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# **ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT**

# INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E AND INDUSTRY CANADA RSS-132 and RSS-133 REQUIREMENT

Product Name:	OF Windows Phone
Brand Name:	НТС
Model No.:	PI06130
Model Difference:	N/A
FCC ID:	NM8PI06130
IC:	4115B-PI06130
Report No.:	EH/2011/B0011
Issue Date:	Dec. 16, 2011
FCC Rule Part:	2 , 22H & 24E
IC Rule Part:	RSS 132, Issue 2 and RSS 133, Issue 5
Prepared for:	HTC Corporation No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan, R.O.C.
Prepared by:	SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei County, Taiwan.

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# VERIFICATION OF COMPLIANCE

Applicant:	HTC Corporation No. 23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan, R.O.C.
Product Name:	Windows Phone
Brand Name:	HTC
Model No.:	PI06130
Model Difference:	N/A
FCC ID:	NM8PI06130
IC:	4115B-PI06130
File Number:	EH/2011/B0011
Date of test:	Nov. 17, 2011 ~ Dec. 15, 2011
Date of EUT Received:	Nov. 17, 2011

## 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, Issue 3 of RSS-Gen 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, PART 24 subpart E and IC standards Issue 2 of RSS-132, Issue 5 of RSS-133.

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

Test By:

ay. Lin

Date:

Dec. 16, 2011

Jay Lin / Engineer

**Prepared By:** 

Chou eline

Date:

Date:

Dec. 16, 2011

Dec. 16, 2011

Celine Chou / Clerk

Approved By:

Jim Chang / Supervisor

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# Version

Version No.	Date	Description
00	Dec. 16, 2011	Initial creation of document

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# **1. GENERAL PRODUCT INFORMATION**

General:

Product Name:	Windows Phon	e		
Brand Name:	HTC			
Model No.:	PI06130			
Model Difference:	N/A	N/A		
Simple Hands-Free:	<ol> <li>Model No.: HS G400, Supplier: FOSTER</li> <li>Model No.: HS G400, Supplier: COTRON</li> <li>Model No.: HS G400, Supplier: MERRY</li> </ol>			
USB Cable:	<ol> <li>Model No.: DC M410, Supplier: Coxoc</li> <li>Model No.: DC M410, Supplier: Foxlink</li> </ol>			
	3.7Vdc Li-Ion	battery or 5 Vdc from AC/DC adapter		
Power Supply:	Battery:1. Model No.: BG 58100, Supplier: TWS 2. Model No.: BG 58100, Supplier: WTE			
	Adapter:	<ol> <li>Model No.: TC U250, Supplier: Delta</li> <li>Model No.: TC U250, Supplier: Phihong</li> </ol>		

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### GSM and WCDMA:

	Operating Frequency	Rated Power			
	GSM/GPRS 850, Class 10	824 MHz– 849MHz	33 dBm		
Callular Dhana Standarda	EDGE 850, Class 10	824 MHz- 849MHz	33 dBm		
Cellular Phone Standards Frequency Range and	GSM/GPRS 1900, Class 10	1850MHz – 1910MHz	30 dBm		
Power:	EDGE 1900, Class 10	1850MHz – 1910MHz	30 dBm		
	WCDMA/HSUPA/HSDPA Band II	1852.4MHz – 1907.6MHz	23.5 dBm		
	WCDMA/HSUPA/HSDPA Band V	826.40 MHz- 846.60MHz	23.5 dBm		
Type of Emission	GSM 850: 248KGXW, GSM 1900: 244KGXW GPRS 850: 248KGXW, GPRS 1900: 245KGXW EDGE 850: 258KG7W, EDGE 1900: 243KG7W WCDMA Band II: 4M14F9W, HSUPA Band II: 4M16F9W, HSDPA Band II: 4M16F9W WCDMA Band V: 4M24F9W, HSUPA Band V: 4M19F9W, HSDPA Band V: 4M19F9W				
Hardware Version:	N/A				
Software Version:	N/A				
IMEI:	35951404001129500				

This test report applies for GSM/GPRS/EDGE 850/1900, WCDMA/HSDPA/HSUPA band II / V. Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
GSM 850	3.7 Vdc	481
GSM 1900	3.7 Vdc	238
GPRS 850	3.7 Vdc	370
GPRS 1900	3.7 Vdc	456
EDGE 850	3.7 Vdc	581
EDGE 1900	3.7 Vdc	393
WCDMA B2	3.7 Vdc	673
WCDMA B5	3.7 Vdc	478
HSUPA B2	3.7 Vdc	495
HSUPA B5	3.7 Vdc	459
HSDPA B2	3.7 Vdc	530
HSDPA B5	3.7 Vdc	456

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

This submittal(s) (test report) is intended for **FCC ID:** <u>NM8PI06130</u> filing to comply with Section Part 22 subpart H, Part 24 subpart E and Part27 of the FCC CFR 47 Rules and IC: <u>4115B-PI06130</u> filing to comply with Issue 2 of RSS-132, Issue 5 of RSS-133.

### 1.2. Test Methodology

Both conducted and radiated testing were performed according to the procedures document of TIA/EIA 603C and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, issue 2 of RSS-132 and issue 3 of RSS-133..

The Output power Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA / HSDPA) was used for EUT and Base station setting.

## **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.

All equipment is calibrated externally and traceable to SI (International System of Unit).

### **1.4.** Special Accessories

Not available for this EUT intended for grant.

### **1.5. Equipment Modifications**

Not available for this EUT intended for grant.

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## 2. 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 RSS-Gen Issue 3, The EUT is a placed on as 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 and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13 of ANSI C63.4:2003.

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## 2.4. Measurement Equipment Used:

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
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	12/07/2011	12/06/2013
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	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S20W5	N/A	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S10W5	N/A	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S6W5	N/A	01/05/2011	01/04/2012
Splitter	Agilent	11636B	N/A	01/05/2011	01/04/2012
DC Power Supply	HP	6038A	2929A-07548	06/27/2011	06/26/2012

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ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	R&S	FSP 40	100034	03/30/2011	03/29/2012
Bilog Antenna	SCHWAZBECK	VULB9160	3136	11/19/2010	11/18/2012
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	07/08/2011	07/07/2013
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	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S10W5	001	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S6W5	001	01/05/2011	01/04/2012
Radio Communication Analyzer	R&S	CMU200	111787	12/07/2011	12/06/2013
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	07/15/2011	07/14/2012

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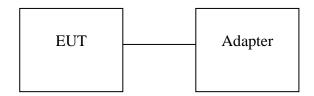
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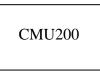
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## 2.5. Configuration of Tested System

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



**Remote Side** 



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

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

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## 3. SUMMARY OF TEST RESULTS

FCC Rules	IC Rules	Description Of Test	Result
§2.1046(a)	N/A	RF Power Output	Compliant
\$2.1046(a) \$22.913(a)(2) \$24.232(c)	§4.8 (RSS-Gen Issue 3) §4.4 (RSS-132) §6.4 (RSS-133)	ERP/ EIRP measurement	Compliant
§2.1049(h)	\$4.6.1 (RSS-Gen Issue 3) \$2.3 (RSS-133)	99% Occupied Bandwidth	Compliant
\$2.1051 \$22.917(a) \$24.238(a)	<pre>§4.9 (RSS-Gen Issue 3) §4.5 (RSS-132) §6.5 (RSS-133)</pre>	Out of Band Emissions at An- tenna Terminals and Band Edge	Compliant
\$2.1053 \$22.917(a) \$24.238(a)	<pre>§4.9 (RSS-Gen Issue 3) §4.5 (RSS-132) §6.5 (RSS-133)</pre>	Field Strength of Spurious Ra- diation	Compliant
\$2.1055(a)(1) \$22.355 \$24.235	<pre>§4.7 (RSS-Gen Issue 3) §4.3 (RSS-132) §6.3 (RSS-133)</pre>	Frequency Stability vs. Tem- perature	Compliant
\$2.1055(d)(2) \$22.355 \$24.235	<pre>§4.7 (RSS-Gen Issue 3) §4.3 (RSS-132) §6.3 (RSS-133)</pre>	Frequency Stability vs. Voltage	Compliant
N/A	<pre>§4.10 (RSS-Gen Issue 3) §4.6 (RSS-132) §6.6 (RSS-133)</pre>	Receiver Spurious Emissions	Compliant

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Max ERP/EIRP measurement result:

	dBm		W
GSM 850 Band	32.07	ERP	1.611
GSM 1900 Band	28.76	EIRP	0.752
EDGE 850 Band	29.29	ERP	0.849
EDGE 1900 Band	27.89	EIRP	0.615
WCDMA Band II	22.19	EIRP	0.166
HSUPA Band II	22.46	EIRP	0.176
HSDPA Band II	23.18	EIRP	0.208
WCDMA Band V	22.98	ERP	0.199
HSUPA Band V	22.61	ERP	0.182
HSDPA Band V	22.61	ERP	0.182

#### **DESCRIPTION OF TEST MODES** 4.

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 (H mode) and lie down position (E1, E2 mode) for GSM/GPRS/EDGE and WCDMA/HSDPA/HSUPA Band II and V with power adaptor. The worst-case of E2 position for GSM850/ GSM1900, H position for HSDPA Band II, E1 position for WCDMA Band V were reported.

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# 5. MEASUREMENT UNCERTAINTY FOR FIELD STRENGTH OF **SPURIOUS RADIATION**

100	
Maggurament un containtre	MHz -417MHz: 3.19dB
(Polarization : Vertical)	417GHz-1GHz: 3.19dB
	GHz - 18GHz: 4.04dB
18	GHz - 40GHz: 4.04dB

	30MHz - 167MHz: 4.22dB
Maagumamantumaantaintu	167MHz -500MHz: 3.44dB
Measurement uncertainty (Polarization : <b>Horizontal</b> )	0.5GHz-1GHz: 3.39dB
	1GHz - 18GHz: 4.08dB
	18GHz - 40GHz: 4.08dB

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## 6. RF POWER OUTPUT MEASUREMENT

## 6.1 Standard Applicable:

According to FCC §2.1046.

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

FCC 24.232(C) Peak Power Measurement to 2W.

3GPP Power limitation for HSDPA and HSUPA

Sub-test in table	Power	Class 3	Power Class 4		
C.10.1.4	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)	
1	+24	+1.7/-3.7	+21	+2.7/-2.7	
2	+24	+1.7/-3.7	+21	+2.7/-2.7	
3	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7	
4	+23.5	+2.2/-3.7	+20.5	+3.2/-2.7	

## Maximum Output Powers for HSDPA

## Maximum Output Powers for HSUPA

Sub-test in table	Power	Class 3	Power Class 4		
C.11.1.3	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)	
1	+24	+1.7/-6.7	+21	+2.7/-5.7	
2	+22	+3.7/-5.2	+19	+4.7/-4.2	
3	+23	+2.7/-5.2	+20	+3.7/-4.2	
4	+22	+3.7/-5.2	+19	+4.7/-4.2	
5	+24	+1.7/-6.7	+21	+2.7/-5.7	

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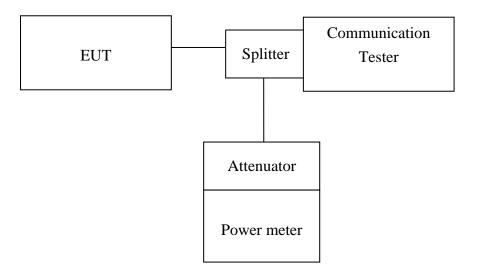
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## 6.2 Test Set-up:



Note: Measurement setup for testing on Antenna connector

## 6.3 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. The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA/HSDPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing

## 6.4 Measurement Equipment Used:

Refer to section 2.4 in this report

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#### 6.5 **Measurement Result:**

6.5.1 **RF Conducted Output Power** 

## 6.5.1.1. GSM/GPRS/EDGE (GMSK; 8-PSK)

### **Result:**

EUT Mode	Frequency	СН	Peak Power	Average Burst Power
LUI MOUE	(MHz)	CII	(dBm)	(dBm)
	824.2	128	34.00	33.20
GSM 850	836.6	190	34.00	33.30
	848.8	251	33.90	33.30

EUT Mode	Frequency	СН	Peak Power	Average Burst Power
EUT Mode	(MHz)	Сп	(dBm)	(dBm)
	1850.2	512	30.80	30.40
GSM 1900	1880.0	661	30.60	30.30
	1909.8	810	30.40	30.10

EUT Mode	Frequency (MHz)	СН	Peak Power (1DN 1UP) (dBm)	Average Burst Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Average Burst Power (1DN 2UP) (dBm)
	824.2	128	34.20	33.40	33.40	32.80
GPRS 850 (Class 10)	836.6	190	34.20	33.50	33.00	32.40
(01050-10)	848.8	251	34.20	33.50	33.00	32.40

EUT Mode	Frequency (MHz)	СН	Peak Power (1DN 1UP) (dBm)	Average Burst Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Average Burst Power (1DN 2UP) (dBm)
	1850.2	512	30.80	30.40	30.10	29.80
GPRS 1900 (Class 10)	1880.0	661	30.60	30.30	29.80	29.60
(01000 10)	1909.8	810	30.30	30.10	30.10	29.80

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EUT Mode	Frequency (MHz)	СН	Peak Power (1DN 1UP) (dBm)	Average Burst Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Average Burst Power (1DN 2UP) (dBm)
	824.2	128	30.40	27.10	29.10	25.90
EDGE 850 (Class 10)	836.6	190	30.40	27.10	29.30	26.00
(	848.8	251	30.40	27.20	29.30	26.10

EUT Mode	Frequency (MHz)	СН	Peak Power (1DN 1UP) (dBm)	Average Burst Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Average Burst Power (1DN 2UP) (dBm)
	1850.2	512	29.20	26.00	28.10	24.90
EDGE 1900 (Class 10)	1880.0	661	29.20	26.00	28.00	24.80
(22.050 20)	1909.8	810	28.90	25.70	27.80	24.60

offset: 0.9 dB

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## 6.5.1.2 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 (+1.7/-3.7). RMC 12.2kps is used for this testing.

## **Results:**

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Average Power (dBm)
	1852.4	9262	26.33	23.38
WCDMA Band II	1880.0	9400	26.51	23.48
2 011 0 11	1907.6	9538	26.33	23.14
EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Average Power (dBm)
	826.40	4132	26.73	23.56
WCDMA	836.60	4183	26.73	23.48
Band V	846.60	4233	26.57	23.44
			I	·
EUT Mode	Frequency	СН	Peak Power	Average Power
	(MHz)	CII	(dBm)	(dBm)
	1852.40	9262	26.19	22.89
HSDPA Band II	1880.00	9400	26.48	22.86
2 011 0 11	1907.60	9538	26.27	22.73
			[	
EUT Mode	Frequency	СН	Peak Power	Average Power
		-	(dBm)	(dBm)
	(MHz)		(uDill)	(ubiii)
HCDDA	(MHZ) 826.40	4132	26.47	23.07
HSDPA Band V	· · ·	4132 4183	. ,	. ,

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EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Average Power (dBm)
	1852.40	9262	25.83	22.45
HSUPA Band II	1880.00	9400	25.84	22.35
2010 11	1907.60	9538	25.86	22.25

EUT Mode	Frequency (MHz)	СН	Peak Power (dBm)	Average Power (dBm)
	826.40	4132	26.45	23.09
HSUPA Band V	836.60	4183	26.68	23.06
	846.60	4233	26.55	23.19

Note: The results above reflect max power with all up bits. offset: 0.5 dB

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## 6.5.1.3. HSDPA Release 6 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 RMS 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>	$\beta_d$	β <sub>d</sub> (SF)	$\beta_c/\beta_d$	β <sub>HS</sub> (Note1, Note 2)	<b>CM (dB)</b> (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	S Power (d Channel	lBm)	Power Class 3	Comments
		9262	9400	9538	Limitation (dBm)	
	1	23.55	23.37	23.00	20.3dBm – 25.7dBm	Pass
HSDPA B2	2	23.26	23.34	22.99	20.3dBm – 25.7dBm	Pass
nsdfa d2	3	23.07	22.92	22.47	19.8dBm – 25.7dBm	Pass
	4	23.14	22.93	22.59	19.8dBm – 25.7dBm	Pass

Mode	Sub-test	RMS	Power (d Channel	Bm)	Power Class 3	Comments
		4132	4172	4233	Limitation (dBm)	
	1	23.35	23.34	23.56	20.3dBm – 25.7dBm	Pass
HSDPA B5	2	23.49	23.37	23.31	20.3dBm – 25.7dBm	Pass
пбрга бб	3	22.89	22.86	23.07	19.8dBm – 25.7dBm	Pass
	4	22.94	22.90	23.13	19.8dBm – 25.7dBm	Pass

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## 6.5.1.4.: 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 RMS 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	β <sub>c</sub>	β <sub>d</sub>	β <sub>d</sub> (SF)	$\beta_c/\beta_d$	$\beta_{\rm HS}$	β <sub>ec</sub>	$\beta_{ed}$	β <sub>ed</sub> (SF)	$\beta_{ed} \\ (Codes)$	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	209/225	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	$\beta_{ed}$ 1: 47/15 $\beta_{ed}$ 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

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

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Mode	Sub-test	RM	S Power (d Channel	Bm)	Power Class 3	Comments	
		9262	9400	9538	Limitation (dBm)		
	1	23.30	23.46	23.08	17.3dBm – 25.7dBm	Pass	
	2	21.35	21.53	21.12	16.8dBm – 25.7dBm	Pass	
HSUPA B2	3	22.36	22.48	22.16	17.8dBm – 25.7dBm	Pass	
	4	21.48	21.58	21.16	16.8dBm – 25.7dBm	Pass	
	5	23.19	23.32	22.99	17.3dBm – 25.7dBm	Pass	

Mode	Sub-test	RMS	S Power (d Channel	Bm)	Power Class 3	Comments
		4132	4172	4233	Limitation (dBm)	
	1	23.52	23.41	23.36	17.3dBm – 25.7dBm	Pass
	2	21.58	21.49	21.40	16.8dBm – 25.7dBm	Pass
HSUPA B5	3	22.56	22.47	22.44	17.8dBm – 25.7dBm	Pass
	4	21.63	21.55	21.48	16.8dBm – 25.7dBm	Pass
	5	23.38	23.24	23.25	17.3dBm – 25.7dBm	Pass

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6.5.2. Minir	num Comm	unications Pov	ver Measurement
		unications 1 0	ci measurement

PCS 1900 band

PCL	0	1	2	3		4		5	6	7	8
Output power (dBm)	30.4	30.4	30.4	30.	4	28.4	2	6.4	24.6	22.4	20.2
PCL	9	10	11	12	13	14	4	15	16	17	18
Output power (dBm)	18.3	16.6	14.5	12.4	10.4	8.	9	6.6	4.6	2.5	0.5

Note: The EUT output power was controlled by simulator. Set Communication Tester CMU200 PCL as above, and get the mobile phone output power reading.

## WCDMA/HSDPA band II / 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 19 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.

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## 7. ERP, EIRP MEASUREMENT

## 7.1. Standard Applicable:

According to FCC §2.1046

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

FCC 24.232(b) Mobile station are limited to 2W EIRP.

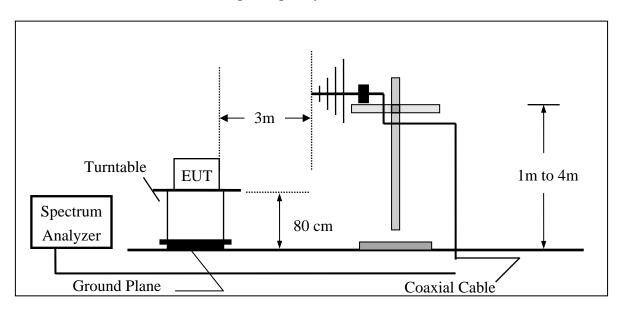
According to IC RSS-133 §6.4

The peak e.i.r.p. for transmitters operating in the band 1850-1910 MHz shall not exceed the limits 2W which given in SRSP-510.

According to issue 2 of RSS 132, section 4.4. The transmitter output power shall not exceed the limits given in SRSP-503.

## 7.2. 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.

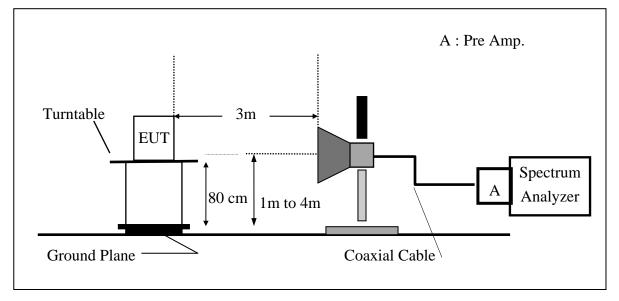
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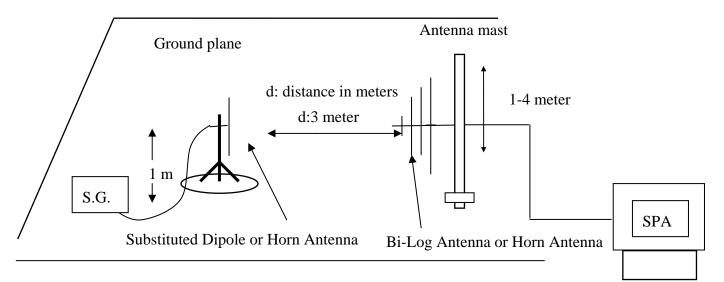


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## (B) Radiated Emission Test Set-UP Frequency Over 1 GHz

## (C) Substituted Method Test Set-UP



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## 7.3. Measurement Procedure:

The EUT was placed on an 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 824.2 –848.80MHz 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:

EIRP in frequency band 1710-1755MHz and 1850.2 –1909.8MHz were measured using a substitution method. The EUT was replaced by a horn antenna connected, the S.G. output was recorded and EIRP 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)

## 7.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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## 7.5. Measurement Result:

EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)		Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			TT	V	126.90	40.51	-7.87	3.62	29.01	38.45
			Н	Н	119.08	32.81	-7.87	3.62	21.31	38.45
	824.20	128	<b>F</b> 1	V	119.19	32.80	-7.87	3.62	21.30	38.45
	024.20	120	E1	Н	128.08	41.81	-7.87	3.62	30.31	38.45
			E2	V	118.48	32.09	-7.87	3.62	20.59	38.45
			ΕZ	Н	128.94	42.67	-7.87	3.62	31.17	38.45
			Н	V	127.80	41.55	-7.88	3.65	30.02	38.45
		190	п	Н	118.85	32.62	-7.88	3.65	21.09	38.45
GSM	836.60		E1	V	120.08	33.83	-7.88	3.65	22.30	38.45
850	830.00		190 EI	Н	128.54	42.31	-7.88	3.65	30.78	38.45
			E2	V	118.70	32.45	-7.88	3.65	20.92	38.45
			ĽΖ	Н	129.44	43.21	-7.88	3.65	31.68	38.45
			и	V	127.71	41.59	-7.88	3.68	30.03	38.45
		848.80 251 E1 E2	11	Н	120.34	34.15	-7.88	3.68	22.59	38.45
	848.80		F1	V	120.83	34.71	-7.88	3.68	23.15	38.45
	848.80 251		Н	128.96	42.77	-7.88	3.68	31.21	38.45	
			E2	V	117.88	31.76	-7.88	3.68	20.20	38.45
			ĽZ	Н	129.82	43.63	-7.88	3.68	32.07	38.45

**Remark**:

(1)The RBW, VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
			Н	V	128.25	23.86	9.90	5.56	28.20	33.00
			п	Н	127.77	23.59	9.90	5.56	27.93	33.00
	1850.20	512	E1	V	125.71	21.32	9.90	5.56	25.66	33.00
	1630.20	512	EI	Н	125.74	21.56	9.90	5.56	25.90	33.00
			E2	V	121.78	17.39	9.90	5.56	21.73	33.00
			E2	Н	128.59	24.41	9.90	5.84	28.47	33.00
			Н	V	127.90	23.54	9.99	5.61	27.92	33.00
	GSM 1880.00 66		п	Н	127.91	23.77	9.99	5.61	28.14	33.00
GSM		661	51 E1 E2	V	126.07	21.71	9.99	5.61	26.09	33.00
1900	1880.00	001		Н	124.69	20.55	9.99	5.61	24.92	33.00
				V	121.30	16.94	9.99	5.61	21.32	33.00
			ĽΖ	Н	128.53	24.39	9.99	5.61	28.76	33.00
			Н	V	125.74	21.41	10.08	5.66	25.83	33.00
			11	Н	126.30	22.19	10.08	5.66	26.61	33.00
	1909.80 810	810	E1	V	124.51	20.18	10.08	5.66	24.60	33.00
		010		Н	123.55	19.44	10.08	5.66	23.86	33.00
			БЭ	V	120.50	16.17	10.08	5.66	20.59	33.00
			E2	Н	126.98	22.87	10.08	5.66	27.29	33.00

### **Remark** :

(1) The RBW, VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			Н	V	125.32	38.93	-7.87	3.62	27.43	38.45
			п	Н	118.95	32.68	-7.87	3.62	21.18	38.45
	824.20	128	E1	V	117.09	30.70	-7.87	3.62	19.20	38.45
	024.20	120	EI	Н	125.62	39.35	-7.87	3.62	27.85	38.45
			E2	V	112.53	26.14	-7.87	3.62	14.64	38.45
			E2	Н	127.06	40.79	-7.87	3.62	29.29	38.45
		190	Н	V	125.47	39.22	-7.88	3.65	27.69	38.45
				Н	119.11	32.88	-7.88	3.65	21.35	38.45
EDGE	836.60		E1	V	117.42	31.17	-7.88	3.65	19.64	38.45
850				Н	125.81	39.58	-7.88	3.65	28.05	38.45
			E2	V	113.60	27.35	-7.88	3.65	15.82	38.45
				Н	126.84	40.61	-7.88	3.65	29.08	38.45
			тт	V	125.07	38.95	-7.88	3.68	27.39	38.45
			Н	Н	119.31	33.12	-7.88	3.68	21.56	38.45
	040.00	251	E1	V	117.20	31.08	-7.88	3.68	19.52	38.45
	848.80		EI	Н	125.60	39.41	-7.88	3.68	27.85	38.45
			БЭ	V	114.68	28.56	-7.88	3.68	17.00	38.45
			E2	Н	126.25	40.06	-7.88	3.68	28.50	38.45

### **Remark** :

(1) The RBW, VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
			Н	V	127.93	23.54	9.90	5.56	27.88	33.00
			п	Н	126.08	21.90	9.90	5.56	26.24	33.00
	1850.20	512	E1	V	126.17	21.78	9.90	5.56	26.12	33.00
	1630.20	512	EI	Н	124.21	20.03	9.90	5.56	24.37	33.00
			E2	V	121.37	16.98	9.90	5.56	21.32	33.00
			E2	Н	127.84	23.66	9.90	5.84	27.72	33.00
	1880.00	661	Н	V	127.40	23.04	9.99	5.61	27.42	33.00
				Н	125.35	21.21	9.99	5.61	25.58	33.00
EDGE			E1	V	125.44	21.08	9.99	5.61	25.46	33.00
1900				Н	124.43	20.29	9.99	5.61	24.66	33.00
			E2	V	120.83	16.47	9.99	5.61	20.85	33.00
				Н	127.66	23.52	9.99	5.61	27.89	33.00
			и	V	126.09	21.76	10.08	5.66	26.18	33.00
		810	Н	Н	123.71	19.60	10.08	5.66	24.02	33.00
	1909.80		E1	V	124.05	19.72	10.08	5.66	24.14	33.00
	1909.80		EI	Н	123.12	19.01	10.08	5.66	23.43	33.00
			E2	V	119.82	15.49	10.08	5.66	19.91	33.00
				Н	126.25	22.14	10.08	5.66	26.56	33.00

