



**FCC CFR47 PART 22 SUBPART H
AND PART 24 SUBPART E
CERTIFICATION TEST REPORT**

FOR

CDMA CELL-PCS MODULE

MODEL NUMBER: PA3547E-1HSD

FCC ID: CJ6UPA3547G3

REPORT NUMBER: 07U11140-1, REVISION B1

ISSUE DATE: JULY 13, 2007

Prepared for
TOSHIBA CORPORATION
OME COMPLEX, 2-9, SUEHIRO-CHO
TOKYO, 198-8710, JAPAN

Prepared by
COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
FREMONT, CA 94538, USA
TEL: (510) 771-1000
FAX: (510) 661-0888

NVLAP[®]

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Revision History

Rev.	Issue Date	Revisions	Revised By
---	07/03/07	Initial Issue	T. Chan
B	07/11/07	Corrected Applicant Address	T. Hong
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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: 47012791J

DATE TESTED: JUNE 19-20 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.

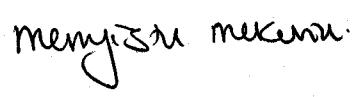
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. 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:



MENGISTU MEKURIA
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA/EIA 603C (2004), ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 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
Radiated Emission, Above 2000 MHz	+/- 4.3 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 Portege R500 Laptop

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 Toshiba Corporation.

5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change under this application is: added new higher antenna gain-TMZ007.

5.3. MAXIMUM OUTPUT POWER

The transmitter has a maximum ERP and EIRP output powers 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 - 848.8	GPRS	30.60	1148.15
824.2 - 848.8	EGPRS	28.90	776.25
826.4 - 846.6	WCDMA+HSPDA	26.40	436.52

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
1850.2 - 1909.8	GPRS	29.40	870.96
1850.2 - 1909.8	EGPRS	27.30	537.03
1852.4 - 1907.6	WCDMA+HSPDA	26.20	416.87

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes 2xDipole antennas, with a maximum gain of 1.40dBi for Cell band and 0.47dBi for PCS band.

5.5. SOFTWARE AND FIRMWARE

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

GPRS Mode

- Call Setup > Shift & Preset
- Active Cell > Active Cell (GPRS)
- Connection Type > ETSI Type A
- BCH Parameters > Cell Band > PCS or GSM850 (US band)
- TCH Parameters > Traffic Band > PCS or GSM850 (US band)
 - > MS TX Level > 3 (33dBm for Cell band); 3 (30dBm for PCS band)
- PDTCH > Multislot Config > 1 Down, 4 Up
 - > MS TX Level > 3 (33dBm Cell band); 3 (30dBm PCS band)
 - > Coding Scheme > CS-4
- Press "Start Data Connection"

EGPRS Mode

- Call Setup > Shift & Preset
- Active Cell > Active Cell (EGPRS)
- Connection Type > ETSI Type A
- BCH Parameters > Cell Band > PCS or GSM850 (US band)
- TCH Parameters > Traffic Band > PCS or GSM850 (US band)
 - > MS TX Level > 6 (27dBm Cell band); 5 (26dBm PCS band)
- PDTCH > Multislot Config > 1 Down, 4 Up
 - > MS TX Level > 6 (27dBm Cell band); 5 (26dBm PCS band)
 - > Modulation Coding Scheme > Downlink > As Uplink
 - > Uplink > MSC-5 (8PSK)
- Press "Start Data Connection" and you will see "Transferring"

UMTS

- Call Setup > Shift & Preset
- Cell Parameters: PS Domain Information > Present
 - ATT (IMSI Attach) Flag State > Set
- Security Parameter - System Operations > None
- Channel Type:
 - RMC: 12.2k, 64k, 144k, or 384k
 - AMC: 12.2 UL / 64/ DL AM RMC, 12.2 UL / 144/ DL AM RMC, or 12.2 UL / 384/ DL AM RMC,
- Paging Service: RB Test Mode
- Channel (UARFCN)Parms:

	PCS band	Cell band
▪ DL Channel:	9662 / 9800 / 9938	/ 4357 / 4407 / 4458
▪ UL Channel:	9262 / 9400 / 9538	/ 4132 / 4182 / 4233
- DL DTCH Data: All Ones
- RLC Reestablish: Off
- Call Limit State: Off
- Call Drop Timer: Off
- SRB Config.: 13.6k DCCH
- UE Target Power: 25 dBm
- UL CL Power Ctrl Parameters
 - UL CL Power Ctrl Mode: All Up Bits

