# FCC CFR47 PART 22 SUBPART H
# FCC CFR47 PART 24 SUBPART E
# CLASS II PERMISSIVE CHANGE
# CERTIFICATION TEST REPORT

**FOR**

**TRI-MODE CDMA CIRELESS MODLE KIT**

**MODEL NUMBER: Q2438-F**

**FCC ID: O9EQ2438F-M**

**REPORT NUMBER: 09J12503-1, Revision B**

**ISSUE DATE: JUNE 26, 2009**

*Prepared for*

**SIERRA WIRELESS, INC.**
**13811 WIRELESS WAY**
**RICHMOND BC CANADA V6V 3A4**

*Prepared by*

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NVLAP LAB CODE 200065-0

Revision History

| Rev. | Issue Date | Revisions | Revised By |
|---|---|---|---|
| --- | 04/14/09 | Initial Issue | T. Chan |
| A | 06/18/09 | Revised applicant | A. Zaffar |
| B | 06/26/09 | Revised Host FCC ID in section 5.3 | A. Zaffar |

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# 1. TEST RESULT CERTIFICATION

**COMPANY NAME:** SIERRA WIRELESS, INC.
13811 WIRELESS WAY
RICHMOND BC CANADA V6V 3A4

**EUT DESCRIPTION:** TRI-MODE CDMA WIRELESS MODULE KIT
**MODEL NAMES:** Q2438-F

**HOST DESCRIPTION:** GNSS RECEIVER SYSTEM
**HOST MODEL:** GRS-1

**SERIAL NUMBER:** 0068 AND 0103 (Host device)

**DATE TESTED:** APRIL 10 TO 11, 2009

| APPLICABLE STANDARDS | |
|---|---|
| **STANDARD** | **TEST RESULTS** |
| CFR 47 Part 22 Subpart H | Pass |
| CFR 47 Part 24 Subpart E | Pass |

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

**Note**: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

THU CHAN
EMC MANAGER
COMPLIANCE CERTIFICATION SERVICES

Tested By:

MENGISTU MEKURIA
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

# 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA/EIA 603C (2004), ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15 and FCC CFR 47 Part 22H, 24E.

# 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at http://www.ccsemc.com.

# 4. CALIBRATION AND UNCERTAINTY

## 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

## 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB – 26.9 dB = 28.9 dBuV/m

## 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

| PARAMETER | UNCERTAINTY |
|---|---|
| Conducted Disturbance, 0.15 to 30 MHz | 3.52 dB |
| Radiated Disturbance, 30 to 1000 MHz | 4.94 dB |

Uncertainty figures are valid to a confidence level of 95%.

# 5. EQUIPMENT UNDER TEST

## 5.1. DESCRIPTION OF EUT

The EUT is a dual-bands (850MHz CDMA, AMPS and 1900MHz CDMA) Module. The host device is GPS Receiver System with Bluetooth and 802.11b/g and manufactured by Topcon Positioning Systems Inc. The host device doesn't support AMPS. This report includes only 850MHz CDMA and 1900MHz CDMA.

## 5.2. OUTPUT POWER

The max average and peak conducted output powers are measured for the uplink durst in CDMA modulation and channel bandwidth using a peak and an average power meter (Agilent E4416A). Conducted output powers were measured with the module connected to the power meter Communication Test Set (Agilent E5515C) via power spliter

824 to 849 MHz Authorized Band

| Frequency Range (MHz) | Modulation | Conducted Peak Power (dBm) | Conducted Peak Power (mW) | Conducted Average Power (dBm) | Conducted Average Power (mW) |
|---|---|---|---|---|---|
| Low CH - 824.70 | 1xRTT | 25.93 | 391.74 | 20.91 | 123.31 |
| Mid CH - 836.52 | | 26.22 | 418.79 | 21.34 | 136.14 |
| High CH - 848.31 | | 25.71 | 372.39 | 20.94 | 124.17 |

1850 to 1910 MHz Authorized Band

| Frequency Range (MHz) | Modulation | Conducted Peak Power (dBm) | Conducted Peak Power (mW) | Conducted Average Power (dBm) | Conducted Average Power (mW) |
|---|---|---|---|---|---|
| Low CH - 1851.25 | 1xRTT | 25.78 | 378.44 | 20.65 | 116.14 |
| Mid CH - 1880.00 | | 26.24 | 420.73 | 21.23 | 132.74 |
| High CH - 1908.75 | | 24.88 | 307.61 | 19.96 | 99.08 |

## 5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is to install the EUT into the handheld portable device FCC ID: LCB-80501WL and add co-location between Bluetooth and 802.11b/g radios inside the handheld portable device.