### **Remark** :

(1) The RBW, VBW of SPA for frequency RBW=300 KHz, VBW=1MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
			п	V	121.93	17.55	9.90	5.56	21.88	33.00
			Н	Н	119.94	15.76	9.90	5.56	20.10	33.00
	1852.40	9262	E1	V	120.27	15.89	9.90	5.56	20.22	33.00
	1652.40	9202	LI	Н	119.15	14.97	9.90	5.56	19.31	33.00
			E2	V	117.80	13.42	9.90	5.56	17.75	33.00
			E2	Н	121.36	17.18	9.90	5.84	21.24	33.00
	1880.00	9400	H E1	V	121.69	17.33	9.99	5.61	21.71	33.00
				Н	119.71	15.57	9.99	5.61	19.94	33.00
WCDMA				V	119.40	15.01	9.90	5.56	19.35	33.00
Band II				Н	117.95	13.81	9.99	5.61	18.18	33.00
			E2	V	118.18	13.82	9.99	5.61	18.20	33.00
				Н	121.73	17.59	9.99	5.61	21.96	33.00
			Н	V	122.11	17.78	10.07	5.66	22.19	33.00
			11	Н	120.13	16.02	10.07	5.66	20.43	33.00
	1907.60	9538	E1	V	119.82	15.49	10.07	5.66	19.90	33.00
	1907.00	9538	EI	Н	118.07	13.96	10.07	5.66	18.37	33.00
			E2	V	118.83	14.50	10.07	5.66	18.91	33.00
			ĽZ	Н	121.77	17.66	10.07	5.66	22.07	33.00

### **Remark** :

(1)The RBW, VBW of SPA for frequency RBW= 5MHz, VBW= 8MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			Н	V	17.68	3.97	-4.22	17.42	38.45
			п	Н	18.78	3.97	-4.22	18.53	38.45
	826.40	4132	E1	V	18.34	4.00	-4.24	18.10	38.45
	820.40	4152	EI	Н	11.71	4.00	-4.24	11.47	38.45
			E2	V	17.87	4.02	-4.24	17.65	38.45
			E2	Н	11.65	4.02	-4.24	11.43	38.45
		4183	H E1	V	14.65	3.97	-4.22	14.39	38.45
				Н	22.95	3.97	-4.22	22.69	38.45
WCDMA	836.60			V	14.32	3.99	-4.24	14.08	38.45
Band V				Н	23.22	3.99	-4.24	22.98	38.45
			E2	V	13.79	4.02	-4.24	13.57	38.45
				Н	22.80	4.02	-4.24	22.58	38.45
			Н	V	14.13	3.97	-4.22	13.88	38.45
			п	Н	17.84	3.97	-4.22	17.59	38.45
	846.60	1722	<b>E</b> 1	V	12.84	3.99	-4.24	12.60	38.45
	840.00	4233	E1	Н	17.87	3.99	-4.24	17.63	38.45
			E2	V	13.52	4.03	-4.33	13.22	38.45
				Н	18.00	4.02	-4.24	17.78	38.45

### **Remark** :

(1)The RBW, VBW of SPA for frequency RBW= 5MHz, VBW= 8MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
			Н	V	118.27	13.89	9.90	5.56	18.22	33.00
			п	Н	120.37	16.19	9.90	5.56	20.53	33.00
	1852.40	9262	E1	V	119.61	15.23	9.90	5.56	19.56	33.00
	1652.40	9202	EI	Н	115.25	11.07	9.90	5.56	15.41	33.00
			E2	V	113.47	9.09	9.90	5.56	13.42	33.00
				Н	122.54	18.36	9.90	5.84	22.42	33.00
	1880.00	9400	Н	V	118.86	14.50	9.99	5.61	18.88	33.00
				Н	120.86	16.72	9.99	5.61	21.09	33.00
HSUPA			E1	V	118.73	14.34	9.90	5.56	18.68	33.00
Band II				Н	116.13	11.99	9.99	5.61	16.36	33.00
			E2	V	114.31	9.95	9.99	5.61	14.33	33.00
				Н	122.23	18.09	9.99	5.61	22.46	33.00
			Н	V	118.99	14.66	10.07	5.66	19.07	33.00
			п	Н	121.24	17.13	10.07	5.66	21.54	33.00
	1907.60	9538	E1	V	118.91	14.58	10.07	5.66	18.99	33.00
	1907.00		EI	Н	118.31	14.20	10.07	5.66	18.61	33.00
			E2	V	115.90	11.57	10.07	5.66	15.98	33.00
				Н	121.86	17.75	10.07	5.66	22.16	33.00

### **Remark** :

(1)The RBW, VBW of SPA for frequency RBW= 5MHz, VBW= 8MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			Н	V	18.83	3.97	-4.22	18.57	38.45
			п	Н	18.79	3.97	-4.22	18.53	38.45
	826.40	4132	E1	V	17.97	4.00	-4.24	17.73	38.45
	820.40	4152	EI	Н	12.01	4.00	-4.24	11.77	38.45
			БJ	V	18.84	4.02	-4.24	18.62	38.45
			E2	Н	12.09	4.02	-4.24	11.87	38.45
		4183	Н	V	14.24	3.97	-4.22	13.99	38.45
				Н	22.30	3.97	-4.22	22.04	38.45
HSUPA	836.60		E1	V	14.84	3.99	-4.24	14.60	38.45
Band V				Н	22.85	3.99	-4.24	22.61	38.45
			E2	V	14.58	4.02	-4.24	14.37	38.45
				Н	22.46	4.02	-4.24	22.25	38.45
			ц	V	14.76	3.97	-4.22	14.51	38.45
			H —	Н	18.32	3.97	-4.22	18.07	38.45
	846.60	4233	E1	V	14.05	3.99	-4.24	13.80	38.45
	040.00	4233	EI	Н	18.09	3.99	-4.24	17.85	38.45
			E2	V	13.46	4.02	-4.24	13.25	38.45
				Н	18.83	4.02	-4.33	18.52	38.45

### **Remark** :

(1)The RBW, VBW of SPA for frequency RBW= 5MHz, VBW= 8MHz

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
			П	V	120.01	15.63	9.90	5.56	19.96	33.00
			Н	Н	121.96	17.78	9.90	5.56	22.12	33.00
	1852.40	9262	E1	V	120.94	16.56	9.90	5.56	20.89	33.00
	1652.40	9202	EI	Н	119.87	15.69	9.90	5.56	20.03	33.00
			E)	V	116.15	11.77	9.90	5.56	16.10	33.00
			E2	Н	122.76	18.58	9.90	5.84	22.64	33.00
		9400	H 0 E1	V	119.97	15.61	9.99	5.61	19.99	33.00
				Н	122.32	18.18	9.99	5.61	22.55	33.00
HSDPA	1880.00			V	121.17	16.78	9.90	5.56	21.12	33.00
Band II	1000.00			Н	119.85	15.71	9.99	5.61	20.08	33.00
			E2	V	116.26	11.90	9.99	5.61	16.28	33.00
				Н	122.72	18.58	9.99	5.61	22.95	33.00
			Н	V	120.14	15.81	10.07	5.66	20.22	33.00
			11	Н	122.88	18.77	10.07	5.66	23.18	33.00
1007	1907.60	9538	E1	V	121.24	16.91	10.07	5.66	21.32	33.00
	1707.00	1550		Н	119.39	15.28	10.07	5.66	19.69	33.00
			E2	V	116.69	12.36	10.07	5.66	16.77	33.00
			E2	Н	122.73	18.62	10.07	5.66	23.03	33.00

### **Remark** :

(1)The RBW, VBW of SPA for frequency RBW= 5MHz, VBW= 8MHz

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### **FCC ID: NM8PI06130** IC: 4115B-PI06130

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EUT Mode	Frequency (MHz)	СН	EUT Pol.	Antenna Pol.	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
			Н	V	18.83	3.97	-4.22	18.58	38.45
			п	Н	18.72	3.97	-4.22	18.47	38.45
	826.40	4132	E1	V	18.23	4.00	-4.24	18.00	38.45
	820.40	4152	EI	Н	12.22	4.00	-4.24	11.98	38.45
			БJ	V	18.84	4.02	-4.24	18.62	38.45
			E2	Н	12.09	4.02	-4.24	11.87	38.45
		4183	H 183 E1	V	14.24	3.97	-4.22	13.98	38.45
				Н	22.19	3.97	-4.22	21.94	38.45
HSDPA	836.60			V	14.89	3.99	-4.24	14.65	38.45
Band V	830.00			Н	22.85	3.99	-4.24	22.61	38.45
			E2	V	14.57	4.02	-4.24	14.35	38.45
				Н	22.44	4.02	-4.24	22.22	38.45
			Н	V	14.83	3.97	-4.22	14.58	38.45
			11	Н	18.25	3.97	-4.22	17.99	38.45
946.6	846.60	4233	E1	V	13.87	3.99	-4.24	13.63	38.45
	040.00	4233	EI	Н	18.70	3.99	-4.24	18.46	38.45
			E2	V	13.54	4.02	-4.33	13.24	38.45
			ĽZ	Н	18.38	4.02	-4.24	18.17	38.45

### **Remark** :

(1)The RBW, VBW of SPA for frequency RBW= 5MHz, VBW= 8MHz

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## 8. 99% OCCUPIED BANDWIDTH MEASUREMENT

### 8.1. Standard Applicable:

According to §FCC 2.1049. According to IC RSS-Gen Issue 3 §4.6.1 According to IC RSS-133 §2.3

### 8.2. Test Set-up:

Refer to section 5.2 in this report

### 8.3. Measurement Procedure:

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW, -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.

### 8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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## 8.5. Measurement Result:

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (KHz)
GSM 850	824.20	128	245.2236
	836.60	190	247.7951
	848.80	251	245.4182

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (KHz)
GSM 1900	1850.20	512	243.5979
	1880.00	661	243.2435
	1909.80	810	244.3901

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (KHz)
GPRS 850	824.20	128	247.9550
	836.60	190	241.9267
	848.80	251	241.6984

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (KHz)
GPRS 1900	1850.20	512	241.2719
	1880.00	661	244.6481
	1909.80	810	243.4733

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (KHz)
EDGE 850	824.20	128	258.1048
	836.60	190	247.1105
	848.80	251	247.9597

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (KHz)
EDGE 1900	1850.20	512	239.0208
	1880.00	661	243.3243
	1909.80	810	243.0454

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EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
WCDMA Band II	1852.40	9262	4.1299
	1880.00	9400	4.1417
	1907.60	9538	4.1229

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
WCDMA Band V	826.40	4132	4.2020
	836.60	4183	4.2388
	846.60	4233	4.2049

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSUPA Band II	1852.40	9262	4.1647
	1880.00	9400	4.1502
	1907.60	9538	4.1350

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSUPA Band V	826.40	4132	4.1930
	836.60	4183	4.1809
	846.60	4233	4.1813

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSDPA Band II	1852.40	9262	4.1434
	1880.00	9400	4.1582
	1907.60	9538	4.1230

EUT Mode	Frequency (MHz)	СН	99% Bandwidth (MHz)
HSDPA Band V	826.40	4132	4.1865
	836.60	4183	4.1830
	846.60	4233	4.1880

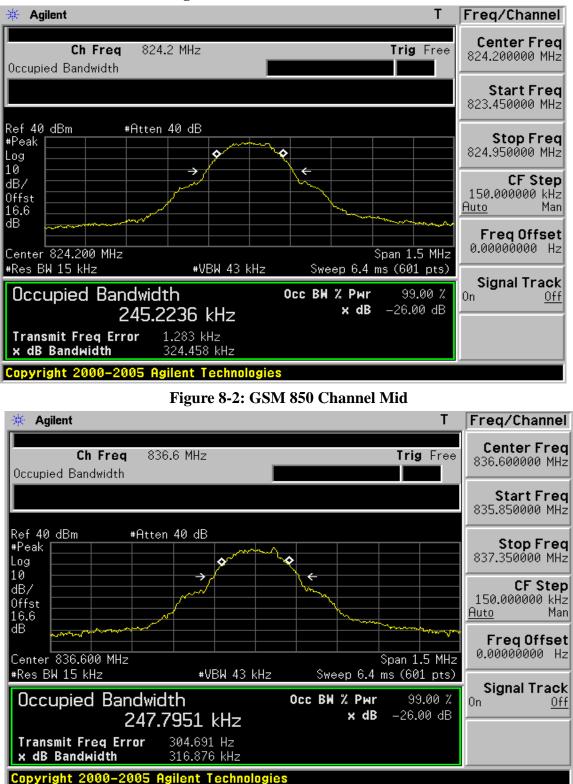
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Figure 8-1: GSM 850 Channel Low



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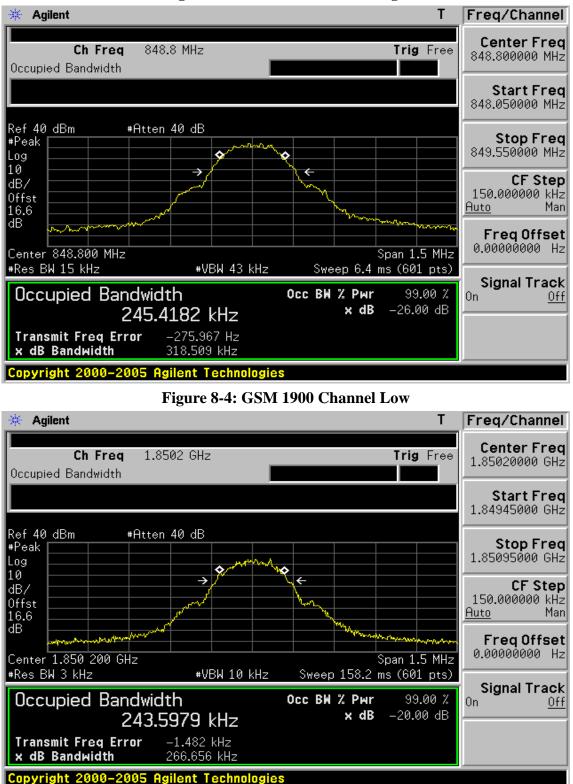
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Figure 8-3: GSM 850 Channel High



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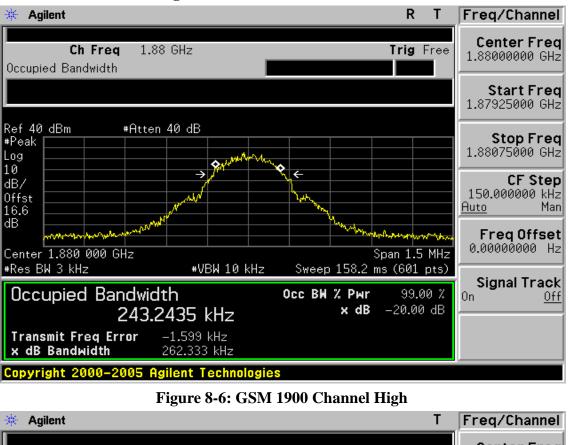
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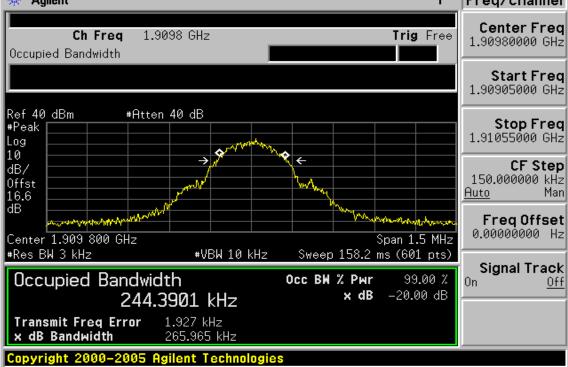
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Figure 8-5: GSM 1900 Channel Mid





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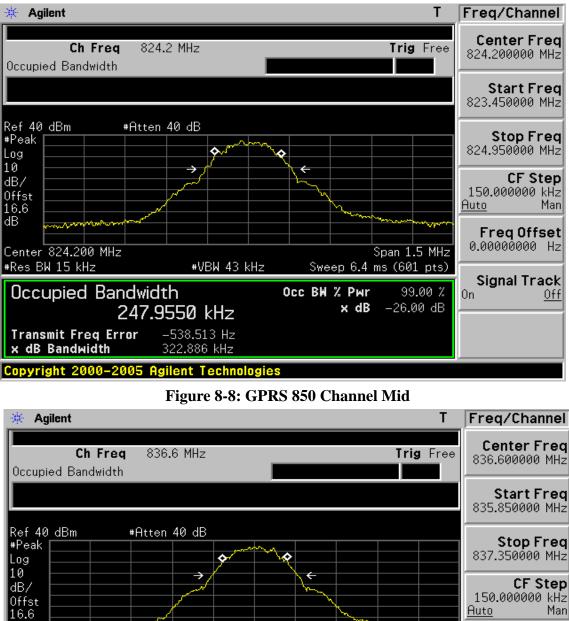
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Figure 8-7: GPRS 850 Channel Low



dΒ Freq Offset 0.00000000 Hz Center 836.600 MHz Span 1.5 MHz #Res BW 15 kHz #VBW 43 kHz Sweep 6.4 ms (601 pts) Signal Track Occupied Bandwidth Occ BW % Pwr 99.00 % 0n Off x dB -26.00 dB 241.9267 kHz Transmit Freq Error 1.490 kHz x dB Bandwidth 317.889 kHz Copyright 2000-2005 Agilent Technologies

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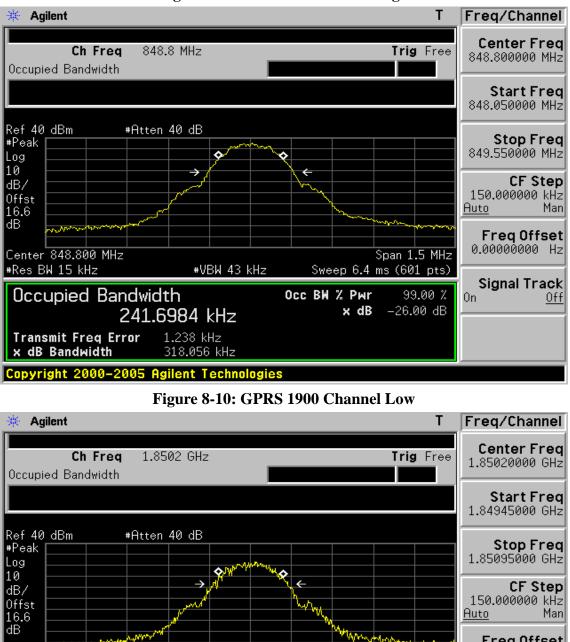
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Figure 8-9: GPRS 850 Channel High



-pane Freq Offset 0.00000000 Hz Center 1.850 200 GHz Span 1.5 MHz #Res BW 3 kHz #VBW 10 kHz Sweep 158.2 ms (601 pts) Signal Track Occupied Bandwidth Occ BW % Pwr 99.00 % 0n Off x dB -20.00 dB 241.2719 kHz Transmit Freq Error 1.698 kHz x dB Bandwidth 278.291 kHz Copyright 2000-2005 Agilent Technologies

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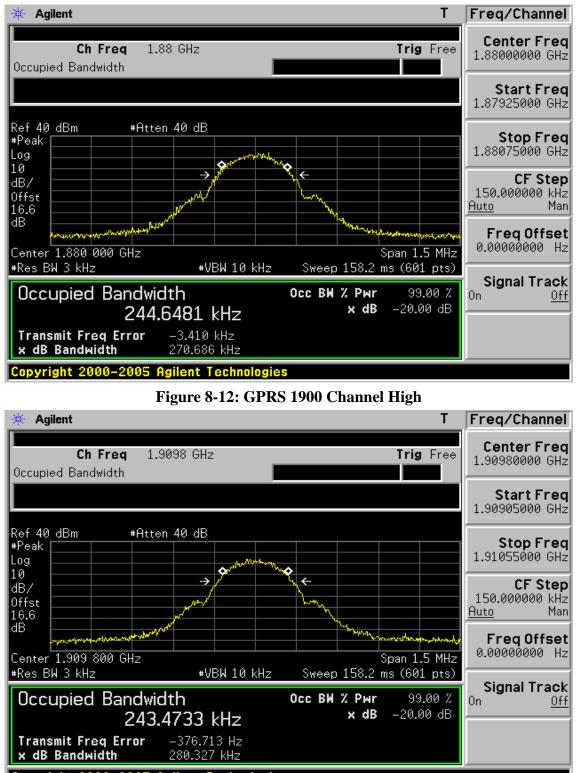
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Figure 8-11 GPRS 1900 Channel Mid



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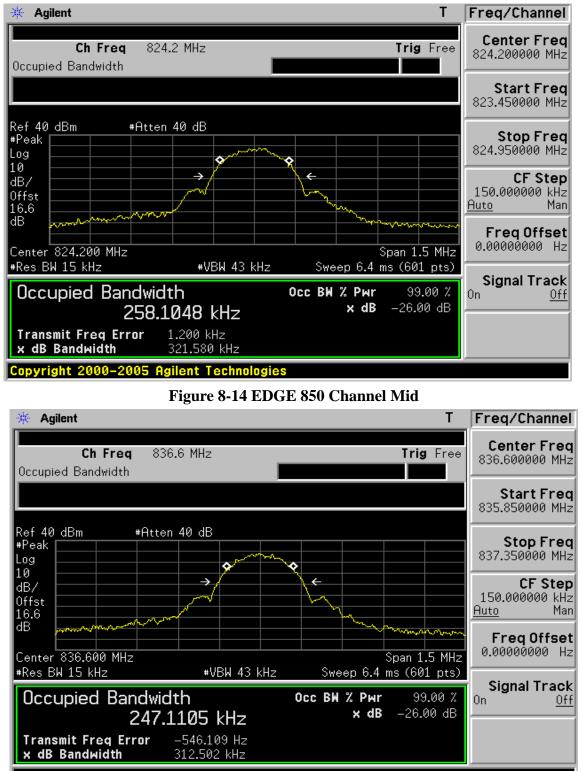
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Figure 8-13: EDGE 850 Channel Low



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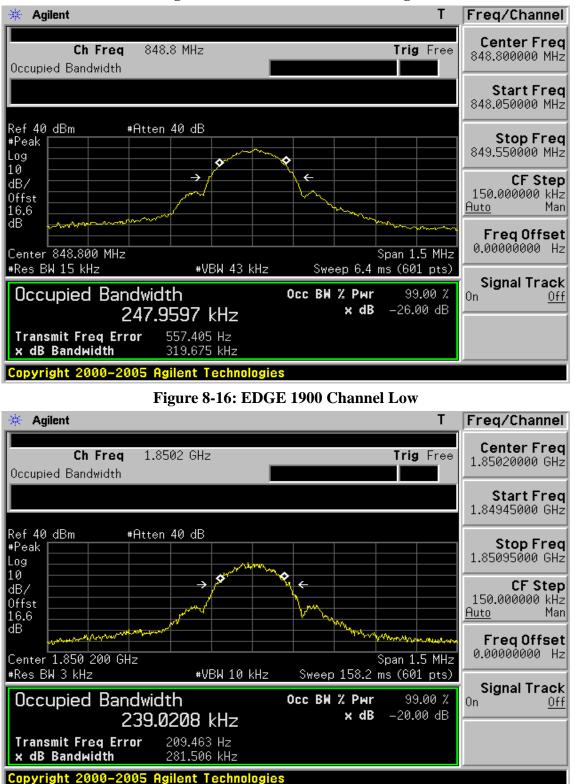
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Figure 8-15: EDGE 850 Channel High



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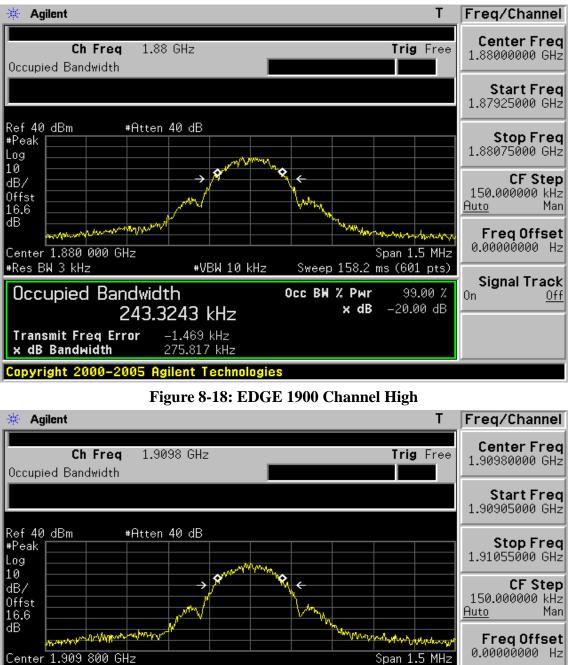
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Figure 8-17 EDGE 1900 Channel Mid



Center 1.909 800 GHz			opan 1.5 MHz	0.00000000	Hz
#Res BW 3 kHz	₩VBW 10 kHz	Sweep 158.2 n	ns (601 pts)	Cinnal Tu	1
Occupied Bandwi 243	dth .0454 kHz	Осс ВЖ % Рwr x dB	99.00 % -20.00 dB	On Signal Tr	аск <u>Off</u>
Transmit Freq Error × dB Bandwidth					
Convright 2000-2005	Agilent Technologie	8			

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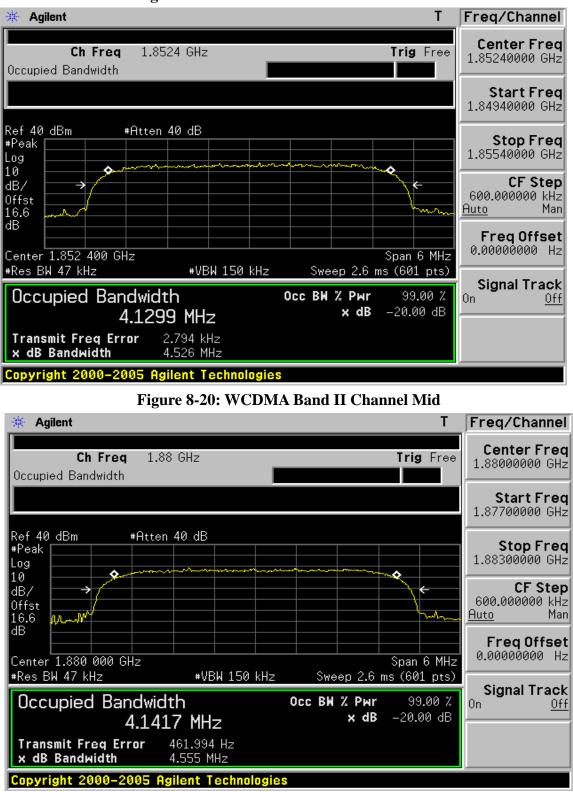


Figure 8-19: WCDMA Band II Channel Low

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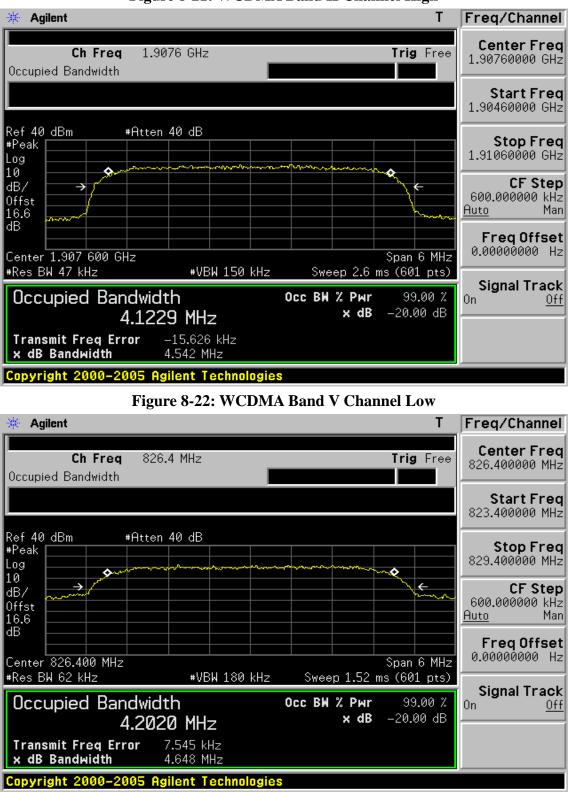


