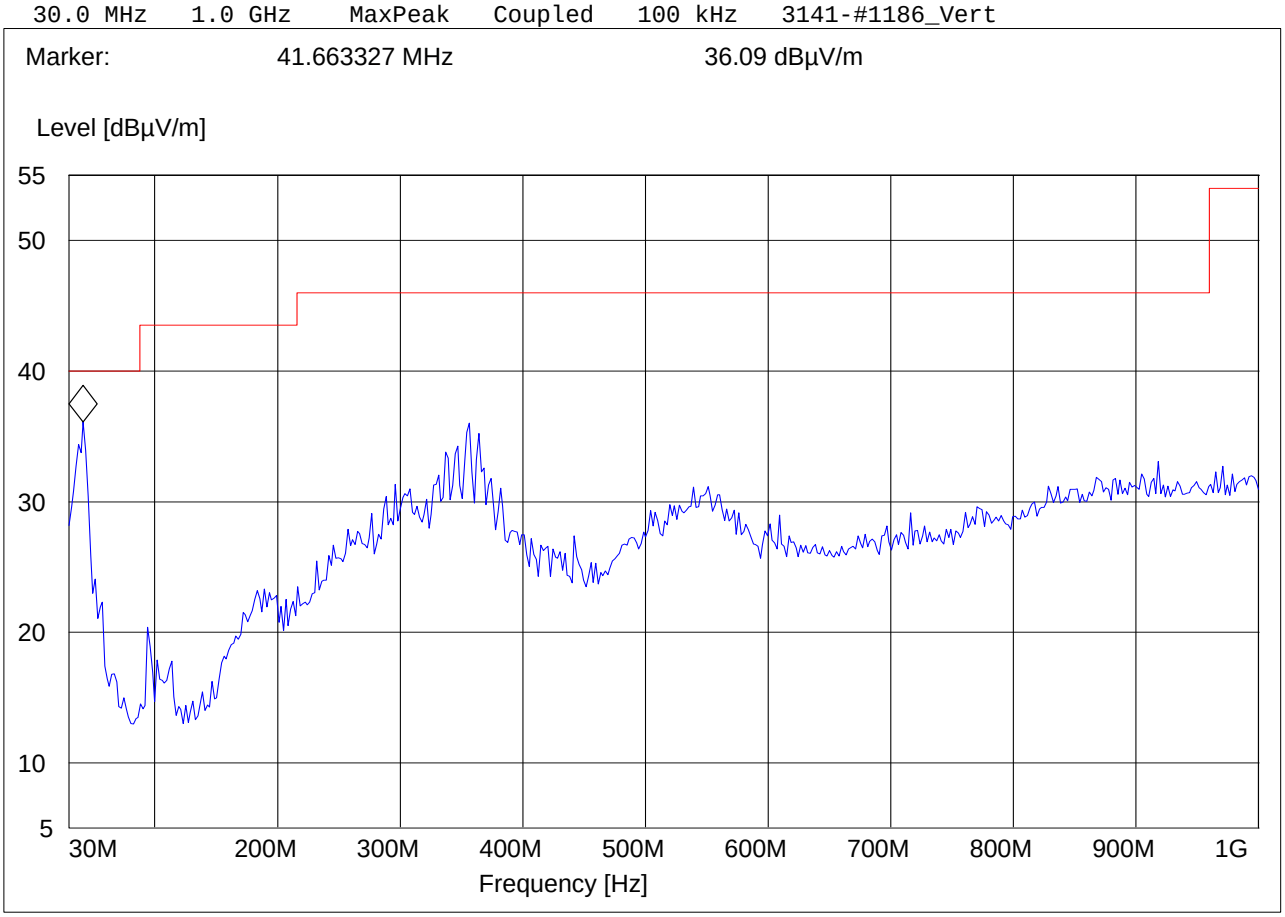
**Antenna Vertical**

**Note: This plot is valid for low, mid & high channels (worst-case plot)**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA IDLE
ANT Orientation:  V
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "CANADA RE_30M-1G_Ver"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | 3141-#1186_Vert |



## RECEIVER RADIATED SPURIOUS EMISSIONS

### RX: 30MHz - 1GHz

Spurious emission limit –13dBm

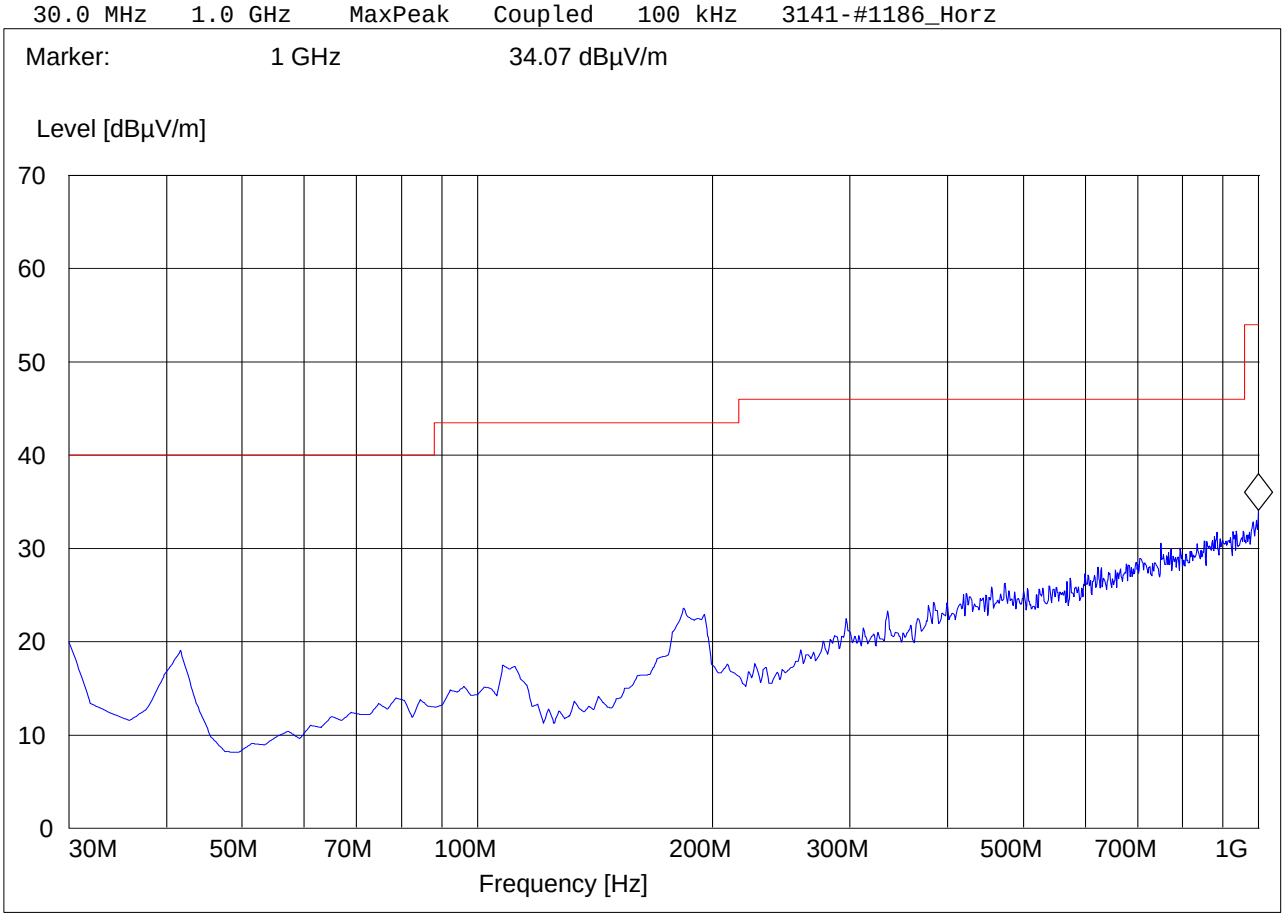
**Antenna Horizontal**

**Note: This plot is valid for low, mid & high channels (worst-case plot)**

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA IDLE
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "CANDA RE_30M-1G_Hor"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 30.0 MHz | 1.0 GHz | MaxPeak | Coupled | 100 kHz | 3141-#1186_Horz |



