



**FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
INDUSTRY CANADA RSS-132 ISSUE 2
INDUSTRY CANADA RSS-133 ISSUE 5**

**CLASS II PERMISSIVE CHANGE
CERTIFICATION TEST REPORT**

FOR

**CELLULAR/PCS GSM/EDGE/WCDMA WITH 802.11 B/G/N 1X1 AR5B95 MINI PCI
TRANSMITTER CARD (TESTED INSIDE OF NOTEBOOK PC, MODEL NP-N130)**

MODEL NUMBER: Y3100

**FCC ID: A3LSWDY3100
IC: 649E-SWDY3100**

REPORT NUMBER: 09U12737-1

ISSUE DATE: AUGUST 31, 2009

Prepared for

**SAMSUNG ELECTRONICS CO., LTD.
416 MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO, 443-742 SOUTH KOREA**

Prepared by

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NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
---	08/31/09	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SAMSUNG ELECTRONICS CO., LTD.
416 MAETAN 3-DONG, YEONGTONG-GU
SUWON-CITY, GYEONGGI-DO, 443-742 SOUTH KOREA

EUT DESCRIPTION: CELLULAR/PCS GSM/EDGE/WCDMA WITH 802.11 B/G/N 1X1
AR5B95 MINI PCI TRANSMITTER CARD (TESTED INSIDE OF
NOTEBOOK PC, MODEL NP-N130)

MODEL NUMBER: Y3100

SERIAL NUMBER: N/A

DATE TESTED: AUGUST 23 TO 26, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H and 24E	PASS
IC RSS-132 ISSUE 2 and RSS-133 ISSUE 5	

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

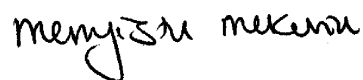
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section.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

Tested By:



MENIGISTU MEKURIA
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47 Part 22, FCC CFR Part 24, RSS-132 Issue 2, and RSS-133 Issue 5.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

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

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

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Cellular/PCS GSM/EDGE/WCDMA WITH 802.11 B/G/N 1X1 AR5B95 Mini PCI Transmitter Card that installed inside Samsung mini PC Notebook.

The radio module is manufactured by Samsung Electronics Co., Ltd.

5.2. MAXIMUM OUTPUT POWER

The test measurement passed within ± 0.5 dBm of the original output power.

5.3. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is module being used in a different host (Portable category Configuration).

5.4. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes PIFA antennas, with a maximum gain of 0.47 and 2.09 dBi for Cell and PCS bands respectively.

5.5. WORST-CASE CONFIGURATION AND MODE

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

5.6. SOFTWARE AND FIRMWARE

The EUT is linked with Agilent Communication Test Set.

PROCEDURE USED TO ESTABLISH TEST SIGNAL

GSM/GPRS

To reset the Agilent 8960 to default all values > Shift & Preset

To adjust Input/Output offset, press SYSTEM CONFIG button above the control knob

- > RF IN/OUT Amptd Offset
- > RF IN/OUT Amptd Offset Setup
- > Enter frequencies to be tested and corresponding offsets (enter negative values for offset, i.e. -35 is greater than -30).

Control

Operating Mode > Active Cell (GSM) / Active Cell (GPRS)

Connection Type > Auto (For Voice Mode) / ETSI Type A (For Data Mode)

Call Params

BCH Parameters > Cell Power > adjust to (~ -50dBm) to maintain strong link OTA

> Cell Band > PCS or GSM850 (US band)

TCH Parameters > Timeslot > 1

> Traffic Channel > PCS Channel 512 / 661 / 810

> GSM850 Channel 128 / 190 / 251

> MS TX Level > 1 (for both PCS or GSM850)

> Timeslot > 1

> Speech Setup > Speech Source > Echo (Default)

Press "Originate Call"

GPRS ONLY

TCH Parameters > Traffic Channel > PCS Channel 512 / 661 / 810

> GSM850 Channel 128 / 190 / 251

> MS TX Level > 3 (33dBm for Cell band); 3 (30dBm for PCS band)

PDTCH > Multislot Config > 1 Down, 2 Up

> MS TX Level > 5 (33dBm Cell band); 1 (30dBm PCS band)

> Coding Scheme > CS-4

After the 8960 attaches to the EUT, then press "Start Data Connection"

UMTS REL99

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V7.5.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7) 12.2kps RMC is used for this testing. Power control set to All bits up. A summary of these settings are illustrated below:

	Mode	Rel99
	Subtest	-
WCDMA General Settings	Loopback Mode	Test Mode 1
	Rel99 RMC	12.2kbps RMC
	HSDPA FRC	Not Applicable
	HSUPA Test	Not Applicable
	Power Control Algorithm	Algorithm2
	β_c	Not Applicable
	β_d	Not Applicable
	β_{ec}	Not Applicable
	β_c/β_d	8/15
	β_{hs}	Not Applicable
	β_{ed}	Not Applicable

5.7. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
Laptop	Samsung	NP-N130	ZBEY93CS600006V	DoC
AC/DC	Suzhou Li Shin Co.	PA-1400-14	CNBA4400265AD2VH94N0517	DoC