Figure 8-21: WCDMA Band II Channel High

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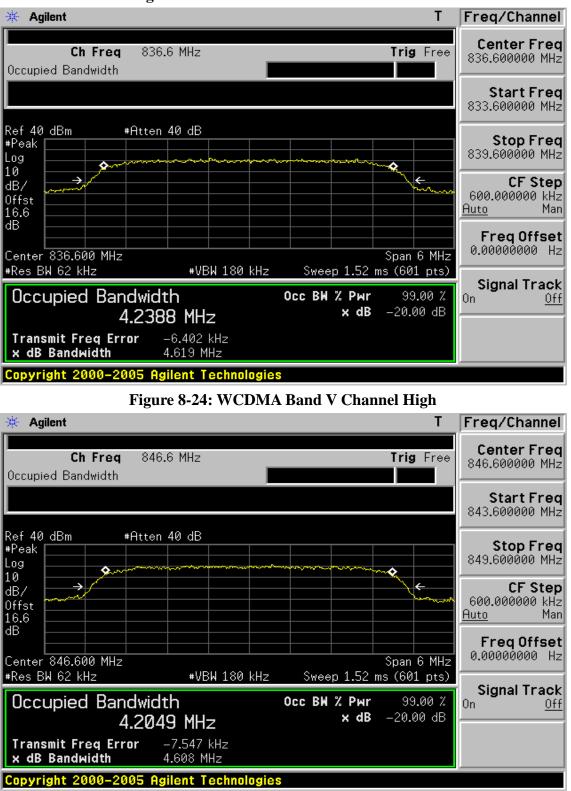


Figure 8-23: WCDMA Band V Channel Mid

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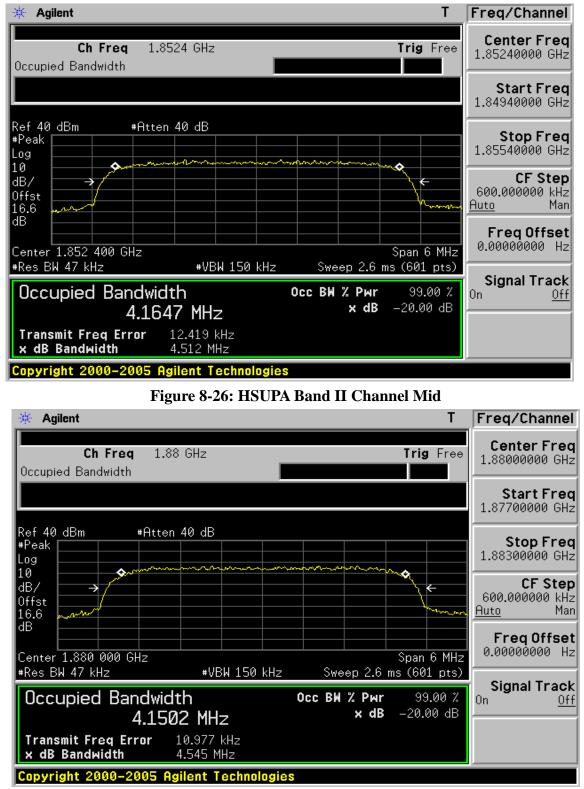
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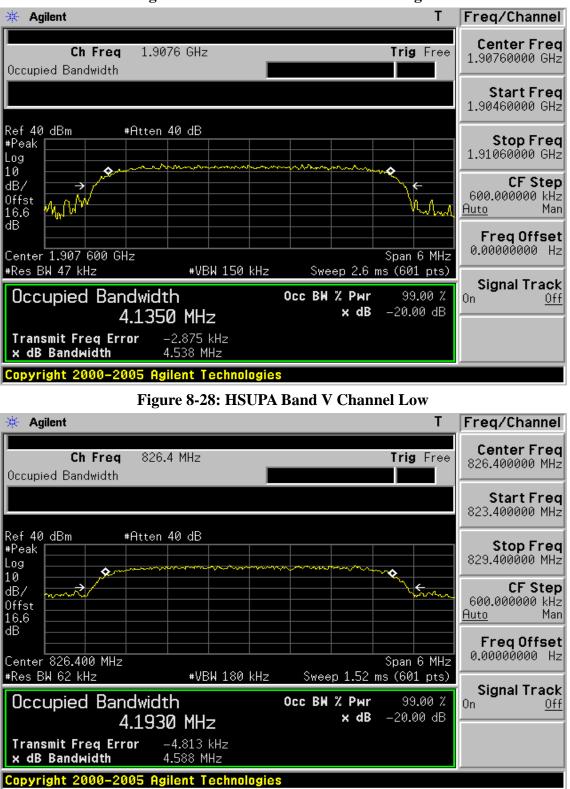


Figure 8-27: HSUPA Band II Channel High

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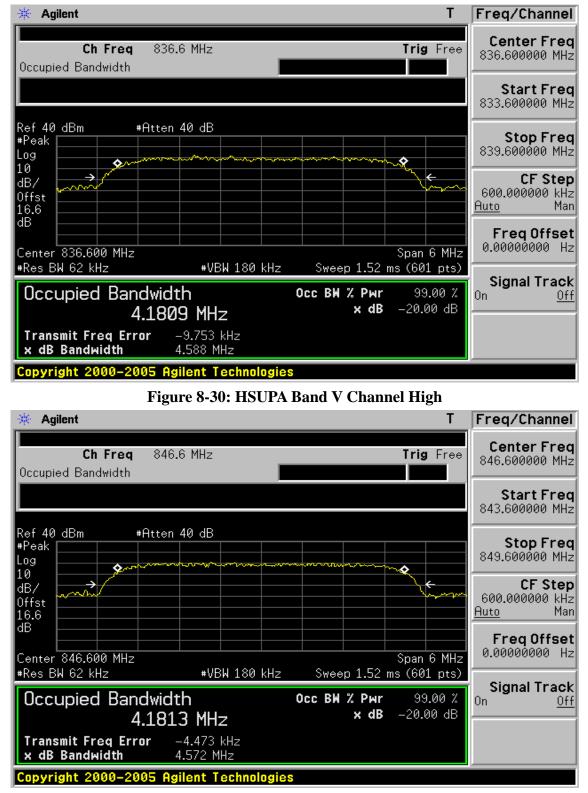
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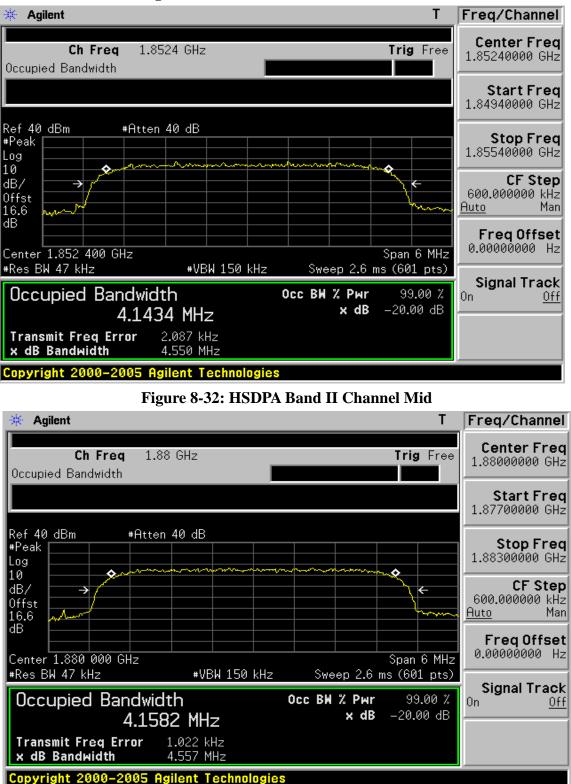


Figure 8-31: HSDPA Band II Channel Low

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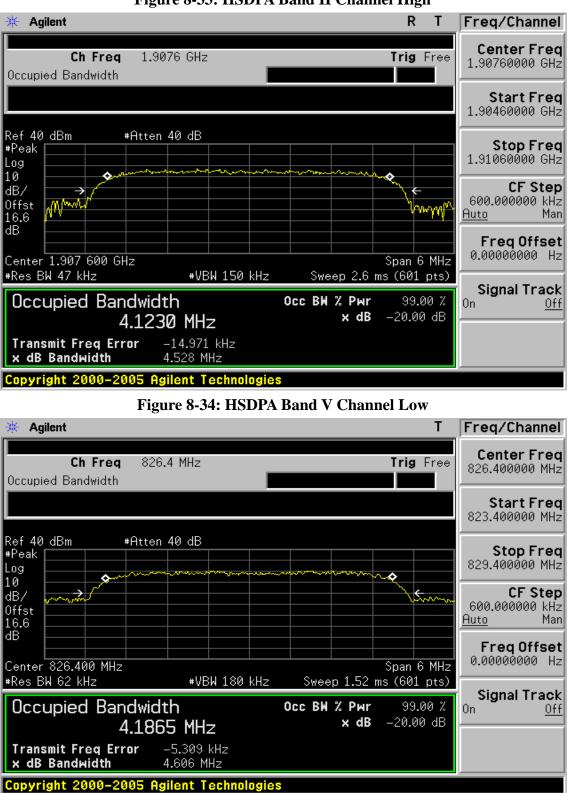


Figure 8-33: HSDPA Band II Channel High

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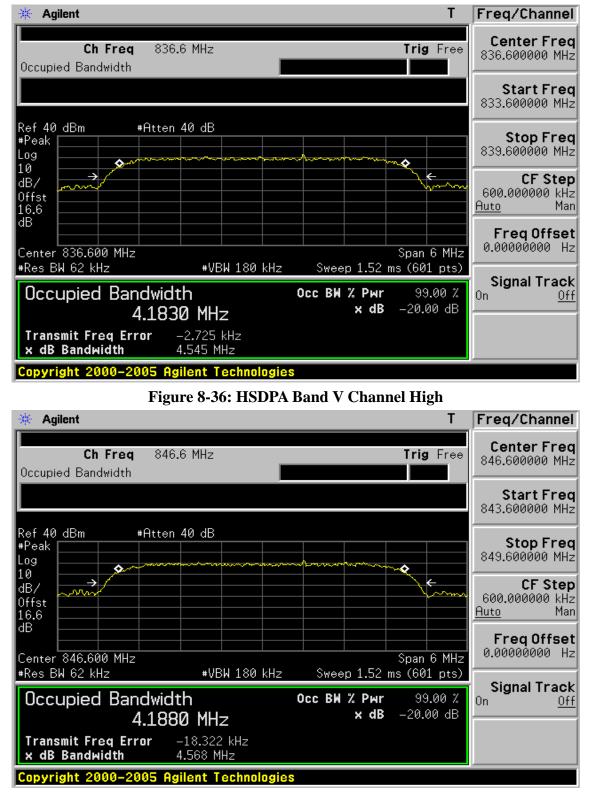
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## 9. OUT OF BAND EMISSION AT ANTENNA TERMINALS

### 9.1. 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)

According to RSS-132 §4.5

4.5.1 Out-of-block Emissions

Mobile and base station equipment with emission bandwidth less than or equal to 4 MHz shall comply with 4.5.1.1. Mobile station equipment with emission bandwidth greater than 4 MHz shall comply with 4.5.1.2. Base station equipment with emission bandwidth greater than 4 MHz shall comply with either 4.5.1.2 or 4.5.1.3.

4.5.1.1 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least  $43 + 10 \log (P)$ , dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least

43 + 10 log (P), dB, in any 100 kHz bandwidth.

4.5.1.2 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least  $43 + 10 \log (P)$ , dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least

 $43 + 10 \log (P)$ , dB, in any 1 MHz bandwidth

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According to RSS-133 §6.5

6.5.1 Out-of-Block Emissions

a. Mobile stations must comply with subsection i. below.

In the first 1.0MHz band immediately outside and adjacent to the licensee's frequency block. the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least  $43 + 10 \log (P) dB$ .

b. After the first 1.0 MHz (for equipment that complies with a.i. of this subsection) or 1.5 MHz (for equipment that complies with all of this subsection), the power of emissions shall be attenuated below the transmitter output power by at least  $43 + 10 \log (P)$ , dB, per any MHz of bandwidth.

(Note: If the test result using 1% of the emission bandwidth is used, then power integration over 1.0 MHz is required; alternatively, the spectrum analyzer resolution and video bandwidths can be increased to 1.0 MHz for this measurement).

6.5.2 Out-of-Sub-band Emissions

Outside the sub-bands 1850-1910 MHz and 1930-1990 MHz, the attenuation shall be equal to or greater than the out-of-block emission limits in Section 6.5.1.

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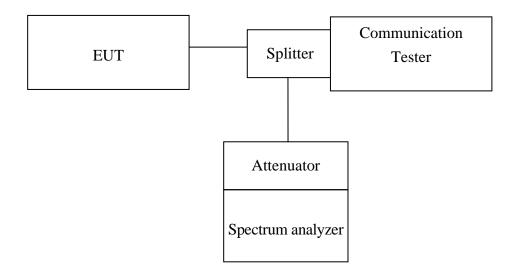
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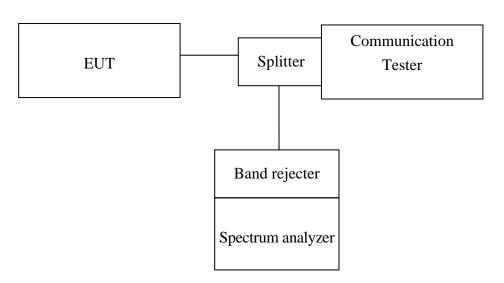
**FCC ID: NM8PI06130** IC: 4115B-PI06130

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## 9.2. Test SET-UP: Out of band emission



**Band Edge** 



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### 9.3. 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.

### **Conducted Emission:**

- 1 To connect Antenna Port of EUT to Spectrum.
- $2 \cdot \text{Set RBW} = 1 \text{MHz} \& \text{VBW} = 1 \text{MHz} \text{ on Spectrum.}$
- 3 Sweep the frequency to determine spurious emission as seen on spectrum from span of 30 to 1G, 1G to 2.5G, 2.5G to 7.5G, 7.5G to 10G, 10G to 15G and 15G to 20GHz
- 4 Via Software, combine 6 spans of frequency range into one plot

### 9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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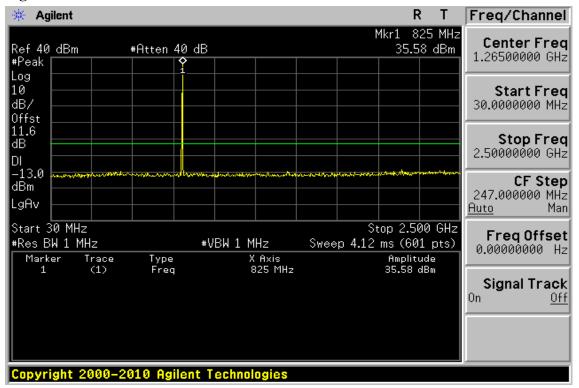
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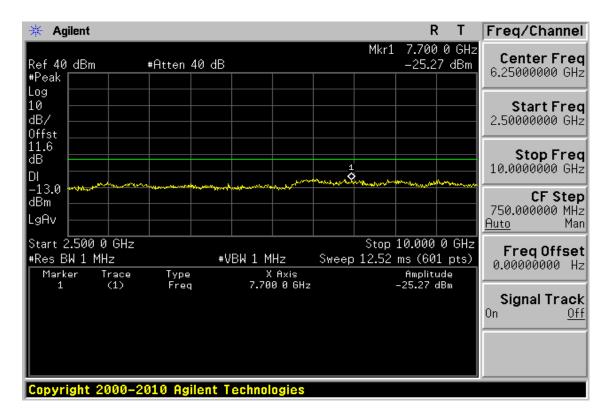


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### 9.5. Measurement Result:

Figure 9-1: Out of Band emission at antenna terminals – GSM 850 Channel Lowest





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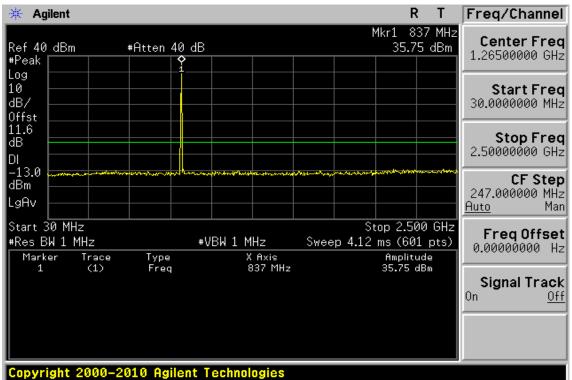
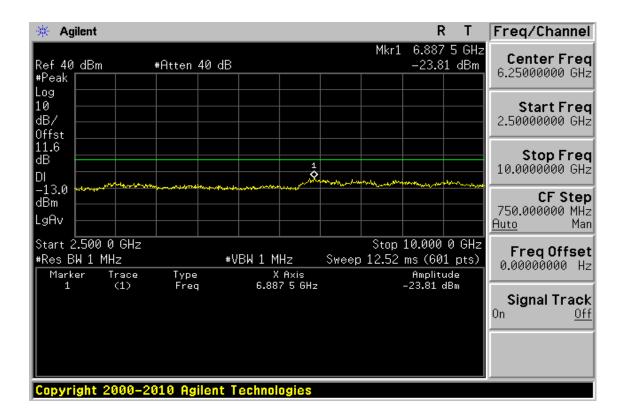


Figure 9-2: Out of Band emission at antenna terminals - GSM 850 Channel Mid



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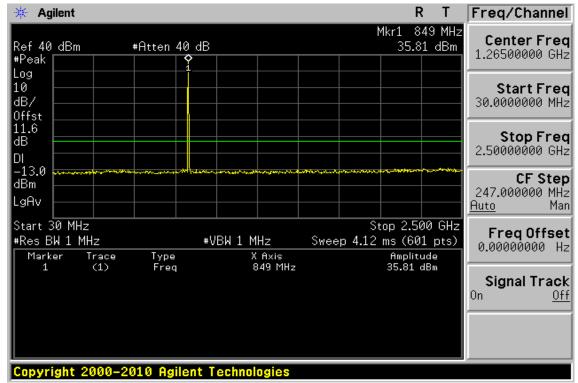
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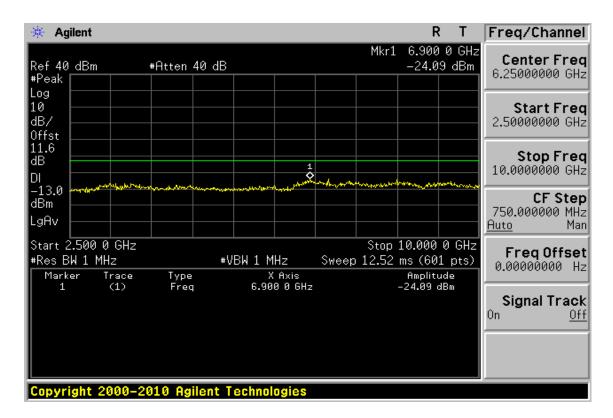
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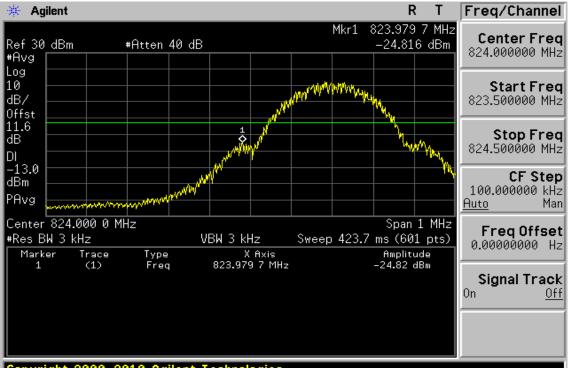
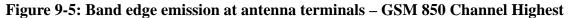
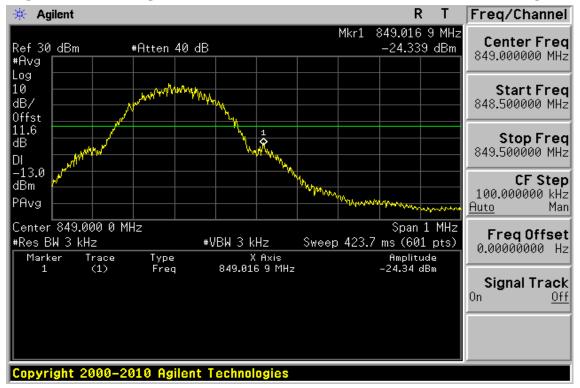


Figure 9-4: Band edge emission at antenna terminals – GSM 850 Channel Lowest

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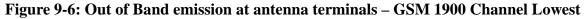
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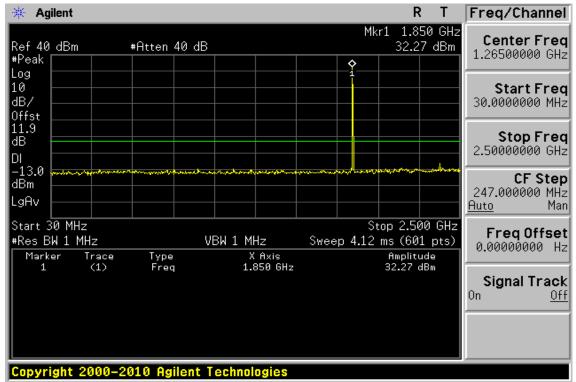
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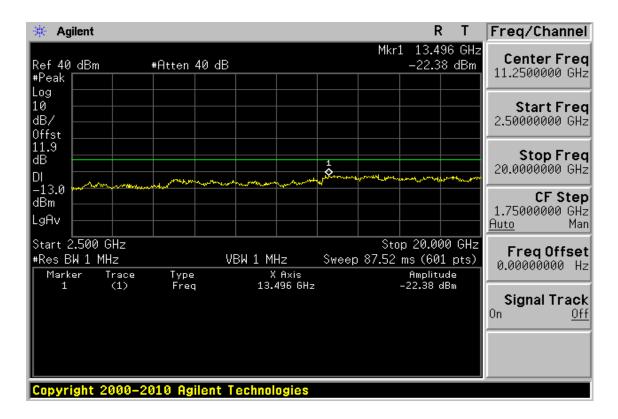
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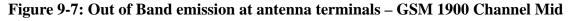
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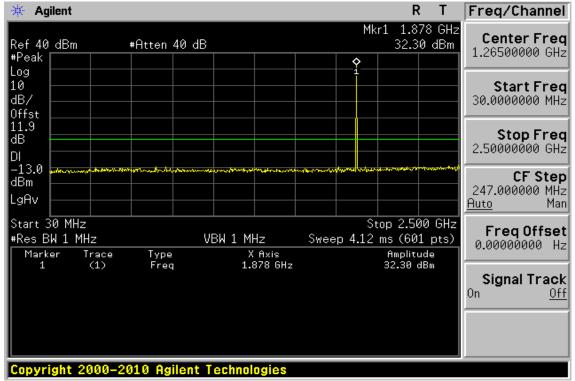
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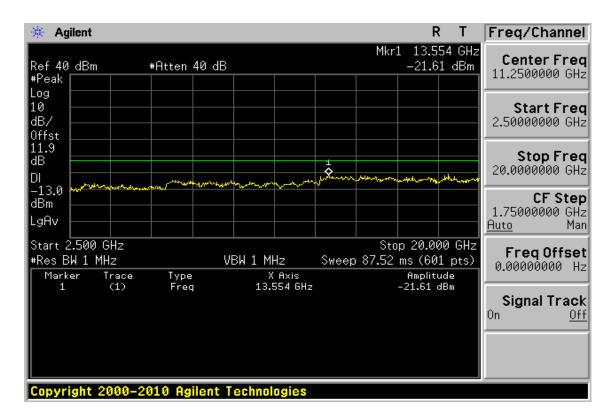
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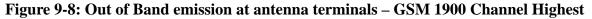
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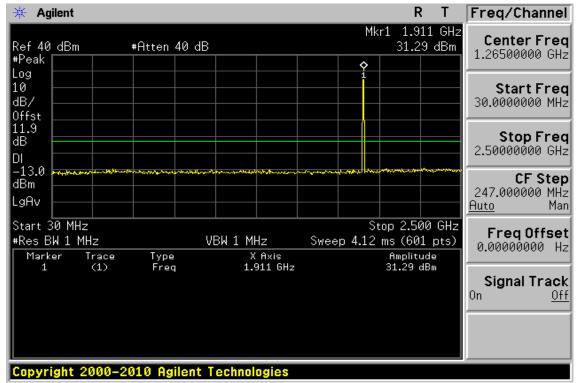
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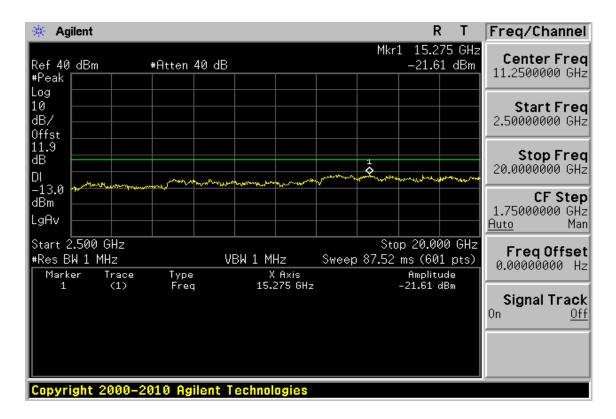
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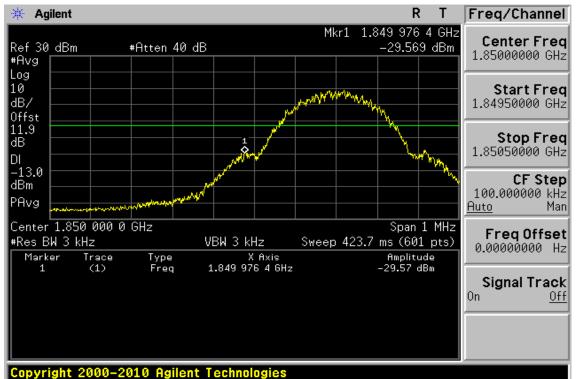
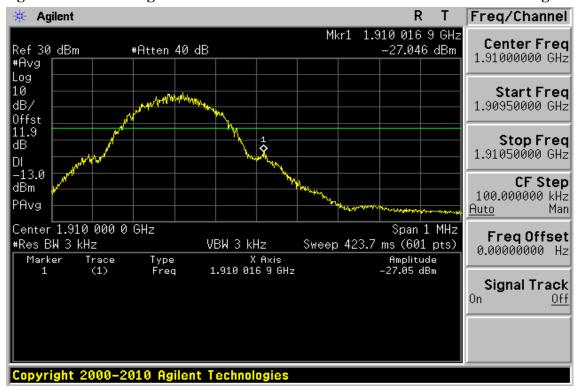


