

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

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

OF

**Product Name:** 3.5G/HSPA WLAN Router

**Brand Name:** BandLuxe

**Model Name:** R250

**FCC ID:** UZI-R250

**Report No.:** EH/2009/60024

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

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

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

**Product Name:** 3.5G/HSPA WLAN Router

**Brand Name:** BandLuxe

**FCC ID:** UZI-R250

**Model No.:** R250

**Model Difference:** N/A

**File Number:** EH/2009/60024

**Date of Test:** Jun. 11, 2009 ~ Jun. 25, 2009

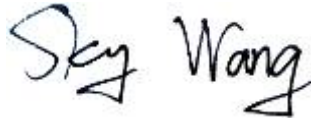
**Date of EUT Received:** Jun. 11, 2009

### We hereby certify that:

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

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

**Test By:**



**Date:**

Jun. 29, 2009

*Sky Wang / Asst. Supervisor*

**Prepared By:**



**Date:**

Jun. 29, 2009

*Alex Hsieh / Sr. Engineer*

**Approved By**



**Date:**

Jun. 29, 2009

*Jim Chang / Supervisor*

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## Version

Version No.	Date	Description
00	Jun. 29, 2009	Initial creation of document
01	Jul. 29, 2009	Revise test data of radiated test and ERP/EIRP

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# 1. GENERAL PRODUCT INFORMATION

## 1.1. Product Description

Product Name:	3.5G/HSPA WLAN Router	
Brand Name:	BandLuxe	
Model Name:	R250	
Model Difference:	N/A	
Power Supply:	12Vdc by AC/DC power adapter	
	Adapter:	Model: DSA-12G-12 FUS 120120, Supplier: DVE

### GSM/WCDMA/HSUPA/HSDPA:

	Operating Frequency		Rated Power
Cellular Phone Standards Frequency Range and Power:	E-GSM/GPRS, 850, Class 12	824.2 MHz– 848.8 MHz	33 dBm
	E-GSM/GPRS, 900, Class 12	880.2MHz – 914.8MHz	33 dBm
	E-GSM/GPRS, 1800, Class 12	1710.2MHz-1784.8MHz	30 dBm
	E-GSM/GPRS, 1900, Class 12	1850.2MHz -1909.8MHz	30 dBm
	WCDMA/HSUPA/HSDPA Band II	1850MHz – 1910MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band V	880MHz – 915MHz	24 dBm
Type of Emission:	GPRS 850: 245KGXW GPRS 1900 :247KGXW EDGE 850: 248KG7W EDGE 1900:246KG7W WCDMA Band II: 4M17F9W WCDMA Band V:4M16F9W		
Hardware Version:	V00		
Software Version:	N/A		
IMEI:	357112020038248		

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WLAN: 802.11 b/g & 802.11n (20M)

Frequency Range:	2412 – 2462 MHz
Channel number:	11 channels
Transmit Power:	<input checked="" type="checkbox"/> 802.11 b: 15.28 dBm <input checked="" type="checkbox"/> 802.11 g: 14.38 dBm <input checked="" type="checkbox"/> 802.11n (20M): 14.28 dBm
Modulation Technology:	<input checked="" type="checkbox"/> DSSS, <input checked="" type="checkbox"/> OFDM
Modulation type:	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM
Transition Rate:	802.11 b: 1/2/5.5/11 Mbps; 802.11 g: 6/9/12/18/24/36/48/54 Mbps 802.11n (20M): 6.5/13/19.5/26/39/52/58.5/65 Mbps
Antenna Designation:	PIFA Antenna, 2dBi.
Type of Emission:	802.11 b/g: 16M3D1D 802.11n (20M): 17M4D1D

802.11n (40M)

Frequency Range:	2422 – 2452 MHz
Channel number:	7 channels
Transmit Power:	<input checked="" type="checkbox"/> 802.11n (40M): 14.36 dBm
Modulation Technology:	<input type="checkbox"/> DSSS, <input checked="" type="checkbox"/> OFDM
Modulation type:	64QAM, 16QAM, QPSK, BPSK for OFDM
Transition Rate:	802.11n (40M): 6.5/13.5/27/40.5/54/81/108/121.5/135 Mbps
Antenna Designation:	PIFA Antenna, 2dBi.
Type of Emission:	35M7D1D

The EUT is compliance with IEEE 802.11 b/g/n Standard.

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

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

This submittal(s) (test report) is intended for FCC ID: **UZI-R250** filing to comply with Section Part 22 subpart H, Part 24 subpart E of the FCC CFR 47 Rules.

## 1.3. Test Methodology

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

## 1.4. Test Facility

The measurement facilities used to collect the 3m Radiated Emission and AC power line conducted data are located on the address of SGS Taiwan Ltd. Electronics & Communication Laboratory No. 134, Wu Kung Rd., Wuku Industrial Zone, Taipei Country, Taiwan which are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003. FCC Registration Number are: 990257 and 236194, Canada Registration Number: 4620A-1

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

## 1.5. Special Accessories

Not available for this EUT intended for grant.

## 1.6. Equipment Modifications

Not available for this EUT intended for grant.



## 2. SYSTEM TEST CONFIGURATION

### 2.1. EUT Configuration

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

### 2.2. EUT Exercise

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

### 2.3. Test Procedure

#### 2.3.1 AC Power Line Conducted Emissions

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

#### 2.3.2 Conducted Measurement at Antenna Port:

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

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

According to measurement procured TIA/EIA 603C, The EUT is a placed on as turn table which is 1 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13 of ANSI C63.4:2003.

**2.4. Measurement Equipment Used:**

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

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

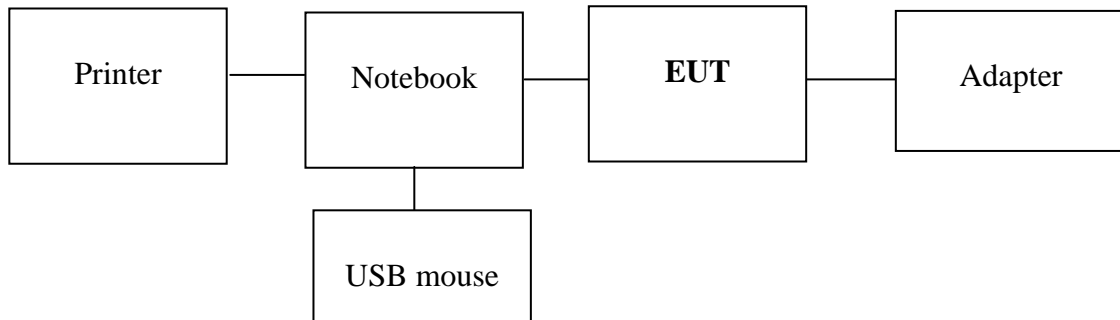
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966 Chamber					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	R&S	FSP 40	100034	02/22/2009	02/21/2010
Bi-log Antenna	SCHWAZBECK	VULB9160	9160-3136	11/15/2008	11/14/2009
Dipole Antenna	SCHWAZBECK	VHAP	908/909	07/10/2008	07/09/2010
Dipole Antenna	SCHWAZBECK	UHAP	891/892	07/10/2008	07/09/2010
Horn antenna	SCHWAZBECK	BBHA 9120D	309	05/09/2008	05/10/2010
Horn antenna	SCHWAZBECK	BBHA 9120D	9120D-320	03/14/2008	03/13/2009
Signal Generator	R&S	SMR40	100210	01/22/2008	01/21/2010
Signal Generator	Agilent	E4438C	MY45093613	05/22/2009	05/21/2010
Pre-Amplifier	Agilent	8447D	1937A02834	11/30/2008	11/29/2009
Pre-Amplifier	Agilent	8449B	3008A01973	01/05/2009	01/04/2010
Attenuator	Mini-Circuit	BW-S20W5	001	07/05/2008	07/04/2009
Attenuator	Mini-Circuit	BW-S10W5	001	07/05/2008	07/04/2009
Attenuator	Mini-Circuit	BW-S6W5	001	07/05/2008	07/04/2009
Radio Communication Analyzer	R&S	CMU200	102189	05/13/2008	05/13/2010
Turn Table	HD	DT420	N/A	N.C.R	N.C.R
Antenna Tower	HD	MA240-N	240/657	N.C.R	N.C.R
Controller	HD	HD100	N/A	N.C.R	N.C.R
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-10M	10m	01/05/2009	01/04/2010
Low Loss Cable	HUBER+SUHNER	SUCOFLEX 104PEA-3M	3m	01/05/2009	01/04/2010
3m Site	SGS	966 chamber	N/A	11/08/2008	11/09/2009

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## 2.5. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



### Support Equipment Used in Tested System

Item	Equipment	Mfr/Brand	Model/ Type No.	Series No.	Data Cable	Power Cord
1	Notebook PC	IBM	T43	L3LHHN6	Shielded	Un-shielded
2	Printer	HP	DJ640C	TH12QE110Y	Shielded	Un-shielded
3	USB Mouse	Microsoft	D66-00062	9949100339261	Shielded	N/A
4	Test software	RT3052QA	N/A	N/A	N/A	N/A
5	Test software	WinPcap_4_0	N/A	N/A	N/A	N/A

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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) §27.50(d)(2)	ERP/ EIRP measurement	Compliant
§2.1049(h)	99% Occupied Bandwidth	Compliant
§2.1051 §22.917(a) §24.238(a) §27.53(g)	Out of Band Emissions at Antenna Terminals and Band Edge	Compliant
§2.1053 §22.917(a) §24.238(a) §27.53(g)	Field Strength of Spurious Radiation	Compliant
§2.1055(a)(1) §22.355 §24.235 §27.54	Frequency Stability vs. Temperature	Compliant
§2.1055(d)(2) §22.355 §24.235 §27.54	Frequency Stability vs. Voltage	Compliant
§15.107;§15.207	AC Power Line Conducted Emission	Compliant

Max ERP/EIRP measurement result:

	dBm	dB	W
GPRS 850 Band	32.10	ERP	1.622
GPRS 1900 Band	27.23	EIRP	0.528
EDGE 850 Band	29.92	ERP	0.982
EDGE 1900 Band	23.88	EIRP	0.244
WCDMA Band II	24.50	EIRP	0.282
HSUPA Band II	24.30	EIRP	0.269
WCDMA Band V	24.13	EIRP	0.259
HSUPA Band V	24.20	EIRP	0.263

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#### 4. DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition.

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

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

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## 5. RF POWER OUTPUT MEASUREMENT

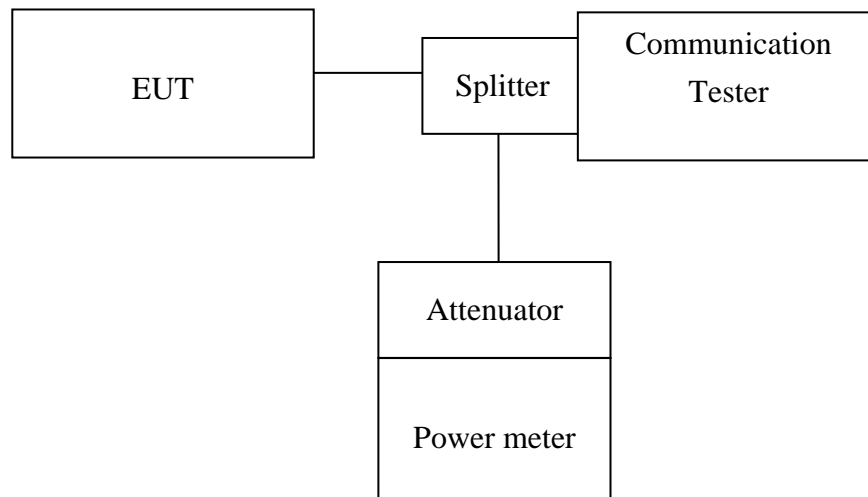
### 5.1. Standard Applicable:

According to FCC §2.1046.

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

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

### 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. was used for EUT and Base station setting.

### 5.4. Measurement Equipment Used:

Refer to section 2.4 in this report

**5.5. Measurement Result:**

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Peak Power (1DN 3UP) (dBm)	Peak Power (1DN 4UP) (dBm)
GPRS 850 (Class 12)	824.2	128	31.70	30.60	30.60	30.60
	836.6	190	31.80	30.70	30.70	30.70
	848.8	251	31.70	30.60	30.60	30.60

EUT Mode	Frequency (MHz)	CH	Avg. Power (1DN 1UP) (dBm)	Avg. Power (1DN 2UP) (dBm)	Avg. Power (1DN 3UP) (dBm)	Avg. Power (1DN 4UP) (dBm)
GPRS 850 (Class 12)	824.2	128	31.50	30.50	30.50	30.50
	836.6	190	31.60	30.50	30.60	30.60
	848.8	251	31.50	30.50	30.40	30.50

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Peak Power (1DN 3UP) (dBm)	Peak Power (1DN 4UP) (dBm)
EDGE 850 (Class 12)	824.2	128	29.90	29.90	29.80	29.80
	836.6	190	30.00	29.90	29.90	29.90
	848.8	251	29.90	29.90	29.80	29.80

EUT Mode	Frequency (MHz)	CH	Avg. Power (1DN 1UP) (dBm)	Avg. Power (1DN 2UP) (dBm)	Avg. Power (1DN 3UP) (dBm)	Avg. Power (1DN 4UP) (dBm)
EDGE 850 (Class 12)	824.2	128	26.70	26.60	26.60	26.60
	836.6	190	26.80	26.70	26.60	26.50
	848.8	251	26.70	26.60	26.60	26.60

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EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Peak Power (1DN 3UP) (dBm)	Peak Power (1DN 4UP) (dBm)
GPRS 1900 (Class 12)	1850.2	512	28.70	27.50	27.50	27.50
	1880	661	29.00	28.00	28.00	27.90
	1909.8	810	29.30	28.60	28.60	28.60

EUT Mode	Frequency (MHz)	CH	Avg. Power (1DN 1UP) (dBm)	Avg. Power (1DN 2UP) (dBm)	Avg. Power (1DN 3UP) (dBm)	Avg. Power (1DN 4UP) (dBm)
GPRS 1900 (Class 12)	1850.2	512	28.60	27.40	27.40	27.40
	1880.0	661	28.80	27.80	27.80	27.80
	1909.8	810	29.20	28.40	28.40	28.40

EUT Mode	Frequency (MHz)	CH	Peak Power (1DN 1UP) (dBm)	Peak Power (1DN 2UP) (dBm)	Peak Power (1DN 3UP) (dBm)	Peak Power (1DN 4UP) (dBm)
EDGE 1900 (Class 12)	1850.2	512	28.70	28.60	28.60	28.60
	1880	661	29.00	28.90	28.90	28.80
	1909.8	810	29.40	29.30	29.30	29.30

EUT Mode	Frequency (MHz)	CH	Avg. Power (1DN 1UP) (dBm)	Avg. Power (1DN 2UP) (dBm)	Avg. Power (1DN 3UP) (dBm)	Avg. Power (1DN 4UP) (dBm)
EDGE 1900 (Class 12)	1850.2	512	25.60	25.60	25.60	25.50
	1880.0	661	26.10	26.00	26.00	26.00
	1909.8	810	26.60	26.60	26.60	26.50

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EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg. Power (dBm)
WCDMA Band II	1852.4	9262	25.83	22.70
	1880.0	9400	25.75	22.83
	1907.6	9538	25.81	23.61

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg. Power (dBm)
HSUPA Band II	1852.4	9262	26.14	22.89
	1880.0	9400	26.25	23.09
	1907.6	9538	26.18	23.34

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg. Power (dBm)
WCDMA Band V	826.4	4132	26.15	22.65
	836.6	4183	26.13	22.64
	846.6	4233	26.01	22.62

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg. Power (dBm)
HSUPA Band V	826.4	4132	26.34	22.50
	836.6	4183	26.21	22.42
	846.6	4233	26.29	22.38

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## 6. ERP, EIRP MEASUREMENT

### 6.1. Standard Applicable:

According to FCC §2.1046

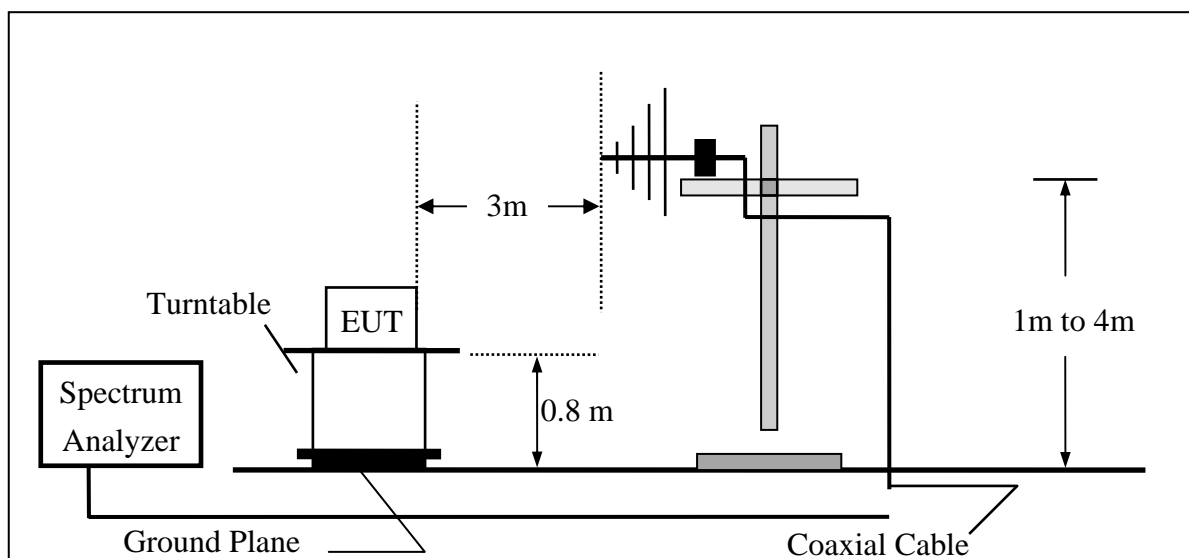
FCC 22.913(a) Mobile station are limited to 7W ERP.

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

FCC 27.50(d)(2) Fixed, mobile, and portable (hand-held) stations are limited to 1W EIRP.

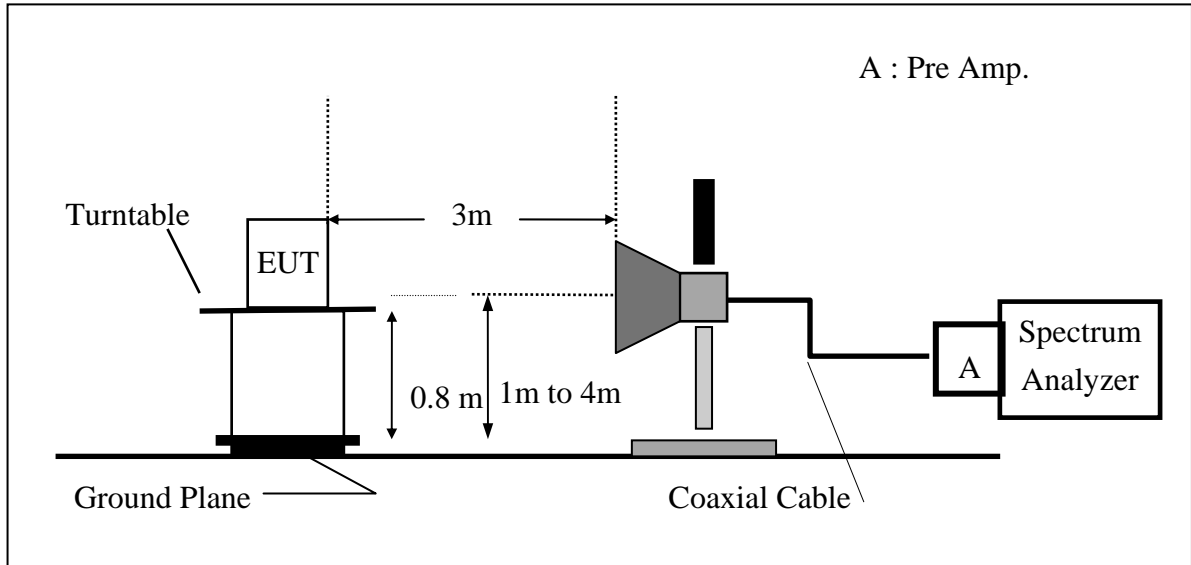
### 6.2. Test SET-UP (Block Diagram of Configuration):

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

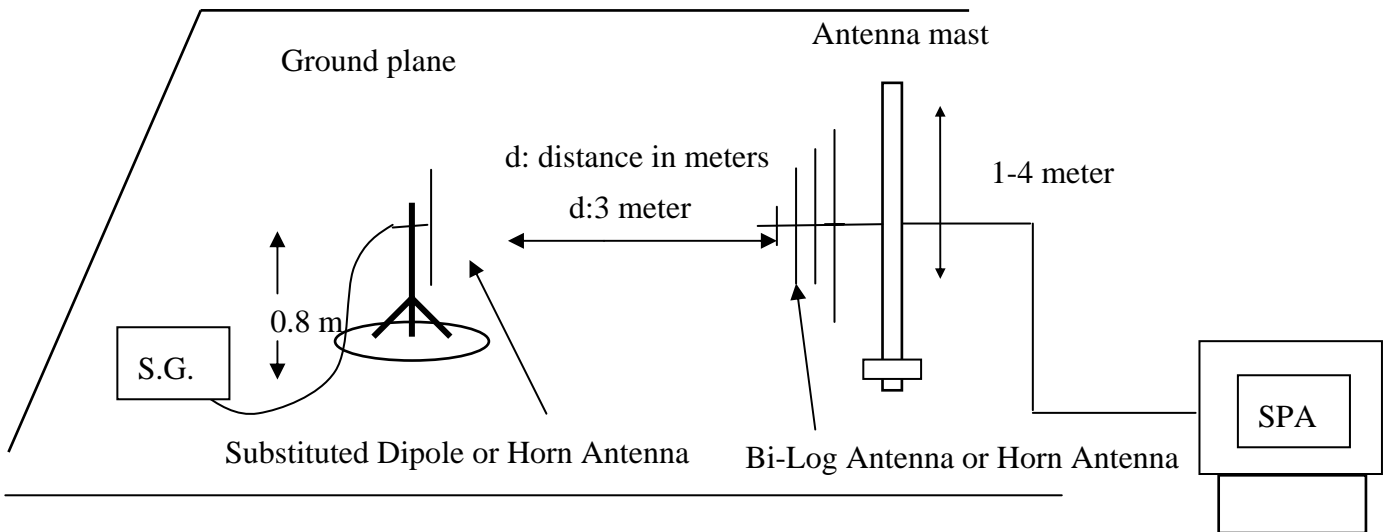


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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



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### 6.3. Measurement Procedure:

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

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

ERP in frequency band 824.2 –848.80MHz were measured using a substitution method. The EUT was replaced by dipole antenna connected, the S.G. output was recorded and ERP was calculated as follows:

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

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

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

### 6.4. Measurement Equipment Used:

Refer to section 2.4 in this report

6.5. 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)
GPRS 850	824.20	128	H	V	122.74	36.35	-7.87	3.62	24.85	38.45
				H	129.87	43.60	-7.87	3.62	<b>32.10</b>	38.45
			E1	V	129.79	43.40	-7.87	3.62	31.90	38.45
				H	128.41	42.14	-7.87	3.62	30.64	38.45
			E2	V	125.95	39.56	-7.87	3.62	28.06	38.45
				H	128.51	42.24	-7.87	3.62	30.74	38.45
	836.60	190	H	V	121.58	35.33	-7.88	3.65	23.80	38.45
				H	128.18	41.95	-7.88	3.65	30.42	38.45
			E1	V	128.95	42.70	-7.88	3.65	31.17	38.45
				H	128.27	42.04	-7.88	3.65	30.51	38.45
			E2	V	125.15	38.90	-7.88	3.65	27.37	38.45
				H	127.27	41.04	-7.88	3.65	29.51	38.45
	848.80	251	H	V	120.96	34.84	-7.88	3.68	23.28	38.45
				H	127.42	41.23	-7.88	3.68	29.67	38.45
			E1	V	127.18	41.06	-7.88	3.68	29.50	38.45
				H	127.76	41.57	-7.88	3.68	30.01	38.45
			E2	V	124.89	38.77	-7.88	3.68	27.21	38.45
				H	126.45	40.26	-7.88	3.68	28.70	38.45

Remark :

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

RBW=300 KHz, VBW=1MHz

**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)
GPRS 1900	1850.20	512	H	V	110.40	6.01	9.90	5.56	10.35	33.00
				H	124.64	20.46	9.90	5.56	24.80	33.00
			E1	V	115.40	11.01	9.90	5.56	15.35	33.00
				H	119.04	14.86	9.90	5.56	19.20	33.00
			E2	V	125.24	20.85	9.90	5.56	25.19	33.00
				H	119.16	14.98	9.90	5.84	19.04	33.00
	1880.00	661	H	V	111.31	6.95	9.99	5.61	11.33	33.00
				H	125.71	21.57	9.99	5.61	25.94	33.00
			E1	V	116.13	11.77	9.99	5.61	16.15	33.00
				H	121.89	17.75	9.99	5.61	22.12	33.00
			E2	V	124.95	20.59	9.99	5.61	24.97	33.00
				H	120.21	16.07	9.99	5.61	20.44	33.00
	1909.80	810	H	V	111.95	7.62	10.08	5.66	12.04	33.00
				H	126.92	22.81	10.08	5.66	<b>27.23</b>	33.00
			E1	V	117.14	12.81	10.08	5.66	17.23	33.00
				H	122.11	18.00	10.08	5.66	22.42	33.00
			E2	V	125.89	21.56	10.08	5.66	25.98	33.00
				H	121.28	17.17	10.08	5.66	21.59	33.00

**Remark :**

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

**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)
EDGE 850	824.20	128	H	V	122.08	35.69	-7.87	3.62	24.19	38.45
				H	127.69	41.42	-7.87	3.62	<b>29.92</b>	38.45
			E1	V	127.05	40.66	-7.87	3.62	29.16	38.45
				H	124.29	38.02	-7.87	3.62	26.52	38.45
			E2	V	126.26	39.87	-7.87	3.62	28.37	38.45
				H	127.57	41.30	-7.87	3.62	29.80	38.45
	836.60	190	H	V	121.82	35.57	-7.88	3.65	24.04	38.45
				H	127.33	41.10	-7.88	3.65	29.57	38.45
			E1	V	125.99	39.74	-7.88	3.65	28.21	38.45
				H	122.16	35.93	-7.88	3.65	24.40	38.45
			E2	V	124.61	38.36	-7.88	3.65	26.83	38.45
				H	126.05	39.82	-7.88	3.65	28.29	38.45
	848.80	251	H	V	120.79	34.67	-7.88	3.68	23.11	38.45
				H	126.82	40.63	-7.88	3.68	29.07	38.45
			E1	V	125.30	39.18	-7.88	3.68	27.62	38.45
				H	123.12	36.93	-7.88	3.68	25.37	38.45
			E2	V	124.10	37.98	-7.88	3.68	26.42	38.45
				H	125.21	39.02	-7.88	3.68	27.46	38.45

**Remark :**

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

RBW=300 KHz, VBW=1MHz



**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)
EDGE 1900	1850.20	512	H	V	106.89	2.50	9.90	5.56	6.84	33.00
				H	121.94	17.76	9.90	5.56	22.10	33.00
			E1	V	113.90	9.51	9.90	5.56	13.85	33.00
				H	117.73	13.55	9.90	5.56	17.89	33.00
			E2	V	122.94	18.55	9.90	5.56	22.89	33.00
				H	117.70	13.52	9.90	5.84	17.58	33.00
	1880.00	661	H	V	108.74	4.38	9.99	5.61	8.76	33.00
				H	122.18	18.04	9.99	5.61	22.41	33.00
			E1	V	113.40	9.04	9.99	5.61	13.42	33.00
				H	117.97	13.83	9.99	5.61	18.20	33.00
			E2	V	123.38	19.02	9.99	5.61	23.40	33.00
				H	118.98	14.84	9.99	5.61	19.21	33.00
	1909.80	810	H	V	108.36	4.03	10.08	5.66	8.45	33.00
				H	123.57	19.46	10.08	5.66	<b>23.88</b>	33.00
			E1	V	113.84	9.51	10.08	5.66	13.93	33.00
				H	119.19	15.08	10.08	5.66	19.50	33.00
			E2	V	123.00	18.67	10.08	5.66	23.09	33.00
				H	119.03	14.92	10.08	5.66	19.34	33.00

**Remark :**

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

RBW=300 KHz, VBW=1MHz

**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	H	V	108.76	4.38	9.90	5.56	8.71	33.00
				H	123.68	19.50	9.90	5.56	23.84	33.00
			E1	V	118.13	13.75	9.90	5.56	18.08	33.00
				H	121.47	17.29	9.90	5.56	21.63	33.00
			E2	V	123.88	19.50	9.90	5.56	23.83	33.00
				H	118.25	14.07	9.90	5.84	18.13	33.00
	1880.00	9400	H	V	108.54	4.18	9.99	5.61	8.56	33.00
				H	122.77	18.63	9.99	5.61	23.00	33.00
			E1	V	116.95	12.56	9.90	5.56	16.90	33.00
				H	121.12	16.98	9.99	5.61	21.35	33.00
			E2	V	123.89	19.53	9.99	5.61	23.91	33.00
				H	118.72	14.58	9.99	5.61	18.95	33.00
	1907.60	9538	H	V	108.15	3.82	10.07	5.66	8.23	33.00
				H	122.68	18.57	10.07	5.66	22.98	33.00
			E1	V	116.77	12.44	10.07	5.66	16.85	33.00
				H	121.46	17.35	10.07	5.66	21.76	33.00
			E2	V	124.42	20.09	10.07	5.66	<b>24.50</b>	33.00
				H	119.99	15.88	10.07	5.66	20.29	33.00

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
RBW=5 MHz, 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)
WCDMA Band V	826.40	4132	H	V	114.29	27.93	-7.88	3.63	16.42	38.45
				H	120.46	34.20	-7.88	3.63	22.70	38.45
			E1	V	120.08	33.72	-7.88	3.63	22.21	38.45
				H	119.43	33.17	-7.88	3.63	21.67	38.45
			E2	V	117.01	30.65	-7.88	3.63	19.14	38.45
				H	119.75	33.49	-7.88	3.63	21.99	38.45
	836.60	4183	H	V	115.43	29.17	-7.88	3.65	17.64	38.45
				H	121.83	35.60	-7.88	3.65	24.07	38.45
			E1	V	121.92	35.66	-7.88	3.65	<b>24.13</b>	38.45
				H	121.26	35.03	-7.88	3.65	23.50	38.45
			E2	V	118.96	32.70	-7.88	3.65	21.17	38.45
				H	120.84	34.61	-7.88	3.65	23.08	38.45
	846.60	4233	H	V	115.14	28.99	-7.88	3.67	17.44	38.45
				H	121.73	35.53	-7.88	3.67	23.98	38.45
			E1	V	121.22	35.06	-7.88	3.67	23.51	38.45
				H	121.02	34.82	-7.88	3.67	23.27	38.45
			E2	V	118.92	32.77	-7.88	3.67	21.22	38.45
				H	120.48	34.28	-7.88	3.67	22.73	38.45

