**TÜV**
PRODUCT SERVICE

**SPURIOUS RADIATED EMISSIONS**

**DATA**

**FOR**

**QUALCOMM, INC.**
**10300 Campus Point Drive**
**San Diego, CA 92121**

**Prepared by**

**TÜV PRODUCT SERVICE**
**10040 Mesa Rim Road**
**San Diego, CA 92121-2912**

Measurement Requirements (CFR 47 Part 2, Paragraph 2.993 & Part 22, Paragraph 22.917)

The measurements which follow were performed by TÜV Product Service. To the best of my knowledge these tests were conducted in accordance with the procedures outlined in Part 2 of the Commission's Rules and Regulations. The data presented below demonstrates compliance with the appropriate technical standards.

Floyd R. Fleury
EMC Manager, EIC

TÜV PRODUCT SERVICE   10040 Mesa Rim Road   San Diego, CA 92121-2912   Phone 619 546 3999   FAX 619 546 0364

## Emissions Test Conditions: SPURIOUS RADIATED EMISSIONS

| The *Spurious Radiated Emissions* measurements were performed using the following equipment: |
| --- |

**Test Equipment Used :**

| Model No. | Prop. No. | Description | Manufacturer | Serial No. | Cal Date |
| --- | --- | --- | --- | --- | --- |
| 8566B | 720/721 | Spectrum Analyzer & Display | Hewlett Packard | 2115A00842 2112A02185 | 02/18/99 |
| AA-190-10.00.0 | 655 | Cable | United Microwave Prod. | -- | N/A |
| AA-190-06.00.0 | 657 | Cable | United Microwave Prod. | -- | N/A |
| AA-190-30.00.0 | 733 | Cable | United Microwave Prod. | -- | N/A |
| AMF-5D-010180-35-10P | 719 | Pre-amplifier | Miteq | 549460 | 04/07/99 |
| 3115 | 453 | Double Ridge Antenna | EMCO | 9412-4364 | 03/10/99 |
| 3146 | 244 | Log Periodic Antenna | EMCO | 1063 | 03/09/99 |
| 3146 | 418 | Log Periodic Antenna | EMCO | 9402-3775 | 06/25/99 |
| F4777 | -- | High Pass Filter | Qualcomm | -- | N/A |

Remarks:

**TÜV**
**PRODUCT SERVICE**

REPORT No: S8591 TESTED BY: DM SPEC: FCC Part 2, Para. 2.993 & Part 22, Para. 22.917

CUSTOMER: Qualcomm, Inc. TEST DIST: 3 Meters

E U T: Model QCT-7000 TEST SITE: 3

EUT MODE: Transmit, CDMA BICONICAL: N/A

DATE: 15-Dec-98 LOG PERIODIC: 418

NOTES: Wireless local loop phone. OTHER: 453
RBW & VBW = 100 kHz below 1 GHz.
RBW & VBW = 1 MHz above 1 GHz.
With panel antenna. Channel 991.

| FREQ (MHz) | VERTICAL (dBuv) | | HORIZONTAL (dBuv) | | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) | | SPEC LIMIT (dBuV/m) | | MARGIN (dB) | | EUT Rotatio | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pk | av | pk | av | | pk | av | pk | av | pk | av | | | |
| 824.04 | 100.1 | | 84.7 | | 25.8 | 125.9 | | - | | - | | | | |
| 1673 | 13.5 | | 4.6 | | 28.1 | 41.6 | | 84.4 | | -42.8 | | | | |
| 2509 | 1.9 | | 0.2 | | 32.3 | 34.2 | | 84.4 | | -50.2 | | | | |
| 3346 | 0.2 | | -2.3 | | 34.3 | 34.5 | | 84.4 | | -49.9 | | | | |

# Report No. S8591-03

**TÜV PRODUCT SERVICE**

RBW & VBW = 100 kHz below 1 GHz.
RBW & VBW = 1 MHz above 1 GHz.
With panel antenna.  Channel 383.

| FREQ (MHz) | VERTICAL (dBuv) pk | av | HORIZONTAL (dBuv) pk | av | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) pk | av | SPEC LIMIT (dBuV/m) pk | av | MARGIN (dB) pk | av | EUT Rotatio | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 836.49 | 100.6 | | 84.9 | | 25.8 | 126.4 | | - | | - | | | | | |
| 1673 | 14.6 | | 1.8 | | 28.1 | 42.7 | | 84.5 | | -41.8 | | | | | |
| 2509 | 23.6 | | -1.3 | | 32.3 | 55.9 | | 84.5 | | -28.6 | | | | | |
| 3346 | 12.7 | | 0.7 | | 34.3 | 47.0 | | 84.5 | | -37.5 | | | | | |

**TÜV**
**PRODUCT SERVICE**

REPORT No:    S8591     TESTED BY: DM     SPEC: FCC Part 2, Para. 2.993 & Part 22, Para. 22.917

