

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E

OF

**Product Name:** HSUPA USB Modem

**Brand Name:** ZTE

**Model Name:** MF110

**FCC ID:** Q78-ZTEMF110

**Report No.:** ER/2009/20013

**Issue Date:** Jun. 29, 2009

**FCC Rule Part:** 2 , 22H & 24E

**Prepared for:** ZTE CORPORATION  
ZTE Plaza, Keji Road South, Hi-Tech  
Industrial Park, Nanshan District, Shenzhen,  
Guangdong, 518057, P.R.China

**Prepared by:** SGS Taiwan Ltd.  
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## VERIFICATION OF COMPLIANCE

**Applicant:** ZTE CORPORATION  
 ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China

**Product Name:** HSUPA USB Modem

**Brand Name:** ZTE

**FCC ID:** Q78-ZTEMF110

**Model No.:** MF110

**Model Difference:** N/A

**File Number:** ER/2009/20013

**Date of Test:** Apr. 14, 2009 ~ Jun. 03, 2009

**Date of EUT Received:** Apr. 14, 2009

**We hereby certify that:**

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C-2004 and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted and radiated emission limits of FCC Rule FCC PART 22 subpart H, PART 24 subpart E.

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

**Test By:**

*Brian Chang*

**Date:**

Jun. 29, 2009

*Brian Chang / Engineer*

**Prepared By:**

*Gigi yeh*

**Date:**

Jun. 29, 2009

*Gigi Yeh / Clerk*

**Approved By**

*Vincent Su*

**Date:**

Jun. 29, 2009

*Vincent Su / Manager*

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## Version

Version No.	Date	Description
00	Jun. 04, 2009	Initial creation of document
01	Jun. 29, 2009	Re-test GSM850 and PCS 1900 of the Band edge.

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## Table of Contents

<b>1. GENERAL PRODUCT INFORMATION .....</b>	<b>6</b>
1.1. Related Submittal(s) / Grant (s) .....	7
1.2. Test Methodology .....	7
1.3. Test Facility .....	7
1.4. Special Accessories .....	7
1.5. Equipment Modifications .....	7
<b>2. SYSTEM TEST CONFIGURATION .....</b>	<b>8</b>
2.1. EUT Configuration .....	8
2.2. EUT Exercise .....	8
2.3. Test Procedure .....	8
2.4. Measurement Equipment Used: .....	9
2.5. Configuration of Tested System .....	11
<b>3. SUMMARY OF TEST RESULTS .....</b>	<b>12</b>
<b>4. DESCRIPTION OF TEST MODES .....</b>	<b>13</b>
<b>5. RF POWER OUTPUT MEASUREMENT .....</b>	<b>14</b>
5.1. Standard Applicable: .....	14
5.2. Test Set-up: .....	15
5.3. Measurement Procedure: .....	15
5.4. Measurement Equipment Used: .....	15
5.5. Measurement Result: .....	16
<b>6. ERP, EIRP MEASUREMENT .....</b>	<b>20</b>
6.1. Standard Applicable: .....	20
6.2. Test SET-UP (Block Diagram of Configuration): .....	20
6.3. Measurement Procedure: .....	22
6.4. Measurement Equipment Used: .....	22
6.5. Measurement Result: .....	23
<b>7. 99% OCCUPIED BANDWIDTH MEASUREMENT .....</b>	<b>27</b>
7.1. Standard Applicable: .....	27
7.2. Test Set-up: .....	27
7.3. Measurement Procedure: .....	27
7.4. Measurement Equipment Used: .....	27
7.5. Measurement Result: .....	28
<b>8. OUT OF BAND EMISSION AT ANTENNA TERMINALS .....</b>	<b>42</b>
8.1. Standard Applicable: .....	42
8.2. Test SET-UP: .....	42

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8.4.	Measurement Equipment Used: .....	42
8.5.	Measurement Result: .....	43
<b>9.</b>	<b>FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT .....</b>	<b>59</b>
9.1.	Standard Applicable: .....	59
9.2.	EUT Setup (Block Diagram of Configuration): .....	59
9.3.	Measurement Procedure: .....	59
9.4.	Measurement Equipment Used: .....	59
9.5.	Measurement Result: .....	59
<b>10.</b>	<b>FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT .....</b>	<b>84</b>
10.1.	Standard Applicable: .....	84
10.2.	Test Set-up: .....	84
10.3.	Measurement Procedure: .....	84
10.4.	Measurement Equipment Used: .....	84
10.5.	Measurement Result: .....	85
<b>11.</b>	<b>FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT .....</b>	<b>88</b>
11.1.	Standard Applicable: .....	88
11.2.	Test Set-up: .....	88
11.3.	Measurement Procedure: .....	88
11.4.	Measurement Equipment Used: .....	88
11.5.	Measurement Result: .....	89
<b>12.</b>	<b>AC POWER LINE CONDUCTED EMISSION TEST .....</b>	<b>91</b>
12.1.	Standard Applicable: .....	91
12.2.	EUT Setup: .....	91
12.3.	Measurement Procedure: .....	91
12.4.	Measurement Equipment Used: .....	91
12.5.	Measurement Result; .....	91

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## 1. GENERAL PRODUCT INFORMATION

### General:

Product Name:	HSUPA USB Modem
Brand Name:	ZTE
Model Name:	MF110
Model Difference:	N/A
Power Supply:	5V dc form USB Port.

### GSM and WCDMA:

	Operating Frequency	Rated Power	
Cellular Phone Standards Frequency Range and Power:	GSM/GPRS/EDGE, 850, Class 12	824.2 MHz– 848.8 MHz	33 dBm
	GSM/GPRS/EDGE, 1900, Class 12	1850.2MHz – 1909.8MHz	30 dBm
	WCDMA/HSUPA/HSDPA Band II	1852.4MHz – 1907.6MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band V	826.4MHz – 846.6MHz	24 dBm
	HSUPA data rate: uplink up to 2Mbps HSDPA data rate: downlink up to 7.2Mbps		
Type of Emission:	GSM850: 245KGXW / GSM1900: 246KGXW EDGE 850: 246KG7W / EDGE 1900: 250KG7W WCDMA Band II: 4M17F9W / WCDMA Band V: 4M19F9W HSUPA Band II: 4M19D7W / HSUPA Band V: 4M17D7W		
Hardware Version:	N/A		
Software Version:	N/A		
IMEI:	351790030003690		

This test report applies for GSM/GPRS/EDGE 850/1900 and WCDMA/HSDPA/HSUPA Bands II and V.

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

This submittal(s) (test report) is intended for FCC ID: **Q78-ZTEMF110** filing to comply with Section Part 22 subpart H, Part 24 subpart E of the FCC CFR 47 Rules.

### 1.2. Test Methodology

Both conducted and radiated testing were performed according to the procedures document on TIA/EIA-603-C-2004 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

The Procedure of KDB941225 (SAR Measurement Procedures for 3G devices, WCDMA / HSDPA/HSUPA) 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-1

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 AC Power Line Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in Section 7 and 13 of ANSI C63.4: 2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

#### 2.3.2 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.

#### 2.3.3 Radiated Emissions (ERP/EIRP):

According to measurement procured TIA/EIA 603C, 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:**

AC POWER LINE CONDUCTED EMISSION EQUIPMENT List					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCS30	828985/004	09/16/2008	09/15/2009
LISN	Rolf-Heine	NNB-2/16Z	99012	02/18/2009	02/17/2010
LISN	FCC	FCC-LISN-50 /250-25-2-01	04034	02/18/2009	02/17/2010
Coaxial Cables	N/A	WK CE Cable	N/A	10/30/2008	10/29/2009

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2008	04/18/2010
Spectrum Analyzer	Agilent	E4440A	US41160416	01/23/2008	01/22/2010
Radio Communication Analyzer	R&S	CMU200	102189	05/13/2008	05/13/2010
800 – 1000MHz Filter	Micro-Tronics	BRM13462	001	01/05/2009	01/04/2010
1800 – 2000MHz Filter	Micro-Tronics	BRM13463	001	01/05/2009	01/04/2010
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2008	04/13/2010
Temperature Chamber	GIANT FORCE	GTH-150-40-CP-AR	MAA0512-018	02/05/2008	02/04/2010
DC Block	Agilent	BLK-18	155452	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S20W5	N/A	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2009	07/04/2010
Splitter	Agilent	11636B	N/A	07/05/2009	07/04/2010
DC Power Supply	HP	6038A	2929A-07548	06/27/2009	06/26/2011
DC Power Supply	Topward	3303D	981327	10/26/2007	10/25/2009

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966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	R&S	FSP 40	100034	02/22/2009	02/21/2010
Bi-log Antenna	SCHWAZBECK	VULB9160	9160-3136	11/15/2008	11/14/2009
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/10/2008	07/09/2010
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/10/2008	07/09/2010
Horn antenna	SCHWAZBECK	BBHA 9120D	309	05/09/2008	05/10/2010
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-320	03/14/2009	03/13/2010
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2010
Signal Generator	Agilent	E4438C	MY45093613	05/22/2009	05/21/2010
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2008	11/29/2009
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2009	01/04/2010
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2009	07/04/2010
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2009	07/04/2010
Radio Communication Analyzer	R&S	CMU200	102189	05/13/2008	05/13/2010
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	01/05/2009	01/04/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2009	01/04/2010
3m Site	SGS	966 chamber	N/A	11/08/2008	11/09/2009

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## 2.5. Configuration of Tested System

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

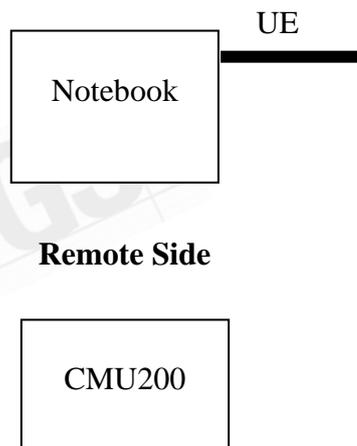


Table 2-1 Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1.	Notebook	IBM	T40	99HCYF4	shielded	Un-shielded
2.	Universal Radio Com- munication Tester	R&S	CMU200	102189	shielded	Un-shielded

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### 3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§2.1047	Modulation characteristics	N/A
§2.1046(a)	RF Power Output	Compliant
§2.1046(a) §22.913(a)(2) §24.232(c)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% Occupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a)	Out of Band Emissions at Antenna Terminals and Band Edge	Compliant
§2.1053 §22.917(a) §24.238(a)	Field Strength of Spurious Radiation	Compliant
§2.1055(a)(1) §22.355 §24.235	Frequency Stability vs. Temperature	Compliant
§2.1055(d)(2) §22.355 §24.235	Frequency Stability vs. Voltage	Compliant
§15.107;§15.207	AC Power Line Conducted Emission	Compliant

Max ERP/EIRP measurement result:

	dBm	dB	W
GSM 850 Band	13.96	ERP	0.025
GSM 1900 Band	21.24	EIRP	0.133
EDGE 850 Band	10.79	ERP	0.012
EDGE 1900 Band	15.35	EIRP	0.034
WCDMA Band II	17.21	EIRP	0.053
WCDMA Band V	4.88	ERP	0.003
HSUPA Band II	16.00	EIRP	0.040
HSUPA Band V	6.22	ERP	0.004

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#### 4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

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

The field strength of spurious radiation emission was measured as EUT lie down position (H) for both GSM and WCDMA Band II and V were reported which has the worst case.

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## 5. RF POWER OUTPUT MEASUREMENT

### 5.1. Standard Applicable:

According to FCC §2.1046.

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

FCC 24.232(d) Peak Power Measurement, FCC 24.232(c) Maximum Power Reduction.

3GPP Power limitation for HSDPA and HSUPA

#### Maximum Output Powers for HSDPA

Sub-test in table C.10.1.4	Power Class 3		Power Class 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

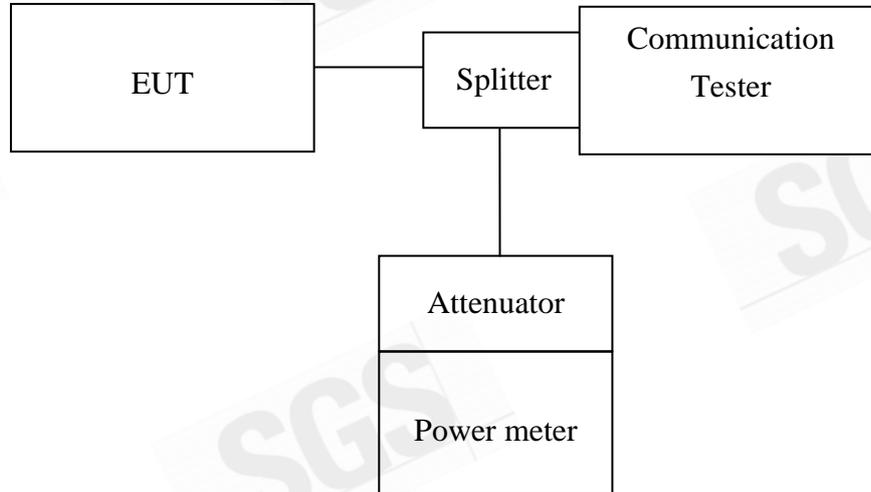
#### Maximum Output Powers for HSUPA

Sub-test in table C.11.1.3	Power Class 3		Power Class 4	
	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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## 5.2. Test Set-up:



*Note: Measurement setup for testing on Antenna connector*

## 5.3. Measurement Procedure:

The transmitter output was connected to a calibrated attenuator, the other end of which was connected to a power meter. Transmitter output was read off the power meter in dBm. The power output at the transmitter antenna port was determined by adding the value of the attenuator to the power meter reading. The Procedure of KDB941225 KDB941125(SAR Measurement Procedures for 3G devices, WCDMA/HSDPA) was used for EUT and Base station setting. RMC 12.2kps is used for this testing

## 5.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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**5.5. Measurement Result:**

**5.5.1. RF Conducted Output Power**

**5.5.1.1.: GSM/EDGE (GMSK; 8-PSK)**

**Result:**

Fre- quency (MHz)	CH	1 Time Slot				2 Time Slot				3 Time Slot		4 Time Slot	
		GMSK Mode		8-PSK Mode		GMSK Mode		8-PSK Mode		8-PSK Mode		8-PSK Mode	
		Peak Power (dBm)	AV Power (dBm)										
824.2	128	31.6	31.5	29.7	26.5	28.6	28.5	28.4	25.4	26.6	23.5	25.3	22.4
836.6	190	31.3	31.2	29.9	26.7	28.5	28.4	28.2	25.2	26.4	23.4	25.1	22.1
848.8	251	31.4	31.3	29.6	26.6	28.5	28.4	28.3	25.2	26.3	23.3	25.2	22.2
1850.2	512	28.7	28.6	28.6	25.5	26.0	25.9	27.3	24.0	25.5	22.3	24.3	21.0
1880.0	661	28.9	28.8	28.5	25.4	26.1	26.0	27.4	24.2	25.6	22.4	24.4	21.1
1909.8	810	29.0	28.9	28.5	25.5	26.1	26.0	27.4	24.3	25.5	22.4	24.3	21.1

**5.5.1.2.: 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)	CH	Peak Power (dBm)	RMS. Power (dBm)
WCDMA Band II	1852.4	9262	24.13	20.92
	1880.0	9400	24.48	21.13
	1907.6	9538	24.40	21.21

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

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	RMS. Power (dBm)
WCDMA Band V	826.4	4132	24.43	21.15
	836.6	4183	24.86	21.48
	846.6	4233	24.55	21.27

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### 5.5.1.3.: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:  $\beta$  values for transmitter characteristics tests with HS-DPCCH(FOR HSDPA)**

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$ (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)	RMC (Kbps)
1	2/15	15/15	64	2/15	4/15	0.0	0.0	12.2
2	12/15 (Note 4)	15/15 (Note 4)	64	12/15 (Note 4)	24/15	1.0	0.0	12.2
3	15/15	8/15	64	15/8	30/15	1.5	0.5	12.2
4	15/15	4/15	64	15/4	30/15	1.5	0.5	12.2

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

### Results:

Mode	Sub-test	RMS Power (dBm)			Power Class 3 Limita- tion (dBm)	Comments
		Channel				
		9262	9400	9538		
HSDPA(B2)	1	21.14	21.42	21.40	20.3dBm – 25.7dBm	Pass
	2	20.85	21.02	21.08	20.3dBm – 25.7dBm	Pass
	3	20.68	20.94	20.91	19.8dBm – 25.7dBm	Pass
	4	20.73	20.98	20.97	19.8dBm – 25.7dBm	Pass

Mode	Sub-test	RMS Power (dBm)			Power Class 3 Limita- tion (dBm)	Comments
		Channel				
		4132	4183	4233		
HSDPA(B5)	1	21.37	21.77	21.46	20.3dBm – 25.7dBm	Pass
	2	21.08	21.37	21.14	20.3dBm – 25.7dBm	Pass
	3	20.91	21.29	20.97	19.8dBm – 25.7dBm	Pass
	4	20.96	21.33	21.03	19.8dBm – 25.7dBm	Pass

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**5.5.1.3.:HSPA(HSDPA & HSUPA) Release 6 mode**

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX 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:  $\beta$  values for transmitter characteristics tests with HS-DPCCH and E-DCH(FOR HSUPA)**

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$	$\beta_{ec}$	$\beta_{ed}$	$\beta_{ed}$ (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	5	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	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	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.**

**Results:**

Mode	Sub-test	RMS Power (dBm)			Power Class 3 Limitation (dBm)	Comments
		9262	9400	9538		
HSUPA(B2)	1	20.86	20.83	20.72	18.8dBm – 25.7dBm	Pass
	2	18.92	18.91	18.96	16.8dBm – 25.7dBm	Pass
	3	19.63	19.62	19.65	17.8dBm – 25.7dBm	Pass
	4	18.97	18.86	18.62	16.8dBm – 25.7dBm	Pass
	5	20.72	20.66	20.81	18.8dBm – 25.7dBm	Pass

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Mode	Sub-test	RMS Power (dBm)			Power Class 3 Limitation (dBm)	Comments
		Channel				
		4132	4183	4233		
HSUPA(B5)	1	20.93	20.76	20.75	18.8dBm – 25.7dBm	Pass
	2	18.82	18.69	18.82	16.8dBm – 25.7dBm	Pass
	3	19.58	19.55	19.56	17.8dBm – 25.7dBm	Pass
	4-	18.82	18.68	18.74	16.8dBm – 25.7dBm	Pass
	5	20.75	20.83	21.08	18.8dBm – 25.7dBm	Pass

### 5.5.2. Minimum Communications Power Measurement

#### PCS 1900 band

PCL	0	1	2	3	4	5	6	7	8
Output power (dBm)	29.0	29.0	29.0	29.0	28.2	26.2	24.2	22.2	20.2
PCL	9	10	11	12	13	14	15	16	17
Output power (dBm)	18.2	16.1	14.1	12.1	10.0	8.0	6.0	4.1	2.0

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/HSUPA band II

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

## 6. ERP, EIRP MEASUREMENT

### 6.1. Standard Applicable:

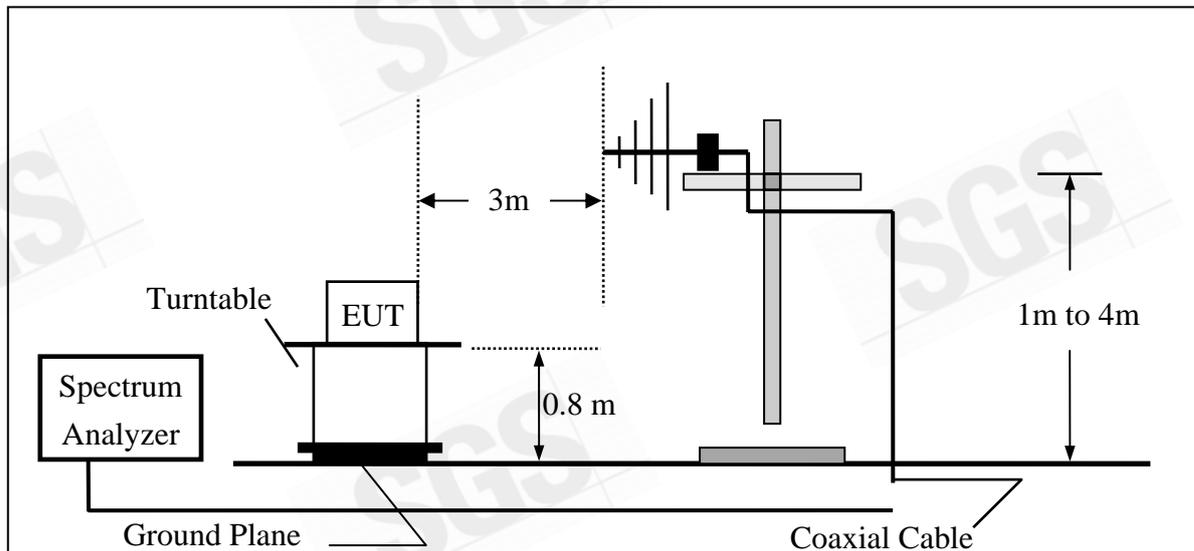
According to FCC §2.1046

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

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

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

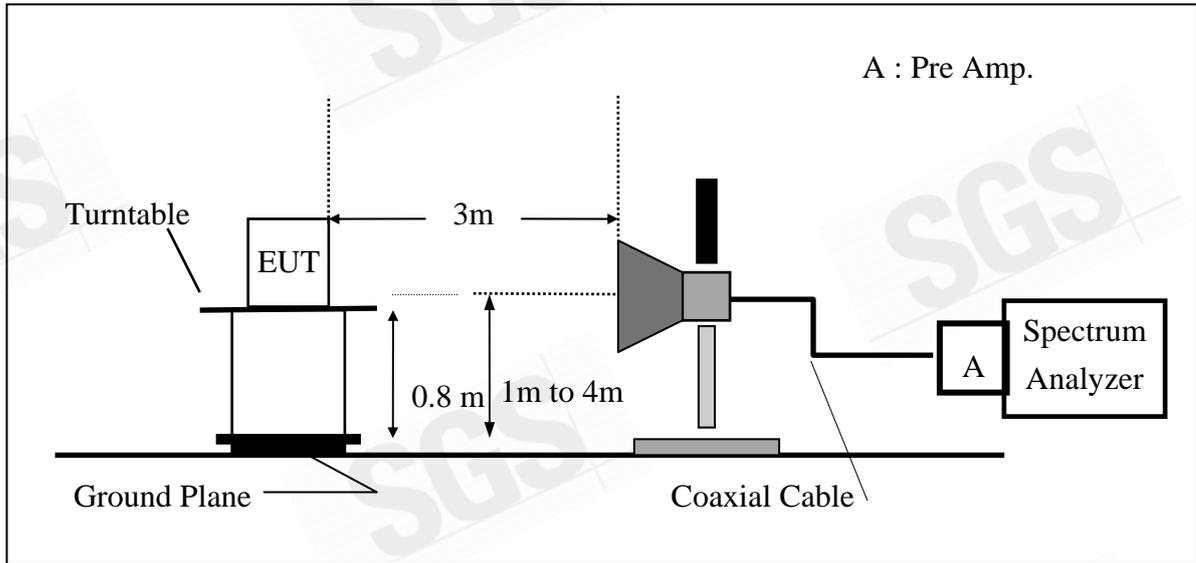
(A) Radiated Emission Test Set-Up, Frequency Below 1000MHz



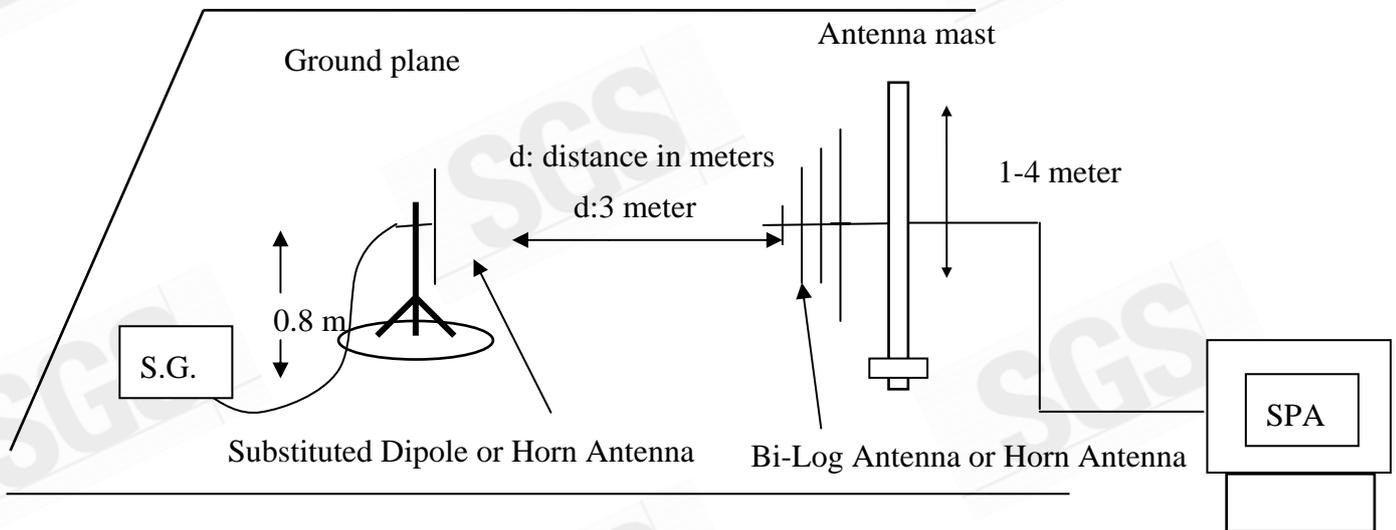
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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



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### 6.3. Measurement Procedure:

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

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

ERP in frequency band 824.2 –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:

$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable Loss (dB)}$$

$$\text{EIRP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}$$

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

### 6.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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**6.5. Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GSM 850	824.20	128	H	V	109.33	22.94	-7.87	3.62	11.44	38.45
				H	111.73	25.46	-7.87	3.62	13.96	38.45
	836.60	190	H	V	108.82	22.57	-7.88	3.65	11.04	38.45
				H	111.62	25.39	-7.88	3.65	13.86	38.45
	848.80	251	H	V	108.59	22.47	-7.88	3.68	10.91	38.45
				H	110.99	24.80	-7.88	3.68	13.24	38.45

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
PCS 1900	1850.20	512	H	V	112.63	8.24	9.90	5.56	12.58	33.00
				H	121.08	16.90	9.90	5.56	21.24	33.00
	1880.00	661	H	V	111.59	7.23	9.99	5.61	11.61	33.00
				H	119.22	15.08	9.99	5.61	19.45	33.00
	1909.80	810	H	V	111.52	7.19	10.08	5.66	11.61	33.00
				H	117.81	13.70	10.08	5.66	18.12	33.00

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
 Below 1GHz was RBW=300 KHz, VBW=1MHz,  
 Above 1GHz was RBW= 1MHz , VBW= 3MHz

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EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
EDGE 850	824.20	128	H	V	106.84	20.45	-7.87	3.62	8.95	38.45
				H	108.27	22.00	-7.87	3.62	10.50	38.45
	836.60	190	H	V	106.60	20.35	-7.88	3.65	8.82	38.45
				H	108.55	22.32	-7.88	3.65	10.79	38.45
	848.80	251	H	V	105.65	19.53	-7.88	3.68	7.97	38.45
				H	107.76	21.57	-7.88	3.68	10.01	38.45

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
EDGE 1900	1850.20	512	H	V	109.27	4.88	9.90	5.56	9.22	33.00
				H	115.19	11.01	9.90	5.56	15.35	33.00
	1880.00	661	H	V	108.58	4.22	9.99	5.61	8.60	33.00
				H	114.04	9.90	9.99	5.61	14.27	33.00
	1909.80	810	H	V	108.74	4.41	10.08	5.66	8.83	33.00
				H	113.70	9.59	10.08	5.66	14.01	33.00

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
 Below 1GHz was RBW=300 KHz, VBW=1MHz,  
 Above 1GHz was RBW= 1MHz , VBW= 3MHz

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EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
WCDMA Band II	1852.40	9262	H	V	112.68	8.30	9.90	5.56	12.63	33.00
				H	117.05	12.87	9.90	5.56	17.21	33.00
	1880.00	9400	H	V	108.78	4.42	9.99	5.61	8.80	33.00
				H	112.79	8.65	9.99	5.61	13.02	33.00
	1907.60	9538	H	V	107.63	3.30	10.07	5.66	7.71	33.00
				H	112.00	7.89	10.07	5.66	12.30	33.00

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
WCDMA Band V	826.40	4132	H	V	98.70	12.34	-7.88	3.63	0.83	38.45
				H	102.21	15.95	-7.88	3.63	4.45	38.45
	836.00	4180	H	V	99.51	13.25	-7.88	3.65	1.72	38.45
				H	102.30	16.07	-7.88	3.65	4.54	38.45
	846.60	4233	H	V	100.86	14.71	-7.88	3.67	3.16	38.45
				H	102.63	16.43	-7.88	3.67	4.88	38.45

**Remark:**

- (1) The RBW,VBW of SPA for frequency  
Below 1GHz was RBW=5MHz, VBW=5MHz,  
Above 1GHz was RBW= 5MHz , VBW= 5MHz

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EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
HSUPA Band II	1852.40	9262	H	V	113.56	9.18	9.90	5.56	13.51	33.00
				H	115.84	11.66	9.90	5.56	16.00	33.00
	1880.00	9400	H	V	110.64	6.28	9.99	5.61	10.66	33.00
				H	112.09	7.95	9.99	5.61	12.32	33.00
	1907.60	9538	H	V	108.69	4.36	10.07	5.66	8.77	33.00
				H	110.50	6.39	10.07	5.66	10.80	33.00

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
HSUPA Band V	826.40	4132	H	V	98.61	12.25	-7.88	3.63	0.74	38.45
				H	101.79	15.53	-7.88	3.63	4.03	38.45
	836.00	4180	H	V	100.13	13.87	-7.88	3.65	2.34	38.45
				H	103.98	17.75	-7.88	3.65	6.22	38.45
	846.60	4233	H	V	99.21	13.06	-7.88	3.67	1.51	38.45
				H	101.90	15.70	-7.88	3.67	4.15	38.45

**Remark:**

- (1) The RBW,VBW of SPA for frequency  
 Below 1GHz was RBW=5MHz, VBW=5MHz,  
 Above 1GHz was RBW= 5MHz , VBW= 5MHz

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## 7. 99% OCCUPIED BANDWIDTH MEASUREMENT

### 7.1. Standard Applicable:

According to §FCC 2.1049.

