

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

OF

**Product Name:** HSPA+ USB Modem

**Brand Name:** BandLuxe

**Model Name:** C330

**Model Difference:** N/A

**FCC ID:** UZI-C330

**Report No.:** EH/2011/30045

**Issue Date:** Apr. 08, 2011

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

**Prepared for:** BandRich Inc.  
7F., No. 188, Baociao Rd., Sin-Dian City,  
Taipei County 23146, Taiwan (R.O.C.)

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

**Applicant:** BandRich Inc.  
 7F., No. 188, Baociao Rd., Sin-Dian City,  
 Taipei County 23146, Taiwan (R.O.C.)

**Product Name:** HSPA+ USB Modem

**Brand Name:** BandLuxe

**Model No.:** C330

**Model Difference:** N/A

**FCC ID:** UZI-C330

**File Number:** EH/2011/30045

**Date of test:** Mar. 17, 2011 ~ Apr. 08, 2011

**Date of EUT Received:** Mar. 17, 2011

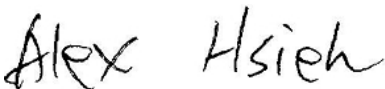
**We hereby certify that:**

The above equipment was tested by SGS Taiwan Ltd. Electronics & Communication Laboratory The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA/EIA-603-C-2004 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:*  *Date:* Apr. 08, 2011

*Sky Wang / Asst. Supervisor*

*Prepared By:*  *Date:* Apr. 08, 2011

*Alex Hsieh / Sr. Engineer*

*Approved By:*  *Date:* Apr. 08, 2011

*Jim Chang / Supervisor*

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## Version

Version No.	Date	Description
00	Apr. 08, 2011	Initial creation of document

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# 1. GENERAL PRODUCT INFORMATION

## General:

Product Name:	HSPA+ USB Modem
Brand Name:	BandLuxe
Model Name:	C330
Model difference:	N/A
USB Cable:	Model No.: N/A, Supplier: N/A
Power Supply	5Vdc from USB Port

## GSM and WCDMA:

Cellular Phone Standards Frequency Range and Power:	Operating Frequency		Rated Power
	GPRS 850, Class 12	824 MHz– 849MHz	33 dBm
	EDGE 850, Class 12	824 MHz– 849MHz	27 dBm
	GPRS 1900, Class 12	1850MHz – 1910MHz	30 dBm
	EDGE 1900, Class 12	1850MHz – 1910MHz	26 dBm
	WCDMA/HSUPA/HSDPA Band II	1852.4MHz – 1907.6MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band V	826.4MHz – 846.6 MHz	24 dBm
Hardware Version:	V03		
Software Version:	N/A		
Type of Emission	GPRS 850: 248KGXW, GPRS 1900 :249KGXW EDGE 850: 250KG7W, EDGE 1900:249KG7W WCDMA Band II: 4M14F9W,HSUPA Band II: 4M14F9W WCDMA Band V: 4M14F9W,HSUPA Band V: 4M14F9W		
IMEI:	35663204		

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Final Amplifier Voltage and Current Information:

Test Mode	DC voltage (V)	DC current (mA)
GPRS 850	5.0 Vdc	230
GPRS 1900	5.0 Vdc	190
EDGE 850	5.0 Vdc	180
EDGE 1900	5.0 Vdc	180
WCDMA B2	5.0 Vdc	320
HSUPA B2	5.0 Vdc	300
WCDMA B5	5.0 Vdc	430
HSUPA B5	5.0 Vdc	310

This test report applies for GPRS/EDGE 850/1900, WCDMA/HSDPA/HSUPA band II/V.

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

This submittal(s) (test report) is intended for FCC ID: **UZI-C330** 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 of TIA/EIA 603C and FCC CFR 47.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055 and 2.1057.

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

### 1.3. Test Facility

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

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

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

### 1.4. Special Accessories

Not available for this EUT intended for grant.

### 1.5. Equipment Modifications

Not available for this EUT intended for grant.

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## 2. SYSTEM TEST CONFIGURATION

### 2.1. EUT Configuration

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

### 2.2. EUT Exercise

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

### 2.3. Test Procedure

#### 2.3.1 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):

The EUT is a placed on as turn table which is 80 cm 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 2 of TIA/EIA 603C.

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**2.4. Measurement Equipment Used:**

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012
Spectrum Analyzer	Agilent	E4440A	US41160416	01/23/2010	01/22/2012
Radio Communication Analyzer	R&S	CMU200	102189	05/13/2010	05/13/2012
800 – 1000MHz Filter	Micro-Tronics	BRM13462	001	01/05/2011	01/04/2012
1800 – 2000MHz Filter	Micro-Tronics	BRM13463	001	01/05/2011	01/04/2012
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2010	04/13/2012
Temperature Chamber	GIANT FORCE	GTH-150-40-CP-AR	MAA0512-018	02/05/2010	02/04/2012
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S20W5	N/A	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2010	07/04/2011
Splitter	Agilent	11636B	N/A	07/05/2010	07/04/2011
DC Power Supply	HP	6038A	2929A-07548	06/27/2010	06/26/2011
DC Power Supply	Topward	3303D	981327	10/25/2010	10/26/2012

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ERP, EIRP MEASUREMENT EQUIPMENT List 966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	R&S	FSP 40	100034	02/12/2010	02/11/2012
Bilog Antenna	SCHWAZBECK	VULB9160	9160-3136	11/15/2009	11/14/2010
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/10/2010	07/09/2012
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/10/2010	07/09/2012
Hor.n antenna	SCHWAZBECK	BBHA 9120D	309	01/22/2010	01/21/2012
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-673	05/09/2010	05/08/2012
Signal Generator	R&S	SMR40	100210	01/22/2010	01/21/2012
Signal Generator	Agilent	E4438C	MY45093613	06/11/2010	06/10/2011
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2009	11/29/2010
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2011	01/04/2012
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2010	07/04/2011
Radio Communication Analyzer	R&S	CMU200	102189	05/13/2010	05/12/2012
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2011	01/04/2012
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2011	01/04/2012
3m Site	SGS	966 chamber	N/A	11/09/2010	11/08/2011

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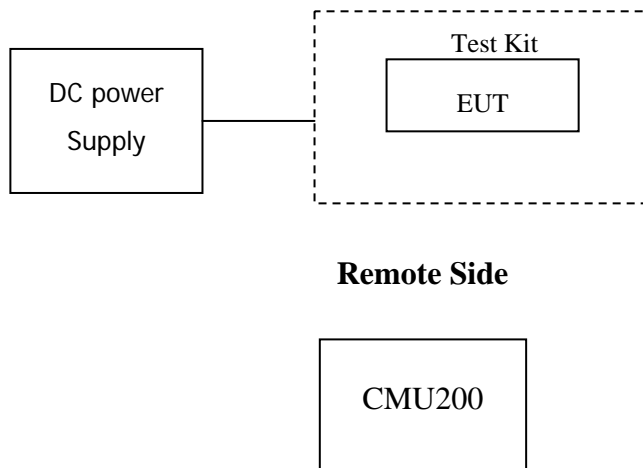
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## 2.5. Configuration of Tested System

**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.	Universal Radio Communication Tester	R&S	CMU200	102189	shielded	Un-shielded
2.	DC Power Supply	Chroma	41901	777188	shielded	Un-shielded

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### 3. SUMMARY OF TEST RESULTS

FCC Rules	Description Of Test	Result
§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

Max ERP/EIRP measurement result:

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#### 4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

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

The field strength of spurious radiation emission was measured as EUT for GPRS/EDGE and WCDMA Band II/V. were reported.

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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(c) Peak Power Measurement

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

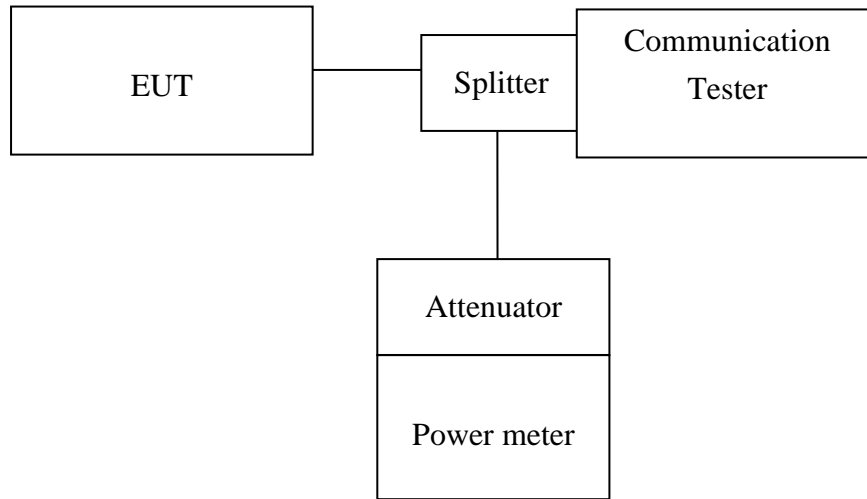
Sub-test in table C.11.1.3	Power Class 3		Power Class 4	
	Power (dBm)	Tol (dB)	Power (dBm)	Tol (dB)
1	+24	+1.7/-6.7	+21	+2.7/-5.7
2	+22	+3.7/-5.2	+19	+4.7/-4.2
3	+23	+2.7/-5.2	+20	+3.7/-4.2
4	+22	+3.7/-5.2	+19	+4.7/-4.2
5	+24	+1.7/-6.7	+21	+2.7/-5.7

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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(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:**

**5.1 RF Conducted Output Power**

**5.1.1.: GPRS/EDGE (GMSK; 8-PSK)**

**Result:**

EUT Mode	Frequency (MHz)	CH	Peak Power (1TS) (dBm)	Peak Power (2TS) (dBm)	Peak Power (3TS) (dBm)	Peak Power (4TS) (dBm)
GPRS 850 (Class 12)	824.2	128	32.20	28.80	27.10	25.80
	836.6	190	32.20	28.80	27.10	25.70
	848.8	251	32.00	28.60	26.80	25.50

EUT Mode	Frequency (MHz)	CH	Average Power (1TS) (dBm)	Average Power (2TS) (dBm)	Average Power (3TS) (dBm)	Average Power (4TS) (dBm)
GPRS 850 (Class 12)	824.2	128	31.60	28.30	26.50	25.30
	836.6	190	31.60	28.30	26.50	25.20
	848.8	251	31.50	28.00	26.30	25.00

EUT Mode	Frequency (MHz)	CH	Peak Power (1TS) (dBm)	Peak Power (2TS) (dBm)	Peak Power (3TS) (dBm)	Peak Power (4TS) (dBm)
EDGE 850 (Class 12)	824.2	128	28.60	25.80	24.10	22.30
	836.6	190	28.20	25.70	23.50	22.20
	848.8	251	28.20	25.40	23.30	21.90

EUT Mode	Frequency (MHz)	CH	Average Power (1TS) (dBm)	Average Power (2TS) (dBm)	Average Power (3TS) (dBm)	Average Power (4TS) (dBm)
EDGE 850 (Class 12)	824.2	128	25.70	22.70	21.00	19.20
	836.6	190	25.50	22.50	20.30	19.00
	848.8	251	25.40	22.30	20.10	18.90

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EUT Mode	Frequency (MHz)	CH	Peak Power (1TS) (dBm)	Peak Power (2TS) (dBm)	Peak Power (3TS) (dBm)	Peak Power (4TS) (dBm)
GPRS 1900 (Class 12)	1850.2	512	28.80	25.80	24.00	22.80
	1880.0	661	28.80	25.80	24.00	22.80
	1909.8	810	28.80	25.90	24.10	22.90

EUT Mode	Frequency (MHz)	CH	Average Power (1TS) (dBm)	Average Power (2TS) (dBm)	Average Power (3TS) (dBm)	Average Power (4TS) (dBm)
GPRS 1900 (Class 12)	1850.2	512	28.30	25.20	23.40	22.20
	1880.0	661	28.30	25.20	23.40	22.20
	1909.8	810	28.30	25.20	23.40	22.30

EUT Mode	Frequency (MHz)	CH	Peak Power (1TS) (dBm)	Peak Power (2TS) (dBm)	Peak Power (3TS) (dBm)	Peak Power (4TS) (dBm)
EDGE 1900 (Class 12)	1850.2	512	26.90	24.10	22.10	20.50
	1880.0	661	26.80	23.90	21.90	20.80
	1909.8	810	26.90	23.70	21.60	20.50

EUT Mode	Frequency (MHz)	CH	Average Power (1TS) (dBm)	Average Power (2TS) (dBm)	Average Power (3TS) (dBm)	Average Power (4TS) (dBm)
EDGE 1900 (Class 12)	1850.2	512	23.80	20.90	18.90	17.30
	1880.0	661	23.80	20.80	18.80	17.60
	1909.8	810	23.80	20.50	18.50	17.30

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**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/-3). RMC 12.2kps is used for this testing.

**Results:**

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg Power (dBm)
WCDMA Band II	1852.4	9262	24.78	21.29
	1880.0	9400	24.12	21.06
	1907.6	9538	24.32	21.08

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg Power (dBm)
WCDMA Band V	826.40	4132	25.53	22.18
	836.60	4183	25.38	22.13
	846.60	4233	25.06	21.97

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

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**5.5.13: 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 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		
<b>HSDPA B2</b>	<b>1</b>	21.46	20.95	20.94	20.3dBm – 25.7dBm	<b>Pass</b>
	<b>2</b>	21.17	20.92	20.93	20.3dBm – 25.7dBm	<b>Pass</b>
	<b>3</b>	20.98	20.50	20.41	19.8dBm – 25.7dBm	<b>Pass</b>
	<b>4</b>	21.05	20.51	20.53	19.8dBm – 25.7dBm	<b>Pass</b>

**Results:**

Mode	Sub-test	RMS Power (dBm)			Power Class 3 Limita- tion (dBm)	Comments
		Channel				
		4132	4172	4233		
<b>HSDPA B5</b>	<b>1</b>	21.97	21.99	22.09	20.3dBm – 25.7dBm	<b>Pass</b>
	<b>2</b>	22.11	22.02	21.84	20.3dBm – 25.7dBm	<b>Pass</b>
	<b>3</b>	21.51	21.51	21.60	19.8dBm – 25.7dBm	<b>Pass</b>
	<b>4</b>	21.56	21.55	21.66	19.8dBm – 25.7dBm	<b>Pass</b>

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**5.5.1.4: HSPA (HSDPA & HSUPA) Release 6 mode**

The following 5 Sub-Tests were completed according to the test requirements outlined in section 5.2A of the 3GPP TS34.121-1 V8.4.0 specification. All TX 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	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

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

**Results:**

Mode	Sub-test	RMS Power (dBm)			Power Class 3 Limitation (dBm)	Comments
		Channel				
		9262	9400	9538		
<b>HSUPA B2</b>	<b>1</b>	21.21	21.04	21.02	17.3dBm – 25.7dBm	<b>Pass</b>
	<b>2</b>	19.26	19.11	19.06	16.8dBm – 25.7dBm	<b>Pass</b>
	<b>3</b>	20.27	20.06	20.10	17.8dBm – 25.7dBm	<b>Pass</b>
	<b>4</b>	19.39	19.16	19.10	16.8dBm – 25.7dBm	<b>Pass</b>
	<b>5</b>	21.10	20.90	20.93	17.3dBm – 25.7dBm	<b>Pass</b>

**Results:**

Mode	Sub-test	RMS Power (dBm)			Power Class 3 Limitation (dBm)	Comments
		Channel				
		4132	4172	4233		
<b>HSUPA B5</b>	<b>1</b>	22.14	22.06	21.89	17.3dBm – 25.7dBm	<b>Pass</b>
	<b>2</b>	20.20	20.14	19.93	16.8dBm – 25.7dBm	<b>Pass</b>
	<b>3</b>	21.18	21.12	20.97	17.8dBm – 25.7dBm	<b>Pass</b>
	<b>4</b>	20.25	20.20	20.01	16.8dBm – 25.7dBm	<b>Pass</b>
	<b>5</b>	22.00	21.89	21.78	17.3dBm – 25.7dBm	<b>Pass</b>

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**5.5.2 Maximum Power Reduction: GPRS1900 band**

PCL	0	1	2	3	4	5	6	7	8	
Output power (dBm)	28.3	26.7	25.1	22.9	23.4	21.8	19.8	17.6	15.8	
PCL	9	10	11	12	13	14	15	16		
Output power (dBm)	13.6	11.6	9.5	7.7	6	4.1	2	-0.3		

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

**WCDMA/HSDPA band II / V**

The EUT output power was controlled by simulator. Set Communication Tester CMU200 function key “UE Power Control” and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. then record the read(see page 19 for measurement data) . The min. power was measures by a function key “minimum power” then record the read. It is -52.5dBm. The power variation can be 0.1dB step by setting.

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## 6. ERP, EIRP MEASUREMENT

### 6.1. Standard Applicable:

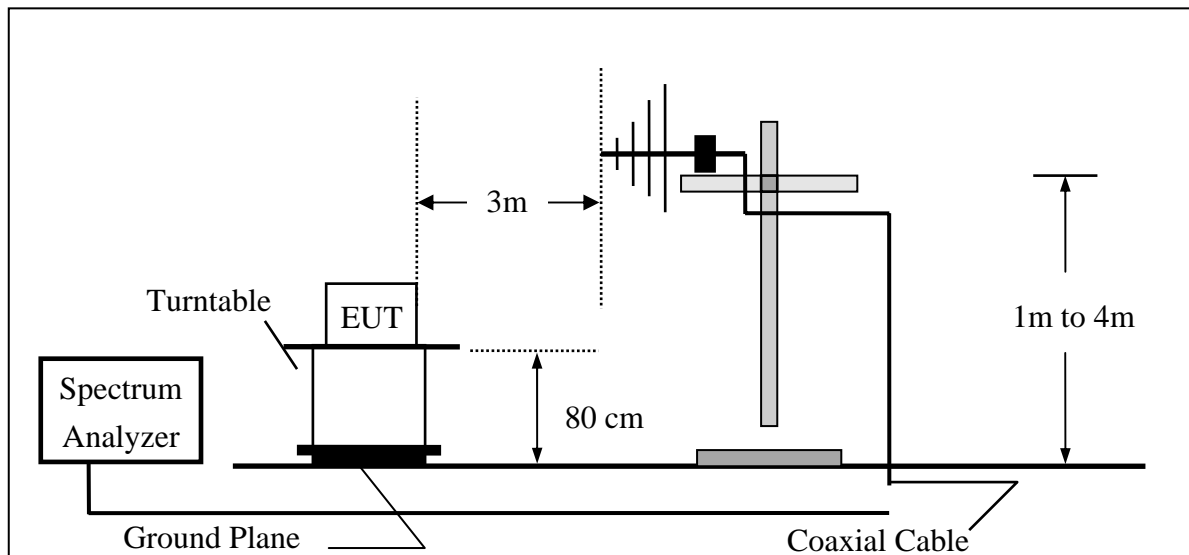
According to FCC §2.1046

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



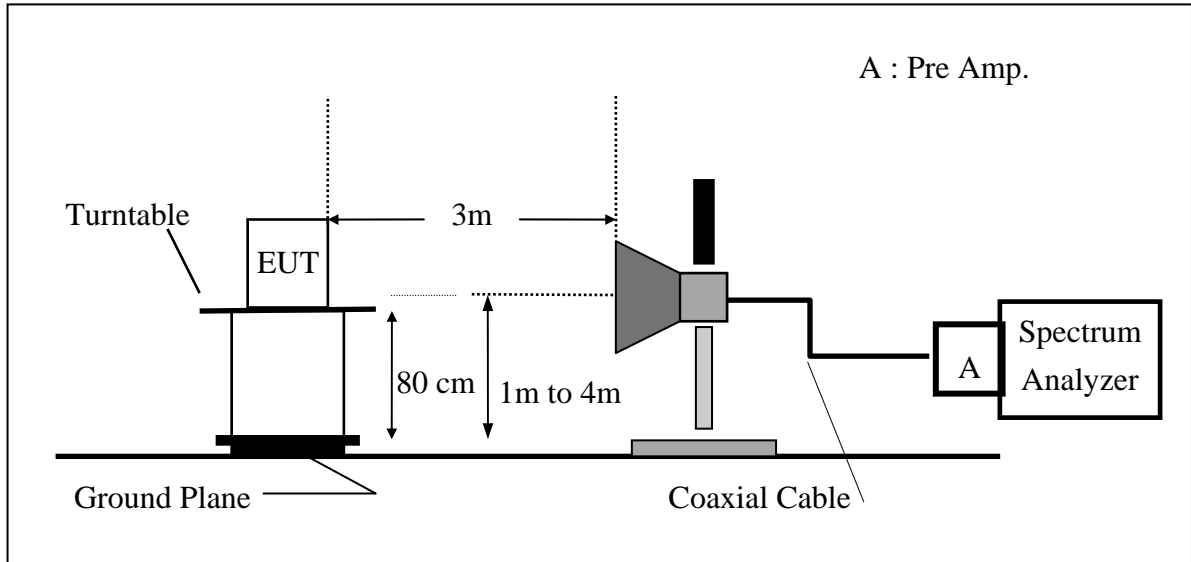
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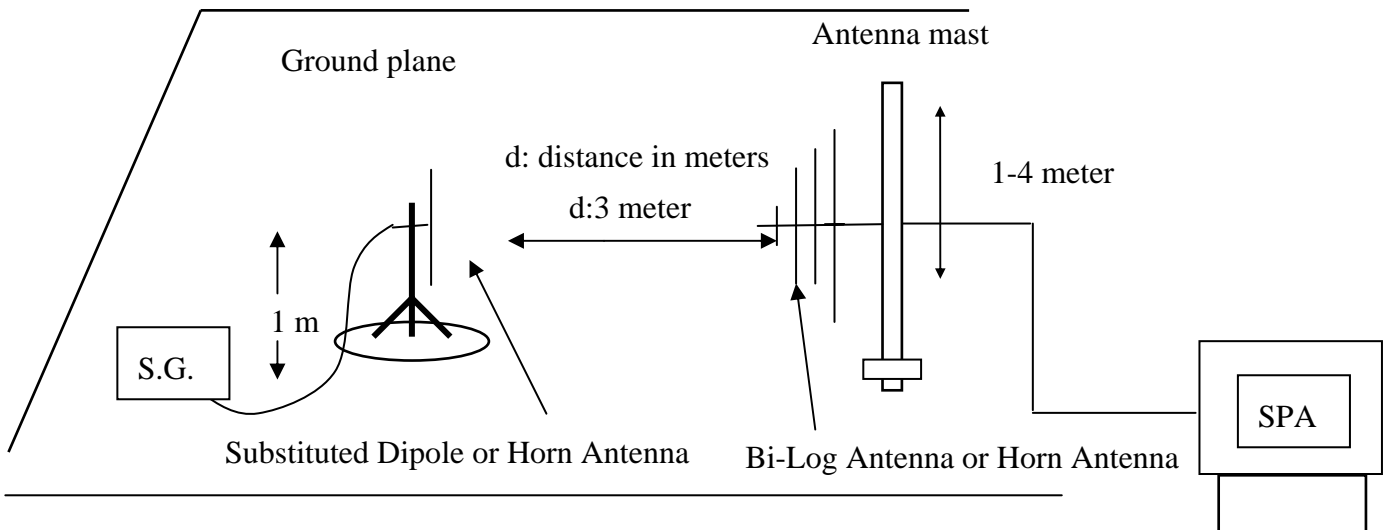
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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(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 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:

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

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

### 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)
GPRS 850	824.20	128	E2	V	118.53	32.14	-7.87	3.62	20.64	38.45
				H	123.74	37.47	-7.87	3.62	25.97	38.45
	836.60	190	E2	V	119.38	33.13	-7.88	3.65	21.60	38.45
				H	124.93	38.70	-7.88	3.65	27.17	38.45
	848.80	251	E2	V	120.08	33.96	-7.88	3.68	22.40	38.45
				H	125.93	39.74	-7.88	3.68	<b>28.18</b>	38.45

**Remark :**

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

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)
GPRS 1900	1850.20	512	E2	V	119.48	15.09	9.90	5.56	19.43	33.00
				H	123.39	19.21	9.90	5.84	23.27	33.00
	1880.00	661	E2	V	119.99	15.63	9.99	5.61	20.01	33.00
				H	124.38	20.24	9.99	5.61	24.61	33.00
	1909.80	810	E2	V	120.13	15.80	10.08	5.66	20.22	33.00
				H	124.53	20.42	10.08	5.66	<b>24.84</b>	33.00

**Remark :**

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

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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	E2	V	113.41	27.02	-7.87	3.62	15.52	38.45
				H	118.25	31.98	-7.87	3.62	20.48	38.45
	836.60	190	E2	V	113.16	26.91	-7.88	3.65	15.38	38.45
				H	118.51	32.28	-7.88	3.65	20.75	38.45
	848.80	251	E2	V	112.89	26.77	-7.88	3.68	15.21	38.45
				H	118.70	32.51	-7.88	3.68	<b>20.95</b>	38.45

**Remark :**

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

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	E2	V	117.07	12.68	9.90	5.56	17.02	33.00
				H	120.84	16.66	9.90	5.84	20.72	33.00
	1880.00	661	E2	V	118.68	14.32	9.99	5.61	18.70	33.00
				H	122.70	18.56	9.99	5.61	22.93	33.00
	1909.80	810	E2	V	119.50	15.17	10.08	5.66	19.59	33.00
				H	123.64	19.53	10.08	5.66	<b>23.95</b>	33.00

**Remark :**

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

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**Measurement Result:**

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	E2	V	111.77	7.39	9.90	5.56	11.72	33.00
				H	114.86	10.68	9.90	5.84	14.74	33.00
	1880.00	9400	E2	V	113.20	8.84	9.99	5.61	13.22	33.00
				H	116.87	12.73	9.99	5.61	<b>17.10</b>	33.00
	1907.60	9538	E2	V	113.15	8.82	10.07	5.66	13.23	33.00
				H	116.56	12.45	10.07	5.66	16.86	33.00