HSPDA

- Uplink Parameter:
 - UPLINK DPCH Bc / Bd Control: Manual
 - Manual Uplink DPCH Bc: 9
 - Manual Uplink DPCH Bd: 15
- Channel Type: 12.2k+HSPDA
- HSPDA Parameters:
 - HSPDA RB Test Mode Setup
 - HS-DSCH Configuration Type: FRC
 - FRC Type: **H-Set 3**
 - CN Domain: CS Domain
 - Uplink 64k DTCH for HSPDA Loopback State: On
 - HS-DSCH Data Pattern: All Ones
 - RLC Header on HS-DSCH: Present
 - HSPDA Uplink Parameters
 - DeltaACK: 5
 - DeltaNACK: 5
 - DeltaCQI: 2

5.6. WORST-CASE CONFIGURATION AND MODE

Based on the above results from the different modulations, GSM850, GPRS, WCDMA, and WCDMA+HSPDA modulations are 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 Low channel for GSM1900 band. For WCDMA+HSPDA modulation, the highest power was at high channel for Cellular band and low channel for PCS band.

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Toshiba	PPR50E-AAA15	47012791J	DoC
AC Adapter	Toshiba	PA32P2U-2ACA	G71CU02SC10	DoC
Wireless Communications Test Set	Agilent	E5515C	US41070176	DoC

