

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

## INTENTIONAL RADIATOR CERTIFICATION TO FCC PART 22 SUBPART H, PART 24 SUBPART E CLASS II PC REPORT

OF

**Product Name:** Nyos LGA CDMA

**Brand Name:** OPTION

**Model Name:** MO6092

**Model Different:** N/A

**FCC ID:** NCMOMO6092

**Report No.:** EH/2011/40008-04

**Issue Date:** Mar. 15, 2012

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

**Prepared for:** Option NV  
Gaston Geenslaan 14, 3001 Leuven Belgium

**Prepared by:** SGS Taiwan Ltd.  
Electronics & Communication Laboratory  
No. 134, Wu Kung Rd., Wuku Industrial Zone,  
Taipei County, Taiwan.

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## VERIFICATION OF COMPLIANCE

**Applicant:** Option NV  
Gaston Geenslaan 14, 3001 Leuven Belgium

**Product Name:** Nyos LGA CDMA

**Brand Name:** OPTION

**FCC ID:** NCMOMO6092

**Model No.:** MO6092

**Model Difference:** N/A

**File Number:** EH/2010/30048

**Date of Test:** Apr. 08, 2011 ~ Apr. 26, 2011

**Date of EUT Received:** Apr. 08, 2011

### We hereby certify that:

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

*Sky Wang*

**Date:**

Mar. 15, 2012

*Sky Wang / Asst. Supervisor*

**Prepared By:**

*Tiffany Kao*

**Date:**

Mar. 15, 2012

*Tiffany Kao / Clerk*

**Approved By**

*Jim Chang*

**Date:**

Mar. 15, 2012

*Jim Chang / Supervisor*

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## Version

Version No.	Date	Description
00	Mar. 15, 2012	Initial creation of document

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## 1. GENERAL PRODUCT INFORMATION

General:

Product Name	Nyos LGA CDMA
Brand Name	OPTION
Model Name	MO6092
Model Difference	N/A
Power Supply	3.7 Vdc

GSM / WCDMA

Cellular Phone Standards Frequency Range and Power:	Operating Frequency		Rated Power
	GSM/GPRS 850, Class 12	824.2 MHz– 848.8 MHz	33 dBm
	GSM/GPRS 1900, Class 12	1850.2MHz – 1909.8MHz	30 dBm
	EDGE 850, Class 12	824.2 MHz– 848.8 MHz	27 dBm
	EDGE 1900, Class 12	1850.2MHz – 1909.8MHz	26 dBm
	WCDMA/HSUPA/HSDPA Band II	1852.4MHz – 1907.6MHz	24 dBm
	WCDMA/HSUPA/HSDPA Band V	826.4MHz – 846.6MHz	24dBm
	HSDPA Category: 10 HSUPA Category: 6		
Type of Emission:	GSM850: 245KGXW, GSM1900: 245KGXW EDGE 850: 246KG7W, EDGE 1900: 245KG7W CDMA 850: 1M26F9W CDMA 1900: 1M27F9W WCDMA Band II: 4M16F9W, WCDMA Band V: 4M15F9W		
Hardware Version:	3.1		
Software Version:	1.8.2.0		
IMEI:	004401441440019		
Antenna Gain used for test:	Cellular band: 1.1dBi / PCS Band: 2.4dBi		
Maximum Allowable Gain as determined by MPE:	GSM 850: 5.53dBi / GSM 1900: 10.52dBi WCDMA Band II: 15.28dBi / WCDMA Band V: 12.17dBi		
Maximum Allowable Gain as determined by ERP/EIRP:	GSM 850: 5.55dBi / GSM 1900: 3.41dBi WCDMA Band II: 7.58dBi / WCDMA Band V: 12.61dBi		

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CDMA 2000:

	Operating Frequency		Rated Power
Cellular Phone Standards Frequency Range and Power	CDMA 2000 Cellular / EVDO Cellular	824.7MHz – 848.31MHz	24 dBm
	CDMA 2000 PCS / EVDO PCS	1851.25MHz– 1908.75MHz	24 dBm
MEID Manuf. Code	004401441440019		
Antenna Gain used for test:	Cellular Band: 1.1dBi / PCS Band: 2.4dBi		
Maximum Allowable Gain as determined by MPE:	Cellular Band: 10.58dBi / PCS Band: 13.76dBi		
Maximum Allowable Gain as determined by ERP/EIRP:	Cellular Band: 14.70dBi / PCS Band: 9.83dBi		

GPS:

Receiver Frequency	L1 Band, 1575.42MHz
Frequency Conversion oscillator	19.2MHz
Antenna Designation	PCB Antenna

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**Final Amplifier Voltage and Current Information:**

Test mode	DC voltage (V)	DC current (mA)
GPRS 850	3.7Vdc	450
EDGE 850	3.7Vdc	285
GPRS 1900	3.7Vdc	195
EDGE 1900	3.7Vdc	160
WCDMA B5	3.7Vdc	320
HSUPA B5	3.7Vdc	405
WCDMA B2	3.7Vdc	430
HSUPA B2	3.7Vdc	515
CDMA 850	3.7Vdc	265
CDMA 1900	3.7Vdc	235
EVDO 850	3.7Vdc	310
EVDO 1900	3.7Vdc	290

This test report applies for GSM/GPRS/EDGE 850/1900, CDMA 2000 and EVDO and WCDMA/HSDPA/HSUPA Bands II, Band V.

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

This submittal(s) (test report) is intended for FCC ID: NCMOMO6092 filing to comply with Section Part 22 subpart H, Part 24 subpart E of the FCC CFR 47 Rules.

### 1.2. Test Methodology

Both conducted and radiated testing were performed according to the procedures document on chapter 13 of TIA/EIA 603C and FCC 47 CFR 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

### 1.3. Test Facility

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

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

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

### 1.4. Special Accessories

Not available for this EUT intended for grant.

### 1.5. Equipment Modifications

Not available for this EUT intended for grant.

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## 2. SYSTEM TEST CONFIGURATION

### 2.1. EUT Configuration

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

### 2.2. EUT Exercise

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

### 2.3. Test Procedure

#### 2.3.1 AC Power Line Conducted Emissions

The EUT is placed on a turn table which is 0.8 m above ground plane. According to the requirements in TIA/EIA 603C. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and Average detector mode.

#### 2.3.2 Conducted Measurement at Antenna Port:

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

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

According to measurement procured TIA/EIA 603C, The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both Horizontal and Vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made “while keeping the antenna in the ‘cone of radiation’ from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.” is still within the 3dB illumination BW of the measurement antenna according to the requirements in Section 8 and 13 of ANSI C63.4:2003.

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**2.4. Measurement Equipment Used:**

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
EMI Test Receiver	R&S	ESCS30	828985/004	09/23/2010	09/22/2011
LISN	Rolf-Heine	NNB-2/16Z	99012	03/31/2011	03/30/2012
LISN	FCC	FCC-LISN-50/250-25-2-01	04034	03/31/2011	03/30/2012
Coaxial Cables	N/A	WK CE Cable	N/A	11/28/2010	11/27/2011

Conducted Emission Test Site					
EQUIPMENT TYPE	MFR	MODEL NUMBER	SERIAL NUMBER	LAST CAL.	CAL DUE.
Spectrum Analyzer	Agilent	E4446A	MY43360126	04/19/2010	04/18/2012
Spectrum Analyzer	Agilent	E4440A	US41160416	01/25/2011	01/24/2012
Radio Communication Analyzer	R&S	CMU200	102189	08/12/2010	08/11/2012
800 – 1000MHz Filter	Micro-Tronics	BRM13462	001	01/05/2011	01/04/2012
1800 – 2000MHz Filter	Micro-Tronics	BRM13463	001	01/05/2011	01/04/2012
Temperature Chamber	TERCHY	MHG-120LF	911009	04/14/2010	04/13/2012
Temperature Chamber	GIANT FORCE	GTH-150-40-CP-AR	MAA0512-018	02/05/2010	02/04/2012
DC Block	Agilent	BLK-18	155452	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S20W5	N/A	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S10W5	N/A	07/05/2010	07/04/2011
Attenuator	Mini-Circuit	BW-S6W5	N/A	07/05/2010	07/04/2011
Splitter	Agilent	11636B	N/A	07/05/2010	07/04/2011
DC Power Supply	Chroma	41901	777188	04/15/2010	04/14/2012
Power Meter	Anritsu	ML2495A	1005007	02/17/2010	02/16/2012

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

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## 2.5. Configuration of Tested System

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

EUT

Remote site

CMU200

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

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

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### 3. SUMMARY OF TEST RESULTS

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

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Max ERP/EIRP measurement result:

	dBm	dB	W
GPRS 850 Band	29.11	ERP	0.815
PCS 1900 Band	27.81	EIRP	0.604
GPRS 850 Band	31.81	ERP	1.517
PCS 1900 Band	28.79	EIRP	0.757
EDGE 850 Band	25.63	ERP	0.366
EDGE 1900 Band	27.99	EIRP	0.630
WCDMA Band II	24.42	EIRP	0.277
WCDMA Band V	24.14	ERP	0.259
HSUPA Band II	20.98	EIRP	0.125
HSUPA Band V	22.88	ERP	0.194
CDMA 2000 Cellular	26.04	ERP	0.402
CDMA 2000 PCS	27.58	EIRP	0.573
CDMA 2000 EVDO	26.05	ERP	0.403
CDMA 2000 EVDO PCS	25.75	EIRP	0.376

#### 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 GSM/GPRS/EDGE, CDMA2000 and

WCDMA/HSDPA/HSUPA Band II, V with power adaptor. The worst-case of E2 position for GSM 850 band, E2 position for GSM 1900, E2 position for WCDMA Band II and E2 position for WCDMA Band V were reported. The worst-case of E2 position for CDMA 2000 Cellular band and E2 position for CDMA 2000 PCS band were reported.

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## 5. RF POWER OUTPUT MEASUREMENT

### 5.1. Standard Applicable:

According to FCC §2.1046.

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

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

3GPP Power limitation for HSDPA and HSUPA

Maximum Output Powers for HSDPA

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

Maximum Output Powers for HSUPA

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

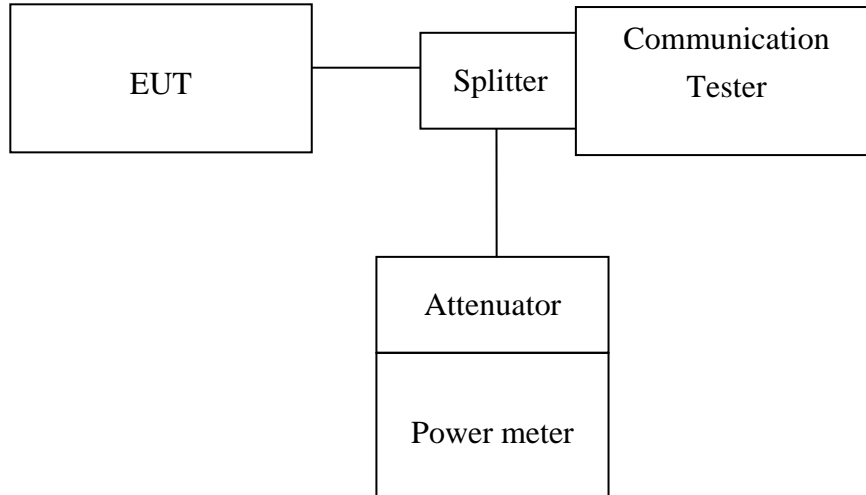
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**5.2. Test Set-up:**



*Note: Measurement setup for testing on Antenna connector*

**5.3. Measurement Procedure:**

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

**5.4. Measurement Equipment Used:**

Refer to section 2.4 in this report

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**5.5. Measurement Result:**

**5.5.1. RF Conducted Output Power**

**5.5.1.1.: GSM mode**

**Result:**

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Average Power (dBm)
GSM 850 (Class 12)	824.2	128	32.30	32.10
	836.6	190	32.50	32.10
	848.8	251	31.80	32.10

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Average Power (dBm)
GSM 1900 (Class 12)	1850.2	512	29.30	29.30
	1880.0	661	29.50	29.40
	1909.8	810	29.50	29.30

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GPRS, EGPRS mode

Result:

Frequency (MHz)	CH	1 Time Slot				2 Time Slot			
		GMSK Mode		8-PSK Mode		GMSK Mode		8-PSK Mode	
		Peak Power (dBm)	AV Power (dBm)	Peak Power (dBm)	AV Power (dBm)	Peak Power (dBm)	AV Power (dBm)	Peak Power (dBm)	AV Power (dBm)
824.2	128	32.30	32.10	30.80	27.60	32.80	32.60	30.60	27.40
836.6	190	32.60	32.10	30.70	27.40	32.90	32.60	30.50	27.30
848.8	251	31.90	32.10	30.50	27.40	32.40	32.20	30.40	27.20
1850.2	512	29.30	29.20	29.40	26.20	29.30	29.20	29.30	26.00
1880.0	661	29.50	29.40	29.60	26.30	29.40	29.30	29.40	26.60
1909.8	810	29.40	29.30	29.30	26.00	29.30	29.20	29.10	25.90

Frequency (MHz)	CH	3 Time Slot				4 Time Slot			
		GMSK Mode		8-PSK Mode		GMSK Mode		8-PSK Mode	
		Peak Power (dBm)	AV Power (dBm)	Peak Power (dBm)	AV Power (dBm)	Peak Power (dBm)	AV Power (dBm)	Peak Power (dBm)	AV Power (dBm)
824.2	128	32.80	32.50	29.20	29.10	32.10	31.90	30.50	27.20
836.6	190	32.80	32.60	29.30	29.20	32.20	31.90	30.30	27.10
848.8	251	32.30	32.10	29.20	29.00	31.80	31.90	30.30	27.00
1850.2	512	29.20	29.10	29.30	26.00	29.60	29.40	29.20	25.80
1880.0	661	29.30	29.20	29.40	26.00	29.60	29.50	29.30	26.00
1909.8	810	29.20	29.00	29.10	25.70	29.40	29.20	29.00	25.70

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**5.5.1.2.: WCDMA mode**

The following tests were completed according to the test requirements outlined in section 5.2 of the 3GPP TS34.121-1 V8.4.0 specification. The EUT supports power Class 3, which has a nominal maximum output power of 24 dBm (+1.7/-3.7). RMC 12.2kps is used for this testing.

**Results:**

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg. Power (dBm)
WCDMA Band II	1852.4	9262	25.08	21.67
	1880.0	9400	25.43	21.73
	1907.6	9538	24.80	21.35

EUT Mode	Frequency (MHz)	CH	Peak Power (dBm)	Avg. Power (dBm)
WCDMA Band V	826.4	4132	25.83	22.25
	836.6	4183	25.84	22.12
	846.6	4233	25.63	21.97

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

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5.5.1.3.: CDMA 2000 mode

Result:

EUT Mode	Frequency (MHz)	CH	Avg. Power (dBm)	Peak Power (dBm)
CDMA 2000 Cellular	824.70	1013	23.82	23.75
	836.52	384	23.84	23.75
	848.31	777	23.77	23.67

EUT Mode	Frequency (MHz)	CH	Avg. Power (dBm)	Peak Power (dBm)
CDMA 2000 PCS	1851.25	25	23.25	23.18
	1880	600	23.10	22.85
	1908.75	1175	22.98	22.77

EUT Mode	Frequency (MHz)	CH	Avg. Power (dBm)	Peak Power (dBm)
CDMA 2000 EVDO Cellular	824.70	1013	24.15	24.10
	836.52	384	24.07	23.93
	848.31	777	23.97	23.85

EUT Mode	Frequency (MHz)	CH	Avg. Power (dBm)	Peak Power (dBm)
CDMA 2000 EVDO PCS	1851.25	25	23.24	23.15
	1880	600	23.31	23.25
	1908.75	1175	23.03	22.97

offset: 0.5dB(for 800MHz)

offset: 0.5dB(for 1900MHz)

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### 5.5.1.4.:HSDPA Release 6 mode

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

### HSDPA SUB-TEST Setting

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

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

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

### Results:

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limita- tion (dBm)	Comments
		9262	9400	9538		
HSDPA (B2)	1	21.50	21.62	21.21	20.3dBm – 25.7dBm	Pass
	2	21.55	21.59	21.20	20.3dBm – 25.7dBm	Pass
	3	21.02	21.17	20.68	19.8dBm – 25.7dBm	Pass
	4	21.09	21.18	20.80	19.8dBm – 25.7dBm	Pass

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limita- tion (dBm)	Comments
		4132	4183	4233		
HSDPA (B5)	1	22.08	22.01	21.83	20.3dBm – 25.7dBm	Pass
	2	22.18	22.01	21.84	20.3dBm – 25.7dBm	Pass
	3	21.62	21.53	21.34	19.8dBm – 25.7dBm	Pass
	4	21.67	21.57	21.40	19.8dBm – 25.7dBm	Pass

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

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

**HSPA SUB-TEST Setting**

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

Sub-test	$\beta_c$	$\beta_d$	$\beta_d$ (SF)	$\beta_c/\beta_d$	$\beta_{HS}$	$\beta_{ec}$	$\beta_{ed}$	$\beta_{ed}$ (SF)	$\beta_{ed}$ (Codes)	CM (dB)	MPR (dB)	AG Index	E-TFCI	RMC (Kbps)
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75	12.2
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67	12.2
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	4 4	2	2.0	1.0	15	92	12.2
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71	12.2
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81	12.2

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

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**Results:**

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		9262	9400	9538		
HSUPA(B2)	1	21.59	21.71	21.29	18.8dBm – 25.7dBm	Pass
	2	19.64	19.78	19.33	16.8dBm – 25.7dBm	Pass
	3	20.65	20.73	20.37	17.8dBm – 25.7dBm	Pass
	4	19.77	19.83	19.37	16.8dBm – 25.7dBm	Pass
	5	21.48	21.57	21.20	18.8dBm – 25.7dBm	Pass

Mode	Sub-test	Avg. Power (dBm) Channel			Power Class 3 Limitation (dBm)	Comments
		4132	4183	4233		
HSUPA(B5)	1	22.21	22.05	21.89	18.8dBm – 25.7dBm	Pass
	2	20.27	20.13	19.93	16.8dBm – 25.7dBm	Pass
	3	21.25	21.11	20.97	17.8dBm – 25.7dBm	Pass
	4	20.32	20.19	20.01	16.8dBm – 25.7dBm	Pass
	5	22.07	21.88	21.78	18.8dBm – 25.7dBm	Pass

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### 5.5.2. Minimum Communications Power Measurement

#### PCS 1900 band

PCL	0	1	2	3	4	5	6	7	8	
Output power (dBm)	29.2	29.2	29.2	29.2	27.7	25.8	23.9	21.9	19.9	
PCL	9	10	11	12	13	14	15	16	17	18
Output power (dBm)	18.1	16.2	13.8	11.8	10	8.1	6.1	4.1	2.2	0.1

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

#### WCDMA/HSDPA/HSUPA band II

The EUT output power was controlled by simulator. Set Communication Tester CMU200 function key “UE Power Control” and enter max rated power 24dBm. The EUT is going to be set to max output power to 24dBm. then record the read(see page 15 for measurement data) . The min. power was measures by a function key “minimum power” then record the read. It is -52.3dBm. The power variation can be 0.1dB step by setting.

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## 6. ERP, EIRP MEASUREMENT

### 6.1. Standard Applicable:

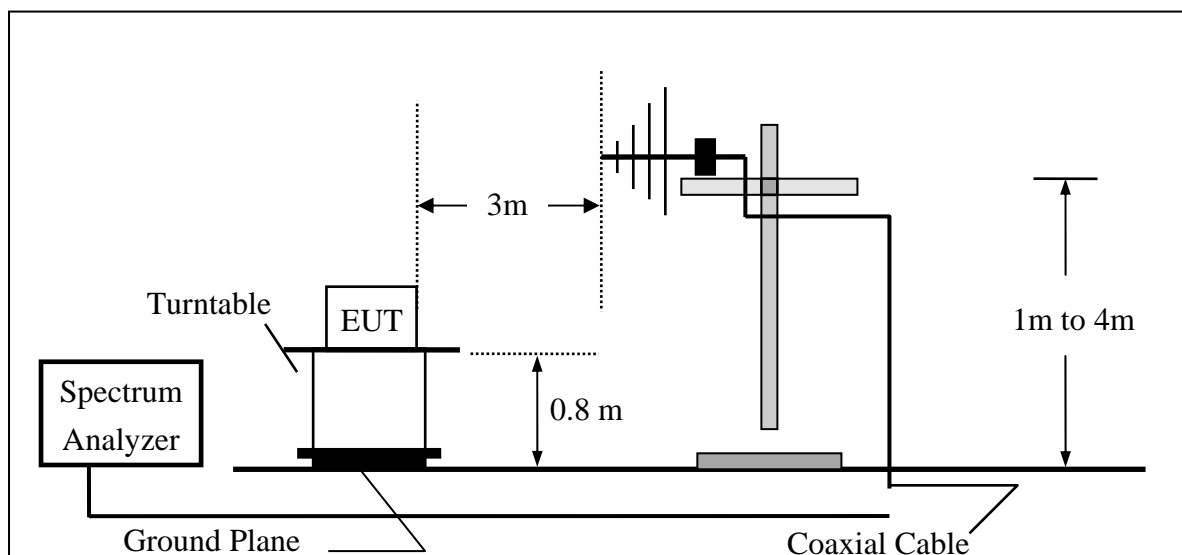
According to FCC §2.1046

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

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

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

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

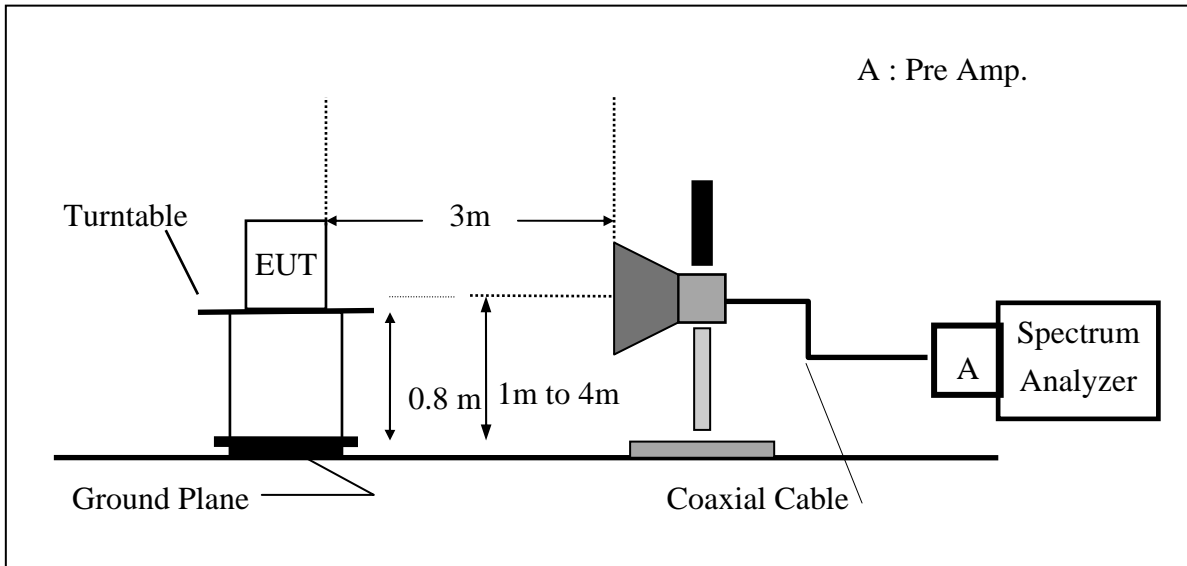


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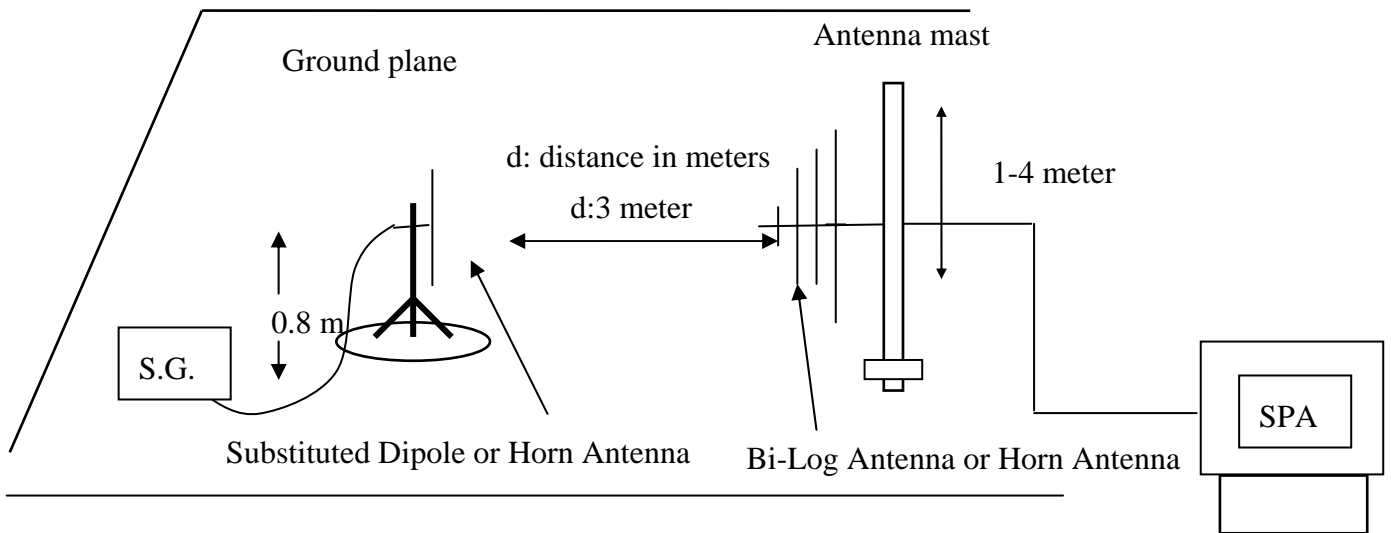
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(B) Radiated Emission Test Set-UP Frequency Over 1 GHz



(C) Substituted Method Test Set-UP



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### 6.3. Measurement Procedure:

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

During the measurement, the EUT was in 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 a 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

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6.5. Measurement Result:

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GSM 850	824.20	128	E2	V	112.24	25.85	-7.87	3.62	14.35	38.45
				H	126.88	40.61	-7.87	3.62	<b>29.11</b>	38.45
	836.60	190	E2	V	112.44	26.19	-7.88	3.65	14.66	38.45
				H	126.62	40.39	-7.88	3.65	28.86	38.45
	848.80	251	E2	V	113.94	27.82	-7.88	3.68	16.26	38.45
				H	126.76	40.57	-7.88	3.68	29.01	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)
GSM 1900	1850.20	512	E2	V	113.29	8.90	9.90	5.56	13.24	33.00
				H	127.71	23.53	9.90	5.84	27.59	33.00
	1880.00	661	E2	V	113.08	8.72	9.99	5.61	13.10	33.00
				H	127.12	22.98	9.99	5.61	27.35	33.00
	1909.80	810	E2	V	112.29	7.96	10.08	5.66	12.38	33.00
				H	127.50	23.39	10.08	5.66	<b>27.81</b>	33.00

Remark :

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

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**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
GPRS 850	824.20	128	E2	V	115.61	29.22	-7.87	3.62	17.72	38.45
				H	125.29	39.02	-7.87	3.62	27.52	38.45
	836.60	190	E2	V	107.33	21.08	-7.88	3.65	9.55	38.45
				H	125.83	39.60	-7.88	3.65	28.07	38.45
	848.80	251	E2	V	108.09	21.97	-7.88	3.68	10.41	38.45
				H	129.56	43.37	-7.88	3.68	<b>31.81</b>	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)
PCS 1900	1850.20	512	E2	V	112.12	7.73	9.90	5.56	12.07	33.00
				H	127.91	23.73	9.90	5.84	27.79	33.00
	1880.00	661	E2	V	115.06	10.70	9.99	5.61	15.08	33.00
				H	128.05	23.91	9.99	5.61	28.28	33.00
	1909.80	810	E2	V	114.81	10.48	10.08	5.66	14.90	33.00
				H	128.48	24.37	10.08	5.66	<b>28.79</b>	33.00

**Remark :**

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

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**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
EDGE 850	824.20	128	E2	V	110.48	24.09	-7.87	3.62	12.59	38.45
				H	122.76	36.49	-7.87	3.62	24.99	38.45
	836.60	190	E2	V	106.38	20.13	-7.88	3.65	8.60	38.45
				H	122.92	36.69	-7.88	3.65	25.16	38.45
	848.80	251	E2	V	107.13	21.01	-7.88	3.68	9.45	38.45
				H	123.38	37.19	-7.88	3.68	<b>25.63</b>	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)
EDGE 1900	1850.20	512	E2	V	112.34	7.95	9.90	5.56	12.29	33.00
				H	128.11	23.93	9.90	5.84	<b>27.99</b>	33.00
	1880.00	661	E2	V	112.63	8.27	9.99	5.61	12.65	33.00
				H	125.05	20.91	9.99	5.61	25.28	33.00
	1909.80	810	E2	V	111.68	7.35	10.08	5.66	11.77	33.00
				H	125.40	21.29	10.08	5.66	25.71	33.00

**Remark :**

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

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**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	EIRP (dBm)	Limit (dBm)
WCDMA II	1852.40	9262	E2	V	111.43	6.91	9.48	5.33	11.05	33.00
				H	124.51	20.18	9.90	5.84	24.24	33.00
	1880.00	600	E2	V	112.48	7.98	9.54	5.36	12.15	33.00
				H	124.56	20.25	9.54	5.36	<b>24.42</b>	33.00
	1908.75	1175	E2	V	112.92	8.44	9.61	5.40	12.64	33.00
				H	124.06	19.77	9.61	5.40	23.98	33.00

**Remark :**

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

**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
WCDMA Band V	826.40	4132	E2	V	106.90	20.54	-7.88	3.63	9.03	38.45
				H	121.16	34.90	-7.88	3.63	23.40	38.45
	1880.00	600	E2	V	105.73	19.47	-7.88	3.65	7.94	38.45
				H	121.90	35.67	-7.88	3.65	<b>24.14</b>	38.45
	1908.75	1175	E2	V	106.48	20.33	-7.88	3.67	8.78	38.45
				H	121.80	35.60	-7.88	3.67	24.05	38.45

**Remark :**

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

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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	E2	V	106.73	2.21	9.48	5.33	6.35	33.00
				H	119.89	15.56	9.90	5.84	19.62	33.00
	1880.00	600	E2	V	106.50	2.00	9.54	5.36	6.17	33.00
				H	120.59	16.28	9.54	5.36	20.45	33.00
	1908.75	1175	E2	V	107.41	2.93	9.61	5.40	7.13	33.00
				H	121.06	16.77	9.61	5.40	<b>20.98</b>	33.00

**Remark :**

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

RBW= 5MHz , VBW= 5MHz

**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)
HSUPA Band V	826.40	4132	E2	V	106.95	20.59	-7.88	3.63	9.08	38.45
				H	120.10	33.84	-7.88	3.63	22.34	38.45
	1880.00	600	E2	V	108.13	21.87	-7.88	3.65	10.34	38.45
				H	120.64	34.41	-7.88	3.65	<b>22.88</b>	38.45
	1908.75	1175	E2	V	107.30	21.15	-7.88	3.67	9.60	38.45
				H	119.84	33.64	-7.88	3.67	22.09	38.45

**Remark :**

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

RBW= 5MHz , VBW= 5MHz

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**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
CDMA 2000 Cellular	824.70	1013	E2	V	113.39	27.03	-7.88	3.63	15.52	38.45
				H	123.44	37.18	-7.88	3.63	25.68	38.45
	836.52	384	E2	V	113.79	27.53	-7.88	3.65	16.00	38.45
				H	123.80	37.57	-7.88	3.65	<b>26.04</b>	38.45
	848.31	777	E2	V	111.95	25.80	-7.88	3.67	14.25	38.45
				H	122.67	36.47	-7.88	3.67	24.92	38.45

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
RBW= 2MHz , VBW= 6MHz

**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)
CDMA 2000 PCS	1851.25	25	E2	V	112.38	8.00	9.90	5.56	12.33	33.00
				H	119.33	15.15	9.90	5.84	19.21	33.00
	1880.00	600	E2	V	114.30	9.94	9.99	5.61	14.32	33.00
				H	127.35	23.21	9.99	5.61	<b>27.58</b>	33.00
	1908.75	1175	E2	V	112.05	7.72	10.07	5.66	12.13	33.00
				H	125.55	21.44	10.07	5.66	25.85	33.00

**Remark :**

- (1) The RBW,VBW of SPA for frequency  
RBW= 2MHz , VBW= 6MHz

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**Measurement Result:**

EUT Mode	Frequency (MHz)	CH	EUT Pol.	Antenna Pol.	SPA Reading (dBuV)	S.G. Output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	ERP (dBm)	Limit (dBm)
CDMA 2000 EVDO Cellular	824.70	1013	E2	V	113.52	27.16	-7.88	3.63	15.65	38.45
				H	122.35	36.09	-7.88	3.63	24.59	38.45
	836.52	384	E2	V	113.84	27.58	-7.88	3.65	16.05	38.45
				H	123.81	37.58	-7.88	3.65	<b>26.05</b>	38.45
	848.31	777	E2	V	111.95	25.80	-7.88	3.67	14.25	38.45
				H	122.67	36.47	-7.88	3.67	24.92	38.45

(1) The RBW,VBW of SPA for frequency

RBW= 2MHz , VBW= 6MHz

**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)
CDMA 2000 EVDO PCS	1851.25	25	E2	V	116.70	12.32	9.90	5.56	16.65	33.00
				H	117.59	13.41	9.90	5.84	17.47	33.00
	1880.00	600	E2	V	114.24	9.88	9.99	5.61	14.26	33.00
				H	125.52	21.38	9.99	5.61	<b>25.75</b>	33.00
	1908.75	1175	E2	V	112.21	7.88	10.07	5.66	12.29	33.00
				H	124.79	20.68	10.07	5.66	25.09	33.00

**Remark :**

(1) The RBW,VBW of SPA for frequency

RBW= 2MHz , VBW= 6MHz

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## 7. 99% OCCUPIED BANDWIDTH MEASUREMENT

### 7.1. Standard Applicable:

According to §FCC 2.1049.

### 7.2. Test Set-up:

Refer to section 5.2 in this report

### 7.3. Measurement Procedure:

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW= 3 times RBW (10/30KHz) for GSM/EDGE; VBW= 3 times RBW (47/150KHz) for WCDMA/HSUPA, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

### 7.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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7.5. Measurement Result:

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
GSM 850	824.20	128	0.2450
	836.60	190	0.2433
	848.80	251	0.2398

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
PCS 1900	1850.20	512	0.2407
	1880.00	661	0.2400
	1909.80	810	0.2454

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EDGE 850	824.20	128	0.2462
	836.60	190	0.2459
	848.80	251	0.2420

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
EDGE 1900	1850.20	512	0.2440
	1880.00	661	0.2456
	1909.80	810	0.2430

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EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA II	1852.40	9262	4.1455
	1880.00	9400	4.1675
	1907.60	9538	4.1555

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
WCDMA V	826.40	4132	4.1463
	836.00	4180	4.1525
	846.60	4233	4.1561

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
HSUPA II	1852.4	9262	4.1590
	1880.0	9400	4.1588
	1907.6	9538	4.1463

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
HSUPA V	826.40	4132	4.1542
	836.60	4183	4.1615
	846.60	4233	4.1578

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EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
CDMA 2000 Cellular	824.70	1013	1.2669
	836.52	384	1.2659
	848.31	777	1.2676

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
CDMA 2000 PCS	1851.25	25	1.2759
	1880.00	600	1.2686
	1908.75	1175	1.2624

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
CDMA 2000 EVDO Cellular	824.70	1013	1.2607
	836.52	384	1.2649
	848.31	777	1.2615

EUT Mode	Frequency (MHz)	CH	99% Bandwidth (MHz)
CDMA 2000 EVDO PCS	1851.25	25	1.2711
	1880.00	600	1.2625
	1908.75	1175	1.2690

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Figure 7-1: GSM Channel Low

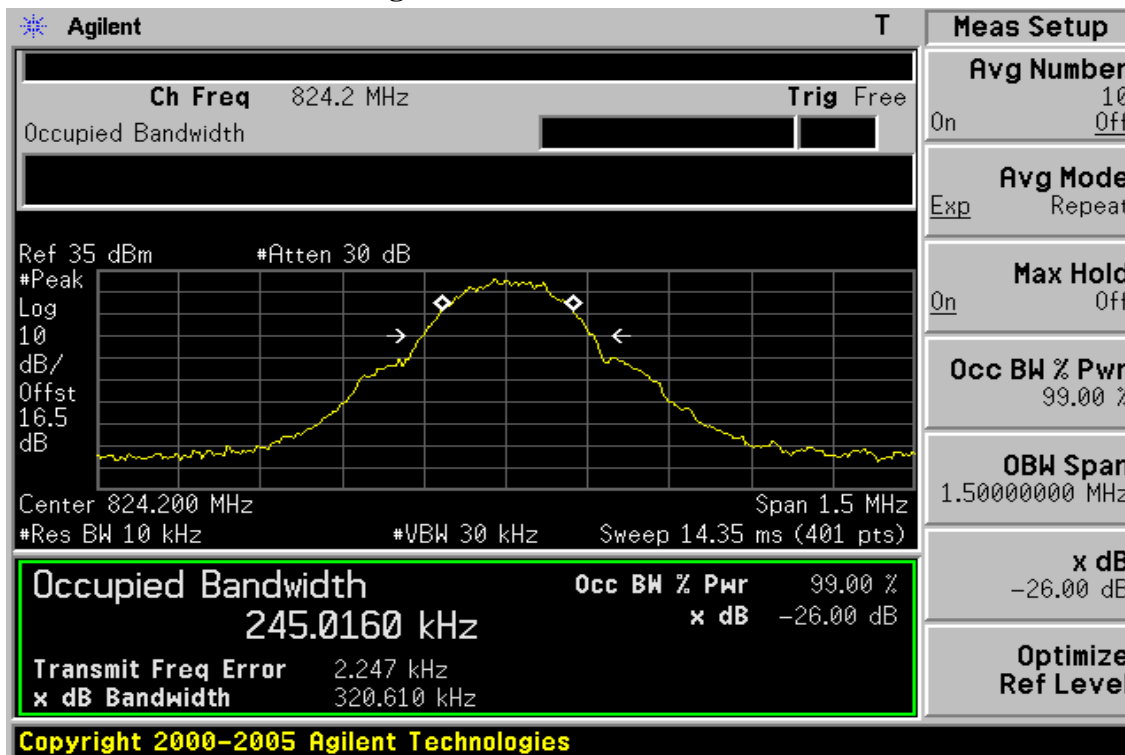
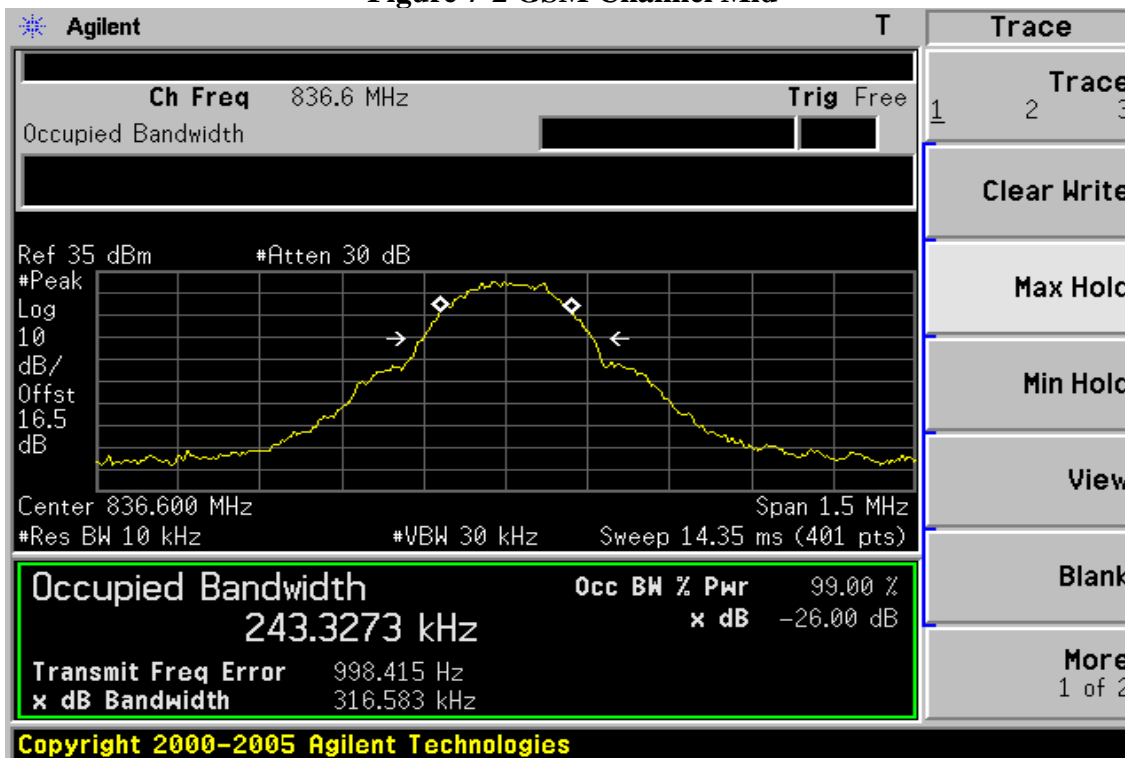


