



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

FOR

CDMA CELL-PCS MODULE

MODEL NUMBER: PA3547E-1HSD

FCC ID: CJ6UPA3547G3

REPORT NUMBER: 07U11497-1

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Prepared for
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OME COMPLEX, 2-9, SUEHIRO-CHO
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NVLAP[®]

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Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: TOSHIBA CORPORATION
OME COMPLEX, 2-9, SUEHIRO-CHO
TOKYO, 198-8710, JAPAN

EUT DESCRIPTION: CDMA CELL-PCS MODULE

MODEL: PA3547E-1HSD

SERIAL NUMBER: 97012617J

DATE TESTED: DECEMBER 3 - 10, 2007

| APPLICABLE STANDARDS | |
|-----------------------|-------------------------|
| STANDARD | TEST RESULTS |
| FCC PART 22 SUBPART H | NO NON-COMPLIANCE NOTED |
| FCC PART 24 SUBPART E | NO NON-COMPLIANCE NOTED |

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

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

Approved & Released For CCS By:



THU CHAN
EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

Tested By:



CHIN PANG
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

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

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. MEASUREMENT UNCERTAINTY

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

| PARAMETER | UNCERTAINTY |
|-------------------------------------|----------------|
| Radiated Emission, 30 to 200 MHz | +/- 3.3 dB |
| Radiated Emission, 200 to 1000 MHz | +4.5 / -2.9 dB |
| Radiated Emission, 1000 to 2000 MHz | +4.5 / -2.9 dB |
| Power Line Conducted Emission | +/- 2.9 dB |

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a CDMA Cell-PCS Module installed in Toshiba Protégé M700 Tablet.

The module supports GSM, GPRS, EGPRS, WCDMA, and WCDMA+HSPDA. Device capabilities are documented in the theory of operation.

The radio module is manufactured by Tyco Electronics.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak output power ERP and EIRP as follows:

Part 22 (824 - 849MHz) & Part 24 (1850 - 1910MHz) Authorized Band:

| Frequency Range (MHz) | Modulation | ERP Peak Power (dBm) | ERP Peak Power (mW) |
|--------------------------|-------------|----------------------------|---------------------------|
| 824.2 - 848.75 | GPRS | 29.00 | 794.33 |
| 824.2 - 848.75 | EGPRS | 26.70 | 467.74 |
| 826.5 - 846.6 | WCDMA | 23.10 | 204.17 |
| 826.5 - 846.6 | WCDMA+HSPDA | 23.60 | 229.09 |

| Frequency Range (MHz) | Modulation | EIRP Peak Power (dBm) | EIRP Peak Power (mW) |
|--------------------------|-------------|-----------------------------|----------------------------|
| 1850.25 - 1909.8 | GPRS | 30.40 | 1096.48 |
| 1850.25 - 1909.8 | EGPRS | 27.20 | 524.81 |
| 1852.4 - 1907.6 | WCDMA | 26.80 | 478.63 |
| 1852.4 - 1907.6 | WCDMA+HSPDA | 27.20 | 524.81 |

5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change under this application is that the subject-approved module is being used in a Protégé M700 with TMZ011 antenna.

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes 2xDipole antennas, with a maximum gain of 1.20dBi for Cell band and 0.87dBi for PCS band.

5.5. SOFTWARE AND FIRMWARE

The test utility software used during testing was ProcommPlus 4.8 @ Copyright 1999 by Symantec Corporation, Build 71 for GSM and EDGE modulations, and the communication test set is used for WCDMA modulation to configure as below:

The following settings were used to configure the Wireless Communications Test Set, Agilent 8960 Series 10, E5515C.

Instrument information: (by press SYSTEM CONFIG)

Application: WCDMA Lap App C
E6703C C.03.11
Format: WCDMA

Call Control: (by press CALL SETUP)

2 of 4 Cell Parameters: PS Domain Information > Present
ATT (IMSI Attach) Flag State > Set
4 of 4 Security Info: Security Parameter - System Operations > None

Call Params: (by press CALL SETUP)

1 of 3
Channel Type: 12.2k RMC
Paging Service: RB Test Mode

HSDPA Parameters:

1 of 2
HSDPA RB Test Mode Setup
FRC Type > H-Set 5 QPSK
CN Domain > PS Domain
Uplink 64k DTCH for HSDPA Loopback State > On
HS-DSCH Data Pattern > CCITT PRBS15
RLC Header on HS-DSCH > Present

Channel (UARFCN) Params: DL Channel: 4357 / 4407 / 4458
UL Channel: 4132 / 4182 / 4233
UL Sep (Band) > 400MHz (Band 4)
Freq Bnad Ind > On

2 of 3
DL DTCH Data: ALL ONES
RLC Reestablish: Off
Call Limit State: Off
Call Drop Timer: Off
SRB Config.: 13.6k DCCH
3 of 3
UE Target Power: -5 dBm
UL CL Pwr Ctrl Params: Active bits (Select "All Up bits" after linked to get maximum power)
DL Channel: 9662 / 9800 / 9938 / 4357 / 4407 / 4458
UL Channel: 9262 / 9400 / 9538 / 4132 / 4182 / 4233

5.6. WORST-CASE CONFIGURATION AND MODE

Based on the above results from the different modulations, GSM850, GPRS, and WCDMA, WCDMA+HSDPA modulation is to be the worst-case scenario for all measurements.

The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at high channel for GSM cell band and middle channel for GSM1900 band. For WCDMA+HSPDA modulation, the highest power was at low channel for Cellular band and high channel for PCS band.

Also the portable X, Y, Z and mobile positions have been investigated and the worst-case configuration has been evaluated on Y position at both @ 850MHz and @ 1900MHz bands by comparing the fundamental ERP / EIRP output power.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

| PERIPHERAL SUPPORT EQUIPMENT LIST | | | | |
|-----------------------------------|--------------|--------------|---------------|--------|
| Description | Manufacturer | Model | Serial Number | FCC ID |
| Laptop | Toshiba | PPM70E-AAA14 | 97012615J | DoC |
| AC Adappter | Toshiba | PA3283U-5ACA | G71C0006Q210 | DoC |
| Wireless Communications Test Set | Agilent | E5515C | 10092 | DoC |