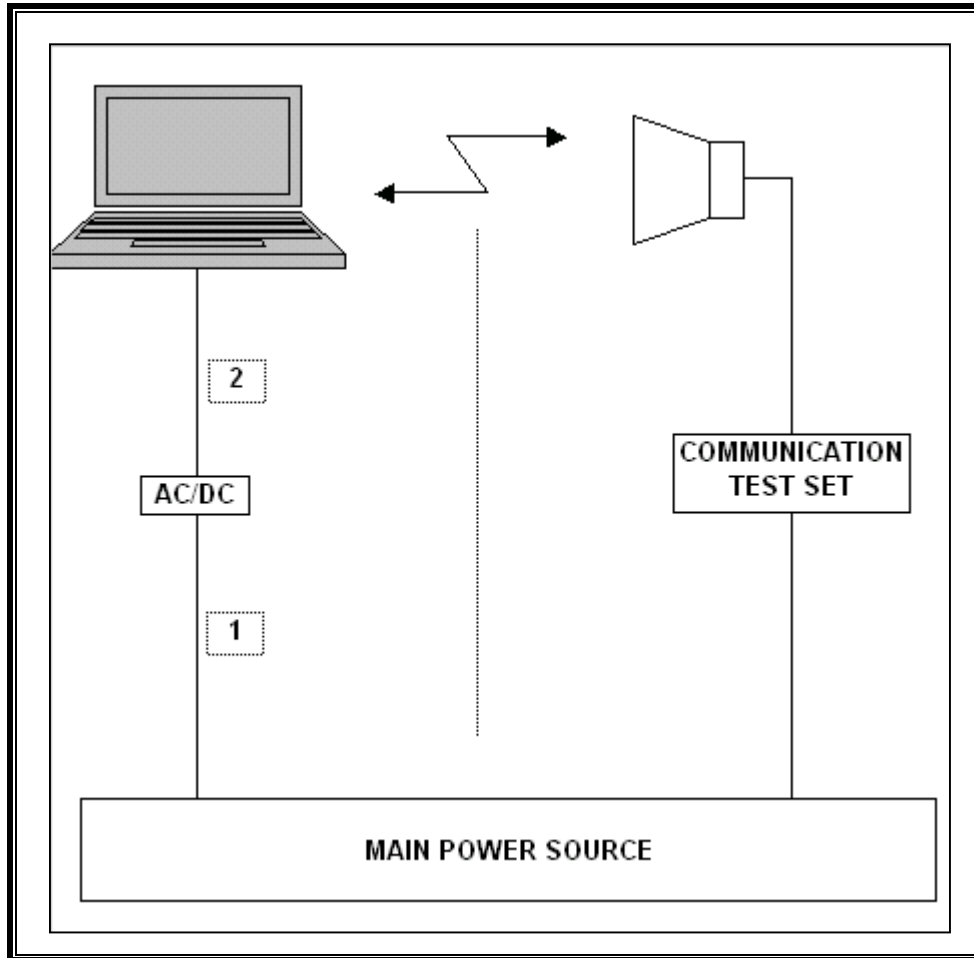
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC Input	1	jAC	Un-Shielded	1.0 m	N/A
2	DC Output	1	DC	Un-Shielded	2.0 m	Ferrite at one End

TEST SETUP

The EUT is a PCI E Mini card that installed inside Samsung Notebook Laptop. Communications Test Set is used to link the device under test.

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
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	02/04/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	12/16/09
Antenna, Horn, 18 GHz	EMCO	3115	C00945	01/29/10
Antenna, Horn, 18 GHz	EMCO	3115	C00943	01/29/10
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	01/14/10
Signal Generator	R & S	SMP04	C00953	02/16/11
Communications Test Set	Agilent / HP	E5515C	C01086	06/16/10
Communication Test Set	R & S	CMU 200	C00944	12/16/10
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	08/24/10
EMI Test Receiver, 30 MHz	R & S	ESHS 20	N02396	05/06/11
LISN, 30 MHz	FCC	LISN-50/250-25-2	N02625	10/29/09
Dipole	Speag	D900V2	NA	11/16/11
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02689	CNR

7. LIMITS AND RESULTS

7.1. MAXIMUM RADIATED OUTPUT POWER

The transmitter has a maximum ERP & EIRP Peak output powers as follows:

824 to 849 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 824.2	GPRS	26.5	446.7
Mid CH - 836.6		27.2	524.8
High CH - 848.8		29.4	871.0

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1850.20	GPRS	25.3	338.8
Mid CH - 1880.00		27.1	512.9
High CH - 1909.80		30.5	1122.0

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1852.4	WCDMA	22.1	162.2
Mid CH - 1880.00		23.7	234.4
High CH - 1907.8		25.2	331.1

7.2. RADIATED OUTPUT POWER

LIMITS

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

24.232(b) & RSS133 § 6.4 Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

RSS-132 § 4.4 The maximum ERP shall be 6.3 Watts for mobile stations.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 2.2.17, RSS-132, and RSS-133.

RESULTS

CELL OUTPUT POWER (ERP)

GPRS MODE

High Frequency Substitution Measurement Compliance Certification Services Chamber A							
Company:	SAMSUNG						
Project #:	09U12737						
Date:	8/24/2009						
Test Engineer:	MENGISTU MEKURIA						
Configuration:	EUT INSTALLED INSIDE SAMSUNG MINI-LAPTOP						
Mode:	TX CELL BAND GPRS MODE						
Test Equipment:							
Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)							
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.							
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
824.20	-8.3	V	34.8	26.5	38.5	-12.0	
824.20	-6.9	H	30.5	23.7	38.5	-14.8	
836.60	-5.9	V	33.1	27.2	38.5	-11.2	
836.60	-4.4	H	31.2	26.8	38.5	-11.7	
848.80	-4.0	V	32.1	28.1	38.5	-10.3	
848.80	-1.8	H	31.2	29.4	38.5	-9.1	
Rev. 1.24.7							

PCS OUTPUT POWER (EIRP)

GPRS MODE

High Frequency Fundamental Measurement Compliance Certification Services Chamber A							
Company:	SAMSUNG						
Project #:	09U12737						
Date:	8/24/2009						
Test Engineer:	MENGISTU MEKURIA						
Configuration:	EUT INSTALLED INSIDE SAMSUNG MINI-LAPTOP						
Mode:	TX PCS BAND GPRS MODE						
Test Equipment:							
Receiving: Horn T73, and Camber B SMA Cables							
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse							
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.850	-16.8	V	40.4	23.6	33.0	-9.4	
1.850	-14.5	H	39.7	25.3	33.0	-7.7	
1.880	-15.0	V	39.9	24.9	33.0	-8.1	
1.880	-13.1	H	40.1	27.1	33.0	-6.0	
1.910	-12.0	V	39.8	27.9	33.0	-5.2	
1.910	-9.7	H	40.2	30.5	33.0	-2.5	
Rev. 1.24.7							

WCDMA MODE

High Frequency Fundamental Measurement Compliance Certification Services Chamber A							
Company:	SAMSUNG						
Project #:	09U12737						
Date:	8/24/2009						
Test Engineer:	MENGISTU MEKURIA						
Configuration:	EUT INSTALLED INSIDE SAMSUNG MINI-LAPTOP						
Mode:	TX PCS BAND WCDMA MODE						
Test Equipment:							
Receiving: Horn T73, and Camber B SMA Cables							
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse							
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.852	-19.2	V	40.4	21.2	33.0	-11.8	
1.852	-17.6	H	39.7	22.1	33.0	-10.9	
1.880	-18.3	V	39.9	21.6	33.0	-11.4	
1.880	-16.4	H	40.1	23.7	33.0	-9.3	
1.908	-17.5	V	39.8	22.3	33.0	-10.7	
1.908	-14.9	H	40.2	25.2	33.0	-7.8	
Rev. 1.24.7							

7.3. FIELD STRENGTH OF SPURIOUS RADIATION

LIMIT

§22.917 (e) and §24.238 (a), RSS-132 § 4.5.1, & RSS-133 § 6.5.1 (a) (i) & (b): 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), FCC 24.238 (b), & FCC 27.53 (g)(1)(2)(3), RSS-132, and RSS-133.