Figure 7-2 GSM Channel Mid



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Figure 7-3: GSM Channel High

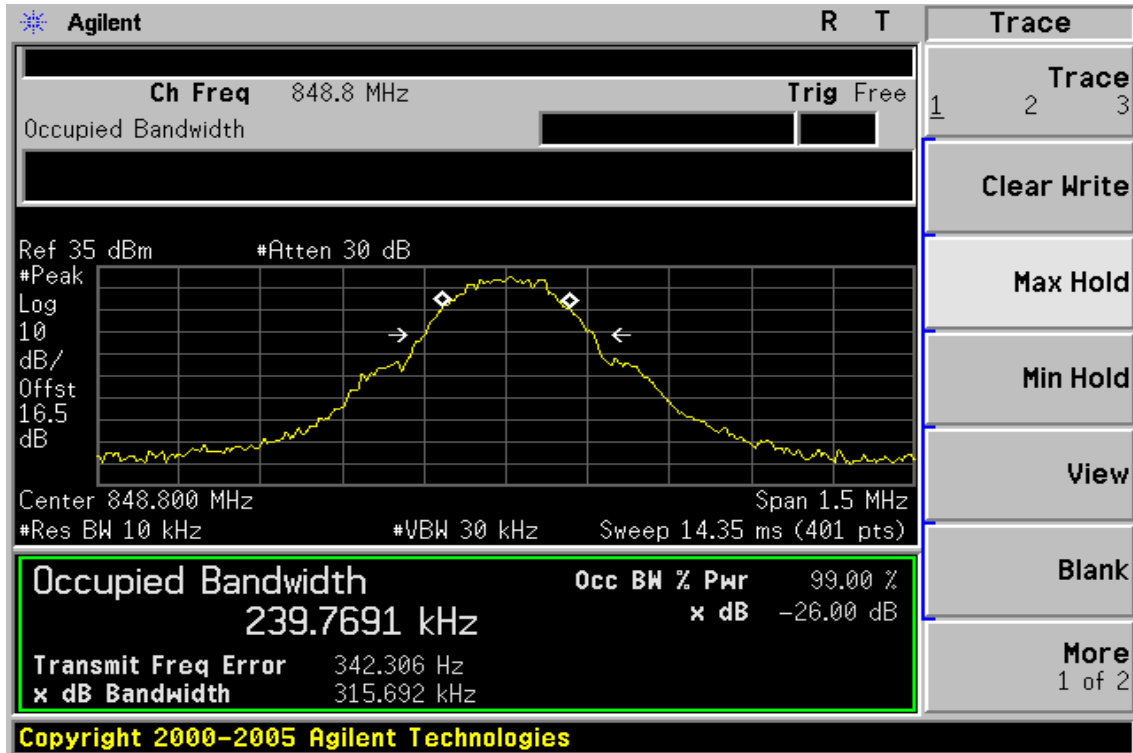
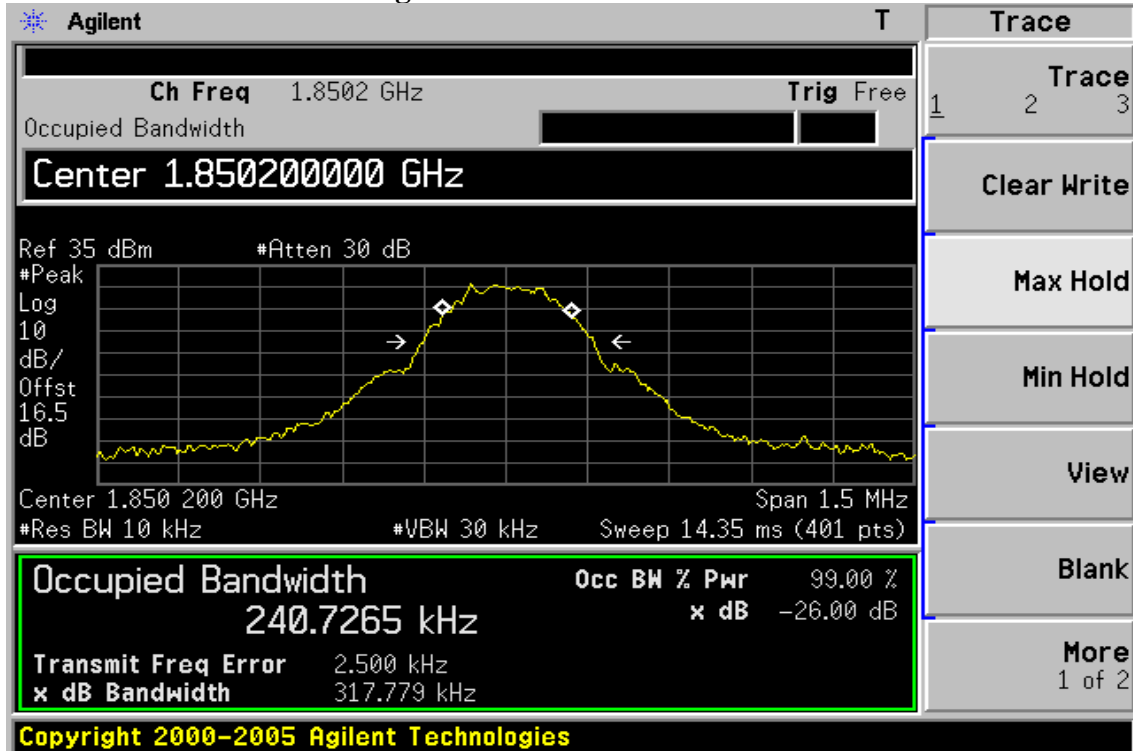


Figure 7-4: PCS Channel Low



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Figure 7-5 PCS Channel Mid

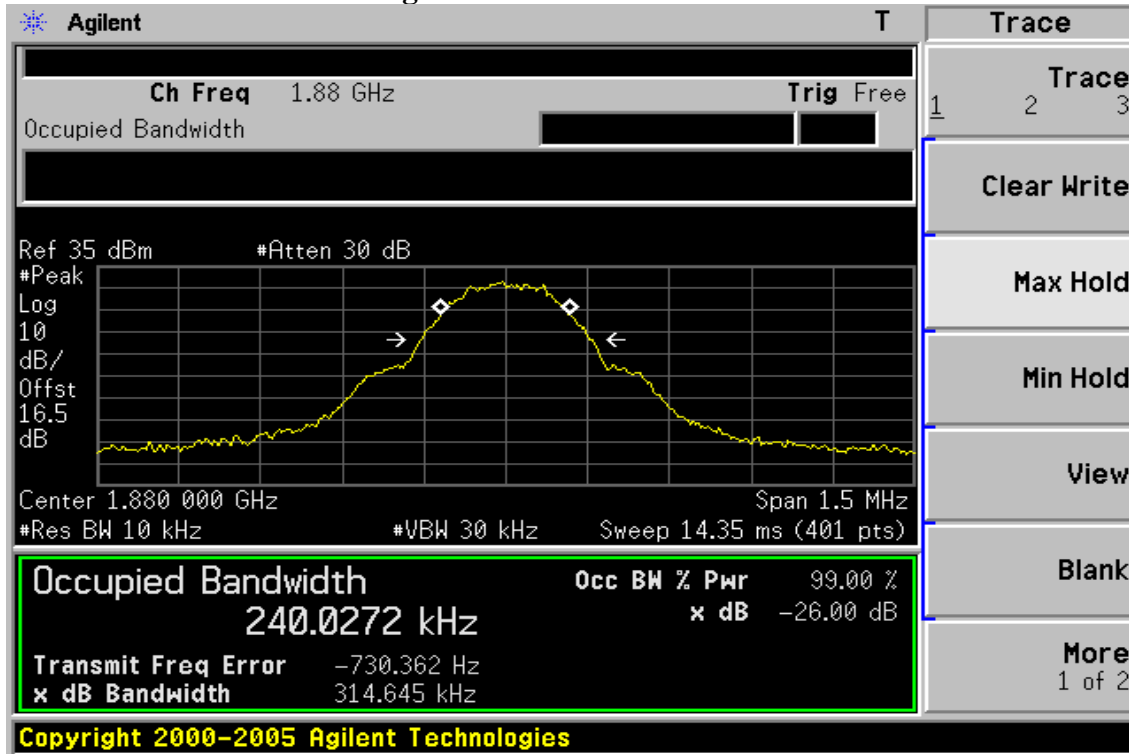
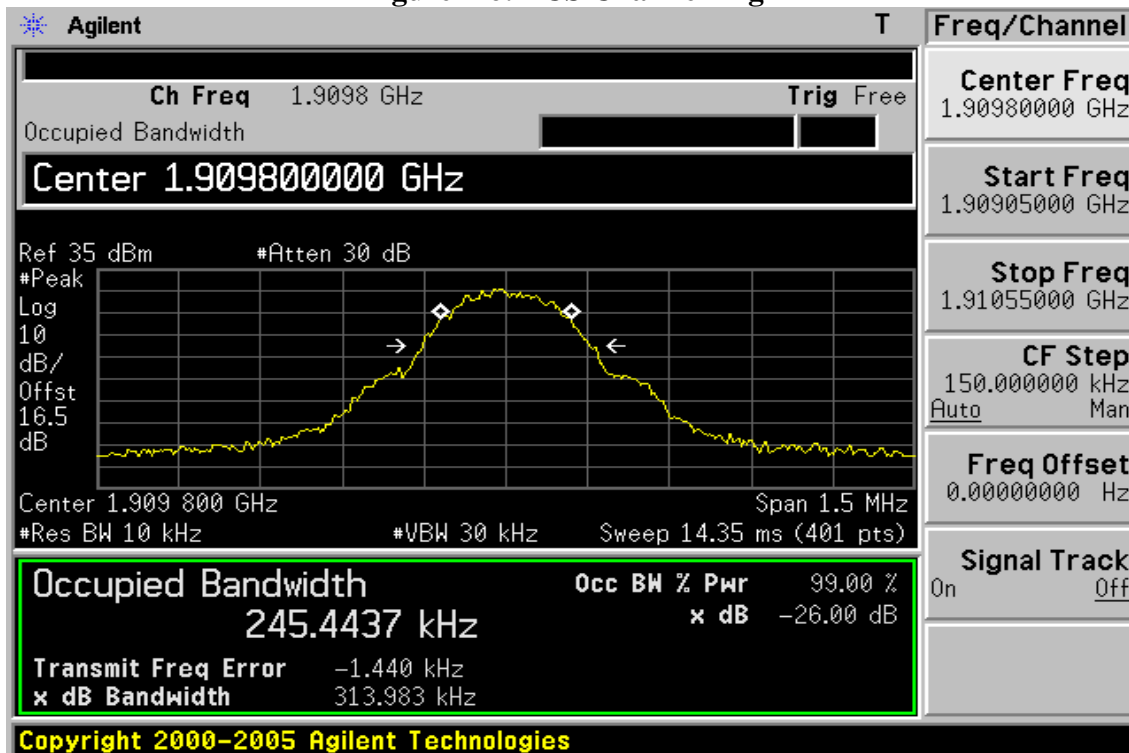


Figure 7-6: PCS Channel High



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Figure 7-7: EDGE 850 Channel Low

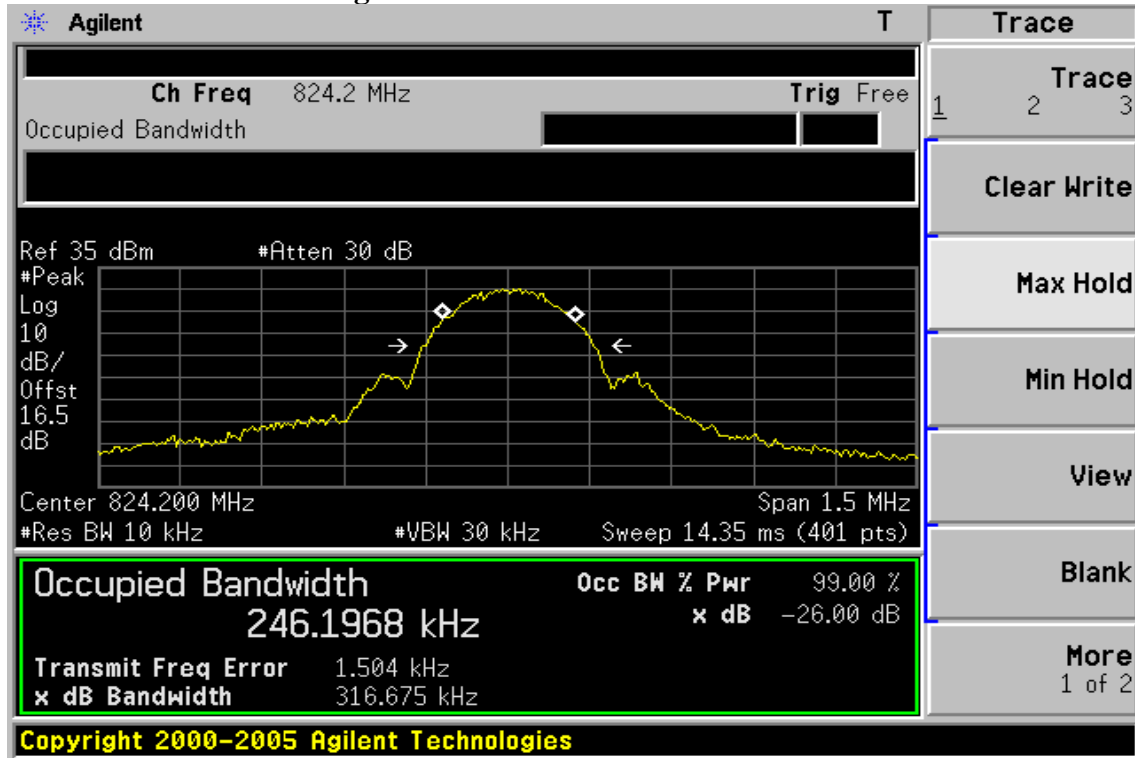
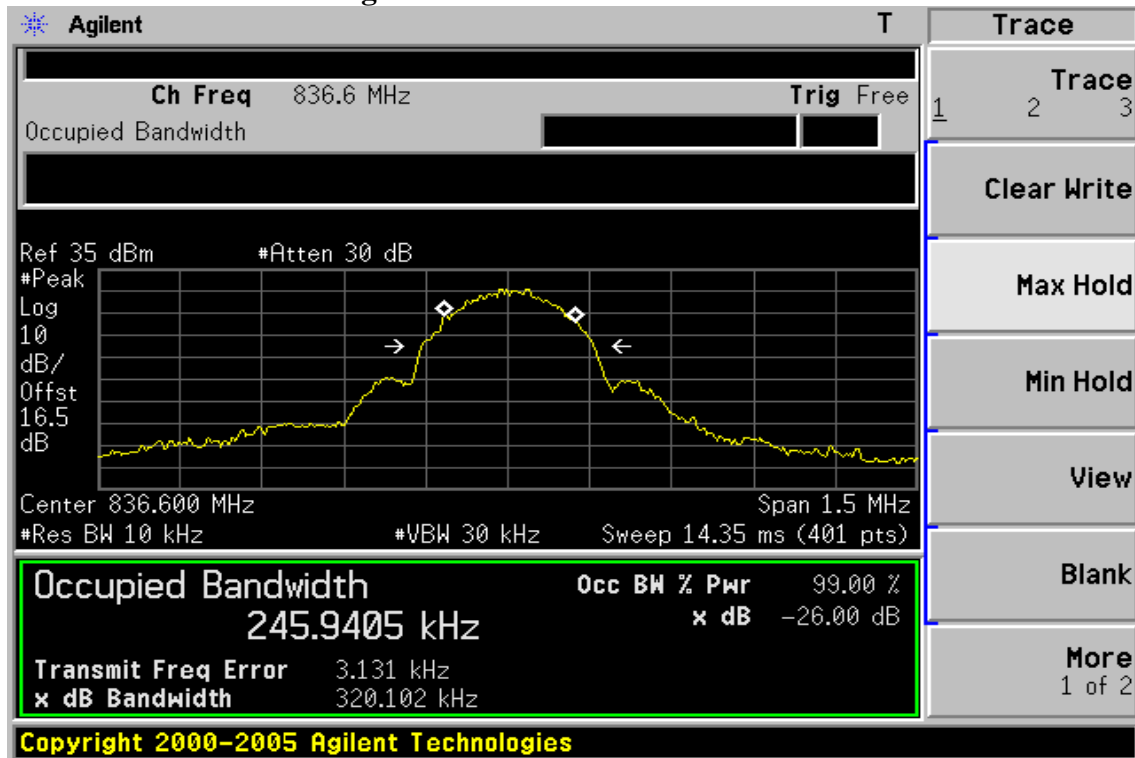


Figure 7-8 EDGE 850 Channel Mid



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Figure 7-9: EDGE 850 Channel High

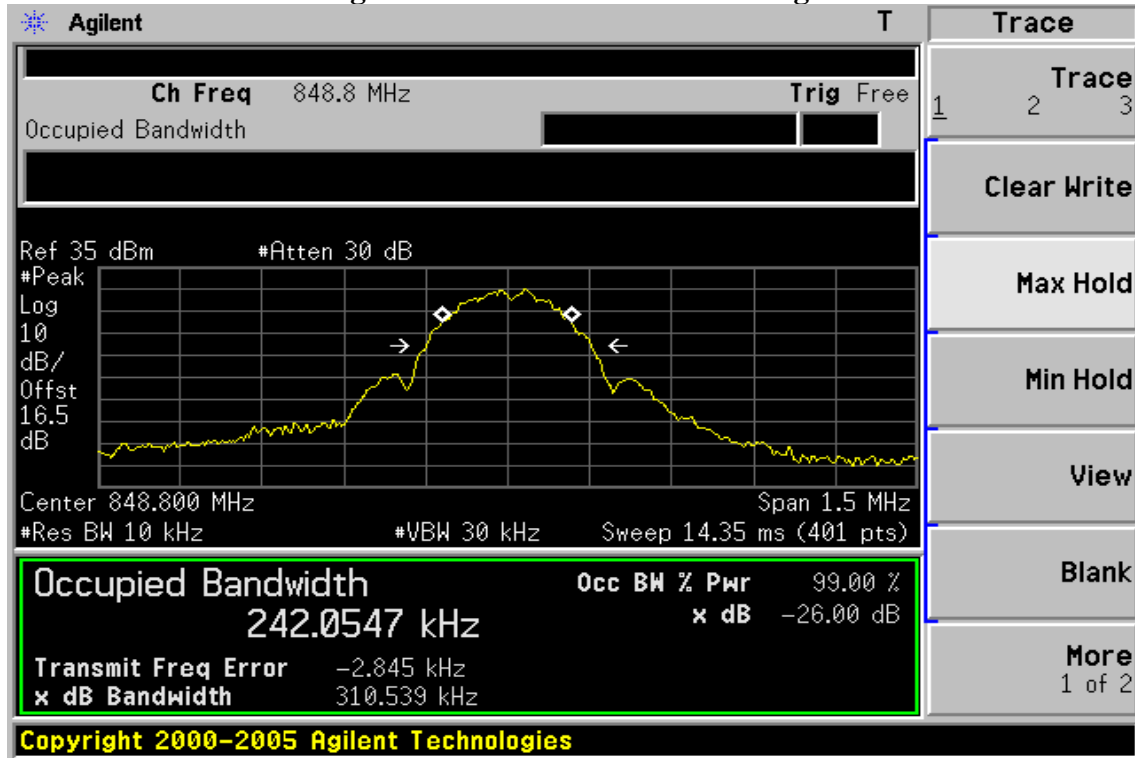
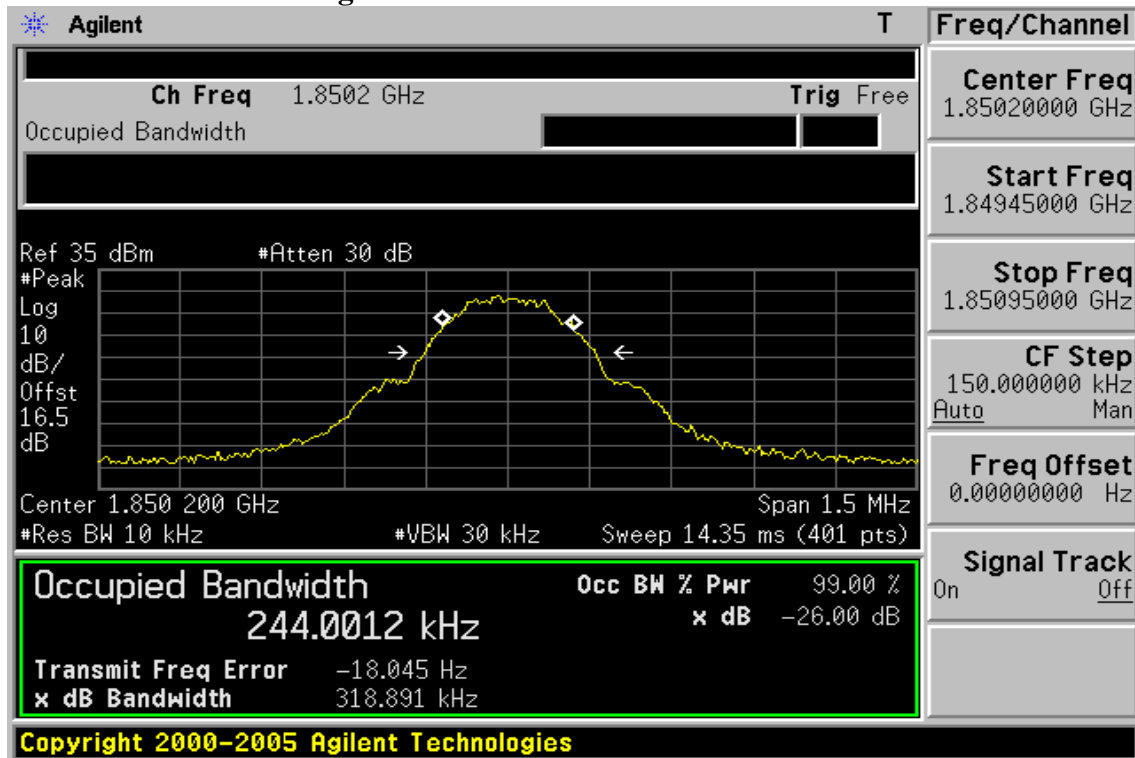


Figure 7-10: EDGE 1900 Channel Low



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Figure 7-11 EDGE 1900 Channel Mid

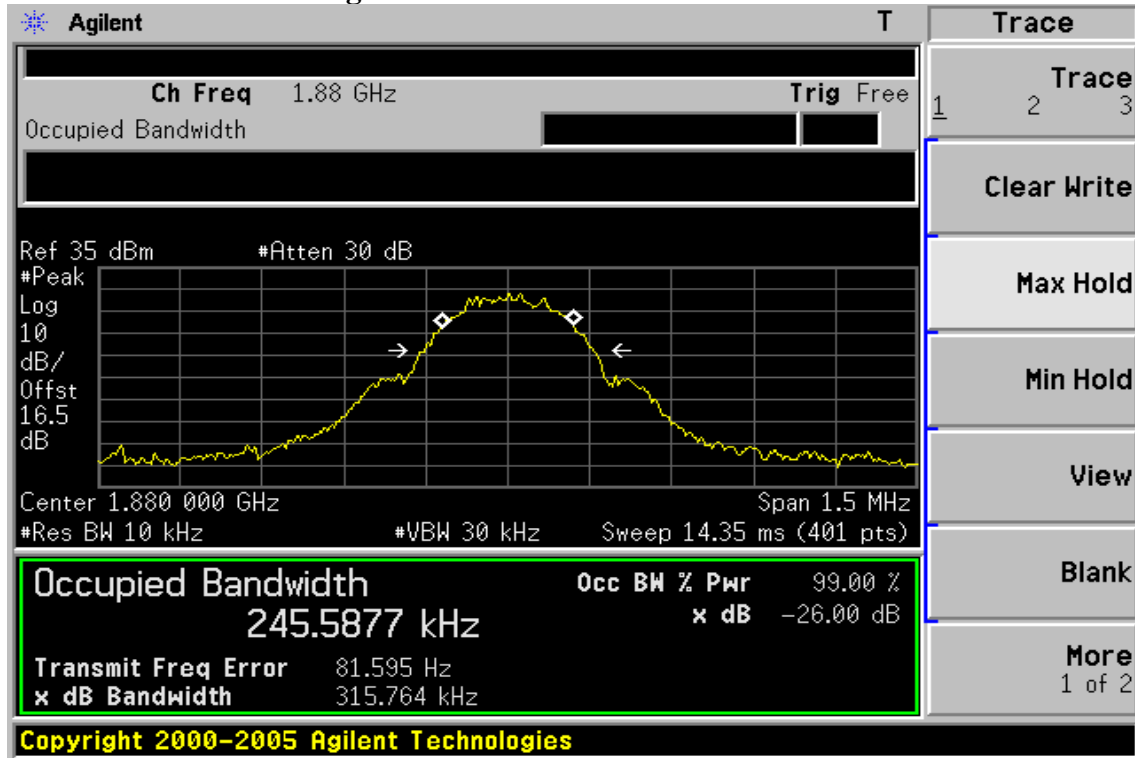
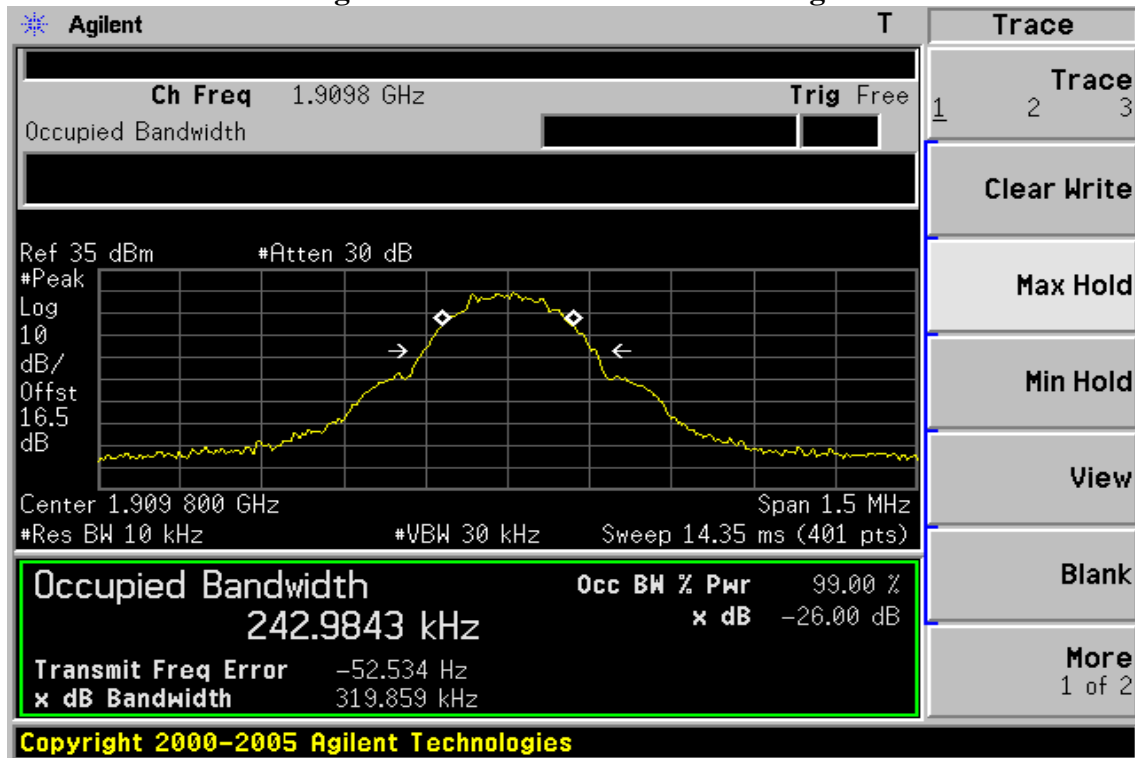


Figure 7-12: EDGE 1900 Channel High



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Figure 7-13: WCDMA II Channel Low

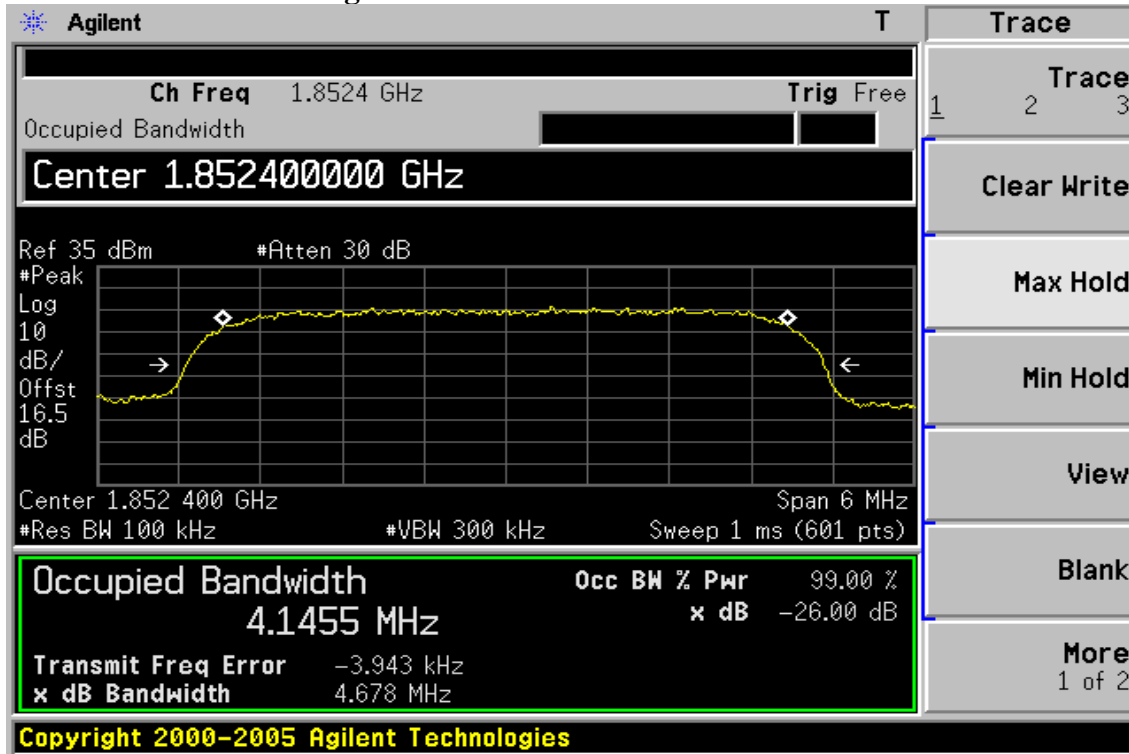
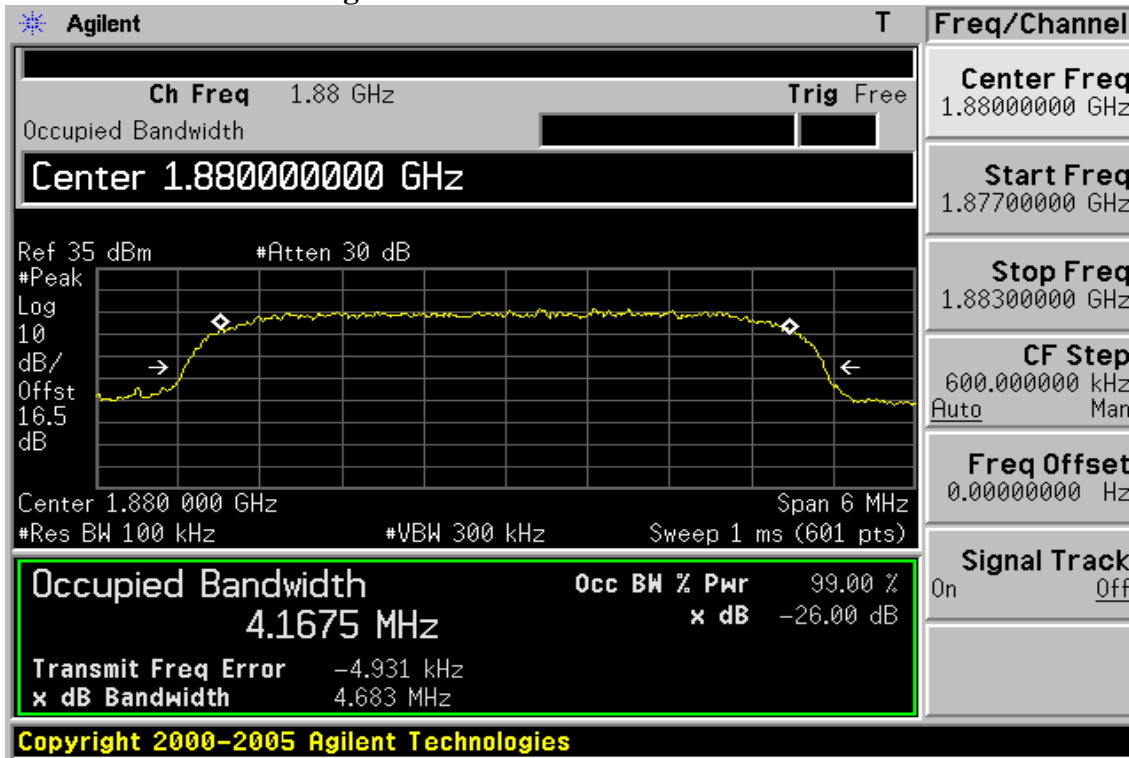


Figure 7-14 WCDMA II Channel Mid



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Figure 7-15: WCDMA II Channel High

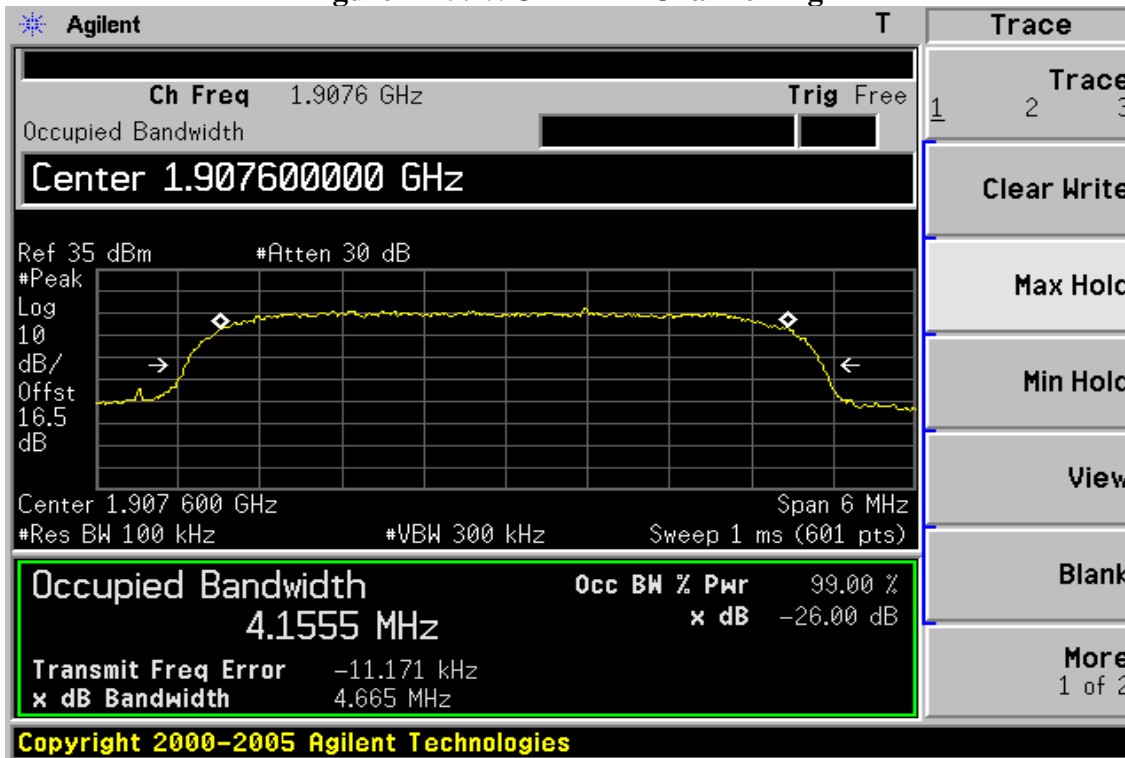
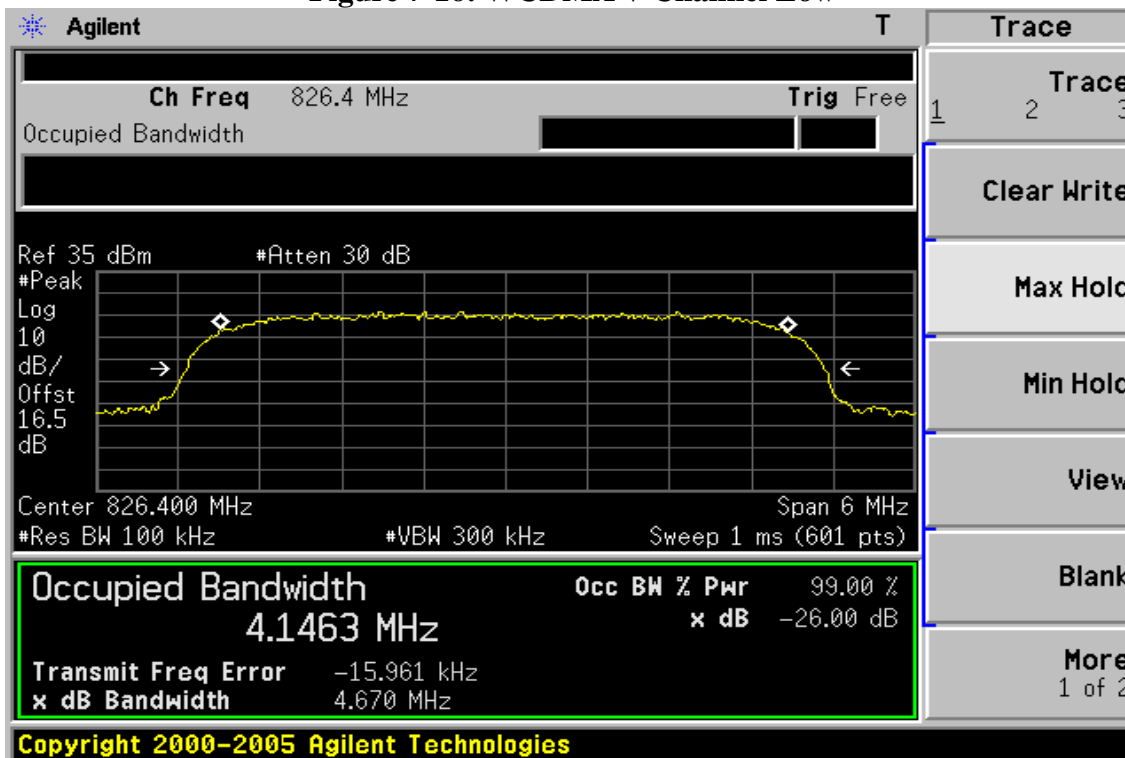


Figure 7-16: WCDMA V Channel Low



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Figure 7-17: WCDMA II Channel Mid