Figure 9-9: Bad edge emission at antenna terminals – GSM 1900 Channel Lowest





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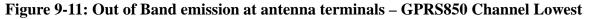
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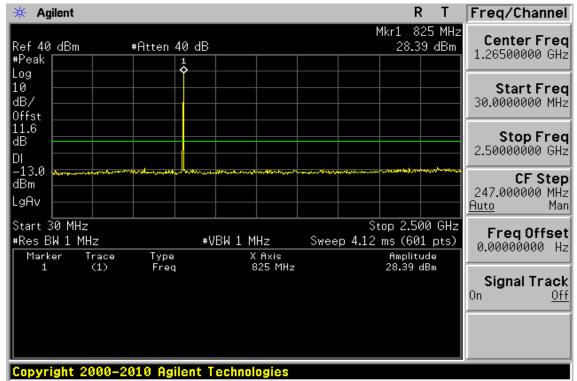
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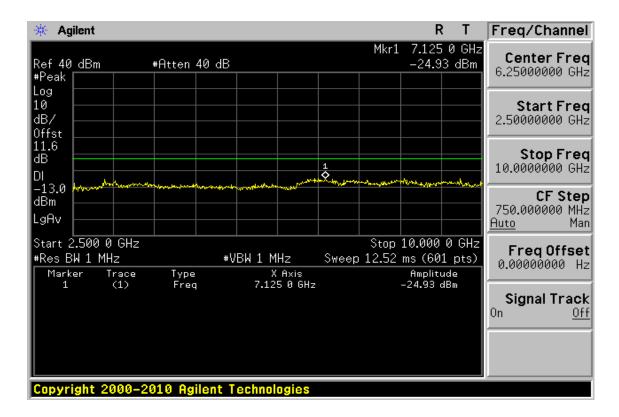
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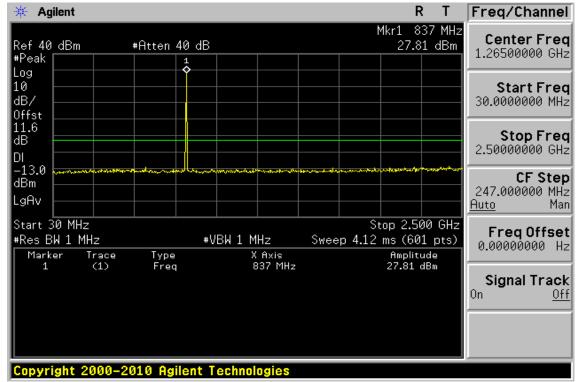
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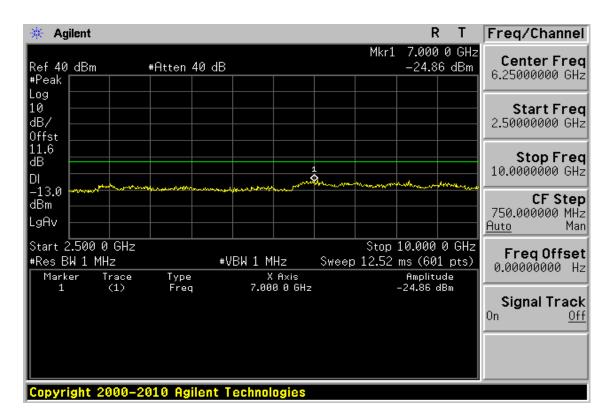
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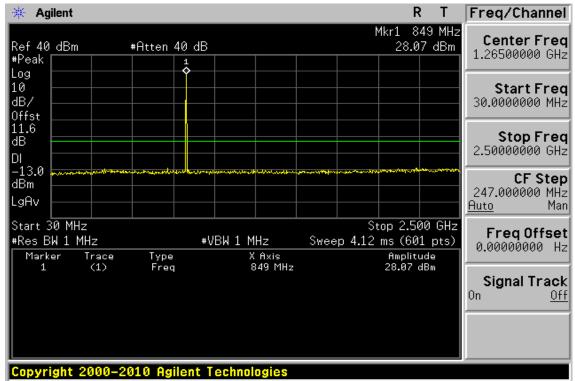
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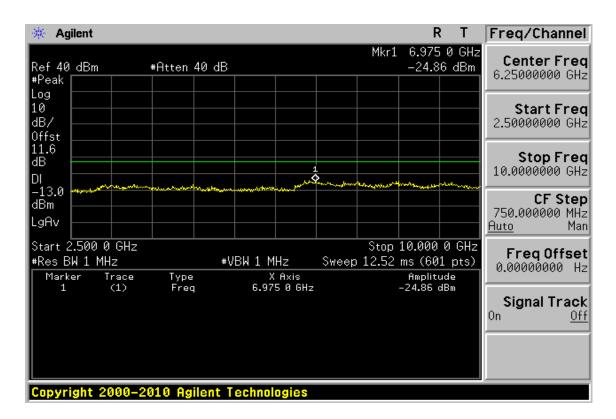
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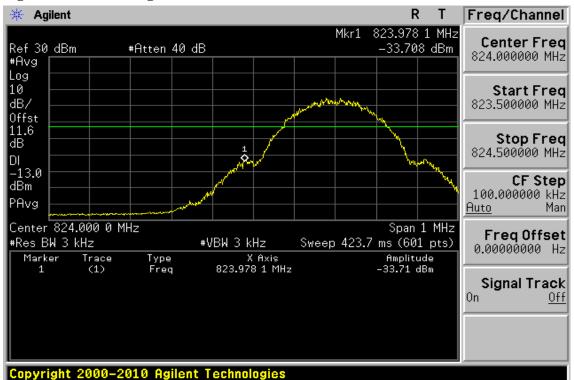


Figure 9-14: Band edge emission at antenna terminals - GPRS 850 Channel Lowest

## Figure 9-15: Band edge emission at antenna terminals – GPRS 850 Channel Highest



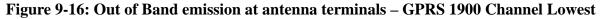
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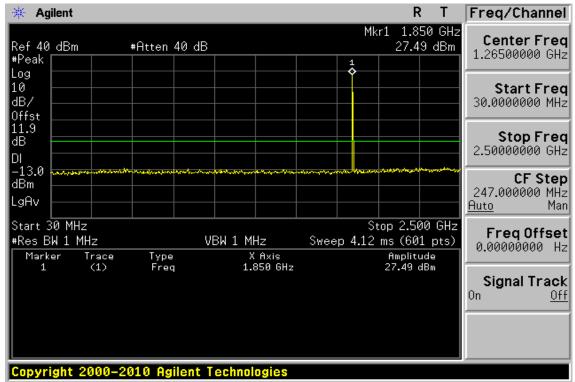
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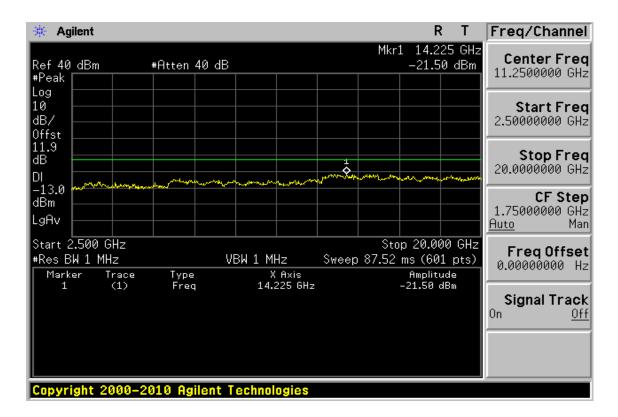
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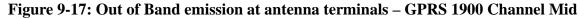
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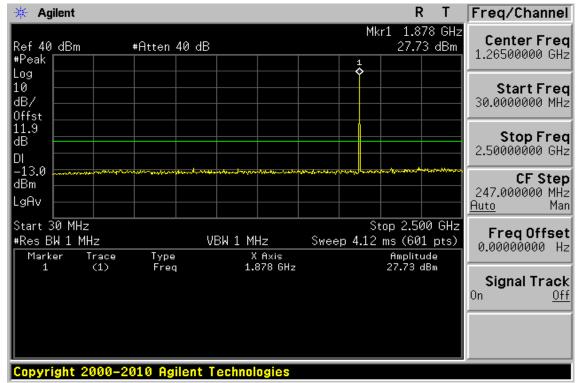
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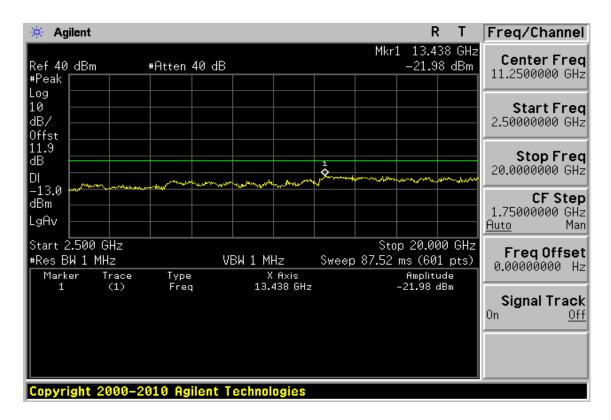
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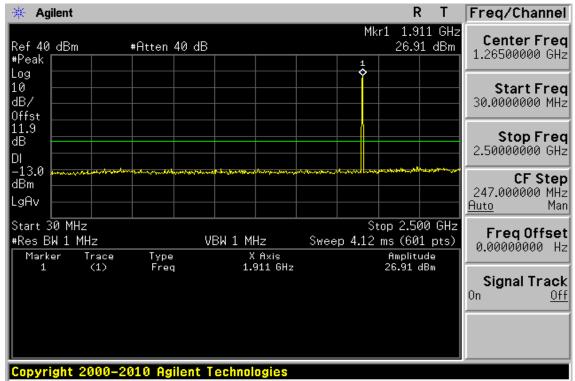
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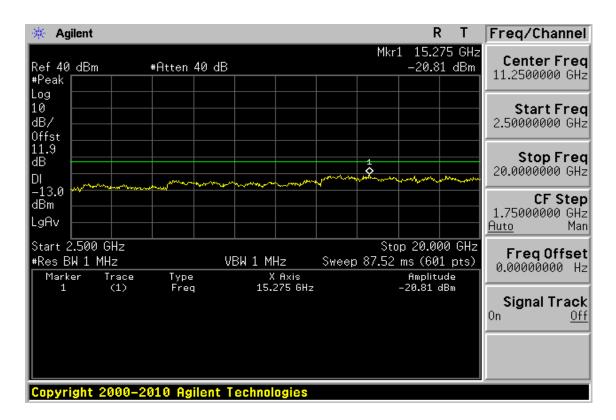
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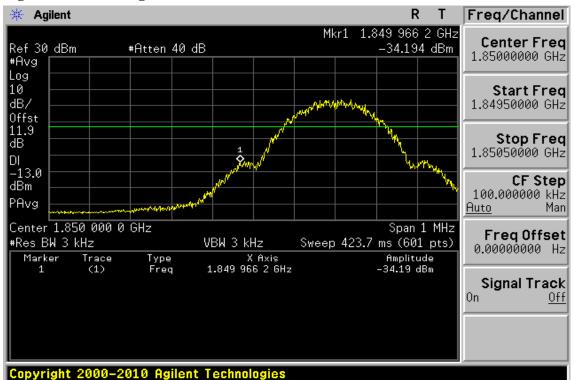
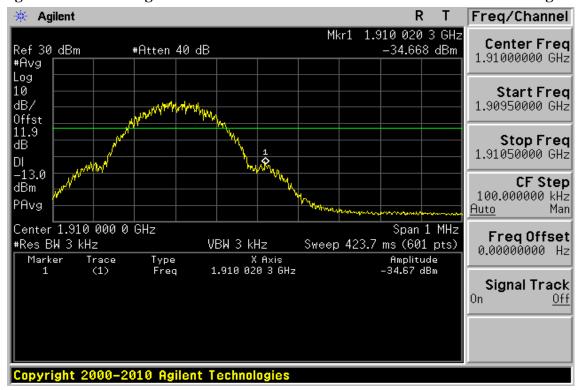


Figure 9-19: Bad edge emission at antenna terminals - GPRS 1900 Channel Lowest

Figure 9-20: Band edge emission at antenna terminals – GPRS 1900 Channel Highest



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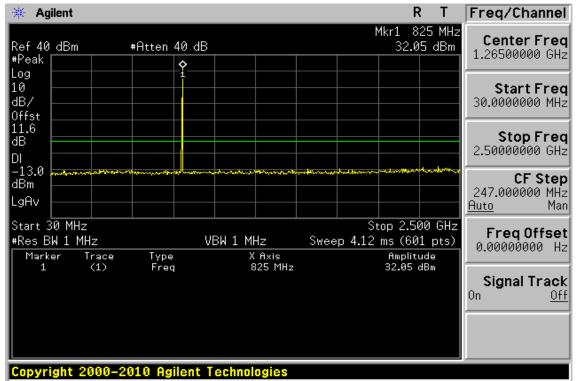
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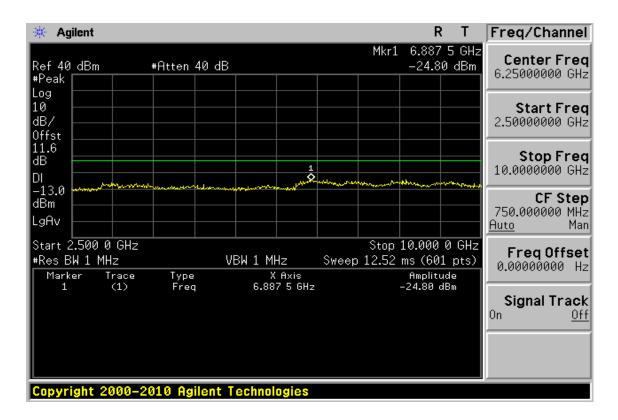
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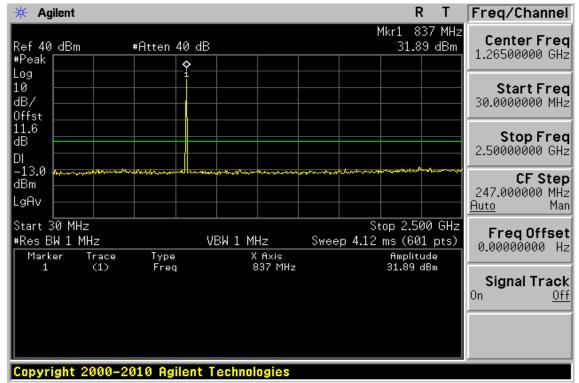
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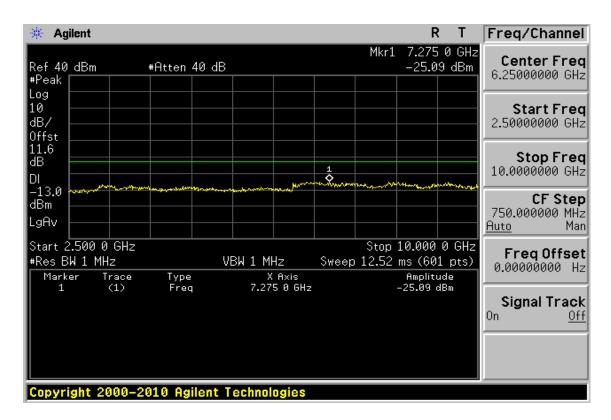
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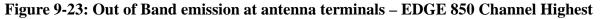
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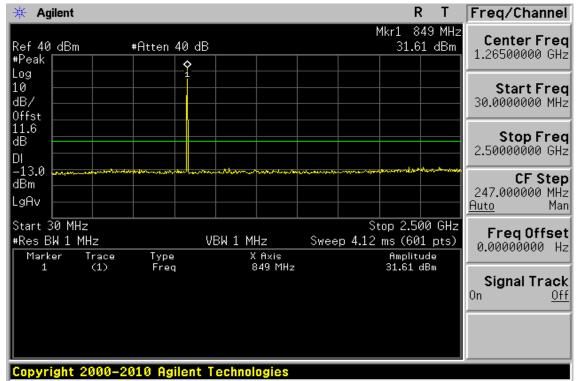
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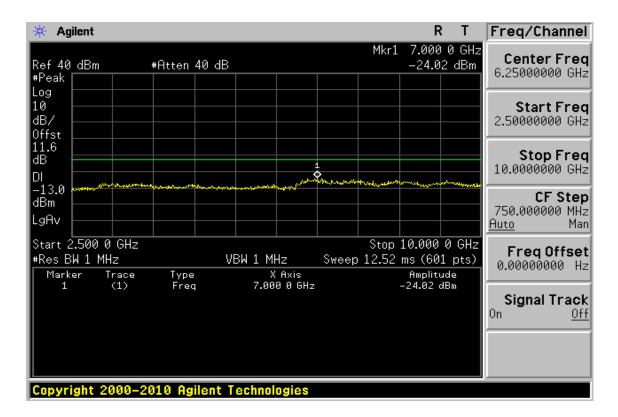
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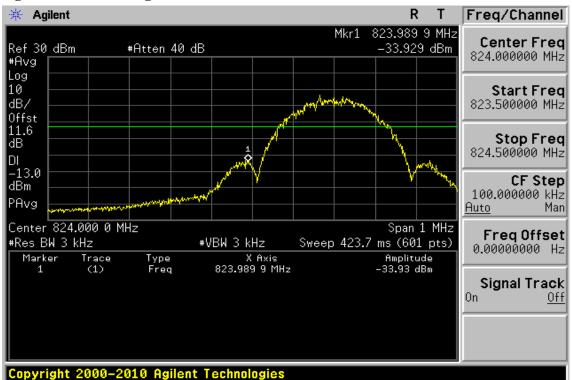
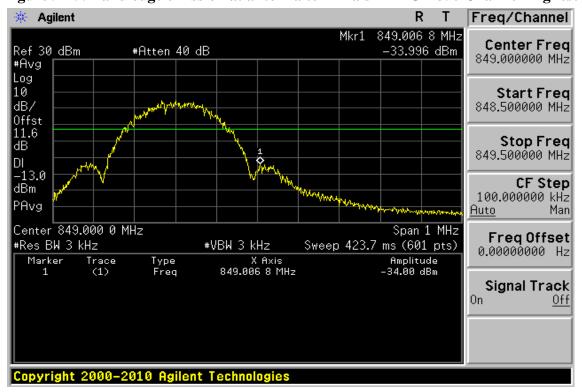


Figure 9-24: Band edge emission at antenna terminals – EDGE 850 Channel Lowest

### Figure 9-25: Band edge emission at antenna terminals – EDGE 850 Channel Highest



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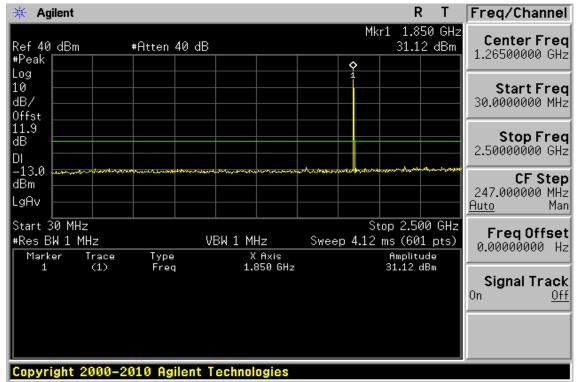
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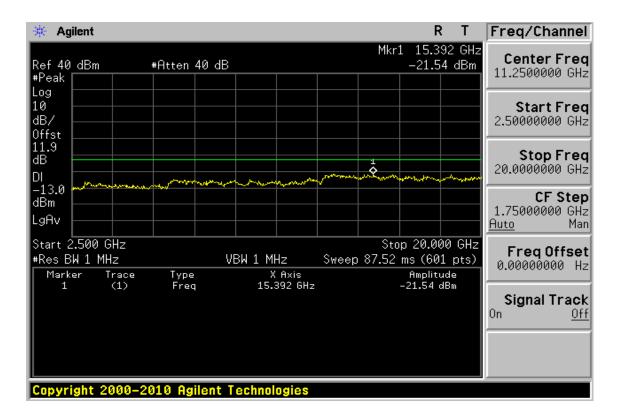
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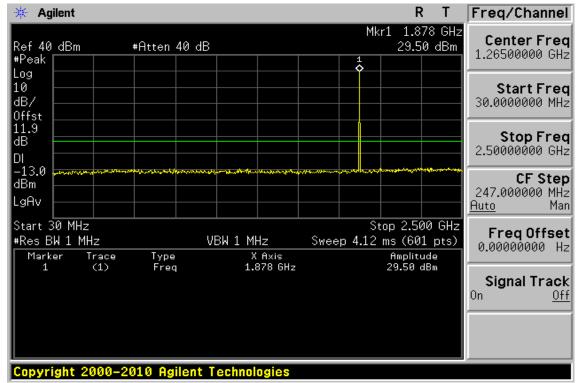
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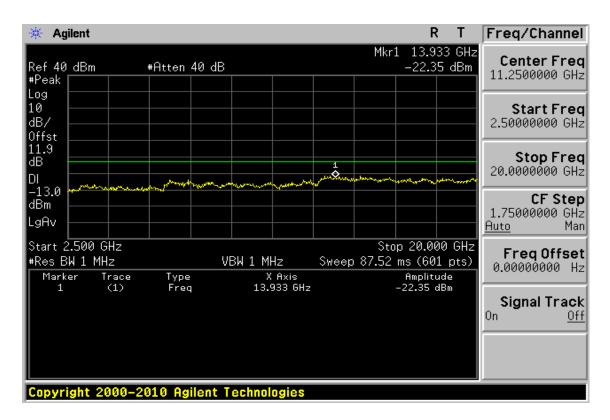
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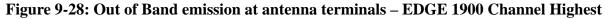
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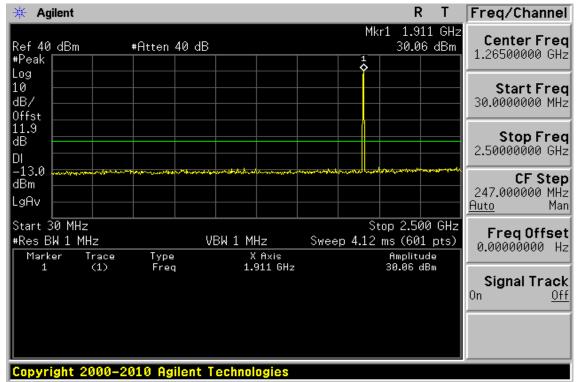
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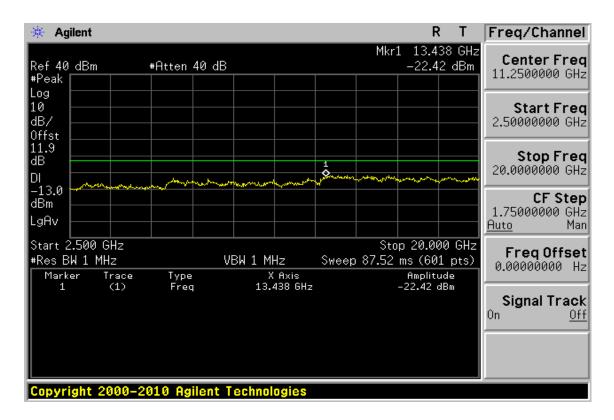
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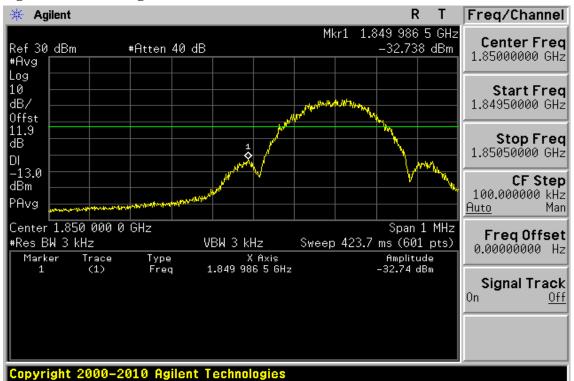
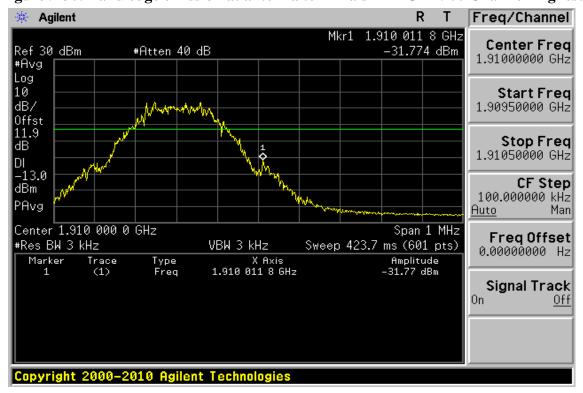


Figure 9-29: Bad edge emission at antenna terminals – EDGE 1900 Channel Lowest

### Figure 9-30: Band edge emission at antenna terminals – EDGE 1900 Channel Highest



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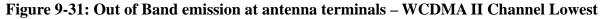
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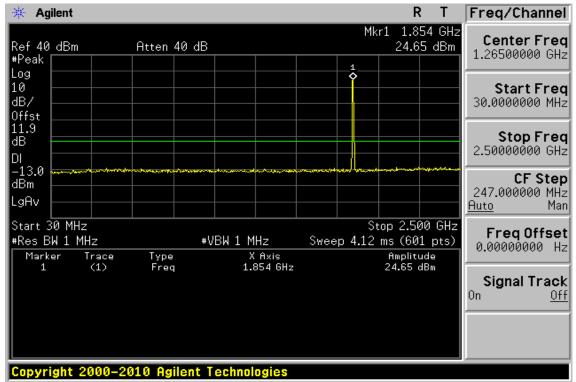
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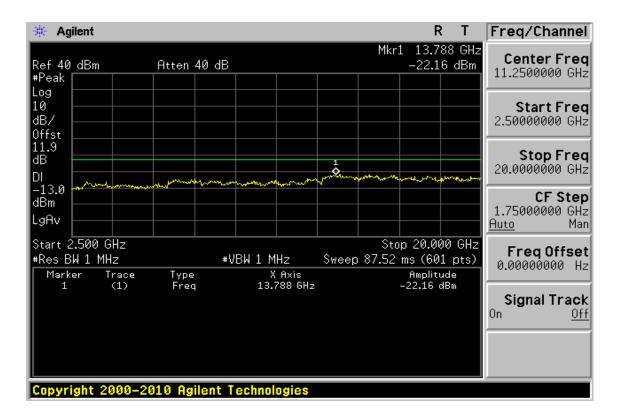
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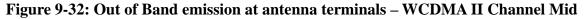
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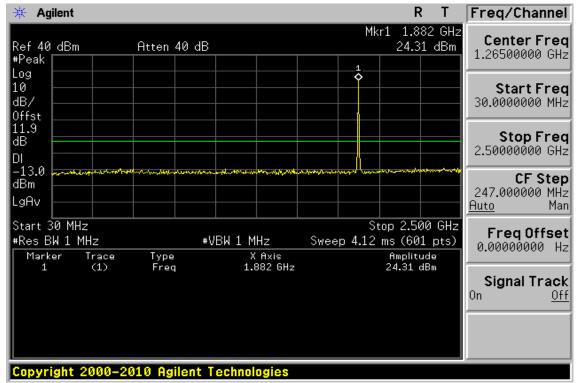
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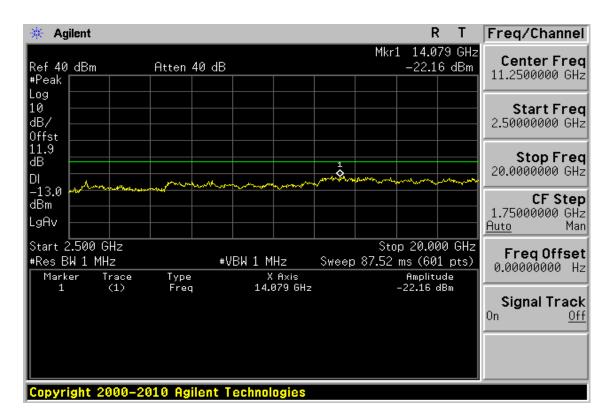
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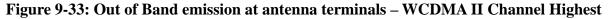
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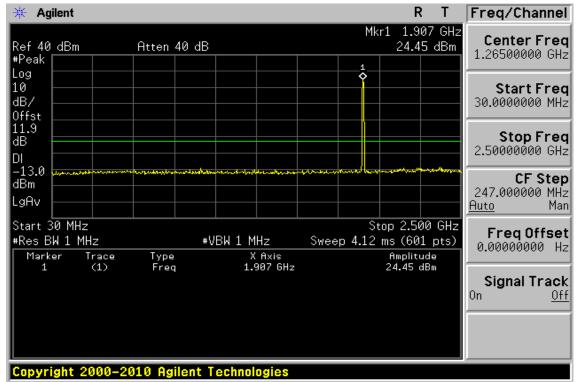
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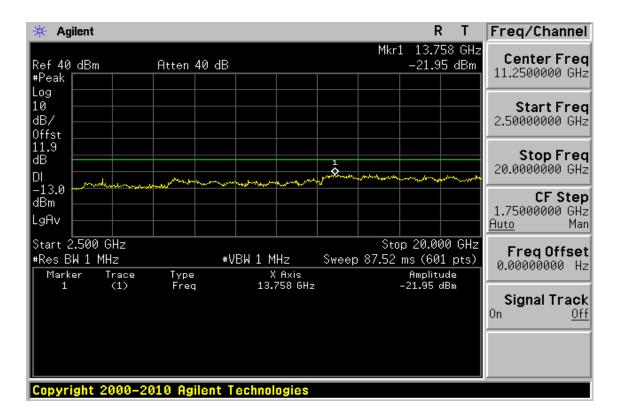
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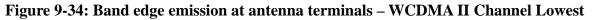
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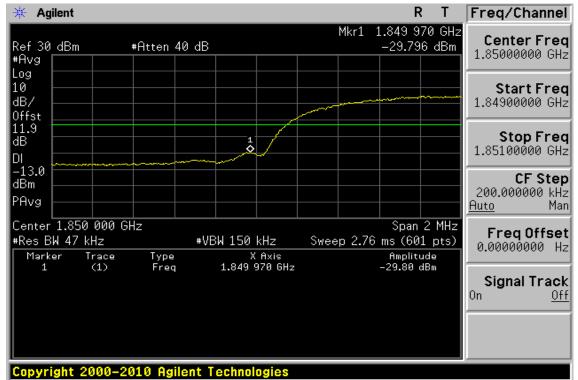
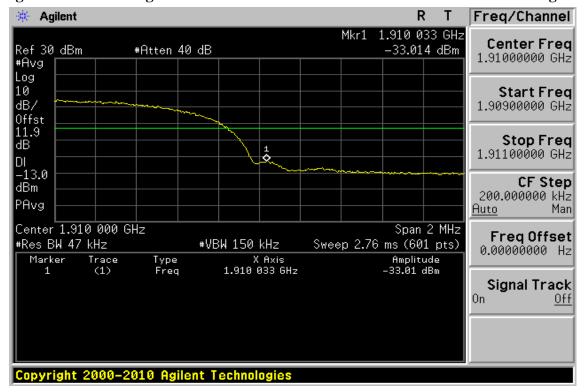


