



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 7**

CERTIFICATION TEST REPORT*

FOR

**RUGGEDIZED HANDHELD PDA-TYPE DEVICE WITH DUAL BAND
GSM/GPRS/WCDMA/HSDPA, 802.11 b/g & BT**

MODEL NUMBER: CN4, CN4e**

**FCC ID: EHA-03CN4
IC: 1223A-01CN4**

REPORT NUMBER: 09U12493-4, Revision B

ISSUE DATE: JUNE 19, 2009

Prepared for
**INTERMEC TECHNOLOGIES CORP
550 SECOND STREET SE
CEDAR RAPIDS
IOWA, 52401, U.S.A**

Prepared by
**COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
FREMONT, CA 94538, U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**

* This report covers the radiated portion of 11b and 11g modes, and antenna port testing for 11b mode, for antenna port for 11g mode refer to report number ITRM0128.

** Model differences are described within the body of this report



NVLAP LAB CODE 200065-0

Revision History

| <u>Rev.</u> | <u>Issue Date</u> | <u>Revisions</u> | <u>Revised By</u> |
|-------------|-------------------|-------------------------|-------------------|
| -- | 05/11/09 | Initial Issue | F. Ibrahim |
| A | 06/11/09 | Revised FCC ID | A. Zaffar |
| B | 06/19/09 | Revised EUT Description | A. Zaffar |

TABLE OF CONTENTS

| | |
|---|-----------|
| 1. ATTESTATION OF TEST RESULTS | 4 |
| 2. TEST METHODOLOGY | 5 |
| 3. FACILITIES AND ACCREDITATION | 5 |
| 4. CALIBRATION AND UNCERTAINTY | 5 |
| 4.1. <i>MEASURING INSTRUMENT CALIBRATION</i> | 5 |
| 4.2. <i>MEASUREMENT UNCERTAINTY</i> | 5 |
| 5. EQUIPMENT UNDER TEST | 6 |
| 5.1. <i>DESCRIPTION OF EUT</i> | 6 |
| 5.2. <i>DESCRIPTION OF MODEL(S) DIFFERENCES</i> | 6 |
| 5.3. <i>MAXIMUM OUTPUT POWER</i> | 6 |
| 5.4. <i>DESCRIPTION OF AVAILABLE ANTENNAS</i> | 6 |
| 5.5. <i>SOFTWARE AND FIRMWARE</i> | 6 |
| 5.6. <i>WORST-CASE CONFIGURATION AND MODE</i> | 6 |
| 5.7. <i>DESCRIPTION OF TEST SETUP</i> | 7 |
| 6. TEST AND MEASUREMENT EQUIPMENT | 8 |
| 7. ANTENNA PORT TEST RESULTS | 9 |
| 7.1. <i>802.11b MODE IN THE 2.4 GHz BAND</i> | 9 |
| 7.1.1. <i>6 dB BANDWIDTH</i> | 9 |
| 7.1.2. <i>99% BANDWIDTH</i> | 13 |
| 7.1.3. <i>OUTPUT POWER</i> | 17 |
| 7.1.4. <i>AVERAGE POWER</i> | 21 |
| 7.1.5. <i>POWER SPECTRAL DENSITY</i> | 22 |
| 7.1.6. <i>CONDUCTED SPURIOUS EMISSIONS</i> | 26 |
| 8. RADIATED TEST RESULTS | 33 |
| 8.1. <i>LIMITS AND PROCEDURE</i> | 33 |
| 8.2. <i>TRANSMITTER ABOVE 1 GHz</i> | 34 |
| 8.2.1. <i>TX ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND</i> | 34 |
| 8.2.2. <i>TX ABOVE 1 GHz FOR 802.11g MODE IN THE 2.4 GHz BAND</i> | 43 |
| 8.3. <i>RECEIVER ABOVE 1 GHz</i> | 52 |
| 8.4. <i>WORST-CASE BELOW 1 GHz</i> | 53 |
| 9. SETUP PHOTOS | 55 |

1. ATTESTATION OF TEST RESULTS

COMPANY NAME: INTERMEC TECHNOLOGIES CORP
550 SECOND STREET SE
CEDAR RAPIDS, IOWA, 52401, U.S.A

EUT DESCRIPTION: RUGGEDIZED HANDHELD PDA-TYPE DEVICE w/ DUAL BAND
GSM/GPRS/WCDMA/HSDPA, 802.11 b/g & BT

MODEL: CN4, CN4e

SERIAL NUMBER: 03590990181, 03590990054

DATE TESTED: APRIL 27 – MAY 11, 2009

| APPLICABLE STANDARDS | |
|---|--------------|
| STANDARD | TEST RESULTS |
| CFR 47 Part 15 Subpart C* | Pass |
| INDUSTRY CANADA RSS-210 Issue 7 Annex 8 | Pass |
| INDUSTRY CANADA RSS-GEN Issue 2 | Pass |

* This report covers the radiated portion of 11b and 11g modes, and antenna port testing for 11b mode, for antenna port for 11g mode refer to report number ITRM0128

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. 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 CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS 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:

Tested By:



FRANK IBRAHIM
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

TOM CHEN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15, RSS-GEN Issue 2, and RSS-210 Issue 7.

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. MEASUREMENT UNCERTAINTY

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

| PARAMETER | UNCERTAINTY |
|-------------------------------|-------------|
| Power Line Conducted Emission | +/- 2.3 dB |
| Radiated Emission | +/- 3.4 dB |

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a ruggedized handheld PDA-type device w/ dual band GSM/GPRS/WCDMA/HSDPA, 802.11 B/G & BT.

5.2. DESCRIPTION OF MODEL(S) DIFFERENCES

CN4 is standard and CN4e is extended, both are available with numeric or QWERTY keypads.

CN4e with QWERTY keypad was selected as a representative model for radiated emissions and radiated immunity testing.

5.3. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak conducted output power in the 11b mode as follows:

| Frequency Range (MHz) | Mode | Output Power (dBm) | Output Power (mW) |
|-----------------------|---------|--------------------|-------------------|
| 2412 - 2462 | 802.11b | 18.43 | 69.66 |

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes a PFIA antenna, with a maximum gain of -0.045 dBi.

5.5. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was v.20961.

The test utility software used during testing was FCC Test Utility ver1.01 rev.

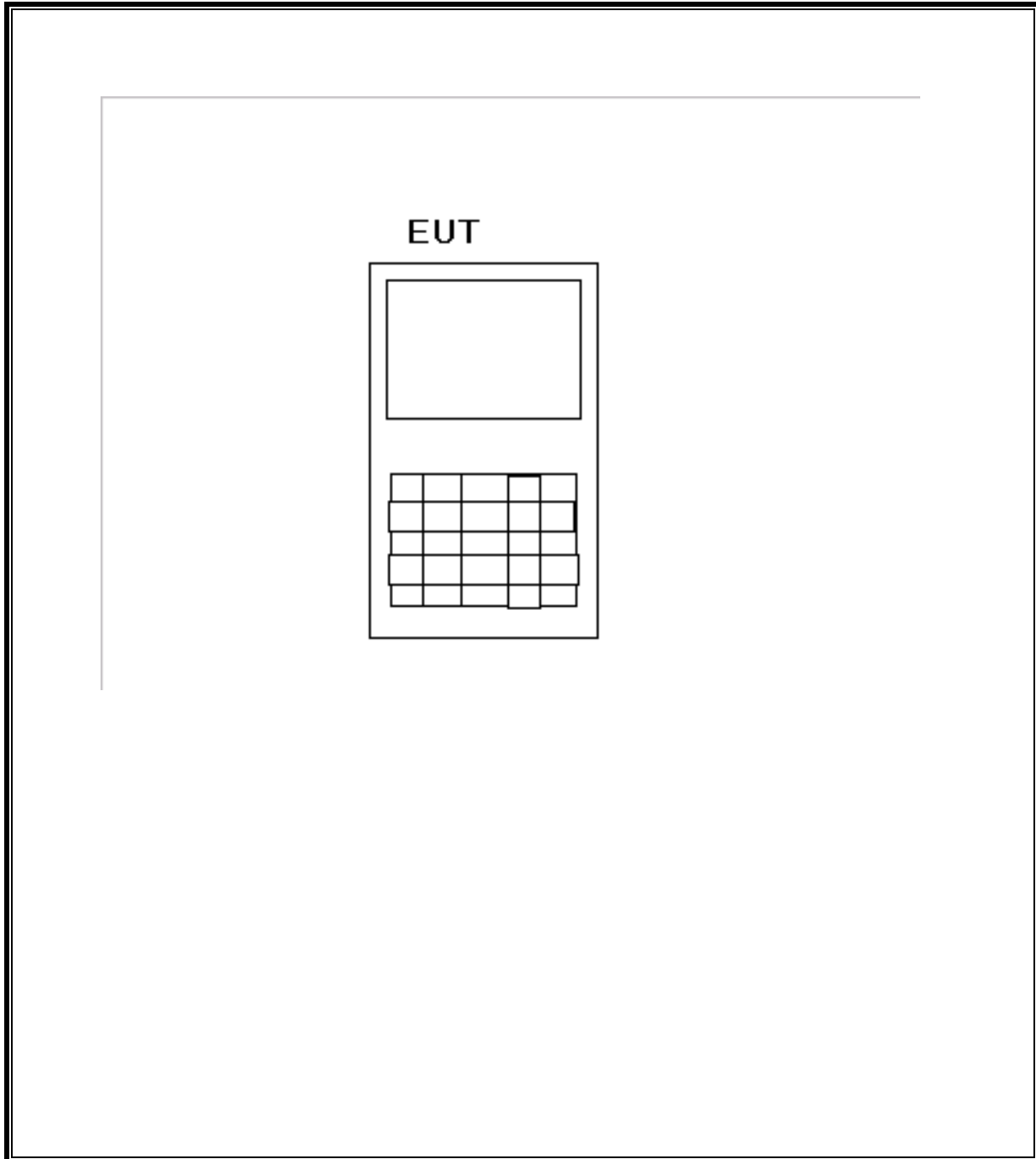
5.6. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined as the channel with the highest output power.

5.7. DESCRIPTION OF TEST SETUP

TEST SETUP

SETUP DIAGRAM FOR 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 | Asset | Cal Date | Cal Due |
| Spectrum Analyzer, 44 GHz | Agilent / HP | E4446A | C01159 | 39759 | 02/07/10 |
| Antenna, Bilog, 2 GHz | Sunol Sciences | JB1 | C01011 | 39827 | 01/14/10 |
| Preamplifier, 1300 MHz | Agilent / HP | 8447D | C00885 | 39798 | 12/16/09 |
| Preamplifier, 26.5 GHz | Agilent / HP | 8449B | C01052 | 39848 | 02/04/10 |
| Antenna, Horn, 18 GHz | EMCO | 3115 | C00945 | 39560 | 04/22/10 |
| EMI Test Receiver, 30 MHz | R & S | ESHS 20 | N02396 | 39484 | 08/06/09 |
| LISN, 30 MHz | FCC | LISN-50/250-25-2 | N02625 | 39750 | 10/29/09 |

7. ANTENNA PORT TEST RESULTS

7.1. 802.11b MODE IN THE 2.4 GHz BAND

7.1.1. 6 dB BANDWIDTH

LIMITS

FCC §15.247 (a) (2)

IC RSS-210 A8.2 (a)

The minimum 6 dB bandwidth shall be at least 500 kHz.