### 7.2. Test Set-up:

Refer to section 5.2 in this report

### 7.3. Measurement Procedure:

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

### 7.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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7.5. Measurement Result:

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
GSM 850	824.20	128	0.2456
	836.60	190	0.2422
	848.80	251	0.2420

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EDGE 850	824.20	128	0.2442
	836.60	190	0.2434
	848.80	251	0.2467

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
PCS 1900	1850.20	512	0.2464
	1880.00	661	0.2415
	1909.80	810	0.2454

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EDGE 1900	1850.20	512	0.2480
	1880.00	661	0.2509
	1909.80	810	0.2493

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA II	1852.40	12	4.1738
	1880.00	9400	4.1689
	1907.60	9538	4.1741

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA V	826.40	4132	4.1709
	836.60	4180	4.1905
	846.60	4233	4.1625

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EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
HSUPA II	1852.40	12	4.1689
	1880.00	9400	4.1780
	1907.60	9538	4.1948

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
HSUPA V	826.40	4132	4.1634
	836.60	4180	4.1754
	846.60	4233	4.1778

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Figure 7-1: GSM Channel Low

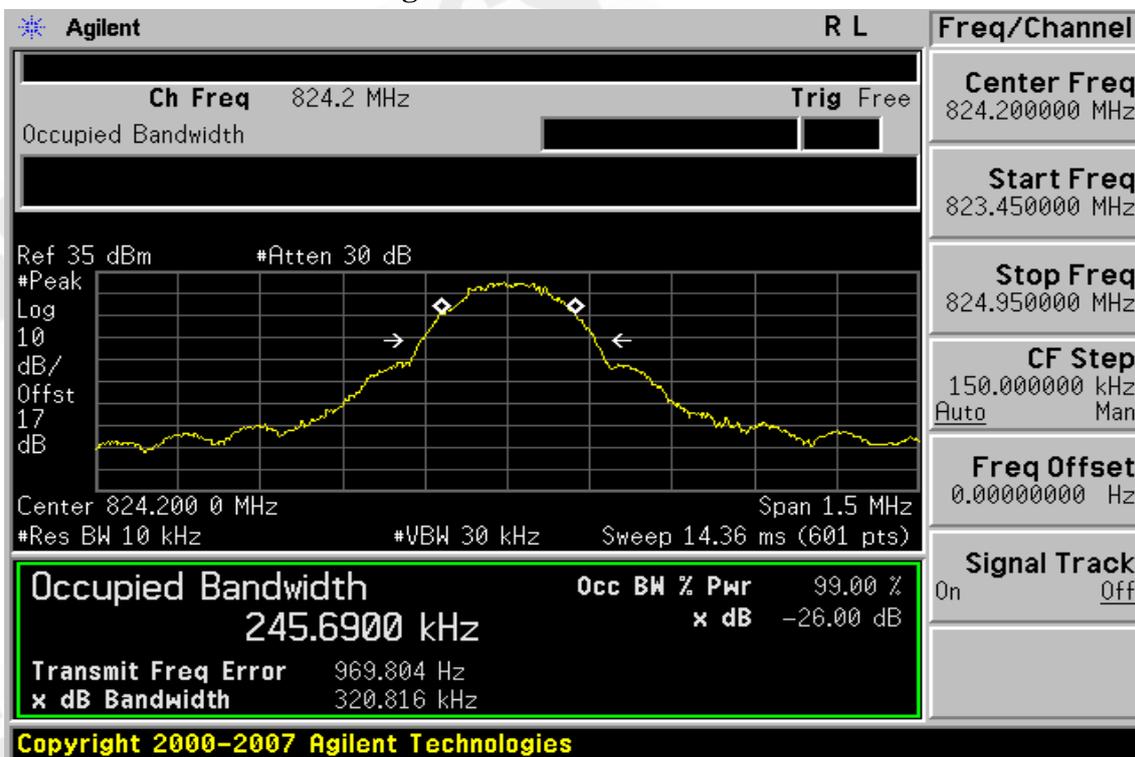
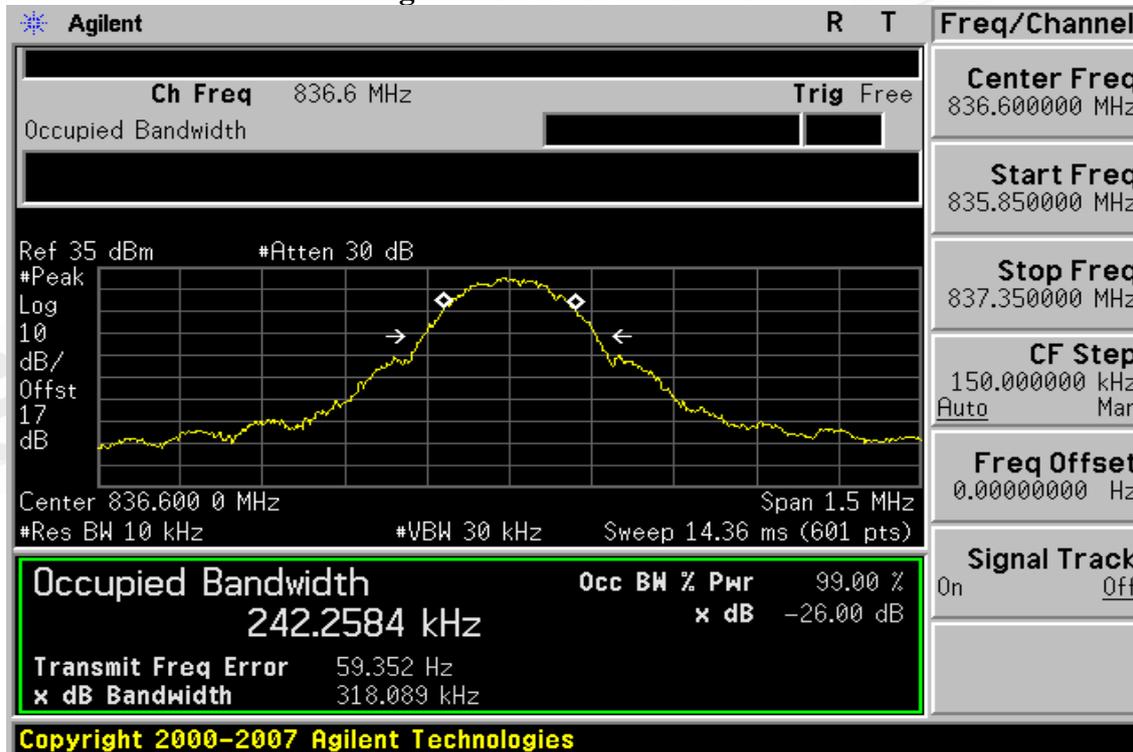


Figure 7-2 GSM Channel Mid



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Figure 7-3: GSM Channel High

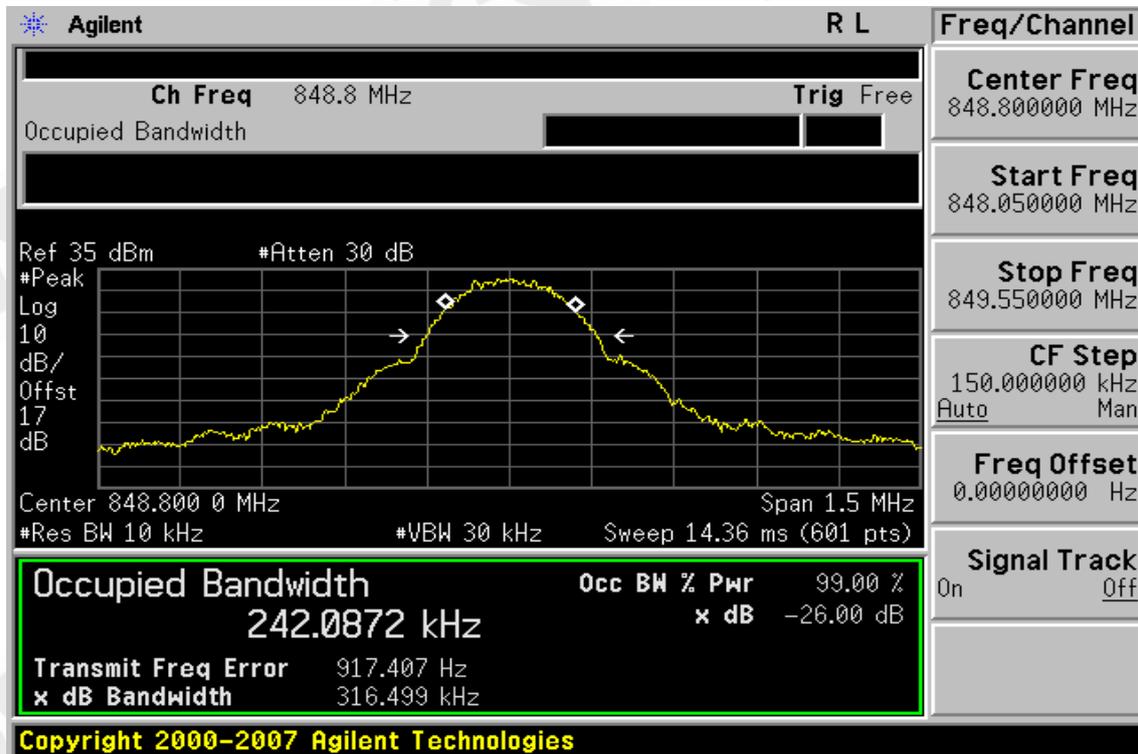
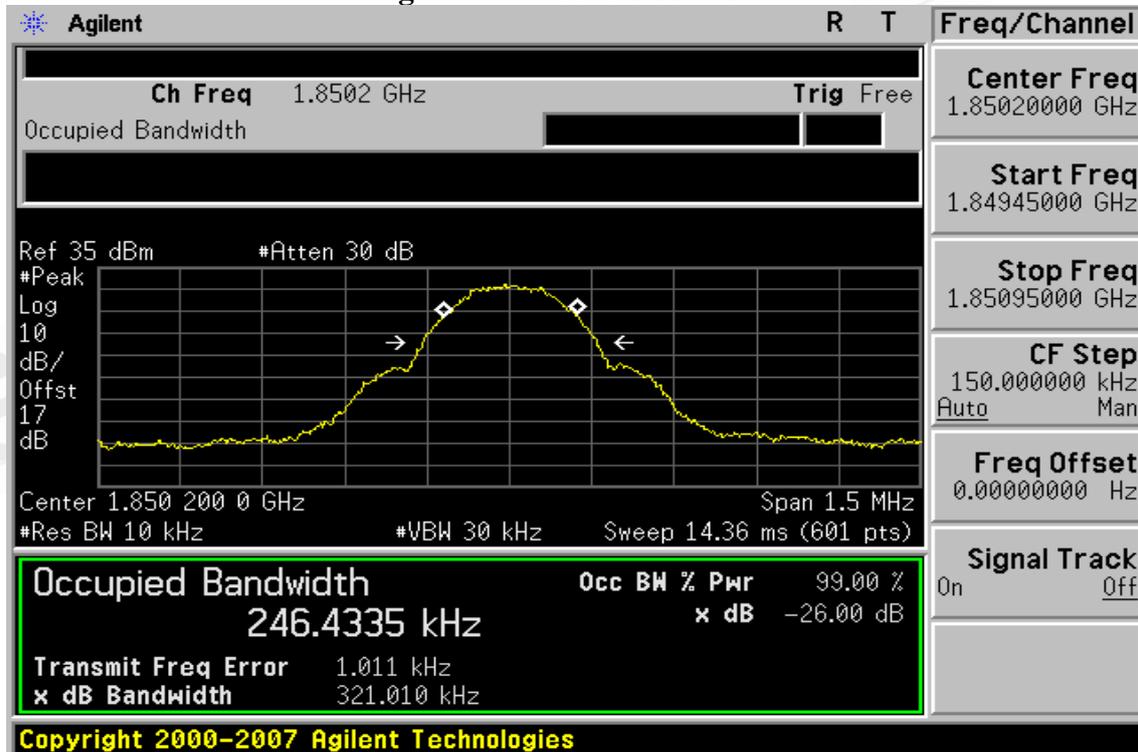


Figure 7-4: PCS Channel Low



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Figure 7-5 PCS Channel Mid

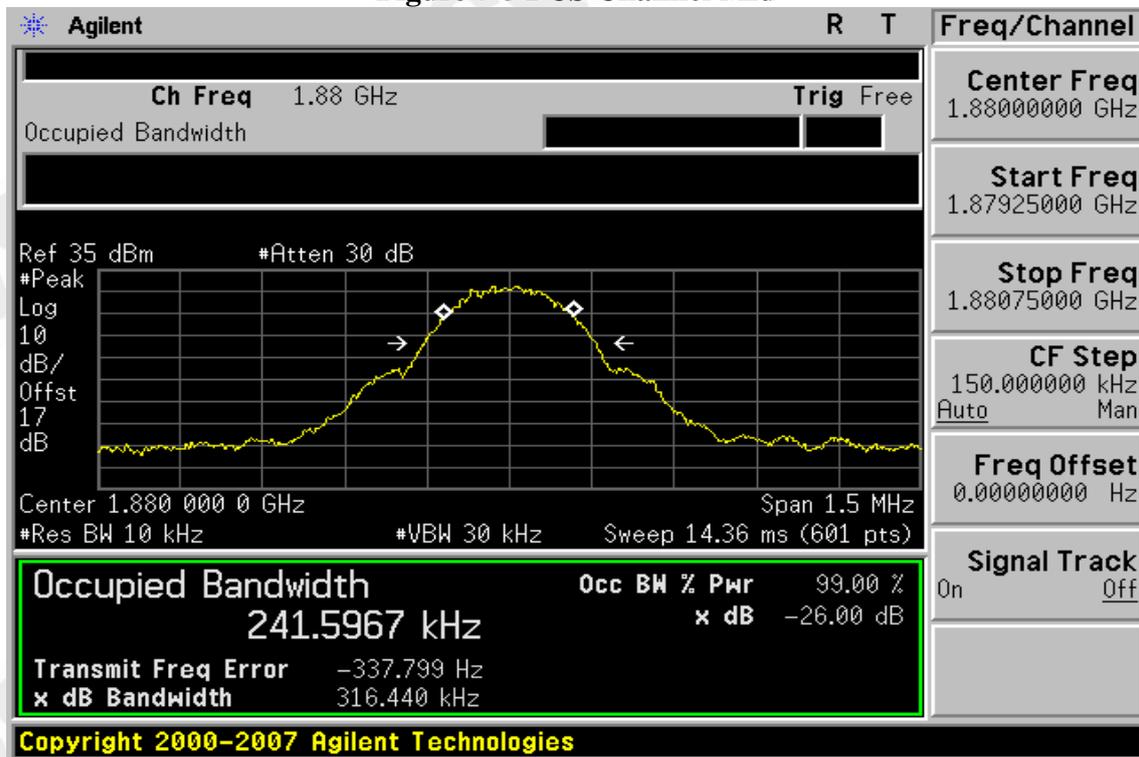
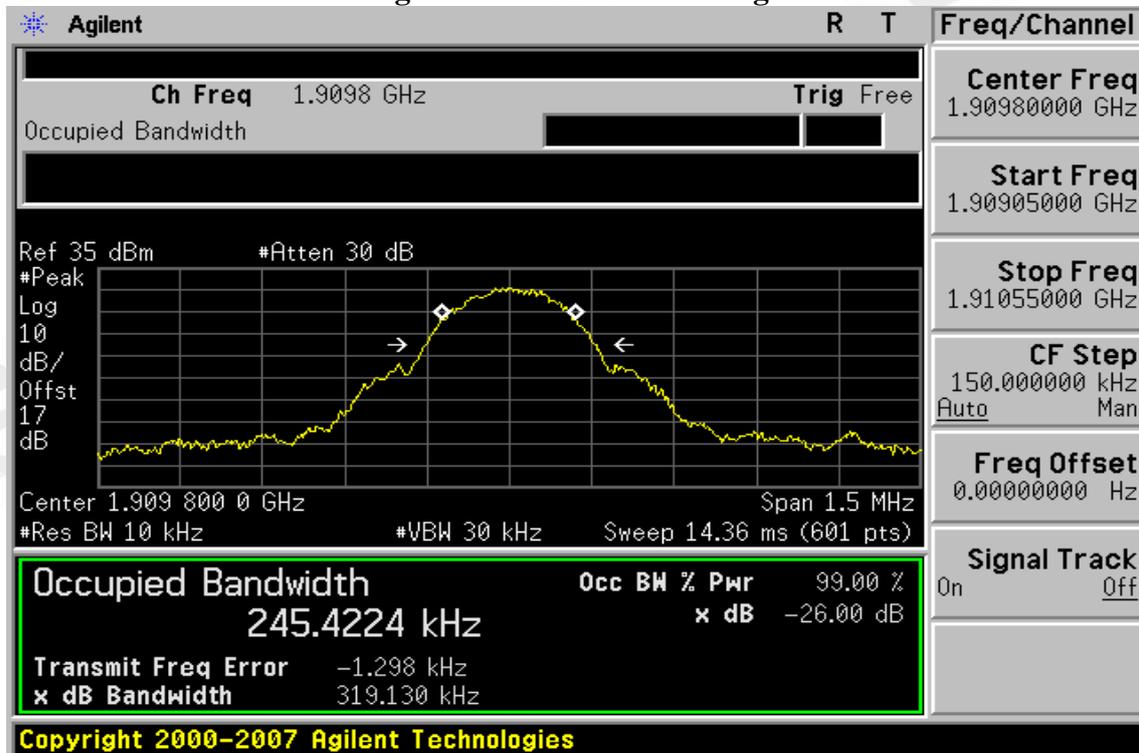


Figure 7-6: PCS Channel High



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Figure 7-7: EDGE 850 Channel Low

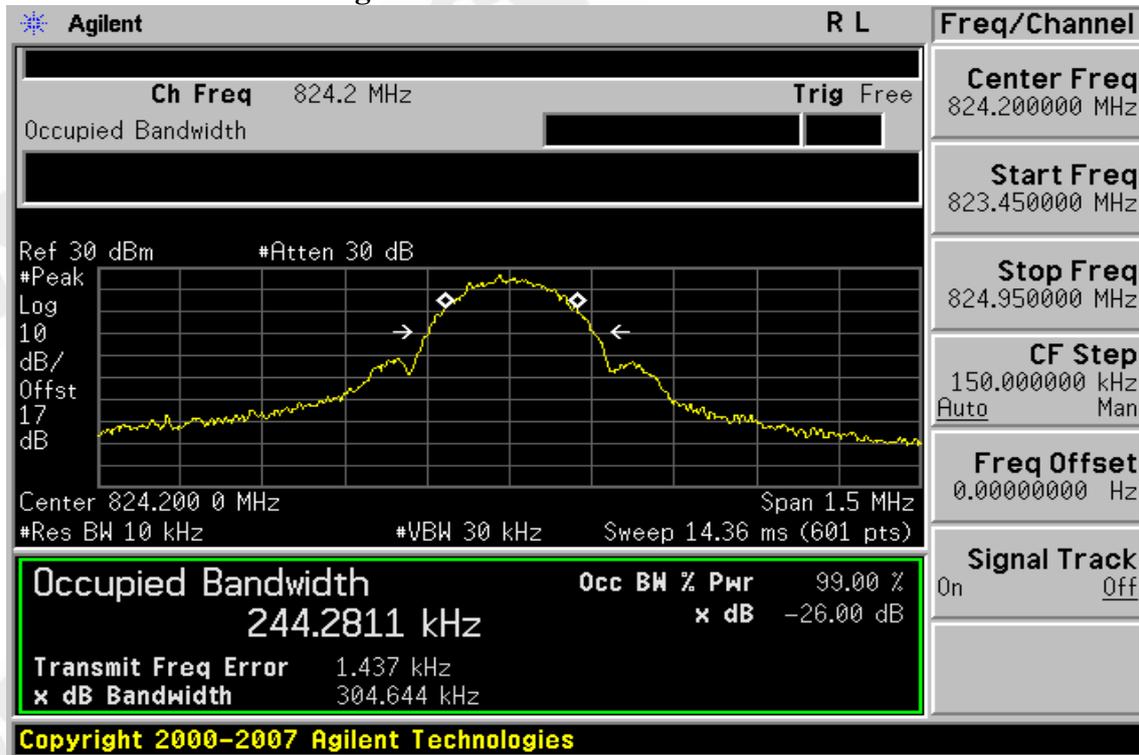
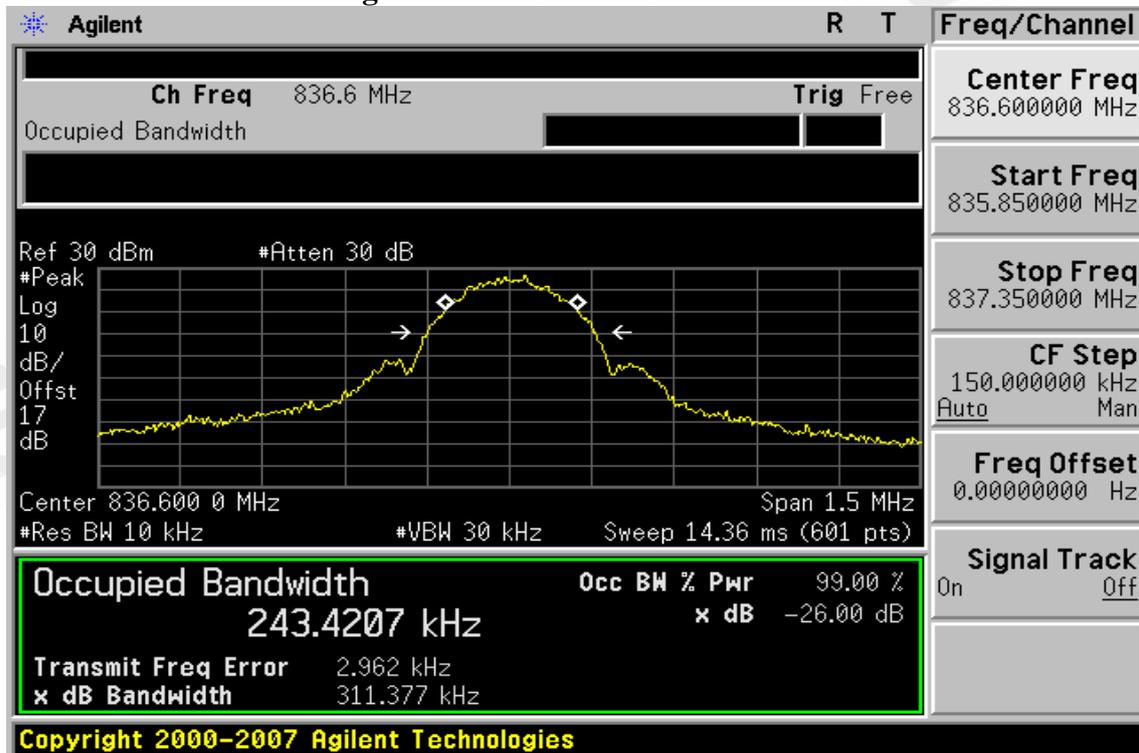


Figure 7-8 EDGE 850 Channel Mid



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Figure 7-9: EDGE 850 Channel High

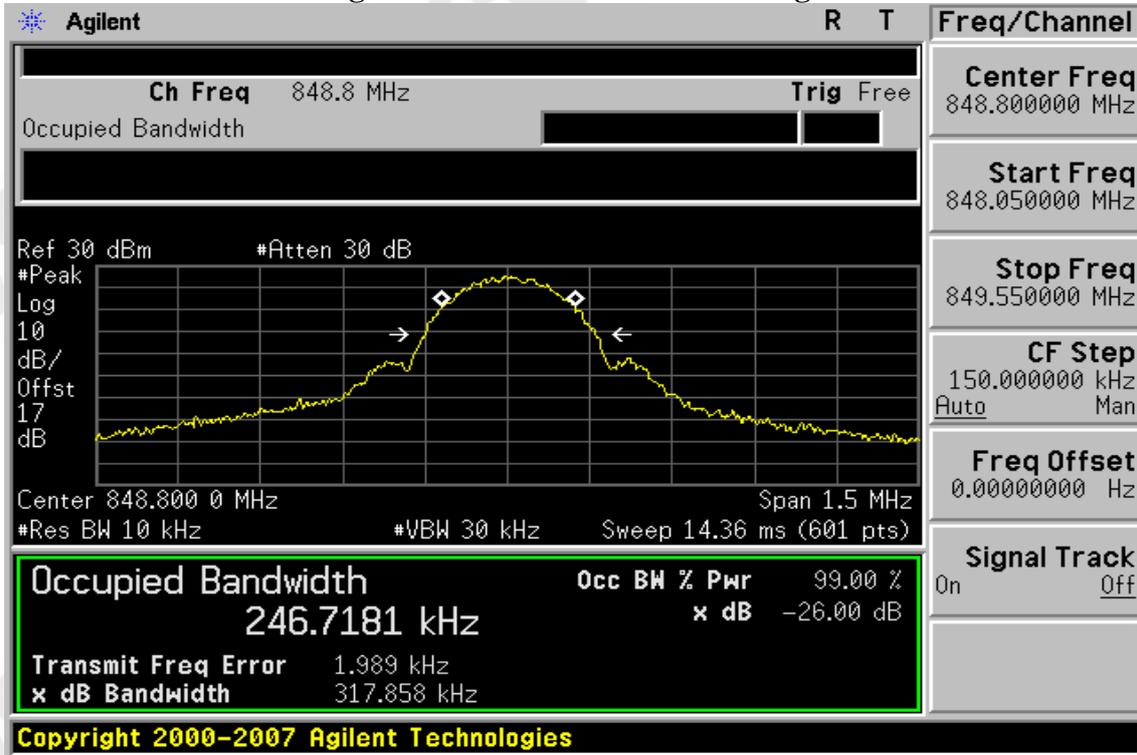
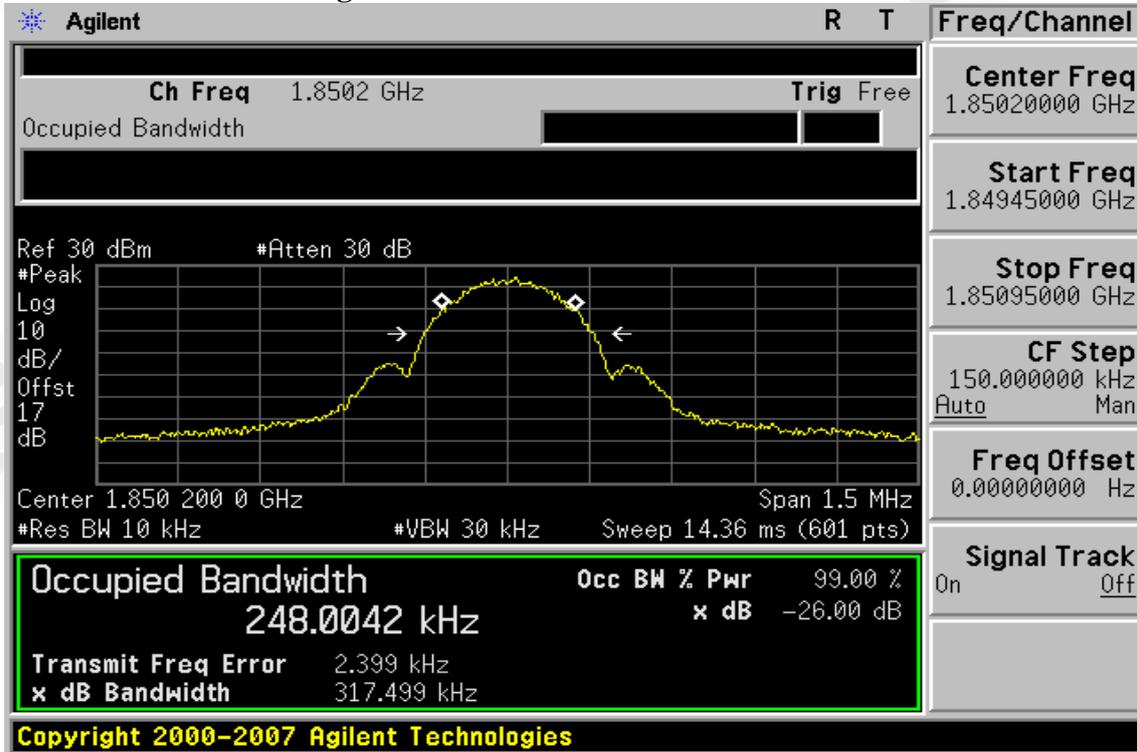