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
RBW=5 MHz, 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)	EIRP (dBm)	Limit (dBm)
HSUPA Band II	1852.40	9262	H	V	109.86	5.48	9.90	5.56	9.81	33.00
				H	124.14	19.96	9.90	5.56	<b>24.30</b>	33.00
			E1	V	116.31	11.93	9.90	5.56	16.26	33.00
				H	120.02	15.84	9.90	5.56	20.18	33.00
			E2	V	123.92	19.54	9.90	5.56	23.87	33.00
				H	118.28	14.10	9.90	5.84	18.16	33.00
	1880.00	9400	H	V	108.50	4.14	9.99	5.61	8.52	33.00
				H	122.77	18.63	9.99	5.61	23.00	33.00
			E1	V	115.94	11.55	9.90	5.56	15.89	33.00
				H	120.24	16.10	9.99	5.61	20.47	33.00
			E2	V	123.57	19.21	9.99	5.61	23.59	33.00
				H	118.50	14.36	9.99	5.61	18.73	33.00
	1907.60	9538	H	V	108.64	4.31	10.07	5.66	8.72	33.00
				H	123.33	19.22	10.07	5.66	23.63	33.00
			E1	V	114.99	10.66	10.07	5.66	15.07	33.00
				H	119.87	15.76	10.07	5.66	20.17	33.00
			E2	V	123.62	19.29	10.07	5.66	23.70	33.00
				H	119.15	15.04	10.07	5.66	19.45	33.00

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
RBW=5 MHz, 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	H	V	112.80	26.44	-7.88	3.63	14.93	38.45
				H	120.50	34.24	-7.88	3.63	22.74	38.45
			E1	V	119.36	33.00	-7.88	3.63	21.49	38.45
				H	116.67	30.41	-7.88	3.63	18.91	38.45
			E2	V	118.31	31.95	-7.88	3.63	20.44	38.45
				H	118.97	32.71	-7.88	3.63	21.21	38.45
	836.60	4183	H	V	113.25	26.99	-7.88	3.65	15.46	38.45
				H	121.96	35.73	-7.88	3.65	<b>24.20</b>	38.45
			E1	V	121.07	34.81	-7.88	3.65	23.28	38.45
				H	118.09	31.86	-7.88	3.65	20.33	38.45
			E2	V	119.91	33.65	-7.88	3.65	22.12	38.45
				H	119.75	33.52	-7.88	3.65	21.99	38.45
	846.60	4233	H	V	112.52	26.37	-7.88	3.67	14.82	38.45
				H	121.22	35.02	-7.88	3.67	23.47	38.45
			E1	V	120.38	34.22	-7.88	3.67	22.67	38.45
				H	117.32	31.12	-7.88	3.67	19.57	38.45
			E2	V	119.81	33.66	-7.88	3.67	22.11	38.45
				H	119.05	32.85	-7.88	3.67	21.30	38.45

**Remark :**

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

## 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

**7.5. Measurement Result:**

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
GPRS 850	824.20	128	0.2448
	836.60	190	0.2451
	848.80	251	0.2438

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
GPRS 1900	1850.20	512	0.2455
	1880.00	661	0.2457
	1909.80	810	0.2469

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EDGE 850	824.20	128	0.2465
	836.60	190	0.2450
	848.80	251	0.2478

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EDGE 1900	1850.20	512	0.2425
	1880.00	661	0.2455
	1909.80	810	0.2458

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EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA V	826.40	4132	4.1629
	836.60	4183	4.1632
	846.60	4233	4.1632

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA II	1852.40	9262	4.1690
	1880.00	9400	4.1558
	1907.60	9538	4.1511

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA V HSUPA	826.40	4132	4.1790
	836.60	4183	4.1637
	846.60	4233	4.1888

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA II HSUPA	1852.40	9262	4.1743
	1880.00	9400	4.1640
	1907.60	9538	4.1705

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Figure 7-1: GPRS 850 Channel Low

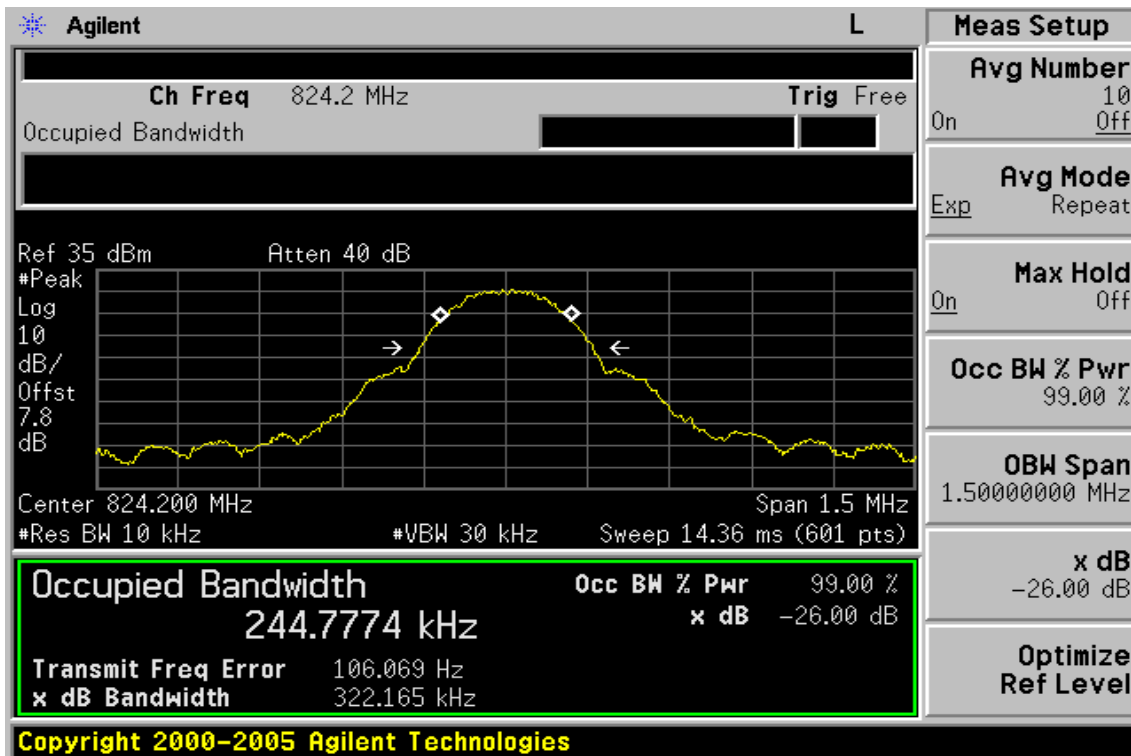
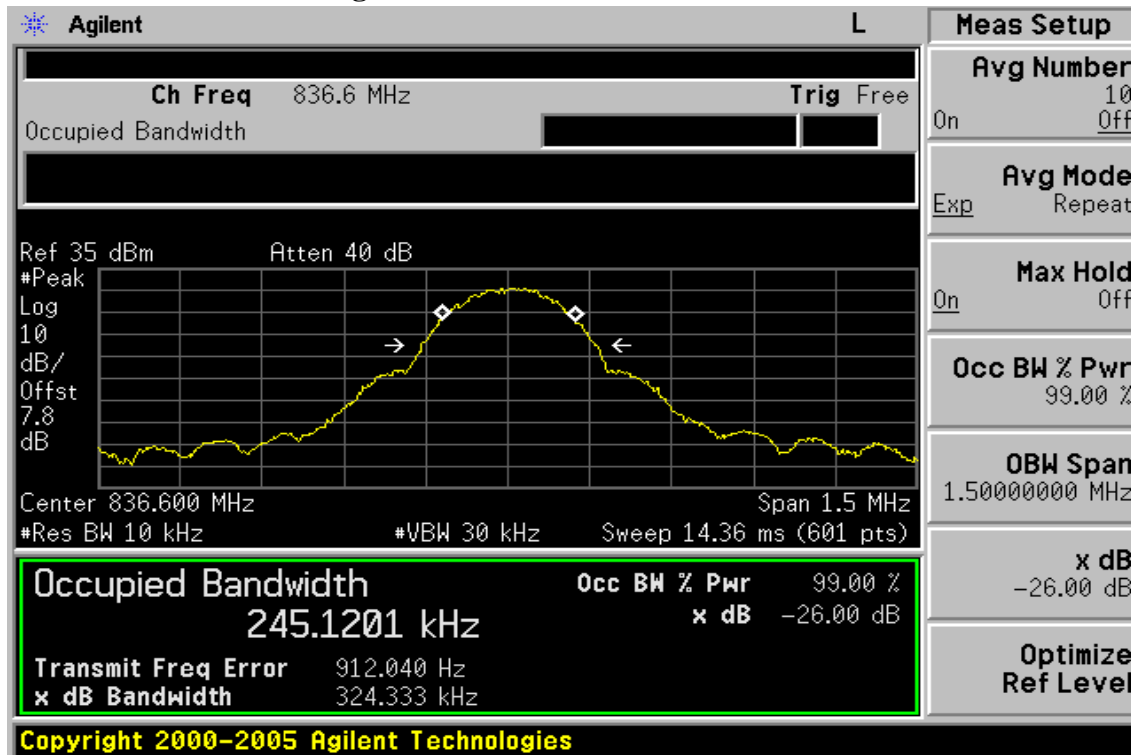


Figure 7-2 GPRS 850 Channel Mid



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Figure 7-3: GPRS 850 Channel High

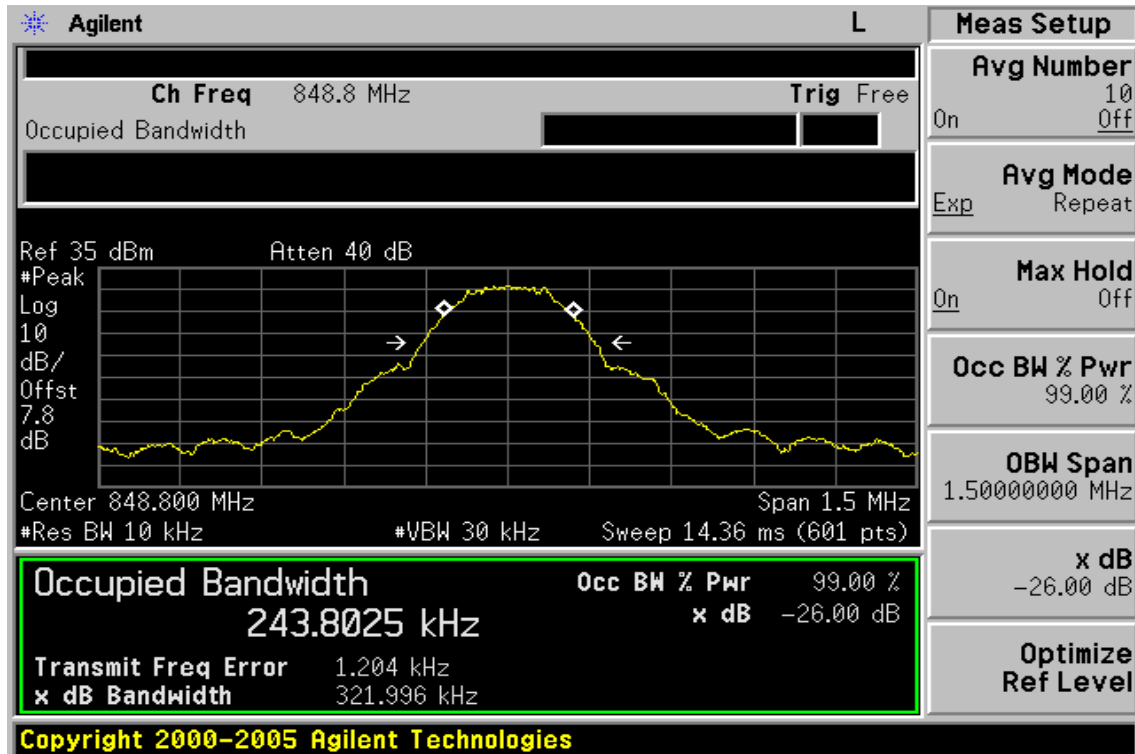
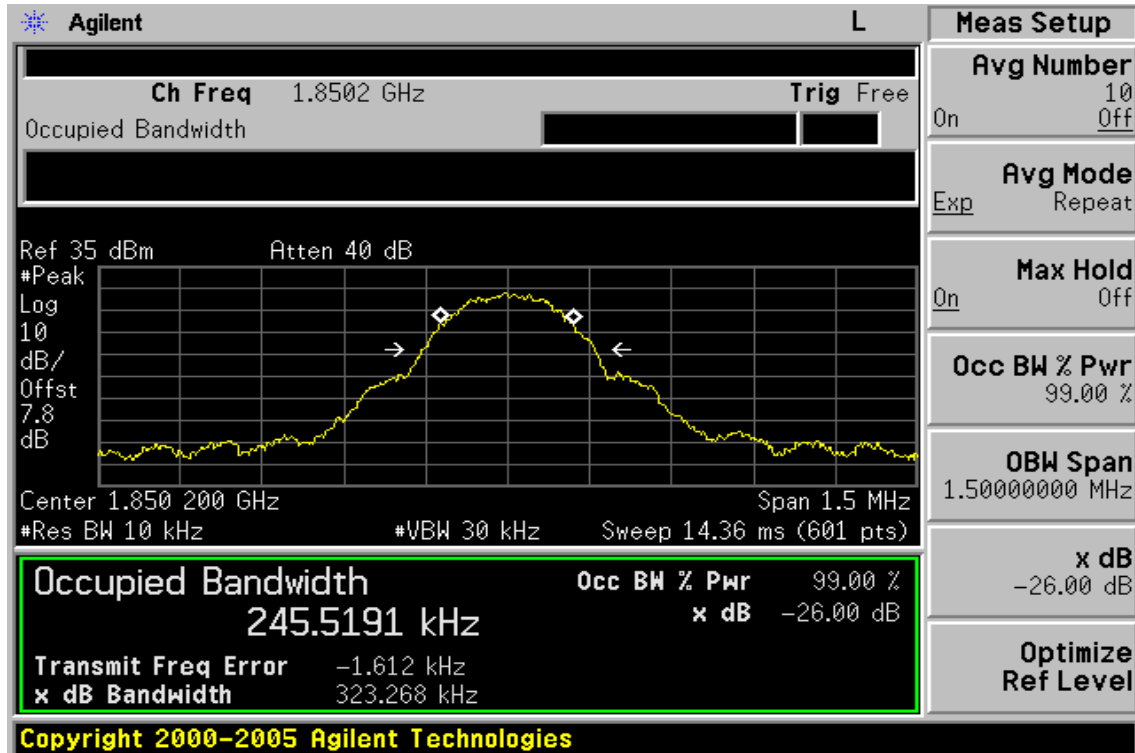


Figure 7-4: GPRS 1900 Channel Low



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Figure 7-5 GPRS 1900 Channel Mid

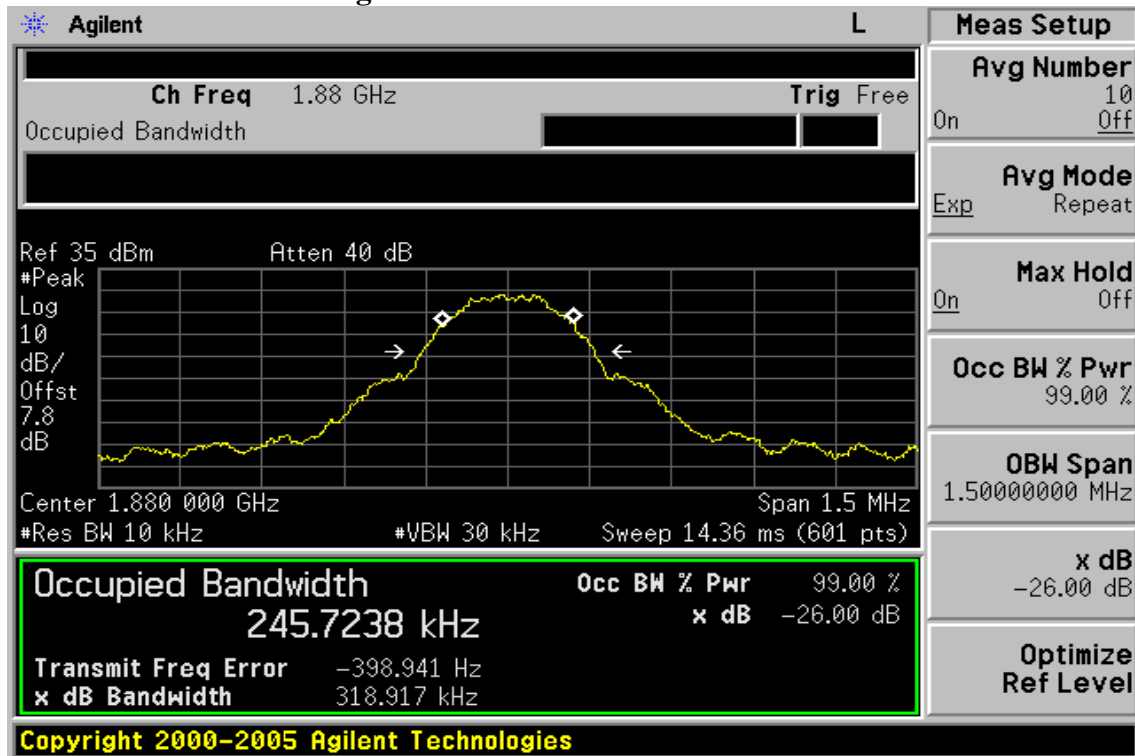
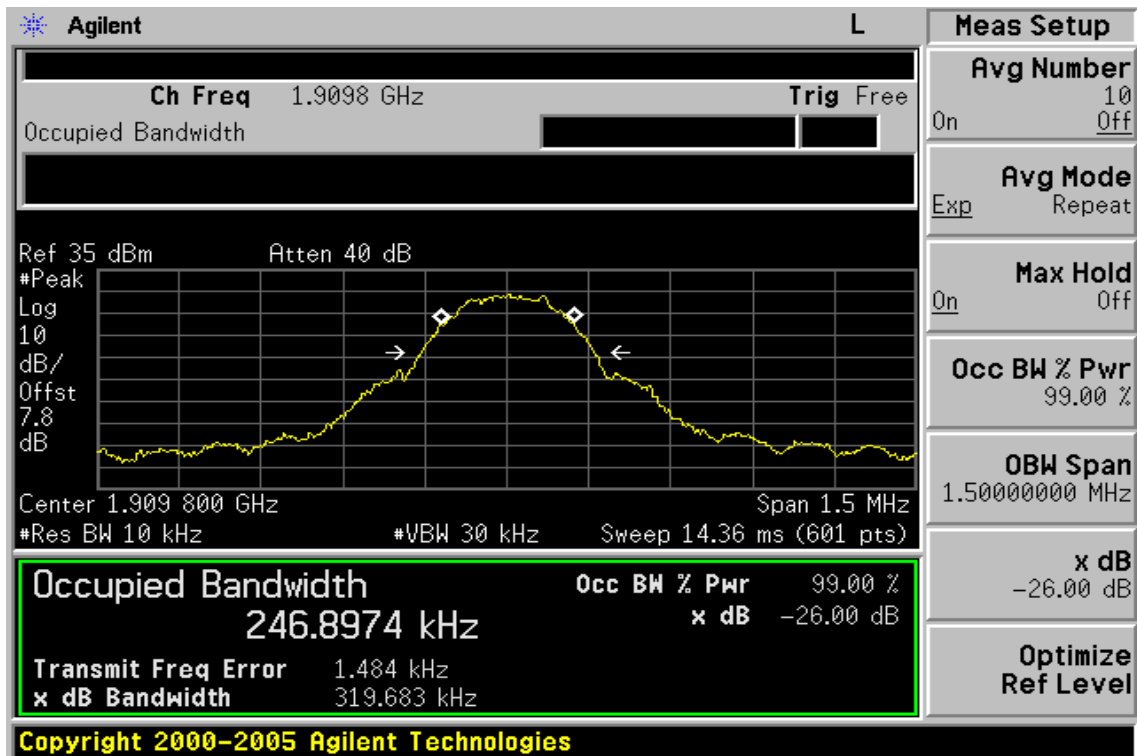


Figure 7-6: GPRS 1900 Channel High



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Figure 7-7: EDGE 850 Channel Low

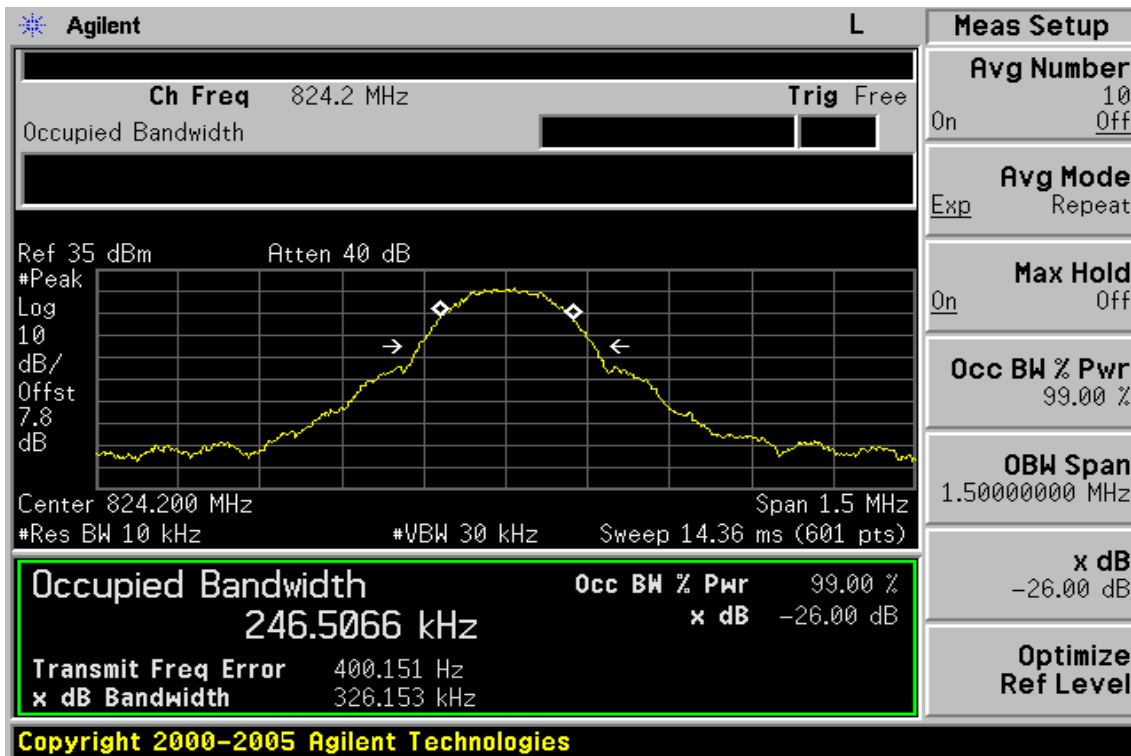
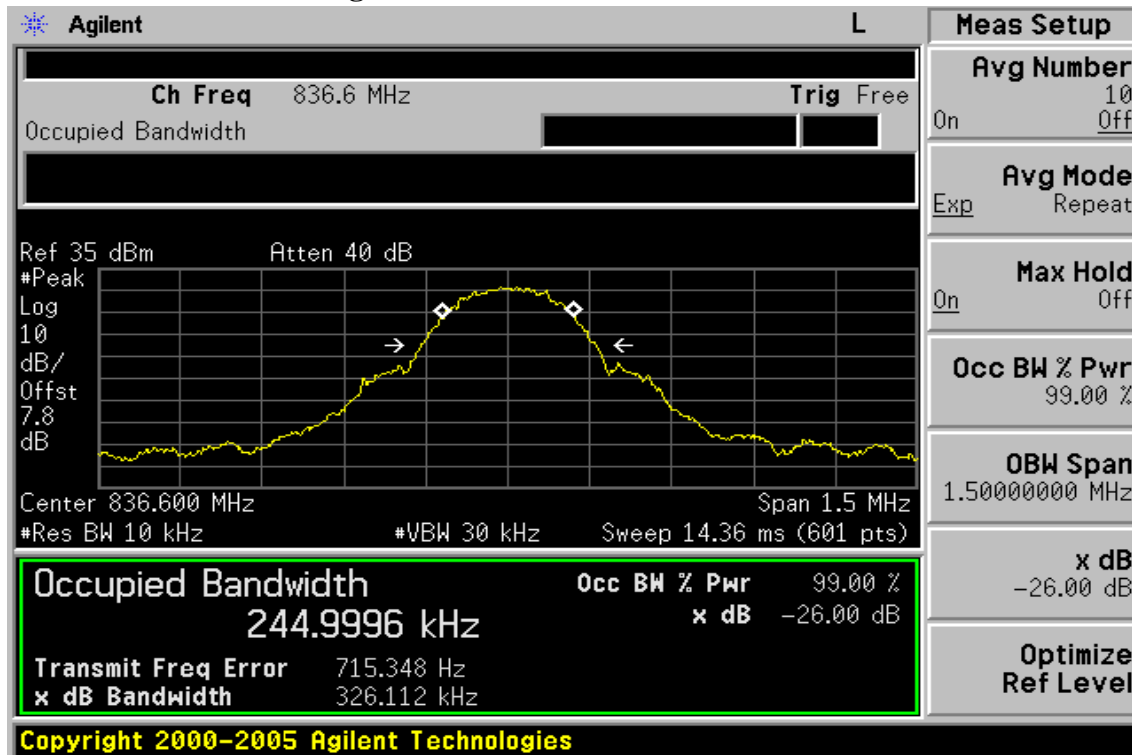


Figure 7-8 EDGE 850 Channel Mid



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Figure 7-9: EDGE 850 Channel High

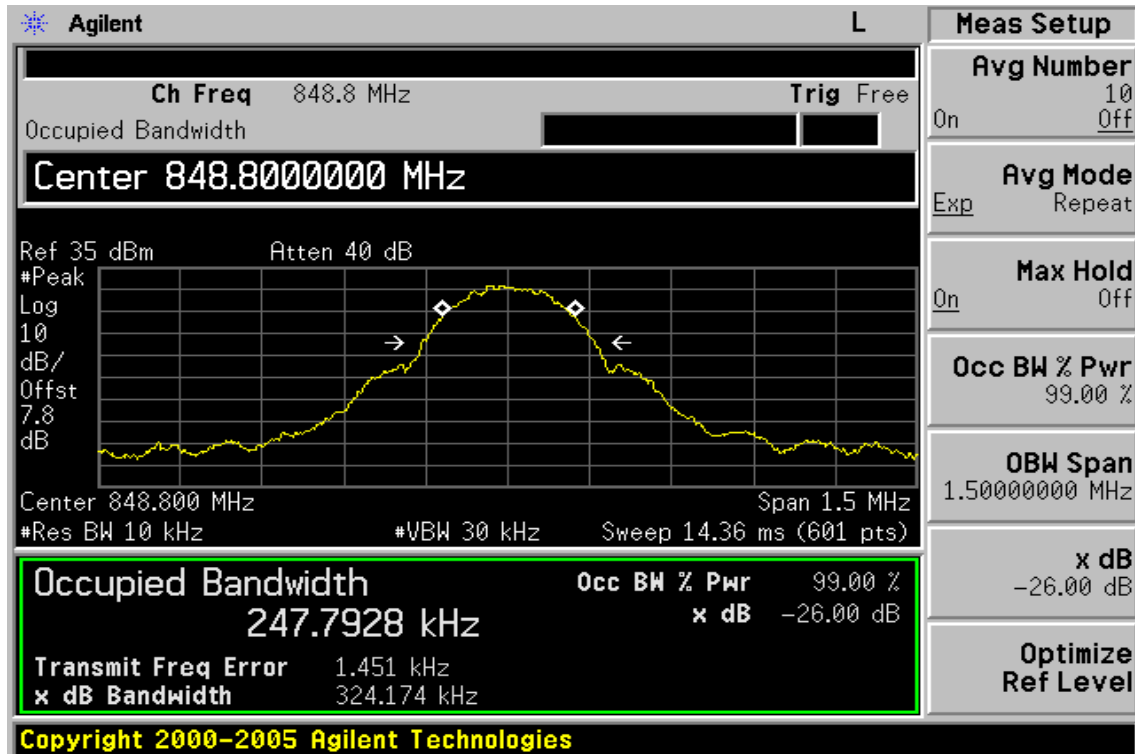
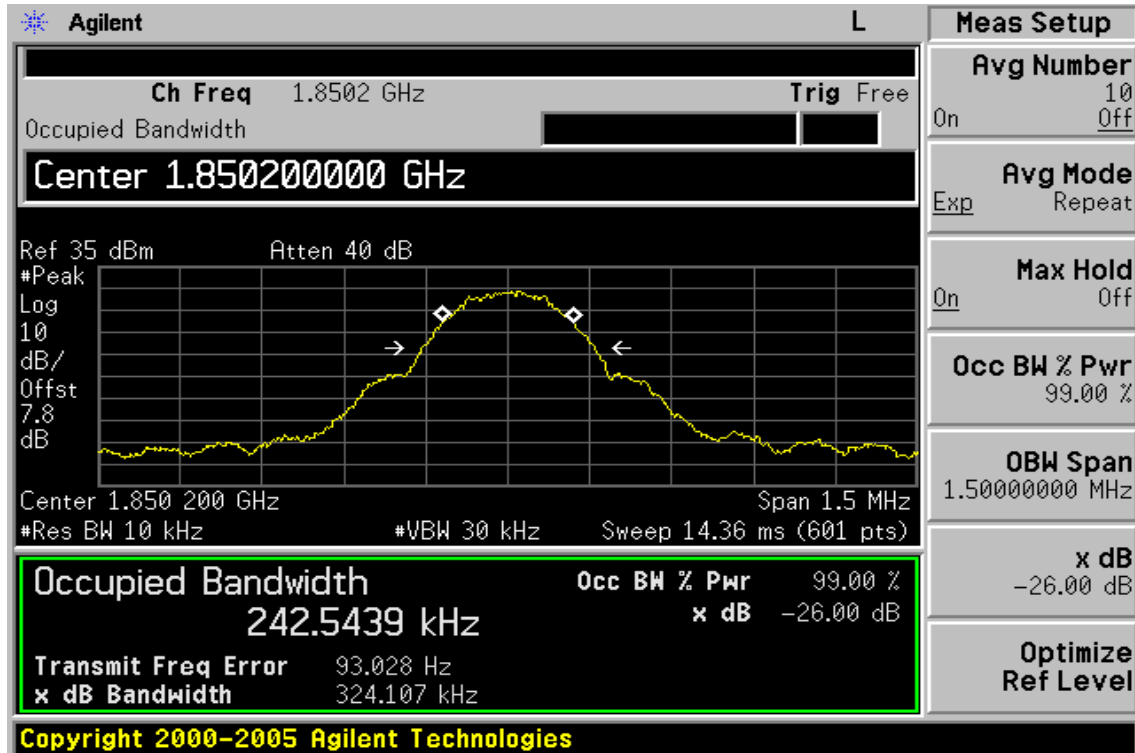


Figure 7-10: EDGE 1900 Channel Low



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Figure 7-11: EDGE 1900 Channel Mid