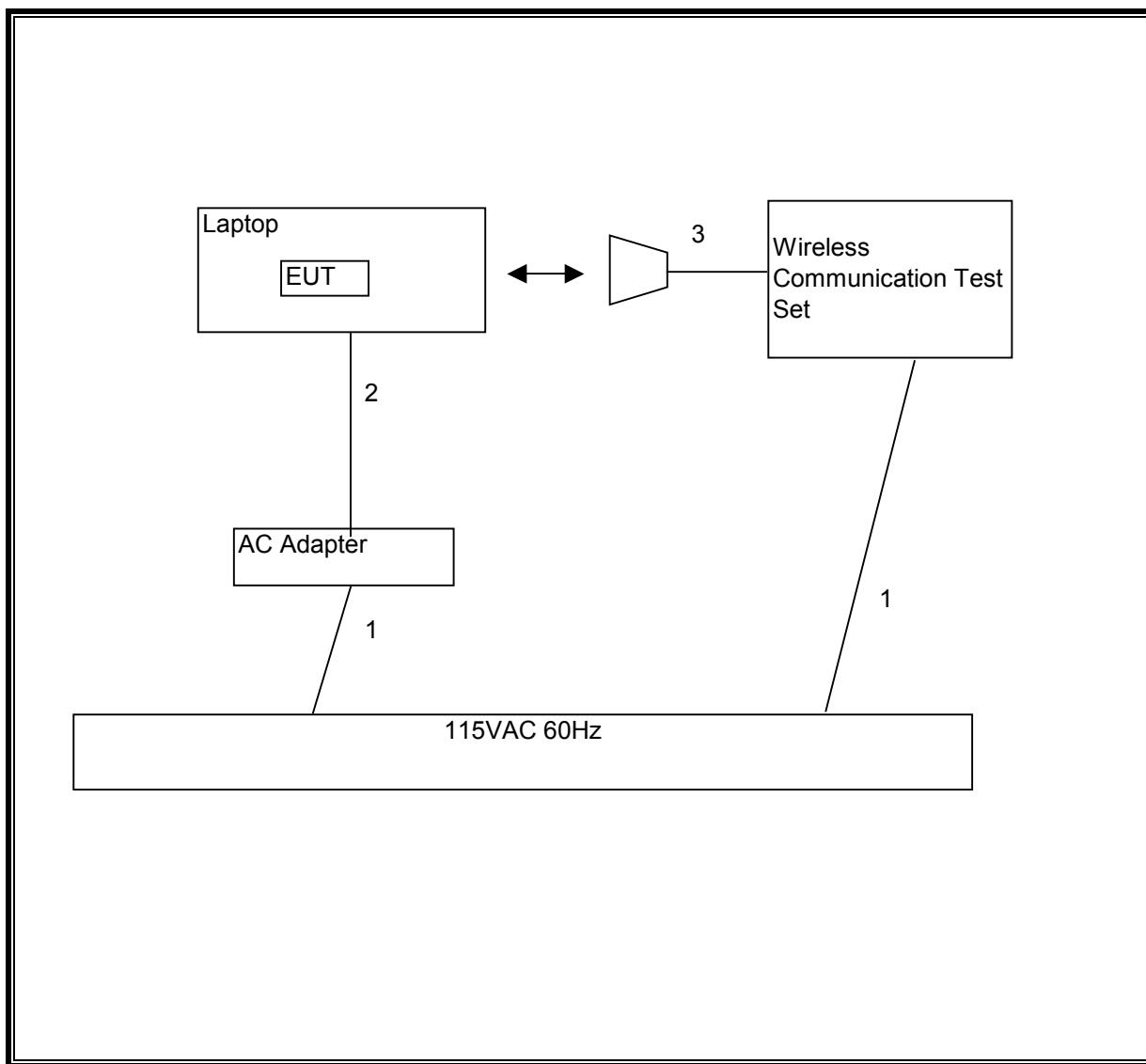
I/O CABLES

| I/O CABLE LIST | | | | | | |
|----------------|-----------|----------------------|----------------|-------------|--------------|-------------|
| Cable No. | Port | # of Identical Ports | Connector Type | Cable Type | Cable Length | Remarks |
| 1 | AC | 2 | US 115V | Un-shielded | 2m | NA |
| 2 | DC | 1 | D C | Un-shielded | 2m | NA |
| 3 | RF In/Out | 1 | N-Type | Un-shielded | 2m | To link EUT |

TEST SETUP

The EUT is installed in Toshiba Tablet laptop during the tests. The Wireless Communication test set exercised the EUT.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

| TEST EQUIPMENT LIST | | | | |
|---------------------------|----------------|-----------|------------|-----------|
| Description | Manufacturer | Model | Asset | Cal Due |
| Communications Test Set | Agilent | E5515C | US41070176 | 6/29/2008 |
| 2.7GHz HPF | MicroTronic | HPM13194 | 2 | CNR |
| 1.5GHz HPF | MicroTronic | HPM13195 | 1 | CNR |
| Dipole | EMCO | 3121C-DB2 | 22435 | 3/25/2008 |
| Quasi-Peak Adaptor | Agilent / HP | 85650A | C00779 | 1/21/2008 |
| SA RF Section, 1.5 GHz | Agilent / HP | 85680B | N02455 | 1/7/2008 |
| Spectrum Analyzer Display | Agilent / HP | 85662A | N02480 | 4/7/2008 |
| Preamplifier, 26.5 GHz | Agilent / HP | 8449B | C01063 | 9/27/2008 |
| Antenna, Horn, 18 GHz | EMCO | 3115 | C00872 | 4/15/2008 |
| Antenna, Bilog, 2 GHz | Sunol Sciences | JB1 | C01011 | 9/29/2008 |

7. LIMITS AND RESULTS

7.1. RF POWER OUTPUT

LIMIT

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

24.232(b) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 2.2.17

RESULTS

No non-compliance noted.

GSM850 CELL GPRS Modulation

| Channel | Frequency (MHz) | ERP Peak Power (dBm) | ERP Peak Power (mW) |
|---------|--------------------|----------------------------|---------------------------|
| Low | 824.2 | 28.70 | 741.31 |
| Middle | 837.0 | 28.90 | 776.25 |
| High | 848.8 | 29.00 | 794.33 |

GSM850 CELL EGPRS Modulation

| Channel | Frequency (MHz) | ERP Peak Power (dBm) | ERP Peak Power (mW) |
|---------|--------------------|----------------------------|---------------------------|
| Low | 824.2 | 26.00 | 398.11 |
| Middle | 837.0 | 26.40 | 436.52 |
| High | 848.8 | 26.70 | 467.74 |

1900MHz GPRS PCS Modulation

| Channel | Frequency (MHz) | EIRP Peak Power (dBm) | EIRP Peak Power (mW) |
|---------|--------------------|-----------------------------|----------------------------|
| Low | 1850.20 | 29.00 | 794.33 |
| Middle | 1880.00 | 30.40 | 1096.48 |
| High | 1909.80 | 30.20 | 1047.13 |

1900MHz EGPRS PCS Modulation

| Channel | Frequency (MHz) | EIRP Peak Power (dBm) | EIRP Peak Power (mW) |
|---------|--------------------|-----------------------------|----------------------------|
| Low | 1850.20 | 26.70 | 467.74 |
| Middle | 1880.00 | 27.20 | 524.81 |
| High | 1909.80 | 27.10 | 512.86 |

WCDMA CELL CDMA Modulation

| Channel | Frequency (MHz) | ERP Peak Power (dBm) | ERP Peak Power (mW) |
|---------|--------------------|----------------------------|---------------------------|
| Low | 826.4 | 23.10 | 204.17 |
| Middle | 836.4 | 22.90 | 194.98 |
| High | 848.6 | 22.80 | 190.55 |

WCDMA PCS CDMA Modulation

| Channel | Frequency (MHz) | EIRP Peak Power (dBm) | EIRP Peak Power (mW) |
|---------|--------------------|-----------------------------|----------------------------|
| Low | 1852.40 | 26.30 | 426.58 |
| Middle | 1880.00 | 26.40 | 436.52 |
| High | 1907.60 | 26.80 | 478.63 |

WCDMA+HSPDA CELL CDMA Modulation

| Channel | Frequency (MHz) | ERP Peak Power (dBm) | ERP Peak Power (mW) |
|---------|--------------------|----------------------------|---------------------------|
| Low | 826.4 | 22.30 | 169.82 |
| Middle | 836.4 | 23.60 | 229.09 |
| High | 848.6 | 23.60 | 229.09 |

WCDMA+HSPDA PCS CDMA Modulation

| Channel | Frequency (MHz) | EIRP Peak Power (dBm) | EIRP Peak Power (mW) |
|---------|--------------------|-----------------------------|----------------------------|
| Low | 1852.40 | 26.10 | 407.38 |
| Middle | 1880.00 | 26.90 | 489.78 |
| High | 1907.60 | 27.20 | 524.81 |

GSM850 GPRS Output Power (ERP)

High Frequency Substitution Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Toshiba
Project #: 07U11497
Date: 12/4/2007
Test Engineer: Chin Pang
Configuration: EUT Only
Mode: GSM850, GPRS

Test Equipment:

Receiving: Sunol T122, and 5m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, and 4ft SMA Cable Warehouse S/N: 177081002

| f MHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|----------|------------------------|--------------------|---------------------|------------|---------------|--------------|----------------|----------------|-------|
| Low Ch | | | | | | | | | |
| 824.20 | 102.3 | V | 29.3 | 0.6 | 0.0 | 28.7 | 38.5 | -9.7 | |
| 824.20 | 100.9 | H | 25.8 | 0.6 | 0.0 | 25.2 | 38.5 | -13.2 | |
| Mid Ch | | | | | | | | | |
| 837.00 | 102.5 | V | 29.5 | 0.6 | 0.0 | 28.9 | 38.5 | -9.5 | |
| 837.00 | 100.5 | H | 25.4 | 0.6 | 0.0 | 24.8 | 38.5 | -13.6 | |
| High Ch | | | | | | | | | |
| 848.80 | 102.9 | V | 29.7 | 0.7 | 0.0 | 29.0 | 38.5 | -9.4 | |
| 848.80 | 101.3 | H | 25.8 | 0.7 | 0.0 | 25.1 | 38.5 | -13.3 | |

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GSM850 EGPRS Output Power (ERP)

High Frequency Substitution Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Toshiba
Project #: 07U11497
Date: 12/4/2007
Test Engineer: Chin Pang
Configuration: EUT Only
Mode: GSM850, EGPRS

Test Equipment:

Receiving: Sunol T122, and 5m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, and 4ft SMA Cable Warehouse S/N: 177081002

| f MHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|----------------|------------------------|--------------------|---------------------|------------|---------------|--------------|----------------|----------------|-------|
| Low Ch | | | | | | | | | |
| 824.20 | 99.6 | V | 26.6 | 0.6 | 0.0 | 26.0 | 38.5 | -12.4 | |
| 824.20 | 98.0 | H | 22.9 | 0.6 | 0.0 | 22.3 | 38.5 | -16.1 | |
| Mid Ch | | | | | | | | | |
| 837.00 | 100.0 | V | 27.0 | 0.6 | 0.0 | 26.4 | 38.5 | -12.0 | |
| 837.00 | 99.0 | H | 23.9 | 0.6 | 0.0 | 23.3 | 38.5 | -15.1 | |
| High Ch | | | | | | | | | |
| 848.80 | 100.6 | V | 27.4 | 0.7 | 0.0 | 26.7 | 38.5 | -11.7 | |
| 848.80 | 100.0 | H | 24.5 | 0.7 | 0.0 | 23.8 | 38.5 | -14.6 | |

Rev. 1.24.7

CELL Band WCDMA Output Power (ERP)

High Frequency Substitution Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Toshiba
Project #: 07U11497
Date: 12/4/2007
Test Engineer: Chin Pang
Configuration: EUT Only
Mode: WCDMA
Y Position (Worst Case)

Test Equipment:

Receiving: Sunol T122, and 5m Chamber N-type Cable (Setup this one for testing EUT)

Substitution: Dipole S/N: 00022117, and 4ft SMA Cable Warehouse S/N: 177081002

| f MHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|----------------|------------------------|--------------------|---------------------|------------|---------------|--------------|----------------|----------------|-------|
| Low Ch | | | | | | | | | |
| 826.40 | 94.0 | V | 21.0 | 0.6 | 0.0 | 20.4 | 38.5 | -18.0 | |
| 826.40 | 98.8 | H | 23.7 | 0.6 | 0.0 | 23.1 | 38.5 | -15.3 | |
| Mid Ch | | | | | | | | | |
| 836.40 | 95.2 | V | 22.2 | 0.6 | 0.0 | 21.6 | 38.5 | -16.8 | |
| 836.40 | 98.6 | H | 23.5 | 0.6 | 0.0 | 22.9 | 38.5 | -15.5 | |
| High Ch | | | | | | | | | |
| 846.60 | 96.0 | V | 22.8 | 0.7 | 0.0 | 22.1 | 38.5 | -16.3 | |
| 846.60 | 99.0 | H | 23.5 | 0.7 | 0.0 | 22.8 | 38.5 | -15.6 | |

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Cell Band WCDMA+HSDPA Output Power (ERP)

High Frequency Substitution Measurement
Compliance Certification Services, Fremont 5m Chamber

Company: Toshiba
Project #: 07U11497
Date: 12/4/2007
Test Engineer: Chin Pang
Configuration: EUT Only
Mode: WCDMA+HSDPA
Y Position (Worst Case)

Test Equipment:

Receiving: Sunol T122, and 5m Chamber N-type Cable (Setup this one for testing EUT)
Substitution: Dipole S/N: 00022117, and 4ft SMA Cable Warehouse S/N: 177081002

| f MHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|----------|------------------------|--------------------|---------------------|------------|---------------|--------------|----------------|----------------|-------|
| Low Ch | | | | | | | | | |
| 826.40 | 95.0 | V | 22.0 | 0.6 | 0.0 | 21.4 | 38.5 | -17.0 | |
| 826.40 | 98.0 | H | 22.9 | 0.6 | 0.0 | 22.3 | 38.5 | -16.1 | |
| Mid Ch | | | | | | | | | |
| 836.40 | 95.5 | V | 22.5 | 0.6 | 0.0 | 21.9 | 38.5 | -16.5 | |
| 836.40 | 99.3 | H | 24.2 | 0.6 | 0.0 | 23.6 | 38.5 | -14.9 | |
| High Ch | | | | | | | | | |
| 846.60 | 96.0 | V | 22.8 | 0.7 | 0.0 | 22.1 | 38.5 | -16.3 | |
| 846.60 | 99.8 | H | 24.3 | 0.7 | 0.0 | 23.6 | 38.5 | -14.8 | |

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GSM1900 Band GPRS Output Power (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services, Fremont 5m Chamber Site

Company: Toshiba America Information Systems, Inc.
Project #: 07U11497
Date: 12/3/2007
Test Engineer: Chin Pang
Configuration: EUT Only
Mode: PCS, TX, GPRS
Y pos (Worst Case)

Test Equipment:

Receiving: Horn T73, and 12ft S/N: 197209005 (Setup this one for testing EUT)

Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse S/N: 177081002

| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|----------------|------------------------|--------------------|---------------------|------------|---------------|---------------|----------------|----------------|-------|
| Low Ch | | | | | | | | | |
| 1.850 | 92.0 | V | 18.6 | 0.9 | 8.3 | 26.0 | 33.0 | -7.0 | |
| 1.850 | 95.5 | H | 21.6 | 0.9 | 8.3 | 29.0 | 33.0 | -4.0 | |
| Mid Ch | | | | | | | | | |
| 1.880 | 95.4 | V | 22.1 | 0.9 | 8.3 | 29.5 | 33.0 | -3.5 | |
| 1.880 | 95.8 | H | 23.0 | 0.9 | 8.3 | 30.4 | 33.0 | -2.6 | |
| High Ch | | | | | | | | | |
| 1.910 | 92.9 | V | 19.6 | 0.9 | 8.3 | 27.0 | 33.0 | -6.0 | |
| 1.910 | 95.6 | H | 22.8 | 0.9 | 8.3 | 30.2 | 33.0 | -2.8 | |

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GSM1900 Band EGPRS Output Power (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services, Fremont 5m Chamber Site

Company: Toshiba America Information Systems, Inc.

Project #: 07U11497

Date: 12/04/2007

Test Engineer: Chin Pang

Configuration: EUT Only

Mode: PCS, TX, EGPRS

Y Position (Worst Case)

Test Equipment:

Receiving: Horn T73, and 12ft S/N: 197209005 (Setup this one for testing EUT)

Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse S/N: 177081002

| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|---------------------|------------------------|--------------------|---------------------|------------|---------------|---------------|----------------|----------------|-------|
| Low Channel | | | | | | | | | |
| 1.850 | 90.8 | V | 17.4 | 0.9 | 8.3 | 24.8 | 33.0 | -8.2 | |
| 1.850 | 93.2 | H | 19.3 | 0.9 | 8.3 | 26.7 | 33.0 | -6.3 | |
| Mid Channel | | | | | | | | | |
| 1.880 | 92.0 | V | 17.7 | 0.9 | 8.3 | 25.1 | 33.0 | -7.9 | |
| 1.880 | 94.6 | H | 19.8 | 0.9 | 8.3 | 27.2 | 33.0 | -5.8 | |
| High Channel | | | | | | | | | |
| 1.910 | 91.3 | V | 18.0 | 0.9 | 8.3 | 25.4 | 33.0 | -7.6 | |
| 1.910 | 92.5 | H | 19.7 | 0.9 | 8.3 | 27.1 | 33.0 | -5.9 | |

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PCS Band WCDMA Output Power (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services, Fremont 5m Chamber Site

Company: Toshiba America Information Systems, Inc.

Project #: 07U11497

Date: 12/3/2007

Test Engineer: Chin Pang

Configuration: EUT Only

Mode: PCS, TX, WCDMA-12.2K RMC

Y pos (Worst Case)

Test Equipment:

Receiving: Horn T73, and 12ft S/N: 197209005 (Setup this one for testing EUT)

Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse S/N: 177081002

| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|----------------------|------------------------|--------------------|---------------------|------------|---------------|---------------|----------------|----------------|-------|
| Mobile Config | | | | | | | | | |
| Low Ch | | | | | | | | | |
| 1.852 | 91.8 | V | 18.4 | 0.9 | 8.3 | 25.8 | 33.0 | -7.2 | |
| 1.852 | 92.8 | H | 18.9 | 0.9 | 8.3 | 26.3 | 33.0 | -6.7 | |
| Mid Ch | | | | | | | | | |
| 1.880 | 92.0 | V | 18.7 | 0.9 | 8.3 | 26.1 | 33.0 | -6.9 | |
| 1.880 | 91.8 | H | 19.0 | 0.9 | 8.3 | 26.4 | 33.0 | -6.6 | |
| High Ch | | | | | | | | | |
| 1.908 | 92.7 | V | 19.4 | 0.9 | 8.3 | 26.8 | 33.0 | -6.2 | |
| 1.908 | 90.6 | H | 17.8 | 0.9 | 8.3 | 25.2 | 33.0 | -7.8 | |

Rev. 1.247

PCS Band WCDMA + HSPDA Output Power (EIRP)

High Frequency Fundamental Measurement
Compliance Certification Services, Fremont 5m Chamber Site

Company: Toshiba America Information Systems, Inc.

