



**RADIATED SPURIOUS EMISSIONS PORTIONS OF
FCC CFR47 PART 22H AND 24E
INDUSTRY CANADA RSS-132 AND RSS-133
CERTIFICATION TEST REPORT
FOR**

RUGGEDIZED HANDHELD PDA-TYPE DEVICE W/DUAL-BAND CDMA

MODEL NUMBER: CN4 (CDMA), CN4e (CDMA)**

FCC ID: EHA-02CN4

IC: 1223A-02CN4

REPORT NUMBER: 09U12671-3, Revision B

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Prepared for

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Prepared by

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

[Revision History](#)



NVLAP LAB CODE 200065-0

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
---	07/23/09	Initial Issue	T. Chan
B	07/27/09	Revised model numbers	A. Zaffar

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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
CDMA

MODEL: CN4 (CDMA), CN4e (CDMA)

SERIAL NUMBER: 1339099002, 13390990075

DATE TESTED: JULY 11, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H and 24E	Pass (Radiated Portion)
IC RSS-132 ISSUE 2 and RSS-133 ISSUE 4	Pass (Radiated Portion)

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 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. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For CCS By:

Tested By:



THU CHAN
EMC MANAGER
COMPLIANCE CERTIFICATION SERVICES

CHIN PANG
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47 Part 22, FCC CFR Part 24, RSS-132 Issue 2, and RSS-133 Issue 4.

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:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

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 Ruggedized Handheld PDA-type Device W/dual-band CDMA.

5.2. CROSS REFERENCE REPORT

All RF conducted emissions tests were performed under the Sierra Wireless reports # 08U12326-1B for FCC ID: N7N-MC5728 and IC ID: 2417C-MC5728.

5.3. DESCRIPTION OF MODEL(S) DIFFERENCES

The CN4e is an extended version of the CN4 to accommodate a slightly larger keypad area. The only difference is that the CN4 and CN4e each have QWERTY and numeric keypad layout options, which are the same size, occupy the same area and are identically mounted. The CN4 and CN4e are otherwise identical. The CN4e with QWERTY keypad was selected as a representative model for radiated emissions.

5.4. WORST-CASE CONFIGURATION AND MODE

The worst-position was the EUT with highest emissions. To determine the worst-case, the EUT was investigated at X Y and Z Positions. For CN4 model, the worst position is at Y-position for both Cell and PCS band and for CN4e model, the worst position is at Y-position for cell band and Z-position for PCS band.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Communications Test Set	Agilent / HP	E5515C	C01086	NA
Antenna, Horn, 18 GHz	EMCO	3115	C00943	NA

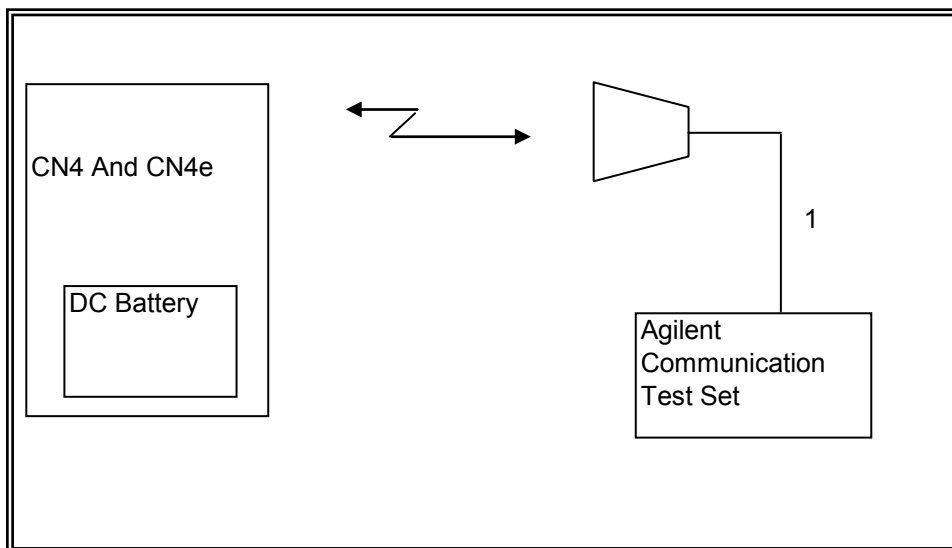
I/O CABLES)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	RF In/Out	1	Horn	Un-shielded	2m	NA

TEST SETUP

The EUT is a standalone unit during the tests. The wireless link is established between the EUT and the Agilent 8960 communications test set.