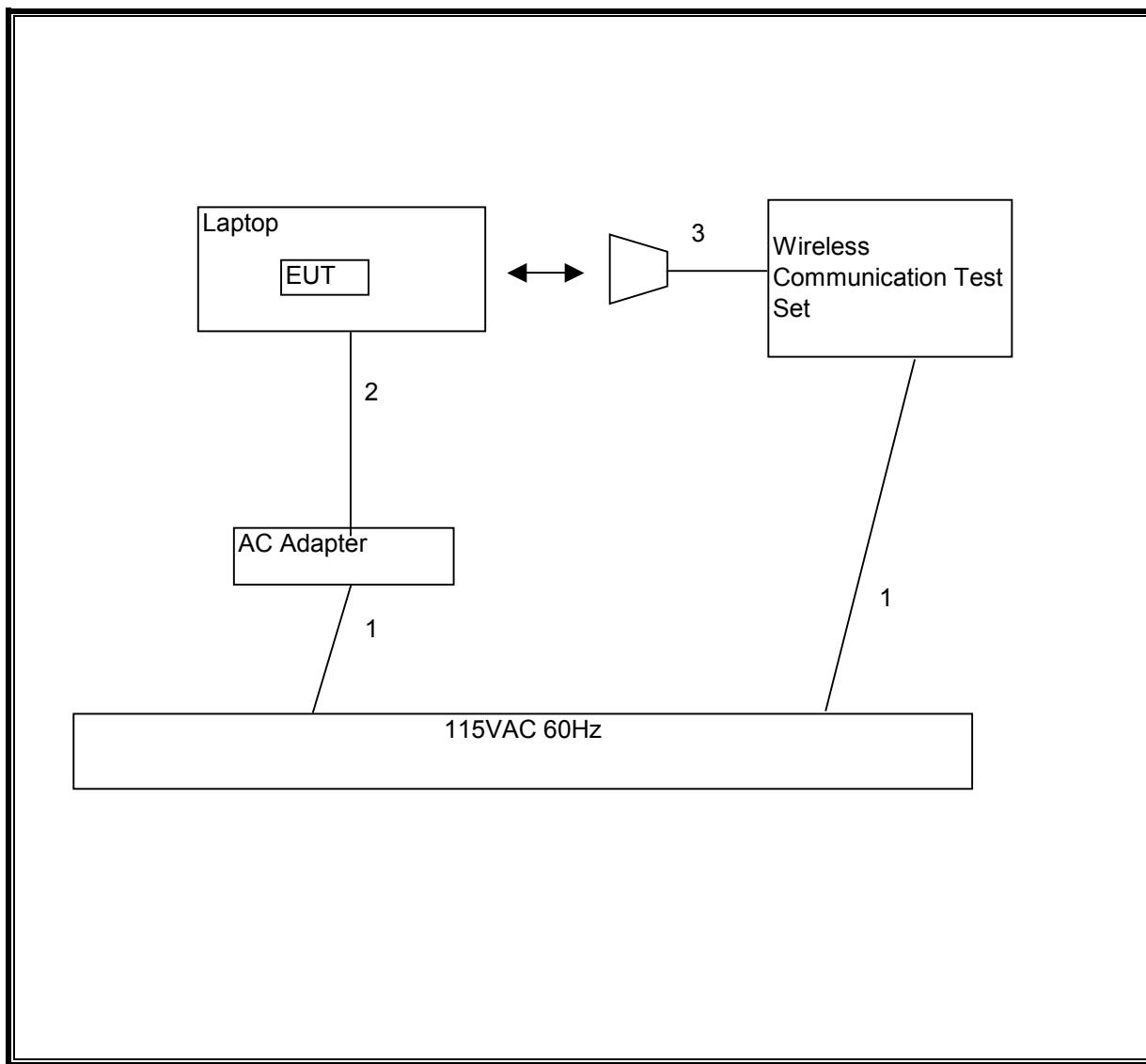
I/O CABLES

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	Serial Number	Cal Due
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY45300064	03/18/08
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	04/15/08
Preamplifier, 1 ~ 26.5 GHz	Agilent / HP	8449B	3008A00931	08/01/07
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A0022704	08/13/07
Communications Test Set	Agilent	E5515C	US41070176	10/19/07
2.7GHz HPF	Micro Tronic	HPM13194	2	CNR
1.5GHz HPF	MicroTronic	HPM13195	1	CNR
Signal Generator 2 -40 GHz	R & S	SMP04	DE 34210	06/02/08
Signal Generator 1024 MHz	R & S	SMY01	DE 12311	05/10/08
Dipole	EMCO	3121C-DB2	22435	03/20/08

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	29.70	933.25
Middle	837.0	30.00	1000.00
High	848.8	30.60	1148.15

GSM850 CELL EGPRS Modulation

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	824.2	27.90	616.60
Middle	837.0	28.30	676.08
High	848.8	28.90	776.25

1900MHz GPRS PCS Modulation

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1850.20	29.40	870.96
Middle	1880.00	28.40	691.83
High	1909.80	28.90	776.25

1900MHz EGPRS PCS Modulation

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1850.20	27.30	537.03
Middle	1880.00	26.40	436.52
High	1909.80	27.20	524.81

WCDMA CELL CDMA Modulation

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	826.4	25.20	331.13
Middle	836.4	25.00	316.23
High	848.6	25.30	338.84

WCDMA PCS CDMA Modulation

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1852.40	26.10	407.38
Middle	1880.00	25.60	363.08
High	1907.60	25.20	331.13

WCDMA+HSPDA CELL CDMA Modulation

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	826.4	25.90	389.05
Middle	836.4	25.80	380.19
High	848.6	26.40	436.52

WCDMA+HSPDA PCS CDMA Modulation

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1852.40	26.20	416.87
Middle	1880.00	25.70	371.54
High	1907.60	26.00	398.11

GSM850 GPRS Output Power (ERP)

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

Company: TOSHIBA
Project #: 07U11140
Date: 6/19/2007
Test Engineer: MENGISTU MEKURIA
Configuration: EUT inside the Laptop
Mode: TX 850MHz, GPRS MODE

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
824.20	103.8	V	30.2	0.5	0.0	29.7	38.5	-8.7	
824.20	103.1	H	27.8	0.5	0.0	27.3	38.5	-11.2	
837.00	103.6	V	30.6	0.6	0.0	30.0	38.5	-8.5	
837.00	104.8	H	29.7	0.6	0.0	29.1	38.5	-9.4	
848.80	104.5	V	31.3	0.7	0.0	30.6	38.5	-7.8	
848.80	104.2	H	28.7	0.7	0.0	28.0	38.5	-10.4	

Rev. 1.24.7

GSM850 EGPRS Output Power (ERP)

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

Company: TOSHIBA
Project #: 07U11140
Date: 6/19/2007
Test Engineer: MENGISTU MEKURIA
Configuration: EUT Inside the Laptop
Mode: TX 850MHz, EGPRS MODE

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
824.20	102.0	V	28.4	0.5	0.0	27.9	38.5	-10.5	
824.20	101.0	H	25.7	0.5	0.0	25.2	38.5	-13.2	
837.00	101.9	V	28.9	0.6	0.0	28.3	38.5	-10.1	
837.00	102.6	H	27.5	0.6	0.0	26.9	38.5	-11.5	
848.80	102.8	V	29.6	0.7	0.0	28.9	38.5	-9.6	
848.80	103.3	H	27.8	0.7	0.0	27.1	38.5	-11.4	

Rev. 1.24.7

Cell Band WCDMA Output Power (ERP)

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

Company: TOSHIBA
Project #: 07U11140
Date: 6/19/2007
Test Engineer: MENGISTU MEKURIA
Configuration: EUT Inside the Laptop
Mode: TX 850MHz, WCDMA MODE

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
826.40	99.3	V	25.7	0.5	0.0	25.2	38.5	-13.2	
826.40	97.6	H	22.3	0.5	0.0	21.8	38.5	-16.6	
837.00	98.6	V	25.6	0.6	0.0	25.0	38.5	-13.4	
837.00	96.7	H	21.6	0.6	0.0	21.0	38.5	-17.4	
846.60	99.2	V	26.0	0.7	0.0	25.3	38.5	-13.1	
846.60	97.7	H	22.2	0.7	0.0	21.5	38.5	-16.9	

Rev. 1.24.7

Cell Band WCDMA+HSPDA Output Power (ERP)