## 5.4. SOFTWARE AND FIRMWARE

The EUT uses the Terminal Exe v1.0.0.1 software and also linked to Agilent Communication Test Set.

## 5.5. WORST-CASE CONFIGURATION AND MODE

The worst-position was the EUT with highest emissions. To determine the worst-case, the EUT was investigated for X, Y, and Z-Positions, and the worst position among X, Y, and Z with battery charger. After the investigations, the worst-position was turned out to be an X-position with Battery Charger for both Cell and Y-Position without Battery Charger for PCS bands.

**PROCEDURE USED TO ESTABLISH TEST SIGNAL**

**3G-CDMA2000 1xRTT**

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

| Application | Rev, License |
|---|---|
| CDMA2000 Mobil Test | B.13.08, L |

1xRTT

- Call Setup > Shift & Preset
- Cell Info > Cell Parameters > System ID (SID) > 13
  > Network ID (NID) > 65535
- Protocol Rev > 6 (IS-2000-0)
- Radio Config (RC) > RC3 (Fwd3, Rvs3)
- FCH Service Option (SO) Setup > 2(Loopbck)
- Traffic Data Rate > Full
- TDSO SCH Info > F-SCH Parameters > F-SCH Data Rate > 153.6 kbps
  > R-SCH Parameters > R-SCH Data Rate > 153.6 kbps
- Rvs Power Ctrl > Active bits
  - Rvs Power Ctrl > All Up bits (Maximum TxPout)

## 5.6. DESCRIPTION OF TEST SETUP

**SUPPORT EQUIPMENT**

| PERIPHERAL SUPPORT EQUIPMENT LIST | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Serial Number** | **FCC ID** |
| AC/DC Adapter | Topcon | LE-0309ADSP12V300 | N/A | DoC |
| Communications Test Set | Agilent | E5515C | GB46160222 | DoC |
| Directional Coupler | Krtar | 1817 | 131 | N/A |