**Remark :**

- (1) The RBW,VBW of SPA for frequency

RBW= 5MHz , VBW= 8MHz

**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBd)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
HSUPA Band II	1852.40	9262	E2	V	112.45	8.07	9.90	5.56	12.40	33.00
				H	114.95	10.77	9.90	5.84	14.83	33.00
	1880.00	9400	E2	V	114.17	9.81	9.99	5.61	14.19	33.00
				H	116.12	11.98	9.99	5.61	16.35	33.00
	1907.60	9538	E2	V	114.17	9.84	10.07	5.66	14.25	33.00
				H	116.40	12.29	10.07	5.66	<b>16.70</b>	33.00

**Remark :**

- (1) The RBW,VBW of SPA for frequency

RBW= 5MHz , VBW= 8MHz

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**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
WCDMA Band V	826.40	4132	E2	V	116.87	30.51	-10.02	3.63	<b>16.86</b>	38.45
				H	115.06	28.80	-10.02	3.63	15.16	38.45
	836.60	4183	E2	V	112.94	26.68	-10.02	3.65	13.01	38.45
				H	115.83	29.60	-10.02	3.65	15.93	38.45
	846.60	4233	E2	V	111.22	25.07	-10.02	3.67	11.38	38.45
				H	114.43	28.23	-10.02	3.67	14.54	38.45

**Remark :**

- (1) The RBW,VBW of SPA for frequency

RBW= 5MHz , VBW= 8MHz

**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)
HSUPA Band V	826.40	4132	E2	V	113.45	27.09	-10.02	3.63	13.44	38.45
				H	115.66	29.40	-10.02	3.63	15.76	38.45
	836.60	4183	E2	V	113.32	27.06	-10.02	3.65	13.39	38.45
				H	115.72	29.49	-10.02	3.65	<b>15.82</b>	38.45
	846.60	4233	E2	V	112.14	25.99	-10.02	3.67	12.30	38.45
				H	115.28	29.08	-10.02	3.67	15.39	38.45

**Remark :**

- (1) The RBW,VBW of SPA for frequency

RBW= 5MHz , VBW= 8MHz

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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)
GPRS 850	824.20	128	0.2457
	836.60	190	0.2481
	848.80	251	0.2398

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
GPRS 1900	1850.20	512	0.2443
	1880.00	661	0.2437
	1909.80	810	0.2487

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EDGE 850	824.20	128	0.2451
	836.60	190	0.2500
	848.80	251	0.2418

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EDGE 1900	1850.20	512	0.2450
	1880.00	661	0.2485
	1909.80	810	0.2418

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA II	1852.4	9262	4.1220
	1880.0	9400	4.1307
	1907.6	9538	4.1439

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EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
HSUPA II	1852.4	9296	4.1325
	1880.0	9400	4.1328
	1907.6	9538	4.1389

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA V	826.40	4132	4.1237
	836.60	4183	4.1389
	846.60	4233	4.1336

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
HSUPA V	826.40	4132	4.1367
	836.60	4183	4.1359
	846.60	4233	4.1284

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Figure 7-1: GPRS 850 Channel Low

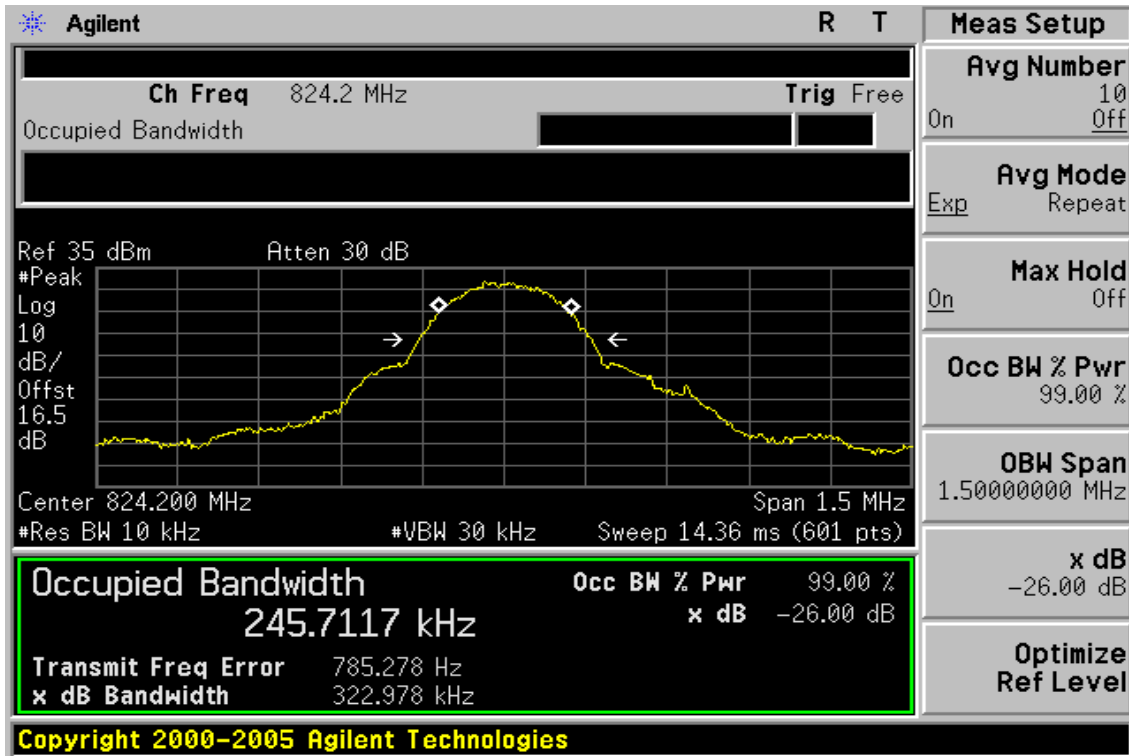
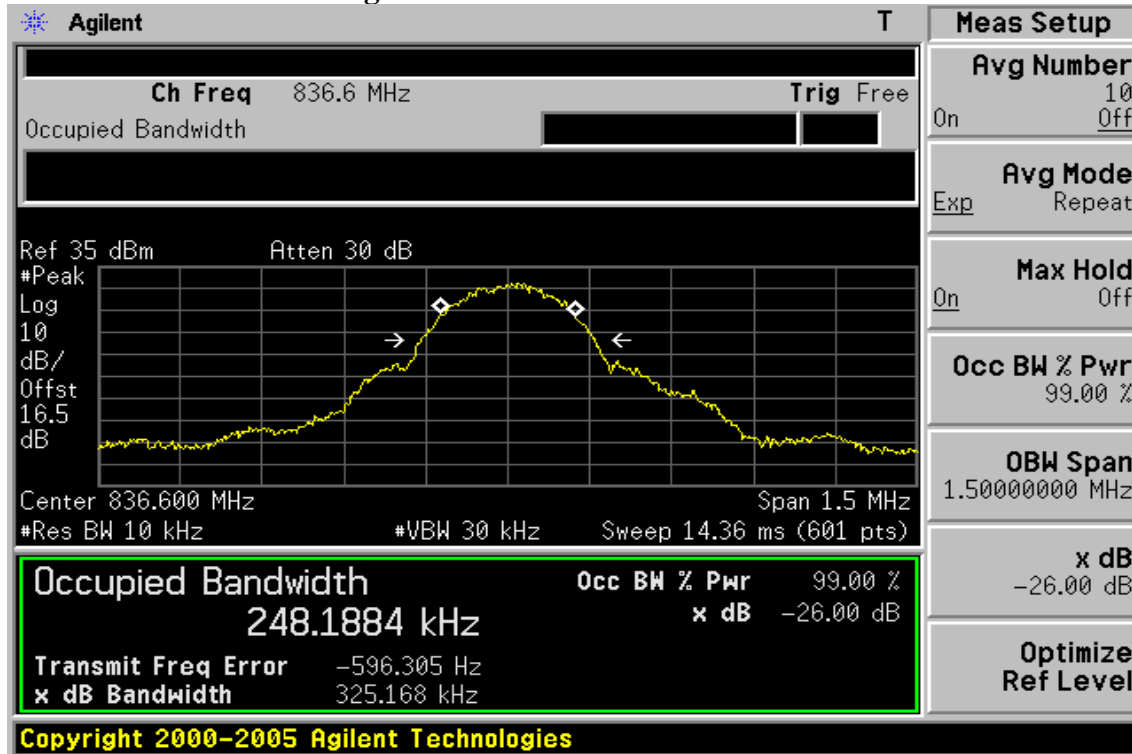


Figure 7-2 GPRS 850 Channel Mid



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GPRS Figure 7-3: GPRS 850 Channel High

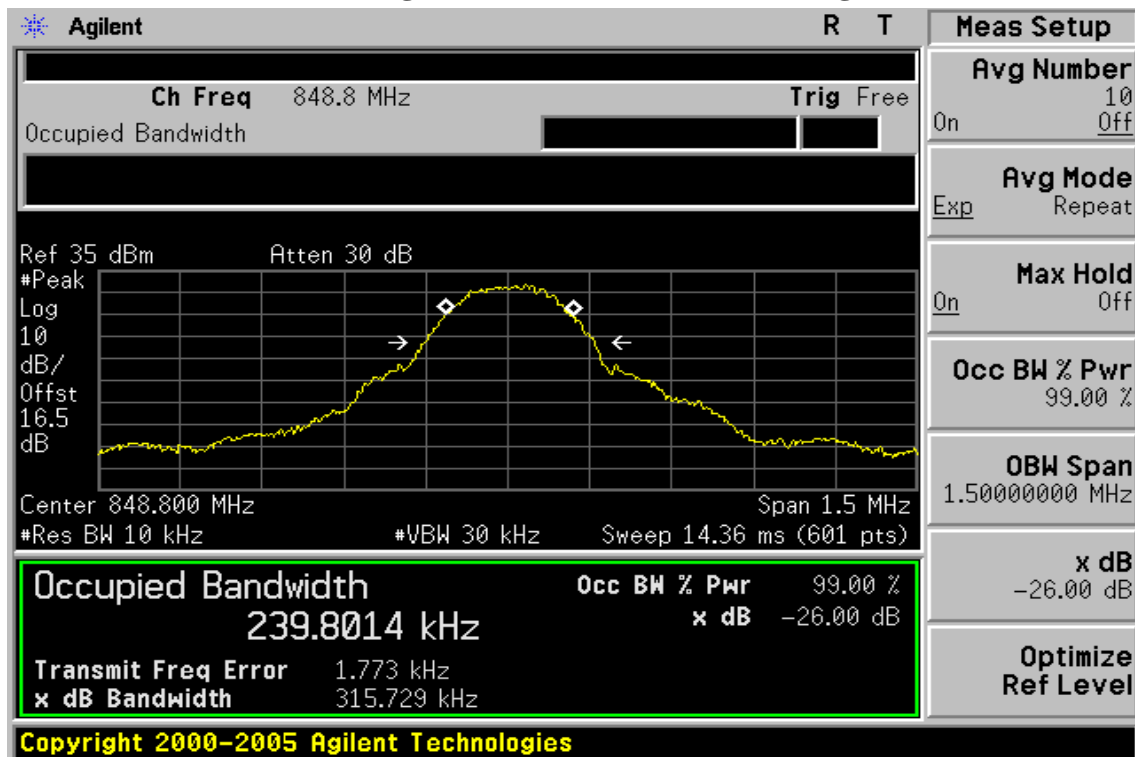
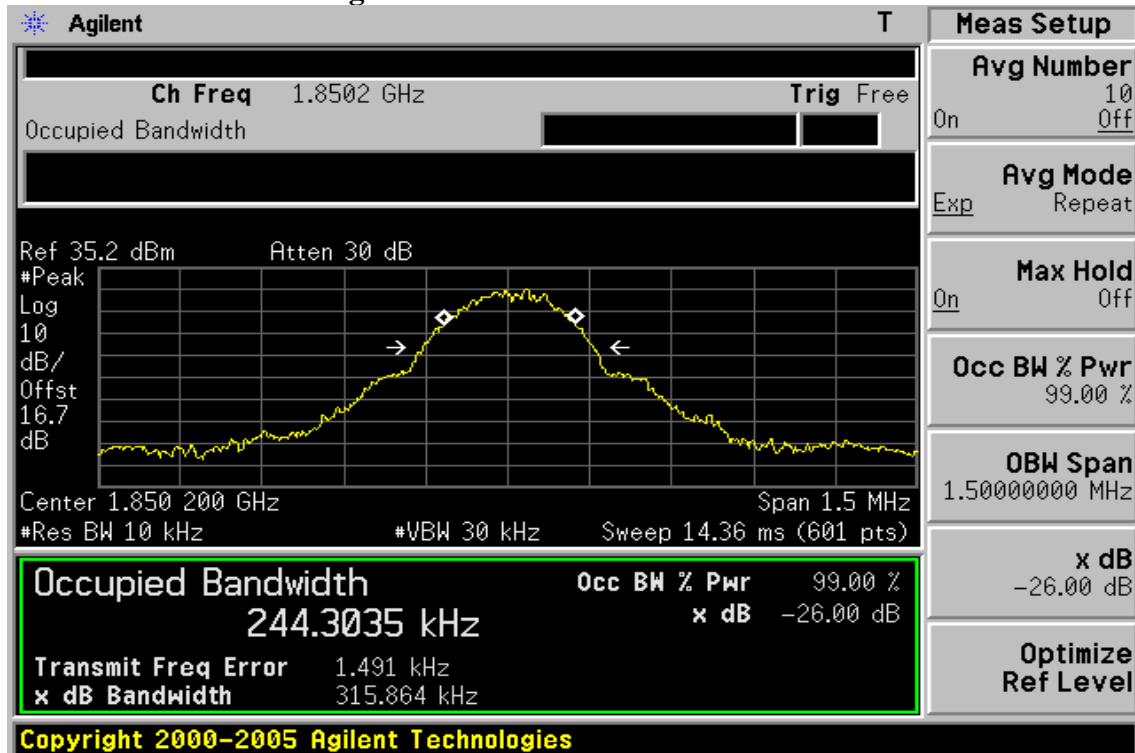


Figure 7-4: GPRS 1900 Channel Low



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Figure 7-5 GPRS 1900 Channel Mid

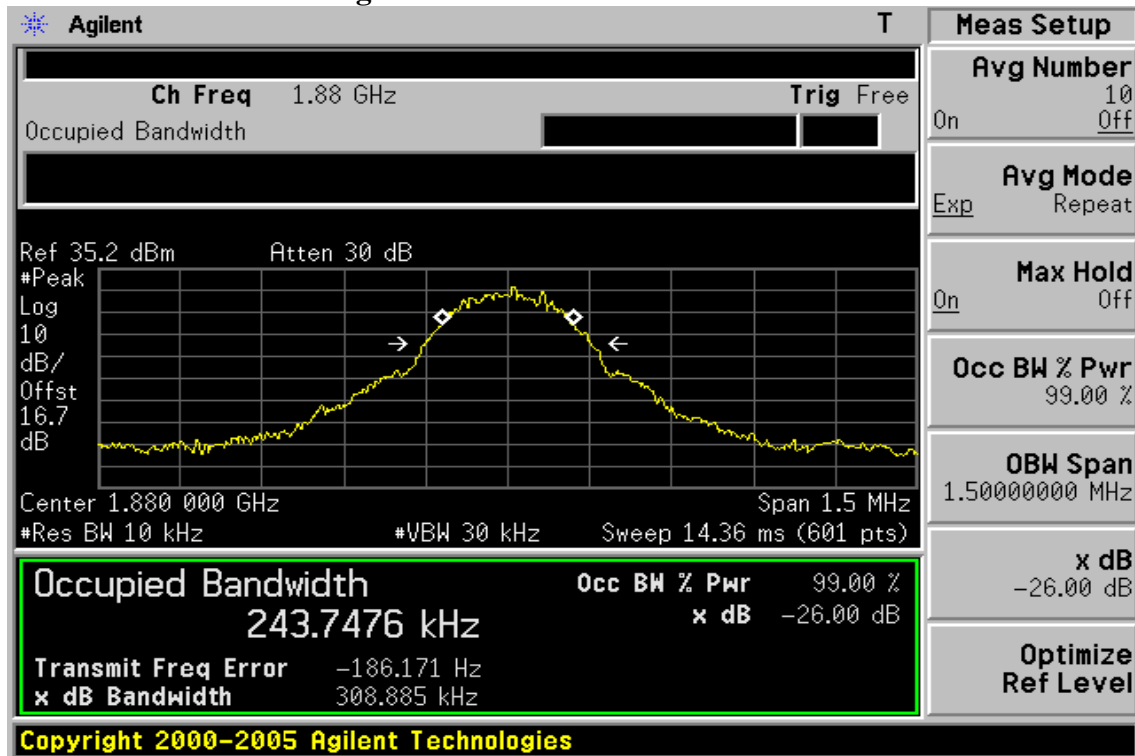
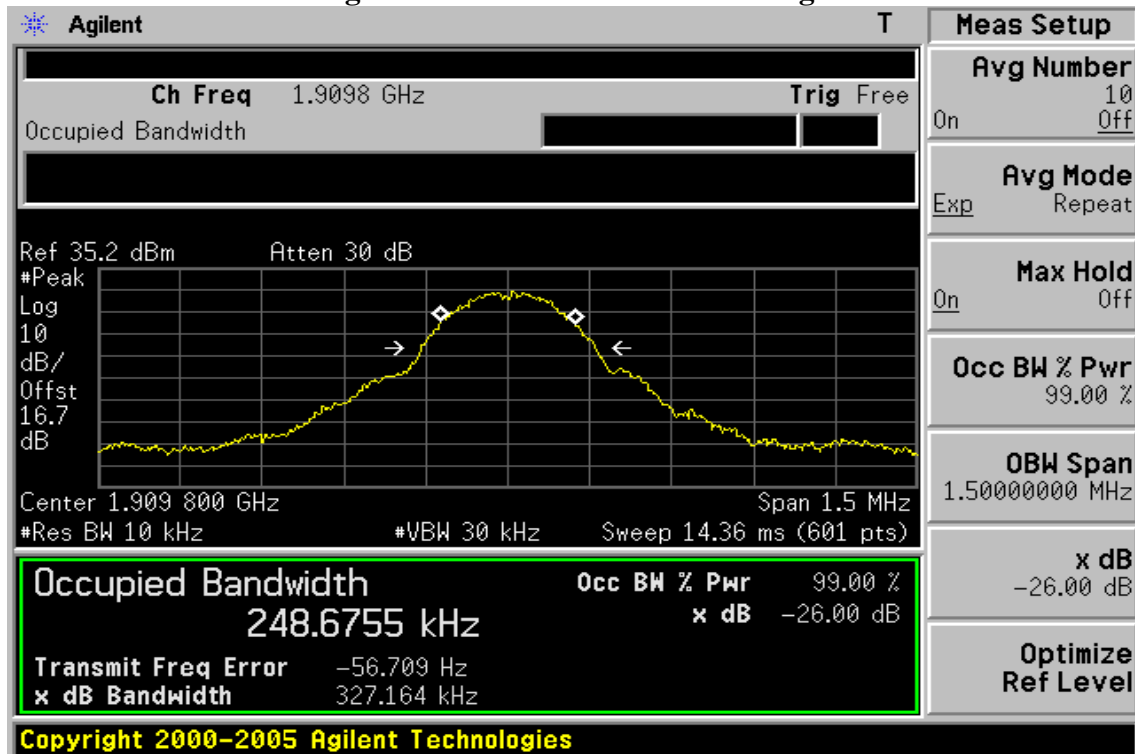


Figure 7-6: GPRS 1900 Channel High



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Figure 7-7: EDGE 850 Channel Low

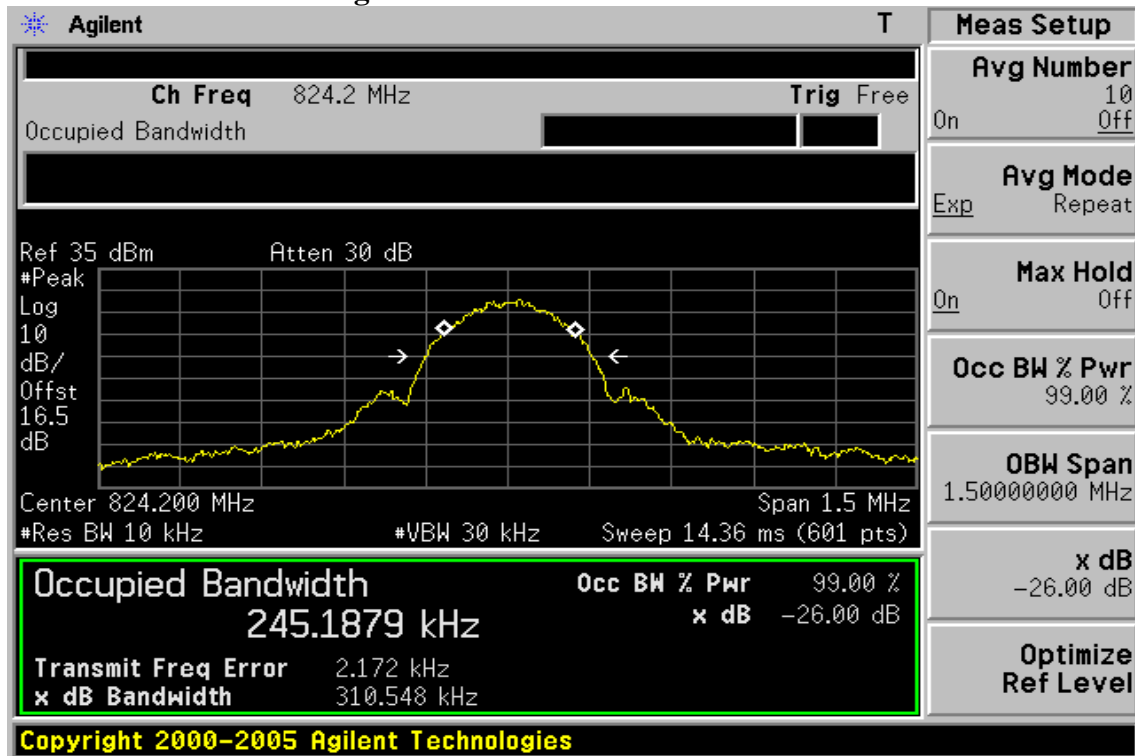
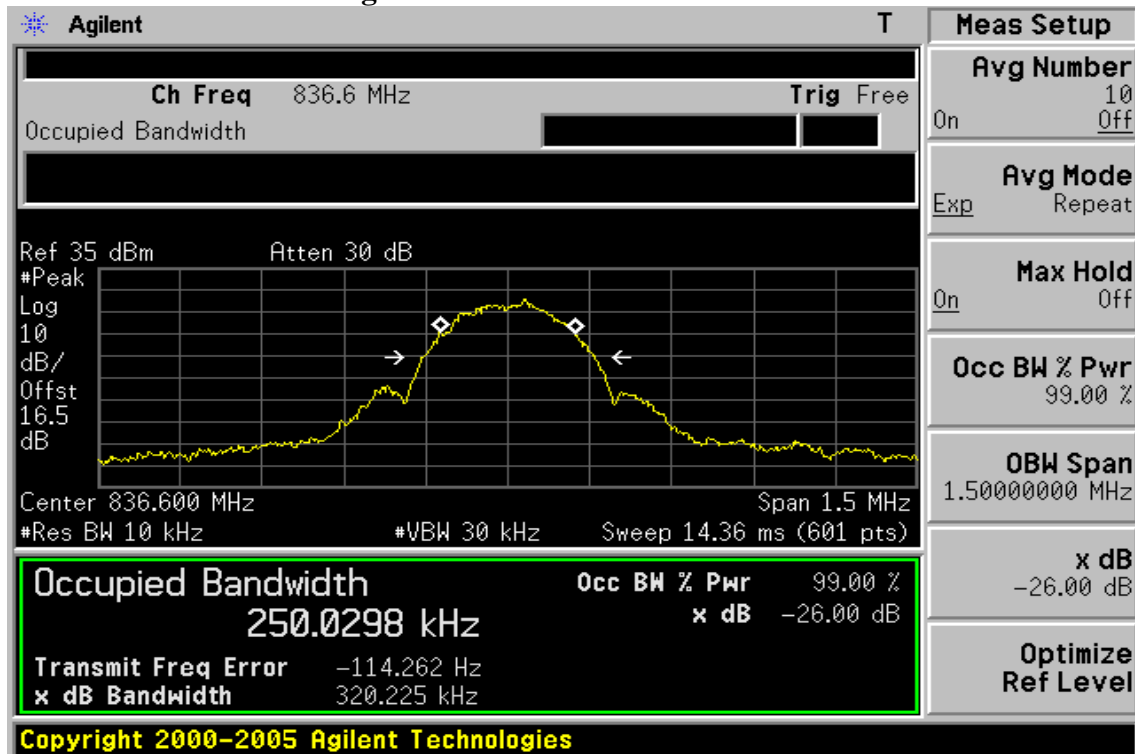


Figure 7-8 EDGE 850 Channel Mid



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Figure 7-9 EDGE 850 Channel High

