

***Electromagnetic Emissions Test Report
for
Information Technology Equipment
PalmOne, Inc.
Model: TREO 650 GSM
In Accordance With FCC Part 15, Class B, ICES-003 Class
B, VCCI Class B and EN 55022 Class B***

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Milpitas, CA 95035-5112

TEST SITES: Elliott Laboratories, Inc.
684 W. Maude Avenue
Sunnyvale, CA 94086

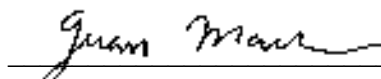
AND

41039 Boyce Road
Fremont, CA. 94538

REPORT DATE: September 8, 2004

FINAL TEST DATE: July 22, August 12, October 6
and October 12, 2004

AUTHORIZED SIGNATORY:



Juan Martinez
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SCOPE

Governments and standards organizations around the world have published requirements regarding the electromagnetic emissions of information technology equipment. Electromagnetic emissions testing has been performed on the PalmOne, Inc. model TREO 650 GSM, to establish compliance with these requirements.

Electromagnetic emissions data has been taken pursuant to the following standards. Conducted and radiated emissions data has been collected, reduced, and analyzed within this report in accordance with these specifications, test procedures, and measurement guidelines as outlined in Elliott Laboratories test procedures. Please note that the accreditation specified on the cover page of this report does not include the methods used in performing the tests in accordance with VCCI Regulations.

Standard	Title	Standard Date
FCC Part 15, Subpart B	Radio Frequency Devices	October 2002 as Amended
ICES-003	Digital apparatus	Issue 3, November 1997
VCCI V-3/2004.04	VCCI Regulations For Voluntary Control Measures of radio interference generated by Information Technology Equipment	April 2004
EN 55022	Limits and Methods of Measurements of Radio Interference Characteristics of Information Technology Equipment	September 1998

In order to demonstrate compliance with the requirements, the manufacturer or a contracted laboratory makes measurements and takes the necessary steps to ensure that the equipment complies with the appropriate technical standards.

OBJECTIVE

The objective of the manufacturer is to declare conformity for the TREO 650 GSM with the conducted and radiated emissions limits specified in the standards listed above.

STATEMENT OF COMPLIANCE

The tested sample of PalmOne, Inc. model TREO 650 GSM complied with the requirements of:

Standard/Regulation	Equipment Type/Class	Standard Date
Subpart B of Part 15 of the FCC Rules (CFR title 47)	Class B	2002 as amended
ICES-003	Class B	1997
VCCI Regulations V-3/2004.04	Class B	2004
EN 55022	Class B	September 1998

The test results recorded herein are based on a single type test of the PalmOne, Inc. model TREO 650 GSM and therefore apply only to the tested sample. The sample was selected and prepared by David Waitt of PalmOne, Inc.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product that could result in increased emissions or susceptibility should be checked to ensure compliance has been maintained (i.e., printed circuit board layout changes, different enclosure, different line filter or power supply, harnessing and/or interface cable changes, etc.).

DEVIATIONS FROM THE STANDARDS

No deviations were made from the published requirements listed in the scope of this report.

EMISSION TEST RESULTS

The following emissions tests were performed on the PalmOne, Inc. model TREO 650 GSM. The measurements were extracted from the data recorded during testing and represent the highest amplitude emissions relative to the specification limits. The actual test results are contained in an appendix of this report.

CONDUCTED EMISSIONS (MAINS PORT)

Test	Standard/Section	Requirement	Measurement	Result	Compliance Status
CE, 0.15-30 MHz, 120V, 60Hz PHIHONG	FCC § 15.107(a) VCCI Table 4.2	0.15-0.5 MHz, 66-56 dBμV QP 0.5-5.0 MHz, 56 dBμV QP 5.0-30.0 MHz, 60 dBμV QP 0.15-0.5 MHz, 56-46 dBμV Av 0.5-5.0 MHz, 46 dBμV Av 5.0-30.0 MHz, 50 dBμV Av	43.4dBμV @ 0.666MHz	-12.6dB	Complied
CE, 0.15-30 MHz, 230V, 50Hz PHIHONG	EN 55022 Table 2	0.15-0.5 MHz, 66-56 dBμV QP 0.5-5.0 MHz, 56 dBμV QP 5.0-30.0 MHz, 60 dBμV QP 0.15-0.5 MHz, 56-46 dBμV Av 0.5-5.0 MHz, 46 dBμV Av 5.0-30.0 MHz, 50 dBμV Av	48.3dBμV @ 0.640MHz	-7.7dB	Complied
CE, 0.15-30 MHz, 120V, 60Hz NETBIT	FCC § 15.107(a) VCCI Table 4.2	0.15-0.5 MHz, 66-56 dBμV QP 0.5-5.0 MHz, 56 dBμV QP 5.0-30.0 MHz, 60 dBμV QP 0.15-0.5 MHz, 56-46 dBμV Av 0.5-5.0 MHz, 46 dBμV Av 5.0-30.0 MHz, 50 dBμV Av	49.4dBμV @ 0.637MHz	-6.6dB	Complied
CE, 0.15-30 MHz, 230V, 50Hz NETBIT	EN 55022 Table 2	0.15-0.5 MHz, 66-56 dBμV QP 0.5-5.0 MHz, 56 dBμV QP 5.0-30.0 MHz, 60 dBμV QP 0.15-0.5 MHz, 56-46 dBμV Av 0.5-5.0 MHz, 46 dBμV Av 5.0-30.0 MHz, 50 dBμV Av	48.7dBμV @ 0.400MHz	-9.2dB	Complied

CONDUCTED EMISSIONS (TELECOMMUNICATIONS PORTS)

Testing was not performed, as the EUT does not have any Telecommunication ports.

RADIATED EMISSIONS**Phihong International Adapter**

Test	Standard/Section	Requirement	Measurement	Result	Compliance Status
RE, 30-1000 MHz	EN 55022 Table 6, FCC §15.109(g), VCCI Table 4.4	30 – 230, 30 dBµV/m 230 – 1000, 37 dBµV/m	27.2dBµV/m @ 55.455MHz	-2.8dB	Complied

Netbit International Adapter

Test	Standard/Section	Requirement	Measurement	Result	Compliance Status
RE, 30-1000 MHz	EN 55022 Table 6, FCC §15.109(g), VCCI Table 4.4	30 – 230, 30 dBµV/m 230 – 1000, 37 dBµV/m	24.7dBµV/m @ 132.952MHz	-5.4dB	Complied
RE, 1000-2000 MHz	FCC §15.109(a)	54.0 dBµV/m Av 74.0 dBµV/m Pk	43.0dBµV/m @ 1134.845MHz	-11.1dB	Complied

Netbit North America Adapter

Test	Standard/Section	Requirement	Measurement	Result	Compliance Status
RE, 30-1000 MHz	EN 55022 Table 6, FCC §15.109(g), VCCI Table 4.4	30 – 230, 30 dBµV/m 230 – 1000, 37 dBµV/m	24.5dBµV/m @ 154.634MHz	-5.6-dB	Complied
RE, 1000-2000 MHz	FCC §15.109(a)	54.0 dBµV/m Av 74.0 dBµV/m Pk	40.6dBµV/m @ 1134.893MHz	-13.4dB	Complied

Phihong North America Adapter

Test	Standard/Section	Requirement	Measurement	Result	Compliance Status
RE, 30-1000 MHz	EN 55022 Table 6, FCC §15.109(g), VCCI Table 4.4	30 – 230, 30 dBµV/m 230 – 1000, 37 dBµV/m	27.3dBµV/m @ 76.028MHz	-2.7dB	Complied
RE, 1000-2000 MHz	FCC §15.109(a)	54.0 dBµV/m Av 74.0 dBµV/m Pk	39.7dBµV/m @ 1134.909MHz	-14.3dB	Complied

MEASUREMENT UNCERTAINTIES

ISO Guide 17025 requires that an estimate of the measurement uncertainties associated with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level and were calculated in accordance with NAMAS document NIS 81.

Measurement Type	Frequency Range (MHz)	Calculated Uncertainty (dB)
Conducted Emissions	0.15 to 30	± 2.2
Radiated Emissions	30 to 1000	± 3.6

EQUIPMENT UNDER TEST (EUT) DETAILS**GENERAL**

The PalmOne, Inc. model TREO 650 GSM is a wireless phone which is designed to place wireless calls. Normally, the EUT would be placed on a table top during operation. The EUT was, therefore, treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120/240 V, 50/60 Hz, 1 Amps.

The sample was received on July 22, 2004 and tested on July 22, August 12, October 6 and October 12, 2004. The EUT consisted of the following component(s):

Manufacturer/Model/Description	Serial Number
PalmOne TREO 650 GSM Wireless Phone	-

ENCLOSURE

The EUT enclosure is primarily constructed of plastic. It measures approximately 6 cm wide by 12 cm deep by 2 cm high.

MODIFICATIONS

The EUT did not require modifications during testing in order to comply with emissions specifications.

SUPPORT EQUIPMENT

The following equipment was used as local support equipment for testing:

North America units

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP01L	Laptop computer	CN-06P823-48643-2CH-1058 Rev A06	DoC
AIWA	HP-X222	stereo dynamic headphones		

International Units

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP01L	Laptop PC	CN-06P823-48643-2CH-1058 Rev A06	DoC
Dell	AA2003I	AC-DC Adaptor for Dell Laptop PC	16291-994-6245	-
HP	C6490A	Inkjet Printer (BSMI Approved)	MY3883K42P	DoC

No remote support equipment was used during testing.

EUT INTERFACE PORTS

The I/O cabling configuration during emissions testing on the North America units was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
client specific port	PC / power supply	NA	NA	NA

The I/O cabling configuration during emissions testing on the International units was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
EUT HotSync Port	Laptop PC USB Port	Multiconductor	Shielded	2.0
EUT DC Input	External AC-DC Adaptor	DC Leads	Unshielded	2.0

Additional I/O cabling configuration during emissions testing on the International units was as follows:

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Laptop PC, Parallel Port	HP Printer	Multiconductor	Shielded	2.0
Laptop PC, DC Input	External AC-DC Adaptor	DC Leads	Unshielded	2.0

EUT OPERATION

During emissions testing of the North America units, the CPU was busy running scrolling H's as specified by the FCC.

During emissions testing of the International units, the EUT and the host PC were both displaying a scrolling "H" pattern.

EMISSIONS TEST SITE**GENERAL INFORMATION**

Final test measurements were taken on July 22, August 12, October 6 and October 12, 2004 at the Elliott Laboratories Test Site(s) listed below. The test sites contain separate areas for radiated and conducted emissions testing. The sites conform to the requirements of ANSI C63.4: 2001 – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz and CISPR 16-1:1999 - Specification for radio disturbance and immunity measuring apparatus and methods – Part 1: Radio disturbance and immunity measuring apparatus. They are registered with the VCCI and are on file with the FCC.

In the case of Open Area Test Sites, ambient levels are at least 6 dB below the specification limits with the exception of predictable local TV, radio, and mobile communications traffic. Considerable engineering effort has been expended to ensure that the facilities conform to all pertinent requirements.

	Site	VCCI Registration #	Location
■	SVOATS #1	R458	684 West Maude Avenue, Sunnyvale CA 94086-3518
	SVOATS #1	C469	
■	Chamber 3	R-1683	41039 Boyce Road Fremont, CA 94538-2435
■	Chamber 3	C-1795	
■	Chamber 5	R-1685	
■	Chamber 5	C-1797	

CONDUCTED EMISSIONS CONSIDERATIONS

Conducted emissions testing is performed in conformance with ANSI C63.4 and CISPR 22. Mains port measurements are made with the EUT connected to the public power network through nominal, standardized RF impedance, which is provided by a line impedance stabilization network, known as a LISN. A LISN is inserted in series with each current-carrying conductor in the EUT power cord. Telecommunication port measurements are made with the network cable connected through an ISN appropriate to the type of cable employed.

RADIATED EMISSIONS CONSIDERATIONS

The FCC has determined that radiated measurements made in a shielded enclosure are not suitable for determining levels of radiated emissions. Radiated measurements are performed in an Open Area Test Site, as defined in ANSI C63.4. The test site is maintained free of conductive objects within the CISPR defined elliptical area incorporated in ANSI C63.4 guidelines. Site correction factors for antennas, cables, amplifiers, etc. used during measurements are given in an appendix of this report.

MEASUREMENT INSTRUMENTATION**RECEIVER SYSTEM**

An EMI receiver as specified in CISPR 16-1 is used for emissions measurements. The receivers used can measure over the frequency range of 9 kHz up to 2000 MHz. These receivers allow both ease of measurement and high accuracy to be achieved. The receivers have Peak, Average, and CISPR (Quasi-peak) detectors built into their design so no external adapters are necessary. The receiver automatically sets the required bandwidth for the CISPR detector used during measurements.

For measurements above the frequency range of the receivers, a spectrum analyzer is utilized because it provides visibility of the entire spectrum along with the precision and versatility required to support engineering analysis. Average measurements above 1000 MHz are performed on the spectrum analyzer using the linear-average method with a resolution bandwidth of 1 MHz and a video bandwidth of 10 Hz.

INSTRUMENT CONTROL COMPUTER

The receivers utilize either a Rohde & Schwarz EZM Spectrum Monitor/Controller or contain an internal Spectrum Monitor/Controller to view and convert the receiver measurements to the field strength at an antenna or voltage developed at the LISN measurement port, which is then compared directly with the appropriate specification limit. This provides faster, more accurate readings by performing the conversions described under Sample Calculations within the Test Procedures section of this report. Results are printed in a graphic and/or tabular format, as appropriate. A personal computer is used to record all measurements made with the receivers.

The Spectrum Monitor provides a visual display of the signal being measured. In addition, the controller or a personal computer runs automated data collection programs that control the receivers. This provides added accuracy since all site correction factors, such as cable loss and antenna factors are added automatically.

LINE IMPEDANCE STABILIZATION NETWORK (LISN)

Line conducted emission measurements utilize a fifty microhenry Line Impedance Stabilization Network as the monitoring point. The LISN used also contains a 250 uH CISPR adapter. This network provides for calibrated radio frequency noise measurements by the design of the internal low pass and high pass filters on the EUT and measurement ports, respectively.

IMPEDANCE STABILIZATION NETWORK (ISN)

Telecommunication port conducted emission measurements utilize an Impedance Stabilization Network with a 150 ohm termination impedance and specific longitudinal conversion loss as the voltage monitoring point. This network provides for calibrated radio frequency noise measurements by the design of the internal circuitry on the EUT and measurement ports, respectively. For current measurements, a current probe with a uniform frequency response and less than 1 ohm insertion impedance is used.

FILTERS/ATTENUATORS

External filters and precision attenuators are often connected between the receiving antenna or LISN and the receiver. This eliminates saturation effects and non-linear operation due to high amplitude transient events.

