FCC RADIO REPORT

Report No: STS1502032F01

Issued for

Tianjin RoamWiFi Technology Co., Ltd.

2018 Zhong Tian Road , Block 16 Unit 429, Ready built office, Tianjin Eco-city, Tianjin

Product Name:	3G Wireless Router
Brand Name:	Roam WiFi
Model No.:	RW-801
FCC ID:	2ADUB-ROAMWIFI
Test Standard:	FCC Part 22H and 24E and 27L

Shenzhen STS Test Services Co., Ltd.
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TEST RESULT CERTIFICATION

Applicant's name..... Tianjin RoamWiFi Technology Co., Ltd.

Address ..... 2018 Zhong Tian Road , Block 16 Unit 429, Ready built office, Tianjin Eco-city, Tianjin

Manufacture's Name ..... Tianjin RoamWiFi Technology Co., Ltd.

Address ..... 2018 Zhong Tian Road , Block 16 Unit 429, Ready built office, Tianjin Eco-city, Tianjin

Product name ..... 3G Wireless Router

Band name ..... Roam WiFi

Model and/or type reference ... RW-801

Standards..... FCC Part 22H and 24E and 27L

Test procedure ..... TIA 603 C

This device described above has been tested by STS and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....

Date of performance of tests ..... 02 Feb. 2015 ~10 Feb. 2015

Date of Issue ..... 11 Feb. 2015

Test Result ..... **Pass**

Testing Engineer : (Jin Ming)

Report writing : (Sunny zheng)

Authorized Signatory : (Bovey Yang)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

The radiated emission testing was performed according to the procedures of ansi C63.10: 2009; TIA 603 C and fcc cfr 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057

Item Number	Item Description		FCC Rules
1	Output Power	Conducted output power	2.1046/22.913(a) (2) / 24.232 (c) /27.50(d)(2)
		Radiated output power	
2	Spurious Emission	Conducted spurious emission	2.1051 / 22.917 / 24.238 /27.53(h)
		Radiated spurious emission	
3	Frequency Stability		2.1055/22.355 /24.235 /27.54
4	Occupied Bandwidth		2.1049 (h)(i)
5	Emission Bandwidth		22.917(a)/24.238(a)/27.53(h)
6	Band Edge		22.917(a)/24.238(a)/27.53(h)

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

Shenzhen STS Test Services Co., Ltd.

Add. : 1/F, Building 2, Zhuoke Science Park, Chongqing Road, Fuyong, Baoan District, Shenzhen, China.

FCC Registration No.: 842334; IC Registration No.: 12108A-1

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ± U**，where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**，providing a level of confidence of approximately **95** %。

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. GENERAL INFORMATION

2.1 PRODUCT DESCRIPTION

A major technical description of EUT is described as following:

Product Designation:	3G Wireless Router
Hardware version:	SP918
Software version:	RoamWiFi_1.00.001
FCC ID:	2ADUB-ROAMWIFI
Frequency Bands(module A):	☒UMTS FDD Band II ☒UMTS FDD Band V ☒UMTS FDD Band IV (U.S. Bands) ☒UMTS FDD Band I ☒UMTS FDD Band VIII (Non-U.S. Bands)
Frequency Bands(module B):	☒UMTS FDD Band II ☒UMTS FDD Band V (U.S. Bands) ☒UMTS FDD Band I ☒UMTS FDD Band VIII (Non-U.S. Bands)
Max RF Output Power:	module A:WCDMA Band V:22.74dBm,WCDMA Band II:22.78dBm, WCDMA Band IV:22.77dBm module B: WCDMA Band V:22.81dBm,WCDMA Band II:22.77dBm
Type of Emission:	WCDMA850:4M17F9W WCDMA1900:4M17F9W WCDMA1700:4M17F9W
Dual Card:	WCDMA Built-in card 1 WCDMA Built-in card 2
Release Version	Rel-6
Antenna:	PIFA Antenna
Antenna gain:	-1.0dBi(WCDMA 850), -0.8dBi (WCDMA 1900), -0.8dBi (WCDMA 1700)
Power Supply:	DC 3.7V by battery or DC 5.0V supplied by adapter
Battery parameter:	DC 3.7V/5200mAh
Extreme Vol. Limits:	DC3.4 V to 4.2 V (Nominal DC3.7V)
Extreme Temp. Tolerance	-30℃ to +50℃
** Note: (1)The High Voltage 4.2V and Low Voltage 3.4V was declared by manufacturer, The EUT couldn't be operate normally with higher or lower voltage. (2) The EUT does not support 2G .	

2.2 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended for fcc id: 2ADUB-ROAMWIFI filing to comply with the fcc part 22H&24E&27L

2.3 SPECIAL ACCESSORIES

The battery supplied by the applicant was used as accessories and being tested with eut intended for fcc grant together.

2.4 EUT CONFIGURATION

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

2.5 EUT EXERCISE

The Transmitter was operated in the maximum output power mode through Communication Tester. The TX frequency was fixed which was for the purpose of the measurements.

2.6 CONFIGURATION OF EUT SYSTEM

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

EUT

Table 2-1 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	3G Wireless Router	RW-801	FCC ID: 2ADUB-ROAMWIFI	EUT
2	Battery	ICR18650-26HM	DC3.7V/ 5200mAh	Accessory
3	USB Cable	RW-801	N/A	Accessory

Note:

1、All the accessories have been used during the test. the following "EUT" in setup diagram means EUT system.

Table 2-2 Equipment Used in EUT System

Item	Equipment	Model No.	ID or Specification	Note
1	Adapter	RM003	DC5.0V/1A	EUT

Note: The Adapter was provided by Lab.

2.7 MEASUREMENT INSTRUMENTS

The radiated emission testing was performed according to the procedures of ansi C 63.10: 2009; TIA 603C and fcc cfr 47 rules of 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057.

Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4407B	MY50140340	2014.10.25	2015.10.24
Test Receiver	R&S	ESCI	101427	2014.10.25	2015.10.24
Communication Tester	Agilent	8960	MY48360751	2014.10.25	2015.10.24
Communication Tester	R&S	CMU200	112012	2014.10.25	2015.10.24
Test Receiver	R&S	ESCI	102086	2014.10.25	2015.10.24
Loop Antenna	Daze	ZN30900N	SEL0097	2014.10.27	2015.10.26
Bilog Antenna	Teseq	CBL6111D	34678	2014.10.27	2015.10.26
Horn Antenna	R&S	9120D	152265	2014.10.27	2015.10.26
Substitution antennas	Teseq	CBL6111D	34542	2014.10.27	2015.10.26
Substitution antennas	R&S	9120D	152359	2014.10.27	2015.10.26
SIGNAL GENERATOR	R&S	SMA100	104260	2014.10.27	2015.10.26
Climate Chamber	Albatross	TSG-2-050	140916	2014.7.25	2015.7.24
Power Splitter	HP	11636A	N/A	2014.7.25	2015.7.24
Attenuator	MACCM	FSC96341	2082619206	2014.7.25	2015.7.24

3. SUMMARY OF TEST RESULTS

Item Number	Item Description		FCC Rules	Result
1	Output Power	Conducted Output Power	2.1046/22.913(a) (2) / 24.232 (c) /27.50(d)(2)	Pass
		Radiated Output Power		
2	Spurious Emission	Conducted Spurious Emission	2.1051 / 22.917 / 24.238 /27.53(h)	Pass
		Radiated Spurious Emission		
3	Mains Conducted Emission		15.107 / 15.207/27.53(h)	Pass
4	Frequency Stability		2.1055/22.355/24.235 /27.54	Pass
5	Occupied Bandwidth		2.1049 (h)(i)	Pass
6	Emission Bandwidth		22.917(a)/24.238(a)/27.53(h)	Pass
7	Band Edge		22.917(a)/24.238(a)/27.53(h)	Pass

4. DESCRIPTION OF TEST MODES

During the testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication Tester (CMU 200) to ensure max power transmission and proper modulation. Three channels (The top channel, the middle channel and the bottom channel) were chosen for testing on HSDPA band.

***Note: HSDPA band II, HSDPA band V, HSDPA band IV, mode have been tested during the test. The worst condition was recorded in the test report if no other modes test data.

5. OUTPUT POWER

5.1 CONDUCTED OUTPUT POWER

5.1.1 MEASUREMENT METHOD

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all modes(HSDPA band V, HSDPA band II, HSDPA band IV) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

5.1.2 MEASUREMENT RESULT

Conducted Output Power Limits for HSDPA band V/II/IV		
Mode	Nominal Peak Power	Tolerance(dB)
HSDPA band V	22 dBm	+/-1
HSDPA band II	22 dBm	+/-1
HSDPA band IV	22 dBm	+/-1

UMTS BAND II (module B)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power
HSDPA Subtest 1	1852.6	22.72	20.46
	1880	22.68	20.41
	1907.4	22.67	20.34
HSDPA Subtest 2	1852.6	22.71	20.53
	1880	22.66	20.51
	1907.4	22.63	20.46
HSDPA Subtest 3	1852.6	**22.77**	20.43
	1880	22.75	20.41
	1907.4	22.72	20.38
HSDPA Subtest 4	1852.6	22.73	20.45
	1880	22.71	20.41
	1907.4	22.65	20.37

UMTS BAND V (module B)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power
HSDPA Subtest 1	826.6	22.79	20.56
	836.4	**22.81**	20.53
	846.4	22.75	20.51
HSDPA Subtest 2	826.6	22.67	20.45
	836.4	22.65	20.42
	846.4	22.62	20.41
HSDPA Subtest 3	826.6	22.74	20.48
	836.4	22.72	20.43
	846.4	22.66	20.37
HSDPA Subtest 4	826.6	22.75	20.43
	836.4	22.72	20.36
	846.4	22.71	20.32

UMTS BAND II (module A)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power
HSDPA Subtest 1	1852.6	22.75	20.53
	1880	22.72	20.51
	1907.4	22.65	20.46
HSDPA Subtest 2	1852.6	**22.78**	20.47
	1880	22.74	20.44
	1907.4	22.71	20.42
HSDPA Subtest 3	1852.6	22.68	20.39
	1880	22.65	20.36
	1907.4	22.61	20.32
HSDPA Subtest 4	1852.6	22.73	20.42
	1880	22.68	20.37
	1907.4	22.61	20.34

UMTS BAND IV (module A)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power
HSDPA Subtest 1	1712.5	22.75	20.42
	1732.5	22.72	20.41
	1752.5	22.68	20.36
HSDPA Subtest 2	1712.5	22.69	20.34
	1732.5	22.66	20.31
	1752.5	22.64	20.29
HSDPA Subtest 3	1712.5	22.71	20.42
	1732.5	22.68	20.41
	1752.5	22.64	20.34
HSDPA Subtest 4	1712.5	**22.77**	20.41
	1732.5	22.75	20.33
	1752.5	22.72	20.28

UMTS BAND V (module A)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power
HSDPA Subtest 1	826.6	22.67	20.35
	836.4	22.62	20.31
	846.4	22.59	20.26
HSDPA Subtest 2	826.6	22.65	20.33
	836.4	22.62	20.27
	846.4	22.57	20.23
HSDPA Subtest 3	826.6	22.69	20.37
	836.4	22.64	20.32
	846.4	22.62	20.28
HSDPA Subtest 4	826.6	**22.74**	20.43
	836.4	22.71	20.38
	846.4	22.67	20.32

According to 3GPP 25.101 sub-clause 6.2.2 , the maximum output power is allowed to be reduced by following the table.

Table 6.1aA: UE maximum output power with HS-DPCCH and E-DCH

UE Transmit Channel Configuration	CM(db)	MPR(db)
For all combinations of ,DPDCH,DPCCH HS-DPDCH,E-DPDCH and E-DPCCH	0≤ CM≤3.5	MAX(CM-1,0)
Note: CM=1 for β_c/β_d=12/15, β_{hs}/β_c=24/15.For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.		

The device supports MPR to solve linearity issues (ACLR or SEM) due to the higher peak-to average ratios (PAR) of the HSDPA signal. This prevents saturating the full range of the TX DAC inside of device and provides a reduced power output to the RF transceiver chip according to the Cubic Metric (a function of the combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH).

When E-DPDCH channels are present the beta gains on those channels are reduced firsts to try to get the power under the allowed limit. If the beta gains are lowered as far as possible, then a hard limiting is applied at the maximum allowed level.

The SW currently recalculates the cubic metric every time the beta gains on the E-DPDCH are reduced. The cubic metric will likely get lower each time this is done .However, there is no reported reduction of maximum output power in the HSDPA mode since the device also provides a compensate for the power back-off by increasing the gain of TX_AGC in the transceiver (PA) device.
The end effect is that the DUT output power is identical to the case where there is no MPR in the device.

5.2 PEAK-TO-AVERAGE RADIO (PAR) OF TRANSMITTER

5.2.1 STANDARD APPLICABLE

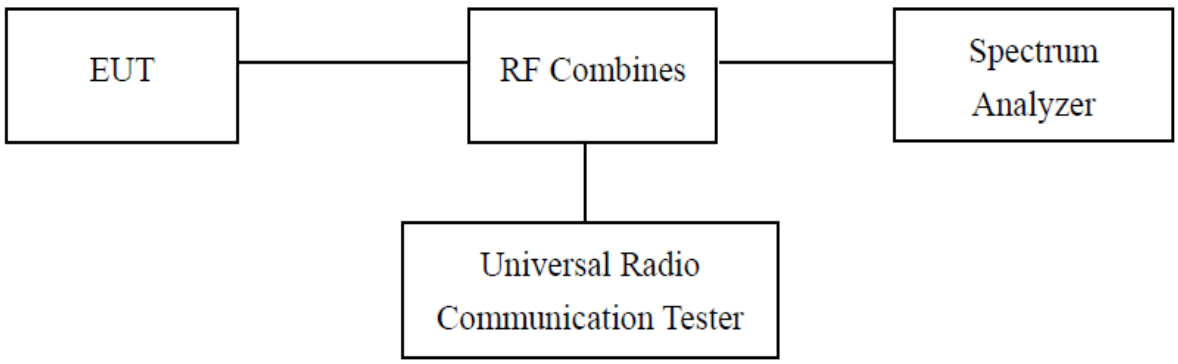
According to §24.232(d), 27.50(d)(5), Power measurements for transmissions by stations authorized under this section may be
made either in accordance with a Commission-approved average power technique or in compliance with
paragraph (e) of this section. In both instances, equipment employed must be authorized in accordance with the
provisions of §24.51. In measuring transmissions in this band using an average power technique, the peak-to-average ratio (PAR) of the transmission may not exceed 13 dB.

5.2.2 TEST EQUIPMENT LIST AND DETAILS

Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Due
Spectrum Analyzer	Agilent	E4407B	MY50140340	2014.10.25	2015.10.24
Communication Tester	Agilent	8960	MY48360751	2014.10.25	2015.10.24
Communication Tester	R&S	CMU200	112012	2014.10.25	2015.10.24
TEST RECEIVER	R&S	ESCI	102086	2014.10.25	2015.10.24

5.2.3 TEST PROCEDURE

The RF output terminal of the transmitter was connected to the input of the spectrum analyzer via a suitable attenuation. The RBW of the spectrum analyzer was set to 30kHz and the peak-to-average ratio (PAR) of the transmission was recorded.
Test Configuration for the emission bandwidth testing:



5.2.4 ENVIRONMENTAL CONDITIONS

Temperature:	25 °C
Relative Humidity:	54%
ATM Pressure:	1011 mbar

5.2.5 SUMMARY OF TEST RESULTS

UMTS BAND II (module B)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power	PAR	Limit
HSDPA Subtest 1	1852.6	22.72	20.46	2.26	13
	1880	22.68	20.41	2.27	13
	1907.4	22.67	20.34	2.33	13
HSDPA Subtest 2	1852.6	22.71	20.53	2.18	13
	1880	22.66	20.51	2.15	13
	1907.4	22.63	20.46	2.17	13
HSDPA Subtest 3	1852.6	22.77	20.43	2.34	13
	1880	22.75	20.41	2.34	13
	1907.4	22.72	20.38	2.34	13
HSDPA Subtest 4	1852.6	22.73	20.45	2.28	13
	1880	22.71	20.41	2.30	13
	1907.4	22.65	20.37	2.28	13

UMTS BAND V (module B)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power	PAR	Limit
HSDPA Subtest 1	826.6	22.79	20.56	2.23	13
	836.4	22.81	20.53	2.28	13
	846.4	22.75	20.51	2.24	13
HSDPA Subtest 2	826.6	22.67	20.45	2.22	13
	836.4	22.65	20.42	2.23	13
	846.4	22.62	20.41	2.21	13
HSDPA Subtest 3	826.6	22.74	20.48	2.26	13
	836.4	22.72	20.43	2.29	13
	846.4	22.66	20.37	2.29	13
HSDPA Subtest 4	826.6	22.75	20.43	2.32	13
	836.4	22.72	20.36	2.36	13
	846.4	22.71	20.32	2.39	13

UMTS BAND II (module A)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power	PAR	Limit
HSDPA Subtest 1	1852.6	22.75	20.53	2.22	13
	1880	22.72	20.51	2.21	13
	1907.4	22.65	20.46	2.19	13
HSDPA Subtest 2	1852.6	22.78	20.47	2.31	13
	1880	22.74	20.44	2.3	13
	1907.4	22.71	20.42	2.29	13
HSDPA Subtest 3	1852.6	22.68	20.39	2.29	13
	1880	22.65	20.36	2.29	13
	1907.4	22.61	20.32	2.29	13
HSDPA Subtest 4	1852.6	22.73	20.42	2.31	13
	1880	22.68	20.37	2.31	13
	1907.4	22.61	20.34	2.27	13

UMTS BAND IV (module A)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power	PAR	Limit
HSDPA Subtest 1	1712.5	22.75	20.42	2.33	13
	1732.5	22.72	20.41	2.31	13
	1752.5	22.68	20.36	2.32	13
HSDPA Subtest 2	1712.5	22.69	20.34	2.35	13
	1732.5	22.66	20.31	2.35	13
	1752.5	22.64	20.29	2.35	13
HSDPA Subtest 3	1712.5	22.71	20.42	2.29	13
	1732.5	22.68	20.41	2.27	13
	1752.5	22.64	20.34	2.3	13
HSDPA Subtest 4	1712.5	22.77	20.41	2.36	13
	1732.5	22.75	20.33	2.42	13
	1752.5	22.72	20.28	2.44	13

UMTS BAND V (module A)

Mode	Frequency (MHz)	Peak Power	Avg.Burst Power	PAR	Limit
HSDPA Subtest 1	826.6	22.67	20.35	2.32	13
	836.4	22.62	20.31	2.31	13
	846.4	22.59	20.26	2.33	13
HSDPA Subtest 2	826.6	22.65	20.33	2.32	13
	836.4	22.62	20.27	2.35	13
	846.4	22.57	20.23	2.34	13
HSDPA Subtest 3	826.6	22.69	20.37	2.32	13
	836.4	22.64	20.32	2.32	13
	846.4	22.62	20.28	2.34	13
HSDPA Subtest 4	826.6	22.74	20.43	2.31	13
	836.4	22.71	20.38	2.33	13
	846.4	22.67	20.32	2.35	13

5.3 RADIATED OUTPUT POWER

5.3.1 MEASUREMENT METHOD

The EUT was setup for the max output power with pseudo random data modulation. Power was measured with Spectrum Analyzer. The measurements were performed on all modes(HSDPA band V, HSDPA band II, HSDPA band IV) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

The measurements procedures specified in TIA-603C-2009 were applied.