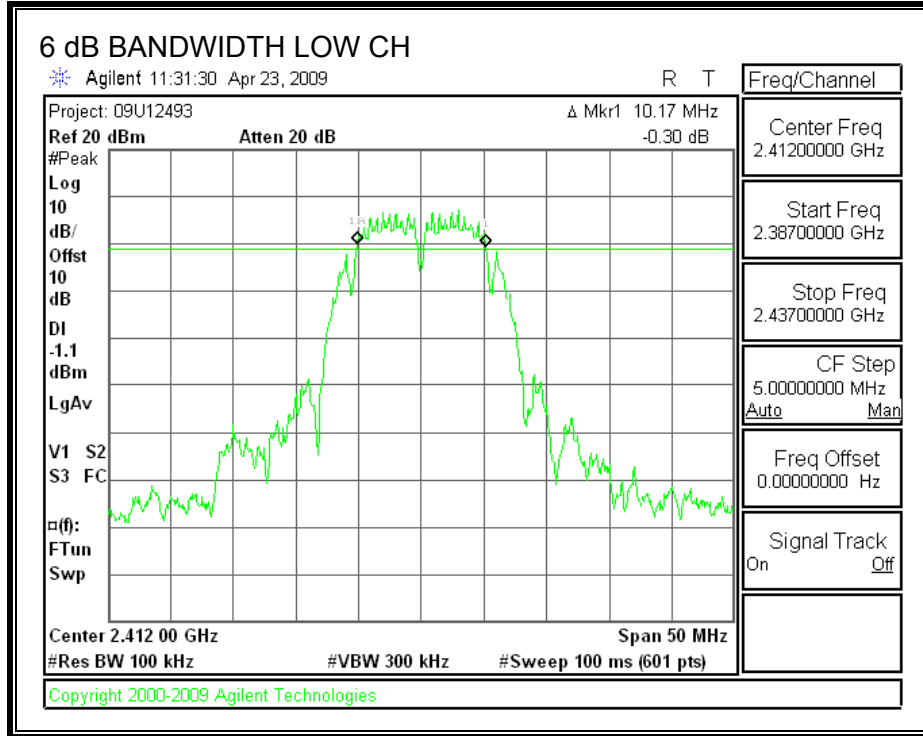
TEST PROCEDURE

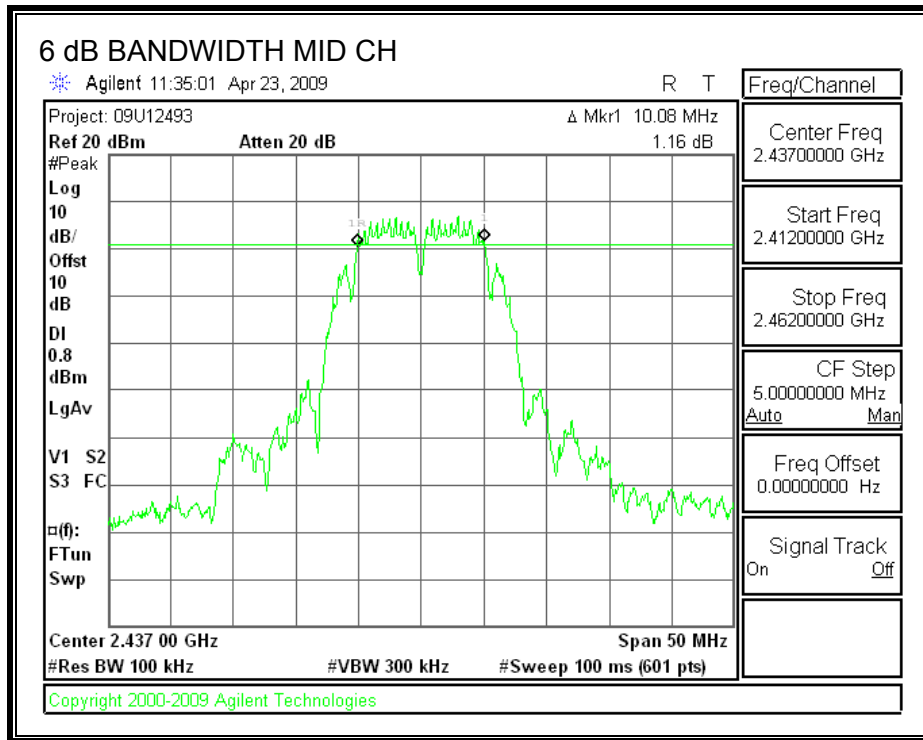
The transmitter output is connected to a spectrum analyzer. The RBW is set to 100 kHz and the VBW is set to 300 kHz. The sweep time is coupled.

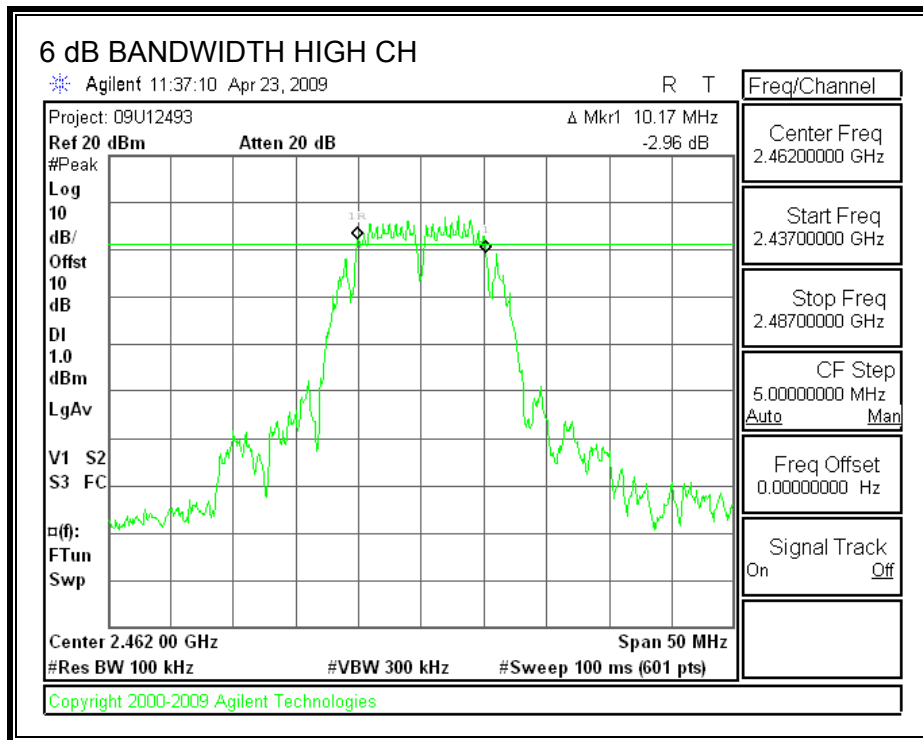
RESULTS

| Channel | Frequency (MHz) | 6 dB Bandwidth (MHz) | Minimum Limit (MHz) |
|---------|-----------------|----------------------|---------------------|
| Low | 2412 | 10.17 | 0.5 |
| Middle | 2437 | 10.08 | 0.5 |
| High | 2462 | 10.17 | 0.5 |

6 dB BANDWIDTH







7.1.2. 99% BANDWIDTH

LIMITS

None; for reporting purposes only.

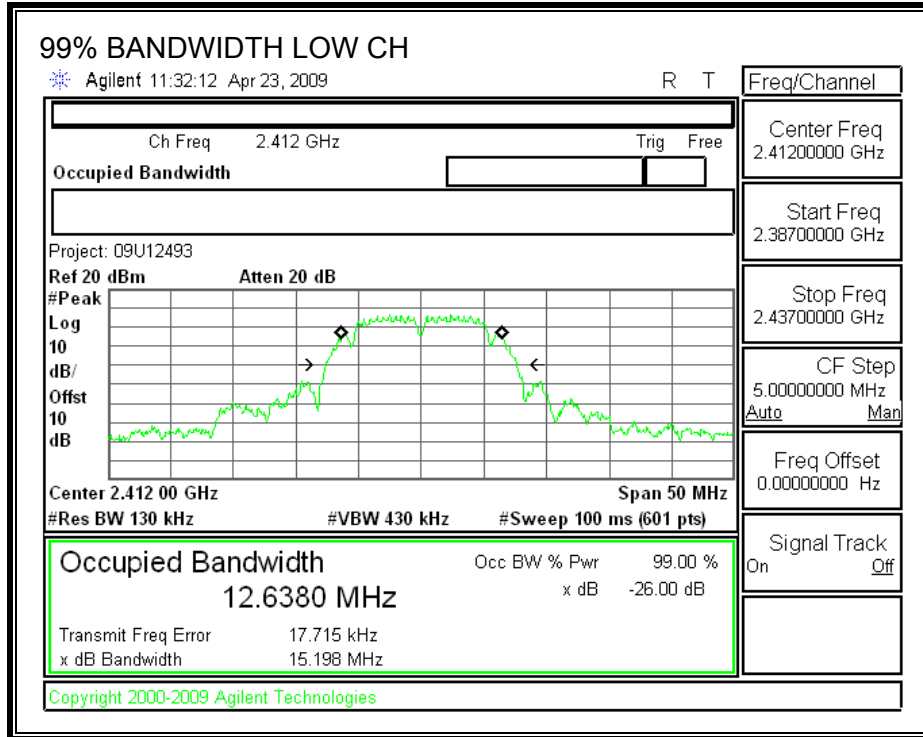
TEST PROCEDURE

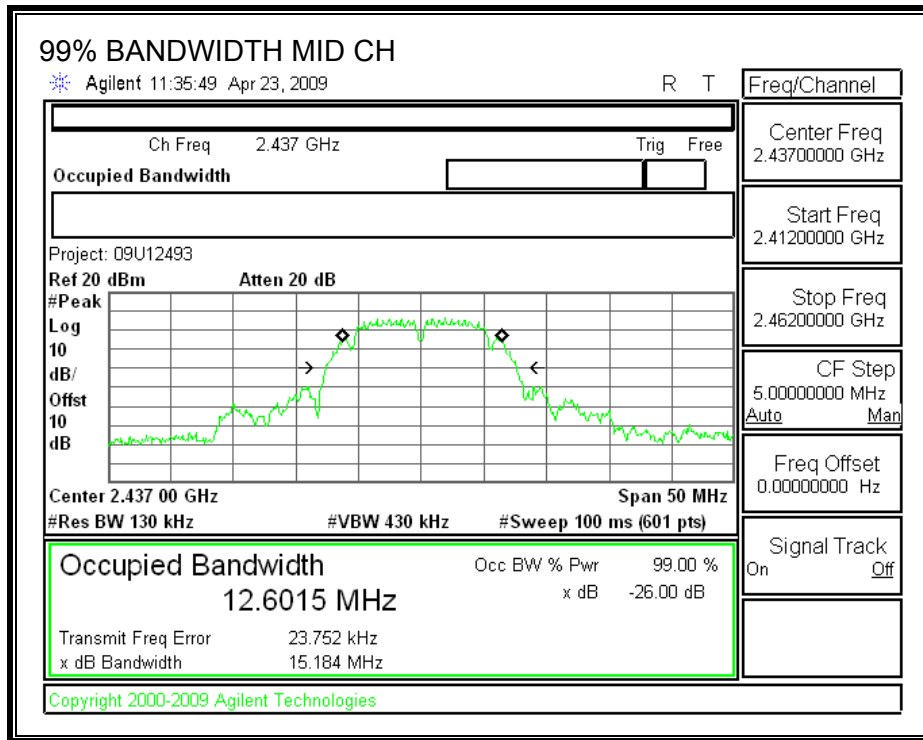
The transmitter output is connected to the spectrum analyzer. The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

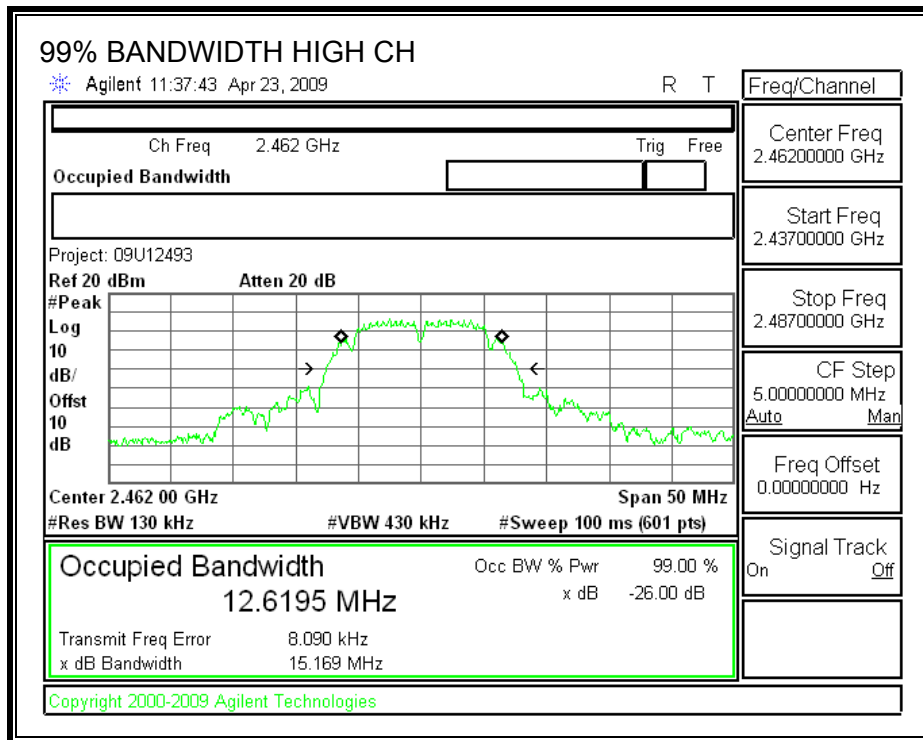
RESULTS

| Channel | Frequency (MHz) | 99% Bandwidth (MHz) |
|---------|-----------------|---------------------|
| Low | 2412 | 12.6380 |
| Middle | 2437 | 12.6015 |
| High | 2462 | 12.6195 |

99% BANDWIDTH







7.1.3. OUTPUT POWER

LIMITS

FCC §15.247 (b)

IC RSS-210 A8.4

The maximum antenna gain is less than or equal to 6 dBi, therefore the limit is 30 dBm.