SETUP DIAGRAM FOR RF RADIATED TESTS



5.6. SOFTWARE AND FIRMWARE

RF POWER OUTPUT FOR EVDO REV A

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

<u>Application</u>	<u>Rev, License</u>
1xEV-DO Terminal Test	A.09.13

EVDO Release A – RETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > RETAP
- R-Data Pkt Size > 4096
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
- > PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

EVDO Release A - FETAP

- Call Setup > Shift & Preset
- Cell Power > -60 dBm/1.23 MHz
- Protocol Rev > A (1xEV-DO-A)
- Application Config > Enhanced Test Application Protocol > FETAP
- F-Traffic Format > 4 (1024, 2,128) Canonical (307.2k, QPSK)
- Protocol Subtype Config > Release A Physical Layer Subtype > Subtype 2
- > PL Subtype 2 Access Channel MAC Subtype > Default (Subtype 0)
- Access Network Info > Cell Parameters > Sector ID > 00000000 > Subnet Mask > 0
- Generator Info > Termination Parameters > Max Forward Packet Duration > 16 Slots > ACK R-Data After > Subpacket 0 (All ACK)
- Rvs Power Ctrl > All Up bits (to get the maximum power)

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 Due
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	02/04/10
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	01/14/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00580	12/16/09
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00986	02/03/10
Antenna, Horn, 18 GHz	EMCO	3115	C00783	04/22/10
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02689`	CNR
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR

7. TEST SUMMARY

Description of test	Rule part		Results
	FCC	IC	
1. Block Edge (Band Edge)	§22.359, §24.238	RSS-132, 4.5; RSS-133, 6.5	Complies
2. Radiated Power (ERP & EIRP)	§2.1046, §22.913, §24.232	RSS-132; 4.4, RSS-133, 6.4	Complies
3. Field Strength of Spurious Radiation	§2.1053, §22.917, §24.238	RSS-132, 4.5; RSS-133, 6.5	Complies
4. Receiver Spurious Emissions (IC only)	n/a	RSS-132, 4.6; RSS-133, 6.6, RSS-Gen	Complies

8. CONDUCTED TEST RESULTS

8.1. CONDUCTED POWER

824 to 849 MHz Authorized Band

Frequency Range (MHz)	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (mW)
Low CH - 824.7	1 x EVDO, Rev A	29.60	912.01
Mid CH - 836.5		29.75	944.06
High CH - 848.3		29.00	794.33

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	Conducted Peak Power (dBm)	Conducted Peak Power (mW)
Low CH - 1851.25	1 x EVDO, Rev A	28.50	707.95
Mid CH - 1880		28.95	785.24
High CH - 1908.75		28.75	749.89

9. RADIATED TEST RESULTS

9.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232
IC: RSS-132; 4.4, RSS-133, 6.4

LIMITS

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) & RSS-133 § 6.4 - 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.

RSS-132 4.4, SRSP503 5.1.3 - The maximum ERP shall be 11.5 Watts for mobile stations.

TEST PROCEDURE

ANSI / TIA / EIA 603C, RSS-132; RSS-133

RESULTS for Cellular AND PCS Band (ERP and EIRP)

MODEL: CN4

850 MHz CDMA EV-DO REV A

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	824.7	28.20	660.69
Middle	836.5	28.50	707.95
High	848.3	26.60	457.09

1900 MHz CDMA EV-DO REV A

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1851.25	27.30	537.03
Middle	1880.0	28.80	758.58
High	1908.75	28.40	691.83

MODEL: CN4e

850 MHz CDMA EV-DO REV A

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	824.7	26.50	446.68
Middle	836.5	27.40	549.54
High	848.3	25.60	363.08

1900 MHz CDMA EV-DO REV A

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1851.25	28.60	724.44
Middle	1880.0	29.10	812.83
High	1908.75	28.90	776.25