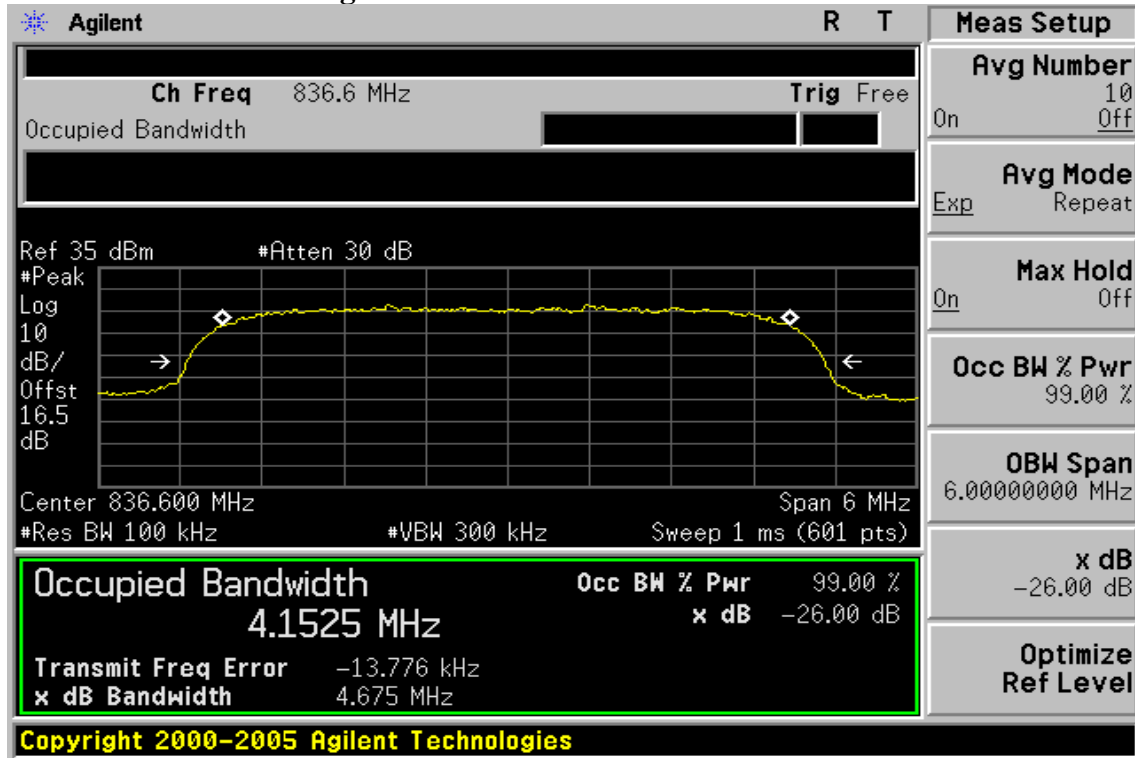
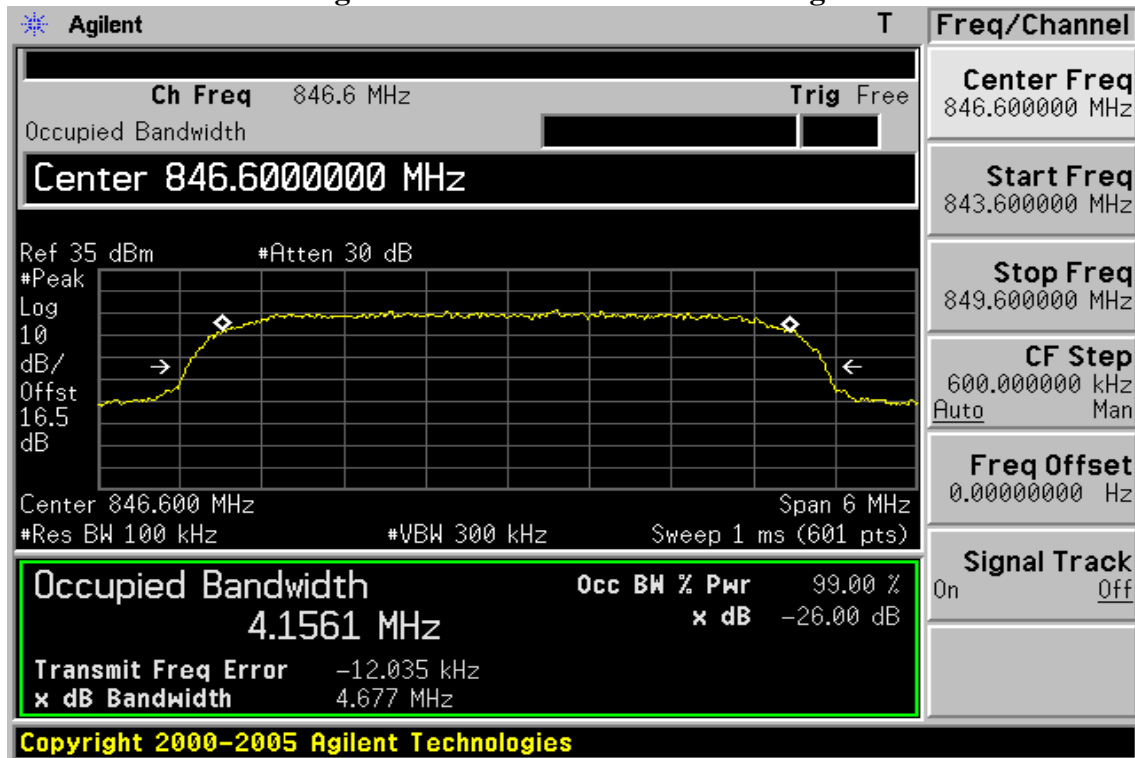


Figure 7-18: WCDMA II Channel High



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Figure 7-19: HSUPA II Channel Low

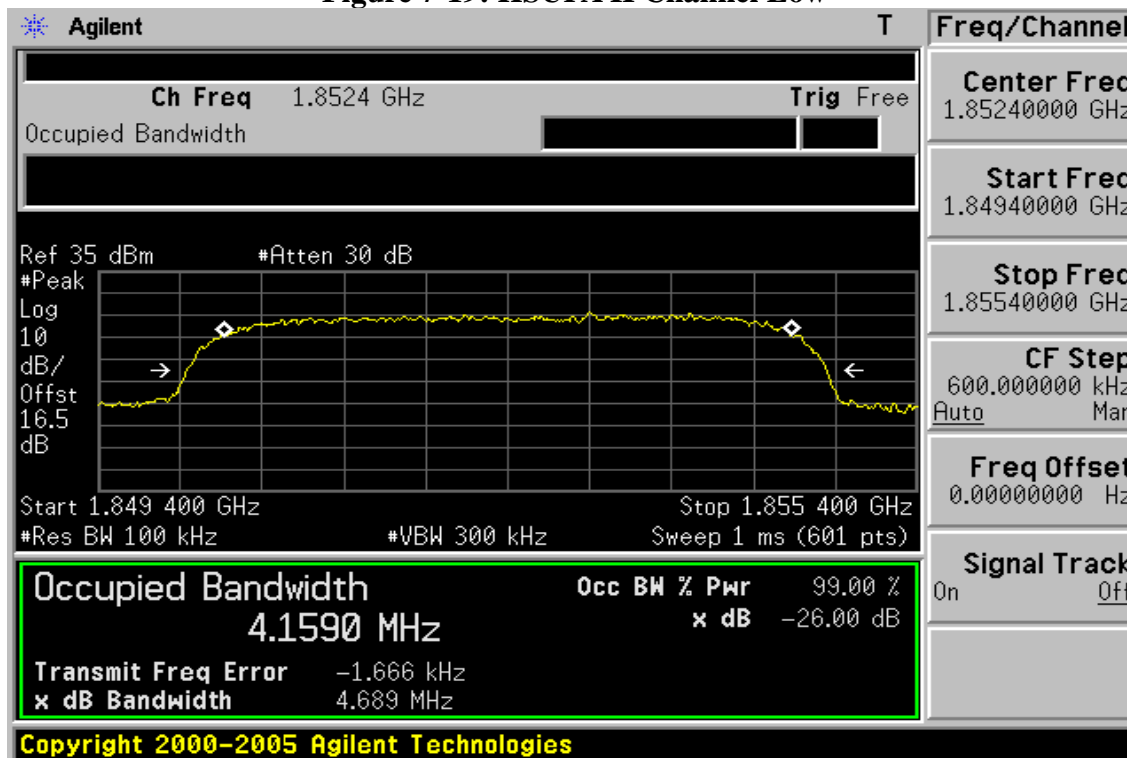
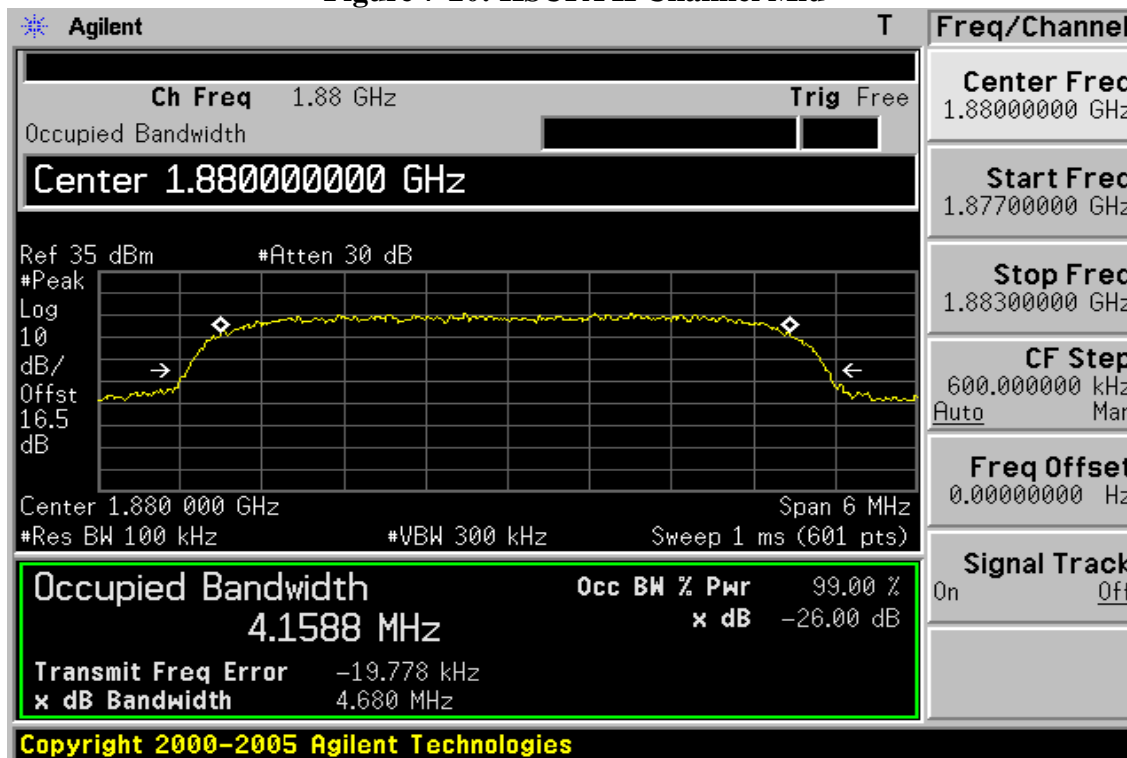


Figure 7-20: HSUPA II Channel Mid



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Figure 7-21: HSUPA II Channel High

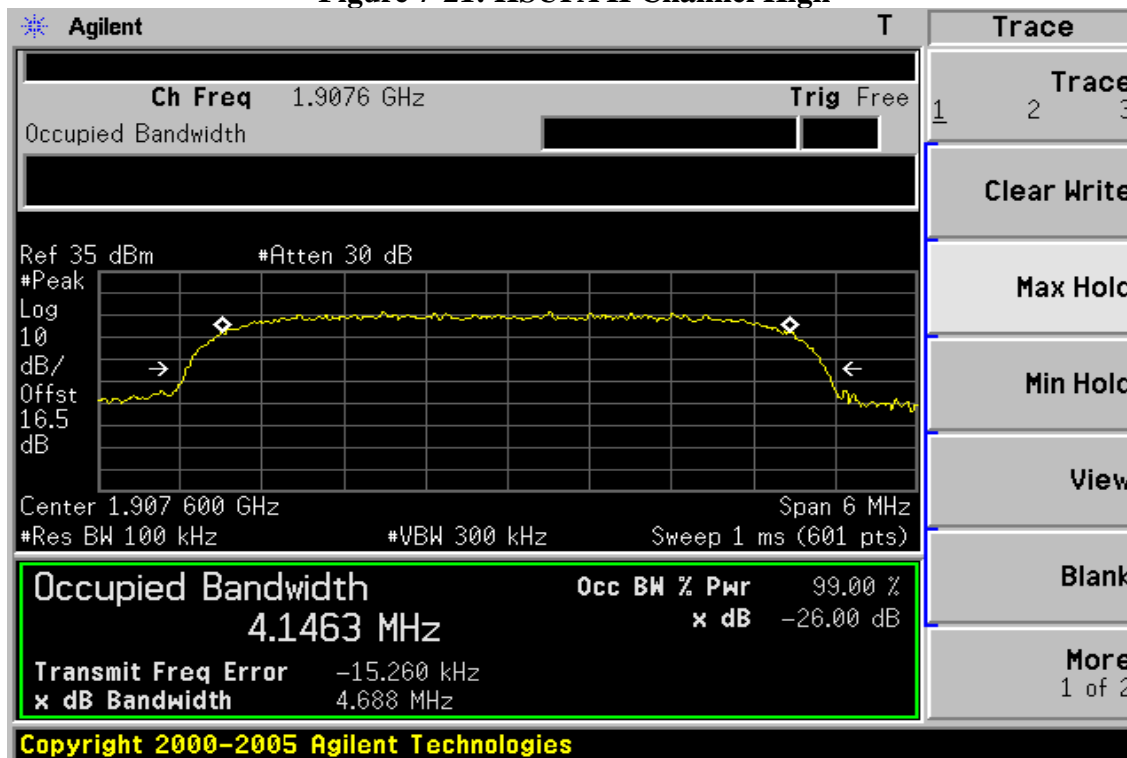
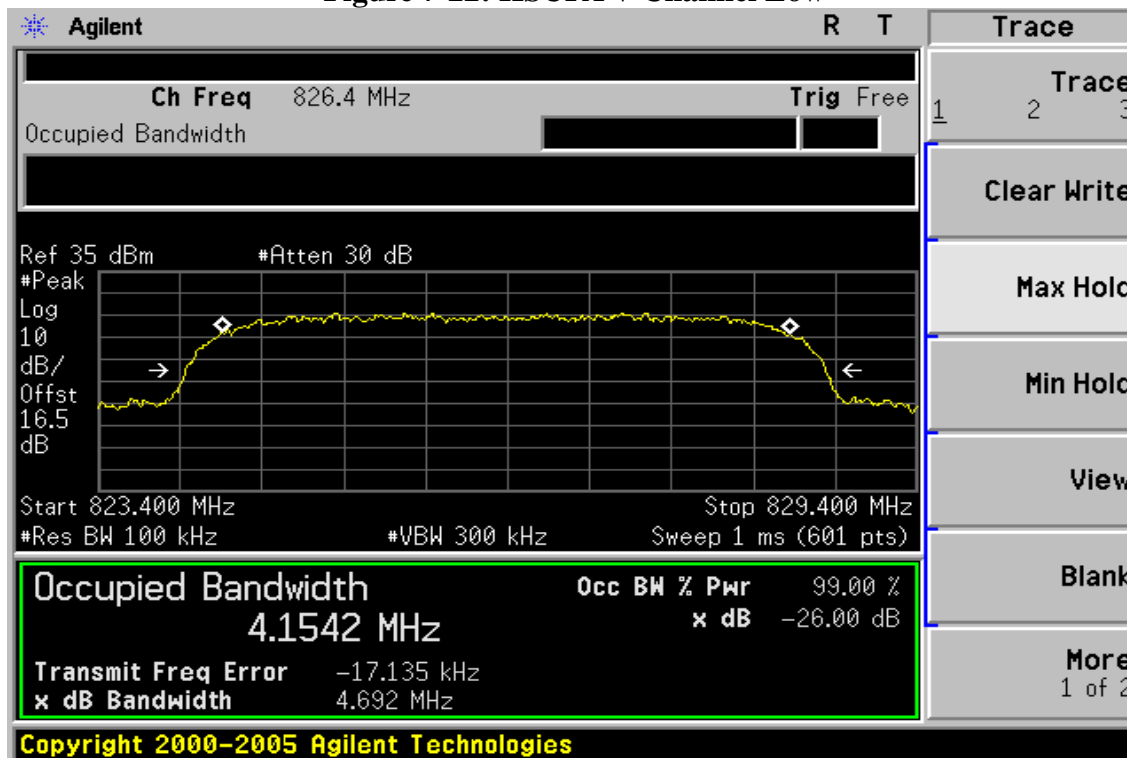


Figure 7-22: HSUPA V Channel Low



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Figure 7-23: HSUPA V Channel Mid

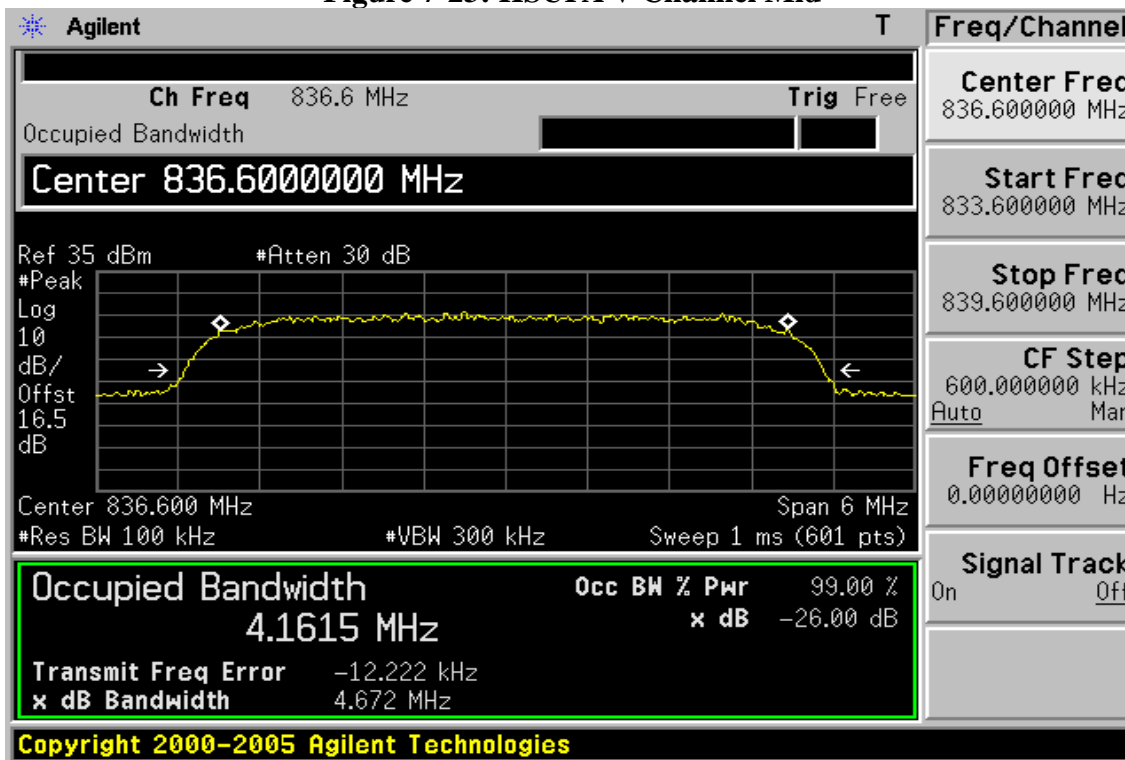
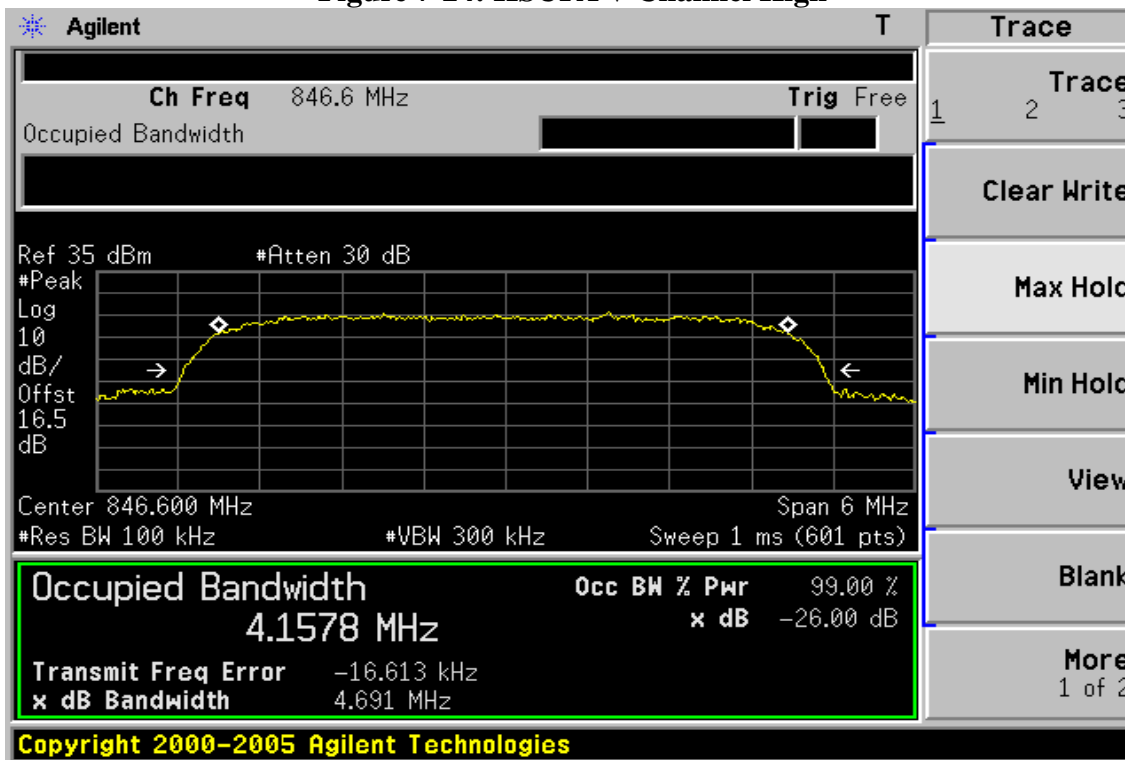


Figure 7-24: HSUPA V Channel High



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Figure 7-25: CDMA 2000 Cellular Channel Low

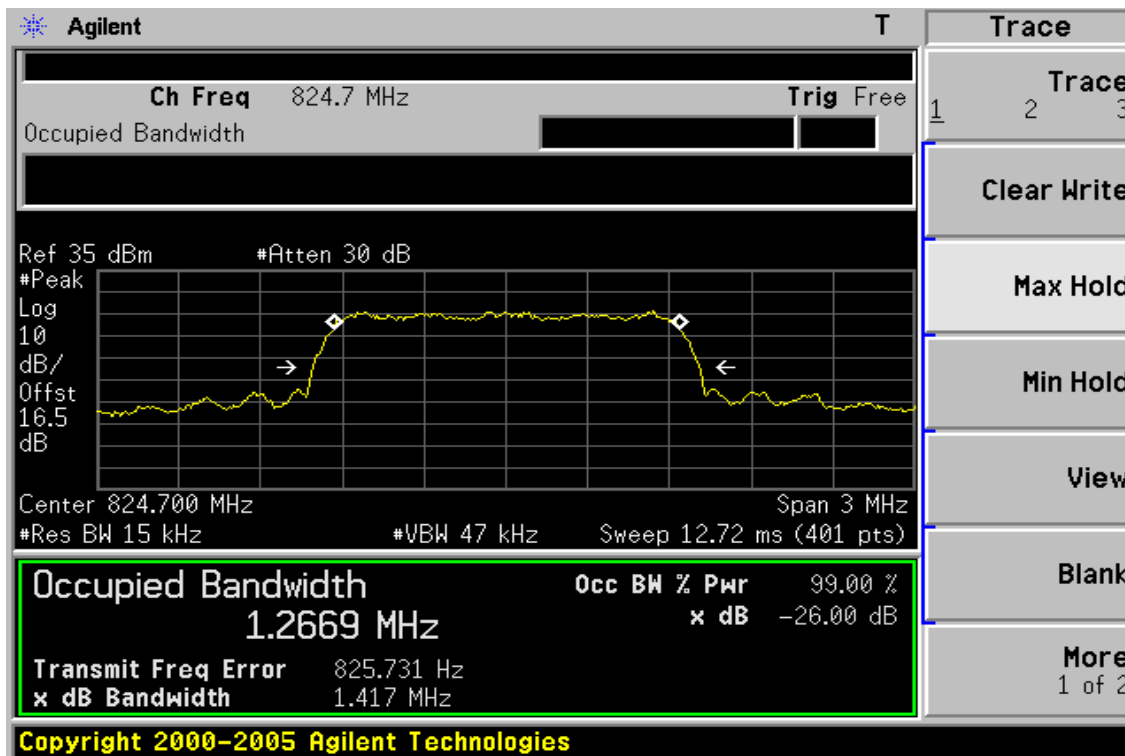
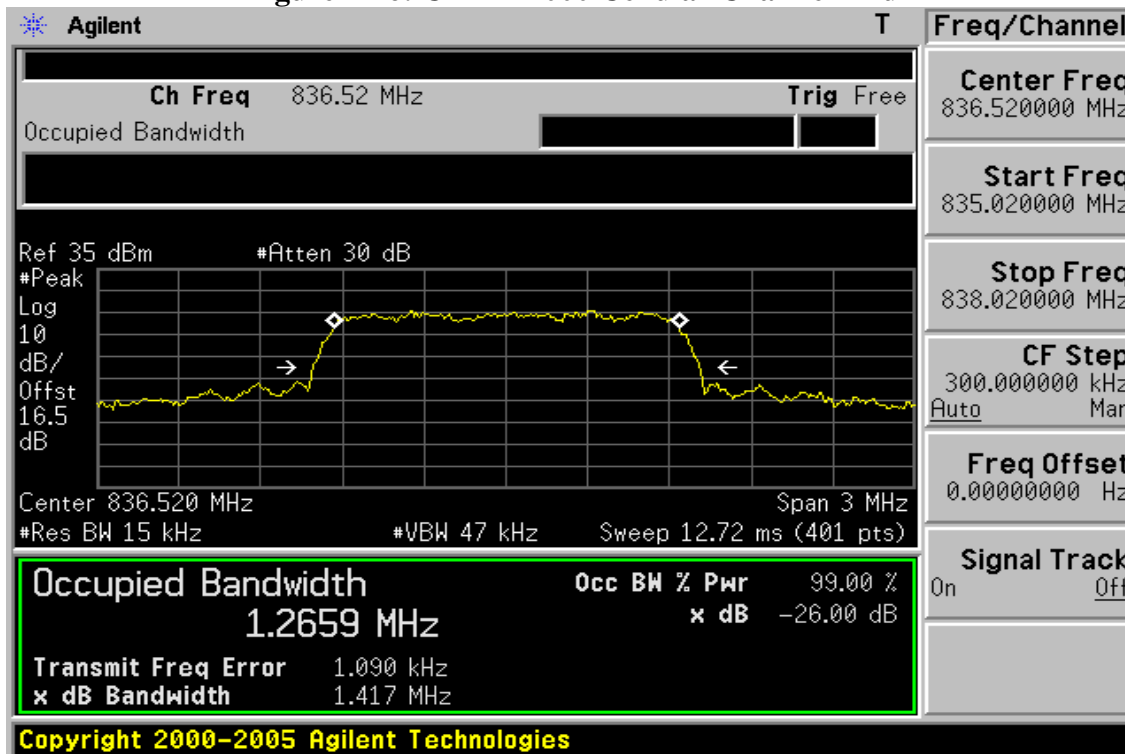


Figure 7-26: CDMA 2000 Cellular Channel Mid



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Figure 7-27: CDMA 2000 Cellular Channel High

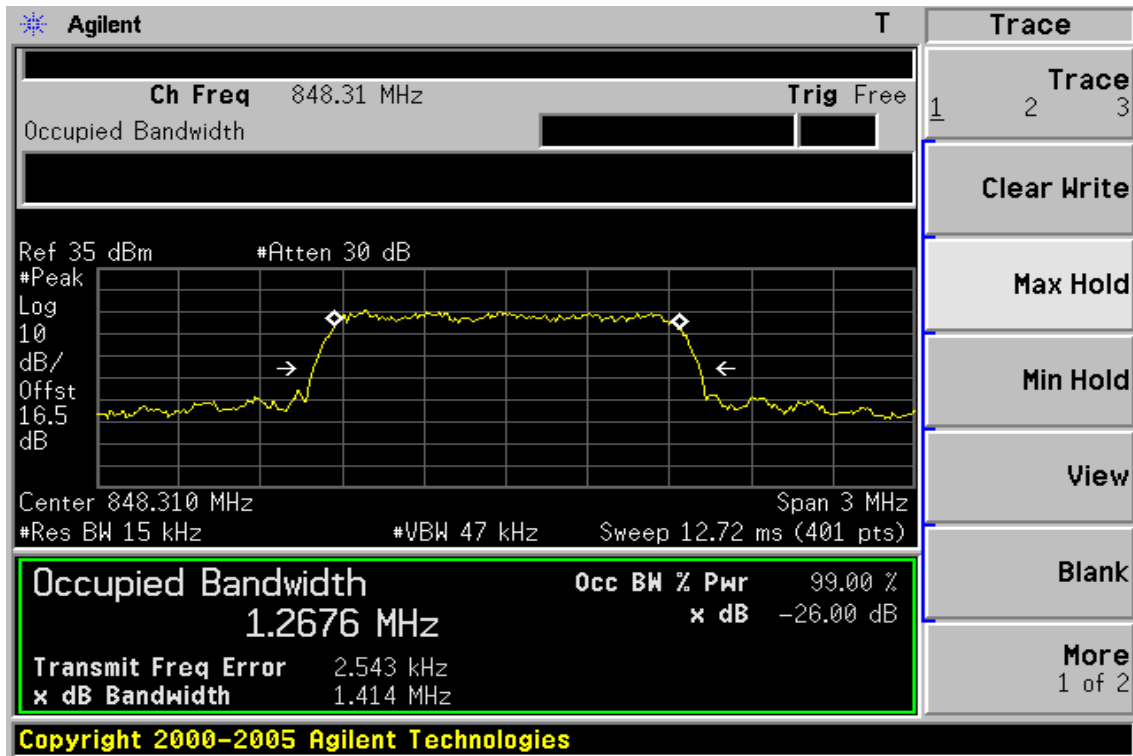
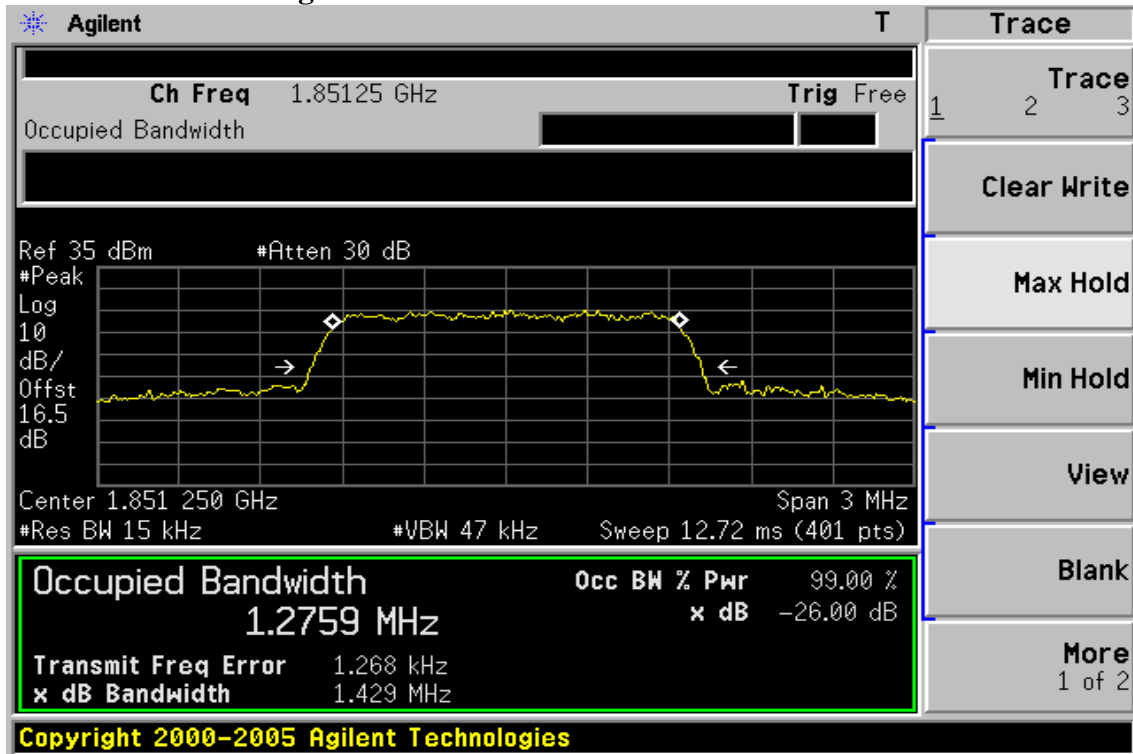


Figure 7-28: CDMA 2000 PCS Channel Low



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Figure 7-29: CDMA 2000 PCS Channel Mid

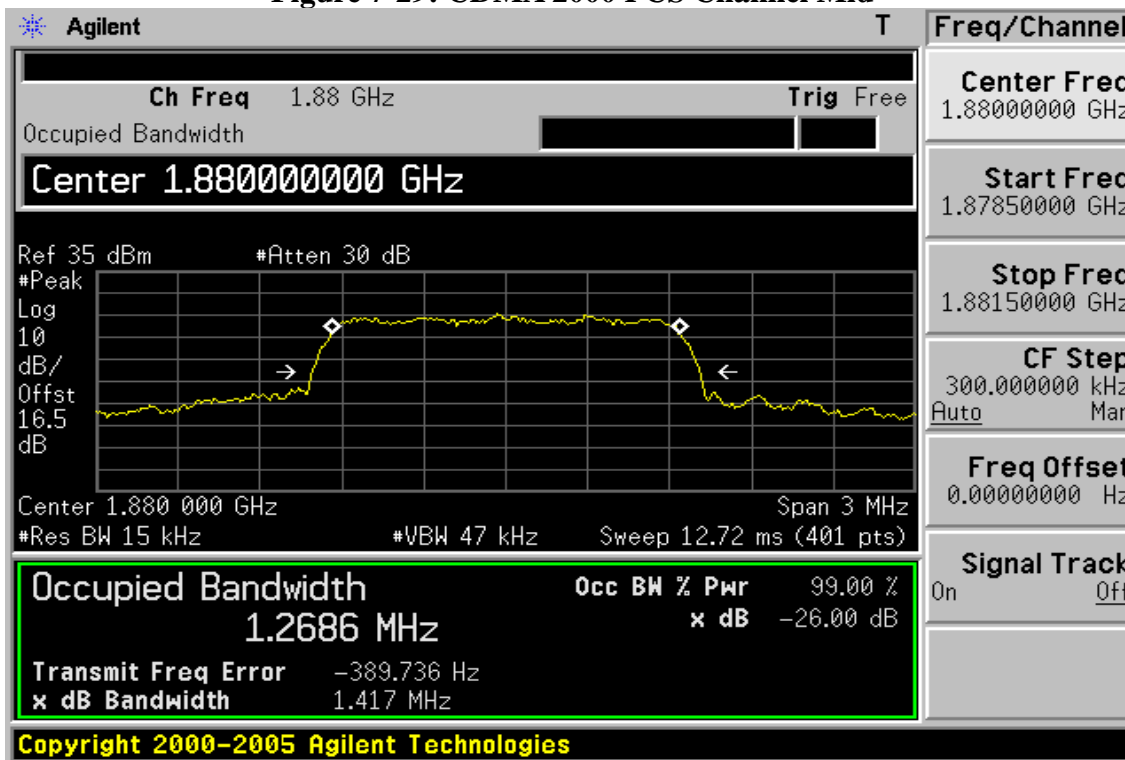
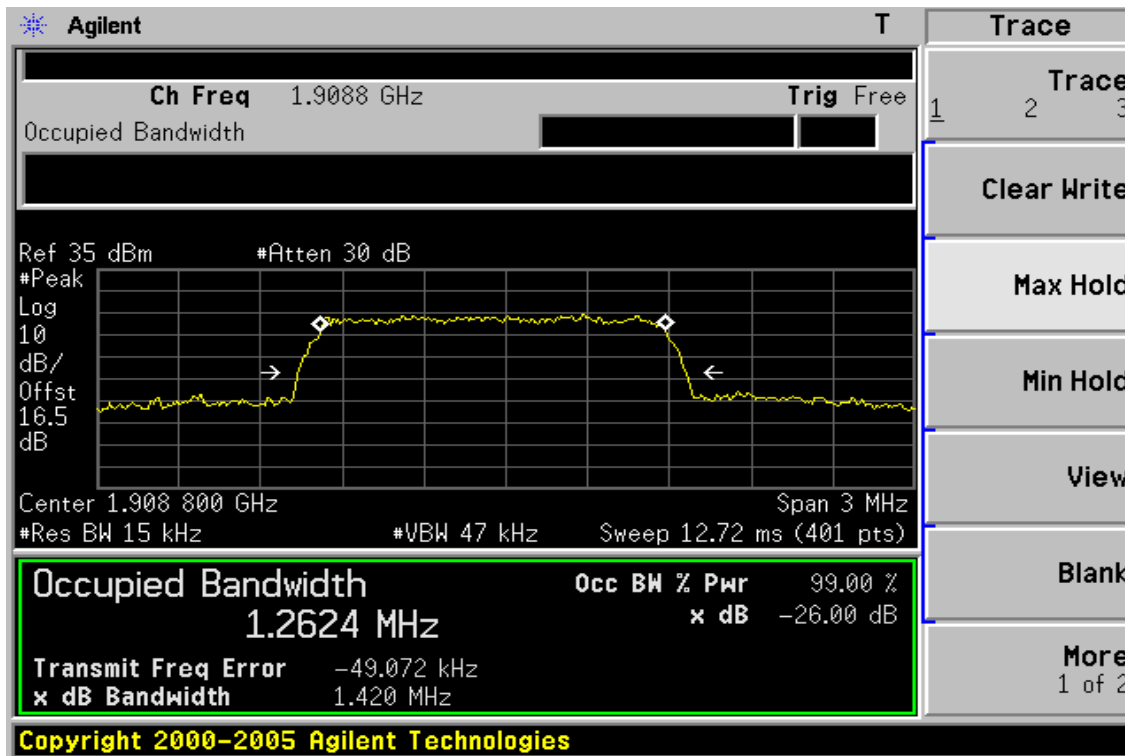


Figure 7-30: CDMA 2000 PCS Channel High



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Figure 7-31: CDMA 2000 EVDO Cellular Channel Low