Figure 9-35: Band edge emission at antenna terminals – WCDMA II Channel Highest



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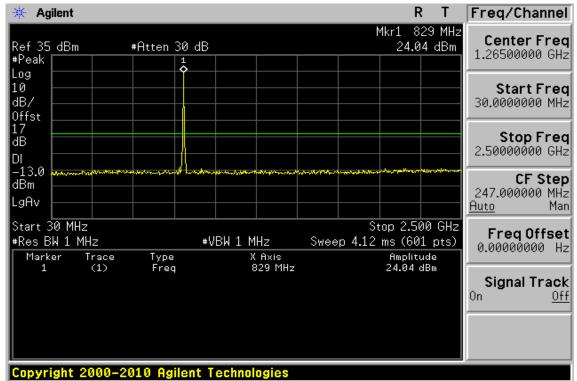
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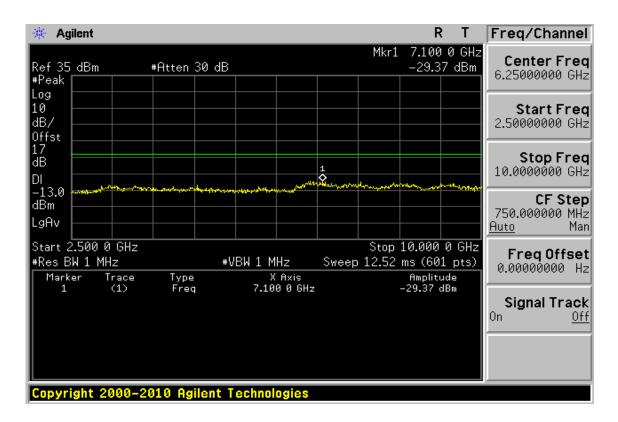
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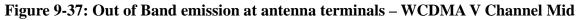
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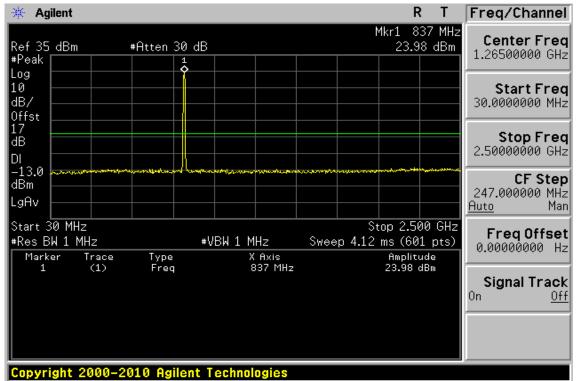
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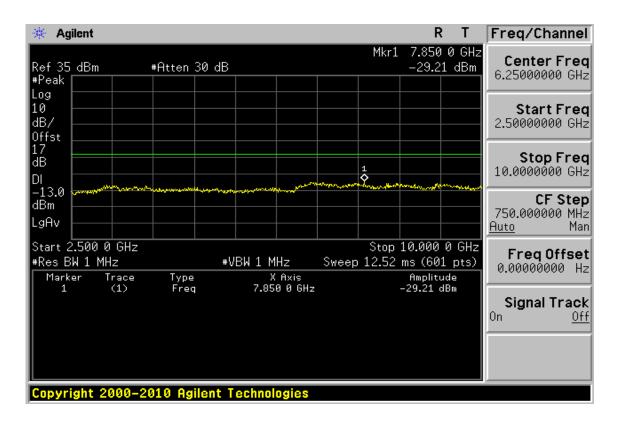
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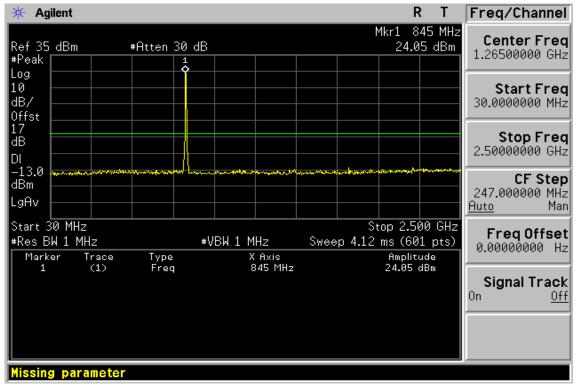
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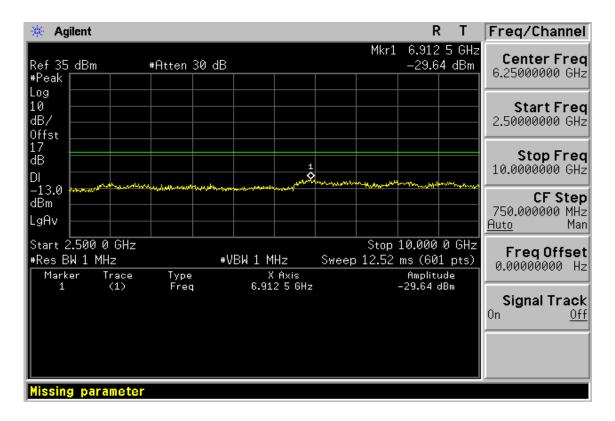
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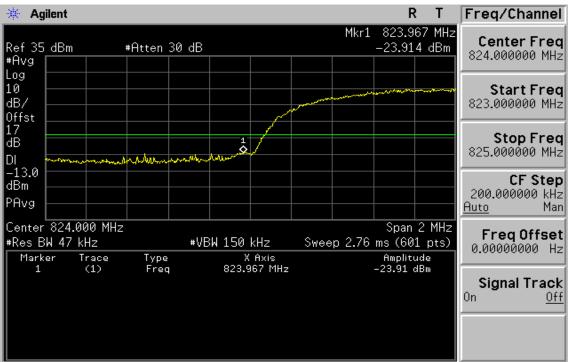
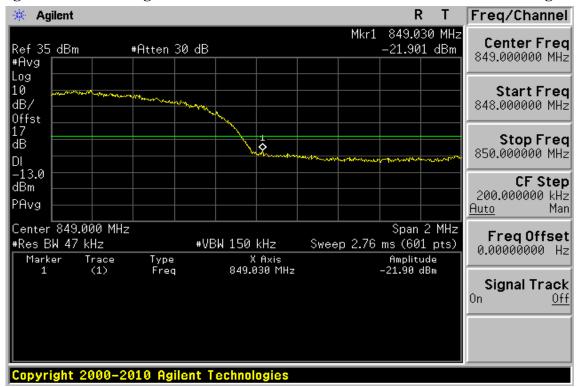


Figure 9-39: Bad edge emission at antenna terminals – WCDMA V Channel Lowest

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Figure 9-40: Band edge emission at antenna terminals – WCDMA V Channel Highest



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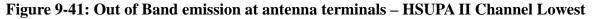
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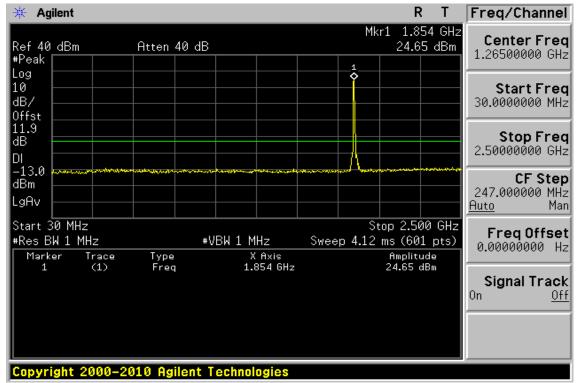
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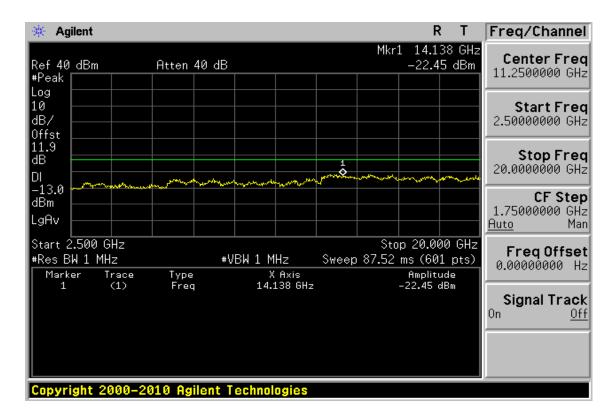
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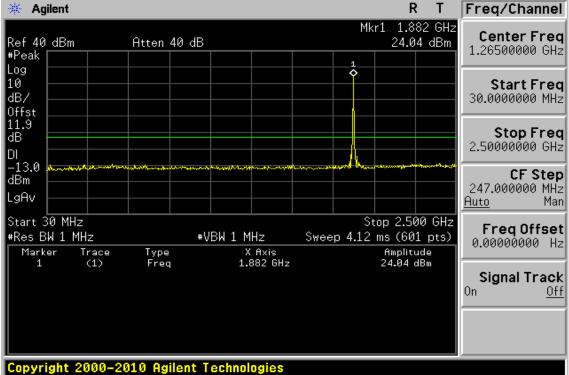
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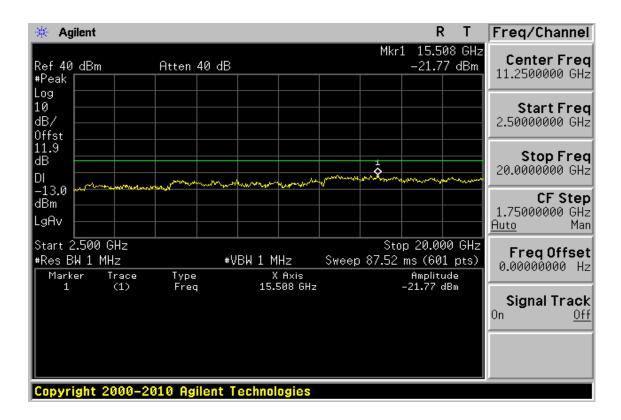
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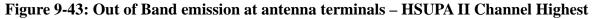
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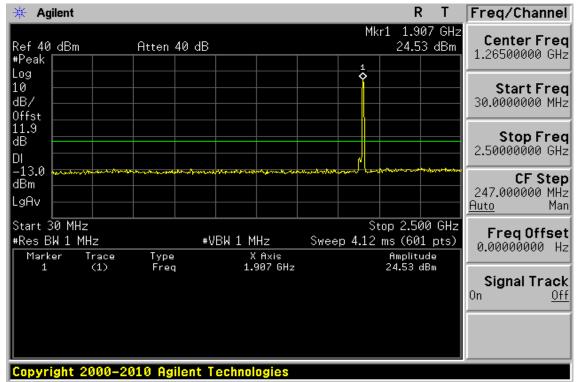
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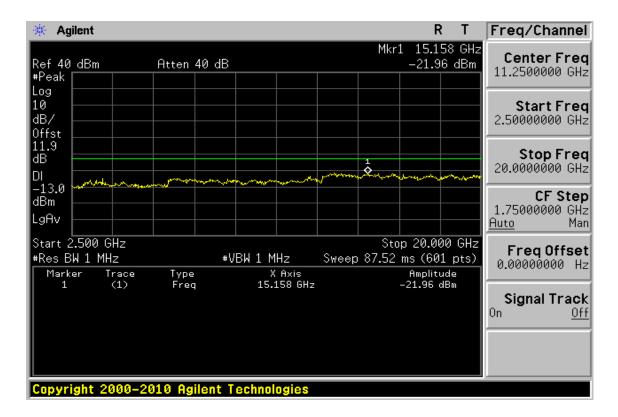
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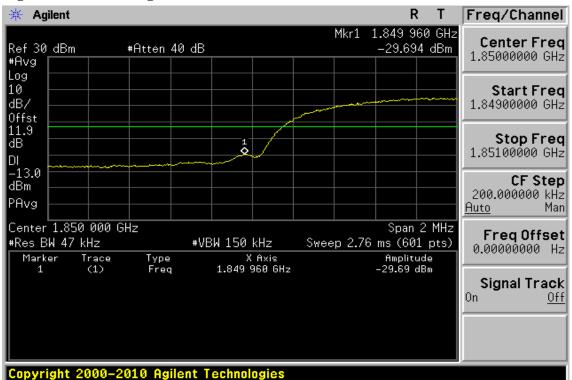
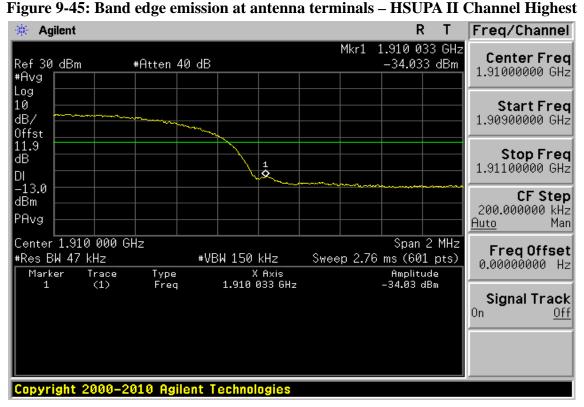


Figure 9-44: Band edge emission at antenna terminals – HSUPA II Channel Lowest

#### -Figure 0.45: Bond adap amigsion at antenna terminals – HEUDA H. Channe



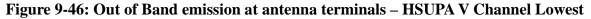
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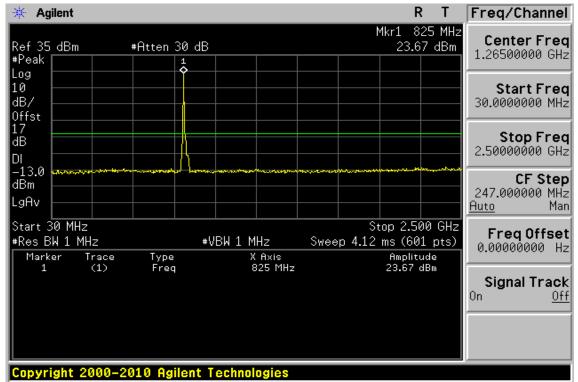
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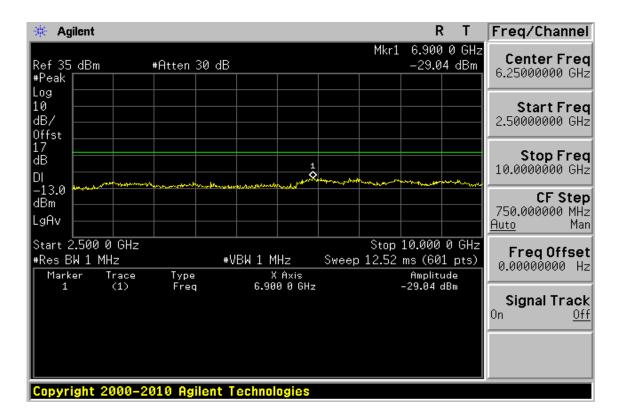
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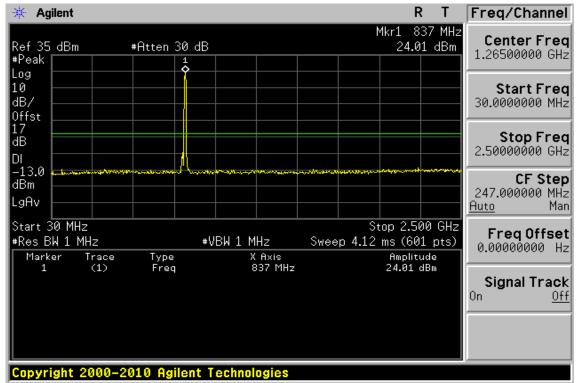
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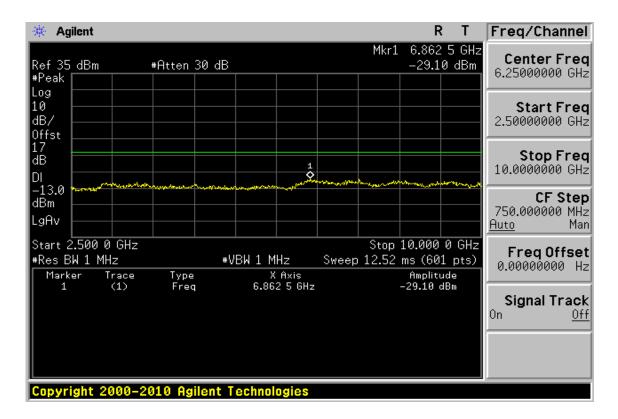
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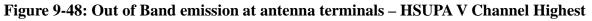
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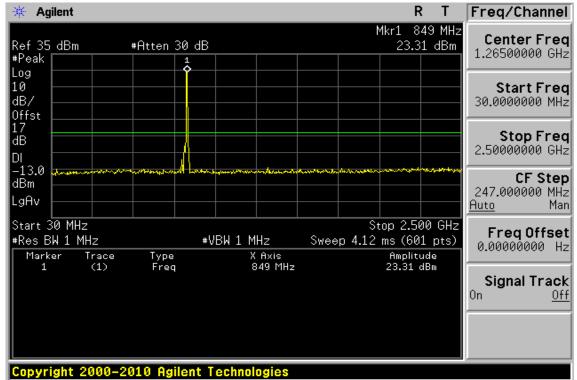
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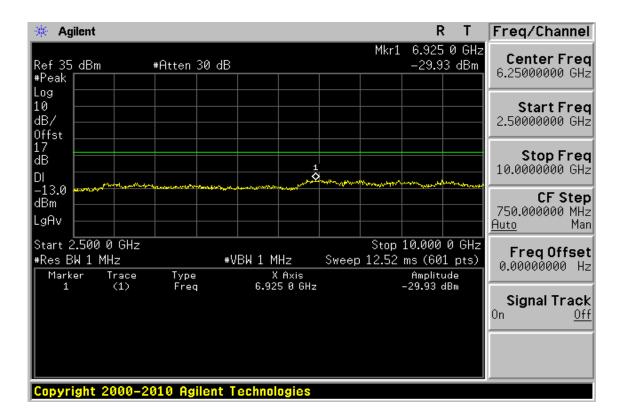
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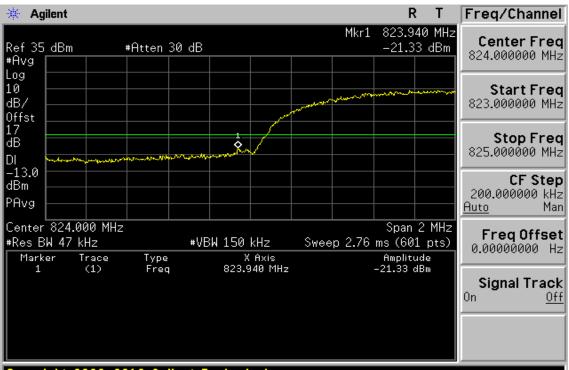
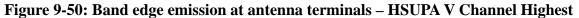
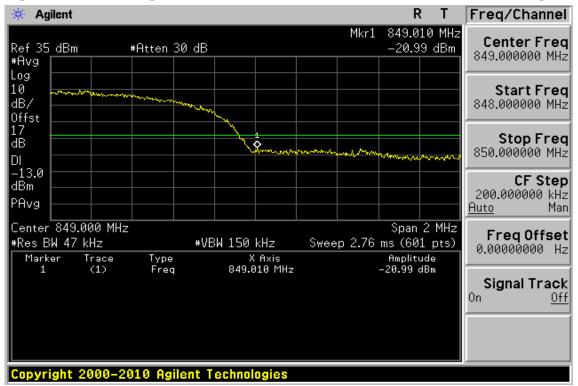


Figure 9-49: Band edge emission at antenna terminals – HSUPA V Channel Lowest

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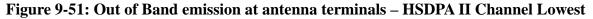
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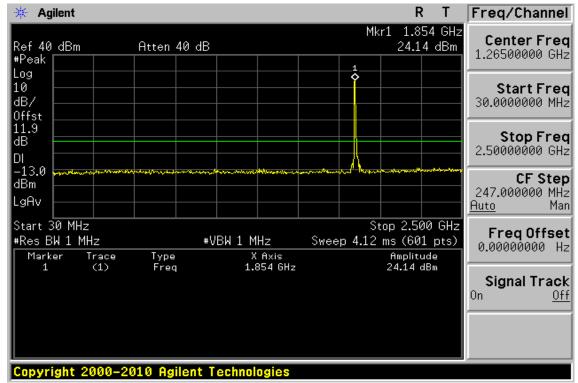
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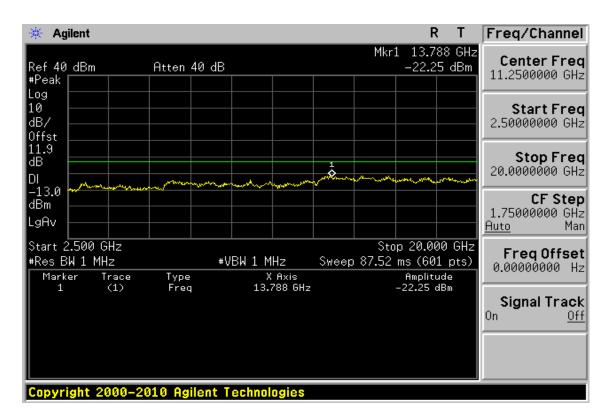
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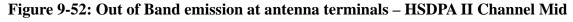
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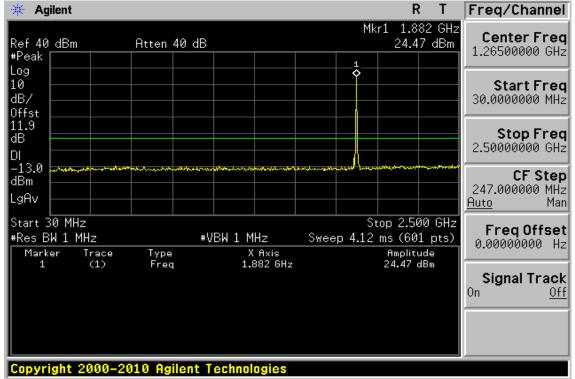
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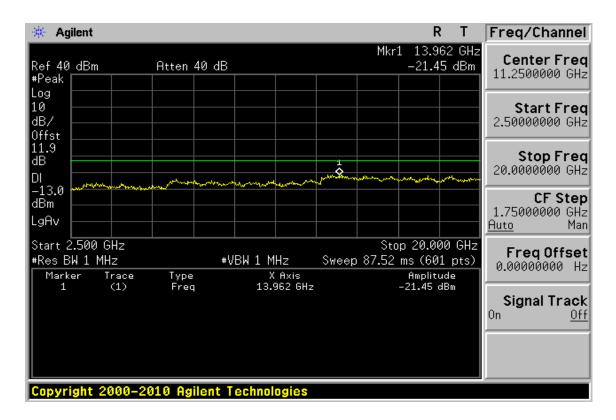
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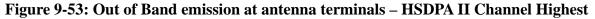
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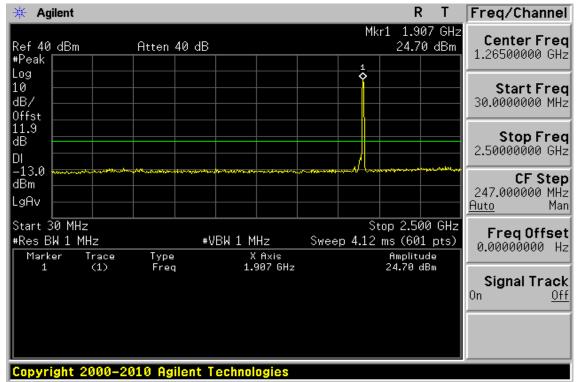
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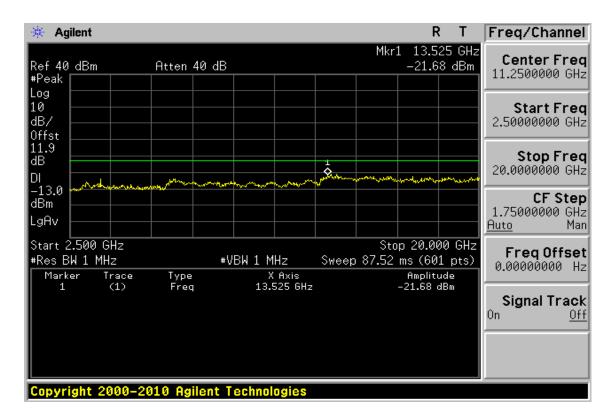
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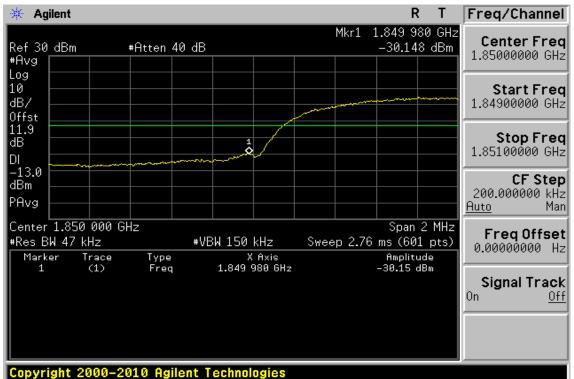


Figure 9-54: Band edge emission at antenna terminals – HSDPA II Channel Lowest

# Figure 9-55: Band edge emission at antenna terminals – HSDPA II Channel Highest



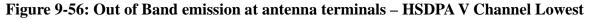
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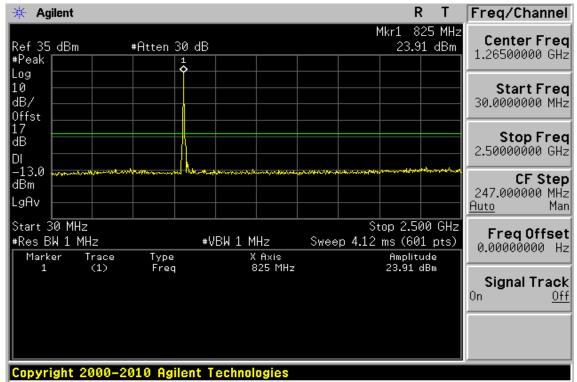
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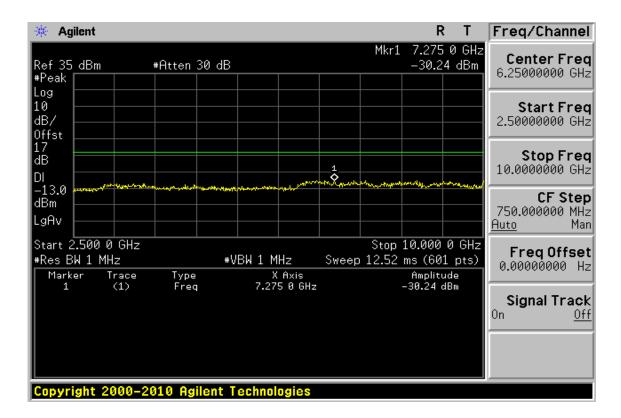
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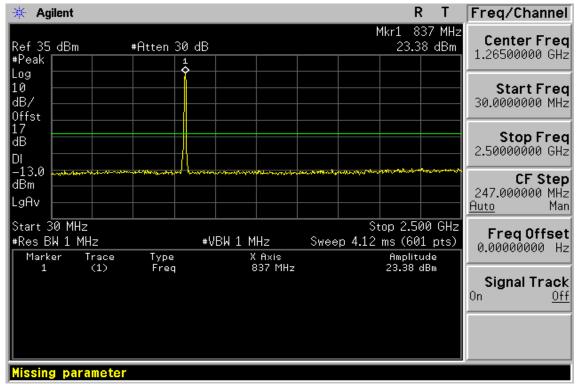
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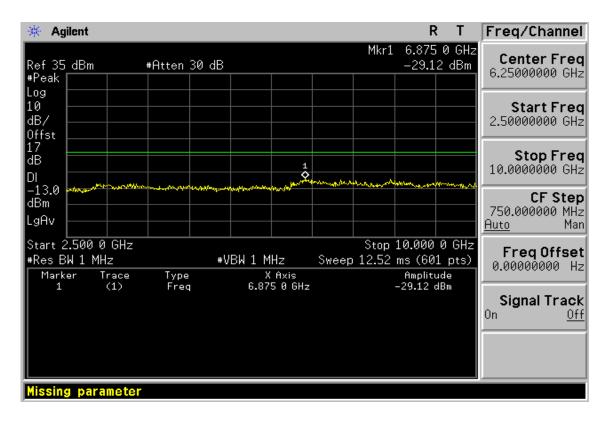
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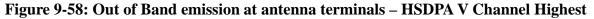
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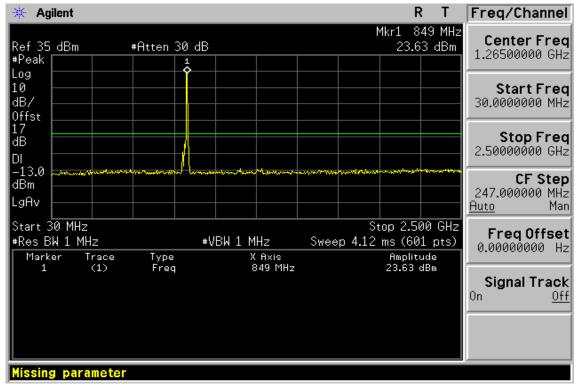
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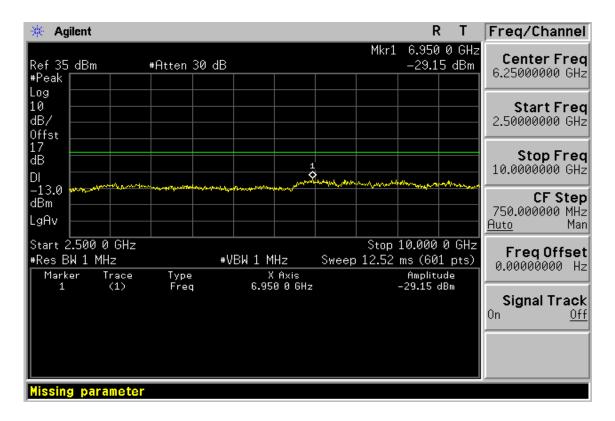
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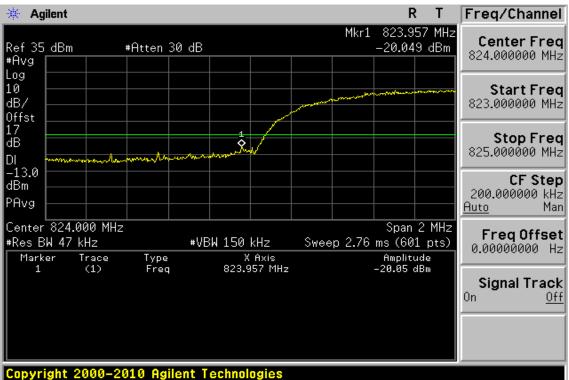


Figure 9-59: Bad edge emission at antenna terminals – HSDPA V Channel Lowest

# Figure 9-60: Band edge emission at antenna terminals – HSDPA V Channel Highest



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# **10. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT**

# **10.1. 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)

According to RSS-132 §4.5

4.5.1 Out-of-block Emissions

Mobile and base station equipment with emission bandwidth less than or equal to 4 MHz shall comply with 4.5.1.1. Mobile station equipment with emission bandwidth greater than 4 MHz shall comply with 4.5.1.2. Base station equipment with emission bandwidth greater than 4 MHz shall comply with either 4.5.1.2 or 4.5.1.3.

