



**RADIATED SPURIOUS EMISSIONS PORTIONS OF  
FCC CFR47 PART 22H & 24E  
INDUSTRY CANADA RSS-132 ISSUE 2  
INDUSTRY CANADA RSS-133 ISSUE 5**

**CERTIFICATION TEST REPORT  
FOR**

**LENOVO TABLET PC WITH GSM AND WCDMA**

**FCC MODEL NUMBER: TP00042A  
IC MODEL NUMBER: TP00042AHB**

**FCC ID: GKR-TP00042AHB  
IC: 2533B-TP00042AHB**

**REPORT NUMBER: 12U14444-4, Revision C**

**ISSUE DATE: October 17, 2012**

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NVLAP Lab code: 100414-0

Revision History

Rev.	Date	Issue	Revised By
---	07/04/12	Initial Issue	M.Ferrer
A	08/02/12	Added antenna model numbers to the report	M. Ferrer
B	09/24/12	Revised Conducted Power and ERP/ERIP Tables	M.Ferrer
C	10/17/12	Updated Section 5.2	M.Ferrer

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** Compal Electronics, Inc  
No. 581, Ruiguang Rd., Neihu District  
Taipei City 11492, Taiwan (R.O.C)

**EUT DESCRIPTION:** Lenovo Tablet PC with GSM/WCDMA

**FCC MODEL:** TP00042A  
**IC MODEL:** TP00042AHB

**SERIAL NUMBER:** Prototype

**DATE TESTED:** June 21, 2012 – September 24, 2012

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H & 24E	Pass
IC RSS132 AND IC RSS133	Pass

UL 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 UL 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 UL and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL By:



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Bob Delisi  
Sr. Staff Engineer  
UL

Tested By:



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MICHAEL FERRER  
SENIOR PROJECT ENGINEER  
UL

## 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 333 Pfingsten Road, Northbrook, IL 60193, USA.

UL NBK is accredited by NVLAP, Laboratory Code 100414-0

## 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

#### Sample Calculations

Radiated Field Strength and Conducted Emissions data contained within this report is calculated on the following basis:

Field Strength (dBuV/m) = Meter Reading (dBuV) + AF (dB/m) - Gain (dB) + Cable Loss (dB)

Conducted Voltage (dBuV) = Meter Reading (dBuV) + Cable Loss (dB) + LISN IL (dB)

Conducted Current (dBuA) = Meter Reading (dBuV) + Cable Loss (dB) - Transducer Factor (dBohms)

### 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	+/- 0.3 dB (k=2)
Radiated Disturbance, 30 to 1000 MHz	+/- 3.17 dB (k=2)

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

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a tablet PC with GSM / WCDMA feature that produced by Compal Electronics, Inc.

### 5.2. MAXIMUM ERP/EIRP POWER

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

Part 22 Cellular Band

Frequency range (MHz)	Modulation	ERP	
		dBm	mW
824.2 – 848.8	GPRS	26.48	444.63
	EGPRS	27.31	538.64
826.4 – 846.6	WCDMA REL99	19.67	92.75
	WCDMA HSUPA	19.87	97.12

Part 24 PCS Band

Frequency range (MHz)	Modulation	EIRP	
		dBm	mW
1850.2-1909.8	GPRS	27.36	545.00
	EGPRS	26.59	456.46
1852.4-1907.6	WCDMA REL99	21.84	152.90
	WCDMA HSUPA	22.29	169.59

### 5.3. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an integral antenna for the 850MHz and 1900MHz bands with a maximum peak gain as follow:

BANDS	Peak Gain (dBi)
GSM, CELL, 850MHz	-3.68
GSM,PCS, 1900MHz	-0.75
UMTS, 850MHz	-3.68
UMTS, 1900MHz	-0.75

Jess-Link Product Co., LTD	WWAN MAIN R	PANT11A00036-1
(JPC)	WWAN AUX L	PANT11A00037-1

### 5.4. SOFTWARE AND FIRMWARE

The EUT is linked with Anritsu MT8820C Communication Test Set.

### 5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel for RF radiated emissions below 1GHz and AC conducted emissions are determined as the channel with the AC Power Adapter Source

Based on the investigation results, the highest peak power and enhanced data rate is the worst-case scenario for all measurements.

Worst-case modes below:

- For Cellular and PCS band: GPRS and EGPRS
- For Cellular and PCS band: WCDMA (UMTS).