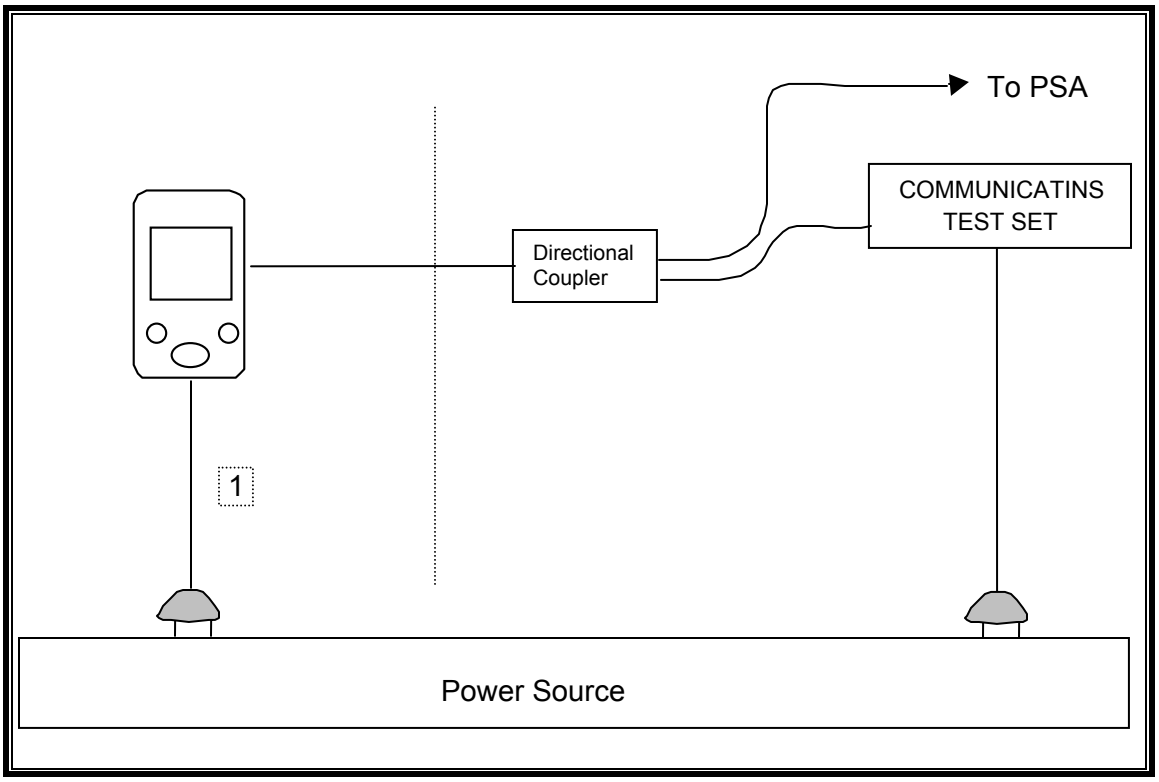
**I/O CABLES**

| I/O CABLE LIST | | | | | | |
|---|---|---|---|---|---|---|
| Cable No. | Port | # of Identical Ports | Connector Type | Cable Type | Cable Length | Remarks |
| 1 | AC | 1 | AC | Un-Shielded | 2.0 m | N/A |