ANTENNAS

A biconical antenna is used to cover the range from 30 MHz to 300 MHz and a log periodic antenna is utilized from 300 MHz to 1000 MHz. Narrowband tuned dipole antennas are used over the entire 30 to 1000 MHz frequency range for precision measurements of field strength. Above 1000 MHz, a horn antenna is used. The antenna calibration factors are included in site factors that are programmed into the test receivers.

ANTENNA MAST AND EQUIPMENT TURNABLE

The antennas used to measure the radiated electric field strength are mounted on a non-conductive antenna mast equipped with a motor-drive to vary the antenna height.

ANSI C63.4 specifies that the test height above ground for table mounted devices shall be 80 centimeters. Floor mounted equipment shall be placed on the ground plane if the device is normally used on a conductive floor or separated from the ground plane by insulating material from 3 to 12 mm if the device is normally used on a non-conductive floor. During radiated measurements, the EUT is positioned on a motorized turntable in conformance with this requirement.

INSTRUMENT CALIBRATION

All test equipment is regularly checked to ensure that performance is maintained in accordance with the manufacturer's specifications. All antennas are calibrated at regular intervals with respect to tuned half-wave dipoles. An appendix of this report contains the list of test equipment used and calibration information.

TEST PROCEDURES**EUT AND CABLE PLACEMENT**

The standards require that interconnecting cables be connected to the available ports of the unit and that the placement of the unit and the attached cables simulate the worst case orientation that can be expected from a typical installation, so far as practicable. To this end, the position of the unit and associated cabling is varied within the guidelines of ANSI C63.4, and the worst case orientation is used for final measurements.

CONDUCTED EMISSIONS (MAINS)

Conducted emissions are measured at the plug end of the power cord supplied with the EUT. Excess power cord length is wrapped in a bundle between 30 and 40 centimeters in length near the center of the cord. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted on all current carrying conductors of the power cord. Emissions that have peak values close to the specification limit are also measured in the quasi-peak and average detection modes to determine compliance except when the amplitude of the emission when measured with the quasi-peak detector is more than 10 dB below the specification limit for average measurements. In this case only quasi-peak measurements are performed.

CONDUCTED EMISSIONS (TELECOMMUNICATION PORTS)

Conducted emissions voltages are measured at a point 80 cm from the EUT. If conducted emission currents are measured, the current probe is located 70 cm from the EUT. Preliminary measurements are made to determine the highest amplitude emission relative to the specification limit for all the modes of operation. Placement of system components and varying of cable positions are performed in each mode. A final peak mode scan is then performed in the position and mode for which the highest emission was noted. Emissions that have peak values close to the specification limit are also measured in the quasi-peak and average detection modes to determine compliance except when the amplitude of the emission when measured with the quasi-peak detector is more than 10 dB below the specification limit for average measurements. In this case only quasi-peak measurements are performed.

RADIATED EMISSIONS

Radiated emissions measurements are performed in two phases as well. A preliminary scan of emissions is conducted in which all significant EUT frequencies are identified with the system in a nominal configuration. At least two scans are performed from 30 MHz up to the frequency required by the regulation specified on page 1. One or more of these is with the antenna polarized vertically while the one or more of these is with the antenna polarized horizontally. During the preliminary scans, the EUT is rotated through 360°, the antenna height is varied and cable positions are varied to determine the highest emission relative to the limit. A speaker is provided in the receiver to aid in discriminating between EUT and ambient emissions. Other methods used during the preliminary scan for EUT emissions involve scanning with near field magnetic loops, monitoring I/O cables with RF current clamps, and cycling power to the EUT. Final maximization is a phase in which the highest amplitude emissions identified in the spectral search are viewed while the EUT azimuth angle is varied from 0 to 360 degrees relative to the receiving antenna. The azimuth that results in the highest emission is then maintained while varying the antenna height from one to four meters. The result is the identification of the highest amplitude for each of the highest peaks. Each recorded level is corrected in the receiver using appropriate factors for cables, connectors, antennas, and preamplifier gain. Emissions that have values close to the specification limit may also be measured with a tuned dipole antenna to determine compliance.

SAMPLE CALCULATIONS**SAMPLE CALCULATIONS - CONDUCTED EMISSIONS**

Receiver readings are compared directly to the conducted emissions specification limit (decibel form). The calculation is as follows:

$$R_r - S = M$$

where:

$$R_r = \text{Receiver Reading in dBuV}$$

$$S = \text{Specification Limit in dBuV}$$

$$M = \text{Margin to Specification in +/- dB}$$

SAMPLE CALCULATIONS - RADIATED EMISSIONS

Receiver readings are compared directly to the specification limit (decibel form). The receiver internally corrects for cable loss, preamplifier gain, and antenna factor. The calculations are in the reverse direction of the actual signal flow, thus cable loss is added and the amplifier gain is subtracted. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements. A distance factor, when used for electric field measurements, is calculated by using the following formula:

$$F_d = 20 * \text{LOG}_{10} (D_m/D_s)$$

where:

$$F_d = \text{Distance Factor in dB}$$

$$D_m = \text{Measurement Distance in meters}$$

$$D_s = \text{Specification Distance in meters}$$

Measurement Distance is the distance at which the measurements were taken and Specification Distance is the distance at which the specification limits are based. The Antenna Factor converts the voltage at the antenna coaxial connector to the field strength at the antenna elements.

The margin of a given emission peak relative to the limit is calculated as follows:

$$R_c = R_r + F_d$$

and

$$M = R_c - L_s$$

where:

$$R_r = \text{Receiver Reading in dBuV/m}$$

$$F_d = \text{Distance Factor in dB}$$

$$R_c = \text{Corrected Reading in dBuV/m}$$

$$L_s = \text{Specification Limit in dBuV/m}$$

$$M = \text{Margin in dB Relative to Spec}$$

APPENDIX A: Test Equipment Calibration Data

1 Page

Radiated Emissions & Conducted Emissions, 22-Jul-04**Engineer: Elijah Garcia**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	LISN, 10kHz-100MHz	3825/2	1292	25-Jun-05
EMCO	LISN, 10kHz-100MHz	3825/2	1293	25-Jun-05
Com-Power	Pre Amplifier, 30-1000MHz	PA-103	1543	26-Nov-04
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1594	04-May-05
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630	05-Jan-05
Sunol Sciences	Biconilog, 30-3000MHz	JB3	1657	24-Feb-05

Radiated Emissions & Conducted Emissions, 12-Aug-04**Engineer: Elijah Garcia**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	LISN, 10kHz-100MHz	3825/2	1292	25-Jun-05
EMCO	LISN, 10kHz-100MHz	3825/2	1293	25-Jun-05
Com-Power	Pre Amplifier, 30-1000MHz	PA-103	1543	26-Nov-04
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1594	04-May-05
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630	05-Jan-05
Sunol Sciences	Biconilog, 30-3000MHz	JB3	1657	24-Feb-05

Radiated Emissions, 30 - 1,000 MHz, 31-Aug-04**Engineer: Joseph Cadigal**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	Biconical Antenna, 30-300 MHz	3110B	801	09-Jul-05
Rohde & Schwarz	Test Receiver, 9kHz-2750MHz	ESCS 30	1337	05-Jan-05
EMCO	Log Periodic Antenna, 0.2-2 GHz	3148	1347	28-Oct-04

Conducted Emissions - AC Power Ports, 01-Sep-04**Engineer: Conrad Chu**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	LISN, 10kHz-100MHz	3825/2	1292	25-Jun-05
EMCO	LISN, 10kHz-100MHz	3825/2	1293	25-Jun-05
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1594	04-May-05
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630	05-Jan-05

Radiated Emissions, 30 - 1,000 MHz, 01-Sep-04**Engineer: Conrad Chu**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
Com-Power	Pre Amplifier, 30-1000MHz	PA-103	1543	26-Nov-04
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1630	05-Jan-05
Sunol Sciences	Biconilog, 30-3000MHz	JB3	1657	24-Feb-05

Radiated Emissions, 30 - 2,000 MHz and AC Conducted Emissions, 06-Oct-04**Engineer: Conrad Chu**

<u>Manufacturer</u>	<u>Description</u>	<u>Model #</u>	<u>Asset #</u>	<u>Cal Due</u>
EMCO	LISN, 10kHz-100MHz	3825/2	1292	25-Jun-05
EMCO	LISN, 10kHz-100MHz	3825/2	1293	25-Jun-05
Rohde& Schwarz	Pulse Limiter	ESH3 Z2	1401	27-Feb-05
Rohde & Schwarz	EMI Test Receiver, 20Hz-7GHz	ESIB7	1538	26-May-05
Sunol Sciences	Biconilog, 30-3000MHz	JB3	1549	13-Apr-05
Com-Power Corp.	Pre Amplifier , 30-1000MHz	PA-103	1633	27-Jan-05

APPENDIX B: Test Data Log Sheets

ELECTROMAGNETIC EMISSIONS

TEST LOG SHEETS

AND

MEASUREMENT DATA

T56461 46 Pages



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
		Account Manager:	-
Contact:	David Waitt		-
Emissions Spec:	FCC, EN55022	Class:	B
Immunity Spec:	-	Environment:	-

EMC Test Data

For The

PalmOne

Model

Treo 650 GSM and Treo 650 CDMA

Date of Last Test: 10/13/2004



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
		Account Manager:	-
Contact:	David Waitt		
Emissions Spec:	FCC, EN55022	Class:	B
Immunity Spec:	-	Environment:	-

EUT INFORMATION

General Description

The EUT is a wireless phone which is designed to place wireless calls. Normally, the EUT would be placed on a table top during operation. The EUT was, therefore, treated as table-top equipment during testing to simulate the end-user environment. The electrical rating of the EUT is 120/240 V, 50/60 Hz, 1 Amps.

Equipment Under Test

Manufacturer	Model	Description	Serial Number	FCC ID
PalmOne	Treo 650 GSM	wireless phone		
PalmOne	Treo 650 CDMA	wireless phone		

Other EUT Details

EUT Enclosure

The EUT enclosure is primarily constructed of plastic. It measures approximately 6 cm wide by 12 cm deep by 2 cm high.

Modification History

Mod. #	Test	Date	Modification
1			
2			
3			

Modifications applied are assumed to be used on subsequent tests unless otherwise stated as a further modification.



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
		Account Manager:	-
Contact:	David Waitt		
Emissions Spec:	FCC, EN55022	Class:	B
Immunity Spec:	-	Environment:	-

Test Configuration #1

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP01L	Laptop computer	CN-06P823-48643-2CH-1058 Rev A06	DoC
AIWA	HP-X222	stereo dynamic headphones		

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
none				

Interface Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
client specific port	PC / power supply	NA	NA	NA

EUT Operation During Emissions

The CPU Was busy running scrolling H's as specified by the FCC.

EUT Operation During Immunity

Performance Criteria for Immunity

Criterion A:

Criterion B:

Criterion C:



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
		Account Manager:	-
Contact:	David Waitt		
Emissions Spec:	FCC, EN55022	Class:	B
Immunity Spec:	-	Environment:	-

Test Configuration #3 (Used for Emissions testing on 10-06-04 by Conrad Chu)

Local Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
Dell	PP01L	Laptop PC	CN-06P823-48643-2CH-1058 Rev A06	DoC
Dell	AA2003I	AC-DC Adaptor for Dell Laptop PC	16291-994-6245	-
HP	C6490A	Inkjet Printer (BSMI Approved)	MY3883K42P	DoC

Remote Support Equipment

Manufacturer	Model	Description	Serial Number	FCC ID
None	-	-	-	-

Interface Cabling and Ports (EUT)

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
EUT HotSync Port	Laptop PC USB Port	Multiconductor	Shielded	2.0
EUT DC Input	External AC-DC Adaptor	DC Leads	Unshielded	2.0

Additional Interface Cabling and Ports

Port	Connected To	Cable(s)		
		Description	Shielded or Unshielded	Length(m)
Laptop PC, Parallel Port	HP Printer	Multiconductor	Shielded	2.0
Laptop PC, DC Input	External AC-DC Adaptor	DC Leads	Unshielded	2.0

EUT Operation During Emissions

During emissions testing, the EUT and the host PC were both displaying a scrolling "H" pattern.



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Conducted Emissions - Power Ports

Test Specifics

Objective: The objective of this test session is to perform engineering evaluation testing of the EUT with respect to the specification listed above.

Date of Test: 8/12/2004
Test Engineer: Elijah Garcia
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 120V/60Hz	EN 55022 Class B	Pass	-12.6dB @ 0666KHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

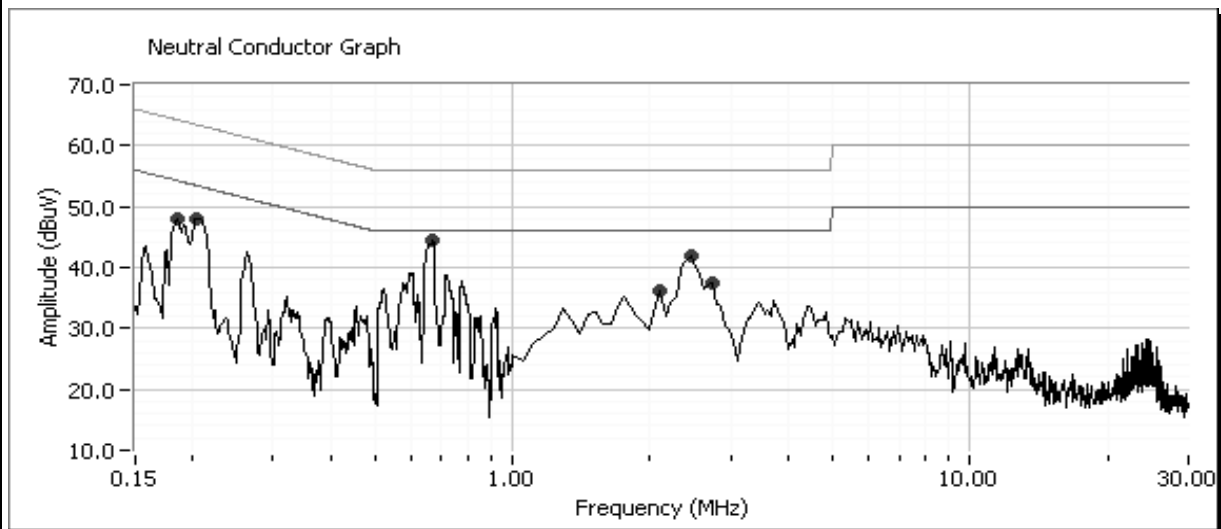
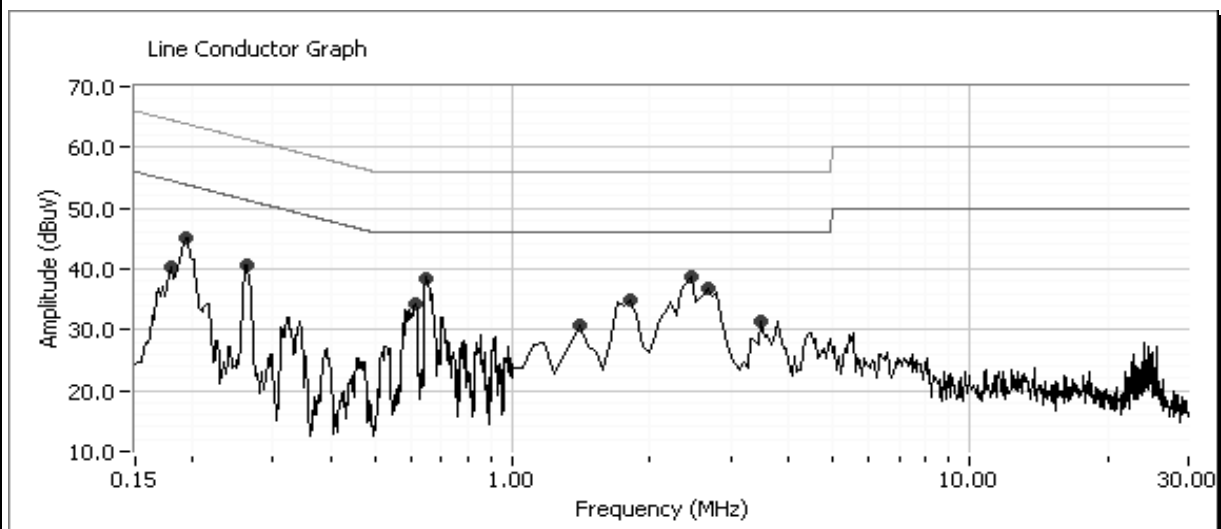
No deviations were made from the requirements of the standard.