Figure 7-10: EDGE 1900 Channel Low



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Figure 7-11 EDGE 1900 Channel Mid

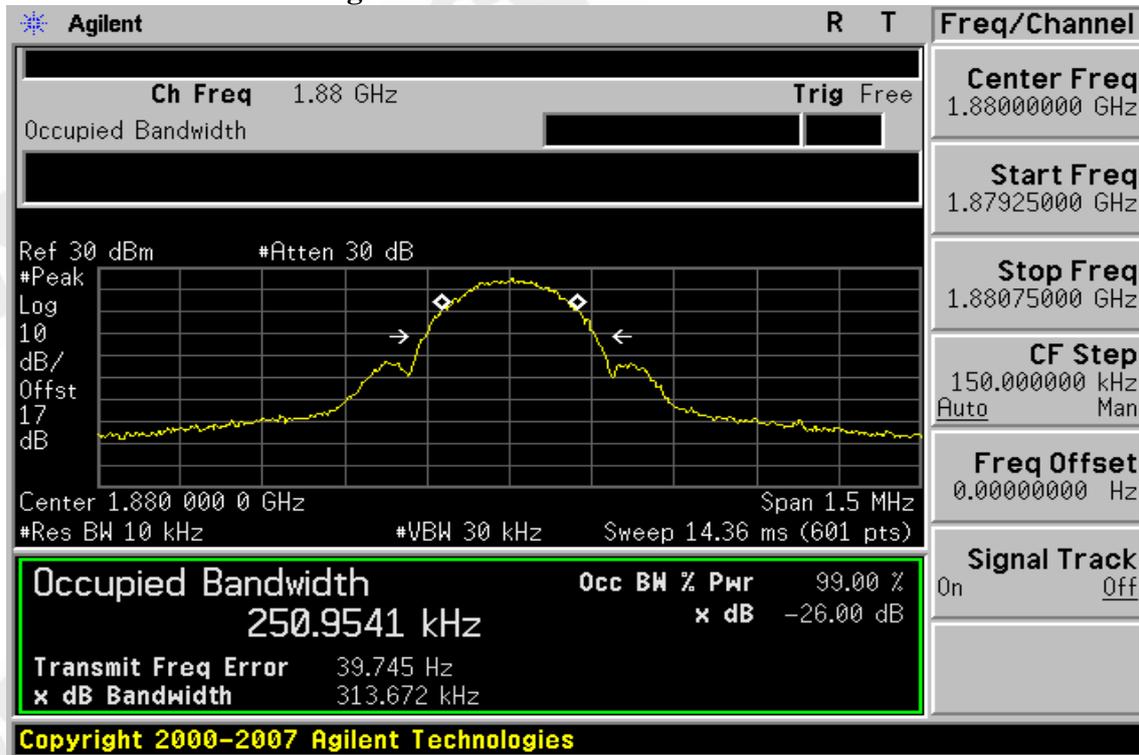
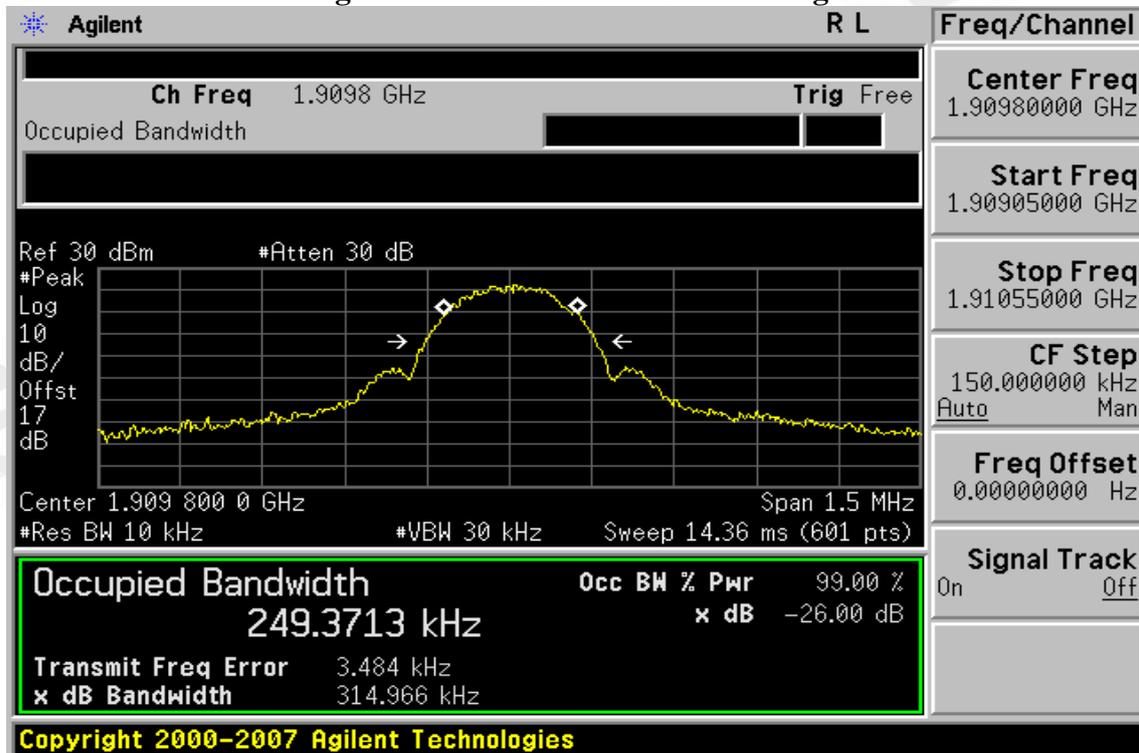


Figure 7-12: EDGE 1900 Channel High



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Figure 7-13: WCDMA II Channel Low

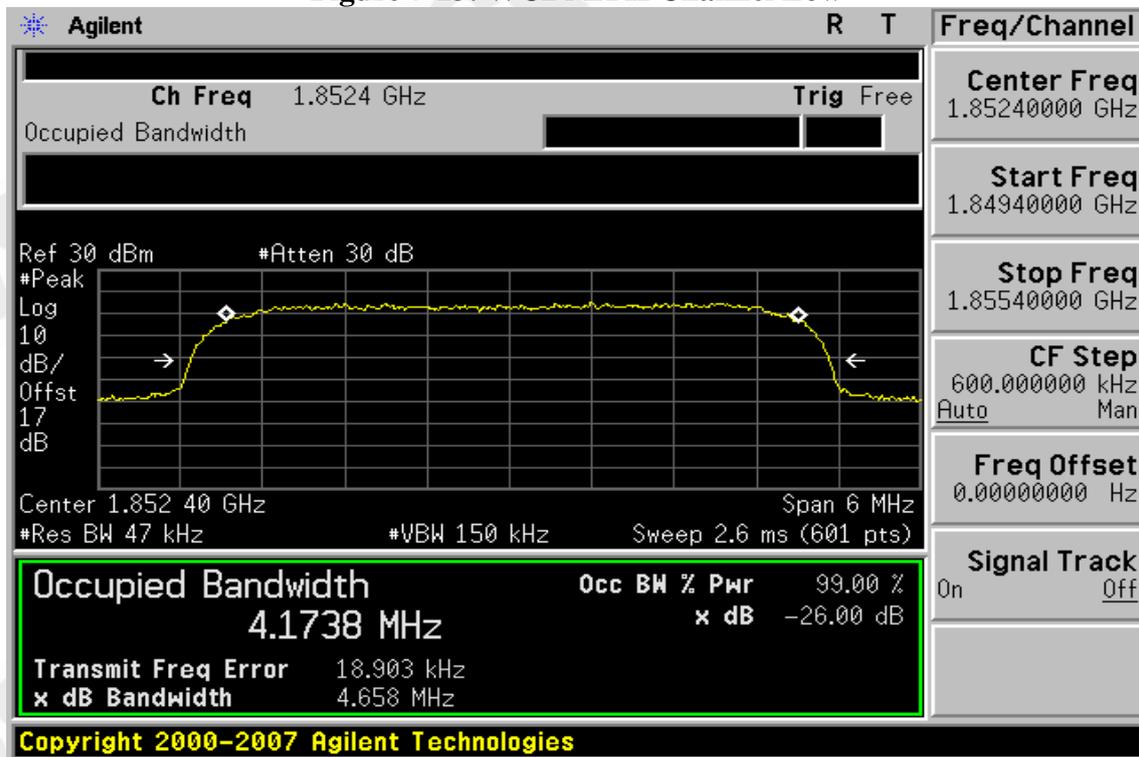
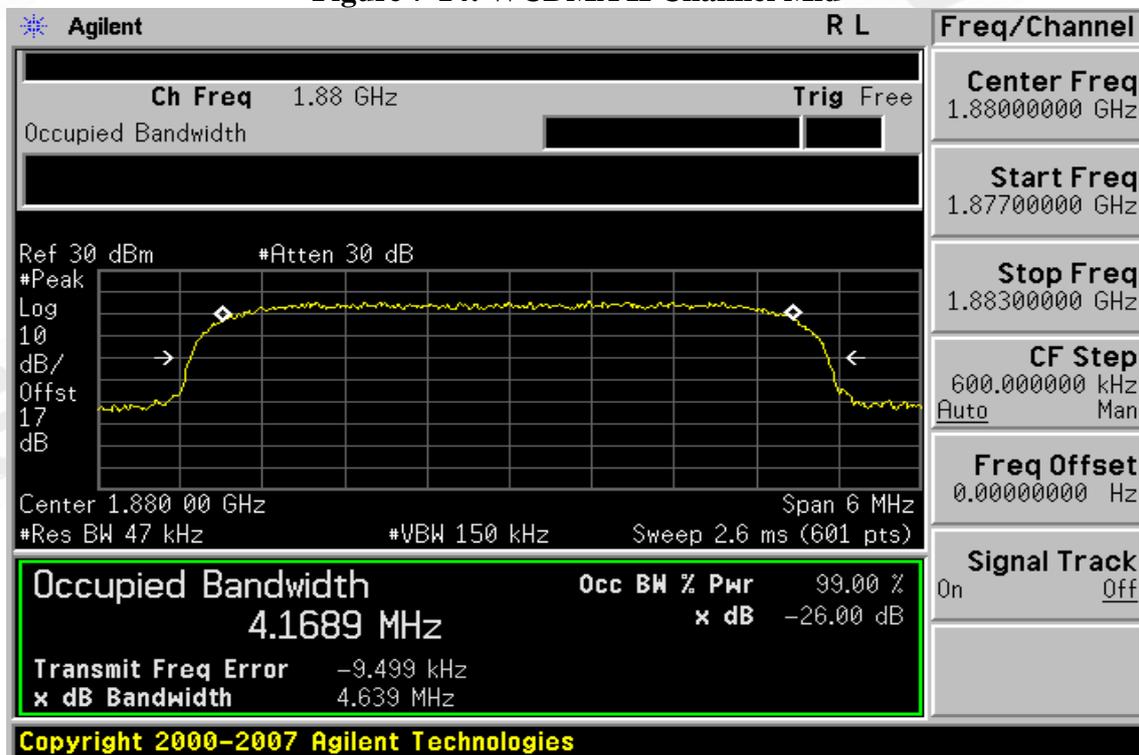


Figure 7-14: WCDMA II Channel Mid



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Figure 7-15: WCDMA II Channel High

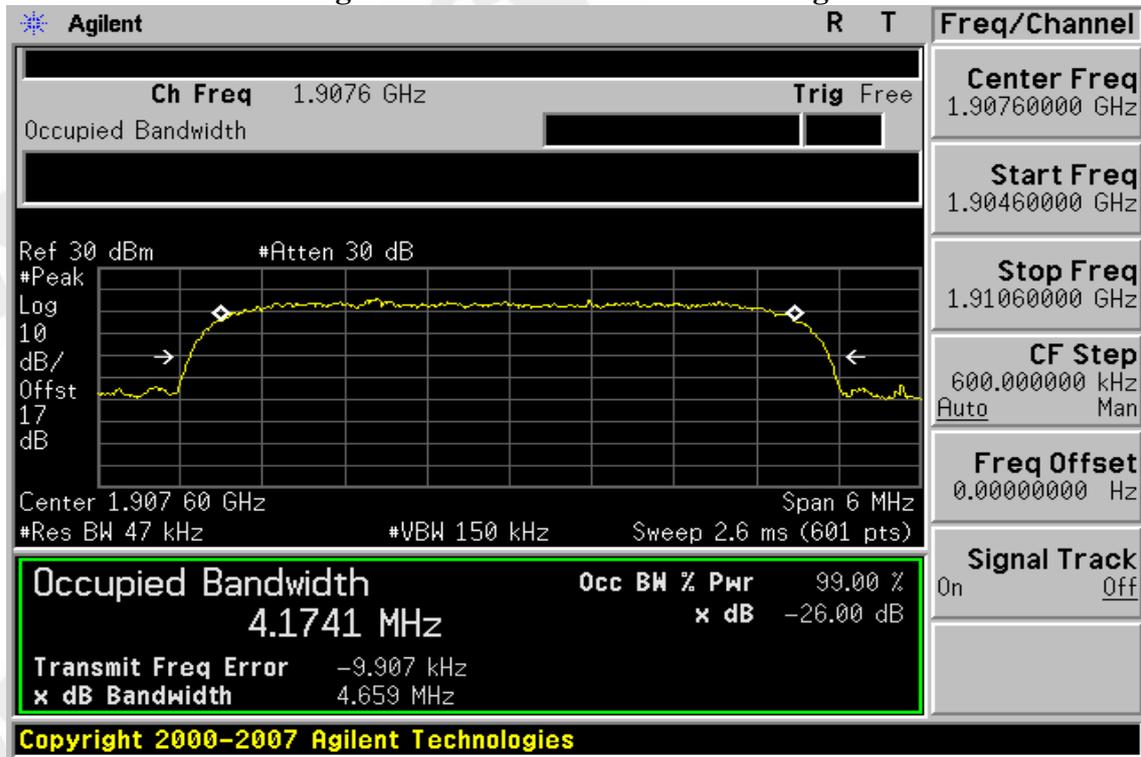
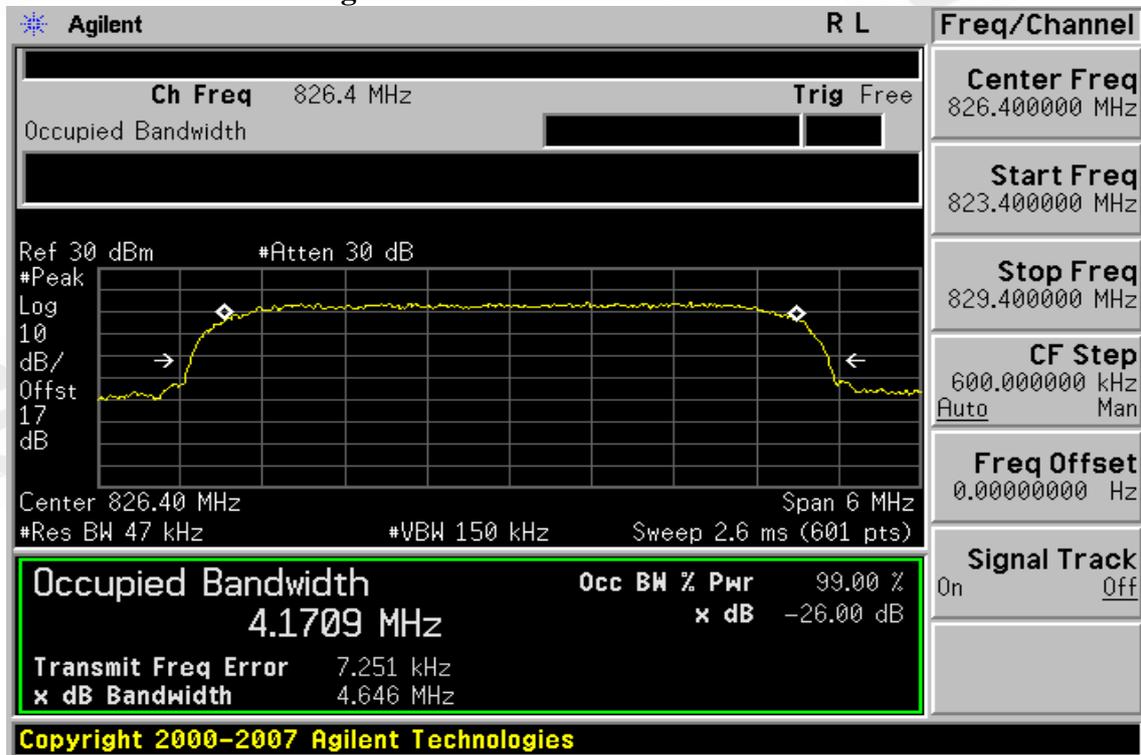


Figure 7-13: WCDMA V Channel Low



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Figure 7-14: WCDMA V Channel Mid

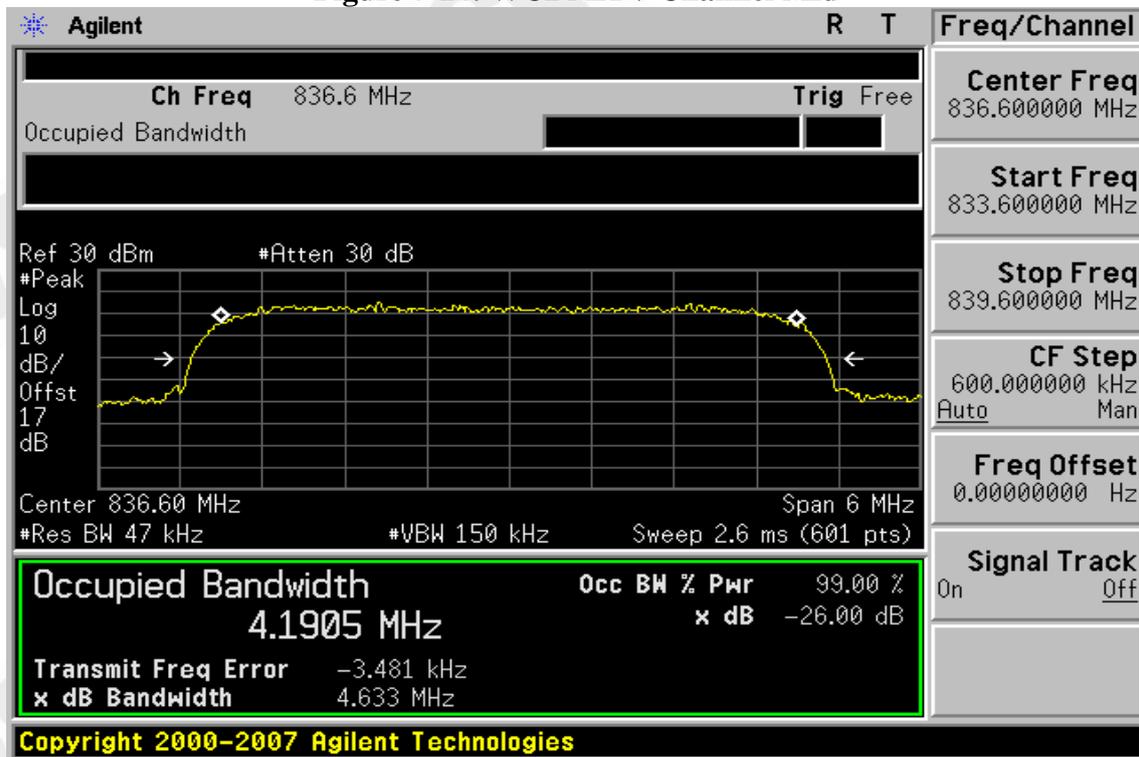
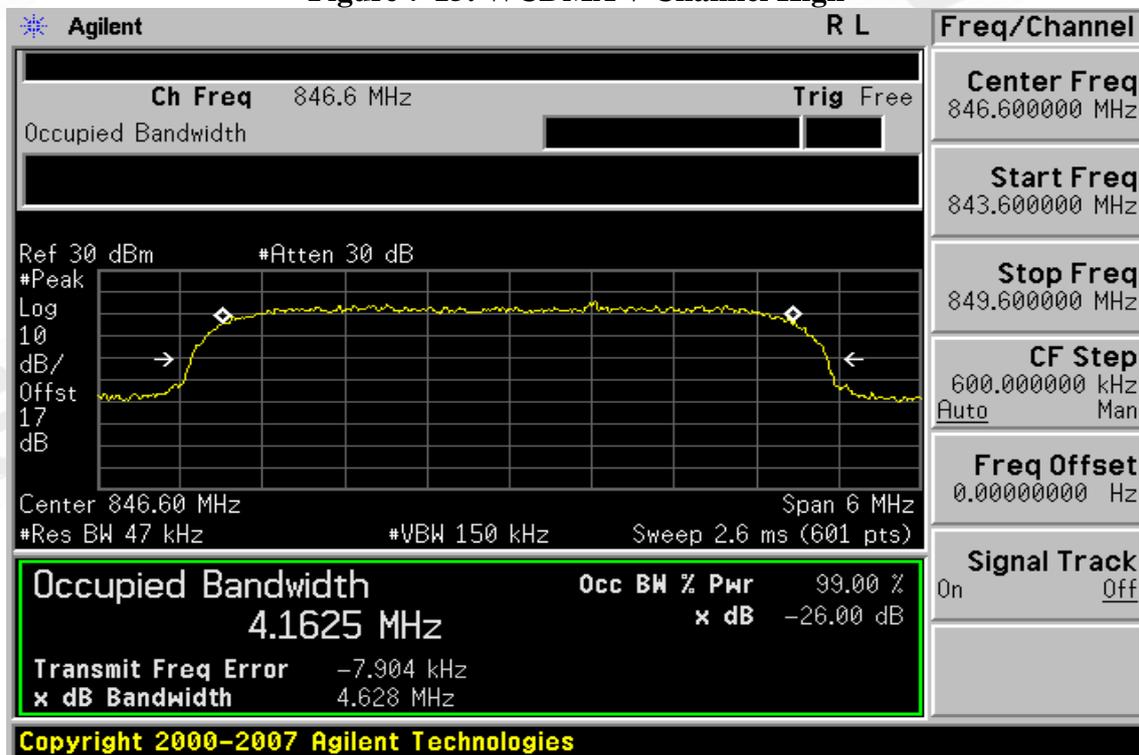


Figure 7-15: WCDMA V Channel High



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Figure 7-16: HSUPA II Channel Low

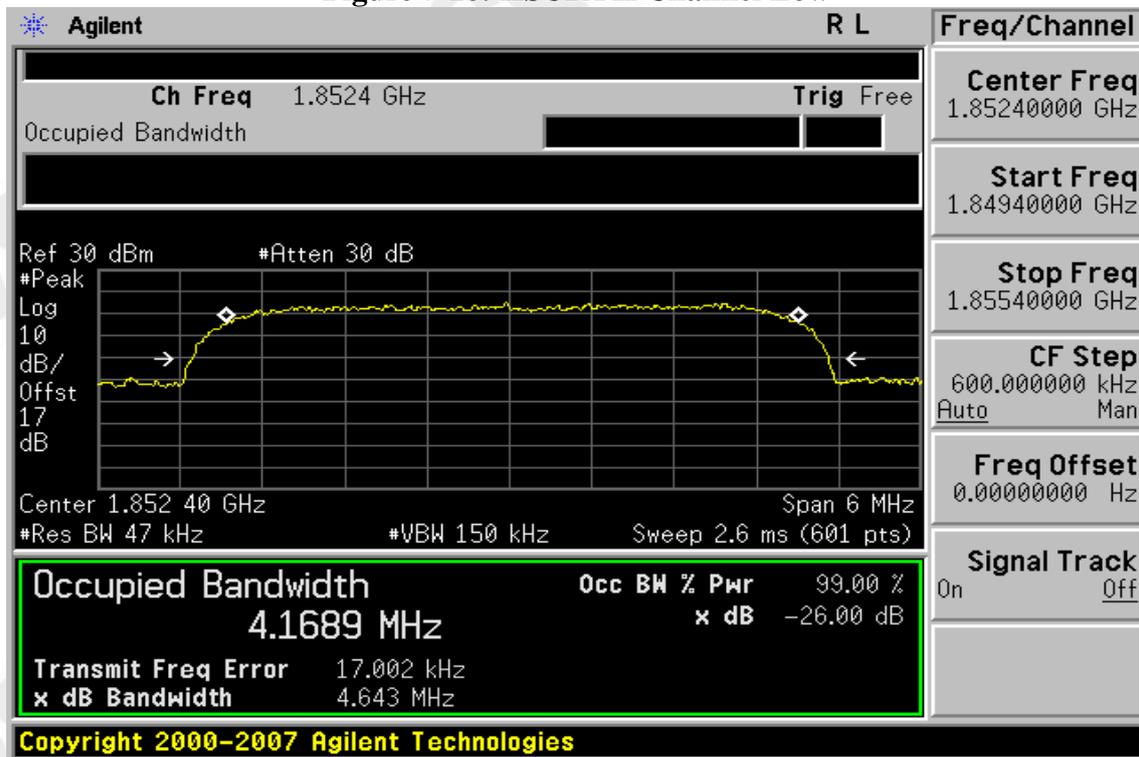
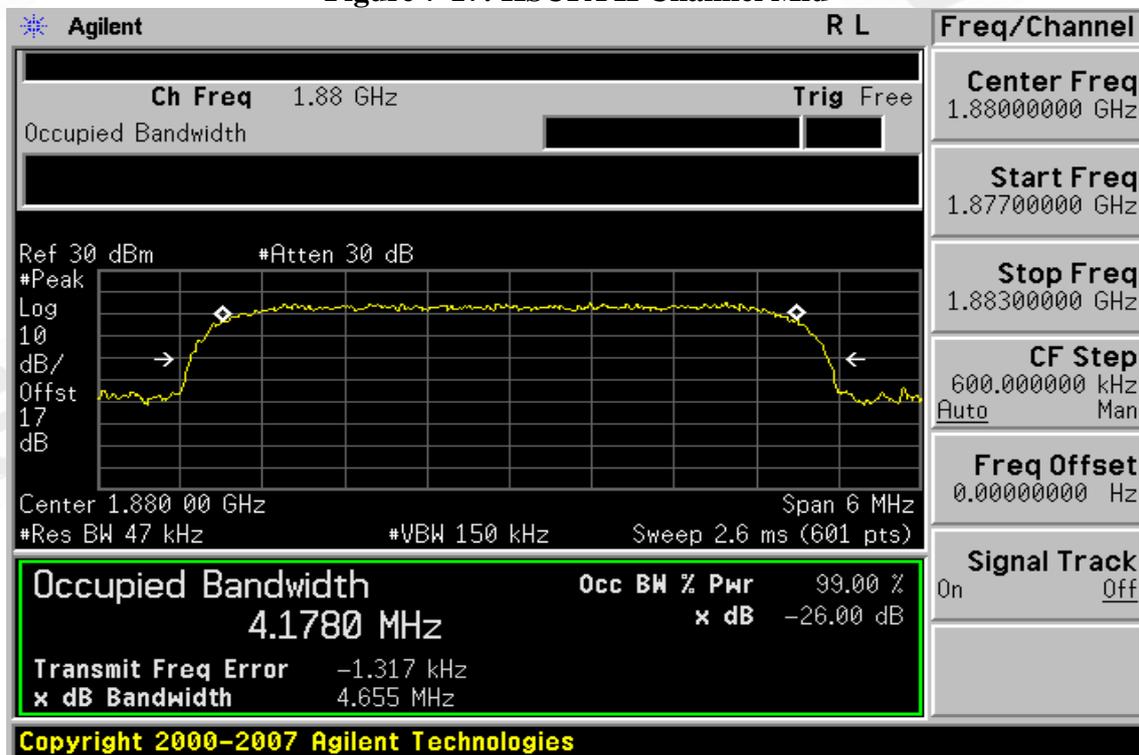


