

Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 1 of 51

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H CLASS II PC REPORT

OF

**Product Name: QD8** 

Marketing Name: BF-01D

**Brand Name:** NTT Docomo

Model No.: BF-01D

**Model Difference:** N/A

FCC ID: HFS-QD8

**Report No.:** EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

FCC Rule Part: 2,22H

Prepared for: Quanta Computer Inc.

No.188, Wen Hwa 2nd Road, Kuei Shan

Hsiang Tao Yuan Shien, Taiwan

Prepared by: SGS Taiwan Ltd.

Electronics & Communication Laboratory
No. 134, Wu Kung Rd., Wuku Industrial
Zono, Toinoi County, Toiwon

Zone, Taipei County, Taiwan.



**Note:** This report shall not be reproduced except in full, without the written approval of SGS Taiwan Ltd. This document may be altered or revised by SGS Taiwan Ltd. personnel only, and shall be noted in the revision section of the document.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 2 of 51

# VERIFICATION OF COMPLIANCE

**Applicant:** Quanta Computer Inc.

No.188, Wen Hwa 2nd Road, Kuei Shan Hsiang Tao Yuan Shien,

Taiwan

**Equipment Under Test: QD8** 

**Brand / Marketing** 

NTT Docomo / BF-01D

Name:

**BF-01D** Model No.:

**Model Difference:** N/A

FCC ID: HFS-QD8

File Number: EH/2011/40018-01

Apr. 13, 2011~ May, 20, 2011 Date of test:

Apr. 13, 2011 **Date of EUT Received:** 

# We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C-2004 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule PART 22 subpart H.

The test results of this report relate only to the tested sample identified in this report.

Test By:	Lazz Huang	Date:	Jan. 12, 2012	
Prepared By:	Judy Hung/Engineer Judy Han	Date:	Jan. 12, 2012	
Approved By:	Judy Hsu / Clerk  Jim Ch ang  Jim Chang / Supervisor	Date:	Jan. 12, 2012	

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms\_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號

f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 3 of 51

# Version

Version No.	Date	Description
00	Jan. 12, 2012	Initial creation of document

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnificawww.sgs.comments. Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 www.tw.sgs.com

台灣檢驗科技股份有限公司

t (886-2) 2299-3279 f (886-2) 2298-0488



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 4 of 51

# **Table of Contents**

I	GEN	ERAL INFORMATION	6
	1.1	Related Submittal(s) / Grant (s)	7
	1.2	Test Methodology	7
	1.3	Test Facility	7
	1.4	Special Accessories	7
	1.5	Equipment Modifications	7
2	SYS	TEM TEST CONFIGURATION	8
	2.1.	EUT Configuration	8
	2.2.	EUT Exercise	8
	2.3.	Test Procedure	8
	2.4.	Measurement Equipment Used:	9
	2.5.	Configuration of Tested System	11
3	SUM	IMARY OF TEST RESULTS	12
4	DES	CRIPTION OF TEST MODES	13
5	RF P	POWER OUTPUT MEASUREMENT	14
	5.1	Standard Applicable	14
	5.2	Test Set-up:	14
	5.3	Measurement Procedure	14
	5.4	Measurement Equipment Used:	14
	5.5	Measurement Result:	15
6	ERP	, EIRP MEASUREMENT	19
	6.1	Standard Applicable	19
	6.2	Test SET-UP (Block Diagram of Configuration)	
	6.3	Measurement Procedure	21
	6.4	Measurement Equipment Used:	21
	6.5	Measurement Result	22
7	99%	OCCUPIED BANDWIDTH MEASUREMENT	25
	7.1	Standard Applicable	25
	7.2	Test Set-up:	25
	7.3	Measurement Procedure	25
	7.4	Measurement Equipment Used:	25
	7.5	Maggurament Pagult	26

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnificawww.sgs.comments. Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 5 of 51

8	OUT	OF BAND EMISSION AT ANTENNA TERMINALS	30
	8.1	Standard Applicable	30
	8.2	Test SET-UP	30
	8.3	Measurement Procedure	30
	8.4	Measurement Equipment Used:	30
	8.5	Measurement Result	
9	FIEL	D STRENGTH OF SPURIOUS RADIATION MEASUREMENT	39
	9.1	Standard Applicable	
	9.2	EUT Setup (Block Diagram of Configuration)	39
	9.3	Measurement Procedure	41
	9.4	Measurement Equipment Used:	41
	9.5	Measurement Result	41
10	FRE	QUENCY STABILITY V.S. TEMPERATURE MEASUREMENT	48
	10.1	Standard Applicable	
	10.2	Test Set-up:	48
	10.3	Measurement Procedure	48
	10.4	Measurement Equipment Used:	48
	10.5	Measurement Result : (GSM mode worst case)	49
11	FRE	QUENCY STABILITY V.S. VOLTAGE MEASUREMENT	50
	11.1	Standard Applicable	
	11.2	Test Set-up:	50
	11.3	Measurement Procedure	50
	11.4	Measurement Equipment Used:	50
	11.5	Measurement Result : (GSM mode worst case)	51

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnificawww.sgs.comments. Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 www.tw.sgs.com

t (886-2) 2299-3279



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 6 of 51

# **GENERAL INFORMATION**

### General:

General.			
Product Name:	QD8		
Marketing Name:	BF-01D		
Brand Name:	NTT Docor	mo	
Model No.:	BF-01D		
Model Difference:	N/A		
Data Cable:	Model: N/A, Supplier: N/A		
Hardware Version:	V5		
Software Version:	V1.83 (R2.47) BF-01D_111220_001WWE_3050		
	3.7V Li-Ior	Battery or 5V by AC/DC power adapter	
Power Supply:	Battery:	Model: O31A, Supplier: BUFFALO	
Adaptor: Model: F		Model: FU05-9050100-A1, Supplier: LEADER	
Class II Permissive change	1. Disable European band (1922.4~1977.6MHz) from Software control to hardware implementation (CL circuitry / C = 6.8pF; L=0.556nH)  2. Enclosure enlargement 20mm length		

### WCDMA & HSDPA/HSUPA:

WCDNA & HODI A/HOCI A.					
Cellular Phone Standards	Operating Frequency	Rated Power			
Frequency Range and Power:	WCDMA/HSUPA/HSDPA Band V	826.4 - 846.6 MHz	24dBm		
Type of Emission:	22H(8PSK): 826.4 - 846.6 MHz: 4M20F9W				
IMEI:	001010123456063				

Test mode	DC voltage (V)	DC current (mA)
WCDMA B5	3.7 Vdc	715
HUSPA B5	3.7 Vdc	678
HUDPA B5	3.7 Vdc	690

This test report applies for WCDMA/HSUPA/HSDPA Band V bands.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 7 of 51

#### 1.1 **Related Submittal(s) / Grant (s)**

This submittal(s) (test report) is intended for FCC ID: <u>HFS-QD8</u> filing to comply with Section Part 22 subpart H.

#### 1.2 **Test Methodology**

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA 603C and FCC 47 CFR 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

#### 1.3 **Test Facility**

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-4

The 10 m Open Area Test Sites located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 29, Pau-Tou-Tsuo Valley Chia-Pau Tsuen, Linkou Hsiang, Taipei county, which is constructed and calibrated to meet the CISPR 22/EN 55022 requirements. SGS Site No. 1(3 &10 meters) and FCC Registration Number: 94644.

#### 1.4 **Special Accessories**

Not available for this EUT intended for grant.

#### 1.5 **Equipment Modifications**

Not available for this EUT intended for grant.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms\_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 www.tw.sgs.com

台灣檢驗科技股份有限公司



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 8 of 51

## SYSTEM TEST CONFIGURATION

# 2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2. EUT Exercise

The EUT (Transmitter) was operated in the engineering mode to fix the Tx frequency which was for the purpose of the measurements.