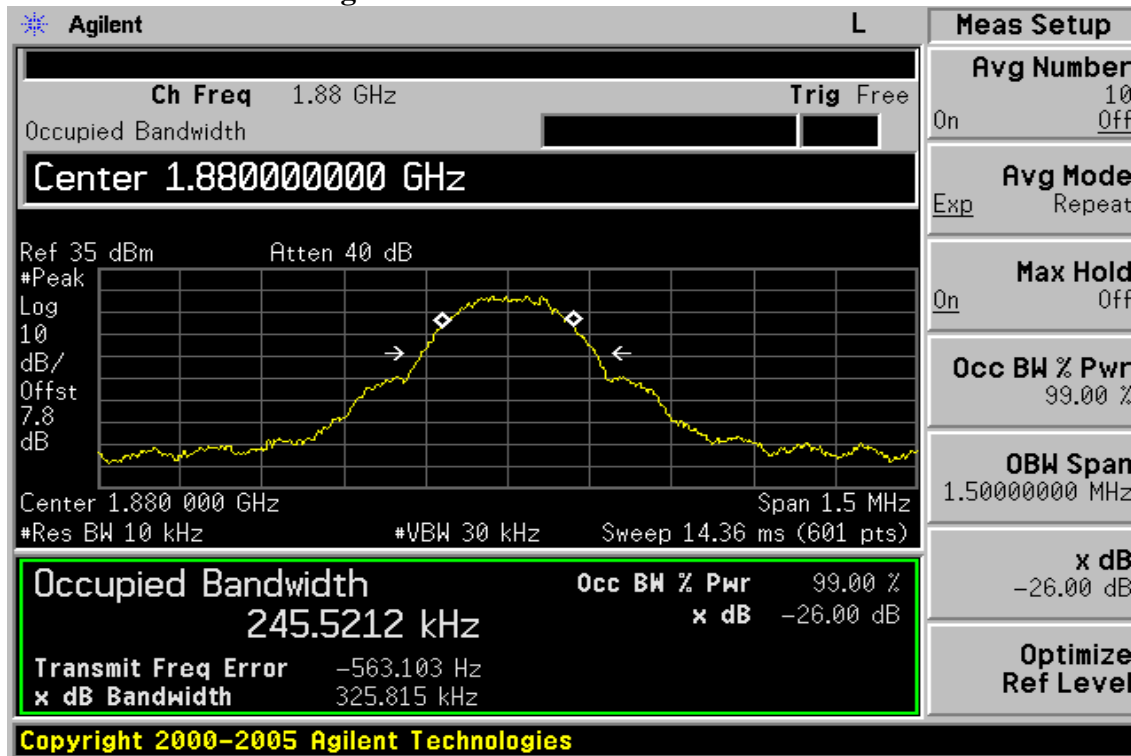
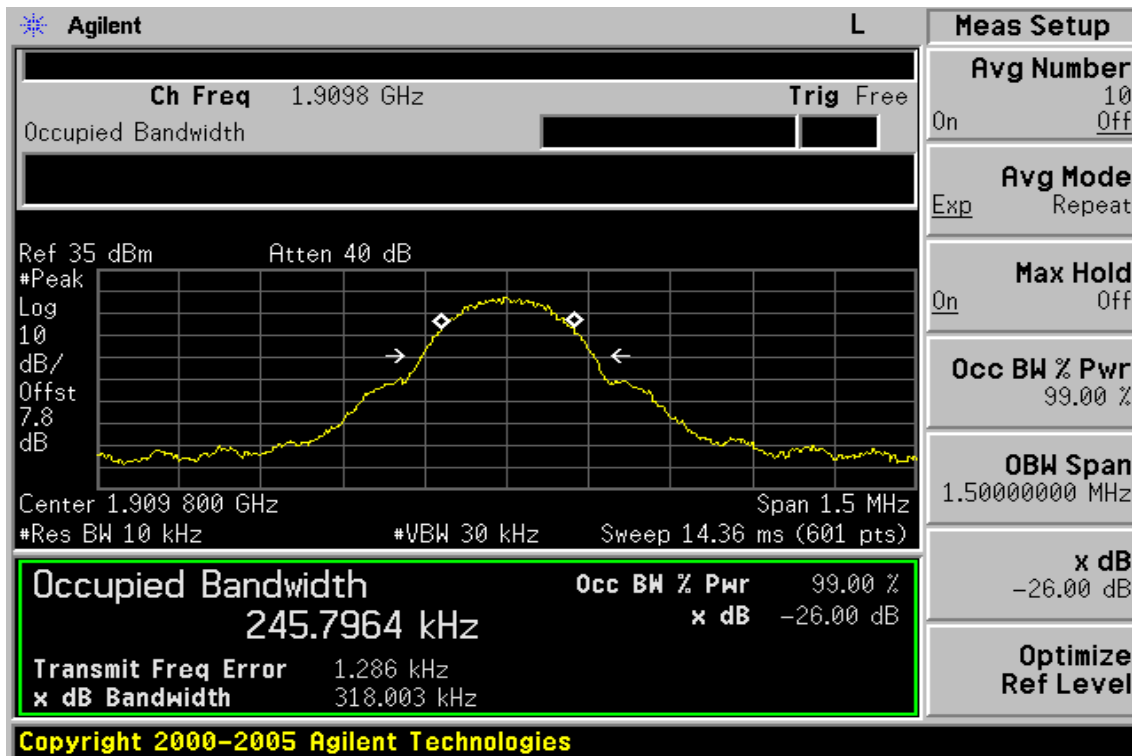


Figure 7-12: EDGE 1900 Channel High



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Figure 7-13: WCDMA II Channel Low

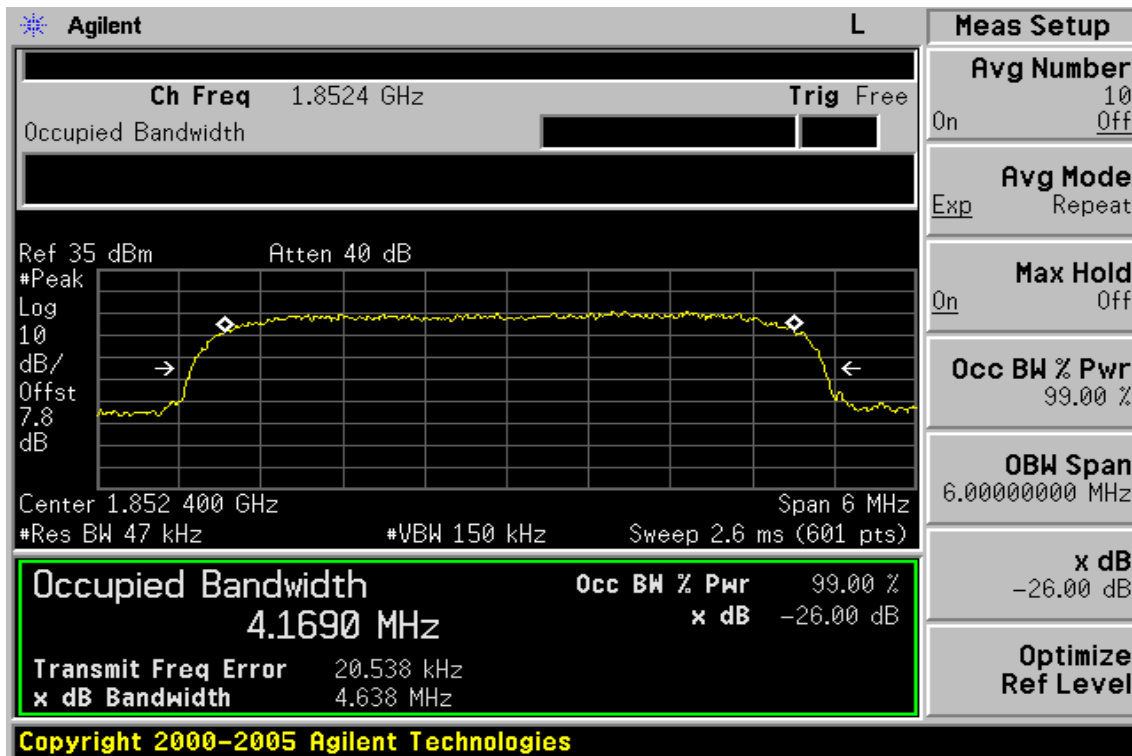
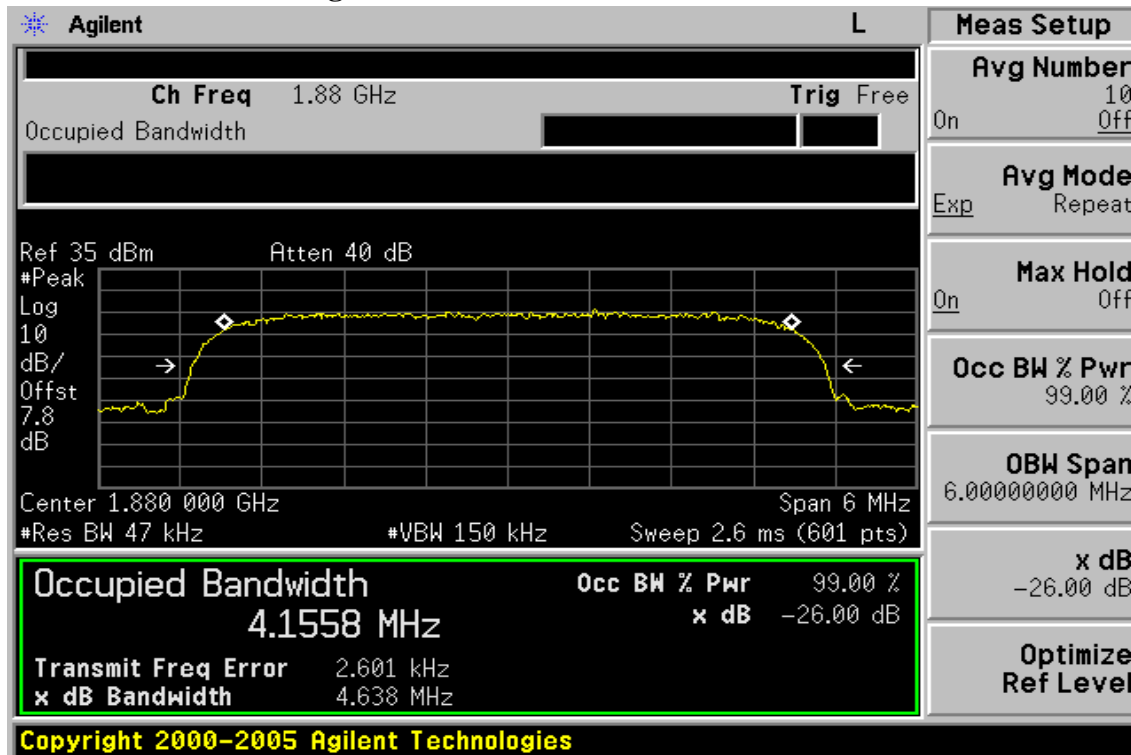


Figure 7-14: WCDMA II Channel Mid



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Figure 7-15: WCDMA II Channel High

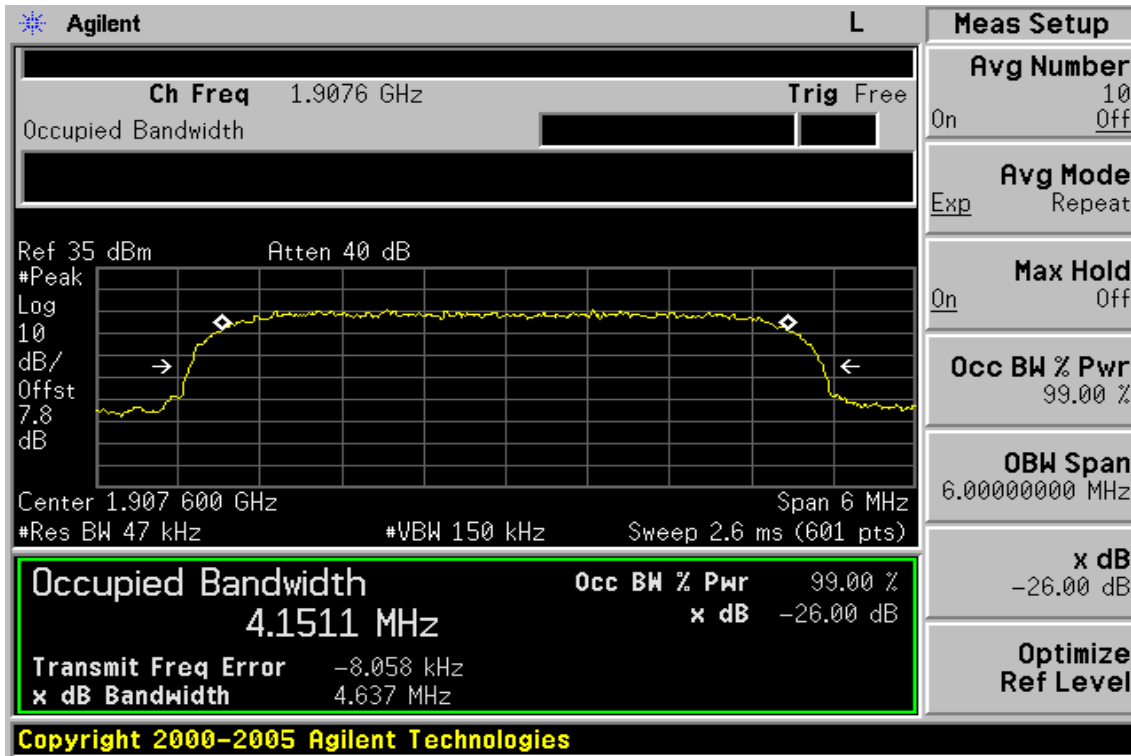
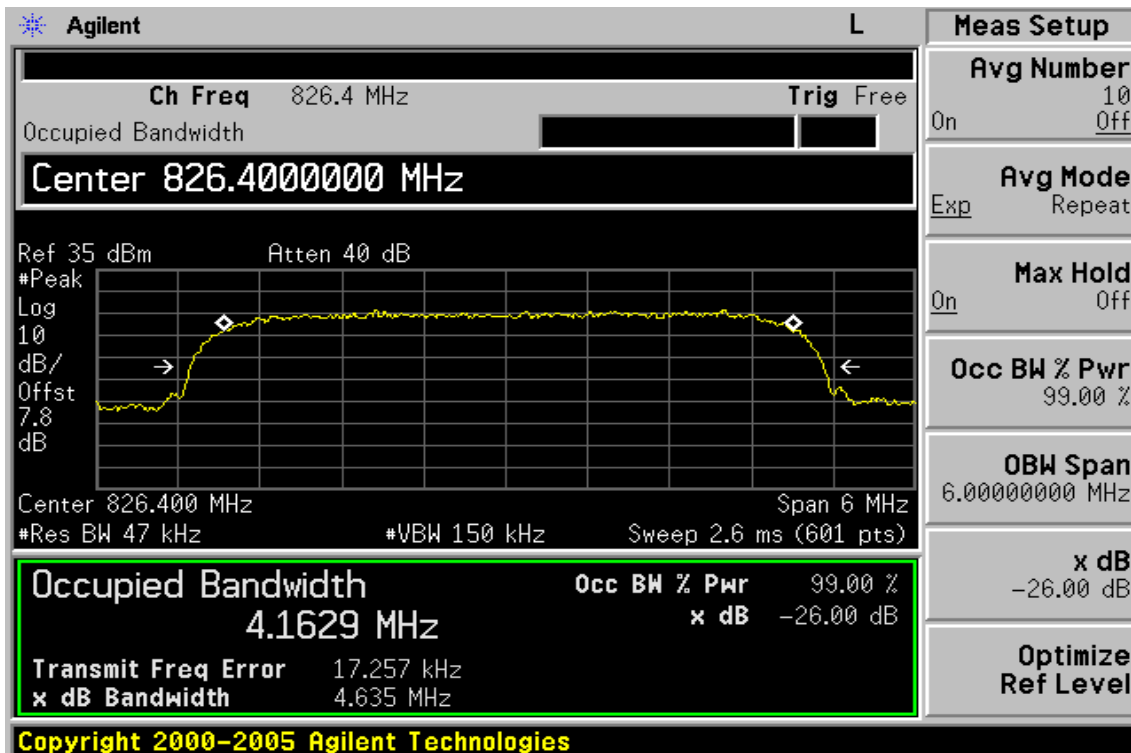


Figure 7-16: WCDMA V Channel Low



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Figure 7-17: WCDMA V Channel Mid

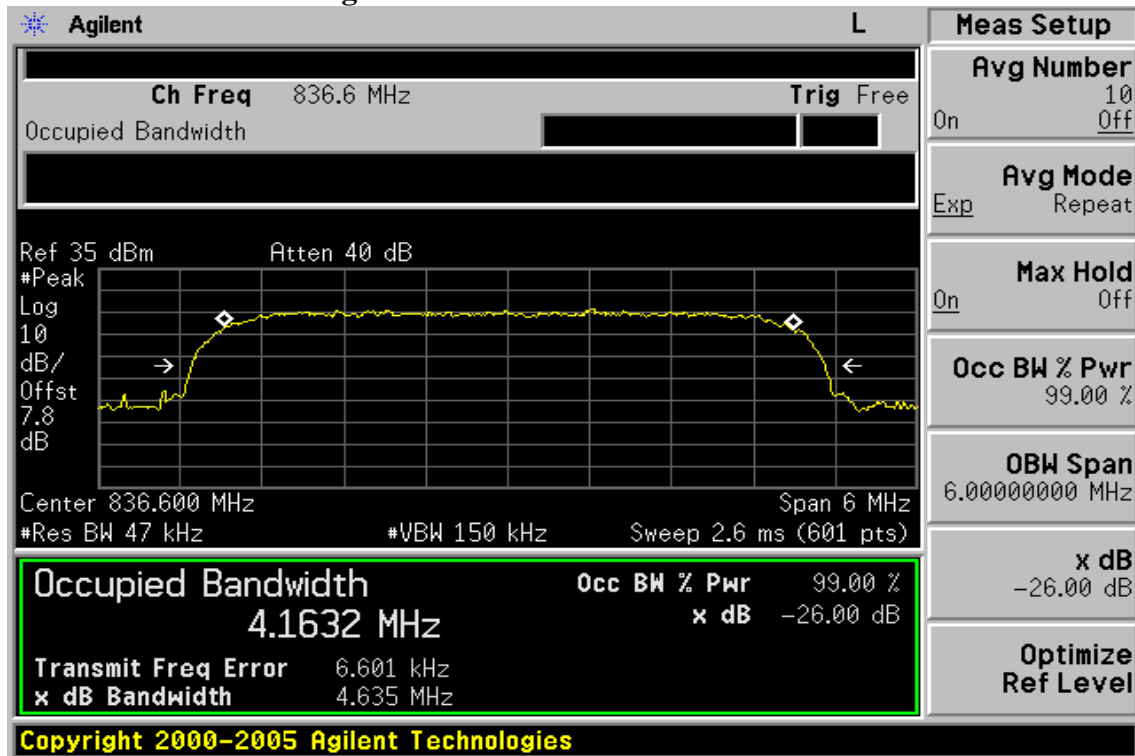
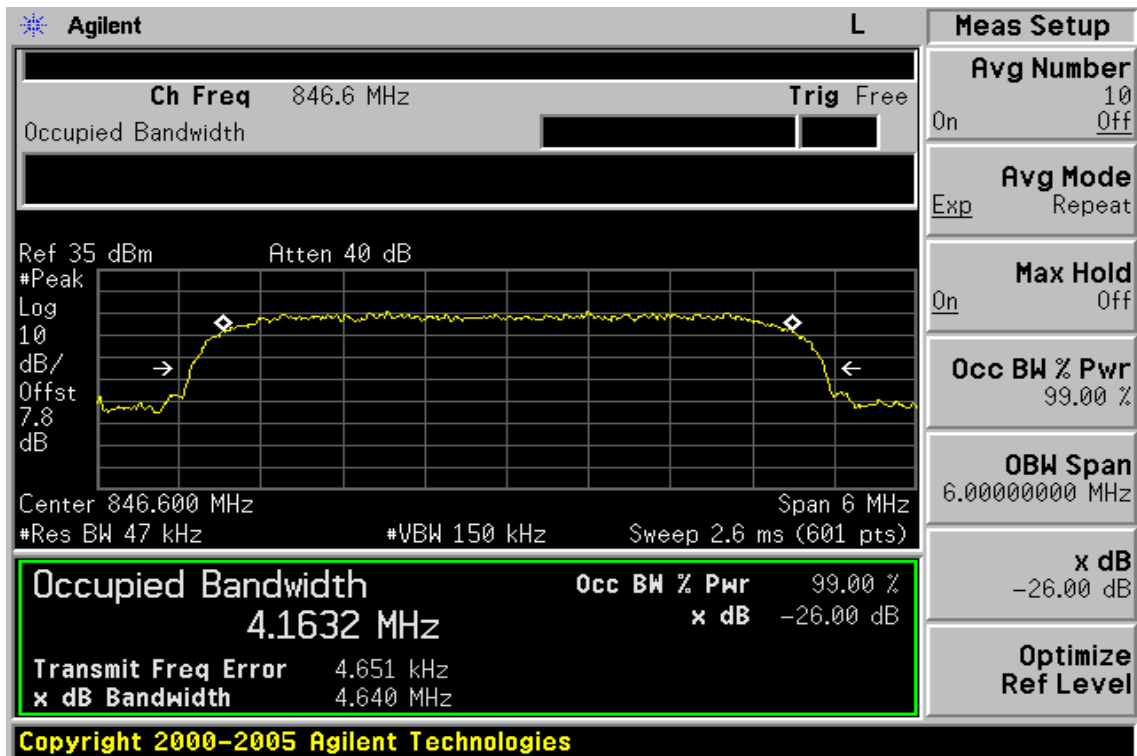


Figure 7-18: WCDMA V Channel High



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Figure 7-19: WCDMA II HSUPA Channel Low

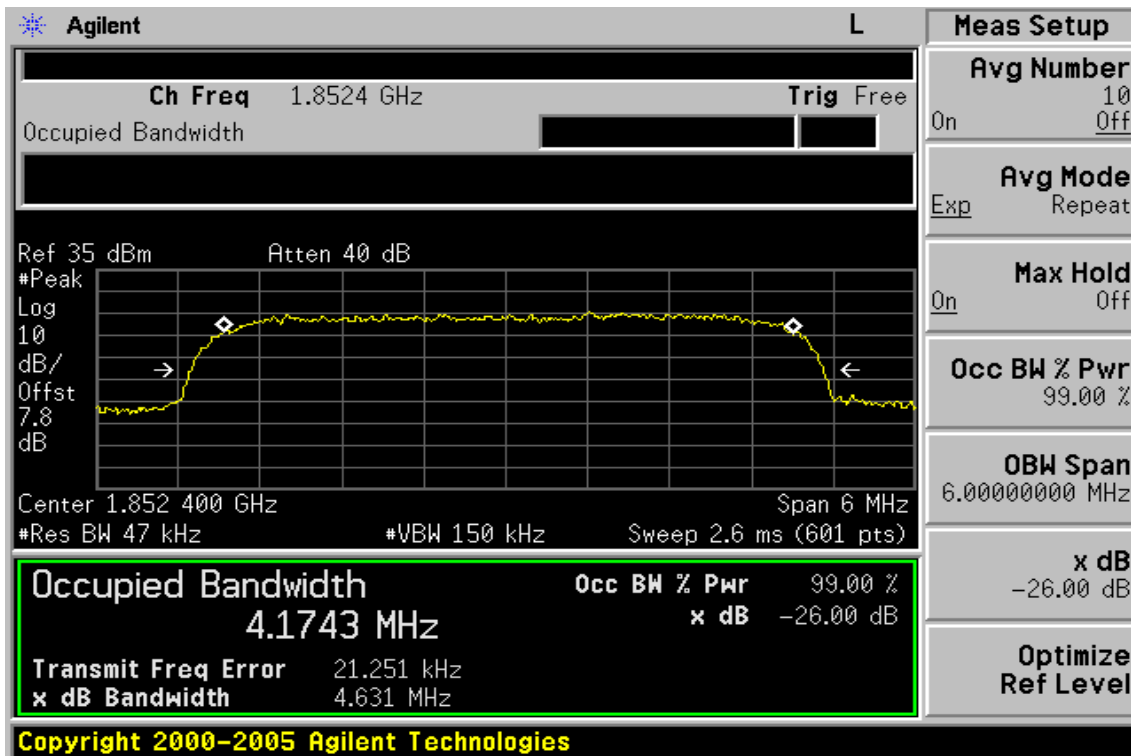
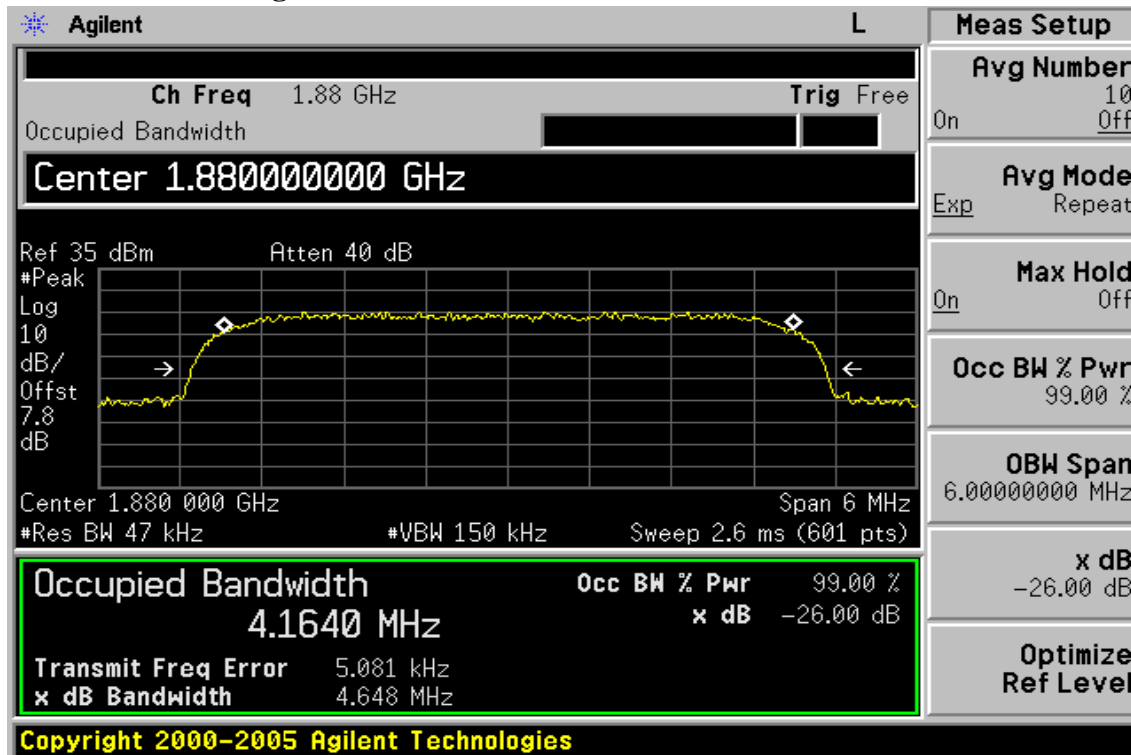


Figure 7-20: WCDMA II HSUPA Channel Mid



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Figure 7-21: WCDMA II HSUPA Channel High

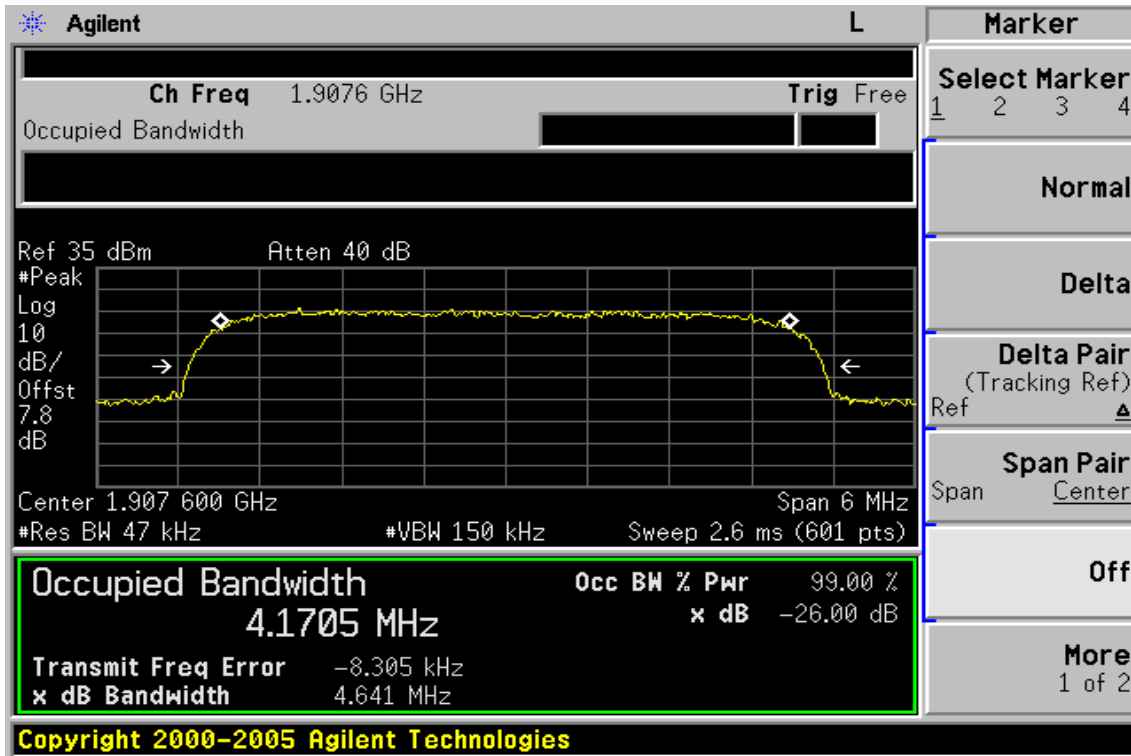
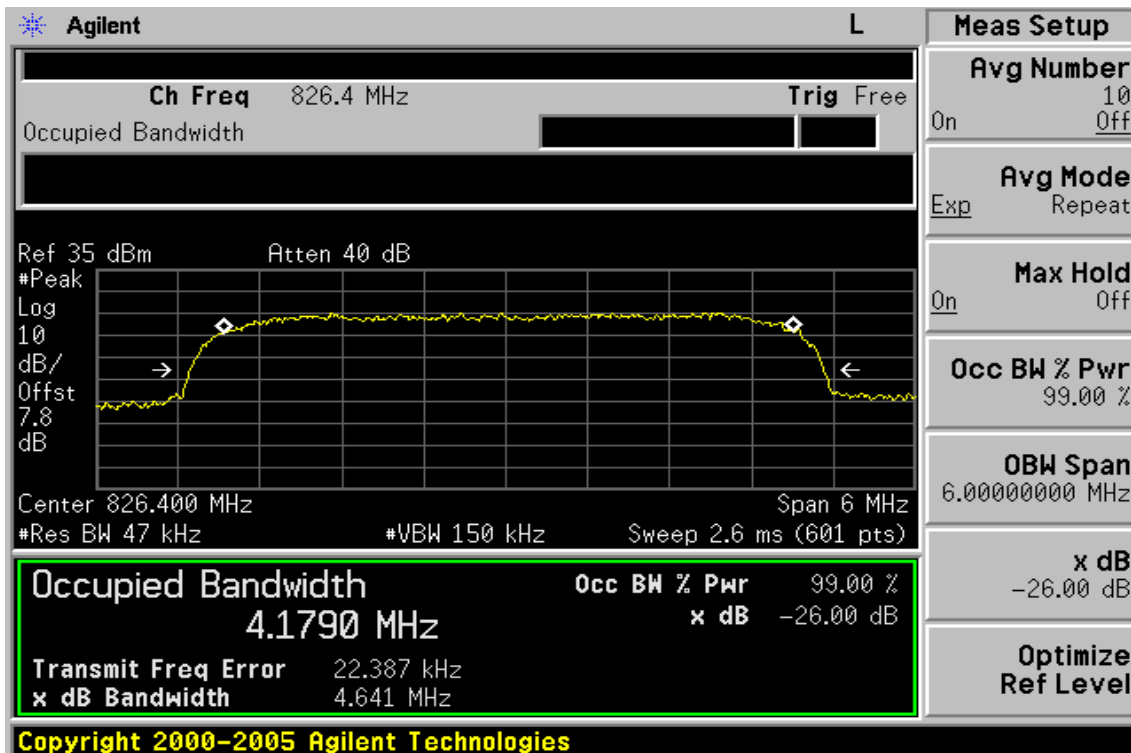


Figure 7-22: WCDMA V HSUPA Channel Low



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Figure 7-23: WCDMA V HSUPA Channel Mid