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz
Phihong adapter. INTERNATIONAL SAMPLE B





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz
Phihong adapter. INTERNATIONAL SAMPLE B

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBμV	Line	Limit	Margin	QP/Ave	
0.666	43.4	neutral	56.0	-12.6	QP	
0.666	31.5	neutral	46.0	-14.5	Average	
0.184	39.5	neutral	54.3	-14.8	Average	
0.205	37.3	neutral	53.4	-16.1	Average	
0.184	47.1	neutral	64.3	-17.3	QP	
0.646	38.5	Line 1	56.0	-17.5	QP	
0.205	45.7	neutral	63.4	-17.7	QP	
0.646	27.9	Line 1	46.0	-18.1	Average	
2.457	37.6	neutral	56.0	-18.5	QP	
2.393	26.5	neutral	46.0	-19.5	Average	
2.393	36.5	neutral	56.0	-19.5	QP	
2.457	25.9	neutral	46.0	-20.1	Average	
0.185	43.5	Line 1	64.3	-20.8	QP	
0.185	32.9	Line 1	54.3	-21.4	Average	
2.405	24.1	Line 1	46.0	-21.9	Average	
0.192	42.1	Line 1	63.9	-21.9	QP	
2.405	34.1	Line 1	56.0	-21.9	QP	
0.260	28.9	Line 1	51.4	-22.6	Average	
0.260	38.7	Line 1	61.4	-22.7	QP	
2.398	33.2	Line 1	56.0	-22.8	QP	
0.610	32.9	Line 1	56.0	-23.1	QP	
2.398	22.1	Line 1	46.0	-23.9	Average	
0.192	29.4	Line 1	53.9	-24.5	Average	
0.610	21.1	Line 1	46.0	-24.9	Average	
1.659	20.7	Line 1	46.0	-25.3	Average	
1.789	30.4	Line 1	56.0	-25.6	QP	
1.659	29.2	Line 1	56.0	-26.8	QP	
1.789	19.2	Line 1	46.0	-26.8	Average	
3.433	24.5	Line 1	56.0	-31.5	QP	
3.433	13.9	Line 1	46.0	-32.1	Average	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Conducted Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 10/6/2004	Config. Used: 3
Test Engineer: Conrad Chu	Config Change: Laptop Battery Powered
Test Location: Fremont Chamber #5	EUT Voltage: 230V/50Hz

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.

Ambient Conditions:	Temperature:	19 °C
	Rel. Humidity:	63 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 230V/50Hz	EN 55022 Class B	Pass	-7.7 dB @ 0.64 MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard:

No deviations were made from the requirements of the standard.

EUT Identification:

CVT-DW3 (on Post-It Note inside battery compartment)
DYGX146J001591 (number on internal battery)



EMC Test Data

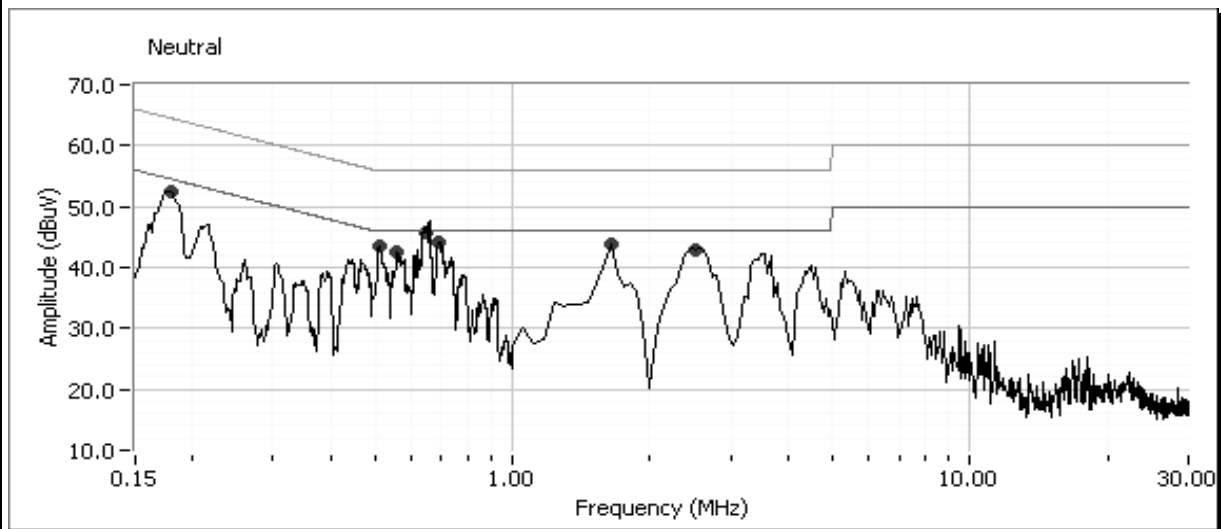
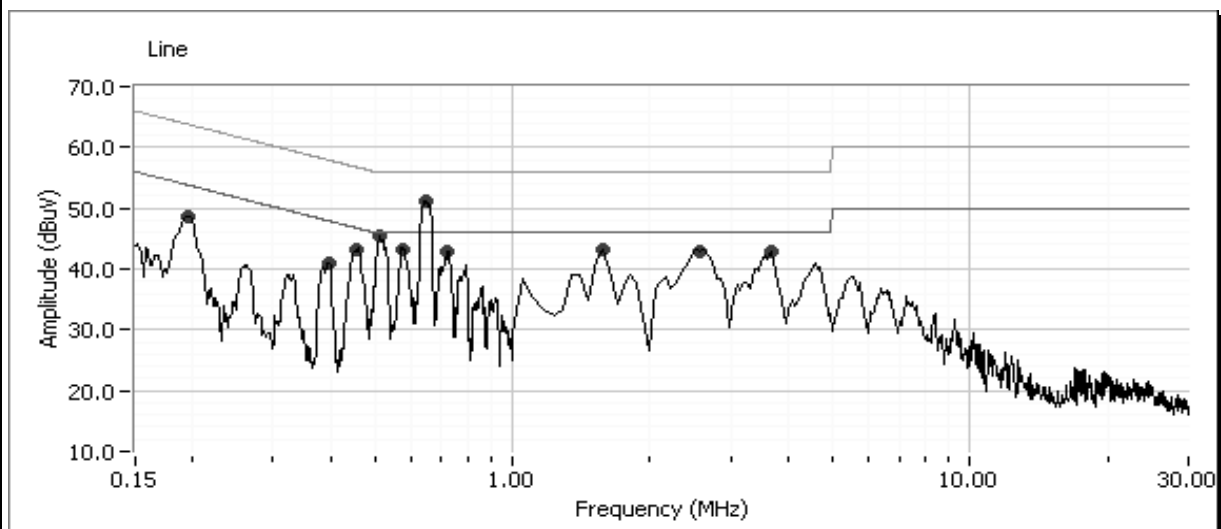
Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz

Phihong International AC Adapter at 230V/50Hz (s/n I43000288A1)

Support Equipment: Dell Laptop, Elliott HP BSMI Printer

Dell Laptop powered by Internal Battery





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

(continued)

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz

Frequency	Level	AC	EN55022 Class B		Detector	Comments
MHz	dBμV	Line	Limit	Margin	QP/Ave	
Preliminary peak readings captured during pre-scan (peak readings vs. average limit)						
0.648	51.3	Line	46.0	5.3	Peak	
0.571	43.2	Line	46.0	-2.8	Peak	
0.516	45.3	Line	46.0	-0.7	Peak	
0.717	42.9	Line	46.0	-3.1	Peak	
0.453	43.3	Line	46.7	-3.4	Peak	
0.393	41.0	Line	47.9	-6.9	Peak	
0.188	48.7	Line	53.8	-5.1	Peak	
2.582	42.8	Line	46.0	-3.2	Peak	
1.579	43.3	Line	46.0	-2.7	Peak	
3.552	43.0	Line	46.0	-3.0	Peak	
0.180	52.5	Neutral	54.5	-2.0	Peak	
0.510	43.5	Neutral	46.0	-2.5	Peak	
0.555	42.5	Neutral	46.0	-3.5	Peak	
0.640	45.9	Neutral	46.0	-0.1	Peak	
0.686	44.3	Neutral	46.0	-1.7	Peak	
1.528	43.8	Neutral	46.0	-2.2	Peak	
2.542	42.9	Neutral	46.0	-3.2	Peak	
Final quasi-peak and average readings						
0.640	48.3	Neutral	56.0	-7.7	QP	
0.180	45.4	Neutral	54.5	-9.1	Average	
0.648	46.3	Line	56.0	-9.7	QP	
0.640	35.5	Neutral	46.0	-10.5	Average	
0.648	34.1	Line	46.0	-11.9	Average	
0.510	43.1	Neutral	56.0	-12.9	QP	
0.686	41.5	Neutral	56.0	-14.5	QP	
0.180	49.6	Neutral	64.5	-14.8	QP	
1.528	41.1	Neutral	56.0	-14.9	QP	
0.510	31.1	Neutral	46.0	-14.9	Average	
0.555	40.7	Neutral	56.0	-15.3	QP	
0.516	40.5	Line	56.0	-15.6	QP	
1.528	29.6	Neutral	46.0	-16.4	Average	
0.686	29.4	Neutral	46.0	-16.7	Average	
2.542	29.1	Neutral	46.0	-16.9	Average	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

(continued)

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz

Frequency	Level	AC	EN55022 Class B		Detector	Comments
MHz	dB μ V	Line	Limit	Margin	QP/Ave	
2.542	39.0	Neutral	56.0	-17.0	QP	
0.516	28.8	Line	46.0	-17.2	Average	
0.555	28.0	Neutral	46.0	-18.0	Average	
1.579	37.6	Line	56.0	-18.4	QP	
0.571	36.5	Line	56.0	-19.5	QP	
0.717	36.0	Line	56.0	-20.0	QP	
2.582	35.8	Line	56.0	-20.2	QP	
0.717	25.7	Line	46.0	-20.3	Average	
0.453	26.3	Line	46.8	-20.5	Average	
1.579	25.2	Line	46.0	-20.8	Average	
2.582	25.2	Line	46.0	-20.8	Average	
0.453	35.5	Line	56.8	-21.3	QP	
0.571	24.3	Line	46.0	-21.7	Average	
3.552	24.2	Line	46.0	-21.8	Average	
3.552	34.0	Line	56.0	-22.0	QP	
0.188	29.8	Line	54.1	-24.3	Average	
0.393	33.4	Line	58.0	-24.6	QP	
0.393	22.9	Line	48.0	-25.1	Average	
0.188	34.5	Line	64.1	-29.6	QP	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Conducted Emissions - Power Ports

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/22/2004
Test Engineer: Elijah Garcia
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.

Ambient Conditions:

Temperature:	22.1 °C
Rel. Humidity:	58 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 120V/60Hz	EN 55022 Class B	Pass	-6.6dB @ 0.637MHz

Modifications Made During Testing:

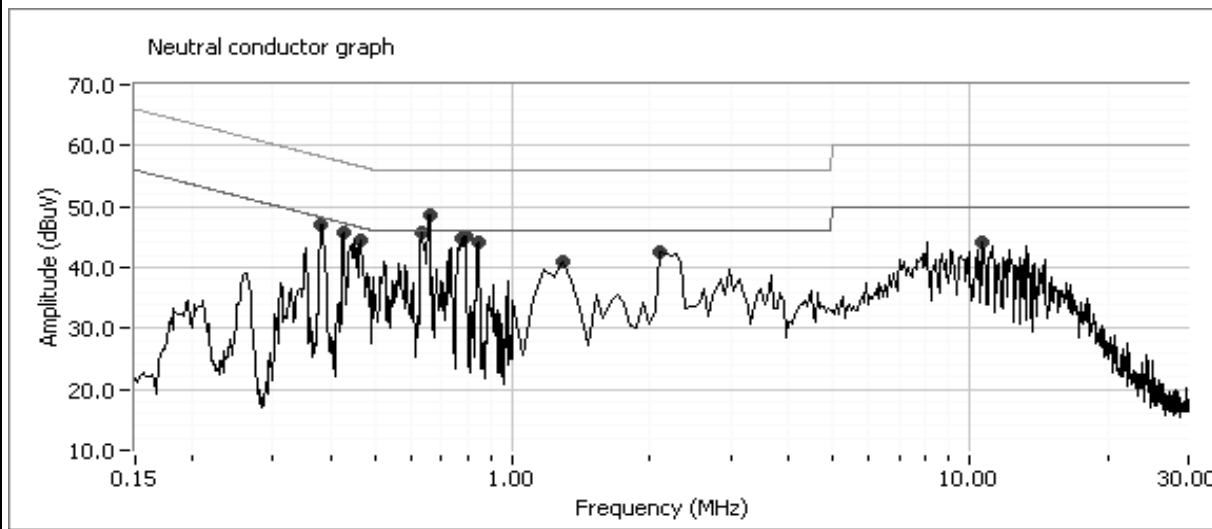
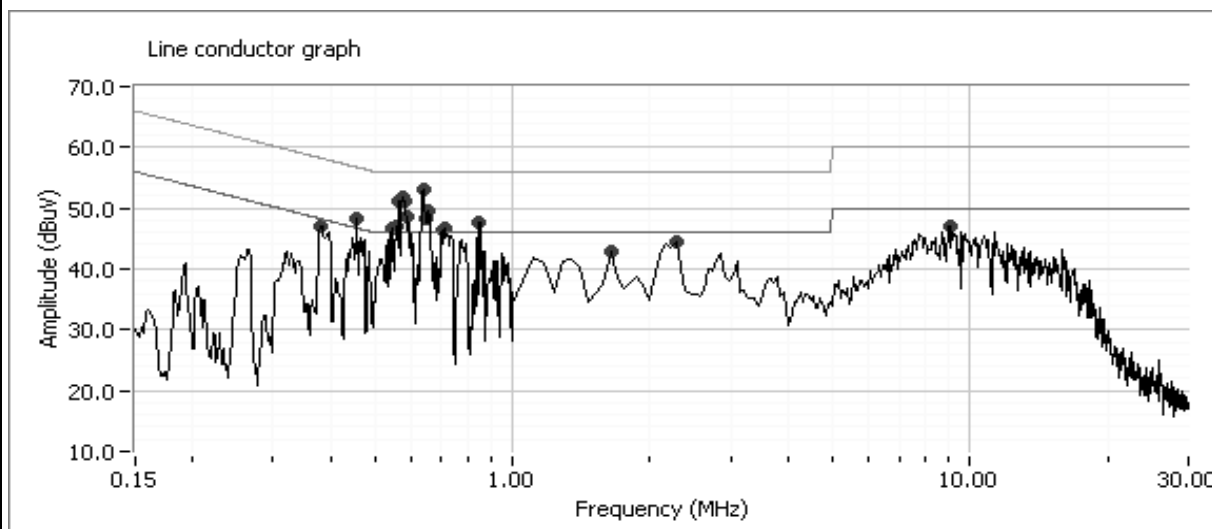
No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz
Ace GSM W/ Netbit NA Adapter