### 2.3. Test Procedure

### 2.3.1 Conducted Measurement at Antenna Port:

According to measurement procured TIA/EIA 603C, the EUT is placed on a turn table which is 0.8 m above ground plane. A low loss of RF cable was used to connect the antenna port of EUT to measurement equipment.

## 2.3.2 Radiated Emissions (ERP/EIRP):

According to measurement procured TIA/EIA 603C and TIA/EIA IS-98 for Mobile stations. The EUT is placed on a turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements.

A standard antenna was used to replace the EUT and connect to the SG. Adjust the SG output level to reach the max emission level which were measured above.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms\_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan / 台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 www.tw.sgs.com

台灣檢驗科技股份有限公司



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 9 of 51

# 2.4. Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012
Spectrum Analyzer	Agilent	E4440A	US41160416	01/25/2011	01/24/2012
Radio Communication Analyzer	R&S	CMU200	111787	12/07/2009	12/06/2011
800 – 1000MHz Filter	Micro-Tronics	BRM13462	001	01/05/2011	01/04/2012
1800 – 2000MHz Filter	Micro-Tronics	BRM13463	001	01/05/2011	01/04/2012
Temperature Chamber	TERCHY	MHG-120LF	911009	04/30/2010	04/29/2012
Temperature Chamber	GIANT FORCE	GTH-150-40- CP-AR	MAA0512-018	02/24/2010	02/23/2012
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S20W5	N/A	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2010	07/04/2011
Splitter	Agilent	11636B	N/A	07/05/2010	07/04/2011
DC Power Supply	Chroma	41901	777188	04/15/2010	04/14/2012

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 10 of 51

ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT	MFR	MODEL	SERIAL	LAST	CAL DUE.
TYPE		NUMBER	NUMBER	CAL.	
Spectrum Analyzer	R&S	FSP 40	100034	03/30/2011	03/29/2012
Bilog Antenna	SCHWAZBECK	VULB9160	3136	11/19/2009	11/18/2011
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/17/2010	07/16/2012
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/17/2010	07/16/2012
Horn antenna	SCHWAZBECK	BBHA 9120D	309/320	01/22/2010	01/21/2012
Signal Generator	R&S	SMR40	100210	02/10/2010	02/09/2012
Signal Generator	Agilent	E4438C	MY45093613	07/08/2010	07/07/2011
Pre-Amplifier	Agilent	8447D	1937A02834	01/05/2011	01/04/2012
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2010	07/04/2011
Radio Communication Analyzer	R&S	CMU200	111787	12/07/2009	12/06/2011
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2011	01/04/2012
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2011	01/04/2012
Filter 800-1000	Micro-Tronics	BRM13462	1	01/05/2011	01/04/2012
Filter 1800-2000	Micro-Tronics	BRM13463	1	01/05/2011	01/04/2012
3m Site	SGS	966 chamber	N/A	11/08/2010	11/09/2011

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

Member of SGS Group

 SGS Taiwan Ltd.
 No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台 北縣五股工業區五工路 134 號 t (886-2) 2299-3279
 f (886-2) 2298-0488
 www.tw.sgs.com



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 11 of 51

# 2.5. Configuration of Tested System

Fig. 2-1 Configuration of Tested System (Fixed Channel)

**EUT** 

Fig. 2-2 Configuration of Tested System (Remote Side)

**CMU 200** 

**Table 2-1 Equipment Used in Tested System** 

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Universal Radio Communication Tester	R&S	CMU200	102189	shielded	Un-shielded

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 12 of 51

# SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result	
§2.1046(a)	DE Conducted Down Output	Compliant	
§22.913(a)	RF Conducted Power Output	Compliant	
§2.1046(a)	EDD/EIDD	Camanliant	
§22.913(a)	ERP/EIRP measurement	Compliant	
§2.1049(h)	99% Occupied Bandwidth	Compliant	
§2.1051	Out of Band Emissions at Antenna Ter-	Compliant	
§22.917(a)	minals		
§2.1053	Field Strength of Spurious Radiation	Compliant	
§22.917(a)	(TX)	Compliant	
§2.1055(a)(1)	Engage of Ctability of Tagendard	Compliant	
§22.355	Frequency Stability vs. Temperature	Compliant	
§2.1055(d)(2)	Engguenay Stability va Valtaga	Compliant	
§22.355	Frequency Stability vs. Voltage	Compliant	

## Max ERP/EIRP measurement result:

	dBm	dB	W
WCDMA B5 Band	22.94	ERP	0.197
HSDPA B5 Band	23.27	ERP	0.212
HSUPA B5 Band	22.92	ERP	0.196

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnificawww.sgs.comments. Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 13 of 51

## **DESCRIPTION OF TEST MODES**

The EUT has been tested under operating condition.

EUT staying in continuous transmitting mode. Channel Low, Mid and High for each type band with rated data rate were chosen for full testing.

The field strength of spurious radiation emission was measured as EUT stand-up position (E1 mode) and lie down position (E1, E2 mode) for GSM/GPRS with power adaptors. The worst-case of E1 position for GSM 850 band, E2 position for GSM 1900 were reported.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 www.tw.sgs.com

台灣檢驗科技股份有限公司



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 14 of 51

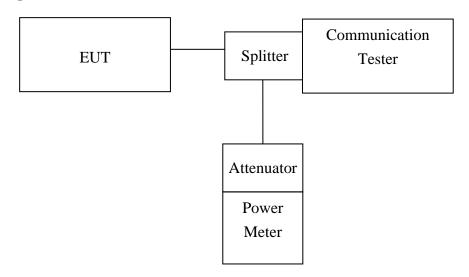
#### RF POWER OUTPUT MEASUREMENT 5

### 5.1 Standard Applicable

According to FCC §2.1046.

FCC 22.913(a) Mobile station are limited to 7W.

### 5.2 **Test Set-up:**



Note: Measurement setup for testing on Antenna connector

#### 5.3 **Measurement Procedure**

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading.

### 5.4 **Measurement Equipment Used:**

Refer to section 2.4 in this report

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 15 of 51

### 5.5 **Measurement Result:**

# 5.5.1 RF Conducted Output Power

## **5.5.1.1: WCDMA mode**

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1/-3). RMC 12.2kps is used for this testing.

### **Results:**

EUT Mode		СН	Peak Power	Avg Power	
	(MHz)		(dBm)	(dBm)	
WCDMA Band V	826.40	4132	26.44	23.07	
	836.60	4183	26.20	23.03	
	846.60	4233	26.20	22.93	

Note: The results above reflect max power with all up bits.

Note: Offset 1 dB

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 www.tw.sgs.com



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 16 of 51

## 5.5.1.2: HSDPA Release 8 mode

The following 4 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C10.1.4 & C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

## **HSDPA SUB-TEST Setting**

Table C.10.1.4: β values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)

Sub-test	β <sub>c</sub>	βa	β <sub>d</sub> (SF)	β₀/β <sub>d</sub>	βнs (Note1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

Note: The recommended HSDPA MPRs are implemented as per following sub-tests.

### **Results:**

Mode	Sub-test	RMS Power (dBm)			Power Class 3 Limita-	Comments
		Channel			tion (dBm)	
		4132	4172	4233		
HSDPA	1	22.86	22.89	23.05	20.3dBm – 25.7dBm	Pass
B5	2	23.00	22.92	22.80	20.3dBm – 25.7dBm	Pass
	3	22.40	22.41	22.56	19.8dBm – 25.7dBm	Pass
	4	22.45	22.45	22.62	19.8dBm – 25.7dBm	Pass

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 www.tw.sgs.com

台灣檢驗科技股份有限公司



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 17 of 51

# 5.5.1.3: HSPA (HSDPA & HSUPA) Release 6 mode

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX power requirements for Power Class 3 were met according to table 5.2AA.5 and 5.2B.5 All UE channels and power ratio's are set according to table C11.1.3 in the 3GPP TS34.121-1 V8.4.0. RMC 12.2kps is used for this testing

## **HSPA SUB-TEST Setting**

Table C.11.1.3: β values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)

Sub- test	βε	$eta_{ m d}$	β <sub>d</sub> (SF)	$\beta_c/\beta_d$	$eta_{ m HS}$	$eta_{ m ec}$	$eta_{ed}$	β <sub>ed</sub> (SF)	β <sub>ed</sub> (Codes)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/22	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	β <sub>ed</sub> 1: 47/15 β <sub>ed</sub> 2: 47/15	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 www.tw.sgs.com

t (886-2) 2299-3279 f (886-2) 2298-0488



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 18 of 51

Note: The recommended HSUPA are implemented as per following sub-tests.