Figure 7-17: HSUPA II Channel Mid



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Figure 7-18: HSUPA II Channel High

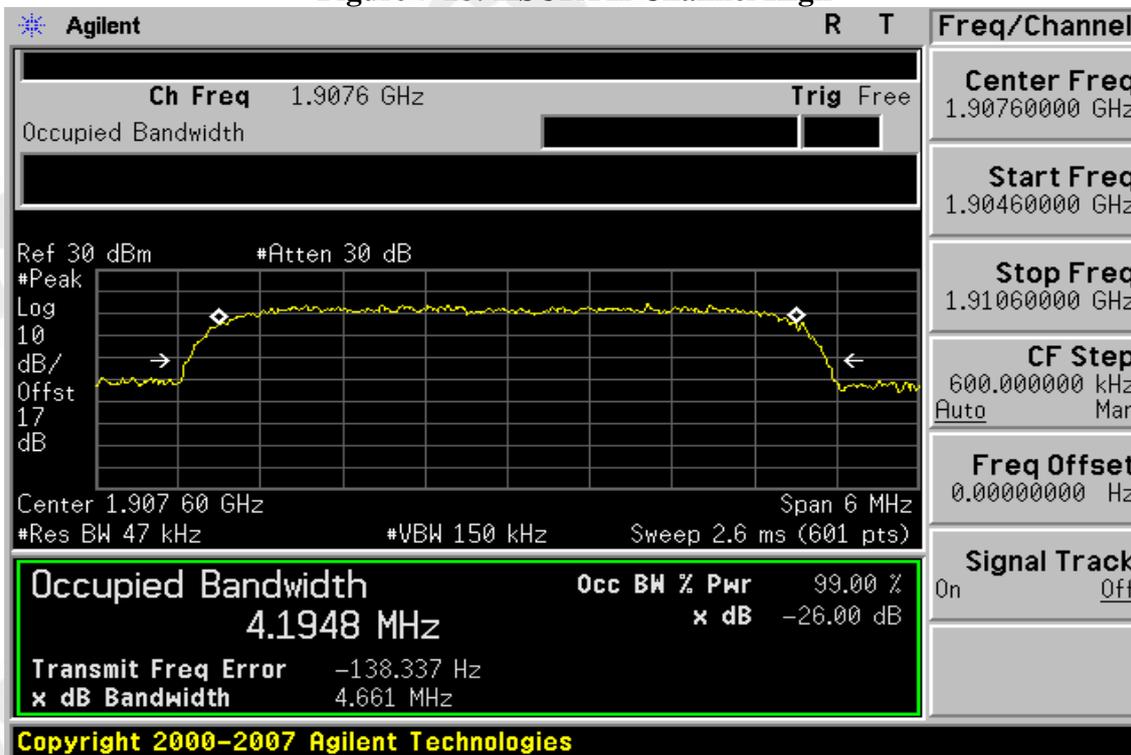
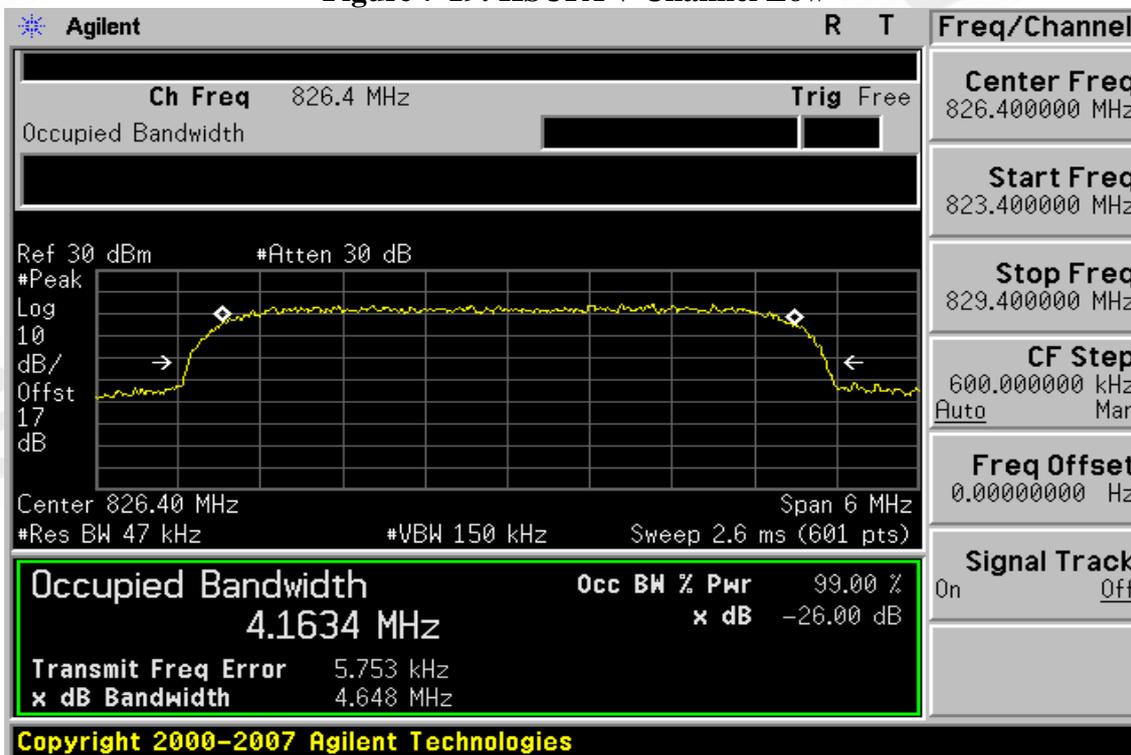


Figure 7-19: HSUPA V Channel Low



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Figure 7-20: HSUPA V Channel Mid

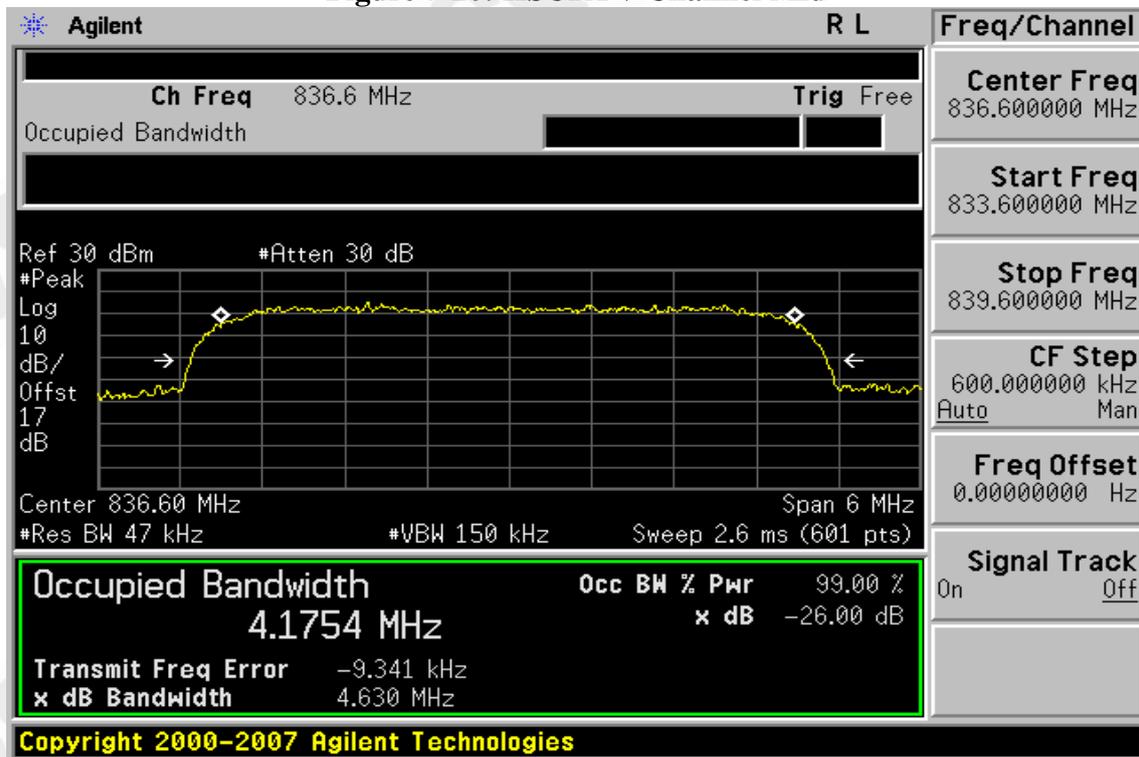
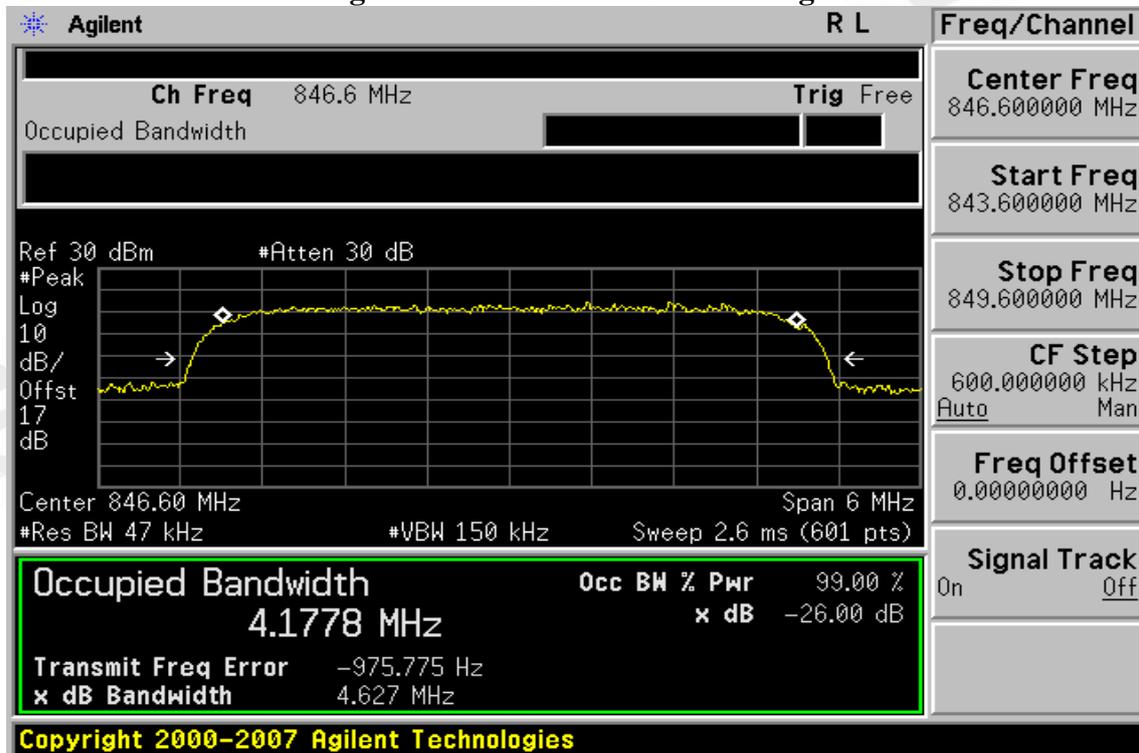


Figure 7-21: HSUPA V Channel High



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## 8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

### 8.1. Standard Applicable:

According to FCC §2.1051.

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

### 8.2. Test SET-UP:

Refer to section 5.2 in this report

### 8.3. Measurement Procedure:

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

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

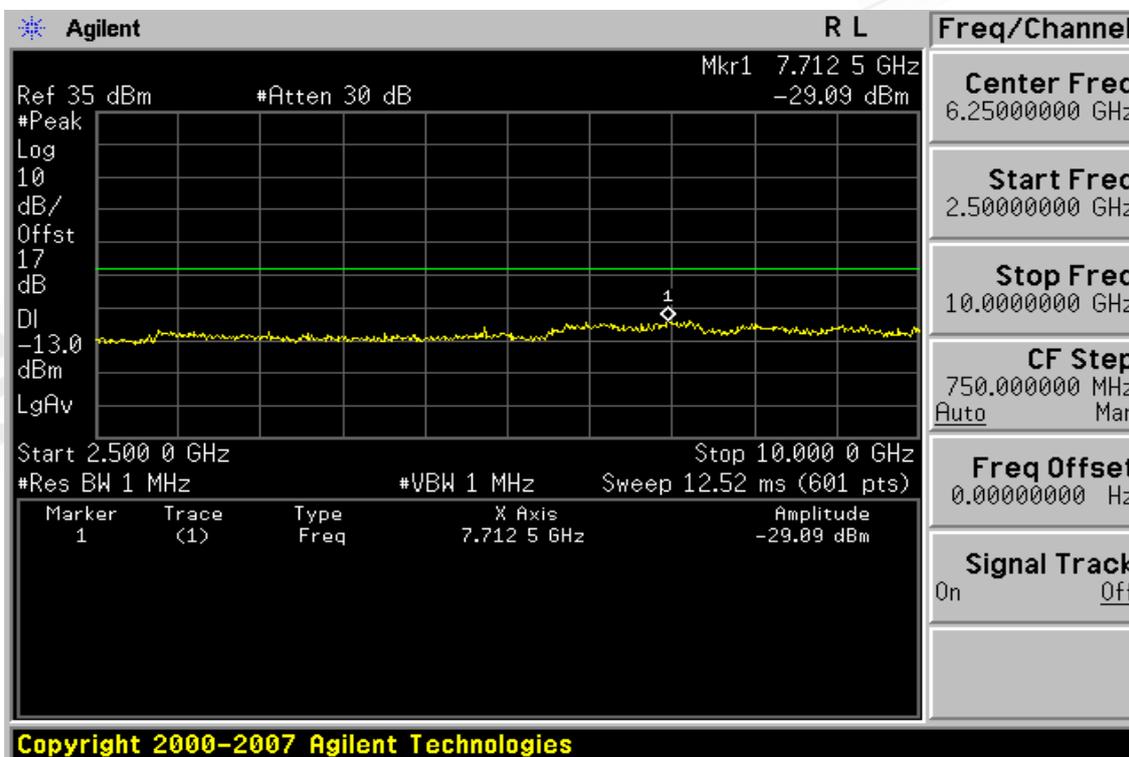
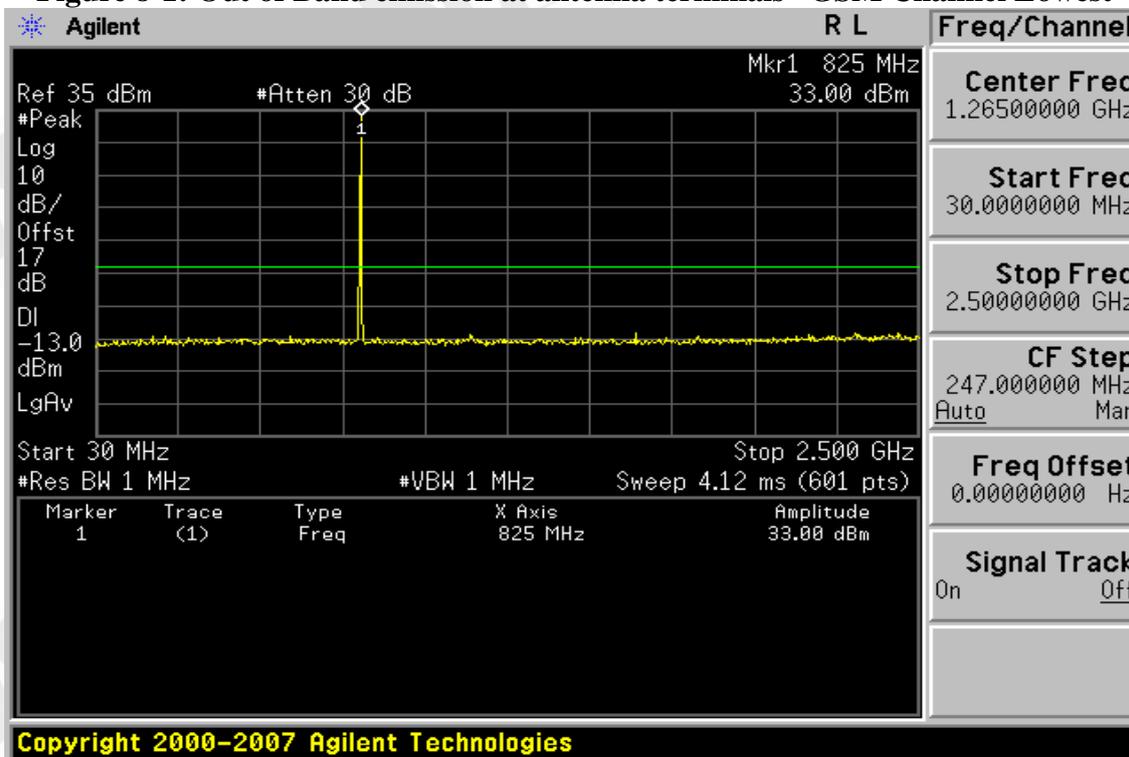
Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

### 8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 8.5. Measurement Result:

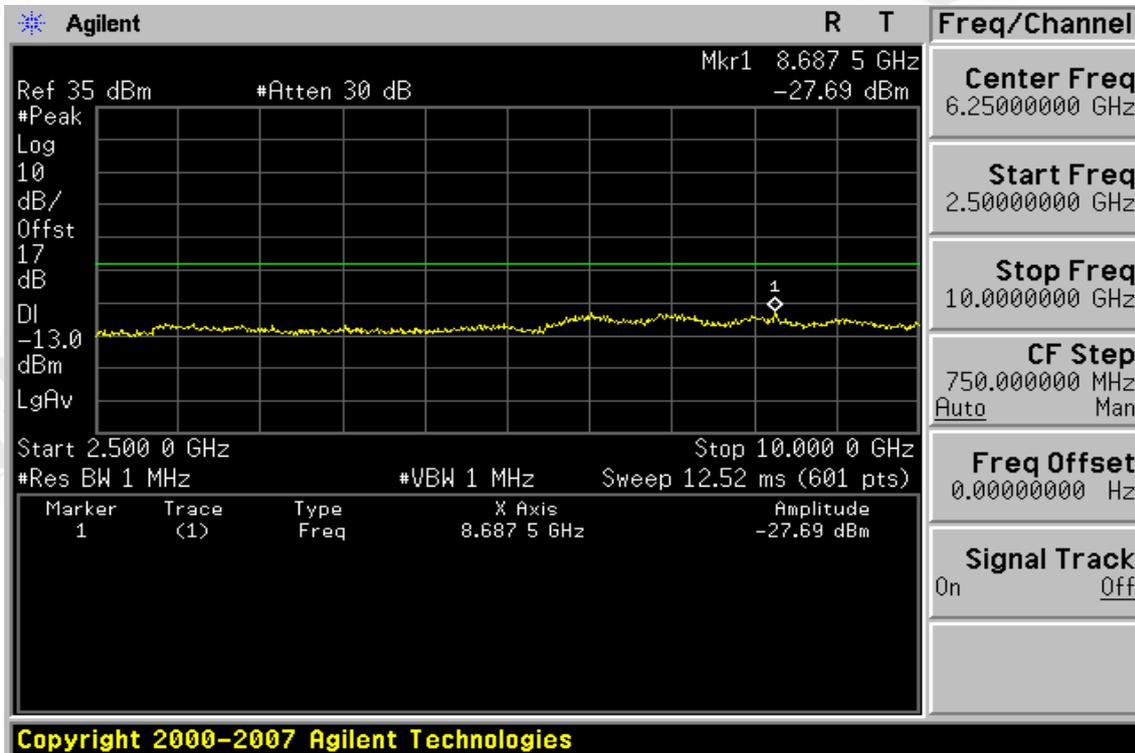
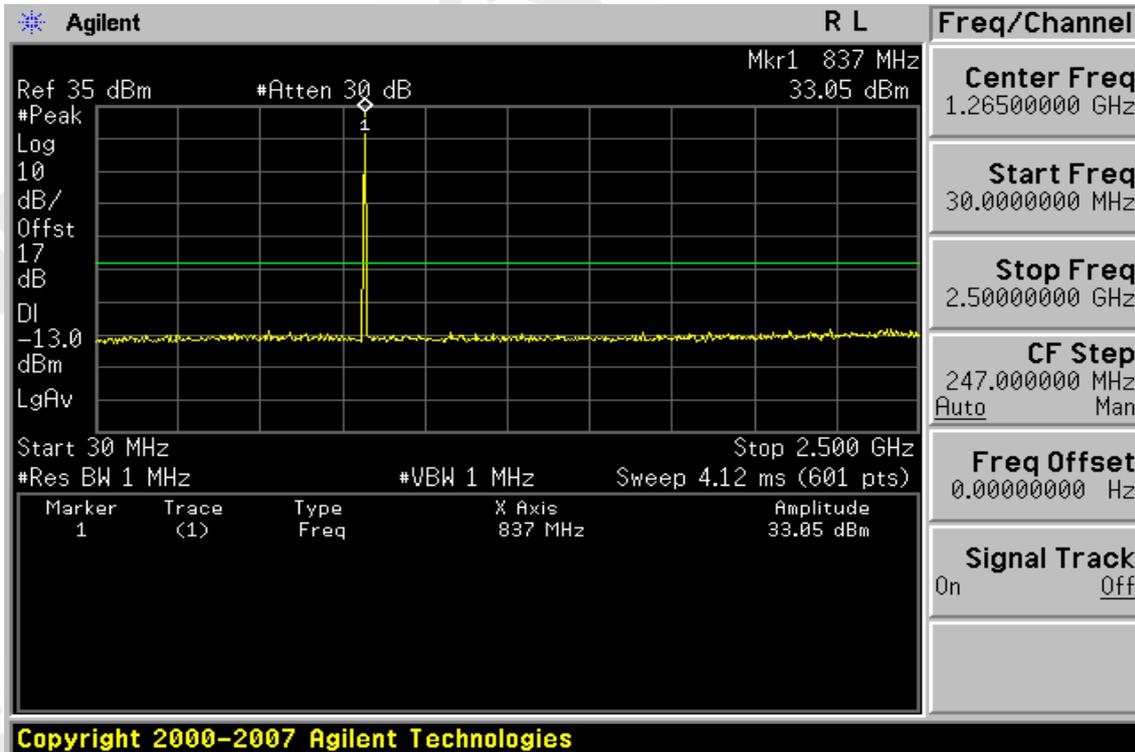
Figure 8-1: Out of Band emission at antenna terminals– GSM Channel Lowest



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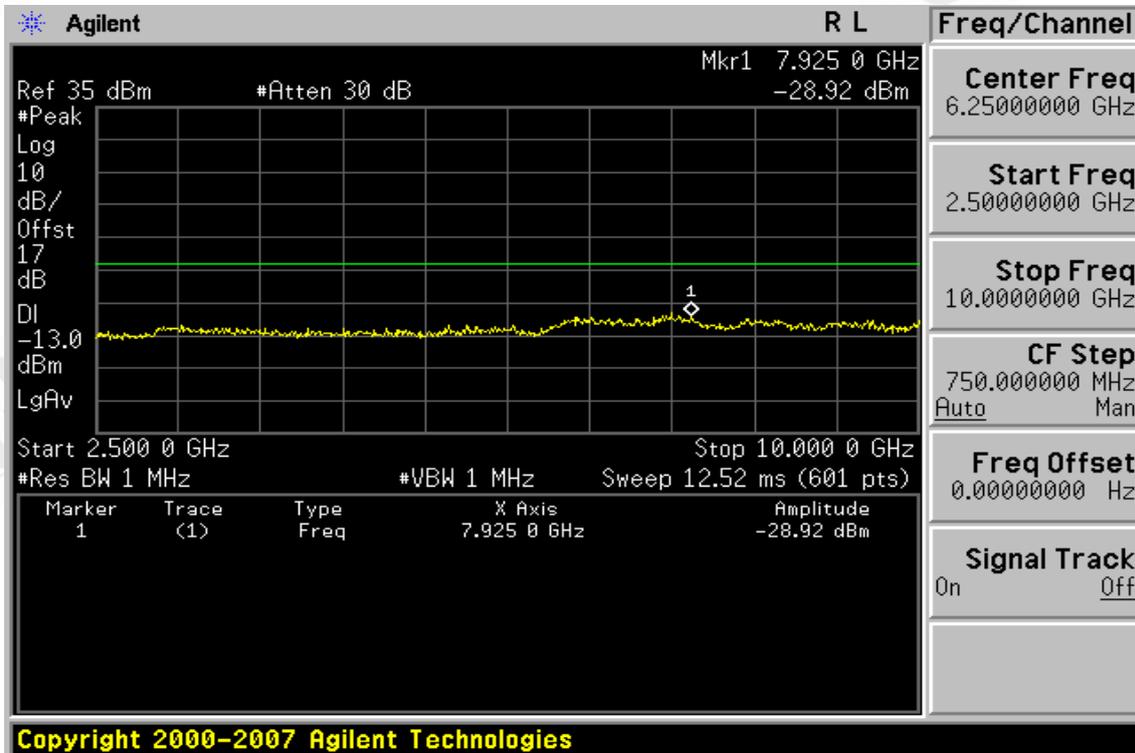
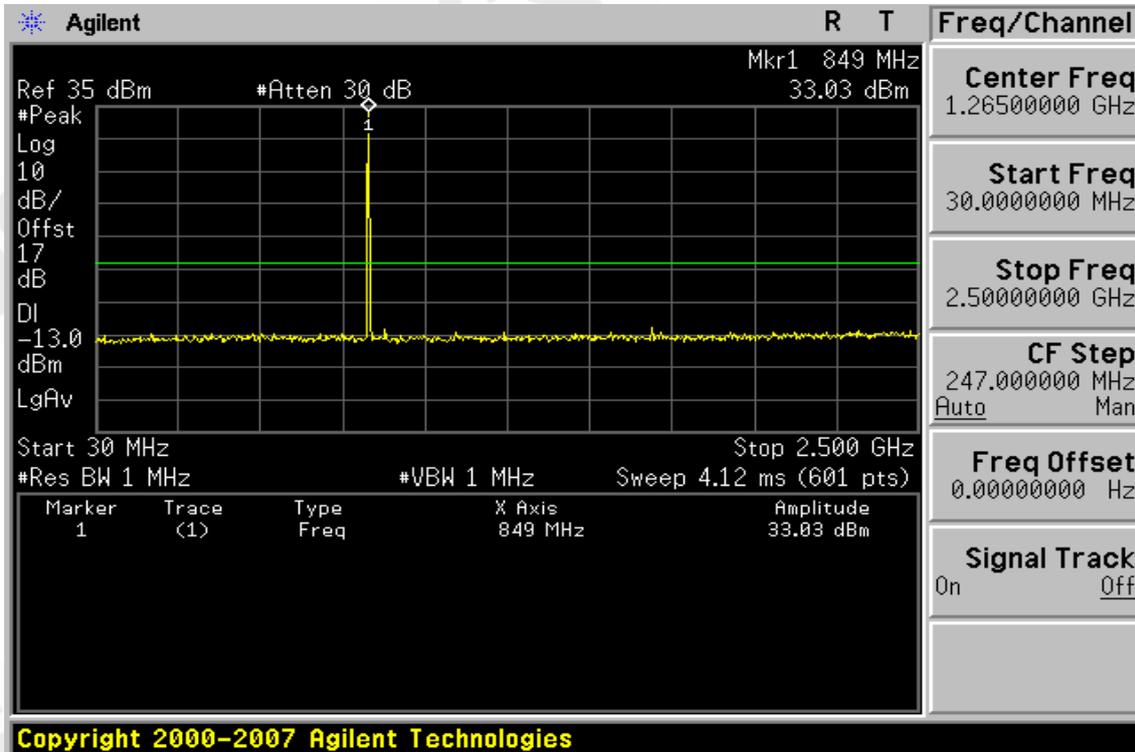
**Figure 8-2: Out of Band emission at antenna terminals –GSM Channel Mid**