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

**Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz
Ace GSM W/ Netbit NA Adapter**

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dBμV	Line	Limit	Margin	QP/Ave	
0.637	49.4	Line 1	56.0	-6.6	QP	
0.567	49.1	Line 1	56.0	-6.9	QP	
0.649	48.9	Line 1	56.0	-7.1	QP	
0.655	47.6	Line 1	56.0	-8.4	QP	
0.574	47.5	Line 1	56.0	-8.5	QP	
0.458	48.2	Line 1	56.7	-8.5	QP	
0.712	47.2	Line 1	56.0	-8.8	QP	
0.637	37.0	Line 1	46.0	-9.0	Average	
0.458	37.6	Line 1	46.7	-9.1	Average	
0.702	46.9	Line 1	56.0	-9.1	QP	
0.649	36.5	Line 1	46.0	-9.5	Average	
0.574	36.3	Line 1	46.0	-9.7	Average	
0.567	36.2	Line 1	46.0	-9.8	Average	
0.702	35.8	Line 1	46.0	-10.2	Average	
0.584	45.7	Line 1	56.0	-10.3	QP	
0.712	35.5	Line 1	46.0	-10.5	Average	
0.558	45.5	Line 1	56.0	-10.5	QP	
0.591	44.6	Line 1	56.0	-11.4	QP	
0.584	34.5	Line 1	46.0	-11.5	Average	
0.655	34.3	Line 1	46.0	-11.8	Average	
0.591	33.3	Line 1	46.0	-12.7	Average	
0.558	32.9	Line 1	46.0	-13.1	Average	
0.847	42.9	Line 1	56.0	-13.1	QP	
0.847	31.6	Line 1	46.0	-14.4	Average	
0.545	30.4	Line 1	46.0	-15.6	Average	
0.545	40.0	Line 1	56.0	-16.0	QP	
9.059	32.3	Line 1	50.0	-17.7	Average	
1.623	38.1	Line 1	56.0	-17.9	QP	
9.059	41.7	Line 1	60.0	-18.3	QP	
2.255	37.1	Line 1	56.0	-18.9	QP	
2.255	26.5	Line 1	46.0	-19.5	Average	
1.623	26.1	Line 1	46.0	-19.9	Average	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

**Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 120V/60Hz
Ace GSM W/ Netbit NA Adapter**

Frequency	Level	AC	EN55022 B		Detector	Comments
MHz	dB μ V	Line	Limit	Margin	QP/Ave	
0.657	42.6	neutral	56.0	-13.4	QP	
0.657	28.5	neutral	46.0	-17.6	Average	
0.634	46.5	neutral	56.0	-9.5	QP	
0.634	32.5	neutral	46.0	-13.5	Average	
0.788	40.8	neutral	56.0	-15.2	QP	
0.788	25.4	neutral	46.0	-20.6	Average	
0.773	42.5	neutral	56.0	-13.5	QP	
0.773	27.6	neutral	46.0	-18.4	Average	
0.380	46.0	neutral	58.3	-12.2	QP	
0.380	33.3	neutral	48.3	-14.9	Average	
0.428	40.3	neutral	57.3	-17.0	QP	
0.428	27.1	neutral	47.3	-20.2	Average	
0.840	40.7	neutral	56.0	-15.3	QP	
0.840	28.6	neutral	46.0	-17.4	Average	
0.843	40.4	neutral	56.0	-15.6	QP	
0.843	27.9	neutral	46.0	-18.1	Average	
0.466	43.7	neutral	56.6	-12.9	QP	
0.466	32.2	neutral	46.6	-14.4	Average	
10.674	38.0	neutral	60.0	-22.0	QP	
10.674	27.9	neutral	50.0	-22.1	Average	
1.311	37.6	neutral	56.0	-18.4	QP	
1.311	23.7	neutral	46.0	-22.3	Average	
2.134	35.1	neutral	56.0	-20.9	QP	
2.134	25.0	neutral	46.0	-21.0	Average	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Conducted Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 10/6/2004
Test Engineer: Conrad Chu
Test Location: Fremont Chamber #5

Config. Used: 3
Config Change: Laptop Battery Powered
EUT Voltage: 230V/50Hz

General Test Configuration

For tabletop equipment, the EUT was located on a wooden table inside the semi-anechoic chamber, 40 cm from a vertical coupling plane and 80cm from the LISN. A second LISN was used for all local support equipment.

Ambient Conditions:

Temperature:	19 °C
Rel. Humidity:	63 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	CE, AC Power, 230V/50Hz	EN 55022 Class B	Pass	-9.2 dB @ 0.400 MHz

Modifications Made During Testing:

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.

EUT Identification:

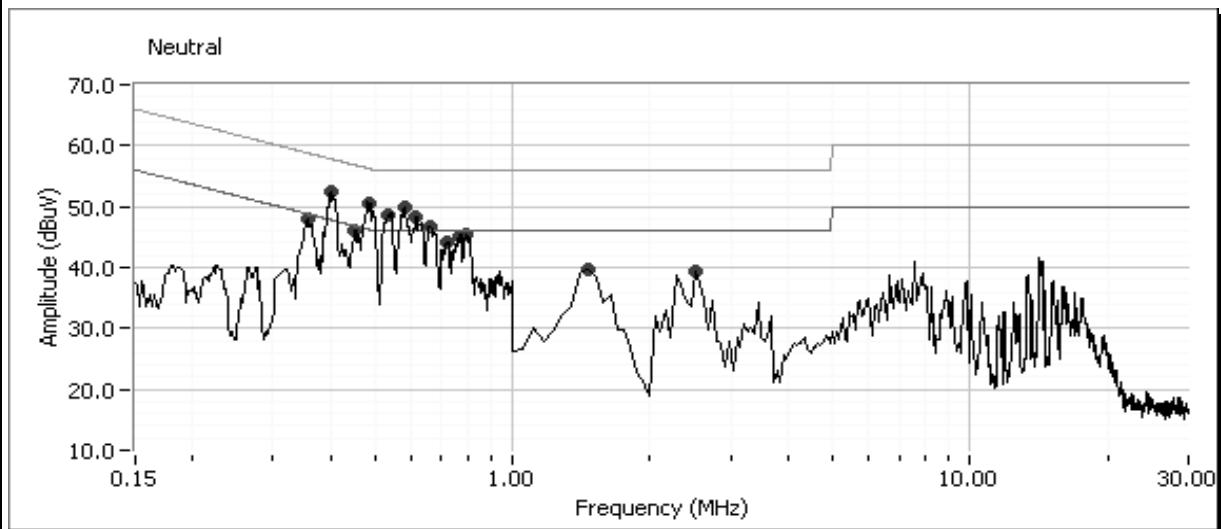
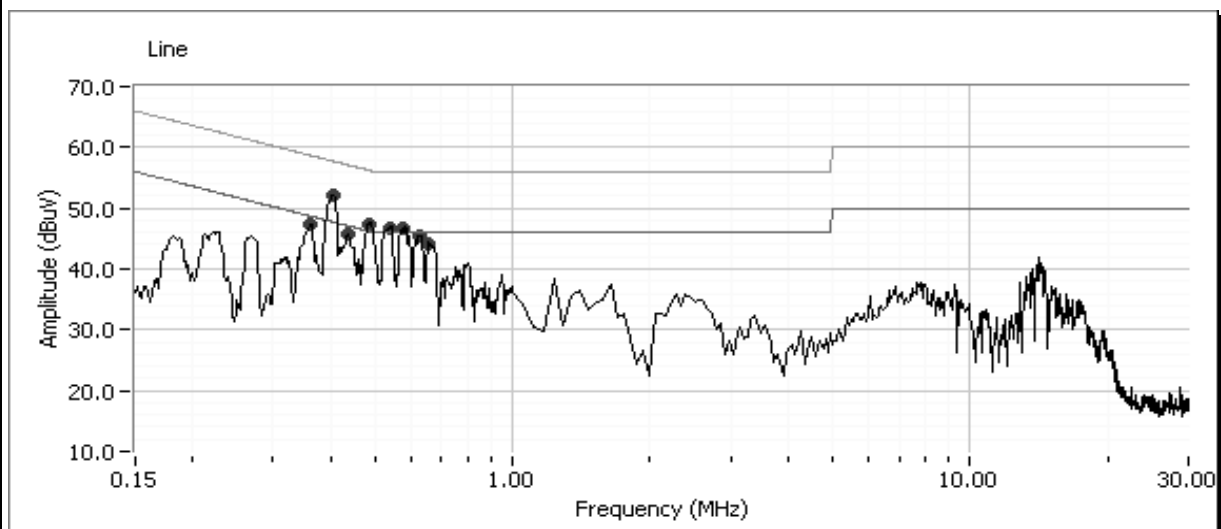
CVT-DW3 (on Post-It Note inside battery compartment)
DYGX146J001591 (number on internal battery)



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz
NetBit International at 230V/50Hz, Laptop PC powered by internal battery





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

(continued)

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz

Frequency	Level	AC	EN55022 Class B		Detector	Comments
MHz	dBμV	Line	Limit	Margin	QP/Ave	

Preliminary peak readings captured during pre-scan (peak readings vs. average limit)

0.400	52.1	Line 1	47.7	4.3	Peak	
0.485	47.5	Line 1	46.2	1.2	Peak	
0.354	47.4	Line 1	48.7	-1.3	Peak	
0.439	45.8	Line 1	47.1	-1.4	Peak	
0.539	46.8	Line 1	46.0	0.8	Peak	
0.574	46.8	Line 1	46.0	0.8	Peak	
0.623	45.5	Line 1	46.0	-0.5	Peak	
0.659	44.2	Line 1	46.0	-1.8	Peak	
0.356	47.9	Neutral	48.8	-1.0	Peak	
0.400	52.3	Neutral	47.9	4.5	Peak	
0.453	46.2	Neutral	46.8	-0.7	Peak	
0.484	50.5	Neutral	46.3	4.3	Peak	
0.535	48.7	Neutral	46.0	2.7	Peak	
0.579	49.8	Neutral	46.0	3.8	Peak	
0.617	48.3	Neutral	46.0	2.3	Peak	
0.659	46.7	Neutral	46.0	0.7	Peak	
0.722	44.1	Neutral	46.0	-1.9	Peak	
0.767	45.3	Neutral	46.0	-0.7	Peak	
0.794	45.5	Neutral	46.0	-0.6	Peak	
1.232	39.7	Neutral	46.0	-6.3	Peak	
2.337	38.9	Neutral	46.0	-7.1	Peak	

Final quasi-peak and average readings

0.400	48.7	Line 1	57.9	-9.2	QP	
0.401	47.8	Neutral	57.8	-10.0	QP	
0.401	37.6	Neutral	47.8	-10.2	Average	
0.483	45.8	Neutral	56.3	-10.5	QP	
0.534	45.5	Neutral	56.0	-10.5	QP	
0.400	36.9	Line 1	47.9	-10.9	Average	
0.581	44.7	Neutral	56.0	-11.3	QP	
0.483	34.1	Neutral	46.3	-12.2	Average	
0.485	44.1	Line 1	56.3	-12.2	QP	
0.616	43.4	Neutral	56.0	-12.6	QP	
0.534	33.3	Neutral	46.0	-12.7	Average	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

(continued)

Run #1: AC Power Port Conducted Emissions, 0.15 - 30MHz, 230V/50Hz

Frequency	Level	AC	EN55022 Class B		Detector	Comments
MHz	dBμV	Line	Limit	Margin	QP/Ave	
0.539	43.0	Line 1	56.0	-13.1	QP	
0.581	32.7	Neutral	46.0	-13.3	Average	
0.485	32.7	Line 1	46.3	-13.5	Average	
0.659	42.1	Neutral	56.0	-13.9	QP	
0.574	41.5	Line 1	56.0	-14.5	QP	
0.794	40.4	Neutral	56.0	-15.6	QP	
0.574	30.3	Line 1	46.0	-15.7	Average	
0.539	30.3	Line 1	46.0	-15.7	Average	
0.616	30.3	Neutral	46.0	-15.7	Average	
0.354	43.1	Line 1	58.9	-15.8	QP	
0.623	39.9	Line 1	56.0	-16.1	QP	
0.354	42.7	Neutral	58.9	-16.1	QP	
0.763	39.9	Neutral	56.0	-16.1	QP	
0.354	32.5	Neutral	48.9	-16.3	Average	
0.439	40.1	Line 1	57.1	-16.9	QP	
0.720	39.0	Neutral	56.0	-17.0	QP	
0.453	39.5	Neutral	56.8	-17.3	QP	
0.354	31.5	Line 1	48.9	-17.4	Average	
0.659	38.2	Line 1	56.0	-17.8	QP	
0.623	28.0	Line 1	46.0	-18.0	Average	
0.659	27.0	Neutral	46.0	-19.0	Average	
1.390	36.9	Neutral	56.0	-19.1	QP	
0.794	25.8	Neutral	46.0	-20.2	Average	
0.763	25.4	Neutral	46.0	-20.6	Average	
0.659	25.0	Line 1	46.0	-21.1	Average	
1.390	24.6	Neutral	46.0	-21.4	Average	
0.439	25.5	Line 1	47.1	-21.6	Average	
0.720	24.3	Neutral	46.0	-21.7	Average	
0.453	23.6	Neutral	46.8	-23.2	Average	
2.481	31.5	Neutral	56.0	-24.5	QP	
2.481	20.8	Neutral	46.0	-25.2	Average	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 7/22/2004	Config. Used: 1
Test Engineer: Elijah Garcia	Config Change: none
Test Location: Fremont Chamber #3	EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing.