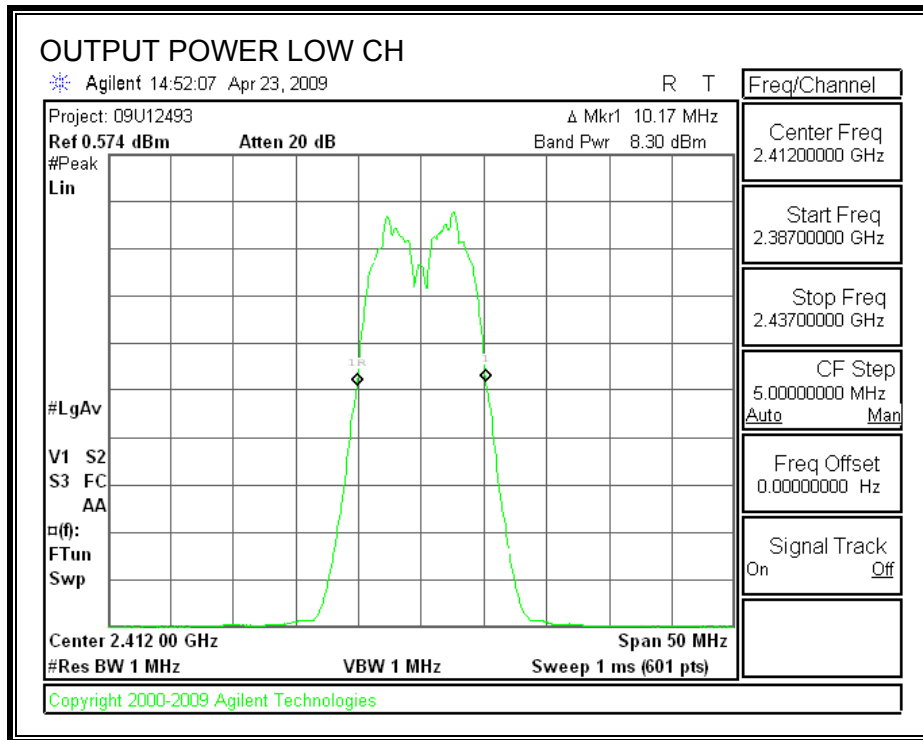
TEST PROCEDURE

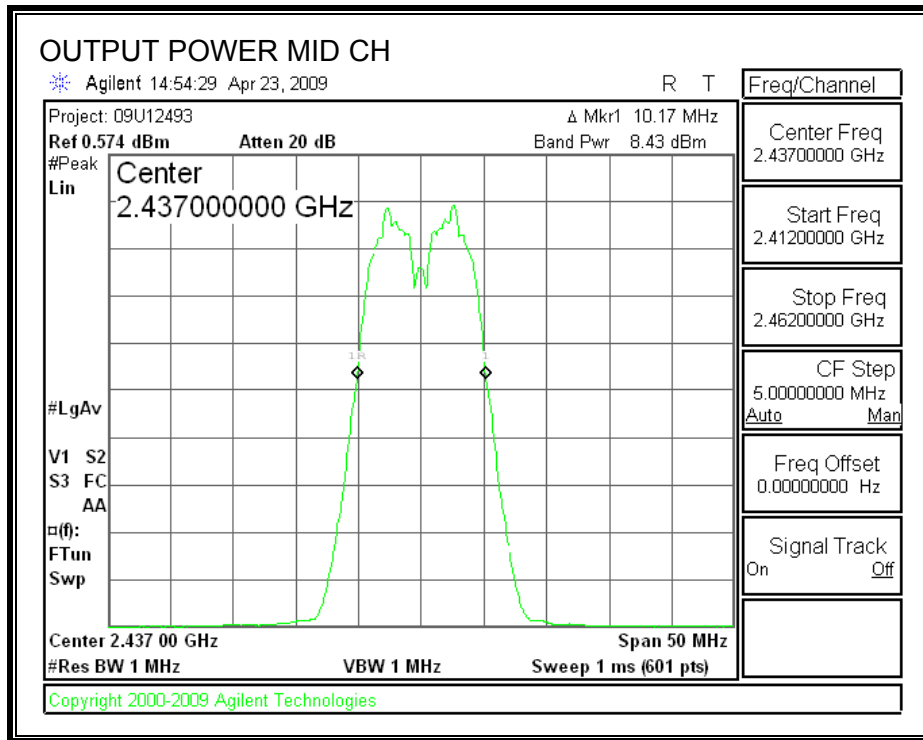
Peak power is measured using the Channel bandwidth Alternative peak output power procedure specified in "TCB Training for Devices covered under Scopes A1 - A4" by Joe Dichoso, May 2003.

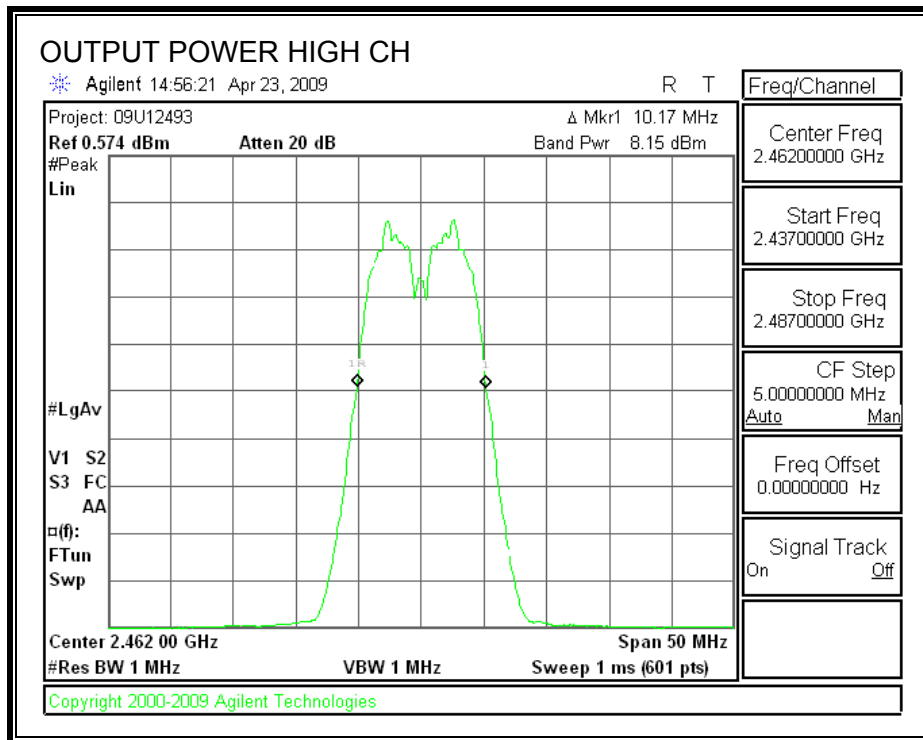
RESULTS

| Channel | Frequency (MHz) | Spectrum Analyzer Reading (dBm) | Attenuator and Cable Offset (dB) | Output Power (dBm) | Limit (dBm) | Margin (dB) |
|---------|--------------------|---------------------------------------|--|--------------------------|----------------|----------------|
| Low | 2412 | 8.3 | 10 | 18.30 | 30 | -11.70 |
| Middle | 2437 | 8.43 | 10 | 18.43 | 30 | -11.57 |
| High | 2462 | 8.15 | 10 | 18.15 | 30 | -11.85 |

OUTPUT POWER







7.1.4. AVERAGE POWER

LIMITS

None; for reporting purposes only.

TEST PROCEDURE

The transmitter output is connected to a power meter.

RESULTS

The cable assembly insertion loss of 10 dB (including 10 dB pad) was entered as an offset in the power meter to allow for direct reading of power.

| Channel | Frequency (MHz) | Power (dBm) |
|---------|-----------------|-------------|
| Low | 2412 | 15.67 |
| Middle | 2437 | 15.45 |
| High | 2462 | 15.54 |

7.1.5. POWER SPECTRAL DENSITY

LIMITS

FCC §15.247 (e)

IC RSS-210 A8.2 (b)

The power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

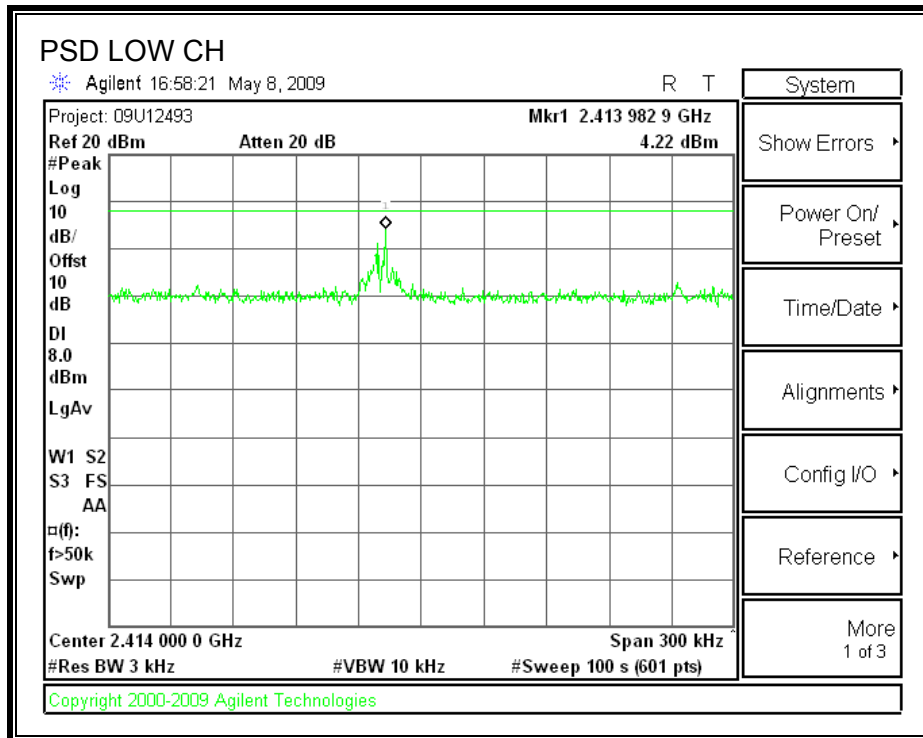
TEST PROCEDURE

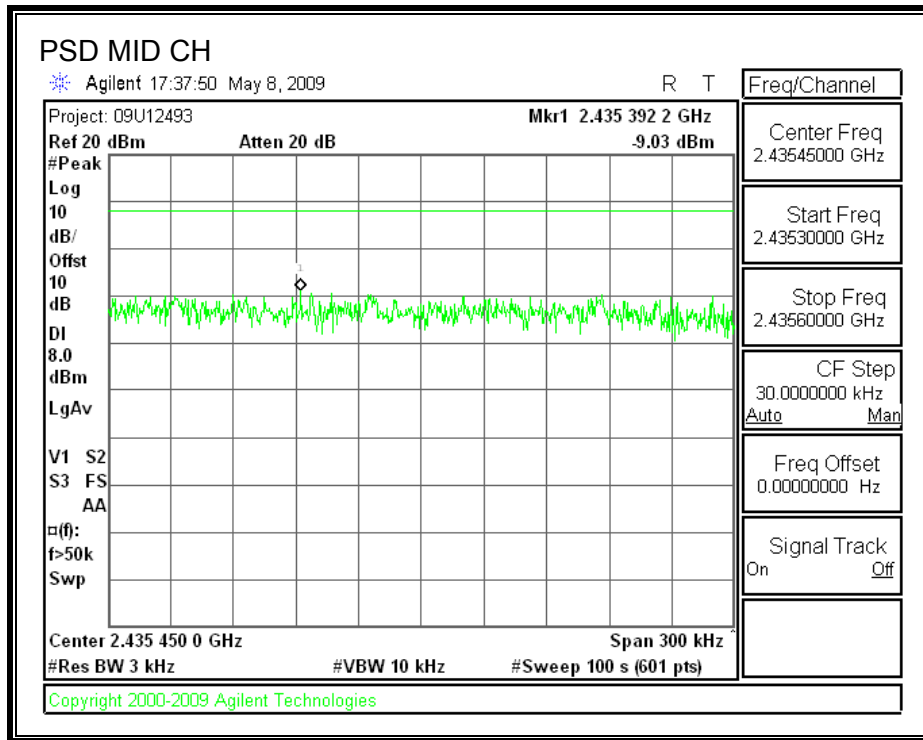
Output power was measured based on the use of a peak measurement, therefore the power spectral density was measured using PSD Option 1 in accordance with FCC document "Measurement of Digital Transmission Systems Operating under Section 15.247", March 23, 2005.

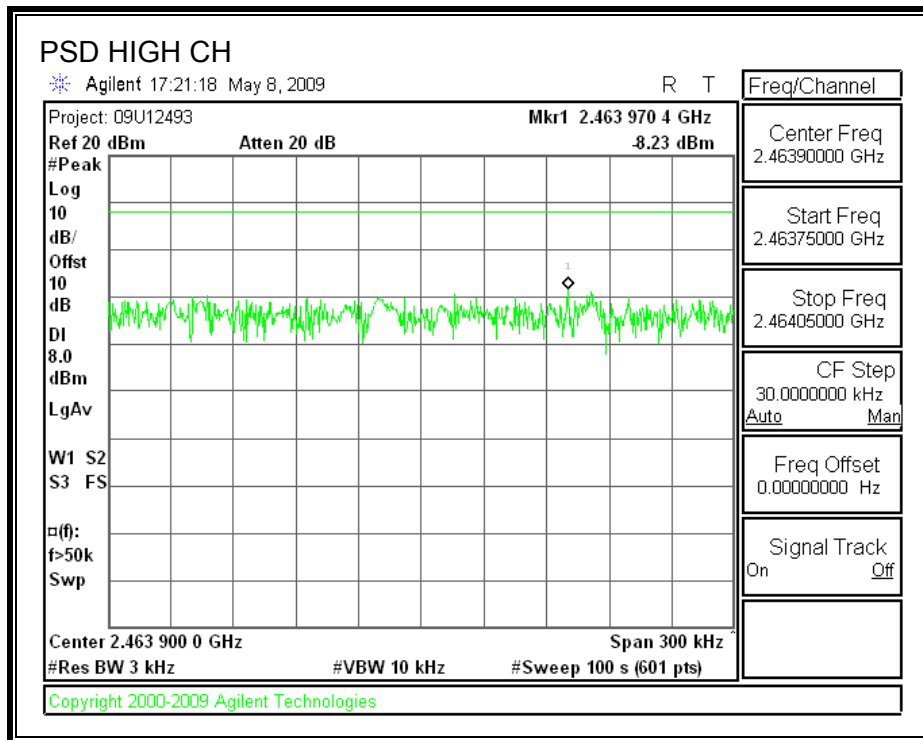
RESULTS

| Channel | Frequency (MHz) | PPSD (dBm) | Limit (dBm) | Margin (dB) |
|---------|-----------------|------------|-------------|-------------|
| Low | 2412 | 4.22 | 8 | -3.78 |
| Middle | 2437 | -9.03 | 8 | -17.03 |
| High | 2462 | -8.23 | 8 | -16.23 |

POWER SPECTRAL DENSITY







7.1.6. CONDUCTED SPURIOUS EMISSIONS

LIMITS

FCC §15.247 (d)

IC RSS-210 A8.5

Output power was measured based on the use of a peak measurement, therefore the required attenuation is 20 dB.