RESULTS

CELL SPURIOUS & HARMONIC (ERP)

GPRS MODE

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company: Samsung Project #: 09112737 Date: 8/25/2009 Test Engineer: Ekta Budhbhatti Configuration: EUT Only Mode: Tx, Cell Band GPRS										
Chamber			Pre-amplifer			Filter		Limit		
5m Chamber A			T144 8449B			Filter 1		FCC PART 22		
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch.										
1.648	-52.5	H	3.0	36.5	38.2	1.0	53.1	-13.0	40.1	
2.473	-46.4	H	3.0	40.0	37.5	1.0	42.9	-13.0	29.9	
3.300	-64.6	H	3.0	43.9	37.1	1.0	56.9	-13.0	43.9	
1.648	-50.7	V	3.0	36.8	38.2	1.0	51.0	-13.0	38.0	
2.473	-42.8	V	3.0	41.7	37.5	1.0	37.6	-13.0	24.6	
3.300	-63.4	V	3.0	44.0	37.1	1.0	55.5	-13.0	42.5	
Mid Ch.										
1.673	-52.5	H	3.0	36.8	38.1	1.0	52.9	-13.0	39.9	
2.510	-43.8	H	3.0	40.1	37.5	1.0	40.1	-13.0	27.1	
3.346	-65.0	H	3.0	44.0	37.1	1.0	57.0	-13.0	44.0	
1.673	-51.2	V	3.0	37.1	38.1	1.0	51.2	-13.0	38.2	
2.510	-40.6	V	3.0	41.9	37.5	1.0	35.2	-13.0	22.2	
3.346	-64.8	V	3.0	44.1	37.1	1.0	56.8	-13.0	43.8	
High Ch.										
1.698	-49.3	H	3.0	37.0	38.1	1.0	49.4	-13.0	36.4	
2.546	-41.0	H	3.0	40.4	37.5	1.0	37.1	-13.0	24.1	
3.395	-63.6	H	3.0	44.1	37.1	1.0	55.5	-13.0	42.5	
1.698	-49.8	V	3.0	37.4	38.1	1.0	49.6	-13.0	36.6	
2.546	-40.5	V	3.0	42.0	37.5	1.0	35.0	-13.0	22.0	
3.395	-63.2	V	3.0	44.2	37.1	1.0	55.0	-13.0	42.0	
Rev. 03.03.09 Note: No other emissions were detected above the system noise floor.										

PCS Spurious & Harmonic (EIRP)

GPRS MODE

Compliance Certification Services
 Above 1GHz High Frequency Substitution Measurement

Company: Samsung
 Project #: 09112737
 Date: 8/25/2009
 Test Engineer: Ekta Budhbhatti
 Configuration: EUT Only
 Mode: Tx, PCS Band GPRS

Chamber

5m Chamber A

Pre-amplifier

T144 8449B

Filter

Filter 1

Limit

FCC PART 24

f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch.										
3.700	-56.7	H	3.0	45.0	36.8	1.0	-47.5	-13.0	-34.5	
5.550	-57.4	H	3.0	49.9	36.3	1.0	-42.7	-13.0	-29.7	
7.400	-66.5	H	3.0	52.9	36.6	1.0	-49.1	-13.0	-36.1	
3.700	-55.9	V	3.0	44.9	36.8	1.0	-46.8	-13.0	-33.8	
5.550	-54.6	V	3.0	49.3	36.3	1.0	-40.6	-13.0	-27.6	
7.400	-69.4	V	3.0	51.8	36.6	1.0	-53.1	-13.0	-40.1	
Mid Ch.										
3.760	-58.5	H	3.0	45.2	36.8	1.0	-49.1	-13.0	-36.1	
5.640	-59.3	H	3.0	50.1	36.3	1.0	-44.5	-13.0	-31.5	
7.520	-66.2	H	3.0	53.1	36.6	1.0	-48.8	-13.0	-35.8	
3.760	-58.7	V	3.0	45.1	36.8	1.0	-49.4	-13.0	-36.4	
5.640	-56.3	V	3.0	49.4	36.3	1.0	-42.2	-13.0	-29.2	
7.520	-64.5	V	3.0	52.0	36.6	1.0	-48.2	-13.0	-35.2	
High Ch.										
3.820	-60.3	H	3.0	45.3	36.7	1.0	-50.7	-13.0	-37.7	
5.730	-54.4	H	3.0	50.2	36.3	1.0	-39.5	-13.0	-26.5	
7.640	-61.9	H	3.0	53.2	36.6	1.0	-44.3	-13.0	-31.3	
3.820	-61.3	V	3.0	45.2	36.7	1.0	-51.8	-13.0	-38.8	
5.730	-50.7	V	3.0	49.5	36.3	1.0	-36.5	-13.0	-23.5	
7.640	-62.6	V	3.0	52.1	36.6	1.0	-46.1	-13.0	-33.1	

Rev. 03.03.09
 Note: No other emissions were detected above the system noise floor.