1.In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference centre of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded.

2.The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established as ARpl=Pin + 2.15 - Pr. The ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl

3.The EUT is substituted for the dipole at the reference centre of the chamber and a scan is performed to obtain the radiation pattern.

4.From the radiation pattern, the co-ordinates where the maximum antenna gain occurs are identified.

5.The EUT is then put into continuously transmitting mode at its maximum power level.

6.Power mode measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in Rule 24.232 (b) and (c) and 27.50(d)(4). The "reference path loss" from Step1 is added to this result.

7.This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.15 dBi) and known input power (Pin).

8.ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi..

9.Both Horizontal And Vertical Antenna Polarities Were Tested And Performed Pretest To Three Orthogonal Axis. The Worst Case Emissions Were Reported

5.3.2 PROVISIONS APPLICABLE

This is the test for the maximum radiated power from the EUT. Rule Part 24.232(b) and 27.50(d)(4) specifies, “Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power” and 24.232(c) and 27.50(d)(4) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.” Rule Part 22.913(a) specifies “Maximum ERP. The effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.”

Mode	Nominal Peak Power
HSDPA BAND II	<=33 dBm (2W)
HSDPA BAND IV	<=33 dBm (2W)
HSDPA BAND V	<=38.45 dBm (7W)

5.3.3 MEASUREMENT RESULT

Radiated Power (E.I.R.P) for UMTS band II (module B)				
Mode	Frequency	Result		Conclusion
		Max. Peak E.I.R.P.(dBm)	Polarization Of Max. E.I.R.P.	
HSDPA Subtest 1	1852.6	**21.32**	Horizontal	Pass
	1880	21.26	Horizontal	Pass
	1907.4	21.21	Horizontal	Pass
	1852.6	21.16	Vertical	Pass
	1880	21.12	Vertical	Pass
	1907.4	21.19	Vertical	Pass

Radiated Power (ERP) for UMTS band V (module B)				
Mode	Frequency	Result		Conclusion
		Max. Peak E.I.R.P.(dBm)	Polarization Of Max. E.I.R.P.	
HSDPA Subtest 1	826.6	**21.46**	Horizontal	Pass
	836.4	21.41	Horizontal	Pass
	846.4	21.35	Horizontal	Pass
	826.6	21.21	Vertical	Pass
	836.4	21.17	Vertical	Pass
	846.4	21.13	Vertical	Pass

Radiated Power (E.I.R.P) for UMTS band II (module A)				
Mode	Frequency	Result		Conclusion
		Max. Peak E.I.R.P (dBm)	Polarization Of Max. E.I.R.P	
HSDPA Subtest 1	1852.6	**21.86**	Horizontal	Pass
	1880	21.79	Horizontal	Pass
	1907.4	21.72	Horizontal	Pass
	1852.6	21.63	Vertical	Pass
	1880	21.56	Vertical	Pass
	1907.4	21.52	Vertical	Pass

Radiated Power (E.I.R.P) for UMTS band IV (module A)				
Mode	Frequency	Result		Conclusion
		Max. Peak E.I.R.P (dBm)	Polarization Of Max. E.I.R.P	
HSDPA Subtest 1	1712.5	**21.42**	Horizontal	Pass
	1732.5	21.38	Horizontal	Pass
	1752.5	21.33	Horizontal	Pass
	1712.5	21.28	Vertical	Pass
	1732.5	21.23	Vertical	Pass
	1752.5	21.17	Vertical	Pass

Radiated Power (ERP) for UMTS band V (module A)				
Mode	Frequency	Result		Conclusion
		Max. Peak ERP (dBm)	Polarization Of Max. E.I.R.P.	
HSDPA Subtest 1	826.6	**21.65**	Horizontal	Pass
	836.4	21.61	Horizontal	Pass
	846.4	21.54	Horizontal	Pass
	826.6	21.43	Vertical	Pass
	836.4	21.41	Vertical	Pass
	846.4	21.36	Vertical	Pass

6. SPURIOUS EMISSION

6.1 SPURIOUS EMISSION

6.1.1 MEASUREMENT METHOD

The following steps outline the procedure used to measure the conducted emissions from the EUT.
1.Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the equipment of band II, data taken from 30 MHz to 20 GHz. For band V, data taken from 30 MHz to 9 GHz.
2. Determine EUT transmit frequencies: the following typical channels were chosen to conducted emissions testing.

Typical Channels for testing of HSDPA band V	
Channel	Frequency (MHz)
4358	826.6
4407	836.4
4457	846.4

Typical Channels for testing of HSDPA band II	
Channel	Frequency (MHz)
9663	1852.6
9800	1880
9937	1907.4

Typical Channels for testing of HSDPA band IV	
Channel	Frequency (MHz)
1887	1712.5
1987	1732.5
2087	1752.5

6.1.2 PROVISIONS APPLICABLE

On any frequency outside frequency band of the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

6.1.3 MEASUREMENT RESULT

PLEASE REFER TO : APPENDIX I TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION

Note: 1. Below 30MHZ no Spurious found and The HSDPA modes is the worst condition.

2. As no emission found in standby or receive mode, no recording in this report.

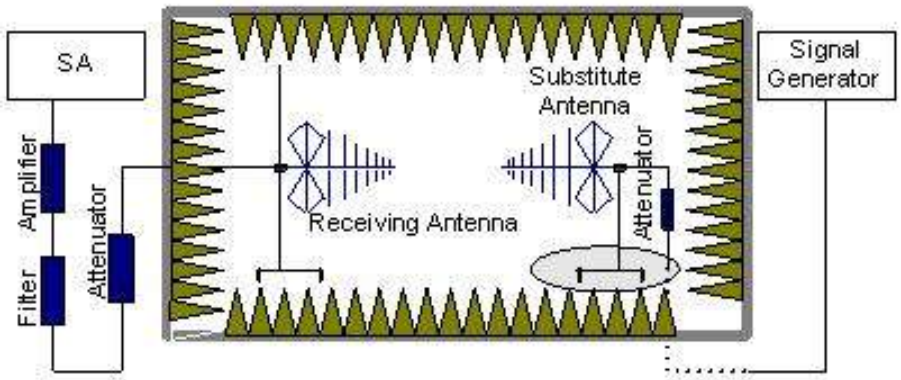
6.2 RADIATED SPURIOUS EMISSION

6.2.1 MEASUREMENT METHOD

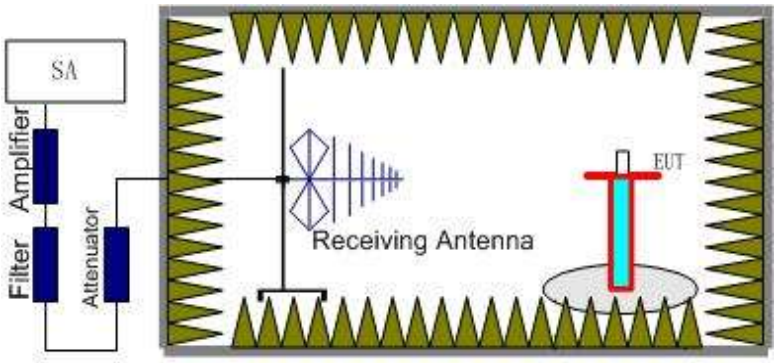
The measurements procedures specified in TIA-603C-2004 were used for testing. The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set 1MHz as outlined in Part 24.238 and Part 27.53. The measurements were performed on all modes(HSDPA band V, HSDPA band II, HSDPA band IV) at 3 typical channels(the Top Channel, the Middle Channel and the Bottom Channel) for each band.

The procedure of radiated spurious emissions is as follows:

a) Pre-calibration With pre-calibration method, the Radiated Spurious Emissions(RSE) is calculated as, RSE=Rx（dBuV）+CL（dB）+SA（dB）+Gain（dBi）-107（dBuV to dBm）The SA is calibrated using following setup.



b) EUT was placed on a 0.8 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the test item for emission measurements. The height of receiving antenna is 0.8m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the test item and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector and 1MHz bandwidth.



Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the HSDPA band II(1852.6MHz, 1880MHz, 1907.4MHz), HSDPA band IV(1712.5MHz, 1732.5MHz, 1752.5MHz), HSDPA band V(826.6MHz, 836.4MHz, 846.4MHz). It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of any band into any of the other blocks.

The substitution method is used. Substitution values at each frequency are measured before and saved to the test software. A "reference path loss" is established and the ARpl is the attenuation of “reference path loss”, and including the gain of receive antenna, the gain of the preamplifier, the cable loss and the air loss. The measurement results are obtained as described below: Power=PMea+ARpl

6.2.2 PROVISIONS APPLICABLE

(a) On any frequency outside a licensee’s frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Note: only result the worst condition of each test mode.

6.2.3 MEASUREMENT RESULT

For module B

HSDPA band II:

The Worst Test Results for Channel 9938/1907.4MHz					
Frequency(MHz)	**Power(dBm)**	**ARpl (dBm)**	**PMea(dBm)**	**Limit （dBm）**	**Polarity**
2000.00	-38.42	-2.25	-40.67	-13.00	Vertical
9548.50	-40.12	-3.03	-43.15	-13.00	Horizontal
13367.40	-41.35	-1.87	-43.22	-13.00	Horizontal
15277.80	-42.16	8.52	-33.64	-13.00	Vertical
17931.60	-43.73	18.7	-25.03	-13.00	Horizontal

HSDPA band V:

The Worst Test Results for Channel 4458/846.4MHz					
Frequency(MHz)	**Power(dBm)**	**ARpl (dBm)**	**PMea(dBm)**	**Limit （dBm）**	**Polarity**
1598.26	-41.38	-2.26	-43.64	-13.00	Vertical
2365.78	-40.43	-3.12	-43.55	-13.00	Horizontal
4967.65	-42.29	-1.74	-44.03	-13.00	Horizontal
6457.86	-42.21	8.74	-33.47	-13.00	Vertical
7896.56	-43.46	17.89	-25.57	-13.00	Horizontal

For module A

HSDPA band II:

The Worst Test Results for Channel 9938/1907.4MHz					
Frequency(MHz)	**Power(dBm)**	**ARpl (dBm)**	**PMea(dBm)**	**Limit （dBm）**	**Polarity**
2000.00	-39.16	-2.25	-41.41	-13.00	Vertical
9548.50	-41.11	-3.03	-44.14	-13.00	Horizontal
13367.40	-41.23	-1.87	-43.1	-13.00	Horizontal
15277.80	-41.56	8.52	-33.04	-13.00	Vertical
17931.60	-42.34	18.7	-23.64	-13.00	Horizontal

HSDPA band IV:

The Worst Test Results for Channel 2087/1752.5MHz					
Frequency(MHz)	**Power(dBm)**	**ARpl (dBm)**	**PMea(dBm)**	**Limit （dBm）**	**Polarity**
1536.98	-46.53	9.7	-36.83	-13.00	Vertical
2536.41	-44.37	11.6	-32.77	-13.00	Horizontal
3786.52	-46.43	14.89	-31.54	-13.00	Horizontal
5123.56	-43.67	13.87	-29.80	-13.00	Vertical
6615.32	-47.55	19.76	-27.79	-13.00	Horizontal

HSDPA band V:

The Worst Test Results for Channel 4458/846.4MHz					
Frequency(MHz)	**Power(dBm)**	**ARpl (dBm)**	**PMea(dBm)**	**Limit （dBm）**	**Polarity**
1598.26	-41.68	-2.26	-43.94	-13.00	Vertical
2365.78	-41.28	-3.12	-44.4	-13.00	Horizontal
4967.65	-42.42	-1.74	-44.16	-13.00	Horizontal
6457.86	-42.37	8.74	-33.63	-13.00	Vertical
7896.56	-43.21	17.89	-25.32	-13.00	Horizontal

Note: ARpl= Factor=Antenna Factor+ Cable loss-Amplifier gain.

The “Factor” value can be calculated automatically by software of measurement system.

Below 30MHZ no Spurious found and The HSDPA modes is the worst condition.

7. FREQUENCY STABILITY

7.1 MEASUREMENT METHOD

(a) On any frequency outside a licensee's frequency block (e.g. A, D, B, etc.) within the USPCS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least 43+10Log(P) dB. The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

Note: only result the worst condition of each test mode.

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a "call mode". This is accomplished with the use of R&S CMU200 DIGITAL RADIO COMMUNICATION TESTER.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -10℃.
3. With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on channel 9400 for HSDPA band II and channel 4175 for HSDPA band V measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -10℃ to +50℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.
5. Re-measure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments re-measuring carrier frequency at each voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10℃ increments from +50℃ to -10℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

.At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

7.2 PROVISIONS APPLICABLE

7.2.1 FOR HAND CARRIED BATTERY POWERED EQUIPMENT

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.3VDC and 4.2VDC, with a nominal voltage of 3.8VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.

7.2.2 FOR EQUIPMENT POWERED BY PRIMARY SUPPLY VOLTAGE

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment, the normal environment temperature is 20oC.

7.3 MEASUREMENT RESULT

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section 2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment, the normal environment temperature is 20oC.

For module B

Frequency Error Against Voltage for HSDPA band V		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	18	0.022
3.7	16	0.019
4.2	15	0.018

Frequency Error Against Temperature for HSDPA band V		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-10	24	0.029
0	25	0.030
10	27	0.032
20	26	0.031
30	22	0.026
40	24	0.029
50	26	0.031

Note: The EUT doesn't work below -30℃

Frequency Error Against Voltage for HSDPA band II		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	25	0.013
3.7	27	0.014
4.2	26	0.014

Frequency Error Against Temperature for HSDPA band II		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-10	26	0.014
0	25	0.013
10	27	0.014
20	26	0.014
30	24	0.013
40	23	0.012
50	21	0.011

Note: The EUT doesn't work below -30℃

For module A

Frequency Error Against Voltage for HSDPA band V		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	14	0.017
3.7	17	0.020
4.2	13	0.016

Frequency Error Against Temperature for HSDPA band V		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-10	22	0.026
0	24	0.029
10	21	0.025
20	25	0.030
30	23	0.028
40	27	0.032
50	25	0.030

Note: The EUT doesn't work below -30℃

Frequency Error Against Voltage for HSDPA band II		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	23	0.012
3.7	24	0.013
4.2	26	0.014

Frequency Error Against Temperature for HSDPA band II		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-10	24	0.013
0	27	0.014
10	23	0.012
20	25	0.013
30	22	0.012
40	26	0.014
50	25	0.013

Note: The EUT doesn't work below -30℃

Frequency Error Against Voltage for HSDPA band IV		
Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.4	21	0.011
3.7	25	0.013
4.2	23	0.012

Frequency Error Against Temperature for HSDPA band IV		
temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-10	22	0.012
0	26	0.014
10	24	0.013
20	21	0.011
30	25	0.013
40	27	0.014
50	23	0.012

Note: The EUT doesn't work below -30℃

8. OCCUPIED BANDWIDTH

8.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

8.2 PROVISIONS APPLICABLE

Limits applicated report test result only.