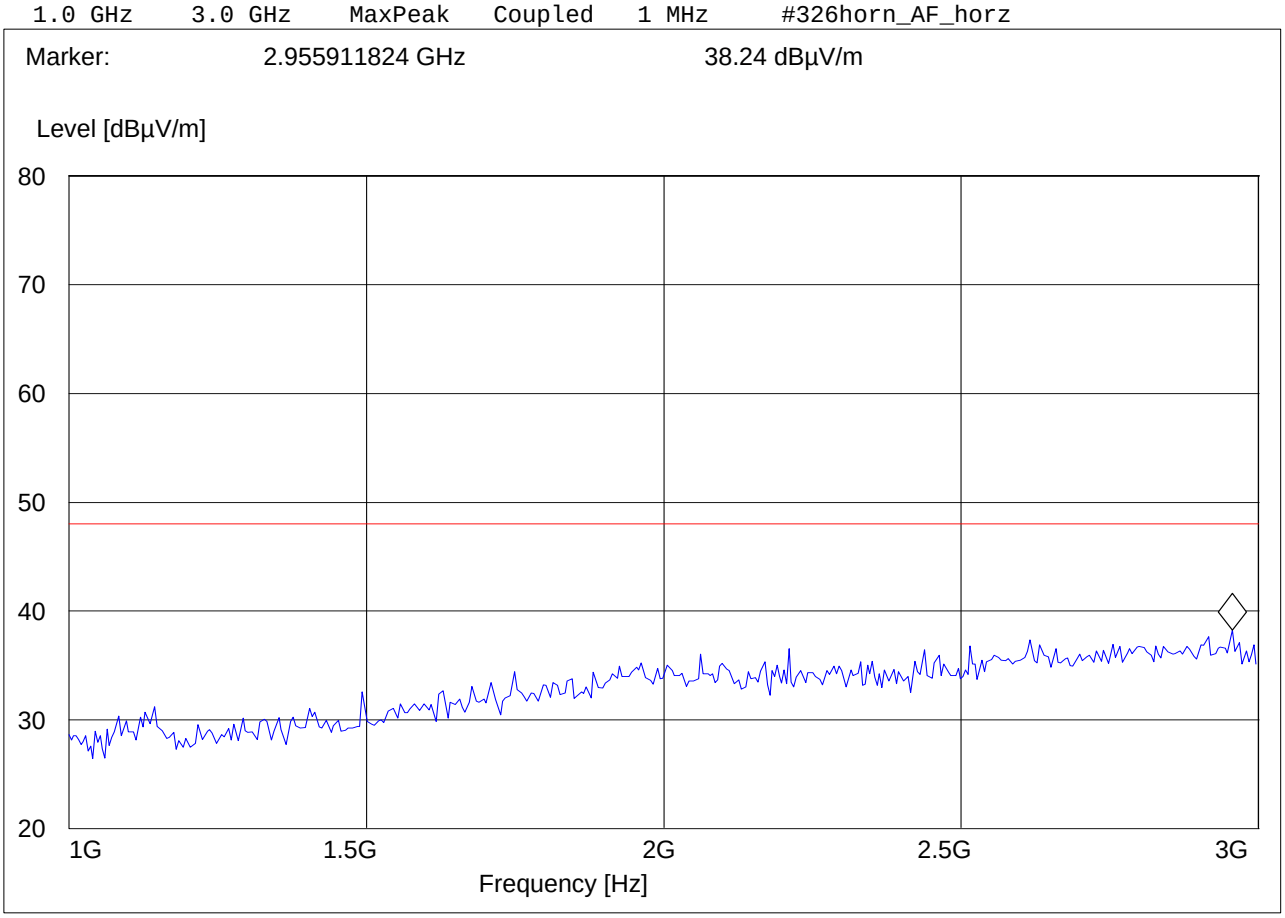
## RECEIVER RADIATED SPURIOUS EMISSIONS
## RX: 1GHz - 3GHz

Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA IDLE
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "CANADA RE_1-3G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 3.0 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_horz |



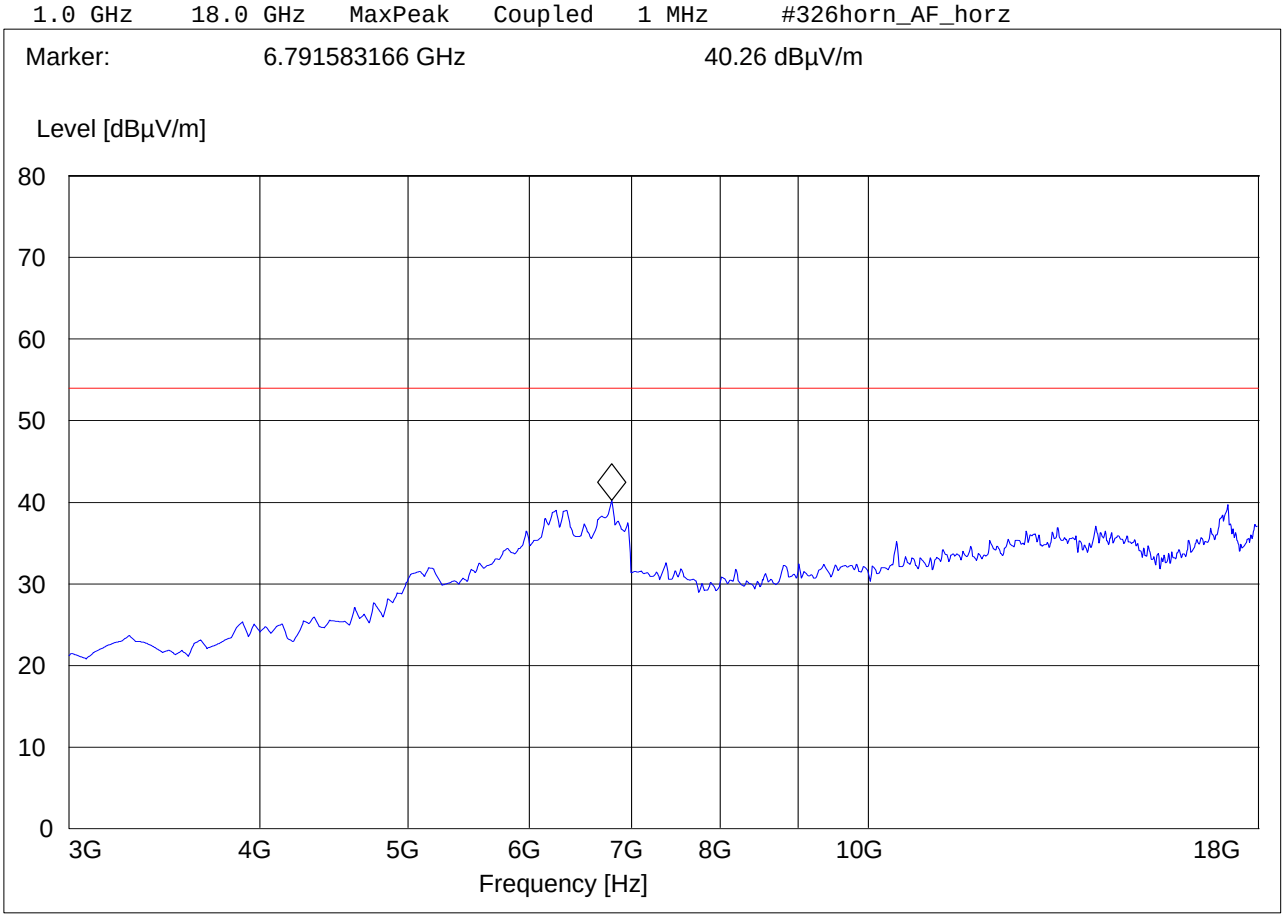
## RECEIVER RADIATED SPURIOUS EMISSIONS
## RX: 3GHz -18GHz

Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA IDLE
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "CANADA RE_3-18G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 1.0 GHz | 18.0 GHz | MaxPeak | Coupled | 1 MHz | #326horn_AF_horz |



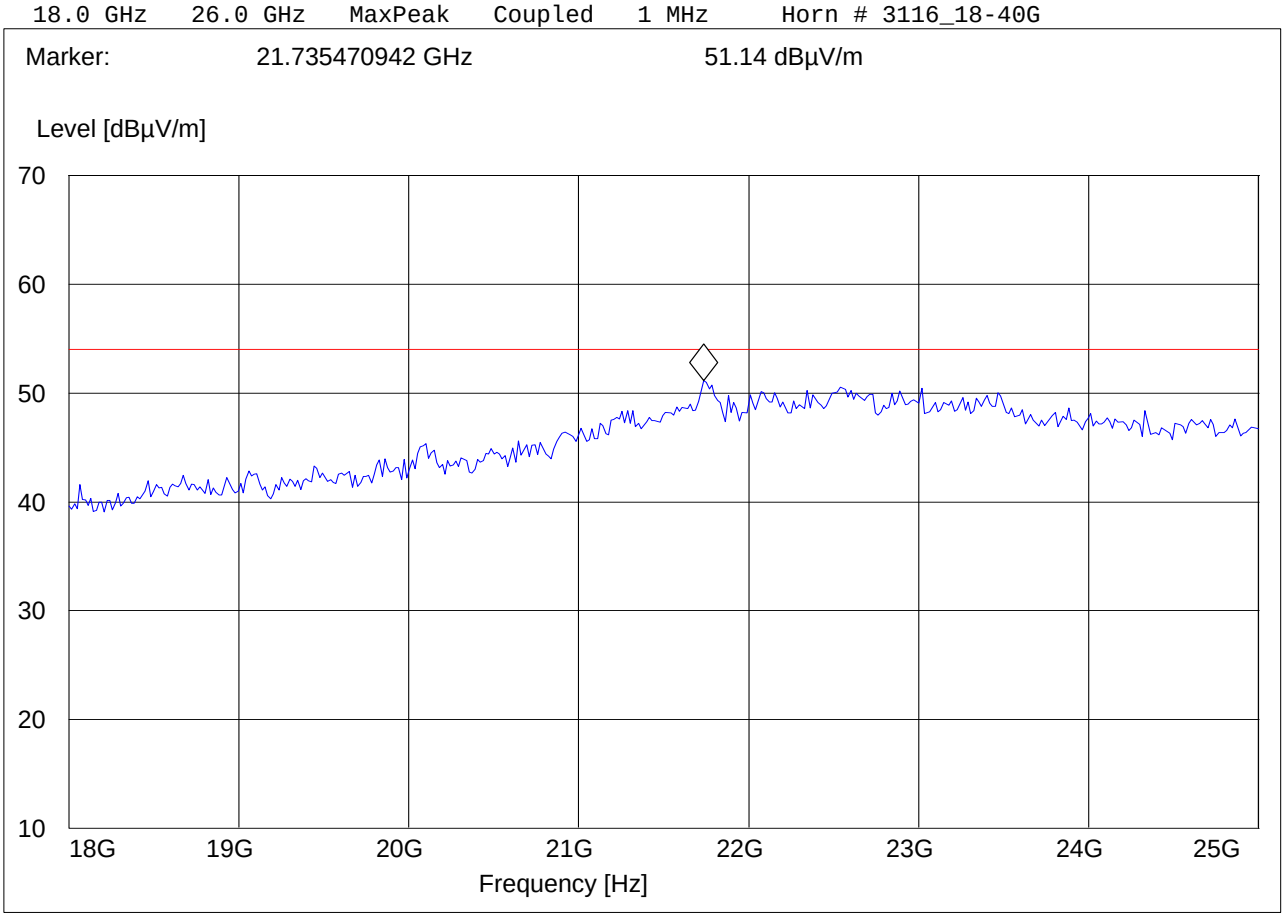
## RECEIVER RADIATED SPURIOUS EMISSIONS
## RX: 18-25GHz

Spurious emission limit –13dBm

```
EUT:              Laptop
Customer::        Sony
Test Mode:        CDMA 1900  IDLE
ANT Orientation:  H
EUT Orientation:  H
Test Engineer:    SAM
Voltage:          AC
Comments:
```

***SWEEP TABLE: "CANADA RE_18-26.5G"***

| Start Frequency | Stop Frequency | Detector | Meas. Time | IF Bandw. | Transducer |
|---|---|---|---|---|---|
| 18.0 GHz | 26.0 GHz | MaxPeak | Coupled | 1 MHz | Horn # 3116_18-40G |



## 5.4 AC POWER LINE CONDUCTED EMISSIONS § 15.107/207

### 5.4.1 LIMITS

**Technical specification: 15.107 / 15.207 (Revised as of August 20, 2002)**

§15.107 (a) Except for Class A digital devices, for equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 µH/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