WCDMA MODE

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: Samsung
 Project #: 09112737
 Date: 8/24/2009
 Test Engineer: Ekta Budhbhatti
 Configuration: EUT Only
 Mode: Tx, PCS Band WCDMA

Chamber

Pre-amplifier

Filter

Limit

5m Chamber A

T144 8449B

Filter 1

FCC PART 24

f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch.										
3.704	-49.0	H	3.0	45.0	36.8	1.0	-39.8	-13.0	-26.8	
5.556	-66.0	H	3.0	49.9	36.3	1.0	-51.3	-13.0	-38.3	
3.704	-53.0	V	3.0	44.9	36.8	1.0	-43.9	-13.0	-30.9	
5.556	-66.0	V	3.0	49.3	36.3	1.0	-52.0	-13.0	-39.0	
Mid Ch.										
3.760	-47.5	H	3.0	45.2	36.8	1.0	-38.1	-13.0	-25.1	
5.640	-65.5	H	3.0	50.1	36.3	1.0	-50.8	-13.0	-37.8	
3.760	-48.2	V	3.0	45.1	36.8	1.0	-38.9	-13.0	-25.9	
5.640	-65.8	V	3.0	49.4	36.3	1.0	-51.7	-13.0	-38.7	
High Ch.										
3.816	-40.6	H	3.0	45.3	36.7	1.0	-31.0	-13.0	-18.0	
5.724	-66.0	H	3.0	50.2	36.3	1.0	-51.1	-13.0	-38.1	
3.816	-43.2	V	3.0	45.2	36.7	1.0	-33.7	-13.0	-20.7	
5.724	-68.8	V	3.0	49.5	36.3	1.0	-54.6	-13.0	-41.6	

Rev. 03.03.09
 Note: No other emissions were detected above the system noise floor.

7.4. RECEIVER SPURIOUS EMISSIONS

LIMIT

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

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

Table 1 - Spurious Emission Limits for Receivers:

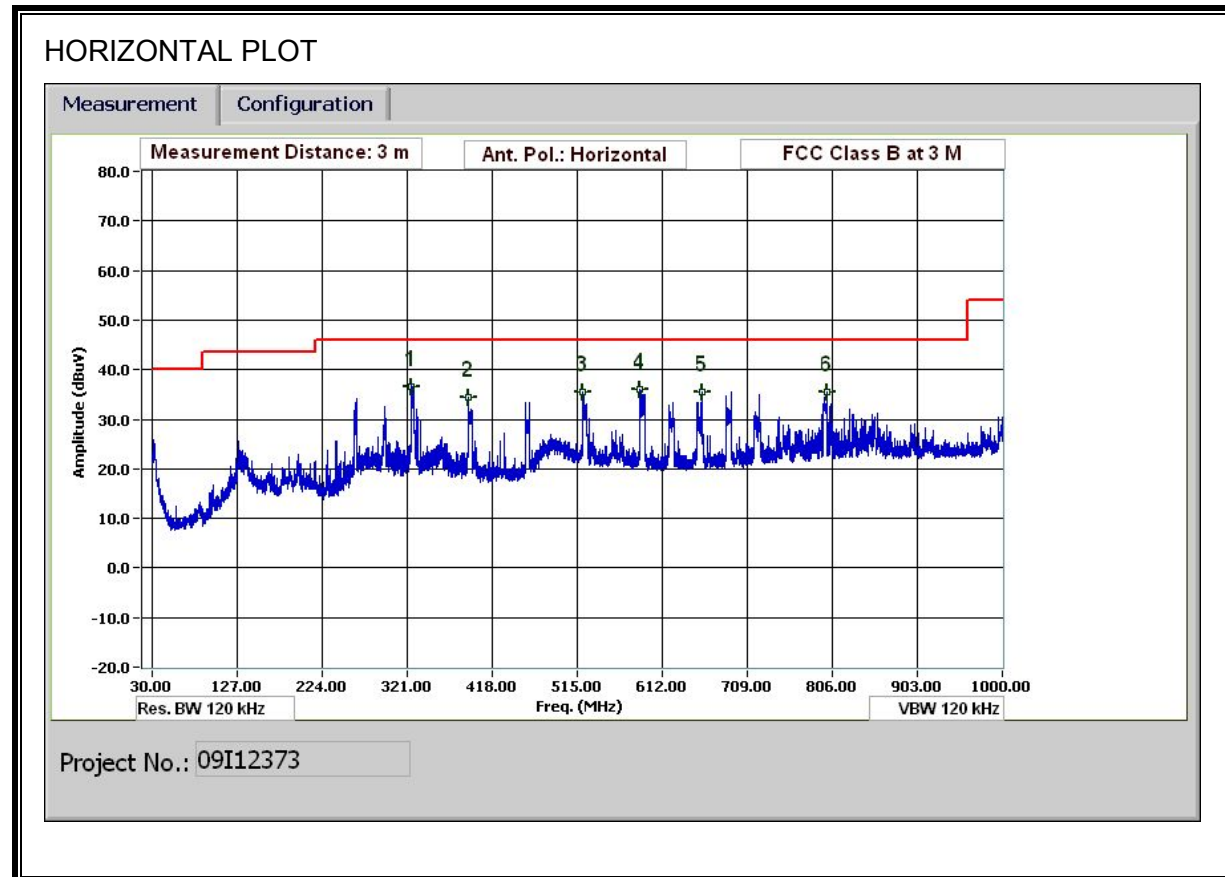
Spurious Frequency (MHz)	Field Strength(microvolt/m at 3 meters)
30 - 88	100
88 - 216	150
216 - 960	200
Above 960	500