| 2 | DC | 1 | DC | Un-Shielded | 1.5 M | Ferrite at One End |

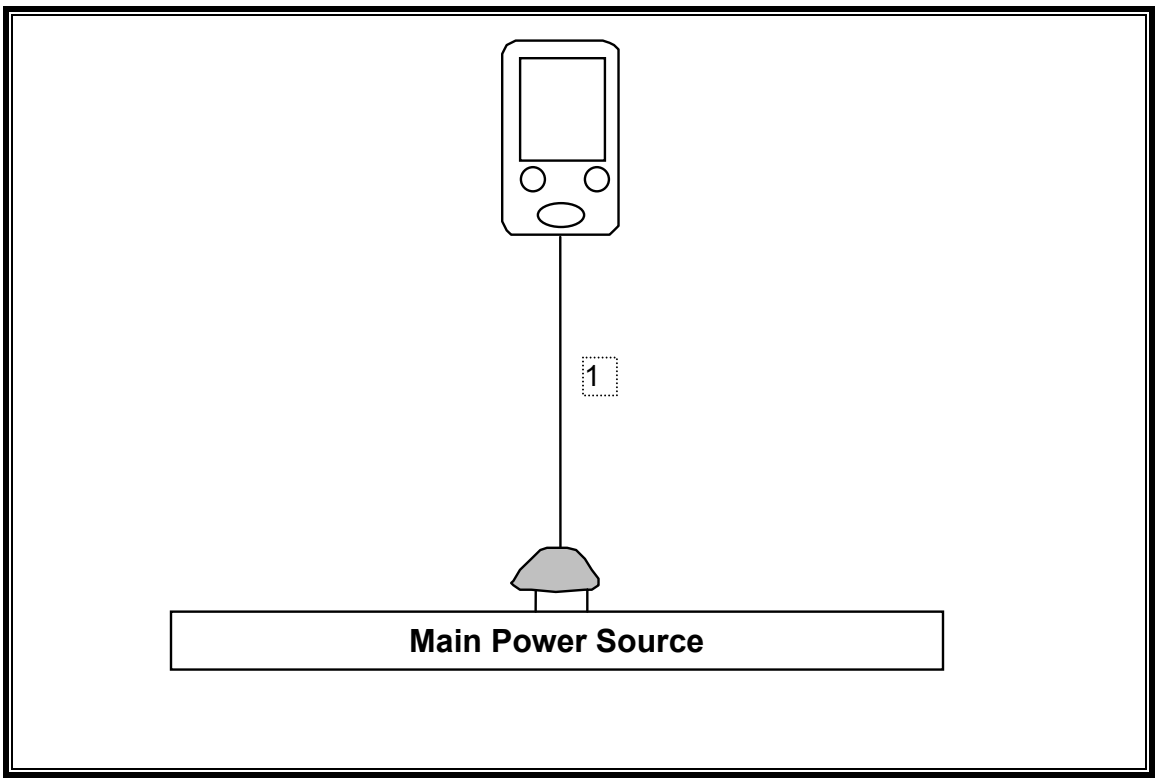
**TEST SETUP**

The EUT was a stand-alone unit during the tests. The Wireless Communication test set exercised the EUT.