CUSTOMER: Qualcomm, Inc.            TEST DIST: 3 Meters

E U T:         Model QCT-7000            TEST SITE:   3

EUT MODE:   Transmit, CDMA           BICONICAL: N/A

DATE:        15-Dec-98             LOG PERIODIC: 418

NOTES:       Wireless local loop phone.      OTHER: 453
                 RBW & VBW = 100 kHz below 1 GHz.
                 RBW & VBW = 1 MHz above 1 GHz.
                 With panel antenna. Channel 799.

| FREQ (MHz) | VERTICAL (dBuv) | | HORIZONTAL (dBuv) | | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) | | SPEC LIMIT (dBuV/m) | | MARGIN (dB) | | EUT Rotatio | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pk | av | pk | av | | pk | av | pk | av | pk | av | | | |
| 848.97 | 100 | | 84.7 | | 25.8 | 125.8 | | - | | - | | | | |
| 1697.94 | 18.1 | | 4.4 | | 28.1 | 46.2 | | 84.3 | | -38.1 | | | | |
| 2546.9 | 21.2 | | 0.7 | | 32.3 | 53.5 | | 84.3 | | -30.8 | | | | |
| 3394.9 | 4.4 | | .1 | | 34.3 | 38.7 | | 84.3 | | -45.6 | | | | |

**TÜV**
**PRODUCT SERVICE**

REPORT No: S8591    TESTED BY: DM    SPEC: FCC Part 2, Para. 2.993 & Part 22, Para. 22.917

CUSTOMER: Qualcomm, Inc.    TEST DIST: 3 Meters

E U T:    Model QCT-7000    TEST SITE:    3

EUT MODE: Transmit, CDMA    BICONICAL: N/A

DATE:    14-Dec-98    LOG PERIODIC: 418

NOTES:    Wireless local loop phone.    OTHER: 453
RBW & VBW = 100 kHz below 1 GHz.
RBW & VBW = 1 MHz above 1 GHz.
With vertical antenna. Channel 991.

| FREQ (MHz) | VERTICAL (dBuv) | | HORIZONTAL (dBuv) | | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) | | SPEC LIMIT (dBuV/m) | | MARGIN (dB) | | EUT Rotation | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pk | av | pk | av | | pk | av | pk | av | pk | av | | | |
| 824.04 | 97.2 | | 85.6 | | 25.8 | 123.0 | | - | | - | | | | |
| 1648.08 | 8.4 | | 6.4 | | 28.1 | 36.5 | | 84.4 | | -47.9 | | | | |
| 2472.1 | 9.1 | | 3.1 | | 32.3 | 41.4 | | 84.4 | | -43 | | | | |
| 3296.2 | 10.3 | | 2.3 | | 34.3 | 44.6 | | 84.4 | | -39.8 | | | | |
| 4120.2 | 2.2 | | -1.9 | | 36.4 | 38.6 | | 84.4 | | -45.8 | | | | |
| 4944.2 | -3.8 | | -2.1 | | 38.4 | 36.3 | | 84.4 | | -48.1 | | | | |

**TÜV**
**PRODUCT SERVICE**

| | | | |
|---|---|---|---|
| REPORT No: | S8591 | TESTED BY: DM | SPEC: FCC Part 2, Para. 2.993 & Part 22, Para. 22.917 |

CUSTOMER: Qualcomm, Inc.                    TEST DIST: 3 Meters

E U T:            Model QCT-7000              TEST SITE:  3

EUT MODE: Transmit, CDMA                  BICONICAL: N/A

DATE:            14-Dec-98                        LOG PERIODIC: 418

NOTES:        Wireless local loop phone.        OTHER: 453
RBW & VBW = 100 kHz below 1 GHz.
RBW & VBW = 1 MHz above 1 GHz.
With vertical antenna.  Channel 383.

| FREQ (MHz) | VERTICAL (dBuv) | | HORIZONTAL (dBuv) | | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) | | SPEC LIMIT (dBuV/m) | | MARGIN (dB) | | EUT Rotatio | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pk | av | pk | av | | pk | av | pk | av | pk | av | | | |
| 836.49 | 97.6 | | 88.7 | | 25.8 | 123.4 | | - | | - | | | | |
| 1673 | 14.3 | | 5.4 | | 28.1 | 42.4 | | 84.4 | | -42 | | | | |
| 2509 | 18.7 | | 5.8 | | 32.3 | 51.0 | | 84.4 | | -33.4 | | | | |
| 3346 | 20.5 | | 16.7 | | 34.3 | 54.8 | | 84.4 | | -29.6 | | | | |

**TÜV PRODUCT SERVICE**

| REPORT No: | S8591 | TESTED BY: DM | SPEC: FCC Part 2, Para. 2.993 & Part 22, Para. 22.917 |
|---|---|---|---|

CUSTOMER: Qualcomm, Inc.  TEST DIST: 3 Meters

E U T: Model QCT-7000  TEST SITE: 3

EUT MODE: Transmit, CDMA  BICONICAL: N/A

DATE: 14-Dec-98  LOG PERIODIC: 418

NOTES: Wireless local loop phone.  OTHER: 453
RBW & VBW = 100 kHz below 1 GHz.
RBW & VBW = 1 MHz above 1 GHz.
With vertical antenna.  Channel 799.