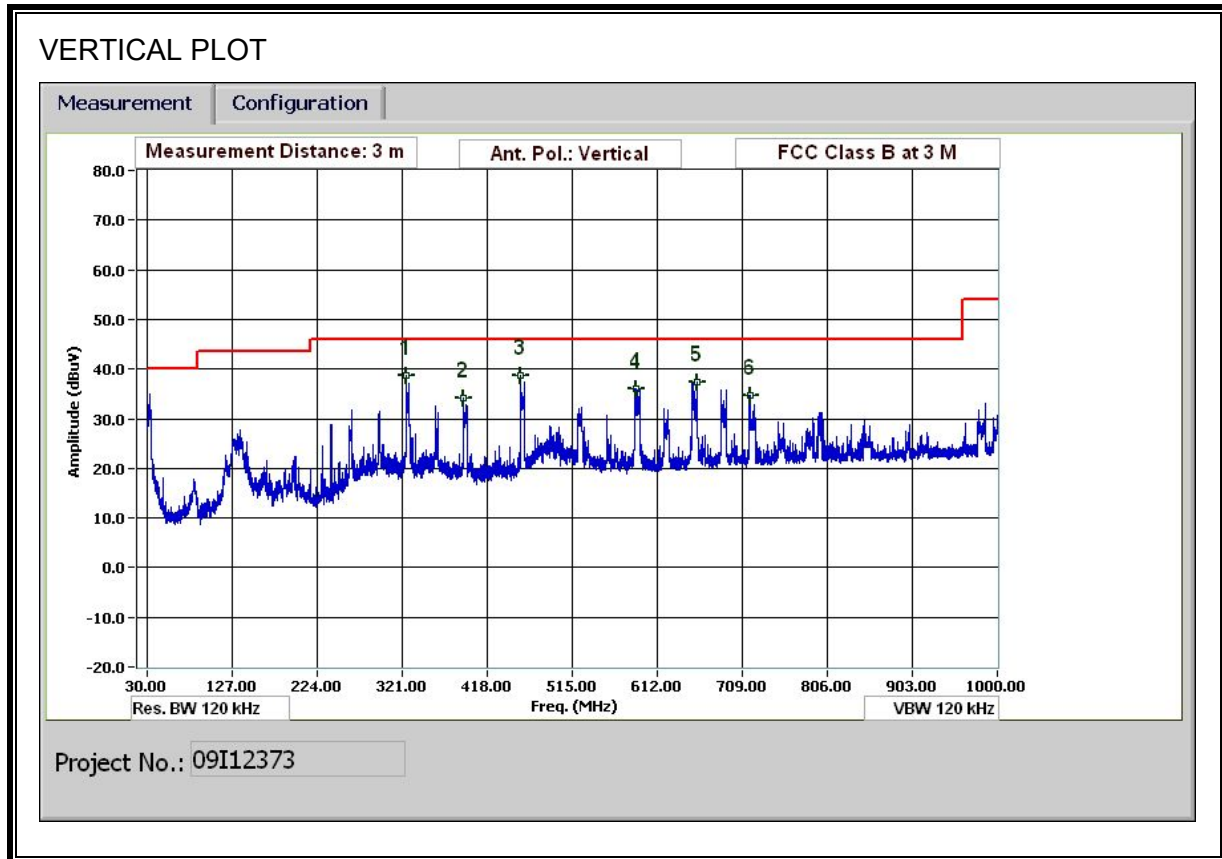
TEST PROCEDURE

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

RESULTS

RECEIVER SPURIOUS EMISSIONS FOR 30 TO 1000 MHz, CELL BAND





HORIZONTAL AND VERTICAL DATA

30-1000MHz Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Test Engr: Elia Budhhatti
Date: 08/26/09
Project #: 09112373
Company: Samsung
EUT Description: Module Installed Inside Samsung Mini Laptop
EUT M/N: Y3100
Test Target: FCC Class B
Mode Oper: RX Cell Band Mode

f Measurement Frequency Amp Preamp Gain Margin Margin vs. Limit
 Dist Distance to Antenna D Corr Distance Correct to 3 meters
 Read Analyzer Reading Filter Filter Insert Loss
 AF Antenna Factor Corr. Calculated Field Strength
 CL Cable Loss Limit Field Strength Limit

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant. Pol. V/H	Det. P/A/QP	Notes
326.172	3.0	49.2	13.8	1.6	28.1	0.0	0.0	36.5	46.0	-9.5	H	P	
391.335	3.0	46.0	14.8	1.8	28.1	0.0	0.0	34.5	46.0	-11.5	H	P	
521.780	3.0	44.0	17.1	2.1	27.8	0.0	0.0	35.4	46.0	-10.6	H	P	
586.943	3.0	43.1	18.2	2.2	27.6	0.0	0.0	36.0	46.0	-10.0	H	P	
657.506	3.0	41.4	19.1	2.4	27.3	0.0	0.0	35.5	46.0	-10.5	H	P	
799.712	3.0	39.3	21.0	2.6	27.4	0.0	0.0	35.4	46.0	-10.6	H	P	
326.052	3.0	51.5	13.8	1.6	28.1	0.0	0.0	38.8	46.0	-7.2	V	P	
391.455	3.0	45.7	14.8	1.8	28.1	0.0	0.0	34.2	46.0	-11.8	V	P	
456.618	3.0	48.7	15.9	1.9	27.9	0.0	0.0	38.6	46.0	-7.4	V	P	
587.063	3.0	43.1	18.2	2.2	27.6	0.0	0.0	36.0	46.0	-10.0	V	P	
657.626	3.0	43.2	19.1	2.4	27.3	0.0	0.0	37.3	46.0	-8.7	V	P	
717.388	3.0	39.6	19.8	2.5	27.2	0.0	0.0	34.6	46.0	-11.4	V	P	