High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m Chamber Site																		
Company:	TOSHIBA																	
Project #:	07U11140																	
Date:	6/19/2007																	
Test Engineer:	MENGISTU MEKURIA																	
Configuration:	EUT Inside the Laptop																	
Mode:	TX 850MHz, HSDPA MODE																	
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									
826.40	100.0	V	26.4	0.5	0.0	25.9	38.5	-12.5										
826.40	98.3	H	23.0	0.5	0.0	22.5	38.5	-15.9										
837.00	99.4	V	26.4	0.6	0.0	25.8	38.5	-12.6										
837.00	97.8	H	22.7	0.6	0.0	22.1	38.5	-16.3										
846.60	100.3	V	27.1	0.7	0.0	26.4	38.5	-12.0										
846.60	98.6	H	23.1	0.7	0.0	22.4	38.5	-16.0										

Rev. 1.24.7

GSM1900 Band GPRS Output Power (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services, Fremont 5m Chamber Site																		
Company:	TOSHIBA																	
Project #:	07U11140																	
Date:	6/19/2007																	
Test Engineer:	MENGISTU MEKURIA																	
Configuration:	EUT Inside the Laptop																	
Mode:	TX 1900MHz, GPRS MODE																	
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									
1.850	95.4	V	22.0	0.9	8.3	29.4	33.0	-3.6										
1.850	91.0	H	17.1	0.9	8.3	24.5	33.0	-8.5										
1.880	95.3	V	21.0	0.9	8.3	28.4	33.0	-4.6										
1.880	90.3	H	15.5	0.9	8.3	22.9	33.0	-10.1										
1.910	94.7	V	21.4	0.9	8.4	28.9	33.0	-4.1										
1.910	89.6	H	16.8	0.9	8.4	24.3	33.0	-8.8										
Rev. 1.24.7																		

GSM1900 Band EGPRS Output Power (EIRP)

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

Company: TOSHIBA
Project #: 07U11140
Date: 6/19/2007
Test Engineer: MENGISTU MEKURIA
Configuration: EUT inside the Laptop
Mode: TX 1900MHz, EGPRS MODE

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
1.850	93.3	V	19.9	0.9	8.3	27.3	33.0	-5.7	
1.850	86.8	H	14.9	0.9	8.3	22.3	33.0	-10.7	
1.880	93.3	V	19.0	0.9	8.3	26.4	33.0	-6.6	
1.880	88.4	H	13.6	0.9	8.3	21.0	33.0	-12.0	
1.910	93.0	V	19.7	0.9	8.4	27.2	33.0	-5.8	
1.910	87.7	H	14.9	0.9	8.4	22.4	33.0	-10.7	

Rev. 1.24.7

PCS Band WCDMA Output Power (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services, Fremont 5m Chamber Site																		
Company:	TOSHIBA																	
Project #:	07U11140																	
Date:	6/19/2007																	
Test Engineer:	MENGISTU MEKURIA																	
Configuration:	EUT Inside the Laptop																	
Mode:	TX 1900MHz, WCDMA MODE																	
<u>Test Equipment:</u>																		
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									
1.852	92.1	V	18.7	0.9	8.3	26.1	33.0	-6.9										
1.852	87.7	H	13.8	0.9	8.3	21.2	33.0	-11.8										
1.880	92.5	V	18.2	0.9	8.3	25.6	33.0	-7.4										
1.880	87.1	H	12.3	0.9	8.3	19.7	33.0	-13.3										
1.908	91.0	V	17.7	0.9	8.4	25.2	33.0	-7.8										
1.908	85.9	H	13.1	0.9	8.4	20.6	33.0	-12.5										
Rev. 1.24.7																		

PCS Band WCDMA + HSPDA Output Power (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services, Fremont 5m Chamber Site																		
Company:	TOSHIBA																	
Project #:	07U11140																	
Date:	6/19/2007																	
Test Engineer:	MENGISTU MEKURIA																	
Configuration:	EUT Inside the Laptop																	
Mode:	TX 1900MHz, HSDPA MODE																	
<u>Test Equipment:</u>																		
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									
1.852	92.2	V	18.8	0.9	8.3	26.2	33.0	-6.8										
1.852	86.1	H	12.2	0.9	8.3	19.6	33.0	-13.4										
1.880	92.6	V	18.3	0.9	8.3	25.7	33.0	-7.3										
1.880	85.4	H	10.6	0.9	8.3	18.0	33.0	-15.0										
1.908	91.8	V	18.5	0.9	8.4	26.0	33.0	-7.0										
1.908	87.3	H	14.5	0.9	8.4	22.0	33.0	-11.1										