For the fundamental investigation, since the EUT is a portable device that has three orientations; therefore X, Y and Z orientations have been investigated. The worst case was found to be at Tablet configuration Z-position for all modes in cell band, Tablet configuration Z-position on PCS bands for GPRS, EGPRS, and WCDMA modes.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT (RF RADIATED TEST)

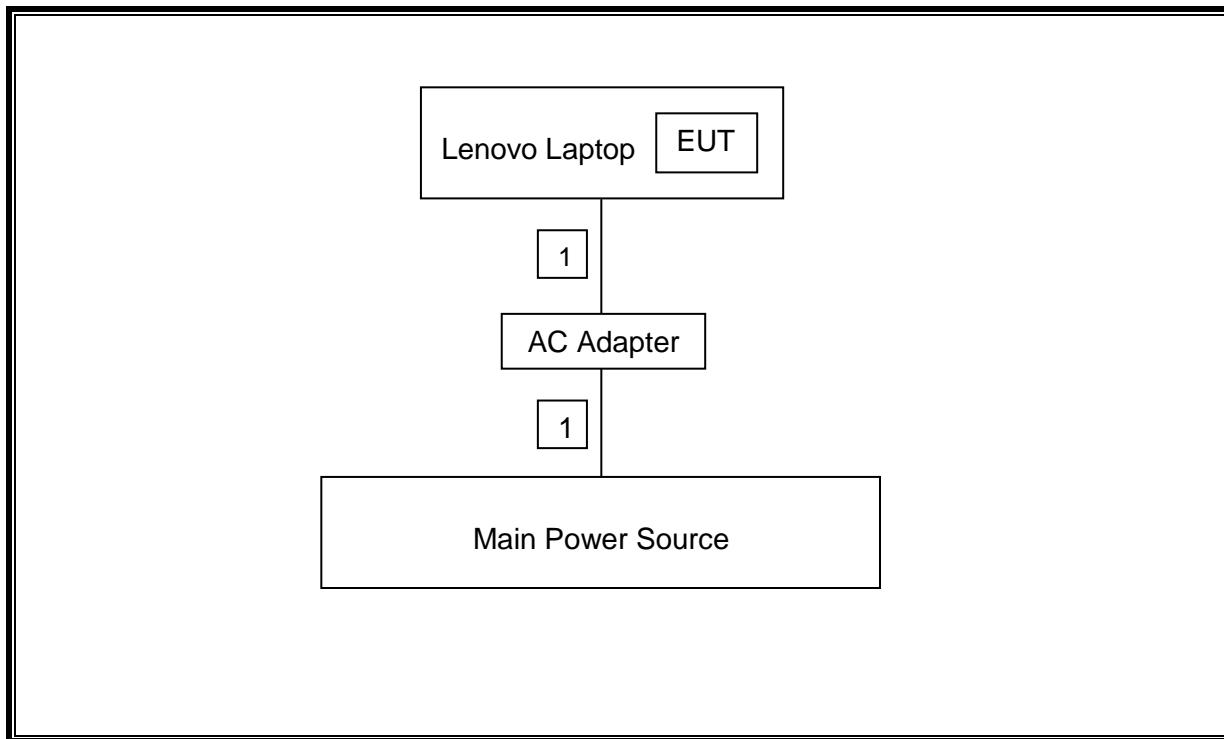
PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	Lenovo	42T4416	11S42T4416Z1ZGWF0	DoC

### I/O CABLES (RF RADIATED TEST)

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	DC	Un-shielded	8 ft	AC adapter

### TEST SETUP

The EUT is a stand-alone device. A link is established between the EUT and the communication test set

**SETUP DIAGRAM FOR RF RADIATED 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
EMI Test Receiver	Rohde & Schwarz	ESCI	EMC4328	20121231
Bicon Antenna	Chase	VBA6106A	EMC4078	20130131
Log-P Antenna (TX)	Chase	UPA6109	EMC4258	20120928
Log-P Antenna	Chase	UPA6109	EMC4313	20120629
Spectrum Analyzer	Rhode & Schwarz	FSEK	EMC4182	20121231
Antenna Array	UL	BOMS	EMC4276	20121231
Signal Generator	Rohde & Schwarz	SML 03	EMC 4331	20121231
Signal Generator	Agilent	E8251A	EMC4243	20121231
Call Box	Anritsu	MT8820C	EMC4361	20130910