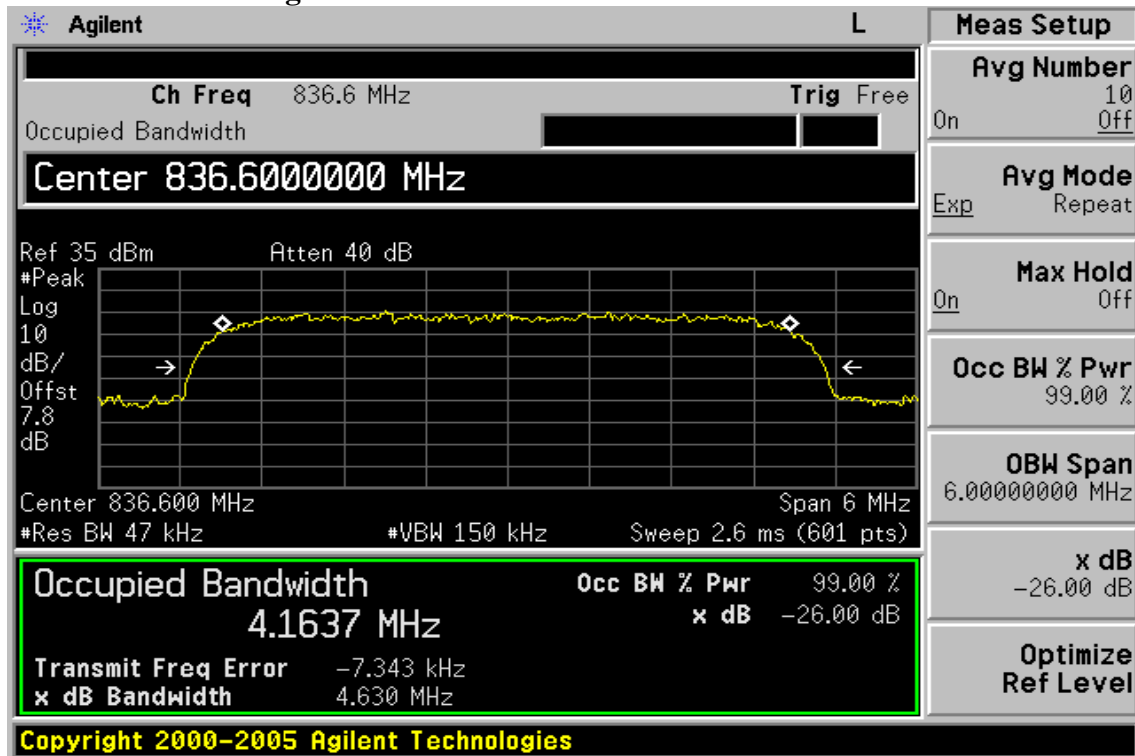
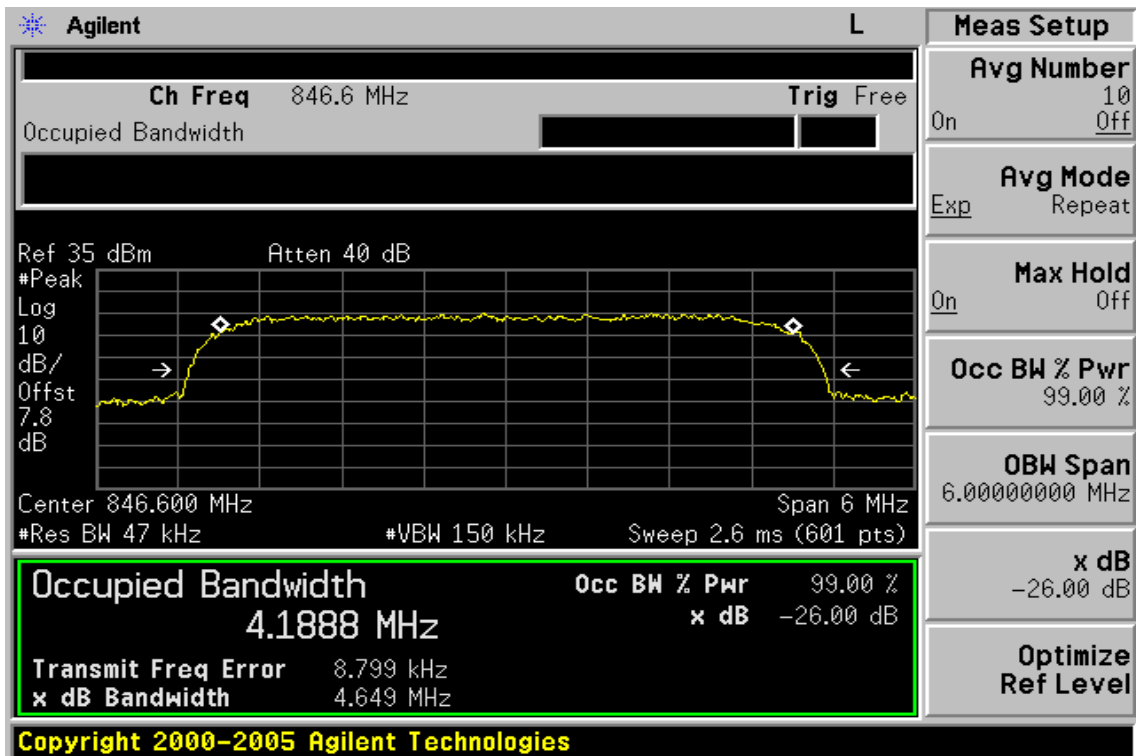


Figure 7-24: WCDMA V HSUPA Channel High



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

### 8.2. Test SET-UP:

Refer to section 5.2 in this report

### 8.3. Measurement Procedure:

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

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

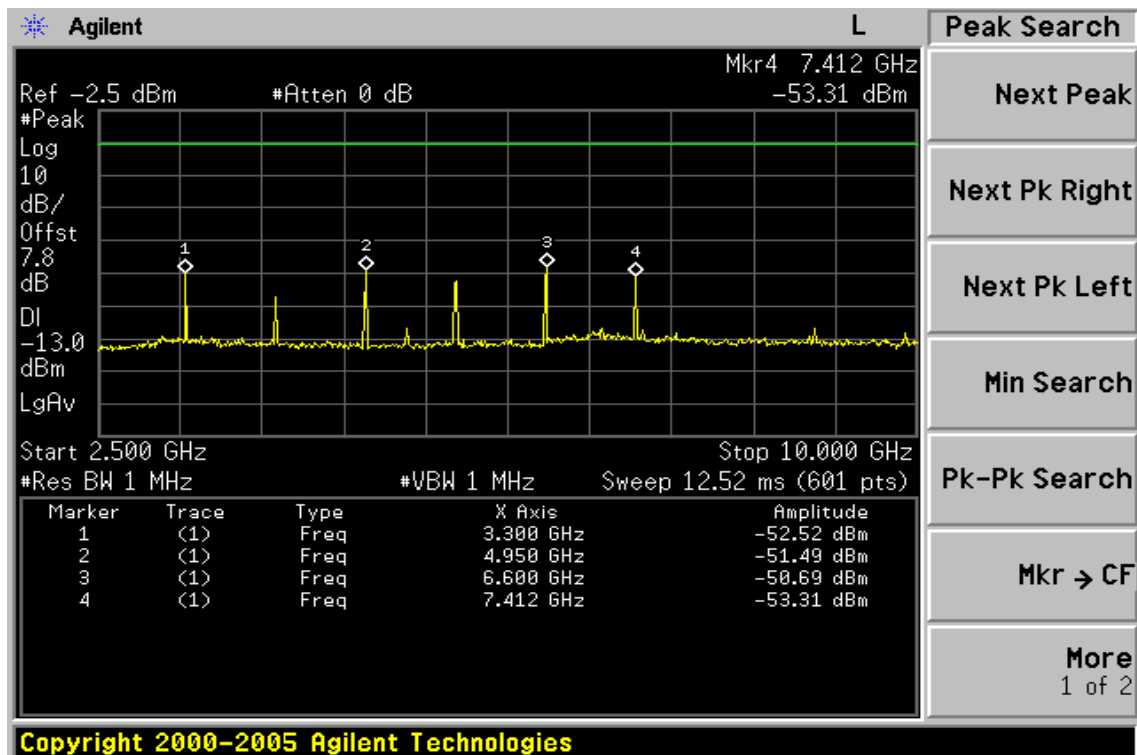
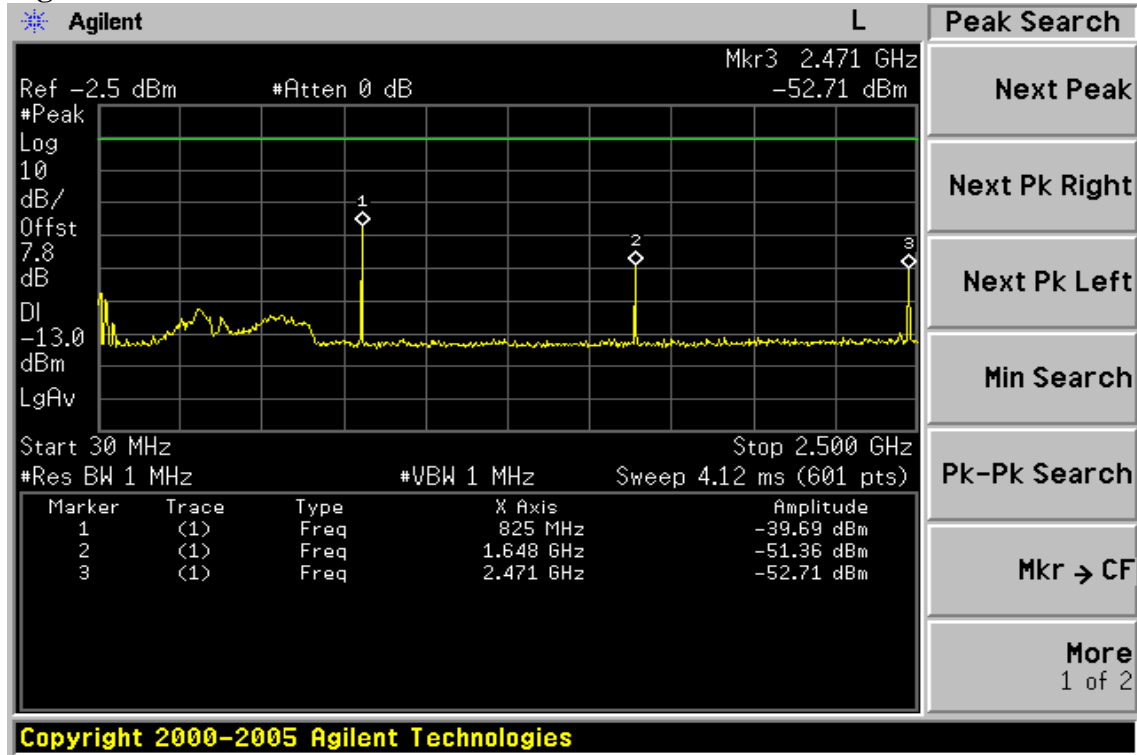
Band Edge Requirements: In the 1 MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at least 1 percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the out of band Emissions. Limit, -13dBm.

### 8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

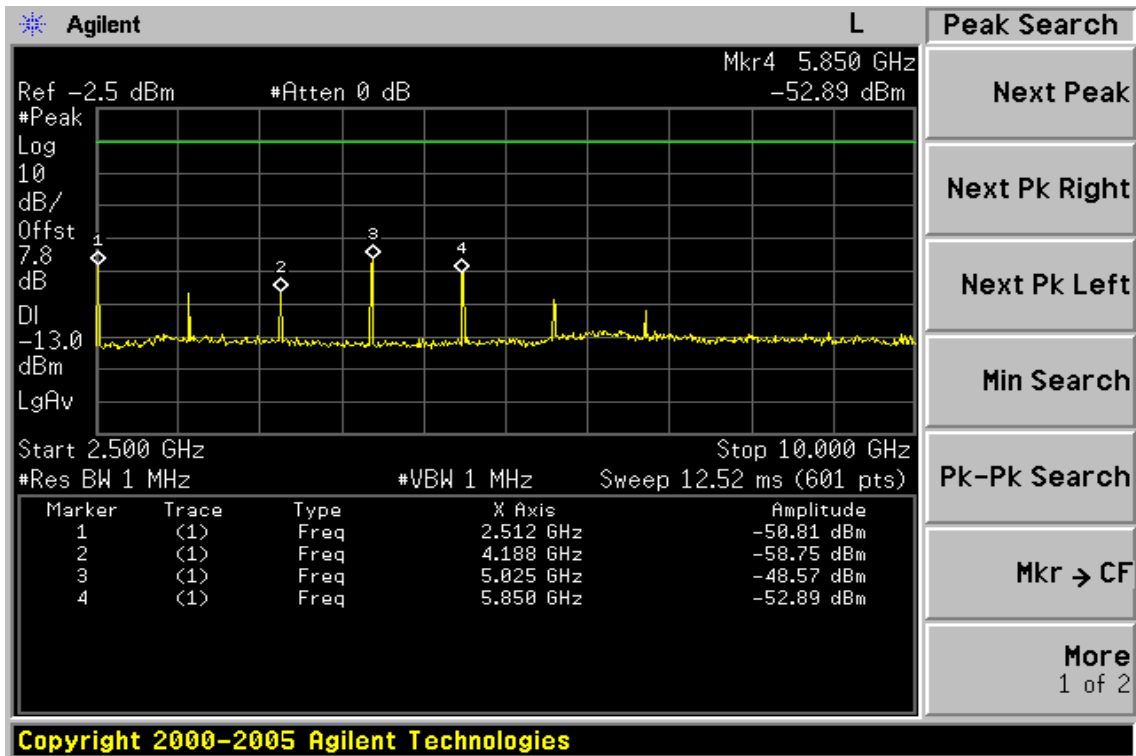
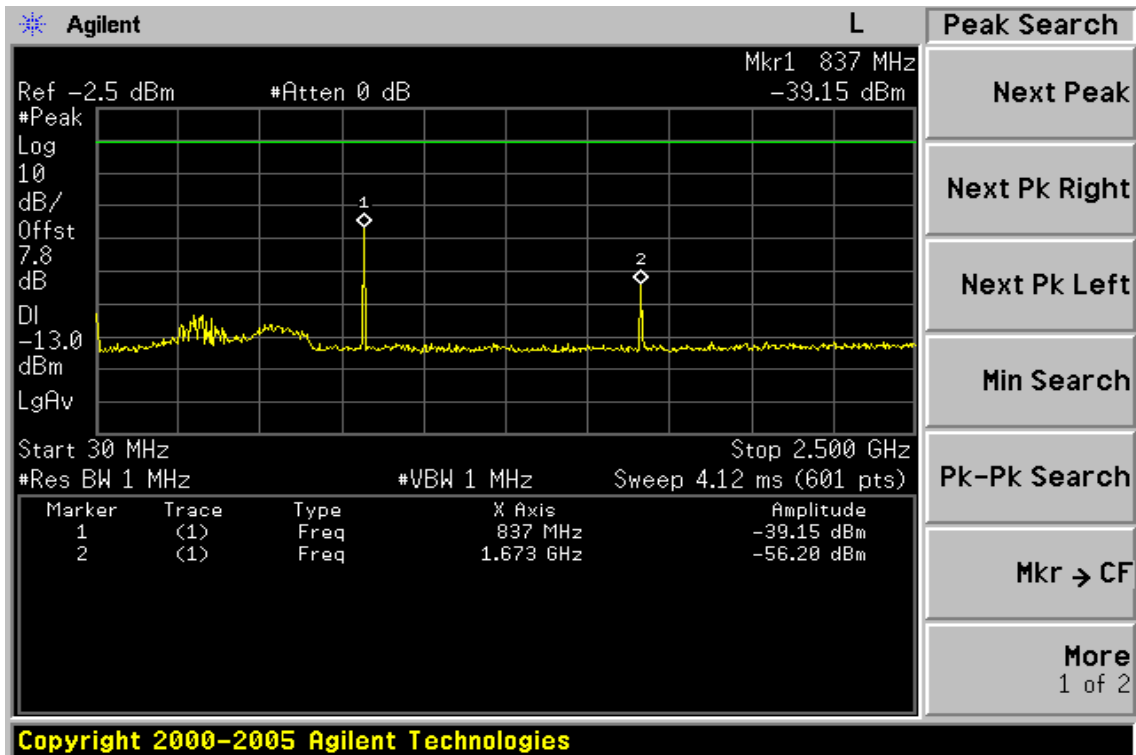
8.5. Measurement Result:

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



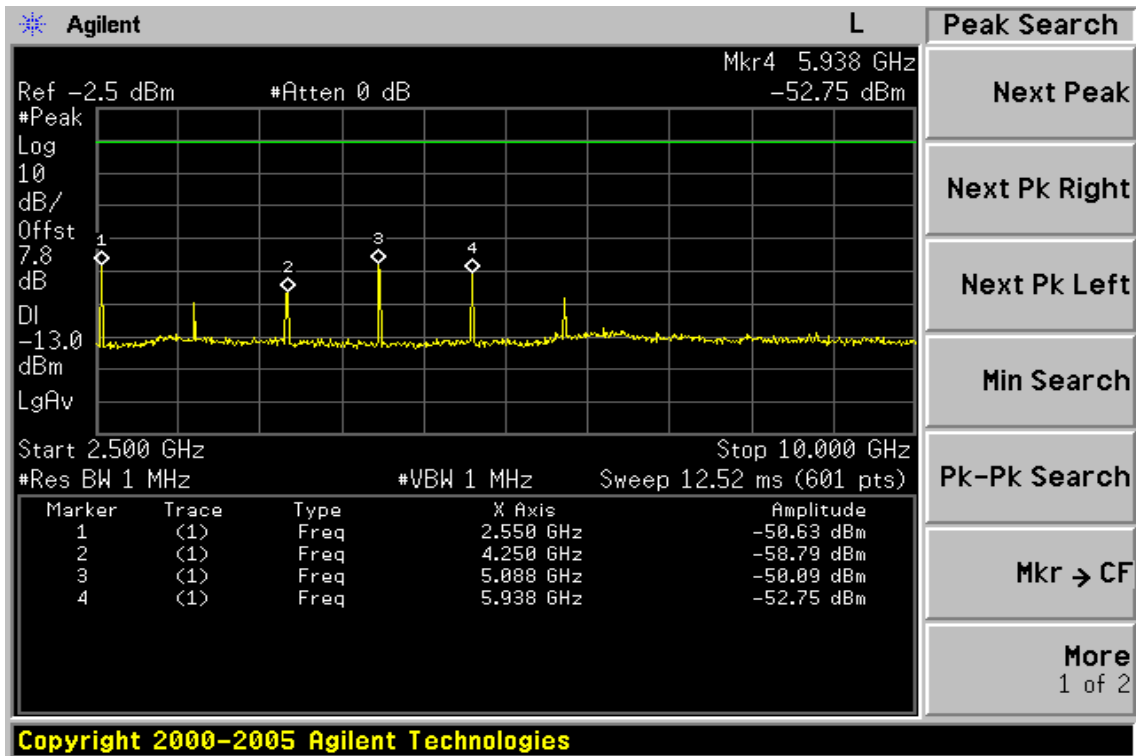
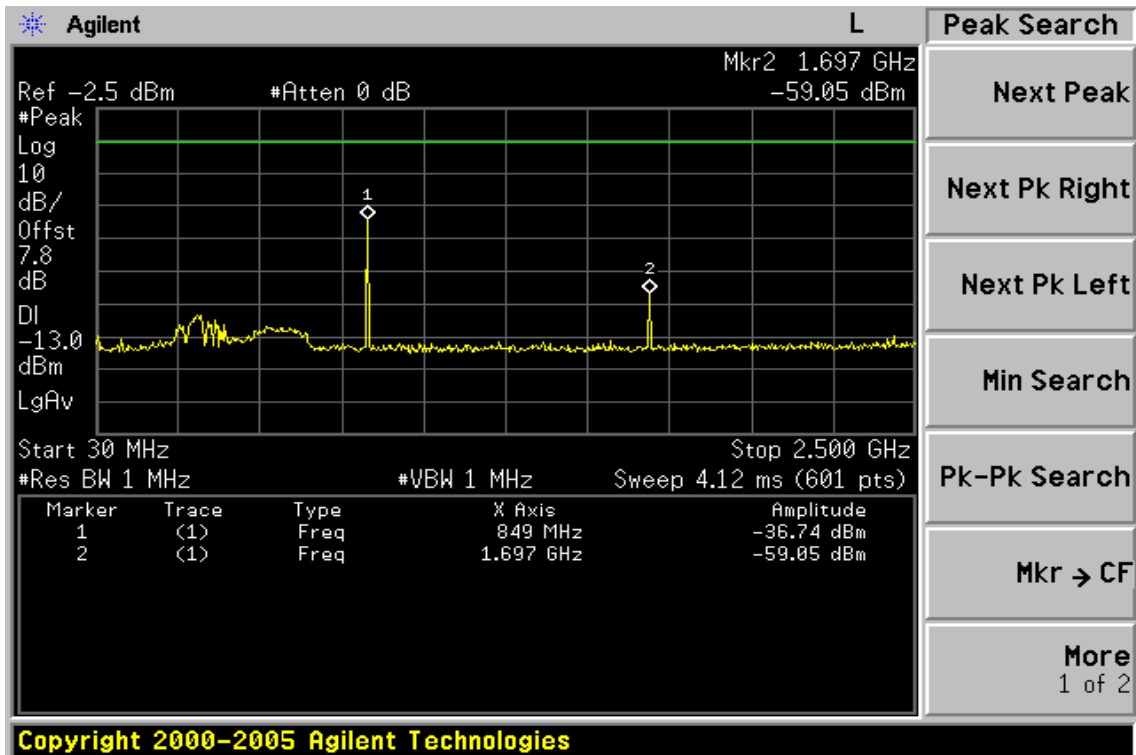
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Figure 8-2: Out of Band emission at antenna terminals –GPRS 850 Channel Mid



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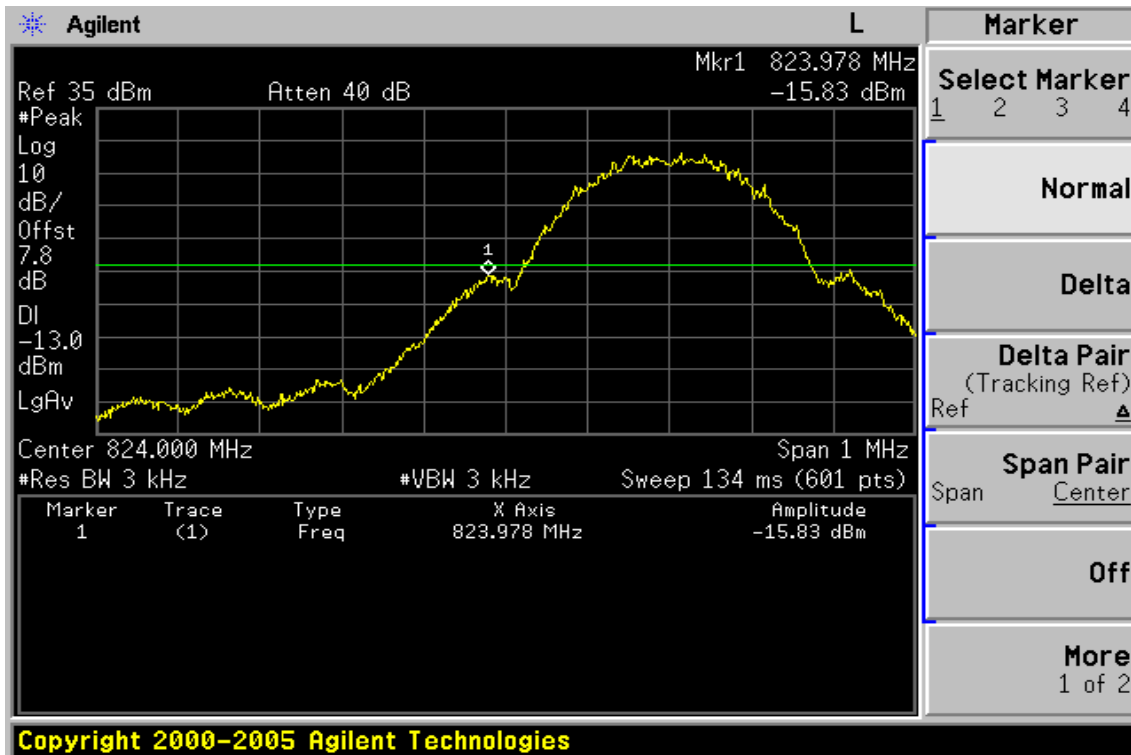
Figure 8-3: Out of Band emission at antenna terminals–GPRS 850 Channel Highest



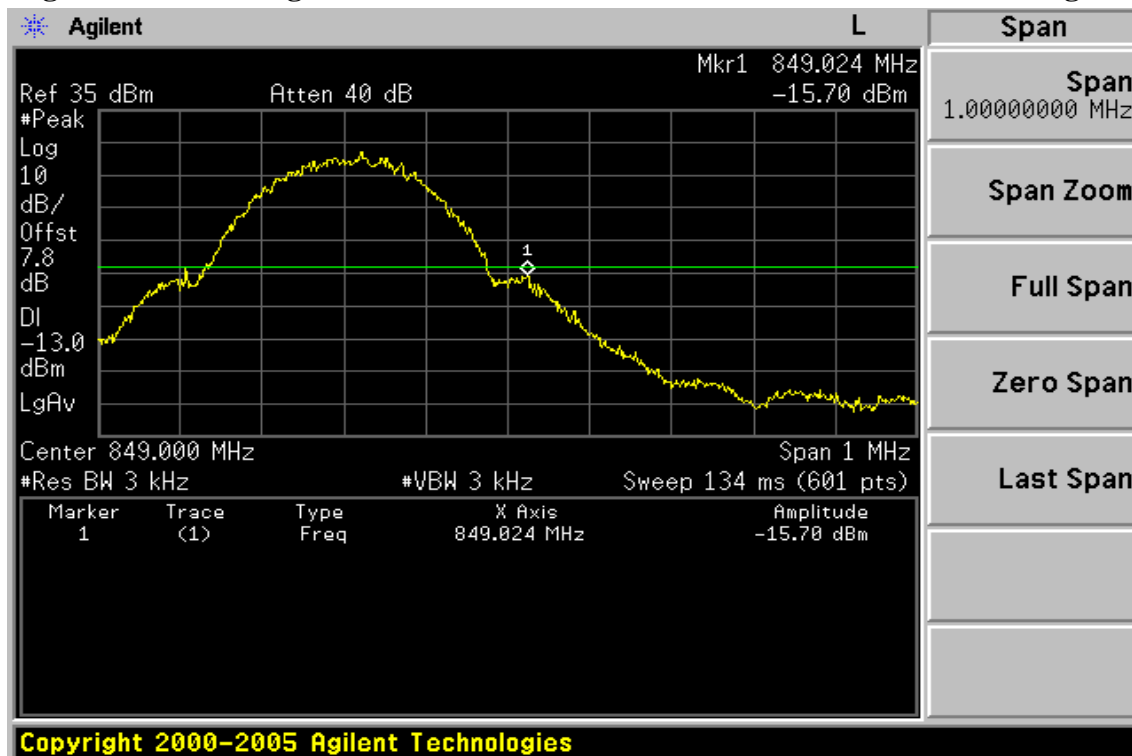
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**Figure 8-4: Band edge emission at antenna terminals –GPRS 850 Channel Lowest**

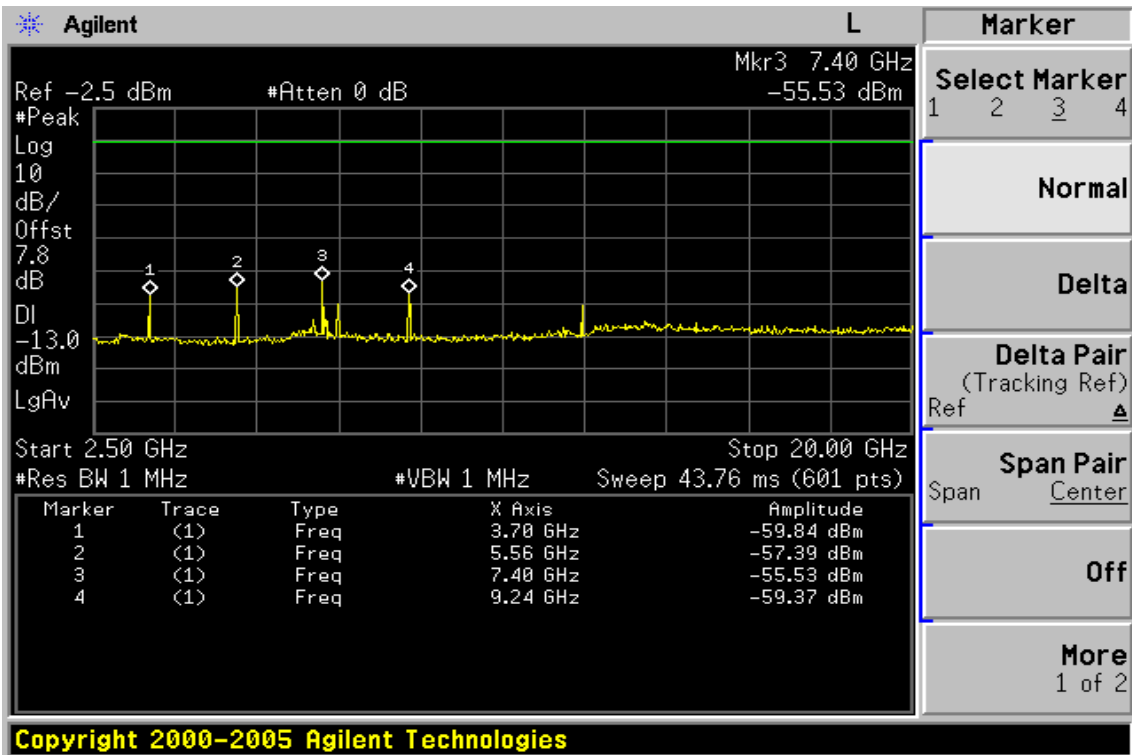
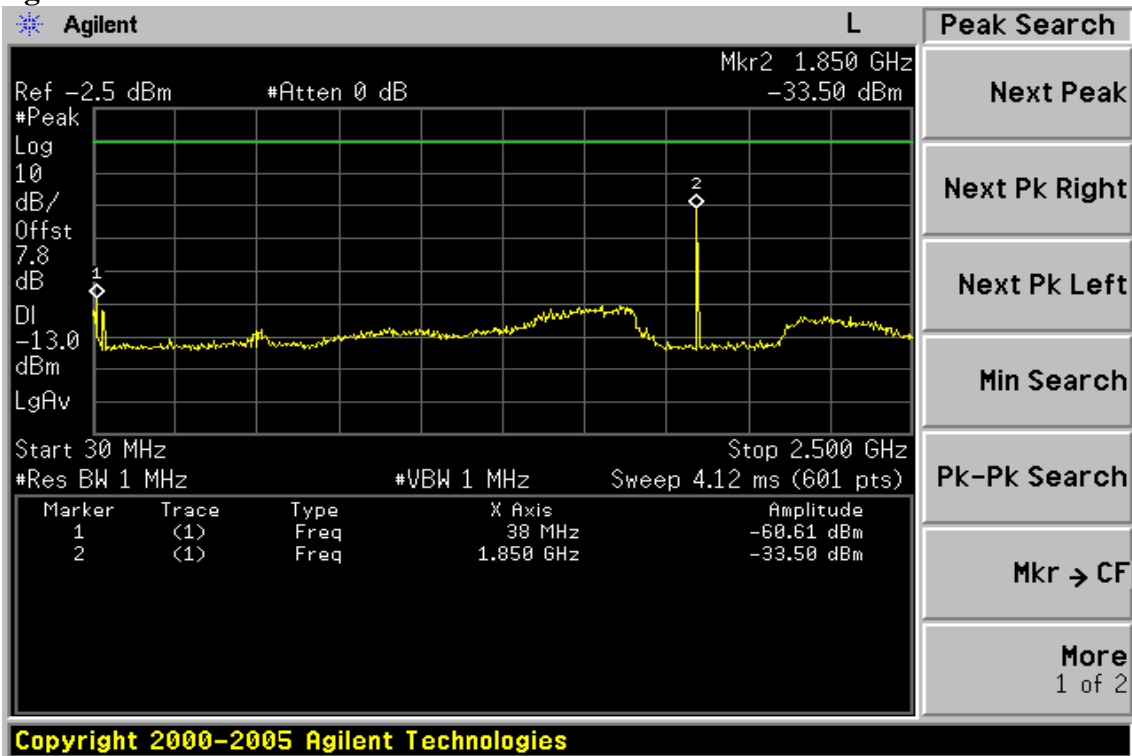