4.5.1.1 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least  $43 + 10 \log (P)$ , dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least  $43 + 10 \log (P)$ , dB, in any 100 kHz bandwidth.

4.5.1.2 In the first 1.0 MHz band immediately outside and adjacent to the licensee's frequency block, the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least  $43 + 10 \log (P)$ , dB. After the first 1.0 MHz, the power of emissions shall be attenuated below the transmitter output power by at least  $43 + 10 \log (P)$ , dB, in any 1 MHz bandwidth

According to RSS-133 §6.5

6.5.1 Out-of-Block Emissions

a. Mobile stations must comply with subsection i. below.

In the first 1.0MHz band immediately outside and adjacent to the licensee's frequency block. the power of emissions per any 1% of the emission bandwidth shall be attenuated below the transmitter output power P (in watts) by at least  $43 + 10 \log (P) dB$ .

b. After the first 1.0 MHz (for equipment that complies with a.i. of this subsection) or 1.5 MHz (for equipment that complies with all of this subsection), the power of emissions shall be attenuated below the transmitter output power by at least  $43 + 10 \log (P)$ , dB, per any MHz of bandwidth.

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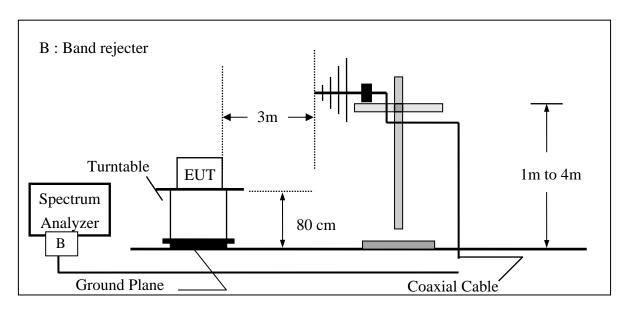


(Note: If the test result using 1% of the emission bandwidth is used, then power integration over 1.0 MHz is required; alternatively, the spectrum analyzer resolution and video bandwidths can be increased to 1.0 MHz for this measurement).

6.5.2 Out-of-Sub-band Emissions

Outside the sub-bands 1850-1910 MHz and 1930-1990 MHz, the attenuation shall be equal to or greater than the out-of-block emission limits in Section 6.5.1.

# **10.2. EUT Setup (Block Diagram of Configuration):**



Radiated Emission Test Set-Up, Frequency Below 1000MHz

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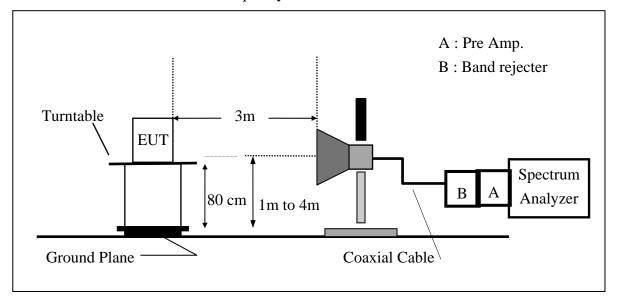
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Radiated Emission Test Set-UP Frequency Over 1 GHz

# **10.3. 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 was identified, the power of the emission was determined using the substitution method.

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 (dB)

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

# **10.4. Measurement Equipment Used:**

Refer to section 2.4 in this report

# **10.5. Measurement Result:**

Refer to attach tabular data sheets.

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# Radiated Spurious Emission Measurement Result (below 1GHz): GSM 850 Mode

Operation Mode	: TX CH Low E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 824.20 MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
63.95	52.79	V	-58.71	-0.70	1.11	-60.52	-13.00	-47.52
163.86	40.25	V	-58.28	-7.81	1.62	-67.72	-13.00	-54.72
212.36	42.65	V	-58.66	-7.85	1.78	-68.29	-13.00	-55.29
291.90	40.90	V	-57.62	-7.92	2.14	-67.67	-13.00	-54.67
485.90	42.62	V	-51.46	-7.71	2.76	-61.94	-13.00	-48.94
516.94	39.02	V	-54.56	-7.73	2.85	-65.15	-13.00	-52.15

# 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 (dBd/dBi) - Cable loss (dB)

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Operation Mode	: TX CH Low E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 824.20 MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
66.86	53.45	Н	-58.50	-0.89	1.13	-60.52	-13.00	-47.52
167.74	42.93	Н	-56.22	-7.81	1.63	-65.66	-13.00	-52.66
219.15	46.98	Н	-53.74	-7.86	1.82	-63.42	-13.00	-50.42
299.66	45.36	Н	-52.31	-7.92	2.17	-62.40	-13.00	-49.40
451.95	42.58	Н	-51.29	-7.70	2.67	-61.66	-13.00	-48.66
471.35	42.56	Н	-51.14	-7.71	2.72	-61.57	-13.00	-48.57

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 (dBd/dBi) – Cable loss (dB)

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Operation Mode	: TX CH Mid E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 836.60 MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
68.80	54.90	V	-56.84	-1.01	1.15	-58.99	-13.00	-45.99
224.00	42.14	V	-58.73	-7.86	1.84	-68.44	-13.00	-55.44
267.65	47.72	V	-51.59	-7.90	2.05	-61.55	-13.00	-48.55
291.90	46.91	V	-51.61	-7.92	2.14	-61.66	-13.00	-48.66
497.54	44.76	V	-49.37	-7.72	2.79	-59.88	-13.00	-46.88
553.80	39.45	V	-52.82	-7.76	2.97	-63.55	-13.00	-50.55

# 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 (dBd/dBi) – Cable loss (dB)

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Operation Mode	: TX CH Mid E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 836.60 MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
66.86	56.13	Н	-55.82	-0.89	1.13	-57.84	-13.00	-44.84
219.15	42.51	Н	-58.21	-7.86	1.82	-67.89	-13.00	-54.89
280.26	42.06	Н	-56.22	-7.91	2.10	-66.22	-13.00	-53.22
309.36	41.62	Н	-55.95	-7.87	2.21	-66.03	-13.00	-53.03
458.74	39.34	Н	-54.47	-7.70	2.68	-64.86	-13.00	-51.86
519.85	37.21	Н	-55.55	-7.74	2.86	-66.15	-13.00	-53.15

# 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 (dBd/dBi) - Cable loss (dB)

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Operation Mode	: TX CH High E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 848.80 MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
66.86	56.80	V	-54.84	-0.89	1.13	-56.86	-13.00	-43.86
228.85	44.12	V	-56.57	-7.87	1.87	-66.31	-13.00	-53.31
267.65	49.37	V	-49.94	-7.90	2.05	-59.90	-13.00	-46.90
299.66	44.38	V	-53.88	-7.92	2.17	-63.97	-13.00	-50.97
478.14	42.39	V	-51.66	-7.71	2.74	-62.11	-13.00	-49.11
548.95	37.63	V	-54.89	-7.76	2.96	-65.61	-13.00	-52.61

# 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 (dBd/dBi) - Cable loss (dB)

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Operation Mode	: TX CH High E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 848.80 MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
66.86	54.26	Н	-57.69	-0.89	1.13	-59.71	-13.00	-46.71
204.60	45.30	Н	-56.13	-7.84	1.74	-65.71	-13.00	-52.71
219.15	42.40	Н	-58.32	-7.86	1.82	-68.00	-13.00	-55.00
282.20	42.31	Н	-55.91	-7.91	2.11	-65.92	-13.00	-52.92
303.54	41.83	Н	-55.80	-7.90	2.18	-65.88	-13.00	-52.88
449.04	37.03	Н	-56.91	-7.70	2.66	-67.27	-13.00	-54.27

# 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 (dBd/dBi) - Cable loss (dB)

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# Radiated Spurious Emission Measurement Result (below 1GHz): GSM 1900 Mode

Operation Mode	: TX CH Low E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1850.20MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
66.86	52.44	V	-59.20	-0.89	1.13	-61.22	-13.00	-48.22
196.84	43.23	V	-58.27	-7.84	1.70	-67.81	-13.00	-54.81
253.10	42.23	V	-57.56	-7.89	2.00	-67.45	-13.00	-54.45
291.90	41.88	V	-56.64	-7.92	2.14	-66.69	-13.00	-53.69
451.95	39.05	V	-54.89	-7.70	2.67	-65.25	-13.00	-52.25
500.45	40.05	V	-54.08	-7.72	2.80	-64.60	-13.00	-51.60

# 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 (dBd/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

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Operation Mode	: TX CH Low E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1850.20MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
78.50	51.90	Н	-60.49	-2.25	1.21	-63.95	-13.00	-50.95
163.86	39.99	Н	-58.86	-7.81	1.62	-68.29	-13.00	-55.29
241.46	40.79	Н	-58.85	-7.88	1.94	-68.67	-13.00	-55.67
272.50	45.86	Н	-52.66	-7.90	2.07	-62.63	-13.00	-49.63
289.96	46.58	Н	-51.39	-7.91	2.13	-61.44	-13.00	-48.44
485.90	36.11	Н	-57.46	-7.71	2.76	-67.94	-13.00	-54.94

# 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 (dBd/dBi) - Cable loss (dB)

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Operation Mode	: TX CH Mid E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1880MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
66.86	59.05	V	-52.59	-0.89	1.13	-54.61	-13.00	-41.61
158.04	40.75	V	-57.26	-7.81	1.61	-66.68	-13.00	-53.68
233.70	40.79	V	-59.72	-7.87	1.90	-69.49	-13.00	-56.49
291.90	45.05	V	-53.47	-7.92	2.14	-63.52	-13.00	-50.52
487.84	45.88	V	-48.21	-7.72	2.77	-58.69	-13.00	-45.69
529.55	37.87	V	-55.29	-7.74	2.89	-65.93	-13.00	-52.93

# 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 (dBd/dBi) - Cable loss (dB)

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Operation Mode	: TX CH Mid E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1880MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
80.44	54.40	Н	-49.20	-7.75	0.04	-56.99	-13.00	-43.99
170.65	45.30	Н	-54.07	-7.82	1.64	-63.53	-13.00	-50.53
222.06	43.53	Н	-57.05	-7.86	1.83	-66.74	-13.00	-53.74
301.60	41.64	Н	-56.01	-7.91	2.18	-66.09	-13.00	-53.09
413.15	41.32	Н	-54.44	-7.67	2.55	-64.66	-13.00	-51.66
510.15	38.33	Н	-54.77	-7.73	2.83	-65.33	-13.00	-52.33

# 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 (dBd/dBi) - Cable loss (dB)

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Operation Mode	: TX CH High E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1909.8 MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
90.14	52.50	V	-50.68	-7.75	1.27	-59.70	-13.00	-46.70
167.74	48.02	V	-50.86	-7.81	1.63	-60.31	-13.00	-47.31
248.25	48.83	V	-51.13	-7.89	1.98	-60.99	-13.00	-47.99
264.74	43.03	V	-56.38	-7.90	2.04	-66.32	-13.00	-53.32
282.20	40.44	V	-58.39	-7.91	2.11	-68.41	-13.00	-55.41
429.64	36.41	V	-58.16	-7.68	2.60	-68.44	-13.00	-55.44

# 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 (dBd/dBi) - Cable loss (dB)

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Operation Mode	: TX CH High E2 Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1909.8 MHz	Test By:	Marcus
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
80.44	52.51	Н	-51.09	-7.75	0.04	-58.88	-13.00	-45.88
216.24	45.39	Н	-55.47	-7.86	1.80	-65.13	-13.00	-52.13
287.05	44.35	Н	-53.71	-7.91	2.12	-63.75	-13.00	-50.75
367.56	38.26	Н	-58.67	-7.65	2.41	-68.73	-13.00	-55.73
437.40	38.65	Н	-55.88	-7.69	2.62	-66.19	-13.00	-53.19
478.14	38.75	Н	-54.89	-7.71	2.74	-65.34	-13.00	-52.34

# 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 (dBd/dBi) - Cable loss (dB)

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# Radiated Spurious Emission Measurement Result (below 1GHz): HSDPA II Mode

Operation Mode	: TX CH Low H Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1852.4MHz	Test By:	Marcus
Temperature	: 27°C	Pol:	Ver
Humidity	: 66%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
68.80	53.66	V	-58.08	-1.01	1.15	-60.23	-13.00	-47.23
206.54	44.44	V	-57.09	-7.85	1.75	-66.69	-13.00	-53.69
260.86	46.35	V	-53.18	-7.90	2.03	-63.11	-13.00	-50.11
289.96	39.71	V	-58.87	-7.91	2.13	-68.92	-13.00	-55.92
468.44	38.55	V	-55.46	-7.71	2.71	-65.88	-13.00	-52.88
490.75	40.45	V	-53.65	-7.72	2.77	-64.14	-13.00	-51.14

# 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)

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Operation Mode	: TX CH Low H Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1852.4MHz	Test By:	Marcus
Temperature	: 27°C	Pol:	Hor
Humidity	: 66%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
86.26	50.37	Н	-53.31	-7.75	0.79	-61.85	-13.00	-48.85
134.76	42.07	Н	-57.29	-7.79	1.52	-66.60	-13.00	-53.60
209.45	45.62	Н	-55.57	-7.85	1.76	-65.18	-13.00	-52.18
270.56	42.57	Н	-56.01	-7.90	2.06	-65.97	-13.00	-52.97
289.96	40.18	Н	-57.79	-7.91	2.13	-67.84	-13.00	-54.84
461.65	42.75	Н	-51.04	-7.70	2.69	-61.43	-13.00	-48.43

# 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)

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Operation Mode	: TX CH Mid H Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1880MHz	Test By:	Marcus
Temperature	: 27°C	Pol:	Ver
Humidity	: 66%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
70.74	57.61	V	-54.15	-1.18	1.16	-56.50	-13.00	-43.50
175.50	40.55	V	-59.03	-7.82	1.65	-68.50	-13.00	-55.50
270.56	43.67	V	-55.55	-7.90	2.06	-65.51	-13.00	-52.51
352.04	41.83	V	-55.71	-7.64	2.37	-65.72	-13.00	-52.72
451.95	41.97	V	-51.97	-7.70	2.67	-62.33	-13.00	-49.33
515.00	40.76	V	-52.89	-7.73	2.85	-63.47	-13.00	-50.47

# 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)

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Operation Mode	: TX CH Mid H Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1880MHz	Test By:	Marcus
Temperature	: 27°C	Pol:	Hor
Humidity	: 66%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
66.86	54.07	Н	-57.88	-0.89	1.13	-59.90	-13.00	-46.90
170.65	44.96	Н	-54.41	-7.82	1.64	-63.87	-13.00	-50.87
222.06	40.70	Н	-59.88	-7.86	1.83	-69.57	-13.00	-56.57
309.36	40.56	Н	-57.01	-7.87	2.21	-67.09	-13.00	-54.09
388.90	37.06	Н	-59.54	-7.66	2.48	-69.67	-13.00	-56.67
466.50	39.56	Н	-54.18	-7.71	2.71	-64.60	-13.00	-51.60

# 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)

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Operation Mode	: TX CH High H Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1907.6MHz	Test By:	Marcus
Temperature	: 27°C	Pol:	Ver
Humidity	: 66%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
51.34	47.89	V	-59.69	-0.58	1.12	-61.39	-13.00	-48.39
167.74	44.65	V	-54.23	-7.81	1.63	-63.68	-13.00	-50.68
228.85	46.96	V	-53.73	-7.87	1.87	-63.47	-13.00	-50.47
299.66	36.15	V	-62.11	-7.92	2.17	-72.20	-13.00	-59.20
398.60	41.23	V	-54.33	-7.66	2.51	-64.49	-13.00	-51.49
461.65	38.12	V	-55.86	-7.70	2.69	-66.26	-13.00	-53.26

# 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)

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Operation Mode	: TX CH High H Mode	Test Date:	Nov. 17, 2011
Fundamental Frequency	: 1907.6MHz	Test By:	Marcus
Temperature	: 27°C	Pol:	Hor
Humidity	: 66%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out- put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/ EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
66.86	51.86	Н	-60.09	-0.89	1.13	-62.11	-13.00	-49.11
177.44	43.24	Н	-56.66	-7.82	1.66	-66.14	-13.00	-53.14
222.06	39.13	Н	-61.45	-7.86	1.83	-71.14	-13.00	-58.14
255.04	40.63	Н	-58.43	-7.89	2.01	-68.33	-13.00	-55.33
309.36	38.38	Н	-59.19	-7.87	2.21	-69.27	-13.00	-56.27
425.76	35.73	Н	-59.39	-7.68	2.59	-69.66	-13.00	-56.66

# 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)

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<b>Radiated</b>	Spurious Emi	ssion Measur	ement Result (b	elow 1GHz):	WCDMA Y	V Mode		
Operation	Band	:WCDMA B5 Test Date :2011-11-24						
ARFCN		:4132	Temp./Humi. :27 deg_C / 66 RH					
Fundamen	tal Frequency	l Frequency :826.4 Engineer :Marcus						
Operation Mode :TX LOW								
EUT Pol.		:E1	Measu	rement Anten	na Pol. :VE	RTICAL		
Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable	Limit	Safe Margir	

rreq.	11010		50	7 miconna	Cubie	Linnt	Duie	
			Output Level	Gain	Loss		Margin	
 MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
33.88	S	-76.84	-60.44	-13.95	-2.47	-13.00	-63.84	
160.95	S	-74.47	-71.13	-0.43	-2.93	-13.00	-61.47	
222.06	S	-72.86	-74.53	4.81	-3.17	-13.00	-59.86	
321.97	S	-81.75	-83.09	4.63	-3.39	-13.00	-68.75	
545.07	S	-80.48	-81.40	4.59	-3.85	-13.00	-67.48	
841.89	S	-76.06	-76.97	4.01	-4.24	38.40	-114.46	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation I	Operation Band :WCDMA B5 Test Date :2011-11-24							
ARFCN		:4132		Temp.	/Humi. :27 o	deg_C / 66	RH	
Fundament	al Frequency	:826.4		Er	ngineer :Ma	rcus		
Operation N	Mode	:TX LOW						
EUT Pol.		:E1	Measu	rement Anten	na Pol. :HO	RIZONTA	L	
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe	
			Output Level	Gain	Loss		Margin	
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
74.62	S	-79.82	-73.28	-3.98	-2.59	-13.00	-66.82	
217.21	S	-71.82	-73.56	4.84	-3.14	-13.00	-58.82	
266.68	S	-74.35	-75.75	4.60	-3.27	-13.00	-61.35	
366.59	S	-79.15	-80.49	4.67	-3.43	-13.00	-66.15	
582.90	S	-81.54	-82.08	4.21	-3.90	-13.00	-68.54	
754.59	S	-78.57	-78.99	3.56	-4.23	-13.00	-65.57	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :WCDMA B5 Test Date :2011-11-24								
ARFCN		:4183		Temp.	/Humi. :27	deg_C / 66	RH	
Fundament	al Frequency	:836.6		Er	ngineer :Ma	rcus		
Operation N	Mode	:TX MID						
EUT Pol.		:E1	Measu	rement Anten	na Pol. :VE	RTICAL		
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe	
			Output Level	Gain	Loss		Margin	
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
34.85	S	-77.06	-60.75	-13.85	-2.47	-13.00	-64.06	
160.95	S	-72.92	-69.58	-0.43	-2.93	-13.00	-59.92	
224.97	S	-72.24	-73.84	4.74	-3.17	-13.00	-59.24	
322.94	S	-80.73	-82.06	4.62	-3.39	-13.00	-67.73	
622.67	S	-77.79	-78.24	4.07	-3.97	-13.00	-64.79	
748.77	S	-77.95	-78.34	3.54	-4.23	-13.00	-64.95	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation Band :WCDMA B5 Test Date :201						1-11-24					
ARFCN		:4183		Temp.	/Humi. :27 o	deg_C / 66	RH				
Fundament	al Frequency	:836.6		Er	ngineer :Ma	rcus					
Operation N	Mode	:TX MID									
EUT Pol.		:E1	Measu	rement Anten	na Pol. :HO	RIZONTA	L				
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB				
75.59	S	-80.18	-73.94	-3.61	-2.67	-13.00	-67.18				
132.82	S	-78.47	-74.80	-0.89	-2.79	-13.00	-65.47				
219.15	S	-71.69	-73.41	4.85	-3.17	-13.00	-58.69				
268.62	S	-74.09	-75.47	4.58	-3.27	-13.00	-61.09				
369.50	S	-79.15	-80.47	4.65	-3.43	-13.00	-66.15				
599.39	S	-81.90	-82.28	4.04	-3.92	-13.00	-68.90				

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation l	Band	:WCDMA B5	/CDMA B5 Test Date :2011-11-24						
ARFCN		:4233		Temp.	/Humi. :27	deg_C / 66	RH		
Fundament	al Frequency	:846.6		Er	ngineer :Ma	rcus			
Operation I	Mode	:TX HIGH							
EUT Pol.		:E1	Measu	rement Anten	na Pol. :VE	RTICAL			
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
34.85	S	-76.96	-60.66	-13.85	-2.47	-13.00	-63.96		
73.65	S	-80.07	-73.16	-4.35	-2.59	-13.00	-67.07		
159.98	S	-74.78	-71.30	-0.57	-2.93	-13.00	-61.78		
220.12	S	-72.83	-74.56	4.86	-3.17	-13.00	-59.83		
374.35	S	-82.55	-83.83	4.61	-3.43	-13.00	-69.55		
626.55	S	-78.50	-78.98	4.08	-3.97	-13.00	-65.50		

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Report No.: EH/2011/B0011 Issue Date: Dec. 16, 2011 Page: 138 of 216

Operation Band :WCDMA B5 Test Date :2011-11-24								
ARFCN		:4233		Temp.	/Humi. :27 o	deg_C / 66	RH	
Fundament	al Frequency	:846.6		Er	ngineer :Ma	rcus		
Operation N	Mode	:TX HIGH						
EUT Pol.		:E1	Measurement Antenna Pol. :HORIZONTAL					
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe	
			Output Level	Gain	Loss		Margin	
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
74.62	S	-80.30	-73.76	-3.98	-2.59	-13.00	-67.30	
131.85	S	-78.85	-75.23	-0.83	-2.79	-13.00	-65.85	
222.06	S	-72.20	-73.88	4.81	-3.17	-13.00	-59.20	
268.62	S	-74.46	-75.84	4.58	-3.27	-13.00	-61.46	
377.26	S	-79.10	-80.39	4.63	-3.43	-13.00	-66.10	
661.47	S	-79.95	-80.49	4.13	-4.14	-13.00	-66.95	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Radiated Spurious Emission Measurement Result (Above 1GHz): GSM 850 Mode											
Operation <b>B</b>	Band	:GSM 850		Te	st Date :201	1-11-24					
ARFCN		:128		Temp.	/Humi. :27	deg_C / 66	RH				
Fundament	al Frequency	:824.2		Er	ngineer :Ma	rcus					
Operation N	Mode	:TX LOW			-						
EUT Pol.		:E2	Measurement Antenna Pol. :VERTICAL								
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB				
1648.40	Н	-56.12	-53.39	2.39	-5.36	-13.00	-43.12				
2472.60	Н	-49.32	-46.74	3.14	-6.15	-13.00	-36.32				
3288.00											
4121.00											
4945.20											
5769.40											
6593.60											
7417.80											
8242.00											