## 7. RADIATED TEST RESULTS

### 7.1. RADIATED POWER (ERP & EIRP)

#### RULE PART(S)

FCC: §2.1046, §22.913, §24.232  
RSS132 & RSS133

#### LIMITS

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

24.232(c) - 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 603C Clause 2.2.17

#### MODES TESTED

- GPRS and EGPRS
- WCDMA

#### RESULTS

In the table of results the Voltage at the antenna includes signal generator level and cable loss  
EUT level will be EUT measured level – Substitution measured +ERP Level (or EIRP level)

**ERP CELL BANDS**

Mode	Channel	f (MHz)	ERP	
			dBm	mW
GPRS	128	824.20	26.21	418.22
	190	836.60	26.48	444.63
	251	848.80	26.15	411.91
EGRS	128	824.20	26.26	423.06
	190	836.60	27.31	538.64
	251	848.80	26.20	416.45

Mode	Channel	f (MHz)	ERP	
			dBm	mW
WCDMA REL99	128	826.40	18.34	68.24
	190	836.60	19.67	92.75
	251	846.80	19.26	84.25
WCDMA HSUPA	128	826.40	18.52	71.13
	190	836.60	19.87	97.12
	251	846.80	19.51	89.34

**EIRP PCS BANDS**

EUT	Channel	f (MHz)	EIRP	
			dBm	mW
GPRS	512	1850.20	26.19	416.04
	661	1880.00	27.36	545.00
	810	1909.80	26.33	429.14
EGPRS	512	1850.20	25.50	354.92
	661	1880.00	26.59	456.46
	810	1909.80	25.63	365.26

EUT	Channel	f (MHz)	EIRP	
			dBm	mW
WCDMA REL99	9662	1852.40	19.66	92.44
	9800	1880.00	20.93	123.86
	9938	1907.60	21.84	152.90
WCDMA HSUPA	9662	1852.40	19.76	94.59
	9800	1880.00	21.03	126.88
	9938	1907.60	22.29	169.59

**GPRS (Cellular Band)**

Description	Freq. MHz	Polarization	Voltage at antenna	Substitution Peak Filed Strenght Measured	TX ant	ERP Level	EUT Measured				
GPRS Slot 1			dBm	dBuV/m	dBi	dBm	Peak Level	ERP EUT	Limit	Margin	dBm/MHz
Low	824.2	Horizontal	-38.97	67.82	5.584	-35.536	129.57	26.214	38.45	-12.236	
		Vertical	-38.97	67.82	5.284	-35.836	125.18	21.524	38.45	-16.926	
Mid	836.6	Horizontal	-38.98	67.18	5.5	-35.63	129.29	26.48	38.45	-11.97	
		Vertical	-38.98	67.18	5.334	-35.796	125.45	22.474	38.45	-15.976	
Hi	848.8	Horizontal	-38.97	68.04	5.588	-35.532	129.72	26.148	38.45	-12.302	
		Vertical	-38.97	68.04	5.476	-35.644	125.46	21.776	38.45	-16.674	
GPRS Slot 2											
Low	824.2	Horizontal	-38.97	67.82	5.584	-35.536	129.43	26.074	38.45	-12.376	
		Vertical	-38.97	67.82	5.284	-35.836	124.84	21.184	38.45	-17.266	
Mid	836.6	Horizontal	-38.98	67.18	5.5	-35.63	129.27	26.46	38.45	-11.99	
		Vertical	-38.98	67.18	5.334	-35.796	125.24	22.264	38.45	-16.186	
Hi	848.8	Horizontal	-38.97	68.04	5.588	-35.532	129.54	25.968	38.45	-12.482	
		Vertical	-38.97	68.04	5.476	-35.644	124.87	21.186	38.45	-17.264	