### **Results:**

Mode	Sub-test	RMS	RMS Power (dBm) Channel		Power Class 3 Limitation (dBm)	Comments
		4122		4000	uon (abin)	
		4132	4172	4233		
HSUPA	1	23.03	22.96	22.85	17.3dBm – 25.7dBm	Pass
B5	2	21.09	21.04	20.89	16.8dBm – 25.7dBm	Pass
	3	22.07	22.02	21.93	17.8dBm – 25.7dBm	Pass
	4	21.14	21.10	20.97	16.8dBm – 25.7dBm	Pass
	5	22.89	22.79	22.74	17.3dBm – 25.7dBm	Pass

### WCDMA/HSDPA band V

The EUT output power was controlled by simulator. Set Communication Tester CMU200 function key "UE Power Control" and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. then record the read(see page 15 for measurement data). The min. power was measures by a function key "minimum power" then record the read. It is -52.5dBm. The power variation can be 0.1dB step by setting.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 www.tw.sgs.com

t (886-2) 2299-3279 f (886-2) 2298-0488



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 19 of 51

# ERP, EIRP MEASUREMENT

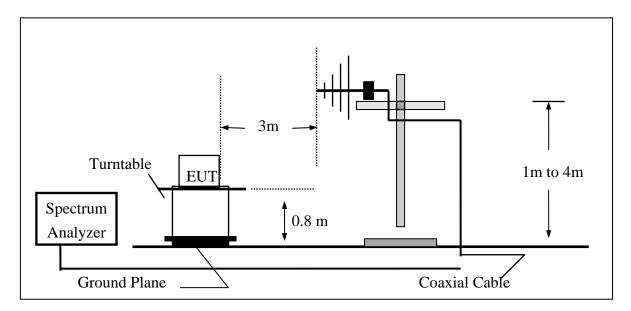
### 6.1 **Standard Applicable**

According to FCC §2.1046

FCC 22.913(a) Mobile station are limited to 7W ERP.

### **6.2 Test SET-UP (Block Diagram of Configuration)**

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 f (886-2) 2298-0488 www.tw.sgs.com

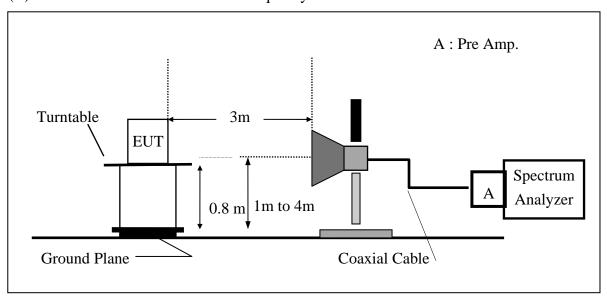


Report No.: EH/2011/40018-01

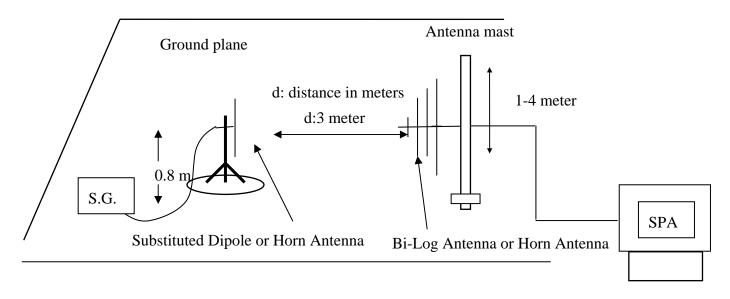
Issue Date: Jan. 12, 2012

Page: 20 of 51

## (B) Radiated Emission Test Set-UP Frequency Over 1 GHz



## Substituted Method Test Set-UP



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 www.tw.sgs.com

台灣檢驗科技股份有限公司

t (886-2) 2299-3279



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 21 of 51

#### 6.3 **Measurement Procedure**

The EUT was placed on a non-conductive turntable using a non-conductive support. The radiated emission at the fundamental frequency was measured at 3 m with a test antenna and EMI spectrum analyzer.

During the measurement, the EUT was communication with the station. The highest emission was recorded with the rotation of the turntable and the lowering of the test antenna from 4m to 1m. The reading was recorded and the field strength (E in dBuV/m) was calculated.

ERP in frequency band 824 –850 MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

ERP = S.G. output (dBm) + Antenna Gain (dBd) - Cable Loss (dB)

EIRP = S.G. output (dBm) + Antenna Gain (dBi) – Cable Loss (dB)

#### 6.4 **Measurement Equipment Used:**

Refer to section 2.4 in this report

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms\_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan / 台北縣五股工業區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 22 of 51

#### 6.5 **Measurement Result**

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			Н	V	121.16	34.80	-10.02	3.63	21.15	38.45
				Н	112.61	26.35	-10.02	3.63	12.71	38.45
	026.40	4100	E1	V	114.13	27.77	-10.02	3.63	14.12	38.45
	826.40	4132	EI	Н	121.46	35.20	-10.02	3.63	21.56	38.45
			E2	V	108.15	21.79	-10.02	3.63	8.15	38.45
			E2	Н	122.84	36.58	-10.02	3.63	22.94	38.45
			H 83 E1	V	121.54	35.28	-10.02	3.65	21.61	38.45
		4183		Н	113.38	27.15	-10.02	3.65	13.48	38.45
WCDMA	836.60			V	113.70	27.44	-10.02	3.65	13.77	38.45
Band V	830.00			Н	121.97	35.74	-10.02	3.65	22.07	38.45
			E2	V	108.31	22.05	-10.02	3.65	8.38	38.45
			E2	Н	122.78	36.55	-10.02	3.65	22.88	38.45
			Н	V	121.74	35.59	-10.02	3.67	21.90	38.45
			11	Н	114.03	27.83	-10.02	3.67	14.14	38.45
	846.60	4233	E1	V	113.54	27.38	-10.02	3.67	13.69	38.45
	040.00	4233	E1	Н	122.43	36.23	-10.02	3.67	22.54	38.45
			E2	V	108.82	22.67	-10.02	3.67	8.98	38.45
			EZ	Н	122.51	36.31	-10.02	3.67	22.62	38.45

## Remark:

(1) The RBW, VBW of SPA for frequency

RBW = 5MHz, VBW = 8MHz

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279

www.tw.sgs.com



Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Member of SGS Group

Page: 23 of 51

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
			Н	V	122.87	36.51	-10.02	3.63	22.86	38.45
			11	Н	115.35	29.09	-10.02	3.63	15.45	38.45
	026.40	4122	E1	V	118.58	32.22	-10.02	3.63	18.57	38.45
	826.40	4132	EI	Н	120.10	33.84	-10.02	3.63	20.20	38.45
			E2	V	108.57	22.22	-10.02	3.63	8.57	38.45
			E2	Н	123.17	36.91	-10.02	3.63	23.27	38.45
		4183	H B E1	V	123.20	36.94	-10.02	3.65	23.27	38.45
				Н	115.88	29.65	-10.02	3.65	15.98	38.45
HSDPA	836.60			V	118.81	32.55	-10.02	3.65	18.88	38.45
Band V	030.00			Н	120.18	33.95	-10.02	3.65	20.28	38.45
			E2	V	108.41	22.16	-10.02	3.65	8.49	38.45
			LZ	Н	123.10	36.87	-10.02	3.65	23.20	38.45
			Н	V	122.93	36.78	-10.02	3.67	23.09	38.45
			11	Н	115.98	29.78	-10.02	3.67	16.09	38.45
	846.60	4233	E1	V	118.73	32.57	-10.02	3.67	18.88	38.45
	040.00	4233	EI	Н	119.93	33.73	-10.02	3.67	20.04	38.45
			E2	V	108.84	22.68	-10.02	3.67	8.99	38.45
			122	Н	122.91	36.71	-10.02	3.67	23.02	38.45