**Figure 8-5: Band edge emission at antenna terminals –GPRS 850 Channel Highest**



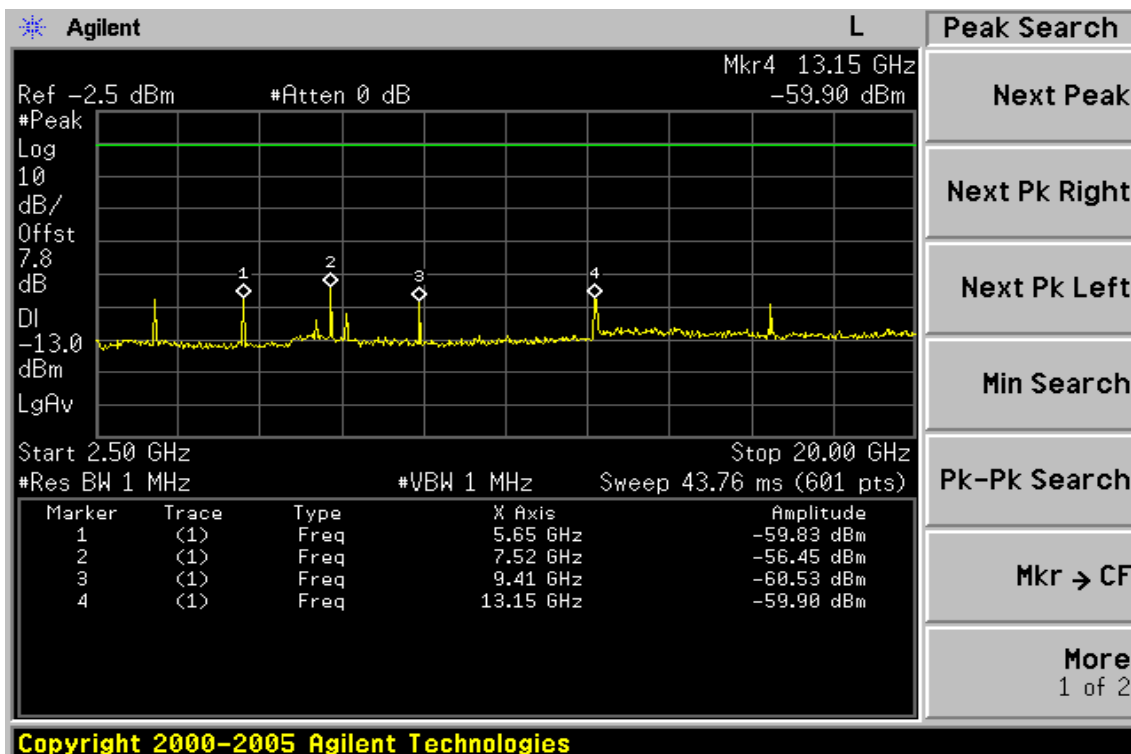
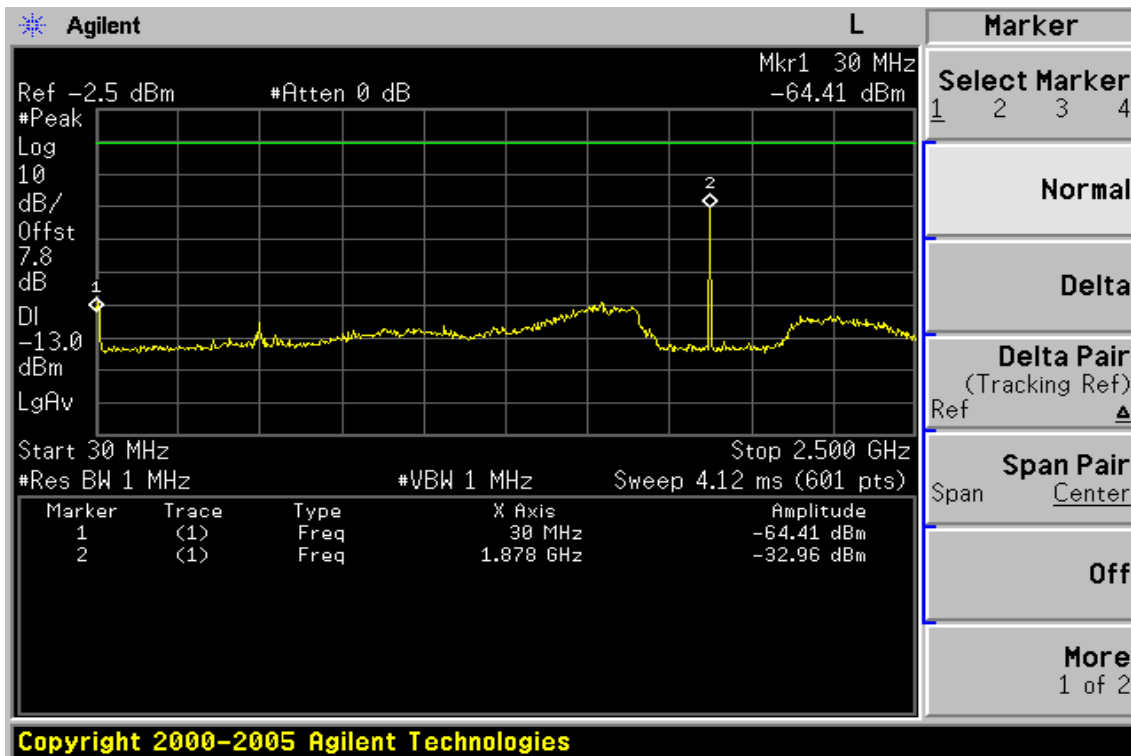
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**Figure 8-6: Out of Band emission at antenna terminals–GPRS 1900 Channel Lowest**



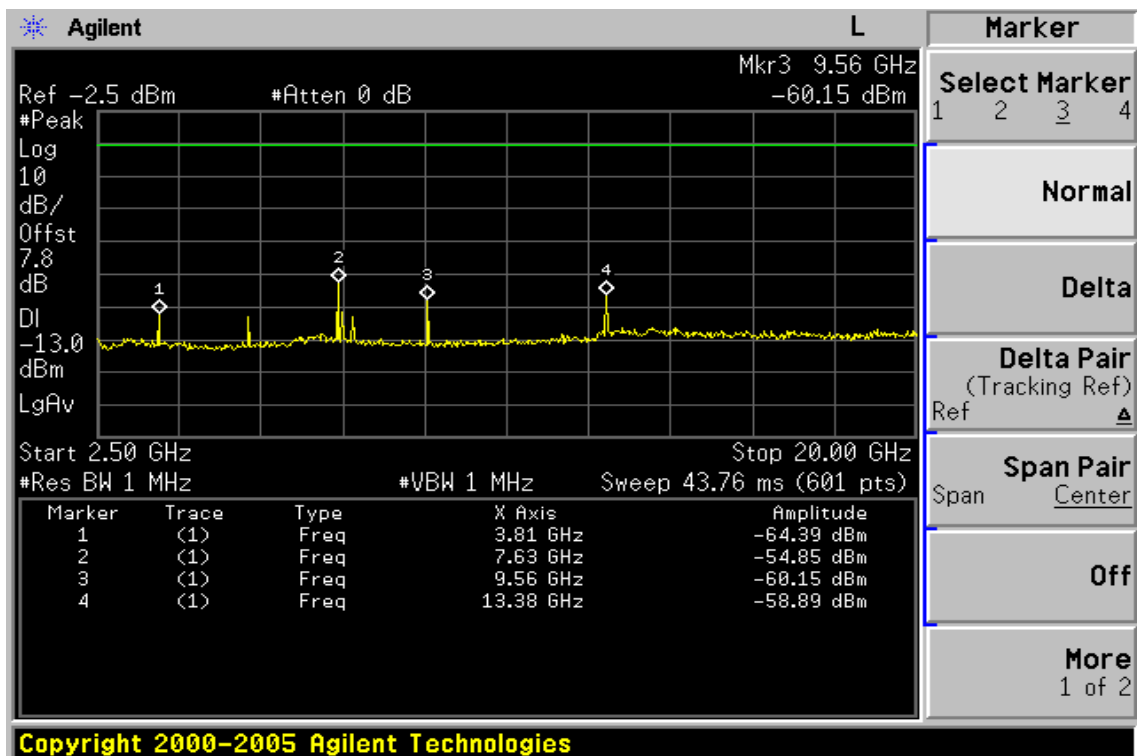
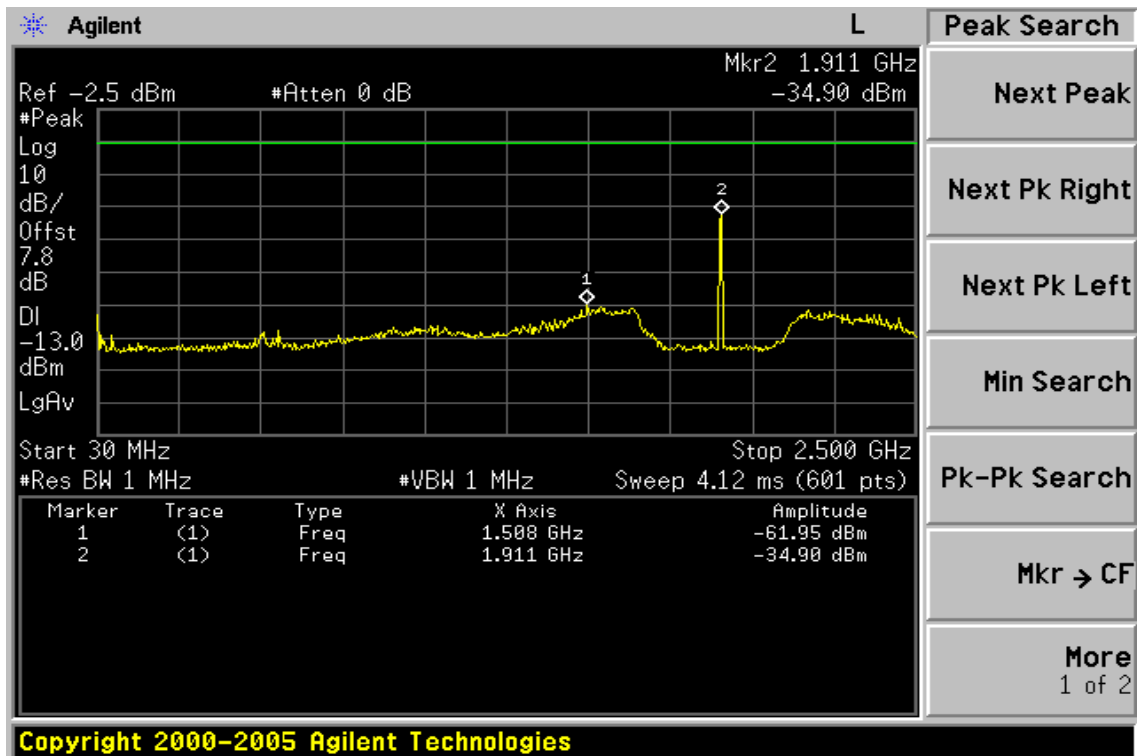
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Figure 8-7: Out of Band emission at antenna terminals –GPRS 1900 Channel Mid



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

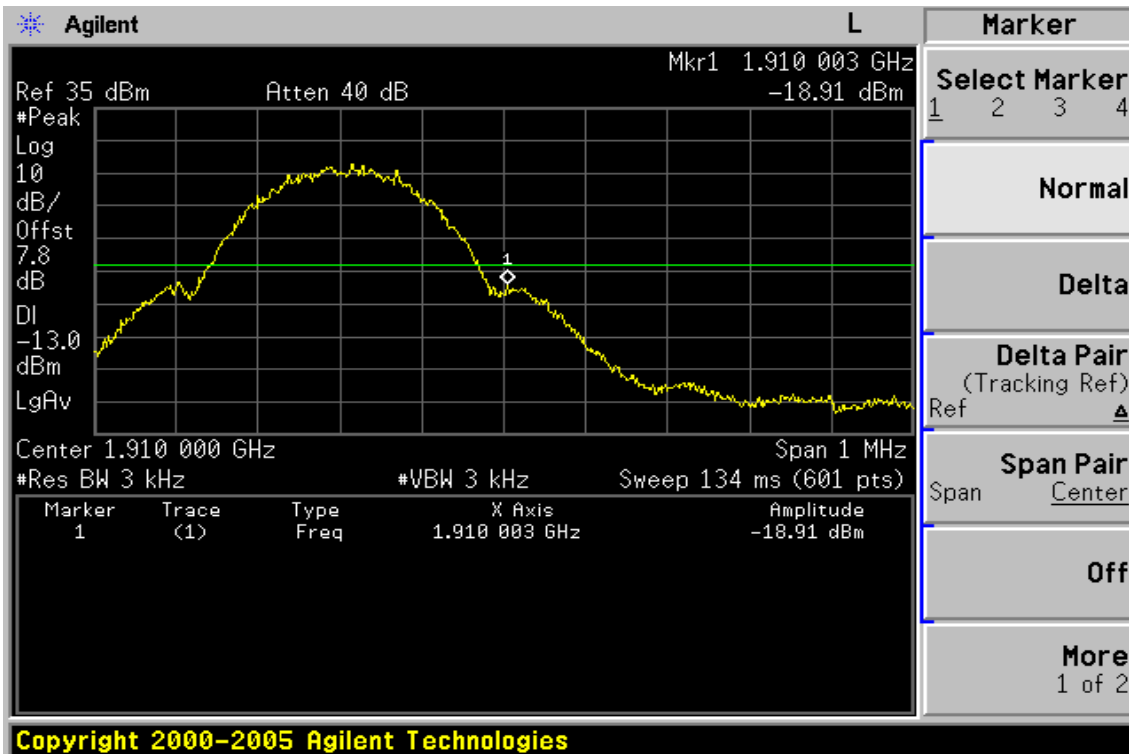


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**Figure 8-9: Bad edge emission at antenna terminals –GPRS 1900 Channel Lowest**



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

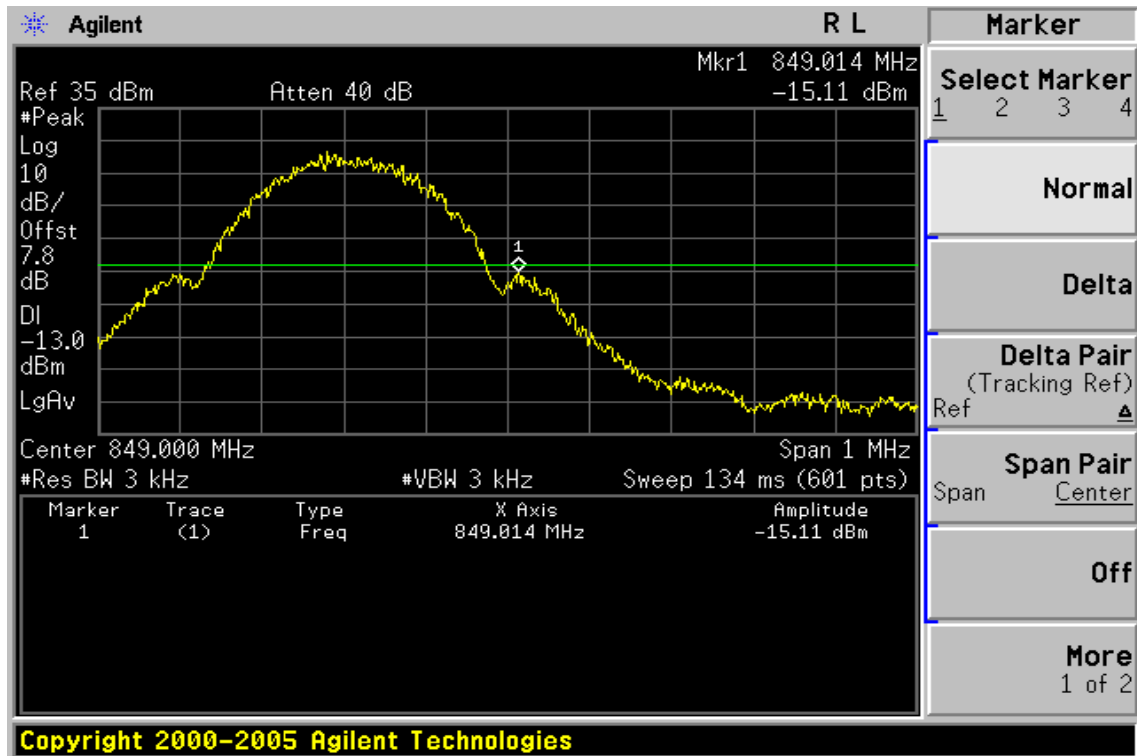


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Figure 8-11: Band edge emission at antenna terminals –EDGE 850 Channel Lowest



Figure 8-12: Band edge emission at antenna terminals –EDGE 850 Channel Highest



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Figure 8-13: Bad edge emission at antenna terminals –EDGE 1900 Channel Lowest

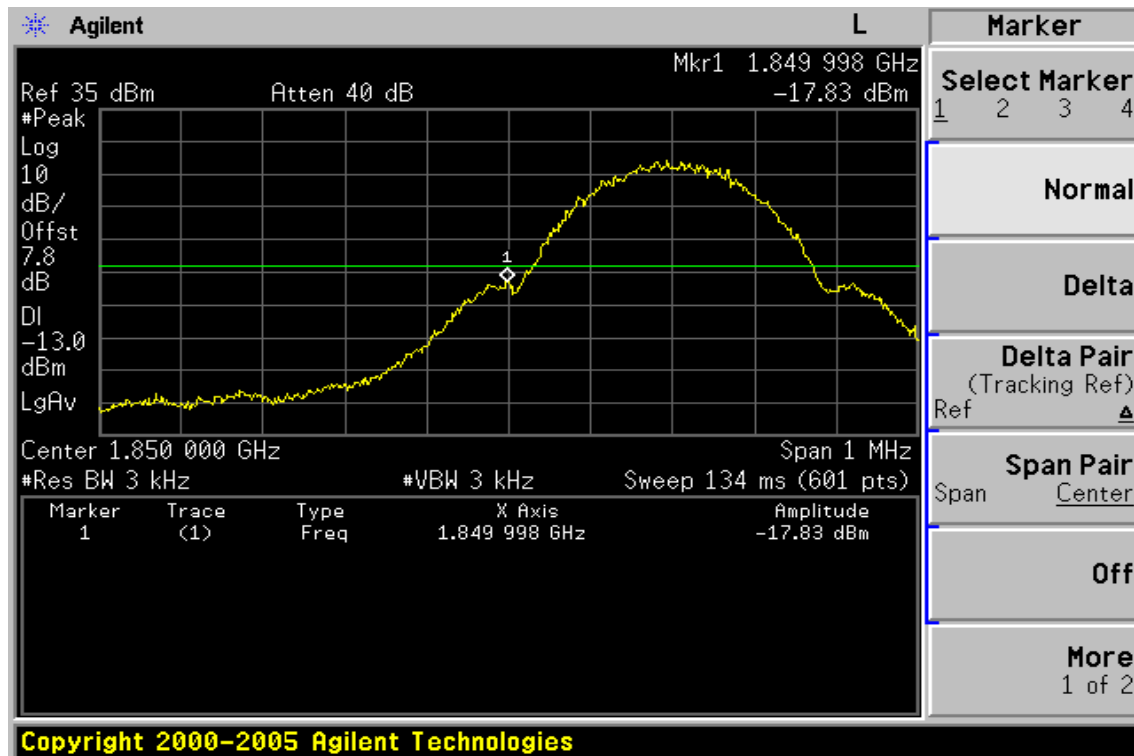
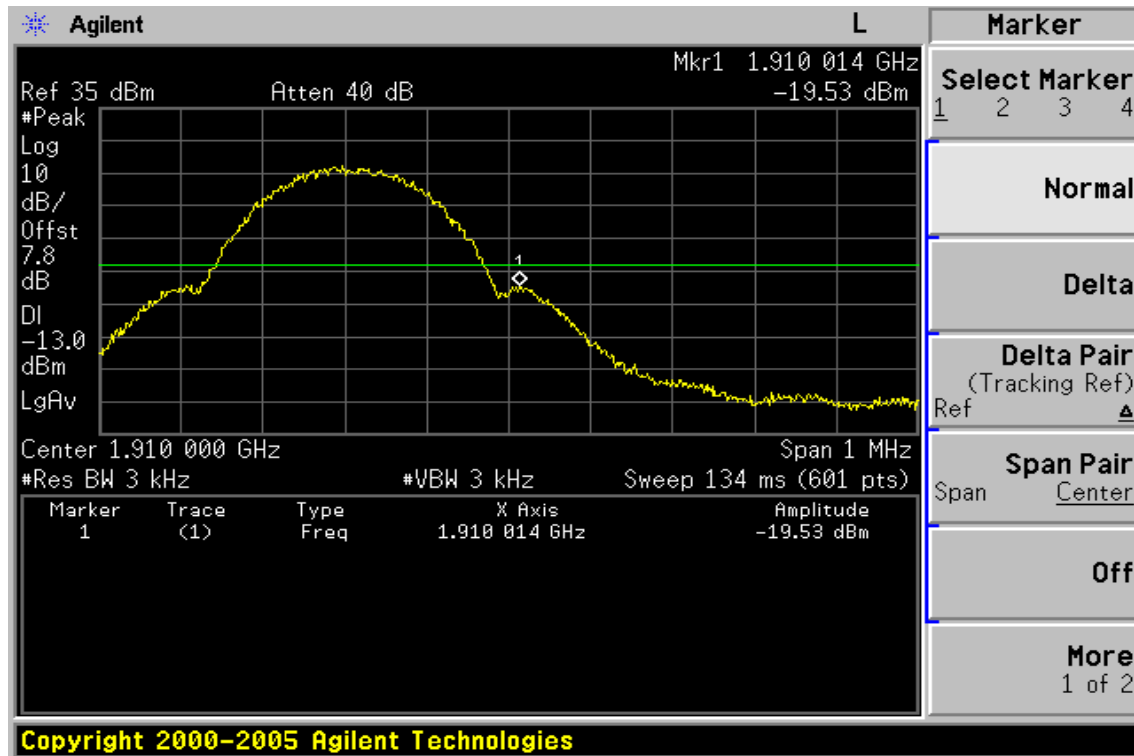
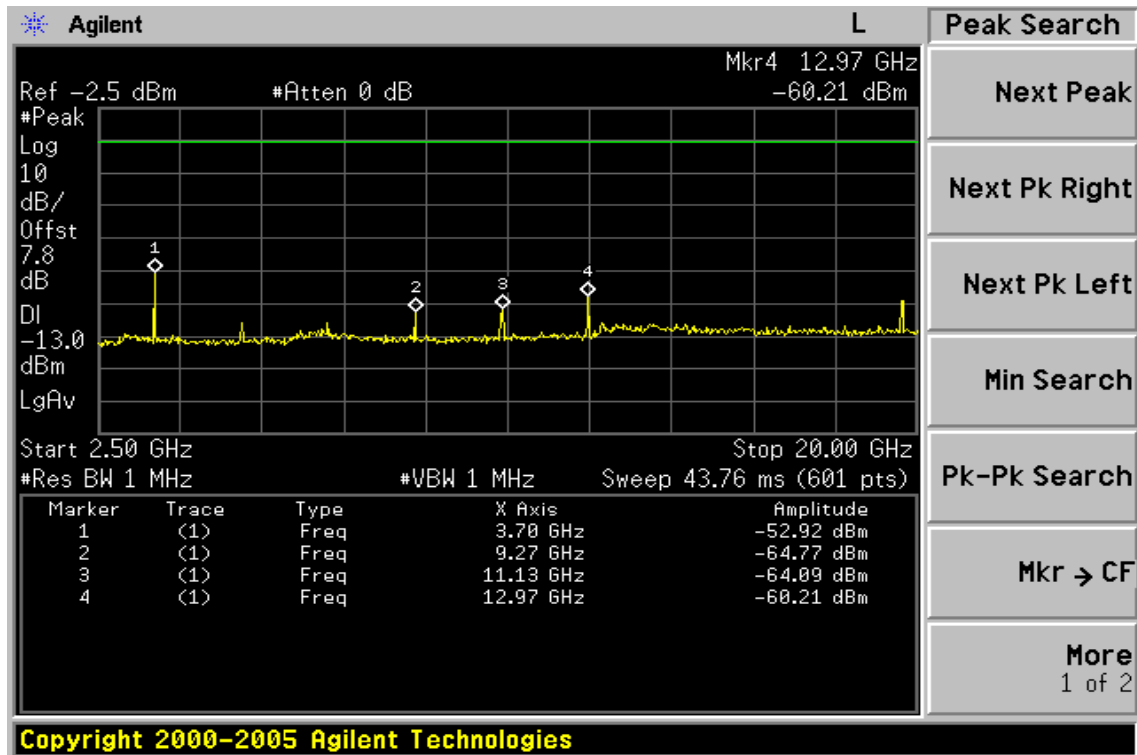
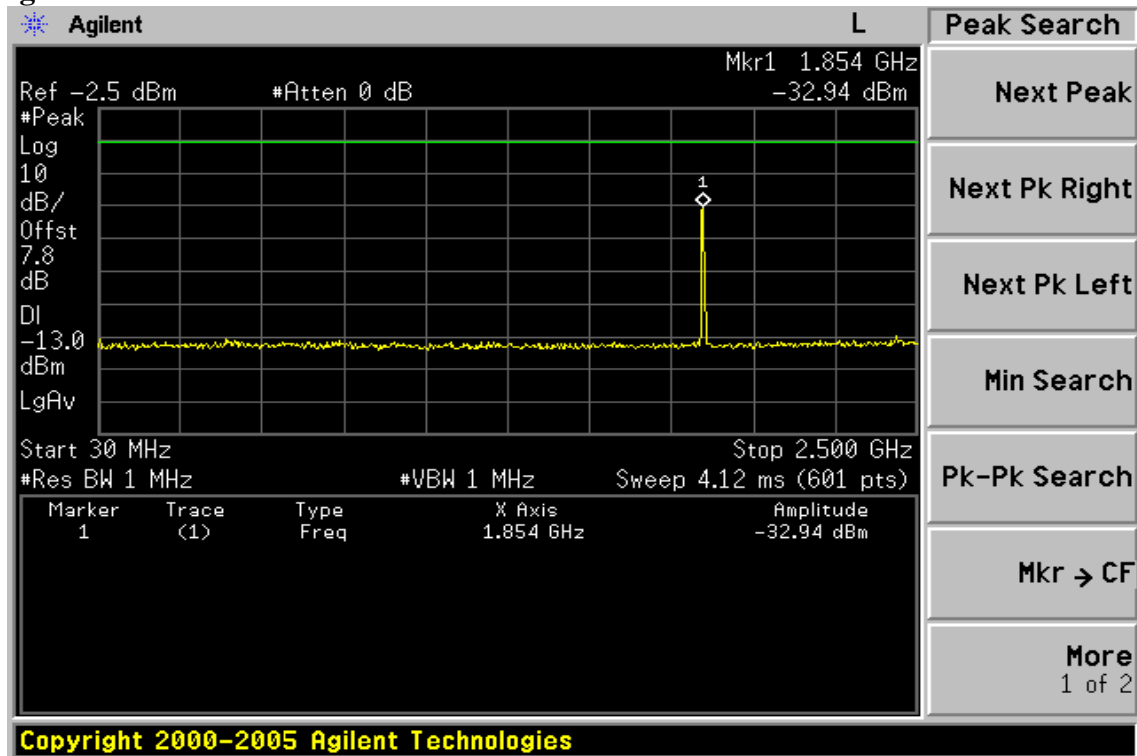


Figure 8-14: Band edge emission at antenna terminals –EDGE 1900 Channel Highest



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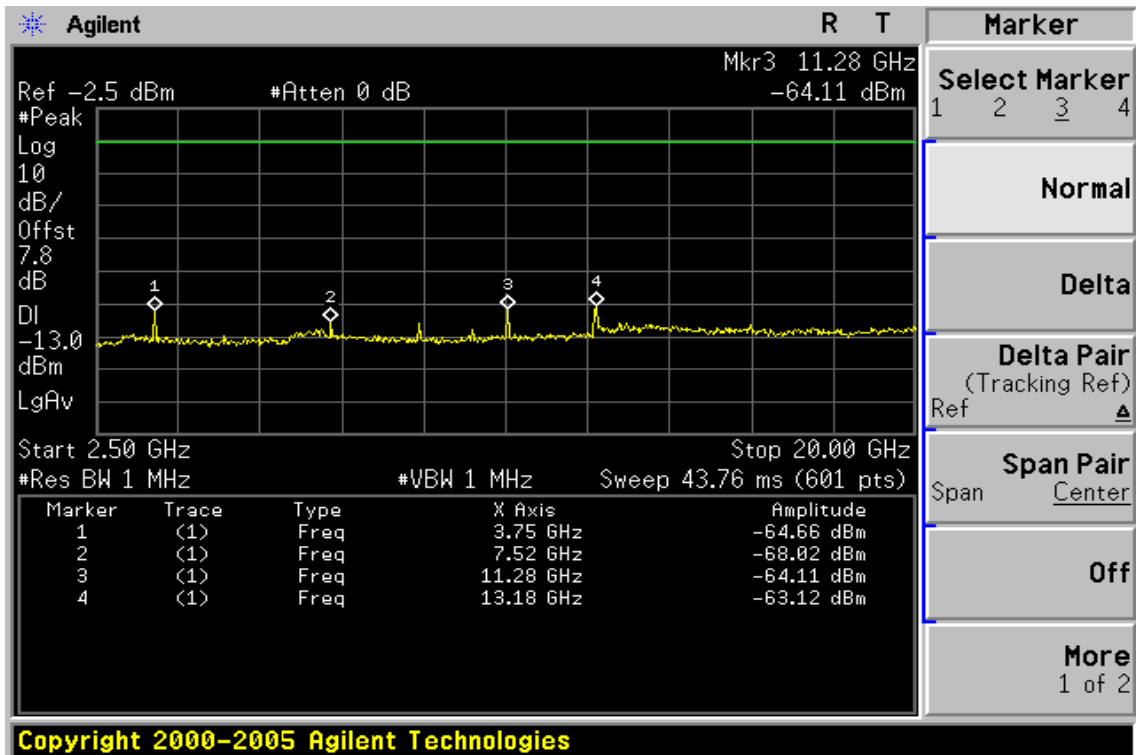
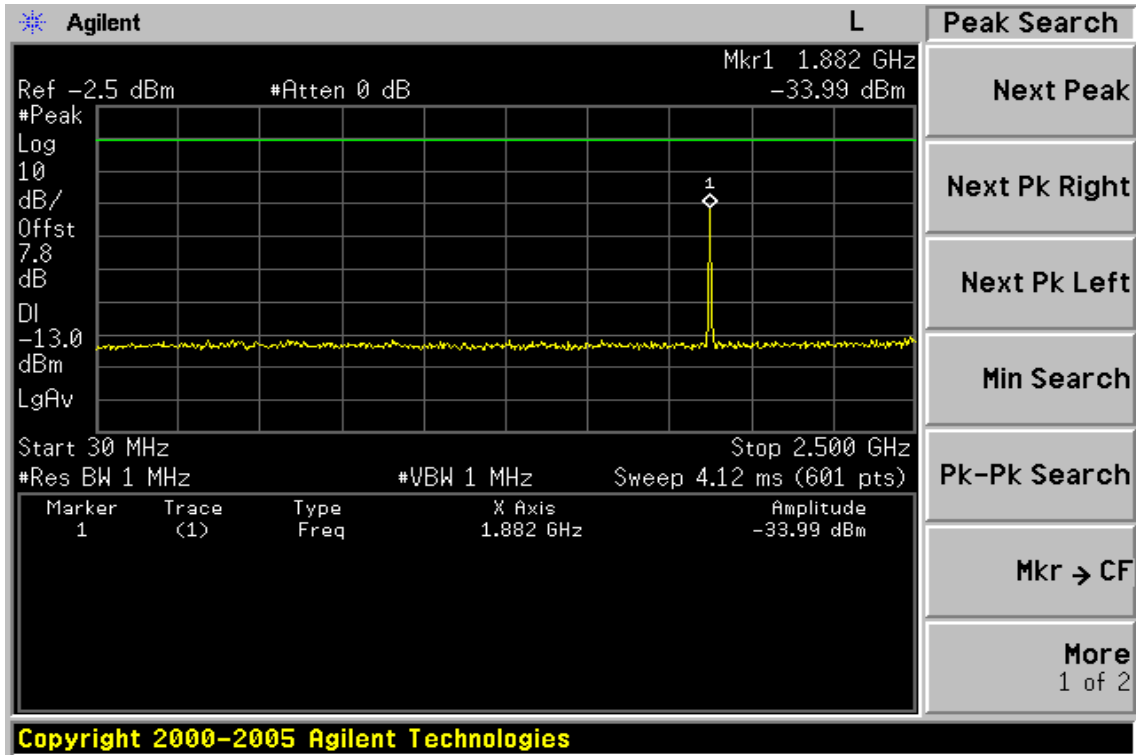
**Figure 8-11: Out of Band emission at antenna terminals–WCDMA II Channel Lowest**