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	30.60	1.40	0.31
GSM1900 MHz PCS	20.0	29.40	0.47	0.19
WCDMA+HSPDA Cellar	20.0	26.40	1.40	0.12
WCDMA+HSPDA PCS	20.0	26.20	0.47	0.09

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 (e) and §24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

ANSI / TIA / EIA 603C Clause 2.2.12, FCC 22.917 (h), & FCC 24.238 (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 #:	07U11140									
Date:	6/20/2007									
Test Engineer:	MENGISTU MEKURIA									
Configuration:	EUT Inside the Laptop									
Mode:	TX 850MHz, GPRS MODE									
<u>Test Equipment:</u>										
EMCO Horn 1-18 GHz		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 1-26 GHz		Pre-amplifier 26-40 GHz
						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										
1.961	76.5	V	-26.9	4.2	8.2	6.0	-25.2	-13.0	-12.2	
2.451	58.3	V	-43.7	4.9	9.3	7.1	-41.4	-13.0	-28.4	
2.473	49.7	V	-52.2	4.9	9.3	7.1	-49.9	-13.0	-36.9	
3.297	48.0	V	-50.4	5.6	9.4	7.3	-48.7	-13.0	-35.7	
1.465	53.5	H	-50.4	3.6	6.4	4.3	-49.7	-13.0	-36.7	
1.961	80.9	H	-21.8	4.2	8.2	6.0	-20.0	-13.0	-7.0	
2.473	48.4	H	-53.3	4.9	9.3	7.1	-51.1	-13.0	-38.1	
3.297	45.1	H	-53.1	5.6	9.4	7.3	-51.4	-13.0	-38.4	
Mid Ch										
1.674	61.3	V	-42.8	3.9	7.2	5.0	-41.7	-13.0	-28.7	
1.961	77.0	V	-26.4	4.2	8.2	6.0	-24.7	-13.0	-11.7	
2.511	53.5	V	-48.2	4.9	9.3	7.1	-46.0	-13.0	-33.0	
3.348	47.6	V	-50.6	5.6	9.5	7.3	-48.9	-13.0	-35.9	
1.961	80.5	H	-22.2	4.2	8.2	6.0	-20.5	-13.0	-7.5	
2.511	52.6	H	-48.9	4.9	9.3	7.1	-46.7	-13.0	-33.7	
3.348	44.7	H	-53.4	5.6	9.5	7.3	-51.7	-13.0	-38.7	
		H						-13.0		
High Ch										
1.698	61.2	V	-42.8	3.9	7.2	5.1	-41.6	-13.0	-28.6	
1.961	76.8	V	-26.7	4.2	8.2	6.0	-24.9	-13.0	-11.9	
2.546	52.6	V	-49.0	4.9	9.3	7.1	-46.8	-13.0	-33.8	
3.395	45.4	V	-52.6	5.7	9.5	7.3	-50.9	-13.0	-37.9	
1.698	58.7	H	-44.6	3.9	7.2	5.1	-43.4	-13.0	-30.4	
1.961	81.0	H	-21.7	4.2	8.2	6.0	-19.9	-13.0	-6.9	
2.546	51.3	H	-50.0	4.9	9.3	7.1	-47.9	-13.0	-34.9	
3.395	46.0	H	-51.9	5.7	9.5	7.3	-50.2	-13.0	-37.2	

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

GSM850 EGPRS Spurious & Harmonic (ERP)

High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber										
Company:	TOSHIBA									
Project #:	07U11140									
Date:	6/20/2007									
Test Engineer:	MENGISTU MEKURIA									
Configuration:	EUT Inside the Laptop									
Mode:	TX 850MHz, EGPRS MODE									
<u>Test Equipment:</u>										
EMCO Horn 1-18 GHz			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 1-26 GHz			Pre-amplifier 26-40 GHz				
			T145 Agilent 3008A							
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dB)	Gain (dBi)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low CH										
1.648	49.1	V	-55.1	3.8	7.1	4.9	-54.0	-13.0	-41.0	
1.961	76.6	V	-26.8	4.2	8.2	6.0	-25.1	-13.0	-12.1	
2.473	45.3	V	-56.6	4.9	9.3	7.1	-54.4	-13.0	-41.4	
1.648	47.9	H	-55.6	3.8	7.1	4.9	-54.5	-13.0	-41.5	
1.961	81.7	H	-21.0	4.2	8.2	6.0	-19.3	-13.0	-6.3	
2.473	45.4	H	-56.3	4.9	9.3	7.1	-54.1	-13.0	-41.1	
Mid Ch										
1.674	54.4	V	-49.7	3.9	7.2	5.0	-48.6	-13.0	-35.6	
1.961	77.8	V	-25.6	4.2	8.2	6.0	-23.9	-13.0	-10.9	
2.511	47.5	V	-54.2	4.9	9.3	7.1	-52.0	-13.0	-39.0	
3.348	45.6	V	-52.6	5.6	9.5	7.3	-50.9	-13.0	-37.9	
1.961	80.9	H	-21.8	4.2	8.2	6.0	-20.0	-13.0	-7.0	
2.511	46.6	H	-54.9	4.9	9.3	7.1	-52.7	-13.0	-39.7	
3.348	45.4	H	-52.7	5.6	9.5	7.3	-51.0	-13.0	-36.0	
High Ch										
1.698	57.7	V	-46.4	3.9	7.2	5.1	-45.2	-13.0	-32.2	
1.961	78.3	V	-25.2	4.2	8.2	6.0	-23.4	-13.0	-10.4	
2.546	48.2	V	-53.4	4.9	9.3	7.1	-51.2	-13.0	-38.2	
3.395	45.2	V	-52.8	5.7	9.5	7.3	-51.1	-13.0	-38.1	
1.698	55.4	H	-48.0	3.9	7.2	5.1	-46.8	-13.0	-33.8	
1.961	81.2	H	-21.5	4.2	8.2	6.0	-19.7	-13.0	-6.7	
2.546	46.4	H	-55.0	4.9	9.3	7.1	-52.8	-13.0	-39.8	
3.395	44.3	H	-53.6	5.7	9.5	7.3	-52.0	-13.0	-39.0	