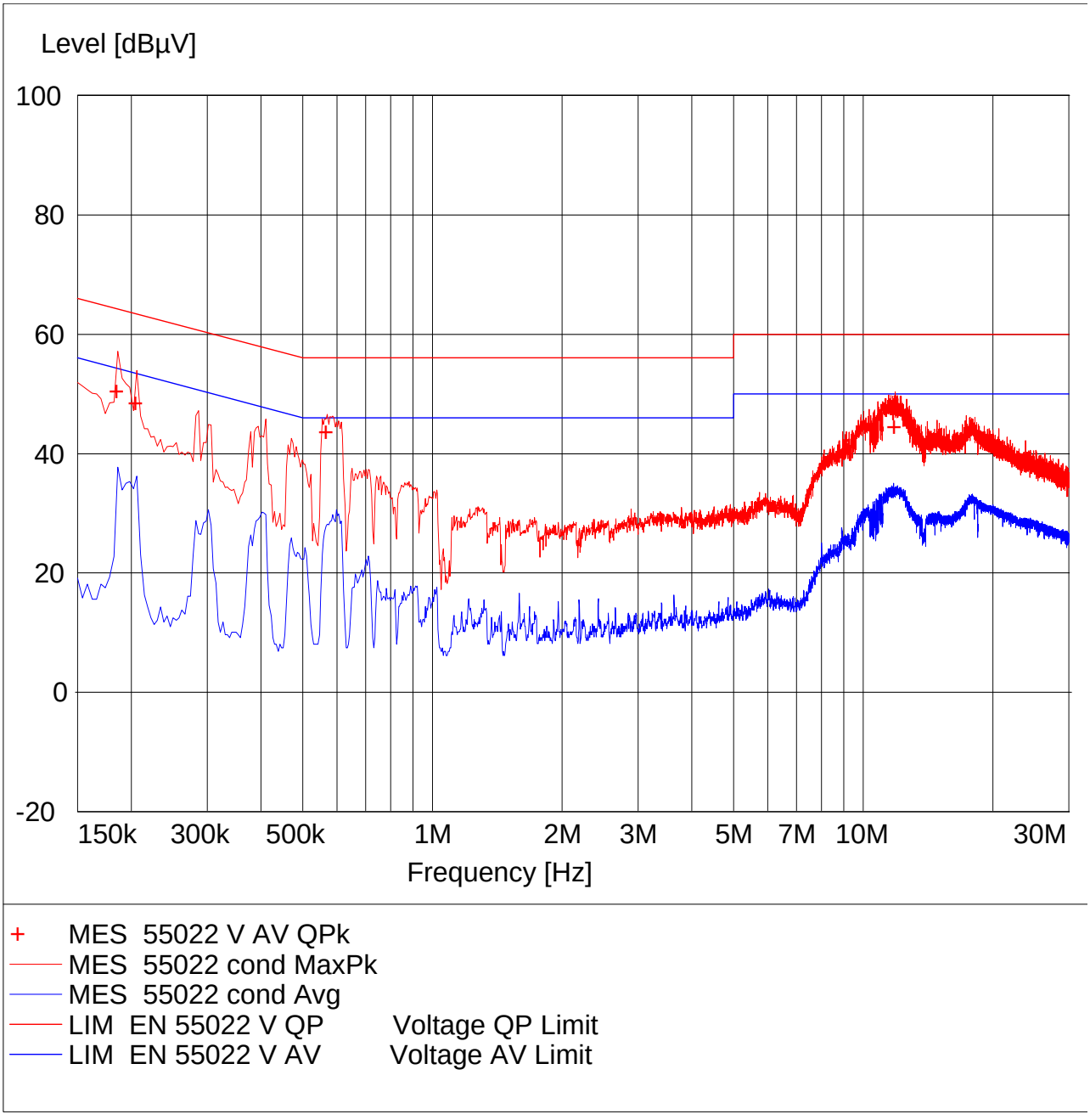
**Limit**

| Frequency of Emission (MHz) | Conducted Limit (dBµV) | |
|---|---|---|
| | Quasi-Peak | Average |
| 0.15 – 0.5 | 66 to 56* | 56 to 46* |
| 0.5 – 5 | 56 | 46 |
| 5 – 30 | 60 | 50 |
| * Decreases with logarithm of the frequency | | |

**ANALYZER SETTINGS: RBW = 10KHz VBW = 10KHz**

### 5.4.2 RESULTS TX Line CDMA 800:

EUT: Laptop
Manufacturer: Sony
Test Mode: CDMA
ANT Orientation:: LISN
EUT Orientation:: H
Test Engineer:: Chris
Power Supply: : AC Adapter
Comments: :
Line



***MEASUREMENT RESULT: "55022 V AV QPk"***

7/28/2008 8:55AM

| Frequency | Level | Transd | Limit | Margin | Line | PE | AUX STATE |
|---|---|---|---|---|---|---|---|
| MHz | dBµV | dB | dBµV | dB | | | |
| 0.186000 | 50.50 | 0.1 | 64 | 13.7 | 1 | --- | OFF |
| 0.206000 | 48.50 | 0.1 | 63 | 14.9 | 1 | --- | OFF |
| 0.570000 | 43.60 | 0.1 | 56 | 12.4 | 1 | --- | OFF |
| 11.870000 | 44.50 | 0.7 | 60 | 15.5 | 1 | --- | OFF |

***LIMIT LINE: "EN 55022 V AV"***

Short Description: Voltage AV Limit

4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 56.00 |
| 0.500000 | 46.00 |
| 5.000000 | 46.00 |
| 5.000000 | 50.00 |
| 30.000000 | 50.00 |

***LIMIT LINE: "EN 55022 V QP"***

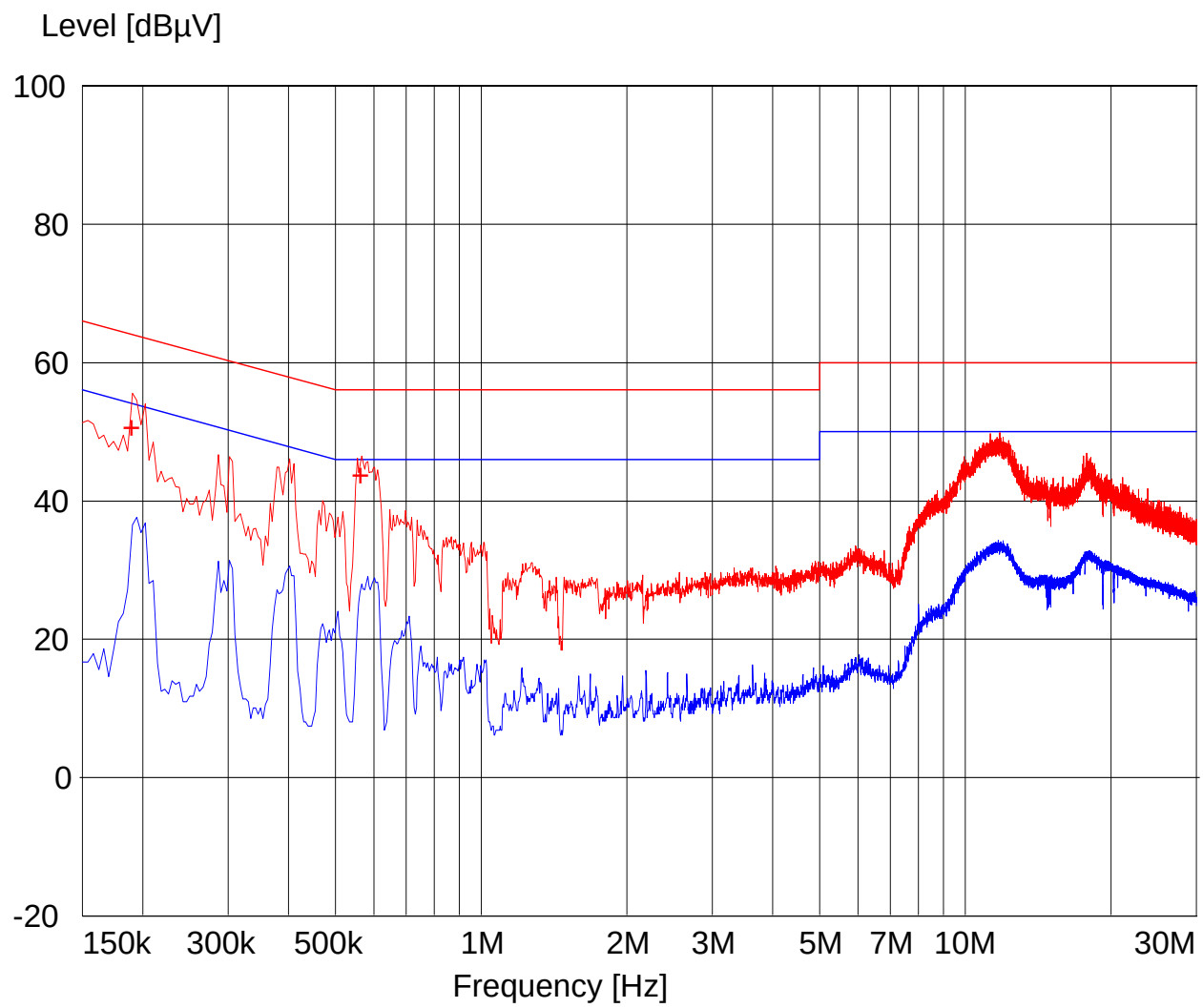
Short Description: Voltage QP Limit

4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 66.00 |
| 0.500000 | 56.00 |
| 5.000000 | 56.00 |
| 5.000000 | 60.00 |
| 30.000000 | 60.00 |