CN4, CDMA EVDO-REV A Mode (Cell Band)

**High Frequency Substitution Measurement
 Compliance Certification Services Chamber B**

Company: InterMac
 Project #: 09U12671
 Date: 7/11/09
 Test Engineer: Chin Pang
 Configuration: CN4
 Mode: TX Cell, CDMA EVDO-Rev A
 Worst Case: Y Position

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
Low Ch							
824.70	-4.4	V	32.6	28.2	38.5	-10.2	
824.70	-9.8	H	30.4	20.6	38.5	-17.9	
Mid Ch							
836.52	-4.1	V	32.7	28.5	38.5	-9.9	
836.52	-9.2	H	30.7	21.5	38.5	-16.9	
High Ch							
848.31	-5.4	V	32.0	26.6	38.5	-11.9	
848.31	-8.8	H	30.8	22.0	38.5	-16.5	

Rev. 1.24.7

CN4, CDMA EVDO-REV A Mode (PCS Band)

High Frequency Fundamental Measurement Compliance Certification Services Chamber B							
Company: InterMac							
Project #: 09U12671							
Date: 7/11/09							
Test Engineer: Chin Pang							
Configuration: CN4							
Mode: TX PCS, CDMA EVDO-Rev A							
Worst case: Y pos							
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
Low Ch							
1.850	-16.8	V	40.2	23.4	33.0	-9.6	
1.850	-12.2	H	39.5	27.3	33.0	-5.7	
Mid Ch							
1.880	-15.4	V	40.3	24.9	33.0	-8.2	
1.880	-11.3	H	40.1	28.8	33.0	-4.2	
High Ch							
1.910	-16.3	V	40.2	23.9	33.0	-9.1	
1.910	-11.7	H	40.1	28.4	33.0	-4.6	
Rev. 1.24.7							

CN4e, CDMA EVDO-REV A Mode (Cell Band)

High Frequency Substitution Measurement Compliance Certification Services Chamber B							
Company: InterMac							
Project #: 09U12671							
Date: 7/11/09							
Test Engineer: Chin Pang							
Configuration: CN4e							
Mode: TX Cell, CDMA EVDO-Rev A							
Worst Case: Y Position							
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
Low Ch							
824.70	-6.1	V	32.6	26.5	38.5	-12.0	
824.70	-9.4	H	30.4	21.0	38.5	-17.5	
Mid Ch							
836.52	-5.3	V	32.7	27.4	38.5	-11.1	
836.52	-8.4	H	30.7	22.3	38.5	-16.1	
High Ch							
848.31	-6.4	V	32.0	25.6	38.5	-12.9	
848.31	-9.1	H	30.8	21.7	38.5	-16.7	
Rev. 1.24.7							

CN4e, CDMA EVDO-REV A Mode (PCS Band)

High Frequency Fundamental Measurement Compliance Certification Services Chamber B							
Company: Intermac							
Project #: 09U12671							
Date: 7/11/09							
Test Engineer: Chin Pang							
Configuration: CN4e							
Mode: TX PCS, CDMA EVDO-Rev A							
Worst case Z pos							
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
Low Ch							
1.851	-15.8	V	40.2	24.4	33.0	-8.6	
1.851	-10.9	H	39.5	28.6	33.0	-4.4	
Mid Ch							
1.880	-15.5	V	40.3	24.8	33.0	-8.3	
1.880	-11.0	H	40.1	29.1	33.0	-3.9	
High Ch							
1.909	-17.0	V	40.2	23.2	33.0	-9.8	
1.909	-11.2	H	40.1	28.9	33.0	-4.1	
Rev. 1.24.7							

9.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238
IC: RSS-132, 4.5; RSS-233, 6.5

LIMIT

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

For Cellular equipment - Compliance with these rules 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 or 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.

For PCS equipment - Compliance with these rules 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. 1 MHz or 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.

MODES TESTED

- EVDO-REV A

RESULTS

See the following pages.