8.3 MEASUREMENT RESULT

For module B

Occupied Bandwidth (99%) for HSDPA band V		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)
Low Channel	826.4	4.1585
Middle Channel	836.6	4.1601
High Channel	846.6	4.1778

Occupied Bandwidth (99%) for HSDPA band II		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)
Low Channel	1852.4	4.1662
Middle Channel	1880	4.1727
High Channel	1907.6	4.1683

For module A

Occupied Bandwidth (99%) for HSDPA band V		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)
Low Channel	826.4	4.1313
Middle Channel	836.6	4.1264
High Channel	846.6	4.1403

Occupied Bandwidth (99%) for HSDPA band IV		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)
Low Channel	1712.5	4.1506
Middle Channel	1732.5	4.1425
High Channel	1752.5	4.1543

Occupied Bandwidth (99%) for HSDPA band II		
Mode	Frequency(MHz)	Occupied Bandwidth (99%)(MHz)
Low Channel	1852.4	4.1315
Middle Channel	1880	4.1464
High Channel	1907.6	4.1423

9. Emission Bandwidth

9.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

9.2 PROVISIONS APPLICABLE

The emission bandwidth is defined as two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power

9.3 MEASUREMENT RESULT

For module B

Emission Bandwidth (-26dBc) for HSDPA band V		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)
Low Channel	826.4	4.670
Middle Channel	836.6	4.664
High Channel	846.6	4.692

Emission Bandwidth (-26dBc) for HSDPA band II		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)
Low Channel	1852.4	4.672
Middle Channel	1880	4.675
High Channel	1907.6	4.674

For module A

Emission Bandwidth (-26dBc) for HSDPA band V		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)
Low Channel	826.4	4.660
Middle Channel	836.6	4.651
High Channel	846.6	4.657

Emission Bandwidth (-26dBc) for HSDPA band IV		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)
Low Channel	1712.5	4.676
Middle Channel	1732.5	4.666
High Channel	1752.5	4.670

Emission Bandwidth (-26dBc) for HSDPA band II		
Mode	Frequency(MHz)	Emission Bandwidth (-26dBc)(MHz)
Low Channel	1852.4	4.651
Middle Channel	1880	4.653
High Channel	1907.6	4.657

10. BAND EDGE

10.1 MEASUREMENT METHOD

The test set up and general procedure is similar to conducted peak output power test. Only different for setting the measurement configuration of the measuring instrument of Spectrum Analyzer.

10.2 PROVISIONS APPLICABLE

as Specified in FCC rules of 22.917(a) and 24.238(a) and 27.53(h)

10.3 MEASUREMENT RESULT

Please refers to Appendix III for compliance test plots for band edges

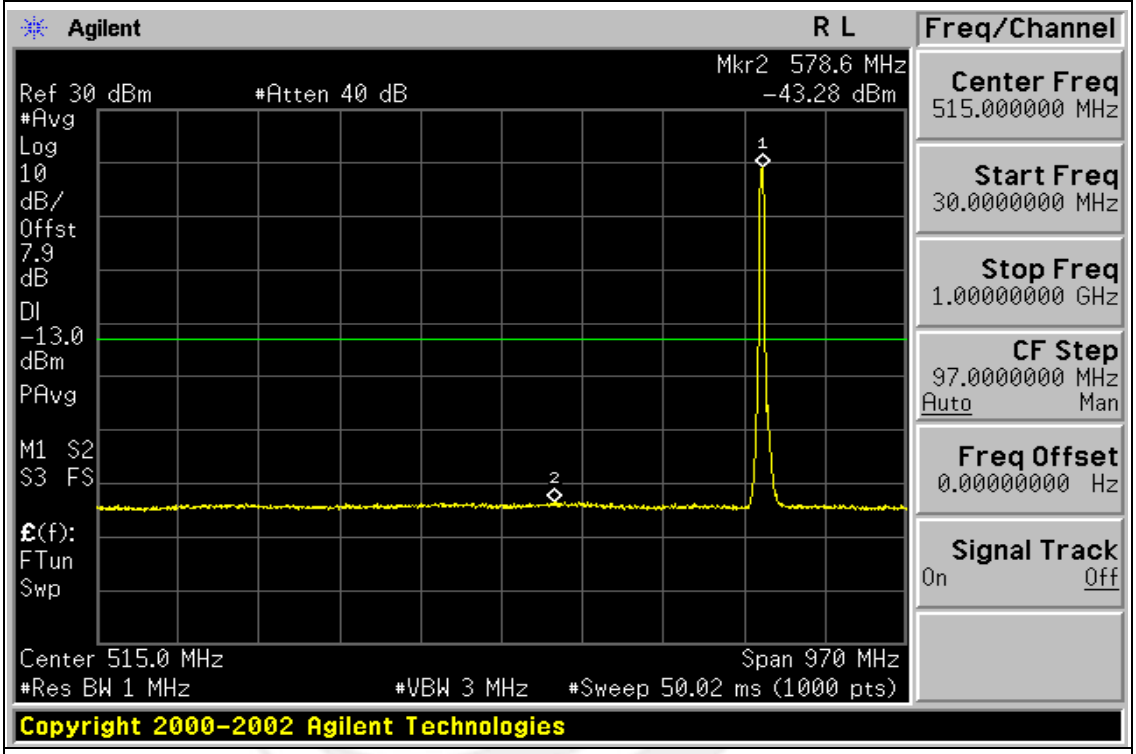
APPENDIX I

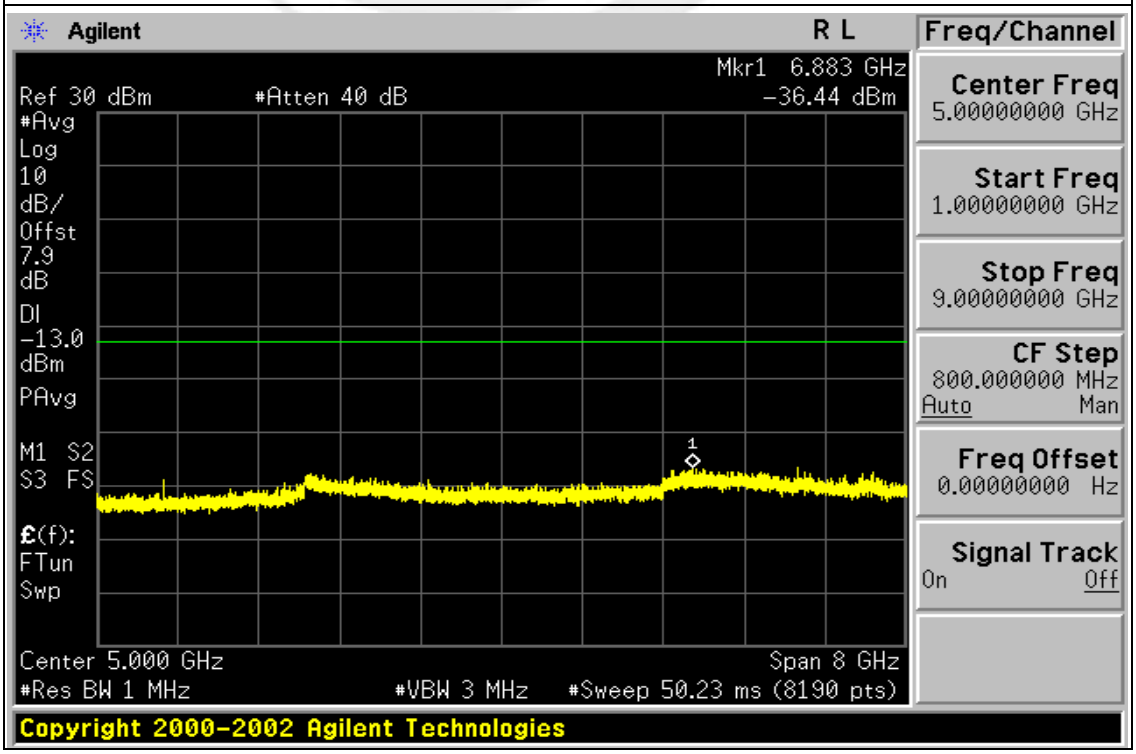
TEST PLOTS FOR CONDUCTED SPURIOUS EMISSION

For module B

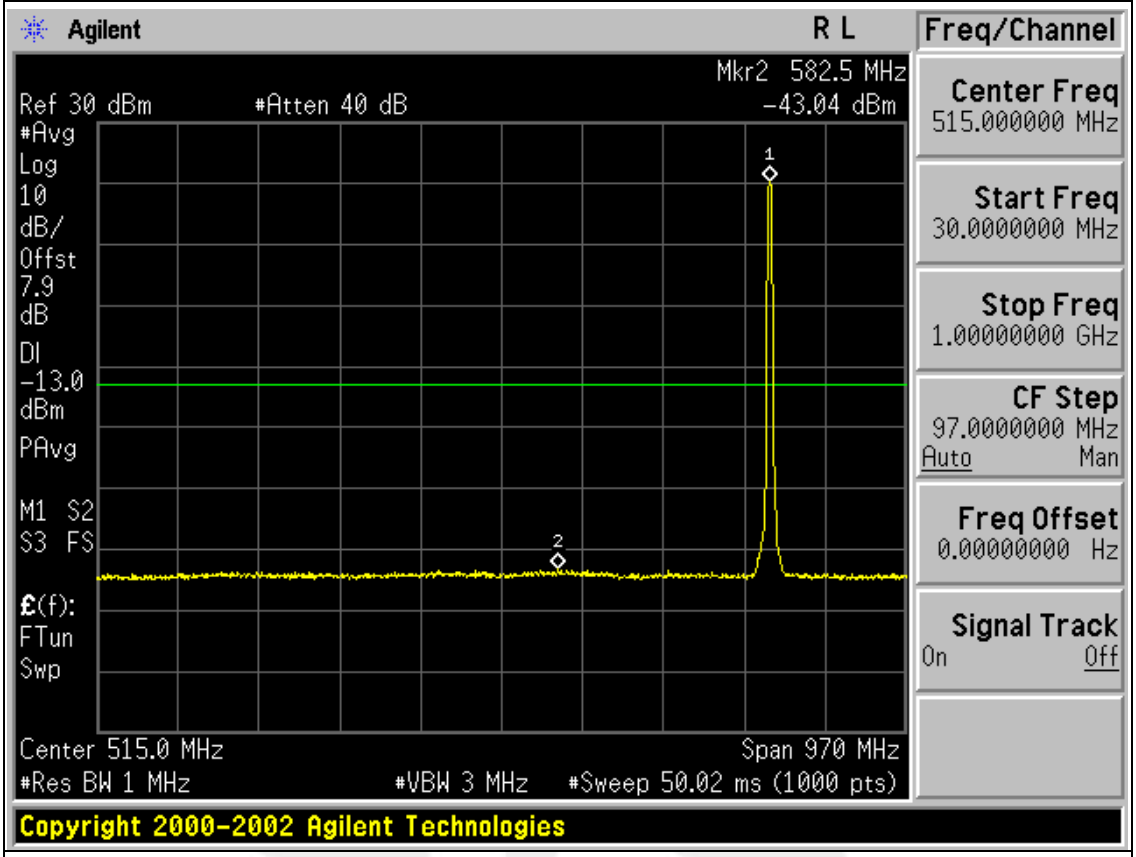
CONDUCTED EMISSION IN HSDPA band V

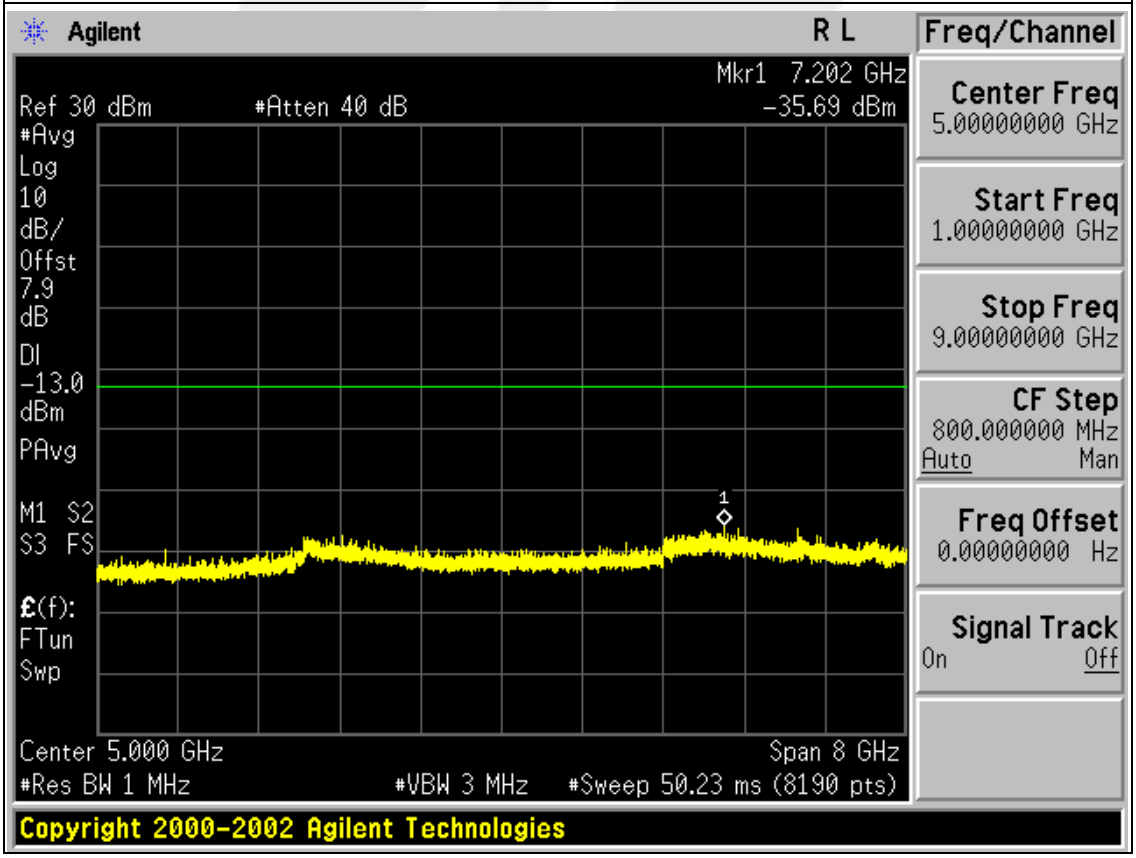
Conducted Emission Transmitting Mode 4358 30MHz – 9GHz



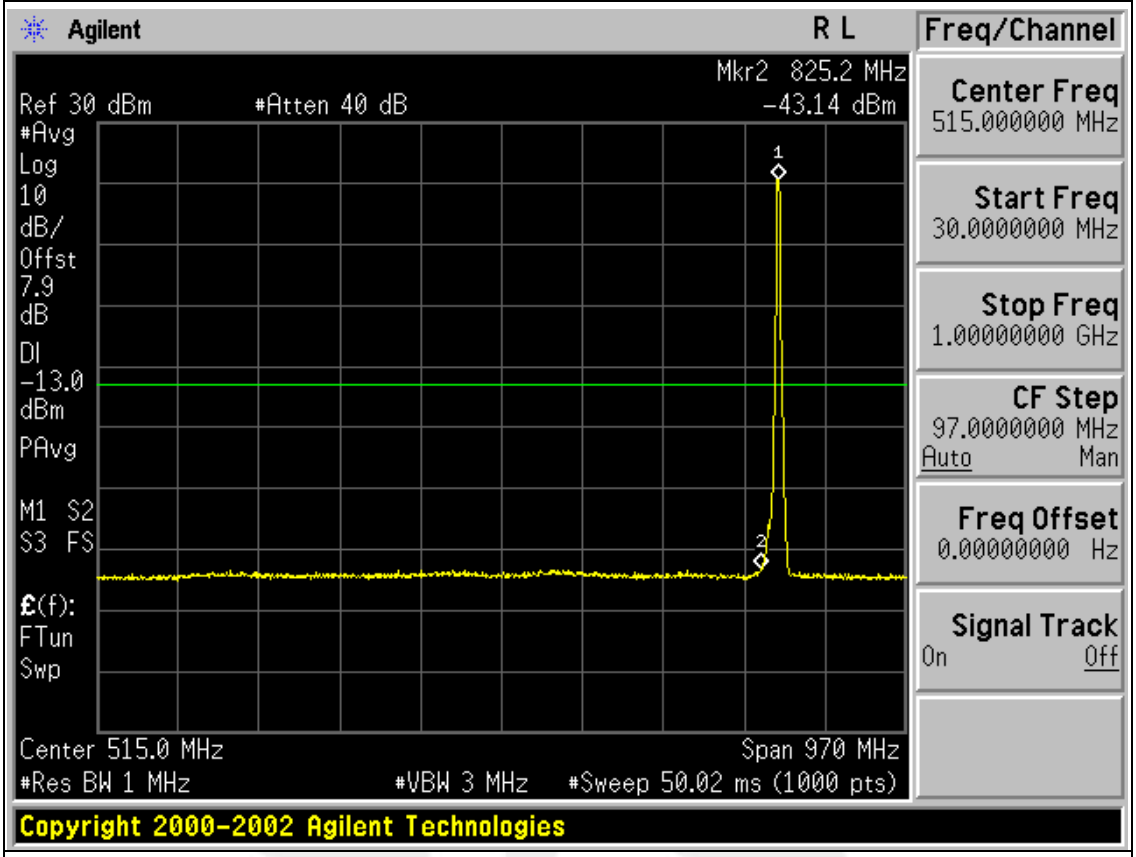


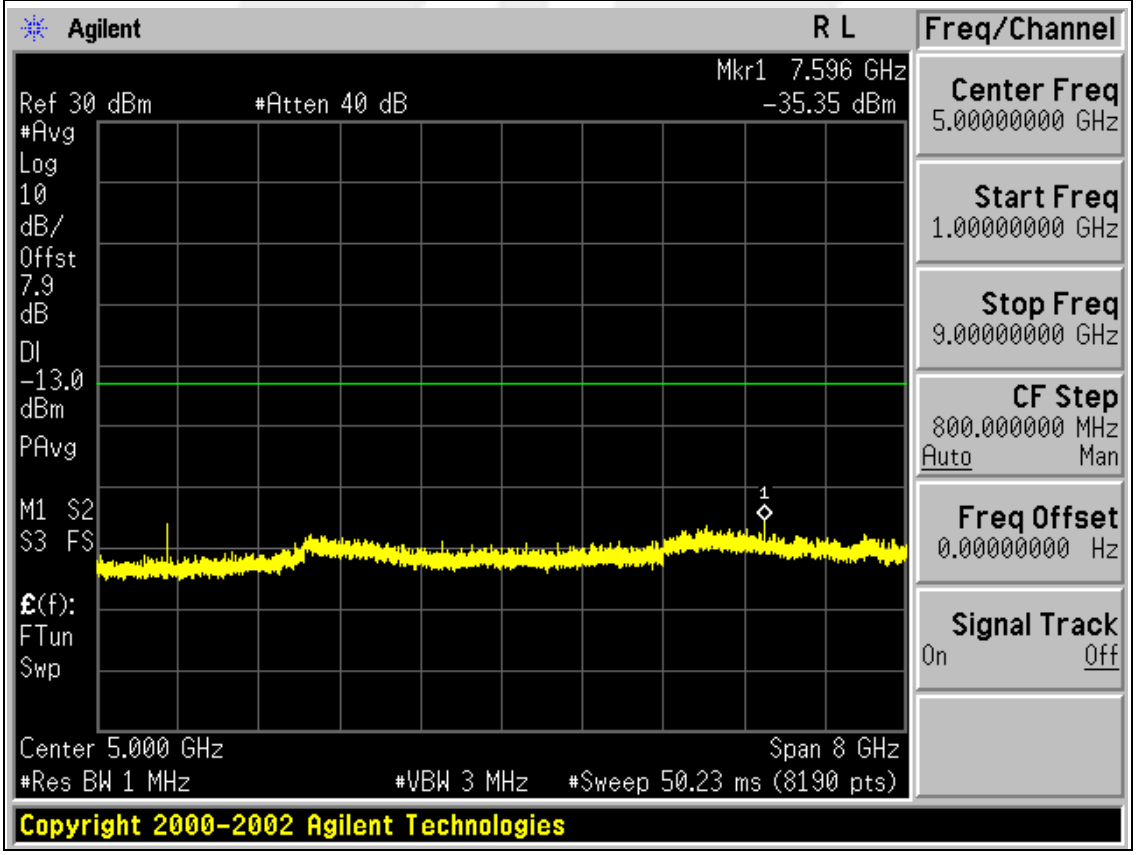
Conducted Emission Transmitting Mode CH 4407 30MHz – 9GHz