**SETUP DIAGRAM FOR RF CONDUCTED TESTS**



**SETUP DIAGRAM FOR RF RADIATED TESTS**



# 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

| TEST EQUIPMENT LIST | | | | |
|---|---|---|---|---|
| **Description** | **Manufacturer** | **Model** | **Serial Number** | **Cal Due** |
| Spectrum Analyzer, 44 GHz | Agilent / HP | E4446A | MY45300064 | 01/05/10 |
| Spectrum Analyzer, 44 GHz | Agilent / HP | E4446A | US42510266 | 11/14/09 |
| Preamplifier, 1 ~ 26.5 GHz | Agilent / HP | 8449B | 3008A00561 | 12/01/09 |
| Peak Power Meter | Agilent / HP | E4416A | GB41291160 | 12/04/09 |
| Peak / Average Power Sensor | Agilent / HP | E9327A | US40440755 | 12/07/09 |
| Antenna, Bilog, 2 GHz | Sunol Sciences | JB1 | A0022704 | 01/14/10 |
| Antenna, Horn 1 ~ 18 GHz | EMCO | 3115 | 9001-3245 | 04/22/09 |
| Antenna, Horn 1 ~ 18 GHz | EMCO | 3115 | 6739 | 04/22/09 |
| Wireless Communications Test Set | Agilent | E5515C | 10092 | 06/16/09 |
| Highpass Filter, 1.5 GHz | Micro-Tronics | HPM13193 | 2 | CNR |
| Highpass Filter, 2.7 GHz | Micro-Tronics | HPM13194 | 1 | CNR |

# 7. LIMITS AND RESULTS

## 7.1. RADIATED OUTPUT POWER

**LIMIT**

22.913(a) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
24.232(b) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

**TEST PROCEDURE**

ANSI / TIA / EIA 603 Clause 2.2.17

**RESULTS**

CELL, 1xRTT, CDMA Modulation

| Channel | Frequency (MHz) | ERP Peak Power (dBm) | ERP Peak Power (mW) |
|---|---|---|---|
| Low | 824.7 | 20.50 | 112.20 |
| Middle | 836.5 | 21.80 | 151.36 |
| High | 848.3 | 21.50 | 141.25 |

PCS, 1xRTT, CDMA Modulation

| Channel | Frequency (MHz) | EIRP Peak Power (dBm) | EIRP Peak Power (mW) |
|---|---|---|---|
| Low | 1850.25 | 30.40 | 1096.48 |
| Middle | 1880.00 | 29.90 | 977.24 |
| High | 1908.75 | 28.20 | 660.69 |

**CELL BAND CDMA OUTPUT POWER (ERP)**

High Frequency Substitution Measurement
Compliance Certification Services Chamber B

**Company:** TOPCON CORPORATION
**Project #:** 09J12503
**Date:** 4/10/2009
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT ALONE
**Mode:** TX CDMA CELL BAND

**Test Equipment:**
**Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)**
**Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.**

| f MHz | SA reading (dBm) | Ant. Pol. (H/V) | Path Loss (dBm) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|---|---|---|---|---|---|---|---|
| 824.70 | -16.6 | V | 32.6 | 16.0 | 38.5 | -22.5 | |
| 824.70 | -9.8 | H | 30.4 | 20.5 | 38.5 | -17.9 | |
| 836.52 | -17.0 | V | 32.7 | 15.7 | 38.5 | -22.8 | |
| 836.52 | -8.9 | H | 30.7 | 21.8 | 38.5 | -16.6 | |
| 848.31 | -17.0 | V | 32.0 | 15.0 | 38.5 | -23.5 | |
| 848.31 | -9.2 | H | 30.8 | 21.5 | 38.5 | -16.9 | |

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**PCS BAND CDMA OUTPUT POWER (EIRP)**

High Frequency Fundamental Measurement
Compliance Certification Services Chamber B

**Company:** TOPCON CORPORATION
**Project #:** 09J12503
**Date:** 4/10/2009
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT ALONE
**Mode:** TX CDMA PCS BAND