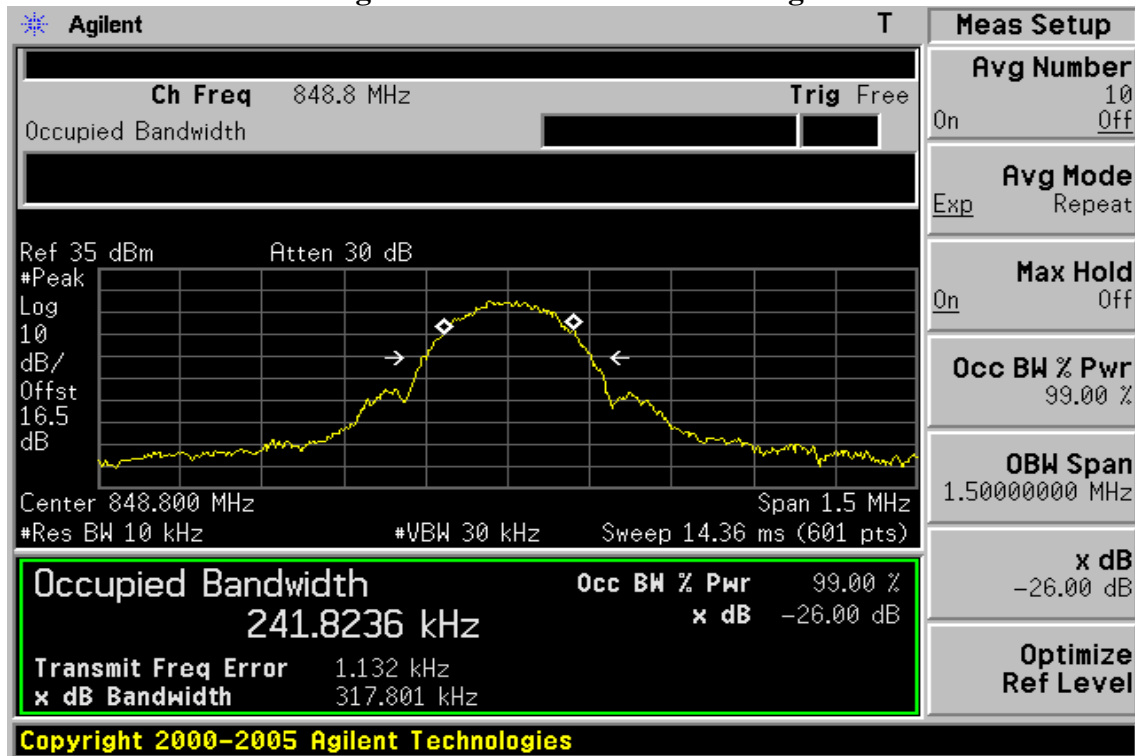
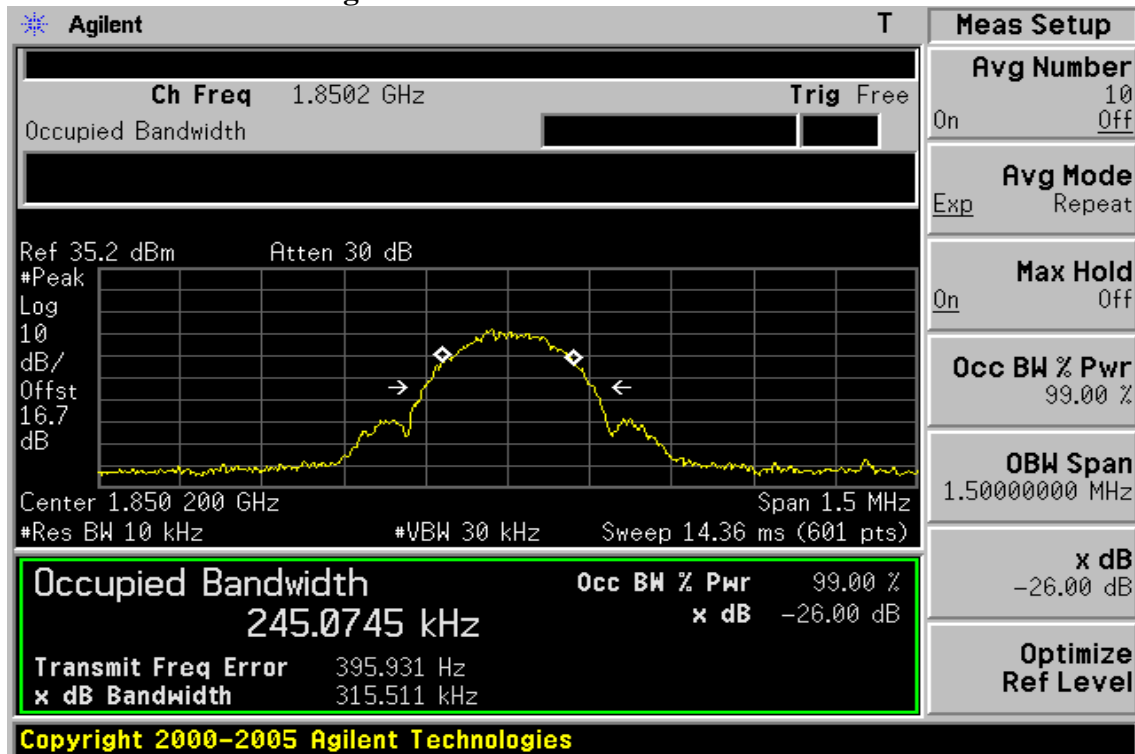


Figure 7-10 EDGE 1900 Channel Low



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Figure 7-11 EDGE 1900 Channel Mid

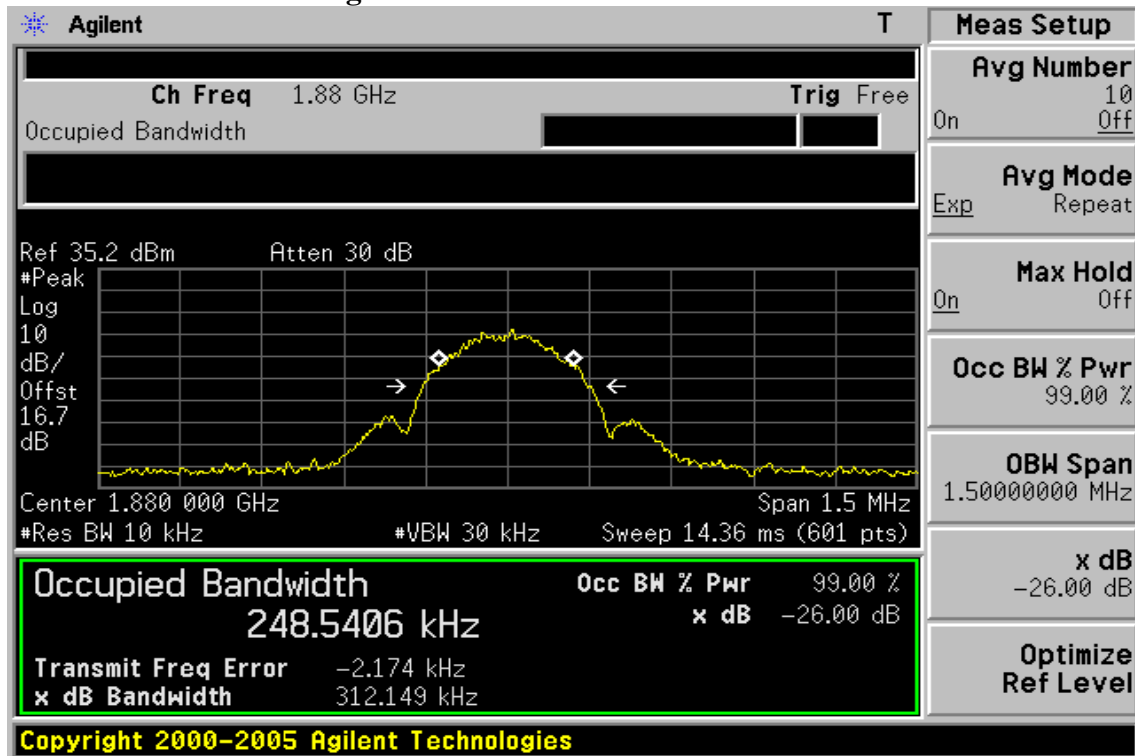
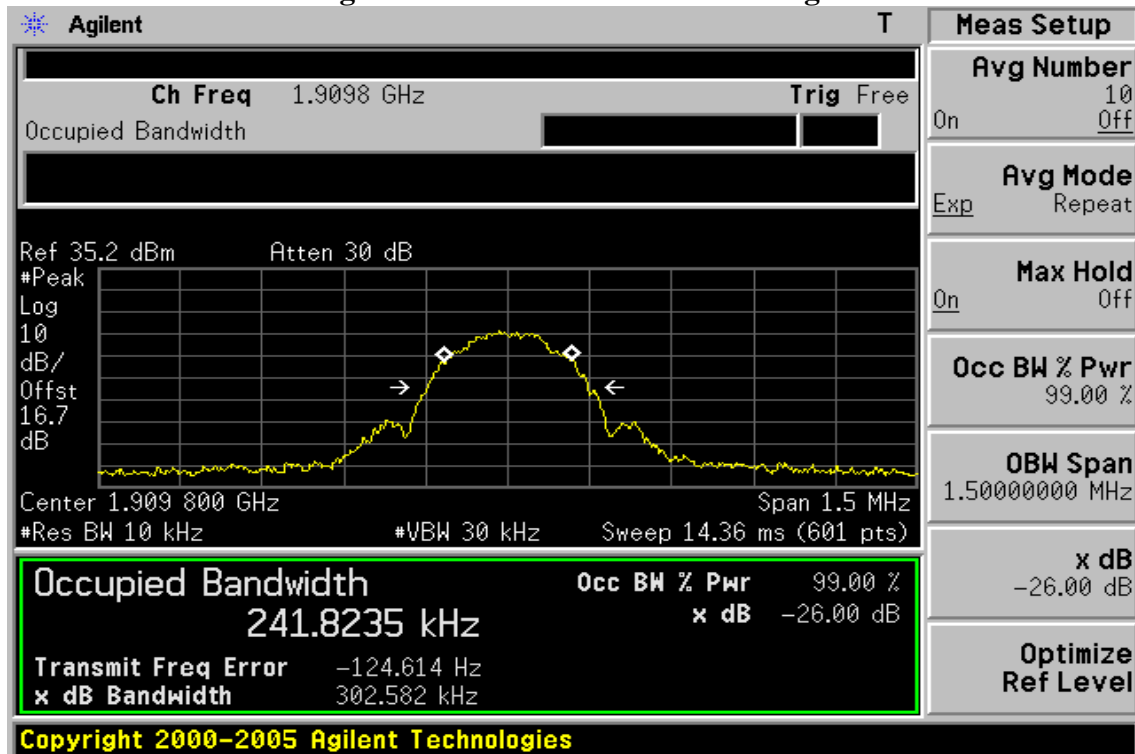


Figure 7-12 EDGE 1900 Channel High



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Figure 7-13 WCDMA II Channel Low

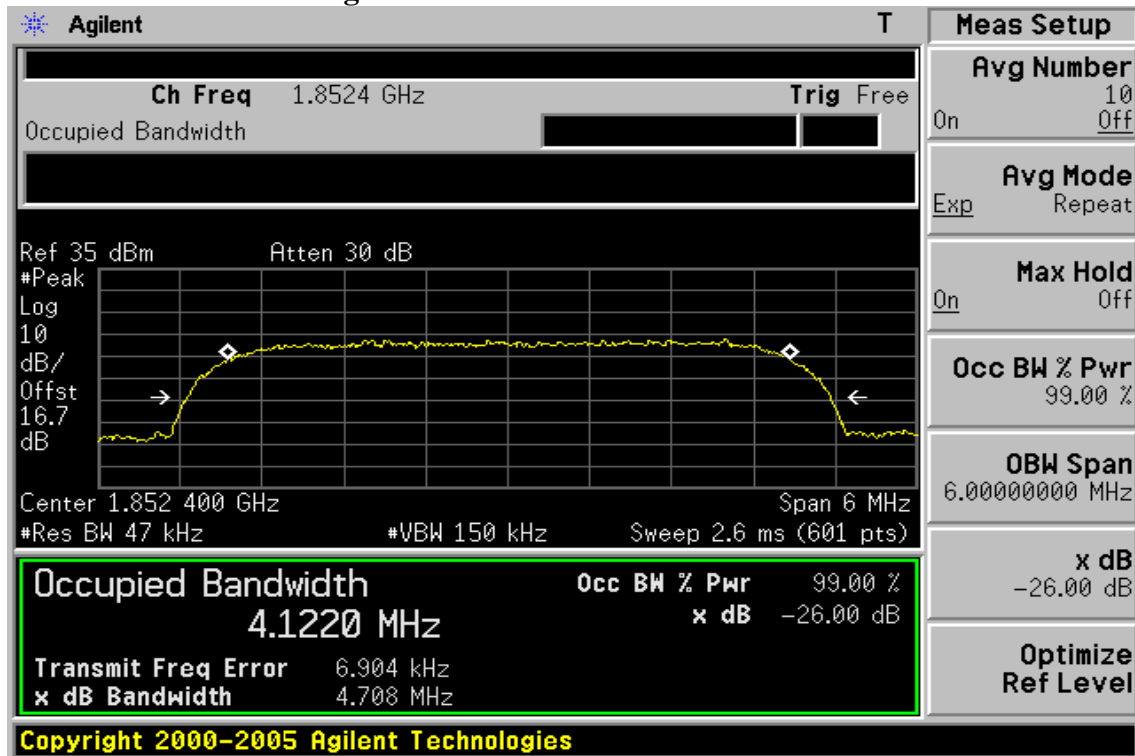
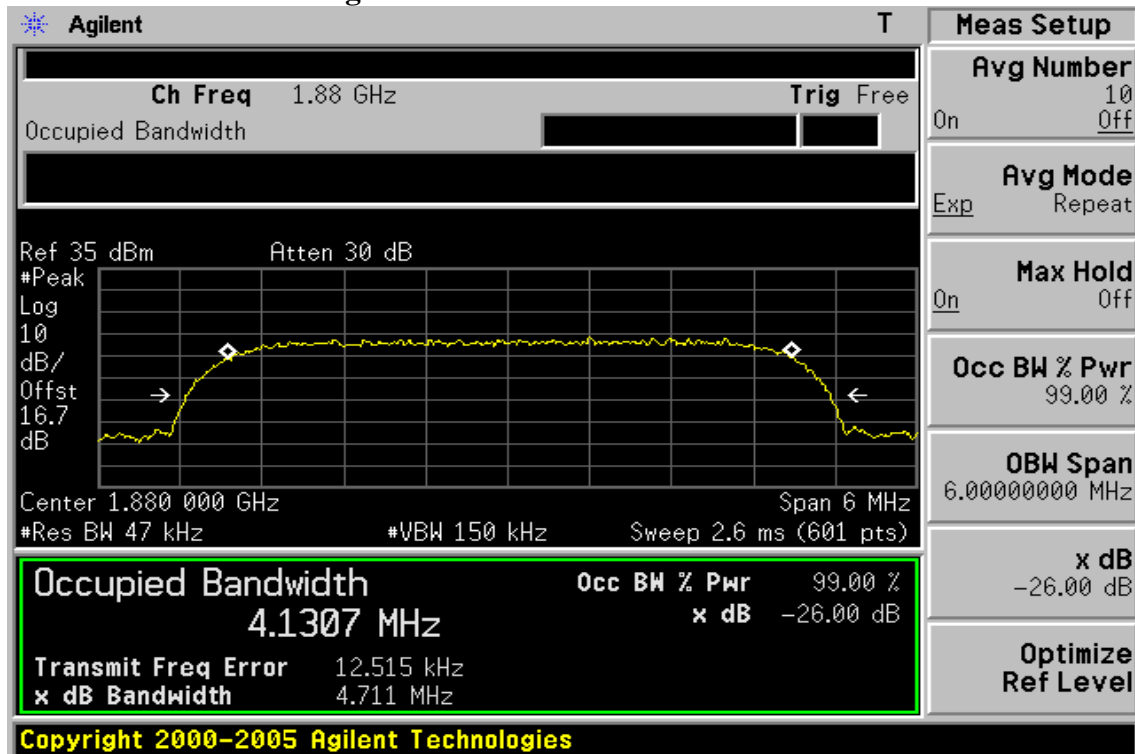


Figure 7-14 WCDMA II Channel Mid



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Figure 7-15 WCDMA II Channel High

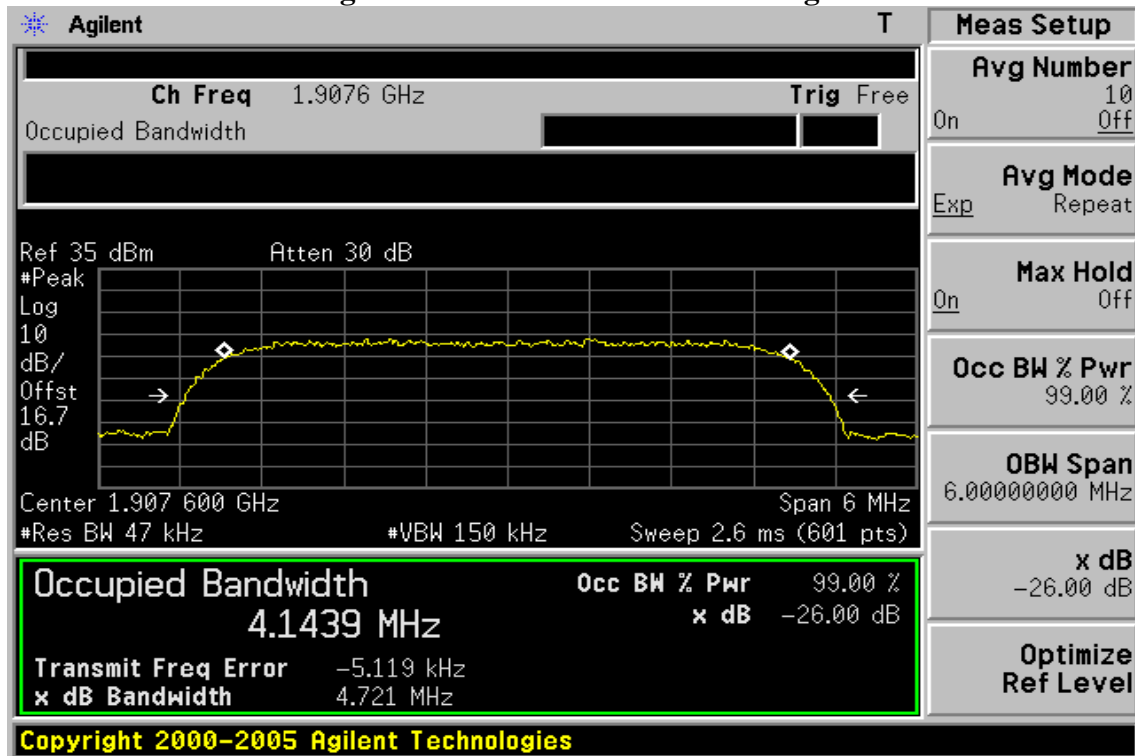
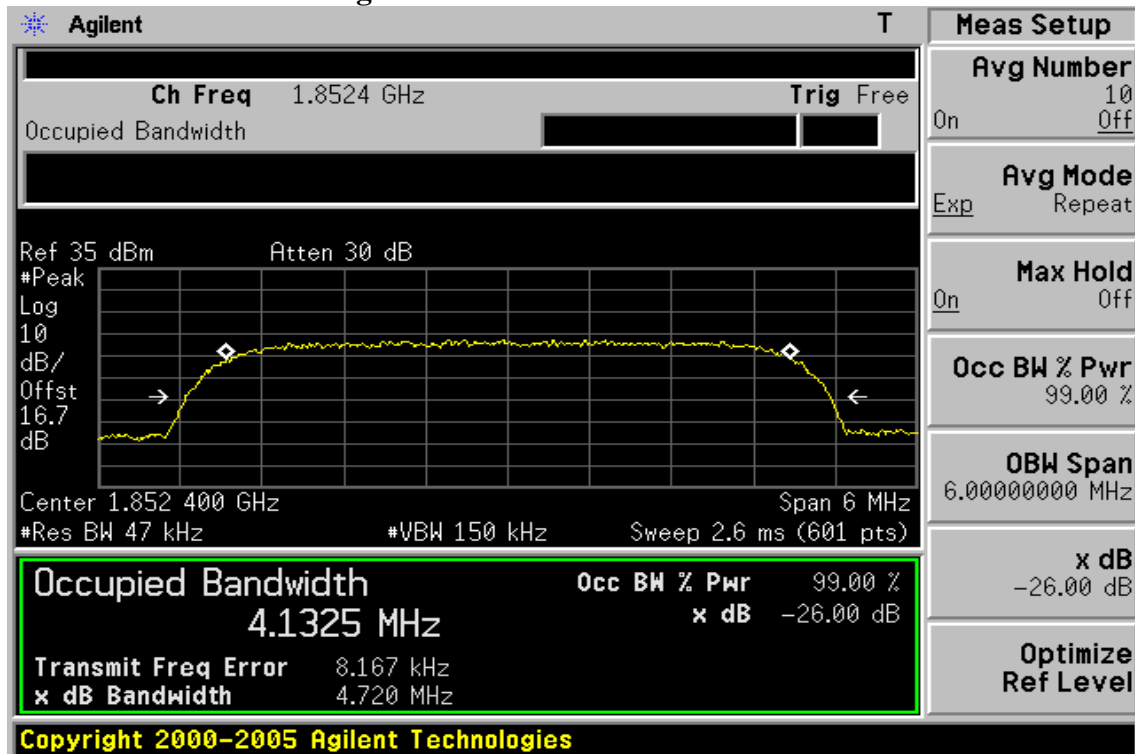


Figure 7-16 HSUPA II Channel Low



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Figure 7-17 HSUPA II Channel Mid

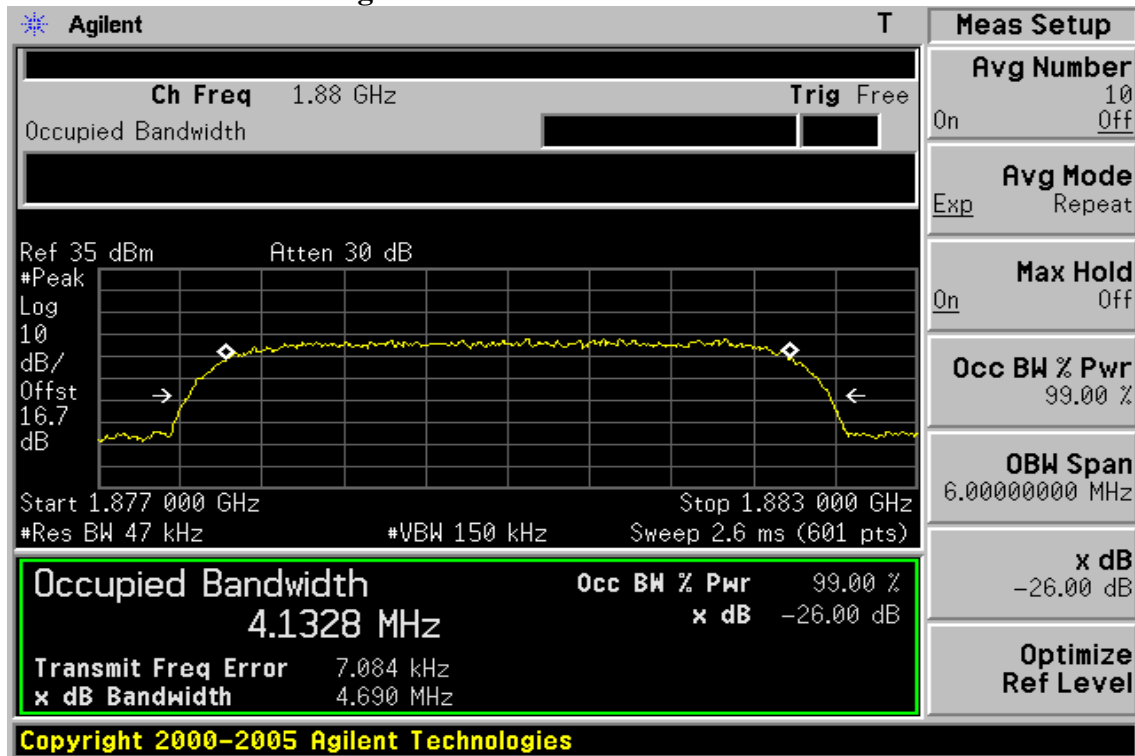
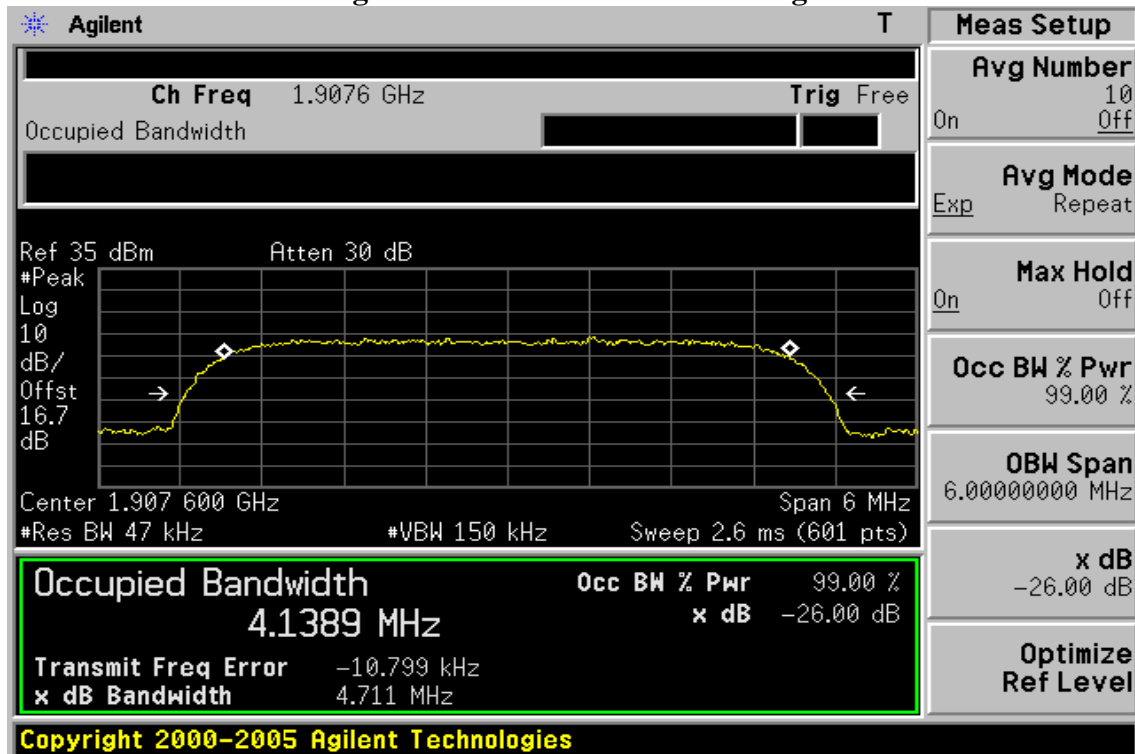


Figure 7-18 HSUPA II Channel High



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Figure 7-19 WCDMA V Channel Low