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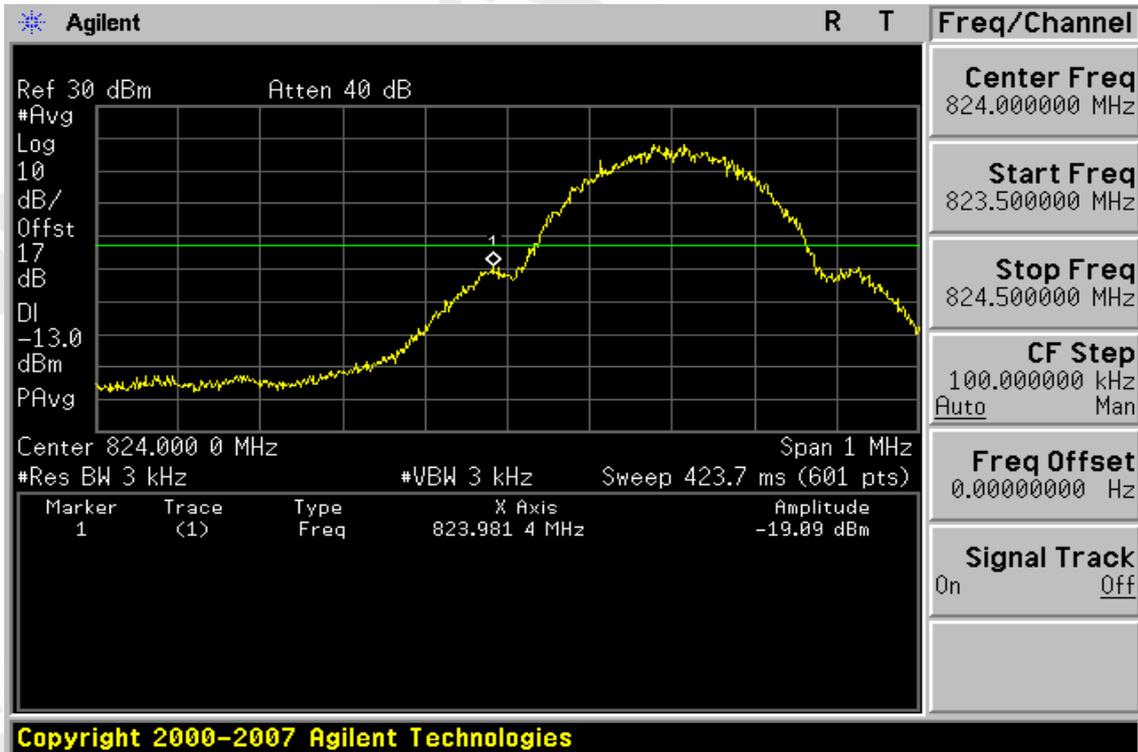
Figure 8-3: Out of Band emission at antenna terminals–GSM Channel Highest



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**Figure 8-4: Band edge emission at antenna terminals – GSM Channel Lowest**



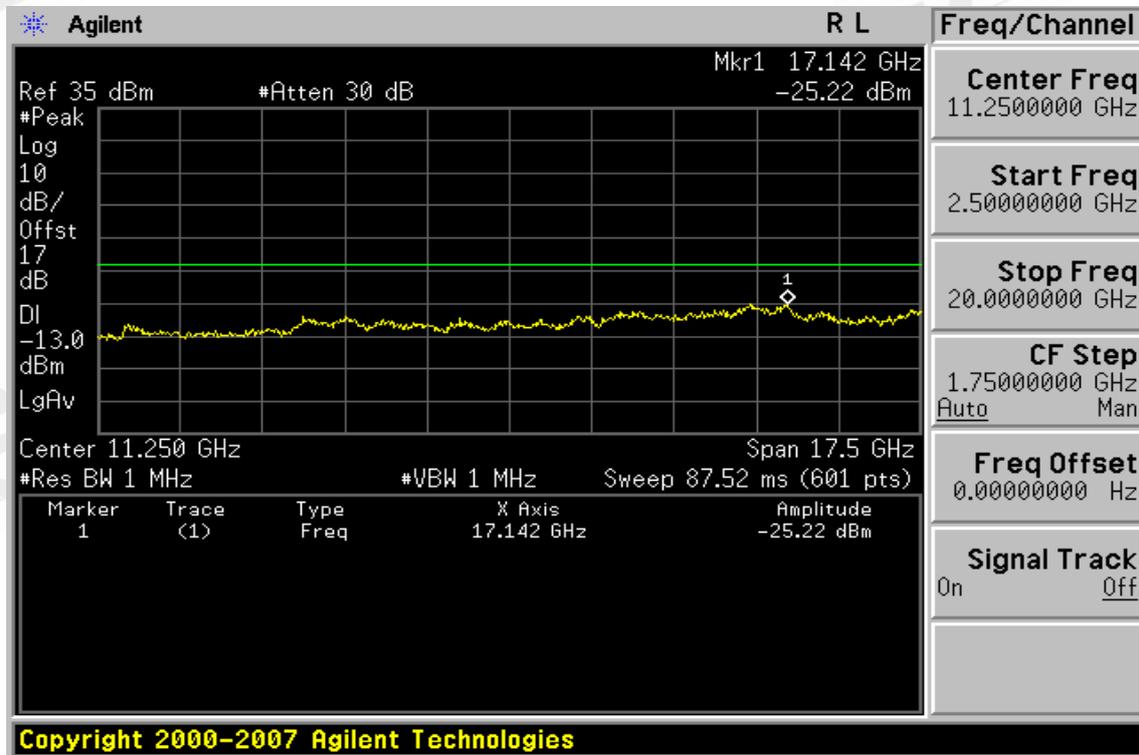
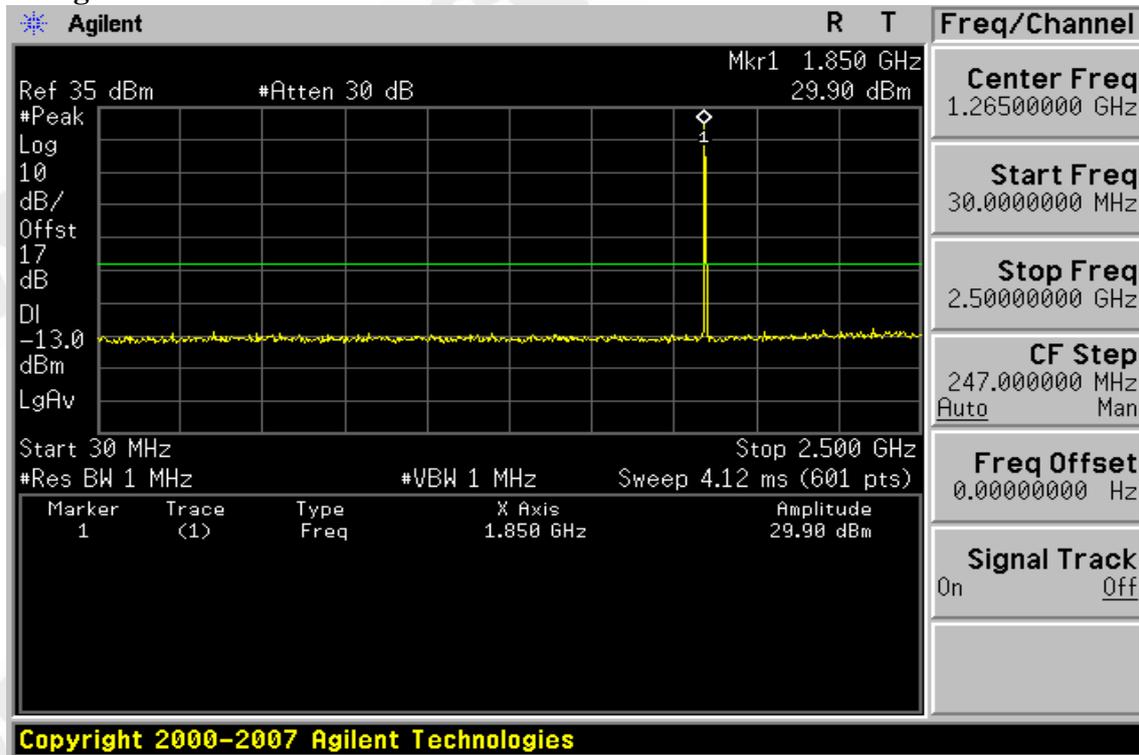
**Figure 8-5: Band edge emission at antenna terminals – GSM Channel Highest**



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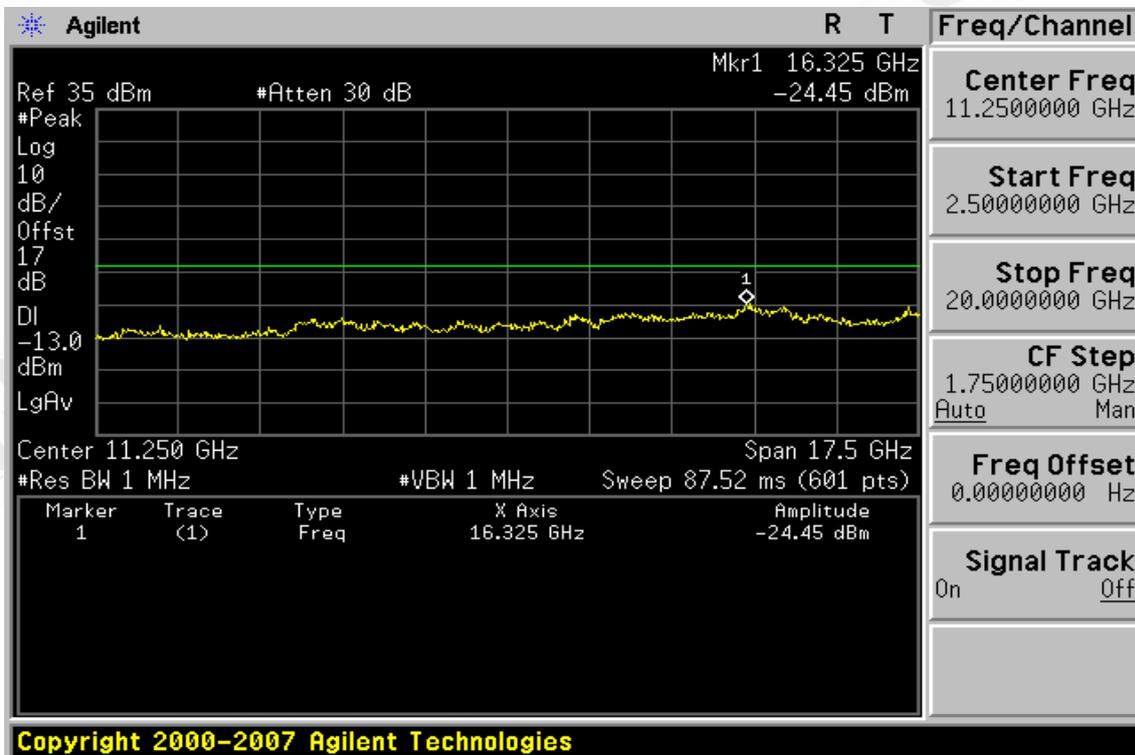
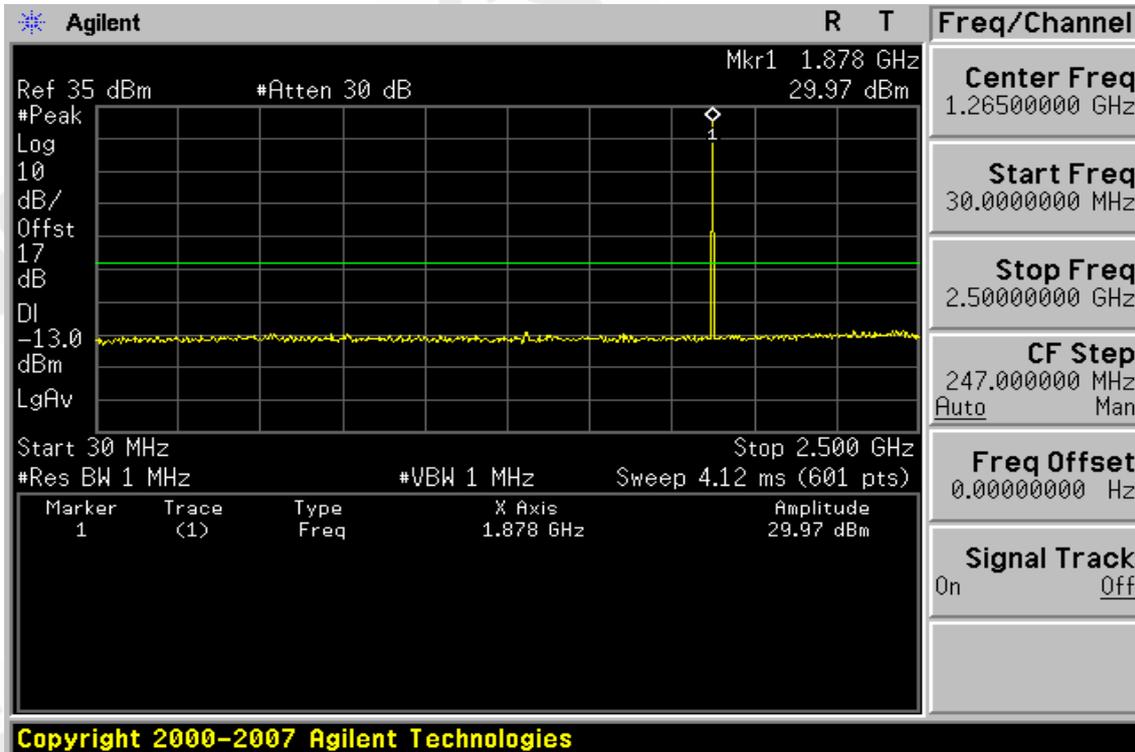
**Figure 8-6: Out of Band emission at antenna terminals– PCS Channel Lowest**



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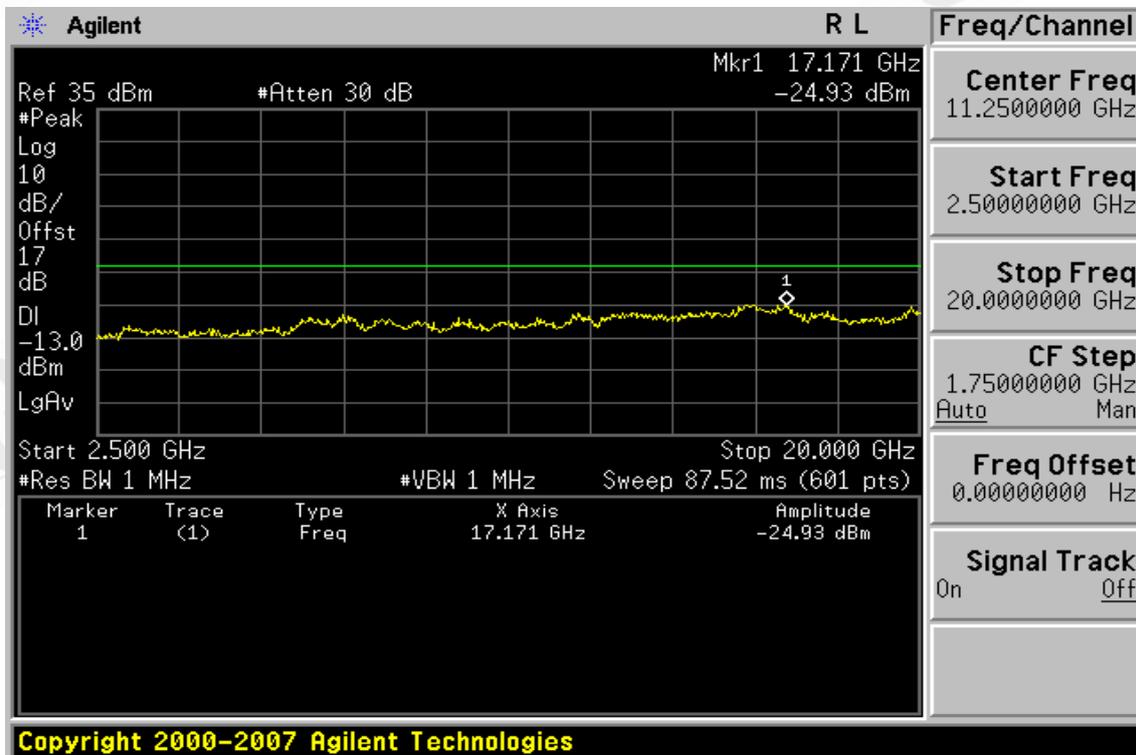
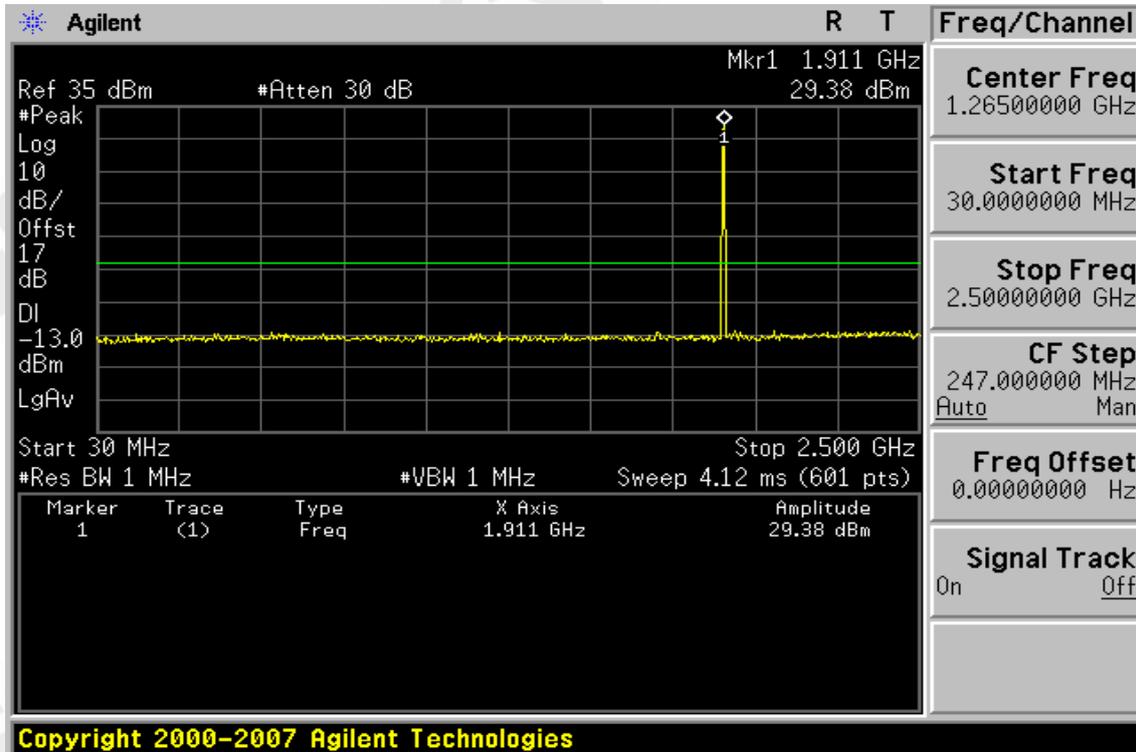
**Figure 8-7: Out of Band emission at antenna terminals –PCS Channel Mid**



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**Figure 8-8: Out of Band emission at antenna terminals–PCS Channel Highest**



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**Figure 8-9: Band edge emission at antenna terminals – PCS Channel Lowest**



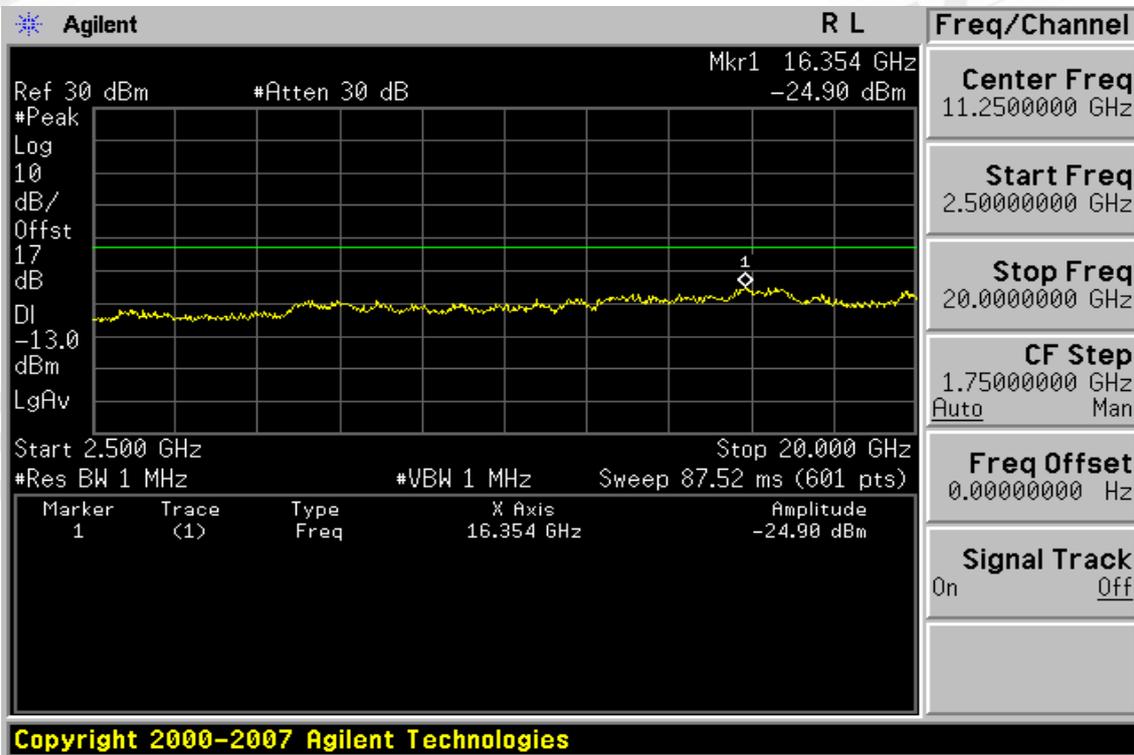
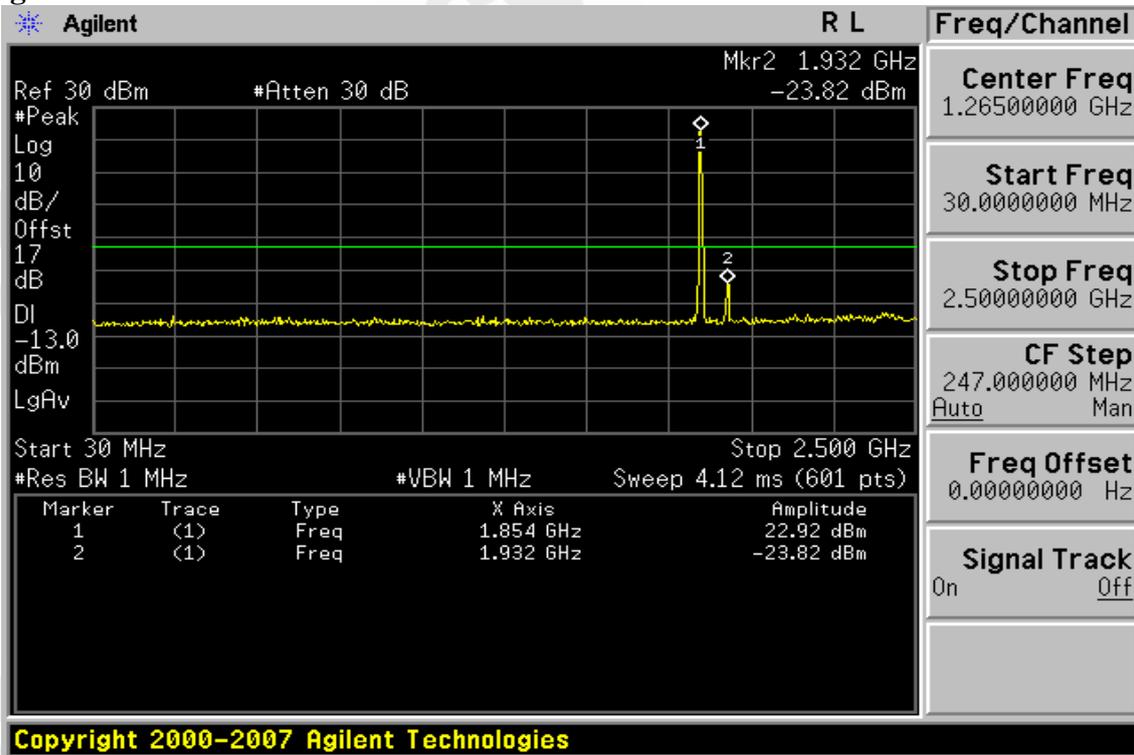
**Figure 8-10: Band edge emission at antenna terminals – PCS Channel Highest**



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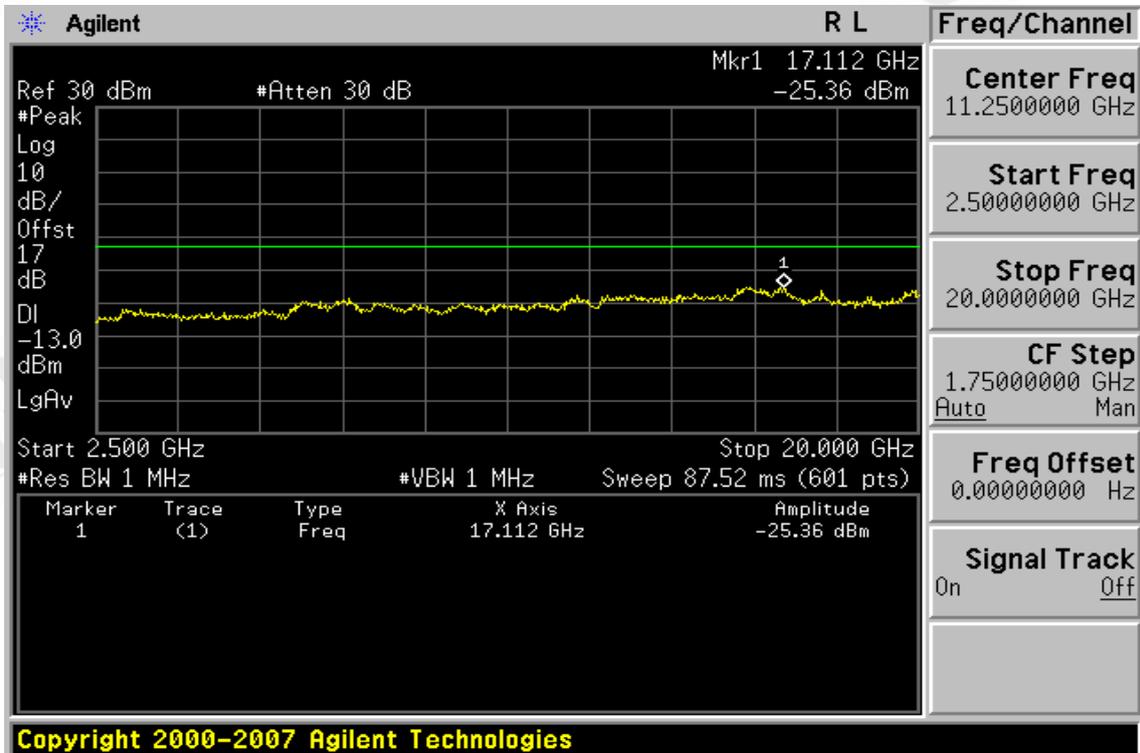
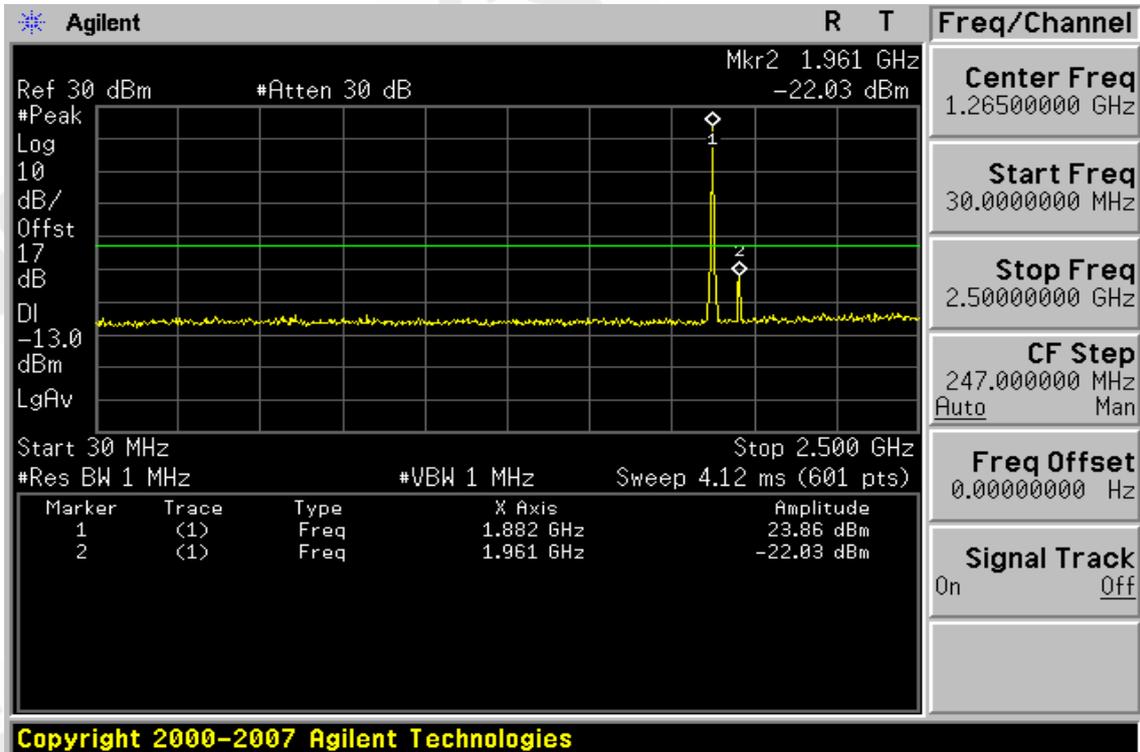
Figure 8-11: Out of Band emission at antenna terminals– WCDMA II Channel Lowest