**EGPRS (Cellular Band)**

Description	Freq. MHz	Polarization	Voltage at antenna	Substitution Peak Filed Strenght Measured	TX ant	ERP Level	EUT Measured	ERP EUT	Limit	Margin
EGPRS Slot 1										
Low	824.2	Horizontal	-38.97	67.82	5.584	-35.536	129.62	26.264	38.45	-12.186
		Vertical	-38.97	67.82	5.284	-35.836	125.24	21.584	38.45	-16.866
Mid	836.6	Horizontal	-38.98	67.18	5.5	-35.63	129.31	26.5	38.45	-11.95
		Vertical	-38.98	67.18	5.334	-35.796	125.58	22.604	38.45	-15.846
Hi	848.8	Horizontal	-38.97	68.04	5.588	-35.532	129.64	26.068	38.45	-12.382
		Vertical	-38.97	68.04	5.476	-35.644	125.42	21.736	38.45	-16.714
EGPRS Slot 2										
Low	824.2	Horizontal	-38.97	67.82	5.7004	-35.42	129.46	26.2204	38.45	-12.2296
		Vertical	-38.97	67.82	5.7148	-35.405	125.06	21.8348	38.45	-16.6152
Mid	836.6	Horizontal	-38.98	67.18	5.713	-35.417	129.91	27.313	38.45	-11.137
		Vertical	-38.98	67.18	5.6785	-35.452	125.48	22.8485	38.45	-15.6015
Hi	848.8	Horizontal	-38.97	68.04	5.7256	-35.394	129.63	26.1956	38.45	-12.2544
		Vertical	-38.97	68.04	5.6427	-35.477	125.33	21.8127	38.45	-16.6373

**WCDMA (Cellular Band)**

Description	Freq. MHz	Polarization	Voltage at antenna dBm	Substitution Peak Filed Strenght Measured dBuV/m		TX ant dBi	ERP Level dBm	EUT Measured Peak Level dBuV/m		ERP EUT Level dBm	Limit dBm/MHz	Margin dB
				Peak Filed Strenght Measured dBuV/m	TX ant dBi			EUT Measured Peak Level dBuV/m				
WCDMA	Rel99											
Low	826.4	Horizontal	-38.98	68.02	5.7004	-35.43	121.79	18.3404	38.45			-20.1096
		Vertical	-38.98	68.02	5.7148	-35.415	116.55	13.1148	38.45			-25.3352
Mid	836.6	Horizontal	-38.98	67.18	5.713	-35.417	122.27	19.673	38.45			-18.777
		Vertical	-38.98	67.18	5.6785	-35.452	118	15.3685	38.45			-23.0815
Hi	846.6	Horizontal	-38.9	68.02	5.7256	-35.324	122.6	19.2556	38.45			-19.1944
		Vertical	-38.9	68.02	5.6427	-35.407	118.41	14.9827	38.45			-23.4673
WCDMA	HSUPA											
SubSet1	826.4	Horizontal	-38.98	68.02	5.7004	-35.43	121.75	18.3004	38.45			-20.1496
		Vertical	-38.98	68.02	5.7148	-35.415	116.83	13.3948	38.45			-25.0552
SubSet2	826.4	Horizontal	-38.98	68.02	5.7004	-35.43	121.66	18.2104	38.45			-20.2396
		Vertical	-38.98	68.02	5.7148	-35.415	116.8	13.3648	38.45			-25.0852
SubSet3	826.4	Horizontal	-38.98	68.02	5.7004	-35.43	121.79	18.3404	38.45			-20.1096
		Vertical	-38.98	68.02	5.7148	-35.415	117.01	13.5748	38.45			-24.8752
SubSet4	826.4	Horizontal	-38.98	68.02	5.7004	-35.43	121.97	18.5204	38.45			-19.9296
		Vertical	-38.98	68.02	5.7148	-35.415	117.31	13.8748	38.45			-24.5752
SubSet5	826.4	Horizontal	-38.98	68.02	5.7004	-35.43	121.94	18.4904	38.45			-19.9596
		Vertical	-38.98	68.02	5.7148	-35.415	117.02	13.5848	38.45			-24.8652
SubSet1	836.6	Horizontal	-38.98	67.18	5.713	-35.417	122.21	19.6113	38.45			-18.837
		Vertical	-38.98	67.18	5.6785	-35.452	118.56	15.9285	38.45			-22.5215
SubSet2	836.6	Horizontal	-38.98	67.18	5.713	-35.417	122.09	19.493	38.45			-18.957
		Vertical	-38.98	67.18	5.6785	-35.452	118.7	16.0685	38.45			-22.3815
SubSet3	836.6	Horizontal	-38.98	67.18	5.713	-35.417	122.25	19.653	38.45			-18.797
		Vertical	-38.98	67.18	5.6785	-35.452	118.48	15.8485	38.45			-22.6015
SubSet4	836.6	Horizontal	-38.98	67.18	5.713	-35.417	121.96	19.363	38.45			-19.087
		Vertical	-38.98	67.18	5.6785	-35.452	118.67	16.0385	38.45			-22.4115
SubSet5	836.6	Horizontal	-38.98	67.18	5.713	-35.417	122.47	19.873	38.45			-18.577
		Vertical	-38.98	67.18	5.6785	-35.452	118.79	16.1585	38.45			-22.2915
SubSet1	846.6	Horizontal	-38.98	68.02	5.7004	-35.43	122.83	19.3804	38.45			-19.0696
		Vertical	-38.98	68.02	5.7148	-35.415	118.91	15.4748	38.45			-22.9752
SubSet2	846.6	Horizontal	-38.98	68.02	5.7004	-35.43	122.8	19.3504	38.45			-19.0996
		Vertical	-38.98	68.02	5.7148	-35.415	118.85	15.4148	38.45			-23.0352
SubSet3	846.6	Horizontal	-38.98	68.02	5.7004	-35.43	122.76	19.3104	38.45			-19.1396
		Vertical	-38.98	68.02	5.7148	-35.415	118.9	15.4648	38.45			-22.9852
SubSet4	846.6	Horizontal	-38.98	68.02	5.7004	-35.43	122.96	19.5104	38.45			-18.9396
		Vertical	-38.98	68.02	5.7148	-35.415	119.09	15.6548	38.45			-22.7952
SubSet5	846.6	Horizontal	-38.98	68.02	5.7004	-35.43	122.45	19.0004	38.45			-19.4496
		Vertical	-38.98	68.02	5.7148	-35.415	119	15.5648	38.45			-22.8852