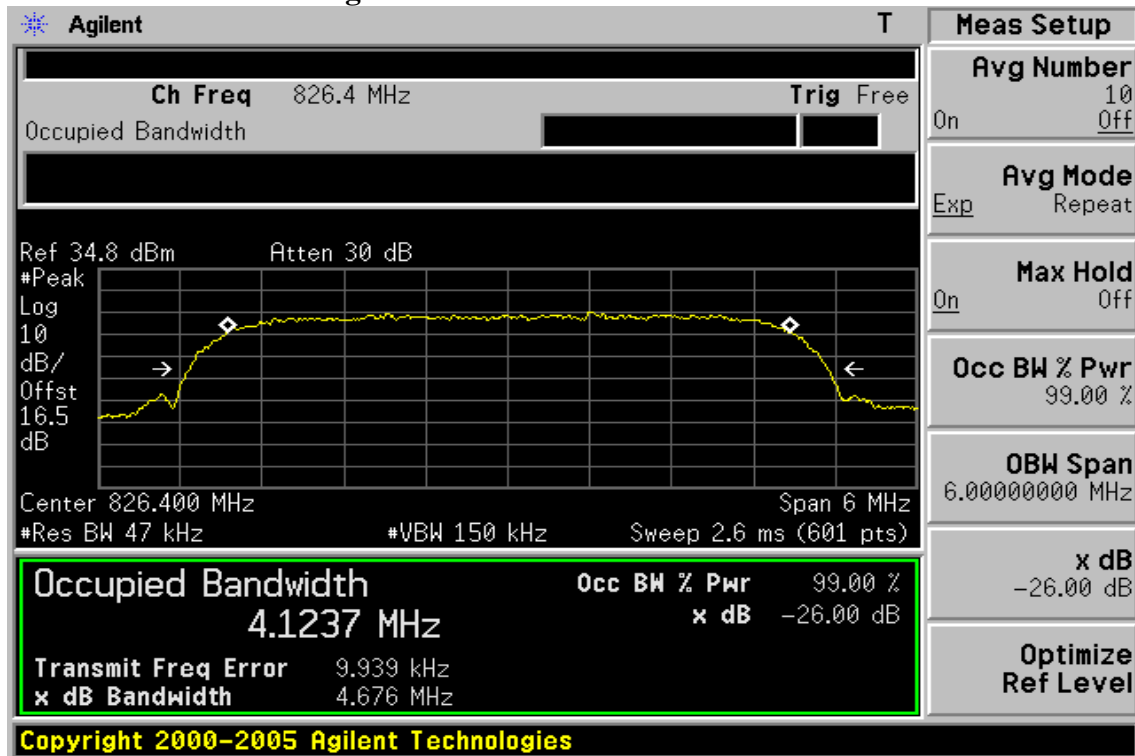
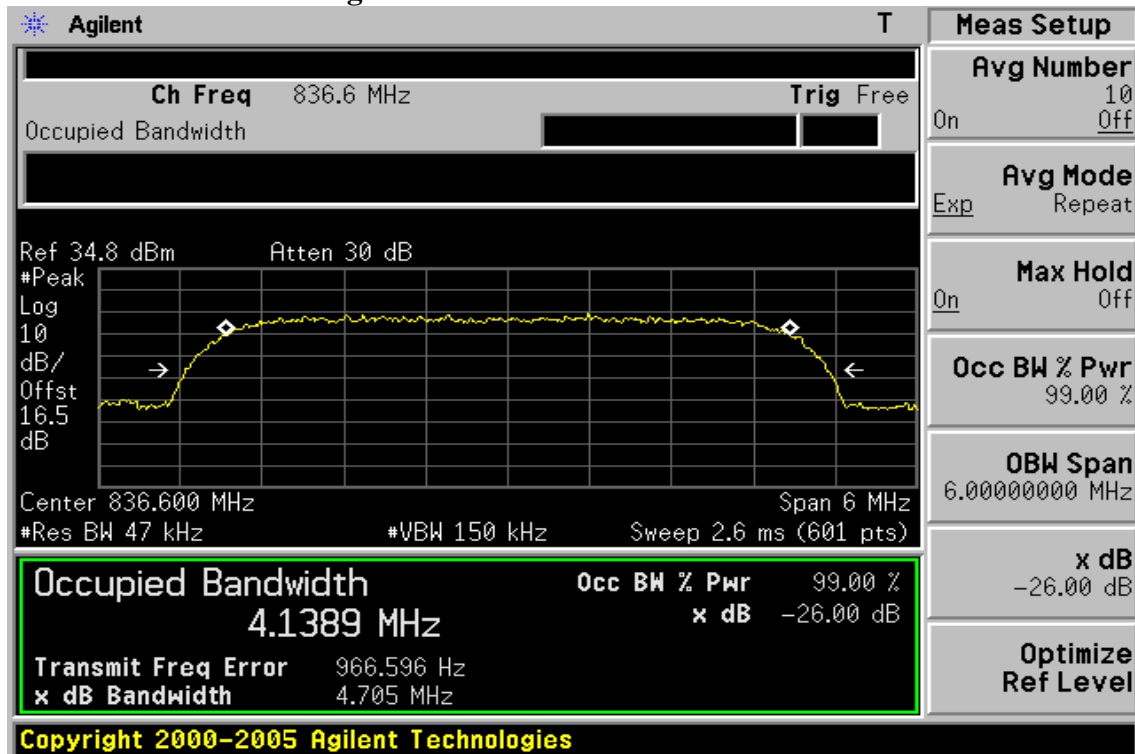


Figure 7-20 WCDMA V Channel Mid



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Figure 7-21 WCDMA V Channel High

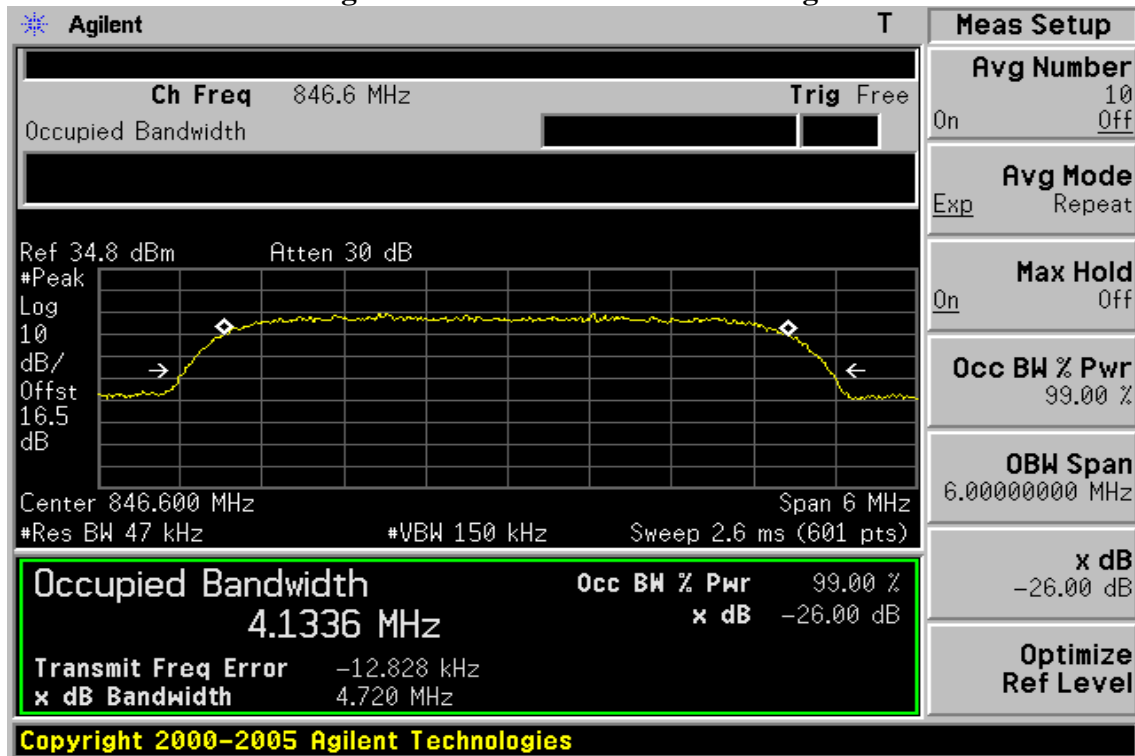
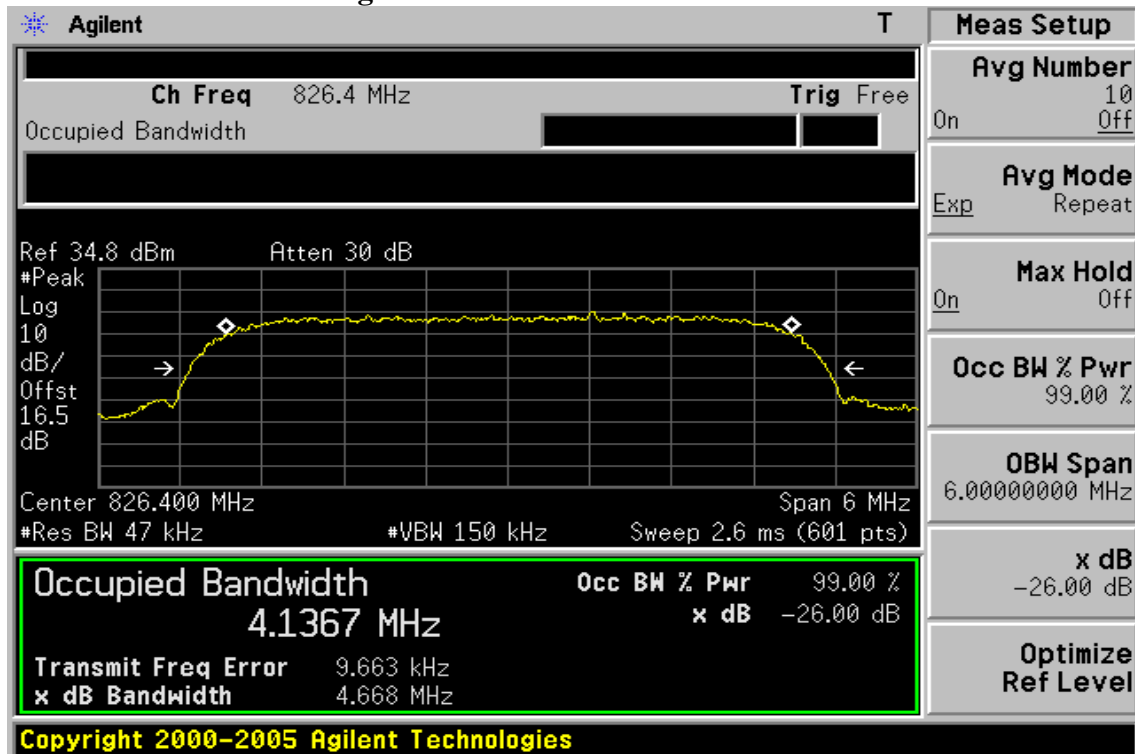


Figure 7-22 HSUPA V Channel Low



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Figure 7-23 HSUPA V Channel Mid

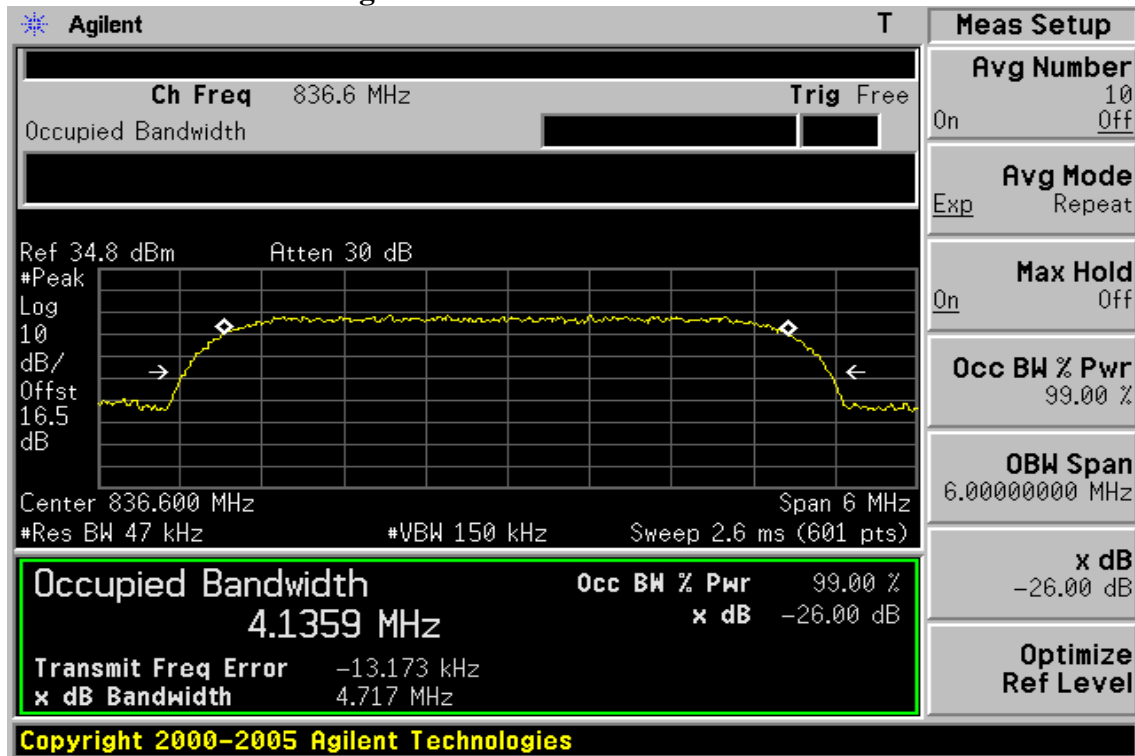
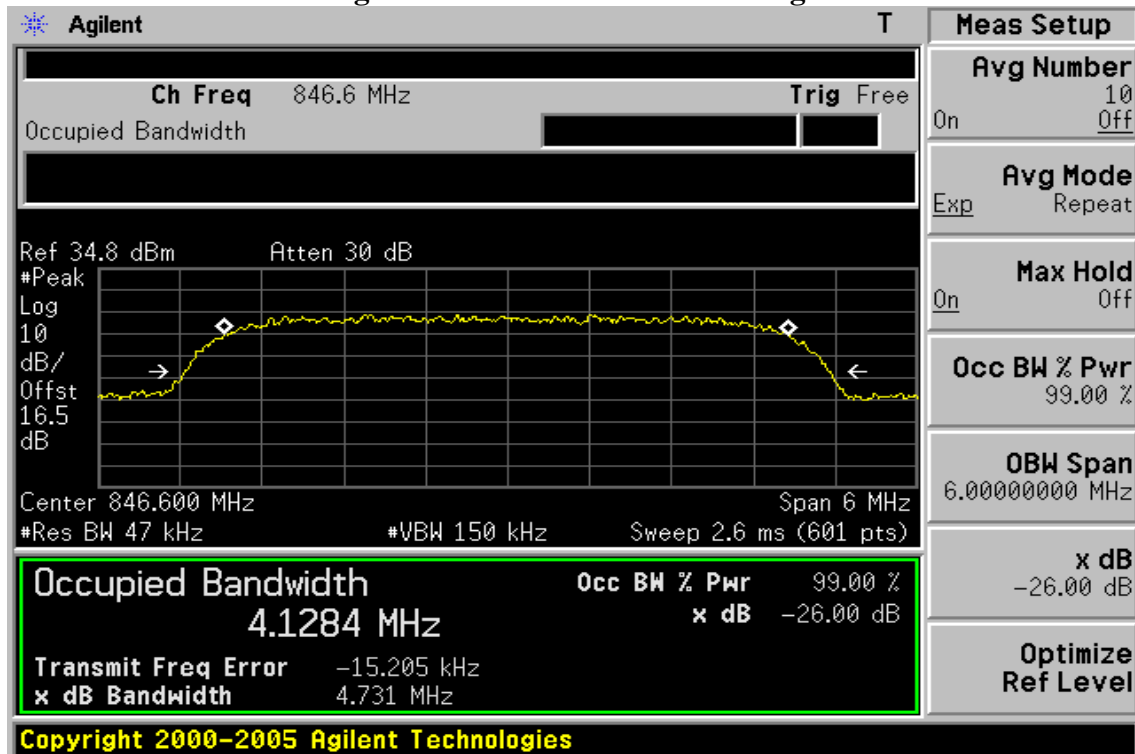


Figure 7-24 HSUPA V Channel High



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## 8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

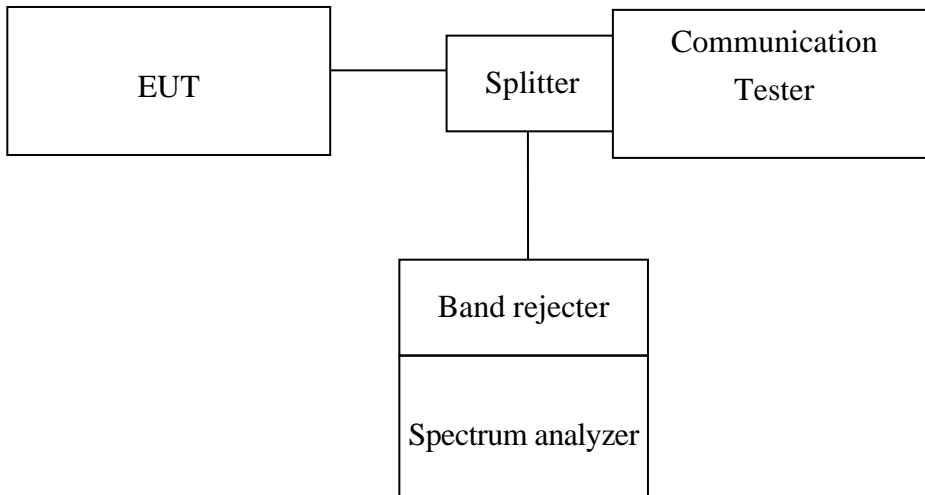
### 8.1. Standard Applicable:

According to FCC §2.1051.

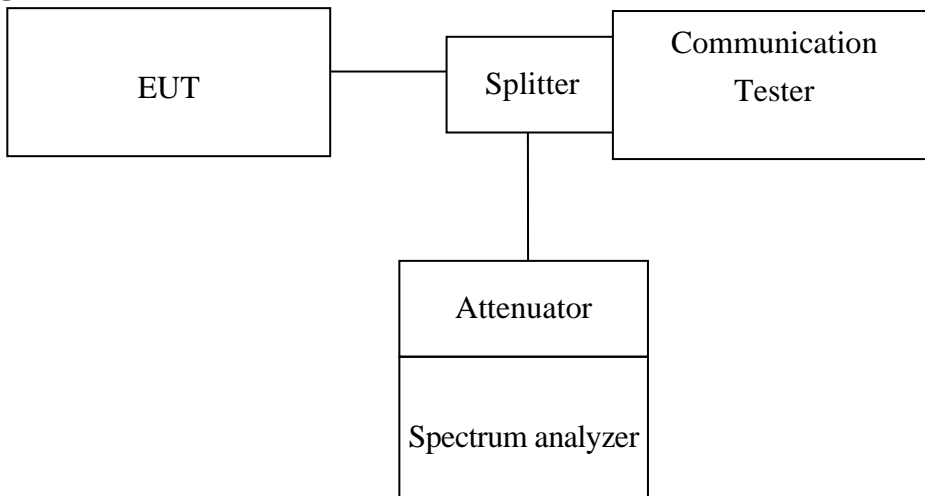
FCC §22.917(a), §24.238(a) the magnitude of each spurious and harmonic emission that can be detected when the equipment is operated under the conditions specified in the instruction manual and/ or alignment procedure, shall not be less than  $43 + 10 \log$  (mean output power in watts) dBc below the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

### 8.2. Test SET-UP:

#### Out of band emission



#### Band Edge



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### 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

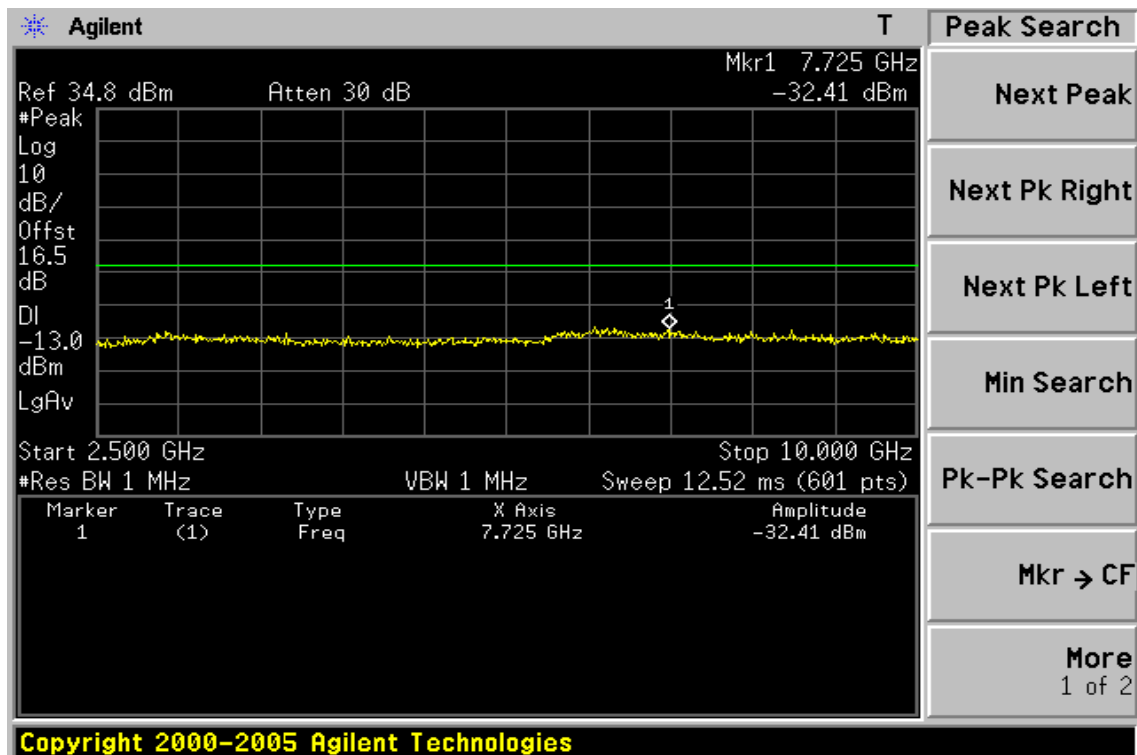
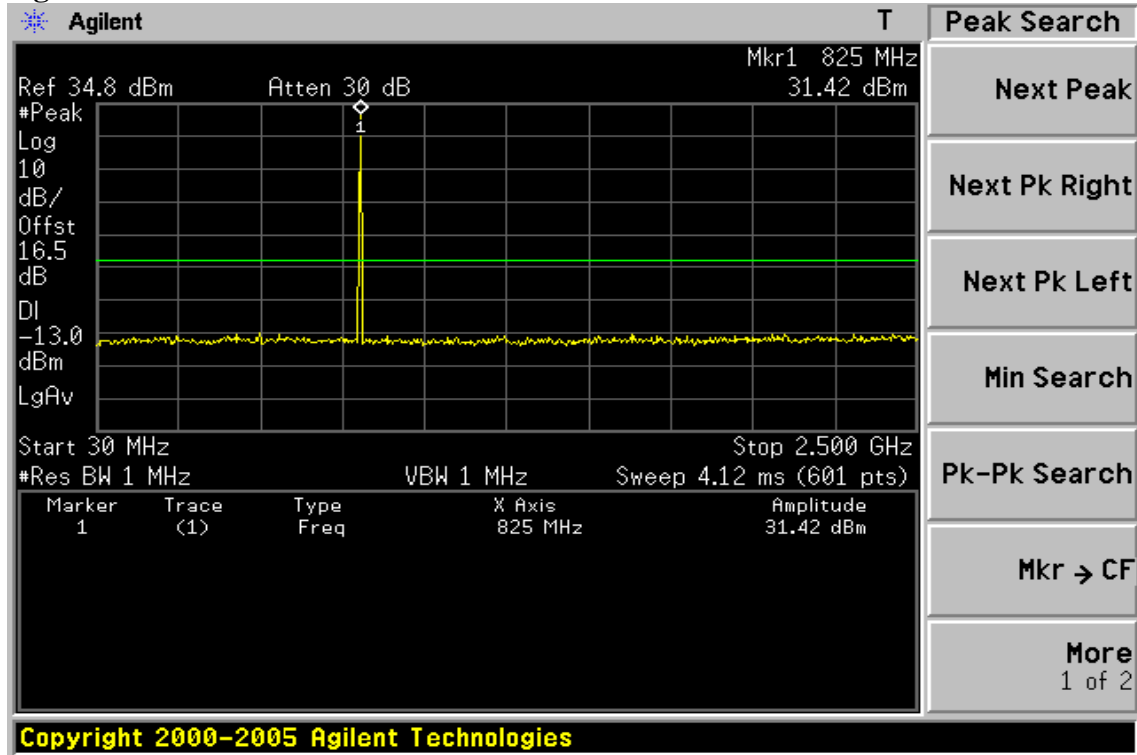
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8.5. Measurement Result:

Figure 8-1: Out of Band emission at antenna terminals– GPRS 850 Channel Lowest



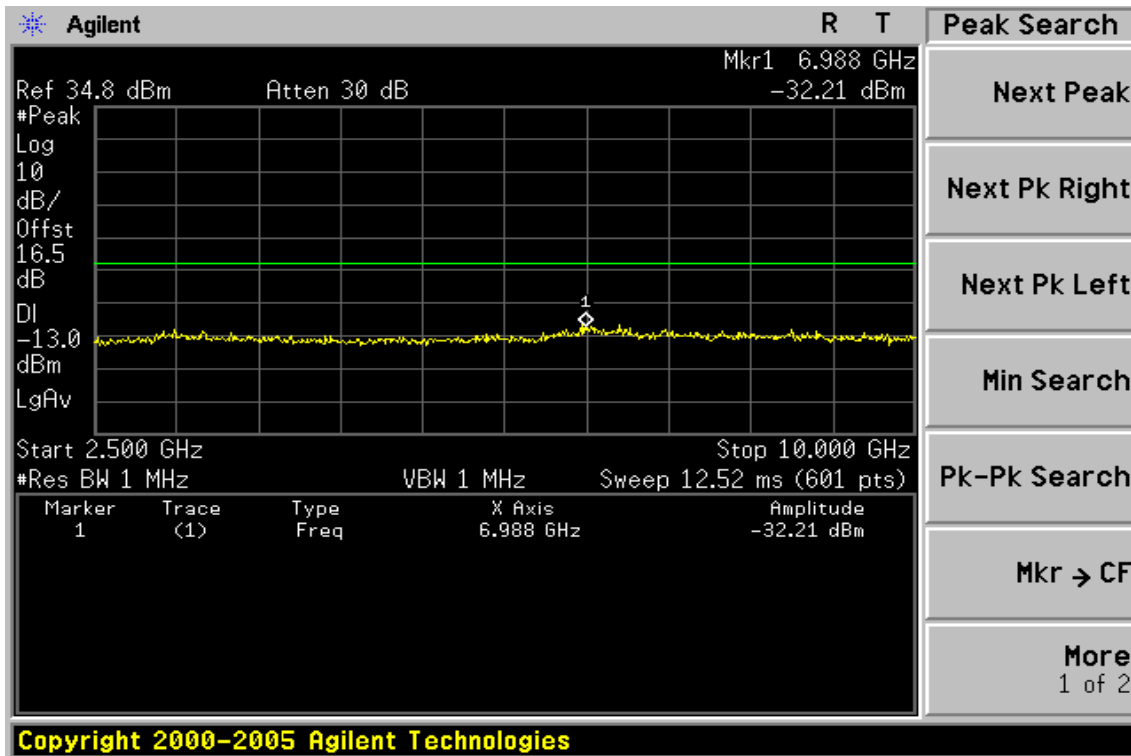
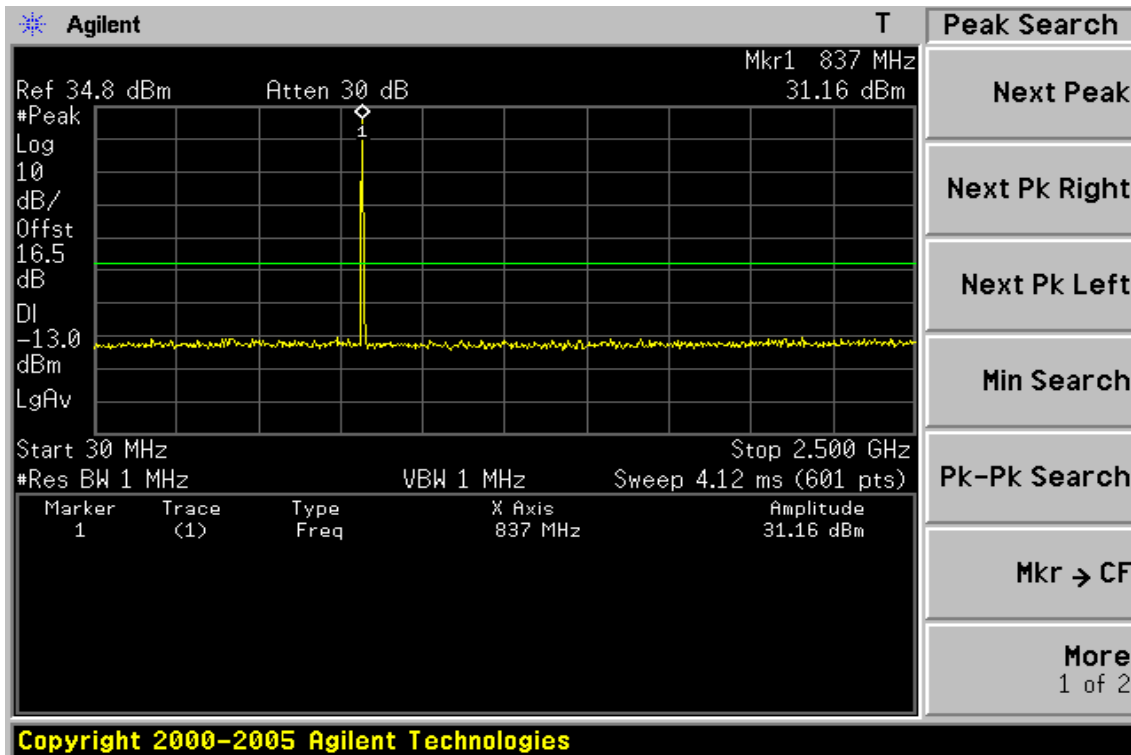
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**Figure 8-2: Out of Band emission at antenna terminals –GPRS 850 Channel Mid**

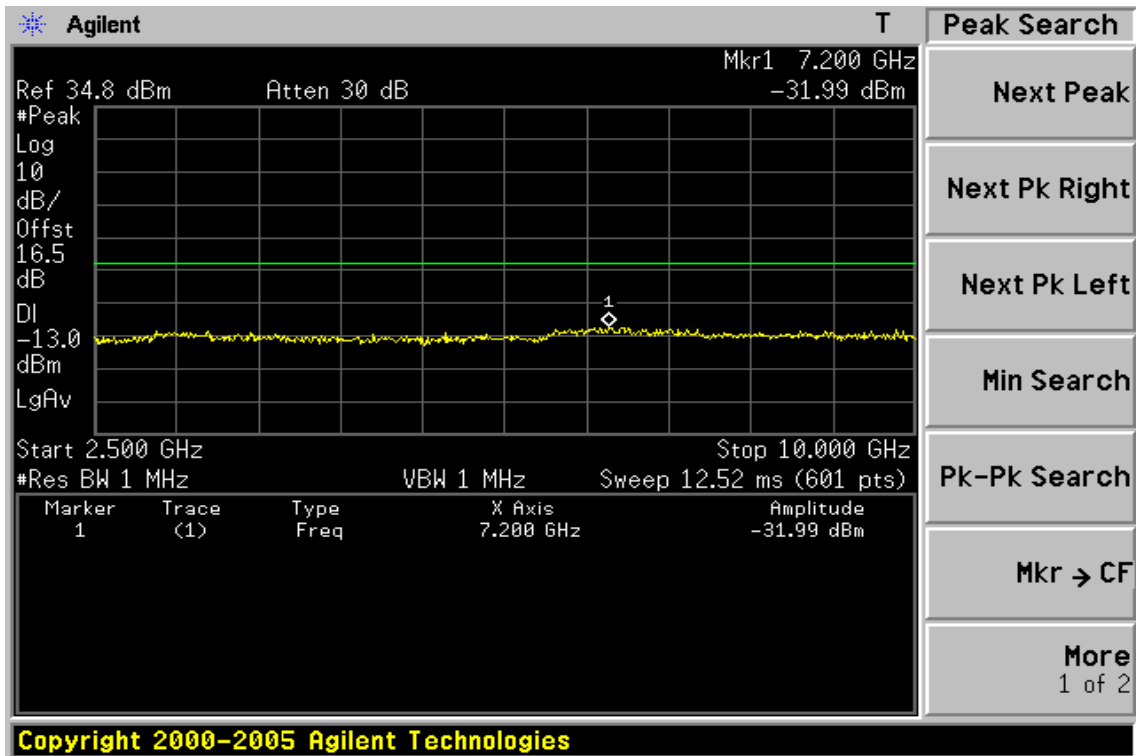
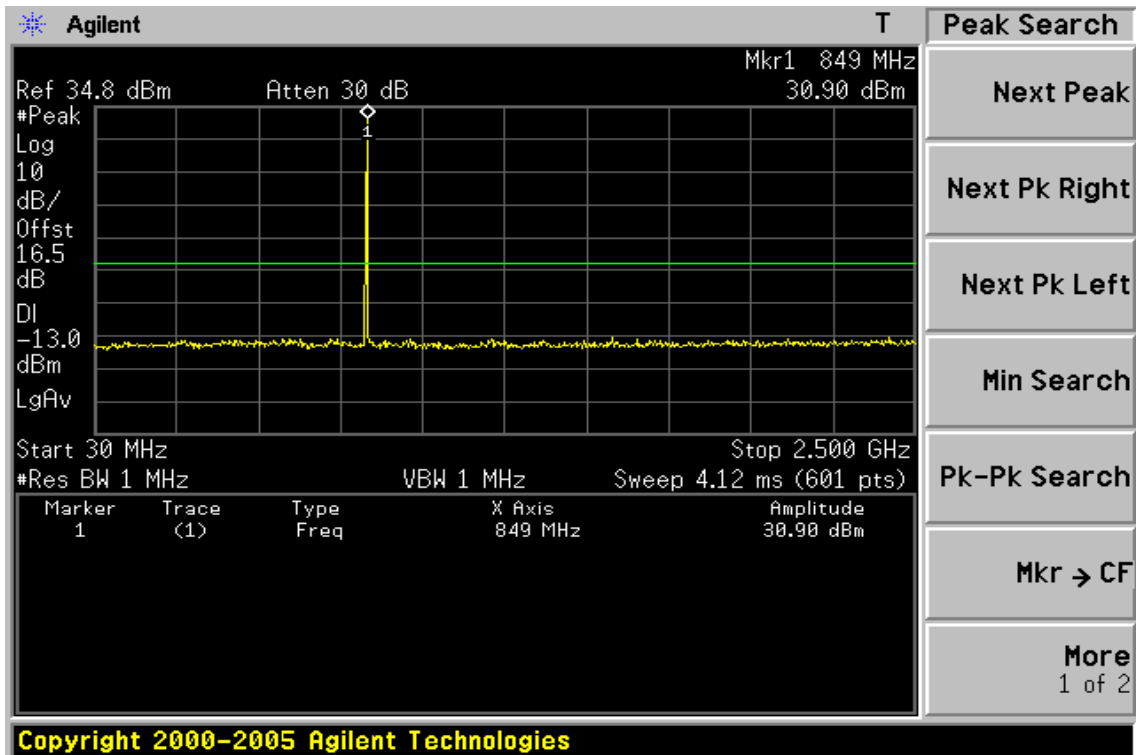


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Figure 8-3: Out of Band emission at antenna terminals–GPRS 850 Channel Highest



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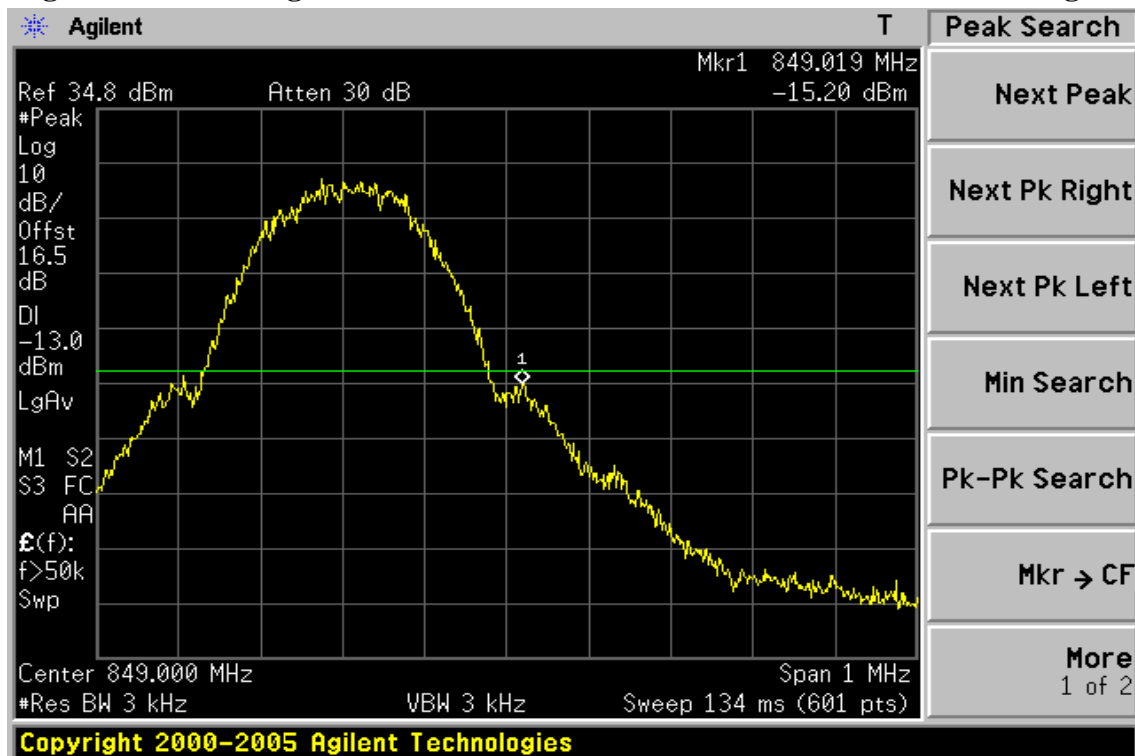
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**Figure 8-4: Band edge emission at antenna terminals –GPRS 850 Channel Lowest**



**Figure 8-5: Band edge emission at antenna terminals –GPRS 850 Channel Highest**



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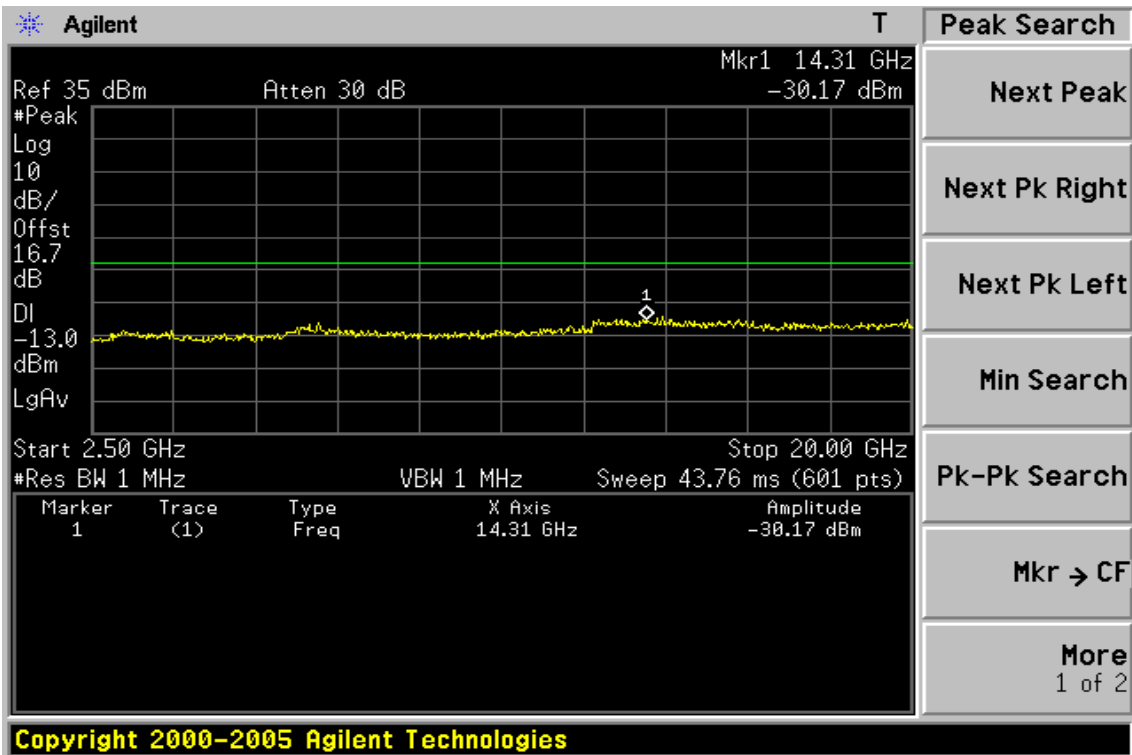
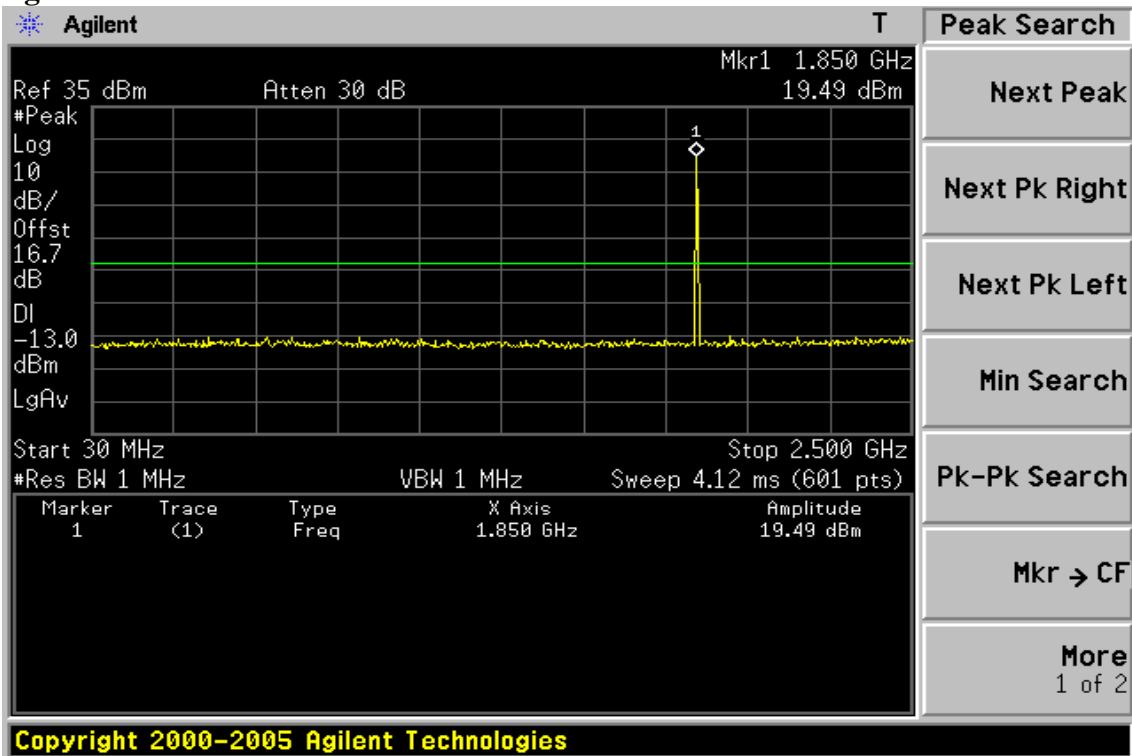
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**Figure 8-6: Out of Band emission at antenna terminals–GPRS 1900 Channel Lowest**

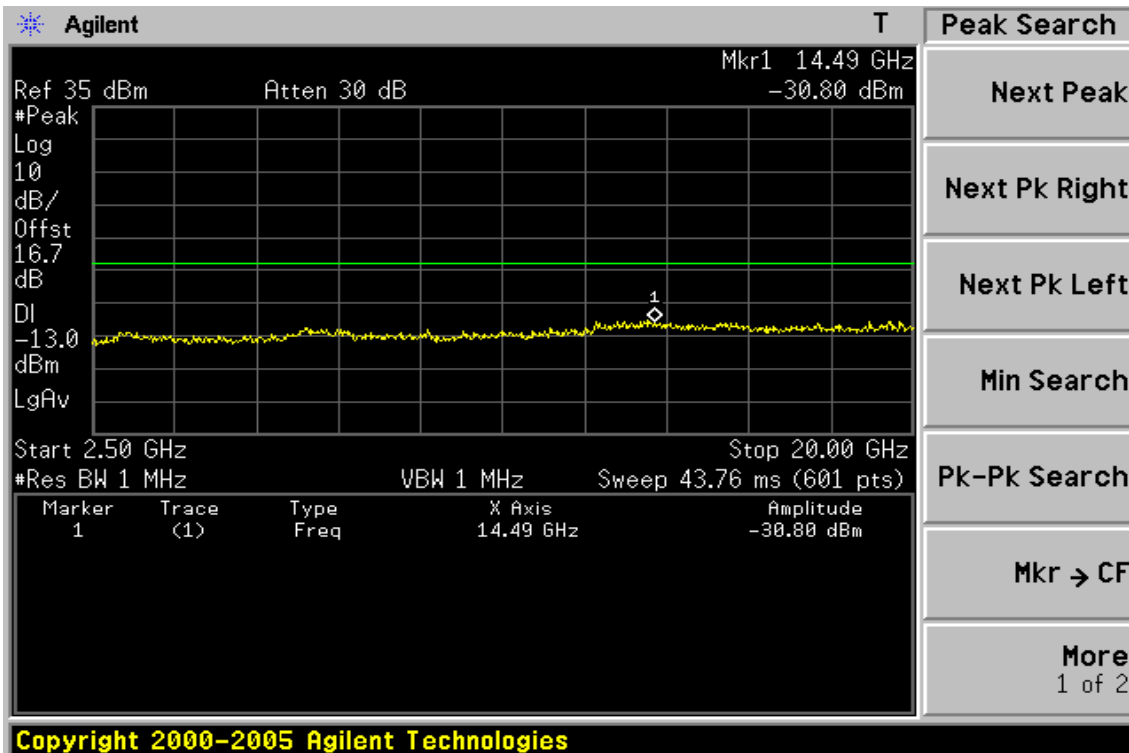
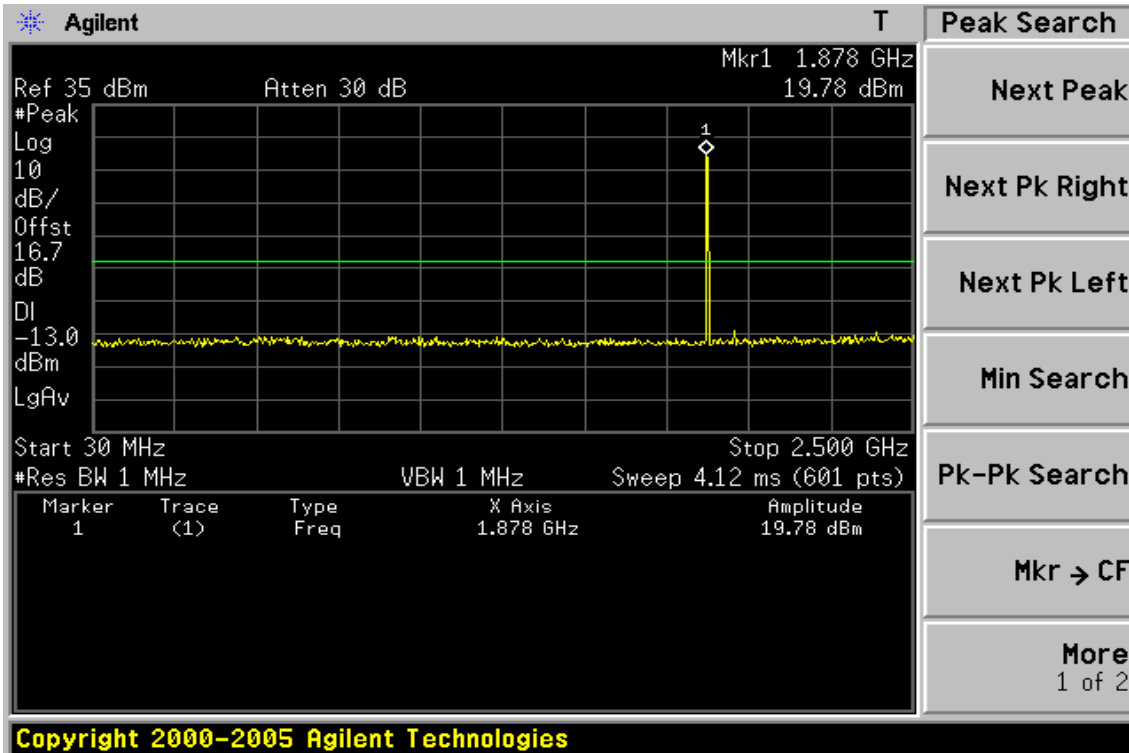


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Figure 8-7: Out of Band emission at antenna terminals –GPRS 1900 Channel Mid