Project #: 07U11497

Date: 12/3/2007

Test Engineer: Chin Pang

Configuration: EUT Only

Mode: PCS, TX, WCDMA-HSDPA

Y pos (Worst Case)

Test Equipment:

Receiving: Horn T73, and 12ft S/N: 197209005 (Setup this one for testing EUT)

Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse S/N: 177081002

| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes |
|----------------|------------------------|--------------------|---------------------|------------|---------------|---------------|----------------|----------------|-------|
| Low Ch | | | | | | | | | |
| 1.852 | 92.0 | V | 18.6 | 0.9 | 8.3 | 26.0 | 33.0 | -7.0 | |
| 1.852 | 92.6 | H | 18.7 | 0.9 | 8.3 | 26.1 | 33.0 | -6.9 | |
| Mid Ch | | | | | | | | | |
| 1.880 | 92.2 | V | 18.9 | 0.9 | 8.3 | 26.3 | 33.0 | -6.7 | |
| 1.880 | 92.3 | H | 19.5 | 0.9 | 8.3 | 26.9 | 33.0 | -6.1 | |
| High Ch | | | | | | | | | |
| 1.908 | 93.1 | V | 19.8 | 0.9 | 8.3 | 27.2 | 33.0 | -5.8 | |
| 1.908 | 91.0 | H | 18.2 | 0.9 | 8.3 | 25.6 | 33.0 | -7.4 | |

Rev. 1.24.7

7.2. MAXIMUM PERMISSIBLE EXPOSURE

LIMITS

§1.1310 The criteria listed in Table 1 shall be used to evaluate the environmental impact of human exposure to radio-frequency (RF) radiation as specified in §1.1307(b), except in the case of portable devices which shall be evaluated according to the provisions of §2.1093 of this chapter.

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm ²) | Averaging time (minutes) |
|---|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| (A) Limits for Occupational/Controlled Exposures | | | | |
| 0.3–3.0 | 614 | 1.63 | *(100) | 6 |
| 3.0–30 | 1842/f | 4.89/f | *(900/f ²) | 6 |
| 30–300 | 61.4 | 0.163 | 1.0 | 6 |
| 300–1500 | | | f/300 | 6 |
| 1500–100,000 | | | 5 | 6 |
| (B) Limits for General Population/Uncontrolled Exposure | | | | |
| 0.3–1.34 | 614 | 1.63 | *(100) | 30 |
| 1.34–30 | 824/f | 2.19/f | *(180/f ²) | 30 |

TABLE 1—LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)—Continued

| Frequency range (MHz) | Electric field strength (V/m) | Magnetic field strength (A/m) | Power density (mW/cm ²) | Averaging time (minutes) |
|-----------------------|-------------------------------|-------------------------------|-------------------------------------|--------------------------|
| 30–300 | 27.5 | 0.073 | 0.2 | 30 |
| 300–1500 | | | f/1500 | 30 |
| 1500–100,000 | | | 1.0 | 30 |

f = frequency in MHz

* = Plane-wave equivalent power density

NOTE 1 TO TABLE 1: Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

NOTE 2 TO TABLE 1: General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can not exercise control over their exposure.

CALCULATIONS

Given

$$E = \sqrt{(30 * P * G) / d}$$

and

$$S = E^2 / 3770$$

where

E = Field Strength in Volts/meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power Density in milliwatts/square centimeter

Combining equations and rearranging the terms to express the distance as a function of the remaining variables yields:

$$d = \sqrt{(30 * P * G) / (3770 * S)}$$

Changing to units of Power to mW and Distance to cm, using:

$$P (\text{mW}) = P (\text{W}) / 1000 \text{ and}$$

$$d (\text{cm}) = 100 * d (\text{m})$$

yields

$$d = 100 * \sqrt{(30 * (P / 1000) * G) / (3770 * S)}$$

$$d = 0.282 * \sqrt{(P * G / S)}$$

where

d = distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power Density in mW/cm²

Substituting the logarithmic form of power and gain using:

$$P (\text{mW}) = 10^{(P (\text{dBm}) / 10)} \text{ and}$$

$$G (\text{numeric}) = 10^{(G (\text{dBi}) / 10)}$$

yields

$$d = 0.282 * 10^{((P + G) / 20)} / \sqrt{S} \quad \text{Equation (1)}$$

where

d = MPE distance in cm

P = Power in dBm

G = Antenna Gain in dBi

S = Power Density Limit in mW/cm²

Equation (1) and the measured peak power is used to calculate the MPE distance.

LIMITS

From §1.1310 Table 1 (B), S = 1.0 mW/cm²

RESULTS

No non-compliance noted: (MPE distance equals 20 cm)

| Mode | MPE Distance (cm) | Output Power (dBm) | Antenna Gain (dBi) | Power Density (mW/cm ²) |
|--------------------|-------------------|--------------------|--------------------|-------------------------------------|
| GSM850MHz Cellar | 20.0 | 29.00 | 1.20 | 0.21 |
| GSM1900 MHz PCS | 20.0 | 30.40 | 0.87 | 0.27 |
| WCDMA+HSPDA Cellar | 20.0 | 23.60 | 1.20 | 0.06 |
| WCDMA+HSPDA PCS | 20.0 | 27.20 | 0.87 | 0.13 |

NOTE: For mobile or fixed location transmitters, the minimum separation distance is 20 cm, even if calculations indicate that the MPE distance would be less.

7.3. FIELD STRENGTH OF SPURIOUS RADIATION

LIMIT

§22.917 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

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

RESULTS

No non-compliance noted.

GSM850 GPRS Spurious & Harmonic (ERP)

| High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber | | | | | | | | | | |
|--|------------------------|--------------------|---|------------|---------------|------------------------|--------------|--|----------------|-------|
| Company: Toshiba Project #:07U11497 Date: 12-5-2007 Test Engineer: Chin Pang Configuration: EUT Only Mode: TX, GSM850 GPRS | | | | | | | | | | |
| <u>Test Equipment:</u> | | | | | | | | | | |
| EMC O Horn 1-18GHz T60; S/N: 2238 @3m | | | Horn > 18GHz | | | Limit | | <input checked="" type="checkbox"/> High Pass Filter | | |
| | | | | | | FCC 22 | | | | |
| Hi Frequency Cables <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft) | | | Pre-amplifier 1-26GHz T145 Agilent 3008A | | | Pre-amplifier 26-40GHz | | | | |
| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
| Low Ch | | | | | | | | | | |
| 1.648 | 52.0 | H | -51.5 | 3.8 | 7.1 | 4.9 | -50.4 | -13.0 | -37.4 | |
| 2.473 | 51.8 | H | -49.9 | 4.9 | 9.3 | 7.1 | -47.6 | -13.0 | -34.6 | |
| 1.648 | 55.0 | V | -49.2 | 3.8 | 7.1 | 4.9 | -48.1 | -13.0 | -35.1 | |
| 2.473 | 52.0 | V | -49.9 | 4.9 | 9.3 | 7.1 | -47.6 | -13.0 | -34.6 | |
| Mid Ch | | | | | | | | | | |
| 1.674 | 54.5 | H | -48.9 | 3.9 | 7.2 | 5.0 | -47.8 | -13.0 | -34.8 | |
| 2.511 | 54.0 | H | -47.5 | 4.9 | 9.3 | 7.1 | -45.3 | -13.0 | -32.3 | |
| 1.674 | 55.1 | V | -49.0 | 3.9 | 7.2 | 5.0 | -47.9 | -13.0 | -34.9 | |
| 2.511 | 54.5 | V | -47.2 | 4.9 | 9.3 | 7.1 | -45.0 | -13.0 | -32.0 | |
| High Ch | | | | | | | | | | |
| 1.698 | 53.0 | H | -50.3 | 3.9 | 7.2 | 5.1 | -49.2 | -13.0 | -36.2 | |
| 2.546 | 56.0 | H | -45.3 | 4.9 | 9.3 | 7.1 | -43.2 | -13.0 | -30.2 | |
| 1.698 | 59.0 | V | -45.1 | 3.9 | 7.2 | 5.1 | -43.9 | -13.0 | -30.9 | |
| 2.546 | 54.7 | V | -46.8 | 4.9 | 9.3 | 7.1 | -44.7 | -13.0 | -31.7 | |
| Rev. 4.12.7 Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