CN4, CDMA-EVDO REV A Mode (Cellular Band)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:Intermac										
Project #:09U12671										
Date:7/11/2009										
Test Engineer:Chin Pang										
Configuration:EUT Only, CN4										
Mode:TX, Cell , EV-DO Rev A										
Chamber		Pre-amplifier			Filter			Limit		
5m Chamber B		T145 8449B			Filter 1			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, 824.7MHz										
1.649	-55.4	H	3.0	37.2	35.5	1.0	-52.7	-13.0	-39.7	
2.474	-51.3	H	3.0	39.8	35.4	1.0	-45.9	-13.0	-32.9	
1.649	-56.8	V	3.0	36.8	35.5	1.0	-54.5	-13.0	-41.5	
2.474	-52.0	V	3.0	41.7	35.4	1.0	-44.7	-13.0	-31.7	
Mid Ch, 836.52MHz										
1.673	-54.0	H	3.0	37.5	35.5	1.0	-51.1	-13.0	-38.1	
2.510	-60.5	H	3.0	39.9	35.4	1.0	-55.0	-13.0	-42.0	
1.673	-55.4	V	3.0	37.1	35.5	1.0	-52.8	-13.0	-39.8	
2.510	-61.0	V	3.0	41.8	35.4	1.0	-53.6	-13.0	-40.6	
High Ch, 848.31MHz										
1.697	-50.8	H	3.0	37.7	35.5	1.0	-47.6	-13.0	-34.6	
2.545	-59.3	H	3.0	40.1	35.4	1.0	-53.6	-13.0	-40.6	
1.697	-50.3	V	3.0	37.4	35.5	1.0	-47.4	-13.0	-34.4	
2.545	-60.2	V	3.0	42.0	35.4	1.0	-52.7	-13.0	-39.7	
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										

CN4, CDMA-EVDO REV A Mode (PCS Band)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:Intermac Project #:09U12671 Date:7/11/2009 Test Engineer:Chin Pang Configuration:EUT only , CN4 Mode:TX, PCS EV-DO Rev A										
Chamber		Pre-amplifier			Filter		Limit			
5m Chamber B		T145 8449B			Filter 1		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, 1851.25MHz										
3.703	-50.5	H	3.0	45.3	35.4	1.0	-39.5	-13.0	-26.5	
5.554	-59.6	H	3.0	50.0	35.4	1.0	-44.0	-13.0	-31.0	
3.703	-54.0	V	3.0	45.1	35.4	1.0	-43.2	-13.0	-30.2	
5.554	-62.0	V	3.0	49.2	35.4	1.0	-47.2	-13.0	-34.2	
Mid Ch, 1880MHz										
3.760	-48.0	H	3.0	45.5	35.3	1.0	-36.8	-13.0	-23.8	
5.640	-61.6	H	3.0	50.2	35.4	1.0	-45.9	-13.0	-32.9	
3.760	-53.0	V	3.0	45.3	35.3	1.0	-42.1	-13.0	-29.1	
5.640	-62.0	V	3.0	49.3	35.4	1.0	-47.1	-13.0	-34.1	
High Ch, 1908.75MHz										
3.817	-37.0	H	3.0	45.7	35.3	1.0	-25.6	-13.0	-12.6	
5.726	-62.0	H	3.0	50.3	35.4	1.0	-46.1	-13.0	-33.1	
3.817	-40.0	V	3.0	45.4	35.3	1.0	-28.9	-13.0	-15.9	
5.726	-63.2	V	3.0	49.4	35.4	1.0	-48.3	-13.0	-35.3	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.										