**GPRS (PCS Band)**

Description	Freq. MHz	Polarization	Voltage at antenna	Substitution Peak Filed Strenght Measured dBuV/m	TX ant dBi	EIRP Level	EUT Measured Peak Level dBuV/m	EIRP EUT Level dBm	Limit dBm/MHz	Margin dB
<b>GPRS Slot 1</b>										
Low	1850.2	Horizontal	-50.96	53.32	4.7313	-46.229	125.74	26.1913	33	-6.8087
		Vertical	-50.96	51.52	4.628	-46.332	122.02	24.168	33	-8.832
Mid	1880	Horizontal	-51.08	52.73	4.694	-46.386	126.48	27.364	33	-5.636
		Vertical	-51.08	50.56	4.4192	-46.661	122.28	25.0592	33	-7.9408
Hi	1909.8	Horizontal	-51.1	52.8	4.676	-46.424	125.55	26.326	33	-6.674
		Vertical	-51.1	51.02	4.332	-46.768	122.04	24.252	33	-8.748
<b>GPRS Slot 2</b>										
Low	1850.2	Horizontal	-50.96	53.32	4.7313	-46.229	125.54	25.9913	33	-7.0087
		Vertical	-50.96	51.52	4.628	-46.332	121.64	23.788	33	-9.212
Mid	1880	Horizontal	-51.08	52.73	4.694	-46.386	126.17	27.054	33	-5.946
		Vertical	-51.08	50.56	4.4192	-46.661	122	24.7792	33	-8.2208
Hi	1909.8	Horizontal	-51.1	52.8	4.676	-46.424	125.58	26.356	33	-6.644
		Vertical	-51.1	51.02	4.332	-46.768	121.46	23.672	33	-9.328