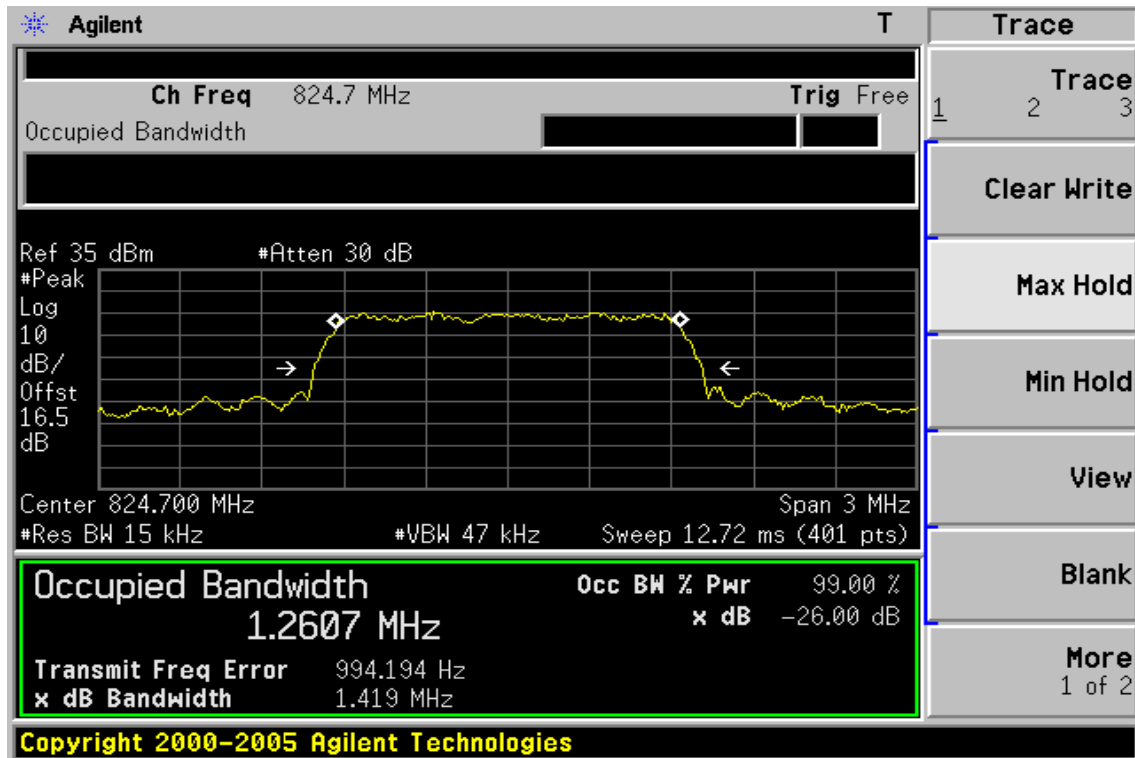
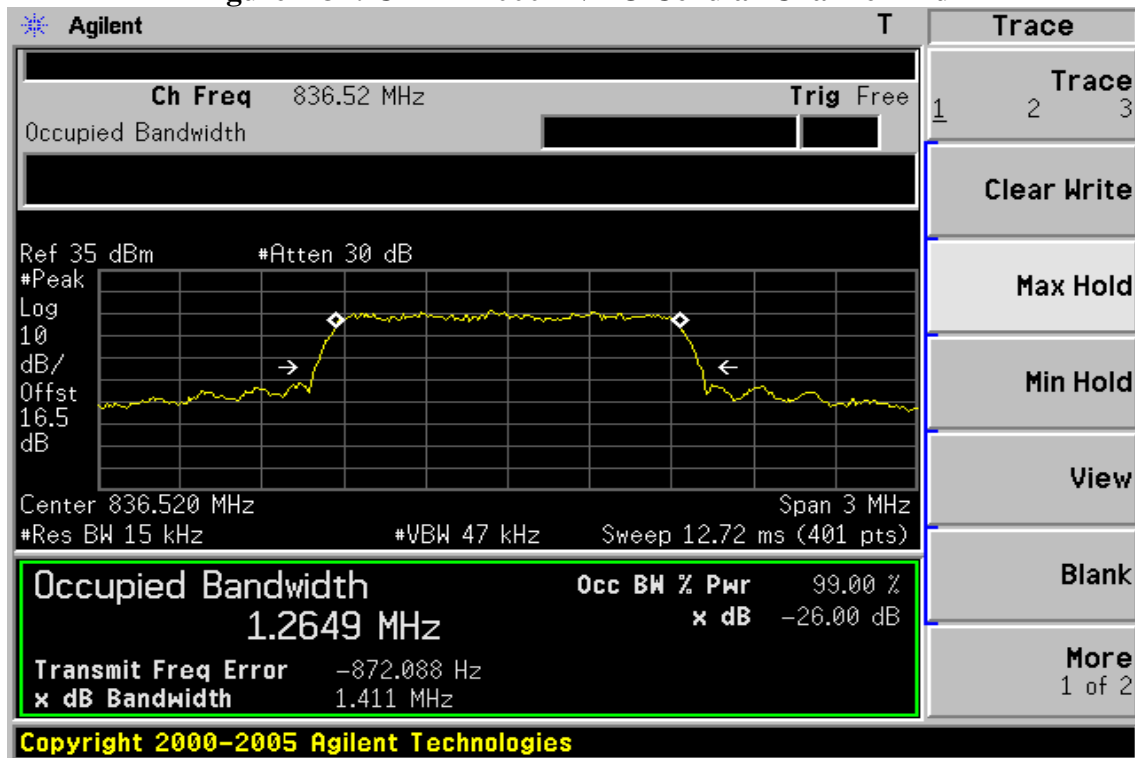


Figure 7-32: CDMA 2000 EVDO Cellular Channel Mid



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Figure 7-33: CDMA 2000 EVDO Cellular Channel High

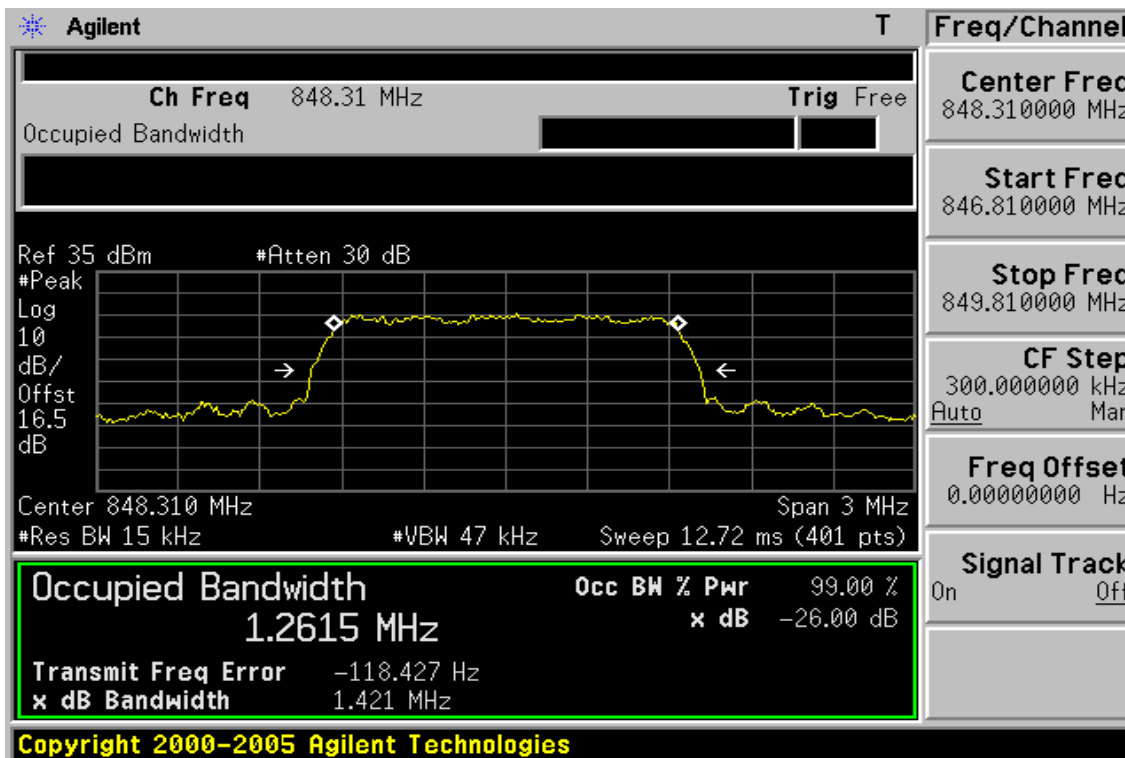
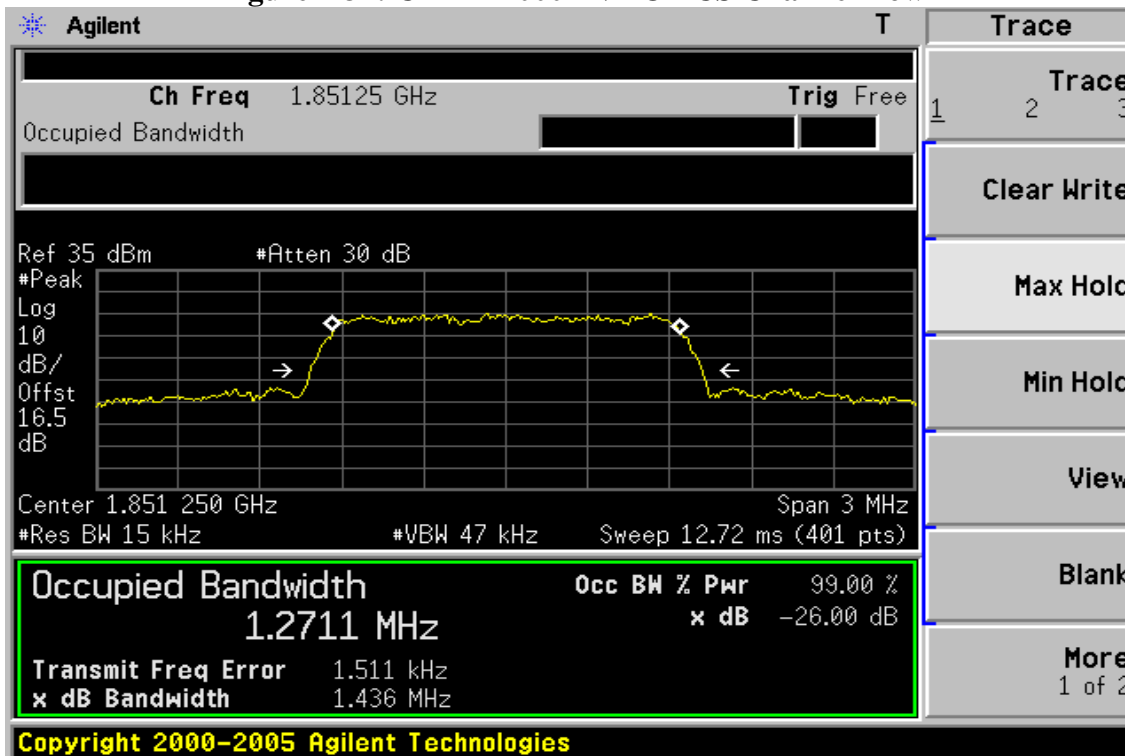


Figure 7-34: CDMA 2000 EVDO PCS Channel Low



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Figure 7-35: CDMA 2000 EVDO PCS Channel Mid

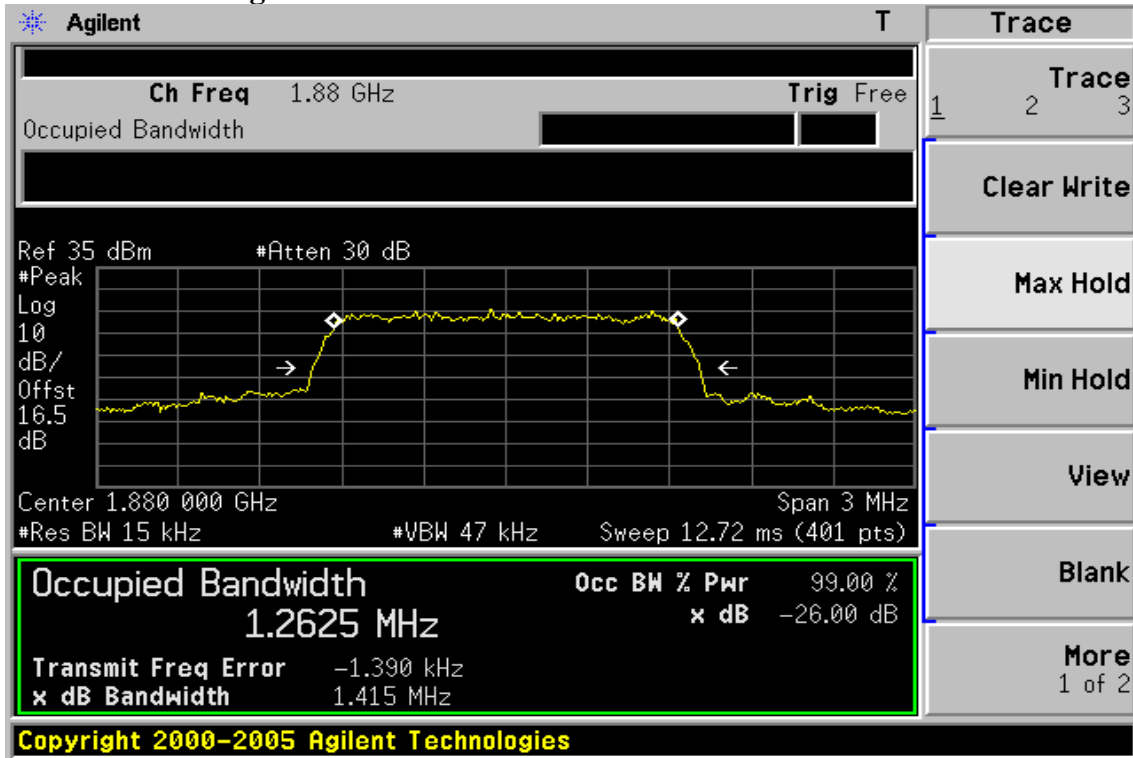
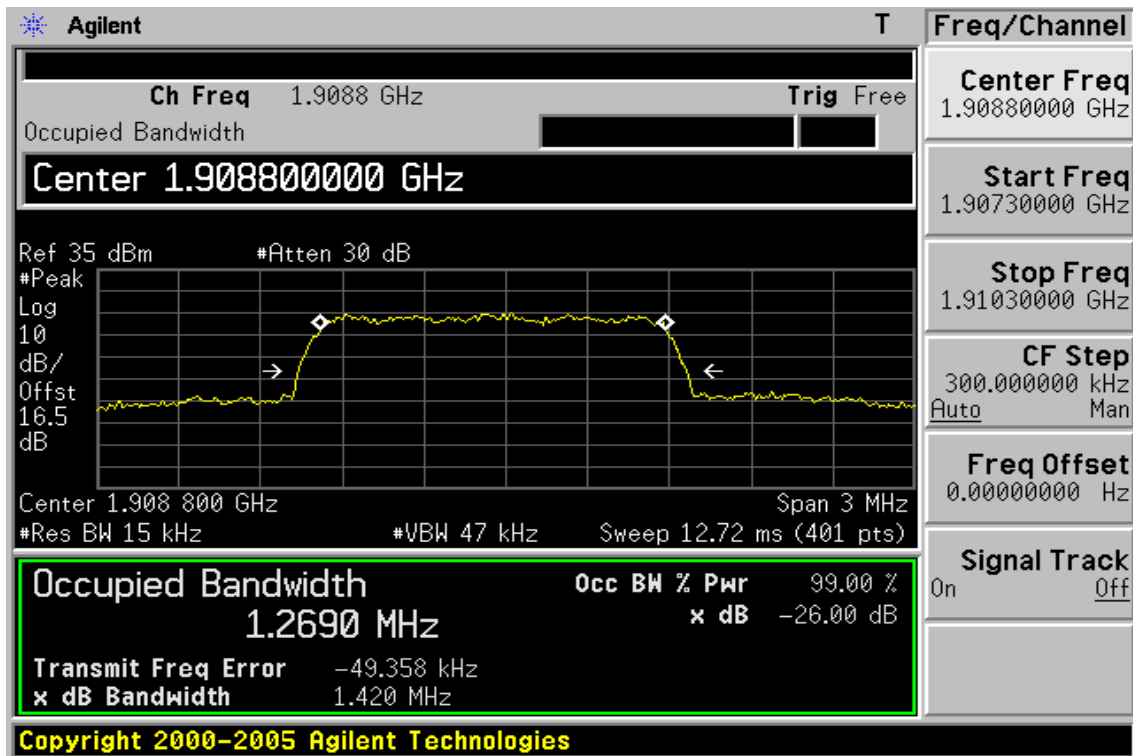


Figure 7-36: CDMA 2000 EVDO PCS Channel High



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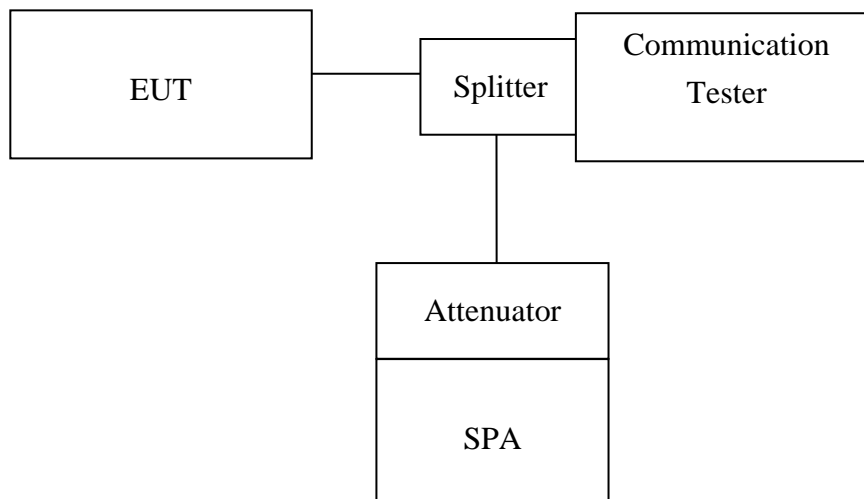
## 8. OUT OF BAND EMISSION AT ANTENNA TERMINALS

### 8.1. Standard Applicable:

According to FCC §2.1051.

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

### 8.2. Test SET-UP:



*Note: Measurement setup for testing on Antenna connector*

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### 8.3. Measurement Procedure:

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

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

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

### Conducted Emission:

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

### 8.4. Measurement Equipment Used:

Refer to section 2.4 in this report

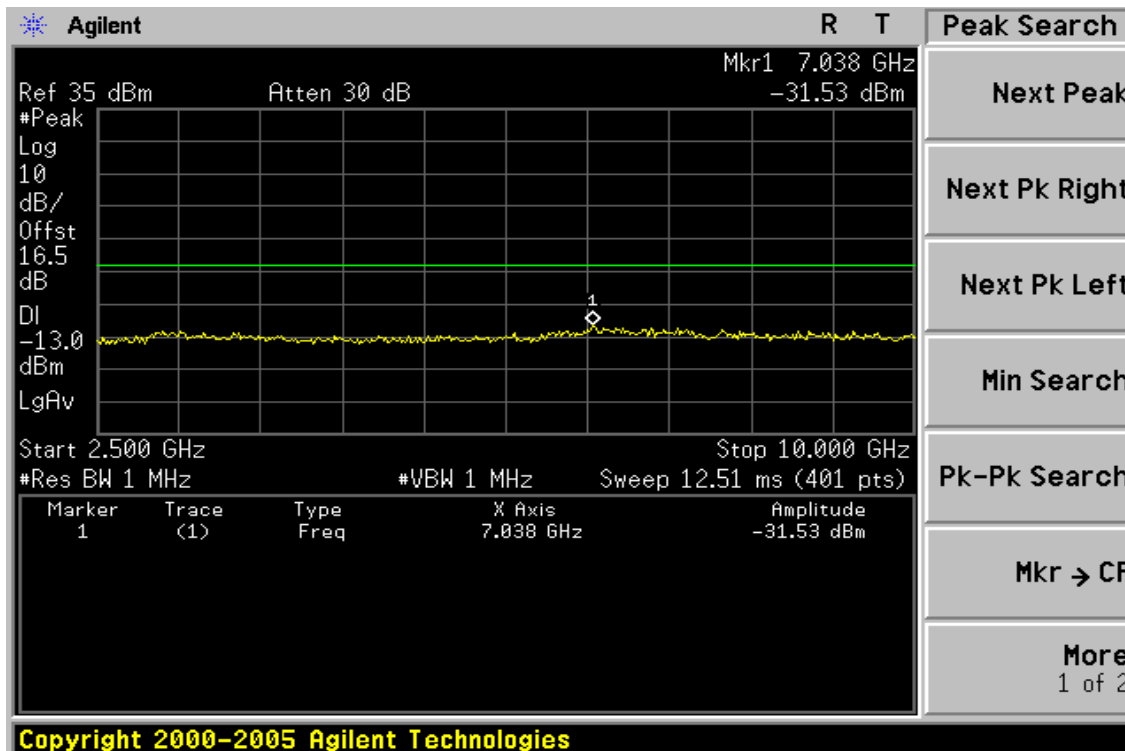
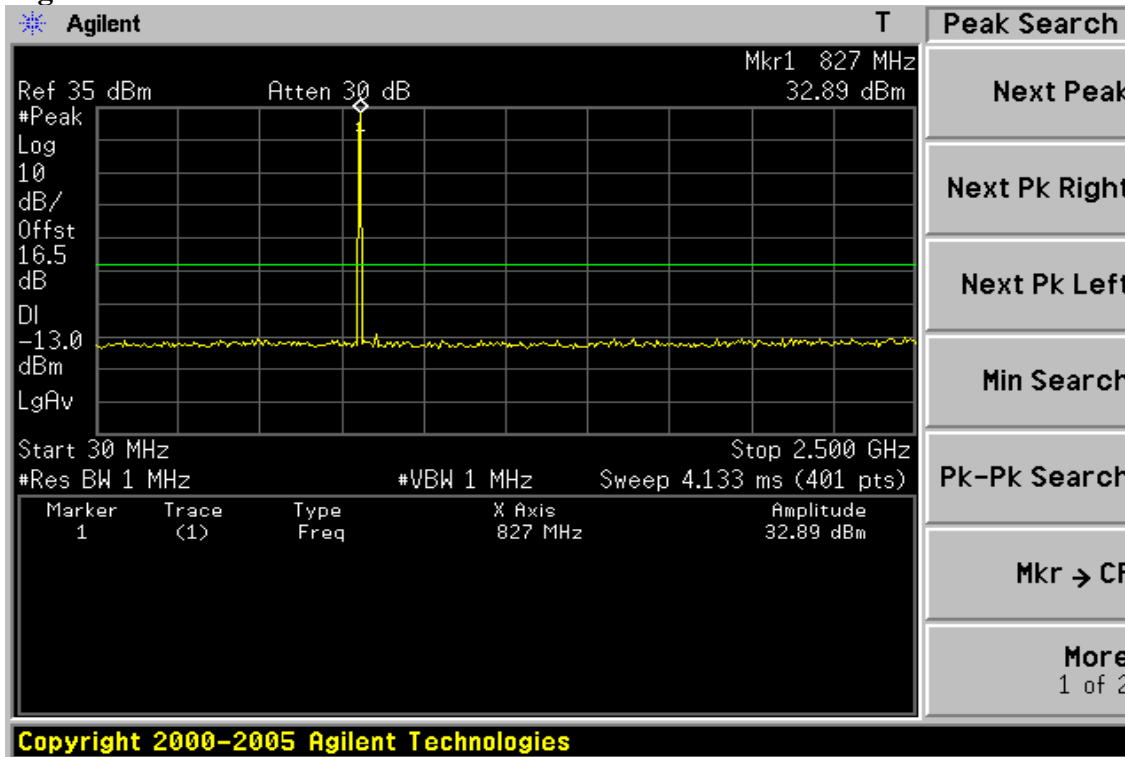
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8.5. Measurement Result:

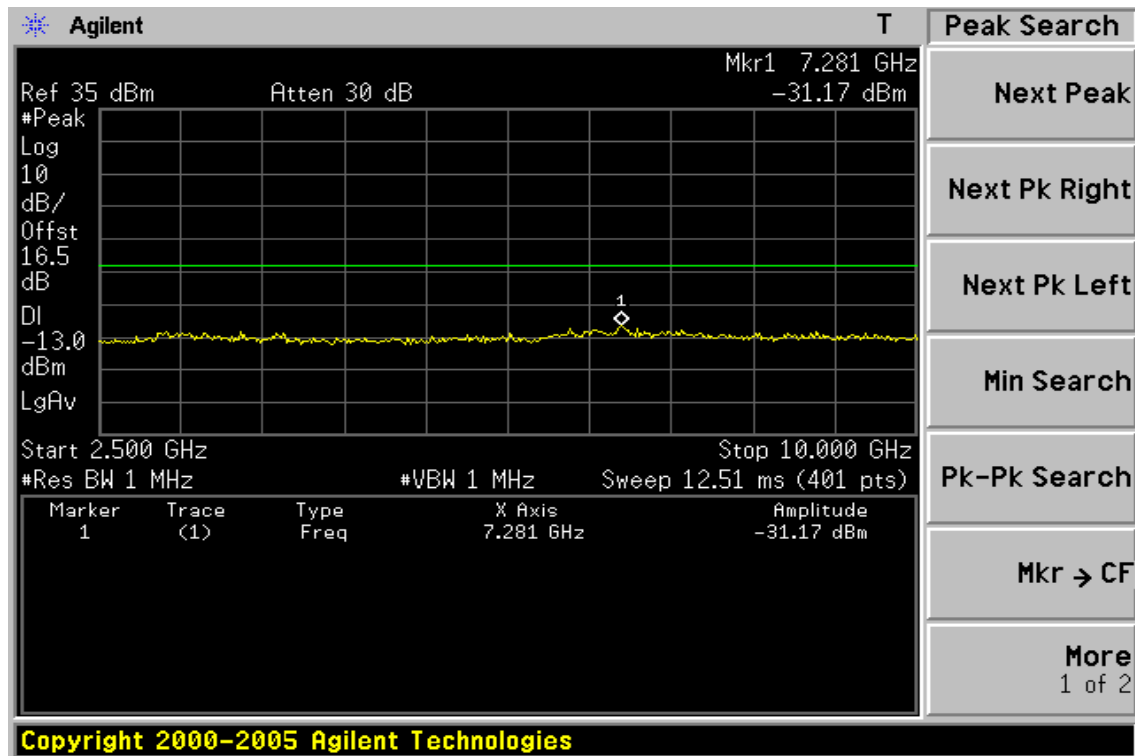
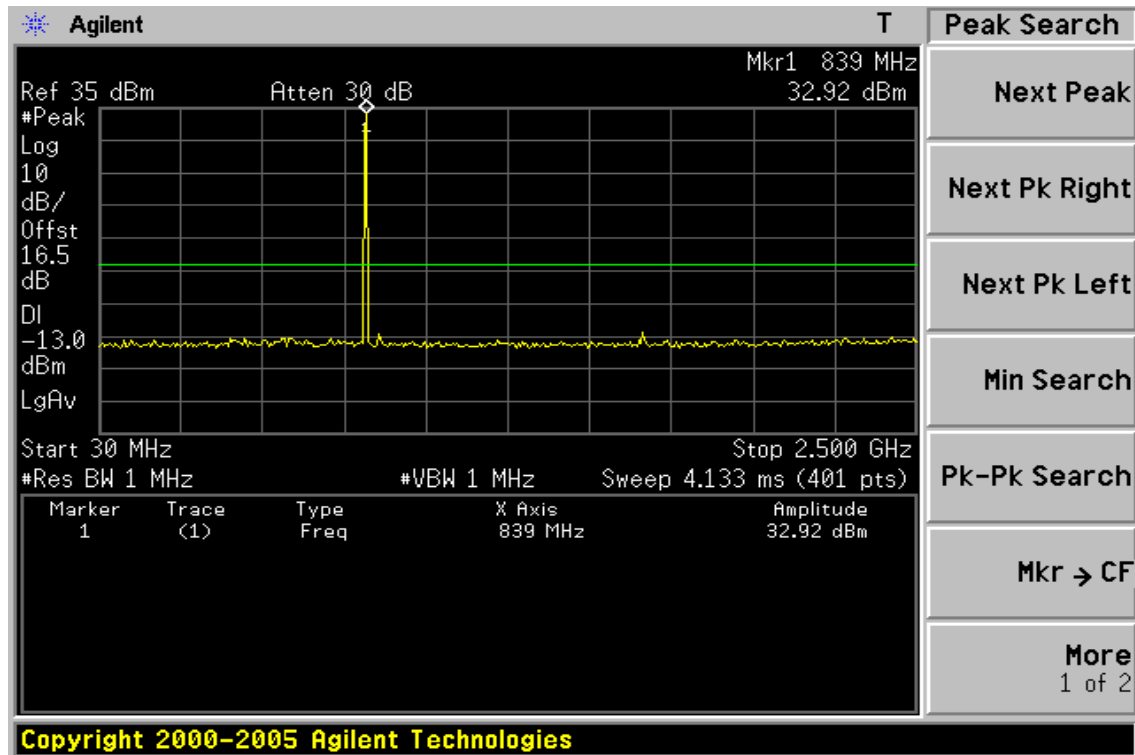
Figure 8-1: Out of Band emission at antenna terminals– GSM 850 Channel Lowest



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



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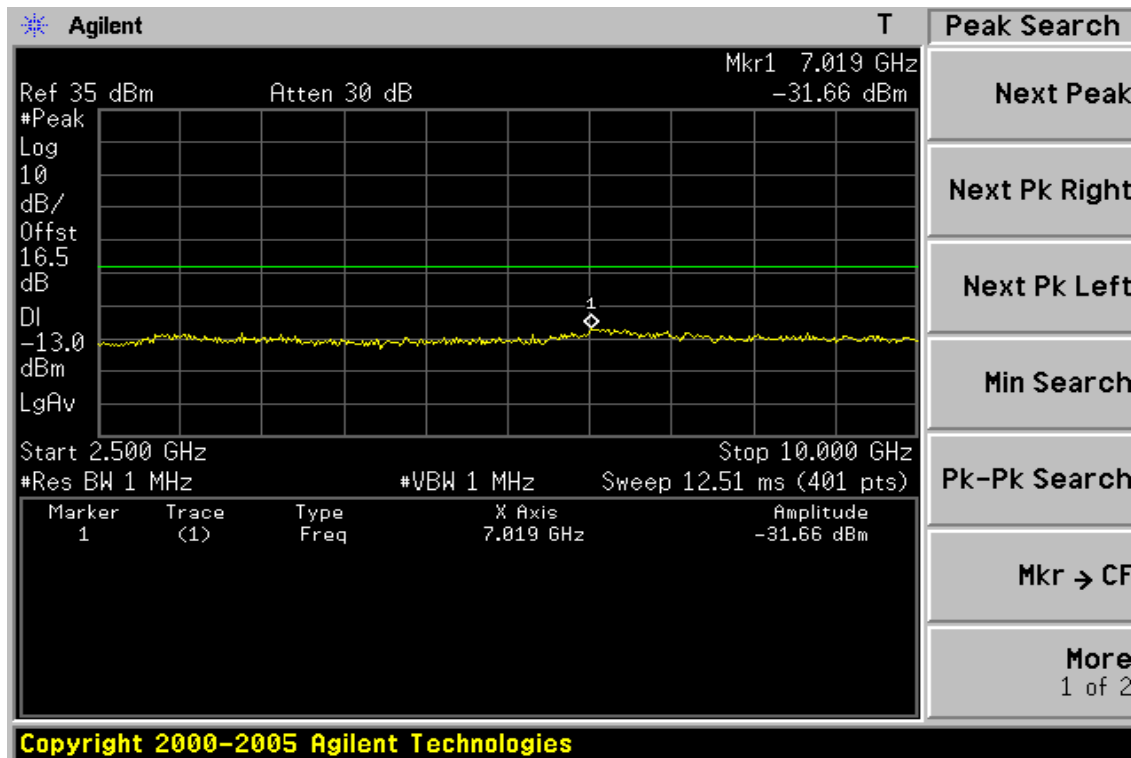
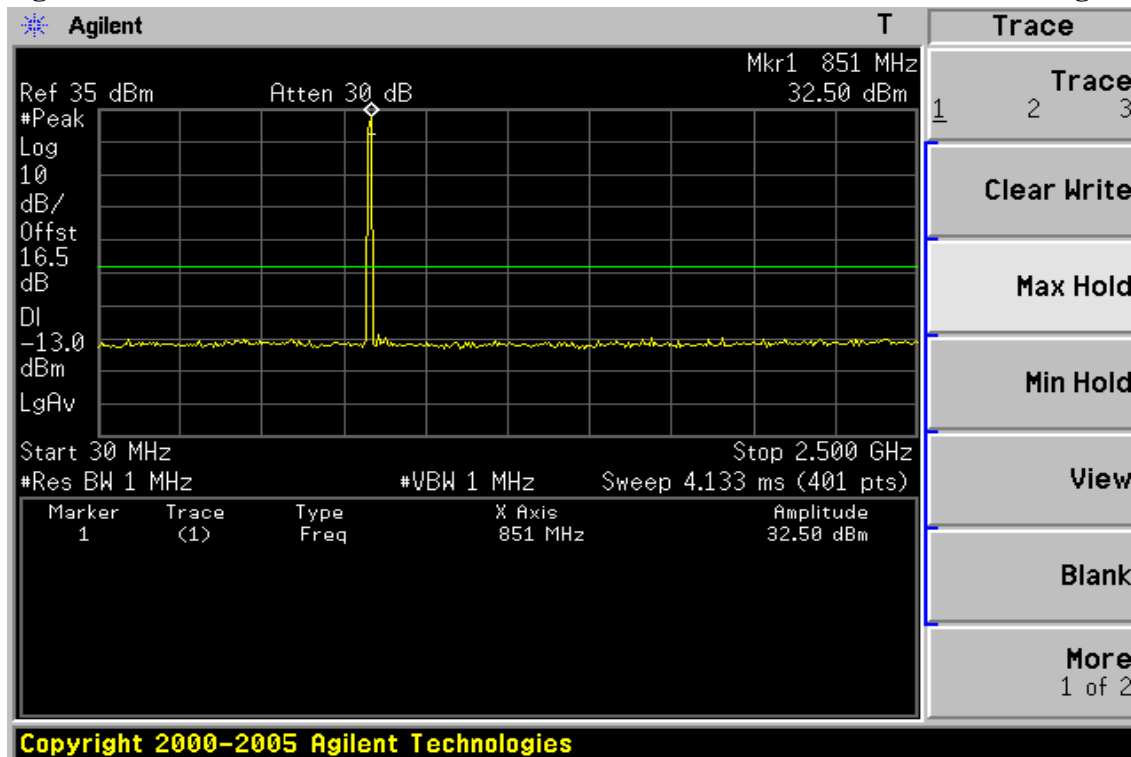
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Figure 8-3: Out of Band emission at antenna terminals – GSM 850 Channel Highest



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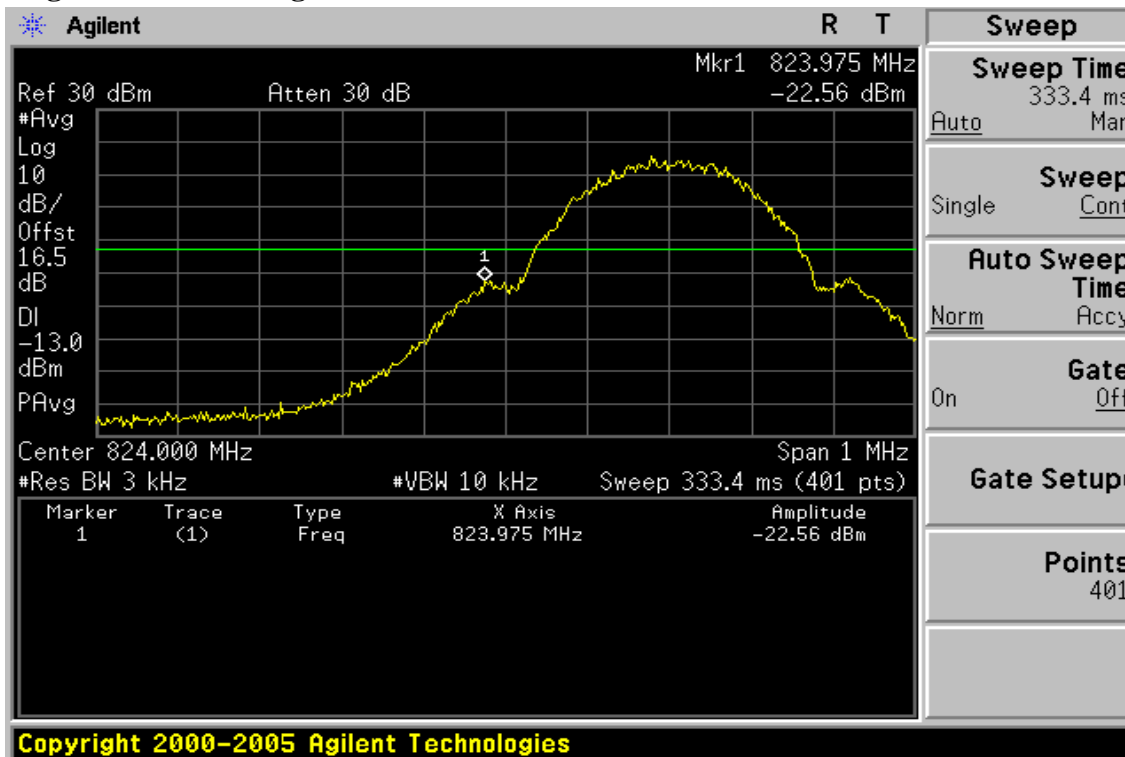
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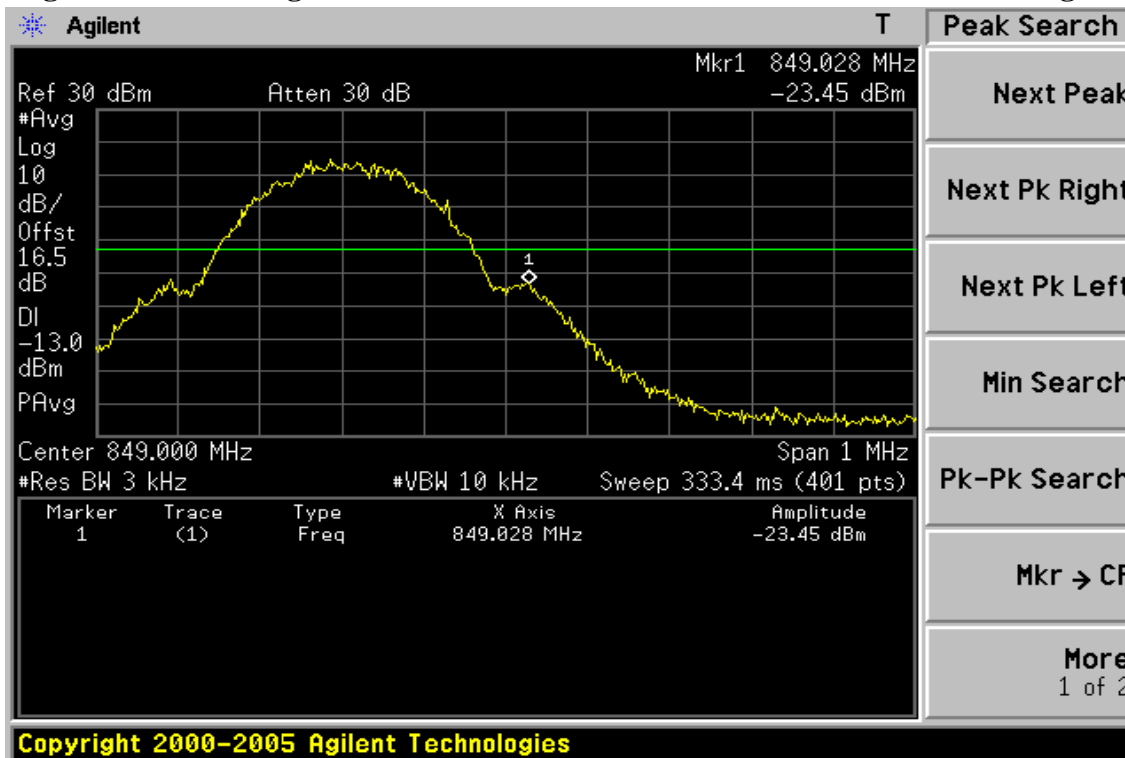
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**Figure 8-4: Band edge emission at antenna terminals – GSM 850 Channel Lowest**