GSM850 EGPRS Spurious & Harmonic (ERP)

| High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber | | | | | | | | | | |
|---|------------------------|--------------------|---------------------|-----------------------|---------------|---------------|------------------------|-------------------------------------|----------------|-------|
| Company: Toshiba Project #: 07U11497 Date: 12-5-2007 Test Engineer: Chin Pang Configuration: EUT Only Mode: TX, GSM850 EGPRS | | | | | | | | | | |
| <u>Test Equipment:</u> | | | | | | | | | | |
| EMC O Horn 1-18GHz | | | Horn > 18GHz | | | Limit | | High Pass Filter | | |
| T60; S/N: 2238 @3m | | | | | | FCC 22 | | <input checked="" type="checkbox"/> | | |
| Hi Frequency Cables | | | | | | | | | | |
| <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft) | | | | Pre-amplifier 1-26GHz | | | Pre-amplifier 26-40GHz | | | |
| T145 Agilent 3008A | | | | | | | | | | |
| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
| Low Ch, 824.2MHz | | | | | | | | | | |
| 1.648 | 55.5 | H | -48.0 | 3.8 | 7.1 | 4.9 | -46.9 | -13.0 | -33.9 | |
| 2.473 | 54.0 | H | -47.7 | 4.9 | 9.3 | 7.1 | -45.4 | -13.0 | -32.4 | |
| 1.648 | 52.0 | V | -52.2 | 3.8 | 7.1 | 4.9 | -51.1 | -13.0 | -38.1 | |
| 2.473 | 50.6 | V | -51.3 | 4.9 | 9.3 | 7.1 | -49.0 | -13.0 | -36.0 | |
| Mid Ch, 837MHz | | | | | | | | | | |
| 1.674 | 57.5 | H | -45.9 | 3.9 | 7.2 | 5.0 | -44.8 | -13.0 | -31.8 | |
| 2.511 | 56.5 | H | -45.0 | 4.9 | 9.3 | 7.1 | -42.8 | -13.0 | -29.8 | |
| 1.674 | 52.7 | V | -51.4 | 3.9 | 7.2 | 5.0 | -50.3 | -13.0 | -37.3 | |
| 2.511 | 53.0 | V | -48.7 | 4.9 | 9.3 | 7.1 | -46.5 | -13.0 | -33.5 | |
| High Ch, 848.8MHz | | | | | | | | | | |
| 1.698 | 55.2 | H | -48.1 | 3.9 | 7.2 | 5.1 | -47.0 | -13.0 | -34.0 | |
| 2.546 | 54.3 | H | -47.0 | 4.9 | 9.3 | 7.1 | -44.9 | -13.0 | -31.9 | |
| 1.698 | 52.0 | V | -52.1 | 3.9 | 7.2 | 5.1 | -50.9 | -13.0 | -37.9 | |
| 2.546 | 53.6 | V | -47.9 | 4.9 | 9.3 | 7.1 | -45.8 | -13.0 | -32.8 | |
| Rev. 4.12.7 | | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

CELL Band WCDMA Spurious & Harmonic (ERP)

| High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber | | | | | | | | | | |
|---|------------------------|--------------------|---|------------|---------------|------------------------|--------------|--|----------------|-------|
| Company: Toshiba Project #:07U11497 Date: 12-10-2007 Test Engineer: Chin Pang Configuration: EUT Only Mode: TX, CELL, WCDMA | | | | | | | | | | |
| <u>Test Equipment:</u> | | | | | | | | | | |
| EMCO Horn 1-18GHz T60; S/N: 2238 @3m | | | Horn > 18GHz | | | Limit | | <input checked="" type="checkbox"/> High Pass Filter | | |
| | | | | | | FCC 22 | | | | |
| Hi Frequency Cables | | | | | | | | | | |
| <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft) | | | Pre-amplifier 1-26GHz T145 Agilent 3008A | | | Pre-amplifier 26-40GHz | | | | |
| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
| Low Ch | | | | | | | | | | |
| 1.653 | 51.5 | H | -52.0 | 3.8 | 7.1 | 4.9 | -50.9 | -13.0 | -37.9 | |
| 2.479 | 47.3 | H | -54.4 | 4.9 | 9.3 | 7.1 | -52.1 | -13.0 | -39.1 | |
| 1.648 | 50.0 | V | -54.2 | 3.8 | 7.1 | 4.9 | -53.1 | -13.0 | -40.1 | |
| 2.473 | 46.0 | V | -55.9 | 4.9 | 9.3 | 7.1 | -53.6 | -13.0 | -40.6 | |
| Mid Ch | | | | | | | | | | |
| 1.673 | 52.0 | H | -51.4 | 3.9 | 7.2 | 5.0 | -50.3 | -13.0 | -37.3 | |
| 2.509 | 48.8 | H | -52.7 | 4.9 | 9.3 | 7.1 | -50.5 | -13.0 | -37.5 | |
| 1.673 | 50.5 | V | -53.6 | 3.9 | 7.2 | 5.0 | -52.5 | -13.0 | -39.5 | |
| 2.509 | 46.8 | V | -54.9 | 4.9 | 9.3 | 7.1 | -52.7 | -13.0 | -39.7 | |
| High Ch | | | | | | | | | | |
| 1.693 | 53.2 | H | -50.2 | 3.9 | 7.2 | 5.1 | -49.0 | -13.0 | -36.0 | |
| 2.540 | 50.0 | H | -51.4 | 4.9 | 9.3 | 7.1 | -49.2 | -13.0 | -36.2 | |
| 1.693 | 52.0 | V | -52.1 | 3.9 | 7.2 | 5.1 | -50.9 | -13.0 | -37.9 | |
| 2.540 | 48.0 | V | -53.6 | 4.9 | 9.3 | 7.1 | -51.4 | -13.0 | -38.4 | |
| Rev. 4.12.7 | | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

CELL Band WCDMA+HSPDA Spurious & Harmonic (ERP)

| High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber | | | | | | | | | | |
|--|------------------------|-------------------------------------|---------------------|-------------------------------------|---------------|---|--|-----------------------|----------------|------------------------|
| Company: Toshiba Project #:07U11497 Date: 12-10-2007 Test Engineer: Chin Pang Configuration: EUT Only Mode: TX, CELL, WCDMA+HSDPA | | | | | | | | | | |
| <u>Test Equipment:</u> | | | | | | | | | | |
| EMCO Horn 1-18GHz | | Horn > 18GHz | | | Limit | | High Pass Filter | | | |
| T60; S/N: 2238 @3m | | | | | FCC 22 | | <input checked="" type="checkbox"/> High Pass Filter | | | |
| Hi Frequency Cables | | | | | | | | | | |
| <input type="checkbox"/> (2 ft) | | <input type="checkbox"/> (2 ~ 3 ft) | | <input type="checkbox"/> (4 ~ 6 ft) | | <input checked="" type="checkbox"/> (12 ft) | | Pre-amplifier 1-26GHz | | Pre-amplifier 26-40GHz |
| | | | | | | T145 Agilent 3008A | | | | |
| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | ERP (dBm) | Limit (dBm) | Margin (dB) | Notes |
| Low Ch | | | | | | | | | | |
| 1.653 | 51.5 | H | -52.0 | 3.8 | 7.1 | 4.9 | -50.9 | -13.0 | -37.9 | |
| 2.479 | 47.0 | H | -54.7 | 4.9 | 9.3 | 7.1 | -52.4 | -13.0 | -39.4 | |
| 1.648 | 48.8 | V | -55.4 | 3.8 | 7.1 | 4.9 | -54.3 | -13.0 | -41.3 | |
| 2.473 | 46.5 | V | -55.4 | 4.9 | 9.3 | 7.1 | -53.1 | -13.0 | -40.1 | |
| Mid Ch | | | | | | | | | | |
| 1.673 | 51.3 | H | -52.1 | 3.9 | 7.2 | 5.0 | -51.0 | -13.0 | -38.0 | |
| 2.509 | 47.8 | H | -53.7 | 4.9 | 9.3 | 7.1 | -51.5 | -13.0 | -38.5 | |
| 1.673 | 50.0 | V | -54.1 | 3.9 | 7.2 | 5.0 | -53.0 | -13.0 | -40.0 | |
| 2.509 | 46.2 | V | -55.5 | 4.9 | 9.3 | 7.1 | -53.3 | -13.0 | -40.3 | |
| High Ch | | | | | | | | | | |
| 1.693 | 52.0 | H | -51.4 | 3.9 | 7.2 | 5.1 | -50.2 | -13.0 | -37.2 | |
| 2.540 | 47.5 | H | -53.9 | 4.9 | 9.3 | 7.1 | -51.7 | -13.0 | -38.7 | |
| 1.693 | 50.8 | V | -53.3 | 3.9 | 7.2 | 5.1 | -52.1 | -13.0 | -39.1 | |
| 2.540 | 46.5 | V | -55.1 | 4.9 | 9.3 | 7.1 | -52.9 | -13.0 | -39.9 | |
| Rev. 4.12.7 Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