CN4e, CDMA-EVDO REV A Mode (Cellular Band)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:Intermac Project #:09U12671 Date:7/11/2009 Test Engineer:Chin Pang Configuration:EUT Only, CN4e Mode:TX, Cell , EV-DO Rev A										
Chamber		Pre-amplifier			Filter		Limit			
5m Chamber B		T145 8449B			Filter 1		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, 824.7MHz										
1.649	-56.2	H	3.0	37.2	35.5	1.0	-53.5	-13.0	-40.5	
2.474	-50.6	H	3.0	39.8	35.4	1.0	-45.2	-13.0	-32.2	
1.649	-54.0	V	3.0	36.8	35.5	1.0	-51.7	-13.0	-38.7	
2.474	-51.5	V	3.0	41.7	35.4	1.0	-44.2	-13.0	-31.2	
Mid Ch, 836.52MHz										
1.673	-55.4	H	3.0	37.5	35.5	1.0	-52.5	-13.0	-39.5	
2.510	-56.2	H	3.0	39.9	35.4	1.0	-50.7	-13.0	-37.7	
1.673	-57.0	V	3.0	37.1	35.5	1.0	-54.4	-13.0	-41.4	
2.510	-59.8	V	3.0	41.8	35.4	1.0	-52.4	-13.0	-39.4	
High Ch, 848.31MHz										
1.697	-52.2	H	3.0	37.7	35.5	1.0	-49.0	-13.0	-36.0	
2.545	-58.0	H	3.0	40.1	35.4	1.0	-52.3	-13.0	-39.3	
1.697	-50.5	V	3.0	37.4	35.5	1.0	-47.6	-13.0	-34.6	
2.545	-60.2	V	3.0	42.0	35.4	1.0	-52.7	-13.0	-39.7	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.										

CN4e, CDMA-EVDO REV A Mode (PCS Band)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
Company:Intermac Project #:09U12671 Date:7/11/2009 Test Engineer:Chin Pang Configuration:EUT only , CN4e Mode:TX, PCS EV-DO Rev A											
Chamber			Pre-amplifier			Filter			Limit		
5m Chamber B			T145 8449B			Filter 1			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, 1851.25MHz											
3.703	-56.4	H	3.0	45.3	35.4	1.0	-45.4	-13.0	-32.4		
5.554	-57.6	H	3.0	50.0	35.4	1.0	-42.0	-13.0	-29.0		
3.703	-53.0	V	3.0	45.1	35.4	1.0	-42.2	-13.0	-29.2		
5.554	-60.0	V	3.0	49.2	35.4	1.0	-45.2	-13.0	-32.2		
Mid Ch, 1880MHz											
3.760	-53.1	H	3.0	45.5	35.3	1.0	-41.9	-13.0	-28.9		
5.640	-61.4	H	3.0	50.2	35.4	1.0	-45.7	-13.0	-32.7		
3.760	-52.4	V	3.0	45.3	35.3	1.0	-41.5	-13.0	-28.5		
5.640	-60.0	V	3.0	49.3	35.4	1.0	-45.1	-13.0	-32.1		
High Ch, 1908.75MHz											
3.817	-41.0	H	3.0	45.7	35.3	1.0	-29.6	-13.0	-16.6		
5.726	-60.0	H	3.0	50.3	35.4	1.0	-44.1	-13.0	-31.1		
3.817	-43.2	V	3.0	45.4	35.3	1.0	-32.1	-13.0	-19.1		
5.726	-62.4	V	3.0	49.4	35.4	1.0	-47.5	-13.0	-34.5		
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.											

9.3. RECEIVER SPURIOUS EMISSIONS

RULE PART(S)

FCC: N/A

IC: RSS-132, 4.6; RSS-133, 6.6, RSS-Gen

LIMIT

RSS-Gen 6 (a) - If a radiated measurement is made, all spurious emissions shall comply with the limits of Table 1.

Table 1 - Spurious Emission Limits for Receivers:

Spurious Frequency (MHz)	Field Strength(microvolt/m at 3 meters)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

TEST PROCEDURE

RSS-Gen 4.10 - The search for spurious emissions shall be from the lowest frequency internally generated or used in the receiver (e.g. local oscillator, intermediate or carrier frequency), or 30 MHz, whichever is the higher, to at least 3 times the highest tuneable or local oscillator frequency, whichever is the higher, without exceeding 40 GHz.