### Remark:

(1) The RBW, VBW of SPA for frequency

RBW = 5MHz, VBW = 8MHz

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 24 of 51

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			Н	V	122.34	35.98	-10.02	3.63	22.33	38.45
			П	Н	114.33	28.07	-10.02	3.63	14.43	38.45
	005.40	4400	E1	V	117.25	30.89	-10.02	3.63	17.24	38.45
	826.40	4132	151	Н	119.10	32.84	-10.02	3.63	19.20	38.45
			E2	V	107.09	20.74	-10.02	3.63	7.09	38.45
			E2	Н	121.09	34.83	-10.02	3.63	21.19	38.45
		4183	H E1	V	122.61	36.35	-10.02	3.65	22.68	38.45
				Н	115.10	28.87	-10.02	3.65	15.20	38.45
HSUPA	836.60			V	117.77	31.51	-10.02	3.65	17.84	38.45
Band V	830.00			Н	119.22	32.99	-10.02	3.65	19.32	38.45
			E2	V	107.65	21.40	-10.02	3.65	7.73	38.45
			LZ	Н	121.37	35.14	-10.02	3.65	21.47	38.45
			Н	V	122.76	36.61	-10.02	3.67	22.92	38.45
			11	Н	115.41	29.21	-10.02	3.67	15.52	38.45
	846.60	4233	E1	V	117.55	31.39	-10.02	3.67	17.70	38.45
	040.00	4233	EI	Н	119.22	33.02	-10.02	3.67	19.33	38.45
			E2	V	107.51	21.35	-10.02	3.67	7.66	38.45
			152	Н	120.98	34.78	-10.02	3.67	21.09	38.45

### Remark:

(1) The RBW, VBW of SPA for frequency

RBW = 5MHz, VBW = 8MHz

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

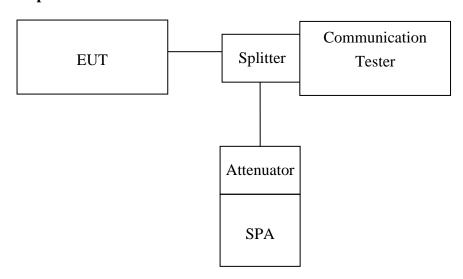
Page: 25 of 51

### 7 99% OCCUPIED BANDWIDTH MEASUREMENT

### 7.1 **Standard Applicable**

According to FCC§2.1049(h).

#### 7.2 **Test Set-up:**



Note: Measurement setup for testing on Antenna connector

#### 7.3 **Measurement Procedure**

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW (10/30KHz) was set to about 1% of emission BW, VBW= 3 times RBW(30/100KHz), -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

### 7.4 **Measurement Equipment Used:**

Refer to section 2.4 in this report

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488



Report No.: EH/2011/40018-01

Issue Date: Jan. 12, 2012

Page: 26 of 51

#### 7.5 **Measurement Result:**

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
WCDMA	826.40	4132	4.1330
WCDMA Band V	836.60	4183	4.1349
Band V	846.60	4233	4.1467

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HGDD A D 5	826.40	4132	4.1228
HSDPA B5 Band V	836.60	4183	4.1428
Band v	846.60	4233	4.1305

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnificawww.sgs.comments. Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 www.tw.sgs.com

台灣檢驗科技股份有限公司

t (886-2) 2299-3279



Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Page: 27 of 51

Figure 7-1: WCDMA B5Channel Low

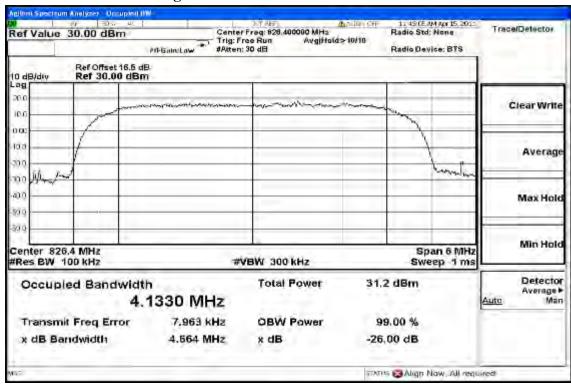
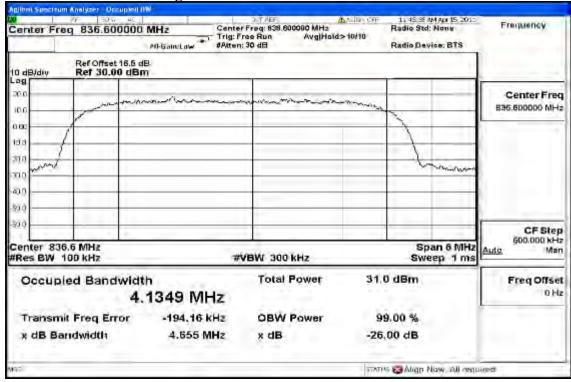


Figure 7-2 WCDMA B5 Channel Mid



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 www.tw.sgs.com

台灣檢驗科技股份有限公司

t (886-2) 2299-3279



Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** Page: 28 of 51

Figure 7-3: WCDMA B5 Channel High

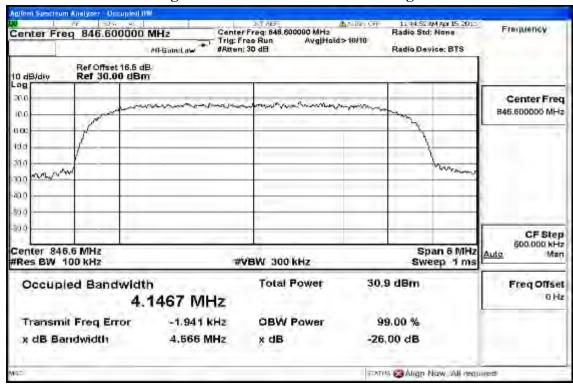
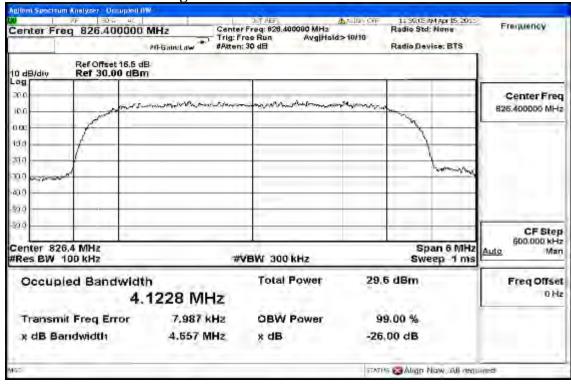