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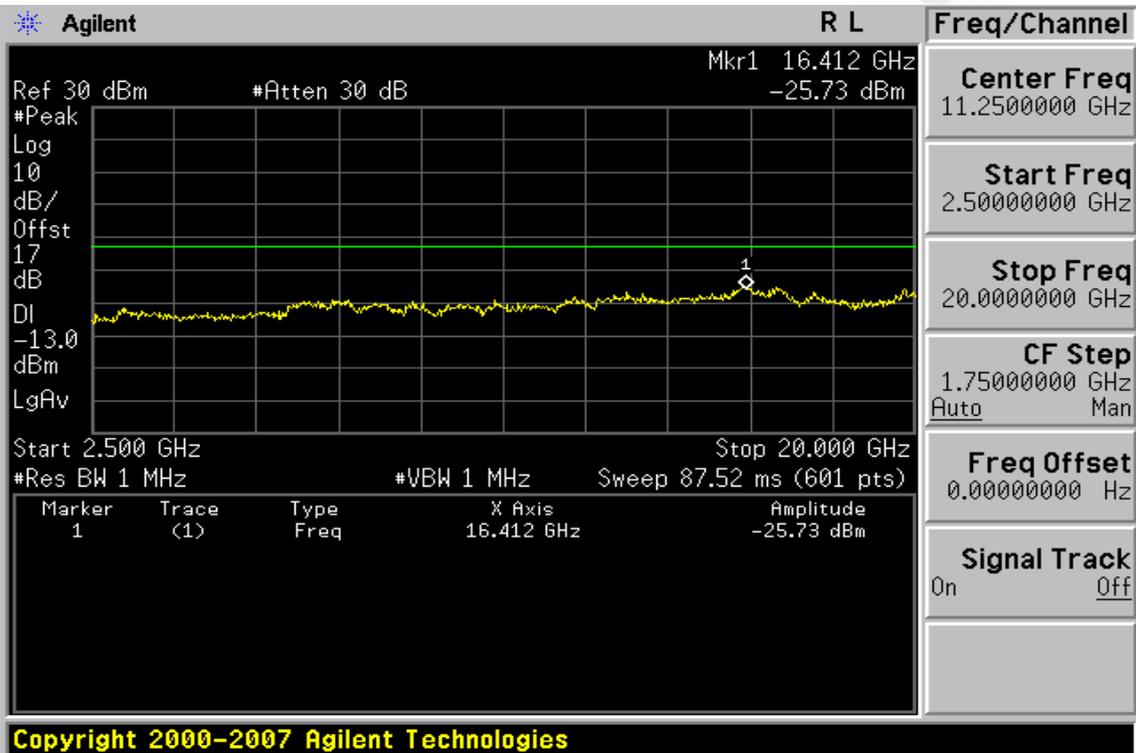
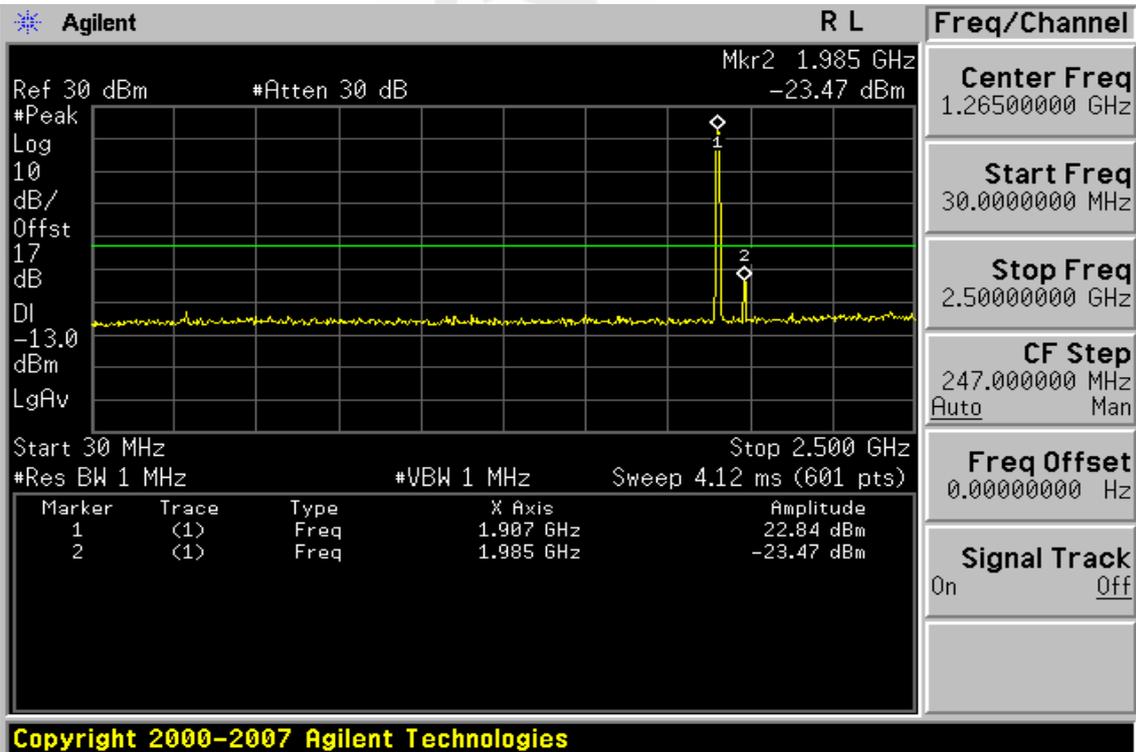
Figure 8-12: Out of Band emission at antenna terminals –WCDMA II Channel Mid



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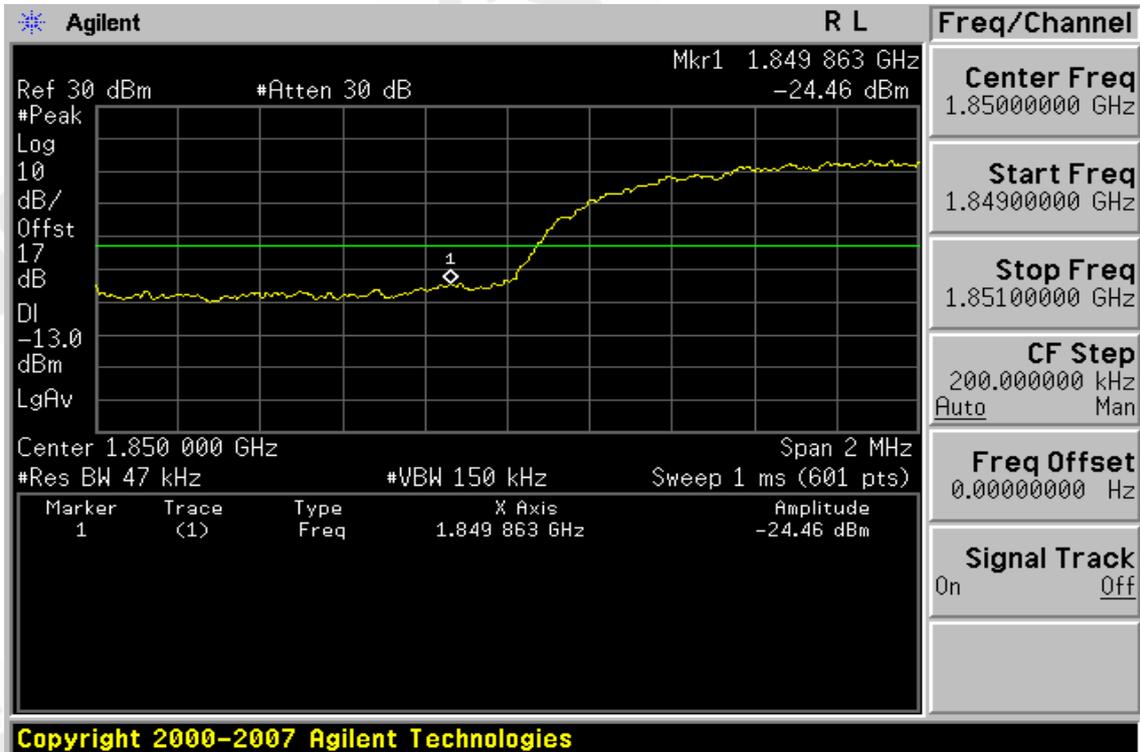
**Figure 8-13: Out of Band emission at antenna terminals–WCDMA II Channel Highest**



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**Figure 8-14: Bad edge emission at antenna terminals –WCDMA II Channel Lowest**



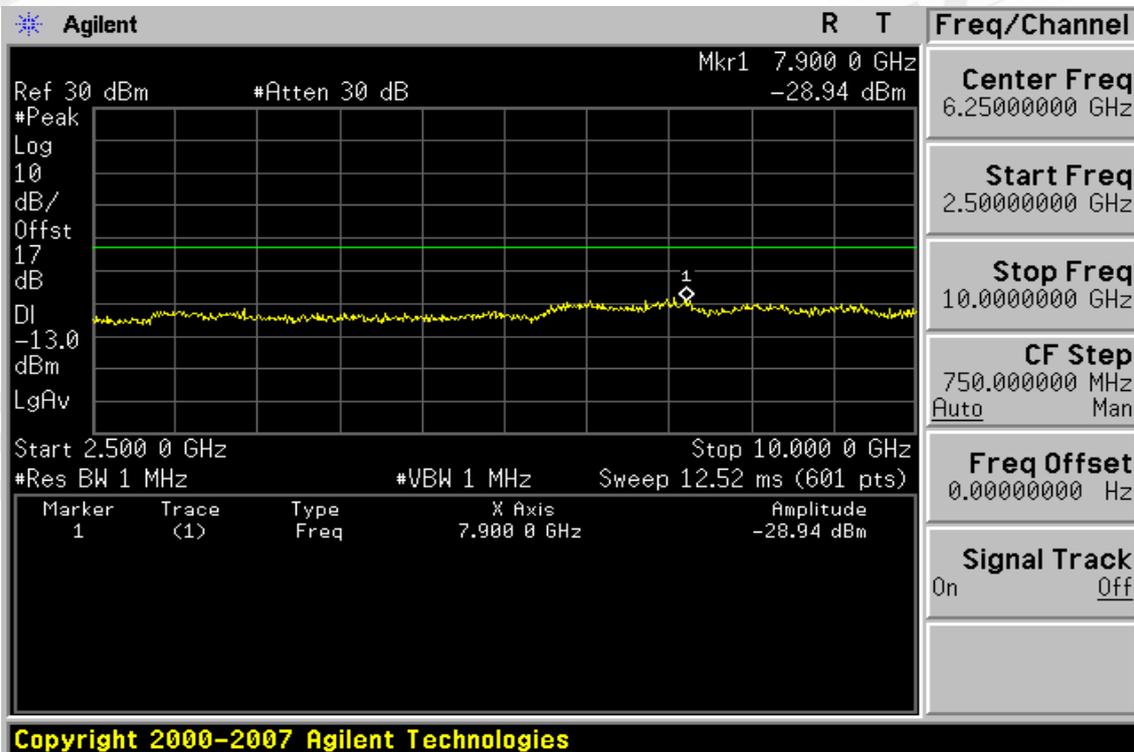
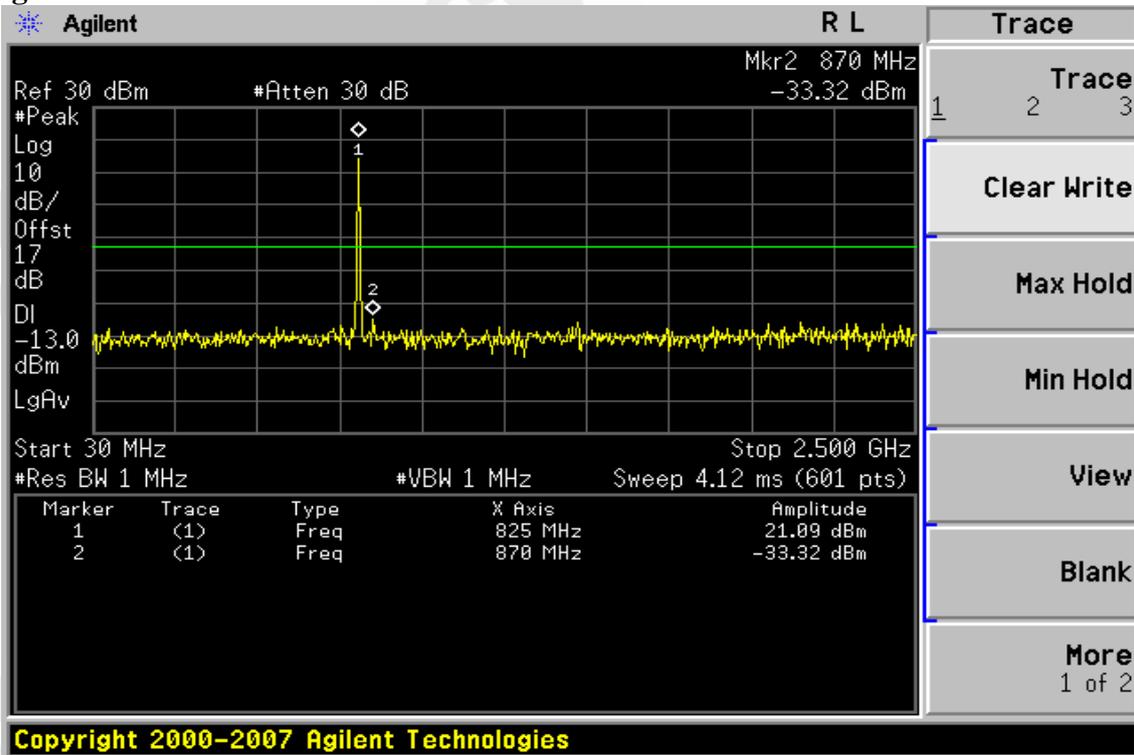
**Figure 8-15: Band edge emission at antenna terminals –WCDMA II Channel Highest**



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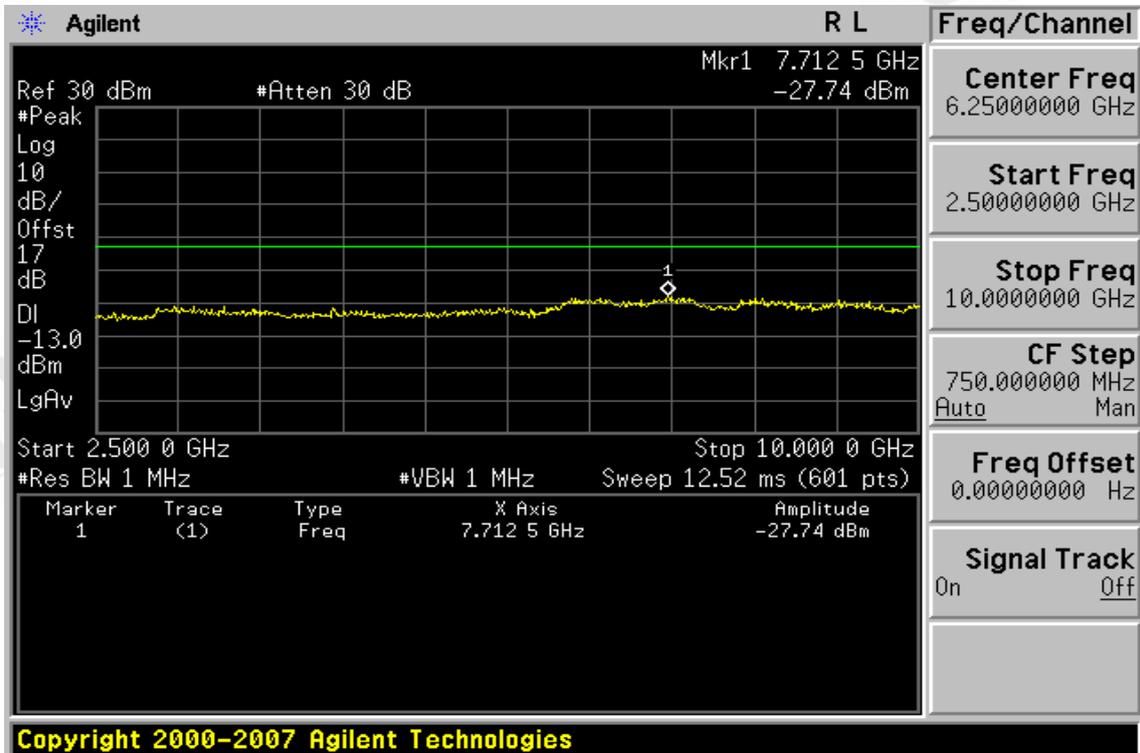
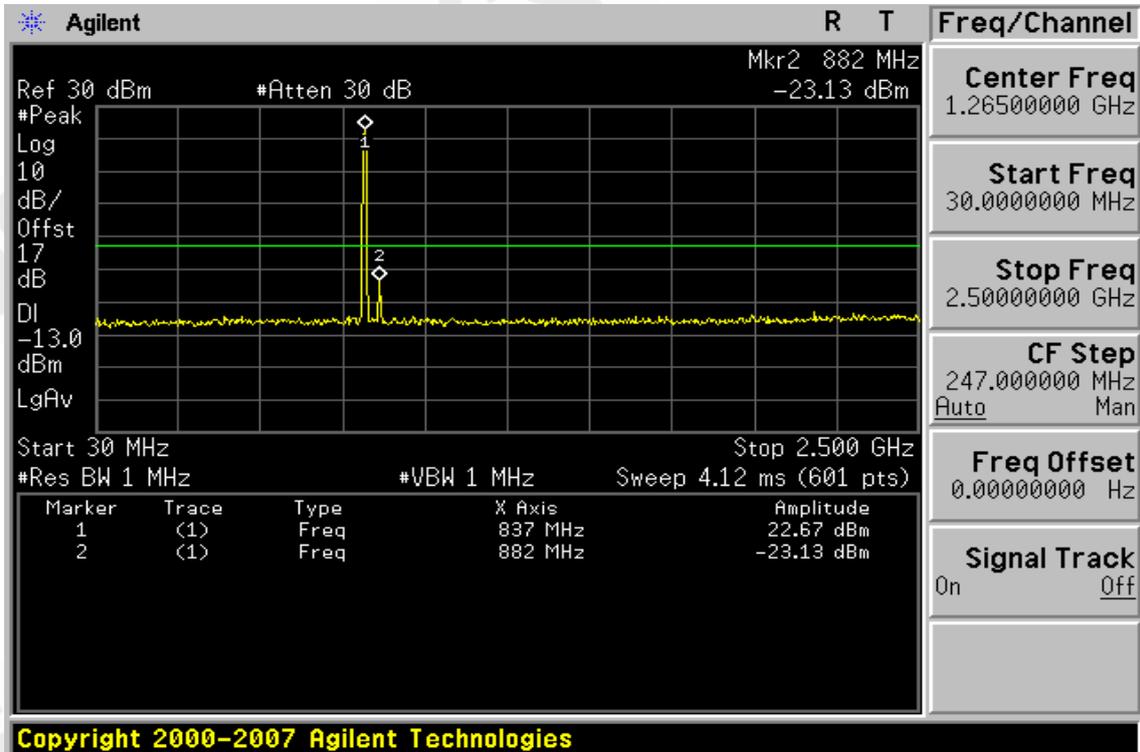
Figure 8-11: Out of Band emission at antenna terminals– WCDMA V Channel Lowest



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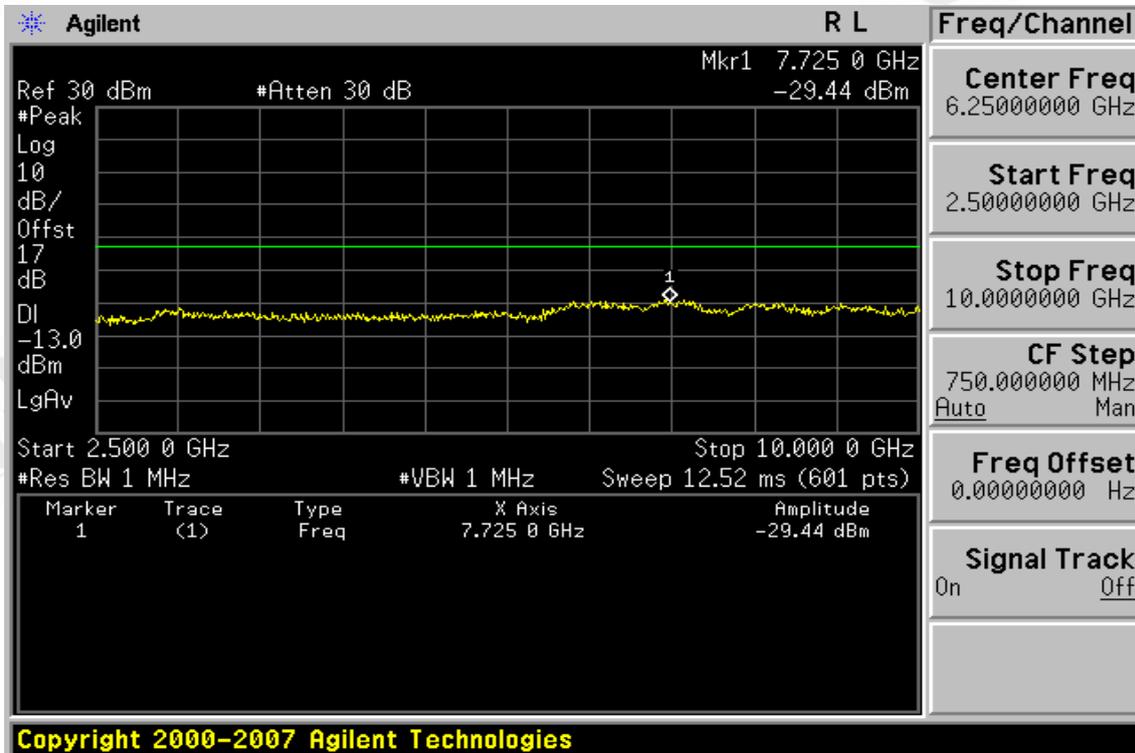
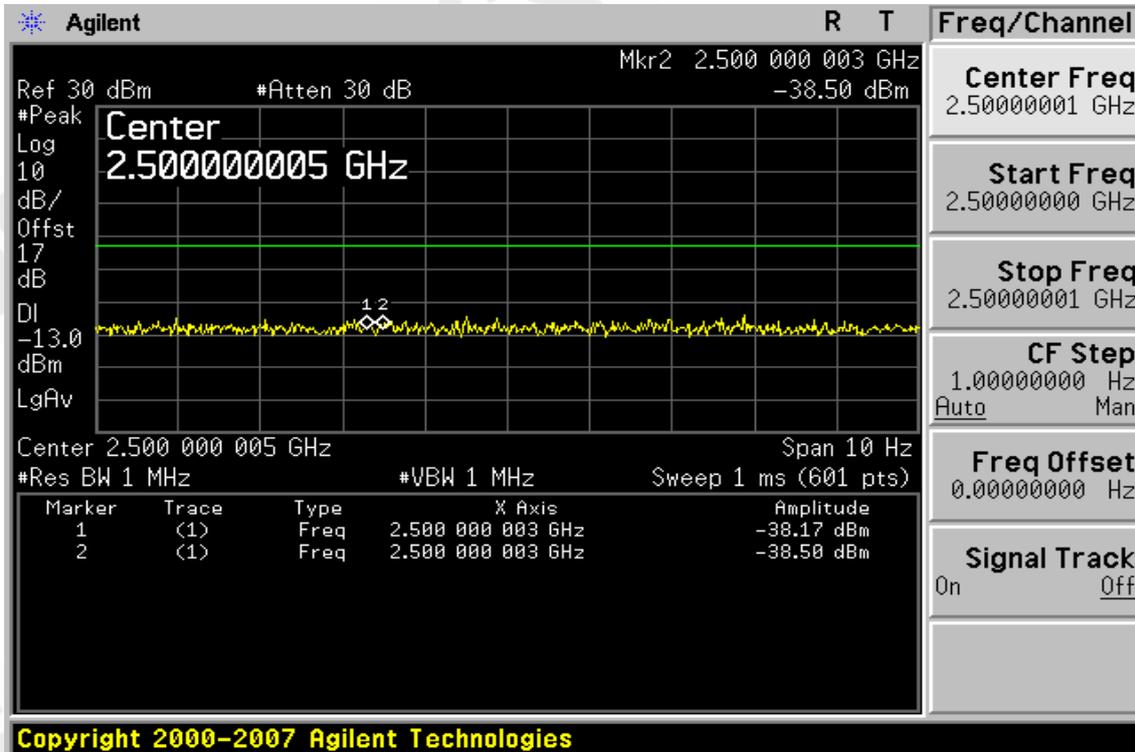
Figure 8-12: Out of Band emission at antenna terminals –WCDMA V Channel Mid



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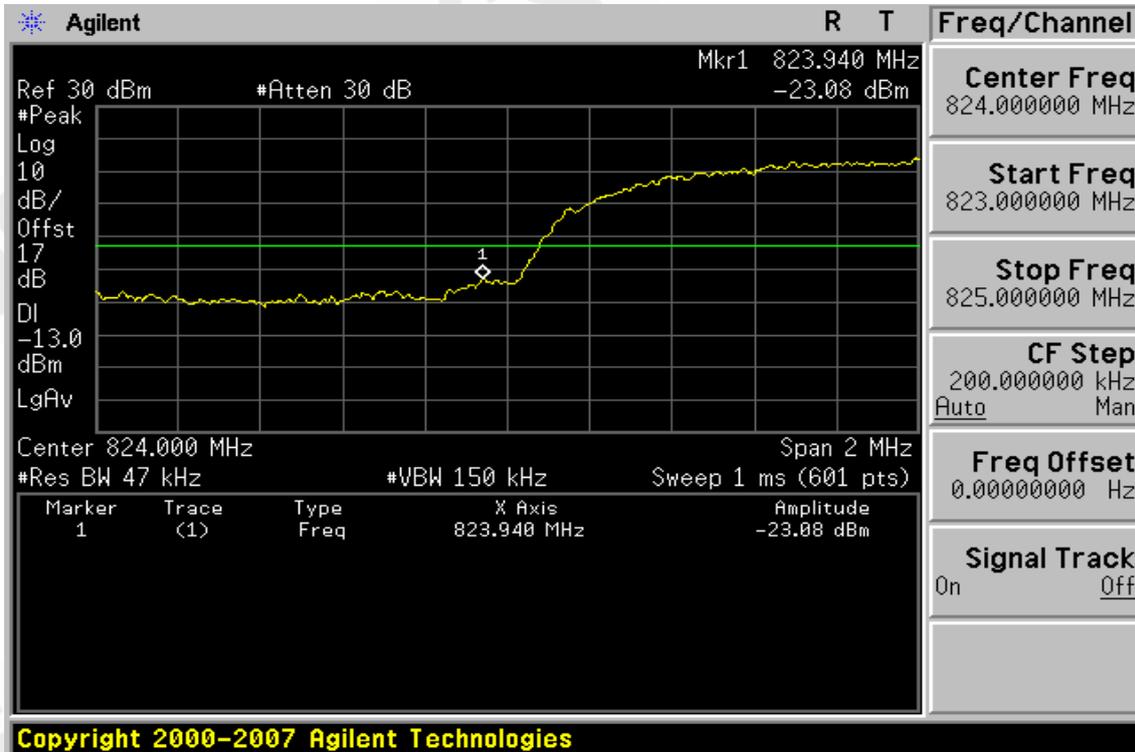
Figure 8-13: Out of Band emission at antenna terminals–WCDMA V Channel Highest



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**Figure 8-14: Bad edge emission at antenna terminals –WCDMA V Channel Lowest**



**Figure 8-15: Band edge emission at antenna terminals –WCDMA V Channel Highest**



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## 9. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

### 9.1. Standard Applicable:

According to FCC §2.1053,

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

### 9.2. EUT Setup (Block Diagram of Configuration):

Refer to section 6.2 in this report

### 9.3. Measurement Procedure:

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

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

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

$ERP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable Loss (dB)}$

$EIRP = S.G. \text{ output (dBm)} + \text{Antenna Gain (dBi)} - \text{Cable Loss (dB)}$

### 9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 9.5. Measurement Result:

Refer to attach tabular data sheets.