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 #:	07U11140									
Date:	6/20/2007									
Test Engineer:	MENGISTU MEKURIA									
Configuration:	EUT Inside the Laptop									
Mode:	TX 850MHz, WCDMA MODE									
<u>Test Equipment:</u>										
EMCO Horn 1-18 GHz		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 1-26 GHz		Pre-amplifier 26-40 GHz
						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										
1.599	48.2	V	-56.1	3.8	6.9	4.7	-55.1	-13.0	-42.1	
1.653	47.5	V	-56.7	3.8	7.1	4.9	-55.6	-13.0	-42.6	
2.479	44.0	V	-57.8	4.9	9.3	7.1	-55.6	-13.0	-42.6	
1.599	47.9	H	-55.7	3.8	6.9	4.7	-54.7	-13.0	-41.7	
1.653	46.5	H	-56.9	3.8	7.1	4.9	-55.8	-13.0	-42.8	
2.479	44.1	H	-57.6	4.9	9.3	7.1	-55.4	-13.0	-42.4	
Mid Ch										
1.673	48.3	V	-55.8	3.9	7.2	5.0	-54.7	-13.0	-41.7	
2.509	45.9	V	-55.9	4.9	9.3	7.1	-53.6	-13.0	-40.6	
3.104	48.1	V	-51.0	5.4	9.3	7.2	-49.2	-13.0	-36.2	
1.673	46.8	H	-56.6	3.9	7.2	5.0	-55.5	-13.0	-42.5	
2.124	46.6	H	-56.1	4.5	8.6	6.4	-54.1	-13.0	-41.1	
2.509	44.7	H	-56.8	4.9	9.3	7.1	-54.6	-13.0	-41.6	
High Ch										
1.593	50.0	V	-54.3	3.8	6.9	4.7	-53.3	-13.0	-40.3	
1.693	47.8	V	-56.3	3.9	7.2	5.1	-55.1	-13.0	-42.1	
2.540	44.6	V	-56.9	4.9	9.3	7.1	-54.7	-13.0	-41.7	
1.593	49.0	H	-54.6	3.8	6.9	4.7	-53.7	-13.0	-40.7	
1.693	46.0	H	-57.3	3.9	7.2	5.1	-56.2	-13.0	-43.2	
2.540	43.9	H	-57.4	4.9	9.3	7.1	-55.2	-13.0	-42.2	
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 #:	07U11140										
Date:	6/20/2007										
Test Engineer:	MENGISTU MEKURIA										
Configuration:	EUT Inside the Laptop										
Mode:	TX 850MHz, HSDPA MODE										
<u>Test Equipment:</u>											
EMCO Horn 1-18 GHz		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.	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes	
Low Ch											
1.653	46.3	V	57.9	3.8	7.1	4.9	56.8	-13.0	-43.8		
1.862	47.3	V	56.4	4.1	7.8	5.7	54.8	-13.0	-41.8		
1.593	46.5	H	57.1	3.8	6.9	4.7	56.2	-13.0	-43.2		
1.653	45.3	H	58.2	3.8	7.1	4.9	57.1	-13.0	-44.1		
1.862	45.0	H	57.9	4.1	7.8	5.7	56.4	-13.0	-43.4		
Mid Ch											
1.593	49.2	V	55.1	3.8	6.9	4.7	54.1	-13.0	-41.1		
1.673	47.6	V	56.5	3.9	7.2	5.0	55.3	-13.0	-42.3		
1.862	47.8	V	55.8	4.1	7.8	5.7	54.3	-13.0	-41.3		
2.509	45.5	V	56.3	4.9	9.3	7.1	54.1	-13.0	-41.1		
1.599	47.3	H	56.3	3.8	6.9	4.7	55.4	-13.0	-42.4		
1.673	46.2	H	57.2	3.9	7.2	5.0	56.0	-13.0	-43.0		
1.862	47.1	H	55.9	4.1	7.8	5.7	54.3	-13.0	-41.3		
2.509	43.1	H	58.4	4.9	9.3	7.1	56.2	-13.0	-43.2		
High Ch											
1.593	48.4	V	55.9	3.8	6.9	4.7	54.9	-13.0	-41.9		
1.693	48.6	V	55.4	3.9	7.2	5.1	54.3	-13.0	-41.3		
1.868	48.7	V	54.9	4.1	7.8	5.7	53.4	-13.0	-40.4		
1.593	46.2	H	57.4	3.8	6.9	4.7	56.5	-13.0	-43.5		
1.693	46.5	H	56.8	3.9	7.2	5.1	55.7	-13.0	-42.7		
2.124	46.9	H	55.9	4.5	8.6	6.4	53.9	-13.0	-40.9		
Rev. 4.12.7											
Note: No other emissions were detected above the system noise floor.											