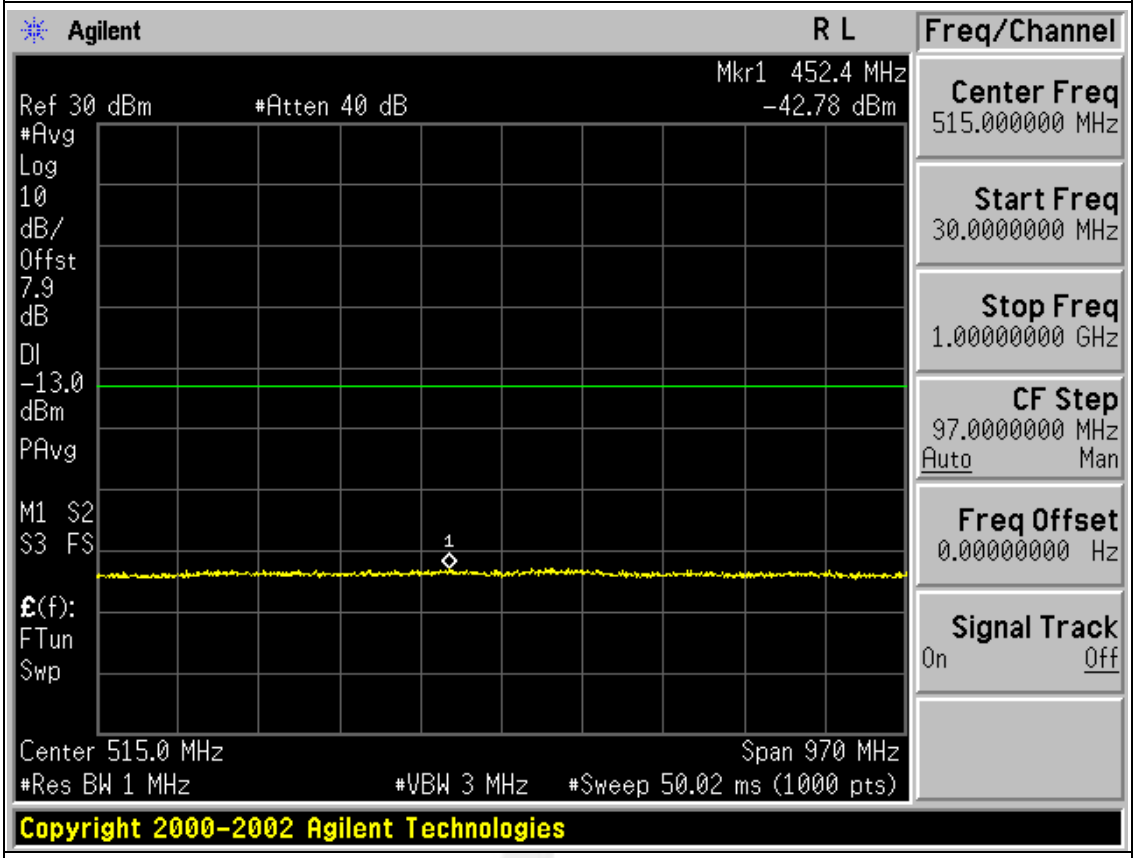
Conducted Emission Transmitting Mode CH 4457 30MHz – 9GHz

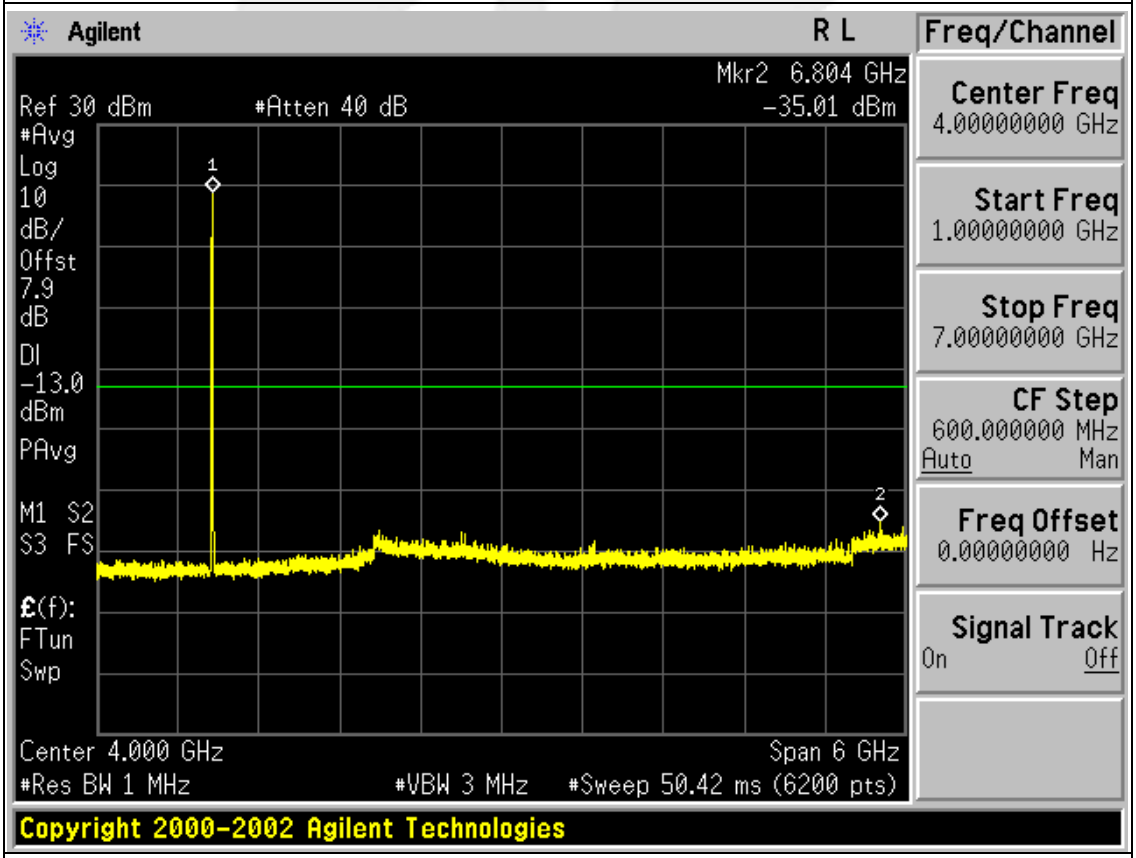


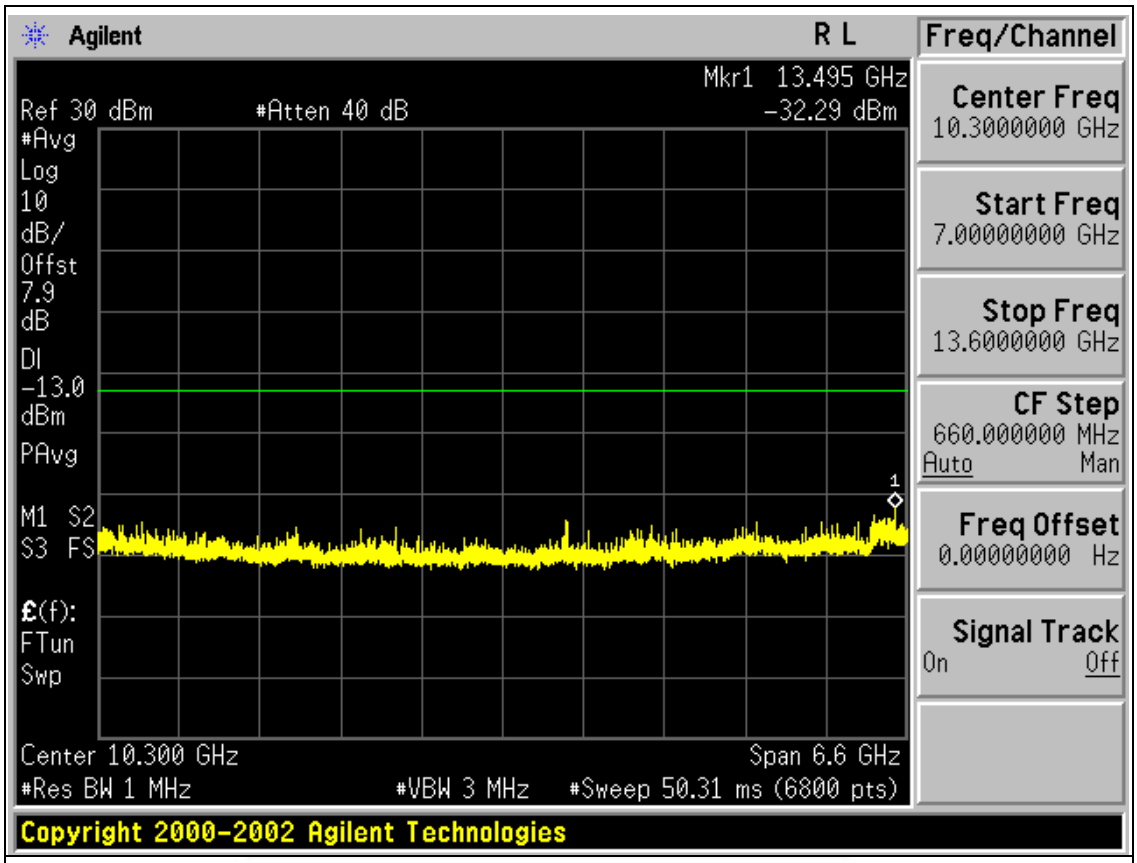


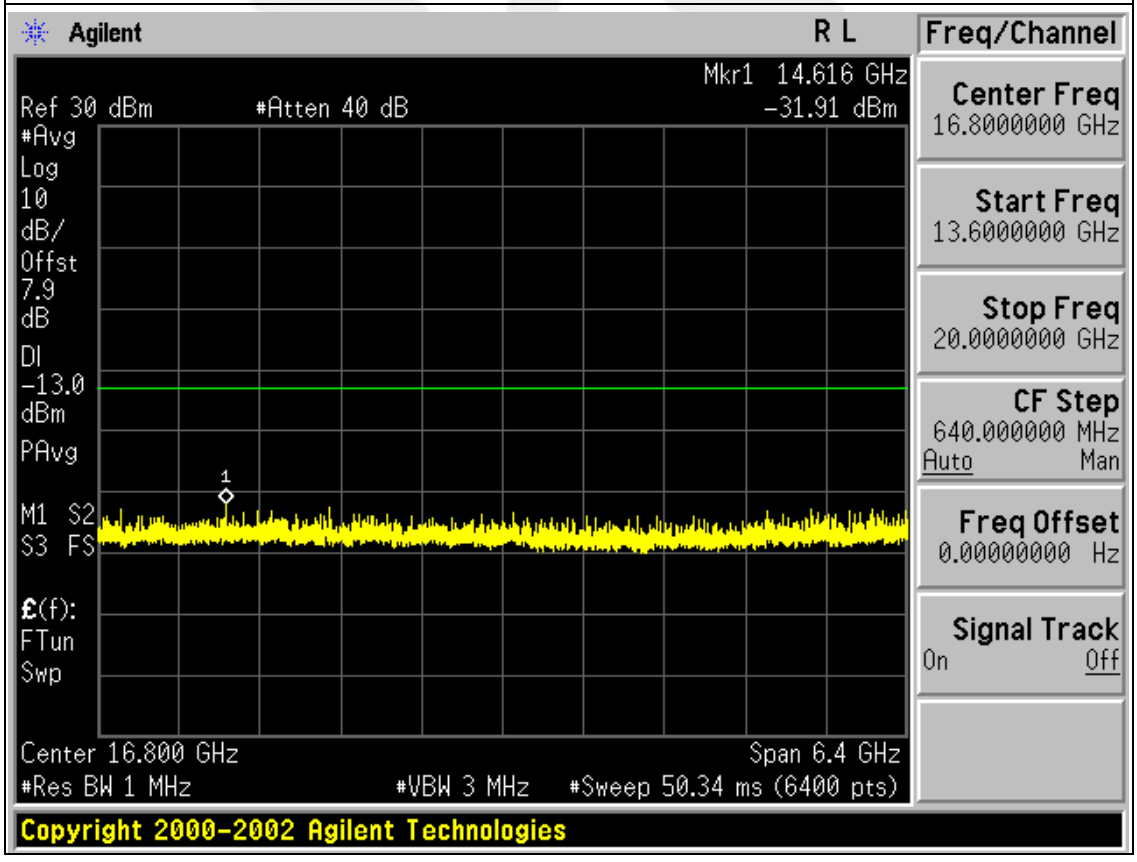
CONDUCTED EMISSION IN HSDPA band II

Conducted Emission Transmitting Mode 9663 30MHz – 20GHz






Agilent
R L
Freq/Channel
Mkr1 13.495 GHz
Ref 30 dBm
#Atten 40 dB
-32.29 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies