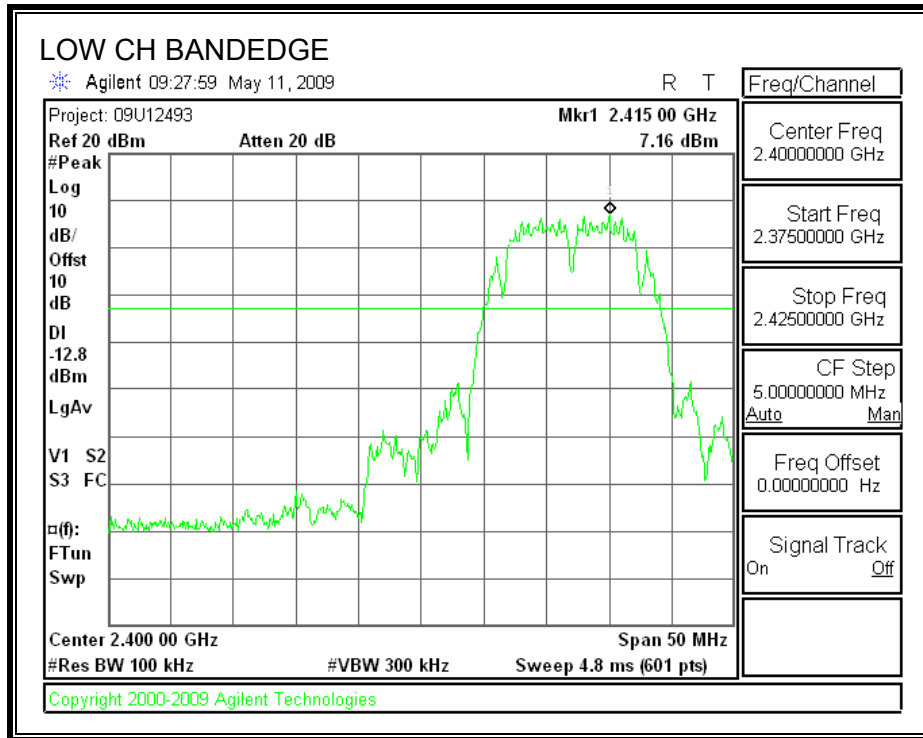
TEST PROCEDURE

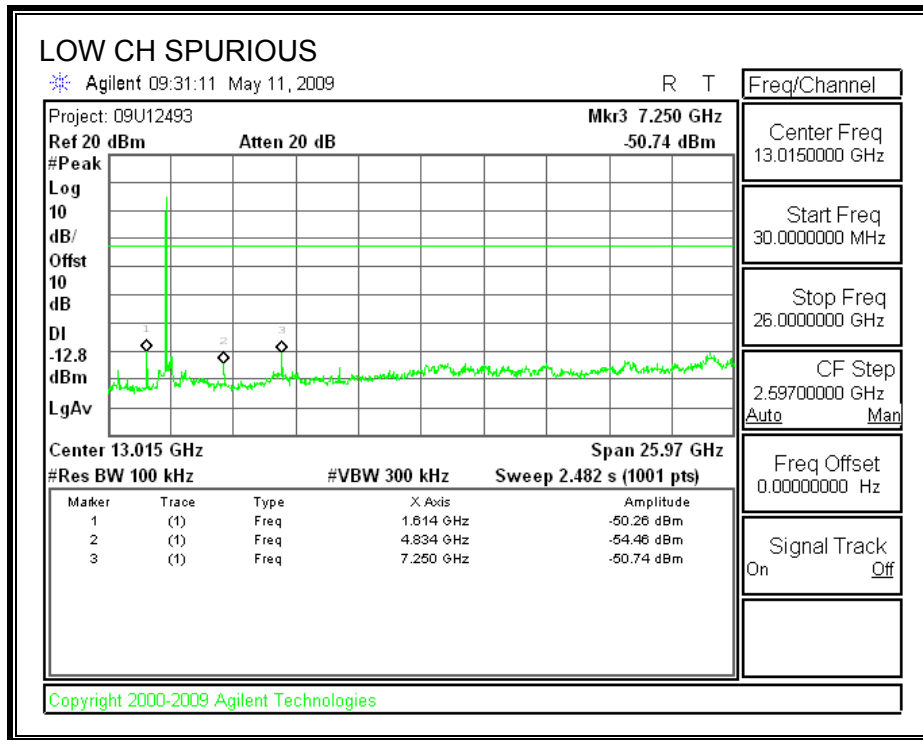
The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

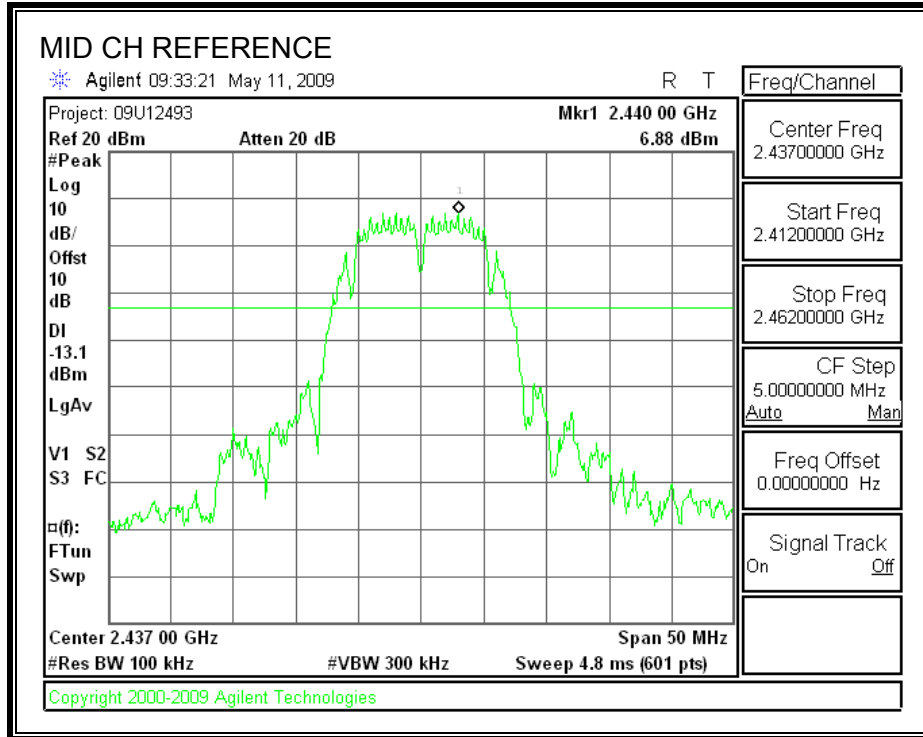
RESULTS

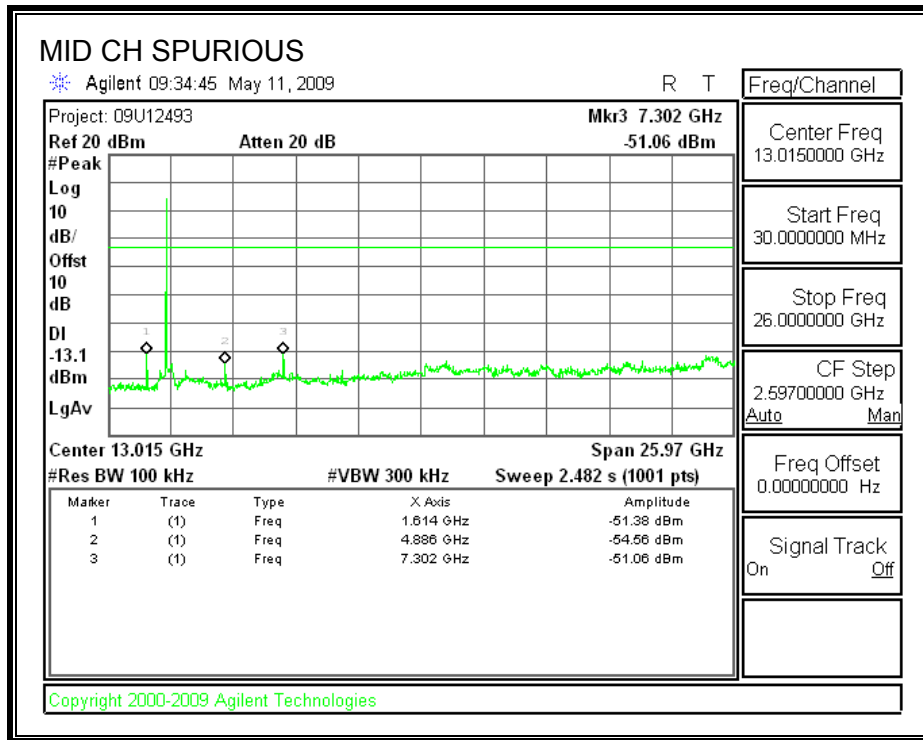
SPURIOUS EMISSIONS, LOW CHANNEL



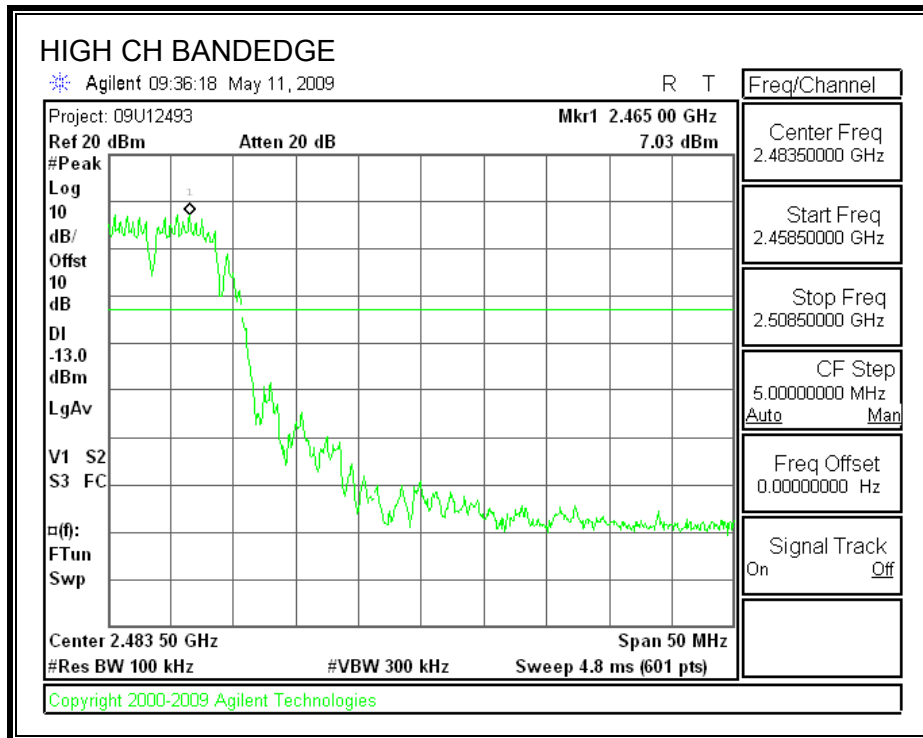


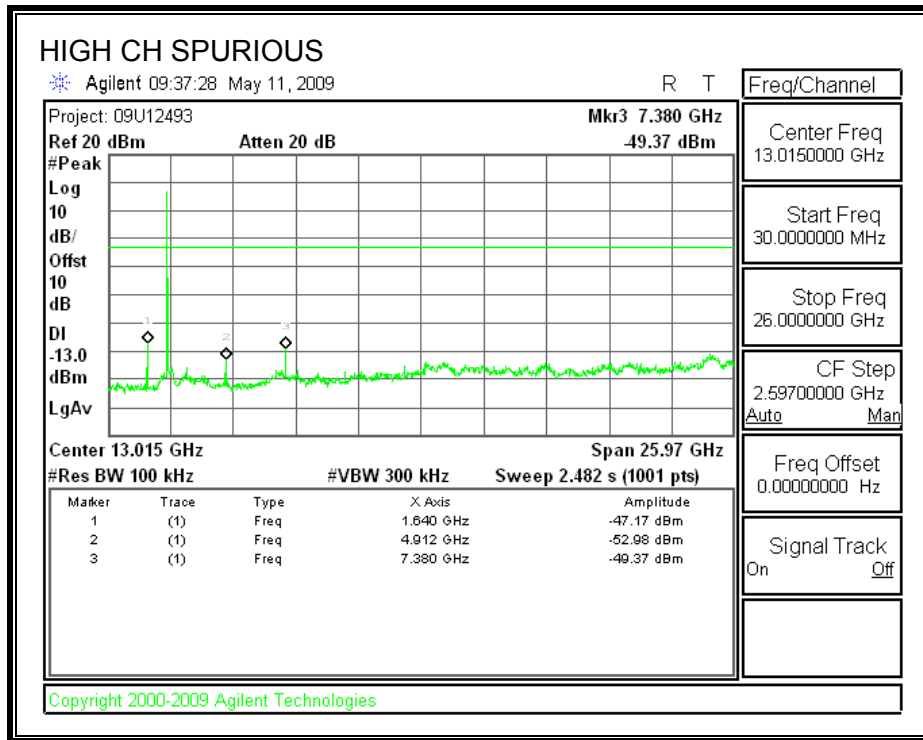
SPURIOUS EMISSIONS, MID CHANNEL





SPURIOUS EMISSIONS, HIGH CHANNEL





8. RADIATED TEST RESULTS

8.1. LIMITS AND PROCEDURE

LIMITS

FCC §15.205 and §15.209

IC RSS-210 Clause 2.6 (Transmitter)