Figure 7-4: HSDPA B5Channel Low



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 www.tw.sgs.com

t (886-2) 2299-3279 台灣檢驗科技股份有限公司



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 29 of 51

Figure 7-5 HSDPA B5 Channel Mid

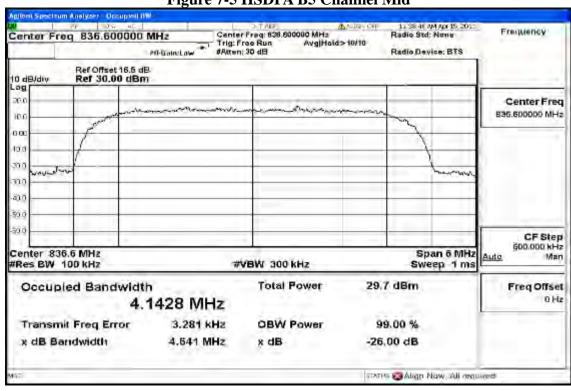
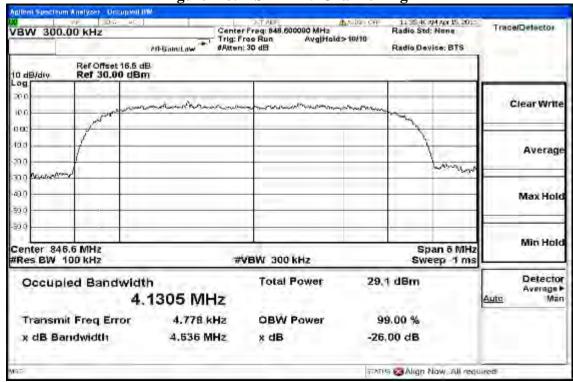


Figure 7-6: HSDPA B5 Channel High



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan / 台北縣五股工業區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279

f (886-2) 2298-0488

www.tw.sgs.com



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 30 of 51

#### 8 **OUT OF BAND EMISSION AT ANTENNA TERMINALS**

### 8.1 **Standard Applicable**

According to FCC §2.1051.

FCC §22.917(a), §24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

#### **Test SET-UP** 8.2

Refer to section 7.2 in this report

#### 8.3 **Measurement Procedure**

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz, sufficient scans were taken to show the out of band Emissions if any up to 10th harmonic.

For the out of band: Set the RBW, VBW = 1MHz, Start=30MHz, Stop= 10 th harmonic. Limit = -13dBm

Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

#### 8.4 **Measurement Equipment Used:**

Refer to section 2.4 in this report

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms\_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com

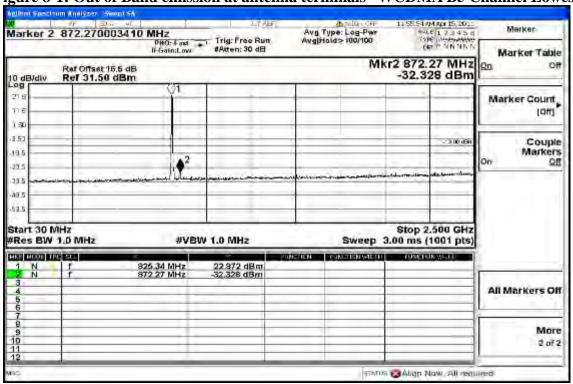


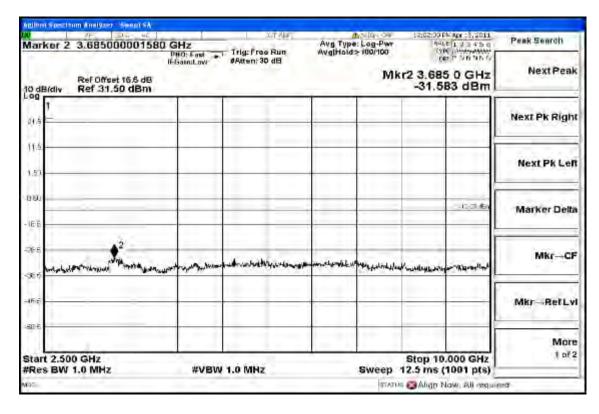
Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** Page: 31 of 51

### **Measurement Result** 8.5

Figure 8-1: Out of Band emission at antenna terminals—WCDMA B5 Channel Lowest





Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號

t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com

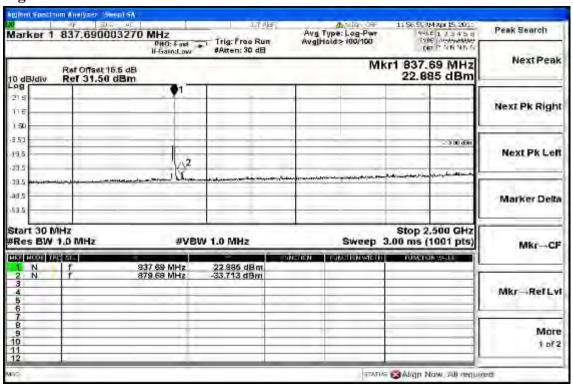


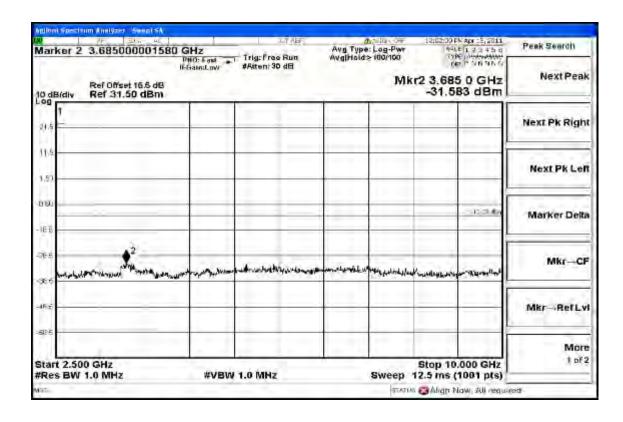
Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Page: 32 of 51