### 5.4.3 RESULTS TX Neutral CDMA 800:

```
EUT:              Laptop
Manufacturer:     Sony
Test Mode:        CDMA 850
ANT Orientation:: LISN
EUT Orientation:: H
Test Engineer::   Chris
Power Supply: :   AC Adapter
Comments:  :      Neutral
```




\+ MES 55022 V AV QPk
MES 55022 cond MaxPk
MES 55022 cond Avg
LIM EN 55022 V QP Voltage QP Limit
LIM EN 55022 V AV Voltage AV Limit

***MEASUREMENT RESULT: "55022 V AV QPk"***

7/28/2008 8:51AM

| Frequency | Level | Transd | Limit | Margin | Line | PE | AUX STATE |
|---|---|---|---|---|---|---|---|
| MHz | dBµV | dB | dBµV | dB | | | |
| 0.190000 | 50.60 | 0.1 | 64 | 13.4 | 1 | --- | OFF |
| 0.566000 | 43.80 | 0.1 | 56 | 12.2 | 1 | --- | OFF |

***LIMIT LINE: "EN 55022 V AV"***

Short Description: Voltage AV Limit
4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 56.00 |
| 0.500000 | 46.00 |
| 5.000000 | 46.00 |
| 5.000000 | 50.00 |
| 30.000000 | 50.00 |

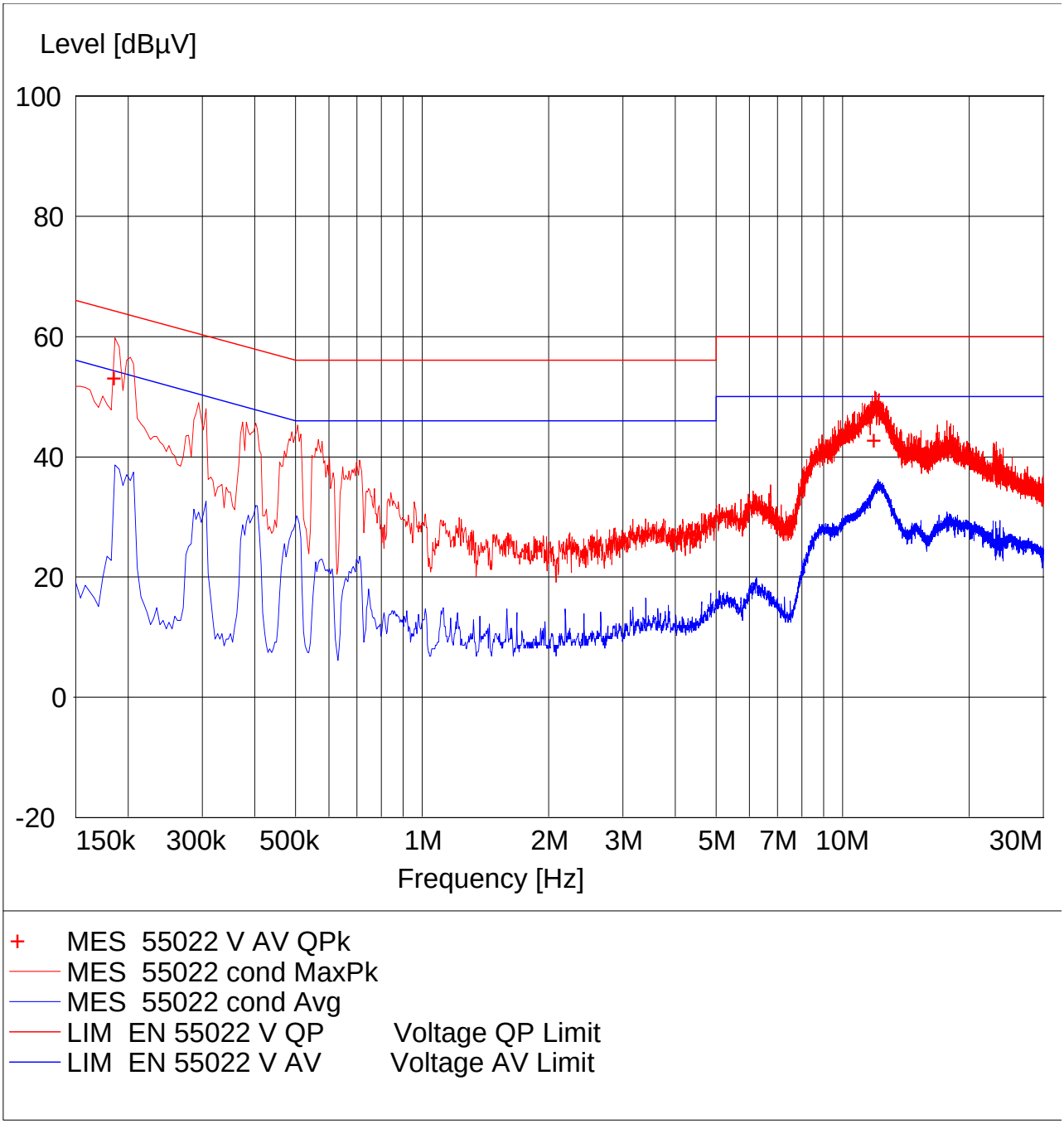
***LIMIT LINE: "EN 55022 V QP"***

Short Description: Voltage QP Limit
4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 66.00 |
| 0.500000 | 56.00 |
| 5.000000 | 56.00 |
| 5.000000 | 60.00 |
| 30.000000 | 60.00 |

### 5.4.4 RESULTS TX Neutral CDMA 1900:

EUT: Laptop
Manufacturer: Sony
Test Mode: CDMA 1900
ANT Orientation:: LISN
EUT Orientation:: H
Test Engineer:: Chris
Power Supply: : AC Adapter
Comments: : Line



***MEASUREMENT RESULT: "55022 V AV QPk"***

7/28/2008 8:41AM

| Frequency | Level | Transd | Limit | Margin | Line | PE | AUX STATE |
|---|---|---|---|---|---|---|---|
| MHz | dBµV | dB | dBµV | dB | | | |
| 0.186000 | 53.00 | 0.1 | 64 | 11.2 | 1 | --- | OFF |
| 11.922000 | 42.80 | 0.7 | 60 | 17.2 | 1 | --- | OFF |

***LIMIT LINE: "EN 55022 V AV"***

Short Description: Voltage AV Limit
4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 56.00 |
| 0.500000 | 46.00 |
| 5.000000 | 46.00 |
| 5.000000 | 50.00 |
| 30.000000 | 50.00 |