IC RSS-GEN Clause 6 (Receiver)

| Frequency Range (MHz) | Field Strength Limit (uV/m) at 3 m | Field Strength Limit (dBuV/m) at 3 m |
|-----------------------|------------------------------------|--------------------------------------|
| 30 - 88 | 100 | 40 |
| 88 - 216 | 150 | 43.5 |
| 216 - 960 | 200 | 46 |
| Above 960 | 500 | 54 |

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to transmit in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 26 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in the 2.4 GHz band.

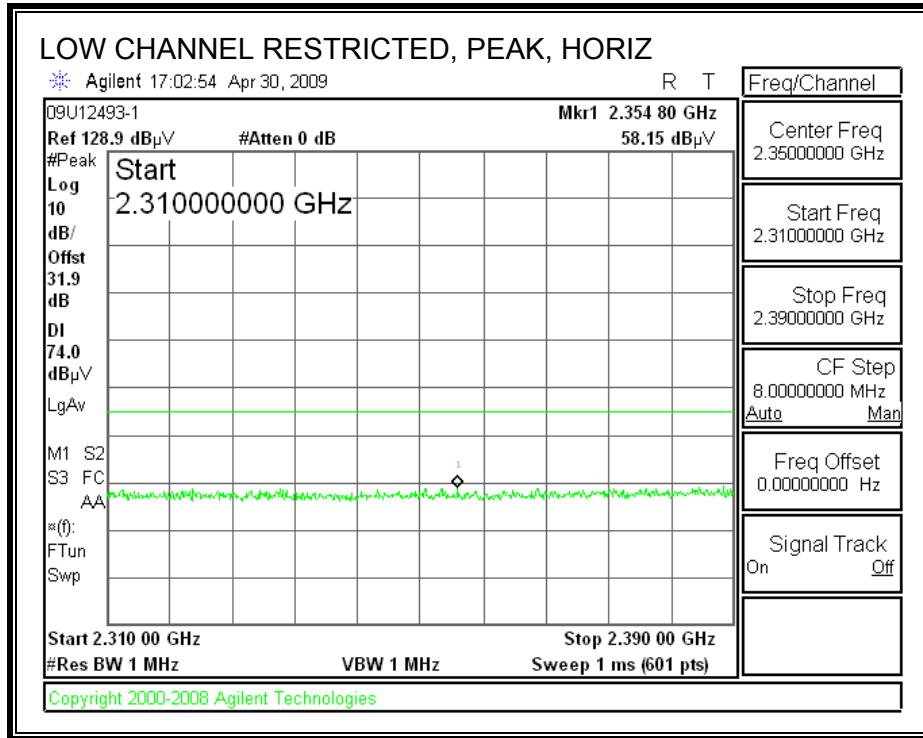
The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels in each applicable band.

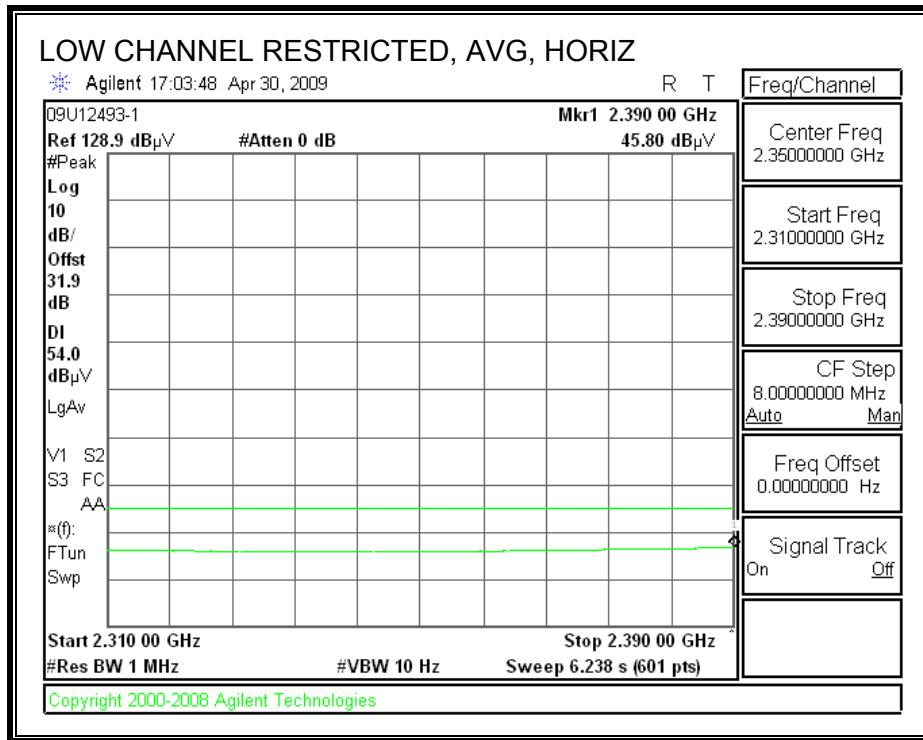
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

8.2. TRANSMITTER ABOVE 1 GHz

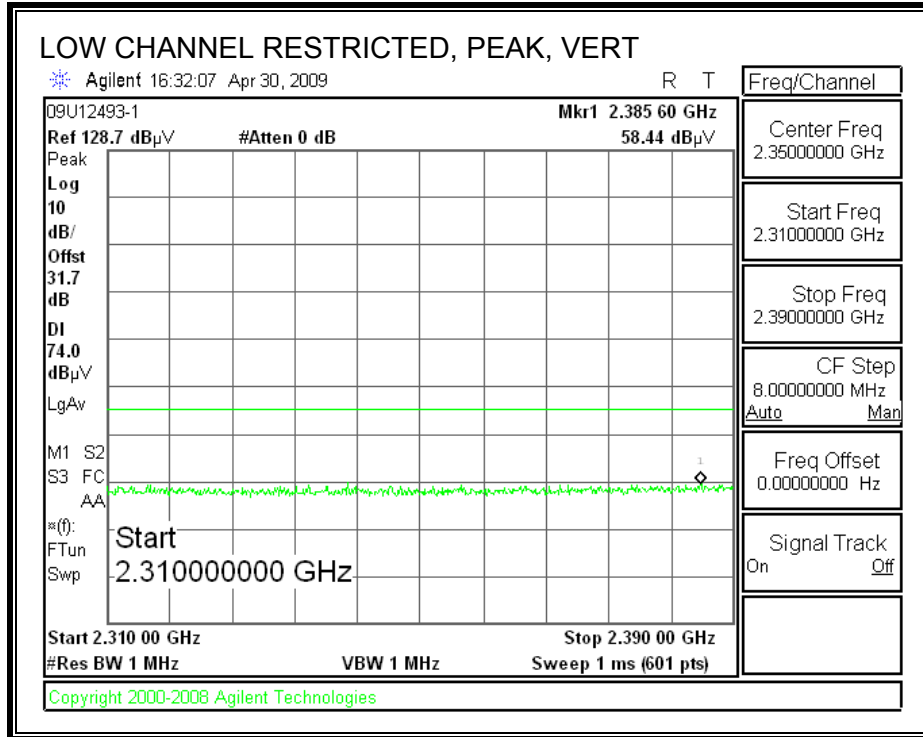
8.2.1. TX ABOVE 1 GHz FOR 802.11b MODE IN THE 2.4 GHz BAND

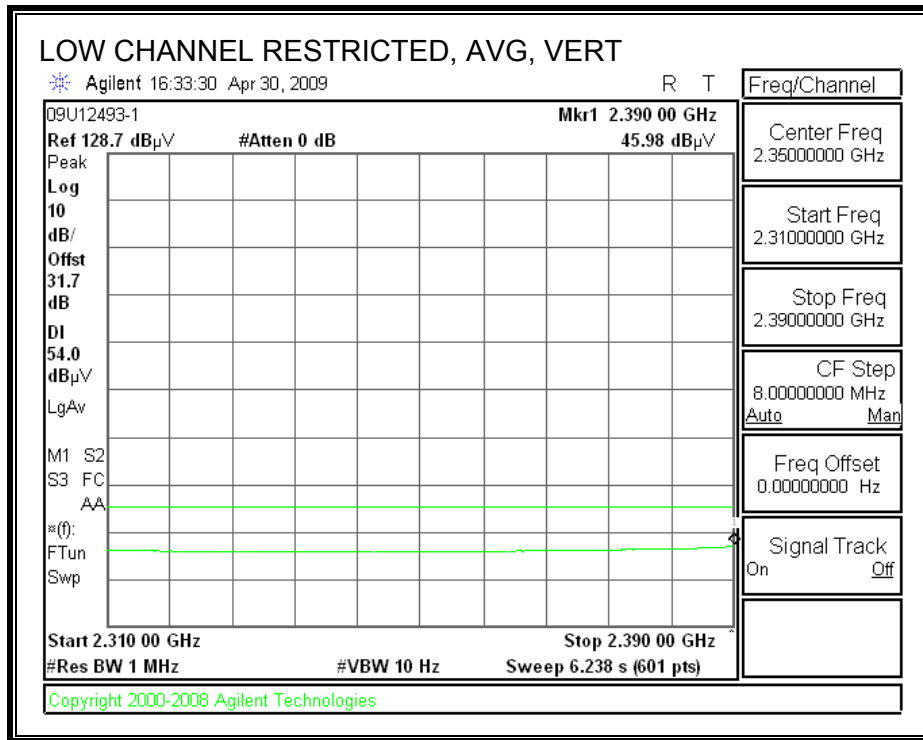
RESTRICTED BANDEDGE (LOW CHANNEL, HORIZONTAL)