Unless otherwise specified, the measurement antenna was located 10 meters from the EUT for the measurement range 30 - 1000 MHz and 3m from the EUT for the frequency range 1 - 2 GHz.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Note, for testing above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Ambient Conditions:	Temperature:	22.1 °C
	Rel. Humidity:	58 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, 30 - 1000 MHz, Preliminary Scan	EN 55022 Class B	Eval	-5.6dB @ 154.634MHz
2	RE, 30 - 1000 MHz, Maximized Emissions	EN 55022 Class B	Pass	-5.6dB @ 154.634MHz
3	RE, 1000 - 2000 MHz, Maximized Emissions	FCC Class B	Pass	-13.4dB @ 1.134GHz

Modifications Made During Testing

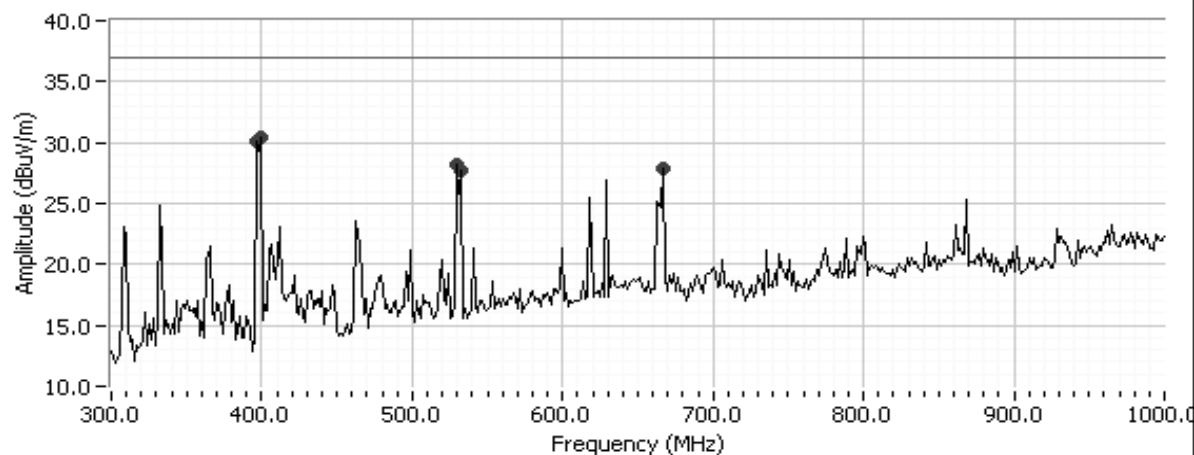
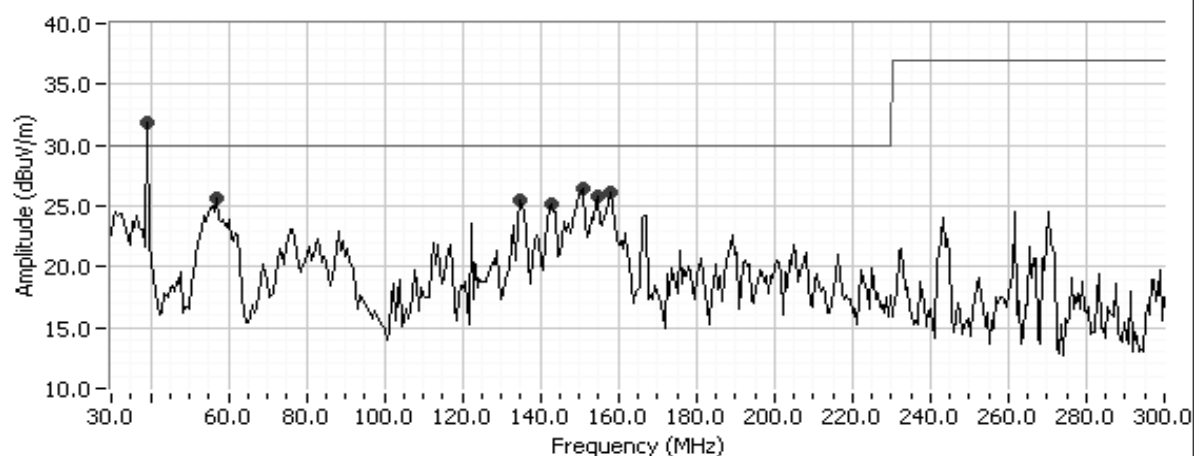
No modifications were made to the EUT during testing



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz Ace GSM W/ Netbit NA Adapter





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz Ace GSM W/ Netbit NA Adapter

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan								
154.634	25.9	V	30.0	-4.1	Peak	28	1.5	
158.258	26.1	V	30.0	-3.9	Peak	44	1.0	
151.027	26.5	V	30.0	-3.6	Peak	66	1.5	
135.350	25.4	V	30.0	-4.6	Peak	67	1.0	
142.918	25.2	V	30.0	-4.8	Peak	76	1.0	
57.367	25.6	V	30.0	-4.4	Peak	192	2.5	
38.864	31.8	V	30.0	1.8	Peak	360	1.5	
666.003	27.9	H	37.0	-9.1	Peak	66	1.0	
532.261	27.8	H	37.0	-9.2	Peak	225	1.5	
398.014	30.1	H	37.0	-6.9	Peak	263	2.0	
398.899	30.5	H	37.0	-6.5	Peak	274	2.0	
531.079	28.2	H	37.0	-8.8	Peak	332	1.5	
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
154.634	24.5	V	30.0	-5.6	QP	28	1.5	
151.027	23.2	V	30.0	-6.9	QP	66	1.5	
158.258	22.5	V	30.0	-7.5	QP	44	1.0	
142.918	21.5	V	30.0	-8.5	QP	76	1.0	
398.014	28.2	H	37.0	-8.8	QP	263	2.0	
57.367	21.2	V	30.0	-8.8	QP	192	2.5	
398.899	28.1	H	37.0	-8.9	QP	273	2.0	
666.003	27.6	H	37.0	-9.4	QP	66	1.0	
135.350	19.9	V	30.0	-10.1	QP	66	1.0	
531.079	25.3	H	37.0	-11.7	QP	332	1.5	
532.261	25.2	H	37.0	-11.8	QP	225	1.5	
38.864	16.0	V	30.0	-14.1	QP	360	1.5	



EMC Test Data

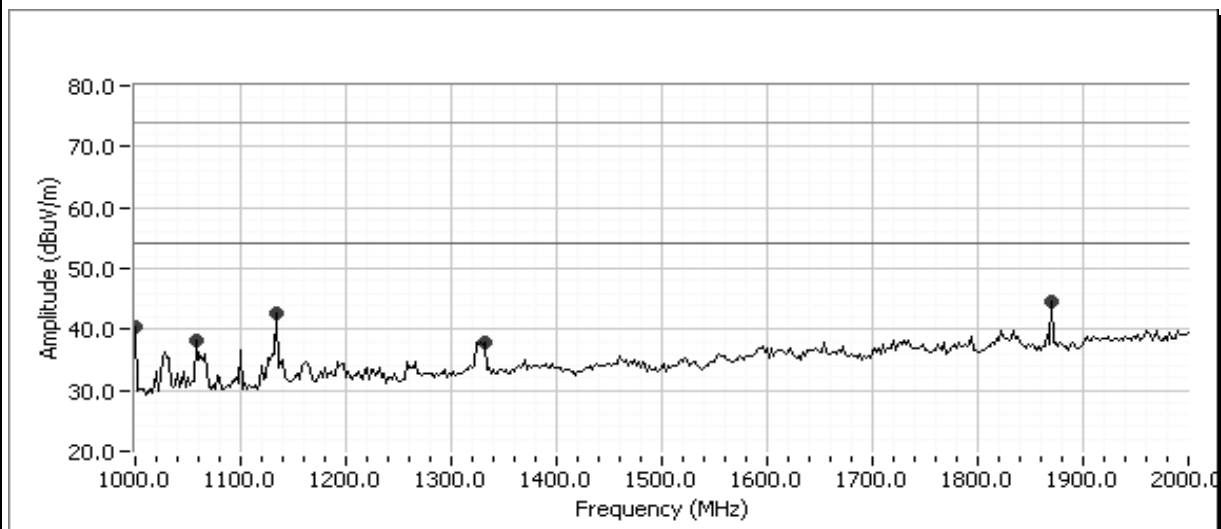
Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #2: Maximized Readings From Run #1

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Maximized quasi-peak readings (includes manipulation of EUT interface cables)								
154.634	24.5	V	30.0	-5.6	QP	28	1.5	
151.027	23.2	V	30.0	-6.9	QP	66	1.5	
158.258	22.5	V	30.0	-7.5	QP	44	1.0	
142.918	21.5	V	30.0	-8.5	QP	76	1.0	
398.014	28.2	H	37.0	-8.8	QP	263	2.0	
57.367	21.2	V	30.0	-8.8	QP	192	2.5	

Run #3: Maximized Readings, 1000 - 2000 MHz

Measurements made at 3m per FCC requirements.





EMC Test Data

Client:	PalmOne					Job Number:	J55849	
Model:	Treo 650 GSM and Treo 650 CDMA					T-Log Number:	T56461	
Contact:	David Waitt					Account Manager:	-	
Spec:	FCC, EN55022					Class:	B	
Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan (peak readings vs. average limit)								
1869.740	44.6	H	54.0	-9.4	Peak	49	2.0	ambient spike
1056.812	38.1	V	54.0	-15.9	Peak	163	1.5	
1331.425	38.0	V	54.0	-16.0	Peak	175	1.0	
1134.893	42.5	H	54.0	-11.5	Peak	188	1.5	
1001.384	40.5	H	54.0	-13.5	Peak	206	1.0	
Final peak and average readings								
1134.893	40.6	H	54.0	-13.4	Avg	188	1.5	
1001.384	39.8	H	54.0	-14.2	Avg	206	1.0	
1331.425	31.8	V	54.0	-22.2	Avg	175	1.0	
1331.425	46.9	V	74.0	-27.1	Pk	175	1.0	
1056.812	26.5	V	54.0	-27.5	Avg	163	1.5	
1134.893	45.7	H	74.0	-28.3	Pk	188	1.5	
1001.384	44.1	H	74.0	-29.9	Pk	206	1.0	
1056.812	40.2	V	74.0	-33.8	Pk	163	1.5	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 10/6/2004	Config. Used: 3
Test Engineer: Conrad Chu	Config Change: None
Test Location: Fremont Chamber #5	EUT Voltage: 230V/50Hz

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing.

Unless otherwise specified, the measurement antenna was located 5 meters from the EUT for the measurement range 30 - 1000 MHz and 3m from the EUT for the frequency range 1 - 10 GHz.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Note, for testing above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Ambient Conditions:	Temperature:	19 °C
	Rel. Humidity:	63 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
2	RE, 30 - 1000 MHz, Maximized Emissions	EN 55022 Class B	Pass	-5.4 dB @ 132.95 MHz
3	RE, 1000 - 2000 MHz, Maximized Emissions	FCC Class B	Pass	-11.1 dB @ 1134.845 MHz

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

EUT Identification:

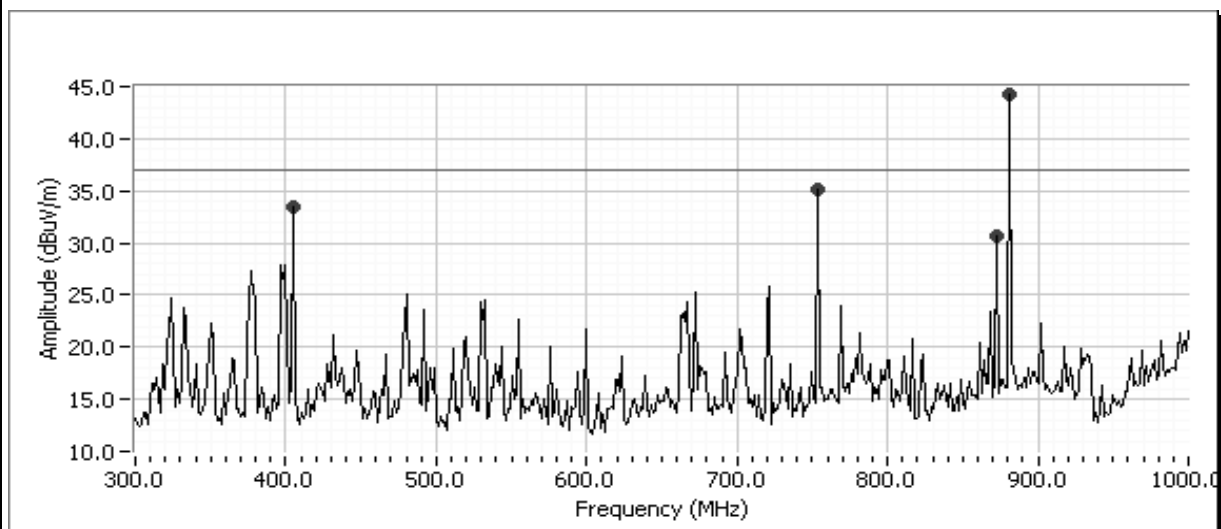
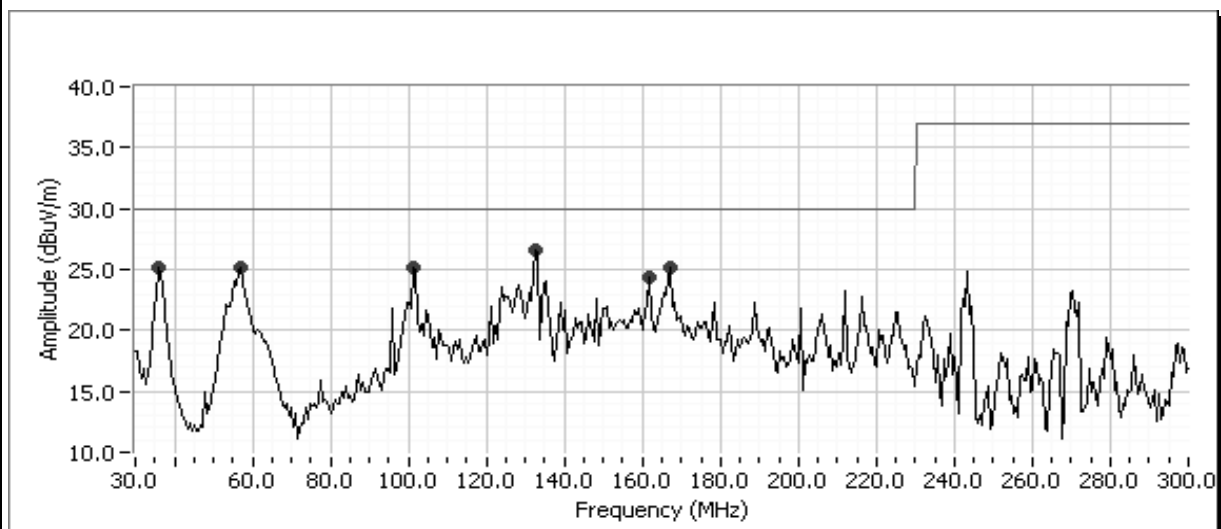
CVT-DW3 (on Post-It Note inside battery compartment)