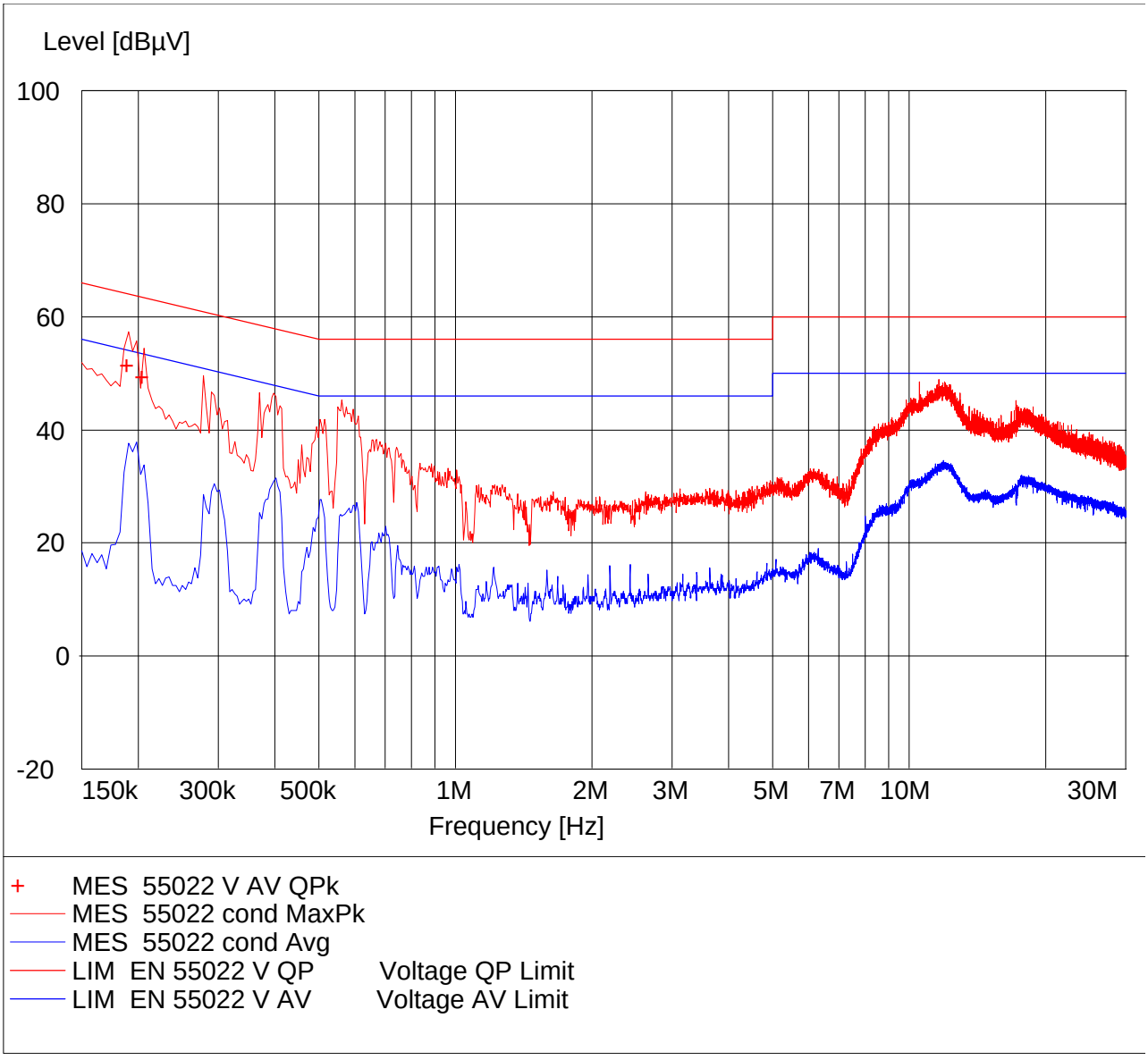
***LIMIT LINE: "EN 55022 V QP"***

Short Description: Voltage QP Limit
4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 66.00 |
| 0.500000 | 56.00 |
| 5.000000 | 56.00 |
| 5.000000 | 60.00 |
| 30.000000 | 60.00 |

### 5.4.5 RESULTS TX Neutral CDMA 1900:

```
EUT:              Laptop
Manufacturer:     Sony
Test Mode:        CDMA 1900
ANT Orientation:: LISN
EUT Orientation:: H
Test Engineer::   Chris
Power Supply: :   AC Adapter
Comments:  :      Neutral
```



***MEASUREMENT RESULT: "55022 V AV QPk"***

7/28/2008 8:45AM

| Frequency | Level | Transd | Limit | Margin | Line | PE | AUX STATE |
|---|---|---|---|---|---|---|---|
| MHz | dBµV | dB | dBµV | dB | | | |
| 0.190000 | 51.40 | 0.1 | 64 | 12.6 | 1 | --- | OFF |
| 0.206000 | 49.40 | 0.1 | 63 | 14.0 | 1 | --- | OFF |

***LIMIT LINE: "EN 55022 V AV"***

Short Description: Voltage AV Limit

4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 56.00 |
| 0.500000 | 46.00 |
| 5.000000 | 46.00 |
| 5.000000 | 50.00 |
| 30.000000 | 50.00 |