**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

Operation Mode	: TX CH Low Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 824.20 MHz	Test By:	Brian
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
30.00	43.53	V	-61.17	-7.34	0.95	-69.46	-13.00	-56.46
153.19	32.91	V	-64.67	-7.80	1.60	-74.07	-13.00	-61.07
298.69	33.97	V	-64.32	-7.92	2.17	-74.41	-13.00	-61.41
725.49	33.10	V	-55.15	-7.87	3.38	-66.40	-13.00	-53.40
824.00	57.95	V	-28.44	-7.87	3.62	-39.94	-13.00	-26.94
1648.40	---	V		9.29	5.23		-13.00	
2472.60	41.39	V	-59.62	10.08	6.53	-56.07	-13.00	-43.07
3296.80	41.50	V	-57.37	12.17	7.71	-52.92	-13.00	-39.92
4121.00	39.77	V	-56.35	12.61	8.86	-52.60	-13.00	-39.60
4945.20	---	V		12.65	9.74		-13.00	
5769.40	---	V		13.55	10.54		-13.00	
6593.60	---	V		12.05	11.30		-13.00	
7417.80	---	V		11.49	12.10		-13.00	
8242.00	---	V		11.48	12.71		-13.00	

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

**Remark:**

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

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**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

Operation Mode	: TX CH Low Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 824.20 MHz	Test By:	Brian
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

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)
38.73	42.32	H	-60.87	-3.25	0.90	-65.02	-13.00	-52.02
198.78	35.19	H	-66.37	-7.84	1.71	-75.91	-13.00	-62.91
274.44	37.80	H	-60.66	-7.90	2.08	-70.64	-13.00	-57.64
298.69	46.68	H	-51.02	-7.92	2.17	-61.11	-13.00	-48.11
397.63	39.46	H	-57.01	-7.66	2.50	-67.17	-13.00	-54.17
824.00	63.60	H	-22.67	-7.87	3.62	-34.17	-13.00	-21.17
1648.40	48.68	H	-55.72	9.29	5.23	-51.66	-13.00	-38.66
2472.60	43.63	H	-57.28	10.08	6.53	-53.73	-13.00	-40.73
3296.80	---	H		12.17	7.71		-13.00	
4121.00	---	H		12.61	8.86		-13.00	
4945.20	---	H		12.65	9.74		-13.00	
5769.40	---	H		13.55	10.54		-13.00	
6593.60	---	H		12.05	11.30		-13.00	
7417.80	---	H		11.49	12.10		-13.00	
8242.00	---	H		11.48	12.71		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

Operation Mode : TX CH Mid Mode  
 Fundamental Frequency : 836.60 MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	47.73	V	-54.58	-7.76	1.33	-63.67	-13.00	-50.67
153.19	32.67	V	-64.91	-7.80	1.60	-74.31	-13.00	-61.31
298.69	36.23	V	-62.06	-7.92	2.17	-72.15	-13.00	-59.15
611.03	32.43	V	-57.00	-7.79	3.06	-67.85	-13.00	-54.85
1673.20	---	V		9.36	5.27		-13.00	
2509.80	42.47	V	-58.31	10.09	6.58	-54.81	-13.00	-41.81
3346.40	39.92	V	-58.94	12.28	7.79	-54.46	-13.00	-41.46
4183.00	41.12	V	-54.77	12.62	8.93	-51.08	-13.00	-38.08
5019.60	---	V		12.67	9.81		-13.00	
5856.20	---	V		13.68	10.62		-13.00	
6692.80	---	V		11.95	11.39		-13.00	
7529.40	---	V		11.45	12.20		-13.00	
8366.00	---	V		11.59	12.81		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

Operation Mode : TX CH Mid Mode  
 Fundamental Frequency : 836.60 MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Hor

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	41.77	H	-61.46	-7.76	1.33	-70.55	-13.00	-57.55
198.78	38.24	H	-63.32	-7.84	1.71	-72.86	-13.00	-59.86
298.69	46.71	H	-50.99	-7.92	2.17	-61.08	-13.00	-48.08
397.63	39.01	H	-57.46	-7.66	2.50	-67.62	-13.00	-54.62
1673.20	49.46	H	-54.92	9.36	5.27	-50.82	-13.00	-37.82
2509.80	42.53	H	-58.17	10.09	6.58	-54.67	-13.00	-41.67
3346.40	---	H		12.28	7.79		-13.00	
4183.00	---	H		12.62	8.93		-13.00	
5019.60	---	H		12.67	9.81		-13.00	
5856.20	---	H		13.68	10.62		-13.00	
6692.80	---	H		11.95	11.39		-13.00	
7529.40	---	H		11.45	12.20		-13.00	
8366.00	---	H		11.59	12.81		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

Operation Mode : TX CH High Mode  
 Fundamental Frequency : 848.80 MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	48.91	V	-53.40	-7.76	1.33	-62.49	-13.00	-49.49
104.69	43.63	V	-57.86	-7.76	1.38	-67.00	-13.00	-54.00
298.69	36.09	V	-62.20	-7.92	2.17	-72.29	-13.00	-59.29
654.68	32.51	V	-56.46	-7.81	3.17	-67.45	-13.00	-54.45
850.00	62.36	V	-23.75	-7.88	3.68	-35.31	-13.00	-22.31
1697.60	42.21	V	-62.33	9.44	5.31	-58.20	-13.00	-45.20
2546.40	41.26	V	-59.38	10.20	6.63	-55.82	-13.00	-42.82
3395.20	---	V		12.38	7.87		-13.00	
4244.00	40.95	V	-54.71	12.63	9.00	-51.08	-13.00	-38.08
5092.80	---	V		12.74	9.88		-13.00	
5941.60	---	V		13.81	10.70		-13.00	
6790.40	---	V		11.86	11.48		-13.00	
7639.20	---	V		11.40	12.27		-13.00	
8488.00	---	V		11.70	12.91		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: GSM 850 Mode**

Operation Mode : TX CH High Mode  
 Fundamental Frequency : 848.80 MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Hor

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	45.83	H	-57.40	-7.76	1.33	-66.49	-13.00	-53.49
303.54	43.31	H	-54.32	-7.90	2.18	-64.40	-13.00	-51.40
327.79	39.18	H	-58.22	-7.76	2.28	-68.26	-13.00	-55.26
397.63	39.33	H	-57.14	-7.66	2.50	-67.30	-13.00	-54.30
850.00	70.49	H	-15.70	-7.88	3.68	-27.26	-13.00	-14.26
1697.60	46.85	H	-57.50	9.44	5.31	-53.37	-13.00	-40.37
2546.40	40.18	H	-60.42	10.20	6.63	-56.86	-13.00	-43.86
3395.20	---	H		12.38	7.87		-13.00	
4244.00	---	H		12.63	9.00		-13.00	
5092.80	---	H		12.74	9.88		-13.00	
5941.60	---	H		13.81	10.70		-13.00	
6790.40	---	H		11.86	11.48		-13.00	
7639.20	---	H		11.40	12.27		-13.00	
8488.00	---	H		11.70	12.91		-13.00	

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

**Remark:**

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

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**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode : TX CH Low Mode  
 Fundamental Frequency : 1850.20MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Ver

Freq. (MHz)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	48.21	V	-54.10	-7.76	1.33	-63.19	-13.00	-50.19
104.69	41.29	V	-60.20	-7.76	1.38	-69.34	-13.00	-56.34
286.08	33.49	V	-65.22	-7.91	2.12	-75.25	-13.00	-62.25
615.88	32.83	V	-56.53	-7.80	3.07	-67.40	-13.00	-54.40
1850.00	68.61	V	-35.78	9.90	5.56	-31.44	-13.00	-18.44
3700.40	39.29	V	-58.64	12.61	8.31	-54.34	-13.00	-41.34
5550.60	---	V		13.23	10.33		-13.00	
7400.80	---	V		11.50	12.08		-13.00	
9251.00	---	V		11.92	13.50		-13.00	
11101.20	---	V		11.66	15.11		-13.00	
12951.40	---	V		13.63	16.60		-13.00	
14801.60	---	V		12.76	17.95		-13.00	
16651.80	---	V		15.92	19.14		-13.00	
18502.00	---	V		18.75	10.40		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode : TX CH Low Mode  
 Fundamental Frequency : 1850.20MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Hor

Freq. (MHz)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
96.93	45.41	H	-57.82	-7.76	1.33	-66.91	-13.00	-53.91
397.63	40.36	H	-56.11	-7.66	2.50	-66.27	-13.00	-53.27
604.24	32.55	H	-58.07	-7.79	3.04	-68.90	-13.00	-55.90
1850.00	68.98	H	-35.20	9.90	5.56	-30.86	-13.00	-17.86
3700.40	46.90	H	-51.14	12.61	8.31	-46.84	-13.00	-33.84
5550.60	---	H		13.23	10.33		-13.00	
7400.80	---	H		11.50	12.08		-13.00	
9251.00	---	H		11.92	13.50		-13.00	
11101.20	---	H		11.66	15.11		-13.00	
12951.40	---	H		13.63	16.60		-13.00	
14801.60	---	H		12.76	17.95		-13.00	
16651.80	---	H		15.92	19.14		-13.00	
18502.00	---	H		18.75	10.40		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 1880MHz	Test By:	Brian
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

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)
96.93	48.94	V	-53.37	-7.76	1.33	-62.46	-13.00	-49.46
153.19	32.35	V	-65.23	-7.80	1.60	-74.63	-13.00	-61.63
465.53	32.23	V	-61.77	-7.71	2.70	-72.17	-13.00	-59.17
868.08	31.83	V	-53.79	-7.91	3.72	-65.41	-13.00	-52.41
3760.00	38.14	V	-59.52	12.60	8.39	-55.30	-13.00	-42.30
5640.00	---	V		13.36	10.41		-13.00	
7520.00	---	V		11.45	12.19		-13.00	
9400.00	---	V		11.93	13.61		-13.00	
11280.00	---	V		11.92	15.27		-13.00	
13160.00	---	V		13.33	16.71		-13.00	
15040.00	---	V		13.76	18.15		-13.00	
16920.00	---	V		15.27	19.32		-13.00	
18800.00	---	V		18.68	16.58		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 1880MHz	Test By:	Brian
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

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)
96.93	45.78	H	-57.45	-7.76	1.33	-66.54	-13.00	-53.54
104.69	40.94	H	-61.57	-7.76	1.38	-70.71	-13.00	-57.71
397.63	40.13	H	-56.34	-7.66	2.50	-66.50	-13.00	-53.50
652.74	32.44	H	-57.17	-7.81	3.17	-68.15	-13.00	-55.15
3760.00	44.81	H	-52.96	12.60	8.39	-48.75	-13.00	-35.75
5640.00	40.08	H	-50.67	13.36	10.41	-47.72	-13.00	-34.72
7520.00	---	H		11.45	12.19		-13.00	
9400.00	---	H		11.93	13.61		-13.00	
11280.00	---	H		11.92	15.27		-13.00	
13160.00	---	H		13.33	16.71		-13.00	
15040.00	---	H		13.76	18.15		-13.00	
16920.00	---	H		15.27	19.32		-13.00	
18800.00	---	H		18.68	16.58		-13.00	

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

**Remark:**

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

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**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode	: TX CH High Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 1909.8 MHz	Test By:	Brian
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

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)
96.93	48.57	V	-53.74	-7.76	1.33	-62.83	-13.00	-49.83
298.69	33.55	V	-64.74	-7.92	2.17	-74.83	-13.00	-61.83
412.18	33.44	V	-61.68	-7.67	2.55	-71.89	-13.00	-58.89
863.23	32.55	V	-53.20	-7.90	3.71	-64.81	-13.00	-51.81
1910.00	68.98	V	-35.35	10.08	5.66	-30.93	-13.00	-17.93
3981.60	37.03	V	-59.63	12.60	8.69	-55.73	-13.00	-42.73
5972.40	---	V		13.86	10.73		-13.00	
7963.20	---	V		11.27	12.49		-13.00	
9954.00	---	V		12.08	14.24		-13.00	
11944.80	---	V		13.08	15.87		-13.00	
13935.60	---	V		11.82	17.21		-13.00	
15926.40	---	V		17.08	18.70		-13.00	
17917.20	---	V		9.63	19.97		-13.00	
19908.00	---	V		18.88	21.24		-13.00	

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

**Remark:**

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

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**Radiated Spurious Emission Measurement Result: PCS 1900 Mode**

Operation Mode	: TX CH High Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 1909.8 MHz	Test By:	Brian
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

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)
96.93	44.77	H	-58.46	-7.76	1.33	-67.55	-13.00	-54.55
298.69	40.91	H	-56.79	-7.92	2.17	-66.88	-13.00	-53.88
657.59	32.78	H	-56.62	-7.82	3.18	-67.62	-13.00	-54.62
897.18	31.93	H	-53.00	-7.95	3.78	-64.73	-13.00	-51.73
1910.00	69.89	H	-34.22	10.08	5.66	-29.80	-13.00	-16.80
3981.60	42.18	H	-54.59	12.60	8.69	-50.69	-13.00	-37.69
5972.40	---	H		13.86	10.73		-13.00	
7963.20	---	H		11.27	12.49		-13.00	
9954.00	---	H		12.08	14.24		-13.00	
11944.80	---	H		13.08	15.87		-13.00	
13935.60	---	H		11.82	17.21		-13.00	
15926.40	---	H		17.08	18.70		-13.00	
17917.20	---	H		9.63	19.97		-13.00	
19908.00	---	H		18.88	21.24		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Mode : TX CH Low Mode  
 Fundamental Frequency : 1852.4MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Ver

Freq. (MHz)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
94.99	49.88	V	-52.68	-7.75	1.31	-61.75	-13.00	-48.75
295.78	41.01	V	-57.38	-7.92	2.15	-67.45	-13.00	-54.45
395.69	38.50	V	-57.18	-7.66	2.50	-67.34	-13.00	-54.34
1850.00	62.61	V	-41.78	9.90	5.56	-37.44	-13.00	-24.44
3704.80	34.55	V	-63.36	12.61	8.31	-59.07	-13.00	-46.07
5557.20	---	V		13.24	10.33		-13.00	
7409.60	---	V		11.49	12.09		-13.00	
9262.00	---	V		11.92	13.51		-13.00	
11114.40	---	V		11.68	15.12		-13.00	
12966.80	---	V		13.62	16.61		-13.00	
14819.20	---	V		12.83	17.96		-13.00	
16671.60	---	V		15.87	19.15		-13.00	
18524.00	---	V		18.74	10.86		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Mode : TX CH Low Mode  
 Fundamental Frequency : 1852.4MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Hor

Freq. (MHz)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
56.19	38.63	H	-71.01	-0.51	1.09	-72.61	-13.00	-59.61
101.78	43.61	H	-59.20	-7.76	1.37	-68.33	-13.00	-55.33
198.78	36.24	H	-65.32	-7.84	1.71	-74.86	-13.00	-61.86
295.78	40.38	H	-57.41	-7.92	2.15	-67.48	-13.00	-54.48
395.69	36.34	H	-60.16	-7.66	2.50	-70.31	-13.00	-57.31
1850.00	66.97	H	-37.21	9.90	5.56	-32.87	-13.00	-19.87
3704.80	33.48	H	-64.54	12.61	8.31	-60.25	-13.00	-47.25
5557.20	---	H		13.24	10.33		-13.00	
7409.60	---	H		11.49	12.09		-13.00	
9262.00	---	H		11.92	13.51		-13.00	
11114.40	---	H		11.68	15.12		-13.00	
12966.80	---	H		13.62	16.61		-13.00	
14819.20	---	H		12.83	17.96		-13.00	
16671.60	---	H		15.87	19.15		-13.00	
18524.00	---	H		18.74	10.86		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 1880.0MHz	Test By:	Brian
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

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)
101.78	45.04	V	-56.72	-7.76	1.37	-65.84	-13.00	-52.84
153.19	32.90	V	-64.68	-7.80	1.60	-74.08	-13.00	-61.08
298.78	37.07	V	-61.22	-7.92	2.17	-71.30	-13.00	-58.30
395.69	35.39	V	-60.29	-7.66	2.50	-70.45	-13.00	-57.45
3760.00	34.12	V	-63.54	12.60	8.39	-59.32	-13.00	-46.32
5640.00	---	V		13.36	10.41		-13.00	
7520.00	---	V		11.45	12.19		-13.00	
9400.00	---	V		11.93	13.61		-13.00	
11280.00	---	V		11.92	15.27		-13.00	
13160.00	---	V		13.33	16.71		-13.00	
15040.00	---	V		13.76	18.15		-13.00	
16920.00	---	V		15.27	19.32		-13.00	
18800.00	---	V		18.68	16.58		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 1880.0MHz	Test By:	Brian
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

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)
101.78	42.82	H	-59.99	-7.76	1.37	-69.12	-13.00	-56.12
196.84	36.12	H	-65.28	-7.84	1.70	-74.82	-13.00	-61.82
295.78	39.86	H	-57.93	-7.92	2.15	-68.00	-13.00	-55.00
395.69	34.85	H	-61.65	-7.66	2.50	-71.80	-13.00	-58.80
3760.00	33.02	H	-64.75	12.60	8.39	-60.54	-13.00	-47.54
5640.00	---	H		13.36	10.41		-13.00	
7520.00	---	H		11.45	12.19		-13.00	
9400.00	---	H		11.93	13.61		-13.00	
11280.00	---	H		11.92	15.27		-13.00	
13160.00	---	H		13.33	16.71		-13.00	
15040.00	---	H		13.76	18.15		-13.00	
16920.00	---	H		15.27	19.32		-13.00	
18800.00	---	H		18.68	16.58		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Mode	: TX CH High Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 1907.6 MHz	Test By:	Brian
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

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)
94.99	49.83	V	-52.73	-7.75	1.31	-61.80	-13.00	-48.80
153.19	32.55	V	-65.03	-7.80	1.60	-74.43	-13.00	-61.43
196.84	35.38	V	-66.12	-7.84	1.70	-75.66	-13.00	-62.66
295.78	39.25	V	-59.14	-7.92	2.15	-69.21	-13.00	-56.21
395.69	39.45	V	-56.23	-7.66	2.50	-66.39	-13.00	-53.39
1910.00	61.04	V	-43.29	10.08	5.66	-38.87	-13.00	-25.87
3815.20	33.48	V	-63.93	12.60	8.46	-59.79	-13.00	-46.79
5722.80	---	V		13.48	10.49		-13.00	
7630.40	---	V		11.41	12.27		-13.00	
9538.00	---	V		11.95	13.73		-13.00	
11445.60	---	V		12.15	15.42		-13.00	
13353.20	---	V		13.00	16.81		-13.00	
15260.80	---	V		14.91	18.28		-13.00	
17168.40	---	V		14.53	19.50		-13.00	
19076.00	---	V		18.65	20.76		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Mode	: TX CH High Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 1907.6 MHz	Test By:	Brian
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

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)
101.78	43.51	H	-59.30	-7.76	1.37	-68.43	-13.00	-55.43
169.68	47.29	H	-52.01	-7.82	1.64	-61.46	-13.00	-48.46
295.78	40.35	H	-57.44	-7.92	2.15	-67.51	-13.00	-54.51
395.69	37.96	H	-58.54	-7.66	2.50	-68.69	-13.00	-55.69
1910.00	65.33	H	-38.78	10.08	5.66	-34.36	-13.00	-21.36
3815.20	33.48	H	-64.05	12.60	8.46	-59.91	-13.00	-46.91
5722.80	---	H		13.48	10.49		-13.00	
7630.40	---	H		11.41	12.27		-13.00	
9538.00	---	H		11.95	13.73		-13.00	
11445.60	---	H		12.15	15.42		-13.00	
13353.20	---	H		13.00	16.81		-13.00	
15260.80	---	H		14.91	18.28		-13.00	
17168.40	---	H		14.53	19.50		-13.00	
19076.00	---	H		18.65	20.76		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Mode : TX CH Low Mode  
 Fundamental Frequency : 826.4MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Ver

Freq. (MHz)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
75.59	44.06	V	-67.46	-1.85	1.19	-70.51	-13.00	-57.51
96.93	50.65	V	-51.66	-7.76	1.33	-60.75	-13.00	-47.75
153.19	32.58	V	-65.00	-7.80	1.60	-74.40	-13.00	-61.40
298.69	42.26	V	-56.03	-7.92	2.17	-66.12	-13.00	-53.12
397.63	36.15	V	-59.45	-7.66	2.50	-69.61	-13.00	-56.61
825.00	56.07	V	-30.31	-7.88	3.63	-41.81	-13.00	-28.81
1652.80	36.11	V	-68.47	9.30	5.23	-64.40	-13.00	-51.40
2479.20	---	V		10.07	6.54		-13.00	
3305.60	---	V		12.19	7.73		-13.00	
4132.00	---	V		12.62	8.87		-13.00	
4958.40	---	V		12.65	9.75		-13.00	
5784.80	---	V		13.58	10.55		-13.00	
6611.20	---	V		12.03	11.31		-13.00	
7437.60	---	V		11.48	12.12		-13.00	
8264.00	---	V		11.50	12.73		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Mode : TX CH Low Mode  
 Fundamental Frequency : 826.4MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Hor

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)
101.78	43.41	H	-59.40	-7.76	1.37	-68.53	-13.00	-55.53
298.69	41.08	H	-56.62	-7.92	2.17	-66.71	-13.00	-53.71
397.63	42.15	H	-54.32	-7.66	2.50	-64.48	-13.00	-51.48
497.54	35.67	H	-57.80	-7.72	2.79	-68.31	-13.00	-55.31
825.00	58.54	H	-27.73	-7.88	3.63	-39.23	-13.00	-26.23
1652.80	38.14	H	-66.26	9.30	5.23	-62.19	-13.00	-49.19
2479.20	---	H		10.07	6.54		-13.00	
3305.60	37.90	H	-61.19	12.19	7.73	-56.73	-13.00	-43.73
4132.00	---	H		12.62	8.87		-13.00	
4958.40	---	H		12.65	9.75		-13.00	
5784.80	---	H		13.58	10.55		-13.00	
6611.20	---	H		12.03	11.31		-13.00	
7437.60	---	H		11.48	12.12		-13.00	
8264.00	---	H		11.50	12.73		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 836.0MHz	Test By:	Brian
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

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)
96.93	51.02	V	-51.29	-7.76	1.33	-60.38	-13.00	-47.38
153.19	31.87	V	-65.71	-7.80	1.60	-75.11	-13.00	-62.11
298.69	46.42	V	-51.87	-7.92	2.17	-61.96	-13.00	-48.96
397.63	36.59	V	-59.01	-7.66	2.50	-69.17	-13.00	-56.17
1672.00	36.61	V	-67.95	9.36	5.27	-63.86	-13.00	-50.86
2508.00	---	V		10.08	6.58		-13.00	
3344.00	---	V		12.27	7.79		-13.00	
4180.00	---	V		12.62	8.93		-13.00	
5016.00	---	V		12.67	9.81		-13.00	
5852.00	---	V		13.68	10.62		-13.00	
6688.00	---	V		11.96	11.39		-13.00	
7524.00	---	V		11.45	12.20		-13.00	
8360.00	---	V		11.58	12.81		-13.00	

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

Remark:

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

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 836.0MHz	Test By:	Brian
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

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)
69.83	40.75	H	-71.53	-1.07	1.16	-73.76	-13.00	-60.76
101.78	42.34	H	-60.47	-7.76	1.37	-69.60	-13.00	-56.60
298.69	42.45	H	-55.25	-7.92	2.17	-65.34	-13.00	-52.34
397.63	43.16	H	-53.31	-7.66	2.50	-63.47	-13.00	-50.47
1672.00	41.12	H	-63.26	9.36	5.27	-59.16	-13.00	-46.16
2508.00	---	H		10.08	6.58		-13.00	
2953.00	37.35	H	-62.09	11.38	7.19	-57.90	-13.00	-44.90
3344.00	---	H		12.27	7.79		-13.00	
4180.00	---	H		12.62	8.93		-13.00	
5016.00	---	H		12.67	9.81		-13.00	
5852.00	---	H		13.68	10.62		-13.00	
6688.00	---	H		11.96	11.39		-13.00	
7524.00	---	H		11.45	12.20		-13.00	
8360.00	---	H		11.58	12.81		-13.00	

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

**Remark:**

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

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Mode : TX CH High Mode  
 Fundamental Frequency : 846.6 MHz  
 Temperature : 25  
 Humidity : 65%

Test Date: May. 22, 2009  
 Test By: Brian  
 Pol: Ver

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)
96.93	51.68	V	-50.63	-7.76	1.33	-59.72	-13.00	-46.72
153.19	32.52	V	-65.06	-7.80	1.60	-74.46	-13.00	-61.46
298.69	44.10	V	-54.19	-7.92	2.17	-64.28	-13.00	-51.28
397.63	41.47	V	-54.13	-7.66	2.50	-64.29	-13.00	-51.29
850.00	69.22	V	-16.89	-7.88	3.68	-28.45	-13.00	-15.45
1693.20	35.66	V	-68.88	9.42	5.30	-64.76	-13.00	-51.76
2539.80	---	V		10.18	6.62		-13.00	
3386.40	---	V		12.36	7.85		-13.00	
4233.00	---	V		12.63	8.99		-13.00	
5079.60	---	V		12.73	9.87		-13.00	
5926.20	---	V		13.79	10.69		-13.00	
6772.80	---	V		11.87	11.47		-13.00	
7619.40	---	V		11.41	12.26		-13.00	
8466.00	---	V		11.68	12.89		-13.00	

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

**Remark:**

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

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**Radiated Spurious Emission Measurement Result: WCDMA V Mode**

Operation Mode	: TX CH High Mode	Test Date:	May. 22, 2009
Fundamental Frequency	: 846.6 MHz	Test By:	Brian
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

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)
101.78	43.15	H	-59.66	-7.76	1.37	-68.79	-13.00	-55.79
198.78	40.02	H	-61.54	-7.84	1.71	-71.08	-13.00	-58.08
298.69	43.74	H	-53.96	-7.92	2.17	-64.05	-13.00	-51.05
397.63	41.23	H	-55.24	-7.66	2.50	-65.40	-13.00	-52.40
850.00	65.40	H	-20.79	-7.88	3.68	-32.35	-13.00	-19.35
1693.20	38.84	H	-65.51	9.42	5.30	-61.39	-13.00	-48.39
2539.80	---	H		10.18	6.62		-13.00	
3386.40	---	H		12.36	7.85		-13.00	
4233.00	---	H		12.63	8.99		-13.00	
5079.60	---	H		12.73	9.87		-13.00	
5926.20	---	H		13.79	10.69		-13.00	
6772.80	---	H		11.87	11.47		-13.00	
7619.40	---	H		11.41	12.26		-13.00	
8466.00	---	H		11.68	12.89		-13.00	

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

Remark:

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

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

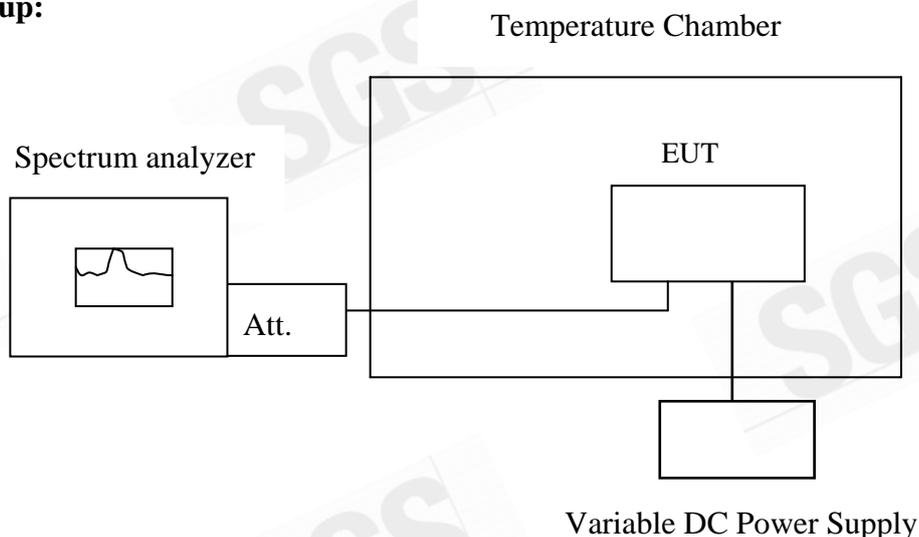
### 10.1. Standard Applicable:

According to FCC §2.1055(a) (1)