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation <b>B</b>	Band	:GSM 850	Test Date :2011-11-18						
ARFCN		:128		Temp.	/Humi. :27	deg_C / 66	RH		
Fundament	al Frequency	:824.2		Er	ngineer :Ma	rcus			
Operation N	Mode	:TX LOW							
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L		
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
1648.40	Н	-53.95	-51.50	2.68	-5.36	-13.00	-40.95		
2472.60	Н	-52.03	-49.83	3.52	-6.15	-13.00	-39.03		
3288.00									
4121.00									
4945.20									
5769.40									
6593.60									
7417.80									
8242.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation H ARFCN Fundament Operation N EUT Pol.	al Frequency	:GSM 850 :190 :836.6 :TX MID :E2	) Test Date :2011-11-18 Temp./Humi. :27 deg_C / 66 RH Engineer :Marcus Measurement Antenna Pol. :VERTICAL				
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
MHz	F/H/E/S	dBm	Output Level dBm	Gain dBd	Loss dB	dBm	Margin dB
	1711/12/5	(dDill	dDiii	uDu	uD	uDili	uD
1673.20							
2509.80	Н	-51.22	-48.59	3.19	-6.13	-13.00	-38.22
3346.40							
4183.00							
5019.60							
5856.20							
6692.80							
7529.40							
8366.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation I	Band	:GSM 850	Test Date :2011-11-18						
ARFCN		:190		Temp.	/Humi. :27	deg_C / 66	RH		
Fundament	al Frequency	:836.6		Er	ngineer :Ma	rcus			
Operation N	Mode	:TX MID							
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L		
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
1673.20	Н	-57.81	-55.41	2.66	-5.34	-13.00	-44.81		
2509.80	Н	-52.67	-50.41	3.55	-6.13	-13.00	-39.67		
3346.40									
4183.00									
5019.60									
5856.20									
6692.80									
7529.40									
8366.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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<b>Operation Band</b>		:GSM 850	Test Date :2011-11-18						
ARFCN		:251	Temp./Humi. :27 deg_C / 66 RH						
Fundamental Frequency		:848.8	Engineer :Marcus						
Operation Mode		:TX HIGH							
EUT Pol.		:E2	Measurement Antenna Pol. : VERTICAL						
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
1697.60									
2547.00	Н	-53.18	-50.47	3.30	-6.24	-13.00	-40.18		
3395.20									
4244.00									
5092.80									
5941.60									
6790.40									
7639.20									
8488.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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<b>Operation Band</b>		:GSM 850	Test Date :2011-11-18						
ARFCN		:251	Temp./Humi. :27 deg_C / 66 RH						
Fundamental Frequency		:848.8	Engineer :Marcus						
Operation Mode		:TX HIGH							
EUT Pol.		:E2	Measurement Antenna Pol. :HORIZONTAL						
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
1697.60	Н	-56.91	-54.43	2.65	-5.40	-13.00	-43.91		
2546.40	Н	-56.79	-54.44	3.66	-6.24	-13.00	-43.79		
3395.20									
4244.00									
5092.80									
5941.60									
6790.40									
7639.20									
8488.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Radiated Spurious Emission Measurement Result (Above 1GHz): GSM 1900 Mode											
Operation B	Band	:GSM 1900		Test Date :2011-11-24							
ARFCN		:512		Temp.	/Humi. :27	deg_C / 66	RH				
Fundamenta	al Frequency	:1850.2		Er	ngineer :Ma	rcus					
Operation N	/Iode	:TX LOW									
EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL					
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB				
3700.40	Н	-54.85	-55.39	7.40	-6.98	-13.00	-41.85				
5550.60											
7400.80											
9251.00											
11101.20											
12951.40											
14801.60											
16651.80											
18502.00											

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation B	and	:GSM 1900	Test Date :2011-11-24						
ARFCN		:512	Temp./Humi. :27 deg_C / 66 RH						
Fundamenta	al Frequency	:1850.2		Er	ngineer :Ma	rcus			
Operation M	Iode	:TX LOW							
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L		
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB		
3700.40	Н	-56.80	-56.84	6.91	-6.98	-13.00	-43.80		
5550.60									
7400.80									
9251.00									
11101.20									
12951.40									
14801.60									
16651.80									
18502.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation E ARFCN Fundamenta Operation N	al Frequency	:GSM 1900 :661 :1880.0 :TX MID	Test Date :2011-11-24 Temp./Humi. :27 deg_C / 66 RH Engineer :Marcus					
EUT Pol.		:E2	Measurement Antenna Pol. :VERTICAL					
Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB	
3760.00 5640.00 7520.00 9400.00 11280.00 13160.00 15040.00 16920.00 18800.00	H     	-53.04	-53.62	7.42	-7.12	-13.00	-40.04	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation E	and	:GSM 1900	Test Date :2011-11-24						
ARFCN		:661	Temp./Humi. :27 deg_C / 66 RH						
Fundamenta	al Frequency	:1880.0	Engineer :Marcus						
Operation N	Iode	:TX MID							
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L		
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB		
3760.00	Н	-55.22	-55.22	6.85	-7.12	-13.00	-42.22		
5640.00									
7520.00									
9400.00									
11280.00									
13160.00									
15040.00									
16920.00									
18800.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation B	Band	:GSM 1900	Test Date :2011-11-24						
ARFCN		:810		Temp.	/Humi. :27 o	deg_C / 66	RH		
Fundamenta	al Frequency	:1909.8	Engineer :Marcus						
Operation M	/Iode	:TX HIGH							
EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL			
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB		
3819.60	Н	-54.83	-55.33	7.51	-7.20	-13.00	-41.83		
5729.40									
7639.20									
9549.00									
11458.80									
13368.60									
15278.40									
17188.20									
19098.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation E	Band	:GSM 1900	Test Date :2011-11-24					
ARFCN		:810	Temp./Humi. :27 deg_C / 66 RH					
Fundamenta	al Frequency	:1909.8		Er	ngineer :Ma	rcus		
Operation N	/Iode	:TX HIGH						
EUT Pol.		:E2	Measurement Antenna Pol. :HORIZONTAL					
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe	
			Output Level	Gain	Loss		Margin	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB	
3819.60	Н	-56.13	-56.18	7.05	-7.20	-13.00	-43.13	
5729.40								
7639.20								
9549.00								
11458.80								
13368.60								
15278.40								
17188.20								
19098.00								

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Radiated Spurious Emission Measurement Result (Above IGHZ): HSDPA II Mode										
Operation B	and	:HSDPA B2		Te	st Date :201	1-11-18				
ARFCN		:9262	Temp./Humi. :27 deg_C / 66 RH							
Fundamenta	al Frequency	:1852.4		Er	ngineer :Ma	rcus				
Operation N	/Iode	:TX LOW								
EUT Pol.		:H	Measu	rement Anten	na Pol. :VE	RTICAL				
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe			
			Output Level	Gain	Loss		Margin			
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB			
3704.80	Н	-39.97	-40.50	7.40	-6.98	-13.00	-26.97			
5557.20										
7409.60										
9262.00										
11114.40										
12966.80										
14819.20										
16671.60										
18524.00										

## Radiated Spurious Emission Measurement Result (Above 1GHz): HSDPA II Mode

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Fundamental Frequency:1852.4Operation Mode:TX LOW					Test Date :2011-11-18 Temp./Humi. :27 deg_C / 66 RH Engineer :Marcus ent Antenna Pol. :HORIZONTAL			
Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB	
3704.80 5557.20 7409.60 9262.00 11114.40 12966.80 14819.20 16671.60 18524.00	H     	-50.56	-50.59	6.90	-6.98	-13.00	-37.56	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation E ARFCN Fundamenta Operation M EUT Pol.	al Frequency	:HSDPA B2 :9400 :1880.0 :TX MID :H	Measu	1-11-18 deg_C / 66 rcus RTICAL	RH		
Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
3760.00 5640.00 7520.00 9400.00 11280.00 13160.00 15040.00 16920.00 18800.00	H     	-33.45	-34.05	7.42	-7.12	-13.00	-20.45

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation B	and	:HSDPA B2	Test Date :2011-11-18						
ARFCN		:9400	Temp./Humi. :27 deg_C / 66 RH						
Fundamenta	al Frequency	:1880.0	Engineer : Marcus						
Operation M	/Iode	:TX MID							
EUT Pol.		:H	Measurement Antenna Pol. :HORIZONTAL						
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
-			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB		
3760.00	Н	-38.47	-38.50	6.85	-7.12	-13.00	-25.47		
5640.00									
7520.00									
9400.00									
11280.00									
13160.00									
15040.00									
16920.00									
18800.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation E ARFCN Fundamenta Operation N EUT Pol.	al Frequency	:HSDPA B2 :9538 :1907.6 :TX HIGH :H	Temp./Humi. :27 deg_C / 66 R Engineer :Marcus					
Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB	
3815.20 5722.80 7630.40 9538.00 11445.60 13353.20 15260.80 17168.40 19076.00	H     	-38.86	-39.38	7.50	-7.20	-13.00	-25.86	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation E ARFCN Fundamenta Operation N EUT Pol.	al Frequency	:HSDPA B2 :9538 :1907.6 :TX HIGH :H	Temp./Humi. :27 deg_C / 66 Engineer :Marcus					
Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB	
3815.20 5722.80 7630.40 9538.00 11445.60 13353.20 15260.80 17168.40 19076.00	H     	-44.95	-45.00	7.03	-7.20	-13.00	-31.95	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Radiated Spurious Emission Measurement Result (Above 1GHz): WCDMA V Mode											
Operation I	Band	:WCDMA B5	5	Tes	st Date :201	1-11-24					
ARFCN		:4132	Temp./Humi. :27 deg_C / 66 RH								
Fundament	al Frequency	:826.4	Engineer :Marcus								
Operation I	Mode	:TX LOW									
EUT Pol.		:E1	Measu	rement Anten	na Pol. :VE	RTICAL					
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB				
1652.80	Н	-62.62	-59.65	2.39	-5.36	-13.00	-49.62				
2479.20											
3305.60											
4132.00											
4958.40											
5784.80											
6611.20											
7437.60											

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation Band		:WCDMA B	5	Test Date :2011-11-24					
ARFCN		:4132		Temp.	/Humi. :27	deg_C / 66	RH		
Fundamenta	al Frequency	:826.4	Engineer :Marcus						
Operation N	Aode	:TX LOW							
EUT Pol.		:E1	Measurement Antenna Pol. :HORIZONTAL						
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
rieq.	Note	LINF	Output Level	Gain	Loss	Lillin			
		15	-			15	Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
1652.80	Н	-61.78	-59.33	2.67	-5.36	-13.00	-48.78		
2479.20									
3305.60									
4132.00									
4958.40									
5784.80									
6611.20									
7437.60									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation E ARFCN Fundamenta Operation N EUT Pol.	al Frequency	:WCDMA B5Test Date :2011-11-2:4183Temp./Humi. :27 deg_C:836.6Engineer :Marcus:TX MID:E1Measurement Antenna Pol. :VERTICA				deg_C / 66 rcus	RH
Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1673.20 2509.80 3346.40 4183.00 5019.60 5856.20 6692.80 7529.40 8366.00	H     	-62.98	-60.30	2.34	-5.29	-13.00	-49.98

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation H ARFCN Fundament Operation M EUT Pol.	al Frequency	:WCDMA B5 Test Date :2011-11-24 :4183 Temp./Humi. :27 deg_C / 6 :836.6 Engineer :Marcus :TX MID :E1 Measurement Antenna Pol. :HORIZONT				deg_C / 66 rcus	
Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1673.20 2509.80 3346.40 4183.00 5019.60 5856.20 6692.80 7529.40 8366.00	H     	-61.69	-59.34	2.66	-5.29	-13.00	-48.69

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation E ARFCN Fundamenta Operation M EUT Pol.	al Frequency	:WCDMA B5 Test Date :2011-11-24 :4233 Temp./Humi. :27 deg_C / :846.6 Engineer :Marcus :TX HIGH :E1 Measurement Antenna Pol. :VERTICAL				deg_C / 66 rcus	RH
Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1693.20 2539.80 3386.40 4233.00 5079.60 5926.20 6772.80 7619.40 8466.00	H     	-61.09	-57.98	2.29	-5.40	-13.00	-48.09

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.



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Operation H ARFCN Fundamenta Operation M EUT Pol.	al Frequency	:WCDMA B5 Test Date :2011-11-24 :4233 Temp./Humi. :27 deg_C / :846.6 Engineer :Marcus :TX HIGH :E1 Measurement Antenna Pol. :HORIZON			deg_C / 66 rcus		
Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1693.20 2539.80 3386.40 4233.00 5079.60 5926.20 6772.80 7619.40 8466.00	H    	-56.98	-54.50	2.65	-5.40	-13.00	-43.98

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.



464.56

699.30

994.18

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Radiated Spurious Emission Measurement Result (below 16112). GSM 850 Mode										
	Operation I	Band	:GSM 850		Tes	st Date :201	1-12-15			
	ARFCN		:CH 128		Temp./	/Humi. :27	deg_C / 66	RH		
	Fundament	al Frequency	:824.2 MHz	Engineer :Marcus						
	Operation N	Mode	:RX LOW							
	EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL			
	Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
				Output Level	Gain	Loss		Margin		
	MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
	90.14	S	-74.13	-70.33	-1.14	-2.67	-13.00	-61.13		
	159.01	S	-72.41	-68.88	-0.62	-2.93	-13.00	-59.41		
	228.85	S	-72.07	-73.57	4.65	-3.17	-13.00	-59.07		

## Radiated Spurious Emission Measurement Result (below 1GHz): GSM 850 Mode

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

-83.88

-78.25

-74.38

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

-84.84

-79.29

-75.08

4.54

4.15

3.96

-3.72

-4.07

-4.49

-13.00

-13.00

-13.00

-70.88

-65.25

-61.38

"---": denotes Noise Floor.

S

S

S

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Operation I	Band	:GSM 850	Test Date :2011-12-15							
ARFCN		:CH 128		Temp./Humi. :27 deg_C / 66 RH						
Fundament	al Frequency	:824.2 MHz		Er	ngineer :Ma	rcus				
Operation I	Mode	:RX LOW								
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L			
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe			
rieq.	INOLE	LIKF				Lillit				
			Output Level	Gain	Loss		Margin			
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB			
115.36	S	-84.55	-80.55	-1.23	-2.77	-13.00	-71.55			
124.09	S	-79.60	-75.74	-1.09	-2.77	-13.00	-66.60			
214.30	S	-75.34	-77.07	4.82	-3.14	-13.00	-62.34			
387.93	S	-82.05	-83.28	4.70	-3.56	-13.00	-69.05			
742.95	S	-78.61	-79.07	3.61	-4.23	-13.00	-65.61			
960.23	S	-76.31	-76.77	3.71	-4.45	-13.00	-63.31			

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation I	Band	:GSM 850	Test Date :2011-12-15							
ARFCN		:CH 190		Temp./Humi. :27 deg_C / 66 RH						
Fundament	al Frequency	:836.6 MHz		Er	ngineer :Ma	rcus				
Operation N	Mode	:RX MID								
EUT Pol. :E2			Measu	rement Anten	na Pol. :VE	RTICAL				
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe			
			Output Level	Gain	Loss		Margin			
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB			
90.14	S	-73.98	-70.19	-1.14	-2.67	-13.00	-60.98			
151.25	S	-72.28	-68.33	-1.04	-2.93	-13.00	-59.28			
225.94	S	-73.76	-75.34	4.72	-3.17	-13.00	-60.76			
468.44	S	-83.75	-84.73	4.56	-3.72	-13.00	-70.75			
745.86	S	-77.31	-77.73	3.58	-4.23	-13.00	-64.31			
935.01	S	-75.48	-75.81	3.64	-4.50	-13.00	-62.48			

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operatio	on Band	:GSM 850	Test Date :2011-12-15							
ARFCN	[	:CH 190		Temp.	/Humi. :27	deg_C / 66	RH			
Fundam	ental Frequency	:836.6 MHz		Er	ngineer :Ma	rcus				
Operatio	on Mode	:RX MID								
EUT Pol. :E2			Measu	rement Anten	na Pol. :HO	RIZONTA	L			
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe			
			Output Level	Gain	Loss		Margin			
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB			
115.30	6 S	-86.10	-82.10	-1.23	-2.77	-13.00	-73.10			
124.09	9 S	-77.88	-74.02	-1.09	-2.77	-13.00	-64.88			
220.12	2 S	-75.46	-77.19	4.86	-3.17	-13.00	-62.46			
370.47	7 S	-82.82	-84.13	4.64	-3.43	-13.00	-69.82			
807.94	4 S	-79.31	-80.14	3.92	-4.20	-13.00	-66.31			
963.14	4 S	-76.38	-76.86	3.73	-4.45	-13.00	-63.38			

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation E	Band	:GSM 850		Test Date :2011-12-15						
ARFCN		:CH 251		Temp.	/Humi. :27 o	deg_C / 66	RH			
Fundamenta	al Frequency	:848.8 MHz		Er	ngineer :Ma	rcus				
Operation N	Aode	:RX HIGH								
EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL				
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe			
			Output Level	Gain	Loss		Margin			
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB			
91.11	S	-74.22	-70.44	-1.12	-2.67	-13.00	-61.22			
153.19	S	-72.90	-69.06	-0.93	-2.93	-13.00	-59.90			
225.94	S	-73.30	-74.87	4.72	-3.17	-13.00	-60.30			
404.42	S	-82.77	-83.99	4.74	-3.62	-13.00	-69.77			
800.18	S	-77.23	-78.04	3.90	-4.20	-13.00	-64.23			
934.04	S	-75.00	-75.32	3.64	-4.50	-13.00	-62.00			

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---" : denotes Noise Floor.

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Operation	Band	:GSM 850	Test Date :2011-12-15						
ARFCN		:CH 251	Temp./Humi. :27 deg_C / 66 RH						
Fundamen	tal Frequency	:848.8 MHz		Er	ngineer :Ma	rcus			
Operation	Mode	:RX HIGH							
EUT Pol. :E2			Measu	rement Anten	na Pol. :HO	RIZONTA	L		
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
114.39	S	-86.37	-82.40	-1.20	-2.77	-13.00	-73.37		
124.09	S	-78.20	-74.34	-1.09	-2.77	-13.00	-65.20		
269.59	S	-75.59	-76.96	4.56	-3.27	-13.00	-62.59		
373.38	S	-82.38	-83.67	4.62	-3.43	-13.00	-69.38		
815.70	S	-78.56	-79.40	3.94	-4.22	-13.00	-65.56		
948.59	S	-75.66	-75.99	3.63	-4.51	-13.00	-62.66		

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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929.19

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-4.50

5.79

-13.00

-60.33

Radiated Spurious Emission Measurement Result (below 1GHz): GSM 1900 ModeOperation Band:GSM 1900Test Date :2011-12-15									
:GSM 1900		Tes	st Date :201	1-12-15					
:CH 512		Temp./	Humi. :27	deg_C / 66	RH				
:1850.2 MHz		Er	igineer :Ma	rcus					
:RX LOW									
:E2	Measu	rement Anten	na Pol. :VE	RTICAL					
EIRP	SG	Antenna	Cable	Limit	Safe				
	Output Level	Gain	Loss		Margin				
dBm	dBm	dBi	dB	dBm	dB				
-83.13	-80.68	0.19	-2.67	-13.00	-70.13				
-75.86	-74.46	1.53	-2.93	-13.00	-62.86				
-76.55	-80.21	6.82	-3.17	-13.00	-63.55				
-82.01	-84.97	6.63	-3.70	-13.00	-69.01				
-76.22	70.40	6.26	4.07	12.00	-63.22				
	:GSM 1900 :CH 512 :1850.2 MHz :RX LOW :E2 EIRP dBm -83.13 -75.86 -76.55 -82.01	:GSM 1900 :CH 512 :1850.2 MHz :RX LOW :E2 Measu EIRP SG Output Level dBm dBm -83.13 -80.68 -75.86 -74.46 -76.55 -80.21 -82.01 -84.97	:GSM 1900       Test         :CH 512       Temp.//         :1850.2 MHz       En         :RX LOW       En         :E2       Measurement Antenna         Output Level       Gain         dBm       dBm         -83.13       -80.68         -75.86       -74.46         -76.55       -80.21         -82.01       -84.97	:GSM 1900       Test Date :201         :CH 512       Temp./Humi. :27         :1850.2 MHz       Engineer :Ma         :RX LOW       Measurement Antenna Pol. :VE         :E2       Measurement Antenna Pol. :VE         EIRP       SG       Antenna Cable         Output Level       Gain       Loss         dBm       dBm       dBi       dB         -83.13       -80.68       0.19       -2.67         -75.86       -74.46       1.53       -2.93         -76.55       -80.21       6.82       -3.17         -82.01       -84.97       6.63       -3.70	:GSM 1900       Test Date :2011-12-15         :CH 512       Temp./Humi. :27 deg_C / 66         :1850.2 MHz       Engineer :Marcus         :RX LOW       E1RP         :E2       Measurement Antenna Pol. :VERTICAL         EIRP       SG       Antenna       Cable       Limit         0utput Level       Gain       Loss       Imit         dBm       dBm       dBm       dBm         -83.13       -80.68       0.19       -2.67       -13.00         -75.86       -74.46       1.53       -2.93       -13.00         -76.55       -80.21       6.82       -3.17       -13.00         -82.01       -84.97       6.63       -3.70       -13.00				

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

-73.33

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

-74.71

"---": denotes Noise Floor.

S

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 <u>www.sgs.com/terms\_and\_conditions.htm</u> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <u>www.sgs.com/terms\_e-document.htm</u>. 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 nalwful 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 /台北縣五殷工業區五工路 134 號

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Operation <b>H</b>	Band	:GSM 1900	Test Date :2011-12-15				
ARFCN		:CH 251		Temp.	/Humi. :27	deg_C / 66	RH
Fundament	al Frequency	:1850.2 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX LOW					
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
113.42	S	-87.03	-85.24	0.97	-2.77	-13.00	-74.03
124.09	S	-77.09	-75.38	1.06	-2.77	-13.00	-64.09
264.74	S	-74.24	-77.77	6.78	-3.27	-13.00	-61.24
378.23	S	-81.50	-84.88	6.78	-3.43	-13.00	-68.50
787.57	S	-77.29	-79.16	5.96	-4.16	-13.00	-64.29
947.62	S	-75.79	-77.16	5.78	-4.51	-13.00	-62.79

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation I	Band	:GSM 1900	Test Date :2011-12-15					
ARFCN		:CH 661		Temp.	/Humi. :27 o	deg_C / 66	RH	
Fundament	al Frequency	:1880.0 MHz		Er	ngineer :Ma	rcus		
Operation N	Mode	:RX MID						
EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL		
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe	
			Output Level	Gain	Loss		Margin	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB	
80.44	S	-82.31	-79.86	0.19	-2.67	-13.00	-69.31	
159.98	S	-75.73	-74.39	1.58	-2.93	-13.00	-62.73	
224.00	S	-75.54	-79.29	6.91	-3.17	-13.00	-62.54	
413.15	S	-81.57	-84.80	6.82	-3.62	-13.00	-68.57	
795.33	S	-75.82	-77.70	6.02	-4.20	-13.00	-62.82	
933.07	S	-73.32	-74.71	5.79	-4.50	-13.00	-60.32	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation I	Band	:GSM 1900	Test Date :2011-12-15				
ARFCN		:CH 661		Temp.	/Humi. :27	deg_C / 66	RH
Fundament	al Frequency	:1880.0 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX MID					
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
113.42	S	-87.03	-85.24	0.97	-2.77	-13.00	-74.03
124.09	S	-77.09	-75.38	1.06	-2.77	-13.00	-64.09
269.59	S	-74.04	-77.50	6.71	-3.27	-13.00	-61.04
384.05	S	-81.04	-84.33	6.82	-3.56	-13.00	-68.04
790.48	S	-76.67	-78.56	5.98	-4.16	-13.00	-63.67
953.44	S	-75.18	-76.58	5.81	-4.51	-13.00	-62.18

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation E	Band	:GSM 1900	Test Date :2011-12-15				
ARFCN		:CH 810		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundamenta	al Frequency	:1909.8 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX HIGH					
EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL	
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
80.44	S	-83.05	-80.60	0.19	-2.67	-13.00	-70.05
160.95	S	-78.28	-77.07	1.72	-2.93	-13.00	-65.28
228.85	S	-78.30	-81.94	6.80	-3.17	-13.00	-65.30
435.46	S	-81.75	-84.76	6.68	-3.70	-13.00	-68.75
798.24	S	-76.50	-78.40	6.04	-4.20	-13.00	-63.50
995.15	S	-73.87	-75.60	6.12	-4.49	-13.00	-60.87

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation E	Band	:GSM 1900	Test Date :2011-12-15					
ARFCN		:CH 810		Temp.	/Humi. :27 o	deg_C / 66	RH	
Fundamenta	al Frequency	:1909.8 MHz		Er	ngineer :Ma	rcus		
Operation N	Mode	:RX HIGH						
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L	
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe	
			Output Level	Gain	Loss		Margin	
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB	
115.36	S	-82.83	-80.99	0.92	-2.77	-13.00	-69.83	
124.09	S	-72.43	-70.72	1.06	-2.77	-13.00	-59.43	
216.24	S	-72.05	-75.90	6.99	-3.14	-13.00	-59.05	
374.35	S	-80.02	-83.38	6.76	-3.43	-13.00	-67.02	
718.70	S	-77.71	-79.85	6.06	-3.98	-13.00	-64.71	
959.26	S	-75.51	-77.01	5.85	-4.45	-13.00	-62.51	

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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# Radiated Spurious Emission Measurement Result (below 1GHz): HSDPA II Mode

Operation Band	:HSDPA B2	Test Date :2011-12-15
ARFCN	:CH 9262	Temp./Humi. :27 deg_C / 66 RH
Fundamental Frequency	:1852.4 MHz	Engineer :Marcus
Operation Mode	:RX LOW	
EUT Pol.	:H	Measurement Antenna Pol. : VERTICAL

Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
80.44	S	-82.26	-79.81	0.19	-2.67	-13.00	-69.26
159.98	S	-74.93	-73.58	1.58	-2.93	-13.00	-61.93
224.00	S	-73.85	-77.59	6.91	-3.17	-13.00	-60.85
370.47	S	-81.91	-85.30	6.79	-3.43	-13.00	-68.91
786.60	S	-76.34	-78.21	5.95	-4.16	-13.00	-63.34
994.18	S	-73.70	-75.42	6.11	-4.49	-13.00	-60.70

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation <b>B</b>	Band	:HSDPA B2	Test Date :2011-12-15				
ARFCN		:CH 9262		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundament	al Frequency	:1852.4 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX LOW					
EUT Pol.		:H	Measu	rement Anten	na Pol. :HO	RIZONTA	L
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBI	dB	dBm	dB
112.45	S	-87.15	-85.39	1.00	-2.77	-13.00	-74.15
123.12	S	-78.33	-76.56	0.99	-2.77	-13.00	-65.33
269.59	S	-74.40	-77.86	6.71	-3.27	-13.00	-61.40
370.47	S	-81.17	-84.56	6.79	-3.43	-13.00	-68.17
808.91	S	-77.62	-79.56	6.07	-4.20	-13.00	-64.62
983.51	S	-75.32	-76.95	6.03	-4.49	-13.00	-62.32

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation I	Band	:HSDPA B2	Test Date :2011-12-15				
ARFCN		:CH 9400		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundament	al Frequency	:1880.0 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX MID					
EUT Pol.		:H	Measu	rement Anten	na Pol. :VE	RTICAL	
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
80.44	S	-82.26	-79.81	0.19	-2.67	-13.00	-69.26
159.98	S	-74.93	-73.58	1.58	-2.93	-13.00	-61.93
224.00	S	-73.85	-77.59	6.91	-3.17	-13.00	-60.85
370.47	S	-81.91	-85.30	6.79	-3.43	-13.00	-68.91
786.60	S	-76.34	-78.21	5.95	-4.16	-13.00	-63.34
986.42	S	-73.43	-75.09	6.05	-4.49	-13.00	-60.43

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation H	Band	:HSDPA B2	Test Date :2011-12-15				
ARFCN		:CH 9400		Temp.	/Humi. :27	deg_C / 66	RH
Fundament	al Frequency	:1880.0 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX MID					
EUT Pol.		:H	Measu	rement Anten	na Pol. :HO	RIZONTA	L
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
86.26	S	-89.07	-87.12	0.70	-2.67	-13.00	-76.07
123.12	S	-80.40	-78.63	0.99	-2.77	-13.00	-67.40
215.27	S	-78.71	-82.56	6.98	-3.14	-13.00	-65.71
384.05	S	-81.36	-84.64	6.82	-3.56	-13.00	-68.36
793.39	S	-77.49	-79.41	6.00	-4.16	-13.00	-64.49
940.83	S	-75.36	-76.73	5.78	-4.51	-13.00	-62.36