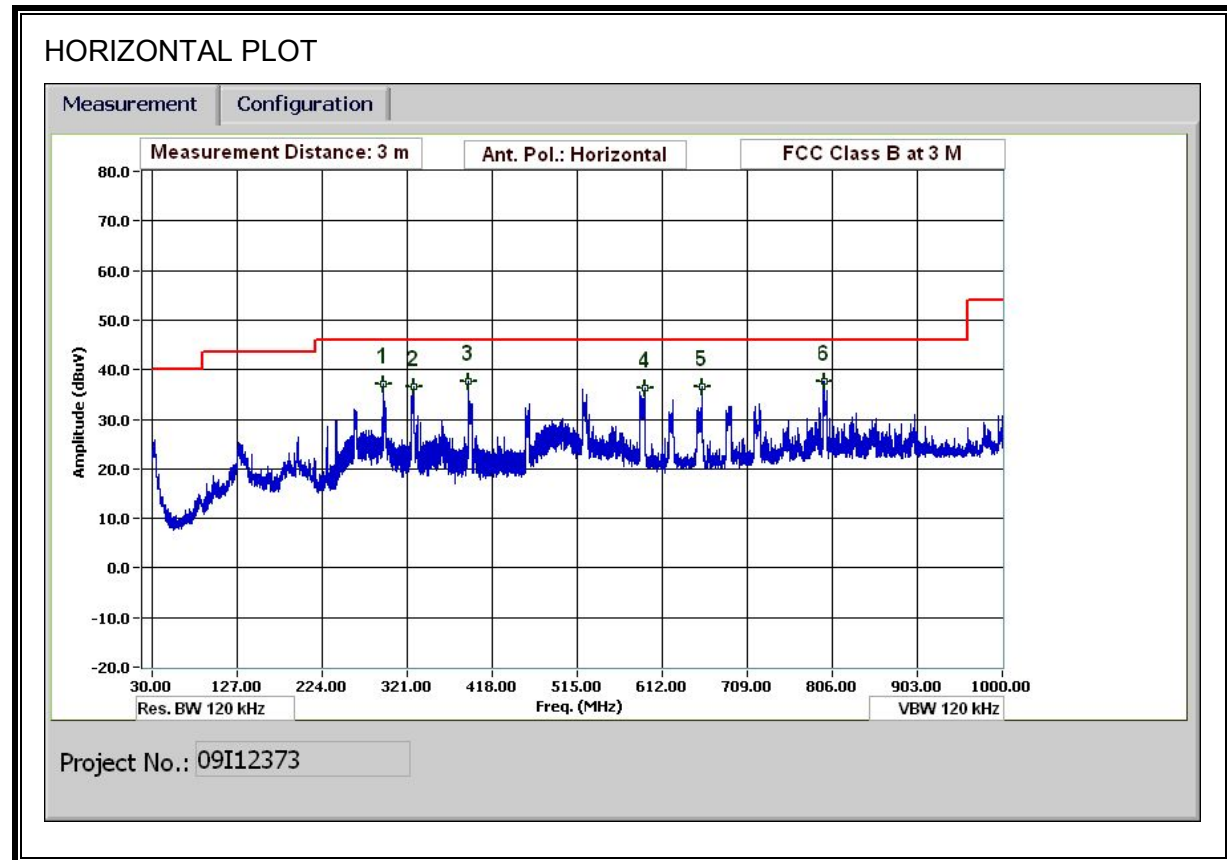
Rev. 1.27.09

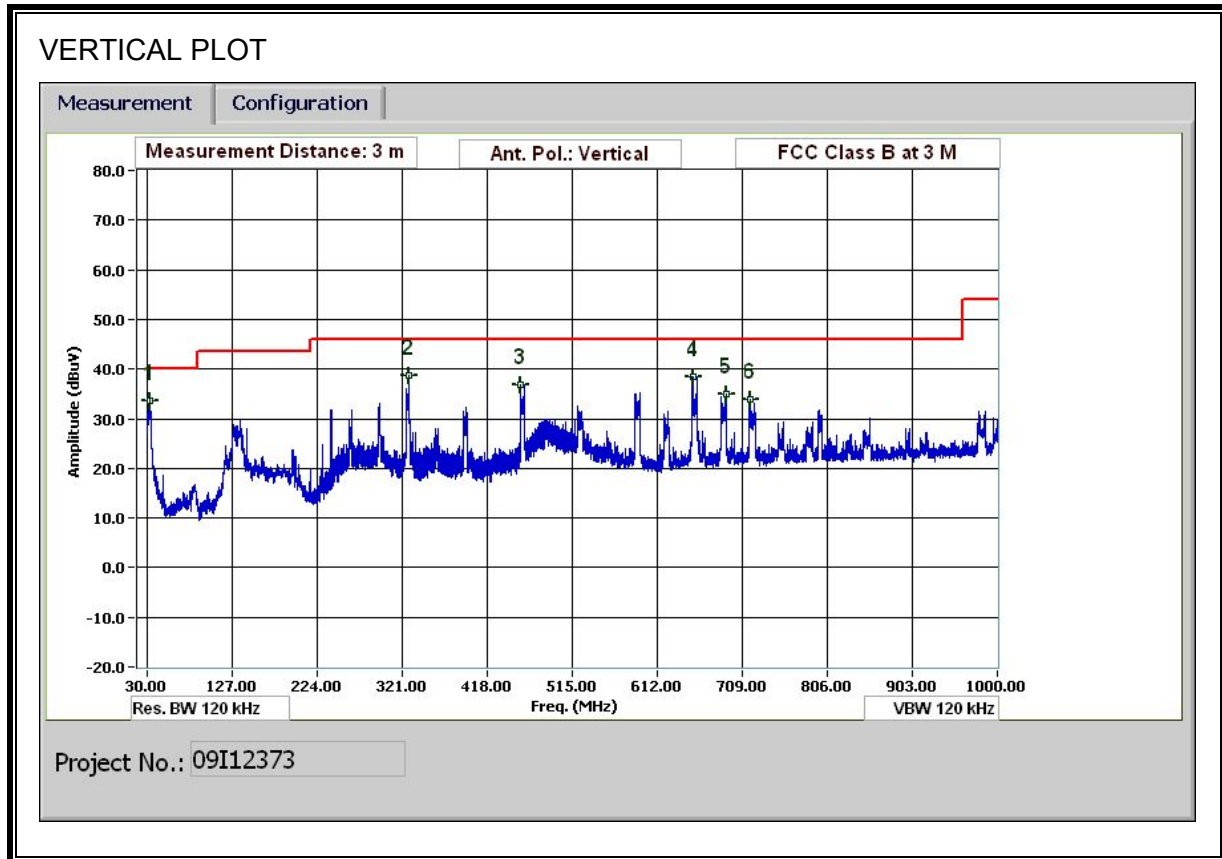
Note: No other emissions were detected above the system noise floor.