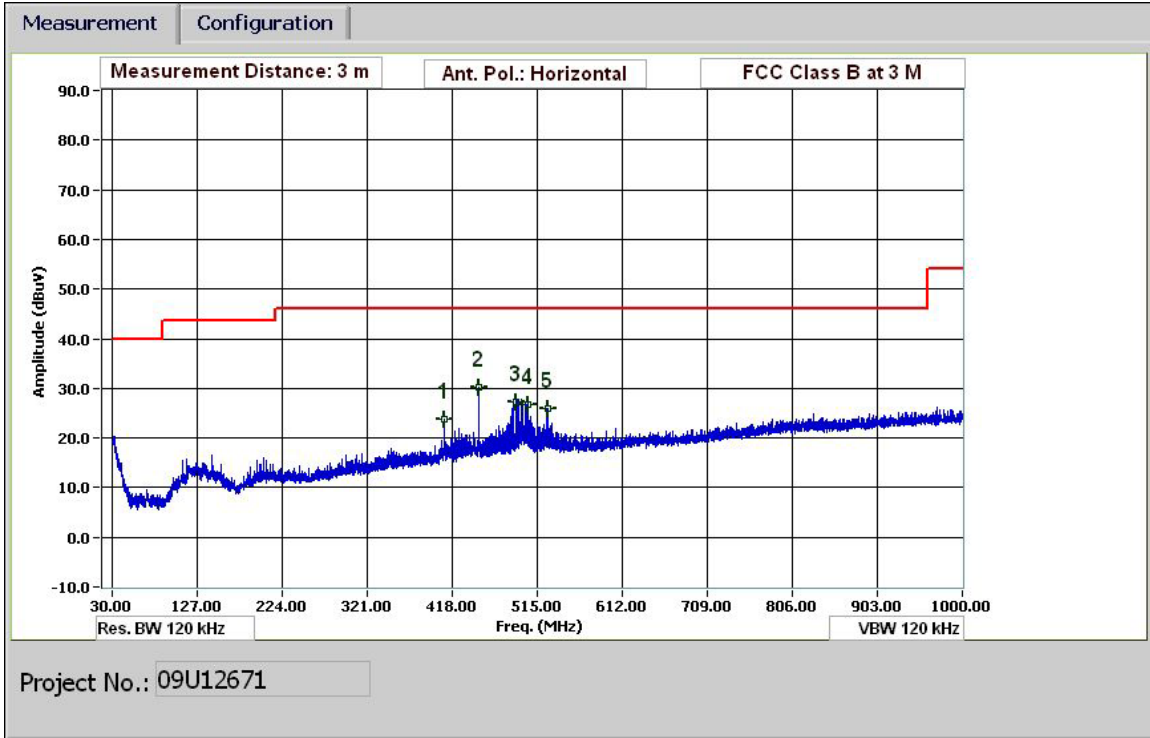
RESULTS

See the following pages.

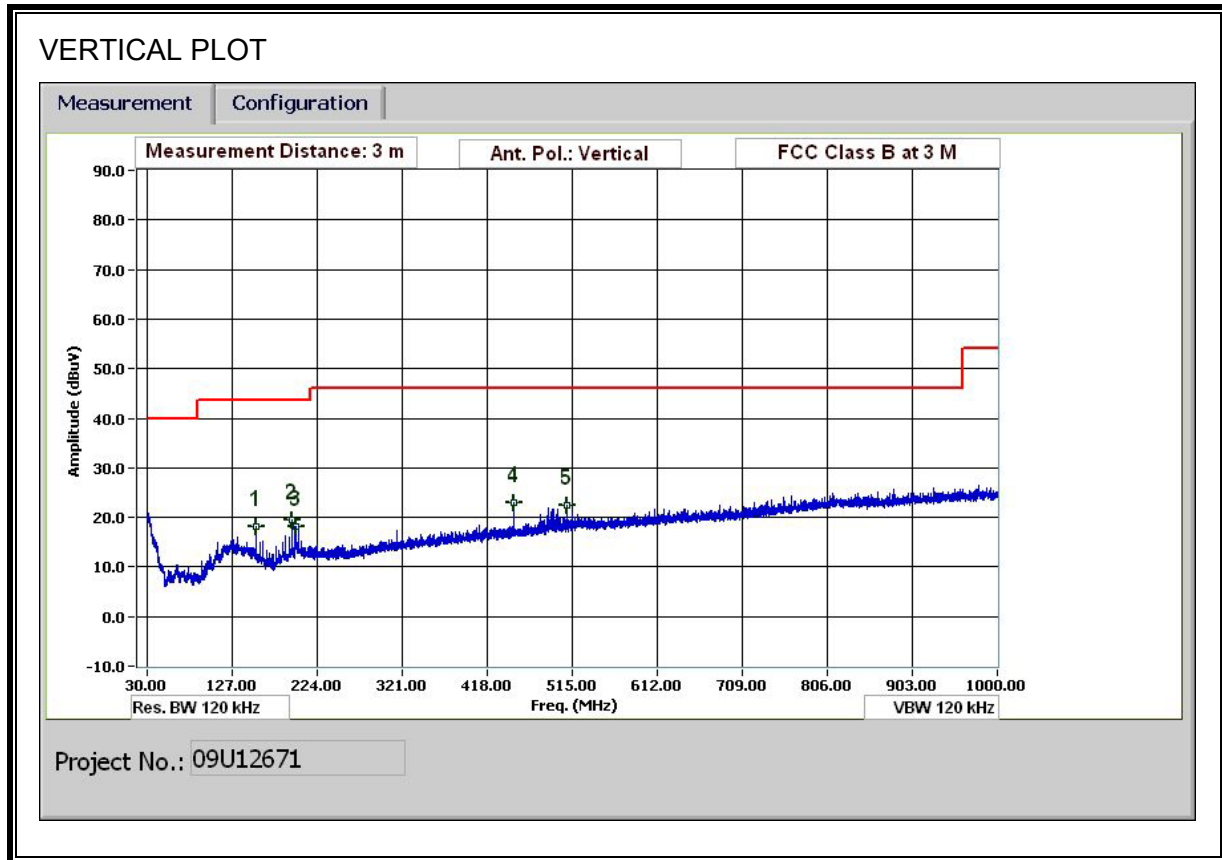
RECEIVER SPURIOUS EMISSIONS FOR 30 TO 1000 MHz (Worst Case)