Agilent
R L
Freq/Channel
Mkr1 14.616 GHz
Ref 30 dBm
#Atten 40 dB
-31.91 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
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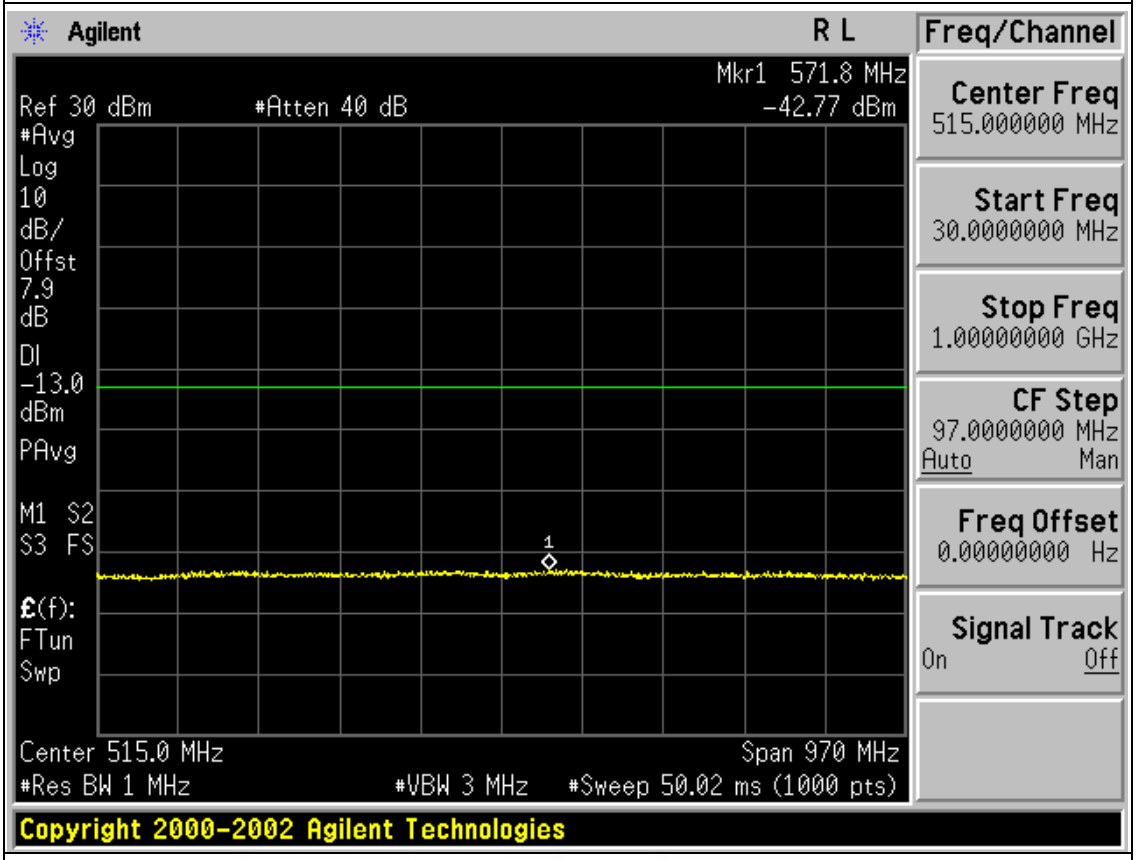
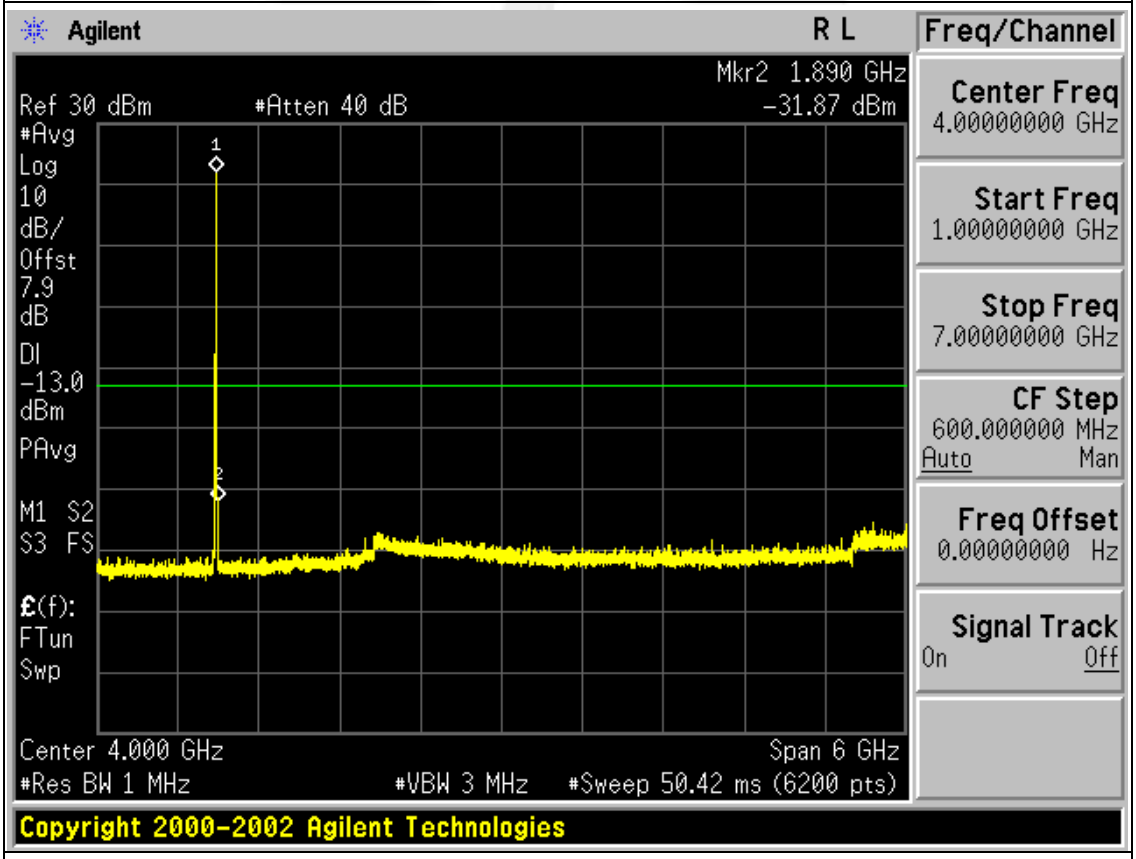
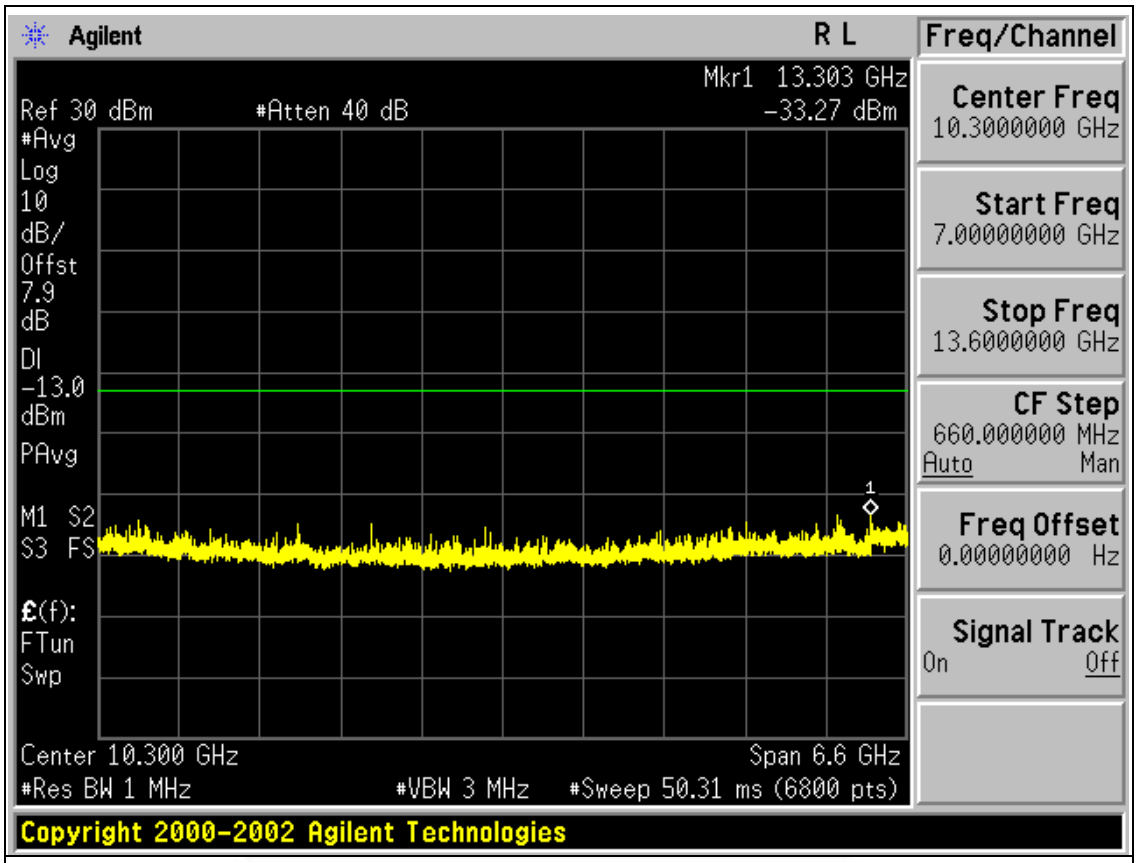
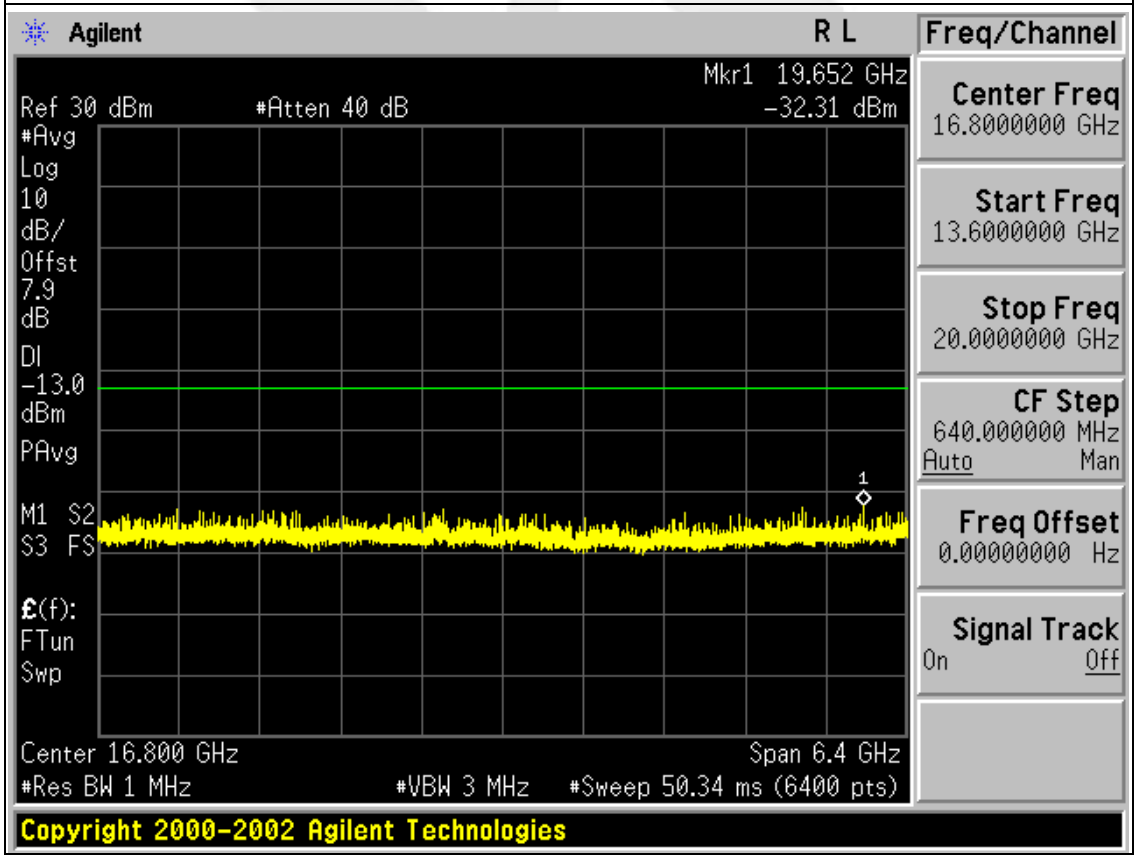
Conducted Emission Transmitting Mode CH 9800 30MHz – 20GHz






Agilent
R L
Freq/Channel
Mkr1 13.303 GHz
Ref 30 dBm
#Atten 40 dB
-33.27 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies


Agilent
R L
Freq/Channel
Mkr1 19.652 GHz
Ref 30 dBm
#Atten 40 dB
-32.31 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
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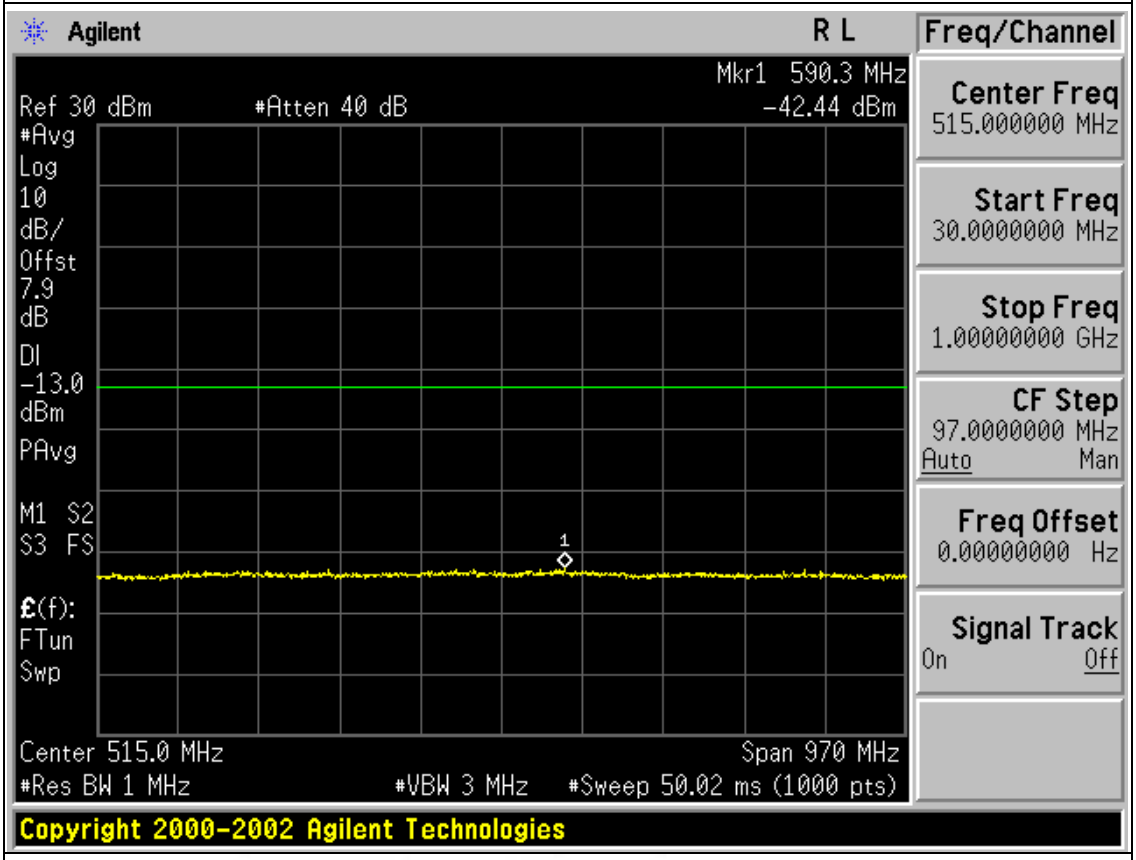
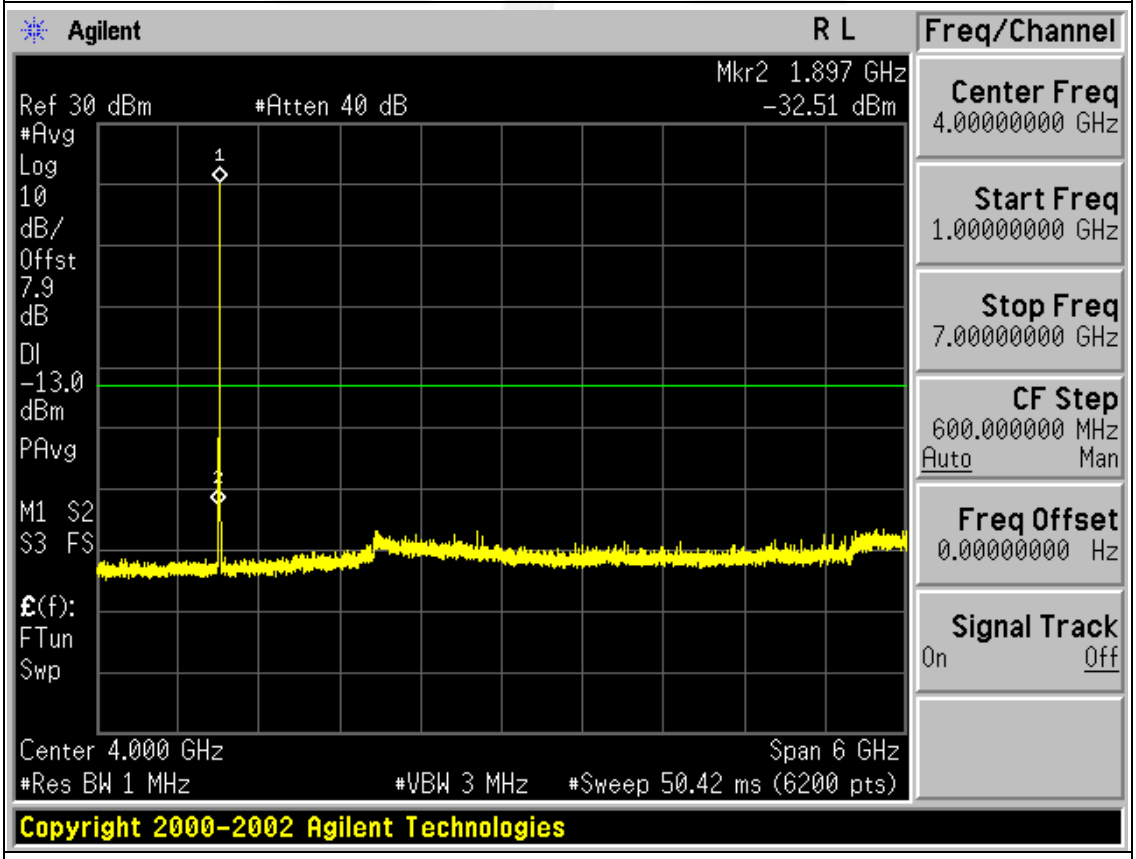
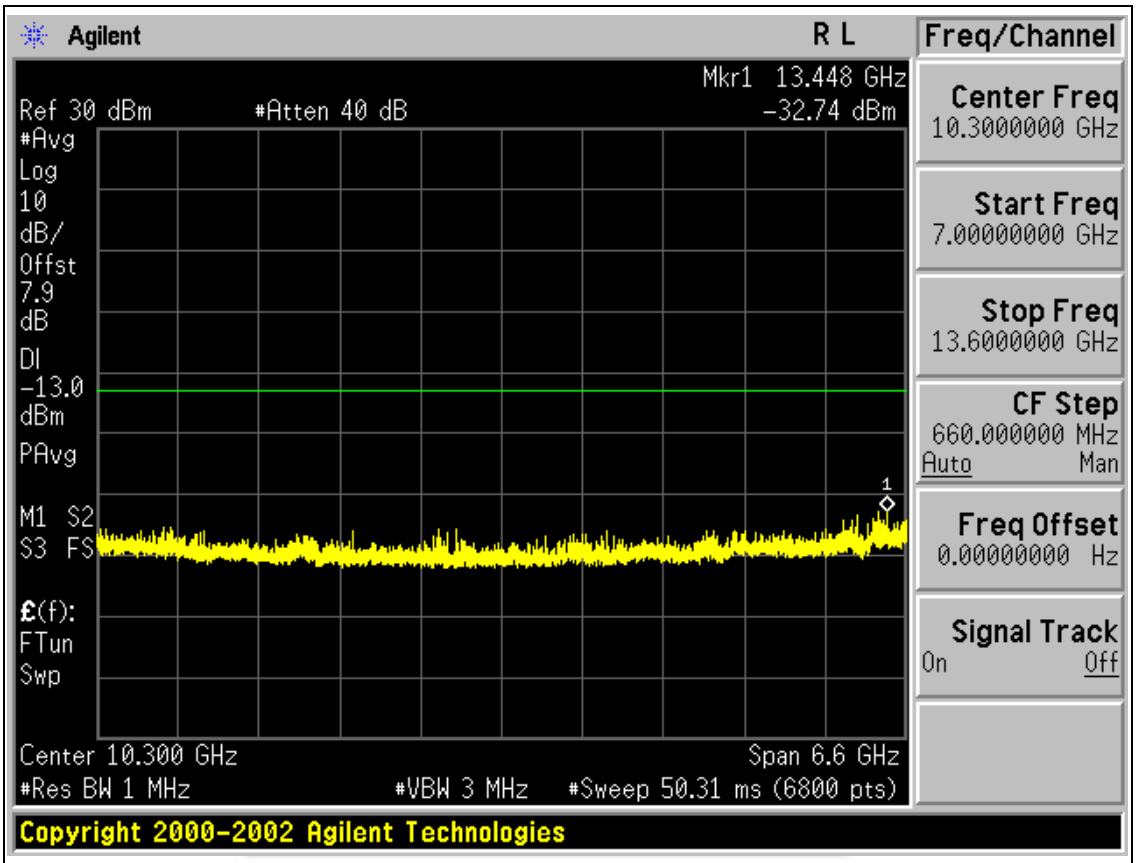
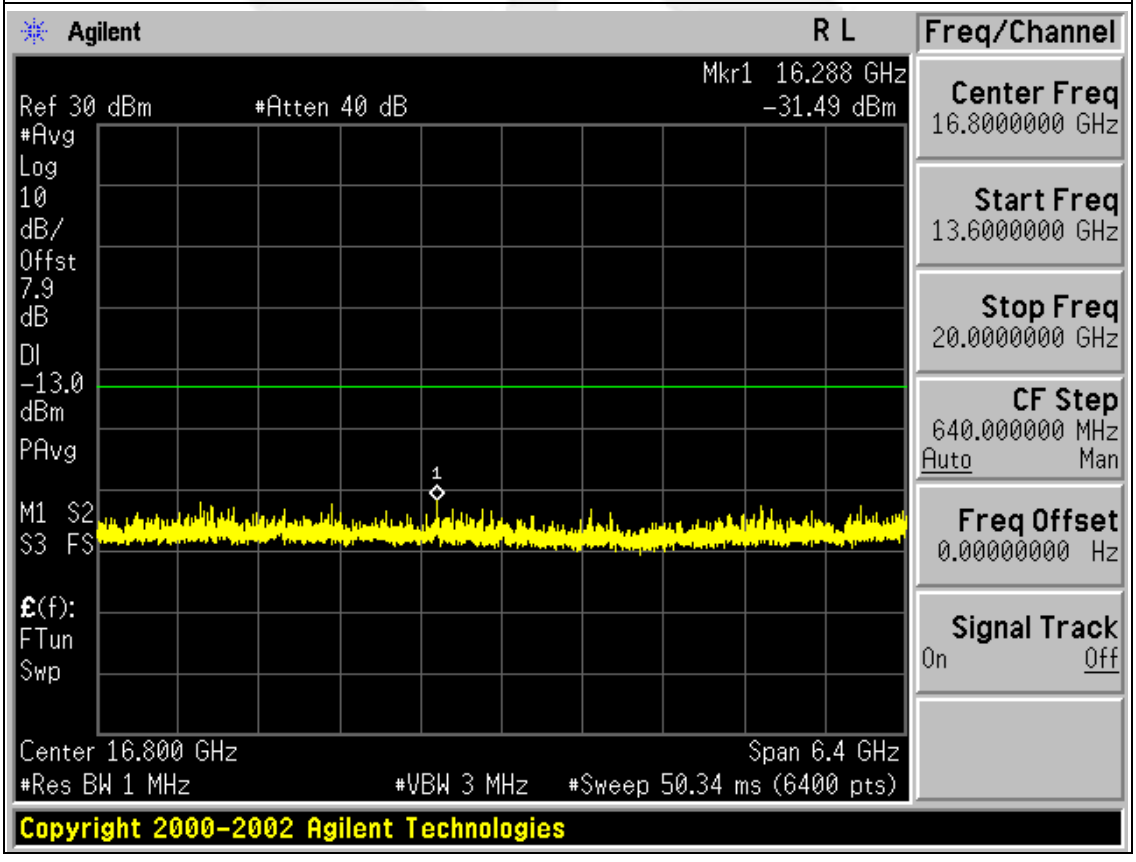
Conducted Emission Transmitting Mode CH 9937 30MHz – 20GHz