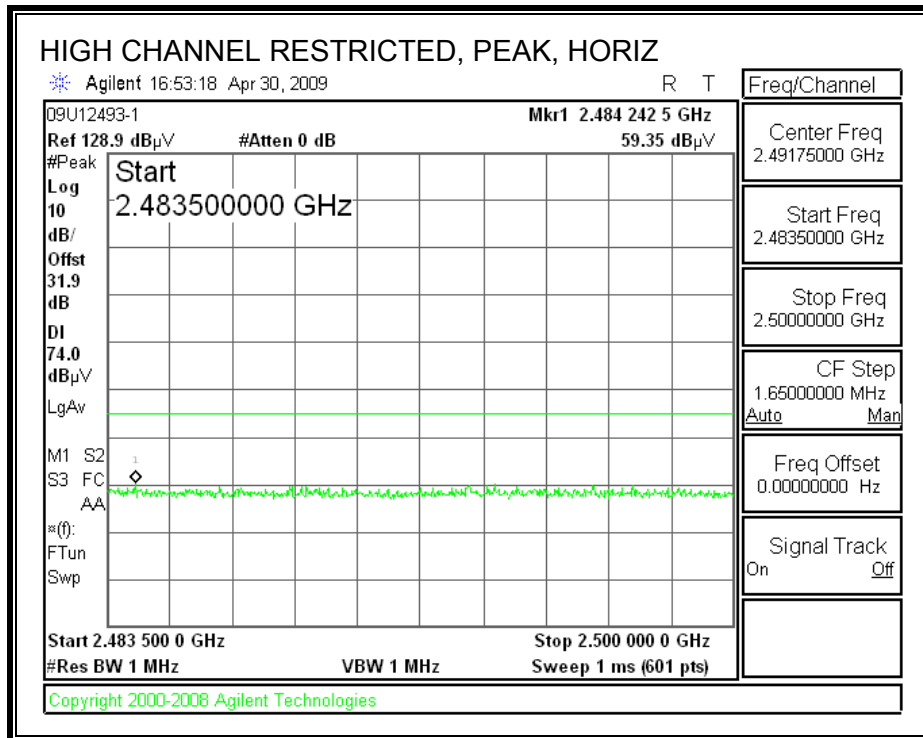


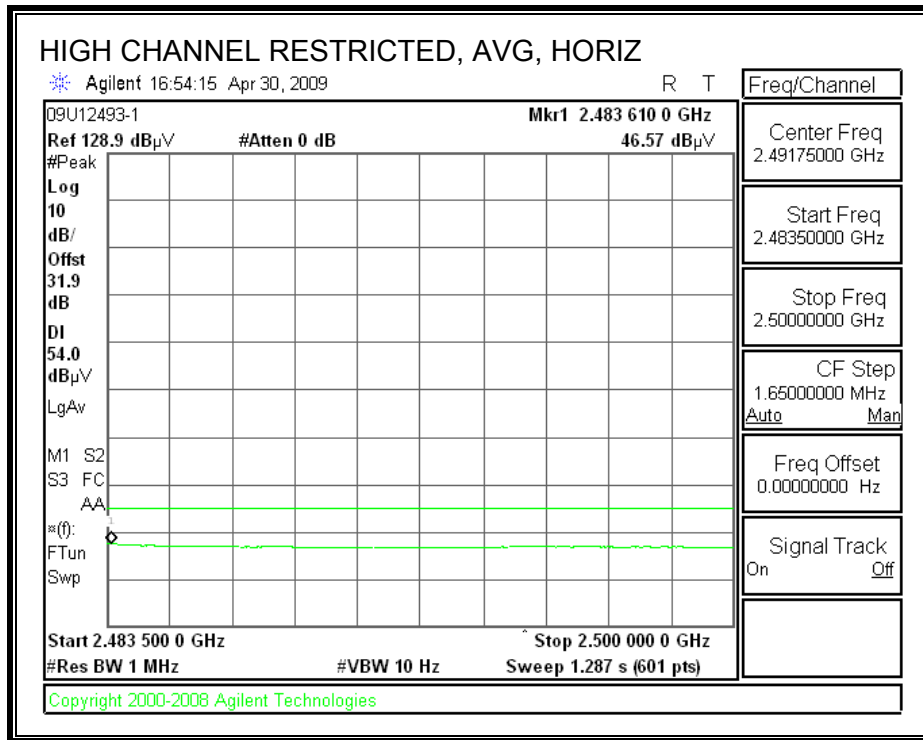
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



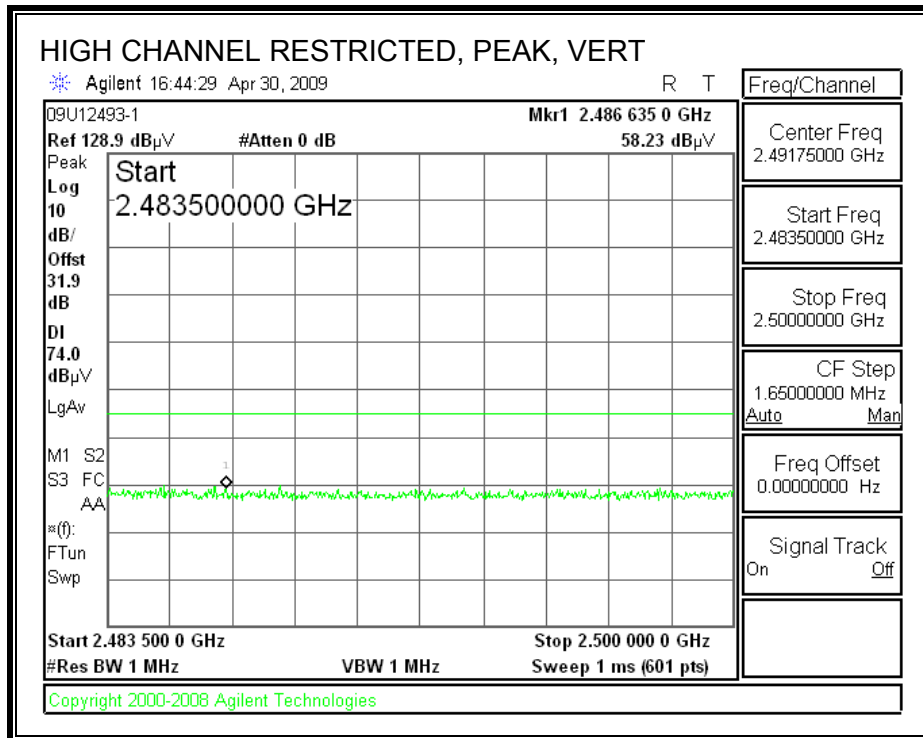


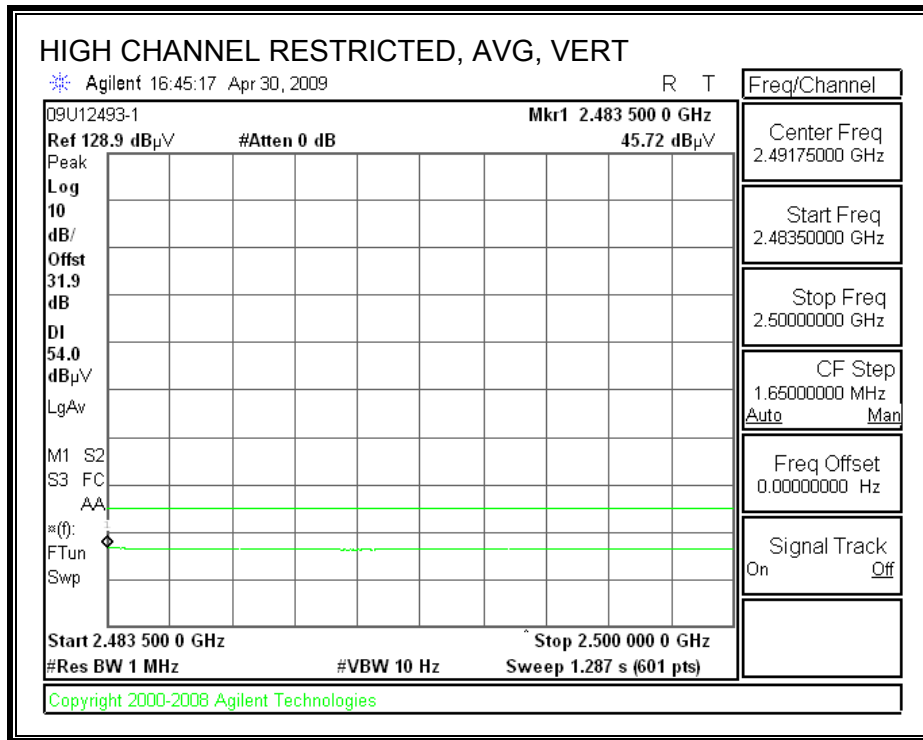
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Intermed
 Project #: 09U12493
 Date: 4/30/2009
 Test Engineer: Tom Chen
 Configuration: EUT only
 Mode: TX, b mode, L/M/H

Test Equipment:

| | | | | |
|--------------------|------------------------|------------------------|--------------|------------|
| Horn 1-18GHz | Pre-amplifier 1-26GHz | Pre-amplifier 26-40GHz | Horn > 18GHz | Limit |
| T59; S/N: 3245 @3m | T145 Agilent 3008A0056 | | | FCC 15.209 |

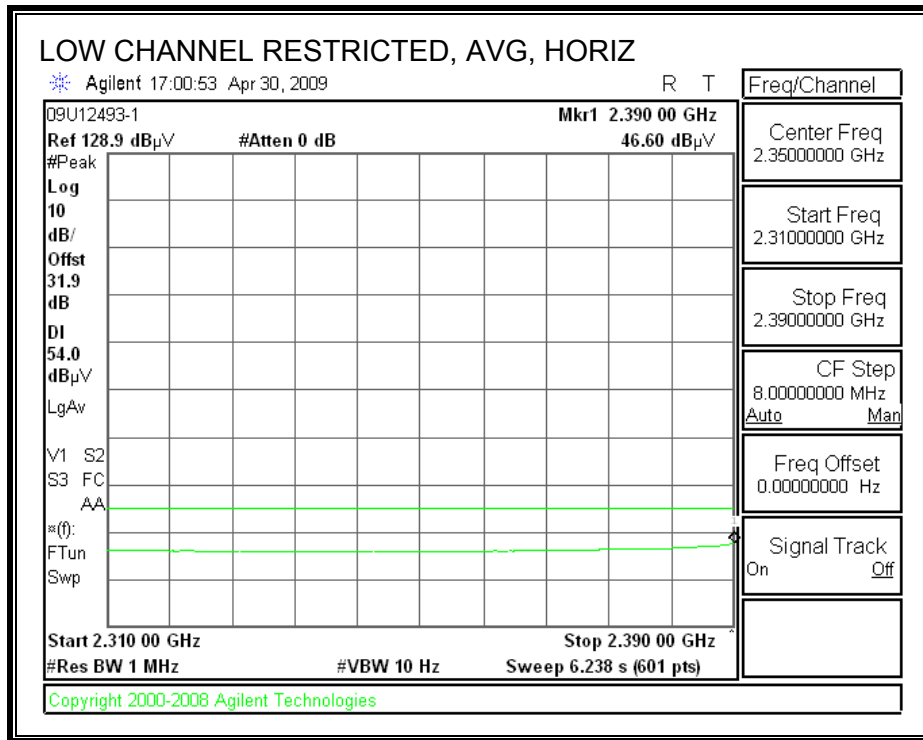
Hi Frequency Cables

| | | | | | |
|-------------------|--------------------|--------------------|-----|---------------|---|
| 3' cable 22807700 | 12' cable 22807600 | 20' cable 22807500 | HPF | Reject Filter | Peak Measurements RBW=VEW=1MHz |
| 3' cable 22807700 | 12' cable 22807600 | 20' cable 22807500 | | R_001 | Average Measurements RBW=1MHz ; VBW=10Hz |

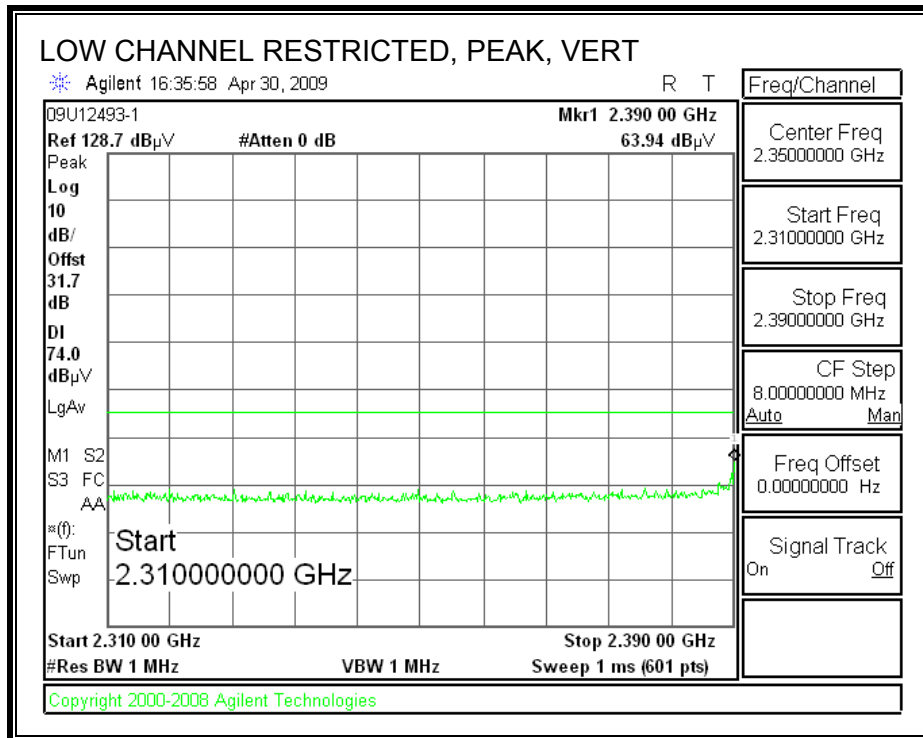
| f GHz | Dist (m) | Read Pk dBuV | Read Avg. dBuV | AF dB/m | CL dB | Amp dB | D Corr dB | Fltr dB | Peak dBuV/m | Avg dBuV/m | Pk Lim dBuV/m | Avg Lim dBuV/m | Pk Mar dB | Avg Mar dB | Notes (V/H) |
|------------------------|-------------|-----------------|-------------------|------------|----------|-----------|--------------|------------|----------------|---------------|------------------|-------------------|--------------|---------------|----------------|
| b mode | | | | | | | | | | | | | | | |
| Low CH 2412 MHz | | | | | | | | | | | | | | | |
| 4.824 | 3.0 | 41.5 | 34.5 | 32.8 | 5.8 | -34.8 | 0.0 | 0.0 | 45.2 | 38.2 | 74 | 54 | -28.8 | -15.8 | H |
| 7.236 | 3.0 | 41.9 | 34.3 | 35.1 | 7.2 | -34.7 | 0.0 | 0.0 | 49.5 | 41.9 | 74 | 54 | -24.5 | -12.1 | H |
| 4.824 | 3.0 | 41.3 | 33.8 | 32.8 | 5.8 | -34.8 | 0.0 | 0.0 | 45.0 | 37.5 | 74 | 54 | -29.0 | -16.5 | V |
| 7.236 | 3.0 | 41.3 | 33.8 | 35.1 | 7.2 | -34.7 | 0.0 | 0.0 | 48.9 | 41.4 | 74 | 54 | -25.1 | -12.6 | V |
| Mid CH 2437 MHz | | | | | | | | | | | | | | | |
| 4.874 | 3.0 | 41.1 | 33.6 | 32.8 | 5.8 | -34.9 | 0.0 | 0.0 | 44.9 | 37.4 | 74 | 54 | -29.1 | -16.6 | H |
| 7.311 | 3.0 | 43.5 | 37.9 | 35.2 | 7.3 | -34.7 | 0.0 | 0.0 | 51.3 | 45.7 | 74 | 54 | -22.7 | -8.3 | H |
| 4.874 | 3.0 | 41.7 | 33.6 | 32.8 | 5.8 | -34.9 | 0.0 | 0.0 | 45.5 | 37.4 | 74 | 54 | -28.5 | -16.6 | V |
| 7.311 | 3.0 | 43.1 | 37.3 | 35.2 | 7.3 | -34.7 | 0.0 | 0.0 | 50.9 | 45.1 | 74 | 54 | -23.1 | -8.9 | V |
| Hi CH 2462 MHz | | | | | | | | | | | | | | | |
| 4.924 | 3.0 | 43.4 | 37.5 | 32.8 | 5.9 | -34.9 | 0.0 | 0.0 | 47.3 | 41.4 | 74 | 54 | -26.7 | -12.6 | H |
| 7.386 | 3.0 | 46.3 | 40.3 | 35.3 | 7.3 | -34.6 | 0.0 | 0.0 | 54.3 | 48.3 | 74 | 54 | -19.7 | -5.7 | H |
| 4.924 | 3.0 | 43.7 | 37.2 | 32.8 | 5.9 | -34.9 | 0.0 | 0.0 | 47.6 | 41.1 | 74 | 54 | -26.4 | -12.9 | V |
| 7.386 | 3.0 | 44.3 | 39.7 | 35.3 | 7.3 | -34.6 | 0.0 | 0.0 | 52.3 | 47.7 | 74 | 54 | -21.7 | -6.3 | V |
| | | | | | | | | | | | | | | | H |
| | | | | | | | | | | | | | | | H |