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

+/-2.5ppm for 1900MHz band

### 10.2. Test Set-up:



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

### 10.3. Measurement Procedure:

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

### 10.4. Measurement Equipment Used:

Refer to section 2.4 in this report

10.5. Measurement Result:

Reference Frequency: GSM Mid Channel 836.6 MHz @ 25				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature ( )	(MHz)		
5	-30	836.599994	4.00	2091
5	-20	836.599996	2.00	2091
5	-10	836.599991	7.00	2091
5	0	836.599990	8.00	2091
5	10	836.599984	14.00	2091
5	20	836.599998	0.00	2091
5	30	836.599992	6.00	2091
5	40	836.599975	23.00	2091
5	50	836.599969	29.00	2091

Reference Frequency: PCS Mid Channel 1880 MHz @ 25				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature ( )	(MHz)		
5	-30	1879.999948	11.00	4700
5	-20	1879.999955	4.00	4700
5	-10	1879.999951	8.00	4700
5	0	1879.999964	-5.00	4700
5	10	1879.999970	-11.00	4700
5	20	1879.999959	0.00	4700
5	30	1879.999944	15.00	4700
5	40	1879.999937	22.00	4700
5	50	1879.999939	20.00	4700

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Reference Frequency: WCDMA II Mid Channel 1880(ARFCN1413) MHz @ 25				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature ( )	(MHz)		
5	-30	1879.999992	3.00	4700
5	-20	1879.999989	6.00	4700
5	-10	1879.999984	11.00	4700
5	0	1879.999993	2.00	4700
5	10	1879.999992	3.00	4700
5	20	1879.999995	0.00	4700
5	30	1879.999978	17.00	4700
5	40	1879.999986	9.00	4700
5	50	1879.999990	5.00	4700

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Reference Frequency: WCDMA V Mid Channel 836.6(ARFCN1413) MHz @ 25				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature ( )	(MHz)		
5	-30	836.599994	1.00	2091
5	-20	836.599983	12.00	2091
5	-10	836.599989	6.00	2091
5	0	836.599981	14.00	2091
5	10	836.599992	3.00	2091
5	20	836.599995	0.00	2091
5	30	836.599979	16.00	2091
5	40	836.599982	13.00	2091
5	50	836.599988	7.00	2091

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## 11. FREQUENCY STABILITY V.S. VOLTAGE MEASUREMENT

### 11.1. Standard Applicable:

According to FCC §2.1055(a) (1)

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

+/-2.5ppm for 1900MHz band

### 11.2. Test Set-up:

Refer to section 10.2 in this report

### 11.3. Measurement Procedure:

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

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

### 11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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**11.5. Measurement Result:**

Reference Frequency: GSM Mid Channel 836.6 MHz @ 25				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature ( )	(MHz)		
5.50	25.00	836.599973	0.00	2091.00
5.00	25.00	836.599982	-9.00	2091.00
4.50	25.00	836.599985	-12.00	2091.00
3.0 (End Point)	25.00	836.600001	28.00	2091.00

Reference Frequency: PCS Mid Channel 1880 MHz @ 25				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature ( )	(MHz)		
5.5	25	1879.999968	0.00	4700
5	25	1879.999977	-9.00	4700
4.5	25	1879.999971	-3.00	4700
3.0 (Endpoint)	25	1880.000002	-34.00	4700

Reference Frequency: WCDMA II Mid Channel 1880 MHz(ARFCN1413) @ 25				
Limit: +/- 2.5 ppm = 4331 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature ( )	(MHz)		
5.5	25	1879.999994	0.00	4700
5	25	1879.999988	6.00	4700
4.5	25	1879.999985	9.00	4700
3.0 (Endpoint)	25	1879.999979	15.00	4700

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Reference Frequency: WCDMA V Mid Channel 836.6 MHz(ARFCN1413) @ 25				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature ( )	(MHz)		
5.50	25.00	836.599991	0.00	2091.00
5.00	25.00	836.599982	9.00	2091.00
4.50	25.00	836.599985	6.00	2091.00
3.0 (End Point)	25.00	836.599978	13.00	2091.00

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## 12. AC POWER LINE CONDUCTED EMISSION TEST

### 12.1. Standard Applicable:

According to §15.207. The emission value for frequency within 150KHz to 30MHz shall not exceed criteria of below chart.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note

- 1.The lower limit shall apply at the transition frequencies
- 2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 12.2. EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2003.
2. The EUT was plug-in DC power adaptor and was placed on the center of the back edge on the test table. The peripherals like earphone was placed on the side of the EUT. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The Power adaptor was connected with 120Vac/60Hz power source.

### 12.3. Measurement Procedure:

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### 12.4. Measurement Equipment Used:

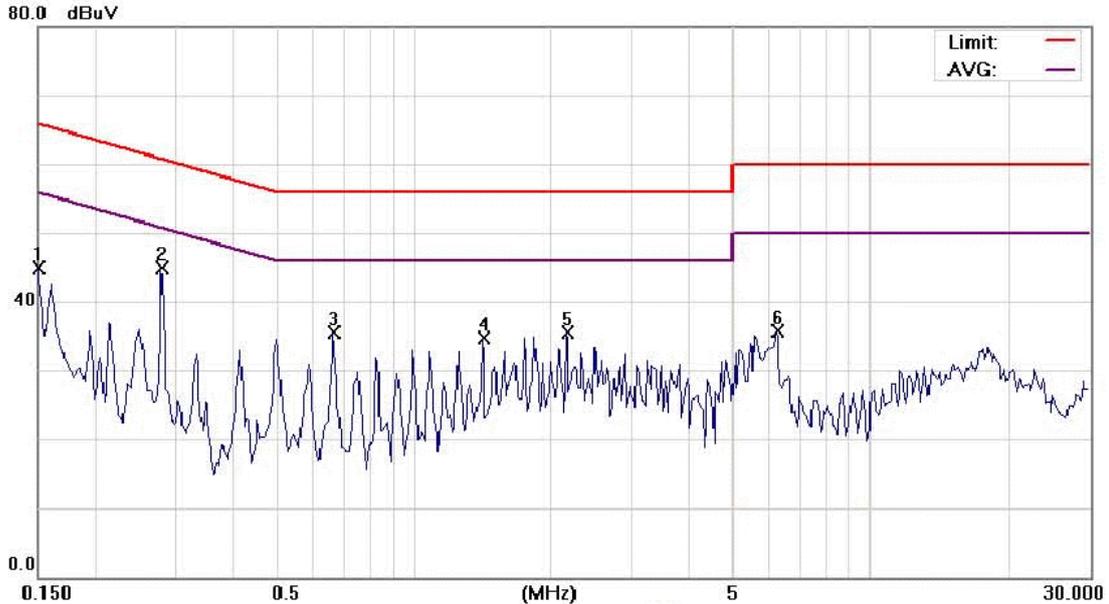
Refer to section 2.4 in this report

### 12.5. Measurement Result;

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.

## AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GSM 850 LINK	Test Date:	May. 24, 2009
Temperature:	25	Humidity:	62 %
		Test By:	Brian



Site: SGS CONDUCTED #1  
 Limit: CISPR22/11 Class B Conduction(QP)  
 EUT: HSUPA USB Modem  
 M/N: MF110  
 Note: GSM 850 LINK MODE

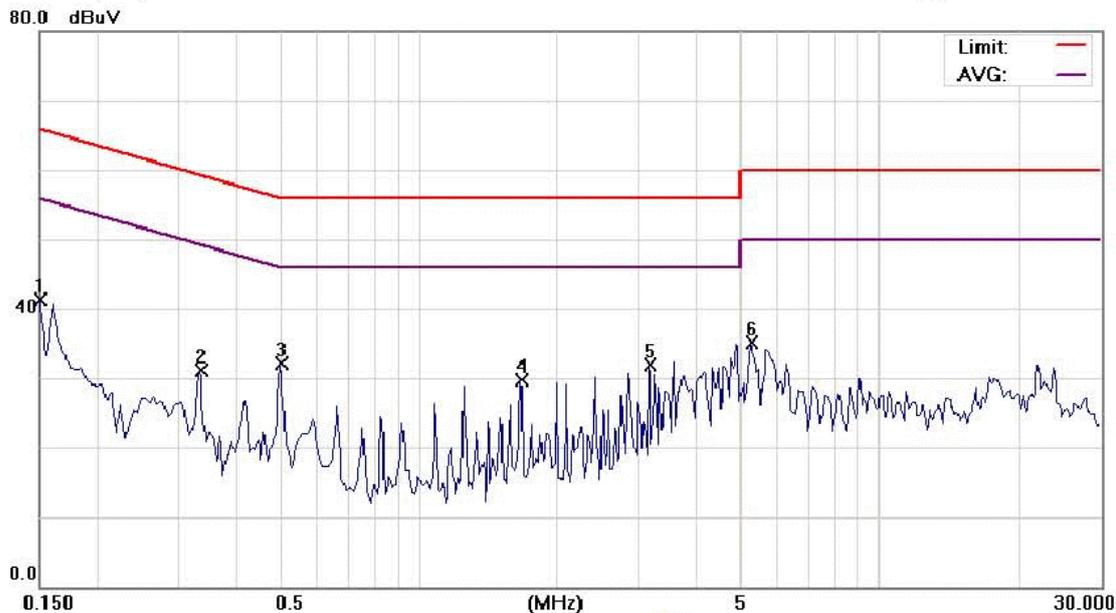
Phase: L1  
 Power: AC 120V/60Hz  
 Distance:

Temperature: 25 °C  
 Humidity: 62 %  
 Air Pressure: hpa

No. Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1500	44.41	0.41	44.82	66.00	-21.18	peak	
2 *	0.2800	44.68	0.13	44.81	60.82	-16.01	peak	
3	0.6650	35.54	0.05	35.59	56.00	-20.41	peak	
4	1.4150	34.72	0.04	34.76	56.00	-21.24	peak	
5	2.1650	35.42	0.04	35.46	56.00	-20.54	peak	
6	6.2400	35.66	0.08	35.74	60.00	-24.26	peak	

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Site SGS CONDUCTED #1

Phase: **N**

Temperature: 25 °C

Limit: CISPR22/11 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 62 %

EUT: HSUPA USB Modem

Distance:

Air Pressure: hpa

M/N: MF110

Note: GSM 850 LINK MODE

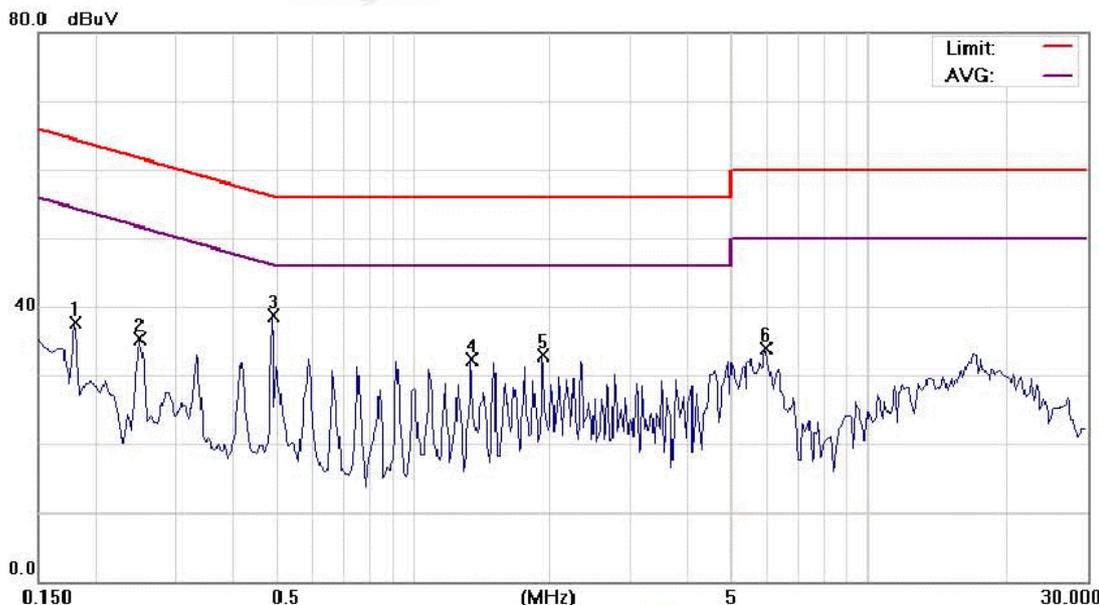
No.	Mk.	Freq.	Reading Level	Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1500	40.98	0.40	41.38	66.00	-24.62	peak	
2		0.3350	30.93	0.10	31.03	59.33	-28.30	peak	
3	*	0.5000	32.07	0.05	32.12	56.00	-23.88	peak	
4		1.6700	29.60	0.03	29.63	56.00	-26.37	peak	
5		3.1700	31.83	0.04	31.87	56.00	-24.13	peak	
6		5.2600	35.05	0.07	35.12	60.00	-24.88	peak	

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## AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	GSM 1900 Link	Test Date:	May. 24, 2009
Temperature:	25	Humidity:	62 %
		Test By:	Brian



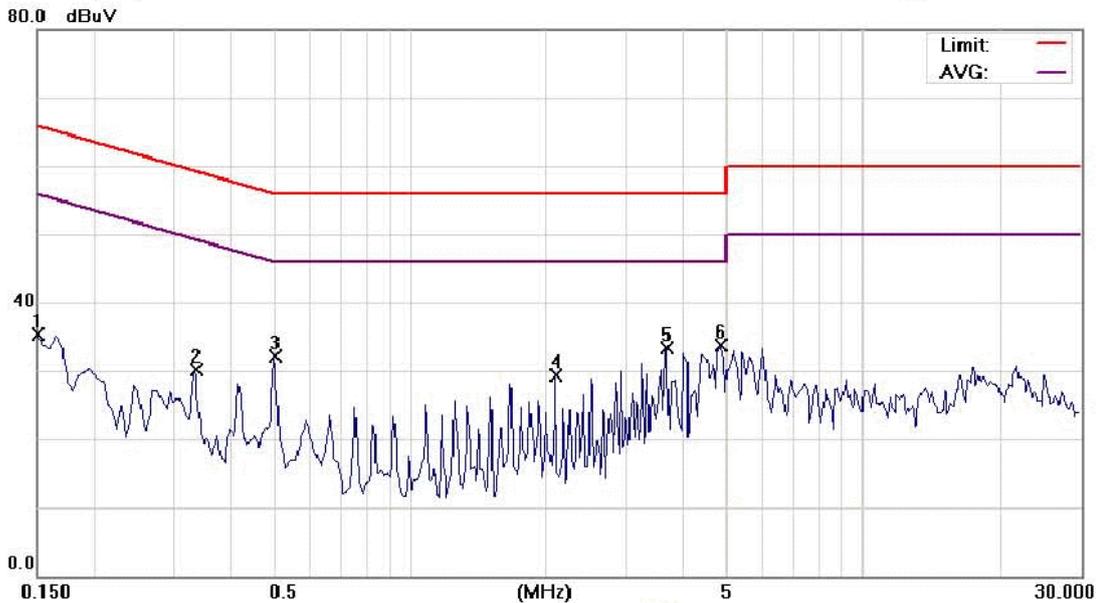
Site: SGS CONDUCTED #1  
 Limit: CISPR22/11 Class B Conduction(QP)  
 EUT: HSUPA USB Modem  
 M/N: MF110  
 Note: GSM 1900 LINK MODE

Phase: L1  
 Power: AC 120V/60Hz  
 Distance:  
 Temperature: 25 °C  
 Humidity: 62 %  
 Air Pressure: hpa

No. Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1800	37.37	0.26	37.63	64.49	-26.86	peak	
2	0.2500	35.22	0.14	35.36	61.76	-26.40	peak	
3 *	0.4900	38.58	0.06	38.64	56.17	-17.53	peak	
4	1.3400	32.33	0.04	32.37	56.00	-23.63	peak	
5	1.9250	32.86	0.04	32.90	56.00	-23.10	peak	
6	5.9400	33.79	0.08	33.87	60.00	-26.13	peak	

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Site SGS CONDUCTED #1

Phase: **N**

Temperature: 25 °C

Limit: CISPR22/11 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 62 %

EUT: HSUPA USB Modem

Distance:

Air Pressure: hpa

M/N: MF110

Note: GSM 1900 LINK MODE

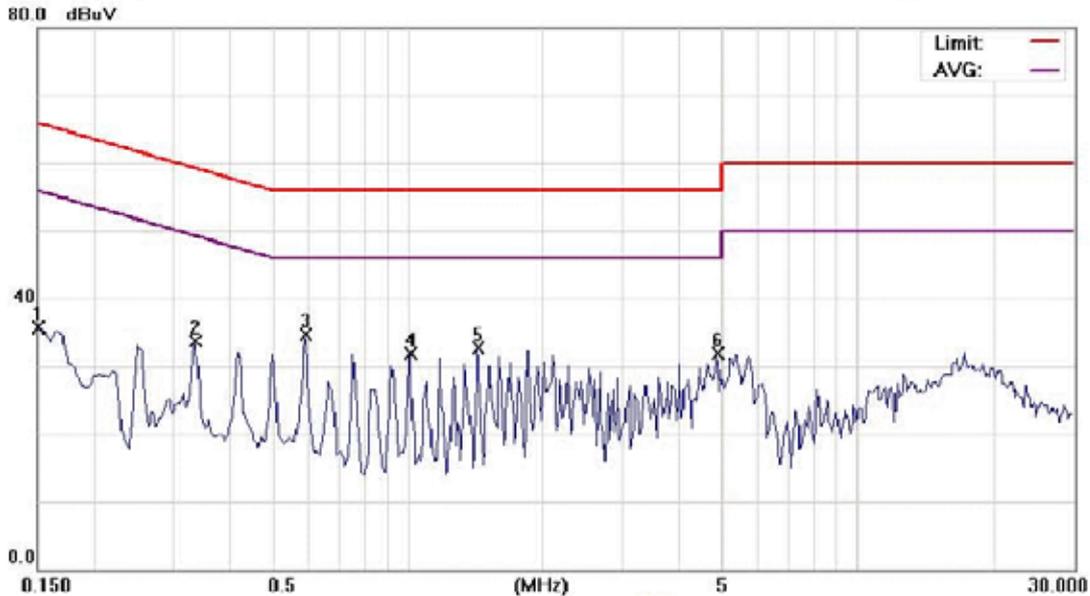
No.	Mk.	Freq.	Reading Level	Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1500	34.84	0.40	35.24	66.00	-30.76	peak	
2		0.3350	29.97	0.10	30.07	59.33	-29.26	peak	
3		0.5000	32.09	0.05	32.14	56.00	-23.86	peak	
4		2.0900	29.24	0.03	29.27	56.00	-26.73	peak	
5		3.6800	33.23	0.04	33.27	56.00	-22.73	peak	
6	*	4.8500	33.74	0.06	33.80	56.00	-22.20	peak	

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## AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	WCDMA II Link		Test Date:	May. 24, 2009	
Temperature:	23	Humidity:	62 %	Test By:	Brian



Site: SGS CONDUCTED #1  
 Limit: CISPR22/11 Class B Conduction(QP)  
 EUT: HSUPA USB Modem  
 M/N: MF110  
 Note: WCDMA B2 LINK MODE

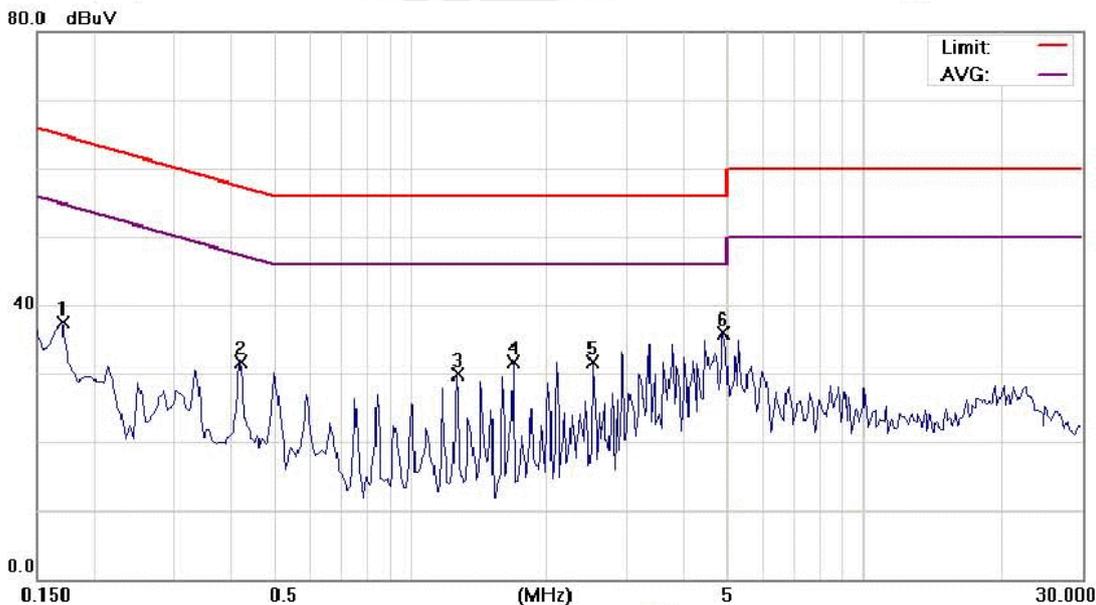
Phase: L1  
 Power: AC 120V/60Hz  
 Distance:

Temperature: 25 °C  
 Humidity: 82 %  
 Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1500	35.38	0.41	35.79	66.00	-30.21	peak	
2		0.3350	33.54	0.11	33.65	59.33	-25.68	peak	
3	*	0.5900	34.74	0.06	34.80	56.00	-21.20	peak	
4		1.0100	31.81	0.04	31.85	56.00	-24.15	peak	
5		1.4300	32.69	0.04	32.73	56.00	-23.27	peak	
6		4.8800	31.85	0.05	31.90	56.00	-24.10	peak	

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Site SGS CONDUCTED #1

Phase: **N**

Temperature: 25 °C

Limit: CISPR22/11 Class B Conduction(QP)

Power: AC 120V/60Hz

Humidity: 62 %

EUT: HSUPA USB Modem

Distance:

Air Pressure: hpa

M/N: MF110

Note: WCDMA B2 LINK MODE

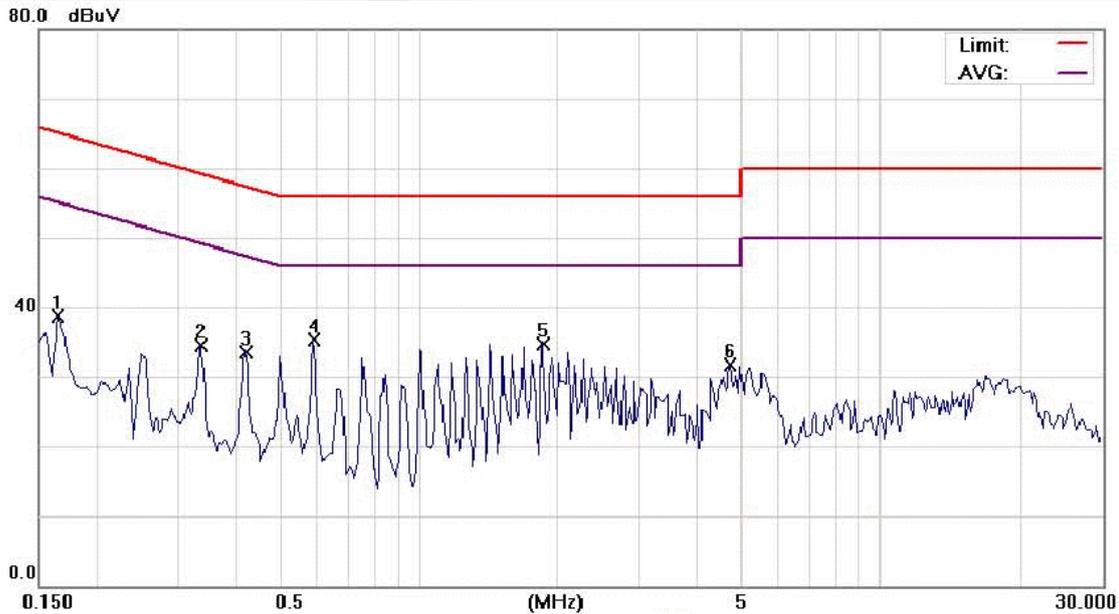
No.	Mk.	Freq.	Reading Level	Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1700	37.16	0.29	37.45	64.96	-27.51	peak	
2		0.4200	31.61	0.07	31.68	57.45	-25.77	peak	
3		1.2650	29.87	0.03	29.90	56.00	-26.10	peak	
4		1.6850	31.69	0.03	31.72	56.00	-24.28	peak	
5		2.5250	31.76	0.03	31.79	56.00	-24.21	peak	
6	*	4.8950	35.89	0.06	35.95	56.00	-20.05	peak	

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## AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	WCDMA V Link		Test Date:	May. 24, 2009	
Temperature:	25	Humidity:	62 %	Test By:	Brian

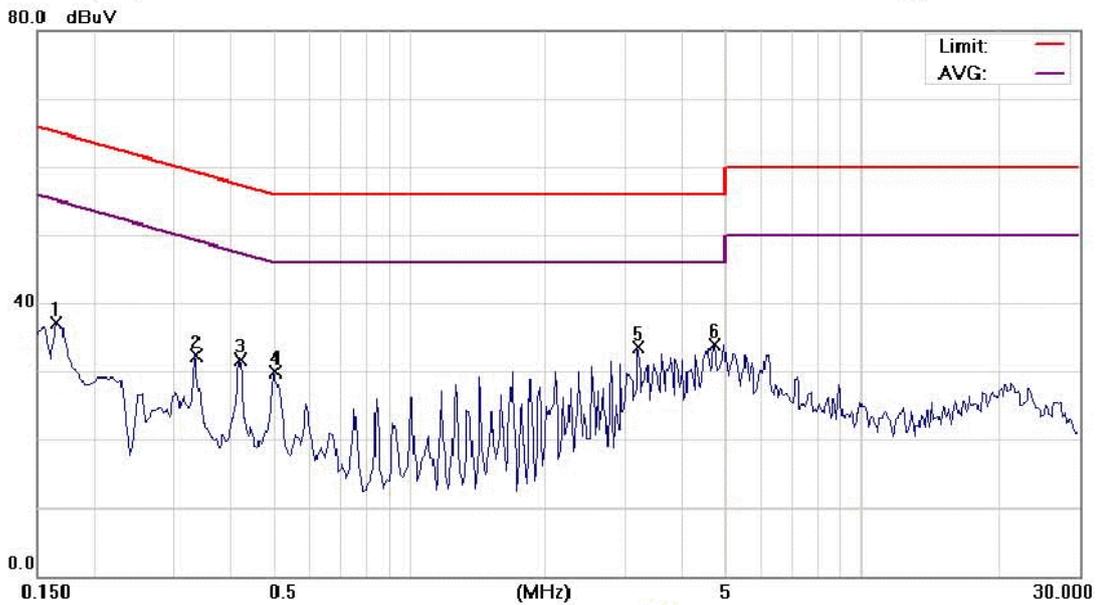


Site	SGS CONDUCTED #1	Phase:	L1	Temperature:	25 °C
Limit:	CISPR22/11 Class B Conduction(QP)	Power:	AC 120V/60Hz	Humidity:	62 %
EUT:	HSUPA USB Modem	Distance:		Air Pressure:	hpa
M/N:	MF110				
Note:	WCDMA B5 LINK MODE				

No. Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.1650	38.37	0.34	38.71	65.21	-26.50	peak	
2	0.3350	34.37	0.11	34.48	59.33	-24.85	peak	
3	0.4200	33.52	0.08	33.60	57.45	-23.85	peak	
4 *	0.5900	35.28	0.06	35.34	56.00	-20.66	peak	
5	1.8500	34.64	0.04	34.68	56.00	-21.32	peak	
6	4.7150	31.72	0.05	31.77	56.00	-24.23	peak	

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Site SGS CONDUCTED #1

Limit: CISPR22/11 Class B Conduction(QP)

EUT: HSUPA USB Modem

M/N: MF110

Note: WCDMA B5 LINK MODE

Phase: **N**

Power: AC 120V/60Hz

Distance:

Temperature: 25 °C

Humidity: 62 %

Air Pressure: hpa

No.	Mk.	Freq.	Reading Level	Factor	Measurement	Limit	Over	Detector	Comment
		MHz	dBuV	dB	dBuV	dBuV	dB		
1		0.1650	36.76	0.32	37.08	65.21	-28.13	peak	
2		0.3350	32.21	0.10	32.31	59.33	-27.02	peak	
3		0.4200	31.65	0.07	31.72	57.45	-25.73	peak	
4		0.5000	29.77	0.05	29.82	56.00	-26.18	peak	
5		3.2000	33.52	0.04	33.56	56.00	-22.44	peak	
6	*	4.7150	33.83	0.05	33.88	56.00	-22.12	peak	

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