**Test Equipment:**
**Receiving: Horn T59, and Camber B SMA Cables**
**Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse**

| f GHz | SA reading (dBm) | Ant. Pol. (H/V) | Path Loss (dBm) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|
| 1.850 | -9.8 | V | 40.1 | 30.4 | 33.0 | -2.6 | |
| 1.850 | -15.8 | H | 39.6 | 23.8 | 33.0 | -9.2 | |
| 1.850 | -10.4 | V | 40.4 | 29.9 | 33.0 | -3.1 | |
| 1.850 | -17.2 | H | 40.0 | 22.8 | 33.0 | -10.2 | |
| 1.910 | -12.1 | V | 40.3 | 28.2 | 33.0 | -4.8 | |
| 1.910 | -18.5 | H | 40.2 | 21.7 | 33.0 | -11.3 | |

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## 7.2. FIELD STRENGTH OF SPURIOUS EMISSION

**LIMIT**

§24.238 (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.

**TEST PROCEDURE**

ANSI / TIA / EIA 603 Clause 3.2.12 & FCC 22.917 (b), FCC 24.238 (b)

**RESULTS**

Note: No emissions were found within 30 -1000MHz of 20dB below the system noise.

## CELL BAND CDMA SPURIOUS & HARMONIC (ERP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

**Company:** TOPCON CORPORATION
**Project #:** 09J12503
**Date:** 4/11/2009
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT ALONE
**Mode:** TX CDMA CELL BAND

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| 5m Chamber B | T145 8449B | Filter 1 | FCC PART 22 |

| f GHz | SA reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Path Loss (dB) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| Low Ch. (824.7 MHz) | | | | | | | | | | |
| 1.649 | -40.5 | H | 3.0 | 37.2 | 35.5 | 1.0 | -37.8 | -13.0 | -24.8 | |
| 2.474 | -54.0 | H | 3.0 | 39.8 | 35.4 | 1.0 | -48.6 | -13.0 | -35.6 | |
| 3.299 | -61.8 | H | 3.0 | 44.0 | 35.5 | 1.0 | -52.4 | -13.0 | -39.4 | |
| 4.124 | -65.1 | H | 3.0 | 46.7 | 35.2 | 1.0 | -52.7 | -13.0 | -39.7 | |
| 4.948 | -66.5 | H | 3.0 | 48.8 | 35.3 | 1.0 | -52.0 | -13.0 | -39.0 | |
| 1.649 | -39.7 | V | 3.0 | 36.8 | 35.5 | 1.0 | -37.5 | -13.0 | -24.5 | |
| 2.474 | -56.4 | V | 3.0 | 41.7 | 35.4 | 1.0 | -49.1 | -13.0 | -36.1 | |
| 3.299 | -60.3 | V | 3.0 | 44.1 | 35.5 | 1.0 | -50.7 | -13.0 | -37.7 | |
| 4.124 | -65.1 | V | 3.0 | 46.2 | 35.2 | 1.0 | -53.2 | -13.0 | -40.2 | |
| 4.948 | -66.2 | V | 3.0 | 48.2 | 35.3 | 1.0 | -52.3 | -13.0 | -39.3 | |
| | | | | | | | | | | |
| Mid Ch. (836.52 MHz) | | | | | | | | | | |
| 1.673 | -40.4 | H | 3.0 | 37.5 | 35.5 | 1.0 | -37.5 | -13.0 | -24.5 | |
| 2.510 | -52.2 | H | 3.0 | 39.9 | 35.4 | 1.0 | -46.7 | -13.0 | -33.7 | |
| 3.346 | -60.7 | H | 3.0 | 44.1 | 35.5 | 1.0 | -51.1 | -13.0 | -38.1 | |
| 4.183 | -64.8 | H | 3.0 | 46.8 | 35.2 | 1.0 | -52.2 | -13.0 | -39.2 | |
| 5.019 | -66.3 | H | 3.0 | 48.9 | 35.3 | 1.0 | -51.7 | -13.0 | -38.7 | |
| 1.673 | -46.5 | V | 3.0 | 37.1 | 35.5 | 1.0 | -43.9 | -13.0 | -30.9 | |
| 2.510 | -56.2 | V | 3.0 | 41.8 | 35.4 | 1.0 | -48.8 | -13.0 | -35.8 | |
| 3.346 | -61.2 | V | 3.0 | 44.3 | 35.5 | 1.0 | -51.5 | -13.0 | -38.5 | |
| 4.183 | -65.3 | V | 3.0 | 46.3 | 35.2 | 1.0 | -53.3 | -13.0 | -40.3 | |
| 5.019 | -66.7 | V | 3.0 | 48.3 | 35.3 | 1.0 | -52.6 | -13.0 | -39.6 | |
| | | | | | | | | | | |
| Hi Ch. (848.31 MHz) | | | | | | | | | | |
| 1.697 | -47.3 | H | 3.0 | 37.7 | 35.5 | 1.0 | -44.1 | -13.0 | -31.1 | |
| 2.545 | -51.1 | H | 3.0 | 40.1 | 35.4 | 1.0 | -45.5 | -13.0 | -32.5 | |
| 3.393 | -60.6 | H | 3.0 | 44.3 | 35.5 | 1.0 | -50.9 | -13.0 | -37.9 | |
| 4.242 | -63.3 | H | 3.0 | 47.0 | 35.2 | 1.0 | -50.6 | -13.0 | -37.6 | |
| 5.090 | -66.2 | H | 3.0 | 49.1 | 35.3 | 1.0 | -51.3 | -13.0 | -38.3 | |
| 1.697 | -53.9 | V | 3.0 | 37.4 | 35.5 | 1.0 | -51.0 | -13.0 | -38.0 | |
| 2.545 | -52.2 | V | 3.0 | 42.0 | 35.4 | 1.0 | -44.6 | -13.0 | -31.6 | |
| 3.393 | -63.5 | V | 3.0 | 44.4 | 35.5 | 1.0 | -53.6 | -13.0 | -40.6 | |
| 4.242 | -64.3 | V | 3.0 | 46.4 | 35.2 | 1.0 | -52.1 | -13.0 | -39.1 | |
| 5.090 | -66.0 | V | 3.0 | 48.5 | 35.3 | 1.0 | -51.8 | -13.0 | -38.8 | |
| | | | | | | | | | | |
| | | | | | | | | | | |