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



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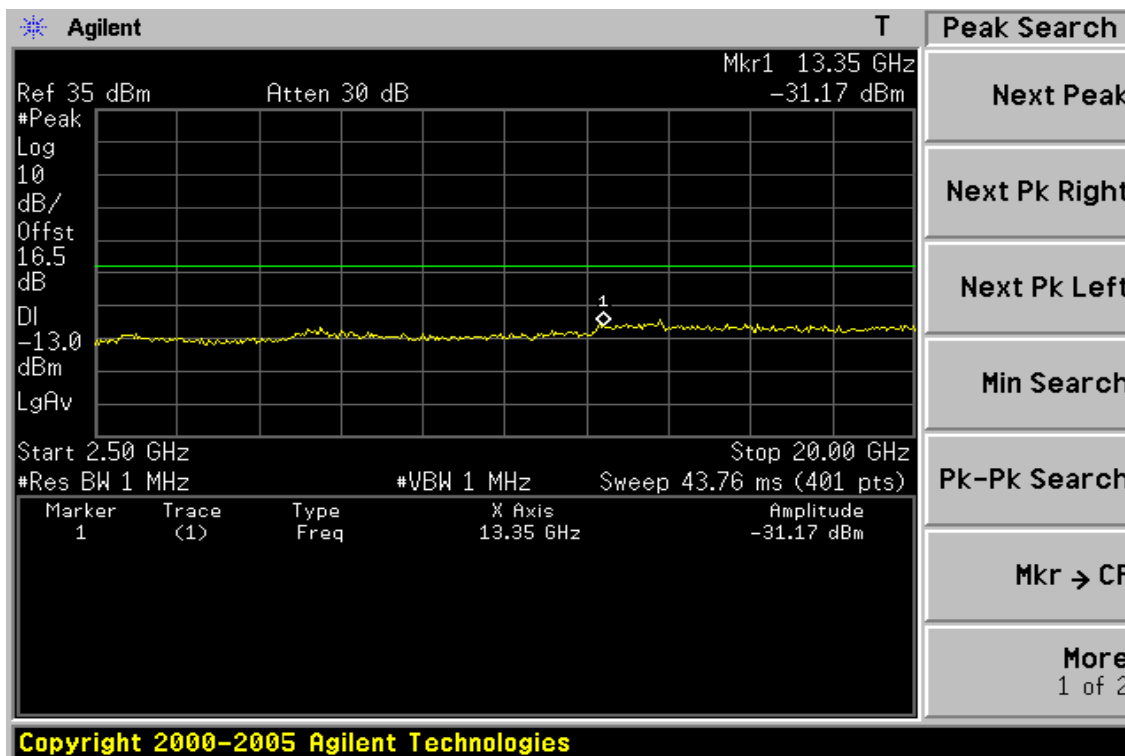
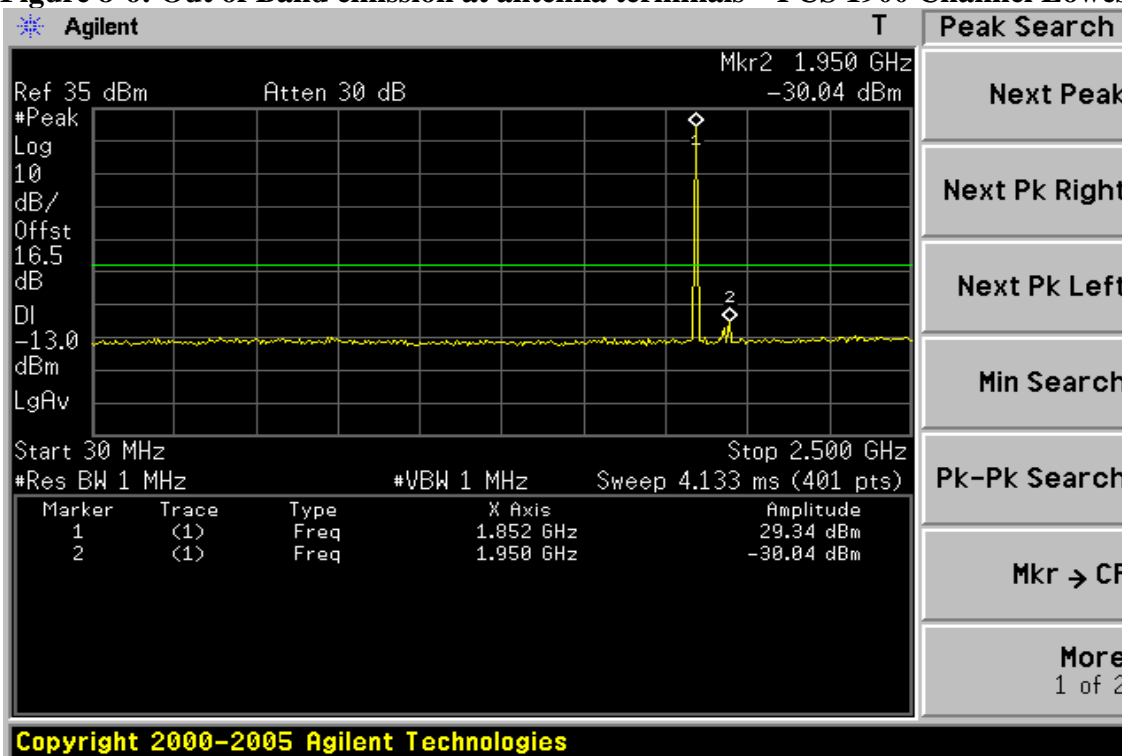
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Figure 8-6: Out of Band emission at antenna terminals – PCS 1900 Channel Lowest

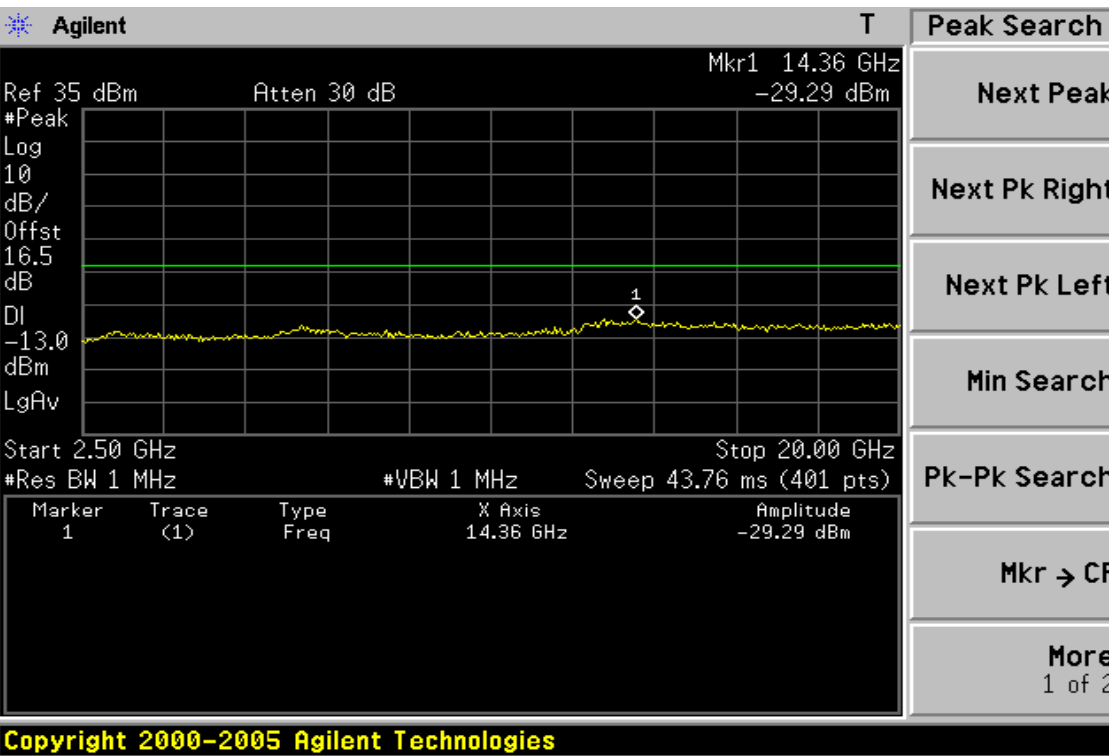
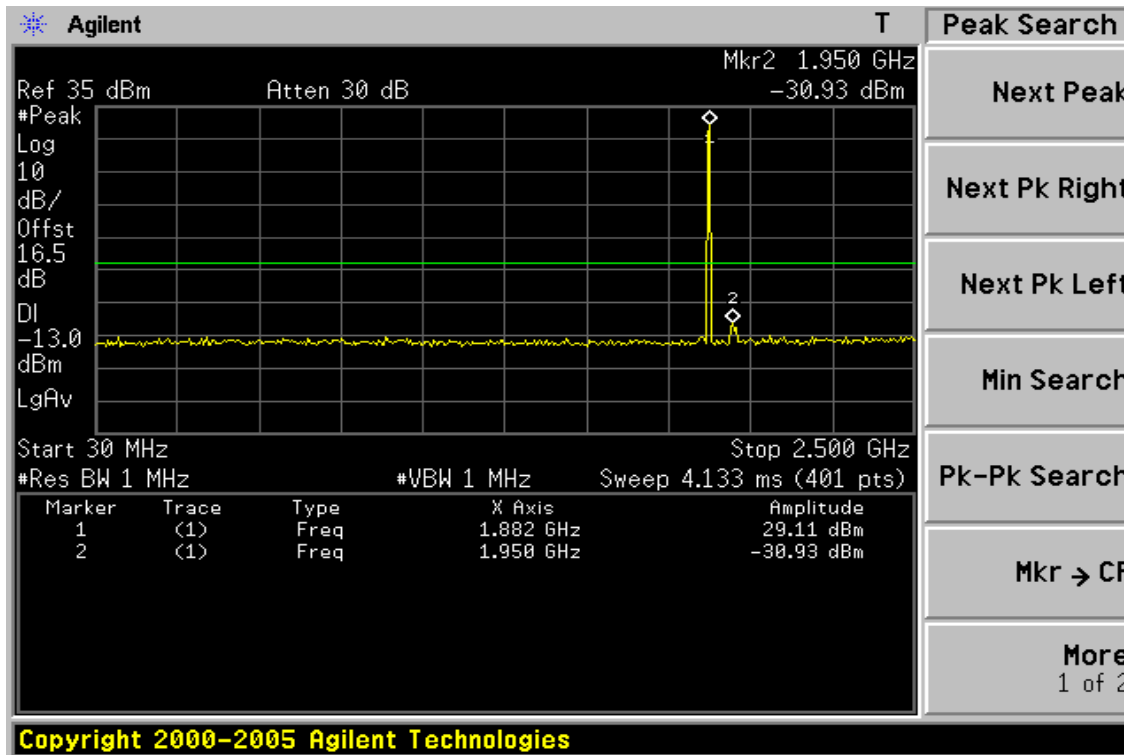


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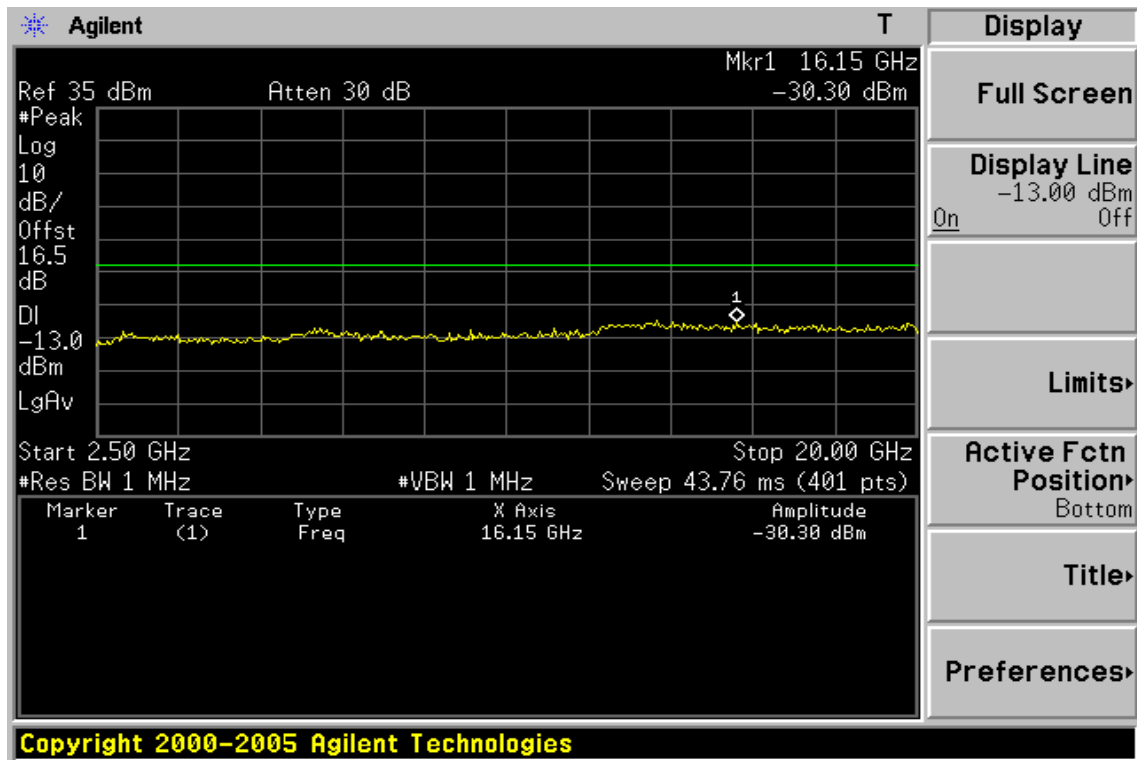
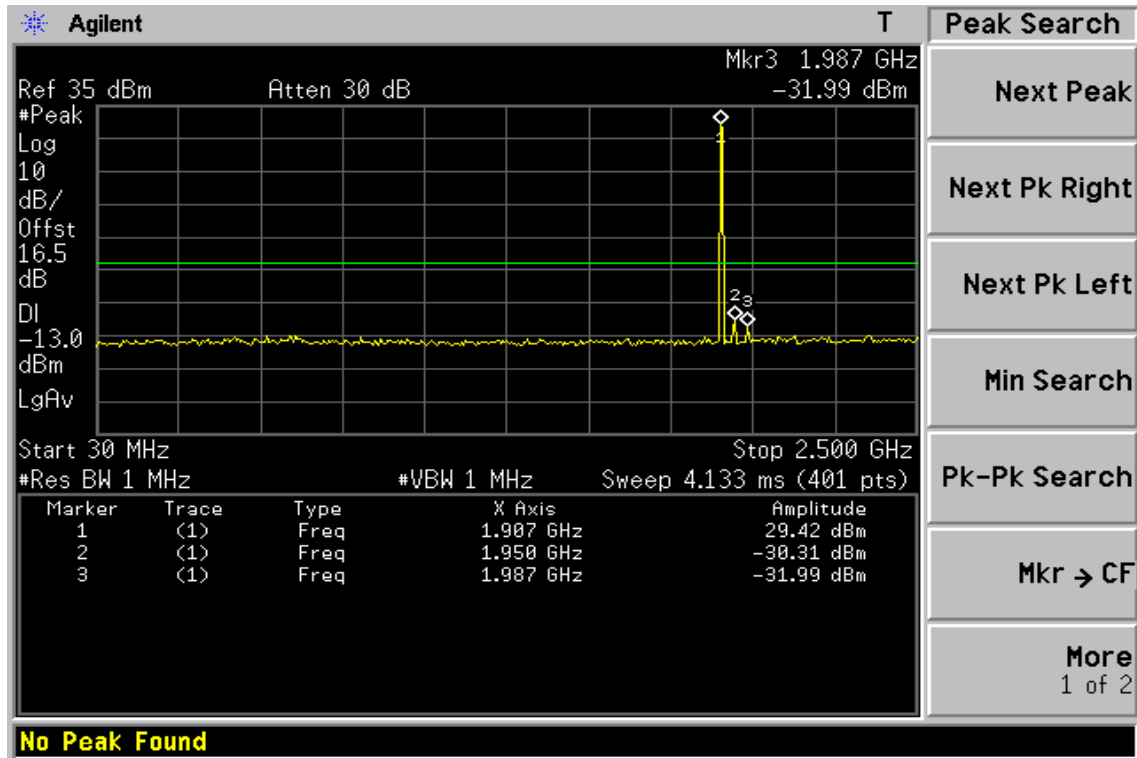
Figure 8-7: Out of Band emission at antenna terminals – PCS 1900 Channel Mid



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



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Figure 8-9: Band edge emission at antenna terminals – PCS 1900 Channel Lowest

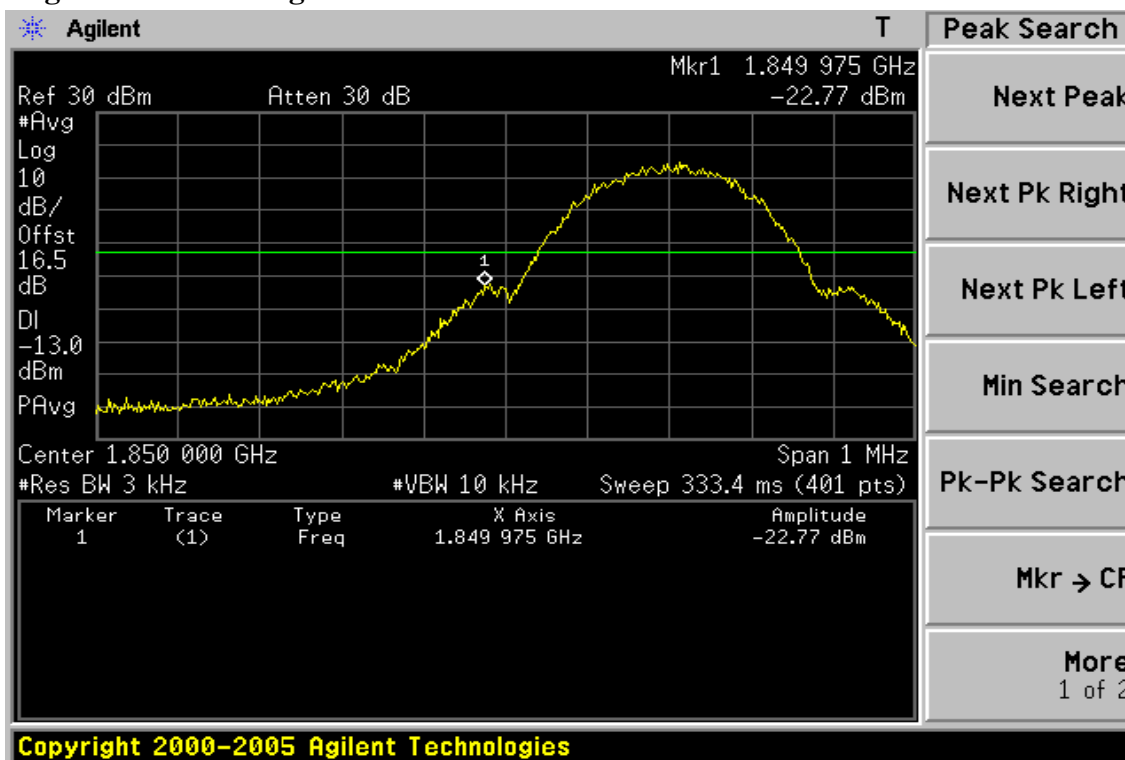
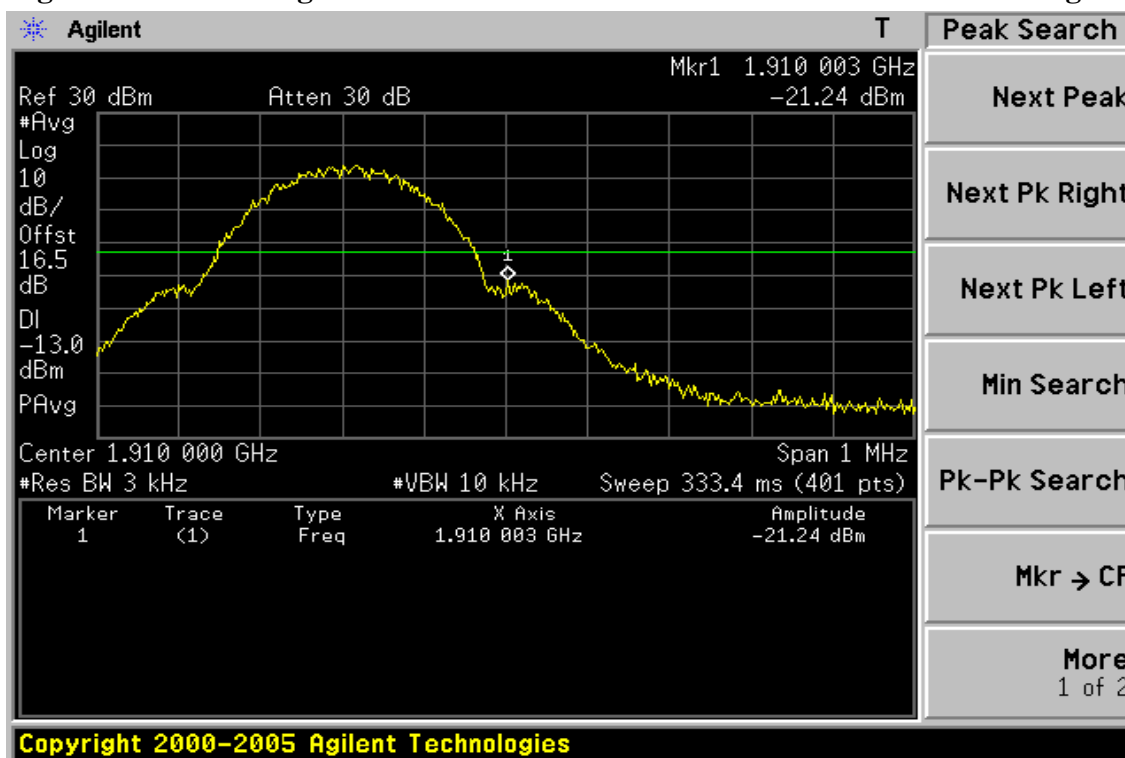


Figure 8-10: Band edge emission at antenna terminals – PCS 1900 Channel Highest



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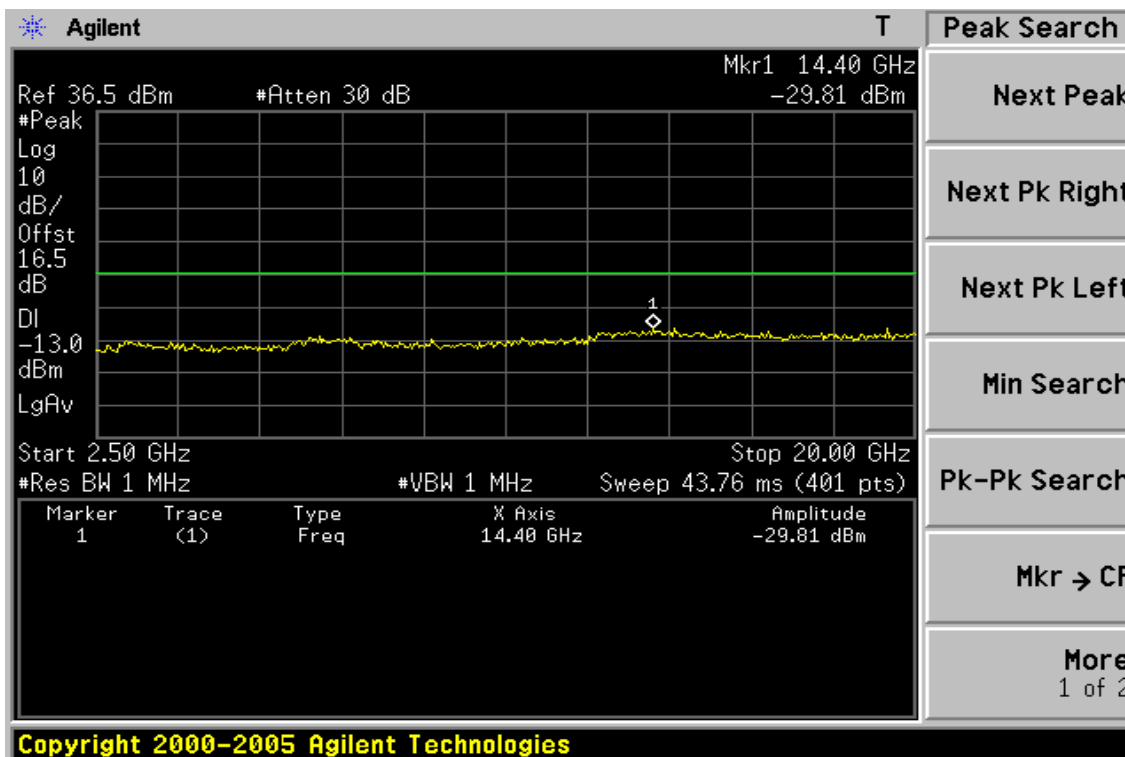
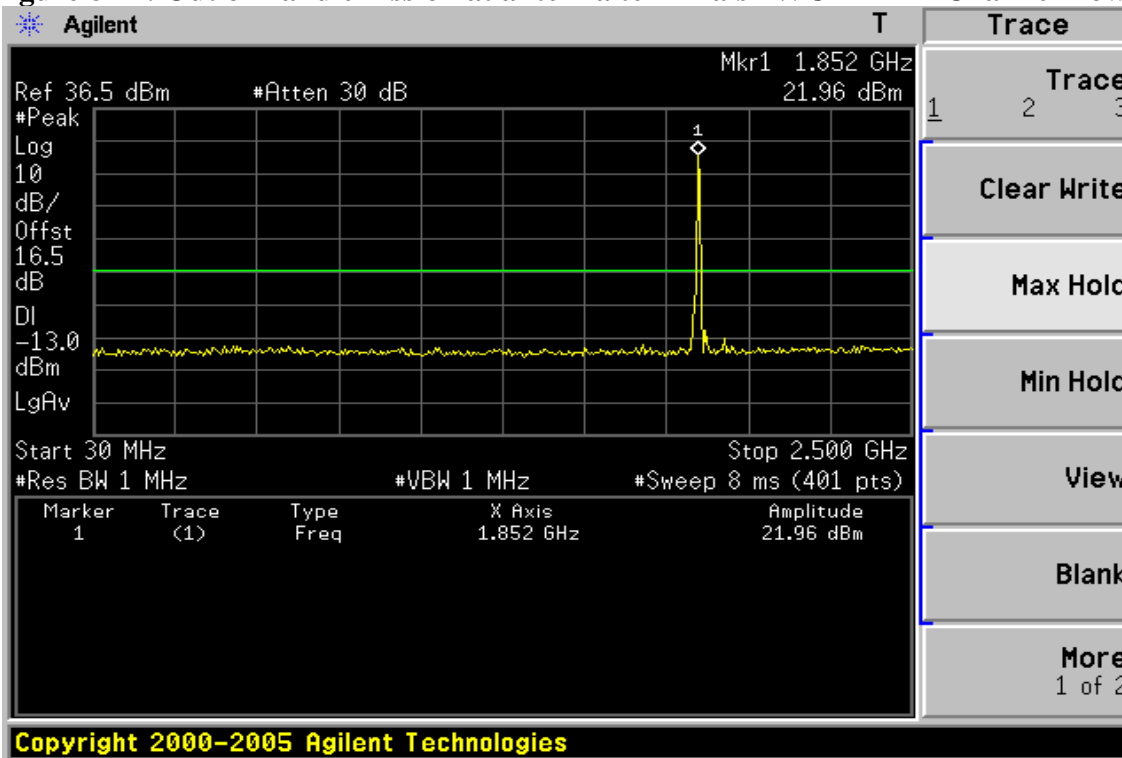
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Figure 8-11: Out of Band emission at antenna terminals– WCDMA II Channel Lowest



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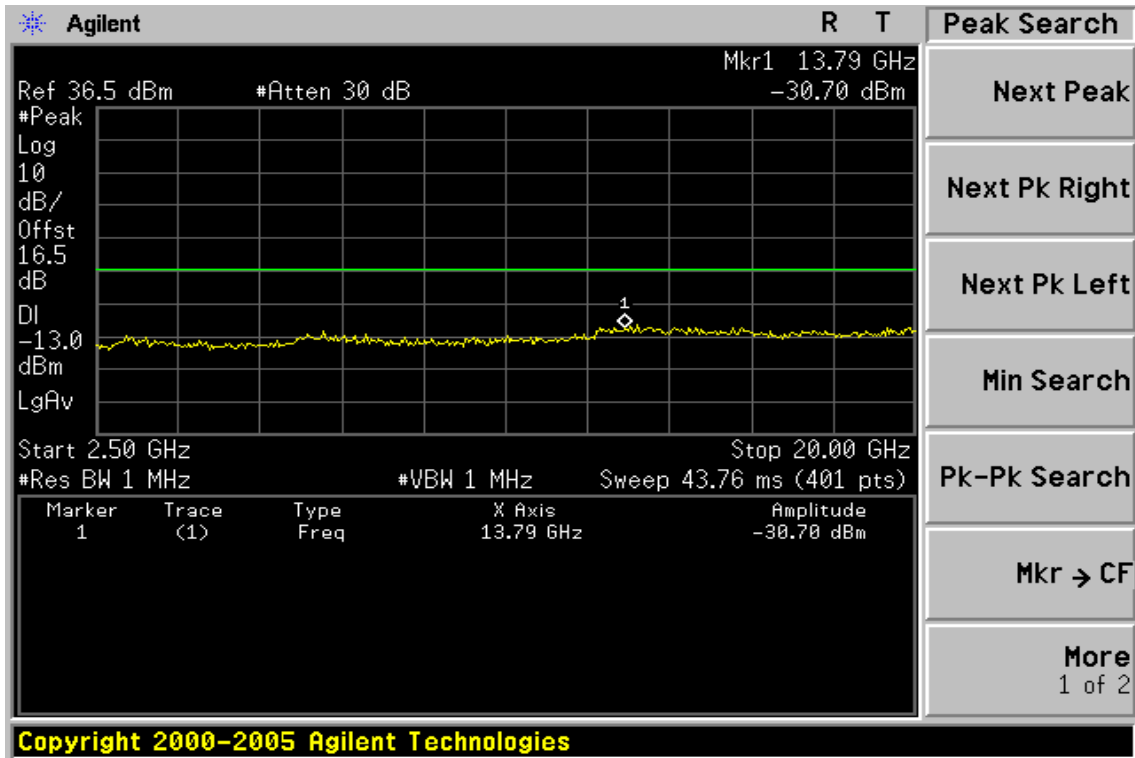
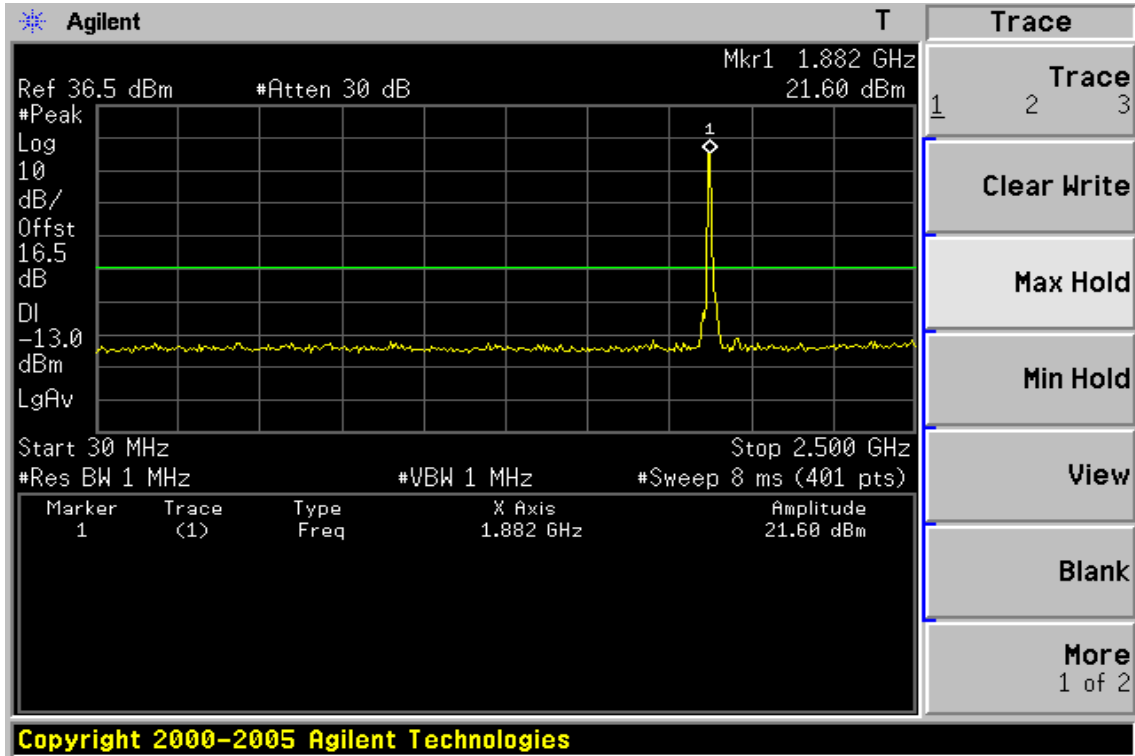
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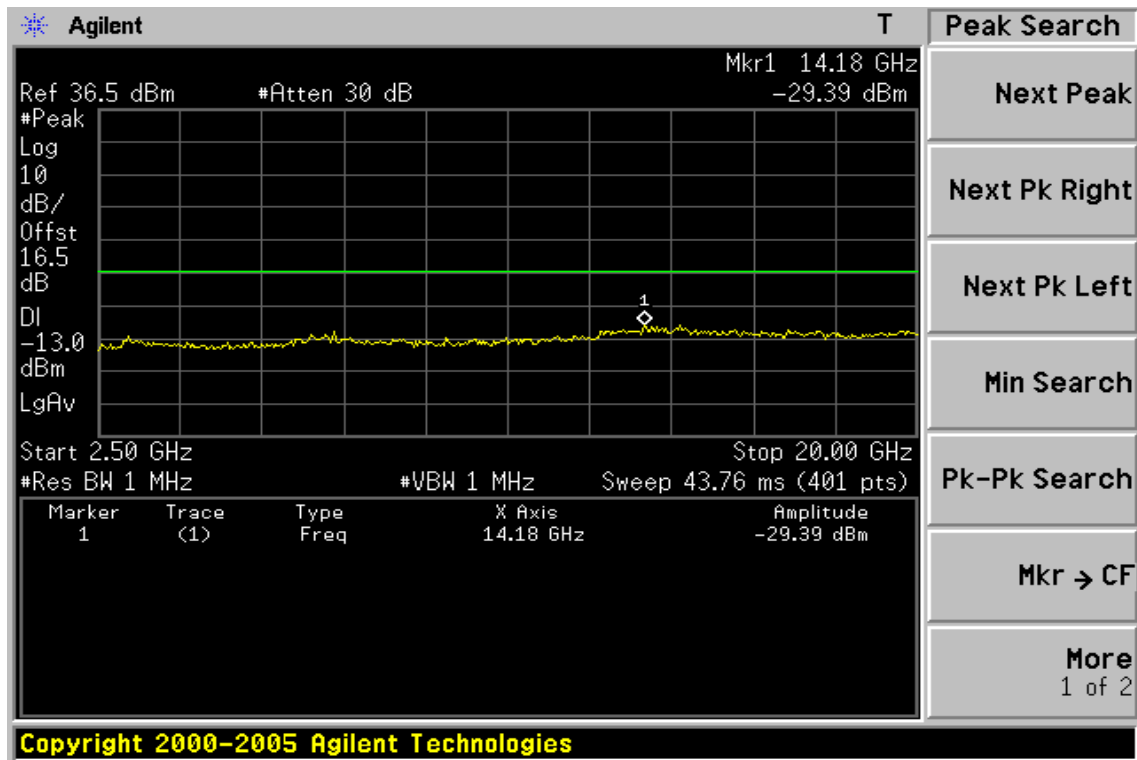
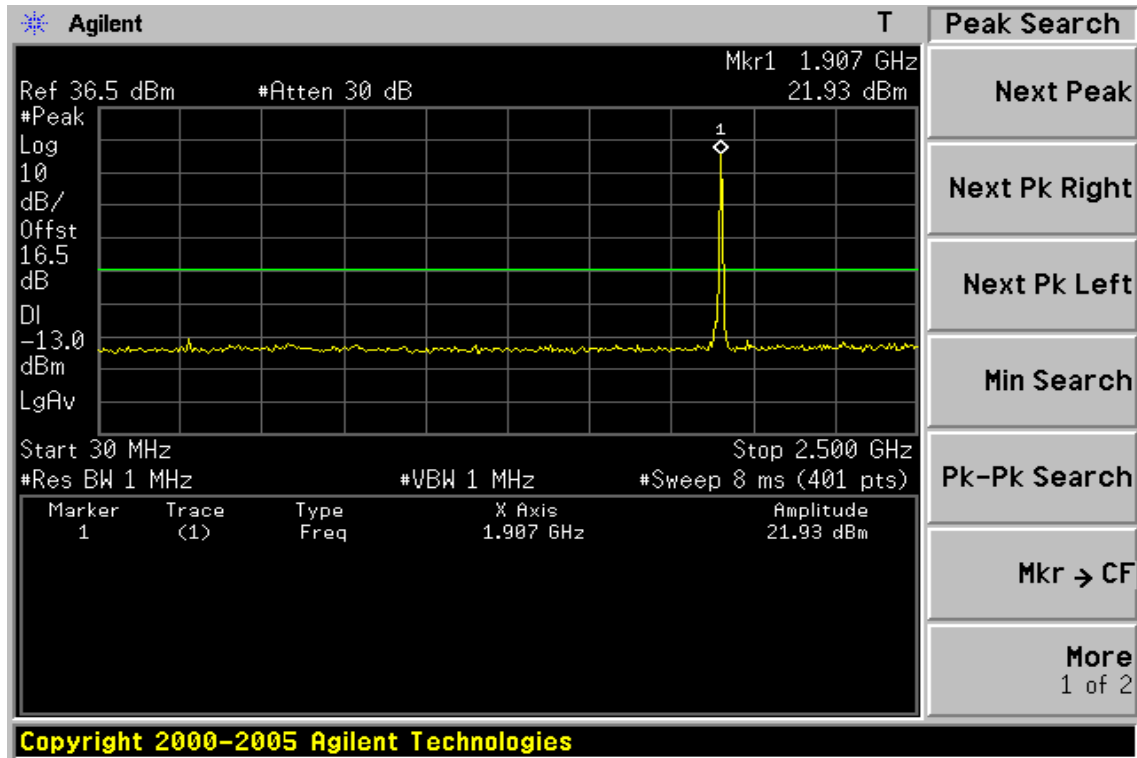
Figure 8-12: Out of Band emission at antenna terminals –WCDMA II Channel Mid



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



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

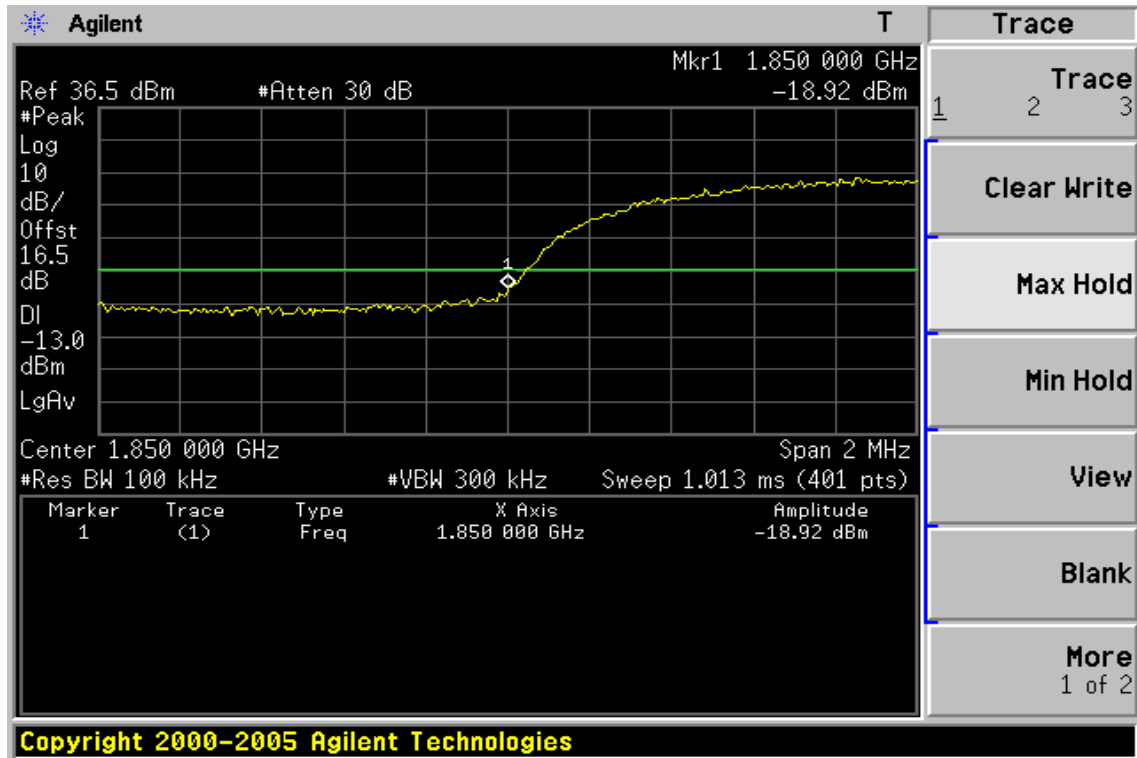
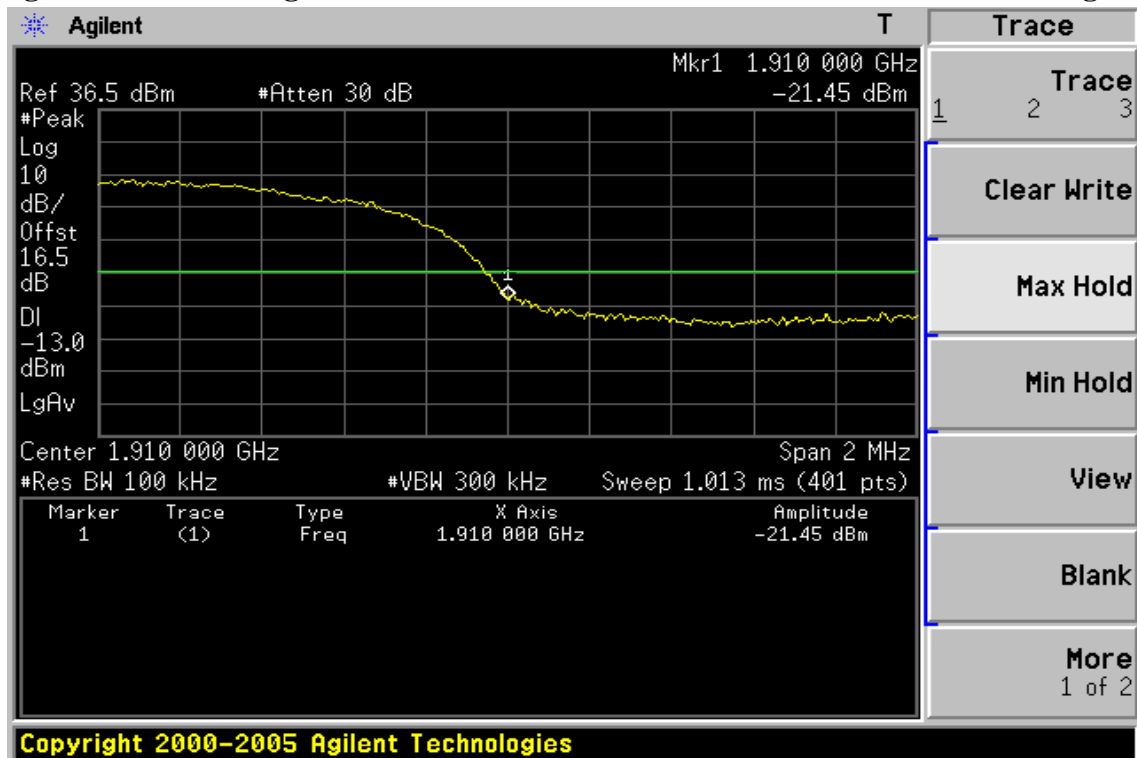