Agilent
R L
Freq/Channel
Mkr1 13.448 GHz
Ref 30 dBm
#Atten 40 dB
-32.74 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies


Agilent
R L
Freq/Channel
Mkr1 16.288 GHz
Ref 30 dBm
#Atten 40 dB
-31.49 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
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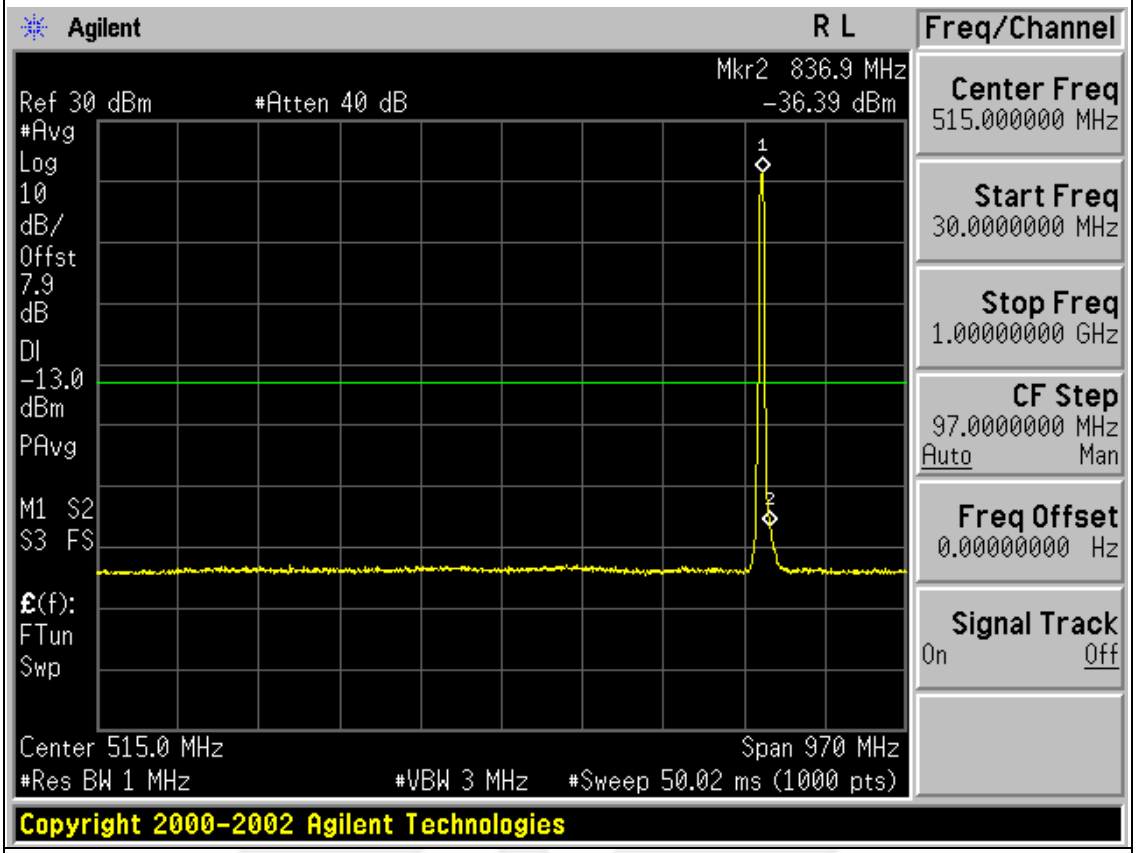
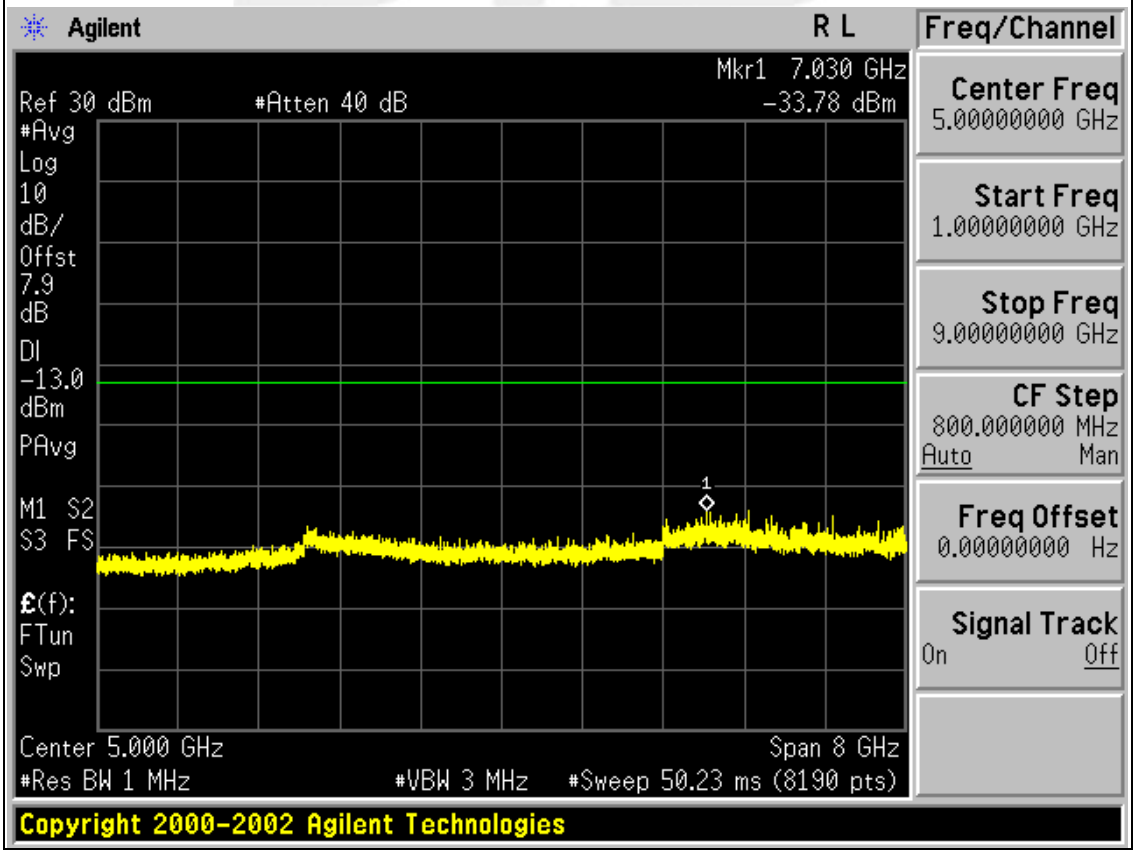
For module A

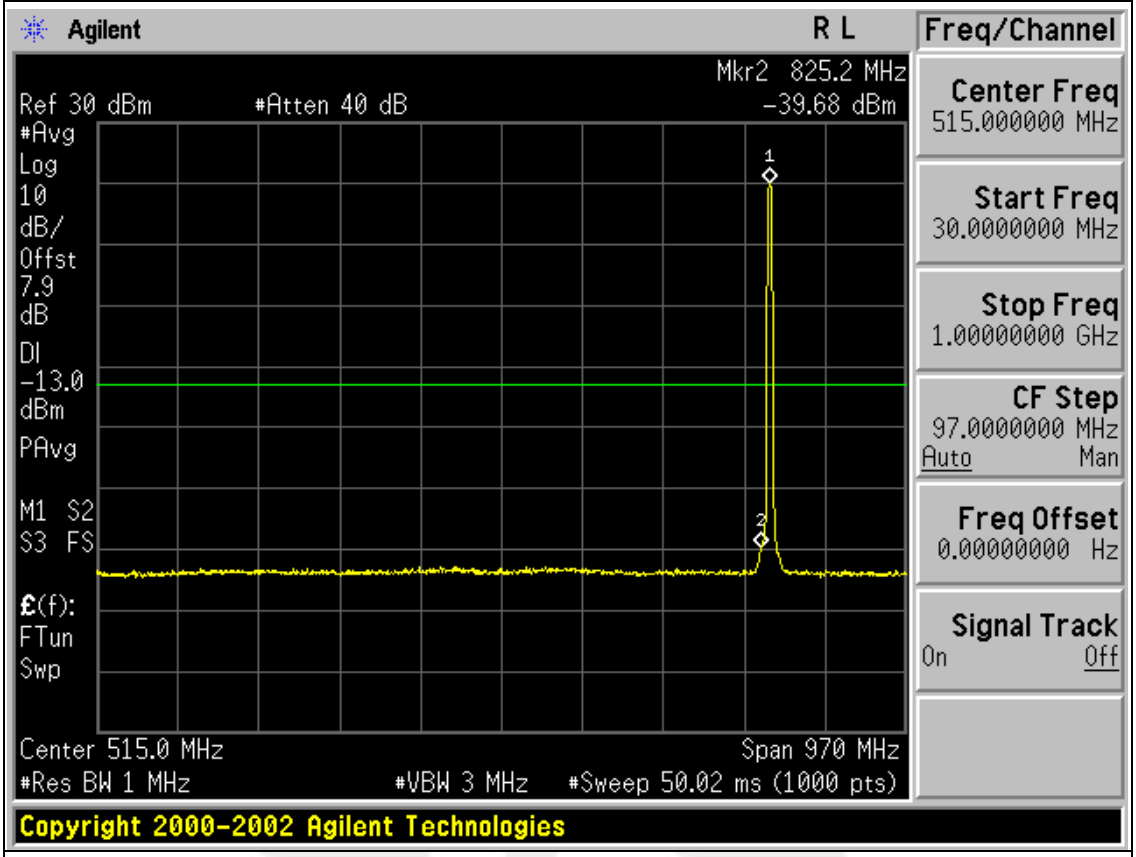
CONDUCTED EMISSION IN HSDPA band V

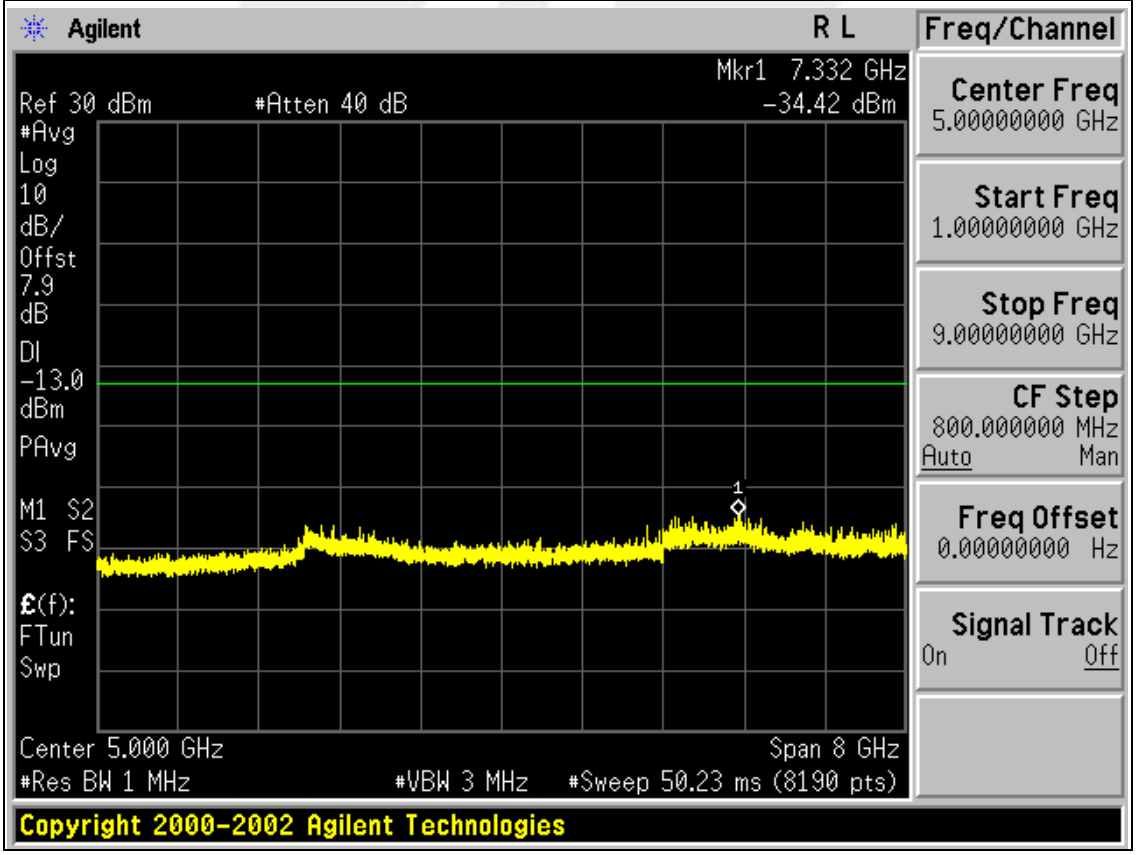
Conducted Emission Transmitting Mode 4358 30MHz – 9GHz