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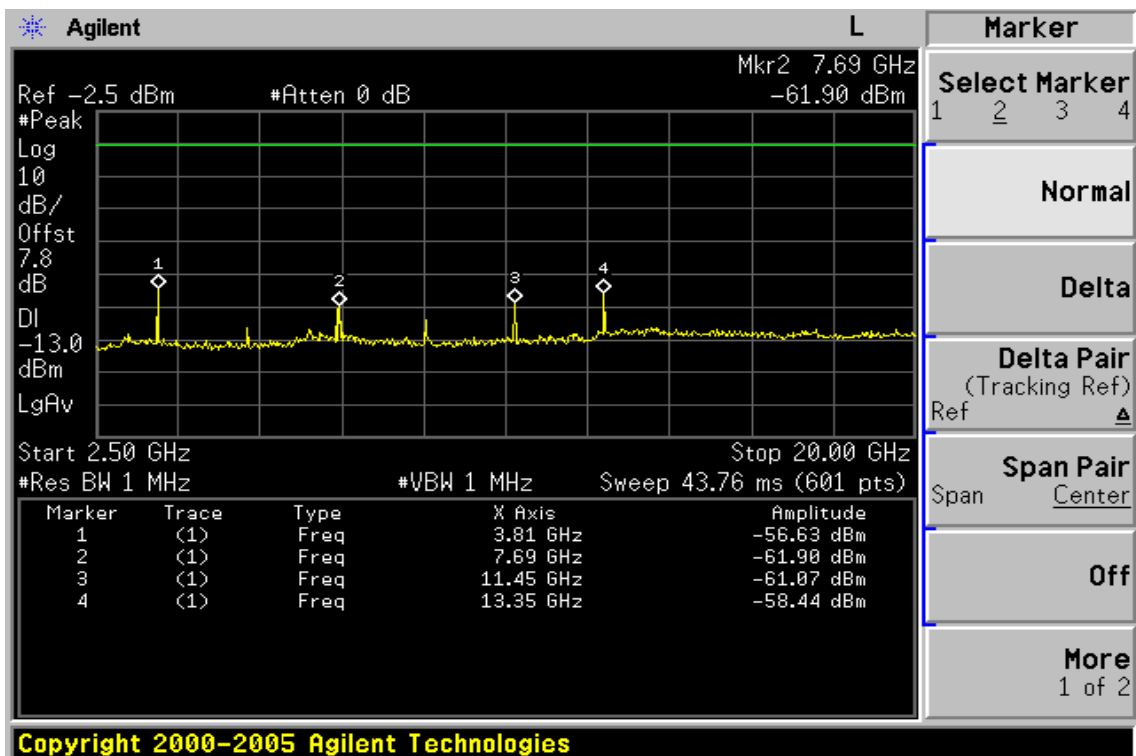
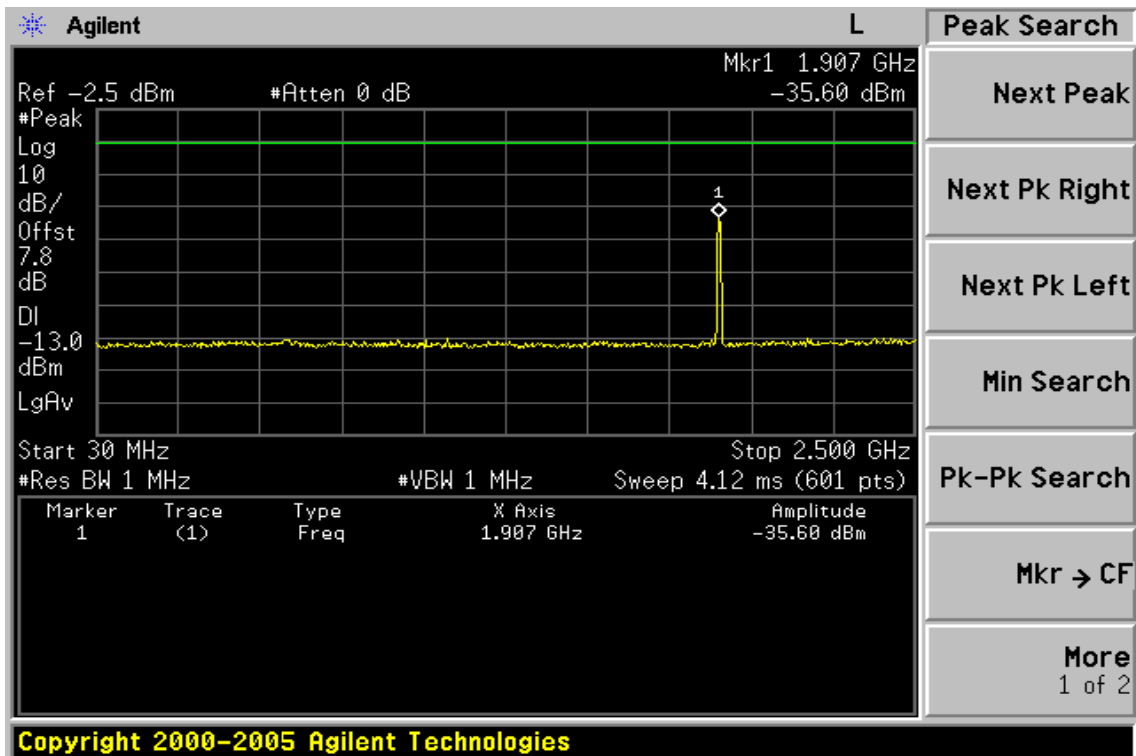


Figure 8-12: Out of Band emission at antenna terminals –WCDMA II Channel Mid



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



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

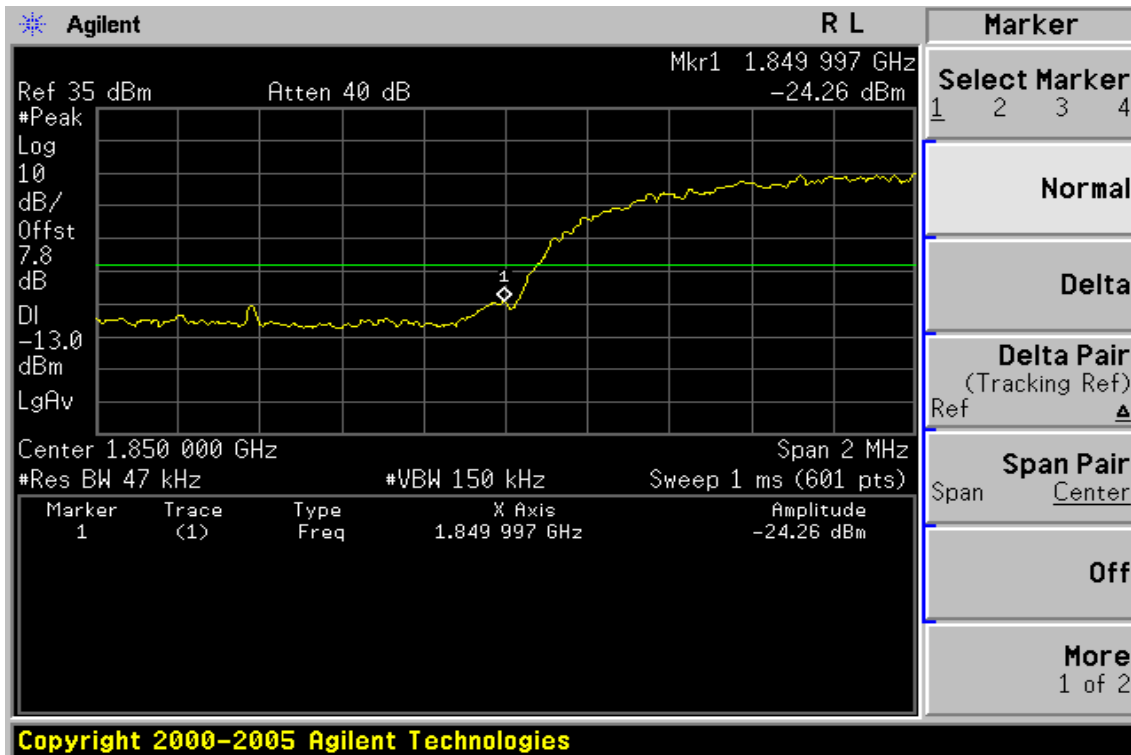
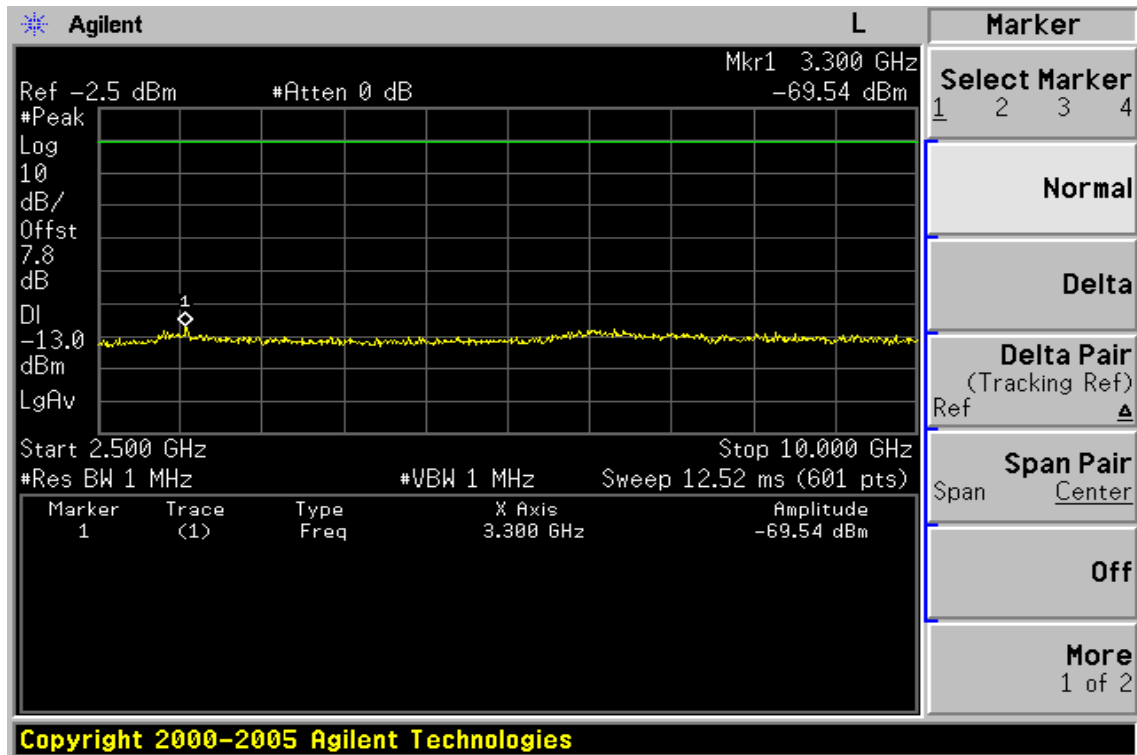
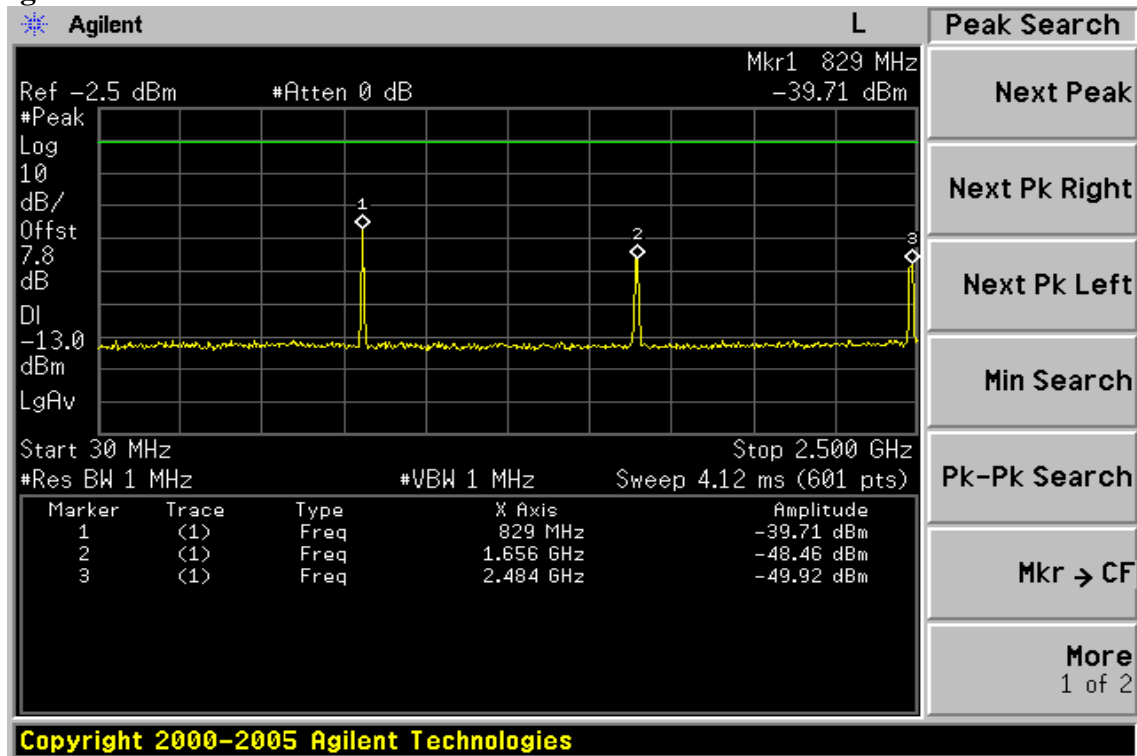


Figure 8-15: Band edge emission at antenna terminals –WCDMA II Channel Highest



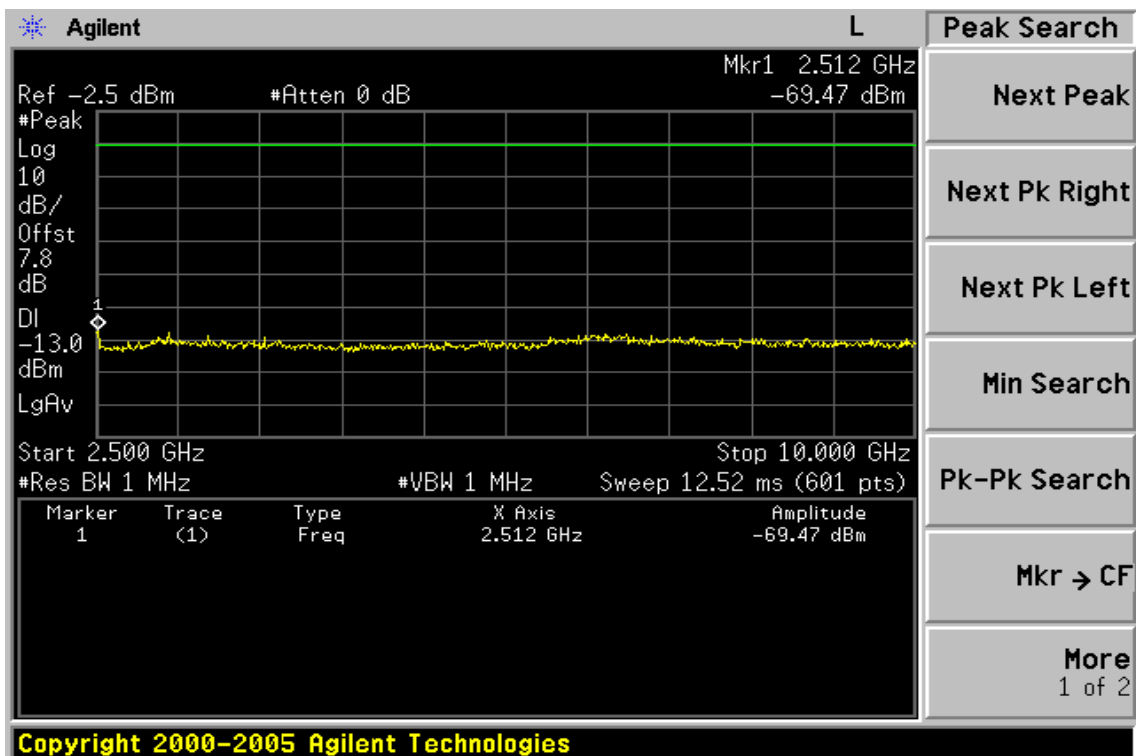
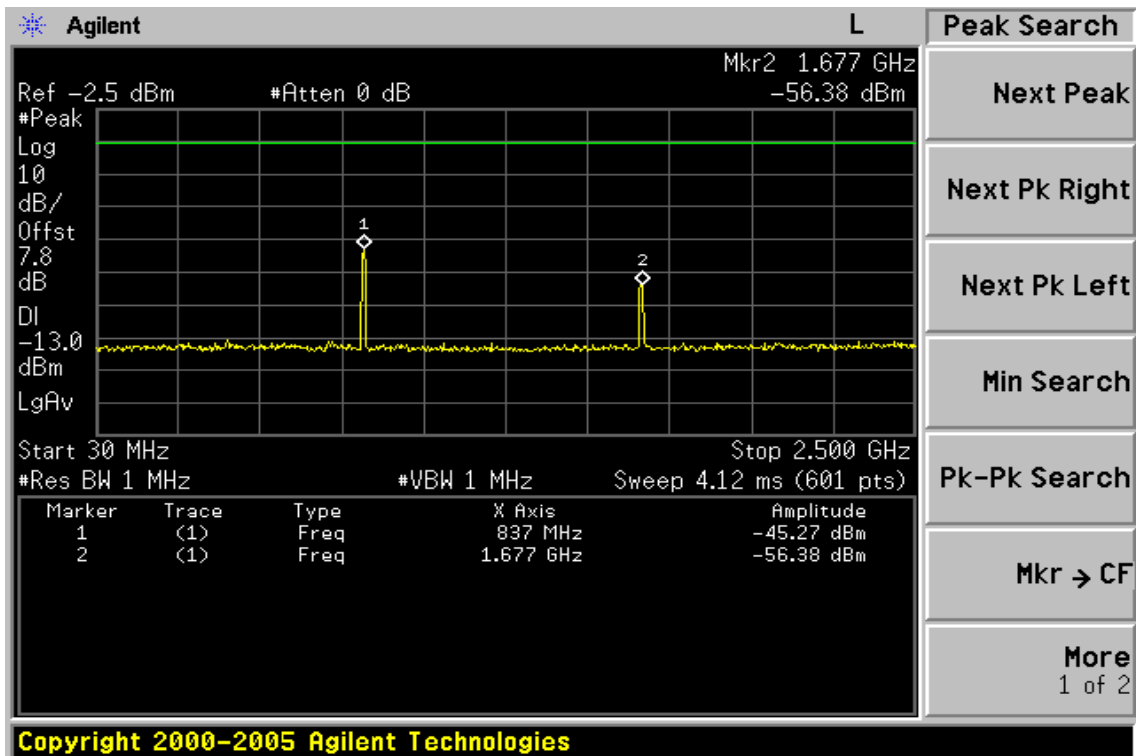
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Figure 8-16: Out of Band emission at antenna terminals–WCDMA V Channel Lowest



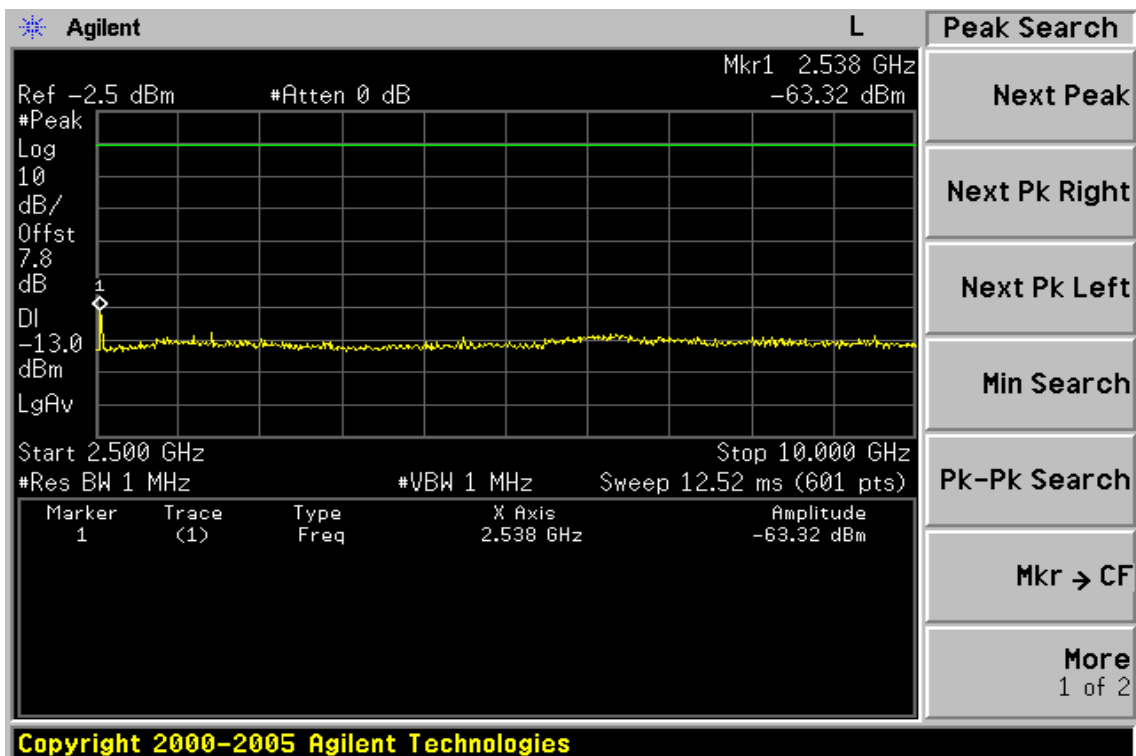
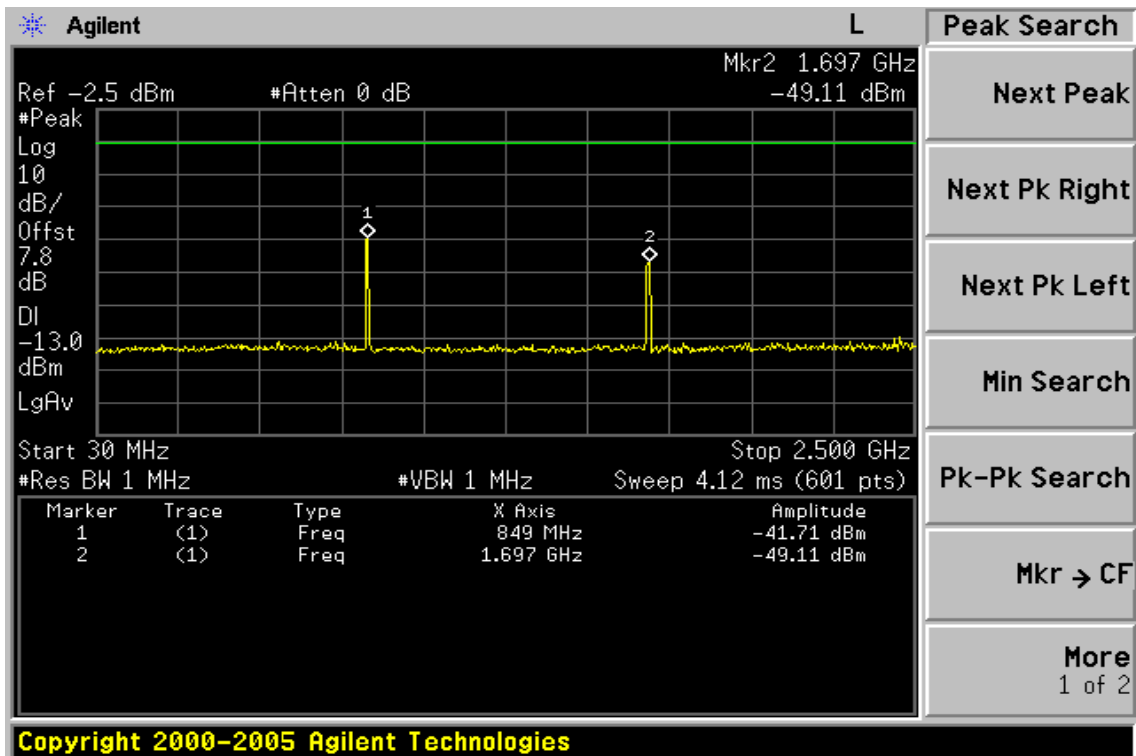
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Figure 8-17: Out of Band emission at antenna terminals –WCDMA V Channel Mid



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



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

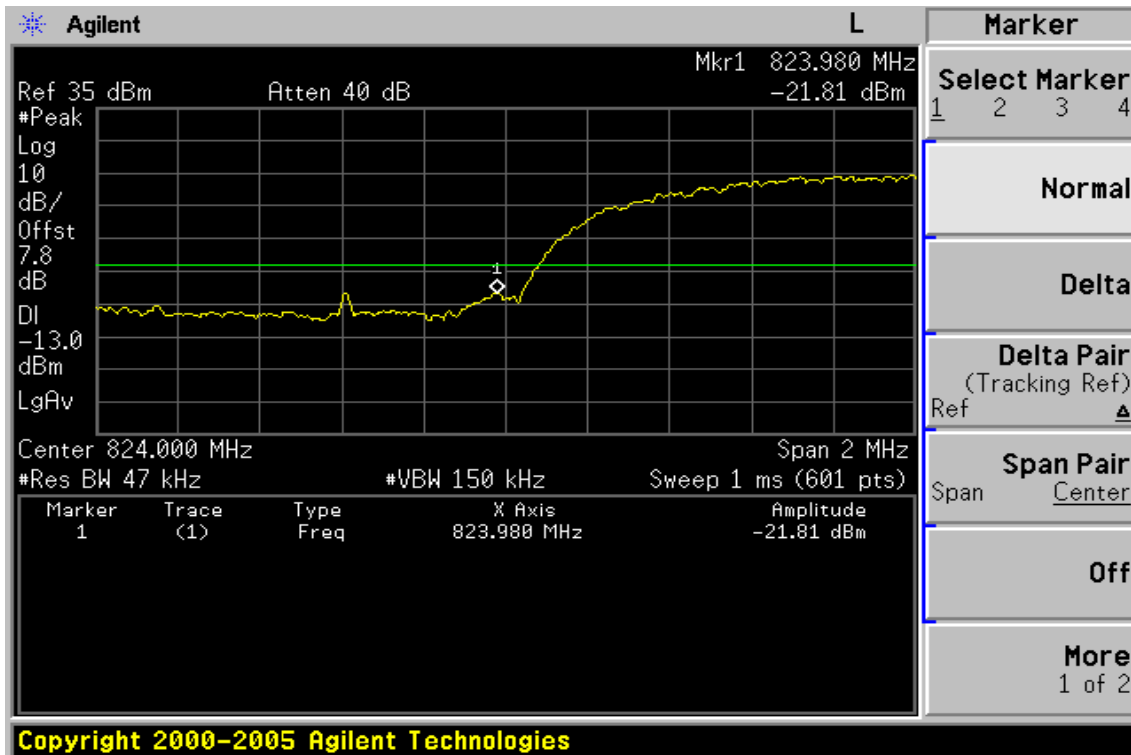


Figure 8-20: Band edge emission at antenna terminals –WCDMA V Channel Highest



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Figure 8-21: Bad edge emission at antenna terminals –WCDMA II HSUPA Channel Lowest

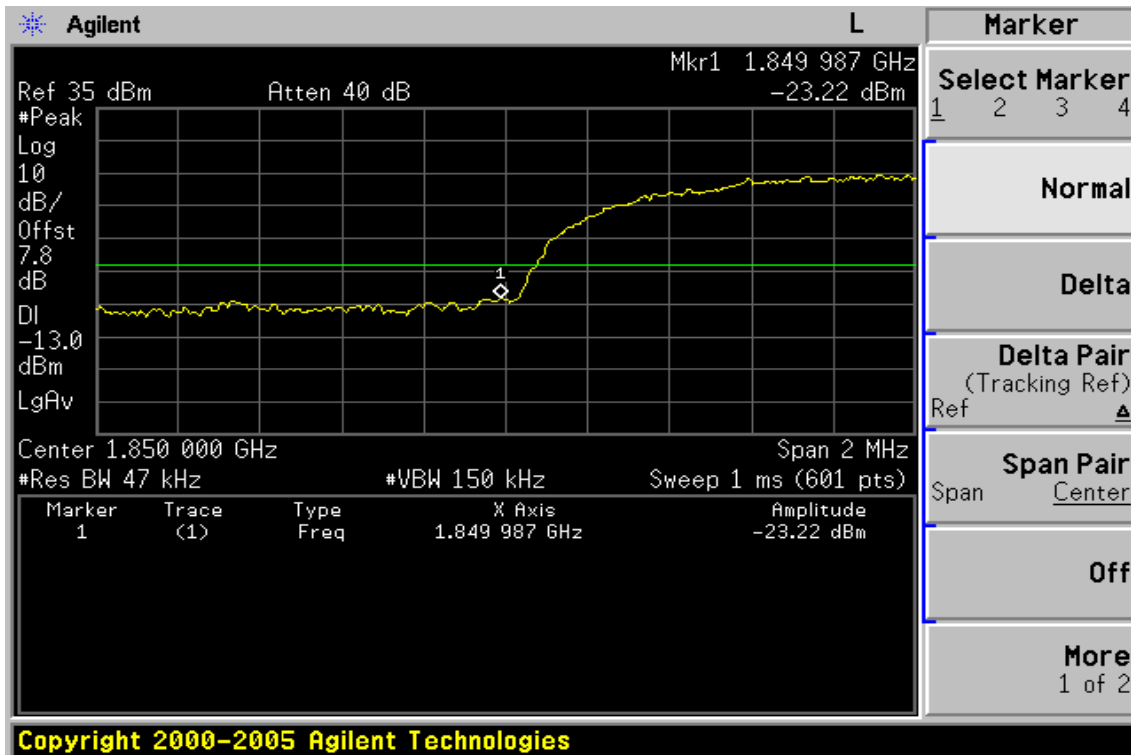


Figure 8-22: Band edge emission at antenna terminals –WCDMA V HSUPA Channel Highest