Figure 8-15: Band edge emission at antenna terminals –WCDMA II Channel Highest



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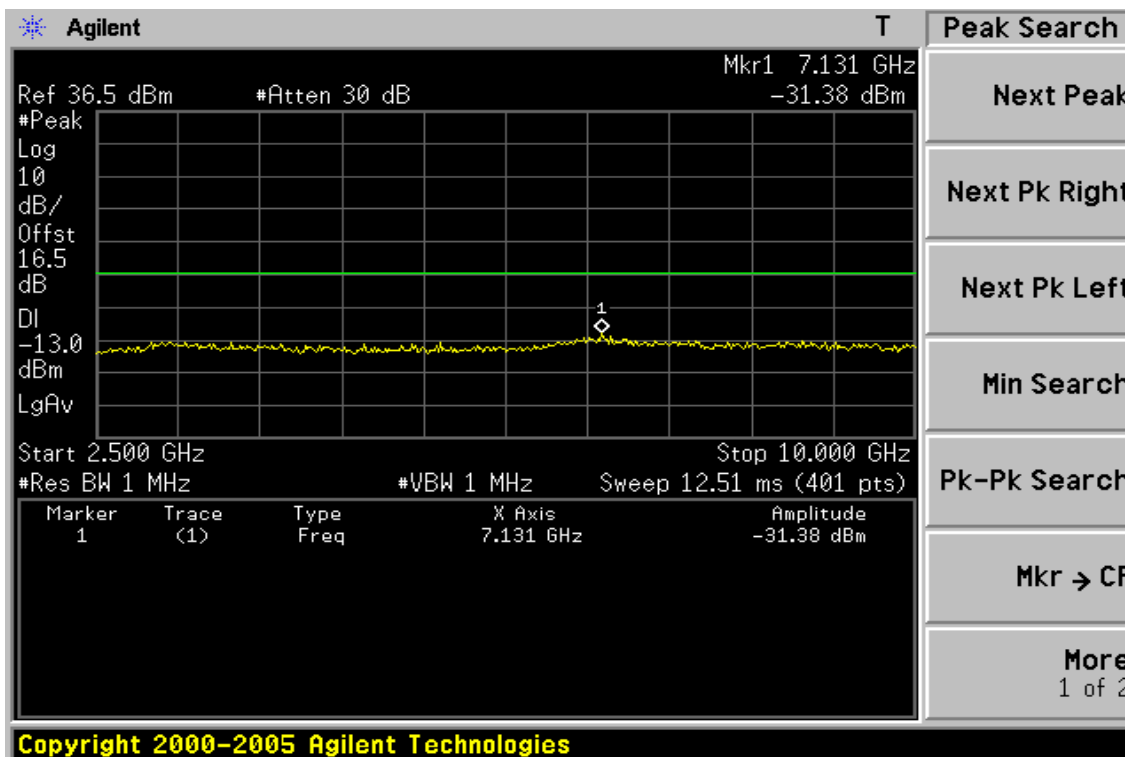
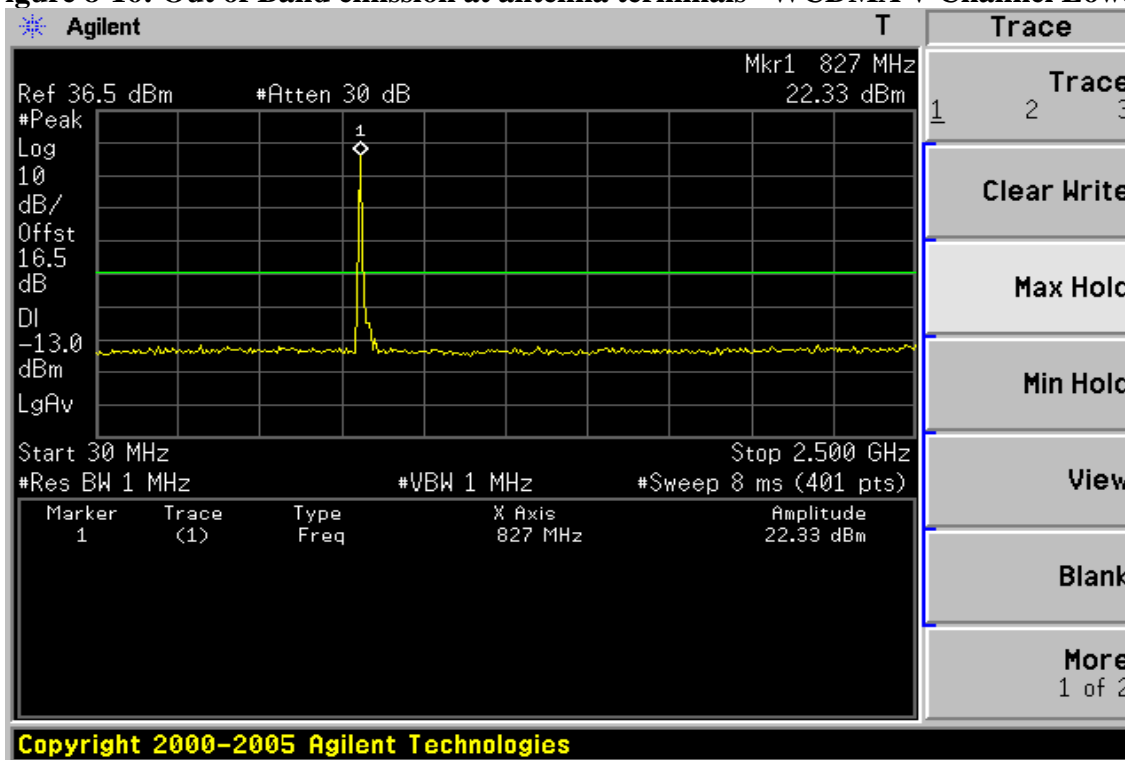
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Figure 8-16: Out of Band emission at antenna terminals– WCDMA V Channel Lowest

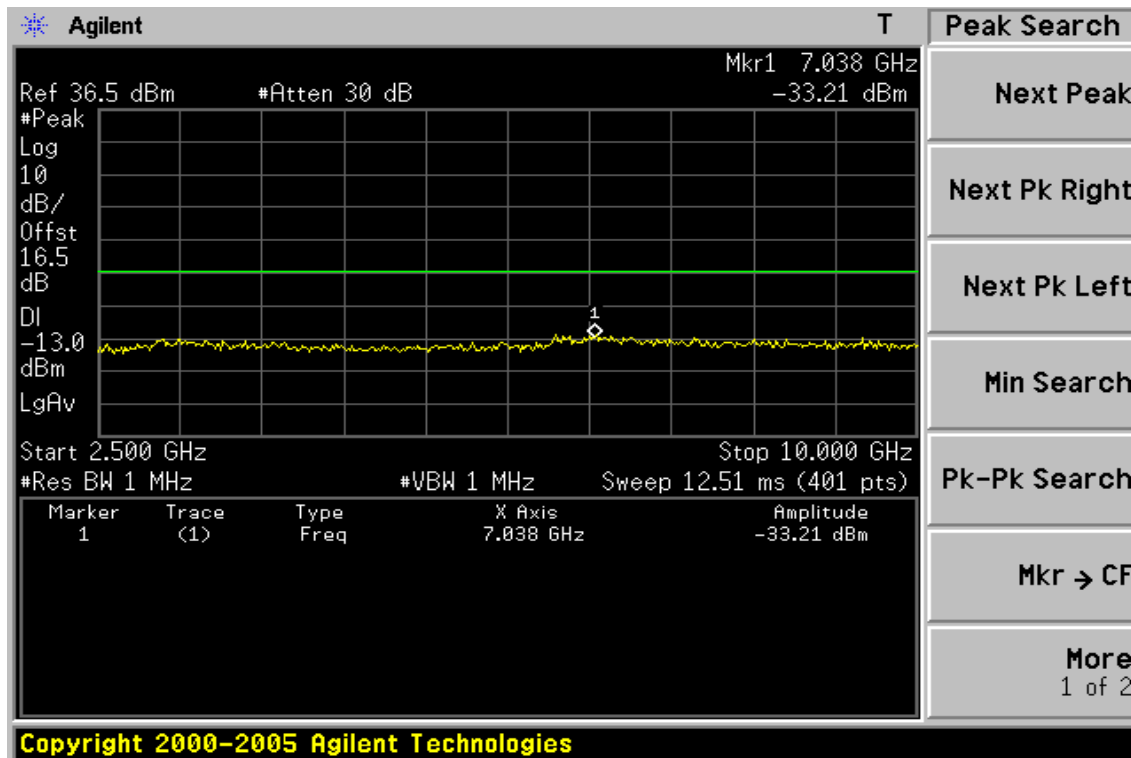
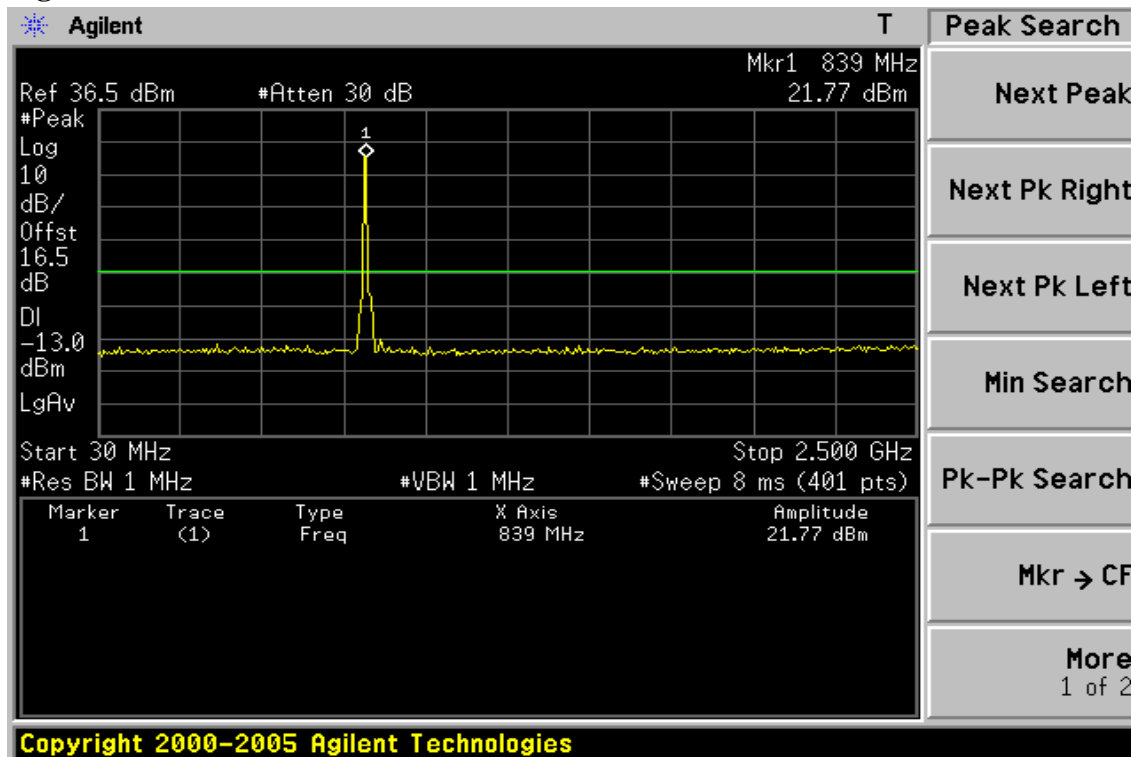


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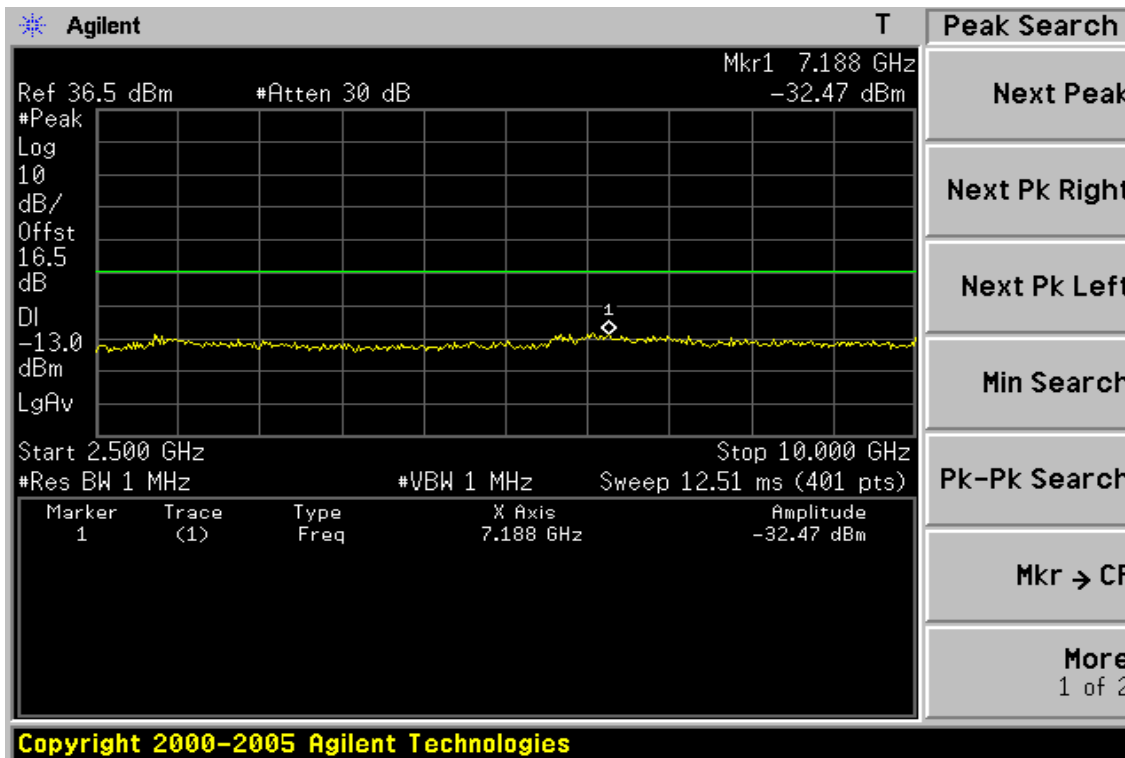
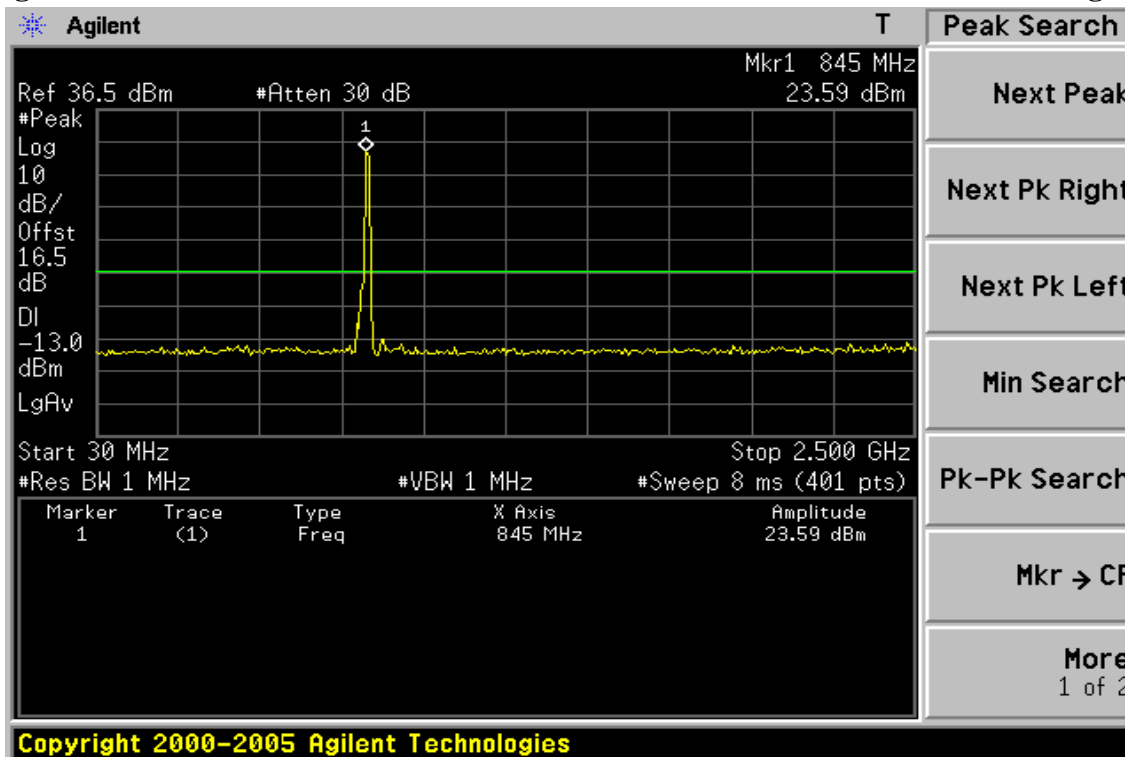
Figure 8-17: Out of Band emission at antenna terminals –WCDMA V Channel Mid



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



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

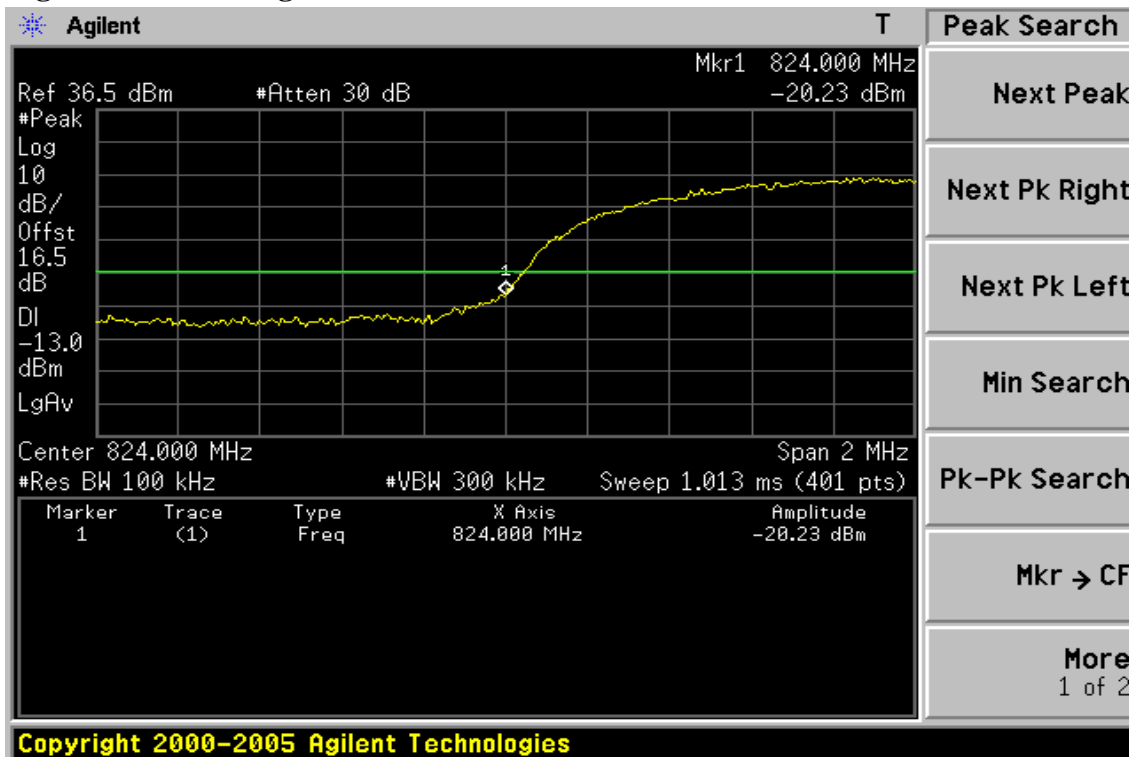
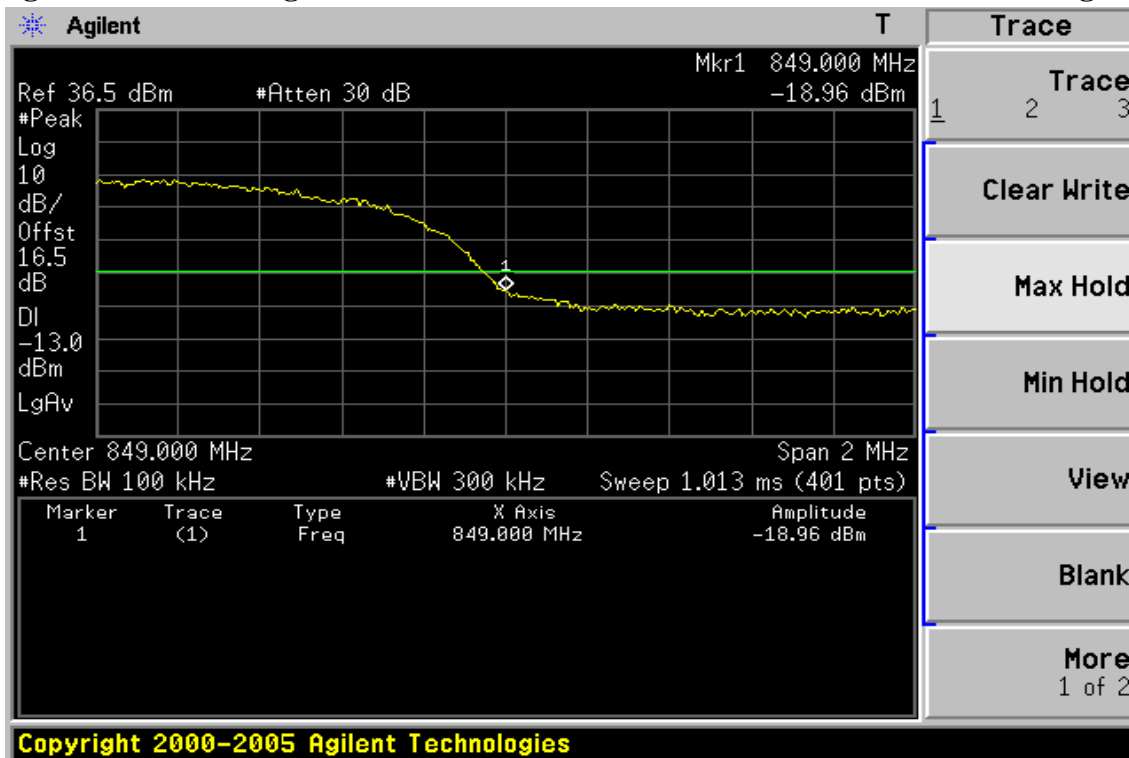


Figure 8-20: Band edge emission at antenna terminals –WCDMA V Channel Highest



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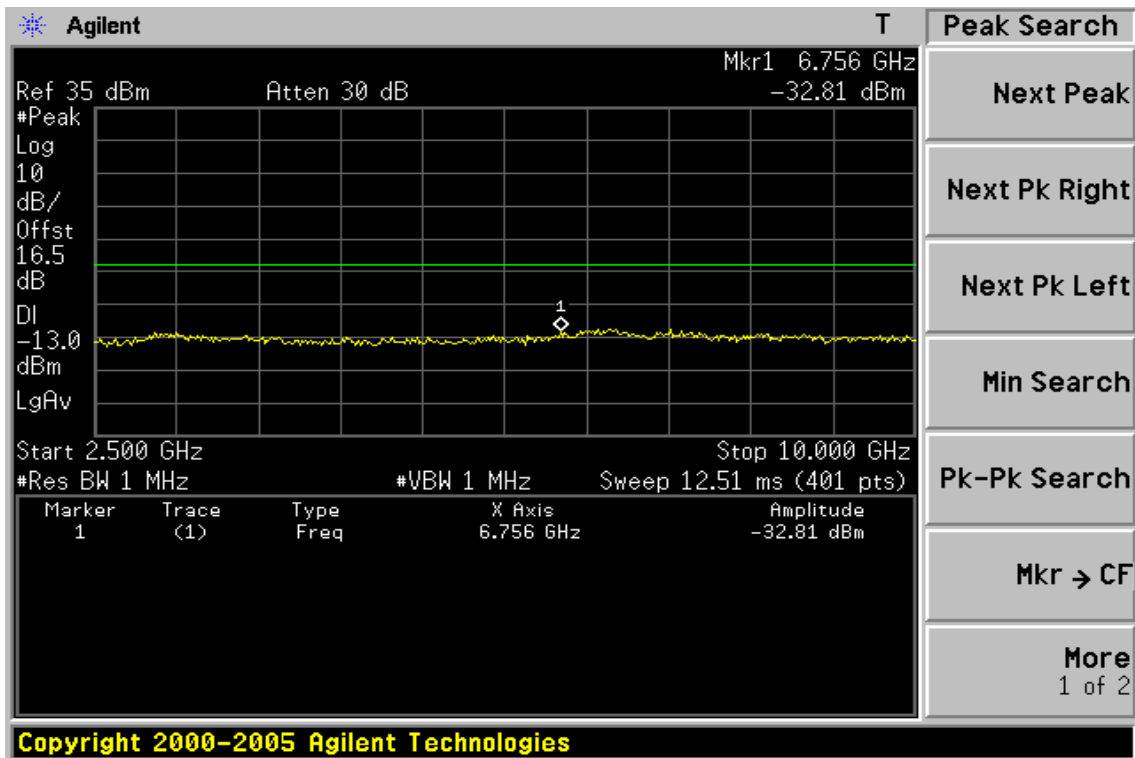
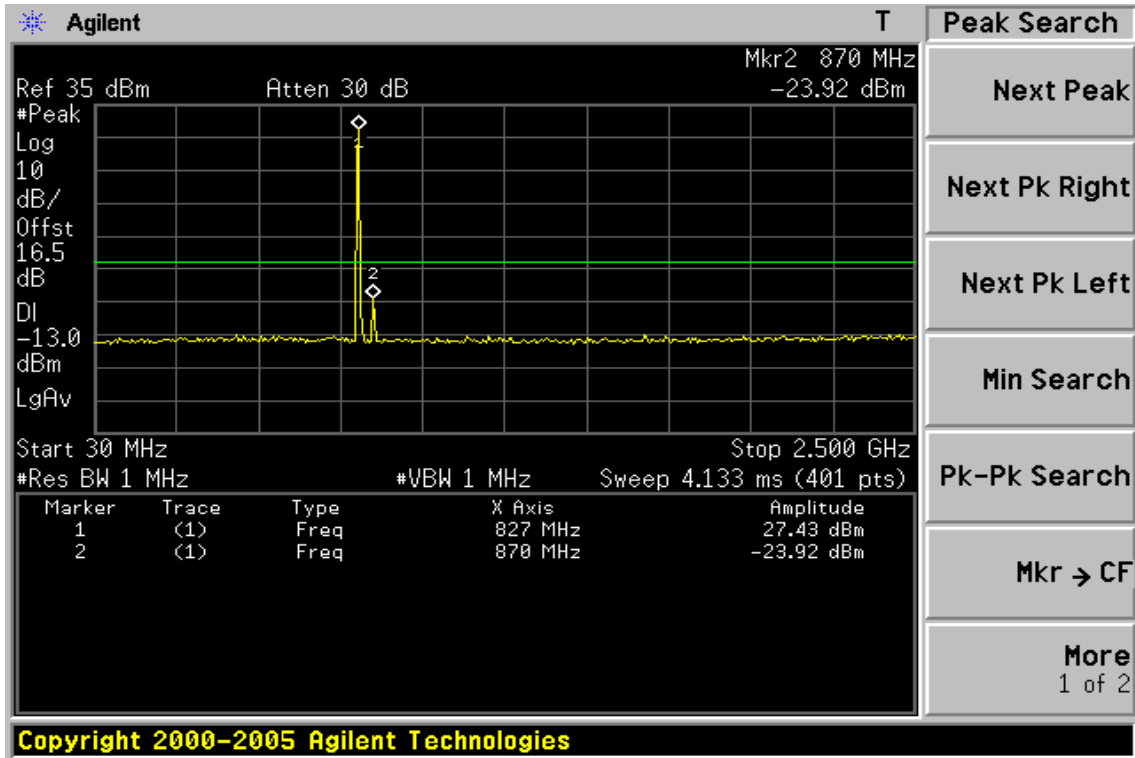
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Figure 8-21: Out of Band emission at antenna terminals–CDMA 2000 Cellular Channel Lowest



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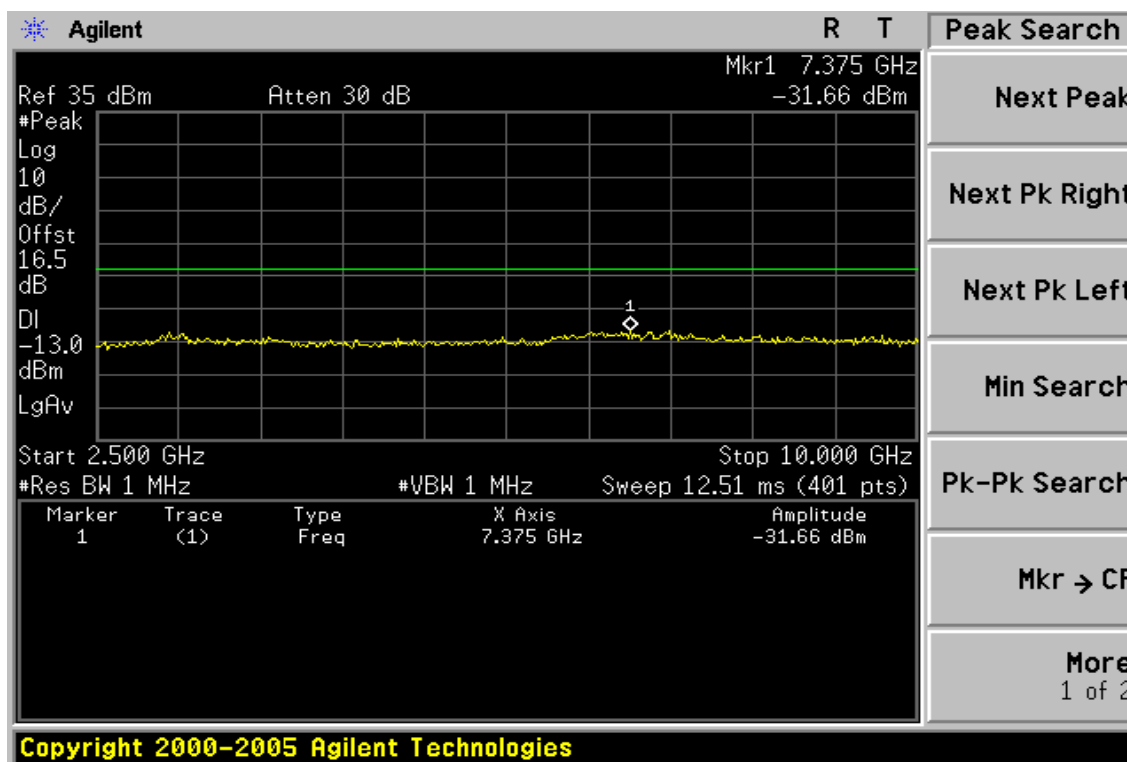
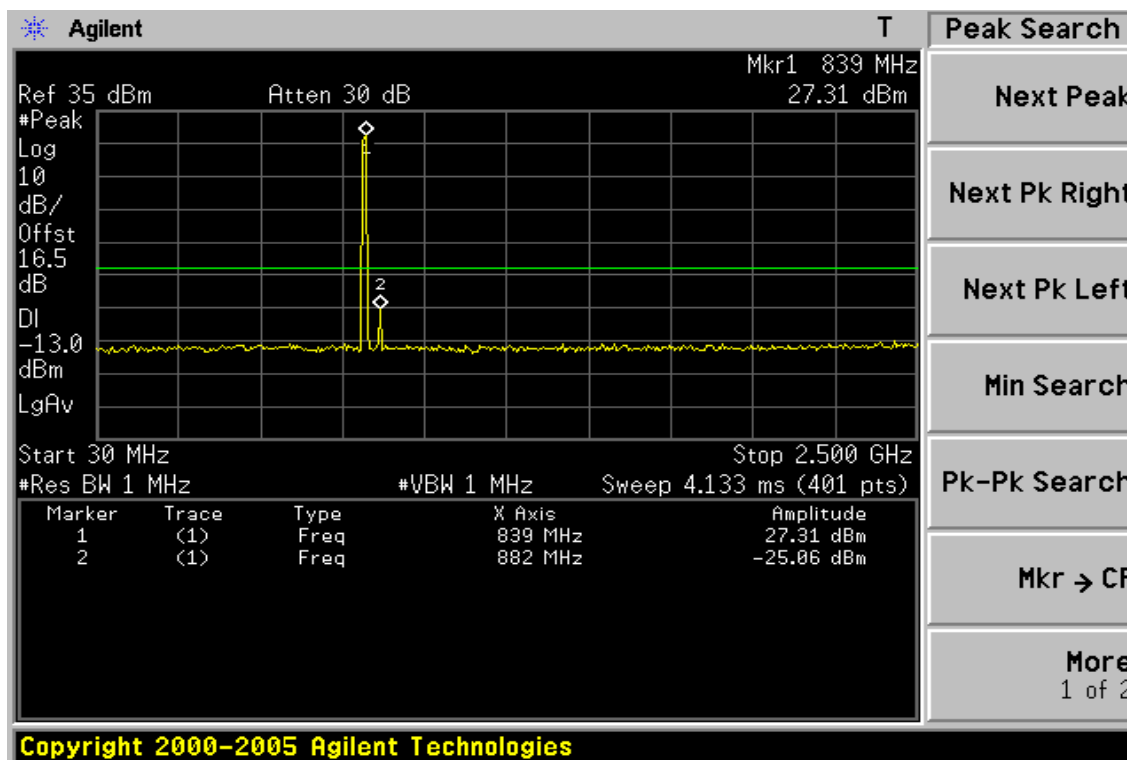
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Figure 8-22: Out of Band emission at antenna terminals –CDMA 2000 Cellular Channel Mid



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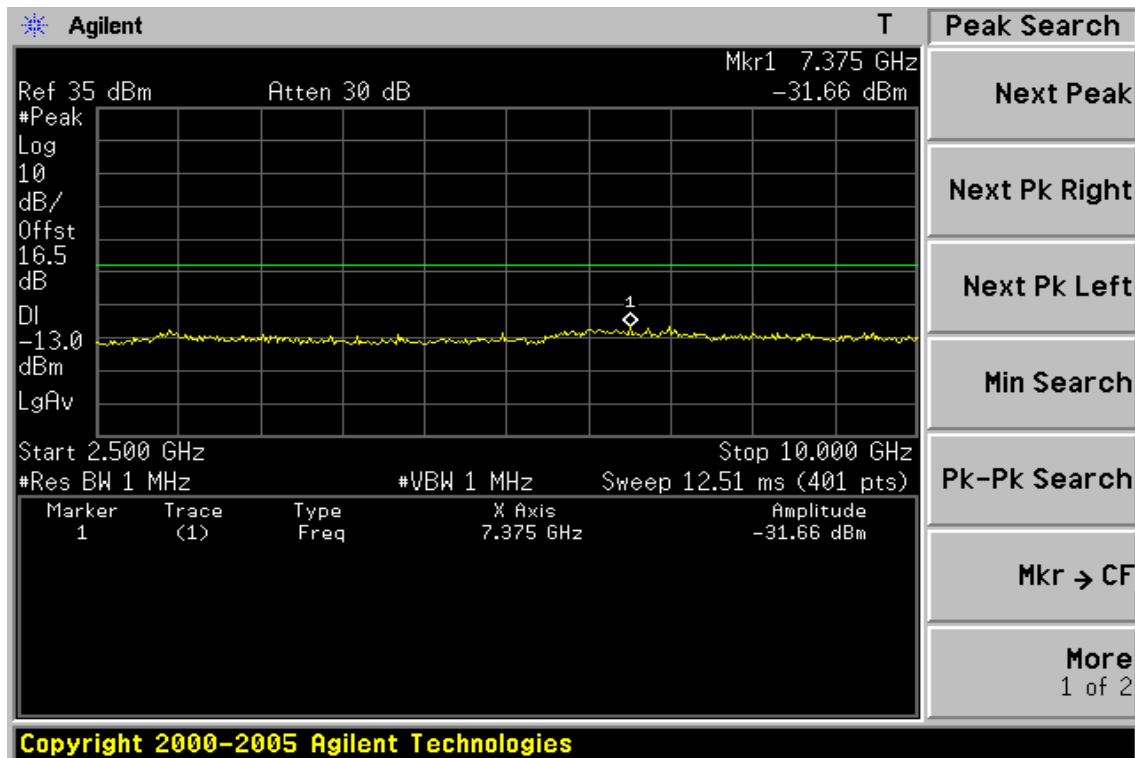
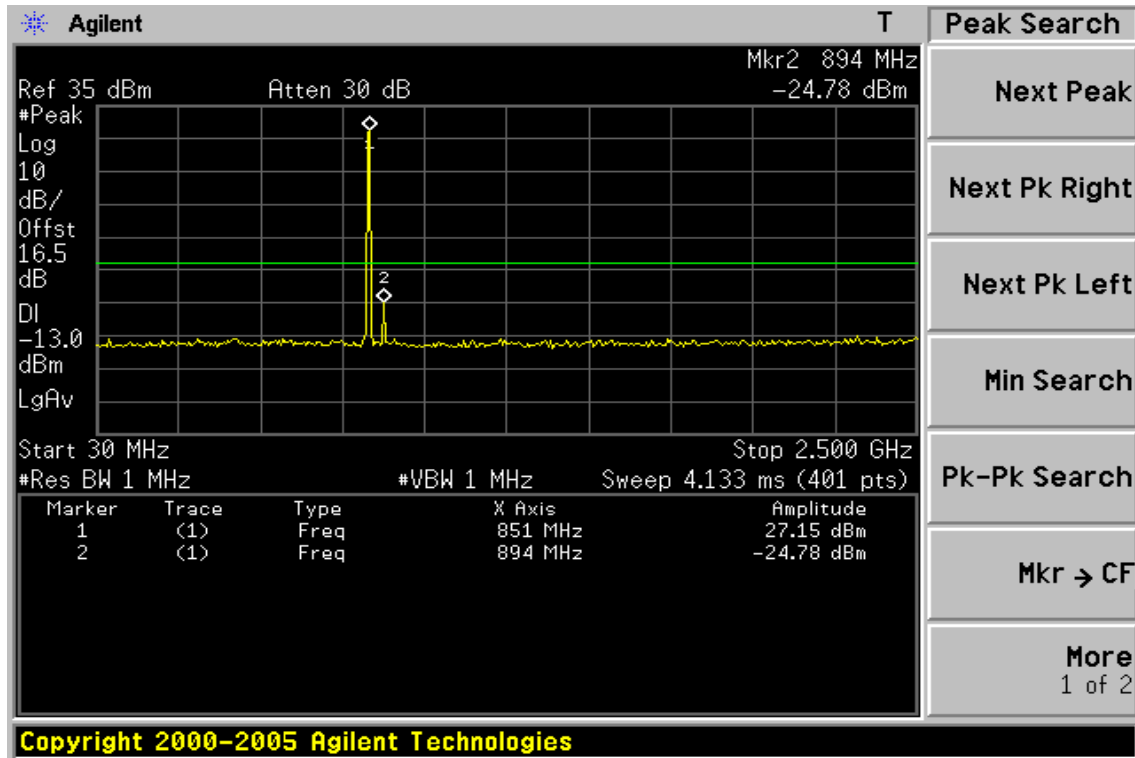
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Figure 8-23: Out of Band emission at antenna terminals—CDMA 2000 Cellular Channel Highest