| FREQ (MHz) | VERTICAL (dBuv) | | HORIZONTAL (dBuv) | | CORRECTION FACTOR (dB/m) | MAX LEVEL (dBuV/m) | | SPEC LIMIT (dBuV/m) | | MARGIN (dB) | | EUT Rotation | Antenna Height | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | pk | av | pk | av | | pk | av | pk | av | pk | av | | | |
| 848.97 | 97.6 | | 86.1 | | 25.8 | 123.4 | | - | | - | | | | |
| 1697.94 | 8.4 | | 4.2 | | 28.1 | 36.5 | | 84.4 | | -47.9 | | | | |
| 2546.9 | 14.8 | | 2.8 | | 32.3 | 47.1 | | 84.4 | | -37.3 | | | | |
| 3394.9 | 10.1 | | 3.7 | | 34.3 | 44.4 | | 84.4 | | -40 | | | | |
| 4243.8 | 7.7 | | 7.6 | | 36.4 | 44.1 | | 84.4 | | -40.3 | | | | |
| 5092.9 | 0.8 | | 0 | | 38.4 | 39.2 | | 84.4 | | -45.2 | | | | |

Testing Facilities

Certificates of Approval

**TÜV**
**PRODUCT SERVICE**

**NVLAP®**

*National Institute of Standards and Technology*   *National Voluntary Laboratory Accreditation Program*

ISO/IEC GUIDE 25:1990
ISO 9002:1987

# Scope of Accreditation

Page: 1 of 1

ELECTROMAGNETIC COMPATIBILITY
AND TELECOMMUNICATIONS

NVLAP LAB CODE   100268-0

**TÜV PRODUCT SERVICE, INC.**
10040 Mesa Rim Road
San Diego, CA  92121-1034
Mr. Floyd R. Fleury
Phone: 619-546-3999   Fax: 619-546-0364

*NVLAP Code*   *Designation / Description*

**International Special Committee on Radio Interference (CISPR) Methods**

12/CIS22      IEC/CISPR 22:1993:  Limits and methods of measurement of radio disturbance
              characteristics of information technology equipment

**Federal Communications Commission (FCC) Methods**

12/F01        FCC Method - 47 CFR Part 15 - Digital Devices

12/F01a       Conducted Emissions, Power Lines, 450 KHz to 30 MHz

12/F01b       Radiated Emissions

**Australian Standards referred to by clauses in AUSTEL Technical Standards**

12/T51        AS/NZS 3548: Electromagnetic Interference - Limits and Methods of Measurement of
              Information Technology Equipment

December 31, 1999
*Effective through*

*For the National Institute of Standards and Technology*

NVLAP-01S (11-95)

**TÜV**
**PRODUCT SERVICE**

ISO/IEC GUIDE 25:1990
ISO 9002:1987

**United States Department of Commerce**
**National Institute of Standards and Technology**

**NVLAP** ®

**Certificate of Accreditation**

**TUV PRODUCT SERVICE, INC.**
SAN DIEGO, CA

is recognized under the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria established in Title 15, Part 285 Code of Federal Regulations. These criteria encompass the requirements of ISO/IEC Guide 25 and the relevant requirements of ISO 9002 (ANSI/ASQC Q92-1987) as suppliers of calibration or test results. Accreditation is awarded for specific services, listed on the Scope of Accreditation for:

**ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS**
**FCC**

December 31, 1999

Effective through

For the National Institute of Standards and Technology

NVLAP Lab Code: 100268-0

NVLAP-01C (11-95)

TÜV PRODUCT SERVICE    10040 Mesa Rim Road    San Diego, CA 92121-2912    Phone 619 546 3999    FAX 619 546 0364

**TÜV**
**PRODUCT SERVICE**

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

December 1, 1998

Mr. Floyd R. Fleury
TUV Product Service, Inc.
10040 Mesa Rim Road
San Diego, CA 92121-1034

NVLAP Lab Code: 100268-0

Dear Mr. Fleury:

I am pleased to inform you that continuing accreditation for specific test methods in
Electromagnetic Compatibility & Telecommunications, FCC is granted to your organization
under the National Voluntary Laboratory Accreditation Program (NVLAP). This accreditation is
effective until December 31, 1999, provided that your organization continues to comply with
accreditation requirements contained in the NVLAP Procedures.

Your Certificate of Accreditation is enclosed along with a statement of your Scope of
Accreditation. You may reproduce these documents in their entirety and announce your
organization's accreditation status using the NVLAP logo in business publications, the trade
press, and other business-oriented literature. Accreditation does not relieve your organization
from observing and complying with any applicable existing laws and/or regulations.

We are pleased to have you participate in NVLAP and look forward to your continued association
with this program. If you have any questions concerning your NVLAP accreditation, please
direct them to Jon Crickenberger, Sr. Program Manager, Laboratory Accreditation Program,
National Institute of Standards and Technology, 100 Bureau Dr. Stop 2140, Gaithersburg, MD
20899-2140; (301) 975-4016.

Sincerely,

James L. Cigler, Chief
Laboratory Accreditation Program

Enclosure(s)

**NIST**

Photograph of Test Setup

Photograph of Test Setup