GSM1900 Band GPRS & Harmonic (EIRP)

High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber										
Company:	TOSHIBA									
Project #:	07U11140									
Date:	6/20/2007									
Test Engineer:	MENGISTU MEKURIA									
Configuration:	EUT inside the Laptop									
Mode:	TX 1900MHz, GPRS MODE									
<u>Test Equipment:</u>										
EMCO Horn 1-18 GHz			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				
			T144 Miteq 3008A0t							
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dB)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch										
3.700	45.1	V	-53.8	5.9	9.7	7.5	-50.1	-13.0	-37.1	
5.551	42.8	V	-50.5	7.4	11.0	8.9	-46.9	-13.0	-33.9	
3.700	45.4	H	-53.4	5.9	9.7	7.5	-49.7	-13.0	-36.7	
5.551	43.6	H	-48.8	7.4	11.0	8.9	-45.2	-13.0	-32.2	
Mid Ch										
3.760	45.1	V	-53.5	6.0	9.7	7.5	-49.8	-13.0	-36.8	
5.640	42.9	V	-50.6	7.4	11.2	9.0	-46.9	-13.0	-33.9	
3.760	45.8	H	-52.7	6.0	9.7	7.5	-49.0	-13.0	-36.0	
5.640	42.7	H	-49.7	7.4	11.2	9.0	-46.0	-13.0	-33.0	
High Ch										
3.820	45.1	V	-53.3	6.0	9.7	7.6	-49.7	-13.0	-36.7	
5.729	42.8	V	-50.8	7.5	11.3	9.2	-46.9	-13.0	-33.9	
3.820	46.5	H	-51.9	6.0	9.7	7.6	-48.2	-13.0	-35.2	
5.729	43.0	H	-49.6	7.5	11.3	9.2	-45.8	-13.0	-32.8	
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 #: 07U11140 Date: 6/20/2007 Test Engineer: MENGISTU MEKURIA Configuration: EUT Inside the Laptop Mode: TX 1900MHz, EGPRS MODE										
<u>Test Equipment:</u>										
EMCO Horn 1-18 GHz		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 1-26 GHz		Pre-amplifier 26-40 GHz								
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										
3.700	45.3	V	-51.6	5.9	9.7	7.5	-47.9	-13.0	-34.9	
5.551	42.8	V	-49.1	7.4	11.0	8.9	-45.5	-13.0	-32.5	
3.700	44.2	H	-52.7	5.9	9.7	7.5	-48.9	-13.0	-35.9	
5.551	42.8	H	-48.2	7.4	11.0	8.9	-44.6	-13.0	-31.6	
Mid Ch										
3.760	45.2	V	-51.5	6.0	9.7	7.5	-47.8	-13.0	-34.8	
5.640	42.7	V	-49.4	7.4	11.2	9.0	-45.7	-13.0	-32.7	
3.760	44.1	H	-52.5	6.0	9.7	7.5	-48.8	-13.0	-35.8	
5.640	42.7	H	-48.4	7.4	11.2	9.0	-44.6	-13.0	-31.6	
High Ch										
3.820	45.6	V	-50.9	6.0	9.7	7.6	-47.3	-13.0	-34.3	
5.729	42.0	V	-50.2	7.5	11.3	9.2	-46.4	-13.0	-33.4	
3.820	44.5	H	-51.9	6.0	9.7	7.6	-48.2	-13.0	-35.2	
5.729	42.5	H	-48.7	7.5	11.3	9.2	-44.9	-13.0	-31.9	
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 #:	07U11140									
Date:	6/20/2007									
Test Engineer:	MENGISTU MEKURIA									
Configuration:	EUT Inside the Laptop									
Mode:	TX 1900MHz, WCDMA MODE									
<u>Test Equipment:</u>										
EMCO Horn 1-18 GHz			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 1-26 GHz			T145 Agilent 3008A			Pre-amplifier 26-40 GHz				
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										
3.705	45.2	V	-51.7	5.9	9.7	7.5	-48.0	-13.0	-35.0	
3.705	45.3	H	-51.5	5.9	9.7	7.5	-47.8	-13.0	-34.8	
Mid Ch										
3.760	44.9	V	-51.8	6.0	9.7	7.5	-48.1	-13.0	-35.1	
3.760	45.1	H	-51.5	6.0	9.7	7.5	-47.8	-13.0	-34.8	
High Ch										
3.815	48.6	V	-48.0	6.0	9.7	7.6	-44.3	-13.0	-31.3	
3.815	48.6	H	-47.8	6.0	9.7	7.6	-44.2	-13.0	-31.2	
Rev. 4.12.7										
Note: No other emissions were detected above the system noise floor.										