DYGX146J001591 (number on internal battery)

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz

NetBit International AC Adapter at 230V/50Hz

Support Equipment: Dell Laptop powered by internal battery, Elliott HP BSMI Printer





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan								
36.418	25.2	V	30.0	-4.8	Peak	129	1.0	
56.743	25.1	V	30.0	-4.9	Peak	18	1.5	
101.419	25.2	V	30.0	-4.8	Peak	234	1.5	
132.953	26.5	V	30.0	-3.5	Peak	138	1.0	
161.703	24.4	V	30.0	-5.6	Peak	108	1.0	
166.278	25.1	V	30.0	-4.9	Peak	0	1.0	
405.199	33.5	H	37.0	-3.5	Peak	304	1.5	Isolated reading, Note 1
753.095	35.1	H	37.0	-1.9	Peak	300	2.0	Isolated reading, Note 1
872.345	30.6	V	37.0	-6.4	Peak	97	3.0	Isolated reading, Note 1
881.176	44.2	H	37.0	7.2	Peak	206	4.0	Isolated reading, Note 1
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
132.952	24.7	V	30.0	-5.4	QP	135	1.0	
56.743	23.6	V	30.0	-6.4	QP	17	1.5	
36.418	23.0	V	30.0	-7.0	QP	129	1.0	
161.703	19.0	V	30.0	-11.0	QP	107	1.0	
101.419	18.6	V	30.0	-11.5	QP	233	1.5	
166.278	17.9	V	30.0	-12.1	QP	0	1.0	
881.176	16.8	H	37.0	-20.2	QP	206	4.0	
872.345	11.5	V	37.0	-25.5	QP	97	3.0	
753.095	10.0	H	37.0	-27.0	QP	300	2.0	
405.199	10.0	H	37.0	-27.0	QP	301	1.5	

Note 1: Isolated reading (random spike) captured during preliminary scan, not repeatable



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #2: Maximized Readings From Run #1

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Maximized quasi-peak readings (includes manipulation of EUT interface cables)								
132.952	24.7	V	30.0	-5.4	QP	135	1.0	
56.743	23.6	V	30.0	-6.4	QP	17	1.5	
36.418	23.0	V	30.0	-7.0	QP	129	1.0	
161.703	19.0	V	30.0	-11.0	QP	107	1.0	
101.419	18.6	V	30.0	-11.5	QP	233	1.5	
166.278	17.9	V	30.0	-12.1	QP	0	1.0	

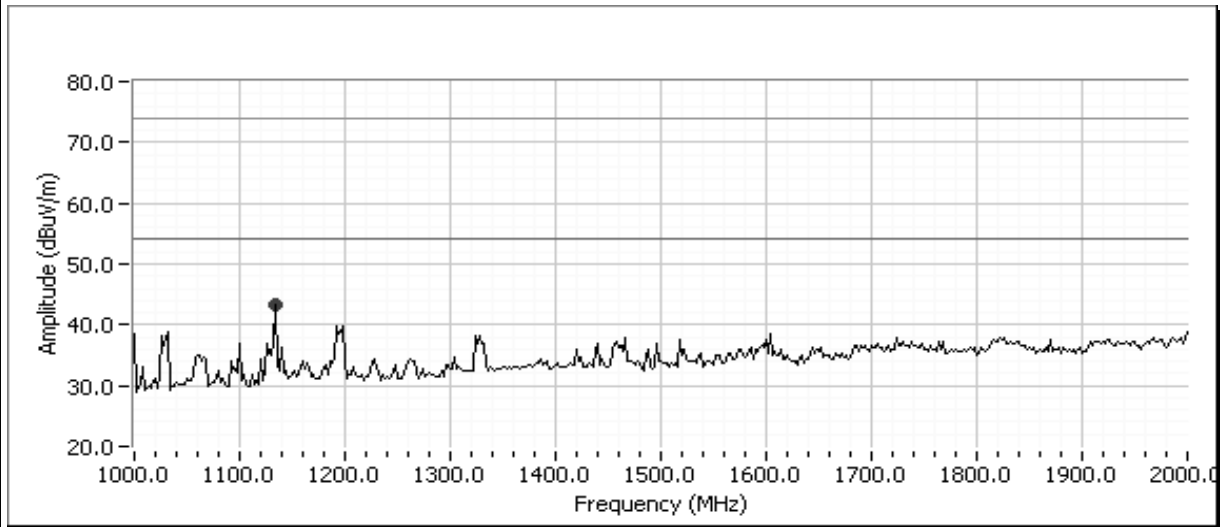


EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #3: Maximized Readings, 1000 - 2000 MHz

Measurements made at 3m per FCC requirements.



Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dB μ V/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan (peak readings vs. average limit)								
1134.269	43.4	H	54.0	-10.6	Peak	214	1.0	
Final peak and average readings								
1134.845	43.0	H	54.0	-11.1	Avg			
1134.845	47.8	H	74.0	-26.2	Pk			



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 8/12/2004
Test Engineer: Elijah Garcia
Test Location: Fremont Chamber #3

Config. Used: 1
Config Change: none
EUT Voltage: 120V/60Hz

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing.

Unless otherwise specified, the measurement antenna was located 10 meters from the EUT for the measurement range 30 - 1000 MHz and 3m from the EUT for the frequency range 1 - 2 GHz.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Note, for testing above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Ambient Conditions:

Temperature:	18 °C
Rel. Humidity:	44 %

Summary of Results **SAMPLE A**

Run #	Test Performed	Limit	Result	Margin
1	RE, 30 - 1000 MHz, Preliminary Scan	EN 55022 Class B	Eval	-2.7dB @ 76.028MHz
2	RE, 30 - 1000 MHz, Maximized Emissions	EN 55022 Class B	Pass	-2.7dB @ 76.028MHz
3	RE, 1000 - 2000 MHz, Maximized Emissions	FCC Class B	Pass	-14.3dB @ 1.134GHz

Modifications Made During Testing

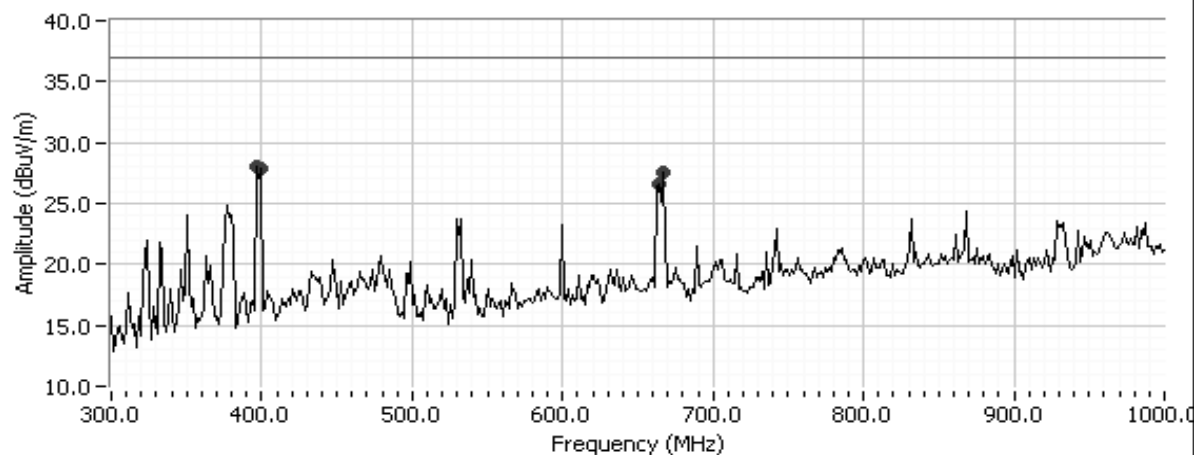
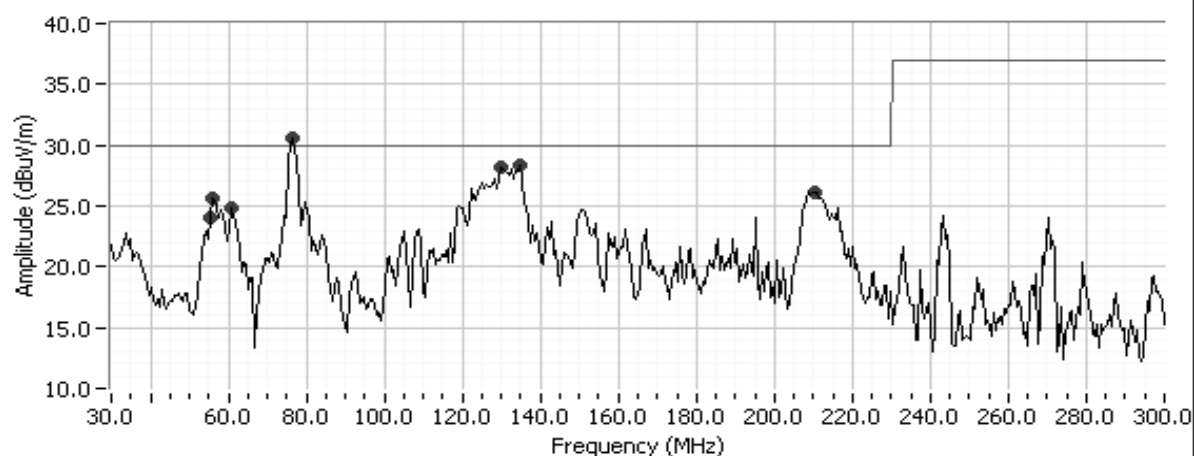
Modifications are detailed under each run description.



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz Phihong adapter. North America





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz
Phihong adapter. North America SAMPLE A

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan								
76.028	30.6	V	30.0	0.6	Peak	130	1.5	
134.853	28.4	V	30.0	-1.6	Peak	199	1.0	
129.867	28.2	V	30.0	-1.8	Peak	266	1.0	
210.012	26.1	V	30.0	-3.9	Peak	40	1.0	
55.771	25.6	V	30.0	-4.4	Peak	198	2.5	
61.330	24.9	V	30.0	-5.1	Peak	301	2.5	
55.770	24.0	V	30.0	-6.0	Peak	175	2.5	
397.617	28.1	H	37.0	-8.9	Peak	288	2.0	
398.899	27.9	H	37.0	-9.1	Peak	293	2.5	
665.998	27.6	H	37.0	-9.4	Peak	44	1.5	
663.999	26.6	H	37.0	-10.4	Peak	58	1.5	
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
76.028	27.3	V	30.0	-2.7	QP	130	1.5	
129.867	24.9	V	30.0	-5.1	QP	265	1.0	
134.853	24.8	V	30.0	-5.2	QP	199	1.0	
210.012	24.3	V	30.0	-5.7	QP	40	1.0	
61.330	22.4	V	30.0	-7.6	QP	301	2.5	
397.617	28.2	H	37.0	-8.8	QP	289	2.0	
55.771	20.6	V	30.0	-9.4	QP	199	2.5	
665.998	26.8	H	37.0	-10.2	QP	44	1.5	
398.899	26.1	H	37.0	-10.9	QP	292	2.5	
663.999	24.4	H	37.0	-12.6	QP	58	1.5	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #2: Maximized Readings From Run #1
Phihong adapter. North America SAMPLE A

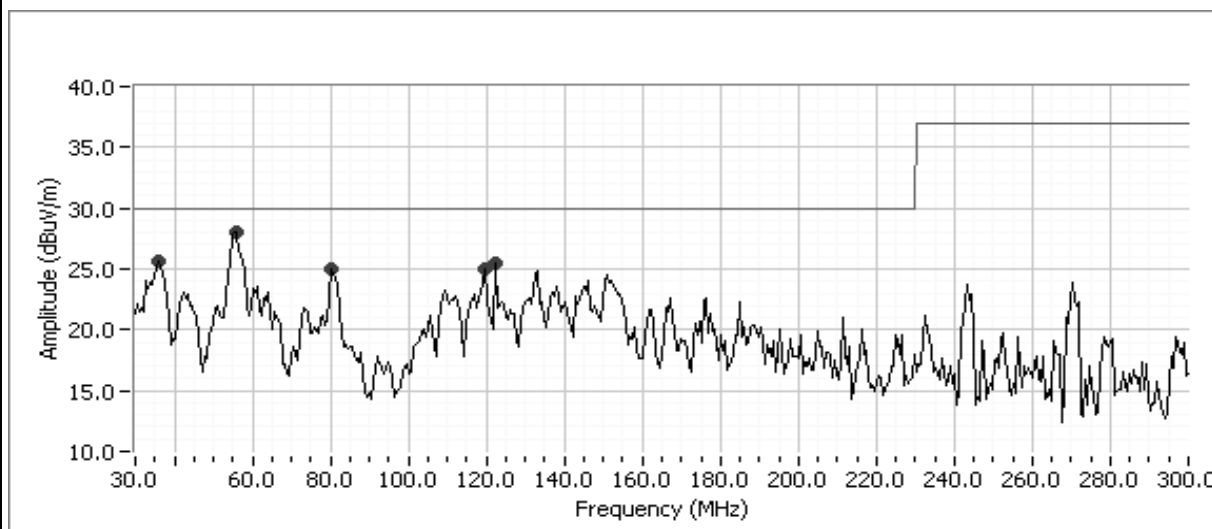
Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Maximized quasi-peak readings (includes manipulation of EUT interface cables)								
76.028	27.3	V	30.0	-2.7	QP	130	1.5	
129.867	24.9	V	30.0	-5.1	QP	265	1.0	
134.853	24.8	V	30.0	-5.2	QP	199	1.0	
210.012	24.3	V	30.0	-5.7	QP	40	1.0	
61.330	22.4	V	30.0	-7.6	QP	301	2.5	
397.617	28.2	H	37.0	-8.8	QP	289	2.0	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #3: Preliminary Radiated Emissions, 30 - 300 MHz
 Phihong adapter. North America SAMPLE B



Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan								
80.286	24.9	V	30.0	-5.1	Peak	85	1.5	
36.313	25.6	V	30.0	-4.4	Peak	103	1.0	
120.249	25.0	V	30.0	-5.0	Peak	114	1.0	
122.350	25.5	V	30.0	-4.5	Peak	206	1.0	
55.741	28.1	V	30.0	-2.0	Peak	218	1.5	
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
55.741	26.4	V	30.0	-3.6	QP	218	1.5	
36.313	23.7	V	30.0	-6.3	QP	103	1.0	
120.249	22.5	V	30.0	-7.5	QP	114	1.0	
122.350	22.3	V	30.0	-7.7	QP	206	1.0	
80.286	20.7	V	30.0	-9.4	QP	85	1.5	