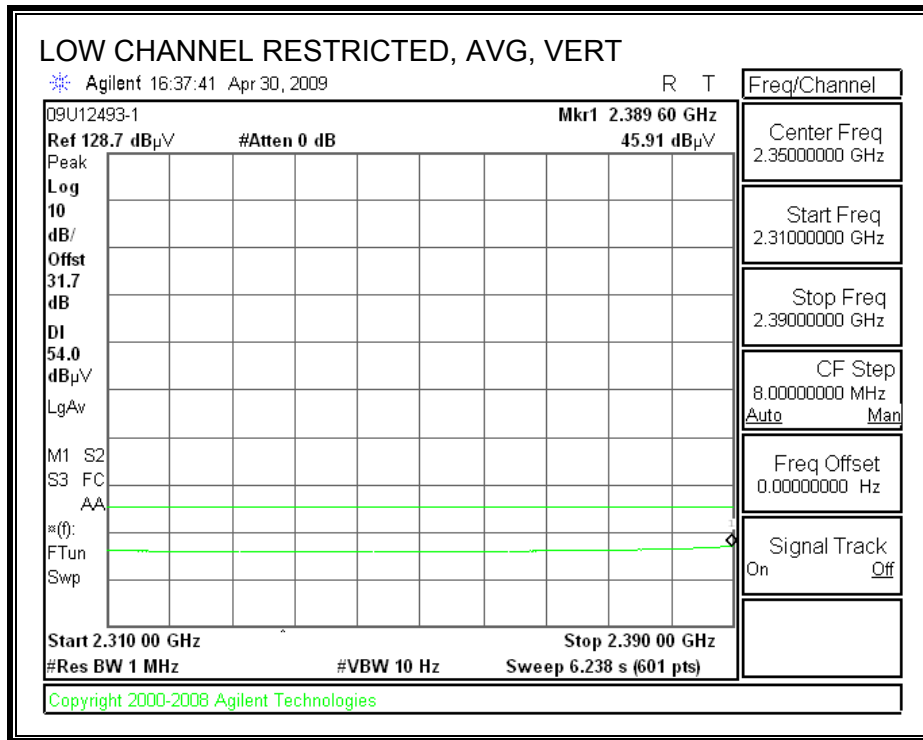
Rev. 11.10.08

| | | | | | |
|------|-----------------------|--------|--------------------------------|---------|------------------------------|
| f | Measurement Frequency | Amp | Preamp Gain | Avg Lim | Average Field Strength Limit |
| Dist | Distance to Antenna | D Corr | Distance Correct to 3 meters | Pk Lim | Peak Field Strength Limit |
| Read | Analyzer Reading | Avg | Average Field Strength @ 3 m | Avg Mar | Margin vs. Average Limit |
| AF | Antenna Factor | Peak | Calculated Peak Field Strength | Pk Mar | Margin vs. Peak Limit |
| CL | Cable Loss | HPF | High Pass Filter | | |

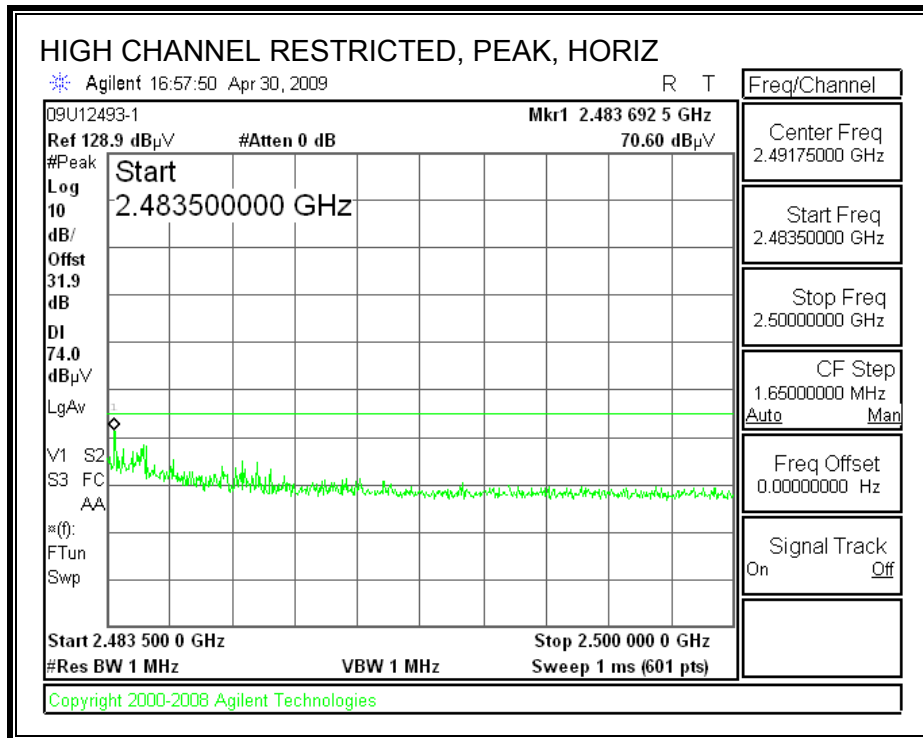


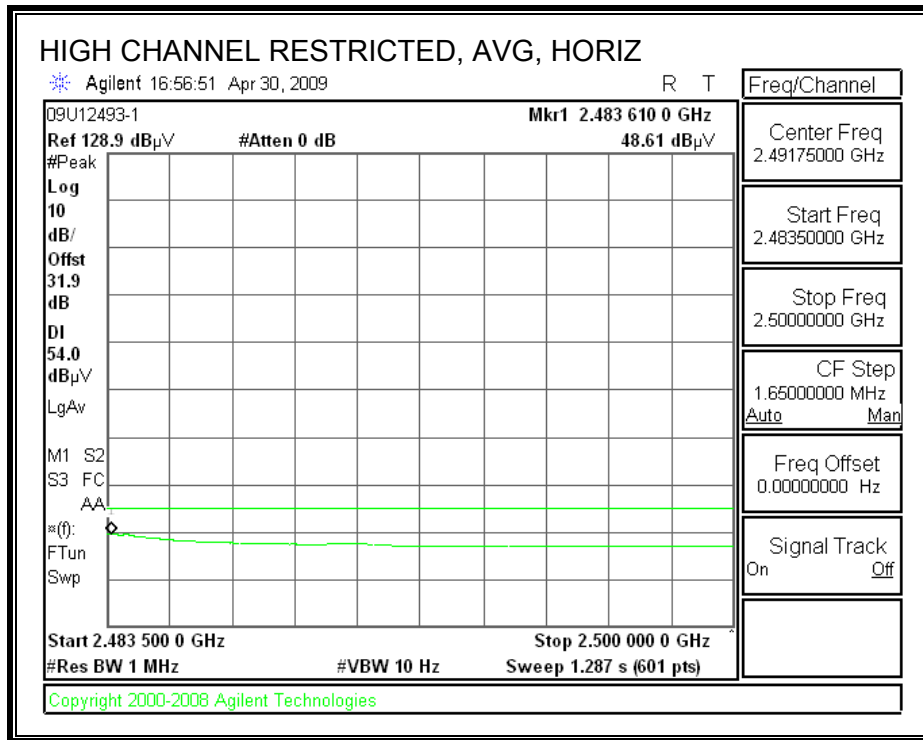
RESTRICTED BANDEDGE (LOW CHANNEL, VERTICAL)



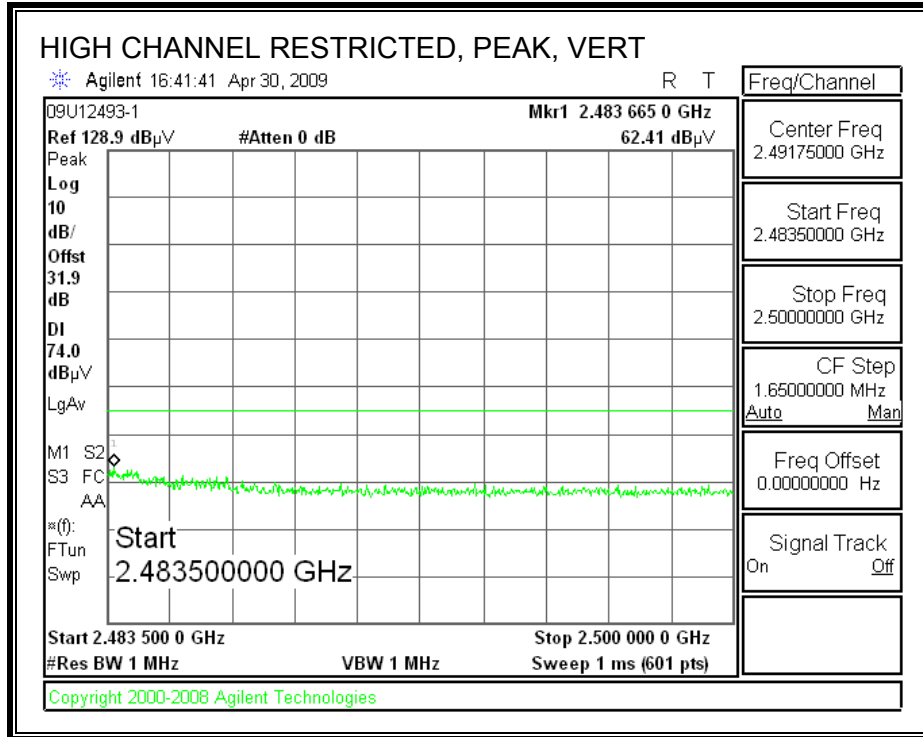


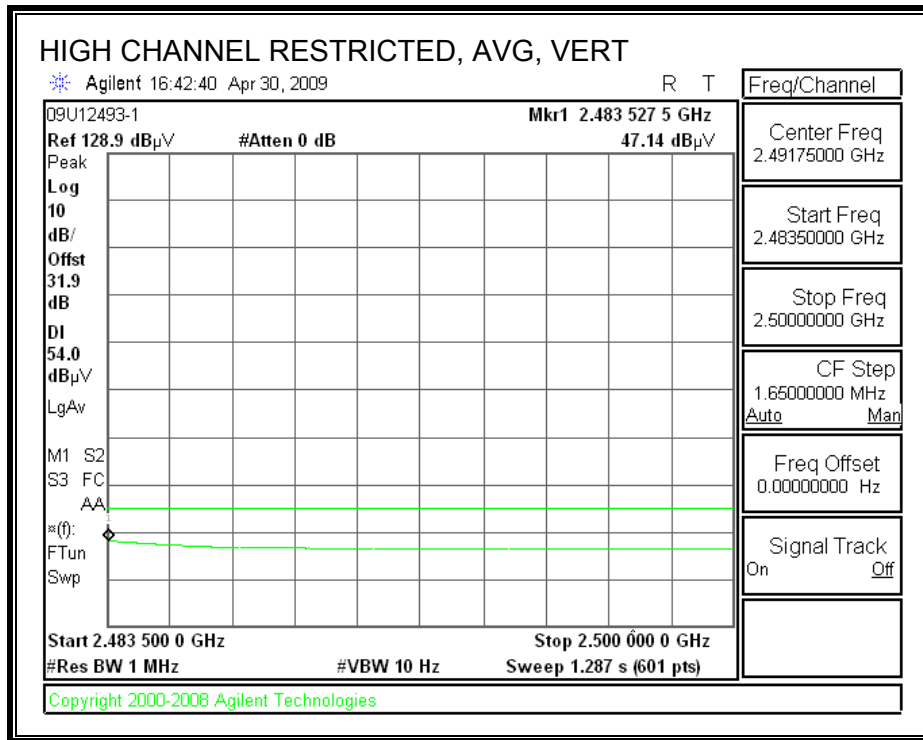
RESTRICTED BANDEDGE (HIGH CHANNEL, HORIZONTAL)