Figure 8-2: Out of Band emission at antenna terminals -WCDMA B5 Channel Mid





Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號

台灣檢驗科技股份有限公司

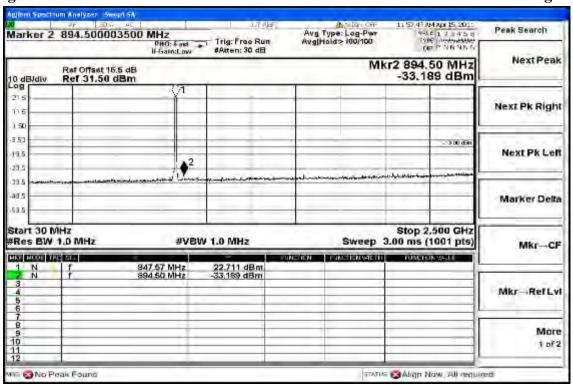
t (886-2) 2299-3279

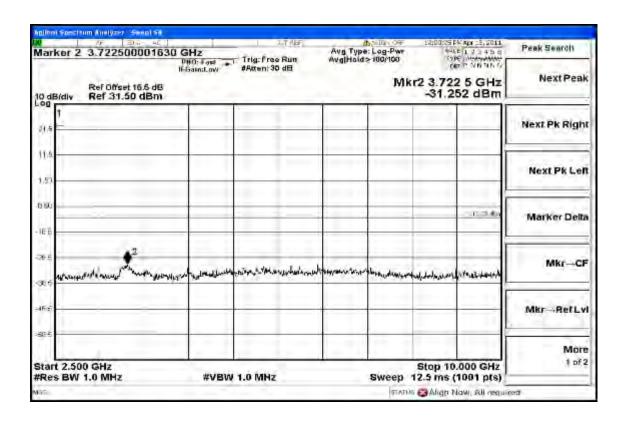


Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 33 of 51

Figure 8-3: Out of Band emission at antenna terminals-WCDMA B5 Channel Highest





Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號

**支股份有限公司** t (886-2) 2299-3279



Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Page: 34 of 51

Figure 8-4: Band edge emission at antenna terminals –WCDMA B5 Channel Lowest

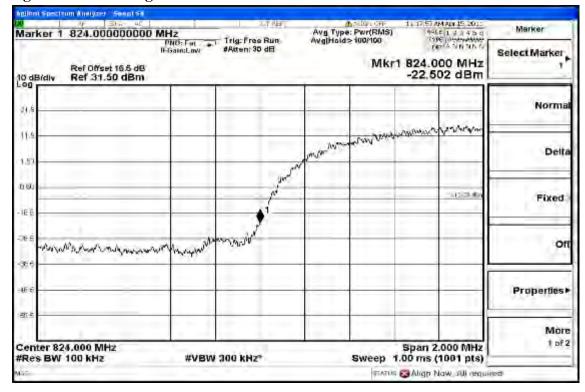


Figure 8-5: Band edge emission at antenna terminals –WCDMA B5 Channel Highest



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 t (886-2) 2299-3279

台灣檢驗科技股份有限公司

f (886-2) 2298-0488

www.tw.sgs.com

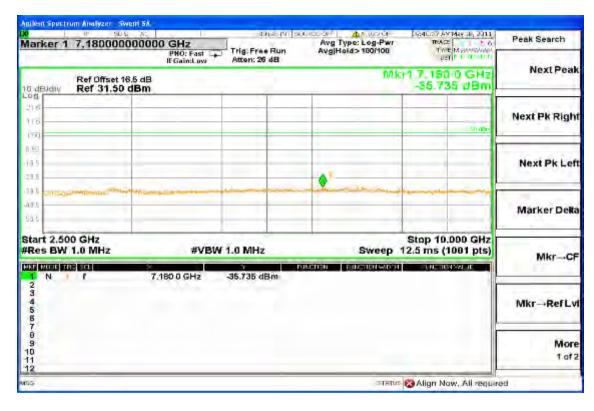


Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 35 of 51

Figure 8-8: Out of Band emission at antenna terminals-HSDPA B5 Channel Lowest





Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號

台灣檢驗科技股份有限公司 t (886-2) 2299-3279 f (886-2) 2298-0488

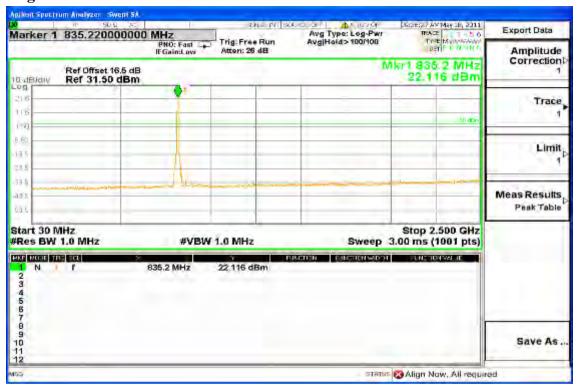


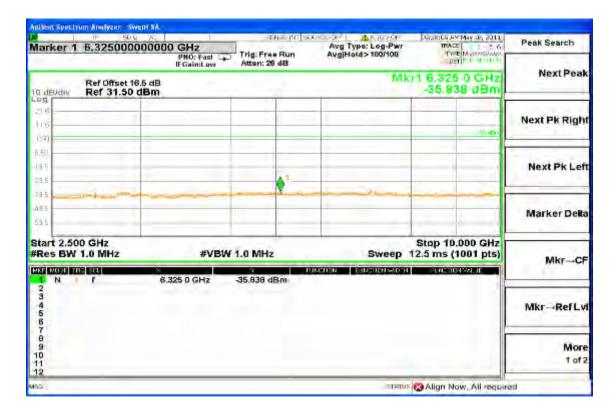
Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Page: 36 of 51

Figure 8-9: Out of Band emission at antenna terminals -HSDPA B5 Channel Mid





Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279

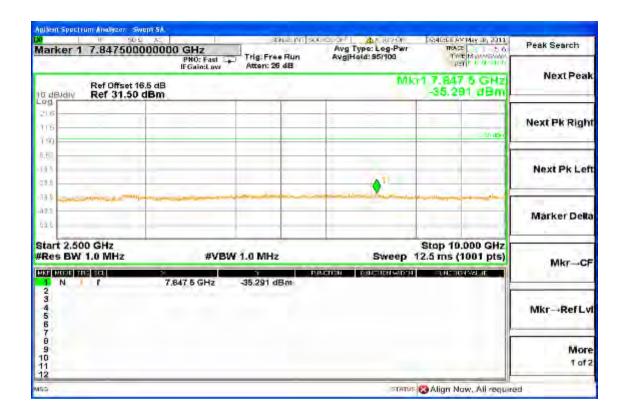


Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** Page: 37 of 51

Figure 8-10: Out of Band emission at antenna terminals-HSDPA B5 Channel Highest





Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 www.tw.sgs.com

t (886-2) 2299-3279 台灣檢驗科技股份有限公司



Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Page: 38 of 51

Figure 8-11: Band edge emission at antenna terminals -HSDPA B5 Channel Lowest

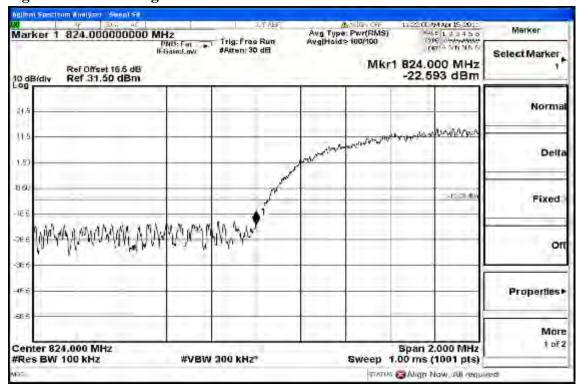
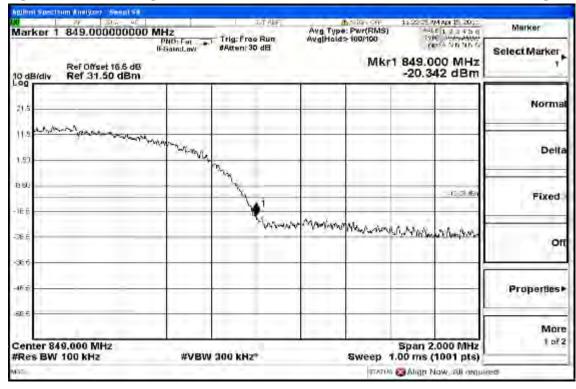


Figure 8-12: Band edge emission at antenna terminals –HSDPA B5 Channel Highest



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan / 台北縣五股工業區五工路 134 號

台灣檢驗科技股份有限公司

t (886-2) 2299-3279



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 39 of 51

## FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

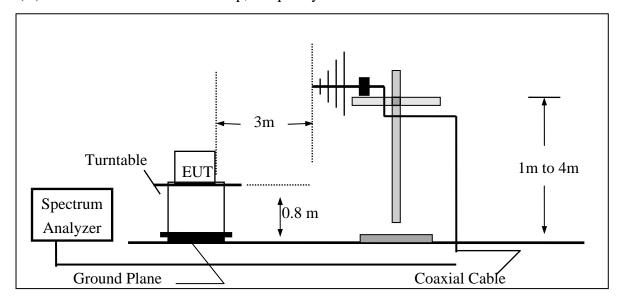
### 9.1 **Standard Applicable**

According to FCC §2.1053,

FCC §22.917(a),§24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than 43 + 10 log (mean output power in watts) dBc below the mean power output outside a license's frequency block (-13dBm)