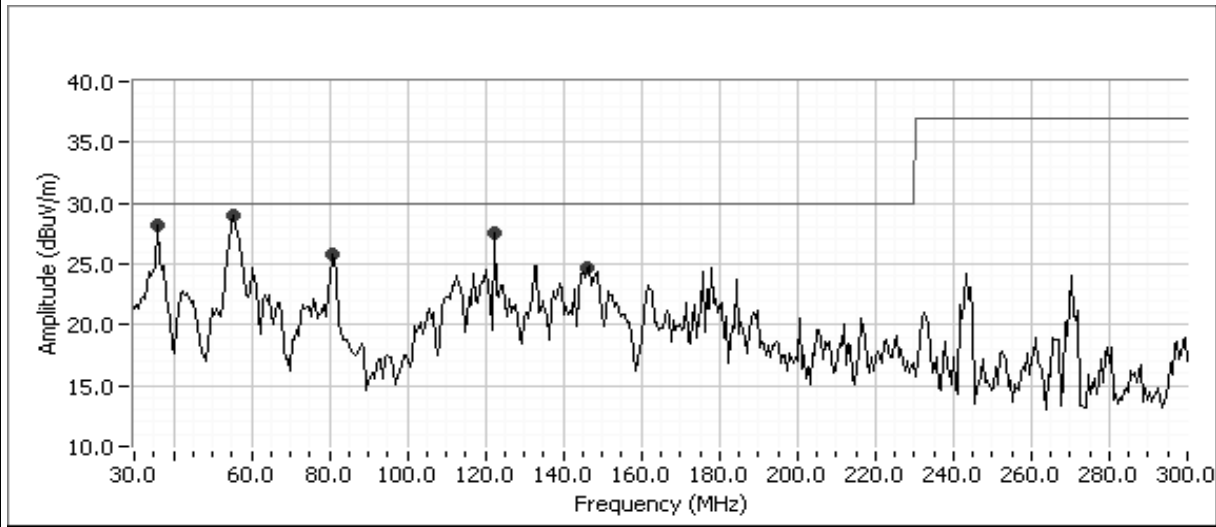


EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #4: Preliminary Radiated Emissions, 30 - 300 MHz

Phihong adapter. North America SAMPLE C



Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan								
122.357	27.6	V	30.0	-2.4	Peak	199	1.0	
55.643	28.9	V	30.0	-1.1	Peak	201	1.5	
80.896	25.7	V	30.0	-4.3	Peak	290	1.5	
146.052	24.7	V	30.0	-5.3	Peak	313	1.5	
36.330	28.1	V	30.0	-1.9	Peak	360	3.5	
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
55.643	26.4	V	30.0	-3.6	QP	200	1.5	
122.357	26.2	V	30.0	-3.9	QP	200	1.0	
36.330	23.2	V	30.0	-6.8	QP	360	3.5	
146.052	23.1	V	30.0	-6.9	QP	313	1.5	
80.896	23.1	V	30.0	-6.9	QP	289	1.5	

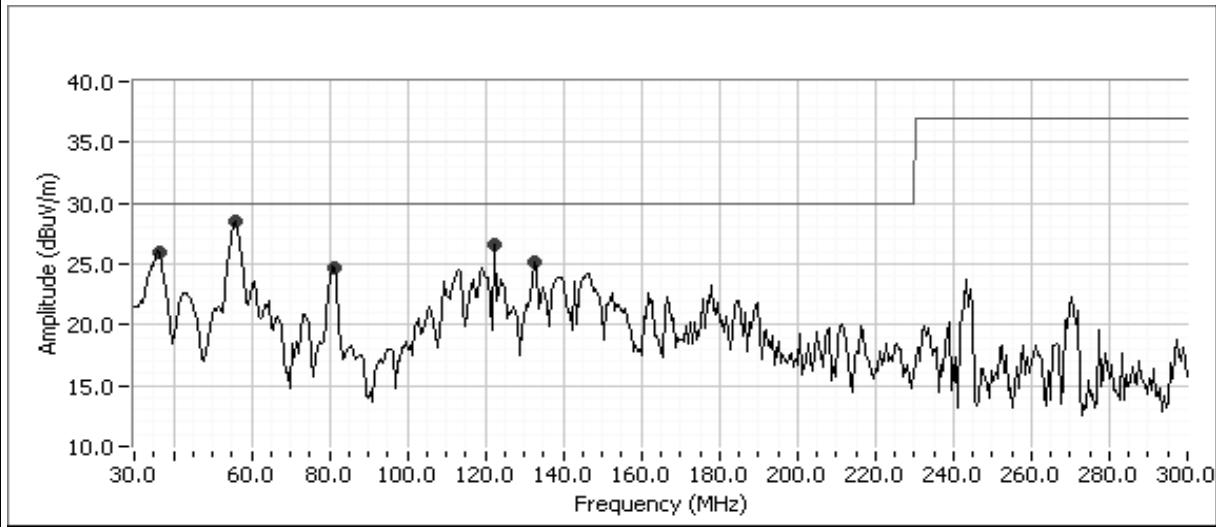


EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #5: Preliminary Radiated Emissions, 30 - 300 MHz

Phihong adapter. North America SAMPLE D



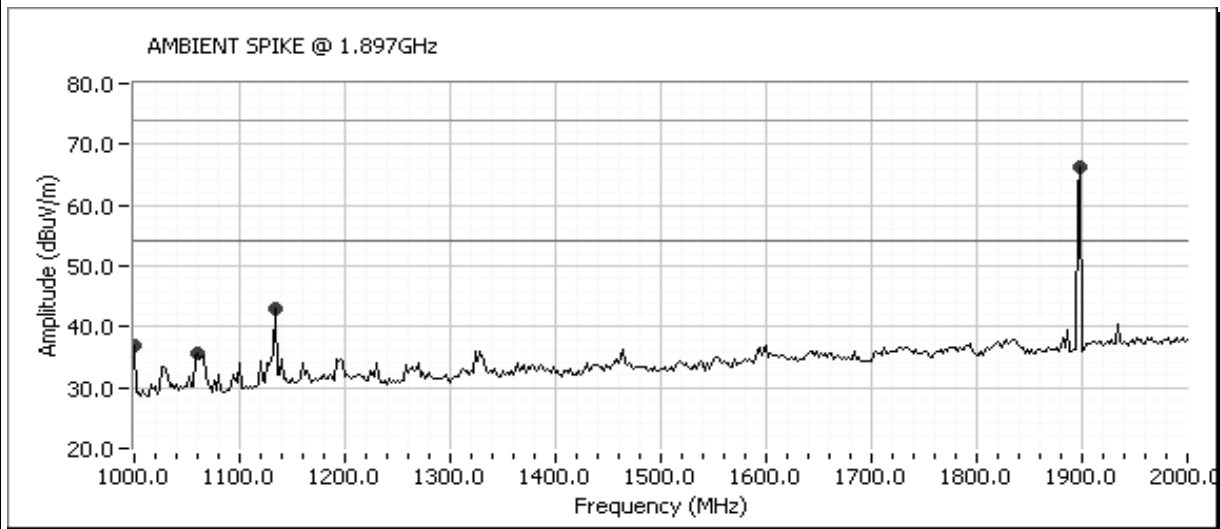
Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan								
81.474	24.7	V	30.0	-5.3	Peak	3	2.0	
133.261	25.1	V	30.0	-4.9	Peak	187	1.0	
55.749	28.5	V	30.0	-1.5	Peak	226	3.0	
122.357	26.6	V	30.0	-3.4	Peak	267	1.0	
36.867	25.9	V	30.0	-4.1	Peak	296	1.0	
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
55.749	26.5	V	30.0	-3.5	QP	226	3.0	
122.357	25.8	V	30.0	-4.2	QP	266	1.0	
36.867	23.3	V	30.0	-6.7	QP	296	1.0	
81.474	22.4	V	30.0	-7.6	QP	3	2.0	
133.261	22.0	V	30.0	-8.0	QP	187	1.0	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #6: Maximized Readings, 1000 - 2000 MHz
 Phihong adapter. North America SAMPLE A
 Measurements made at 3m per FCC requirements.



Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan (peak readings vs. average limit)								
1897.796	66.4	H	54.0	12.4	Peak	16	4.0	
1062.608	35.5	V	54.0	-18.5	Peak	188	1.5	
1134.909	42.8	H	54.0	-11.2	Peak	221	1.0	
1001.360	37.0	V	54.0	-17.1	Peak	273	1.0	
Final peak and average readings								
1134.909	39.7	H	54.0	-14.3	Avg	220	1.0	
1001.360	33.9	V	54.0	-20.1	Avg	273	1.0	
1062.608	29.1	V	54.0	-24.9	Avg	188	1.5	
1134.909	48.8	H	74.0	-25.3	Pk	220	1.0	
1062.608	42.7	V	74.0	-31.3	Pk	188	1.5	
1001.360	40.4	V	74.0	-33.6	Pk	273	1.0	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specifics

Objective: The objective of this test session is to perform final qualification testing of the EUT with respect to the specification listed above.

Date of Test: 10/6/2004	Config. Used: 3
Test Engineer: Conrad Chu	Config Change: See Below
Test Location: Fremont Chamber #5	EUT Voltage: 230V/50Hz

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing. The EUT was positioned in an upright position.

Unless otherwise specified, the measurement antenna was located 5 meters from the EUT for the measurement range 30 - 1000 MHz and 3m from the EUT for the frequency range 1 - 10 GHz.

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement antenna, and manipulation of the EUT's interface cables.

Note, for testing above 1 GHz, the FCC specifies the limit as an average measurement. In addition, the FCC states that the peak reading of any emission above 1 GHz, can not exceed the average limit by more than 20 dB.

Ambient Conditions:	Temperature:	19 °C
	Rel. Humidity:	63 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1 to 3	RE, 30 - 2000 MHz, Preliminary Scan	EN 55022 & FCC Class B	Fail	+1.6 dB @ 55.455 MHz

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

EUT Identification:

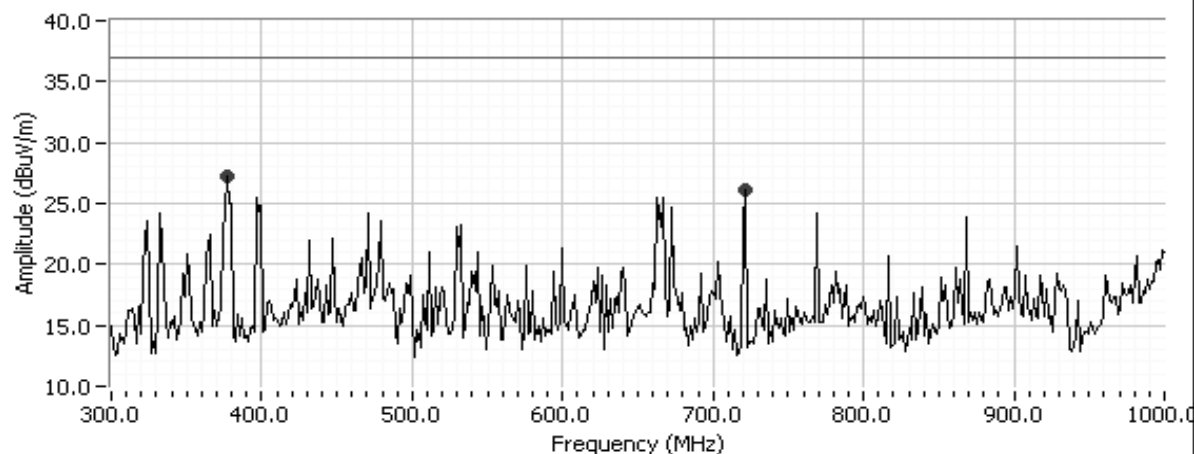
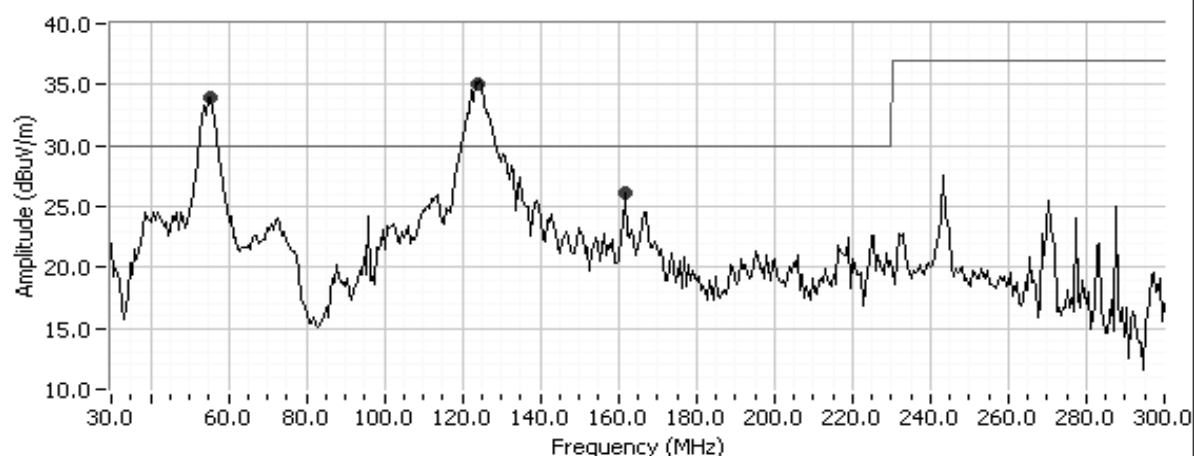
CVT-DW3 (on Post-It Note inside battery compartment)

DYGX146J001591 (number on internal battery)

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz

Phihong International AC Adapter at 230V/50Hz (s/n I43000288A1)

Support Equipment: Dell Laptop powered at 230V/50Hz, Elliott HP BSMI Printer





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

(continued)

Run #1: Preliminary Radiated Emissions, 30 - 1000 MHz

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan								
55.455	34.0	V	30.0	4.0	Peak	4	2.5	
124.148	35.0	V	30.0	5.0	Peak	254	1.0	
162.024	26.1	V	30.0	-3.9	Peak	181	1.0	
377.154	27.2	V	37.0	-9.8	Peak	357	2.0	
720.842	26.1	V	37.0	-10.9	Peak	299	1.0	
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
55.455	31.6	V	30.0	1.6	QP	4	2.5	
124.148	30.0	V	30.0	0.0	QP	254	1.0	
162.024	21.0	V	30.0	-9.0	QP	181	1.0	



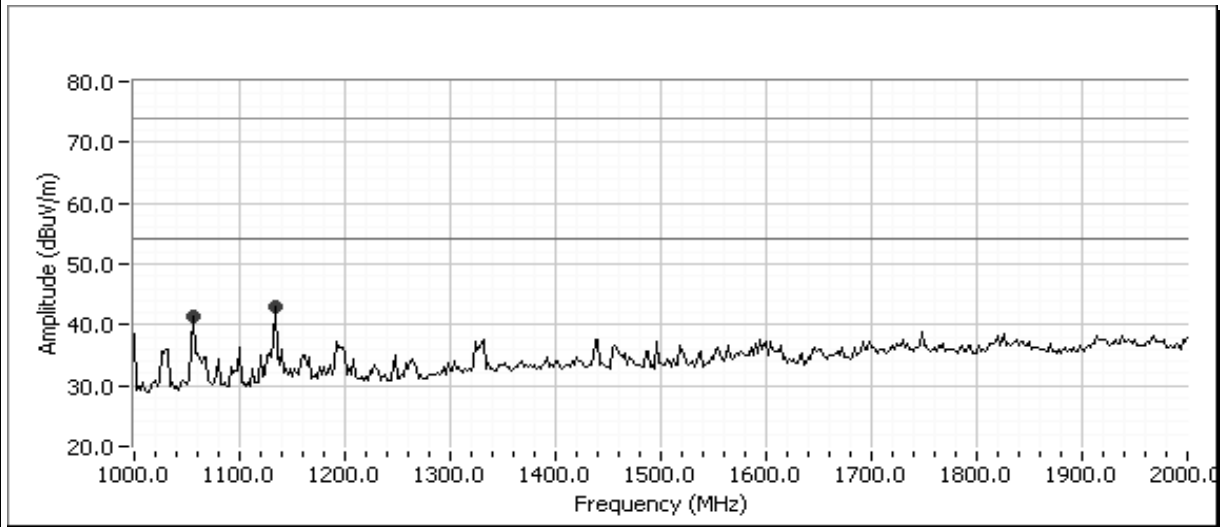
EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Run #2: Maximized Readings, 1000 - 2000 MHz

Measurements made at 3m per FCC requirements.