***LIMIT LINE: "EN 55022 V QP"***

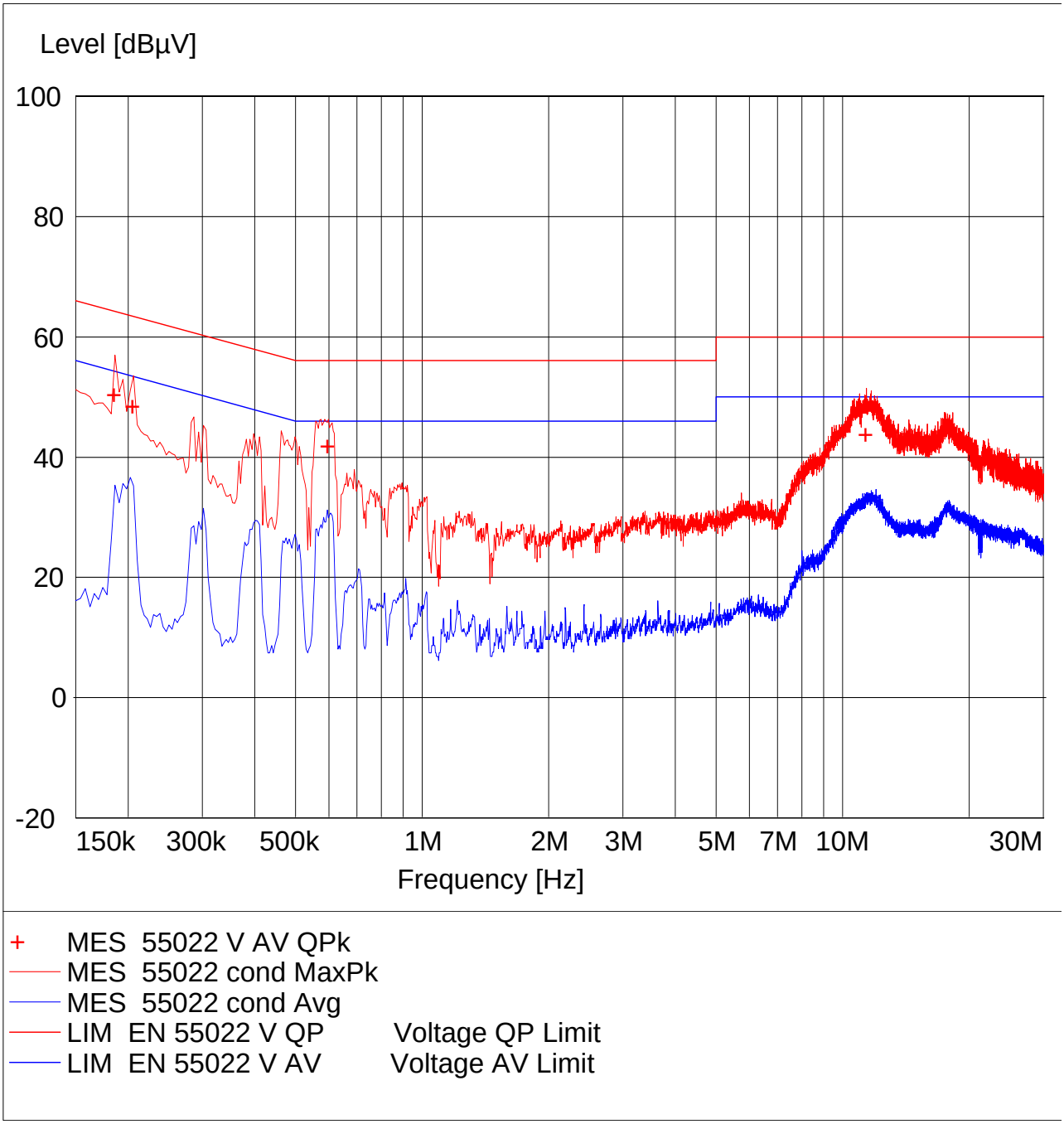
Short Description: Voltage QP Limit

4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 66.00 |
| 0.500000 | 56.00 |
| 5.000000 | 56.00 |
| 5.000000 | 60.00 |
| 30.000000 | 60.00 |

### 5.4.6 RESULTS RX Line CDMA:

```
EUT:              Laptop
Manufacturer:     Sony
Test Mode:        RX
ANT Orientation:: LISN
EUT Orientation:: H
Test Engineer::   Chris
Power Supply: :   AC Adapter
Comments:  :      Line
```



***MEASUREMENT RESULT: "55022 V AV QPk"***

7/28/2008 8:59AM

| Frequency | Level | Transd | Limit | Margin | Line | PE | AUX STATE |
|---|---|---|---|---|---|---|---|
| MHz | dBµV | dB | dBµV | dB | | | |
| 0.186000 | 50.30 | 0.1 | 64 | 13.9 | 1 | --- | OFF |
| 0.206000 | 48.50 | 0.1 | 63 | 14.8 | 1 | --- | OFF |
| 0.598000 | 41.90 | 0.1 | 56 | 14.1 | 1 | --- | OFF |
| 11.390000 | 43.80 | 0.6 | 60 | 16.2 | 1 | --- | OFF |

***LIMIT LINE: "EN 55022 V AV"***

Short Description: Voltage AV Limit

4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 56.00 |
| 0.500000 | 46.00 |
| 5.000000 | 46.00 |
| 5.000000 | 50.00 |
| 30.000000 | 50.00 |

***LIMIT LINE: "EN 55022 V QP"***

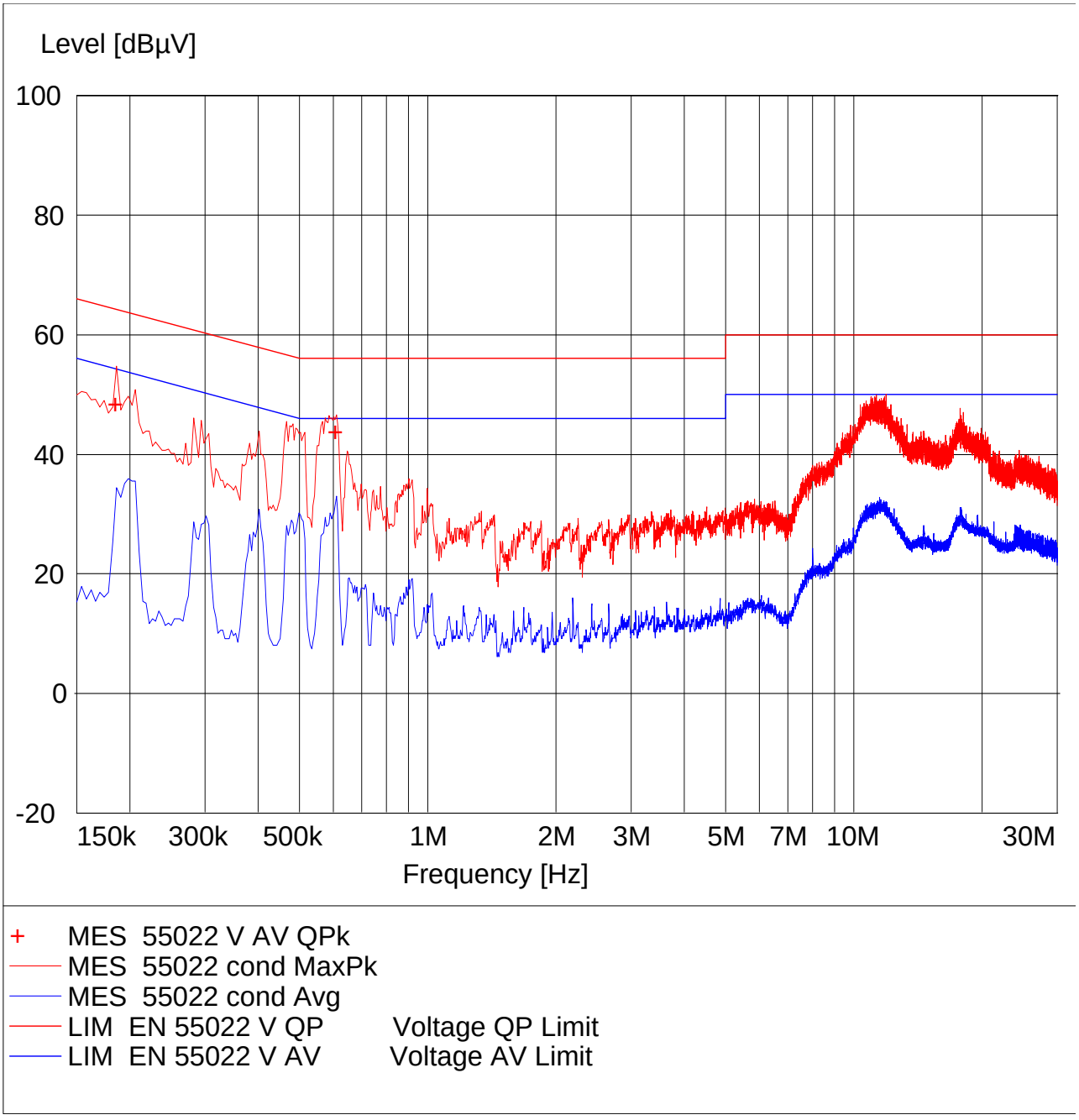
Short Description: Voltage QP Limit

4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 66.00 |
| 0.500000 | 56.00 |
| 5.000000 | 56.00 |
| 5.000000 | 60.00 |
| 30.000000 | 60.00 |

### 5.4.7 RESULTS RX Neutral CDMA:

EUT: Laptop
Manufacturer: Sony
Test Mode: RX
ANT Orientation:: LISN
EUT Orientation:: H
Test Engineer:: Chris
Power Supply: : AC Adapter
Comments: : Neutral



***MEASUREMENT RESULT: "55022 V AV QPk"***

7/28/2008 9:04AM

| Frequency | Level | Transd | Limit | Margin | Line | PE | AUX STATE |
|---|---|---|---|---|---|---|---|
| MHz | dBµV | dB | dBµV | dB | | | |
| 0.186000 | 48.30 | 0.1 | 64 | 15.9 | 1 | --- | OFF |
| 0.610000 | 43.80 | 0.1 | 56 | 12.2 | 1 | --- | OFF |