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Figure 8-23: Bad edge emission at antenna terminals –WCDMA V HSUPA Channel Lowest

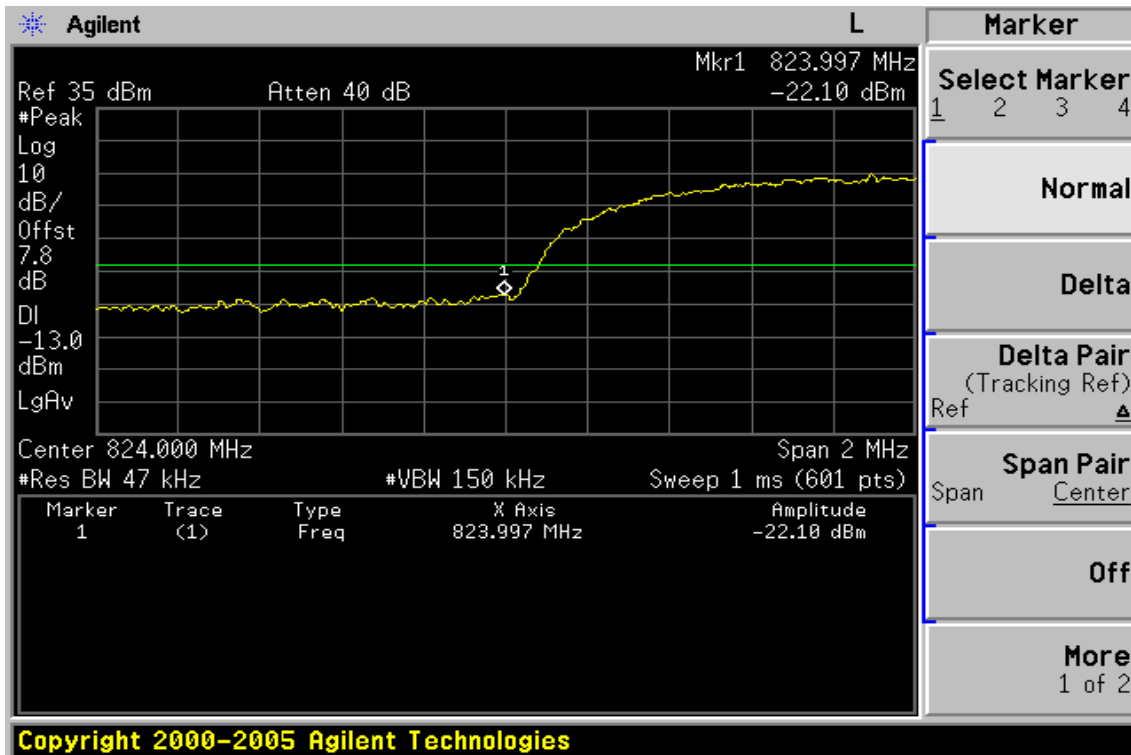
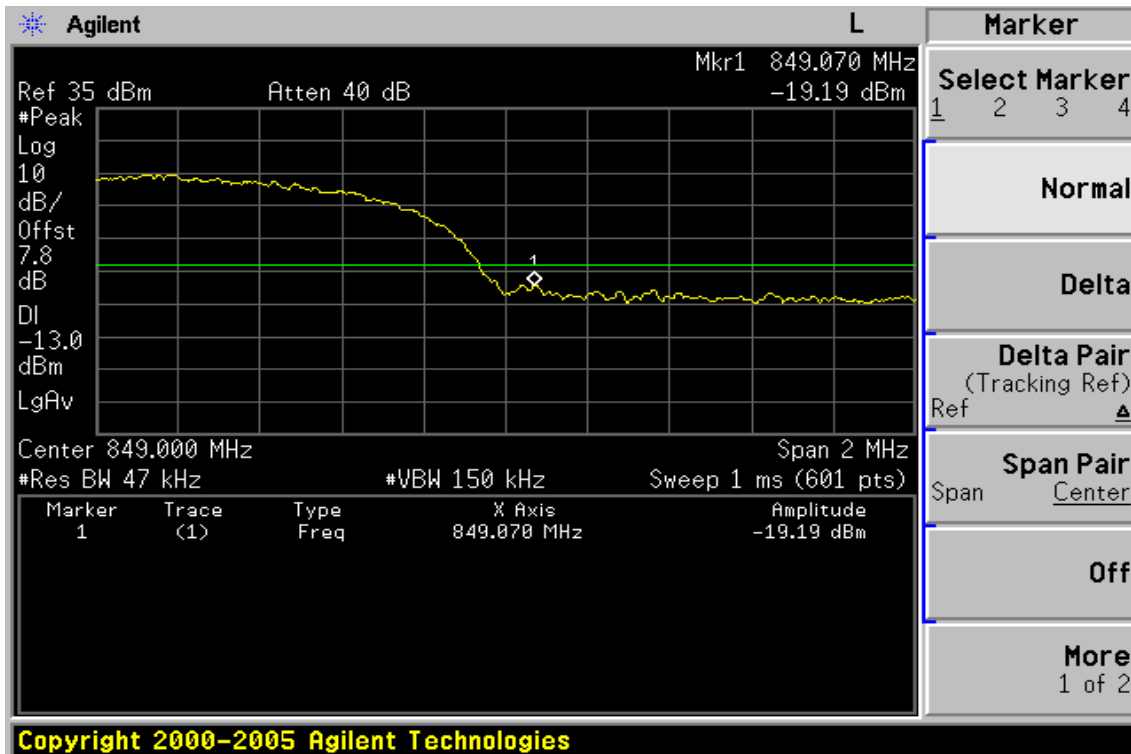


Figure 8-24: Band edge emission at antenna terminals –WCDMA V HSUPA Channel Highest



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

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

Refer to section 6.2 in this report

### 9.3. Measurement Procedure:

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

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

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

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

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

### 9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 9.5. Measurement Result:

Refer to attach tabular data sheets.

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

Operation Mode	: TX CH Low E2 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 824.20 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
41.64	41.09	V	-61.56	-2.31	0.93	-64.81	-13.00	-51.81
67.83	42.08	V	-69.61	-0.95	1.14	-71.70	-13.00	-58.70
96.93	42.47	V	-59.84	-7.76	1.33	-68.93	-13.00	-55.93
250.19	48.68	V	-51.20	-7.89	1.99	-61.08	-13.00	-48.08
824.00	79.04	V	-7.35	-7.87	3.62	-18.85	-13.00	-5.85
1648.40	72.24	V	-32.34	9.29	5.23	-28.28	-13.00	-15.28
2472.60	65.01	V	-36.00	10.08	6.53	-32.45	-13.00	-19.45
3296.80	57.23	V	-41.64	12.17	7.71	-37.19	-13.00	-24.19
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Low E2 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 824.20 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBUV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
58.13	41.91	H	-68.52	-0.49	1.08	-70.09	-13.00	-57.09
72.68	42.76	H	-69.57	-1.45	1.18	-72.19	-13.00	-59.19
96.93	43.96	H	-59.27	-7.76	1.33	-68.36	-13.00	-55.36
143.49	35.30	H	-63.15	-7.79	1.56	-72.51	-13.00	-59.51
250.19	43.36	H	-55.85	-7.89	1.99	-65.73	-13.00	-52.73
824.00	81.30	H	-4.97	-7.87	3.62	-16.47	-13.00	-3.47
1648.40	71.93	H	-32.47	9.29	5.23	-28.41	-13.00	-15.41
2472.60	67.26	H	-33.65	10.08	6.53	-30.10	-13.00	-17.10
3296.80	57.79	H	-41.31	12.17	7.71	-36.85	-13.00	-23.85
4121.00	---	H		12.61	8.86		-13.00	
4945.20	---	H		12.65	9.74		-13.00	
5769.40	---	H		13.55	10.54		-13.00	
6593.60	---	H		12.05	11.30		-13.00	
7417.80	---	H		11.49	12.10		-13.00	
8242.00	---	H		11.48	12.71		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Mid E2 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 836.60 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
67.83	41.58	V	-70.11	-0.95	1.14	-72.20	-13.00	-59.20
96.93	43.23	V	-59.08	-7.76	1.33	-68.17	-13.00	-55.17
250.19	42.79	V	-57.09	-7.89	1.99	-66.97	-13.00	-53.97
320.03	35.81	V	-62.19	-7.81	2.25	-72.25	-13.00	-59.25
1673.20	70.42	V	-34.14	9.36	5.27	-30.04	-13.00	-17.04
2509.80	62.59	V	-38.19	10.09	6.58	-34.69	-13.00	-21.69
3346.40	55.39	V	-43.47	12.28	7.79	-38.99	-13.00	-25.99
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid E2 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 836.60 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
41.64	40.46	H	-63.05	-2.31	0.93	-66.29	-13.00	-53.29
56.19	41.12	H	-68.52	-0.51	1.09	-70.12	-13.00	-57.12
72.68	42.30	H	-70.03	-1.45	1.18	-72.65	-13.00	-59.65
96.93	45.07	H	-58.16	-7.76	1.33	-67.25	-13.00	-54.25
250.19	49.71	H	-49.50	-7.89	1.99	-59.38	-13.00	-46.38
1673.20	68.67	H	-35.71	9.36	5.27	-31.61	-13.00	-18.61
2509.80	67.26	H	-33.44	10.09	6.58	-29.94	-13.00	-16.94
3346.40	59.92	H	-39.14	12.28	7.79	-34.66	-13.00	-21.66
4183.00	---	H		12.62	8.93		-13.00	
5019.60	---	H		12.67	9.81		-13.00	
5856.20	---	H		13.68	10.62		-13.00	
6692.80	---	H		11.95	11.39		-13.00	
7529.40	---	H		11.45	12.20		-13.00	
8366.00	---	H		11.59	12.81		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH High E2 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 848.80 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
46.49	51.69	V	-53.48	-1.32	1.05	-55.85	-13.00	-42.85
56.19	40.94	V	-68.72	-0.51	1.09	-70.33	-13.00	-57.33
96.93	45.43	V	-56.88	-7.76	1.33	-65.97	-13.00	-52.97
250.19	48.76	V	-51.12	-7.89	1.99	-61.00	-13.00	-48.00
426.73	33.91	V	-60.75	-7.68	2.59	-71.02	-13.00	-58.02
850.00	76.82	V	-9.29	-7.88	3.68	-20.85	-13.00	-7.85
1697.60	70.20	V	-34.34	9.44	5.31	-30.21	-13.00	-17.21
2546.40	63.02	V	-37.62	10.20	6.63	-34.06	-13.00	-21.06
3395.20	52.84	V	-46.01	12.38	7.87	-41.50	-13.00	-28.50
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High E2 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 848.80 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
41.64	41.10	H	-62.41	-2.31	0.93	-65.65	-13.00	-52.65
58.13	41.60	H	-68.83	-0.49	1.08	-70.40	-13.00	-57.40
96.93	45.34	H	-57.89	-7.76	1.33	-66.98	-13.00	-53.98
145.43	35.13	H	-63.12	-7.80	1.57	-72.48	-13.00	-59.48
850.00	78.64	H	-7.55	-7.88	3.68	-19.11	-13.00	-6.11
1697.60	69.96	H	-34.39	9.44	5.31	-30.26	-13.00	-17.26
2546.40	62.69	H	-37.91	10.20	6.63	-34.35	-13.00	-21.35
3395.20	54.25	H	-44.78	12.38	7.87	-40.26	-13.00	-27.26
4244.00	---	H		12.63	9.00		-13.00	
5092.80	---	H		12.74	9.88		-13.00	
5941.60	---	H		13.81	10.70		-13.00	
6790.40	---	H		11.86	11.48		-13.00	
7639.20	---	H		11.40	12.27		-13.00	
8488.00	---	H		11.70	12.91		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Low H Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1850.20MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
61.04	47.17	V	-64.18	-0.52	1.08	-65.79	-13.00	-52.79
92.08	47.45	V	-55.48	-7.75	1.29	-64.52	-13.00	-51.52
145.43	43.43	V	-54.28	-7.80	1.57	-63.65	-13.00	-50.65
250.19	48.17	V	-51.71	-7.89	1.99	-61.59	-13.00	-48.59
1850.00	63.67	V	-40.72	9.90	5.56	-36.38	-13.00	-23.38
3700.40	54.85	V	-43.08	12.61	8.31	-38.78	-13.00	-25.78
5550.60	37.22	V	-53.62	13.23	10.33	-50.72	-13.00	-37.72
7400.80	---	V		11.50	12.08		-13.00	
9251.00	---	V		11.92	13.50		-13.00	
11101.20	---	V		11.66	15.11		-13.00	
12951.40	---	V		13.63	16.60		-13.00	
14801.60	---	V		12.76	17.95		-13.00	
16651.80	---	V		15.92	19.14		-13.00	
18502.00	---	V		18.75	10.40		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Low H Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1850.20MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
72.68	45.86	H	-66.47	-1.45	1.18	-69.09	-13.00	-56.09
121.18	45.03	H	-55.75	-7.78	1.46	-64.99	-13.00	-51.99
145.43	45.10	H	-53.15	-7.80	1.57	-62.51	-13.00	-49.51
250.19	47.13	H	-52.08	-7.89	1.99	-61.96	-13.00	-48.96
1850.00	80.26	H	-23.92	9.90	5.56	-19.58	-13.00	-6.58
3700.40	51.55	H	-46.49	12.61	8.31	-42.19	-13.00	-29.19
5550.60	---	H		13.23	10.33		-13.00	
7400.80	---	H		11.50	12.08		-13.00	
9251.00	---	H		11.92	13.50		-13.00	
11101.20	---	H		11.66	15.11		-13.00	
12951.40	---	H		13.63	16.60		-13.00	
14801.60	---	H		12.76	17.95		-13.00	
16651.80	---	H		15.92	19.14		-13.00	
18502.00	---	H		18.75	10.40		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Mid H Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1880MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
61.04	47.59	V	-63.76	-0.52	1.08	-65.37	-13.00	-52.37
92.08	50.16	V	-52.77	-7.75	1.29	-61.81	-13.00	-48.81
145.43	44.13	V	-53.58	-7.80	1.57	-62.95	-13.00	-49.95
250.19	49.94	V	-49.94	-7.89	1.99	-59.82	-13.00	-46.82
3760.00	55.95	V	-41.71	12.60	8.39	-37.49	-13.00	-24.49
5640.00	36.58	V	-54.00	13.36	10.41	-51.05	-13.00	-38.05
7520.00	---	V		11.45	12.19		-13.00	
9400.00	---	V		11.93	13.61		-13.00	
11280.00	---	V		11.92	15.27		-13.00	
13160.00	---	V		13.33	16.71		-13.00	
15040.00	---	V		13.76	18.15		-13.00	
16920.00	---	V		15.27	19.32		-13.00	
18800.00	---	V		18.68	16.58		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Mid H Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1880MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
70.74	46.27	H	-66.04	-1.18	1.16	-68.38	-13.00	-55.38
116.33	44.61	H	-56.68	-7.77	1.44	-65.89	-13.00	-52.89
143.49	45.53	H	-52.92	-7.79	1.56	-62.28	-13.00	-49.28
250.19	47.30	H	-51.91	-7.89	1.99	-61.79	-13.00	-48.79
3760.00	51.68	H	-46.09	12.60	8.39	-41.88	-13.00	-28.88
5640.00	---	H		13.36	10.41		-13.00	
7520.00	---	H		11.45	12.19		-13.00	
9400.00	---	H		11.93	13.61		-13.00	
11280.00	---	H		11.92	15.27		-13.00	
13160.00	---	H		13.33	16.71		-13.00	
15040.00	---	H		13.76	18.15		-13.00	
16920.00	---	H		15.27	19.32		-13.00	
18800.00	---	H		18.68	16.58		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH High H Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1909.8 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
61.04	47.56	V	-63.79	-0.52	1.08	-65.40	-13.00	-52.40
92.08	50.34	V	-52.59	-7.75	1.29	-61.63	-13.00	-48.63
150.28	43.72	V	-53.60	-7.80	1.59	-62.99	-13.00	-49.99
250.19	49.71	V	-50.17	-7.89	1.99	-60.05	-13.00	-47.05
1910.00	63.38	V	-40.95	10.08	5.66	-36.53	-13.00	-23.53
3819.60	51.92	V	-45.47	12.60	8.47	-41.34	-13.00	-28.34
5729.40	36.48	V	-53.84	13.49	10.50	-50.84	-13.00	-37.84
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH High H Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1909.8 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
70.74	45.95	H	-66.36	-1.18	1.16	-68.70	-13.00	-55.70
119.24	44.20	H	-56.79	-7.78	1.45	-66.01	-13.00	-53.01
143.49	45.52	H	-52.93	-7.79	1.56	-62.29	-13.00	-49.29
250.19	47.53	H	-51.68	-7.89	1.99	-61.56	-13.00	-48.56
1910.00	80.09	H	-24.02	10.08	5.66	-19.60	-13.00	-6.60
3819.60	55.94	H	-41.57	12.60	8.47	-37.43	-13.00	-24.43
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Low E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 826.4 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBUV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
61.04	44.97	V	-66.38	-0.52	1.08	-67.99	-13.00	-54.99
90.14	46.48	V	-56.70	-7.75	1.27	-65.72	-13.00	-52.72
203.63	42.67	V	-58.97	-7.84	1.73	-68.55	-13.00	-55.55
250.19	49.67	V	-50.21	-7.89	1.99	-60.09	-13.00	-47.09
824.00	67.22	V	-19.17	-7.87	3.62	-30.67	-13.00	-17.67
1652.80	54.62	V	-49.96	9.30	5.23	-45.89	-13.00	-32.89
2479.20	49.06	V	-51.90	10.07	6.54	-48.37	-13.00	-35.37
3305.60	---	V		12.19	7.73		-13.00	
4132.00	---	V		12.62	8.87		-13.00	
4958.40	---	V		12.65	9.75		-13.00	
5784.80	---	V		13.58	10.55		-13.00	
6611.20	---	V		12.03	11.31		-13.00	
7437.60	---	V		11.48	12.12		-13.00	
8264.00	---	V		11.50	12.73		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Low E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 826.4 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBUV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
41.64	43.09	H	-60.42	-2.31	0.93	-63.66	-13.00	-50.66
75.59	45.04	H	-67.32	-1.85	1.19	-70.36	-13.00	-57.36
143.49	43.95	H	-54.50	-7.79	1.56	-63.86	-13.00	-50.86
250.19	51.96	H	-47.25	-7.89	1.99	-57.13	-13.00	-44.13
824.00	61.68	H	-24.59	-7.87	3.62	-36.09	-13.00	-23.09
1652.80	52.10	H	-52.30	9.30	5.23	-48.23	-13.00	-35.23
2479.20	48.72	H	-52.15	10.07	6.54	-48.61	-13.00	-35.61
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  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 836.60 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
60.07	44.54	V	-66.76	-0.46	1.07	-68.30	-13.00	-55.30
96.93	45.79	V	-56.52	-7.76	1.33	-65.61	-13.00	-52.61
198.78	43.41	V	-58.26	-7.84	1.71	-67.81	-13.00	-54.81
250.19	49.63	V	-50.25	-7.89	1.99	-60.13	-13.00	-47.13
1672.00	52.58	V	-51.98	9.36	5.27	-47.89	-13.00	-34.89
2508.00	48.47	V	-52.32	10.08	6.58	-48.82	-13.00	-35.82
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 belongs to narrowband spurious emission.
- 2 Remark"---" means that the emission level is too low to be measured
- 3 The result basic equation calculation is as follows:
- 4  $ERP/EIRP (dBm) = SG \text{ Setting}(dBm) + Antenna \text{ Gain} (dB/dBi) - Cable \text{ loss} (dB)$

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

Operation Mode	: TX CH Mid E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 836.60 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
41.64	43.23	H	-60.28	-2.31	0.93	-63.52	-13.00	-50.52
75.59	44.69	H	-67.67	-1.85	1.19	-70.71	-13.00	-57.71
143.49	43.69	H	-54.76	-7.79	1.56	-64.12	-13.00	-51.12
250.19	51.13	H	-48.08	-7.89	1.99	-57.96	-13.00	-44.96
1672.00	50.89	H	-53.49	9.36	5.27	-49.39	-13.00	-36.39
2508.00	48.55	H	-52.16	10.08	6.58	-48.65	-13.00	-35.65
3344.00	---	H		12.27	7.79		-13.00	
4180.00	---	H		12.62	8.93		-13.00	
5016.00	---	H		12.67	9.81		-13.00	
5852.00	---	H		13.68	10.62		-13.00	
6688.00	---	H		11.96	11.39		-13.00	
7524.00	---	H		11.45	12.20		-13.00	
8360.00	---	H		11.58	12.81		-13.00	

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

Remark :

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

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

Operation Mode : TX CH High E1 Mode Test Date: Jun. 24, 2009  
 Fundamental Frequency : 846.6 MHz Test By: Sky  
 Temperature : 25°C Pol: Ver  
 Humidity : 65%

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
31.94	47.56	V	-56.58	-6.43	0.94	-63.95	-13.00	-50.95
92.08	47.39	V	-55.54	-7.75	1.29	-64.58	-13.00	-51.58
206.54	44.26	V	-57.27	-7.85	1.75	-66.87	-13.00	-53.87
250.19	49.57	V	-50.31	-7.89	1.99	-60.19	-13.00	-47.19
849.00	66.79	V	-19.33	-7.88	3.68	-30.89	-13.00	-17.89
1693.20	55.39	V	-49.15	9.42	5.30	-45.03	-13.00	-32.03
2539.80	47.28	V	-53.39	10.18	6.62	-49.84	-13.00	-36.84
3386.40	---	V		12.36	7.85		-13.00	
4233.00	---	V		12.63	8.99		-13.00	
5079.60	---	V		12.73	9.87		-13.00	
5926.20	---	V		13.79	10.69		-13.00	
6772.80	---	V		11.87	11.47		-13.00	
7619.40	---	V		11.41	12.26		-13.00	
8466.00	---	V		11.68	12.89		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH High E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 846.6 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
41.64	42.58	H	-60.93	-2.31	0.93	-64.17	-13.00	-51.17
72.68	44.50	H	-67.83	-1.45	1.18	-70.45	-13.00	-57.45
143.49	44.04	H	-54.41	-7.79	1.56	-63.77	-13.00	-50.77
250.19	50.93	H	-48.28	-7.89	1.99	-58.16	-13.00	-45.16
849.00	66.13	H	-20.06	-7.88	3.68	-31.62	-13.00	-18.62
1693.20	53.83	H	-50.52	9.42	5.30	-46.40	-13.00	-33.40
2539.80	46.37	H	-54.25	10.18	6.62	-50.69	-13.00	-37.69
3386.40	---	H		12.36	7.85		-13.00	
4233.00	---	H		12.63	8.99		-13.00	
5079.60	---	H		12.73	9.87		-13.00	
5926.20	---	H		13.79	10.69		-13.00	
6772.80	---	H		11.87	11.47		-13.00	
7619.40	---	H		11.41	12.26		-13.00	
8466.00	---	H		11.68	12.89		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Low E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1852.4MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
61.04	48.59	V	-62.76	-0.52	1.08	-64.37	-13.00	-51.37
92.08	46.24	V	-56.69	-7.75	1.29	-65.73	-13.00	-52.73
208.48	46.64	V	-54.82	-7.85	1.76	-64.43	-13.00	-51.43
250.19	49.93	V	-49.95	-7.89	1.99	-59.83	-13.00	-46.83
1850.00	64.62	V	-39.77	9.90	5.56	-35.43	-13.00	-22.43
3704.80	47.64	V	-50.27	12.61	8.31	-45.98	-13.00	-32.98
5557.20	---	V		13.24	10.33		-13.00	
7409.60	---	V		11.49	12.09		-13.00	
9262.00	---	V		11.92	13.51		-13.00	
11114.40	---	V		11.68	15.12		-13.00	
12966.80	---	V		13.62	16.61		-13.00	
14819.20	---	V		12.83	17.96		-13.00	
16671.60	---	V		15.87	19.15		-13.00	
18524.00	---	V		18.74	10.86		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Low E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1852.4MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
70.74	46.47	H	-65.84	-1.18	1.16	-68.18	-13.00	-55.18
140.58	46.42	H	-52.34	-7.79	1.55	-61.67	-13.00	-48.67
250.19	50.92	H	-48.29	-7.89	1.99	-58.17	-13.00	-45.17
279.29	49.41	H	-48.90	-7.91	2.10	-58.90	-13.00	-45.90
1850.00	68.18	H	-36.00	9.90	5.56	-31.66	-13.00	-18.66
3704.80	46.06	H	-51.96	12.61	8.31	-47.67	-13.00	-34.67
5557.20	---	H		13.24	10.33		-13.00	
7409.60	---	H		11.49	12.09		-13.00	
9262.00	---	H		11.92	13.51		-13.00	
11114.40	---	H		11.68	15.12		-13.00	
12966.80	---	H		13.62	16.61		-13.00	
14819.20	---	H		12.83	17.96		-13.00	
16671.60	---	H		15.87	19.15		-13.00	
18524.00	---	H		18.74	10.86		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Mid E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1880MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
61.04	48.51	V	-62.84	-0.52	1.08	-64.45	-13.00	-51.45
201.69	48.75	V	-52.97	-7.84	1.72	-62.53	-13.00	-49.53
250.19	49.90	V	-49.98	-7.89	1.99	-59.86	-13.00	-46.86
271.53	47.45	V	-51.73	-7.90	2.07	-61.70	-13.00	-48.70
1877.50	60.25	V	-44.11	9.98	5.61	-39.74	-13.00	-26.74
3760.00	46.67	V	-50.99	12.60	8.39	-46.77	-13.00	-33.77
5640.00	---	V		13.36	10.41		-13.00	
7520.00	---	V		11.45	12.19		-13.00	
9400.00	---	V		11.93	13.61		-13.00	
11280.00	---	V		11.92	15.27		-13.00	
13160.00	---	V		13.33	16.71		-13.00	
15040.00	---	V		13.76	18.15		-13.00	
16920.00	---	V		15.27	19.32		-13.00	
18800.00	---	V		18.68	16.58		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH Mid E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1880MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
80.44	48.57	H	-55.03	-7.75	0.04	-62.82	-13.00	-49.82
143.49	46.23	H	-52.22	-7.79	1.56	-61.58	-13.00	-48.58
206.54	47.94	H	-53.39	-7.85	1.75	-62.99	-13.00	-49.99
250.19	51.72	H	-47.49	-7.89	1.99	-57.37	-13.00	-44.37
1877.50	64.82	H	-39.33	9.98	5.61	-34.95	-13.00	-21.95
3760.00	47.15	H	-50.62	12.60	8.39	-46.41	-13.00	-33.41
5640.00	---	H		13.36	10.41		-13.00	
7520.00	---	H		11.45	12.19		-13.00	
9400.00	---	H		11.93	13.61		-13.00	
11280.00	---	H		11.92	15.27		-13.00	
13160.00	---	H		13.33	16.71		-13.00	
15040.00	---	H		13.76	18.15		-13.00	
16920.00	---	H		15.27	19.32		-13.00	
18800.00	---	H		18.68	16.58		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH High E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1907.6 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Ver
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
61.04	48.39	V	-62.96	-0.52	1.08	-64.57	-13.00	-51.57
92.00	47.19	V	-55.75	-7.75	1.29	-64.79	-13.00	-51.79
92.08	46.41	V	-56.52	-7.75	1.29	-65.56	-13.00	-52.56
203.63	50.61	V	-51.03	-7.84	1.73	-60.61	-13.00	-47.61
1910.00	74.10	V	-30.23	10.08	5.66	-25.81	-13.00	-12.81
3815.20	49.31	V	-48.10	12.60	8.46	-43.96	-13.00	-30.96
5722.80	---	V		13.48	10.49		-13.00	
7630.40	---	V		11.41	12.27		-13.00	
9538.00	---	V		11.95	13.73		-13.00	
11445.60	---	V		12.15	15.42		-13.00	
13353.20	---	V		13.00	16.81		-13.00	
15260.80	---	V		14.91	18.28		-13.00	
17168.40	---	V		14.53	19.50		-13.00	
19076.00	---	V		18.65	20.76		-13.00	

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

Remark :

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

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

Operation Mode	: TX CH High E1 Mode	Test Date:	Jun. 24, 2009
Fundamental Frequency	: 1907.6 MHz	Test By:	Sky
Temperature	: 25°C	Pol:	Hor
Humidity	: 65%		

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
80.44	47.85	H	-55.75	-7.75	0.04	-63.54	-13.00	-50.54
143.49	45.57	H	-52.88	-7.79	1.56	-62.24	-13.00	-49.24
198.78	45.53	H	-56.03	-7.84	1.71	-65.57	-13.00	-52.57
250.19	51.62	H	-47.59	-7.89	1.99	-57.47	-13.00	-44.47
1910.00	79.99	H	-24.12	10.08	5.66	-19.70	-13.00	-6.70
3815.20	48.01	H	-49.52	12.60	8.46	-45.38	-13.00	-32.38
5722.80	---	H		13.48	10.49		-13.00	
7630.40	---	H		11.41	12.27		-13.00	
9538.00	---	H		11.95	13.73		-13.00	
11445.60	---	H		12.15	15.42		-13.00	
13353.20	---	H		13.00	16.81		-13.00	
15260.80	---	H		14.91	18.28		-13.00	
17168.40	---	H		14.53	19.50		-13.00	
19076.00	---	H		18.65	20.76		-13.00	

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

Remark :

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

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

### 10.1. Standard Applicable:

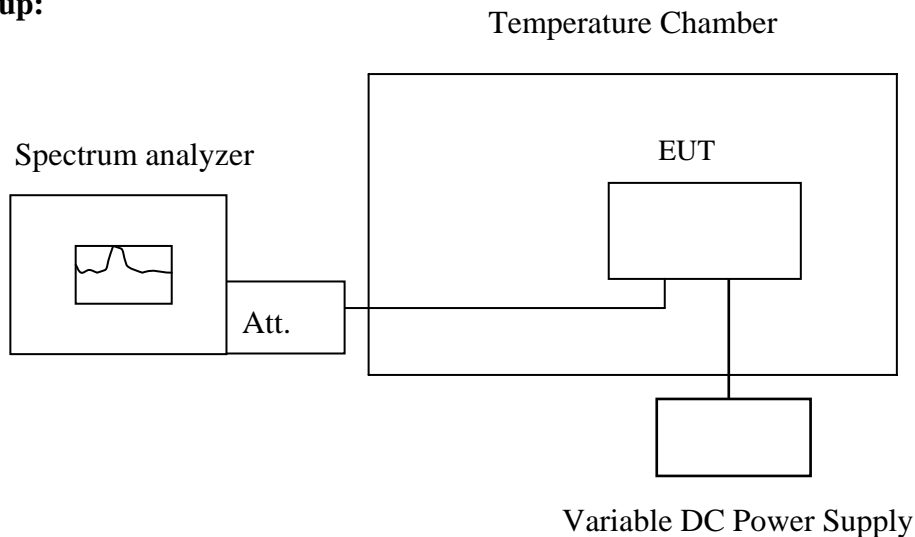
According to FCC §2.1055(a) (1)

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

+/-2.5ppm for 1900MHz band

§27.54: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 10.2. Test Set-up:



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

### 10.3. Measurement Procedure:

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

### 10.4. Measurement Equipment Used:

Refer to section 2.4 in this report

**10.5. Measurement Result:**

Reference Frequency: GSM Mid Channel 836.6 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
5	-30	836.600022	-40.00	2091
5	-20	836.600004	-22.00	2091
5	-10	836.600043	-61.00	2091
5	0	836.600000	-18.00	2091
5	10	836.600019	-37.00	2091
5	20	836.599982	0.00	2091
5	30	836.599986	-4.00	2091
5	40	836.599983	-1.00	2091
5	50	836.599986	-4.00	2091

Reference Frequency: PCS 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	1880.000009	-29.00	4700
5	-20	1879.999991	-11.00	4700
5	-10	1879.999977	3.00	4700
5	0	1879.999994	-14.00	4700
5	10	1879.999975	5.00	4700
5	20	1879.999980	0.00	4700
5	30	1879.999987	-7.00	4700
5	40	1879.999966	14.00	4700
5	50	1879.999940	40.00	4700

**Note: The test kit was rated 5V dc and powered from USB interface.**

Reference Frequency: WCDMA V 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)		
12	-30	836.599999	-4.00	2091
12	-20	836.599997	-2.00	2091
12	-10	836.599998	-3.00	2091
12	0	836.599993	2.00	2091
12	10	836.599997	-2.00	2091
12	20	836.599995	0.00	2091
12	30	836.600001	-6.00	2091
12	40	836.599998	-3.00	2091
12	50	836.599994	1.00	2091

Reference Frequency: WCDMA II Mid Channel 1880 MHz @ 25°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
12	-30	1880.000011	-7.00	4700
12	-20	1880.000007	-3.00	4700
12	-10	1880.000009	-5.00	4700
12	0	1879.999998	6.00	4700
12	10	1880.000008	-4.00	4700
12	20	1880.000004	0.00	4700
12	30	1880.000006	-2.00	4700
12	40	1880.000002	2.00	4700
12	50	1880.000007	-3.00	4700

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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

§27.54: The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

### 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

**11.5. Measurement Result:**

Reference Frequency: GSM 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)		
13.8	25.00	836.599981	1.00	2091
12.0	25.00	836.599980	0.00	2091
10.2	25.00	836.599980	0.00	2091
10.0 (End Point)	25.00	836.600338	-358.00	2091

Reference Frequency: PCS Mid Channel 1880 MHz @ 25°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
13.8	25	1879.999986	-22.00	4700
12.0	25	1879.999964	0.00	4700
10.2	25	1880.000003	-39.00	4700
10.0 (End Point)	25	1880.000433	-469.00	4700

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Reference Frequency: WCDMA V 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)		
13.8	25	836.599993	2.00	4700
12.0	25	836.599995	0.00	4700
10.2	25	836.599997	-4.00	4700
10.0 (End Point)	25	836.600003	-10.00	4700

Reference Frequency: WCDMA II Mid Channel 1880 MHz @ 25°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
13.8	25.00	1880.000006	-2.00	2091
12.0	25.00	1880.000004	0.00	2091
10.2	25.00	1880.000011	-5.00	2091
10.0 (End Point)	25.00	1880.000014	-8.00	2091

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## 12. AC POWER LINE CONDUCTED EMISSION TEST

### 12.1. Standard Applicable:

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

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

Note

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

### 12.2. EUT Setup:

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2001.
2. The EUT was plug-in DC power adaptort and was placed on the center of the back edge on the test table. The peripherals like earphone was placed on the side of the EUT. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The Power adaptor was connected with 110Vac/60Hz power source.