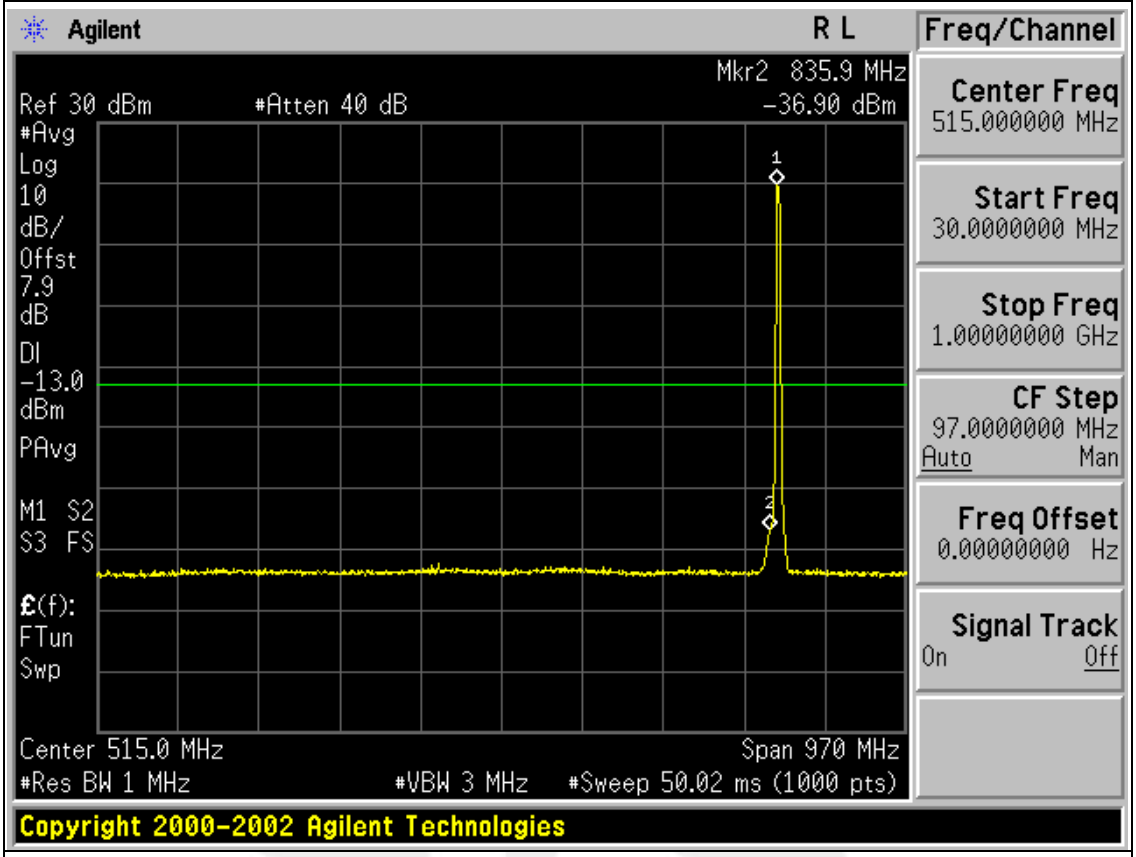


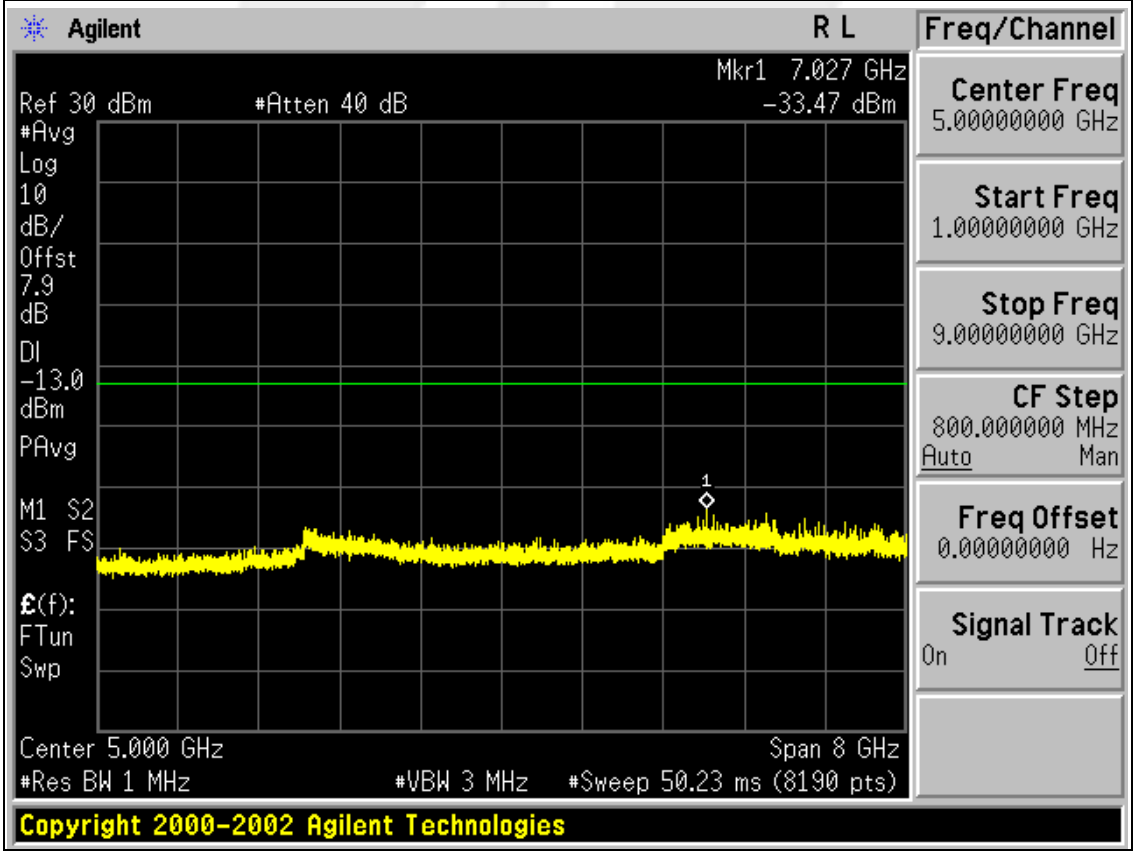
Conducted Emission Transmitting Mode CH 4407 30MHz – 9GHz





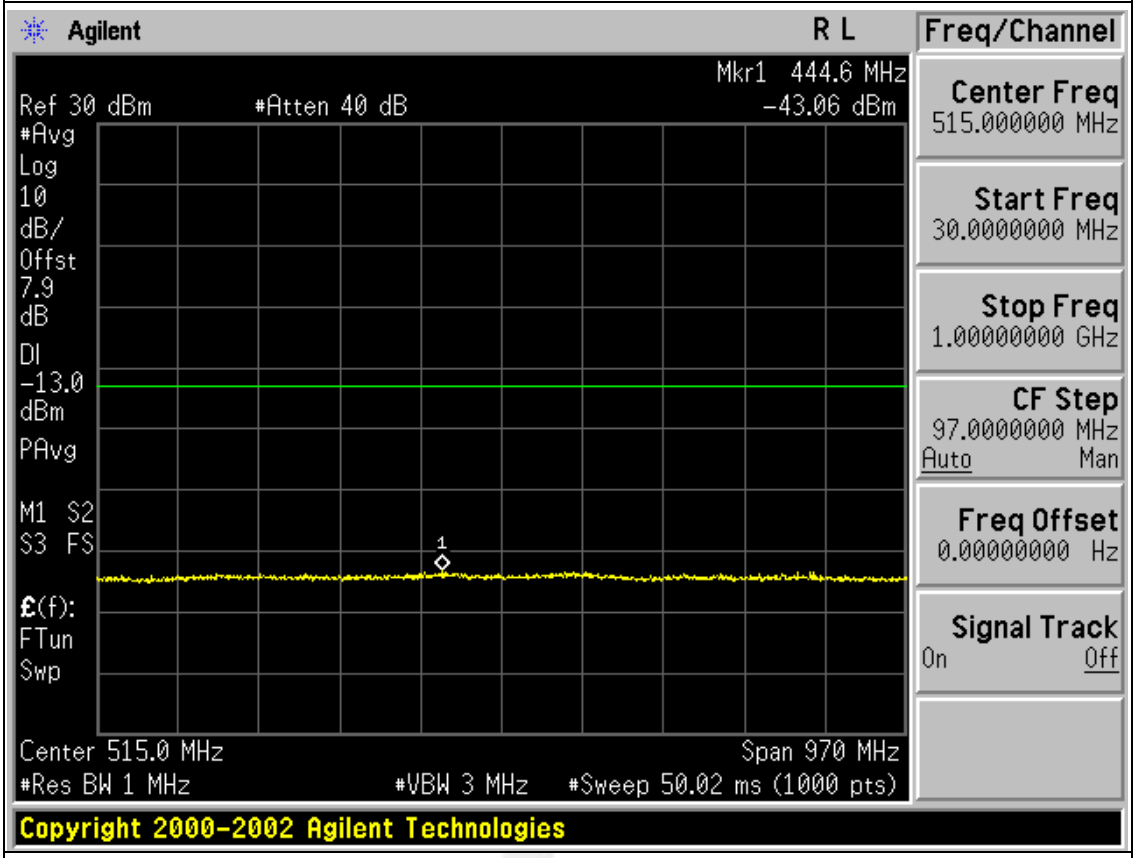
Conducted Emission Transmitting Mode CH 4457 30MHz – 9GHz