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Figure 8-24: Band edge emission at antenna terminals –CDMA 2000 Cellular Channel Lowest

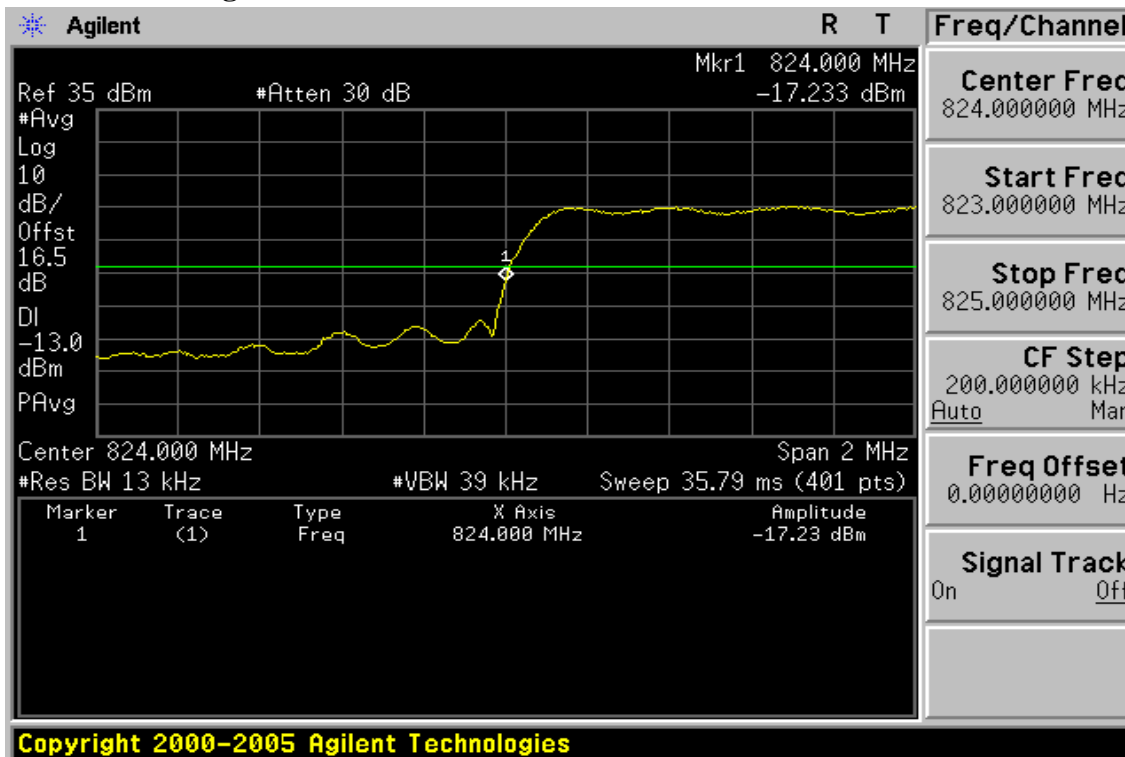
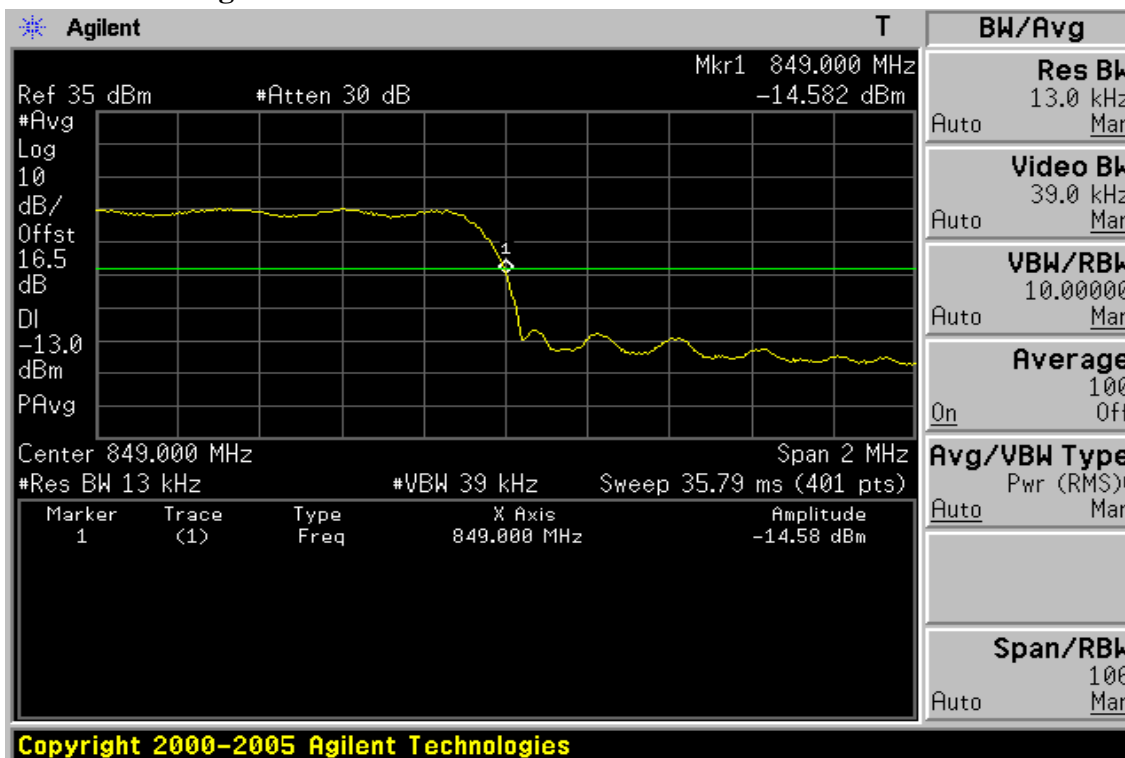


Figure 8-25: Band edge emission at antenna terminals –CDMA 2000 Cellular Channel Highest



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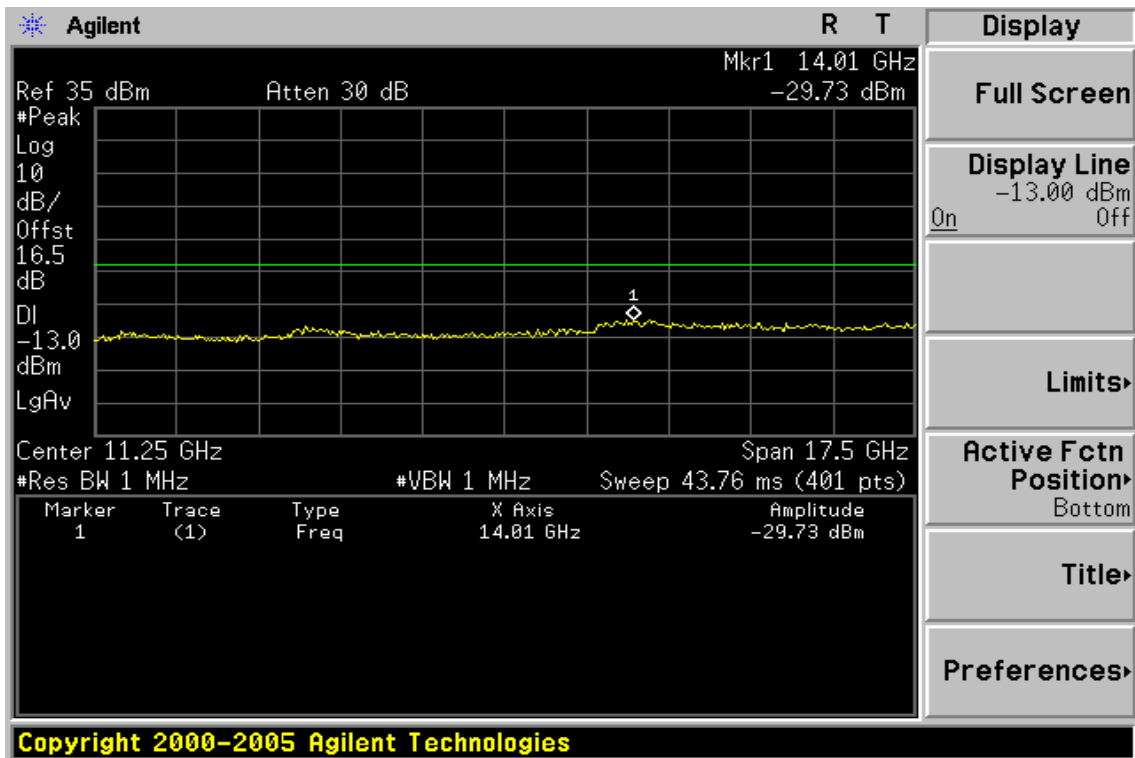
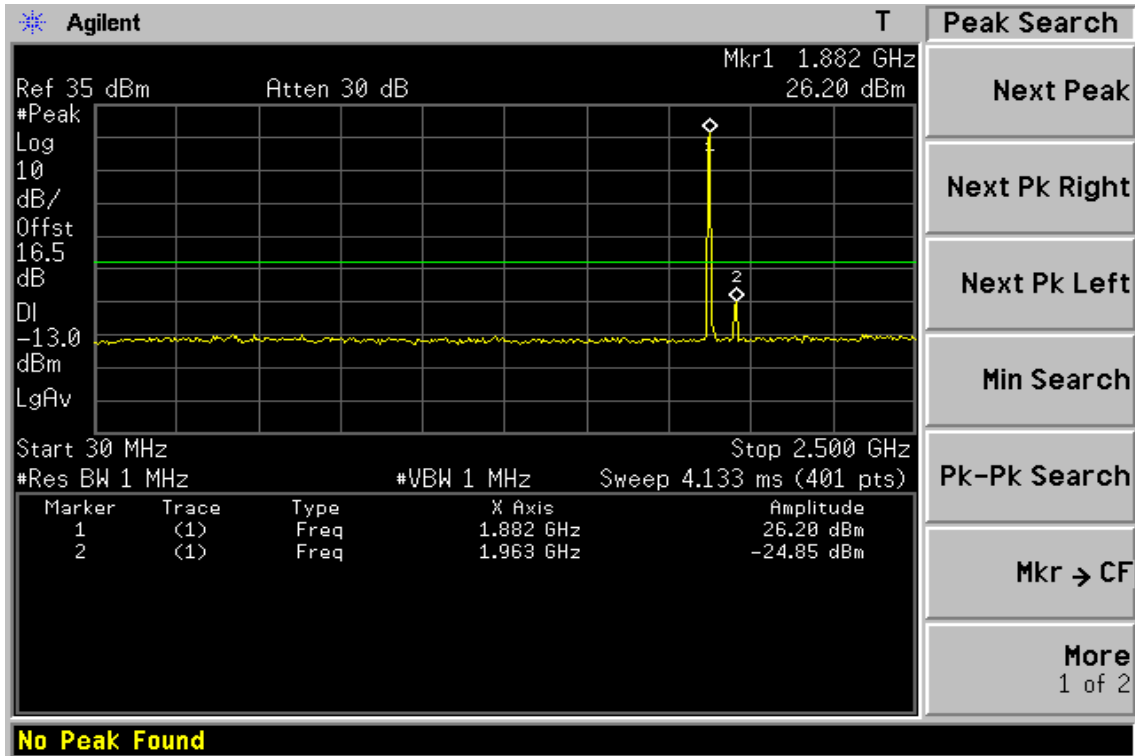
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Figure 8-26: Out of Band emission at antenna terminals–CDMA 2000 PCS Channel Lowest



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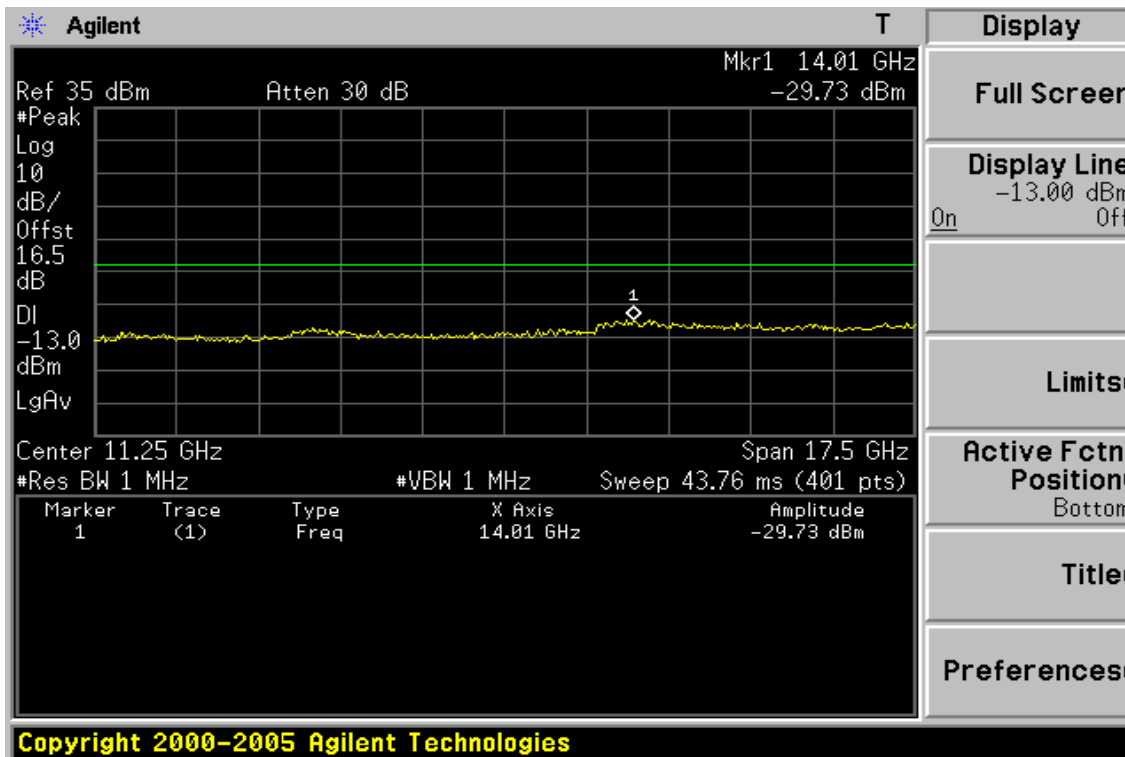
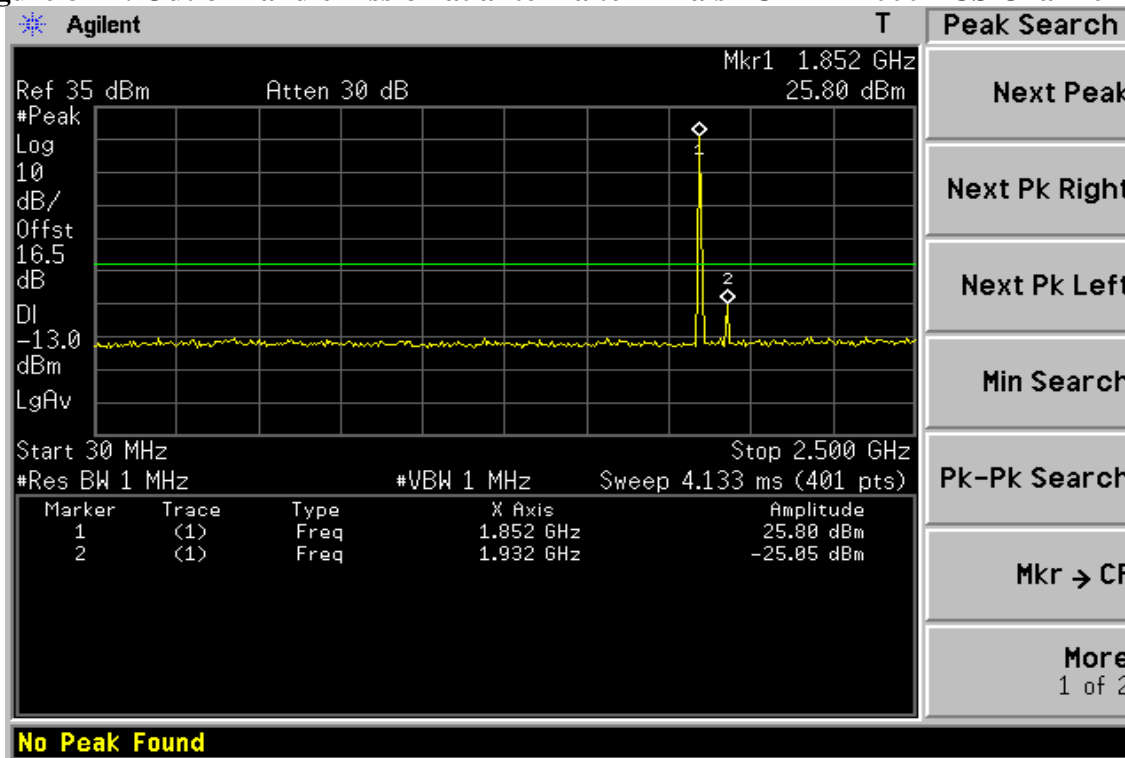
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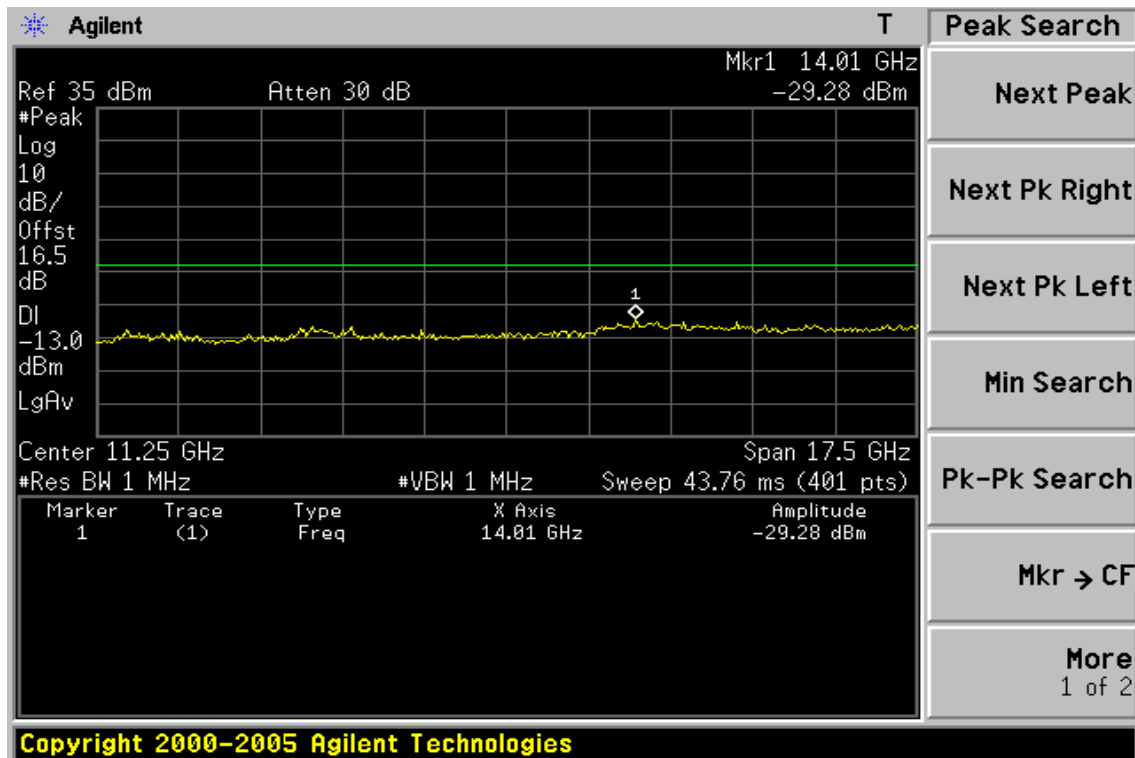
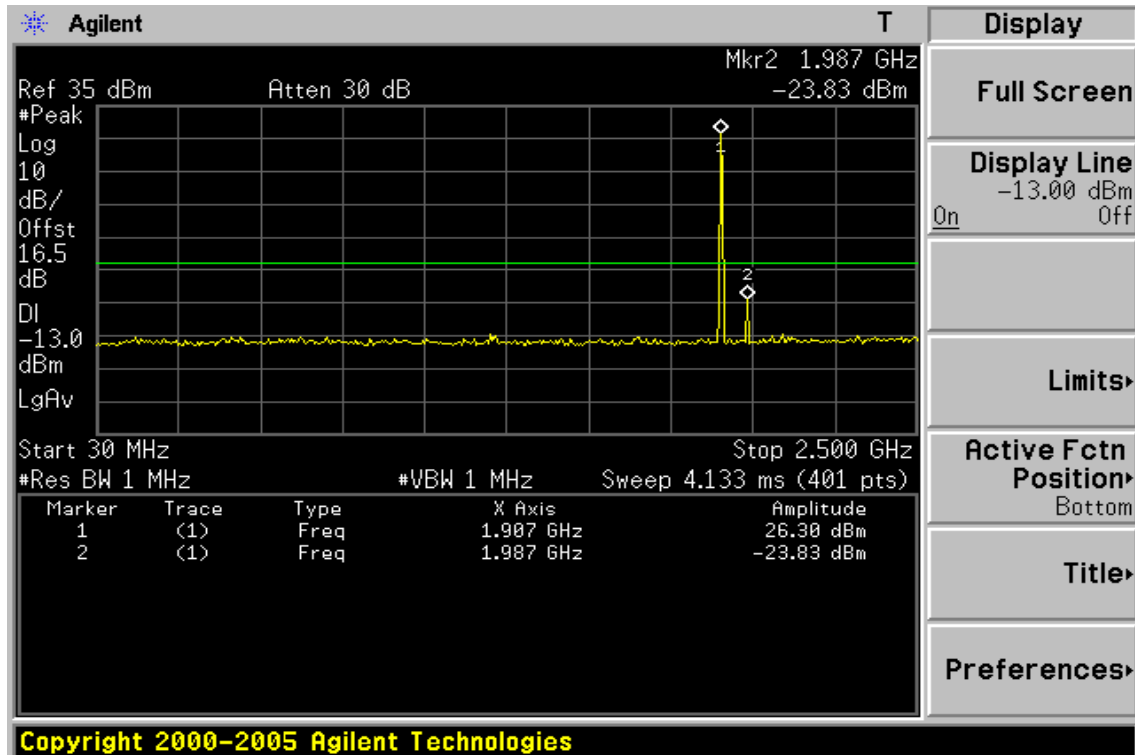
Figure 8-27: Out of Band emission at antenna terminals –CDMA 2000 PCS Channel Mid



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Figure 8-28: Out of Band emission at antenna terminals–CDMA 2000 PCS Channel Highest



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Figure 8-29: Band edge emission at antenna terminals –CDMA 2000 PCS Channel Lowest

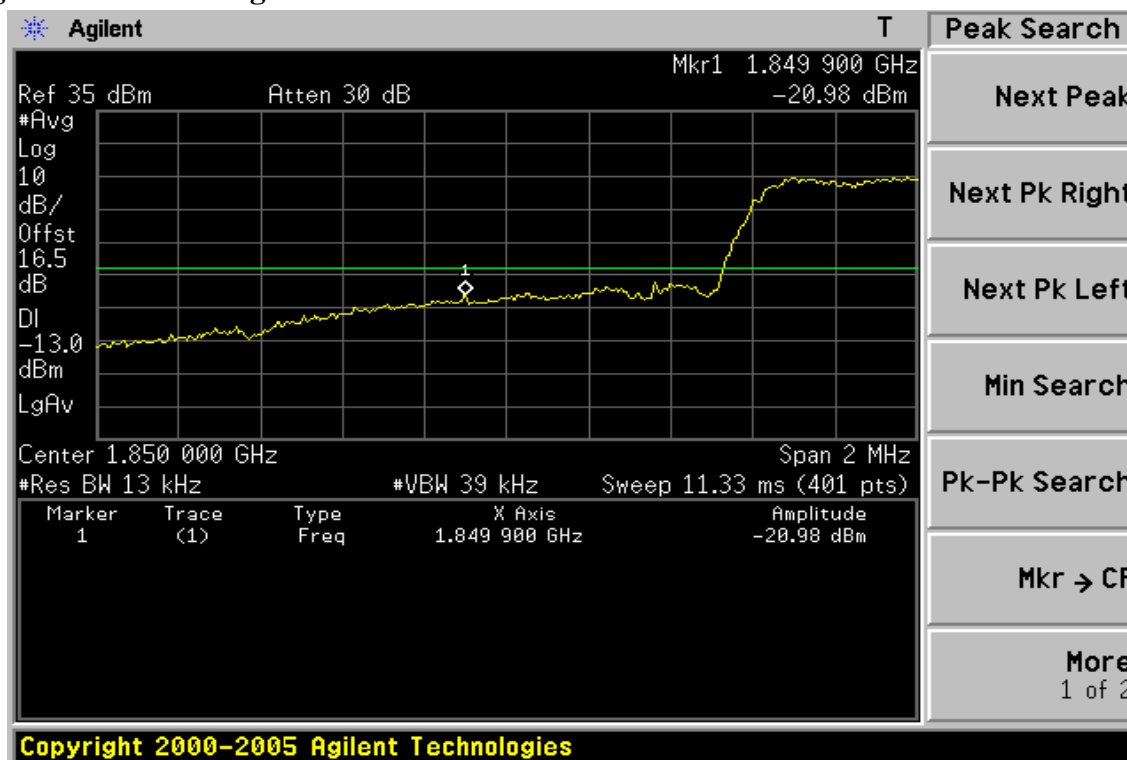
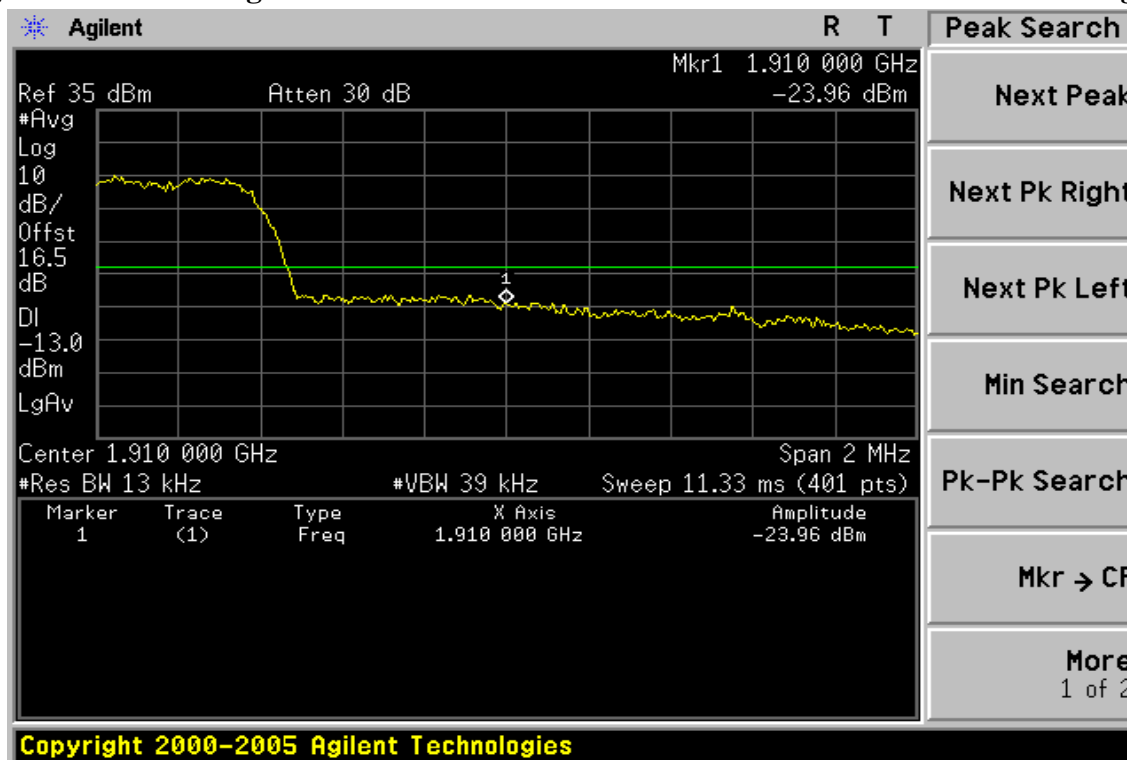


Figure 8-30: Band edge emission at antenna terminals –CDMA 2000 PCS Channel Highest



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## 9. FIELD STRENGTH OF SPURIOUS RADIATION MEASUREMENT (TX)

### 9.1. Standard Applicable:

According to FCC §2.1053,

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

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

Refer to section 6.2 in this report

### 9.3. Measurement Procedure:

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

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

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

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

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

### 9.4. Measurement Equipment Used:

Refer to section 2.4 in this report

### 9.5. Measurement Result:

Refer to attach tabular data sheets.

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

Operation Mode	: TX CH Low Mode	Test Date:	Apr. 25, 2011
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)
90.14	49.23	V	-53.95	-7.75	1.27	-62.97	-13.00	-49.97
105.66	47.40	V	-54.00	-7.76	1.39	-63.15	-13.00	-50.15
177.44	36.23	V	-63.52	-7.82	1.66	-73.00	-13.00	-60.00
219.15	35.80	V	-65.26	-7.86	1.82	-74.93	-13.00	-61.93
319.06	36.59	V	-61.42	-7.81	2.24	-71.48	-13.00	-58.48
824.00	66.32	V	-20.07	-7.87	3.62	-31.57	-13.00	-18.57
693.14	33.85	V	-55.52	-7.85	3.27	-66.64	-13.00	-53.64
1648.40	45.74	V	-58.84	9.29	5.23	-54.78	-13.00	-41.78
2472.60	52.57	V	-48.44	10.08	6.53	-44.89	-13.00	-31.89
3296.80	---	V		12.17	7.71		-13.00	
4121.00	---	V		12.61	8.86		-13.00	
4945.20	---	V		12.65	9.74		-13.00	
5769.40	---	V		13.55	10.54		-13.00	
6593.60	---	V		12.05	11.30		-13.00	
7417.80	---	V		11.49	12.10		-13.00	
8242.00	---	V		11.48	12.71		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH Low Mode	Test Date:	Apr. 25, 2011
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 Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
196.84	38.12	H	-63.28	-7.84	1.70	-72.82	-13.00	-59.82
250.19	35.34	H	-63.87	-7.89	1.99	-73.75	-13.00	-60.75
322.94	33.62	H	-63.83	-7.79	2.26	-73.88	-13.00	-60.88
559.62	33.21	H	-58.31	-7.77	2.97	-69.05	-13.00	-56.05
697.36	33.60	H	-54.14	-7.86	3.28	-65.28	-13.00	-52.28
824.00	81.75	H	-4.52	-7.87	3.62	-16.02	-13.00	-3.02
968.96	33.79	H	-50.31	-8.00	3.94	-62.24	-13.00	-49.24
1648.40	43.15	H	-61.25	9.29	5.23	-57.19	-13.00	-44.19
2472.60	53.13	H	-47.78	10.08	6.53	-44.23	-13.00	-31.23
3296.80	---	H		12.17	7.71		-13.00	
4121.00	---	H		12.61	8.86		-13.00	
4945.20	---	H		12.65	9.74		-13.00	
5769.40	---	H		13.55	10.54		-13.00	
6593.60	---	H		12.05	11.30		-13.00	
7417.80	---	H		11.49	12.10		-13.00	
8242.00	---	H		11.48	12.71		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
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)
180.35	37.13	V	-62.89	-7.82	1.66	-72.37	-13.00	-59.37
248.25	34.10	V	-65.86	-7.89	1.98	-75.72	-13.00	-62.72
330.70	34.86	V	-63.01	-7.75	2.29	-73.04	-13.00	-60.04
558.65	33.27	V	-58.71	-7.77	2.97	-69.45	-13.00	-56.45
699.30	33.98	V	-55.45	-7.86	3.29	-66.60	-13.00	-53.60
963.14	33.71	V	-50.61	-8.00	3.92	-62.52	-13.00	-49.52
1673.20	51.68	V	-52.88	9.36	5.27	-48.78	-13.00	-35.78
2509.80	58.96	V	-41.82	10.09	6.58	-38.32	-13.00	-25.32
3346.40	37.74	V	-61.12	12.28	7.79	-56.64	-13.00	-43.64
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: GSM 850 Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
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)
196.84	37.82	H	-63.58	-7.84	1.70	-73.12	-13.00	-60.12
250.19	34.11	H	-65.10	-7.89	1.99	-74.98	-13.00	-61.98
311.30	33.67	H	-63.89	-7.86	2.21	-73.96	-13.00	-60.96
551.86	33.13	H	-58.55	-7.76	2.96	-69.28	-13.00	-56.28
694.45	33.15	H	-54.71	-7.85	3.28	-65.84	-13.00	-52.84
949.56	33.94	H	-50.28	-8.00	3.88	-62.15	-13.00	-49.15
1673.20	52.63	H	-51.75	9.36	5.27	-47.65	-13.00	-34.65
2509.80	57.42	H	-43.28	10.09	6.58	-39.78	-13.00	-26.78
3346.40	---	H		12.28	7.79		-13.00	
4183.00	---	H		12.62	8.93		-13.00	
5019.60	---	H		12.67	9.81		-13.00	
5856.20	---	H		13.68	10.62		-13.00	
6692.80	---	H		11.95	11.39		-13.00	
7529.40	---	H		11.45	12.20		-13.00	
8366.00	---	H		11.59	12.81		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
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 Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
185.20	37.21	V	-63.24	-7.83	1.67	-72.74	-13.00	-59.74
219.15	35.99	V	-65.07	-7.86	1.82	-74.74	-13.00	-61.74
321.00	40.23	V	-57.76	-7.80	2.25	-67.81	-13.00	-54.81
553.80	33.11	V	-59.16	-7.76	2.97	-69.89	-13.00	-56.89
699.30	33.79	V	-55.64	-7.86	3.29	-66.79	-13.00	-53.79
850.00	37.95	V	-48.16	-7.88	3.68	-59.72	-13.00	-46.72
1697.60	54.17	V	-50.37	9.44	5.31	-46.24	-13.00	-33.24
2546.40	58.29	V	-42.35	10.20	6.63	-38.79	-13.00	-25.79
3395.20	---	V		12.38	7.87		-13.00	
4244.00	---	V		12.63	9.00		-13.00	
5092.80	---	V		12.74	9.88		-13.00	
5941.60	---	V		13.81	10.70		-13.00	
6790.40	---	V		11.86	11.48		-13.00	
7639.20	---	V		11.40	12.27		-13.00	
8488.00	---	V		11.70	12.91		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
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)
199.75	38.06	H	-63.57	-7.84	1.71	-73.12	-13.00	-60.12
243.40	36.06	H	-63.48	-7.88	1.95	-73.32	-13.00	-60.32
319.06	33.95	H	-63.53	-7.81	2.24	-73.59	-13.00	-60.59
544.10	33.28	H	-58.64	-7.76	2.94	-69.34	-13.00	-56.34
655.65	33.64	H	-55.84	-7.82	3.17	-66.83	-13.00	-53.83
850.00	81.84	H	-4.35	-7.88	3.68	-15.91	-13.00	-2.91
985.45	33.96	H	-50.04	-7.99	3.99	-62.02	-13.00	-49.02
1697.60	55.63	H	-48.72	9.44	5.31	-44.59	-13.00	-31.59
2546.40	56.21	H	-44.39	10.20	6.63	-40.83	-13.00	-27.83
3395.20	---	H		12.38	7.87		-13.00	
4244.00	---	H		12.63	9.00		-13.00	
5092.80	---	H		12.74	9.88		-13.00	
5941.60	---	H		13.81	10.70		-13.00	
6790.40	---	H		11.86	11.48		-13.00	
7639.20	---	H		11.40	12.27		-13.00	
8488.00	---	H		11.70	12.91		-13.00	

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

Remark:

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

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

Operation Mode : TX CH Low Mode

Test Date: Apr. 25, 2011

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)
170.65	38.47	V	-60.67	-7.82	1.64	-70.13	-13.00	-57.13
231.76	35.94	V	-64.64	-7.87	1.89	-74.40	-13.00	-61.40
309.36	36.11	V	-62.02	-7.87	2.21	-72.10	-13.00	-59.10
546.04	33.31	V	-59.31	-7.76	2.95	-70.01	-13.00	-57.01
645.95	33.35	V	-55.62	-7.81	3.15	-66.58	-13.00	-53.58
972.84	32.42	V	-51.67	-8.00	3.95	-63.62	-13.00	-50.62
1850.00	69.93	V	-34.46	9.90	5.56	-30.12	-13.00	-17.12
3700.40	40.77	V	-57.16	12.61	8.31	-52.86	-13.00	-39.86
5550.60	40.83	V	-50.01	13.23	10.33	-47.11	-13.00	-34.11
7400.80	---	V		11.50	12.08		-13.00	
9251.00	---	V		11.92	13.50		-13.00	
11101.20	---	V		11.66	15.11		-13.00	
12951.40	---	V		13.63	16.60		-13.00	
14801.60	---	V		12.76	17.95		-13.00	
16651.80	---	V		15.92	19.14		-13.00	
18502.00	---	V		18.75	10.40		-13.00	

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

Remark:

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

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

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

Test Date: Apr. 25, 2011  
 Test By: Sky  
 Pol: Hor

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
90.14	46.77	H	-56.96	-7.75	1.27	-65.98	-13.00	-52.98
165.80	38.64	H	-60.36	-7.81	1.63	-69.80	-13.00	-56.80
338.46	32.18	H	-65.13	-7.70	2.32	-75.15	-13.00	-62.15
555.74	32.44	H	-59.16	-7.76	2.97	-69.89	-13.00	-56.89
662.44	32.70	H	-56.50	-7.82	3.19	-67.51	-13.00	-54.51
917.55	33.14	H	-51.49	-7.97	3.82	-63.27	-13.00	-50.27
1850.00	83.49	H	-20.69	9.90	5.56	-16.35	-13.00	-3.35
3700.40	36.79	H	-61.25	12.61	8.31	-56.95	-13.00	-43.95
5550.60	41.07	H	-49.98	13.23	10.33	-47.08	-13.00	-34.08
7400.80	---	H		11.50	12.08		-13.00	
9251.00	---	H		11.92	13.50		-13.00	
11101.20	---	H		11.66	15.11		-13.00	
12951.40	---	H		13.63	16.60		-13.00	
14801.60	---	H		12.76	17.95		-13.00	
16651.80	---	H		15.92	19.14		-13.00	
18502.00	---	H		18.75	10.40		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
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)
105.66	46.76	V	-54.64	-7.76	1.39	-63.79	-13.00	-50.79
175.50	38.58	V	-61.00	-7.82	1.65	-70.47	-13.00	-57.47
316.15	34.74	V	-63.31	-7.83	2.23	-73.37	-13.00	-60.37
551.86	32.65	V	-59.73	-7.76	2.96	-70.46	-13.00	-57.46
665.65	33.30	V	-55.78	-7.83	3.20	-66.81	-13.00	-53.81
970.90	32.25	V	-51.89	-8.00	3.94	-63.83	-13.00	-50.83
3760.00	43.25	V	-54.41	12.60	8.39	-50.19	-13.00	-37.19
5640.00	40.75	V	-49.83	13.36	10.41	-46.88	-13.00	-33.88
7520.00	---	V		11.45	12.19		-13.00	
9400.00	---	V		11.93	13.61		-13.00	
11280.00	---	V		11.92	15.27		-13.00	
13160.00	---	V		13.33	16.71		-13.00	
15040.00	---	V		13.76	18.15		-13.00	
16920.00	---	V		15.27	19.32		-13.00	
18800.00	---	V		18.68	16.58		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
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)
90.14	47.57	H	-56.16	-7.75	1.27	-65.18	-13.00	-52.18
199.75	41.25	H	-60.38	-7.84	1.71	-69.93	-13.00	-56.93
322.94	34.49	H	-62.96	-7.79	2.26	-73.01	-13.00	-60.01
533.80	33.35	H	-58.93	-7.75	2.91	-69.59	-13.00	-56.59
652.74	32.85	H	-56.76	-7.81	3.17	-67.74	-13.00	-54.74
966.05	32.97	H	-51.14	-8.00	3.93	-63.07	-13.00	-50.07
3760.00	41.96	H	-55.81	12.60	8.39	-51.60	-13.00	-38.60
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: PCS 1900 Mode**