GSM1900 Band GPRS Spurious & Harmonic (EIRP)

| High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber | | | | | | | | | | |
|--|------------------------|--------------------|-----------------------|------------|---------------|------------------------|---------------|-------------------------------------|----------------|-------|
| Company: Toshiba Project #: 07U11497 Date: 12/6/2007 Test Engineer: Chin pang Configuration: EUT Only Mode: TX, PCS GSM1900 GPRS | | | | | | | | | | |
| <u>Test Equipment:</u> | | | | | | | | | | |
| EMC O Horn 1-18GHz | | | Horn > 18GHz | | | Limit | | High Pass Filter | | |
| T72; S/N: 6739 @3m | | | | | | FCC 24 | | <input checked="" type="checkbox"/> | | |
| Hi Frequency Cables <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft) | | | | | | | | | | |
| | | | Pre-amplifier 1-26GHz | | | Pre-amplifier 26-40GHz | | | | |
| | | | T145 Agilent 3008A | | | | | | | |
| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes |
| Low Ch, 1850.2MHz | | | | | | | | | | |
| 9.251 | 54.0 | H | -35.6 | 9.3 | 13.6 | 11.4 | -31.3 | -13.0 | -18.3 | |
| 11.100 | 48.5 | H | -33.8 | 11.2 | 13.9 | 11.7 | -31.1 | -13.0 | -18.1 | |
| 12.951 | 43.8 | H | -36.7 | 12.3 | 14.9 | 12.8 | -34.0 | -13.0 | -21.0 | |
| 9.251 | 46.0 | V | -43.6 | 9.3 | 13.6 | 11.4 | -39.3 | -13.0 | -26.3 | |
| 11.100 | 45.5 | V | -37.4 | 11.2 | 13.9 | 11.7 | -34.7 | -13.0 | -21.7 | |
| 12.951 | 40.5 | V | -38.9 | 12.3 | 14.9 | 12.8 | -36.2 | -13.0 | -23.2 | |
| Mid Ch, 1880MHz | | | | | | | | | | |
| 9.499 | 53.0 | H | -35.9 | 9.5 | 13.6 | 11.4 | -31.9 | -13.0 | -18.9 | |
| 11.280 | 50.0 | H | -31.7 | 11.4 | 14.0 | 11.8 | -29.1 | -13.0 | -16.1 | |
| 13.160 | 47.5 | H | -30.8 | 12.3 | 15.0 | 12.8 | -28.2 | -13.0 | -15.2 | |
| 9.499 | 50.0 | V | -38.9 | 9.5 | 13.6 | 11.4 | -34.9 | -13.0 | -21.9 | |
| 11.280 | 45.0 | V | -37.3 | 11.4 | 14.0 | 11.8 | -34.7 | -13.0 | -21.7 | |
| 13.160 | 44.2 | V | -34.9 | 12.3 | 15.0 | 12.8 | -32.3 | -13.0 | -19.3 | |
| High Ch, 1910MHz | | | | | | | | | | |
| 9.549 | 52.0 | H | -36.8 | 9.6 | 13.6 | 11.4 | -32.8 | -13.0 | -19.8 | |
| 11.459 | 48.0 | H | -33.1 | 11.6 | 14.0 | 11.9 | -30.6 | -13.0 | -17.6 | |
| 13.369 | 43.6 | H | -34.6 | 12.3 | 15.0 | 12.9 | -31.9 | -13.0 | -18.9 | |
| 9.549 | 48.3 | V | -40.5 | 9.6 | 13.6 | 11.4 | -36.5 | -13.0 | -23.5 | |
| 11.459 | 45.2 | V | -36.5 | 11.6 | 14.0 | 11.9 | -34.0 | -13.0 | -21.0 | |
| 13.369 | 41.3 | V | -37.7 | 12.3 | 15.0 | 12.9 | -35.0 | -13.0 | -22.0 | |
| Rev. 4.12.7 Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

GSM1900 Band EGPRS Spurious & Harmonic (EIRP)

| High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber | | | | | | | | | | |
|--|------------------------|--------------------|---|------------|---------------|-------------------------------|---------------|-------------------------|----------------|-------|
| Company: Toshiba Project #: 07U11497 Date: 12/6/2007 Test Engineer: Chin Pang Configuration: EUT Only Mode: TX, PCS GSM1900 EGPRS | | | | | | | | | | |
| <u>Test Equipment:</u> | | | | | | | | | | |
| EMC O Horn 1-18GHz T72; S/N: 6739 @3m | | | Horn > 18GHz | | | Limit FCC 24 | | High Pass Filter | | |
| Hi Frequency Cables <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft) | | | | | | | | | | |
| | | | Pre-amplifier 1-26GHz TI145 Agilent 3008A | | | Pre-amplifier 26-40GHz | | | | |
| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes |
| Low Ch, 1850.2MHz | | | | | | | | | | |
| 9.251 | 54.6 | H | -35.0 | 9.3 | 13.6 | 11.4 | -30.7 | -13.0 | -17.7 | |
| 11.100 | 49.0 | H | -33.3 | 11.2 | 13.9 | 11.7 | -30.6 | -13.0 | -17.6 | |
| 12.951 | 48.2 | H | -32.3 | 12.3 | 14.9 | 12.8 | -29.6 | -13.0 | -16.6 | |
| 9.251 | 50.5 | V | -39.1 | 9.3 | 13.6 | 11.4 | -34.8 | -13.0 | -21.8 | |
| 11.100 | 48.2 | V | -34.7 | 11.2 | 13.9 | 11.7 | -32.0 | -13.0 | -19.0 | |
| 12.951 | 46.7 | V | -32.7 | 12.3 | 14.9 | 12.8 | -30.0 | -13.0 | -17.0 | |
| Mid Ch, 1880MHz | | | | | | | | | | |
| 9.499 | 53.7 | H | -35.2 | 9.5 | 13.6 | 11.4 | -31.2 | -13.0 | -18.2 | |
| 11.280 | 50.0 | H | -31.7 | 11.4 | 14.0 | 11.8 | -29.1 | -13.0 | -16.1 | |
| 13.160 | 47.0 | H | -31.3 | 12.3 | 15.0 | 12.8 | -28.7 | -13.0 | -15.7 | |
| 9.499 | 50.0 | V | -38.9 | 9.5 | 13.6 | 11.4 | -34.9 | -13.0 | -21.9 | |
| 11.280 | 48.5 | V | -33.8 | 11.4 | 14.0 | 11.8 | -31.2 | -13.0 | -18.2 | |
| 13.160 | 46.0 | V | -33.1 | 12.3 | 15.0 | 12.8 | -30.5 | -13.0 | -17.5 | |
| High Ch, 1910MHz | | | | | | | | | | |
| 9.549 | 53.5 | H | -35.3 | 9.6 | 13.6 | 11.4 | -31.3 | -13.0 | -18.3 | |
| 11.459 | 50.6 | H | -30.5 | 11.6 | 14.0 | 11.9 | -28.0 | -13.0 | -15.0 | |
| 13.369 | 48.0 | H | -30.2 | 12.3 | 15.0 | 12.9 | -27.5 | -13.0 | -14.5 | |
| 9.549 | 49.5 | V | -39.3 | 9.6 | 13.6 | 11.4 | -35.3 | -13.0 | -22.3 | |
| 11.459 | 48.6 | V | -33.1 | 11.6 | 14.0 | 11.9 | -30.6 | -13.0 | -17.6 | |
| 13.369 | 46.3 | V | -32.7 | 12.3 | 15.0 | 12.9 | -30.0 | -13.0 | -17.0 | |
| Rev. 4.12.7 | | | | | | | | | | |
| Note: No other emissions were detected above the system noise floor. | | | | | | | | | | |