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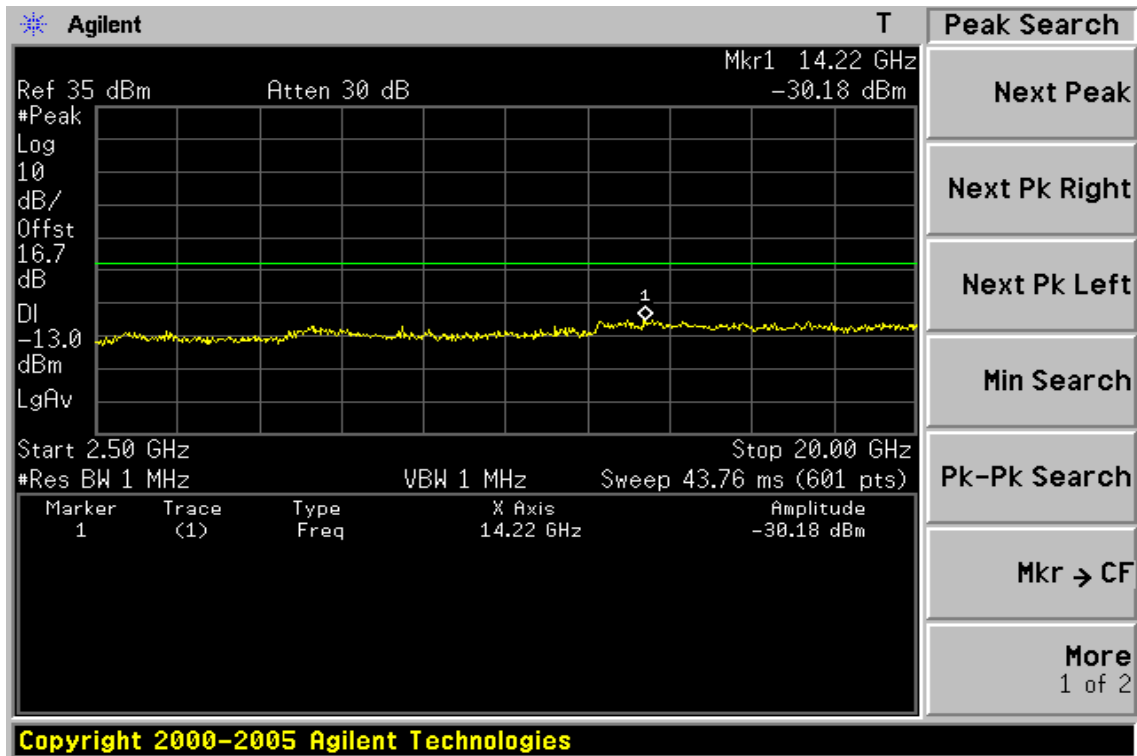
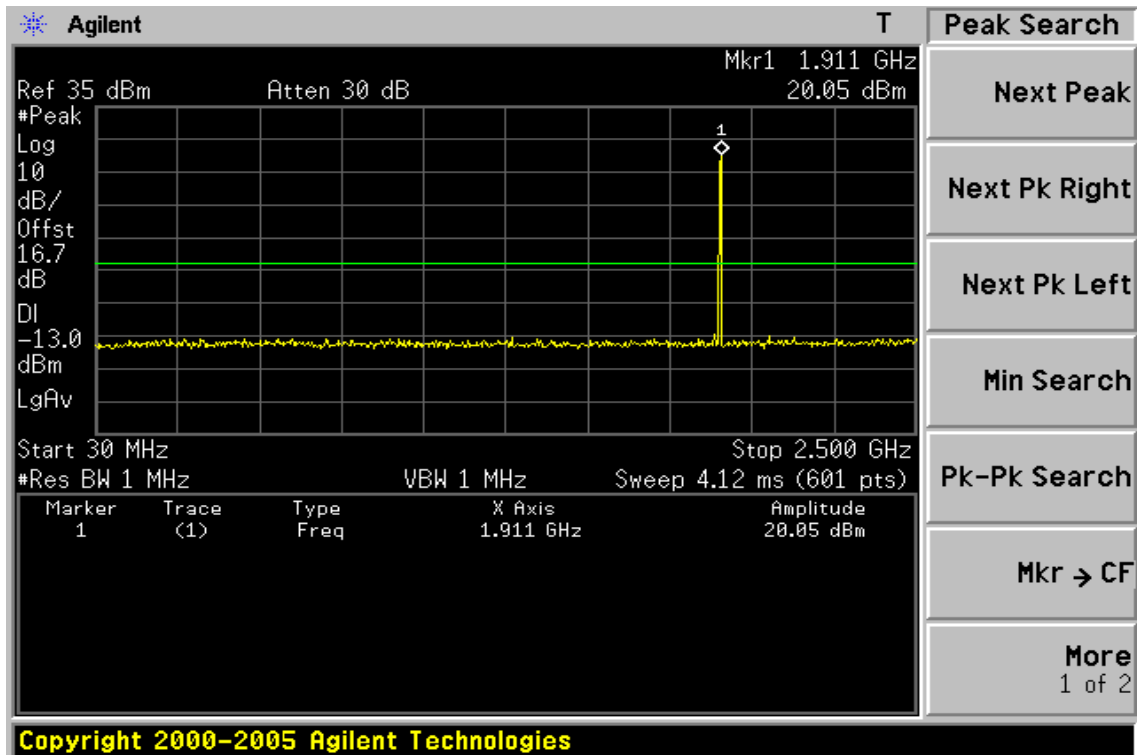
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Figure 8-8: Out of Band emission at antenna terminals–GPRS 1900 Channel Highest

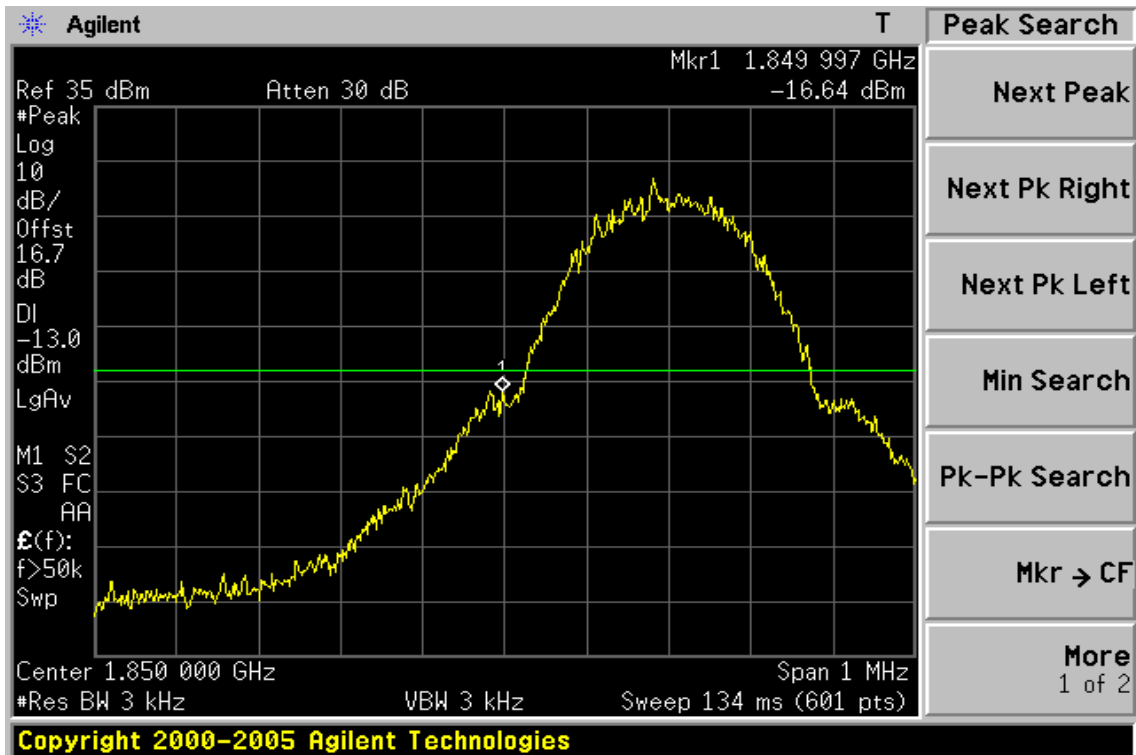


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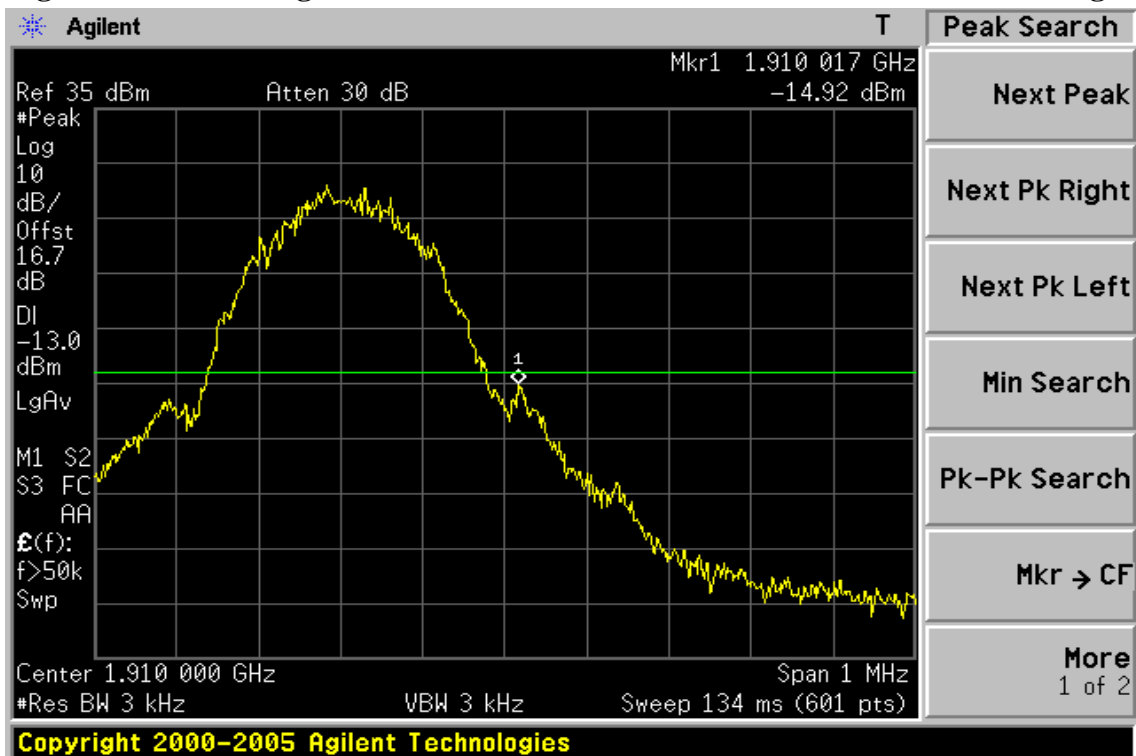
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**Figure 8-9: Bad edge emission at antenna terminals –GPRS 1900 Channel Lowest**



**Figure 8-10: Band edge emission at antenna terminals –GPRS 1900 Channel Highest**



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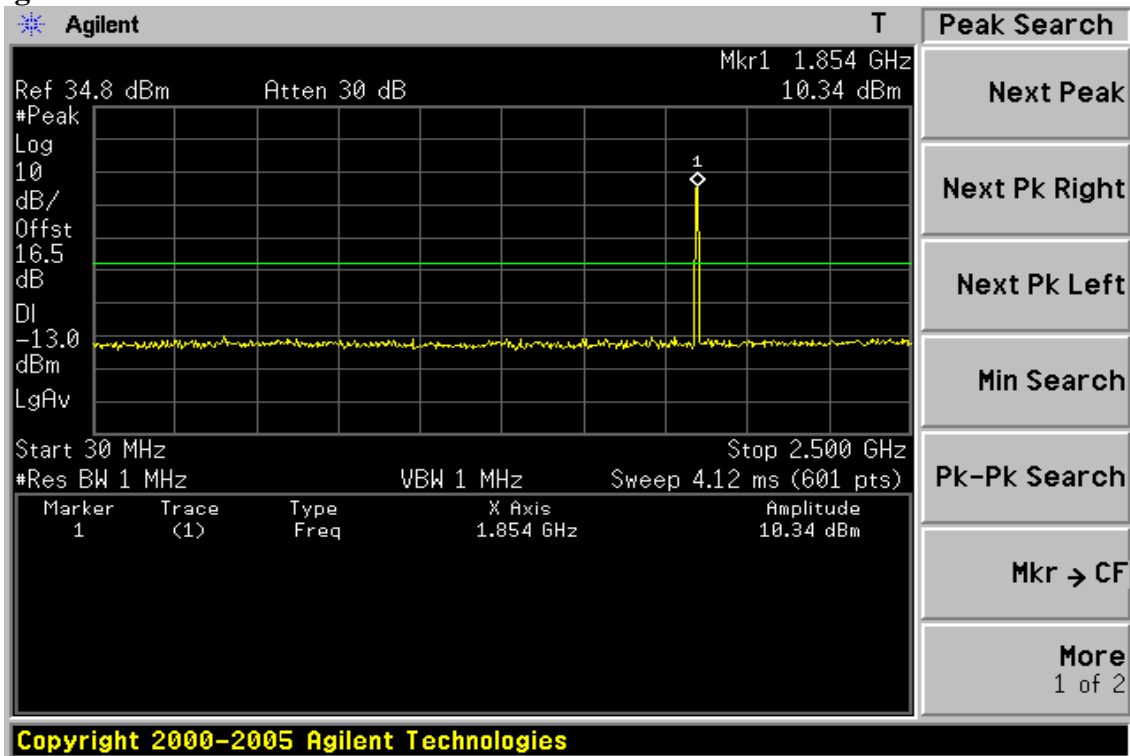
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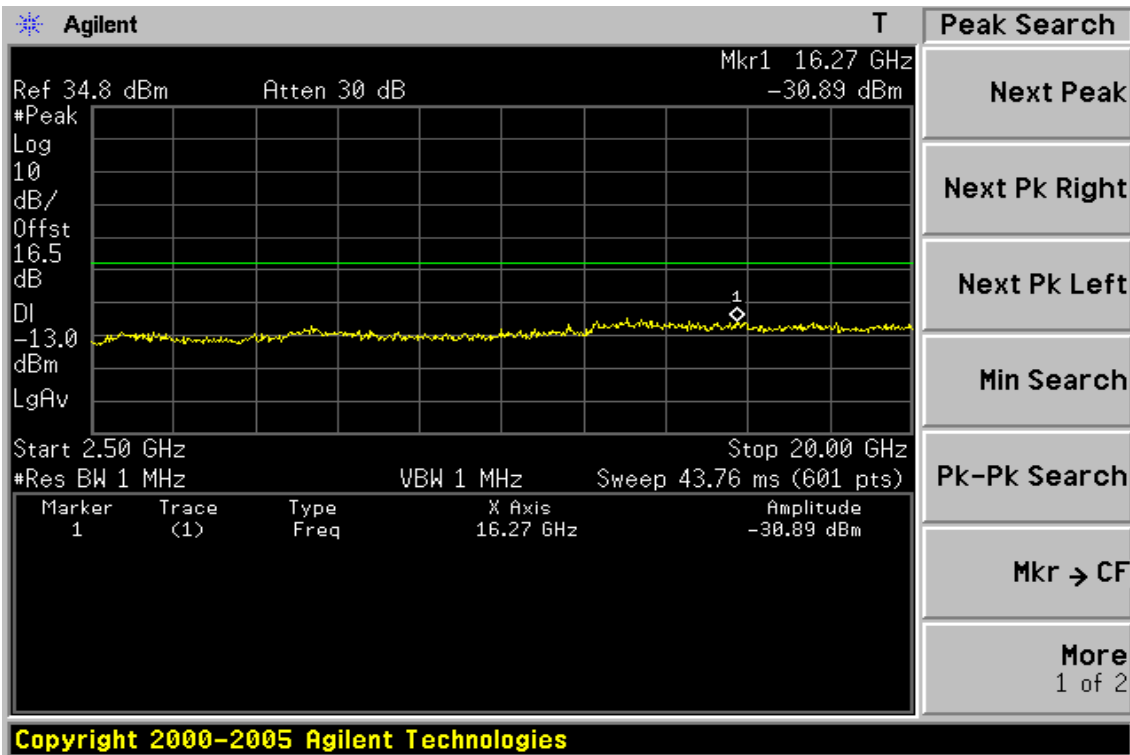
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Figure 8-11: Out of Band emission at antenna terminals–WCDMA II Channel Lowest



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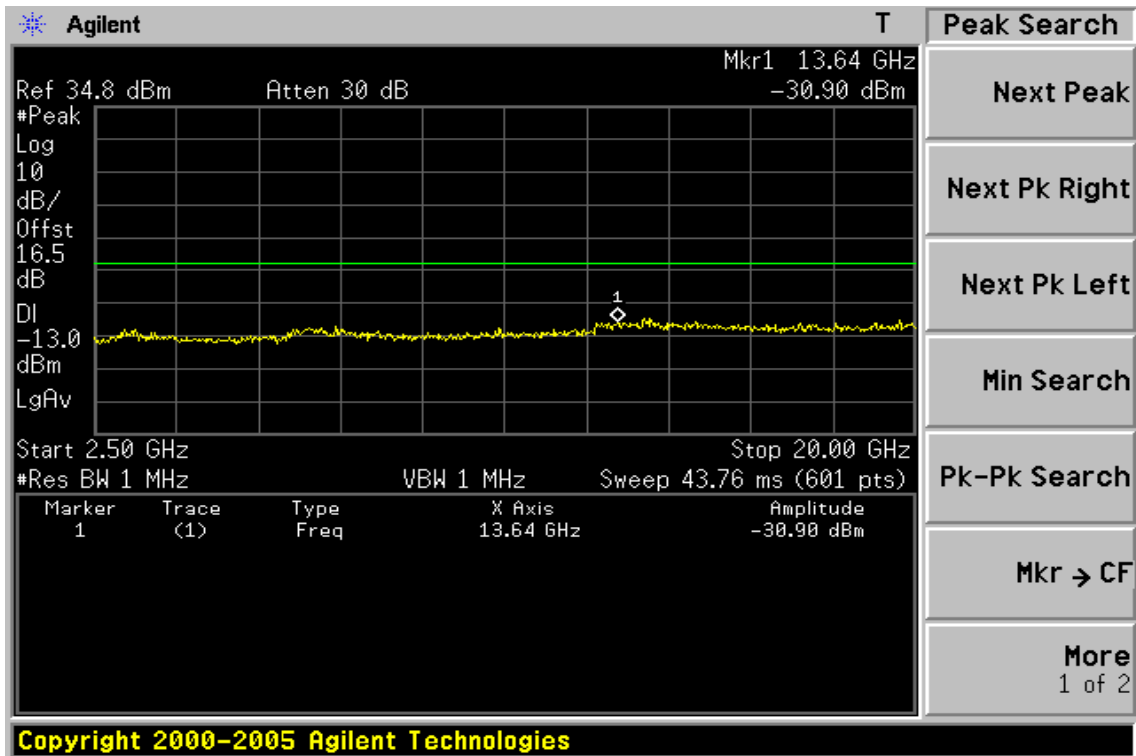
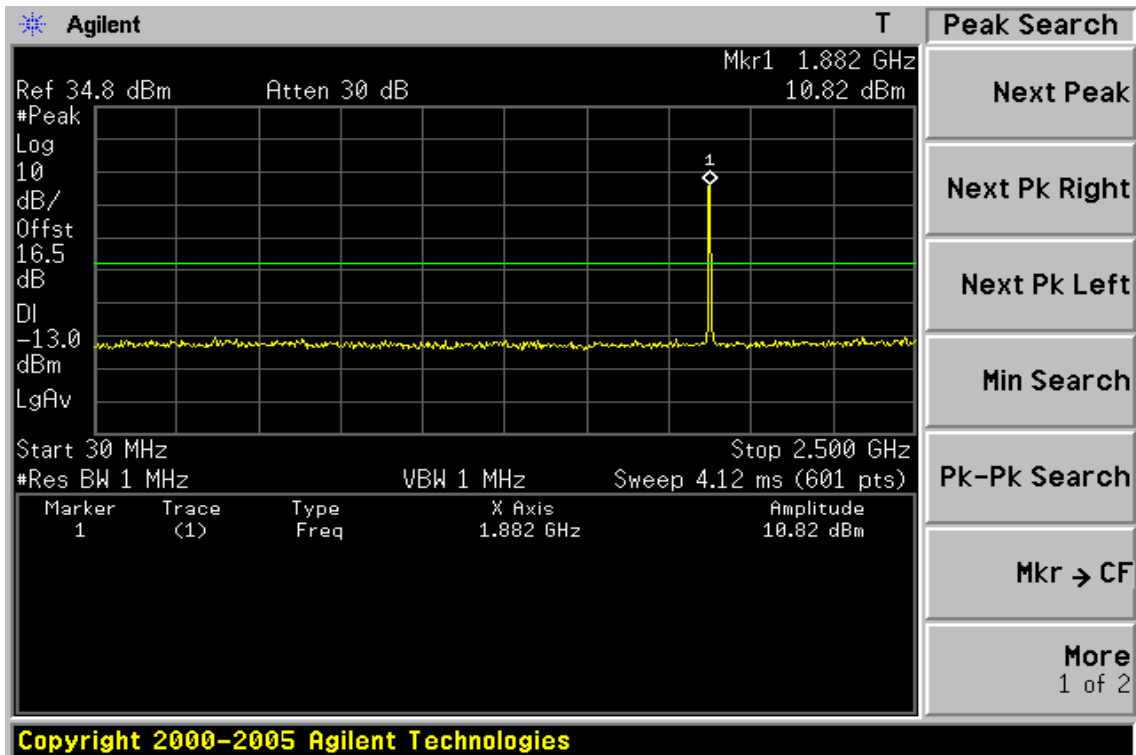
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Figure 8-12: Out of Band emission at antenna terminals –WCDMA II Channel Mid



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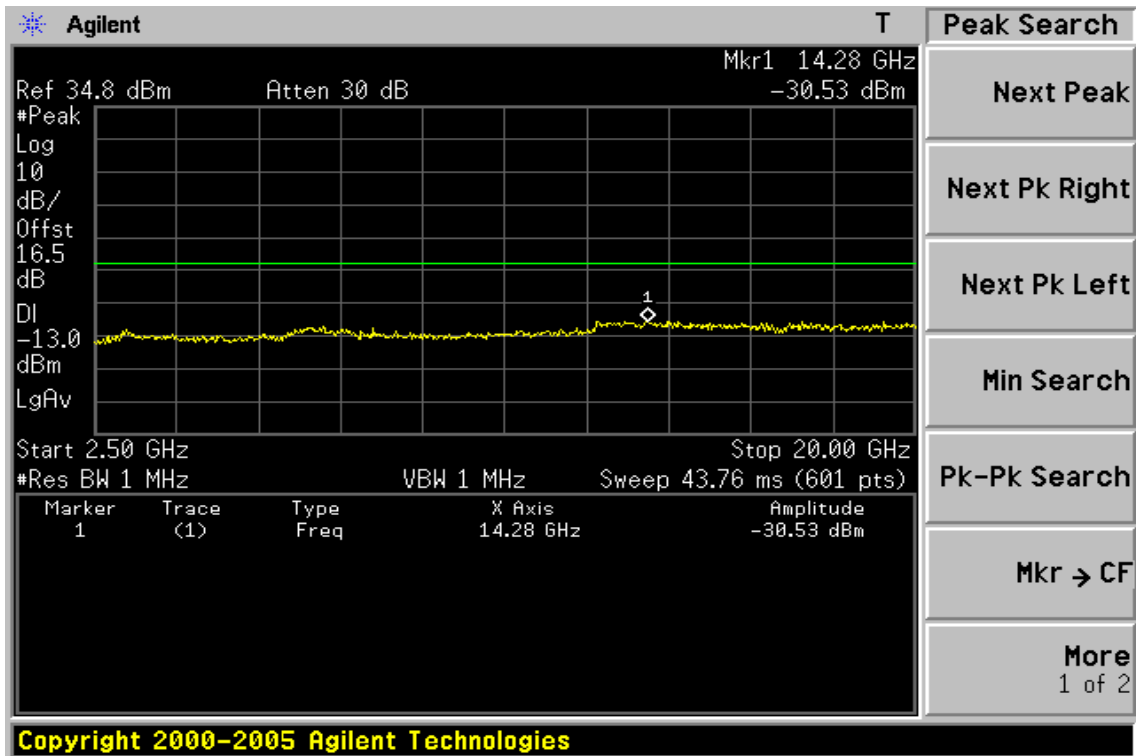
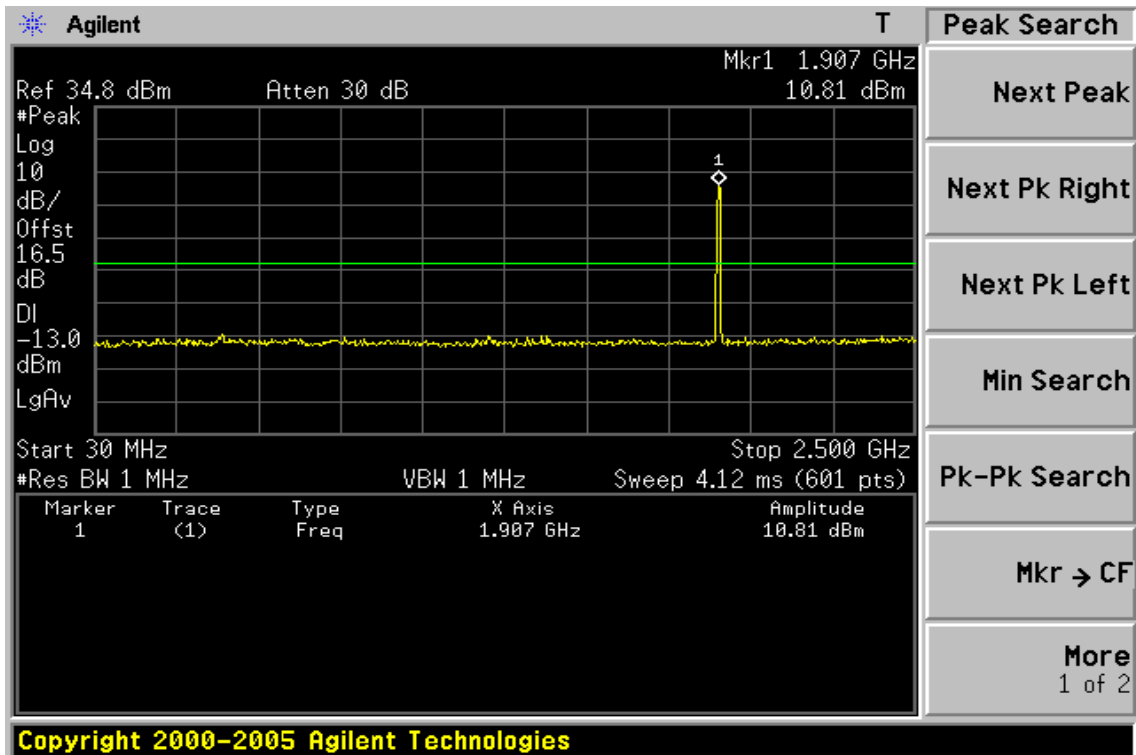
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**Figure 8-13: Out of Band emission at antenna terminals–WCDMA II Channel Highest**