30-1000MHz Frequency Measurement													
Compliance Certification Services, Fremont 5m Chamber													
Test Engr:Chin Pang													
Date: 07/11/09													
Project #: 09U12671													
Company:Intermac													
EUT Description:Heavy-Duty Handheld PDA-Type Device													
EUT M/N:CN4e													
Test Target:FCC Class B													
Mode Oper:Normal													
f	Measurement Frequency	Amp	Preamp Gain	Margin	Margin vs. Limit								
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters										
Read	Analyzer Reading	Filter	Filter Insert Loss										
AF	Antenna Factor	Corr.	Calculated Field Strength										
CL	Cable Loss	Limit	Field Strength Limit										
f	Dist	Read	AF	CL	Amp	D Corr	Filter	Corr.	Limit	Margin	Ant. PoL	Det.	Notes
MHz	(m)	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dB	V/H	P/A/QP	
horiz data													
409.576	3.0	35.9	15.2	1.9	29.3	0.0	0.0	23.7	46.0	-22.3	H	EP	
448.457	3.0	41.8	15.9	2.0	29.5	0.0	0.0	30.2	46.0	-15.8	H	EP	
491.419	3.0	38.3	16.6	2.1	29.7	0.0	0.0	27.4	46.0	-18.6	H	EP	
503.660	3.0	37.4	16.9	2.1	29.7	0.0	0.0	26.7	46.0	-19.3	H	EP	
526.580	3.0	36.2	17.2	2.2	29.7	0.0	0.0	25.9	46.0	-20.1	H	EP	
154.805	3.0	34.6	11.7	1.1	29.3	0.0	0.0	18.1	43.5	-25.4	V	EP	
195.367	3.0	35.6	11.6	1.3	28.9	0.0	0.0	19.5	43.5	-24.0	V	EP	
199.087	3.0	34.0	11.9	1.3	28.9	0.0	0.0	18.3	43.5	-25.2	V	EP	
448.457	3.0	34.7	15.9	2.0	29.5	0.0	0.0	23.1	46.0	-22.9	V	EP	
508.700	3.0	33.2	16.9	2.2	29.7	0.0	0.0	22.5	46.0	-23.5	V	EP	
Rev. 1.27.09													
Note: No other emissions were detected above the system noise floor.													

HORIZONTAL PLOT 890 TO 1000 MHz



RECEIVER SPURIOUS EMISSIONS FOR 30 TO 1000 MHz



Note: no other emissions were found above 1GHz from the system noise