### 9.2 **EUT Setup (Block Diagram of Configuration)**

(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 www.tw.sgs.com

台灣檢驗科技股份有限公司

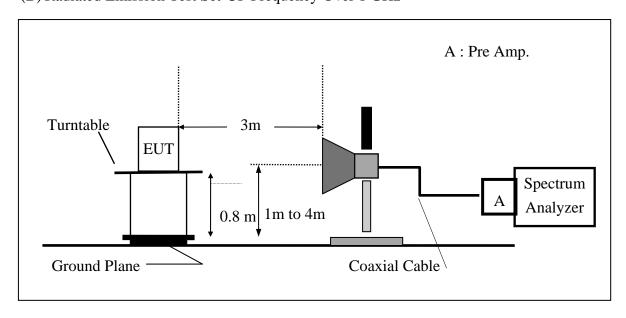


Report No.: EH/2011/40018-01

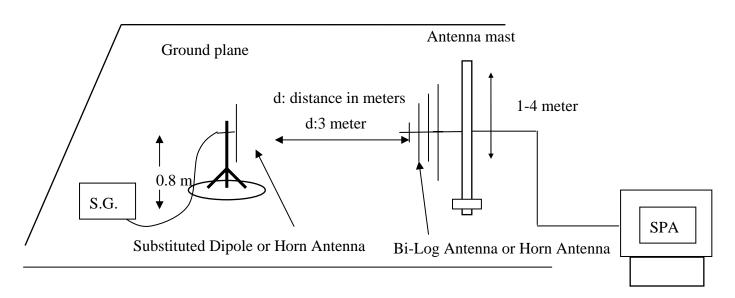
**Issue Date: Jan. 12, 2012** 

Page: 40 of 51

# (B) Radiated Emission Test Set-UP Frequency Over 1 GHz



## (C) Substituted Method Test Set-UP



Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <a href="www.sgs.com/terms\_and\_conditions.htm">www.sgs.com/terms\_and\_conditions.htm</a> and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan / 台北縣五股工業區五工路 134 號

台灣檢驗科技股份有限公司 t (886-)

t (886-2) 2299-3279



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 41 of 51

#### 9.3 **Measurement Procedure**

The EUT was placed on a non-conductive, The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

ERP in frequency band 824 –850 MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

The spurious emissions attenuation was calculated as the difference between radiated power at the fundamental frequency and the spurious emissions frequency.

ERP = S.G. output (dBm) + Antenna Gain(dBd) - Cable Loss <math>(dB)

EIRP = S.G. output (dBm) + Antenna Gain(dBi) - Cable Loss (dB)

### 9.4 **Measurement Equipment Used:**

Refer to section 2.4 in this report

### 9.5 **Measurement Result**

Refer to attach tabular data sheets.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms\_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 f (886-2) 2298-0488 www.tw.sgs.com

t (886-2) 2299-3279

Member of SGS Group



Report No.: EH/2011/40018-01

Issue Date: Jan. 12, 2012 Page: 42 of 51

## Radiated Spurious Emission Measurement Result: HSDPA B5 Mode

Operation Mode : TX CH Low Mode May. 18, 2011 Test Date:

Fundamental Frequency : 824.20 MHz Test By: Jazz Temperature Pol: Ver : 25°C

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
167.74	33.72	V	-65.16	-9.95	1.63	-76.75	-13.00	-63.75
219.15	34.56	V	-66.50	-10.00	1.82	-78.31	-13.00	-65.31
335.55	32.46	V	-65.35	-9.86	2.31	-77.52	-13.00	-64.52
555.74	33.13	V	-59.02	-9.90	2.97	-71.90	-13.00	-58.90
699.30	33.63	V	-55.80	-10.00	3.29	-69.09	-13.00	-56.09
963.14	34.13	V	-50.19	-10.14	3.92	-64.24	-13.00	-51.24
1652.80	39.66	V	-64.92	9.30	5.23	-60.85	-13.00	-47.85
2479.20		V		10.07	6.54		-13.00	
3305.60		V		12.19	7.73		-13.00	
4132.00		V		12.62	8.87		-13.00	
4958.40		V		12.65	9.75		-13.00	
5784.80		V		13.58	10.55		-13.00	
6611.20		V		12.03	11.31		-13.00	
7437.60		V		11.48	12.12		-13.00	
8264.00		V		11.50	12.73		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

### Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark"---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 www.tw.sgs.com

t (886-2) 2299-3279 f (886-2) 2298-0488



Report No.: EH/2011/40018-01

Issue Date: Jan. 12, 2012

Page: 43 of 51

## Radiated Spurious Emission Measurement Result: HSDPA B5 Mode

Operation Mode : TX CH Low Mode May. 18, 2011 Test Date:

Fundamental Frequency : 824.20 MHz Test By: Jazz Temperature Pol: Hor : 25°C

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
149.31	33.59	Н	-64.25	-9.94	1.59	-75.78	-13.00	-62.78
250.19	32.31	Н	-66.90	-10.03	1.99	-78.92	-13.00	-65.92
325.85	32.57	Н	-64.85	-9.92	2.27	-77.04	-13.00	-64.04
553.80	33.74	Н	-57.90	-9.90	2.97	-70.77	-13.00	-57.77
694.45	33.33	Н	-54.53	-9.99	3.28	-67.80	-13.00	-54.80
970.90	33.84	Н	-50.24	-10.14	3.94	-64.32	-13.00	-51.32
1652.80	39.56	Н	-64.84	9.30	5.23	-60.77	-13.00	-47.77
2479.20		Н		10.07	6.54		-13.00	
3305.60		Н		12.19	7.73		-13.00	
4132.00		Н		12.62	8.87		-13.00	
4958.40		Н		12.65	9.75		-13.00	
5784.80		Н		13.58	10.55		-13.00	
6611.20		Н		12.03	11.31		-13.00	
7437.60		Н		11.48	12.12		-13.00	
8264.00		Н		11.50	12.73		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

### Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark"---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 台灣檢驗科技股份有限公司

f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Page: 44 of 51

## Radiated Spurious Emission Measurement Result: HSDPA B5 Mode

: TX CH Mid Mode Operation Mode Test Date: May. 18, 2011

Fundamental Frequency: 836.60 MHz Test By: **Jazz** Temperature : 25°C Pol: Ver

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
167.74	36.60	V	-62.28	-9.95	1.63	-73.87	-13.00	-60.87
248.25	32.68	V	-67.28	-10.03	1.98	-79.28	-13.00	-66.28
332.64	32.10	V	-65.75	-9.88	2.29	-77.92	-13.00	-64.92
559.62	32.91	V	-59.02	-9.91	2.97	-71.90	-13.00	-58.90
700.27	33.45	V	-55.98	-10.00	3.29	-69.27	-13.00	-56.27
972.84	34.08	V	-50.01	-10.14	3.95	-64.10	-13.00	-51.10
1672.00	38.51	V	-66.05	9.36	5.27	-61.96	-13.00	-48.96
2508.00		V		10.08	6.58		-13.00	
3344.00		V		12.27	7.79		-13.00	
4180.00		V		12.62	8.93		-13.00	
5016.00		V		12.67	9.81		-13.00	
5852.00		V		13.68	10.62		-13.00	
6688.00		V		11.96	11.39		-13.00	
7524.00		V		11.45	12.20		-13.00	
8360.00		V		11.58	12.81		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

### Remark:

- 1 The emission behaviors belongs to narrowband spurious emission.
- 2 Remark"---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan / 台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 www.tw.sgs.com

t (886-2) 2299-3279 f (886-2) 2298-0488



Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Page: 45 of 51

## Radiated Spurious Emission Measurement Result: HSDPA B5 Mode

: TX CH Mid Mode Operation Mode Test Date: May. 18, 2011

Fundamental Frequency: 836.60 MHz Test By: Jazz Temperature : 25°C Pol: Hor

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
175.50	41.07	Н	-58.68	-9.96	1.65	-70.29	-13.00	-57.29
250.19	32.09	Н	-67.12	-10.03	1.99	-79.14	-13.00	-66.14
322.94	34.42	Н	-63.03	-9.93	2.26	-75.22	-13.00	-62.22
558.65	33.40	Н	-58.14	-9.91	2.97	-71.02	-13.00	-58.02
691.54	33.49	Н	-54.49	-9.99	3.27	-67.75	-13.00	-54.75
959.26	33.77	Н	-50.38	-10.14	3.91	-64.43	-13.00	-51.43
1672.00	38.51	Н	-65.87	9.36	5.27	-61.77	-13.00	-48.77
2508.00		Н		10.08	6.58		-13.00	
3344.00		Н		12.27	7.79		-13.00	
4180.00		Н		12.62	8.93		-13.00	
5016.00		Н		12.67	9.81		-13.00	
5852.00		Н		13.68	10.62		-13.00	
6688.00		Н		11.96	11.39		-13.00	
7524.00		Н		11.45	12.20		-13.00	
8360.00		Н		11.58	12.81		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

### Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark"---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan / 台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 www.tw.sgs.com

t (886-2) 2299-3279 f (886-2) 2298-0488



Report No.: EH/2011/40018-01

**Issue Date: Jan. 12, 2012** 

Page: 46 of 51

## Radiated Spurious Emission Measurement Result: HSDPA B5 Mode

: TX CH High Mode Operation Mode Test Date: May. 18, 2011

Fundamental Frequency: 848.80 MHz Test By: Jazz Temperature : 25°C Pol: Ver

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
170.65	34.25	V	-64.89	-9.96	1.64	-76.49	-13.00	-63.49
243.40	32.48	V	-67.66	-10.02	1.95	-79.64	-13.00	-66.64
340.40	32.35	V	-65.40	-9.83	2.32	-77.56	-13.00	-64.56
559.62	32.97	V	-58.96	-9.91	2.97	-71.84	-13.00	-58.84
699.60	33.45	V	-55.99	-10.00	3.29	-69.27	-13.00	-56.27
943.74	33.82	V	-50.82	-10.13	3.87	-64.82	-13.00	-51.82
1693.20	38.33	V	-66.21	9.42	5.30	-62.09	-13.00	-49.09
2539.80		V		10.18	6.62		-13.00	
3386.40		V		12.36	7.85		-13.00	
4233.00		V		12.63	8.99		-13.00	
5079.60		V		12.73	9.87		-13.00	
5926.20		V		13.79	10.69		-13.00	
6772.80		V		11.87	11.47		-13.00	
7619.40		V		11.41	12.26		-13.00	
8466.00		V		11.68	12.89		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

### Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark"---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279

f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01

Issue Date: Jan. 12, 2012

Page: 47 of 51

## Radiated Spurious Emission Measurement Result: HSDPA B5 Mode

: TX CH High Mode Operation Mode Test Date: May. 18, 2011

Fundamental Frequency: 848.80 MHz Test By: Jazz Temperature : 25°C Pol: Hor

Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
175.50	39.55	Н	-60.20	-9.96	1.65	-71.81	-13.00	-58.81
245.34	32.11	Н	-67.34	-10.03	1.96	-79.33	-13.00	-66.33
319.06	33.17	Н	-64.31	-9.95	2.24	-76.51	-13.00	-63.51
390.84	35.59	Н	-60.98	-9.80	2.48	-73.26	-13.00	-60.26
684.75	33.47	Н	-54.80	-9.98	3.25	-68.03	-13.00	-55.03
966.05	34.07	Н	-50.04	-10.14	3.93	-64.11	-13.00	-51.11
1693.20	38.58	Н	-65.77	9.42	5.30	-61.65	-13.00	-48.65
2539.80		Н		10.18	6.62		-13.00	
3386.40		Н		12.36	7.85		-13.00	
4233.00		Н		12.63	8.99		-13.00	
5079.60		Н		12.73	9.87		-13.00	
5926.20		Н		13.79	10.69		-13.00	
6772.80		Н		11.87	11.47		-13.00	
7619.40		Н		11.41	12.26		-13.00	
8466.00		Н		11.68	12.89		-13.00	

	30MHz - 80MHz: 5.04dB
Measurement uncertainty	80MHz -1000MHz: 3.76dB
	1GHz - 13GHz: 4.45dB

### Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
- 2 Remark"---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4 ERP/EIRP (dBm) = SG Setting(dBm) + Antenna Gain (dB/dBi) Cable loss (dB)

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 台灣檢驗科技股份有限公司 t (886-2) 2299-3279

f (886-2) 2298-0488 www.tw.sgs.com



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 48 of 51

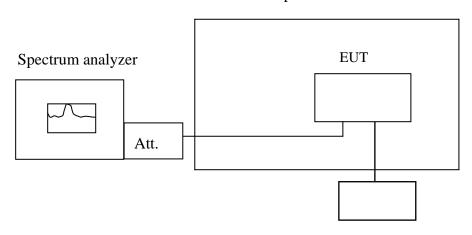
### FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT 10

### 10.1 **Standard Applicable**

According to FCC §2.1055(a)(1) Frequency Tolerance: +/- 2.5 ppm

### 10.2 **Test Set-up:**

## Temperature Chamber



Variable DC Power Supply

Measurement setup for testing on Antenna connector

#### 10.3 **Measurement Procedure**

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 25°C operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30°C. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10°C increased per stage until the highest temperature of +50°C reached.

### 10.4 **Measurement Equipment Used:**

Refer to section 2.4 in this report

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at www.sgs.com/terms\_e-document.htm. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan / 台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com

台灣檢驗科技股份有限公司



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 49 of 51

#### 10.5 **Measurement Result:**

Reference Frequency: WCDMA B5 Mid Channel 836.6 MHz							
Limit: +/- 2.5 ppm = 2091 Hz							
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)			
Vdc	Temperature (°C)	(MHz)					
3.7	-30	836.599998	-7.00	2091			
3.7	-20	836.599999	-8.00	2091			
3.7	-10	836.599998	-7.00	2091			
3.7	0	836.599997	-6.00	2091			
3.7	10	836.599999	-8.00	2091			
3.7	20	836.599991	0.00	2091			
3.7	30	836.599998	-7.00	2091			
3.7	40	836.599998	-7.00	2091			
3.7	50	836.600008	-17.00	2091			

Note: The battery is rated 3.7V dc.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan/台北縣五股工業區五工路 134 號 f (886-2) 2298-0488 www.tw.sgs.com

台灣檢驗科技股份有限公司

t (886-2) 2299-3279



Report No.: EH/2011/40018-01 **Issue Date: Jan. 12, 2012** 

Page: 50 of 51

# 11 FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

### 11.1 **Standard Applicable**

According to FCC §2.1055(d)(2) Frequency Tolerance: +/- 2.5 ppm

### 11.2 **Test Set-up:**

Refer to section 10.2 in this report

#### 11.3 **Measurement Procedure**

Set chamber temperature to 25°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specified extreme voltage variation (+/- 15%) and endpoint, record the maximum frequency change.

### 11.4 **Measurement Equipment Used:**

Refer to section 2.4 in this report

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 f (886-2) 2298-0488 www.tw.sgs.com

台灣檢驗科技股份有限公司



Report No.: EH/2011/40018-01 Issue Date: Jan. 12, 2012

Page: 51 of 51

#### 11.5 **Measurement Result:**

Reference Frequency: WCDMA B5 Mid Channel 836.6 MHz						
Limit: +/- 2.5 ppm = 2091 Hz						
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)		
Vdc	Temperature (°C)	(MHz)				
4.2	25.00	836.600002	0.00	2091.00		
3.7	25.00	836.599991	11.00	2091.00		
3.2	25.00	836.600002	0.00	2091.00		
3.06	25.00	836.599968	34.00	2091.00		
(Endpoint)						

Note: The battery is rated 3.7V dc.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製

This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at www.sgs.com/terms\_and\_conditions.htm and, for

electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="www.sgs.com/terms\_e-document.htm">www.sgs.com/terms\_e-document.htm</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS Taiwan Ltd. No.134, Wu Kung Road, Wuku Industrial Zone, Taipei County, Taiwan /台北縣五股工業區五工路 134 號 t (886-2) 2299-3279 www.tw.sgs.com

台灣檢驗科技股份有限公司