### 12.3. Measurement Procedure:

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

### 12.4. Measurement Equipment Used:

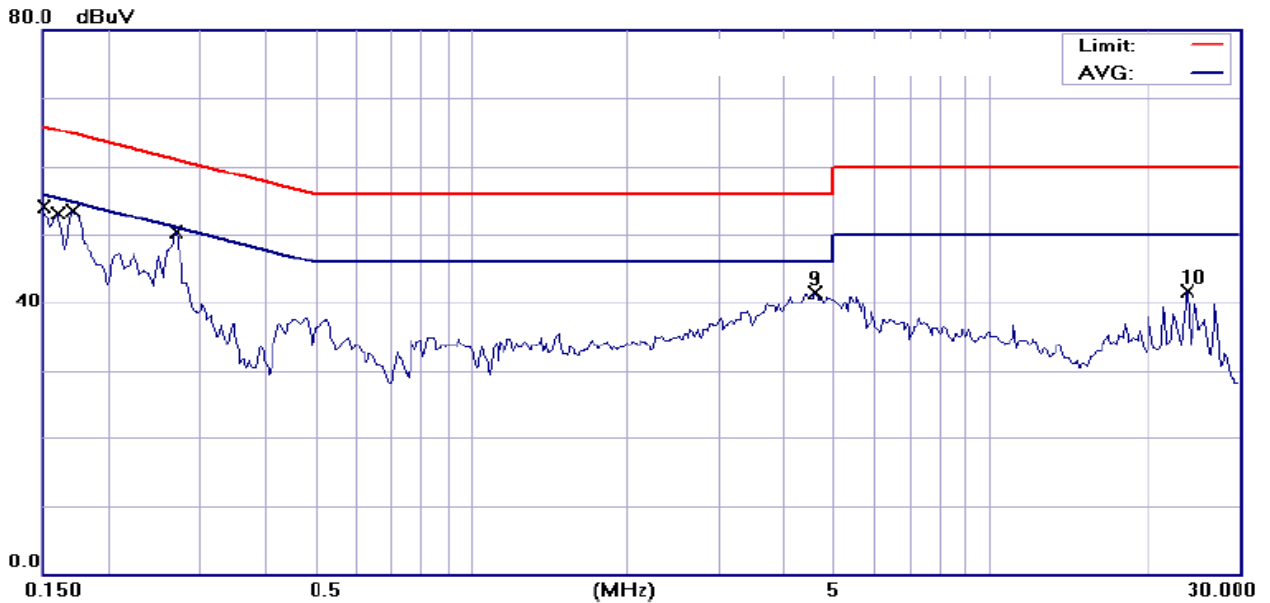
Refer to section 2.4 in this report

### 12.5. Measurement Result;

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

### AC POWER LINE CONDUCTED EMISSION TEST DATA

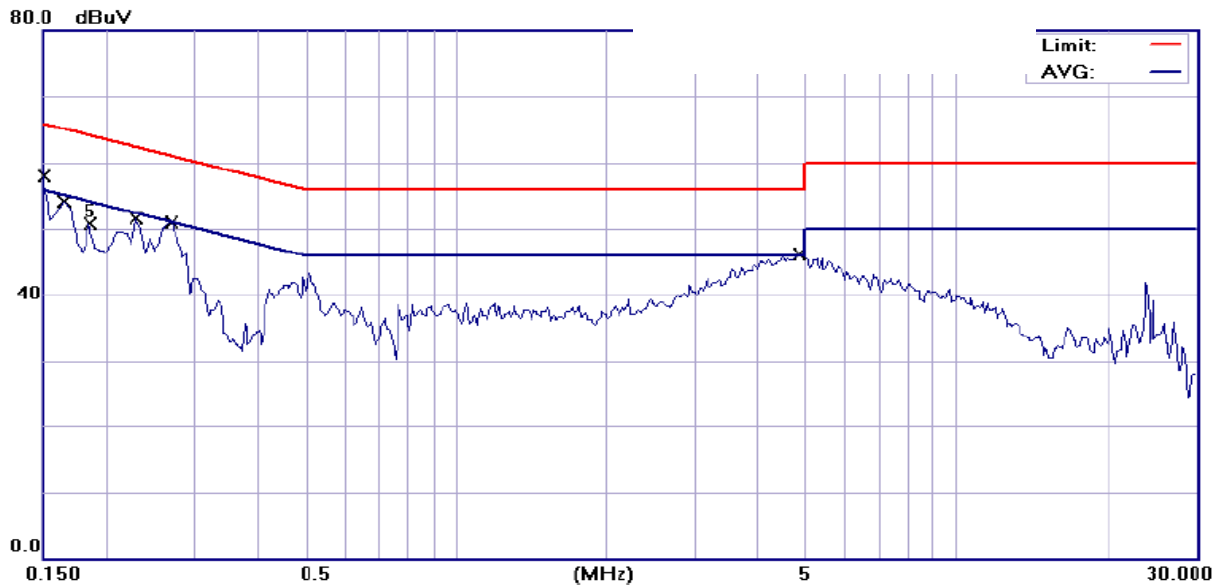
Operation Mode:	GPRS 850 LINK		Test Date:	Jun. 24, 2009	
Temperature:	26 °C	Humidity:	58 %	Test By:	Sky



Site SGS CONDUCTED #1 Phase: **L1** Temperature: 23 °C  
 Limit: CISPR22/11/EN55022 Class B Power: AC 120V/60Hz Humidity: 58 %  
 EUT: 3.5G/HSPA WiFi Router Distance: Air Pressure: hpa  
 M/N: R250  
 Note: GPRS 850 Link

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1503	43.38	0.10	43.48	65.98	-22.50	QP	
2		0.1503	23.70	0.10	23.80	55.98	-32.18	AVG	
3		0.1596	44.32	0.09	44.41	65.48	-21.07	QP	
4		0.1596	24.54	0.09	24.63	55.48	-30.85	AVG	
5		0.1697	42.71	0.09	42.80	64.98	-22.18	QP	
6		0.1697	21.59	0.09	21.68	54.98	-33.30	AVG	
7		0.2693	43.99	0.06	44.05	61.14	-17.09	QP	
8	*	0.2693	37.77	0.06	37.83	51.14	-13.31	AVG	
9		4.5800	41.47	0.12	41.59	56.00	-14.41	peak	
10		24.0000	41.61	0.15	41.76	60.00	-18.24	peak	

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Site SGS CONDUCTED #1  
 Limit: CISPR22/11/EN55022 Class B  
 EUT: 3.5G/HSPA/WiFi Router  
 M/N: R250  
 Note: GPRS 850 Link

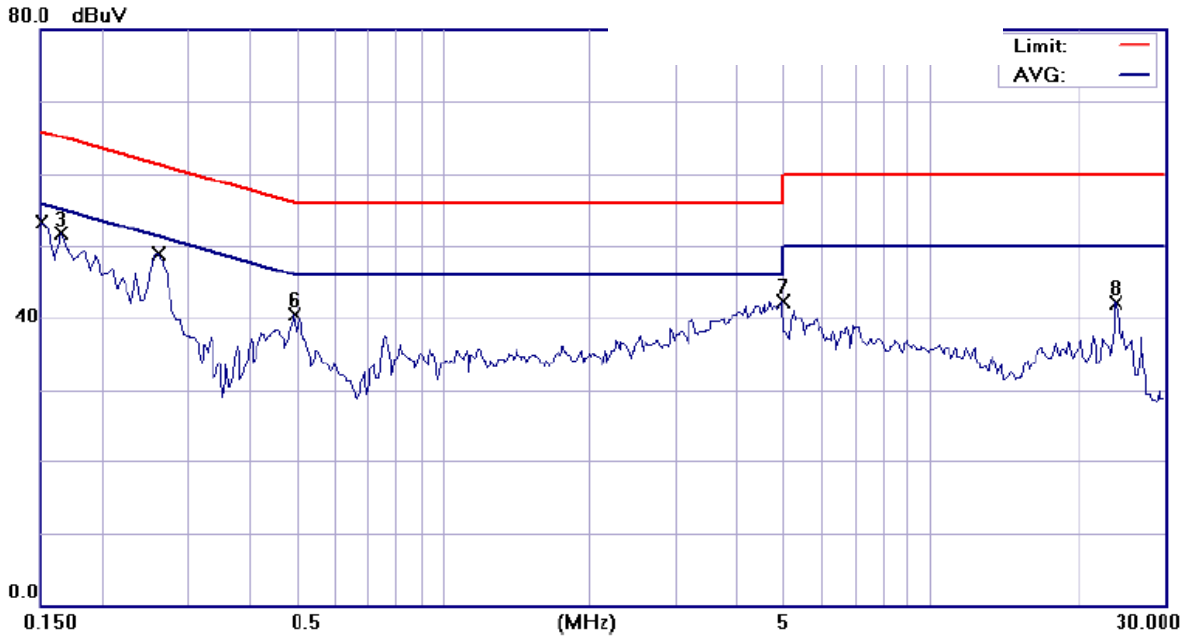
Phase: N  
 Power: AC 120V/60Hz  
 Distance:  
 Temperature: 23 °C  
 Humidity: 58 %  
 Air Pressure: hpa

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1505	42.52	0.10	42.62	65.97	-23.35	QP	
2		0.1505	32.45	0.10	32.55	55.97	-23.42	AVG	
3		0.1648	45.44	0.09	45.53	65.22	-19.69	QP	
4		0.1648	30.92	0.09	31.01	55.22	-24.21	AVG	
5		0.1850	50.58	0.08	50.66	64.26	-13.60	peak	
6		0.2295	46.87	0.07	46.94	62.47	-15.53	QP	
7		0.2295	40.15	0.07	40.22	52.47	-12.25	AVG	
8		0.2686	48.73	0.06	48.79	61.16	-12.37	QP	
9	*	0.2686	44.88	0.06	44.94	51.16	-6.22	AVG	
10		4.8274	41.59	0.12	41.71	56.00	-14.29	QP	
11		4.8274	33.35	0.12	33.47	46.00	-12.53	AVG	

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### AC POWER LINE CONDUCTED EMISSION TEST DATA

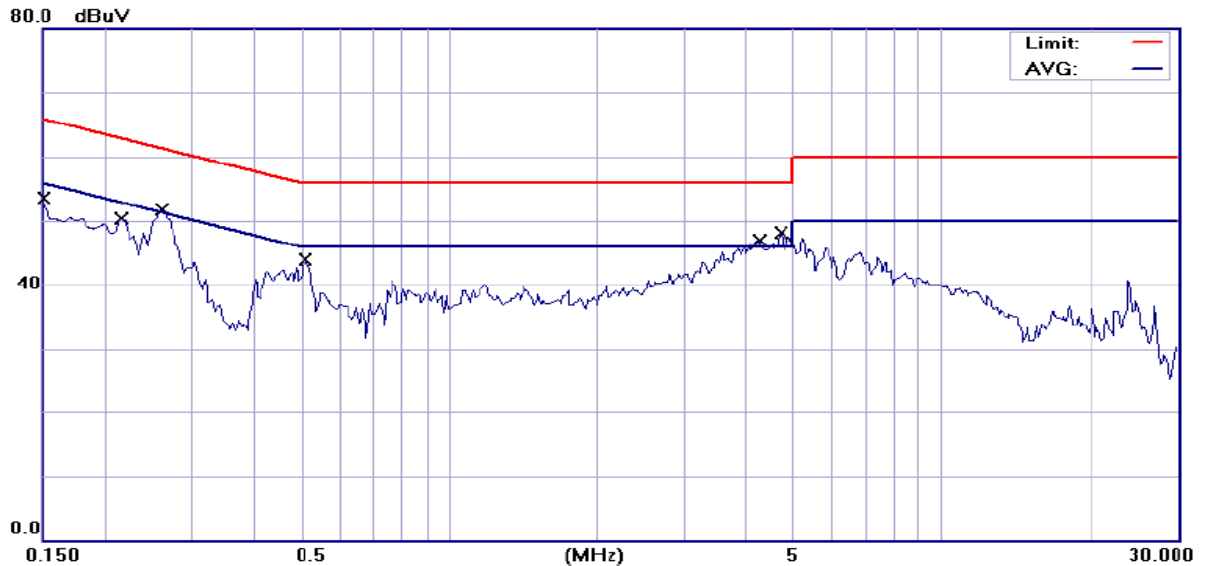
Operation Mode:	GPRS 1900 Link		Test Date:	Jun. 24, 2009	
Temperature:	26 °C	Humidity:	58 %	Test By:	Sky



Site	SGS CONDUCTED #1	Phase:	L1	Temperature:	23 °C
Limit:	CISPR22/11/EN55022 Class B	Power:	AC 120V/60Hz	Humidity:	58 %
EUT:	3.5G/HSPA/WiFi Router	Distance:		Air Pressure:	hpa
M/N:	R250				
Note:	GPRS 1900 Link				

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1506	41.31	0.10	41.41	65.97	-24.56	QP	
2		0.1506	23.77	0.10	23.87	55.97	-32.10	AVG	
3		0.1650	51.60	0.09	51.69	65.21	-13.52	peak	
4		0.2592	45.89	0.06	45.95	61.46	-15.51	QP	
5	*	0.2592	39.56	0.06	39.62	51.46	-11.84	AVG	
6		0.4950	40.37	0.04	40.41	56.08	-15.67	peak	
7		4.9800	42.13	0.12	42.25	56.00	-13.75	peak	
8		24.0000	42.05	0.15	42.20	60.00	-17.80	peak	

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Site SGS CONDUCTED #1

Limit: CISPR22/11/EN55022 Class B

EUT: 3.5G/HSPA/WiFi Router

M/N: R250

Note: GPRS 1900 Link

Phase: N

Power: AC 120V/60Hz

Distance:

Temperature: 23 °C

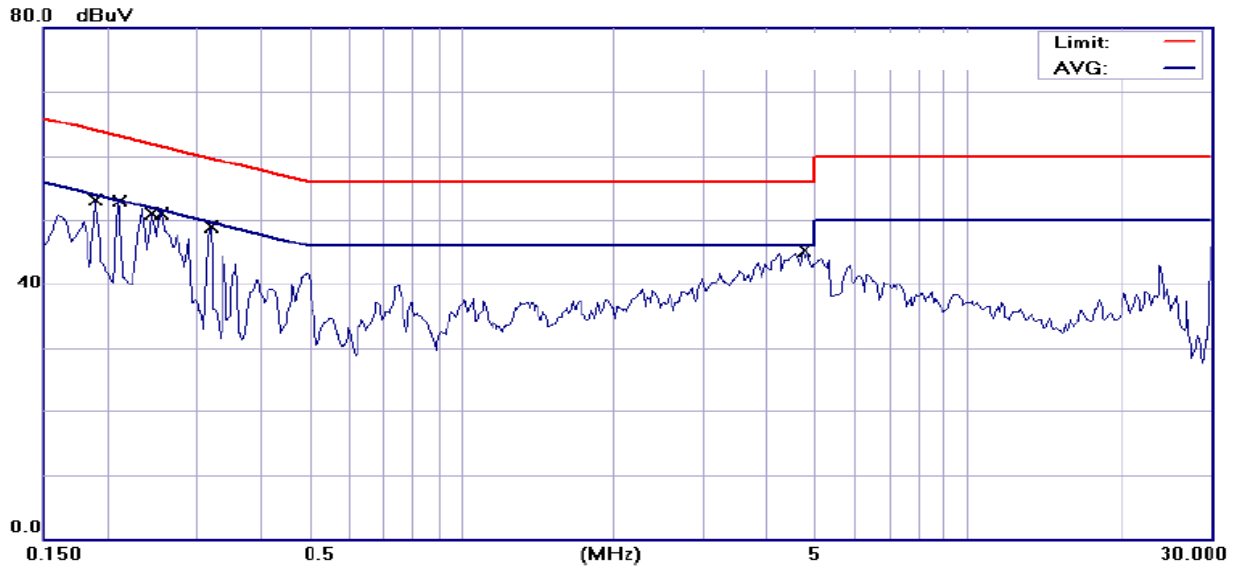
Humidity: 58 %

Air Pressure: hpa

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1505	50.24	0.10	50.34	65.97	-15.63	QP	
2		0.1505	32.75	0.10	32.85	55.97	-23.12	AVG	
3		0.2144	46.32	0.07	46.39	63.03	-16.64	QP	
4		0.2144	33.42	0.07	33.49	53.03	-19.54	AVG	
5		0.2592	46.51	0.06	46.57	61.46	-14.89	QP	
6		0.2592	36.29	0.06	36.35	51.46	-15.11	AVG	
7		0.5122	37.41	0.04	37.45	56.00	-18.55	QP	
8		0.5122	29.58	0.04	29.62	46.00	-16.38	AVG	
9		4.2489	40.16	0.11	40.27	56.00	-15.73	QP	
10		4.2489	32.36	0.11	32.47	46.00	-13.53	AVG	
11		4.6948	41.37	0.12	41.49	56.00	-14.51	QP	
12	*	4.6948	33.20	0.12	33.32	46.00	-12.68	AVG	

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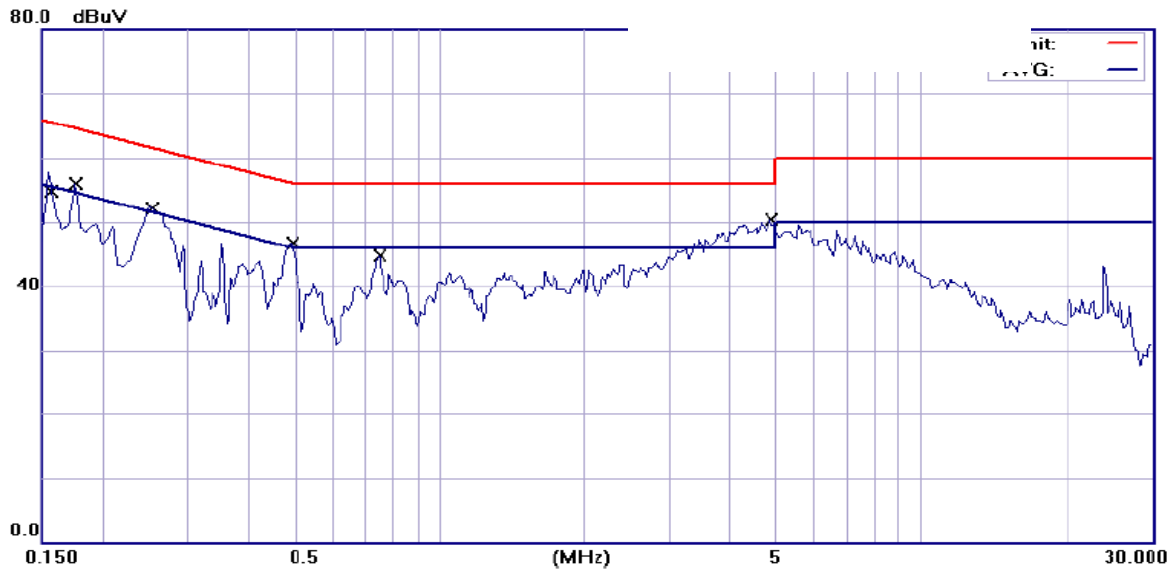
Operation Mode:	WCDMA II LINK			Test Date:	Jun. 24, 2009
Temperature:	26 °C	Humidity:	58 %	Test By:	Sky



Site SGS CONDUCTED #1 Phase: **L1** Temperature: 23 °C  
 Limit: CISPR22/11/EN55022 Class B Power: AC 120V/60Hz Humidity: 58 %  
 EUT: 3.5G/HSPA WiFi Router Distance: Air Pressure: hpa  
 M/N: R250  
 Note: Wcdma B2 Link

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1895	41.77	0.08	41.85	64.06	-22.21	QP	
2		0.1895	31.26	0.08	31.34	54.06	-22.72	AVG	
3		0.2094	37.56	0.07	37.63	63.23	-25.60	QP	
4		0.2094	25.35	0.07	25.42	53.23	-27.81	AVG	
5		0.2451	42.33	0.07	42.40	61.92	-19.52	QP	
6		0.2451	30.86	0.07	30.93	51.92	-20.99	AVG	
7		0.2576	45.80	0.06	45.86	61.51	-15.65	QP	
8	*	0.2576	40.74	0.06	40.80	51.51	-10.71	AVG	
9		0.3200	33.88	0.06	33.94	59.71	-25.77	QP	
10		0.3200	27.90	0.06	27.96	49.71	-21.75	AVG	
11		4.7215	38.63	0.12	38.75	56.00	-17.25	QP	
12		4.7215	31.15	0.12	31.27	46.00	-14.73	AVG	

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Site SGS CONDUCTED #1

Limit: CISPR22/11/EN55022 Class B

EUT: 3.5G/HSPA WiFi Router

M/N: R250

Note: Wcdma B2 Link

Phase: N

Power: AC 120V/60Hz

Distance:

Temperature: 23 °C

Humidity: 58 %

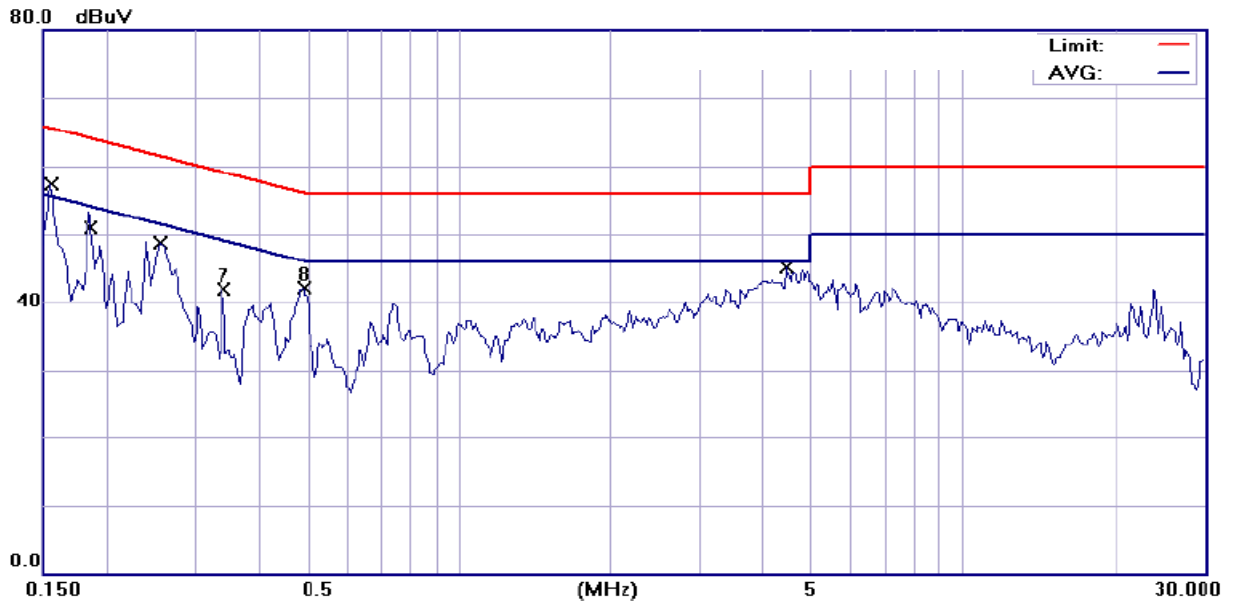
Air Pressure: hpa

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1585	47.74	0.10	47.84	65.54	-17.70	QP	
2		0.1585	39.47	0.10	39.57	55.54	-15.97	AVG	
3		0.1748	48.57	0.09	48.66	64.73	-16.07	QP	
4		0.1748	34.40	0.09	34.49	54.73	-20.24	AVG	
5		0.2551	50.57	0.06	50.63	61.59	-10.96	QP	
6	*	0.2551	46.25	0.06	46.31	51.59	-5.28	AVG	
7		0.4940	43.44	0.04	43.48	56.10	-12.62	QP	
8		0.4940	34.40	0.04	34.44	46.10	-11.66	AVG	
9		0.7488	42.22	0.05	42.27	56.00	-13.73	QP	
10		0.7488	33.51	0.05	33.56	46.00	-12.44	AVG	
11		4.8738	44.45	0.12	44.57	56.00	-11.43	QP	
12		4.8738	35.77	0.12	35.89	46.00	-10.11	AVG	

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### AC POWER LINE CONDUCTED EMISSION TEST DATA

Operation Mode:	WCDMA V Link		Test Date:	Jun. 24, 2009	
Temperature:	26 °C	Humidity:	58 %	Test By:	Sky



Site: SGS CONDUCTED #1  
 Limit: CISPR22/11/EN55022 Class B  
 EUT: 3.5G/HSPA WiFi Router  
 M/N: R250  
 Note: Wcdma B5 Link

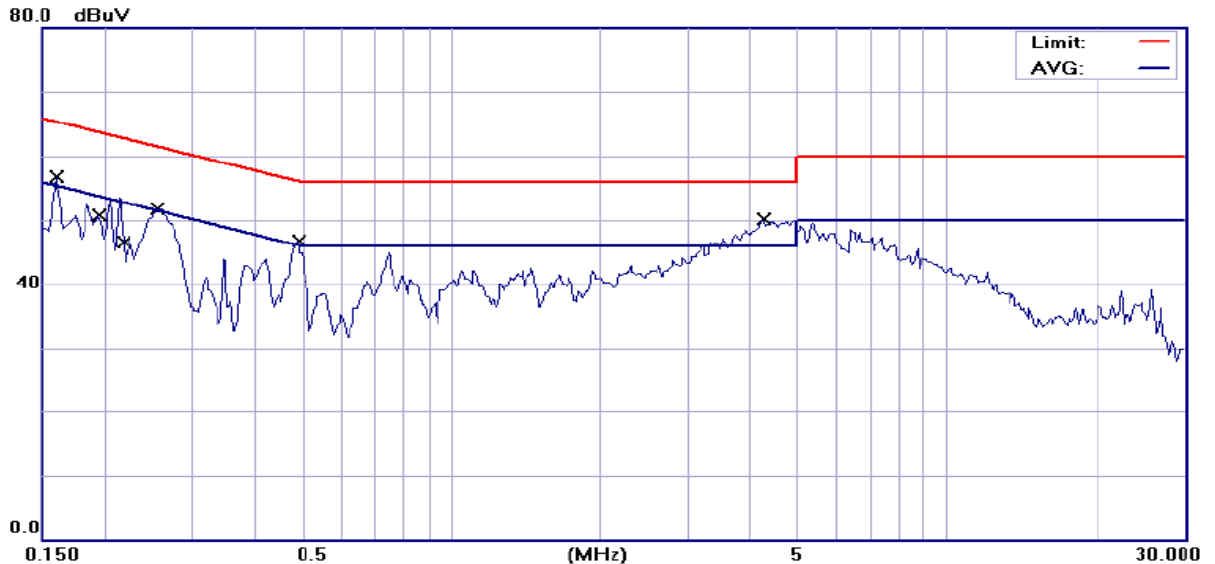
Phase: L1  
 Power: AC 120V/60Hz  
 Distance:

Temperature: 23 °C  
 Humidity: 58 %  
 Air Pressure: hpa

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1548	40.81	0.10	40.91	65.74	-24.83	QP	
2		0.1548	29.71	0.10	29.81	55.74	-25.93	AVG	
3		0.1883	45.35	0.08	45.43	64.11	-18.68	QP	
4		0.1883	36.79	0.08	36.87	54.11	-17.24	AVG	
5		0.2543	50.29	0.06	50.35	61.62	-11.27	QP	
6	*	0.2543	44.63	0.06	44.69	51.62	-6.93	AVG	
7		0.3400	41.84	0.06	41.90	59.20	-17.30	peak	
8		0.4900	42.07	0.04	42.11	56.17	-14.06	peak	
9		4.4570	46.52	0.11	46.63	56.00	-9.37	QP	
10		4.4570	37.45	0.11	37.56	46.00	-8.44	AVG	

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Site SGS CONDUCTED #1  
 Limit: CISPR22/11/EN55022 Class B  
 EUT: 3.5G/HSPA WiFi Router  
 M/N: R250  
 Note: Wcdma B5 Link

Phase: **N** Temperature: 23 °C  
 Power: AC 120V/60Hz Humidity: 58 %  
 Distance: Air Pressure: hpa

No.	Mk.	Freq. MHz	Reading Level dBuV	Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1598	47.78	0.09	47.87	65.47	-17.60	QP	
2		0.1598	41.31	0.09	41.40	55.47	-14.07	AVG	
3		0.1928	47.39	0.07	47.46	63.92	-16.46	QP	
4		0.1928	43.50	0.07	43.57	53.92	-10.35	AVG	
5		0.2202	40.63	0.07	40.70	62.81	-22.11	QP	
6		0.2202	35.83	0.07	35.90	52.81	-16.91	AVG	
7		0.2572	50.67	0.06	50.73	61.52	-10.79	QP	
8	*	0.2572	47.87	0.06	47.93	51.52	-3.59	AVG	
9		0.4889	43.44	0.04	43.48	56.19	-12.71	QP	
10		0.4889	34.98	0.04	35.02	46.19	-11.17	AVG	
11		4.2475	43.74	0.11	43.85	56.00	-12.15	QP	
12		4.2475	35.63	0.11	35.74	46.00	-10.26	AVG	

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