Phihong International AC Adapter at 230V/50Hz (s/n I43000288A1)



Frequency	Level	Pol	FCC Class B		Detector	Azimuth	Height	Comments
MHz	dBuV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan (peak readings vs. average limit)								
1056.112	41.2	V	54.0	-12.8	Peak	137	1.5	
1134.269	43.0	H	54.0	-11.0	Peak	196	1.0	
Final peak and average readings								
None taken								



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

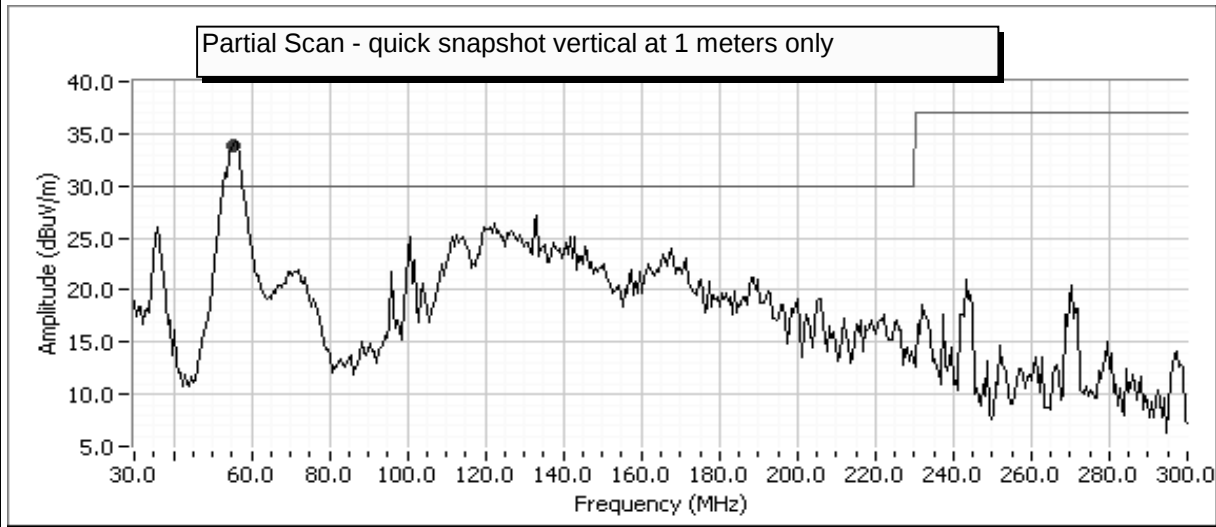
Run #3: Preliminary Radiated Emissions, 30 - 1000 MHz

Phihong International AC Adapter at 230V/50Hz (s/n I43000288A1)

Support Equipment: Dell Laptop, Elliott HP BSMI Printer

Dell Laptop powered by Internal Battery

PARTIAL SCAN ONLY



Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
56.144	33.2	V	30.0	3.2	QP	4	1.0	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

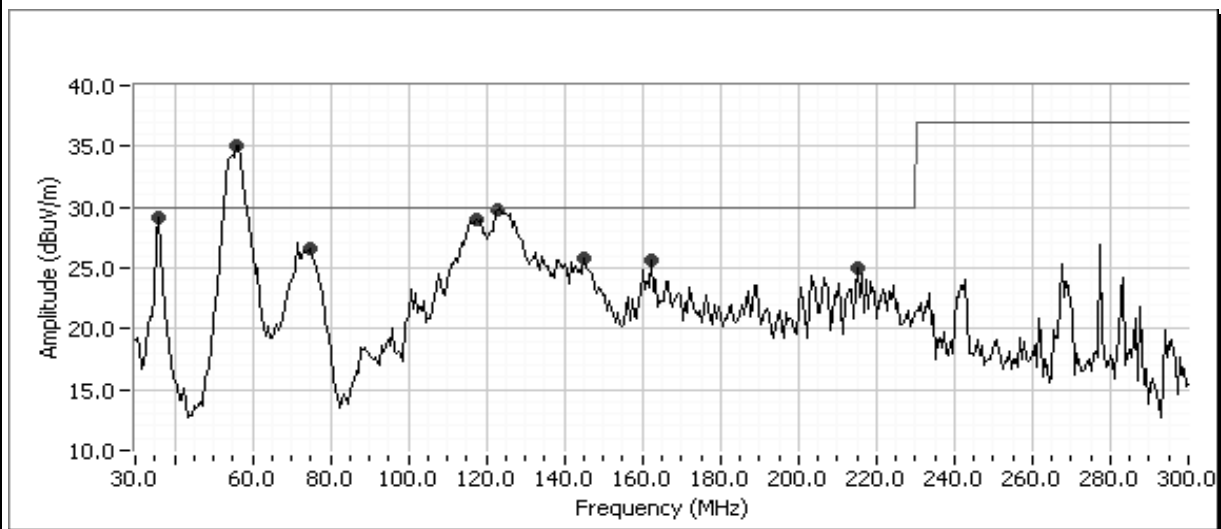
Run #4: Preliminary Radiated Emissions, 30 - 300 MHz

Phihong International AC Adapter at 230V/50Hz (s/n I43000288A1)

Support Equipment: Dell Laptop, Elliott HP BSMI Printer

Dell Laptop powered by Internal Battery

FULL SCAN 30-300 MHz





EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

(continued)

Run #4: Preliminary Radiated Emissions, 30 - 300 MHz

Frequency	Level	Pol	EN 55022 Class B		Detector	Azimuth	Height	Comments
MHz	dBµV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
Preliminary peak readings captured during pre-scan								
162.500	25.6	V	30.0	-4.4	Peak	4	1.0	
56.140	35.0	V	30.0	5.0	Peak	38	1.0	
36.127	29.2	V	30.0	-0.8	Peak	124	1.0	
116.230	29.0	V	30.0	-1.0	Peak	205	1.0	
74.618	26.6	V	30.0	-3.4	Peak	243	1.0	
214.117	25.1	H	30.0	-5.0	Peak	264	2.0	
122.353	29.8	V	30.0	-0.2	Peak	267	1.0	
145.575	25.8	V	30.0	-4.2	Peak	355	1.0	
Preliminary quasi-peak readings (no manipulation of EUT interface cables)								
162.500	20.4	V	30.0	-9.6	QP	2	1.0	
56.140	29.7	V	30.0	-0.3	QP	37	1.0	
36.127	23.8	V	30.0	-6.2	QP	124	1.0	
116.230	24.0	V	30.0	-6.0	QP	205	1.0	
74.618	21.6	V	30.0	-8.5	QP	243	1.0	
214.117	22.8	H	30.0	-7.2	QP	263	2.0	
122.353	23.9	V	30.0	-6.1	QP	269	1.0	
145.575	17.9	V	30.0	-12.1	QP	355	1.0	



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

Radiated Emissions

(Elliott Laboratories Fremont Facility, Semi-Anechoic Chamber)

Test Specifics

Objective: The objective of this test session is to perform Final Qualification testing of the EUT with respect to the specification listed above.

Date of Test: 10/12/2004
Test Engineer: Juan Gonzalez
Test Location: SVOATS#1

Config. Used: 3
Config Change: See Below
EUT Voltage: 230V/50Hz

General Test Configuration

The EUT and any local support equipment were located on the turntable for radiated emissions testing. The EUT was positioned in an upright position.

Unless otherwise specified, the measurement antenna was located 10 meters from the EUT for the measurement of selected Frequencies (Data used for Comparison)

Note, **preliminary** testing indicates that the emissions were maximized by orientation of the EUT and elevation of the measurement antenna. **Maximized** testing indicated that the emissions were maximized by orientation of the EUT, elevation of the measurement

Ambient Conditions:
Temperature: 19 °C
Rel. Humidity: 63 %

Summary of Results

Run #	Test Performed	Limit	Result	Margin
1	RE, Selected Frequencies	EN 55022 B	Pass	-2.8dB @ 55.455MHz

Modifications Made During Testing

No modifications were made to the EUT during testing

Deviations From The Standard

No deviations were made from the requirements of the standard.



EMC Test Data

Client:	PalmOne	Job Number:	J55849
Model:	Treo 650 GSM and Treo 650 CDMA	T-Log Number:	T56461
Contact:	David Waitt	Account Manager:	-
Spec:	FCC, EN55022	Class:	B

EUT Identification:

CVT-DW3 (on Post-It Note inside battery compartment)

DYGX146J001591 (number on internal battery)

Run #1: Preliminary Radiated Emissions, Selected Frequencies (Data used for Comparison)

Phihong International AC Adapter at 230V/50Hz (s/n I43000288A1)

Support Equipment: Dell Laptop powered by Battery, Elliott HP BSMI Printer

SVOATS#1

55.455	26.5	V	30.0	-3.5	QP	270	1.2	signal + ambient
123.980	24.0	V	30.0	-6.0	QP	240	1.0	signal + ambient
162.000	23.0	V	30.0	-7.0	QP	360	1.0	
161.998	21.0	H	30.0	-9.0	QP	223	2.0	
55.455	20.9	H	30.0	-9.1	QP	360	1.0	signal + ambient
124.000	15.0	H	30.0	-15.0	QP	0	1.5	

Run #2: Maximized Readings From Run #1

Frequency	Level	Pol	EN55022 B		Detector	Azimuth	Height	Comments
MHz	dBμV/m	v/h	Limit	Margin	Pk/QP/Avg	degrees	meters	
55.455	27.2	V	30.0	-2.8	QP	270	1.2	signal + ambient
55.455	24.9	H	30.0	-5.1	QP	360	1.0	signal + ambient
123.980	24.0	V	30.0	-6.0	QP	240	1.0	signal + ambient
162.000	23.0	V	30.0	-7.0	QP	360	1.0	
161.998	21.1	H	30.0	-8.9	QP	223	2.0	
124.000	15.0	H	30.0	-15.0	QP	0	1.5	

APPENDIX C: Radiated Emissions Test Configuration Photographs

APPENDIX C: Radiated Emissions Test Configuration Photographs

APPENDIX D: Conducted Emissions Test Configuration Photographs

APPENDIX D: Conducted Emissions Test Configuration Photographs

APPENDIX E: Information and Labeling Requirements

The following information has been provided to clarify notification, equipment labeling requirements and information that must be included in the operator's manual. These requirements may be found in the standards/regulations listed in the scope of this report.

United States Class B Label

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Note: If the device is too small or for such use that it is not practicable to place the US label statement on it, the statement shall be placed in a prominent location in the instruction manual or pamphlet supplied to the user or, alternatively, shall be placed on the container in which the device is marketed

Japanese Class B Label



Label Location

The required label(s) must be in a *conspicuous location* on the product, which is defined as any location readily visible to the user of the device without the use of tools.

Label Attachment

The label(s) must be *permanently attached* to the product, which is defined as attached such that it can normally be expected to remain fastened to the equipment during the equipment's expected useful life. A paper gum label will generally not meet this condition.

APPENDIX E: Information and Labeling Requirements

United States Class B Manual Statement

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try and correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Note: Additional information about corrective measures may also be provided to the user at the manufacturer's option.

Where special accessories, such as shielded cables, are required in order to meet FCC emission limits, appropriate instructions regarding the need to use such accessories must be contained on the first page of text concerned with the installation of the device in the operator's manual.

The operator's manual must also caution the user that changes or modifications not expressly approved by you, the manufacturer, could void their right to operate the equipment.

The FCC has indicated that the radio interference statement be bound in the same manner as the operator's manual. Thus, a loose-leaf insert page in a bound or center-spine and stapled manual would not meet this condition.

Japanese Class B Manual Statement

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

ENGLISH TRANSLATION OF USER'S MANUAL INFORMATION

This is Class B product based on the standard of the Voluntary Control Council For Interference by Information Technology Equipment (VCCI). If this used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

APPENDIX E: Information and Labeling Requirements

Industry Canada Information

For ICES-003 (digital apparatus), the product must be labeled with a notice indicating compliance, e.g.

"This Class B digital apparatus complies with Canadian ICES-003."

If it is not feasible to fix a label to the product, the notice may be included in the user manual.

The label or notice may be in English, French or both, based on the intended market, company marketing policies, and any other applicable provincial or federal regulations.

Japanese Information

The VCCI requires a notification for each product sold with the VCCI label. A notification letter on your company letterhead with 2 copies of Form 1 must be sent to the VCCI in Japan at the following address:

Voluntary Control Council for
Interference by Information Technology Equipment
NOA Building, 7th Floor
3-5 Azabudai 2-chome, Minato-ku,
Tokyo 106-0041, Japan

You may also submit the form electronically on the VCCI web site http://www.vcci.or.jp/vcci_e/member/index.html. Go to "Documents and Forms, Report of Compliance" in Members only section. Enter your username and password and click "OK". Then click "Please click here if you submit report of compliance electronically" to open the submission form. Fill all required columns and click "CONFIRM" after making sure everything is filled properly.

Australia Information

In Australia, an application to use the C-Tick mark must be made by the importer of the product. The importer must hold a Declaration of Conformity and compliance folder, of which this report forms a part, for each product sold with a C-Tick mark.