**EGPRS (PCS Band)**

Description	Freq. MHz	Polarization	Voltage at anntena dBm	Substitution Peak Filed Strenght Measured dBuV/m	TX ant dBi	EIRP Level	EUT Measured Peak Level dBuV/m	EIRP EUT Level dBm	Limit dBm/MHz	Margin dB
<b>EGPRS Slot 1</b>										
Low	1850.2	Horizontal	-50.96	53.32	4.7313	-46.229	124.99	25.4413	33	-7.5587
		Vertical	-50.96	51.52	4.628	-46.332	121.23	23.378	33	-9.622
Mid	1880	Horizontal	-51.08	52.73	4.694	-46.386	125.62	26.504	33	-6.496
		Vertical	-51.08	50.56	4.4192	-46.661	121.67	24.4492	33	-8.5508
Hi	1909.8	Horizontal	-51.1	52.8	4.676	-46.424	124.85	25.626	33	-7.374
		Vertical	-51.1	51.02	4.332	-46.768	121.6	23.812	33	-9.188
<b>EGPRS Slot 2</b>										
Low	1850.2	Horizontal	-50.96	53.32	4.7313	-46.229	125.05	25.5013	33	-7.4987
		Vertical	-50.96	51.52	4.628	-46.332	120.68	22.828	33	-10.172
Mid	1880	Horizontal	-51.08	52.73	4.694	-46.386	125.71	26.594	33	-6.406
		Vertical	-51.08	50.56	4.4192	-46.661	121.45	24.2292	33	-8.7708
Hi	1909.8	Horizontal	-51.1	52.8	4.676	-46.424	124.85	25.626	33	-7.374
		Vertical	-51.1	51.02	4.332	-46.768	121.34	23.552	33	-9.448

**WCDMA (PCS Band)**

Description	Freq. MHz	Polarization	Voltage at antenna	Substitution Peak Filed Strength Measured dBuV/m	TX ant Level dBi	EIRP Level	EUT Measured Peak Level dBuV/m	EIRP EUT Level dBm	Limit dBm/MHz	Margin dB
WCDMA	Ref99									
Low	1852.4	Horizontal	-51.02	52.95	4.7285	-46.292	118.9	19.6585	33	-13.3415
		Vertical	-51.02	51.89	4.612	-46.408	116.17	17.872	33	-15.128
Mid	1880	Horizontal	-51.08	52.73	4.694	-46.386	119.92	20.804	33	-12.196
		Vertical	-51.08	50.56	4.4192	-46.661	118.15	20.9292	33	-12.0708
Hi	1907.6	Horizontal	-51.07	52.36	4.674	-46.396	120.6	21.844	33	-11.156
		Vertical	-51.07	50.64	4.32	-46.75	116	18.61	33	-14.39
WCDMA	HSUPA									
SubSet1	1852.4	Horizontal	-51.02	52.95	4.7285	-46.292	118.45	19.2085	33	-13.7915
		Vertical	-51.02	51.89	4.612	-46.408	115.85	17.552	33	-15.448
SubSet2	1852.4	Horizontal	-51.02	52.95	4.7285	-46.292	118.64	19.3985	33	-13.6015
		Vertical	-51.02	51.89	4.612	-46.408	116.31	18.012	33	-14.988
SubSet3	1852.4	Horizontal	-51.02	52.95	4.7285	-46.292	118.48	19.2385	33	-13.7615
		Vertical	-51.02	51.89	4.612	-46.408	115.91	17.612	33	-15.388
SubSet4	1852.4	Horizontal	-51.02	52.95	4.7285	-46.292	119	19.7585	33	-13.2415
		Vertical	-51.02	51.89	4.612	-46.408	116.48	18.182	33	-14.818
SubSet5	1852.4	Horizontal	-51.02	52.95	4.7285	-46.292	118.5	19.2585	33	-13.7415
		Vertical	-51.02	51.89	4.612	-46.408	116.4	18.102	33	-14.898
SubSet1	1880	Horizontal	-51.08	52.73	4.694	-46.386	119.03	19.914	33	-13.086
		Vertical	-51.08	50.56	4.4192	-46.661	117.68	20.4592	33	-12.5408
SubSet2	1880	Horizontal	-51.08	52.73	4.694	-46.386	119.8	20.684	33	-12.316
		Vertical	-51.08	50.56	4.4192	-46.661	117.58	20.3592	33	-12.6408
SubSet3	1880	Horizontal	-51.08	52.73	4.694	-46.386	118.99	19.874	33	-13.126
		Vertical	-51.08	50.56	4.4192	-46.661	117.24	20.0192	33	-12.9808
SubSet4	1880	Horizontal	-51.08	52.73	4.694	-46.386	120.15	21.034	33	-11.966
		Vertical	-51.08	50.56	4.4192	-46.661	118	20.7792	33	-12.2208
SubSet5	1880	Horizontal	-51.08	52.73	4.694	-46.386	119.48	20.364	33	-12.636
		Vertical	-51.08	50.56	4.4192	-46.661	117.53	20.3092	33	-12.6908
SubSet1	1907.6	Horizontal	-51.07	52.36	4.674	-46.396	120.23	21.474	33	-11.526
		Vertical	-51.07	50.64	4.32	-46.75	116.97	19.58	33	-13.42
SubSet2	1907.6	Horizontal	-51.07	52.36	4.674	-46.396	120.24	21.484	33	-11.516
		Vertical	-51.07	50.64	4.32	-46.75	116.71	19.32	33	-13.68
SubSet3	1907.6	Horizontal	-51.07	52.36	4.674	-46.396	120.42	21.664	33	-11.336
		Vertical	-51.07	50.64	4.32	-46.75	116.51	19.12	33	-13.88
SubSet4	1907.6	Horizontal	-51.07	52.36	4.674	-46.396	121.05	22.294	33	-10.706
		Vertical	-51.07	50.64	4.32	-46.75	117.82	20.43	33	-12.57
SubSet5	1907.6	Horizontal	-51.07	52.36	4.674	-46.396	120.3	21.544	33	-11.456
		Vertical	-51.07	50.64	4.32	-46.75	117.03	19.64	33	-13.36