PCS Band WCDMA Spurious & Harmonic (EIRP)

| High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber | | | | | | | | | | |
|--|------------------------|--------------------|-----------------------|------------|---------------|------------------------|---------------|--|----------------|-------|
| Company: Toshiba Project #: 07U11497 Date: 12/6/2007 Test Engineer: Chin pang Configuration: EUT Only Mode: TX, PCS WCDMA | | | | | | | | | | |
| <u>Test Equipment:</u> | | | | | | | | | | |
| EMCO Horn 1-18GHz | | | Horn > 18GHz | | | Limit | | High Pass Filter | | |
| T72; S/N: 6739 @3m | | | | | | FCC 24 | | <input checked="" type="checkbox"/> High Pass Filter | | |
| Hi Frequency Cables <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft) | | | | | | | | | | |
| | | | Pre-amplifier 1-26GHz | | | Pre-amplifier 26-40GHz | | | | |
| | | | T145 Agilent 3008A | | | | | | | |
| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes |
| Low Ch, 1852.4MHz | | | | | | | | | | |
| 3.705 | 50.2 | H | -44.5 | 5.9 | 8.6 | 6.4 | -41.8 | -13.0 | -28.8 | |
| 5.556 | 49.5 | H | -40.9 | 7.4 | 10.8 | 8.6 | -37.6 | -13.0 | -24.6 | |
| 7.409 | 47.6 | H | -41.4 | 8.3 | 12.3 | 10.2 | -37.4 | -13.0 | -24.4 | |
| 3.705 | 49.6 | V | -45.2 | 5.9 | 8.6 | 6.4 | -42.5 | -13.0 | -29.5 | |
| 5.556 | 47.5 | V | -43.9 | 7.4 | 10.8 | 8.6 | -40.6 | -13.0 | -27.6 | |
| 7.409 | 46.7 | V | -43.1 | 8.3 | 12.3 | 10.2 | -39.1 | -13.0 | -26.1 | |
| Mid Ch, 1880MHz | | | | | | | | | | |
| 3.760 | 50.0 | H | -44.6 | 6.0 | 8.7 | 6.5 | -41.9 | -13.0 | -28.9 | |
| 5.640 | 48.0 | H | -42.4 | 7.4 | 10.9 | 8.7 | -39.0 | -13.0 | -26.0 | |
| 7.520 | 46.5 | H | -42.5 | 8.3 | 12.4 | 10.3 | -38.4 | -13.0 | -25.4 | |
| 3.760 | 48.0 | V | -46.7 | 6.0 | 8.7 | 6.5 | -44.0 | -13.0 | -31.0 | |
| 5.640 | 45.3 | V | -46.1 | 7.4 | 10.9 | 8.7 | -42.7 | -13.0 | -29.7 | |
| 7.520 | 45.2 | V | -44.6 | 8.3 | 12.4 | 10.3 | -40.5 | -13.0 | -27.5 | |
| High Ch, 1908Hz | | | | | | | | | | |
| 3.815 | 55.0 | H | -39.5 | 6.0 | 8.8 | 6.6 | -36.8 | -13.0 | -23.8 | |
| 5.723 | 48.0 | H | -42.5 | 7.5 | 10.9 | 8.8 | -39.0 | -13.0 | -26.0 | |
| 7.630 | 46.2 | H | -42.7 | 8.4 | 12.5 | 10.4 | -38.6 | -13.0 | -25.6 | |
| 3.815 | 53.5 | V | -41.1 | 6.0 | 8.8 | 6.6 | -38.4 | -13.0 | -25.4 | |
| 5.723 | 46.9 | V | -44.6 | 7.5 | 10.9 | 8.8 | -41.1 | -13.0 | -28.1 | |
| 7.630 | 45.0 | V | -44.7 | 8.4 | 12.5 | 10.4 | -40.6 | -13.0 | -27.6 | |

Rev. 4.12.7
Note: No other emissions were detected above the system noise floor.

PCS Band WCDMA+HSPDA Spurious & Harmonic (EIRP)

| High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber | | | | | | | | | | |
|--|------------------------|--------------------|-----------------------|------------|---------------|------------------------|---------------|-------------------------------------|----------------|-------|
| Company: Toshiba Project #:07U11497 Date: 120/9/2007 Test Engineer: Chin pang Configuration: EUT Only Mode: TX, PCS WCDMA+HSDPA | | | | | | | | | | |
| <u>Test Equipment:</u> | | | | | | | | | | |
| EMC O Horn 1-18GHz | | | Horn > 18GHz | | | Limit | | High Pass Filter | | |
| T60; S/N: 2238 @3m | | | | | | FCC 24 | | <input checked="" type="checkbox"/> | | |
| Hi Frequency Cables <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft) | | | | | | | | | | |
| | | | Pre-amplifier 1-26GHz | | | Pre-amplifier 26-40GHz | | | | |
| | | | T145 Agilent 3008A | | | | | | | |
| f GHz | SA reading (dBuV/m) | Ant. Pol. (H/V) | SG reading (dBm) | CL (dB) | Gain (dBi) | Gain (dBd) | EIRP (dBm) | Limit (dBm) | Margin (dB) | Notes |
| Low Ch, 1852.4MHz | | | | | | | | | | |
| 3.705 | 51.5 | H | -45.3 | 5.9 | 9.7 | 7.5 | -41.6 | -13.0 | -28.6 | |
| 5.556 | 47.4 | H | -43.6 | 7.4 | 11.0 | 8.9 | -39.9 | -13.0 | -26.9 | |
| 7.409 | 46.5 | H | -41.9 | 8.3 | 12.0 | 9.8 | -38.1 | -13.0 | -25.1 | |
| 3.705 | 47.5 | V | -49.4 | 5.9 | 9.7 | 7.5 | -45.7 | -13.0 | -32.7 | |
| 5.556 | 45.6 | V | -46.4 | 7.4 | 11.0 | 8.9 | -42.7 | -13.0 | -29.7 | |
| 7.409 | 45.0 | V | -44.2 | 8.3 | 12.0 | 9.8 | -40.4 | -13.0 | -27.4 | |
| Mid Ch, 1880MHz | | | | | | | | | | |
| 3.760 | 50.5 | H | -46.1 | 6.0 | 9.7 | 7.5 | -42.4 | -13.0 | -29.4 | |
| 5.640 | 46.5 | H | -44.6 | 7.4 | 11.2 | 9.0 | -40.8 | -13.0 | -27.8 | |
| 7.520 | 45.6 | H | -42.5 | 8.3 | 12.0 | 9.8 | -38.8 | -13.0 | -25.8 | |
| 3.760 | 47.0 | V | -49.7 | 6.0 | 9.7 | 7.5 | -46.0 | -13.0 | -33.0 | |
| 5.640 | 46.0 | V | -46.1 | 7.4 | 11.2 | 9.0 | -42.3 | -13.0 | -29.3 | |
| 7.520 | 44.0 | V | -44.9 | 8.3 | 12.0 | 9.8 | -41.2 | -13.0 | -28.2 | |
| High Ch, 1908GHz | | | | | | | | | | |
| 3.815 | 60.0 | H | -36.4 | 6.0 | 9.7 | 7.6 | -32.7 | -13.0 | -19.7 | |
| 5.723 | 47.0 | H | -44.2 | 7.5 | 11.3 | 9.1 | -40.4 | -13.0 | -27.4 | |
| 7.630 | 46.1 | H | -41.8 | 8.4 | 12.0 | 9.8 | -38.1 | -13.0 | -25.1 | |
| 3.815 | 58.0 | V | -38.5 | 6.0 | 9.7 | 7.6 | -34.8 | -13.0 | -21.8 | |
| 5.723 | 46.2 | V | -46.0 | 7.5 | 11.3 | 9.1 | -42.2 | -13.0 | -29.2 | |
| 7.630 | 45.0 | V | -43.7 | 8.4 | 12.0 | 9.8 | -40.0 | -13.0 | -27.0 | |

Rev. 4.12.7
Note: No other emissions were detected above the system noise floor.