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## PCS BAND CDMA SPURIOUS & HARMONIC (EIRP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

**Company:** TOPCON CORPORATION
**Project #:** 09J12503
**Date:** 4/11/2009
**Test Engineer:** MENGISTU MEKURIA
**Configuration:** EUT ALONE
**Mode:** TX CDMA PCS BAND

| Chamber | Pre-amplifer | Filter | Limit |
|---|---|---|---|
| 5m Chamber B | T145 8449B | Filter 1 | FCC PART 24 |

| f GHz | SA reading (dBm) | Ant. Pol. (H/V) | Distance (m) | Path Loss (dB) | Preamp (dB) | Filter (dB) | EIRP (dBm) | Limit (dBm) | Delta (dB) | Notes |
|---|---|---|---|---|---|---|---|---|---|---|
| Low Ch. (1851.25 MHz) | | | | | | | | | | |
| 3.703 | -35.2 | H | 3.0 | 45.3 | 35.4 | 1.0 | -24.2 | -13.0 | -11.2 | |
| 5.554 | -38.6 | H | 3.0 | 50.0 | 35.4 | 1.0 | -23.0 | -13.0 | -10.0 | |
| 7.405 | -58.2 | H | 3.0 | 53.0 | 35.7 | 1.0 | -39.9 | -13.0 | -26.9 | |
| 9.256 | -56.4 | H | 3.0 | 55.1 | 35.6 | 1.0 | -35.9 | -13.0 | -22.9 | |
| 3.703 | -38.0 | V | 3.0 | 45.1 | 35.4 | 1.0 | -27.2 | -13.0 | -14.2 | |
| 5.554 | -44.3 | V | 3.0 | 49.2 | 35.4 | 1.0 | -29.5 | -13.0 | -16.5 | |
| 7.405 | -54.3 | V | 3.0 | 51.3 | 35.7 | 1.0 | -37.7 | -13.0 | -24.7 | |
| 9.256 | -64.0 | V | 3.0 | 53.6 | 35.6 | 1.0 | -45.0 | -13.0 | -32.0 | |
| | | | | | | | | | | |
| Mid Ch. (1880.00 MHz) | | | | | | | | | | |
| 3.765 | -35.7 | H | 3.0 | 45.5 | 35.3 | 1.0 | -24.5 | -13.0 | -11.5 | |
| 5.640 | -41.3 | H | 3.0 | 50.2 | 35.4 | 1.0 | -25.5 | -13.0 | -12.5 | |
| 7.520 | -59.8 | H | 3.0 | 53.1 | 35.7 | 1.0 | -41.4 | -13.0 | -28.4 | |
| 9.400 | -56.7 | H | 3.0 | 55.2 | 35.6 | 1.0 | -36.1 | -13.0 | -23.1 | |
| 3.765 | -35.4 | V | 3.0 | 45.3 | 35.3 | 1.0 | -24.5 | -13.0 | -11.5 | |
| 5.640 | -44.7 | V | 3.0 | 49.3 | 35.4 | 1.0 | -29.8 | -13.0 | -16.8 | |
| 7.520 | -53.1 | V | 3.0 | 51.4 | 35.7 | 1.0 | -36.4 | -13.0 | -23.4 | |
| 9.400 | -64.4 | V | 3.0 | 53.7 | 35.6 | 1.0 | -45.2 | -13.0 | -32.2 | |
| | | | | | | | | | | |
| Hi Ch. (1980.75 MHz) | | | | | | | | | | |
| 3.818 | -36.0 | H | 3.0 | 45.7 | 35.3 | 1.0 | -24.6 | -13.0 | -11.6 | |
| 5.726 | -41.5 | H | 3.0 | 50.3 | 35.4 | 1.0 | -25.6 | -13.0 | -12.6 | |
| 7.635 | -53.8 | H | 3.0 | 53.2 | 35.7 | 1.0 | -35.2 | -13.0 | -22.2 | |
| 9.544 | -57.9 | H | 3.0 | 55.4 | 35.6 | 1.0 | -37.1 | -13.0 | -24.1 | |
| 3.818 | -36.4 | V | 3.0 | 45.4 | 35.3 | 1.0 | -25.3 | -13.0 | -12.3 | |
| 5.726 | -46.5 | V | 3.0 | 49.4 | 35.4 | 1.0 | -31.5 | -13.0 | -18.5 | |
| 7.635 | -54.0 | V | 3.0 | 51.6 | 35.7 | 1.0 | -37.1 | -13.0 | -24.1 | |
| 9.544 | -64.5 | V | 3.0 | 53.9 | 35.6 | 1.0 | -45.2 | -13.0 | -32.2 | |
| | | | | | | | | | | |
| | | | | | | | | | | |
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Rev. 03.03.09

# 8. CO-LOCATED MAXIMUM PERMISSIBLE EXPOSURE

**LIMITS**

Per OTE Bulletin 65, for frequency bands with the same MPE limits, the Power Densities produced by each transmitter are summed. The summation must be under the limit for the band.

Per OTE Bulletin 65, for frequency bands with different limits the Power Densities are calculated separately for each band, divided by the limit for the band and the results are then summed. The summation must be less than 1.