RECEIVER SPURIOUS EMISSIONS FOR ABOVE 1000 MHz

High Frequency Measurement																
Compliance Certification Services, Fremont 5m Chamber																
Company:		Samsung														
Project #:		09112737														
Date:		8/26/2009														
Test Engineer:		Elta Budhbbhatti														
Configuration:		Module Installed Inside Samsung Mini Laptop														
Mode:		Cell Mode														
Test Equipment:																
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit				
T60; S/N: 2238 @3m			T34 HP 8449B									FCC 15.209				
Hi Frequency Cables																
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF		Reject Filter		Peak Measurements RBW=VBW=1MHz			
3' cable 22807700			12' cable 22807600			20' cable 22807500							Average Measurements RBW=1MHz, VBW=10Hz			
f GHz	Dist (m)	Read Pk dBuV	Read Avg dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filtr dB	Peak dBuV/m	Avg dBuV/m	Pk Lim dBuV/m	Avg Lim dBuV/m	Pk Mar dB	Avg Mar dB	Notes (V/H)	
1.327	3.0	57.4	31.1	25.6	2.7	-37.8	0.0	0.0	47.9	21.6	74	54	-26.1	-32.4	H	
1.595	3.0	59.0	30.0	26.5	3.0	-37.4	0.0	0.0	51.1	22.1	74	54	-22.9	-31.9	H	
1.863	3.0	49.9	29.3	27.3	3.3	-37.1	0.0	0.0	43.5	22.9	74	54	-30.5	-31.1	H	
2.132	3.0	54.6	28.3	27.9	3.6	-36.7	0.0	0.0	49.4	23.1	74	54	-24.6	-30.9	H	
1.340	3.0	43.5	30.9	25.6	2.8	-37.8	0.0	0.0	34.0	21.5	74	54	-40.0	-32.5	V	
1.595	3.0	56.8	31.0	26.5	3.0	-37.4	0.0	0.0	48.8	23.0	74	54	-25.2	-31.0	V	
1.850	3.0	39.6	29.1	27.3	3.3	-37.1	0.0	0.0	33.1	22.6	74	54	-40.9	-31.4	V	
2.133	3.0	44.5	28.1	27.9	3.6	-36.7	0.0	0.0	39.3	22.9	74	54	-34.7	-31.1	V	
Rev. 11.10.08																
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit			
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit			
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit			
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit			
CL	Cable Loss					HPF	High Pass Filter									

RECEIVER SPURIOUS EMISSIONS FOR 30 TO 1000 MHz, PCS BAND





HORIZONTAL AND VERTICAL DATA

30-1000MHz Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Test Engr: Elta Budhhhatti
Date: 08/26/09
Project #: 09I12373
Company: Samsung
EUT Description: Module Installed Inside Samsung Mini Laptop
EUT M/N: Y3100
Test Target: FCC Class B
Mode Oper: RX PCS Band Mode

f Measurement Frequency Amp Preamp Gain Margin Margin vs. Limit
 Dist Distance to Antenna D Corr Distance Correct to 3 meters
 Read Analyzer Reading Filter Filter Insert Loss
 AF Antenna Factor Corr. Calculated Field Strength
 CL Cable Loss Limit Field Strength Limit

f MHz	Dist (m)	Read dBuV	AF dB/m	CL dB	Amp dB	D Corr dB	Filter dB	Corr. dBuV/m	Limit dBuV/m	Margin dB	Ant Pol V/H	Det P/A/QP	Notes
293.531	3.0	50.5	13.2	1.5	28.1	0.0	0.0	37.0	46.0	-9.0	H	P	
328.812	3.0	49.3	13.8	1.6	28.1	0.0	0.0	36.6	46.0	-9.4	H	P	
391.335	3.0	49.2	14.8	1.8	28.1	0.0	0.0	37.7	46.0	-8.3	H	P	
591.743	3.0	43.4	18.3	2.2	27.5	0.0	0.0	36.3	46.0	-9.7	H	P	
657.626	3.0	42.4	19.1	2.4	27.3	0.0	0.0	36.5	46.0	-9.5	H	P	
796.232	3.0	41.4	20.9	2.6	27.4	0.0	0.0	37.5	46.0	-8.5	H	P	
33.000	3.0	42.7	18.8	0.5	28.4	0.0	0.0	33.7	40.0	-6.3	V	P	
328.812	3.0	51.3	13.8	1.6	28.1	0.0	0.0	38.6	46.0	-7.4	V	P	
456.618	3.0	46.9	15.9	1.9	27.9	0.0	0.0	36.8	46.0	-9.2	V	P	
652.226	3.0	44.4	19.0	2.3	27.3	0.0	0.0	38.4	46.0	-7.6	V	P	
690.507	3.0	40.3	19.5	2.4	27.2	0.0	0.0	35.0	46.0	-11.0	V	P	
717.508	3.0	38.9	19.8	2.5	27.2	0.0	0.0	33.9	46.0	-12.1	V	P	

Rev. 1.27.09

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

RECEIVER SPURIOUS EMISSIONS FOR ABOVE 1000 MHZ

High Frequency Measurement																	
Compliance Certification Services, Fremont 5m Chamber																	
Company:		Samsung															
Project #:		09112737															
Date:		8/26/2009															
Test Engineer:		Ekta Budhbhatti															
Configuration:		Module Installed Inside Samsung Mini Laptop															
Mode:		PCS Mode															
Test Equipment:																	
Horn 1-18GHz			Pre-amplifier 1-26GHz			Pre-amplifier 26-40GHz			Horn > 18GHz			Limit					
T73; S/N: 6717 @3m			T144 Miteq 3008A00931									FCC 15.209					
Hi Frequency Cables																	
3' cable 22807700			12' cable 22807600			20' cable 22807500			HPF			Reject Filter			Peak Measurements RBW=VBW=1MHz		
3' cable 22807700			12' cable 22807600			20' cable 22807500									Average Measurements RBW=1MHz ; VBW=10Hz		
f	Dist	Read Pk	Read Avg	AF	CL	Amp	D Corr	Ftr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes		
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)		
1.340	3.0	49.2	33.6	25.0	2.8	-39.0	0.0	0.0	37.9	22.3	74	54	-36.1	-31.7	V		
1.595	3.0	56.8	34.3	25.9	3.0	-38.6	0.0	0.0	47.0	24.5	74	54	-27.0	-29.5	V		
1.850	3.0	51.9	32.4	26.7	3.3	-38.3	0.0	0.0	43.6	24.1	74	54	-30.4	-29.9	V		
2.502	3.0	40.6	29.6	28.5	3.9	-37.5	0.0	0.0	35.6	24.6	74	54	-38.4	-29.4	V		
2.927	3.0	39.7	28.7	29.8	4.3	-37.4	0.0	0.0	36.4	25.3	74	54	-37.6	-28.7	V		
4.995	3.0	42.9	27.2	33.2	5.9	-36.5	0.0	0.0	45.6	29.9	74	54	-28.4	-24.1	V		
1.340	3.0	45.0	32.9	25.0	2.8	-39.0	0.0	0.0	33.8	21.6	74	54	-40.2	-32.4	H		
1.595	3.0	59.4	34.1	25.9	3.0	-38.6	0.0	0.0	49.7	24.4	74	54	-24.3	-29.6	H		
1.878	3.0	48.2	31.3	26.8	3.3	-38.2	0.0	0.0	40.1	23.2	74	54	-33.9	-30.8	H		
2.133	3.0	46.6	30.9	27.5	3.6	-37.9	0.0	0.0	39.9	24.2	74	54	-34.1	-29.8	H		
2.502	3.0	40.9	29.8	28.5	3.9	-37.5	0.0	0.0	35.9	24.8	74	54	-38.1	-29.2	H		
Rev. 11.10.08																	
f	Measurement Frequency					Amp	Preamp Gain					Avg Lim	Average Field Strength Limit				
Dist	Distance to Antenna					D Corr	Distance Correct to 3 meters					Pk Lim	Peak Field Strength Limit				
Read	Analyzer Reading					Avg	Average Field Strength @ 3 m					Avg Mar	Margin vs. Average Limit				
AF	Antenna Factor					Peak	Calculated Peak Field Strength					Pk Mar	Margin vs. Peak Limit				
CL	Cable Loss					HPF	High Pass Filter										