***LIMIT LINE: "EN 55022 V AV"***

Short Description: Voltage AV Limit

4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 56.00 |
| 0.500000 | 46.00 |
| 5.000000 | 46.00 |
| 5.000000 | 50.00 |
| 30.000000 | 50.00 |

***LIMIT LINE: "EN 55022 V QP"***

Short Description: Voltage QP Limit

4/27/1998 2:24PM

| Frequency | Level |
|---|---|
| MHz | dBµV |
| 0.150000 | 66.00 |
| 0.500000 | 56.00 |
| 5.000000 | 56.00 |
| 5.000000 | 60.00 |
| 30.000000 | 60.00 |

# 6 TEST EQUIPMENT AND ANCILLARIES USED FOR TESTS

| No | Instrument/Ancillary | Type | Manufacturer | Serial No. | Cal Due | Interval |
|---|---|---|---|---|---|---|
| **01** | Spectrum Analyzer | ESIB 40 | Rohde & Schwarz | 100107 | May 2009 | 1 year |
| **02** | Spectrum Analyzer | FSEM 30 | Rohde & Schwarz | 100017 | August 2009 | 1 year |
| **03** | Signal Generator | SMY02 | Rohde & Schwarz | 836878/011 | May 2009 | 1 year |
| **04** | Power-Meter | NRVD | Rohde & Schwarz | 0857.8008.02 | May 2009 | 1 year |
| **05** | Biconilog Antenna | 3141 | EMCO | 0005-1186 | June 2009 | 1 year |
| **06** | Horn Antenna (1-18GHz) | SAS-200/571 | AH Systems | 325 | June 2009 | 1 year |
| **07** | Horn Antenna (18-26.5GHz) | 3160-09 | EMCO | 1240 | June 2009 | 1 year |
| **08** | Power Splitter | 11667B | Hewlett Packard | 645348 | n/a | n/a |
| **09** | Climatic Chamber | VT4004 | Voltsch | G1115 | May 2009 | 1 year |
| **10** | High Pass Filter | 5HC2700 | Trilithic Inc. | 9926013 | n/a | n/a |
| **11** | High Pass Filter | 4HC1600 | Trilithic Inc. | 9922307 | n/a | n/a |
| **12** | Pre-Amplifier | JS4-00102600 | Miteq | 00616 | May 2009 | 1 year |
| **13** | Power Sensor | URV5-Z2 | Rohde & Schwarz | DE30807 | May 2009 | 1 year |
| **14** | Digital Radio Comm. Tester | CMD-55 | Rohde & Schwarz | 847958/008 | May 2009 | 1 year |
| **15** | Universal Radio Comm. Tester | CMU 200 | Rohde & Schwarz | 832221/06 | May 2009 | 1 year |
| **16** | LISN | ESH3-Z5 | Rohde & Schwarz | 836679/003 | May 2009 | 1 year |
| **17** | Loop Antenna | 6512 | EMCO | 00049838 | July 2009 | 2 years |

# 7 References

Title 47—Telecommunication, CHAPTER I--FEDERAL COMMUNICATIONS COMMISSION,
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Title 47—Telecommunication, CHAPTER I--FEDERAL COMMUNICATIONS COMMISSION,
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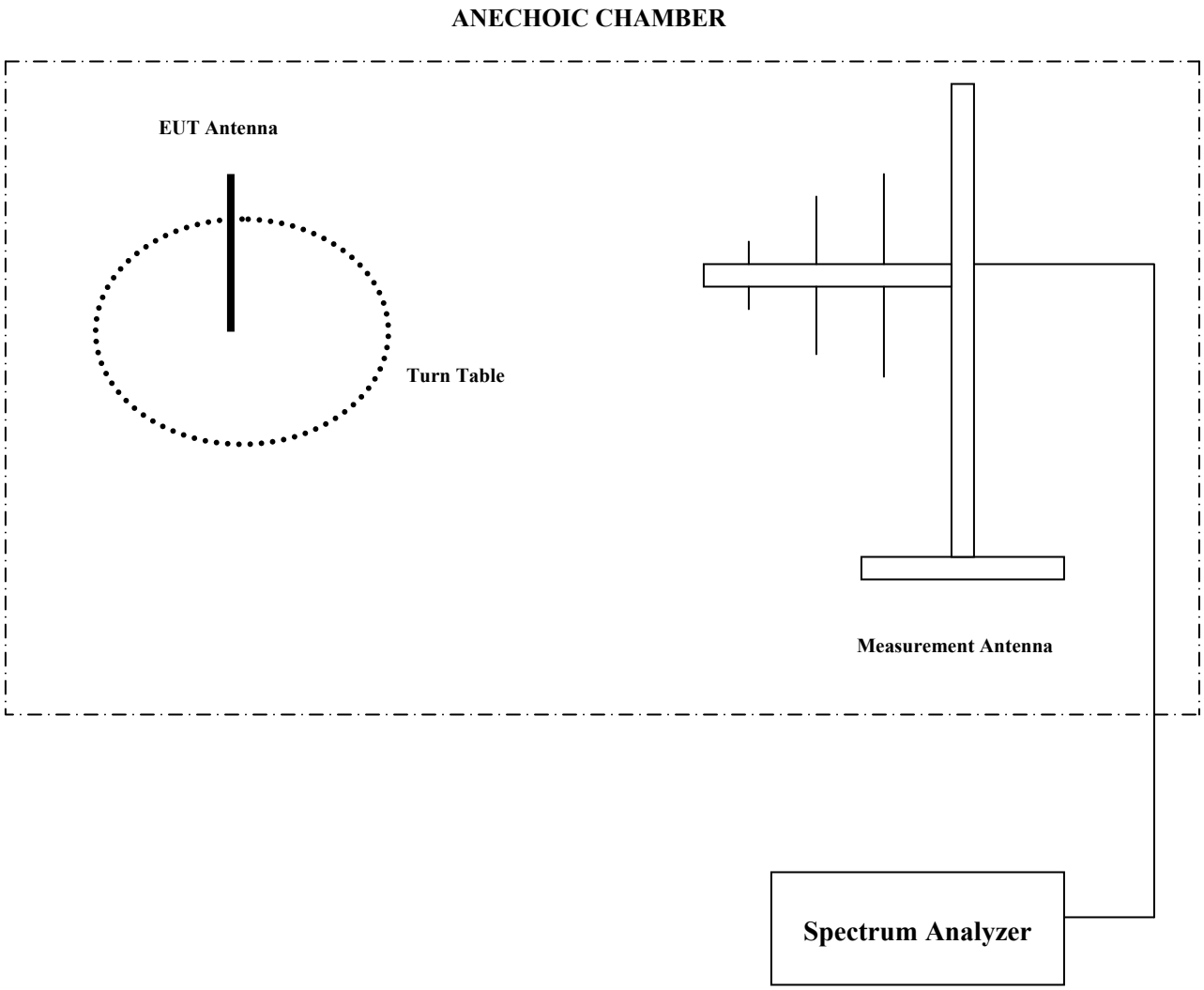
FCC Report and order 02-229 September 24, 2002.

Title 47—Telecommunication, CHAPTER I--FEDERAL COMMUNICATIONS COMMISSION,
PART 24 PERSONAL COMMUNICATIONS SERVICES October 1, 1998.

ANSI / TIA-603-C-2004 Land Mobile FM or PM Communications Equipment Measurement and Performance Standard November 7, 2002.

# 8 BLOCK DIAGRAMS

**Radiated Testing**



# 9 Revision History

2008-7-30: First Issue