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
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)
105.66	49.72	V	-51.68	-7.76	1.39	-60.83	-13.00	-47.83
199.75	43.33	V	-58.43	-7.84	1.71	-67.98	-13.00	-54.98
325.85	38.55	V	-59.38	-7.78	2.27	-69.42	-13.00	-56.42
384.05	36.16	V	-60.02	-7.65	2.46	-70.14	-13.00	-57.14
668.26	33.93	V	-55.18	-7.83	3.21	-66.22	-13.00	-53.22
966.05	32.73	V	-51.52	-8.00	3.93	-63.45	-13.00	-50.45
1910.00	66.51	V	-37.82	10.08	5.66	-33.40	-13.00	-20.40
3819.60	45.78	V	-51.61	12.60	8.47	-47.48	-13.00	-34.48
5729.40	35.49	V	-54.83	13.49	10.50	-51.83	-13.00	-38.83
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: PCS 1900 Mode**

Operation Mode : TX CH High Mode  
 Fundamental Frequency : 1909.8 MHz  
 Temperature : 25°C  
 Humidity : 65%

Test Date: Apr. 25, 2011  
 Test By: Sky  
 Pol: Hor

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Output (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
90.14	46.90	H	-56.83	-7.75	1.27	-65.85	-13.00	-52.85
199.75	37.28	H	-64.35	-7.84	1.71	-73.90	-13.00	-60.90
325.85	37.94	H	-59.48	-7.78	2.27	-69.53	-13.00	-56.53
555.74	32.58	H	-59.02	-7.76	2.97	-69.75	-13.00	-56.75
662.44	32.74	H	-56.46	-7.82	3.19	-67.47	-13.00	-54.47
970.90	32.75	H	-51.33	-8.00	3.94	-63.27	-13.00	-50.27
1910.00	78.20	H	-25.91	10.08	5.66	-21.49	-13.00	-8.49
3819.60	43.45	H	-54.06	12.60	8.47	-49.92	-13.00	-36.92
5729.40	36.16	H	-54.29	13.49	10.50	-51.30	-13.00	-38.30
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 II Mode**

Operation Mode	: TX CH Low Mode	Test Date:	Apr. 25, 2011
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)
105.66	50.02	V	-51.38	-7.76	1.39	-60.53	-13.00	-47.53
196.84	41.91	V	-59.59	-7.84	1.70	-69.13	-13.00	-56.13
289.96	36.78	V	-61.80	-7.91	2.13	-71.85	-13.00	-58.85
558.65	32.72	V	-59.26	-7.77	2.97	-70.00	-13.00	-57.00
652.74	35.63	V	-53.32	-7.81	3.17	-64.30	-13.00	-51.30
975.75	32.76	V	-51.27	-7.99	3.96	-63.22	-13.00	-50.22
1850.00	70.49	V	-33.90	9.90	5.56	-29.56	-13.00	-16.56
2787.50	36.99	V	-62.74	10.90	6.96	-58.80	-13.00	-45.80
3704.80	---	V		12.61	8.31		-13.00	
5557.20	---	V		13.24	10.33		-13.00	
7409.60	---	V		11.49	12.09		-13.00	
9262.00	---	V		11.92	13.51		-13.00	
11114.40	---	V		11.68	15.12		-13.00	
12966.80	---	V		13.62	16.61		-13.00	
14819.20	---	V		12.83	17.96		-13.00	
16671.60	---	V		15.87	19.15		-13.00	
18524.00	---	V		18.74	10.86		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH Low Mode	Test Date:	Apr. 25, 2011
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)
183.26	36.78	H	-63.57	-7.83	1.67	-73.07	-13.00	-60.07
238.55	32.89	H	-66.89	-7.88	1.93	-76.69	-13.00	-63.69
332.64	32.72	H	-64.64	-7.74	2.29	-74.67	-13.00	-61.67
551.86	32.60	H	-59.08	-7.76	2.96	-69.81	-13.00	-56.81
613.94	33.13	H	-57.30	-7.80	3.07	-68.16	-13.00	-55.16
972.84	33.24	H	-50.83	-8.00	3.95	-62.78	-13.00	-49.78
1850.00	69.73	H	-34.45	9.90	5.56	-30.11	-13.00	-17.11
2787.50	37.44	H	-62.47	10.90	6.96	-58.54	-13.00	-45.54
3704.80	---	H		12.61	8.31		-13.00	
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:
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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Mode : TX CH Mid Mode  
 Fundamental Frequency : 1880MHz  
 Temperature : 25°C  
 Humidity : 65%

Test Date: Apr. 25, 2011  
 Test By: Sky  
 Pol: Ver

Freq. (MHz)	SPA. Reading (dBUV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
167.74	35.31	V	-63.57	-7.81	1.63	-73.02	-13.00	-60.02
245.34	33.66	V	-66.41	-7.89	1.96	-76.26	-13.00	-63.26
328.76	34.77	V	-63.12	-7.76	2.28	-73.16	-13.00	-60.16
548.95	32.78	V	-59.74	-7.76	2.96	-70.46	-13.00	-57.46
650.80	33.60	V	-55.33	-7.81	3.16	-66.30	-13.00	-53.30
946.65	32.93	V	-51.70	-8.00	3.87	-63.57	-13.00	-50.57
3418.00	36.10	V	-62.75	12.43	7.90	-58.22	-13.00	-45.22
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
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**Radiated Spurious Emission Measurement Result: WCDMA II Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
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)
194.90	36.76	H	-64.49	-7.84	1.70	-74.03	-13.00	-61.03
225.94	33.83	H	-66.56	-7.87	1.86	-76.28	-13.00	-63.28
328.76	34.68	H	-62.72	-7.76	2.28	-72.75	-13.00	-59.75
555.74	32.57	H	-59.03	-7.76	2.97	-69.76	-13.00	-56.76
648.86	32.72	H	-57.02	-7.81	3.16	-67.99	-13.00	-54.99
968.96	32.47	H	-51.63	-8.00	3.94	-63.56	-13.00	-50.56
3307.50	36.13	H	-62.96	12.19	7.73	-58.50	-13.00	-45.50
5640.00	---	H		13.36	10.41		-13.00	
7520.00	---	H		11.45	12.19		-13.00	
9400.00	---	H		11.93	13.61		-13.00	
11280.00	---	H		11.92	15.27		-13.00	
13160.00	---	H		13.33	16.71		-13.00	
15040.00	---	H		13.76	18.15		-13.00	
16920.00	---	H		15.27	19.32		-13.00	
18800.00	---	H		18.68	16.58		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 1907.6MHz	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)
173.56	40.31	V	-59.10	-7.82	1.65	-68.56	-13.00	-55.56
233.70	34.08	V	-66.43	-7.87	1.90	-76.20	-13.00	-63.20
319.06	39.47	V	-58.54	-7.81	2.24	-68.60	-13.00	-55.60
558.65	32.61	V	-59.37	-7.77	2.97	-70.11	-13.00	-57.11
658.56	32.89	V	-56.12	-7.82	3.18	-67.12	-13.00	-54.12
970.90	32.56	V	-51.58	-8.00	3.94	-63.52	-13.00	-50.52
1910.00	56.67	V	-47.66	10.08	5.66	-43.24	-13.00	-30.24
3223.00	37.14	V	-61.75	12.01	7.60	-57.34	-13.00	-44.34
5722.80	---	V		13.48	10.49		-13.00	
7630.40	---	V		11.41	12.27		-13.00	
9538.00	---	V		11.95	13.73		-13.00	
11445.60	---	V		12.15	15.42		-13.00	
13353.20	---	V		13.00	16.81		-13.00	
15260.80	---	V		14.91	18.28		-13.00	
17168.40	---	V		14.53	19.50		-13.00	
19076.00	---	V		18.65	20.76		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 1907.6MHz	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)
199.75	35.93	H	-65.70	-7.84	1.71	-75.25	-13.00	-62.25
243.40	33.18	H	-66.36	-7.88	1.95	-76.20	-13.00	-63.20
319.06	36.85	H	-60.63	-7.81	2.24	-70.69	-13.00	-57.69
548.95	33.20	H	-58.56	-7.76	2.96	-69.27	-13.00	-56.27
655.65	33.20	H	-56.28	-7.82	3.17	-67.27	-13.00	-54.27
982.54	32.77	H	-51.24	-7.99	3.98	-63.22	-13.00	-50.22
1910.00	66.78	H	-37.33	10.08	5.66	-32.91	-13.00	-19.91
3808.00	40.92	H	-56.64	12.60	8.46	-52.49	-13.00	-39.49
5722.80	---	H		13.48	10.49		-13.00	
7630.40	---	H		11.41	12.27		-13.00	
9538.00	---	H		11.95	13.73		-13.00	
11445.60	---	H		12.15	15.42		-13.00	
13353.20	---	H		13.00	16.81		-13.00	
15260.80	---	H		14.91	18.28		-13.00	
17168.40	---	H		14.53	19.50		-13.00	
19076.00	---	H		18.65	20.76		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH Low Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 826.4MHz	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)
173.56	36.99	V	-62.42	-7.82	1.65	-71.88	-13.00	-58.88
231.76	35.11	V	-65.47	-7.87	1.89	-75.23	-13.00	-62.23
325.85	39.93	V	-58.00	-7.78	2.27	-68.04	-13.00	-55.04
555.74	32.45	V	-59.70	-7.76	2.97	-70.44	-13.00	-57.44
700.27	33.55	V	-55.88	-7.86	3.29	-67.03	-13.00	-54.03
823.00	58.53	V	-27.87	-7.87	3.62	-39.37	-13.00	-26.37
936.95	33.53	V	-51.12	-7.99	3.86	-62.97	-13.00	-49.97
1455.00	37.03	V	-67.89	8.58	4.53	-63.84	-13.00	-50.84
1652.80	---	V		9.30	5.23		-13.00	
2479.20	---	V		10.07	6.54		-13.00	
3305.60	---	V		12.19	7.73		-13.00	
4132.00	---	V		12.62	8.87		-13.00	
4958.40	---	V		12.65	9.75		-13.00	
5784.80	---	V		13.58	10.55		-13.00	
6611.20	---	V		12.03	11.31		-13.00	
7437.60	---	V		11.48	12.12		-13.00	
8264.00	---	V		11.50	12.73		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH Low Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 826.4MHz	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)
196.84	36.77	H	-64.63	-7.84	1.70	-74.17	-13.00	-61.17
228.85	35.66	H	-64.59	-7.87	1.87	-74.33	-13.00	-61.33
322.94	34.03	H	-63.42	-7.79	2.26	-73.47	-13.00	-60.47
539.25	33.94	H	-58.15	-7.75	2.93	-68.83	-13.00	-55.83
675.05	33.96	H	-54.71	-7.84	3.23	-65.77	-13.00	-52.77
823.00	71.26	H	-15.01	-7.87	3.62	-26.51	-13.00	-13.51
932.10	34.10	H	-50.34	-7.98	3.85	-62.17	-13.00	-49.17
1652.80	37.81	H	-66.59	9.30	5.23	-62.52	-13.00	-49.52
2479.20	---	H		10.07	6.54		-13.00	
3305.60	---	H		12.19	7.73		-13.00	
4132.00	---	H		12.62	8.87		-13.00	
4958.40	---	H		12.65	9.75		-13.00	
5784.80	---	H		13.58	10.55		-13.00	
6611.20	---	H		12.03	11.31		-13.00	
7437.60	---	H		11.48	12.12		-13.00	
8264.00	---	H		11.50	12.73		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 836.6MHz	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)
187.14	35.29	V	-65.34	-7.83	1.68	-74.84	-13.00	-61.84
235.64	34.76	V	-65.67	-7.88	1.91	-75.46	-13.00	-62.46
289.96	34.94	V	-63.64	-7.91	2.13	-73.69	-13.00	-60.69
559.62	32.73	V	-59.20	-7.77	2.97	-69.94	-13.00	-56.94
694.45	33.60	V	-55.78	-7.85	3.28	-66.91	-13.00	-53.91
963.14	33.55	V	-50.77	-8.00	3.92	-62.68	-13.00	-49.68
1673.20	---	V		9.36	5.27		-13.00	
1858.00	37.35	V	-67.03	9.92	5.57	-62.68	-13.00	-49.68
2509.80	---	V		10.09	6.58		-13.00	
3346.40	---	V		12.28	7.79		-13.00	
4183.00	---	V		12.62	8.93		-13.00	
5019.60	---	V		12.67	9.81		-13.00	
5856.20	---	V		13.68	10.62		-13.00	
6692.80	---	V		11.95	11.39		-13.00	
7529.40	---	V		11.45	12.20		-13.00	
8366.00	---	V		11.59	12.81		-13.00	

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

**Remark:**

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

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

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 836.6MHz	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)
199.75	36.92	H	-64.71	-7.84	1.71	-74.26	-13.00	-61.26
248.25	35.16	H	-64.15	-7.89	1.98	-74.01	-13.00	-61.01
340.40	32.50	H	-64.79	-7.69	2.32	-74.81	-13.00	-61.81
553.80	33.61	H	-58.03	-7.76	2.97	-68.76	-13.00	-55.76
687.66	33.28	H	-54.87	-7.85	3.26	-65.97	-13.00	-52.97
992.40	33.60	H	-50.36	-7.99	4.01	-62.35	-13.00	-49.35
1673.20	---	H		9.36	5.27		-13.00	
2118.00	36.48	H	-66.76	10.28	5.99	-62.46	-13.00	-49.46
2509.80	---	H		10.09	6.58		-13.00	
3346.40	---	H		12.28	7.79		-13.00	
4183.00	---	H		12.62	8.93		-13.00	
5019.60	---	H		12.67	9.81		-13.00	
5856.20	---	H		13.68	10.62		-13.00	
6692.80	---	H		11.95	11.39		-13.00	
7529.40	---	H		11.45	12.20		-13.00	
8366.00	---	H		11.59	12.81		-13.00	

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

Remark:

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

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

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

Test Date: Apr. 25, 2011  
 Test By: Sky  
 Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
199.75	35.47	V	-66.29	-7.84	1.71	-75.84	-13.00	-62.84
250.19	33.99	V	-65.89	-7.89	1.99	-75.77	-13.00	-62.77
325.85	39.67	V	-58.26	-7.78	2.27	-68.30	-13.00	-55.30
516.94	34.03	V	-59.55	-7.73	2.85	-70.14	-13.00	-57.14
689.60	33.50	V	-55.83	-7.85	3.26	-66.94	-13.00	-53.94
850.00	60.77	V	-25.34	-7.88	3.68	-36.90	-13.00	-23.90
959.26	33.38	V	-51.03	-8.00	3.91	-62.93	-13.00	-49.93
1693.20	---	V		9.42	5.30		-13.00	
1942.00	36.53	V	-67.77	10.17	5.71	-63.31	-13.00	-50.31
2539.80	---	V		10.18	6.62		-13.00	
3386.40	---	V		12.36	7.85		-13.00	
4233.00	---	V		12.63	8.99		-13.00	
5079.60	---	V		12.73	9.87		-13.00	
5926.20	---	V		13.79	10.69		-13.00	
6772.80	---	V		11.87	11.47		-13.00	
7619.40	---	V		11.41	12.26		-13.00	
8466.00	---	V		11.68	12.89		-13.00	

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

Remark:

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

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

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 846.6MHz	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)
199.75	36.59	H	-65.04	-7.84	1.71	-74.59	-13.00	-61.59
222.06	35.72	H	-64.86	-7.86	1.83	-74.55	-13.00	-61.55
322.94	34.87	H	-62.58	-7.79	2.26	-72.63	-13.00	-59.63
548.95	32.85	H	-58.91	-7.76	2.96	-69.62	-13.00	-56.62
691.54	34.06	H	-53.92	-7.85	3.27	-65.04	-13.00	-52.04
850.00	71.33	H	-14.86	-7.88	3.68	-26.42	-13.00	-13.42
956.35	33.52	H	-50.65	-8.00	3.90	-62.55	-13.00	-49.55
1693.20	38.19	H	-66.16	9.42	5.30	-62.04	-13.00	-49.04
2539.80	---	H		10.18	6.62		-13.00	
3386.40	---	H		12.36	7.85		-13.00	
4233.00	---	H		12.63	8.99		-13.00	
5079.60	---	H		12.73	9.87		-13.00	
5926.20	---	H		13.79	10.69		-13.00	
6772.80	---	H		11.87	11.47		-13.00	
7619.40	---	H		11.41	12.26		-13.00	
8466.00	---	H		11.68	12.89		-13.00	

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

Remark:

- 1 The emission behaviors belong to narrowband spurious emission.
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**Radiated Spurious Emission Measurement Result: CDMA 2000 Cellular Mode**

Operation Mode	: TX CH Low Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 824.70MHz	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)
154.16	32.62	V	-65.04	-7.80	1.60	-74.45	-13.00	-61.45
243.40	33.64	V	-66.50	-7.88	1.95	-76.34	-13.00	-63.34
328.76	32.59	V	-65.30	-7.76	2.28	-75.34	-13.00	-62.34
555.74	33.12	V	-59.03	-7.76	2.97	-69.77	-13.00	-56.77
694.45	33.24	V	-56.14	-7.85	3.28	-67.27	-13.00	-54.27
825.00	65.71	V	-20.67	-7.88	3.63	-32.17	-13.00	-19.17
975.75	33.92	V	-50.11	-7.99	3.96	-62.06	-13.00	-49.06
1649.40	---	V		9.29	5.23		-13.00	
1767.00	43.09	V	-61.38	9.65	5.42	-57.16	-13.00	-44.16
2474.10	---	V		10.08	6.53		-13.00	
3298.80	---	V		12.17	7.72		-13.00	
4123.50	---	V		12.61	8.86		-13.00	
4948.20	---	V		12.65	9.74		-13.00	
5772.90	---	V		13.56	10.54		-13.00	
6597.60	---	V		12.04	11.30		-13.00	
7422.30	---	V		11.49	12.10		-13.00	
8247.00	---	V		11.48	12.72		-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: CDMA 2000 Cellular Mode**

Operation Mode	: TX CH Low Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 824.70MHz	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)
156.10	32.52	H	-65.72	-7.80	1.60	-75.13	-13.00	-62.13
241.46	34.00	H	-65.64	-7.88	1.94	-75.46	-13.00	-62.46
325.85	35.43	H	-61.99	-7.78	2.27	-72.04	-13.00	-59.04
553.80	33.10	H	-58.54	-7.76	2.97	-69.27	-13.00	-56.27
691.54	33.21	H	-54.77	-7.85	3.27	-65.89	-13.00	-52.89
825.00	77.20	H	-9.07	-7.88	3.63	-20.57	-13.00	-7.57
961.20	33.77	H	-50.37	-8.00	3.91	-62.28	-13.00	-49.28
1649.40	---	H		9.29	5.23		-13.00	
1975.00	49.63	H	-54.41	10.27	5.77	-49.90	-13.00	-36.90
2474.10	---	H		10.08	6.53		-13.00	
3298.80	---	H		12.17	7.72		-13.00	
4123.50	---	H		12.61	8.86		-13.00	
4948.20	---	H		12.65	9.74		-13.00	
5772.90	---	H		13.56	10.54		-13.00	
6597.60	---	H		12.04	11.30		-13.00	
7422.30	---	H		11.49	12.10		-13.00	
8247.00	---	H		11.48	12.72		-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
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**Radiated Spurious Emission Measurement Result: CDMA 2000 Cellular Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 836.52MHz	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)
180.35	36.00	V	-64.02	-7.82	1.66	-73.50	-13.00	-60.50
245.34	33.67	V	-66.40	-7.89	1.96	-76.25	-13.00	-63.25
328.76	35.95	V	-61.94	-7.76	2.28	-71.98	-13.00	-58.98
553.80	32.94	V	-59.33	-7.76	2.97	-70.06	-13.00	-57.06
694.45	33.63	V	-55.75	-7.85	3.28	-66.88	-13.00	-53.88
691.20	34.06	V	-55.29	-7.85	3.27	-66.41	-13.00	-53.41
1673.04	---	V		9.36	5.27		-13.00	
1942.50	39.99	V	-64.31	10.18	5.71	-59.84	-13.00	-46.84
2509.56	---	V		10.09	6.58		-13.00	
3346.08	---	V		12.27	7.79		-13.00	
4182.60	---	V		12.62	8.93		-13.00	
5019.12	---	V		12.67	9.81		-13.00	
5855.64	---	V		13.68	10.62		-13.00	
6692.16	---	V		11.95	11.39		-13.00	
7528.68	---	V		11.45	12.20		-13.00	
8365.20	---	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 belong to narrowband spurious emission.
- 2 Remark”---“ means that the emission level is too low to be measured
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**Radiated Spurious Emission Measurement Result: CDMA 2000 Cellular Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 836.52MHz	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)
156.10	33.14	H	-65.10	-7.80	1.60	-74.51	-13.00	-61.51
245.34	33.84	H	-65.61	-7.89	1.96	-75.46	-13.00	-62.46
321.00	32.71	H	-64.76	-7.80	2.25	-74.81	-13.00	-61.81
555.74	32.74	H	-58.86	-7.76	2.97	-69.59	-13.00	-56.59
697.36	33.61	H	-54.13	-7.86	3.28	-65.27	-13.00	-52.27
966.04	33.72	H	-50.39	-8.00	3.93	-62.32	-13.00	-49.32
1673.04	---	H		9.36	5.27		-13.00	
1942.50	53.06	H	-51.01	10.18	5.71	-46.55	-13.00	-33.55
2509.56	---	H		10.09	6.58		-13.00	
3346.08	---	H		12.27	7.79		-13.00	
4182.60	---	H		12.62	8.93		-13.00	
5019.12	---	H		12.67	9.81		-13.00	
5855.64	---	H		13.68	10.62		-13.00	
6692.16	---	H		11.95	11.39		-13.00	
7528.68	---	H		11.45	12.20		-13.00	
8365.20	---	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.
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**Radiated Spurious Emission Measurement Result: CDMA 2000 Cellular Mode**

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 848.31MHz	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)
163.86	34.03	V	-64.50	-7.81	1.62	-73.94	-13.00	-60.94
245.34	35.83	V	-64.24	-7.89	1.96	-74.09	-13.00	-61.09
316.15	35.53	V	-62.52	-7.83	2.23	-72.58	-13.00	-59.58
544.10	33.22	V	-59.46	-7.76	2.94	-70.16	-13.00	-57.16
694.45	33.90	V	-55.48	-7.85	3.28	-66.61	-13.00	-53.61
850.00	70.81	V	-15.30	-7.88	3.68	-26.86	-13.00	-13.86
961.20	33.96	V	-50.40	-8.00	3.91	-62.31	-13.00	-49.31
1696.62	---	V		9.43	5.31		-13.00	
1975.00	39.49	V	-64.77	10.27	5.77	-60.27	-13.00	-47.27
2544.93	---	V		10.19	6.63		-13.00	
3393.24	---	V		12.38	7.86		-13.00	
4241.55	---	V		12.63	9.00		-13.00	
5089.86	---	V		12.74	9.88		-13.00	
5938.17	---	V		13.81	10.70		-13.00	
6786.48	---	V		11.86	11.48		-13.00	
7634.79	---	V		11.41	12.27		-13.00	
8483.10	---	V		11.69	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: CDMA 2000 Cellular Mode**

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 848.31MHz	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)
154.16	33.00	H	-65.09	-7.80	1.60	-74.50	-13.00	-61.50
283.55	33.32	H	-64.85	-7.91	2.11	-74.87	-13.00	-61.87
325.85	33.09	H	-64.33	-7.78	2.27	-74.38	-13.00	-61.38
555.74	32.88	H	-58.72	-7.76	2.97	-69.45	-13.00	-56.45
699.30	33.49	H	-54.17	-7.86	3.29	-65.32	-13.00	-52.32
850.00	81.92	H	-4.27	-7.88	3.68	-15.83	-13.00	-2.83
956.35	33.34	H	-50.83	-8.00	3.90	-62.73	-13.00	-49.73
1696.62	---	H		9.43	5.31		-13.00	
1975.00	49.80	H	-54.24	10.27	5.77	-49.73	-13.00	-36.73
2544.93	---	H		10.19	6.63		-13.00	
3393.24	---	H		12.38	7.86		-13.00	
4241.55	---	H		12.63	9.00		-13.00	
5089.86	---	H		12.74	9.88		-13.00	
5938.17	---	H		13.81	10.70		-13.00	
6786.48	---	H		11.86	11.48		-13.00	
7634.79	---	H		11.41	12.27		-13.00	
8483.10	---	H		11.69	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
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- 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: CDMA 2000 PCS Mode**

Operation Mode : TX CH Low Mode

Test Date: Apr. 25, 2011

Fundamental Frequency : 1851.25MHz

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)
175.50	35.54	V	-64.04	-7.82	1.65	-73.51	-13.00	-60.51
243.40	33.85	V	-66.29	-7.88	1.95	-76.13	-13.00	-63.13
313.24	35.58	V	-62.51	-7.85	2.22	-72.57	-13.00	-59.57
558.65	32.60	V	-59.38	-7.77	2.97	-70.12	-13.00	-57.12
694.45	33.02	V	-56.36	-7.85	3.28	-67.49	-13.00	-54.49
970.90	32.64	V	-51.50	-8.00	3.94	-63.44	-13.00	-50.44
1850.00	56.89	V	-47.50	9.90	5.56	-43.16	-13.00	-30.16
3702.50	---	V		12.61	8.31		-13.00	
3782.00	35.18	V	-62.38	12.60	8.42	-58.20	-13.00	-45.20
5553.75	---	V		13.23	10.33		-13.00	
7405.00	---	V		11.50	12.09		-13.00	
9256.25	---	V		11.92	13.50		-13.00	
11107.50	---	V		11.67	15.12		-13.00	
12958.75	---	V		13.62	16.61		-13.00	
14810.00	---	V		12.79	17.96		-13.00	
16661.25	---	V		15.89	19.14		-13.00	
18512.50	---	V		18.75	10.62		-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: CDMA 2000 PCS Mode**

Operation Mode : TX CH Low Mode

Test Date: Apr. 25, 2011

Fundamental Frequency : 1851.25MHz

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)
196.84	37.09	H	-64.31	-7.84	1.70	-73.85	-13.00	-60.85
224.00	34.75	H	-65.73	-7.86	1.84	-75.44	-13.00	-62.44
325.85	33.22	H	-64.20	-7.78	2.27	-74.25	-13.00	-61.25
558.65	32.62	H	-58.92	-7.77	2.97	-69.66	-13.00	-56.66
660.50	32.45	H	-56.83	-7.82	3.19	-67.84	-13.00	-54.84
970.90	32.40	H	-51.68	-8.00	3.94	-63.62	-13.00	-50.62
1850.00	69.77	H	-34.41	9.90	5.56	-30.07	-13.00	-17.07
3702.50	---	H		12.61	8.31		-13.00	
3957.00	34.36	H	-62.52	12.60	8.66	-58.58	-13.00	-45.58
5553.75	---	H		13.23	10.33		-13.00	
7405.00	---	H		11.50	12.09		-13.00	
9256.25	---	H		11.92	13.50		-13.00	
11107.50	---	H		11.67	15.12		-13.00	
12958.75	---	H		13.62	16.61		-13.00	
14810.00	---	H		12.79	17.96		-13.00	
16661.25	---	H		15.89	19.14		-13.00	
18512.50	---	H		18.75	10.62		-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
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**Radiated Spurious Emission Measurement Result: CDMA 2000 PCS Mode**

Operation Mode	: TX CH Mid Mode	Test Date:	Apr. 25, 2011
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)
173.56	35.16	V	-64.25	-7.82	1.65	-73.71	-13.00	-60.71
243.40	33.03	V	-67.11	-7.88	1.95	-76.95	-13.00	-63.95
319.06	36.16	V	-61.85	-7.81	2.24	-71.91	-13.00	-58.91
555.74	33.25	V	-58.90	-7.76	2.97	-69.64	-13.00	-56.64
645.95	34.15	V	-54.82	-7.81	3.15	-65.78	-13.00	-52.78
970.90	32.36	V	-51.78	-8.00	3.94	-63.72	-13.00	-50.72
3760.00	---	V		12.60	8.39		-13.00	
3990.00	34.44	V	-62.19	12.60	8.71	-58.29	-13.00	-45.29
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
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**Radiated Spurious Emission Measurement Result: CDMA 2000 PCS Mode**

Operation Mode : TX CH Mid Mode  
 Fundamental Frequency : 1880MHz  
 Temperature : 25°C  
 Humidity : 65%

Test Date: Apr. 25, 2011  
 Test By: Sky  
 Pol: Hor

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
199.75	40.34	H	-61.29	-7.84	1.71	-70.84	-13.00	-57.84
235.64	32.99	H	-66.93	-7.88	1.91	-76.71	-13.00	-63.71
316.15	34.63	H	-62.88	-7.83	2.23	-72.94	-13.00	-59.94
555.74	32.92	H	-58.68	-7.76	2.97	-69.41	-13.00	-56.41
665.35	32.48	H	-56.60	-7.83	3.20	-67.62	-13.00	-54.62
968.96	32.54	H	-51.56	-8.00	3.94	-63.49	-13.00	-50.49
3760.00	---	H		12.60	8.39		-13.00	
4061.00	33.76	H	-62.71	12.61	8.79	-58.89	-13.00	-45.89
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.
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**Radiated Spurious Emission Measurement Result: CDMA 2000 PCS Mode**

Operation Mode : TX CH High Mode  
 Fundamental Frequency : 1908.75MHz  
 Temperature : 25°C  
 Humidity : 65%

Test Date: Apr. 25, 2011  
 Test By: Sky  
 Pol: Ver

Freq. (MHz)	SPA. Reading (dBuV)	Ant.Pol. H/V	S.G Out-put (dBm)	Antenna Gain (dB/dBi)	Cable Loss (dB)	ERP/EIRP (dBm)	Limit (dBm)	Safe Margin (dBm)
173.56	37.16	V	-62.25	-7.82	1.65	-71.71	-13.00	-58.71
235.64	35.91	V	-64.52	-7.88	1.91	-74.31	-13.00	-61.31
299.66	36.09	V	-62.17	-7.92	2.17	-72.26	-13.00	-59.26
536.34	33.69	V	-59.25	-7.75	2.92	-69.92	-13.00	-56.92
662.44	33.42	V	-55.63	-7.82	3.19	-66.64	-13.00	-53.64
966.05	32.44	V	-51.81	-8.00	3.93	-63.74	-13.00	-50.74
1910.00	59.08	V	-45.25	10.08	5.66	-40.83	-13.00	-27.83
3327.00	35.74	V	-63.12	12.23	7.76	-58.65	-13.00	-45.65
3817.50	---	V		12.60	8.47		-13.00	
5726.25	---	V		13.49	10.50		-13.00	
7635.00	---	V		11.41	12.27		-13.00	
9543.75	---	V		11.95	13.73		-13.00	
11452.50	---	V		12.16	15.43		-13.00	
13361.25	---	V		12.99	16.82		-13.00	
15270.00	---	V		14.95	18.28		-13.00	
17178.75	---	V		14.50	19.51		-13.00	
19087.50	---	V		18.65	20.77		-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: CDMA 2000 PCS Mode**

Operation Mode	: TX CH High Mode	Test Date:	Apr. 25, 2011
Fundamental Frequency	: 1908.75MHz	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)
185.20	37.36	H	-63.14	-7.83	1.67	-72.64	-13.00	-59.64
250.19	32.74	H	-66.47	-7.89	1.99	-76.35	-13.00	-63.35
330.70	32.73	H	-64.65	-7.75	2.29	-74.68	-13.00	-61.68
539.25	34.27	H	-57.82	-7.75	2.93	-68.50	-13.00	-55.50
694.45	33.92	H	-53.94	-7.85	3.28	-65.07	-13.00	-52.07
990.30	32.48	H	-51.49	-7.99	4.00	-63.48	-13.00	-50.48
1910.00	67.03	H	-37.08	10.08	5.66	-32.66	-13.00	-19.66
3817.50	---	H		12.60	8.47		-13.00	
5726.25	---	H		13.49	10.50		-13.00	
5498.00	35.17	H	-56.05	13.15	10.28	-53.18	-13.00	-40.18
7635.00	---	H		11.41	12.27		-13.00	
9543.75	---	H		11.95	13.73		-13.00	
11452.50	---	H		12.16	15.43		-13.00	
13361.25	---	H		12.99	16.82		-13.00	
15270.00	---	H		14.95	18.28		-13.00	
17178.75	---	H		14.50	19.51		-13.00	
19087.50	---	H		18.65	20.77		-13.00	

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

Remark:

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

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

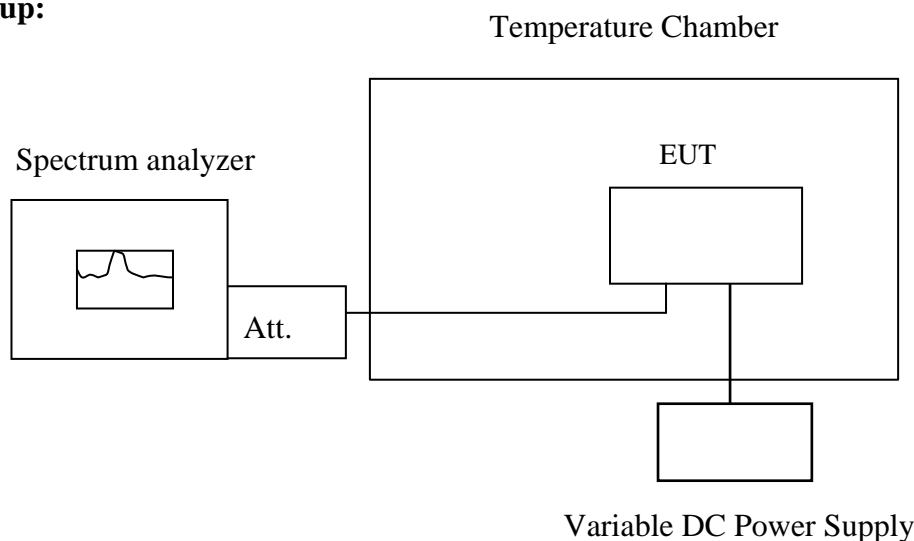
### 10.1. Standard Applicable:

According to FCC §2.1055(a) (1)

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

+/-2.5ppm for 1900MHz band

### 10.2. Test Set-up:



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

### 10.3. Measurement Procedure:

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

### 10.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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**10.5. Measurement Result:**

Reference Frequency: GSM Mid Channel 836.6 MHz @ 20°C				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
3.70	-30	836.599993	0.00	2091
3.70	-20	836.599998	-5.00	2091
3.70	-10	836.600002	-9.00	2091
3.70	0	836.600022	-29.00	2091
3.70	10	836.600018	-25.00	2091
3.70	20	836.599993	0.00	2091
3.70	30	836.599978	15.00	2091
3.70	40	836.599974	19.00	2091
3.70	50	836.599973	20.00	2091

Reference Frequency: PCS Mid Channel 1880 MHz @ 20°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
3.70	-30	1880.000003	17.00	4700
3.70	-20	1880.000009	11.00	4700
3.70	-10	1880.000053	-33.00	4700
3.70	0	1880.000047	-27.00	4700
3.70	10	1880.000038	-18.00	4700
3.70	20	1880.000020	0.00	4700
3.70	30	1880.000042	-22.00	4700
3.70	40	1880.000022	-2.00	4700
3.70	50	1880.000036	-16.00	4700

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Reference Frequency: WCDMA II Mid Channel 1880 (ARFCN9400) MHz @ 20°C				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
3.70	-30	1879.999990	3.00	4700
3.70	-20	1879.999973	20.00	4700
3.70	-10	1879.999972	21.00	4700
3.70	0	1879.999984	9.00	4700
3.70	10	1879.999985	8.00	4700
3.70	20	1879.999993	0.00	4700
3.70	30	1880.000017	-24.00	4700
3.70	40	1880.000010	-17.00	4700
3.70	50	1880.000008	-15.00	4700

Reference Frequency: WCDMA V Mid Channel 836.6 (ARFCN4183) MHz @ 20°C				
Limit: +/- 2.5 ppm = 2090 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
3.7	-30	836.599973	17.00	2091
3.7	-20	836.599985	5.00	2091
3.7	-10	836.599983	7.00	2091
3.7	0	836.599990	0.00	2091
3.7	10	836.599995	-5.00	2091
3.7	20	836.599990	0.00	2091
3.7	30	836.599993	-3.00	2091
3.7	40	836.600007	-17.00	2091
3.7	50	836.600010	-20.00	2091

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Reference Frequency: CDMA 2000 Cellular Mid Channel 836.0 MHz				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
3.7	-30	836.519999	-5.00	2091
3.7	-20	836.519997	-3.00	2091
3.7	-10	836.519995	-1.00	2091
3.7	0	836.519999	-5.00	2091
3.7	10	836.519993	1.00	2091
3.7	20	836.519994	0.00	2091
3.7	30	836.519996	-2.00	2091
3.7	40	836.519980	14.00	2091
3.7	50	836.519984	10.00	2091
3.7	-30	836.519999	-5.00	2091

Reference Frequency: CDMA 2000 PCS Mid Channel 1880 MHz				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
3.7	-30	1732.599990	-4.00	4331
3.7	-20	1732.600001	-15.00	4331
3.7	-10	1732.599992	-6.00	4331
3.7	0	1732.599993	-7.00	4331
3.7	10	1732.599989	-3.00	4331
3.7	20	1732.599986	0.00	4331
3.7	30	1732.599980	6.00	4331
3.7	40	1732.599984	2.00	4331
3.7	50	1732.599996	-10.00	4331
3.7	-30	1732.599990	-4.00	4331

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

### 11.1. Standard Applicable:

According to FCC §2.1055(a) (1)

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

+/-2.5ppm for 1900MHz band

### 11.2. Test Set-up:

Refer to section 10.2 in this report

### 11.3. Measurement Procedure:

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

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

### 11.4. Measurement Equipment Used:

Refer to section 2.4 in this report

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**11.5. Measurement Result:**

Reference Frequency: 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)		
4.20	25.00	836.600021	-13.00	2091.00
3.70	25.00	836.600008	0.00	2091.00
3.20	25.00	836.600007	1.00	2091.00
2.6 (End Point)	25.00	836.599958	50.00	2091.00

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)		
4.20	25	1879.999989	4.00	4700
3.70	25	1879.999993	0.00	4700
3.20	25	1879.999979	14.00	4700
2.6 (End Point)	25	1879.999943	50.00	4700

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Reference Frequency: WCDMA II Mid Channel 1880 (ARFCN9400) MHz				
Limit: +/- 2.5 ppm = 4700 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
4.20	25	1879.999996	-3.00	4700
3.70	25	1879.999993	0.00	4700
3.20	25	1879.999991	2.00	4700
2.6 (Endpoint)	25	1879.999931	65.00	4700

Reference Frequency: WCDMA V Mid Channel 836.6 (ARFCN4183) MHz				
Limit: +/- 2.5 ppm = 2090 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
4.2	25.00	836.599995	0.00	2091.00
3.7	25.00	836.599993	2.00	2091.00
3.2	25.00	836.599990	5.00	2091.00
2.6 (Endpoint)	25.00	836.599947	48.00	2091.00

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

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Reference Frequency: CDMA 2000 Cellular Mid Channel 836.0 MHz @ 25°C				
Limit: +/- 2.5 ppm = 2091 Hz				
Power Supply	Environment	Frequency	Delta (Hz)	Limit (Hz)
Vdc	Temperature (°C)	(MHz)		
4.2	25.00	836.5200006	-0.40	2091.00
3.7	25.00	836.5200002	0.00	2091.00
3.2	25.00	836.5200003	-0.10	2091.00
2.6 (Endpoint)	25.00	836.5200037	-3.50	2091.00

Reference Frequency: CDMA 2000 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)		
4.2	25	1880.0000005	0.20	4331
3.7	25	1880.0000007	0.00	4331
3.2	25	1880.0000009	-0.20	4331
2.6 (Endpoint)	25	1880.0000073	-6.60	4331

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