**RESULTS**

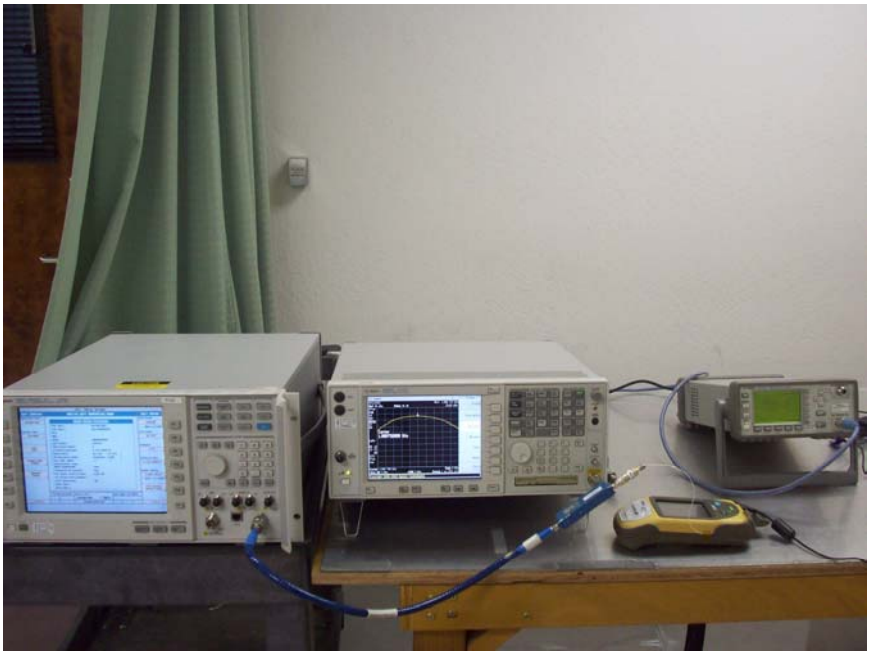
| Mode | MPE Distance (cm) | Output Power (dBm) | Antenna Gain (dBi) | FCC Power Density (mW/cm^2) | FCC Limit (mW/cm^2) | FCC Fraction of Limit Dimensionless |
|---|---|---|---|---|---|---|
| WLAN | 20.0 | 23.88 | 2.00 | 0.08 | 1.00 | 0.08 |
| 800 MHz Cellular | 20.0 | 21.80 | -2.14 | 0.02 | 0.55 | 0.03 |
| Colocated | | | | | | 0.11 |

| Mode | MPE Distance (cm) | Output Power (dBm) | Antenna Gain (dBi) | FCC Power Density (mW/cm^2) | FCC Limit (mW/cm^2) |
|---|---|---|---|---|---|
| WLAN | 20.0 | 23.88 | 2.00 | 0.08 | 1.00 |
| 1900 MHz PCS | 20.0 | 30.40 | 0.00 | 0.22 | 1.00 |
| Colocated | | | | 0.29 | 1.00 |

# 9. SETUP PHOTOS

**ANTENNA PORT CONDUCTED RF MEASUREMENT SETUP**

ANTENNA PORT CONDUCTED PHOTO



**RADIATED RF MEASUREMENT SETUP PHOTOS (FUNDAMENTAL AND HARMONICS)**

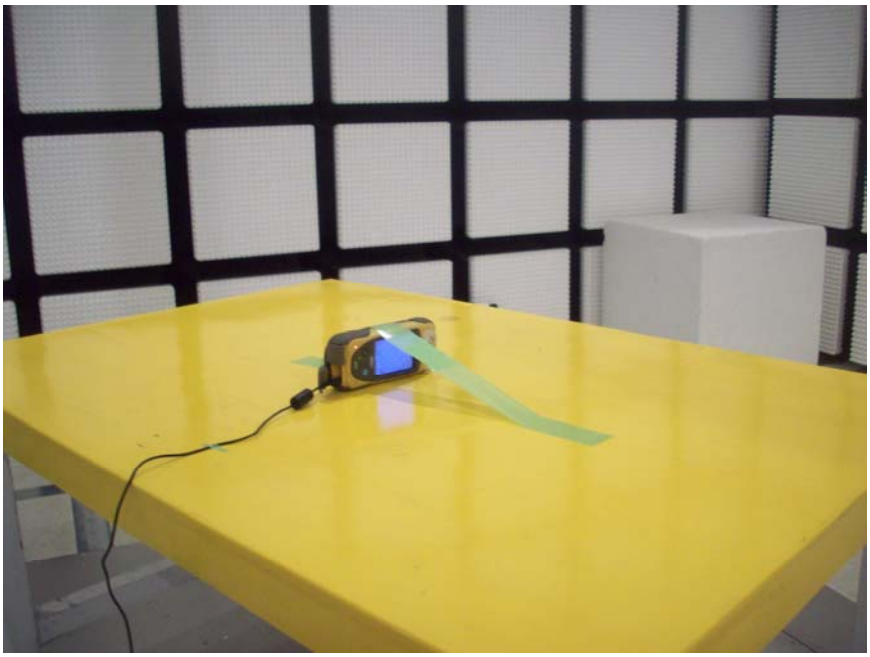
RADIATED X-POSITION PHOTO

RADIATED Y-POSITION PHOTO

RADIATED Z-POSITION PHOTO

RADIATED X-POSITION WITH CHARGER PHOTO

RADIATED Y-POSITION WITH CHARGER PHOTO



# END OF REPORT