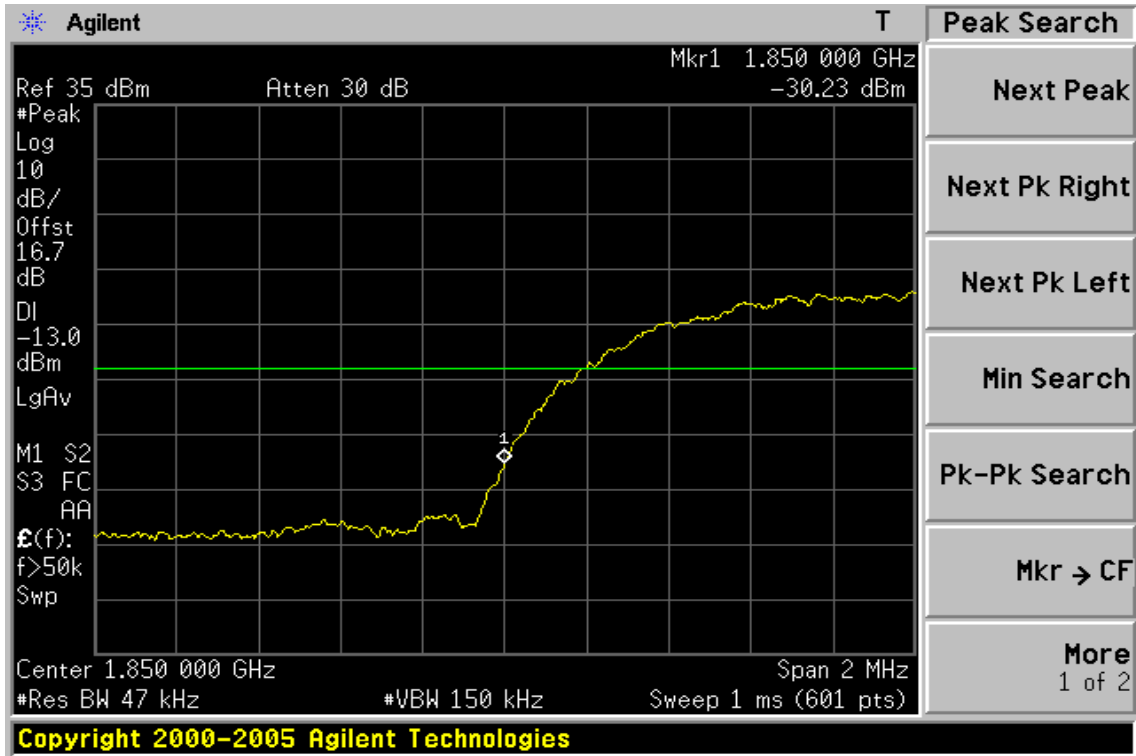


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**Figure 8-14: Bad edge emission at antenna terminals –WCDMA II Channel Lowest**



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



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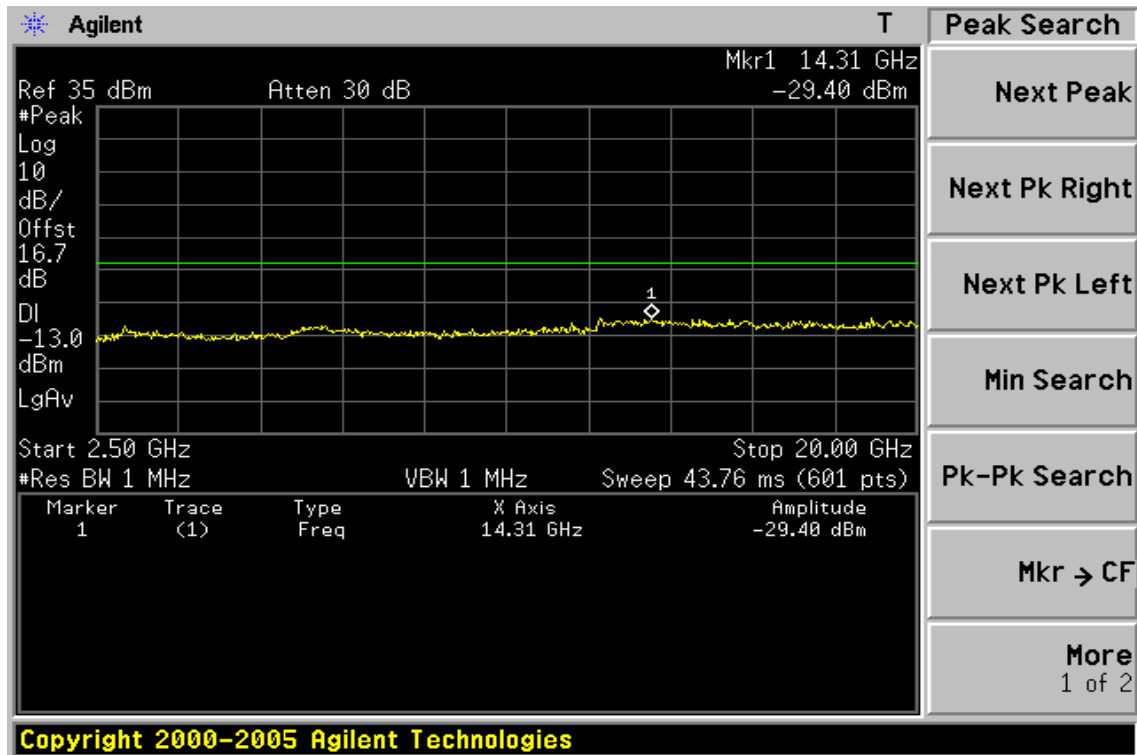
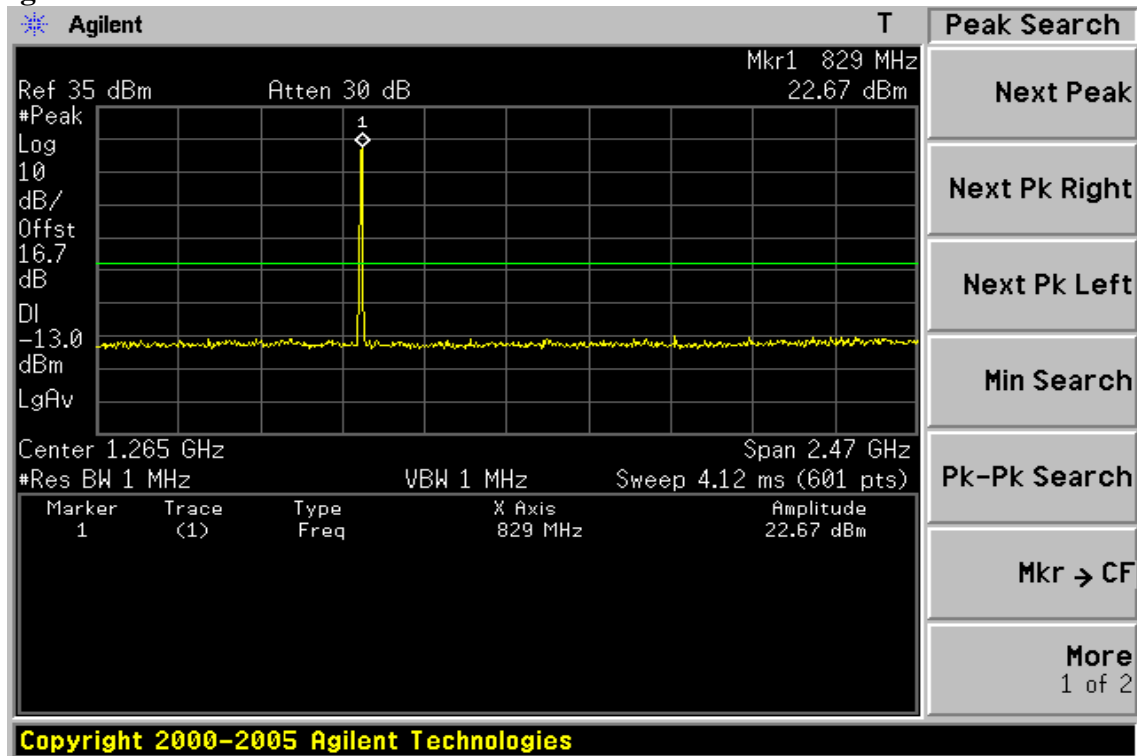
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**Figure 8-16: Out of Band emission at antenna terminals–WCDMA V Channel Lowest**

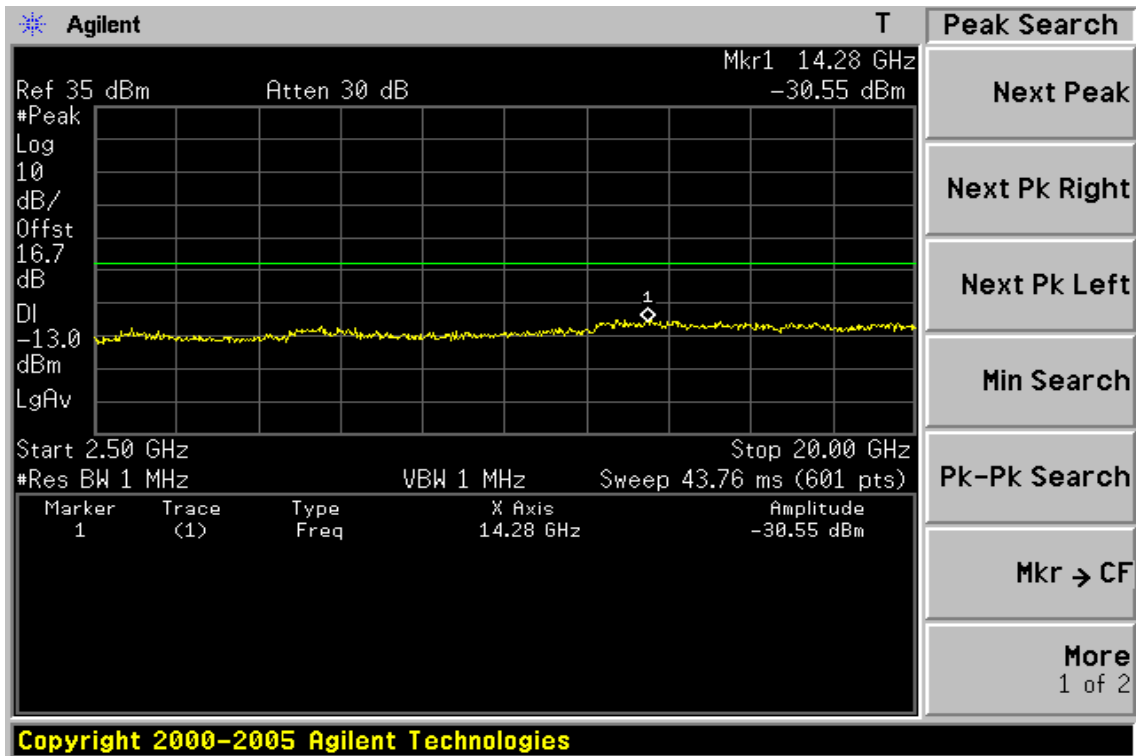
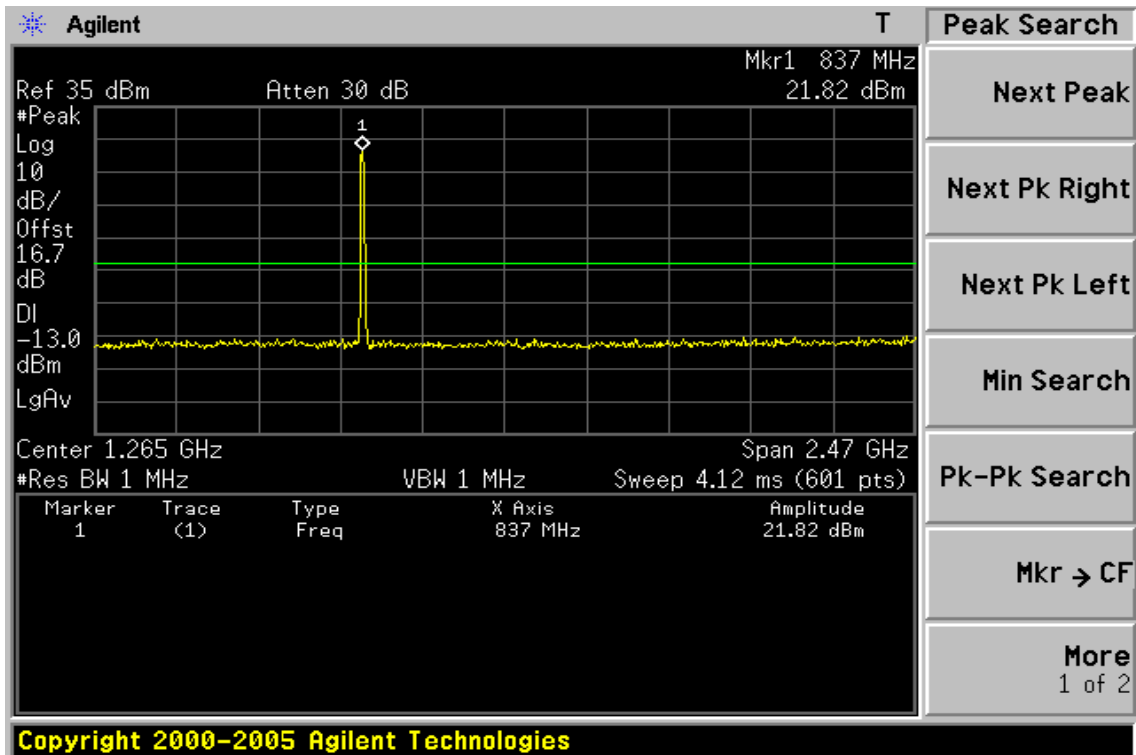


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Figure 8-17: Out of Band emission at antenna terminals –WCDMA V Channel Mid

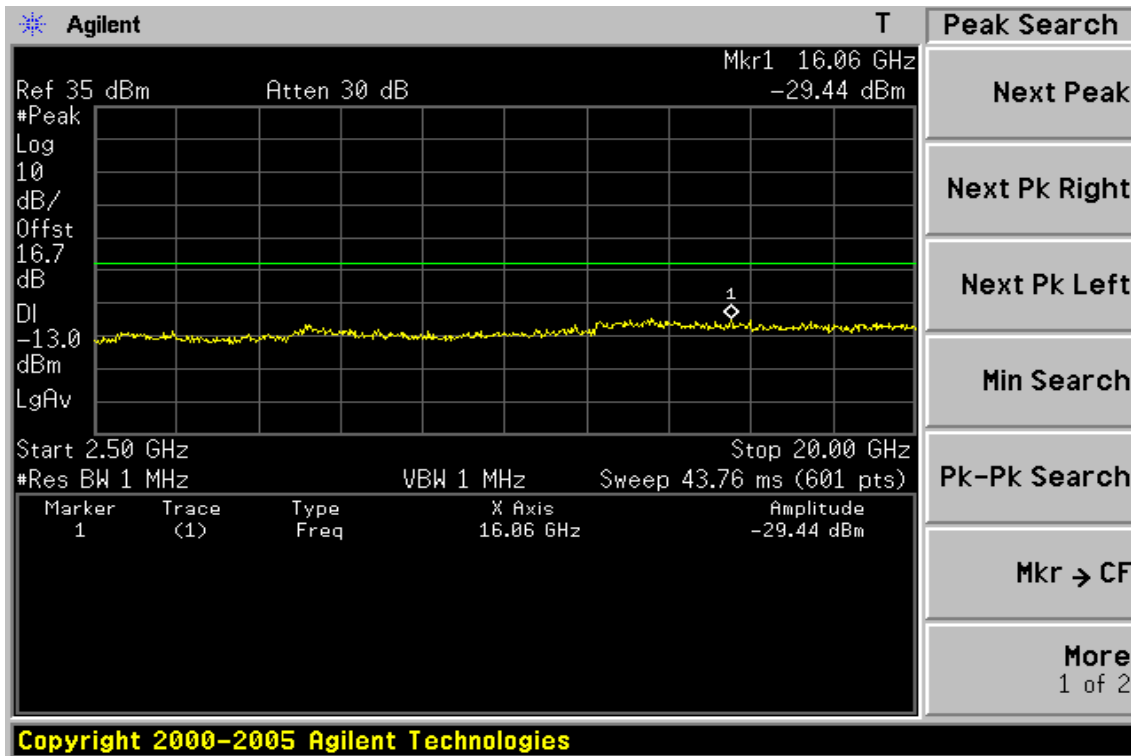
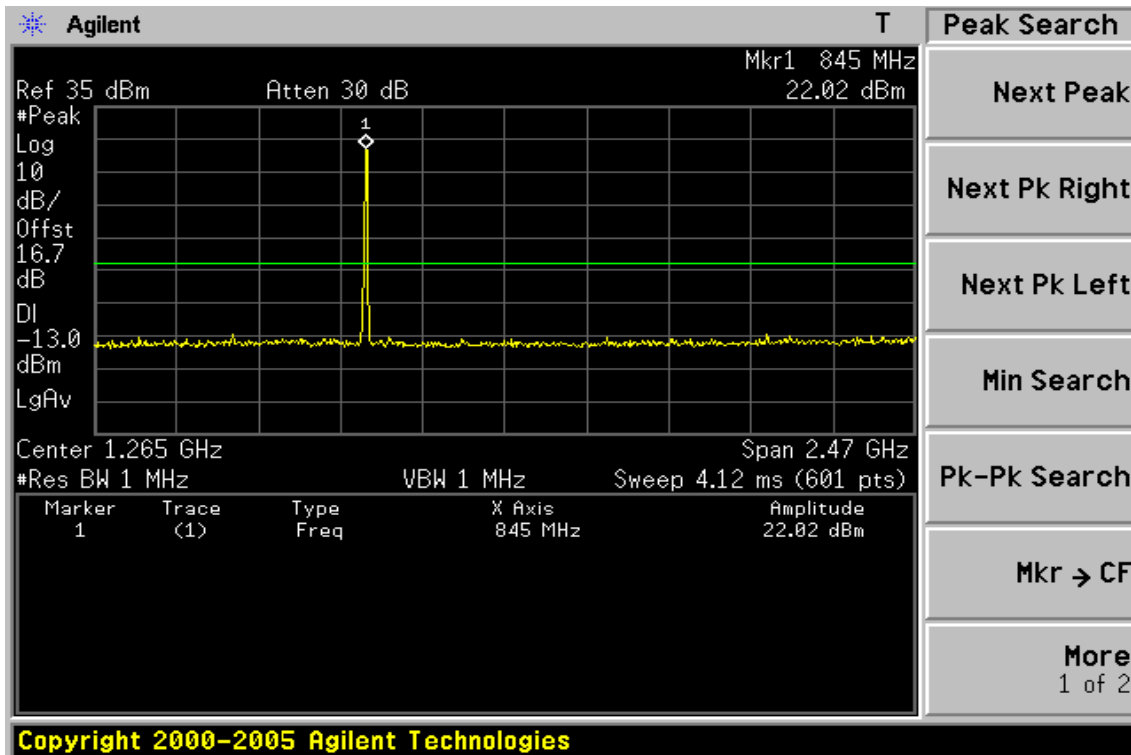


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Figure 8-18: Out of Band emission at antenna terminals–WCDMA V Channel Highest

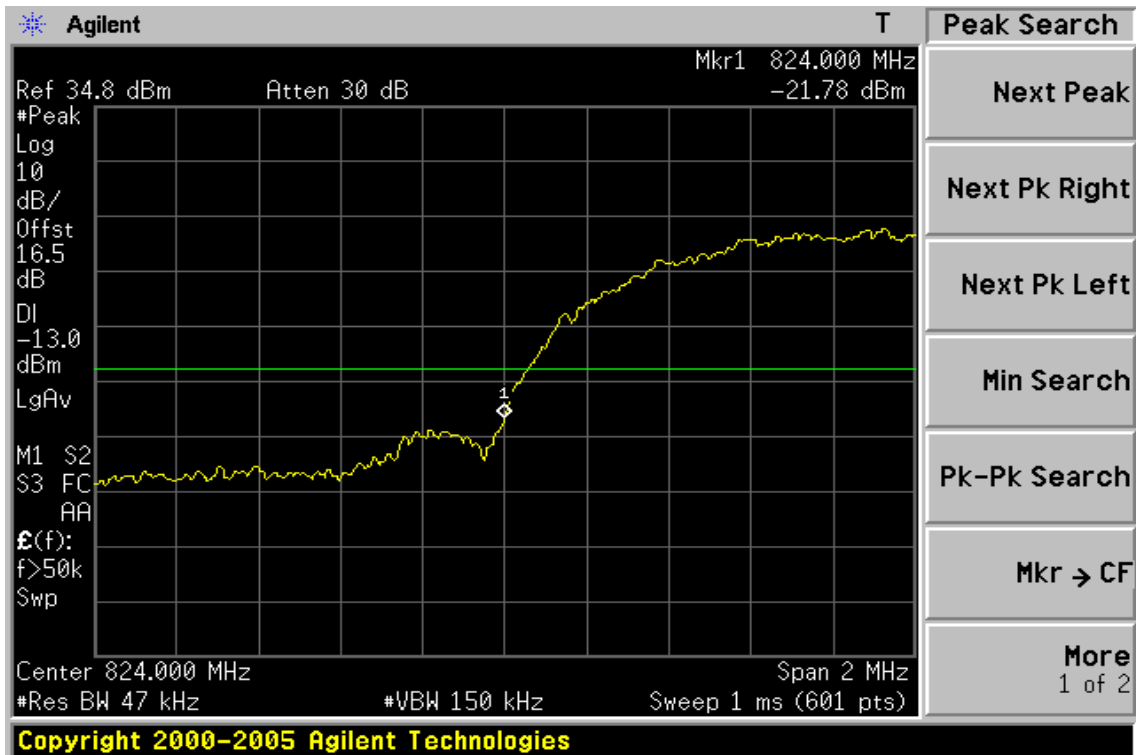


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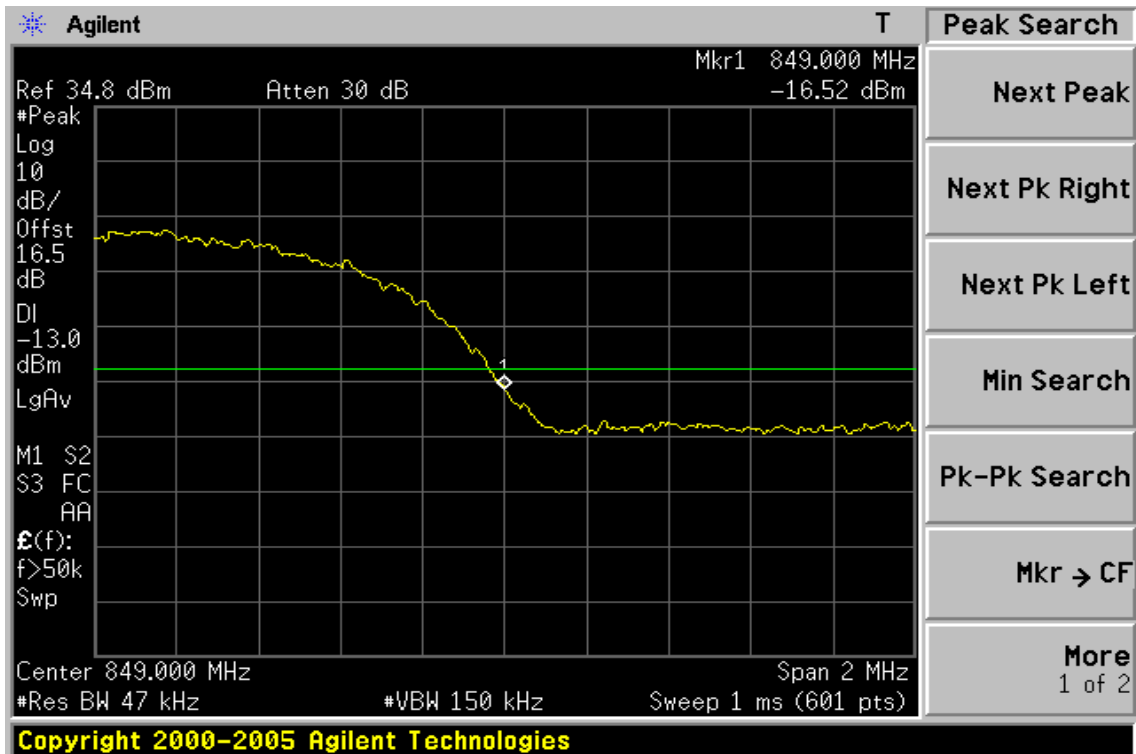
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**Figure 8-19: Bad edge emission at antenna terminals –WCDMA V Channel Lowest**



**Figure 8-20: Band edge emission at antenna terminals –WCDMA V Channel Highest**



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## 9. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT

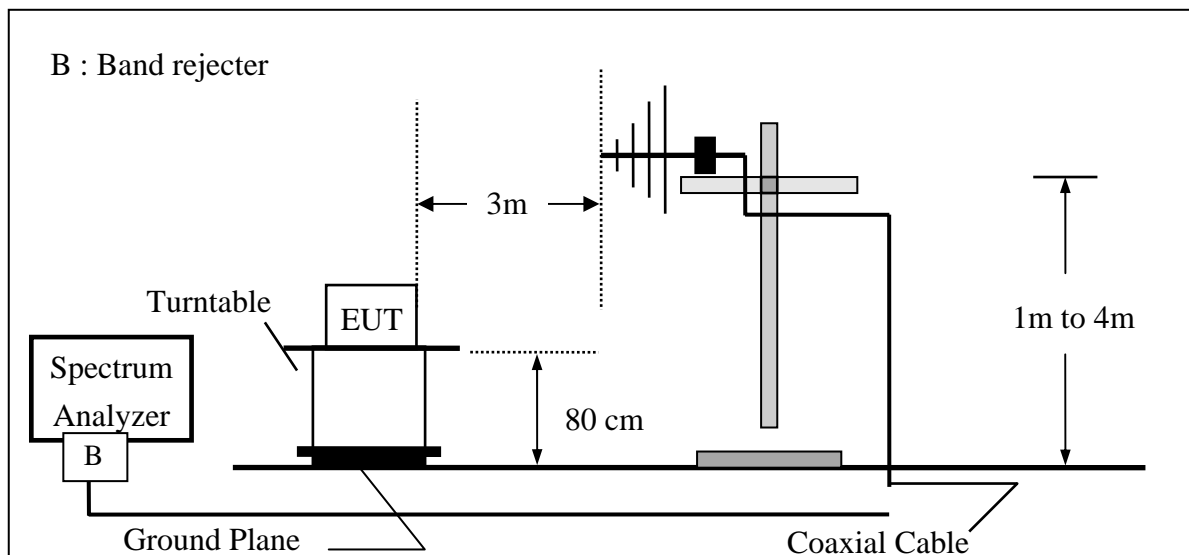
### 9.1. Standard Applicable:

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):

Radiated Emission Test Set-Up, Frequency Below 1000MHz



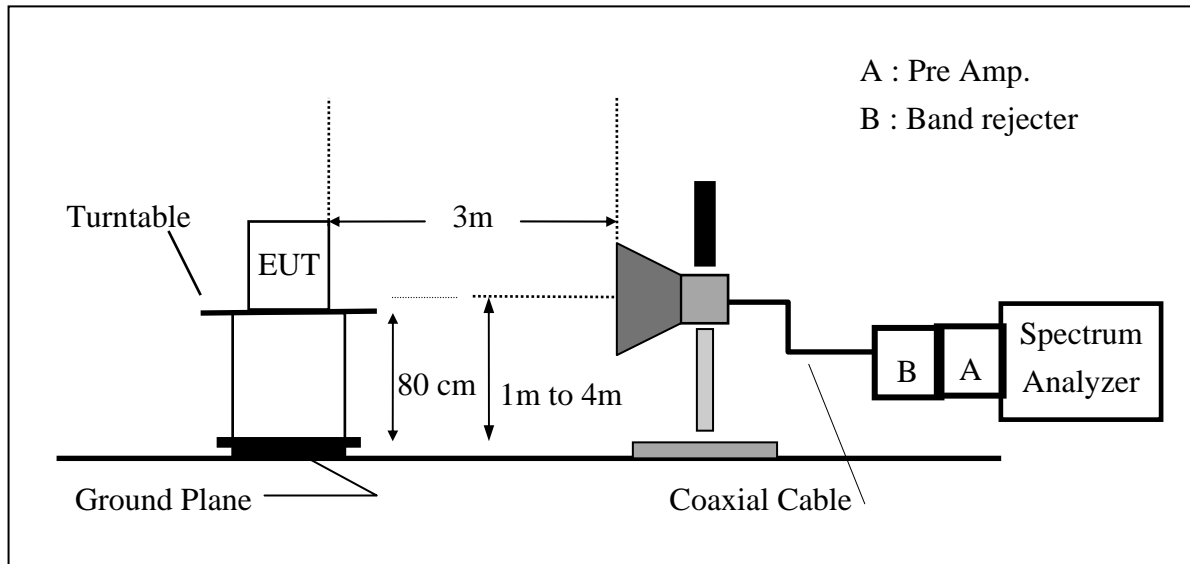
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Radiated Emission Test Set-UP Frequency Over 1 GHz



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

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

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

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

**9.4. Measurement Equipment Used:**

Refer to section 2.4 in this report

**9.5. Measurement Result:**

Refer to attach tabular data sheets.