RESTRICTED BANDEDGE (HIGH CHANNEL, VERTICAL)





HARMONICS AND SPURIOUS EMISSIONS

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Intermed
 Project #: 09U12493
 Date: 4/30/2009
 Test Engineer: Tom Chen
 Configuration: EUT only
 Mode: TX, g mode, L/M/H

Test Equipment:

| | | | | |
|--------------------|------------------------|------------------------|--------------|------------|
| Horn 1-18GHz | Pre-amplifier 1-26GHz | Pre-amplifier 26-40GHz | Horn > 18GHz | Limit |
| T59; S/N: 3245 @3m | T145 Agilent 3008A0056 | | | FCC 15.209 |

HI Frequency Cables

| | | | | | |
|-------------------|--------------------|--------------------|-----|---------------|--|
| 3' cable 22807700 | 12' cable 22807600 | 20' cable 22807500 | HPF | Reject Filter | Peak Measurements RBW=VBW=1MHz |
| 3' cable 22807700 | 12' cable 22807600 | 20' cable 22807500 | | R_001 | Average Measurements RBW=1MHz; VBW=10Hz |

| f GHz | Dist (m) | Read Pk dBuV | Read Avg. dBuV | AF dB/m | CL dB | Amp dB | D Corr dB | Fltr dB | Peak dBuV/m | Avg dBuV/m | Pk Lim dBuV/m | Avg Lim dBuV/m | Pk Mar dB | Avg Mar dB | Notes (V/H) |
|------------------------|-------------|-----------------|-------------------|------------|----------|-----------|--------------|------------|----------------|---------------|------------------|-------------------|--------------|---------------|----------------|
| Low CH 2412 MHz | | | | | | | | | | | | | | | |
| 4.824 | 3.0 | 41.4 | 28.4 | 32.8 | 5.8 | -34.8 | 0.0 | 0.0 | 45.1 | 32.1 | 74 | 54 | -28.9 | -21.9 | H |
| 7.236 | 3.0 | 41.5 | 28.7 | 35.1 | 7.2 | -34.7 | 0.0 | 0.0 | 49.1 | 36.3 | 74 | 54 | -24.9 | -17.7 | H |
| 4.824 | 3.0 | 40.7 | 27.6 | 32.8 | 5.8 | -34.8 | 0.0 | 0.0 | 44.4 | 31.3 | 74 | 54 | -29.6 | -22.7 | V |
| 7.236 | 3.0 | 39.7 | 27.3 | 35.1 | 7.2 | -34.7 | 0.0 | 0.0 | 47.3 | 34.9 | 74 | 54 | -26.7 | -19.1 | V |
| Mid CH 2437 MHz | | | | | | | | | | | | | | | |
| 4.874 | 3.0 | 40.9 | 28.4 | 32.8 | 5.8 | -34.9 | 0.0 | 0.0 | 44.7 | 32.2 | 74 | 54 | -29.3 | -21.8 | H |
| 7.311 | 3.0 | 40.7 | 27.9 | 35.2 | 7.3 | -34.7 | 0.0 | 0.0 | 48.5 | 35.7 | 74 | 54 | -25.5 | -18.3 | H |
| 4.874 | 3.0 | 40.5 | 28.1 | 32.8 | 5.8 | -34.9 | 0.0 | 0.0 | 44.3 | 31.9 | 74 | 54 | -29.7 | -22.1 | V |
| 7.311 | 3.0 | 40.6 | 28.3 | 35.2 | 7.3 | -34.7 | 0.0 | 0.0 | 48.4 | 36.1 | 74 | 54 | -25.6 | -17.9 | V |
| Hi CH 2462 MHz | | | | | | | | | | | | | | | |
| 4.924 | 3.0 | 41.8 | 28.5 | 32.8 | 5.9 | -34.9 | 0.0 | 0.0 | 45.7 | 32.4 | 74 | 54 | -28.3 | -21.6 | H |
| 7.386 | 3.0 | 43.4 | 28.8 | 35.3 | 7.3 | -34.6 | 0.0 | 0.0 | 51.4 | 36.8 | 74 | 54 | -22.6 | -17.2 | H |
| 4.924 | 3.0 | 41.7 | 28.3 | 32.8 | 5.9 | -34.9 | 0.0 | 0.0 | 45.6 | 32.2 | 74 | 54 | -28.4 | -21.8 | V |
| 7.386 | 3.0 | 41.5 | 28.3 | 35.3 | 7.3 | -34.6 | 0.0 | 0.0 | 49.5 | 36.3 | 74 | 54 | -24.5 | -17.7 | V |
| H | | | | | | | | | | | | | | | |
| H | | | | | | | | | | | | | | | |

Rev. 11.10.08

| | | | | | |
|------|-----------------------|--------|--------------------------------|---------|------------------------------|
| f | Measurement Frequency | Amp | Preamp Gain | Avg Lim | Average Field Strength Limit |
| Dist | Distance to Antenna | D Corr | Distance Correct to 3 meters | Pk Lim | Peak Field Strength Limit |
| Read | Analyzer Reading | Avg | Average Field Strength @ 3 m | Avg Mar | Margin vs. Average Limit |
| AF | Antenna Factor | Peak | Calculated Peak Field Strength | Pk Mar | Margin vs. Peak Limit |
| CL | Cable Loss | HPF | High Pass Filter | | |

8.3. RECEIVER ABOVE 1 GHz

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: Intermec
 Project #: 09U12493-1
 Date: 5/1/2009
 Test Engineer: Tom Chen
 Configuration: EUT only
 Mode: RX mode

Test Equipment:

| | | | | |
|--------------------|------------------------|------------------------|--------------|------------|
| Horn 1-18GHz | Pre-amplifier 1-26GHz | Pre-amplifier 26-40GHz | Horn > 18GHz | Limit |
| T59; S/N: 3245 @3m | T145 Agilent 3008A0056 | | | RX RSS 210 |

Hi Frequency Cables

| | | | | | |
|-------------------|--------------------|--------------------|-----|---------------|---|
| 3' cable 22807700 | 12' cable 22807600 | 20' cable 22807500 | HPF | Reject Filter | Peak Measurements RBW=VBW=1MHz |
| 3' cable 22807700 | 12' cable 22807600 | 20' cable 22807500 | | | Average Measurements RBW=1MHz ; VBW=10Hz |

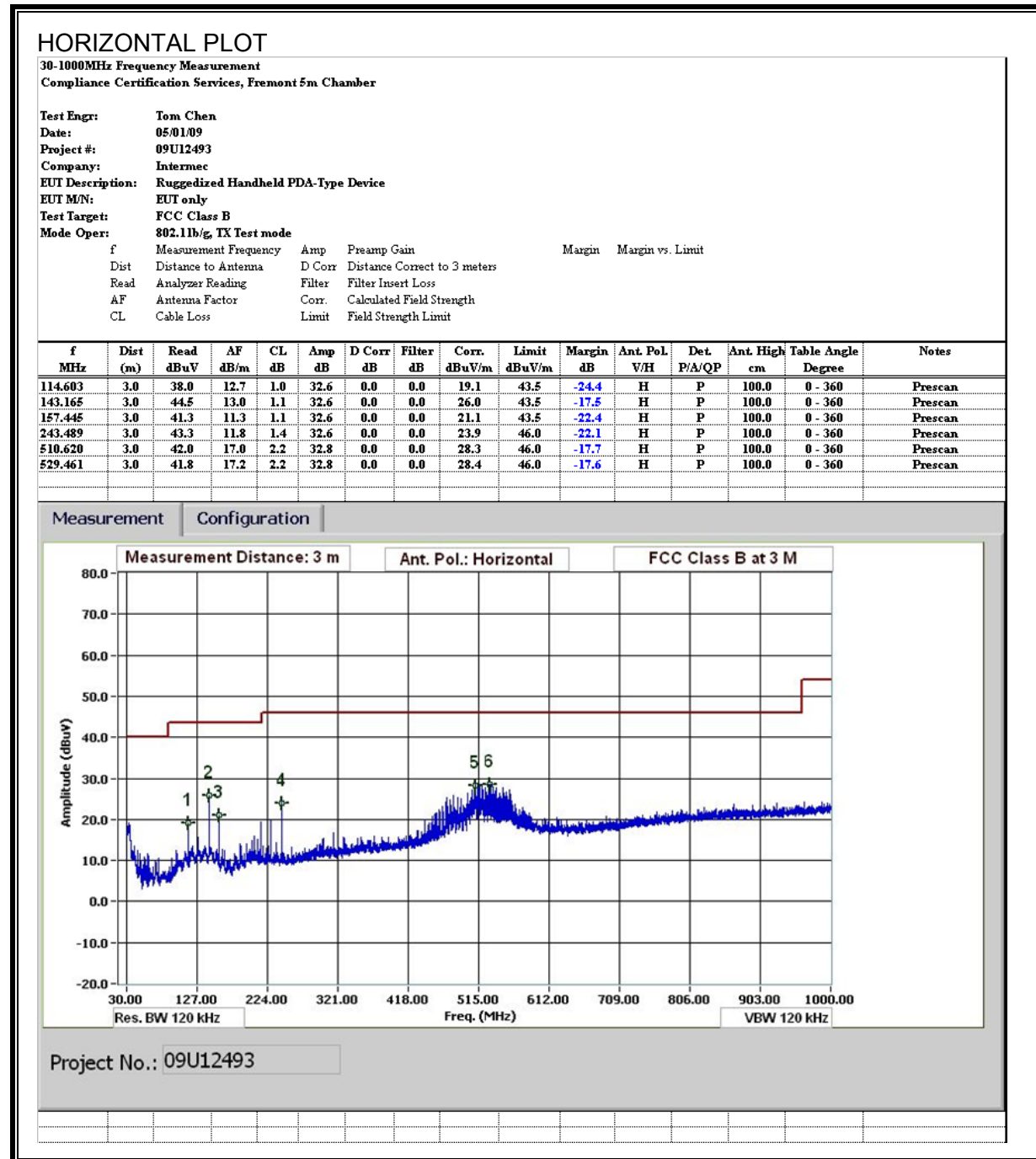
| f GHz | Dist (m) | Read Pk dBuV | Read Avg. dBuV | AF dB/m | CL dB | Amp dB | D Corr dB | Fldr dB | Peak dBuV/m | Avg dBuV/m | Pk Lim dBuV/m | Avg Lim dBuV/m | Pk Mar dB | Avg Mar dB | Notes (V/H) |
|----------|-------------|-----------------|-------------------|------------|----------|-----------|--------------|------------|----------------|---------------|------------------|-------------------|--------------|---------------|----------------|
| 1.031 | 3.0 | 44.8 | 32.9 | 24.0 | 2.4 | -36.1 | 0.0 | 0.0 | 35.1 | 23.2 | 74 | 54 | -38.9 | -30.8 | H |
| 1.840 | 3.0 | 43.8 | 31.7 | 27.0 | 3.3 | -35.5 | 0.0 | 0.0 | 38.6 | 26.5 | 74 | 54 | -35.4 | -27.5 | H |
| 3.460 | 3.0 | 41.6 | 29.3 | 31.0 | 4.7 | -35.0 | 0.0 | 0.0 | 42.3 | 30.0 | 74 | 54 | -31.7 | -24.0 | H |
| 1.134 | 3.0 | 45.2 | 32.7 | 24.4 | 2.5 | -36.0 | 0.0 | 0.0 | 36.1 | 23.6 | 74 | 54 | -37.9 | -30.4 | V |
| 1.930 | 3.0 | 43.6 | 31.1 | 27.4 | 3.4 | -35.4 | 0.0 | 0.0 | 38.9 | 26.4 | 74 | 54 | -35.1 | -27.6 | V |
| 3.475 | 3.0 | 43.5 | 31.4 | 31.0 | 4.7 | -35.0 | 0.0 | 0.0 | 44.3 | 32.2 | 74 | 54 | -29.7 | -21.8 | V |

Rev. 11.10.08

| | | | | | |
|------|-----------------------|--------|--------------------------------|---------|------------------------------|
| f | Measurement Frequency | Amp | Preamp Gain | Avg Lim | Average Field Strength Limit |
| Dist | Distance to Antenna | D Corr | Distance Correct to 3 meters | Pk Lim | Peak Field Strength Limit |
| Read | Analyzer Reading | Avg | Average Field Strength @ 3 m | Avg Mar | Margin vs. Average Limit |
| AF | Antenna Factor | Peak | Calculated Peak Field Strength | Pk Mar | Margin vs. Peak Limit |
| CL | Cable Loss | HPF | High Pass Filter | | |

8.4. WORST-CASE BELOW 1 GHz

SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, HORIZONTAL)



SPURIOUS EMISSIONS 30 TO 1000 MHz (WORST-CASE CONFIGURATION, VERTICAL)