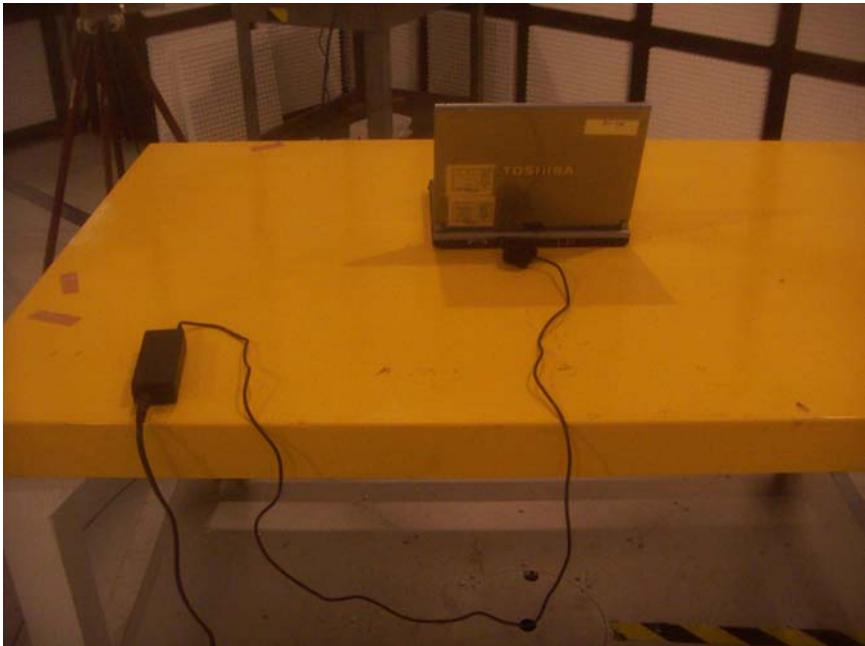
8. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP FOR MOBILE CONFIGURATION

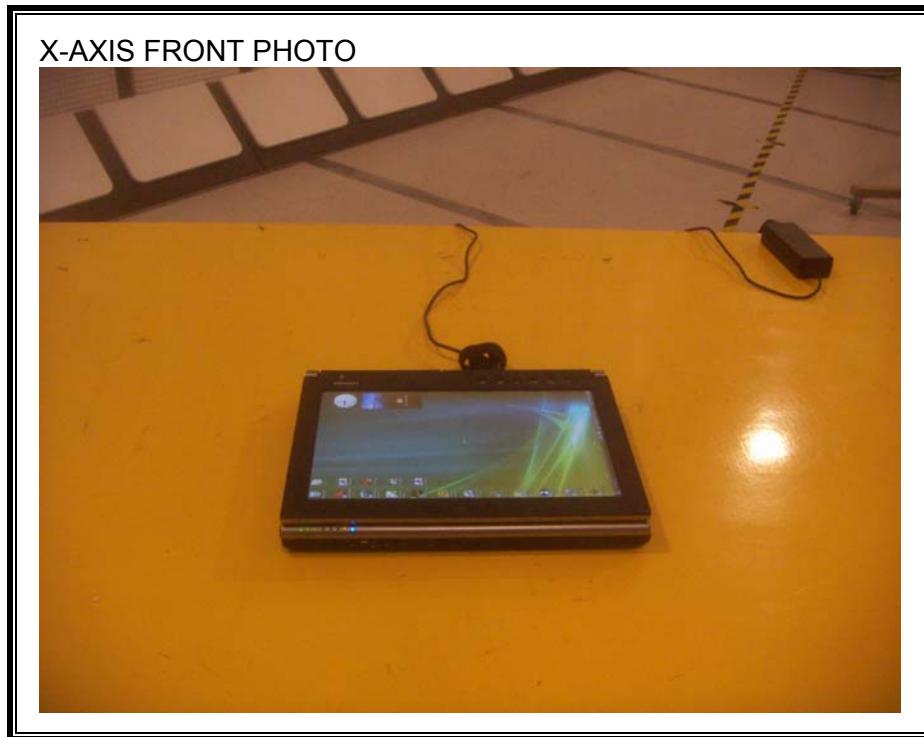
RADIATED FRONT PHOTO



RADIATED BACK PHOTO



RADIATED RF MEASUREMENT SETUP FOR PORTABLE CONFIGURATION



X-AXIS BACK PHOTO

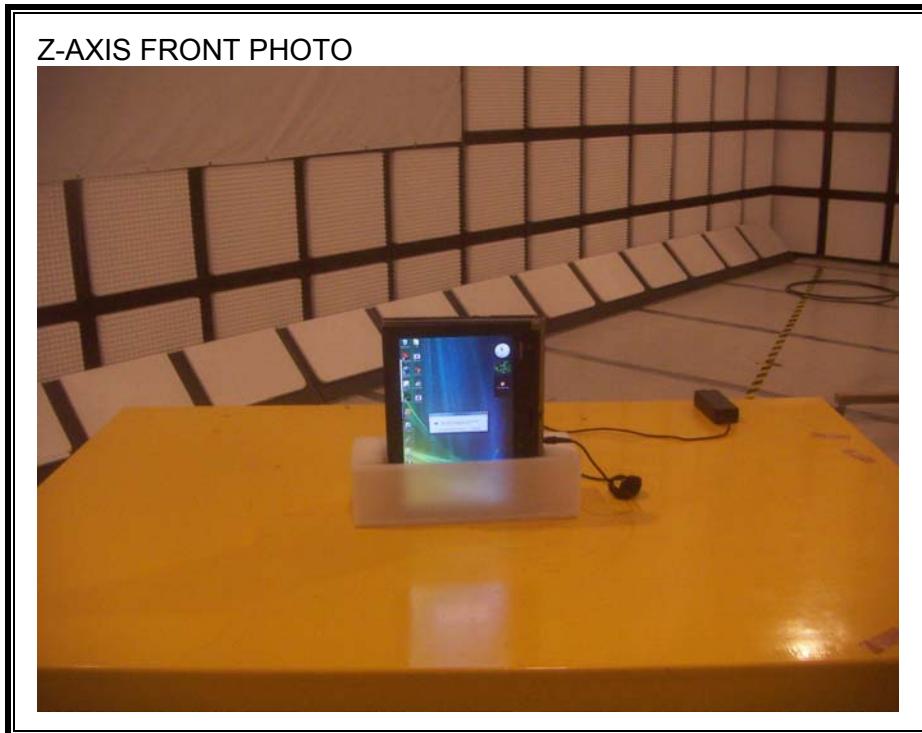


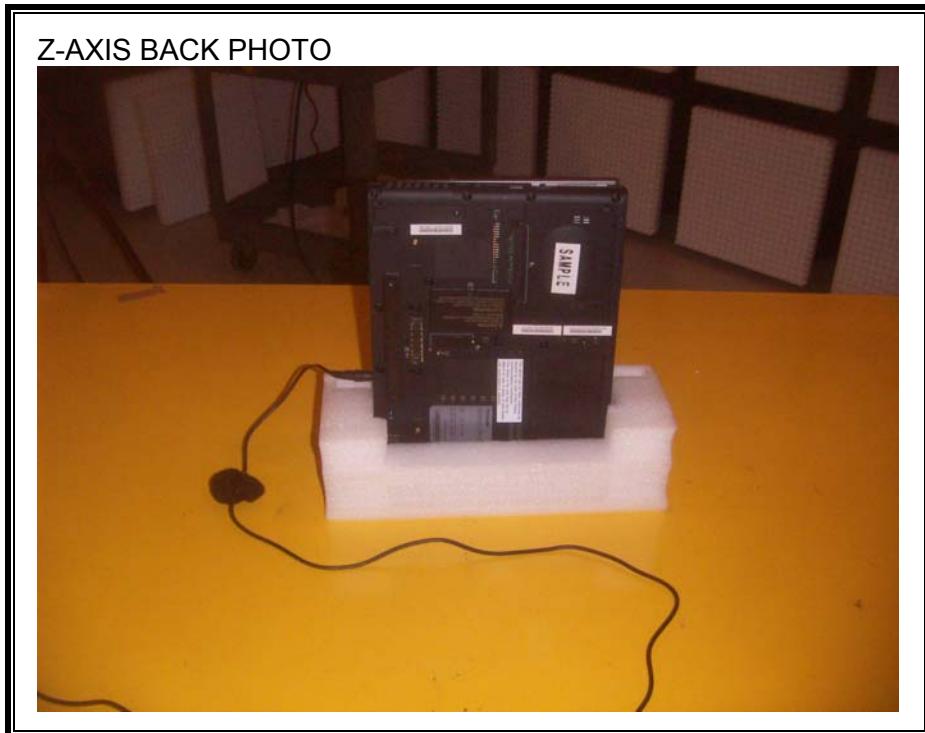
Y-AXIS FRONT PHOTO



Y-AXIS BACK PHOTO







END OF REPORT