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

Operation Mode	: TX CH Low Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 824.20 MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	31.08	V	-71.73	-7.75	1.30	-80.78	-13.00	-67.78
199.75	27.18	V	-74.58	-7.84	1.71	-84.13	-13.00	-71.13
248.25	34.61	V	-65.35	-7.89	1.98	-75.21	-13.00	-62.21
293.84	36.02	V	-62.43	-7.92	2.15	-72.50	-13.00	-59.50
500.45	35.59	V	-58.54	-7.72	2.80	-69.06	-13.00	-56.06
966.05	32.53	V	-51.72	-8.00	3.93	-63.65	-13.00	-50.65
823.98	70.94	V	-15.45	-7.87	3.62	-26.95	-13.00	-13.95
1648.40	31.46	V	-73.12	9.29	5.23	-69.06	-13.00	-56.06
2472.60	---	V		10.08	6.53		-13.00	
3296.80	---	V		12.17	7.71		-13.00	
4121.00	---	V		12.61	8.86		-13.00	
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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

Operation Mode	: TX CH Low Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 824.20 MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
158.04	24.21	H	-74.18	-7.81	1.61	-83.60	-13.00	-70.60
238.55	24.22	H	-75.56	-7.88	1.93	-85.36	-13.00	-72.36
293.84	24.26	H	-73.59	-7.92	2.15	-83.66	-13.00	-70.66
544.10	24.82	H	-67.10	-7.76	2.94	-77.80	-13.00	-64.80
700.27	26.94	H	-60.74	-7.86	3.29	-71.89	-13.00	-58.89
823.98	77.08	H	-9.19	-7.87	3.62	-20.69	-13.00	-7.69
1648.40	32.66	H	-71.74	9.29	5.23	-67.68	-13.00	-54.68
2472.60	---	H		10.08	6.53		-13.00	
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:
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**Radiated Spurious Emission Measurement Result: GPRS 850 Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 836.60 MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	32.67	V	-70.14	-7.75	1.30	-79.19	-13.00	-66.19
196.84	28.20	V	-73.30	-7.84	1.70	-82.84	-13.00	-69.84
238.55	33.69	V	-66.63	-7.88	1.93	-76.44	-13.00	-63.44
287.05	35.82	V	-62.85	-7.91	2.12	-72.89	-13.00	-59.89
495.60	34.67	V	-59.45	-7.72	2.79	-69.96	-13.00	-56.96
963.14	33.32	V	-51.00	-8.00	3.92	-62.91	-13.00	-49.91
1673.20	32.14	V	-72.42	9.36	5.27	-68.32	-13.00	-55.32
2509.80	---	V		10.09	6.58		-13.00	
3346.40	---	V		12.28	7.79		-13.00	
4183.00	---	V		12.62	8.93		-13.00	
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 836.60 MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	29.76	H	-72.45	-7.77	1.39	-81.61	-13.00	-68.61
196.84	26.61	H	-74.79	-7.84	1.70	-84.33	-13.00	-71.33
238.55	29.82	H	-69.96	-7.88	1.93	-79.76	-13.00	-66.76
287.05	31.29	H	-66.77	-7.91	2.12	-76.81	-13.00	-63.81
495.60	31.59	H	-61.90	-7.72	2.79	-72.40	-13.00	-59.40
963.14	33.03	H	-51.10	-8.00	3.92	-63.02	-13.00	-50.02
1673.20	31.56	H	-72.82	9.36	5.27	-68.72	-13.00	-55.72
2509.80	---	H		10.09	6.58		-13.00	
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 848.80 MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	32.75	V	-68.47	-7.77	1.39	-77.63	-13.00	-64.63
199.75	26.86	V	-74.90	-7.84	1.71	-84.45	-13.00	-71.45
219.15	33.10	V	-67.96	-7.86	1.82	-77.63	-13.00	-64.63
287.05	36.14	V	-62.53	-7.91	2.12	-72.57	-13.00	-59.57
495.60	34.83	V	-59.29	-7.72	2.79	-69.80	-13.00	-56.80
849.00	72.39	V	-13.73	-7.88	3.68	-25.29	-13.00	-12.29
1697.60	30.56	V	-73.98	9.44	5.31	-69.85	-13.00	-56.85
2546.40	---	V		10.20	6.63		-13.00	
3395.20	---	V		12.38	7.87		-13.00	
4244.00	---	V		12.63	9.00		-13.00	
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 848.80 MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	30.48	H	-71.73	-7.77	1.39	-80.89	-13.00	-67.89
165.80	27.17	H	-71.83	-7.81	1.63	-81.27	-13.00	-68.27
248.25	30.12	H	-69.19	-7.89	1.98	-79.05	-13.00	-66.05
289.96	31.59	H	-66.38	-7.91	2.13	-76.43	-13.00	-63.43
495.60	31.09	H	-62.40	-7.72	2.79	-72.90	-13.00	-59.90
849.00	77.48	H	-8.71	-7.88	3.68	-20.27	-13.00	-7.27
1697.60	32.49	H	-71.86	9.44	5.31	-67.73	-13.00	-54.73
2546.40	---	H		10.20	6.63		-13.00	
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Low Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1850.20MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	37.82	V	-64.99	-7.75	1.30	-74.04	-13.00	-61.04
199.75	30.90	V	-70.86	-7.84	1.71	-80.41	-13.00	-67.41
241.46	34.39	V	-65.82	-7.88	1.94	-75.65	-13.00	-62.65
287.05	37.55	V	-61.12	-7.91	2.12	-71.16	-13.00	-58.16
495.60	35.43	V	-58.69	-7.72	2.79	-69.20	-13.00	-56.20
949.56	32.19	V	-52.43	-8.00	3.88	-64.31	-13.00	-51.31
1850.00	71.74	V	-32.65	9.90	5.56	-28.31	-13.00	-15.31
3700.40	49.09	V	-48.84	12.61	8.31	-44.54	-13.00	-31.54
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Low Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1850.20MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	31.87	H	-70.34	-7.77	1.39	-79.50	-13.00	-66.50
160.95	27.44	H	-71.18	-7.81	1.62	-80.60	-13.00	-67.60
238.55	30.53	H	-69.25	-7.88	1.93	-79.05	-13.00	-66.05
287.05	33.51	H	-64.55	-7.91	2.12	-74.59	-13.00	-61.59
500.45	31.41	H	-62.02	-7.72	2.80	-72.55	-13.00	-59.55
961.20	32.43	H	-51.71	-8.00	3.91	-63.62	-13.00	-50.62
1850.00	76.18	H	-28.00	9.90	5.56	-23.66	-13.00	-10.66
3700.40	43.15	H	-54.89	12.61	8.31	-50.59	-13.00	-37.59
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1880MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	37.51	V	-65.30	-7.75	1.30	-74.35	-13.00	-61.35
199.75	29.44	V	-72.32	-7.84	1.71	-81.87	-13.00	-68.87
245.34	36.02	V	-64.05	-7.89	1.96	-73.90	-13.00	-60.90
287.05	36.57	V	-62.10	-7.91	2.12	-72.14	-13.00	-59.14
495.60	35.08	V	-59.04	-7.72	2.79	-69.55	-13.00	-56.55
982.54	32.11	V	-51.76	-7.99	3.98	-63.73	-13.00	-50.73
3760.00	46.04	V	-51.62	12.60	8.39	-47.40	-13.00	-34.40
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1880MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	32.71	H	-69.50	-7.77	1.39	-78.66	-13.00	-65.66
158.04	27.61	H	-70.78	-7.81	1.61	-80.20	-13.00	-67.20
250.19	30.39	H	-68.82	-7.89	1.99	-78.70	-13.00	-65.70
293.84	32.90	H	-64.95	-7.92	2.15	-75.02	-13.00	-62.02
495.60	31.48	H	-62.01	-7.72	2.79	-72.51	-13.00	-59.51
970.90	32.02	H	-52.06	-8.00	3.94	-64.00	-13.00	-51.00
3760.00	38.93	H	-58.84	12.60	8.39	-54.63	-13.00	-41.63
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1909.8 MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	36.91	V	-65.90	-7.75	1.30	-74.95	-13.00	-61.95
199.75	29.25	V	-72.51	-7.84	1.71	-82.06	-13.00	-69.06
238.55	34.50	V	-65.82	-7.88	1.93	-75.63	-13.00	-62.63
284.14	37.20	V	-61.57	-7.91	2.11	-71.59	-13.00	-58.59
500.45	34.61	V	-59.52	-7.72	2.80	-70.04	-13.00	-57.04
985.45	32.61	V	-51.19	-7.99	3.99	-63.17	-13.00	-50.17
1910.00	72.15	V	-32.18	10.08	5.66	-27.76	-13.00	-14.76
3819.60	45.26	V	-52.13	12.60	8.47	-48.00	-13.00	-35.00
5729.40	---	V		13.49	10.50		-13.00	
7639.20	---	V		11.40	12.27		-13.00	
9549.00	---	V		11.95	13.74		-13.00	
11458.80	---	V		12.17	15.43		-13.00	
13368.60	---	V		12.97	16.82		-13.00	
15278.40	---	V		15.00	18.29		-13.00	
17188.20	---	V		14.47	19.52		-13.00	
19098.00	---	V		18.66	20.78		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1909.8 MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	31.45	H	-70.76	-7.77	1.39	-79.92	-13.00	-66.92
163.86	28.30	H	-70.55	-7.81	1.62	-79.98	-13.00	-66.98
248.25	31.53	H	-67.78	-7.89	1.98	-77.64	-13.00	-64.64
287.05	31.05	H	-67.01	-7.91	2.12	-77.05	-13.00	-64.05
500.45	31.59	H	-61.84	-7.72	2.80	-72.37	-13.00	-59.37
963.14	32.57	H	-51.56	-8.00	3.92	-63.48	-13.00	-50.48
1910.01	76.67	H	-27.44	10.08	5.66	-23.02	-13.00	-10.02
3819.60	37.00	H	-60.51	12.60	8.47	-56.37	-13.00	-43.37
5729.40	---	H		13.49	10.50		-13.00	
7639.20	---	H		11.40	12.27		-13.00	
9549.00	---	H		11.95	13.74		-13.00	
11458.80	---	H		12.17	15.43		-13.00	
13368.60	---	H		12.97	16.82		-13.00	
15278.40	---	H		15.00	18.29		-13.00	
17188.20	---	H		14.47	19.52		-13.00	
19098.00	---	H		18.66	20.78		-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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Low Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1852.4MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	36.61	V	-66.20	-9.87	1.30	-77.37	-13.00	-64.37
199.75	28.95	V	-72.81	-9.98	1.71	-84.50	-13.00	-71.50
241.46	33.90	V	-66.31	-10.02	1.94	-78.28	-13.00	-65.28
287.05	31.46	V	-67.21	-10.05	2.12	-79.39	-13.00	-66.39
495.60	34.49	V	-59.63	-9.86	2.79	-72.28	-13.00	-59.28
1850.00	65.20	V	-39.19	9.90	5.56	-34.85	-13.00	-21.85
3704.80	38.81	V	-59.10	12.61	8.31	-54.81	-13.00	-41.81
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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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: Mar. 29, 2011  
 Test By: Sky  
 Pol: Hor

Freq. (MHz)	SPA. Reading (dBUV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	31.31	H	-72.20	-9.87	1.30	-83.37	-13.00	-70.37
163.86	28.14	H	-70.71	-9.95	1.62	-82.28	-13.00	-69.28
241.46	30.44	H	-69.20	-10.02	1.94	-81.16	-13.00	-68.16
284.14	28.34	H	-69.81	-10.05	2.11	-81.98	-13.00	-68.98
500.45	31.87	H	-61.56	-9.86	2.80	-74.23	-13.00	-61.23
1850.00	67.84	H	-36.34	9.90	5.56	-32.00	-13.00	-19.00
3704.80	37.34	H	-60.68	12.61	8.31	-56.39	-13.00	-43.39
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1880MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	38.19	V	-64.62	-9.87	1.30	-75.79	-13.00	-62.79
199.75	29.56	V	-72.20	-9.98	1.71	-83.89	-13.00	-70.89
248.25	33.76	V	-66.20	-10.03	1.98	-78.20	-13.00	-65.20
284.14	30.45	V	-68.32	-10.05	2.11	-80.48	-13.00	-67.48
500.45	34.04	V	-60.09	-9.86	2.80	-72.75	-13.00	-59.75
3760.00	37.81	V	-59.85	12.60	8.39	-55.63	-13.00	-42.63
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1880MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	31.64	H	-70.57	-9.94	1.39	-81.90	-13.00	-68.90
199.75	29.05	H	-72.58	-9.98	1.71	-84.27	-13.00	-71.27
238.55	30.16	H	-69.62	-10.02	1.93	-81.56	-13.00	-68.56
293.84	28.49	H	-69.36	-10.06	2.15	-81.57	-13.00	-68.57
500.45	31.94	H	-61.49	-9.86	2.80	-74.16	-13.00	-61.16
3760.00	38.03	H	-59.74	12.60	8.39	-55.53	-13.00	-42.53
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1907.6 MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
93.05	37.50	V	-65.31	-9.87	1.30	-76.48	-13.00	-63.48
199.75	29.36	V	-72.40	-9.98	1.71	-84.09	-13.00	-71.09
243.40	33.90	V	-66.24	-10.02	1.95	-78.22	-13.00	-65.22
284.14	31.29	V	-67.48	-10.05	2.11	-79.64	-13.00	-66.64
495.60	34.49	V	-59.63	-9.86	2.79	-72.28	-13.00	-59.28
1910.00	68.69	V	-35.64	10.08	5.66	-31.22	-13.00	-18.22
3815.20	38.51	V	-58.90	12.60	8.46	-54.76	-13.00	-41.76
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 1907.6MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBUV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	32.08	H	-70.13	-9.94	1.39	-81.46	-13.00	-68.46
163.86	28.94	H	-69.91	-9.95	1.62	-81.48	-13.00	-68.48
219.15	30.27	H	-70.45	-10.00	1.82	-82.27	-13.00	-69.27
291.90	28.28	H	-69.63	-10.06	2.14	-81.83	-13.00	-68.83
500.45	31.72	H	-61.71	-9.86	2.80	-74.38	-13.00	-61.38
1910.00	70.24	H	-33.87	10.08	5.66	-29.45	-13.00	-16.45
3815.20	37.60	H	-59.93	12.60	8.46	-55.79	-13.00	-42.79
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Low Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 826.40 MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	32.62	V	-68.60	-9.94	1.39	-79.93	-13.00	-66.93
156.10	29.11	V	-68.73	-9.94	1.60	-80.28	-13.00	-67.28
241.46	31.40	V	-68.81	-10.02	1.94	-80.78	-13.00	-67.78
301.60	30.20	V	-68.03	-10.05	2.18	-80.26	-13.00	-67.26
500.45	34.23	V	-59.90	-9.86	2.80	-72.56	-13.00	-59.56
825.00	66.73	V	-19.65	-10.02	3.63	-33.29	-13.00	-20.29
1652.80	30.88	V	-73.70	9.30	5.23	-69.63	-13.00	-56.63
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Low Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 826.40MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	30.35	H	-71.86	-9.94	1.39	-83.19	-13.00	-70.19
163.86	29.18	H	-69.67	-9.95	1.62	-81.24	-13.00	-68.24
248.25	29.18	H	-70.13	-10.03	1.98	-82.13	-13.00	-69.13
299.66	28.02	H	-69.65	-10.06	2.17	-81.88	-13.00	-68.88
500.45	31.13	H	-62.30	-9.86	2.80	-74.97	-13.00	-61.97
825.00	70.17	H	-16.10	-10.02	3.63	-29.74	-13.00	-16.74
1652.80	30.48	H	-73.92	9.30	5.23	-69.85	-13.00	-56.85
2479.20	---	H		10.07	6.54		-13.00	
3305.60	---	H		12.19	7.73		-13.00	
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

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

Test Date: Mar. 29, 2011  
 Test By: Sky  
 Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	33.53	V	-67.69	-9.94	1.39	-79.02	-13.00	-66.02
180.35	26.98	V	-73.04	-9.96	1.66	-84.66	-13.00	-71.66
238.55	32.39	V	-67.93	-10.02	1.93	-79.88	-13.00	-66.88
303.54	30.27	V	-67.94	-10.04	2.18	-80.16	-13.00	-67.16
500.45	35.40	V	-58.73	-9.86	2.80	-71.39	-13.00	-58.39
1672.00	31.02	V	-73.54	9.36	5.27	-69.45	-13.00	-56.45
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 836.60MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	30.01	H	-72.20	-9.94	1.39	-83.53	-13.00	-70.53
163.86	27.78	H	-71.07	-9.95	1.62	-82.64	-13.00	-69.64
245.34	30.03	H	-69.42	-10.03	1.96	-81.41	-13.00	-68.41
284.14	27.74	H	-70.41	-10.05	2.11	-82.58	-13.00	-69.58
495.60	31.39	H	-62.10	-9.86	2.79	-74.74	-13.00	-61.74
1672.00	30.97	H	-73.41	9.36	5.27	-69.31	-13.00	-56.31
2508.00	---	H		10.08	6.58		-13.00	
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 846.60 MHz	Test By:	Sky
Temperature	: 25	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
107.60	32.80	V	-68.42	-9.94	1.39	-79.75	-13.00	-66.75
199.75	26.26	V	-75.50	-9.98	1.71	-87.19	-13.00	-74.19
248.25	31.64	V	-68.32	-10.03	1.98	-80.32	-13.00	-67.32
296.75	29.94	V	-68.42	-10.06	2.16	-80.63	-13.00	-67.63
500.45	34.55	V	-59.58	-9.86	2.80	-72.24	-13.00	-59.24
850.00	63.98	V	-22.13	-10.02	3.68	-35.83	-13.00	-22.83
1693.20	30.65	V	-73.89	9.42	5.30	-69.77	-13.00	-56.77
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High Mode	Test Date:	Mar. 29, 2011
Fundamental Frequency	: 846.60 MHz	Test By:	Sky
Temperature	: 25	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dBd/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
158.04	25.57	H	-72.82	-9.95	1.61	-84.38	-13.00	-71.38
248.25	28.08	H	-71.23	-10.03	1.98	-83.23	-13.00	-70.23
287.05	28.40	H	-69.66	-10.05	2.12	-81.84	-13.00	-68.84
384.05	28.10	H	-68.58	-9.79	2.46	-80.83	-13.00	-67.83
500.45	30.82	H	-62.61	-9.86	2.80	-75.28	-13.00	-62.28
850.00	66.51	H	-19.68	-10.02	3.68	-33.38	-13.00	-20.38
1693.20	30.59	H	-73.76	9.42	5.30	-69.64	-13.00	-56.64
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dBd/dBi) - Cable \text{ loss} (dB)$

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

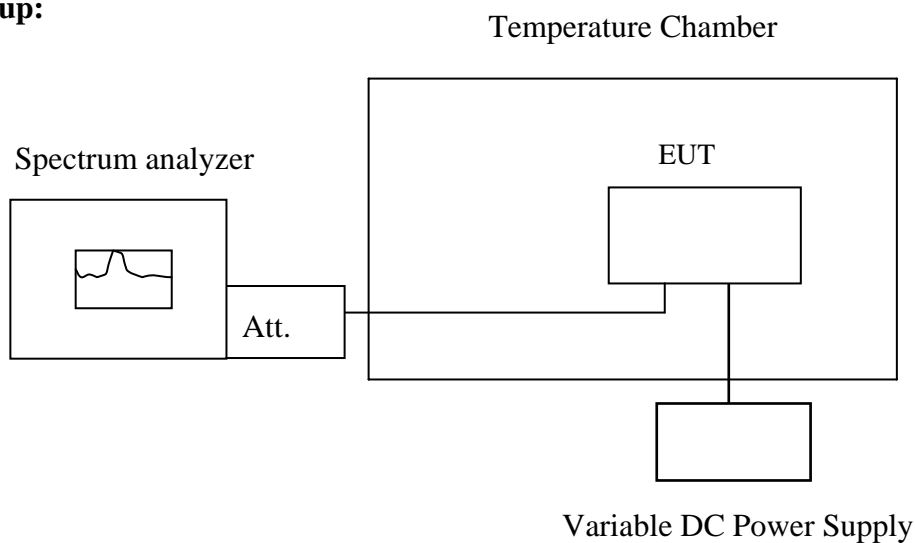
### 10.1. Standard Applicable:

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

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**10.5. Measurement Result:**

Reference Frequency: GPRS 850 Mid Channel 836.6 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5	-30	836.600018	-12.00	2091
5	-20	836.600025	-19.00	2091
5	-10	836.600011	-5.00	2091
5	0	836.600005	1.00	2091
5	10	836.600017	-11.00	2091
5	20	836.600006	0.00	2091
5	30	836.600015	-9.00	2091
5	40	836.600001	5.00	2091
5	50	836.600005	1.00	2091

Reference Frequency: GPRS 1900 Mid Channel 1880 MHz @ 25°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5	-30	1880.000014	-1.00	4700
5	-20	1880.000026	-13.00	4700
5	-10	1880.000042	-29.00	4700
5	0	1880.000006	7.00	4700
5	10	1880.000004	9.00	4700
5	20	1880.000013	0.00	4700
5	30	1880.000005	8.00	4700
5	40	1880.000012	1.00	4700
5	50	1880.000011	2.00	4700

**Note: The battery is rated 5V dc.**

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Reference Frequency: WCDMA II Mid Channel 1880 MHz				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5	-30	1879.999990	19.00	4700
5	-20	1879.999987	22.00	4700
5	-10	1879.999990	19.00	4700
5	0	1879.999997	12.00	4700
5	10	1880.000001	8.00	4700
5	20	1880.000009	0.00	4700
5	30	1880.000005	4.00	4700
5	40	1880.000000	9.00	4700
5	50	1879.999996	13.00	4700

Reference Frequency: WCDMA V Mid Channel 836.6 MHz				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5	-30	836.599999	-5.00	2091
5	-20	836.599996	-2.00	2091
5	-10	836.599996	-2.00	2091
5	0	836.599999	-5.00	2091
5	10	836.599996	-2.00	2091
5	20	836.599994	0.00	2091
5	30	836.599995	-1.00	2091
5	40	836.599988	6.00	2091
5	50	836.599995	-1.00	2091

**Note: The battery is rated 5V dc.**

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

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

### 11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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**11.5. Measurement Result:**

Reference Frequency: GPRS 850 Mid Channel 836.6 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5.5	25.00	836.600008	-2.00	2091.00
5.0	25.00	836.600006	0.00	2091.00
4.5	25.00	836.599998	8.00	2091.00
3.0 (End Point)	25.00	836.599978	28.00	2091.00

Reference Frequency: GPRS 1900 Mid Channel 1880 MHz @ 25°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5.5	25	1880.000009	4.00	4700
5.0	25	1880.000013	0.00	4700
4.5	25	1880.000004	9.00	4700
3.0 (End Point)	25	1879.999971	42.00	4700

Reference Frequency: WCDMA II Mid Channel 1880 (ARFCN9400) MHz				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5.5	25	1880.000005	4.00	4700
5.0	25	1880.000009	0.00	4700
4.5	25	1879.999998	11.00	4700
3.0 (Endpoint)	25	1879.999964	45.00	4700

**Note: The battery is rated 5V dc.**

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Reference Frequency: WCDMA V Mid Channel 836.6 (ARFCN9400) MHz				
Limit: +/- 2.5 ppm = 2901 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5.5	25	1880.000005	4.00	2091
5.0	25	1880.000009	0.00	2091
4.5	25	1879.999998	11.00	2091
3.0 (Endpoint)	25	1879.999969	40.00	2091

**Note: The battery is rated 5V dc.**

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