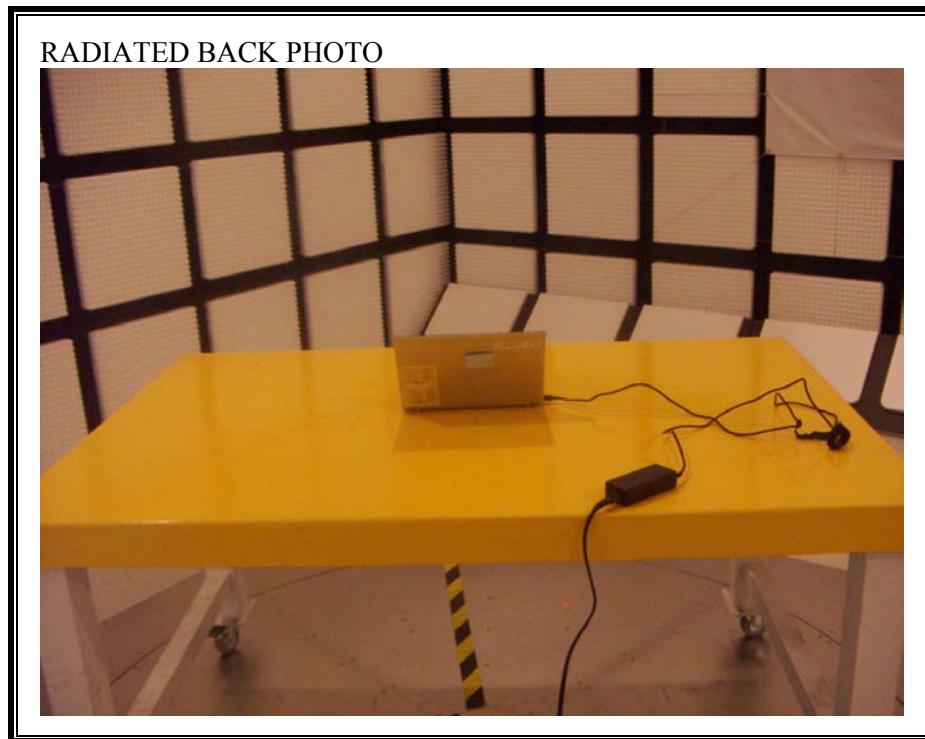
PCS Band WCDMA+HSPDA Spurious & Harmonic (EIRP)

High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber										
Company:	TOSHIBA									
Project #:	07U11140									
Date:	6/20/2007									
Test Engineer:	MENGISTU MEKURIA									
Configuration:	EUT Inside the Laptop									
Mode:	TX 1900MHz, HSDPA MODE									
<u>Test Equipment:</u>										
EMCO Horn 1-18 GHz			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 1-26 GHz			T145 Agilent 3008A			Pre-amplifier 26-40 GHz				
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										
3.705	44.8	V	-52.1	5.9	9.7	7.5	-48.4	-13.0	-35.4	
3.705	45.0	H	-51.8	5.9	9.7	7.5	-48.1	-13.0	-35.1	
Mid Ch										
3.760	44.9	V	-51.8	6.0	9.7	7.5	-48.1	-13.0	-35.1	
3.760	44.1	H	-52.5	6.0	9.7	7.5	-48.8	-13.0	-35.8	
High Ch										
3.815	45.0	V	-51.6	6.0	9.7	7.6	-47.9	-13.0	-34.9	
3.815	44.5	H	-51.9	6.0	9.7	7.6	-48.2	-13.0	-35.2	
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





END OF REPORT