## 7.2. FIELD STRENGTH OF SPURIOUS RADIATION

### RULE PART(S)

FCC: §2.1053, §22.917, §24.238

IC: RSS-132, 4.5; RSS-133, 6.5

### 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

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth ( i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth ( i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

### MODES TESTED:

- GPRS and EGPRS
- WCDMA

### RESULTS

One mode per channel was used (GPRS) to determine any harmonics above noise floor. All harmonics found have a minimum margin of 6 dB or more to the -13dBm limit. Measurements at more than one mode were considered not necessary.

**GPRS (Cellular Band)**

Description	Freq. MHz	Polarization	Voltage at antenna	Substitution Peak Filed Strength Measured	TX ant dBm	ERP dBm	EUT Peak Level	ERP EUT Level	Limit	Margin
GPRS Slot 2 2nd Harmonic										
Low	1648.4	Horizontal	-22.45	71.62	6.032	-14.268	65.38	-20.508	-13	-7.508
		Vertical	-22.45	68.78	6.125	-14.175	62.72	-20.235	-13	-7.235
Mid	1673.2	Horizontal	-22.44	71.73	5.956	-14.334	66.08	-19.984	-13	-6.984
		Vertical	-22.44	68.99	6.062	-14.228	59.18	-24.038	-13	-11.038
Hi	1697.6	Horizontal	-22.44	69.85	5.881	-14.409	65.22	-19.039	-13	-6.039
		Vertical	-22.44	67.14	5.999	-14.291	59.76	-21.671	-13	-8.671
GPRS Slot 2 3rd Harmonic										
Low	2472.6	Horizontal	-23.03	68.85	5.722	-15.158	58.69	-25.318	-13	-12.318
		Vertical	-23.03	69.44	5.6511	-15.229	58.15	-26.5189	-13	-13.5189
Mid	2509.8	Horizontal	-23.06	69.24	5.7433	-15.167	57.87	-26.5367	-13	-13.5367
		Vertical	-23.06	69.67	5.6458	-15.264	58.95	-25.9842	-13	-12.9842
Hi	2546.4	Horizontal	-23.14	69.01	5.778	-15.212	57.87	-26.352	-13	-13.352
		Vertical	-23.14	69.59	5.749	-15.241	57	-27.831	-13	-14.831

**GPRS (PCS Band)**

Description	Freq. MHz	Polarization	Voltage at anntena	Substitution Peak Filed Strenght Measured	TX ant	EIRP	EUT Measured Peak Level	EIRP EUT	Limit	Margin
			dBm	dBuV/m	dBi	Level	dBuV/m	Level dBm	dBm/MHz	dB
<b>GPRS Slot 2 3rd Harmonic</b>										
Low	5550.6	Horizontal	-24.44	76.68	10.189	-14.251	48.68	-42.251	-13	-29.251
		Vertical	-24.44	74.81	10.151	-14.289	51.97	-37.129	-13	-24.129
Mid	5640	Horizontal	-24.58	75.22	10.144	-14.436	47.36	-42.296	-13	-29.296
		Vertical	-24.58	73.48	10.201	-14.379	51.79	-36.069	-13	-23.069
Hi	5729.4	Horizontal	-24.78	74.04	10.091	-14.689	45.06	-43.669	-13	-30.669
		Vertical	-24.78	74.62	10.229	-14.551	47.01	-42.161	-13	-29.161