7.5. POWER LINE CONDUCTED EMISSION

LIMIT

RSS-Gen 7.2.2

Except when the requirements applicable to a given device state otherwise, for any licence-exempt radio communication device equipped to operate from the public utility AC power supply, either directly or indirectly, the radio frequency voltage that is conducted back onto the AC power lines in the frequency range of 0.15 MHz to 30 MHz shall not exceed the limits shown in Table 2. The tighter limit applies at the frequency range boundaries.

Table 2 – AC Power Lines Conducted Emission Limits

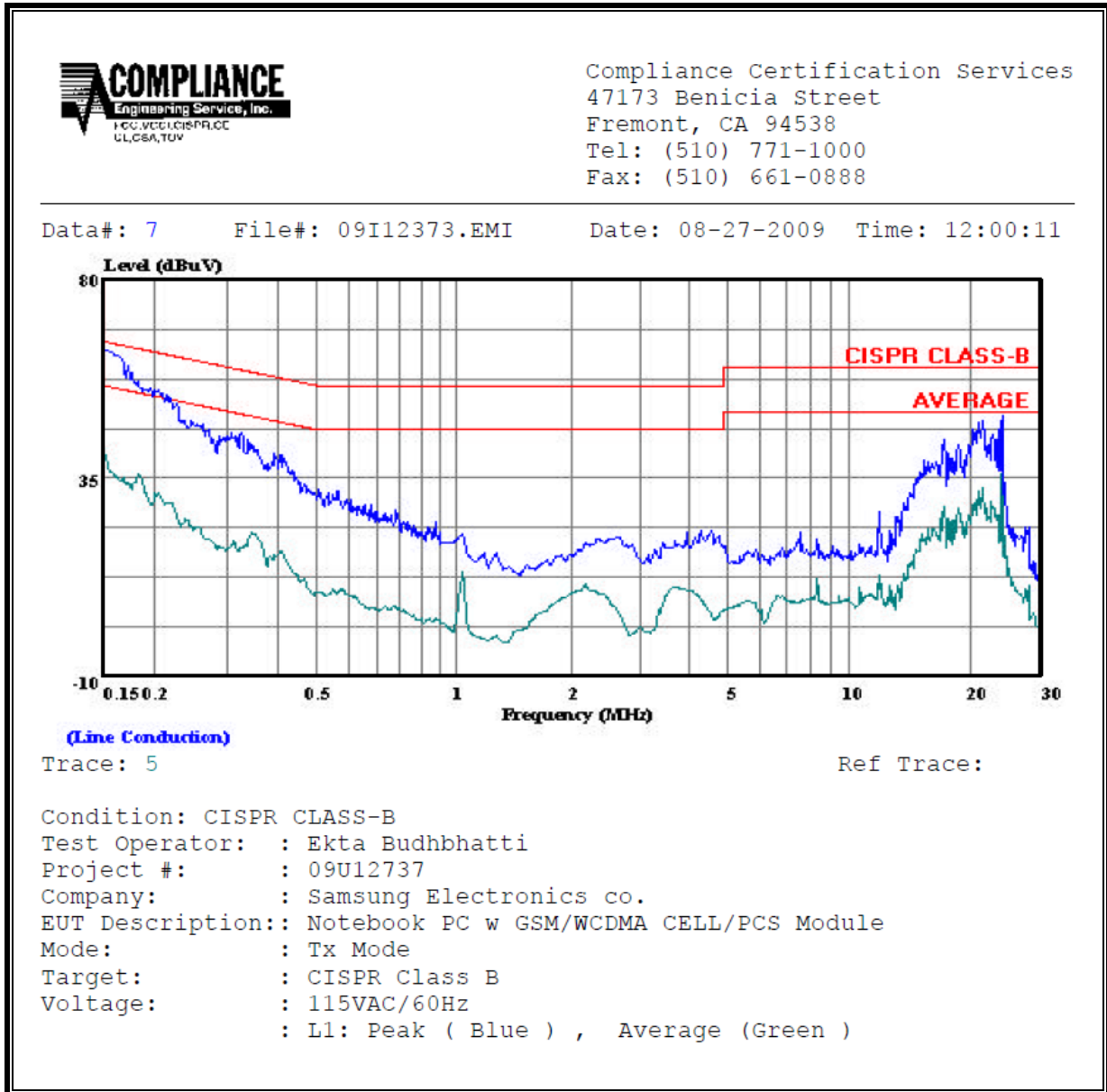
Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

* Decreases with the logarithm of the frequency.

RESULTS

CONDUCTED EMISSIONS DATA (115VAC 60Hz)									
Freq. (MHz)	Reading			Class (dB)	Limit QP	EN_B AV	Margin		Remark L1 / L2
	PK (dBuV)	QP (dBuV)	AV (dBuV)				QP (dB)	AV (dB)	
0.15	64.31	--	41.71	0.00	65.84	55.84	-1.53	-14.13	L1
0.17	60.59	--	34.06	0.00	64.91	54.91	-4.32	-20.85	L1
24.01	49.29	--	40.35	0.00	60.00	50.00	-10.71	-9.65	L1
0.15	59.63	--	35.90	0.00	66.00	56.00	-6.37	-20.10	L2
0.17	57.08	--	28.52	0.00	64.91	54.91	-7.83	-26.39	L2
21.49	47.06	--	31.56	0.00	60.00	50.00	-12.94	-18.44	L2
6 Worst Data									

LINE 1 RESULTS



LINE 2 RESULTS