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation I	Band	:HSDPA B2	Test Date :2011-12-15				
ARFCN		:CH 9538		Temp.	/Humi. :27	deg_C / 66	RH
Fundament	al Frequency	:1907.6 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX HIGH					
EUT Pol.		:H	Measu	rement Anten	na Pol. :VE	RTICAL	
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
80.44	S	-83.60	-81.15	0.19	-2.67	-13.00	-70.60
159.98	S	-77.60	-76.25	1.58	-2.93	-13.00	-64.60
221.09	S	-78.57	-82.39	6.98	-3.17	-13.00	-65.57
446.13	S	-82.34	-85.31	6.64	-3.70	-13.00	-69.34
710.94	S	-77.15	-79.39	6.16	-3.98	-13.00	-64.15
942.77	S	-73.09	-74.46	5.78	-4.51	-13.00	-60.09

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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<b>Operation Band</b>		:HSDPA B2	Test Date :2011-12-15				
ARFCN		:CH 9538	Temp./Humi. :27 deg_C / 66 RH				
Fundamental Frequency		:1907.6 MHz	Engineer :Marcus				
Operation Mode		:RX HIGH					
EUT Pol.		:H	Measurement Antenna Pol. :HORIZONTAL				
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
115.36	S	-83.97	-82.13	0.92	-2.77	-13.00	-70.97
123.12	S	-74.80	-73.03	0.99	-2.77	-13.00	-61.80
217.21	S	-72.91	-76.76	6.99	-3.14	-13.00	-59.91
370.47	S	-80.46	-83.85	6.79	-3.43	-13.00	-67.46
767.20	S	-77.35	-79.03	5.81	-4.20	-13.00	-64.35
978.66	S	-75.45	-77.05	5.99	-4.49	-13.00	-62.45

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Radiated Spurious Emission Measurement Result (below 1GHz): WCDMA V Mode										
Operation Band	:WCDMA B5	Test Date :2011-12-15								
ARFCN	:CH 4132	Temp./Humi. :27 deg_C / 66 RH								
Fundamental Frequency	:826.4 MHz	Engineer :Marcus								
Operation Mode	:RX LOW									
EUT Pol.	:E1	Measurement Antenna Pol. :VERTICAL								

Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
80.44	S	-85.00	-80.39	-1.96	-2.67	-13.00	-72.00
159.98	S	-80.86	-77.38	-0.57	-2.93	-13.00	-67.86
228.85	S	-81.47	-82.98	4.65	-3.17	-13.00	-68.47
450.01	S	-84.31	-85.21	4.47	-3.70	-13.00	-71.31
704.15	S	-78.20	-79.34	4.10	-3.98	-13.00	-65.20
935.01	S	-74.64	-74.97	3.64	-4.50	-13.00	-61.64

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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<b>Operation Band</b>		:WCDMA B5	5	Test Date :2011-12-15						
ARFCN		:CH 4132		Temp./Humi. :27 deg_C / 66 RH						
Fundament	al Frequency	:826.4 MHz		Engineer :Marcus						
Operation N	Mode	:RX LOW	LOW							
EUT Pol.		:E1	Measu	rement Anten	na Pol. :HO	RIZONTA	L			
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe			
			Output Level	Gain	Loss		Margin			
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB			
128.94	S	-83.05	-79.49	-0.78	-2.79	-13.00	-70.05			
225.94	S	-77.98	-79.55	4.72	-3.17	-13.00	-64.98			
267.65	S	-78.35	-79.73	4.59	-3.27	-13.00	-65.35			
375.32	S	-84.05	-85.33	4.61	-3.43	-13.00	-71.05			
816.67	S	-78.52	-79.36	3.94	-4.22	-13.00	-65.52			
956.35	S	-76.05	-76.48	3.68	-4.45	-13.00	-63.05			

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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<b>Operation Band</b>		:WCDMA B5	5	Test Date :2011-12-15							
ARFCN		:CH 4183		Temp./Humi. :27 deg_C / 66 RH							
Fundamenta	al Frequency	:836.6 MHz		Engineer :Marcus							
Operation N	Aode	:RX MID									
EUT Pol.		:E1	Measurement Antenna Pol. : VERTICAL								
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB				
80.44	S	-85.00	-80.39	-1.96	-2.67	-13.00	-72.00				
159.01	S	-79.01	-75.48	-0.62	-2.93	-13.00	-66.01				
262.80	S	-80.29	-81.74	4.66	-3.27	-13.00	-67.29				
454.86	S	-83.27	-84.17	4.49	-3.72	-13.00	-70.27				
746.83	S	-77.79	-78.20	3.57	-4.23	-13.00	-64.79				
935.01	S	-74.64	-74.97	3.64	-4.50	-13.00	-61.64				

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operation I	Band	:WCDMA B5	35 Test Date :2011-12-15								
ARFCN		:CH 4283	Temp./Humi. :27 deg_C / 66 RH								
Fundament	al Frequency	:836.6 MHz		Engineer :Marcus							
Operation I	Mode	:RX MID									
EUT Pol.		:E1	Measu	rement Anten	na Pol. :HO	RIZONTA	L				
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB				
121.18	S	-83.41	-79.35	-1.29	-2.77	-13.00	-70.41				
224.00	S	-80.51	-82.13	4.76	-3.17	-13.00	-67.51				
271.53	S	-82.22	-83.55	4.54	-3.27	-13.00	-69.22				
444.19	S	-84.91	-85.83	4.50	-3.70	-13.00	-71.91				
738.10	S	-79.45	-80.04	3.67	-4.14	-13.00	-66.45				
964.11	S	-76.83	-77.33	3.74	-4.45	-13.00	-63.83				
	~	10100	11100			10.00	00100				

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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<b>Operation Band</b>		:WCDMA B5	5	Test Date :2011-12-15							
ARFCN		:CH 4233		Temp./Humi. :27 deg_C / 66 RH							
Fundamenta	al Frequency	:846.6 MHz		Engineer :Marcus							
Operation N	Aode	:RX HIGH									
EUT Pol.		:E1	Measu	Measurement Antenna Pol. : VERTICAL							
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB				
80.44	S	-84.21	-79.60	-1.96	-2.67	-13.00	-71.21				
159.01	S	-76.20	-72.66	-0.62	-2.93	-13.00	-63.20				
262.80	S	-77.03	-78.48	4.66	-3.27	-13.00	-64.03				
454.86	S	-83.27	-84.17	4.49	-3.72	-13.00	-70.27				
746.83	S	-77.79	-78.20	3.57	-4.23	-13.00	-64.79				
935.01	S	-74.64	-74.97	3.64	-4.50	-13.00	-61.64				

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Operati	ion Band	:WCDMA B	WCDMA B5 Test Date :2011-12-15							
ARFCI	N	:CH 4233		Temp./Humi. :27 deg_C / 66 RH						
Fundar	mental Frequency	:846.6 MHz	Engineer :Marcus							
Operati	ion Mode	:RX HIGH	RX HIGH							
EUT P	ol.	:E1	Measu	rement Anten	na Pol. :HO	RIZONTA	L			
Freq	I. Note	ERP	SG	Antenna	Cable	Limit	Safe			
			Output Level	Gain	Loss		Margin			
MH	z F/H/E/S	dBm	dBm	dBd	dB	dBm	dB			
121.1	18 S	-83.41	-79.35	-1.29	-2.77	-13.00	-70.41			
272.5	50 S	-78.58	-79.90	4.52	-3.27	-13.00	-65.58			
444.1	19 S	-84.77	-85.68	4.50	-3.70	-13.00	-71.77			
612.0	00 S	-82.38	-82.82	4.05	-3.92	-13.00	-69.38			
816.6	57 S	-78.67	-79.51	3.94	-4.22	-13.00	-65.67			
950.5	53 S	-76.55	-76.88	3.63	-4.51	-13.00	-63.55			

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.

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Radiated S	Radiated Spurious Emission Measurement Result (Above 1GHz): GSM 850 Mode										
Operation <b>H</b>	Band	:GSM 850	Test Date :2011-12-15								
ARFCN		:CH 128	Temp./Humi. :27 deg_C / 66 RH								
Fundamental Frequency :824.2 M				Er	ngineer :Ma	rcus					
Operation N	Node	:RX LOW			-						
EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL					
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB				
1648.40	Н	-64.71	-61.97	2.40	-5.36	-13.00	-51.71				
2472.60											
3288.00											
4121.00											
4945.20											
5769.40											
6593.60											
7417.80											
8242.00											

## ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation E ARFCN Fundamenta Operation N EUT Pol.	al Frequency	:GSM 850 :CH 128 :824.2 MHz :RX LOW :E2	Test Date :2011-12-15 Temp./Humi. :27 deg_C / 66 RH Engineer :Marcus Measurement Antenna Pol. :HORIZONTAL					
Freq.	Note	ERP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin	
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB	
1648.40	Н	-65.57	-63.12	2.68	-5.36	-13.00	-52.57	
2472.60								
3288.00								
4121.00								
4945.20								
5769.40								
6593.60								
7417.80								
8242.00								

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation <b>B</b>	Band	:GSM 850	Test Date :2011-12-15								
ARFCN		:CH 190	Temp./Humi. :27 deg_C / 66 RH								
Fundament	al Frequency	:836.6 MHz	Engineer :Marcus								
Operation Mode		:RX MID									
EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL					
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB				
1673.20	Н	-63.40	-60.73	2.34	-5.29	-13.00	-50.40				
2509.80											
3346.40											
4183.00											
5019.60											
5856.20											
6692.80											
7529.40											
8366.00											

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency.

"E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation <b>B</b>	Band	:GSM 850	Test Date :2011-12-15							
ARFCN		:CH 190	Temp./Humi. :27 deg_C / 66 RH							
Fundament	al Frequency	:836.6 MHz	Engineer : Marcus							
Operation Mode		:RX MID								
EUT Pol.		:E2	Measu	rement Anten	na Pol. :HO	RIZONTA	L			
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe			
			Output Level	Gain	Loss		Margin			
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB			
1673.20	Н	-65.13	-62.78	2.66	-5.29	-13.00	-52.13			
2509.80										
3346.40										
4183.00										
5019.60										
5856.20										
6692.80										
7529.40										
8366.00										

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation <b>B</b>	Band	:GSM 850	Test Date :2011-12-15						
ARFCN		:CH 251	Temp./Humi. :27 deg_C / 66 RH						
Fundament	al Frequency	:848.8 MHz	Engineer :Marcus						
Operation Mode		:RX HIGH							
EUT Pol.		:E2	Measu	rement Anten	na Pol. :VE	RTICAL			
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
1697.60	Н	-62.45	-59.59	2.28	-5.40	-13.00	-49.45		
2546.40									
3395.20									
4244.00									
5092.80									
5941.60									
6790.40									
7639.20									
8488.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.



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Operation H	Band	:GSM 850	Test Date :2011-12-15				
ARFCN		:CH 251		Temp.	/Humi. :27 c	:leg_C / 66	RH
Fundament	al Frequency	:848.8 MHz		Er	ngineer :Ma	rcus	
Operation Mode :RX HIG							
EUT Pol.		:E2	Measurement Antenna Pol. :HORIZONTAL			L	
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1697.60	Н	-64.77	-62.28	2.65	-5.40	-13.00	-51.77
2546.40							
3395.20							
4244.00							
5092.80							
5941.60							
6790.40							
7639.20							
8488.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Radiated Spurious Emission Measurement Result (Above 1GHz): GSM 1900 Mode											
Operation B	and	:GSM 1900		Te	st Date :201	1-12-15					
ARFCN		:CH 512		Temp.	/Humi. :27 o	deg_C / 66	RH				
Fundamenta	al Frequency	:1850.2 MHz		Eı	ngineer :Ma	rcus					
Operation M	/Iode	:RX LOW									
EUT Pol.		:E2	Measurement Antenna Pol. :VERTICAL								
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe				
			Output Level	Gain	Loss		Margin				
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB				
3700.40	Н	-54.61	-55.14	7.40	-6.98	-13.00	-41.61				
5550.60											
7400.80											
9251.00											
11101.20											
12951.40											
14801.60											
16651.80											
18502.00											

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation B	and	:GSM 1900	0 Test Date :2011-12-15						
ARFCN		:CH 251		Temp.	/Humi. :27 o	deg_C / 66	RH		
Fundamenta	al Frequency	:1850.2 MHz		Er	ngineer :Ma	rcus			
Operation M	Iode	:RX LOW	X LOW						
EUT Pol.		:E2	Measurement Antenna Pol. :HORIZONTAL			L			
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB		
3700.40	Н	-57.39	-57.43	6.91	-6.98	-13.00	-44.39		
5550.60									
7400.80									
9251.00									
11101.20									
12951.40									
14801.60									
16651.80									
18502.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation E ARFCN Fundamenta Operation N EUT Pol.	al Frequency	:GSM 1900 :CH 661 :1880.0 MHz :RX MID :E2	Test Date :2011-12-15 Temp./Humi. :27 deg_C / 66 RH z Engineer :Marcus Measurement Antenna Pol. :VERTICAL				RH
Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
3760.00 5640.00 7520.00 9400.00 11280.00 13160.00 15040.00 16920.00 18800.00	H     	-55.82	-56.40	7.42	-7.12	-13.00	-42.82

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation B	and	:GSM 1900	00 Test Date :2011-12-15						
ARFCN		:CH 661		Temp./	/Humi. :27 o	deg_C / 66	RH		
Fundamenta	al Frequency	:1880.0 MHz		Er	ngineer :Ma	rcus			
Operation M	Iode	:RX MID	X MID						
EUT Pol.		:E2	Measurement Antenna Pol. :HORIZONTAL			L			
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB		
3760.00	Н	-57.63	-57.63	6.85	-7.12	-13.00	-44.63		
5640.00									
7520.00									
9400.00									
11280.00									
13160.00									
15040.00									
16920.00									
18800.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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:GSM 1900 :CH 810	) Test Date :2011-12-15 Temp./Humi. :27 deg_C / 66 RH				
		-		-	i iii
		LI		icus	
	24				
:E2	Measurement Antenna Pol. :VERTICAL				
EIRP	SG	Antenna	Cable	Limit	Safe
	Output Level	Gain	Loss		Margin
dBm	dBm	dBi	dB	dBm	dB
-56.88	-57.39	7.51	-7.20	-13.00	-43.88
	:CH 810 :1909.8 MHz :RX HIGH :E2 EIRP dBm	:CH 810 :1909.8 MHz :RX HIGH :E2 Measu EIRP SG Output Level dBm dBm	:CH 810Temp:1909.8 MHzEr:RX HIGHEr:E2Measurement AntenEIRPSGOutput LevelGaindBmdBm	:CH 810Temp./Humi. :27 d:1909.8 MHzEngineer :Ma:RX HIGH:E2Measurement Antenna Pol. :VEEIRPSGAntennaCableOutput LevelGaindBmdBmdB	:CH 810Temp./Humi. :27 deg_C / 66:1909.8 MHzEngineer :Marcus:RX HIGH:E2Measurement Antenna Pol. :VERTICALEIRPSGAntennaCableLimitGainLossdBmdBmdBdBm

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation E	Band	:GSM 1900	00 Test Date :2011-12-15						
ARFCN		:CH 810		Temp.	/Humi. :27 o	deg_C / 66	RH		
Fundamenta	al Frequency	:1909.8 MHz		Er	ngineer :Ma	rcus			
Operation N	/Iode	:RX HIGH	RX HIGH						
EUT Pol.		:E2	Measurement Antenna Pol. :HORIZONTAL				L		
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB		
3819.60	Н	-57.35	-57.39	7.05	-7.20	-13.00	-44.35		
5729.40									
7639.20									
9549.00									
11458.80									
13368.60									
15278.40									
17188.20									
19098.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Radiated S	ourious Emission	Measurement Res	ult (Above 1GHz	:): HSDPA II Mode
Naulateu S	pui ious Liiiissioii		uii (ADUVE 19112	). HSDIA II MOUC

Operation Band	:HSDPA B2	Test Date :2011-12-15
ARFCN	:CH 9262	Temp./Humi. :27 deg_C / 66 RH
Fundamental Frequency	:1852.4 MHz	Engineer :Marcus
Operation Mode	:RX LOW	
EUT Pol.	:H	Measurement Antenna Pol. :VERTICAL

Freq.	Note	EIRP	SG Output Level	Antenna Gain	Cable Loss	Limit	Safe Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
3704.80	Η	-58.97	-59.49	7.40	-6.98	-13.00	-45.97
5557.20							
7409.60							
9262.00							
11114.40							
12966.80							
14819.20							
16671.60							
18524.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation E	and	:HSDPA B2	2 Test Date :2011-12-15						
ARFCN		:CH 9262		Temp.	/Humi. :27 o	deg_C / 66	RH		
Fundamenta	al Frequency	:1852.4 MHz		Er	ngineer :Ma	rcus			
Operation N	/Iode	:RX LOW							
EUT Pol.		:H	Measurement Antenna Pol. :HORIZONTAL				L		
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBI	dB	dBm	dB		
3704.80	Н	-63.49	-63.51	6.90	-6.98	-13.00	-50.49		
5557.20									
7409.60									
9262.00									
11114.40									
12966.80									
14819.20									
16671.60									
18524.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation B ARFCN	and	:HSDPA B2 :CH 9400	2 Test Date :2011-12-15 Temp./Humi. :27 deg_C / 66 RH						
	al Frequency	:1880.0 MHz		-	ngineer :Ma	-			
Operation M		:RX MID			-8				
EUT Pol.		:H	Measurement Antenna Pol. :VERTICAL						
201100									
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe		
•			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB		
3760.00	Н	-61.74	-62.32	7.42	-7.12	-13.00	-48.74		
5640.00									
7520.00									
9400.00									
11280.00									
13160.00									
15040.00									
16920.00									
18800.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation B	and	:HSDPA B2	AB2 Test Date :2011-12-15				
ARFCN		:CH 9400		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundamenta	al Frequency	:1880.0 MHz		Er	ngineer :Ma	rcus	
Operation Mode :RX MID							
EUT Pol.		:H	Measurement Antenna Pol. :HORIZONTAL				
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
3760.00	Н	-62.32	-62.32	6.85	-7.12	-13.00	-49.32
5640.00							
7520.00							
9400.00							
11280.00							
13160.00							
15040.00							
16920.00							
18800.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation E	and	:HSDPA B2	B2 Test Date :2011-12-15				
ARFCN		:CH 9538		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundamenta	al Frequency	:1907.6 MHz		Er	ngineer :Ma	rcus	
Operation N	Iode	:RX HIGH					
EUT Pol.		:H	Measurement Antenna Pol. : VERTICAL				
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
3815.20	Н	-61.24	-61.76	7.50	-7.20	-13.00	-48.24
5722.80							
7630.40							
9538.00							
11445.60							
13353.20							
15260.80							
17168.40							
19076.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation E	Band	:HSDPA B2	SDPA B2 Test Date :2011-12-15				
ARFCN		:CH 9538		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundamenta	al Frequency	:1907.6 MHz		Er	ngineer :Ma	rcus	
Operation N	/Iode	:RX HIGH					
EUT Pol.		:H	Measurement Antenna Pol. :HORIZONTAL				
Freq.	Note	EIRP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBi	dB	dBm	dB
3815.20	Н	-62.18	-62.22	7.03	-7.20	-13.00	-49.18
5722.80							
7630.40							
9538.00							
11445.60							
13353.20							
15260.80							
17168.40							
19076.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Radiated S	Radiated Spurious Emission Measurement Result (Above 1GHz): WCDMA V Mode									
Operation E	Band	:WCDMA B5	5	Te	st Date :201	1-12-15				
ARFCN		:CH 4132		Temp.	/Humi. :27	deg_C / 66	RH			
Fundamenta	al Frequency	:826.4 MHz		Er	ngineer :Ma	rcus				
Operation N	Mode	:RX LOW								
EUT Pol.		:E1	Measurement Antenna Pol. :VERTICAL							
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe			
			Output Level	Gain	Loss		Margin			
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB			
1652.80	Н	-72.61	-69.87	2.39	-5.36	-13.00	-59.61			
2479.20										
3305.60										
4132.00										
4958.40										
5784.80										
6611.20										
7437.60										

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.

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Operation E	Band	:WCDMA B	MA B5 Test Date :2011-12-15				
ARFCN		:CH 4132		Temp.	/Humi. :27	deg_C / 66	RH
Fundamenta	al Frequency	:826.4 MHz		Er	ngineer :Ma	rcus	
Operation N	Operation Mode :RX LOW						
EUT Pol.		:E1	Measurement Antenna Pol. :HORIZONTAL			L	
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1652.80	Н	-74.06	-71.61	2.67	-5.36	-13.00	-61.06
2479.20							
3305.60							
4132.00							
4958.40							
5784.80							
6611.20							
7437.60							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

"F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. Note : "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---": denotes Noise Floor.

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Operation H	Band	:WCDMA B	VCDMA B5 Test Date :2011-12-15						
ARFCN		:CH 4183		Temp.	/Humi. :27 o	deg_C / 66	RH		
Fundament	al Frequency	:836.6 MHz		Er	ngineer :Ma	rcus			
Operation N	Mode	:RX MID	:RX MID						
EUT Pol.		:E1	Measurement Antenna Pol. : VERTICAL						
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe		
			Output Level	Gain	Loss		Margin		
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB		
1673.20	Н	-72.82	-70.14	2.34	-5.29	-13.00	-59.82		
2509.80									
3346.40									
4183.00									
5019.60									
5856.20									
6692.80									
7529.40									
8366.00									

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. " " : denotes Noise Floor

"---": denotes Noise Floor.



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Operation <b>H</b>	Band	:WCDMA B	DMA B5 Test Date :2011-12-15				
ARFCN		:CH 4283		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundament	al Frequency	:836.6 MHz		Er	ngineer :Ma	rcus	
Operation Mode :RX MID							
EUT Pol.		:E1	Measurement Antenna Pol. :HORIZONTAL			L	
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1673.20	Н	-74.32	-71.98	2.66	-5.29	-13.00	-61.32
2509.80							
3346.40							
4183.00							
5019.60							
5856.20							
6692.80							
7529.40							
8366.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



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Operation I	Band	:WCDMA B	CDMA B5 Test Date :2011-12-15				
ARFCN		:CH 4233		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundament	al Frequency	:846.6 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX HIGH					
EUT Pol.		:E1	Measurement Antenna Pol. :VERTICAL				
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1693.20	Н	-71.26	-68.42	2.29	-5.40	-13.00	-58.26
2539.80							
3386.40							
4233.00							
5079.60							
5926.20							
6772.80							
7619.40							
8466.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency. "---" : denotes Noise Floor.



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Operation E	Band	:WCDMA B	MA B5 Test Date :2011-12-15				
ARFCN		:CH 4233		Temp.	/Humi. :27 o	deg_C / 66	RH
Fundamenta	al Frequency	:846.6 MHz		Er	ngineer :Ma	rcus	
Operation N	Mode	:RX HIGH					
EUT Pol.		:E1	Measurement Antenna Pol. :HORIZONTAL				L
Freq.	Note	ERP	SG	Antenna	Cable	Limit	Safe
			Output Level	Gain	Loss		Margin
MHz	F/H/E/S	dBm	dBm	dBd	dB	dBm	dB
1693.20	Η	-73.64	-71.16	2.65	-5.40	-13.00	-60.64
2539.80							
3386.40							
4233.00							
5079.60							
5926.20							
6772.80							
7619.40							
8466.00							

ERP(dBm) = SG Level(dBm) + Antenna Gain(dBd) + Cable Loss(dB)

Note : "F" : denotes Fundamental Frequency. ; "H" : denotes Harmonic Frequency. "E" : denotes Band Edge Frequency. ; "S" : denotes Spurious Frequency.

"---": denotes Noise Floor.



# 11. FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

# **11.1. Standard Applicable:**

According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band

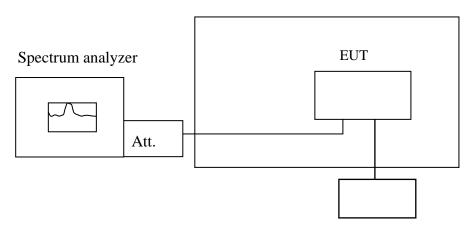
+/-2.5ppm for 1900MHz band

According to RSS-133 §6.3, RSS-132 §4.3

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations

## 11.2. Test Set-up:

**Temperature Chamber** 



Variable DC Power Supply

**Note :** Measurement setup for testing on Antenna connector

## **11.3. 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 25oC operating frequency as reference frequency. Turn EUT off and set the chamber temperature to -30oC. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10oC increased per stage until the highest temperature of +50oC reached.

# 11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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# **11.5. Measurement Result:**

Reference Frequency: GPRS 850 Mid Channel 836.6 MHz							
	Limit	+/-2.5  ppm = 209	91 Hz				
Power Supply	Environment	Frequency	Dolto (Hz)				
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)			
3.7	55	836600023	30	2091			
3.7	50	836600019	26	2091			
3.7	40	836600025	32	2091			
3.7	30	836600027	34	2091			
3.7	20	836599993	0	2091			
3.7	10	836600003	10	2091			
3.7	0	836599989	-4	2091			
3.7	-10	836599979	-14	2091			

R	Reference Frequency: GPRS 1900Mid Channel 1880 MHz							
	Limit	: +/- 2.5 ppm = 47	00 Hz					
Power Supply	Environment	Frequency	Dalta (Uz)	Limit (IIa)				
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)				
3.7	55	1879999988	-30	4700				
3.7	50	1880000010	-8	4700				
3.7	40	1880000016	-2	4700				
3.7	30	1880000018	0	4700				
3.7	20	1880000018	0	4700				
3.7	10	1879999959	-59	4700				
3.7	0	1879999941	-77	4700				
3.7	-10	1879999945	-73	4700				

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R	Reference Frequency: WCDMA II Mid Channel 1880 MHz								
	Limit	: +/- 2.5 ppm = 47	00 Hz						
Power Supply	Environment	Frequency	Dolto (Uz)	Limit (IIz)					
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)					
3.7	55	1880000007	13	4700					
3.7	50	1879999994	0	4700					
3.7	40	1880000005	11	4700					
3.7	30	1879999993	-1	4700					
3.7	20	1879999994	0	4700					
3.7	10	1880000008	14	4700					
3.7	0	1880000004	10	4700					
3.7	-10	1879999998	4	4700					

Reference Frequency: WCDMA V 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	55	836600008	9	2091	
3.7	50	836600005	6	2091	
3.7	40	836600003	4	2091	
3.7	30	836599998	-1	2091	
3.7	20	836599999	0	2091	
3.7	10	836600004	5	2091	
3.7	0	836599999	0	2091	
3.7	-10	836599996	-3	2091	

## Note: The battery is rated 3.7V dc.

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# 12. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

# 12.1. Standard Applicable:

According to FCC §2.1055(a) (1)

Frequency Tolerance: +/-2.5ppm for 850MHz band

+/-2.5ppm for 1900MHz band

According to RSS-133 §6.3, RSS-132 §4.3

The carrier frequency shall not depart from the reference frequency in excess of  $\pm 2.5$  ppm for mobile stations.

## 12.2. Test Set-up:

Refer to section 10.2 in this report

## **12.3. Measurement Procedure:**

Set chamber temperature to  $25^{\circ}$ 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.

## 12.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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# 12.5. Measurement Result:

Reference Frequency: GPRS 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	20	836600002	9	2091
3.7	20	836599993	0	2091
3.5	20	836599987	-6	2091
3.2	20	826500654	220	2001
(End Point)		836599654	-339	2091

Reference Frequency: GPRS 1900 Mid Channel 1880 MHz					
	Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)	
Vdc	Temperature (°C)	(MHz)			
4.2	20	1880000023	5	4700	
3.7	20	1880000018	0	4700	
3.5	20	1880000037	19	4700	
3.0	20	1970000422	595	4700	
(End Point)		1879999433	-585	4700	

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Reference Frequency: WCDMA II Mid Channel 1880 MHz				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
4.2	20	1880000004	10	4700
3.7	20	1879999994	0	4700
3.5	20	1879999997	3	4700
3.0	20	1990000469	474	4700
(End Point)	20	1880000468	474	4700

Reference Frequency: WCDMA V Mid Channel 836.6 MHz				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Dolto (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)	Delta (Hz)	Limit (Hz)
4.2	20	836599996	-3	2091
3.7	20	836599999	0	2091
3.5	20	836599997	-2	2091
3.0	20	926600069	60	2001
(Endpoint)	20	836600068	69	2091

Note: The battery is rated 3.7V dc.

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