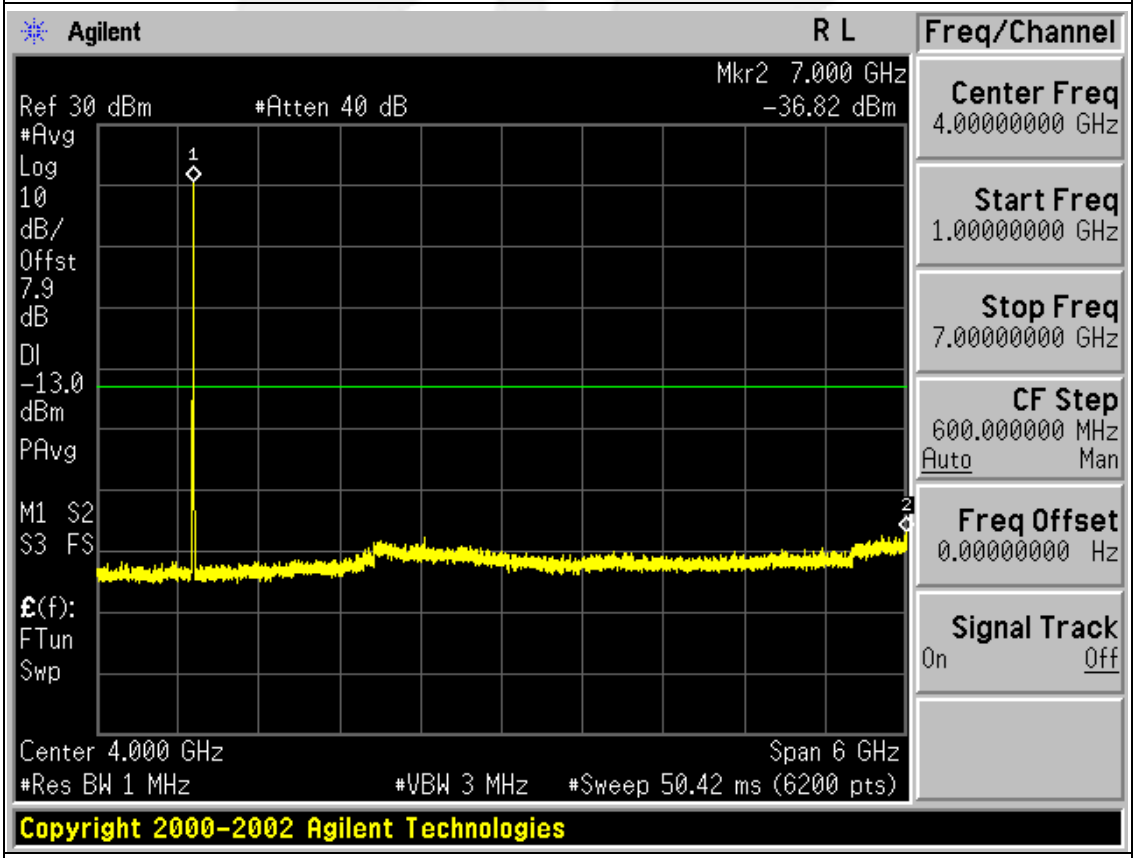


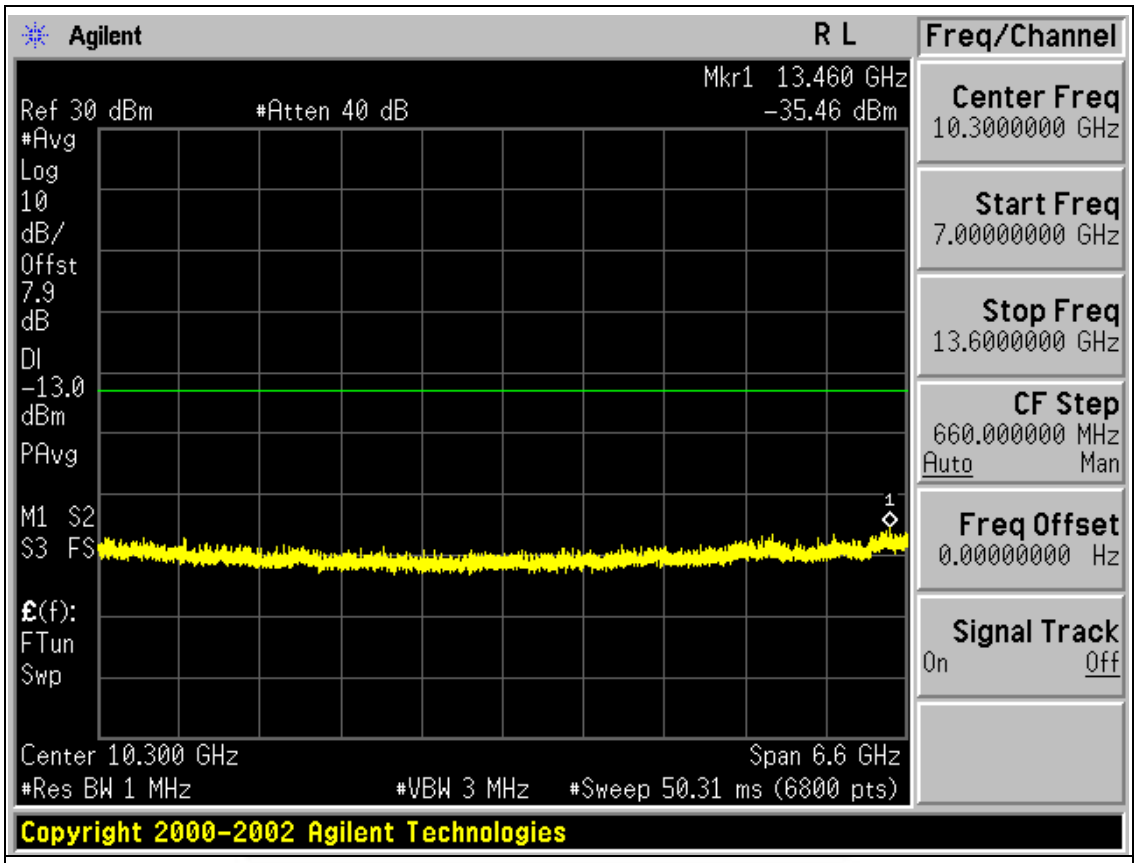


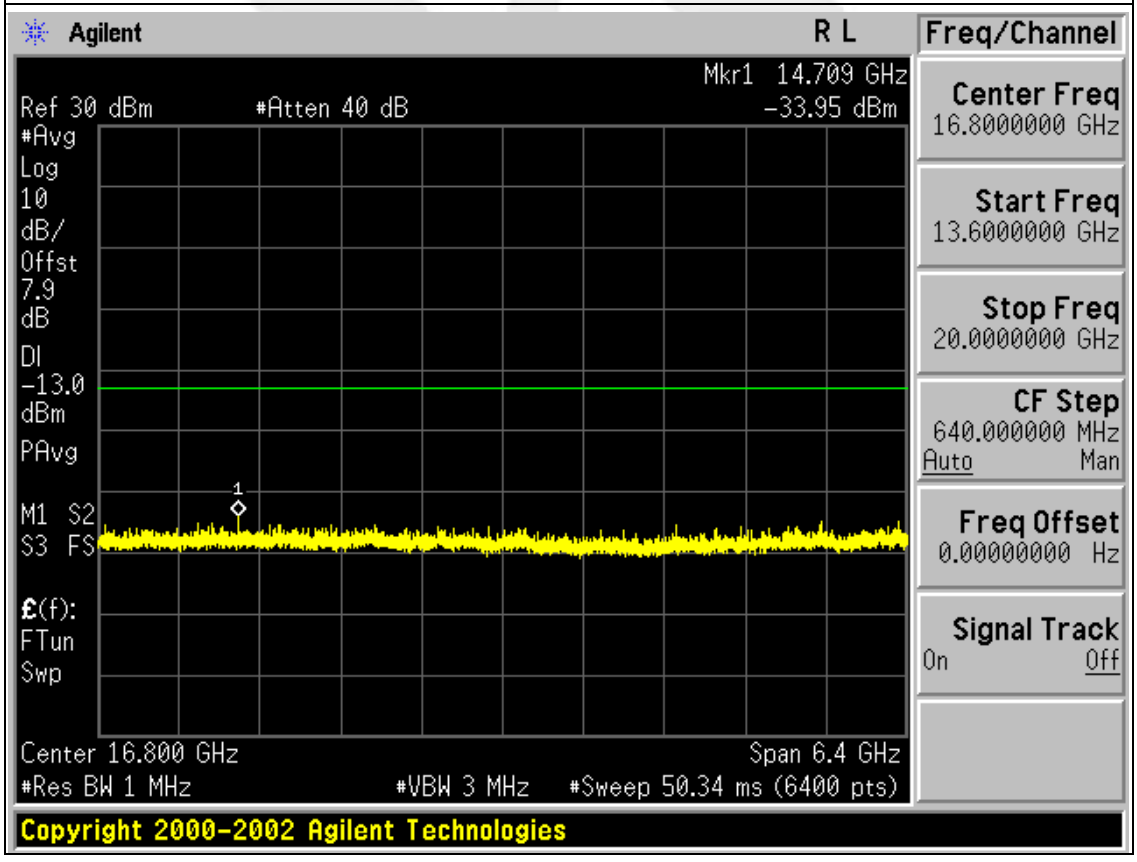
CONDUCTED EMISSION IN HSDPA band IV

Conducted Emission Transmitting Mode 1887 30MHz – 20GHz

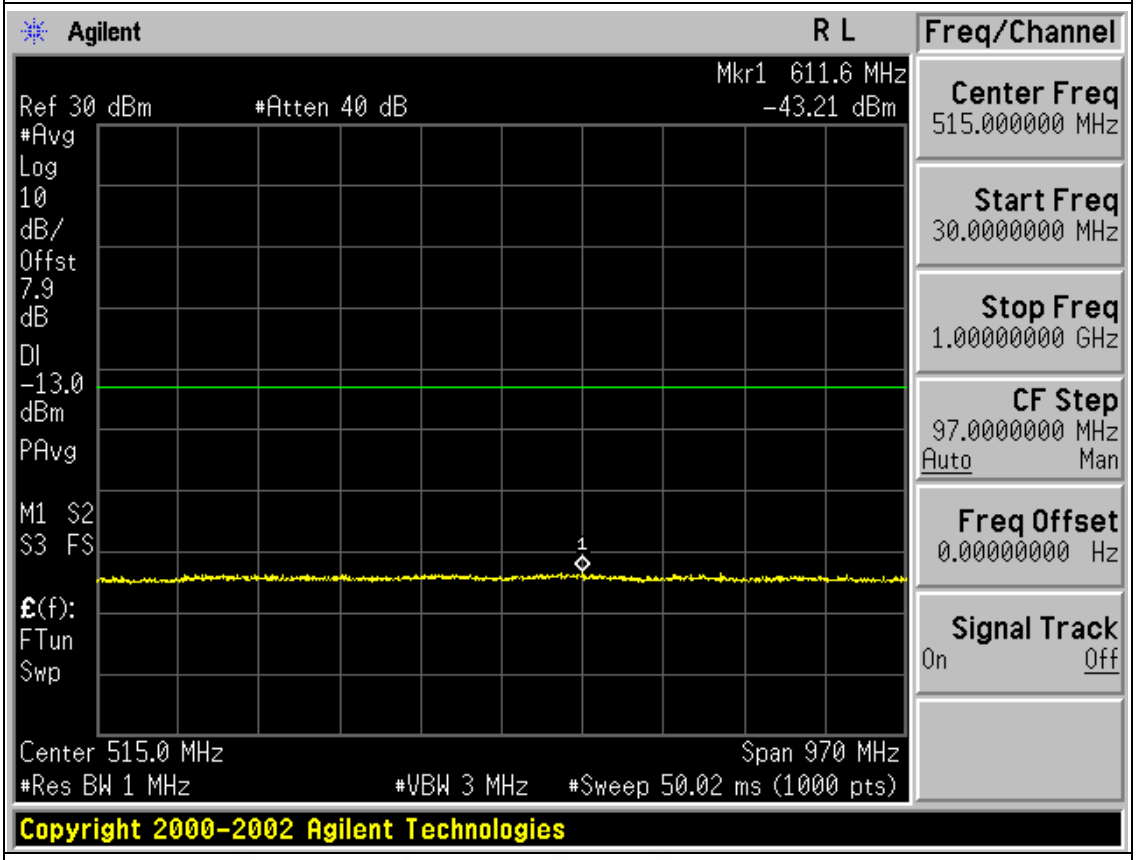


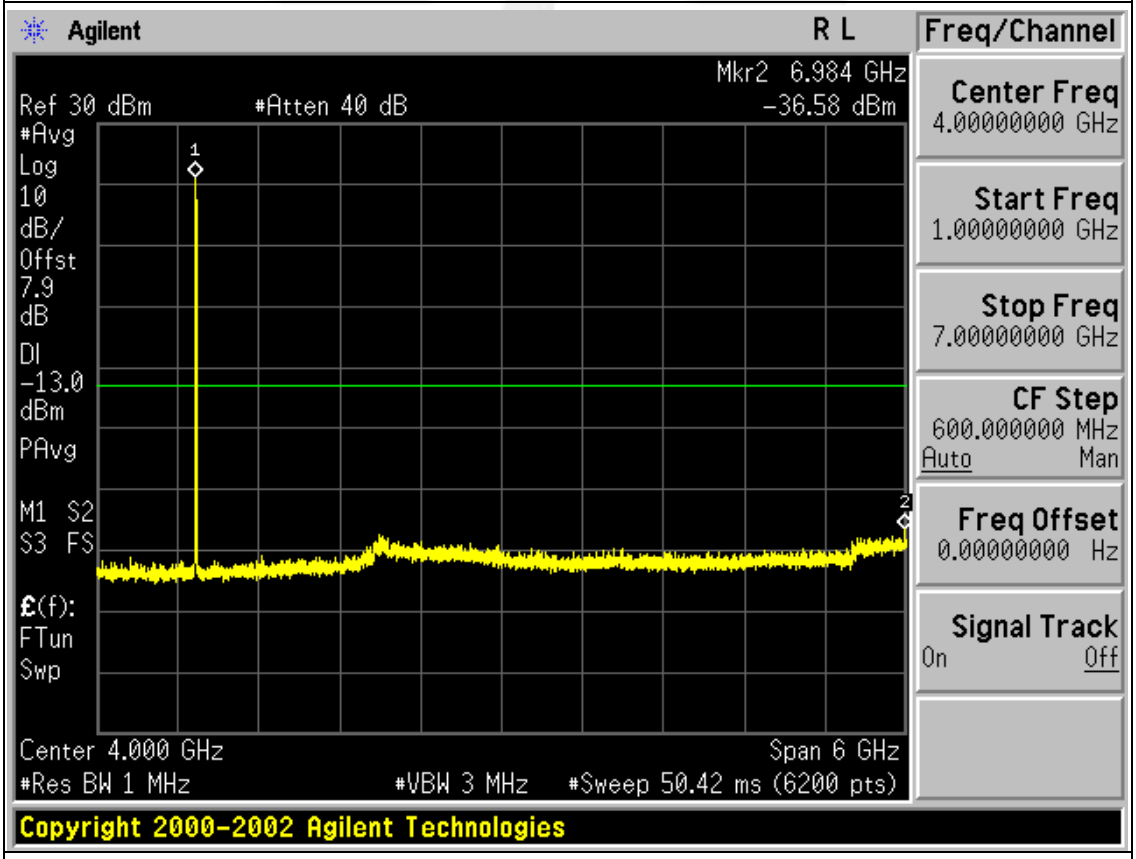


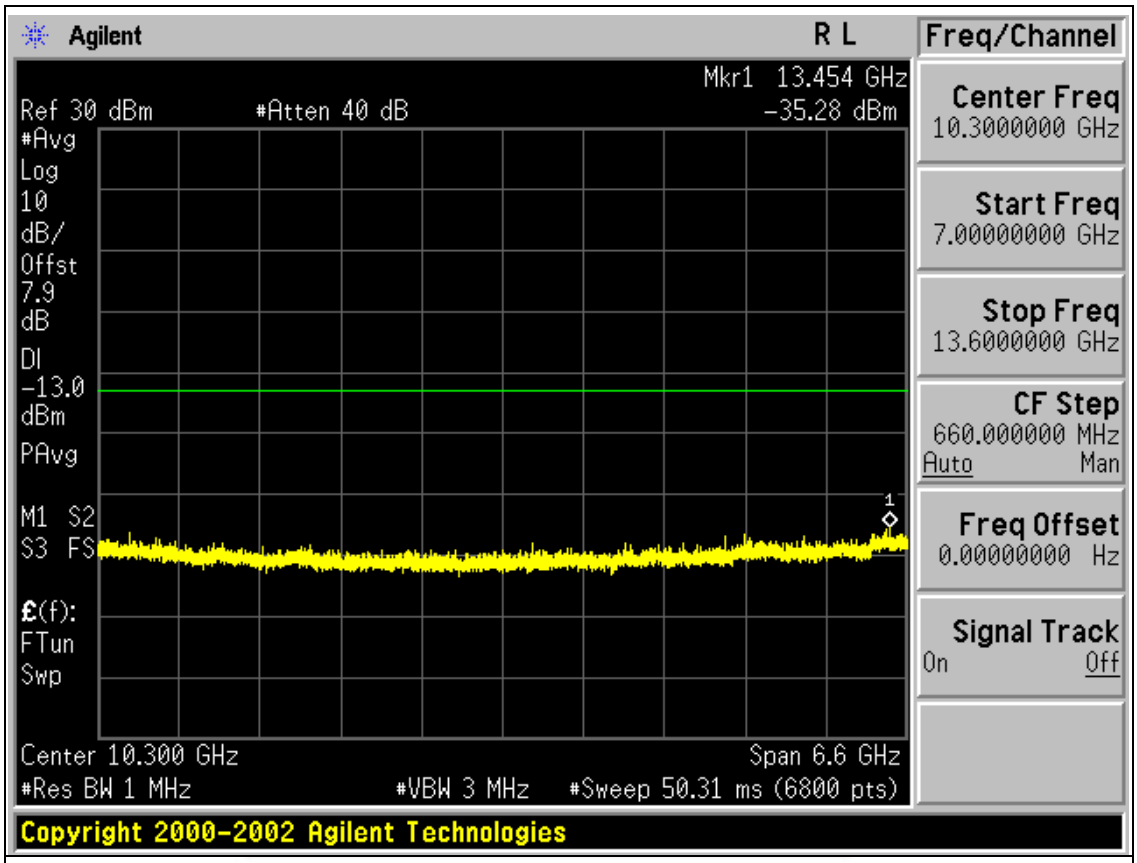

Agilent
R L
Freq/Channel
Mkr1 13.460 GHz
Ref 30 dBm
#Atten 40 dB
-35.46 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies

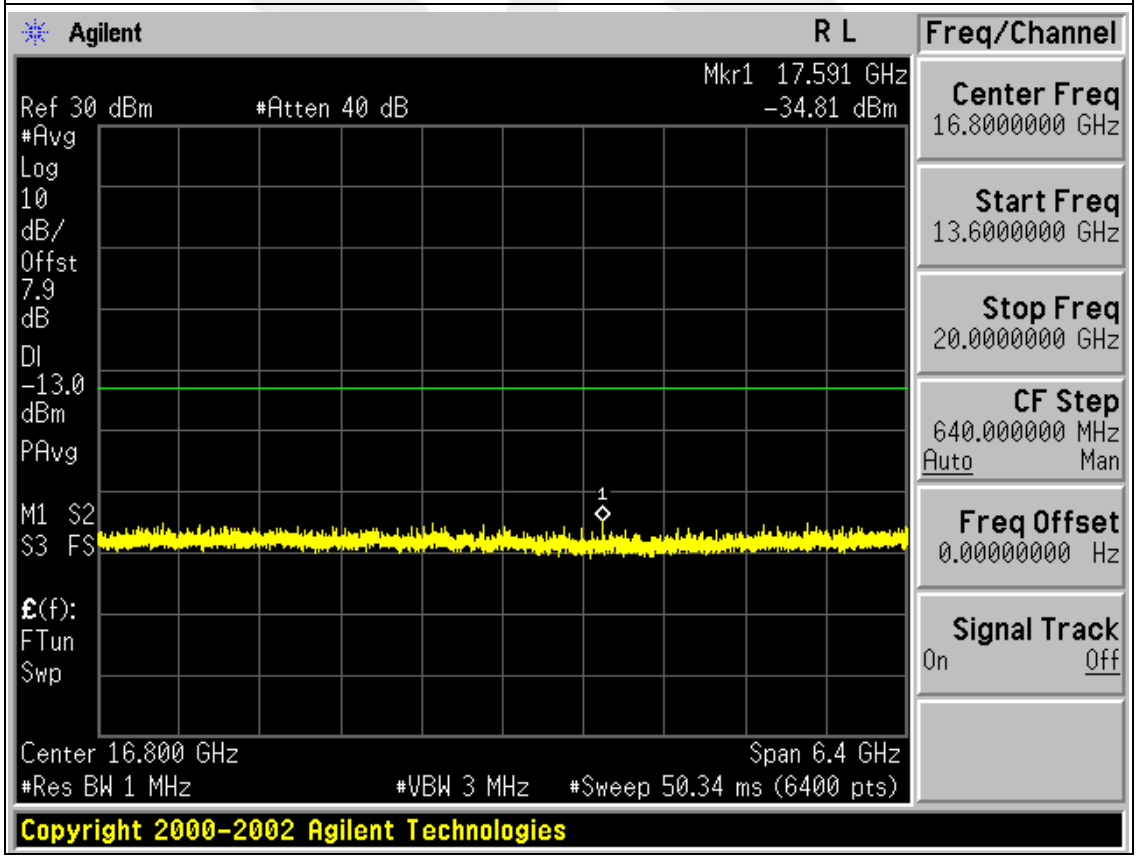

Agilent
R L
Freq/Channel
Mkr1 14.709 GHz
Ref 30 dBm
#Atten 40 dB
-33.95 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
Copyright 2000-2002 Agilent Technologies

Conducted Emission Transmitting Mode CH 1987 30MHz – 20GHz






Agilent
R L
Freq/Channel
Mkr1 13.454 GHz
Ref 30 dBm
#Atten 40 dB
-35.28 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies


Agilent
R L
Freq/Channel
Mkr1 17.591 GHz
Ref 30 dBm
#Atten 40 dB
-34.81 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
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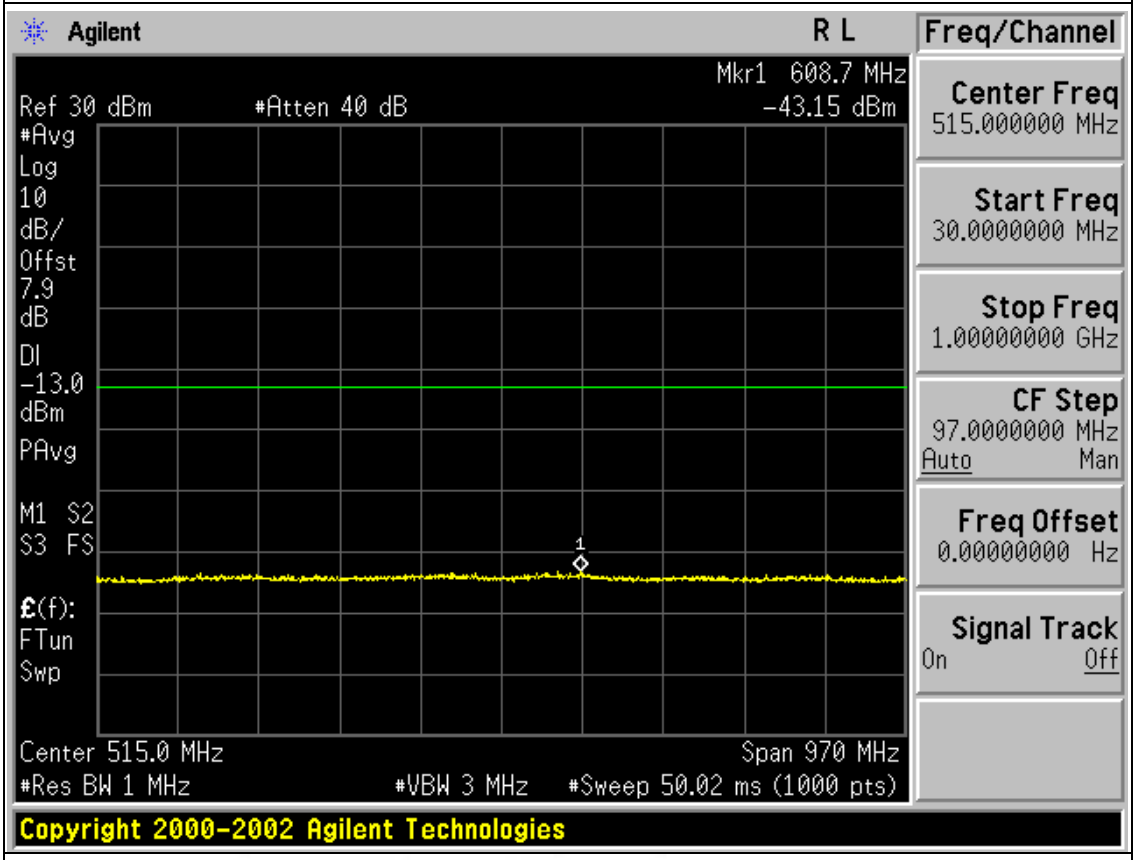
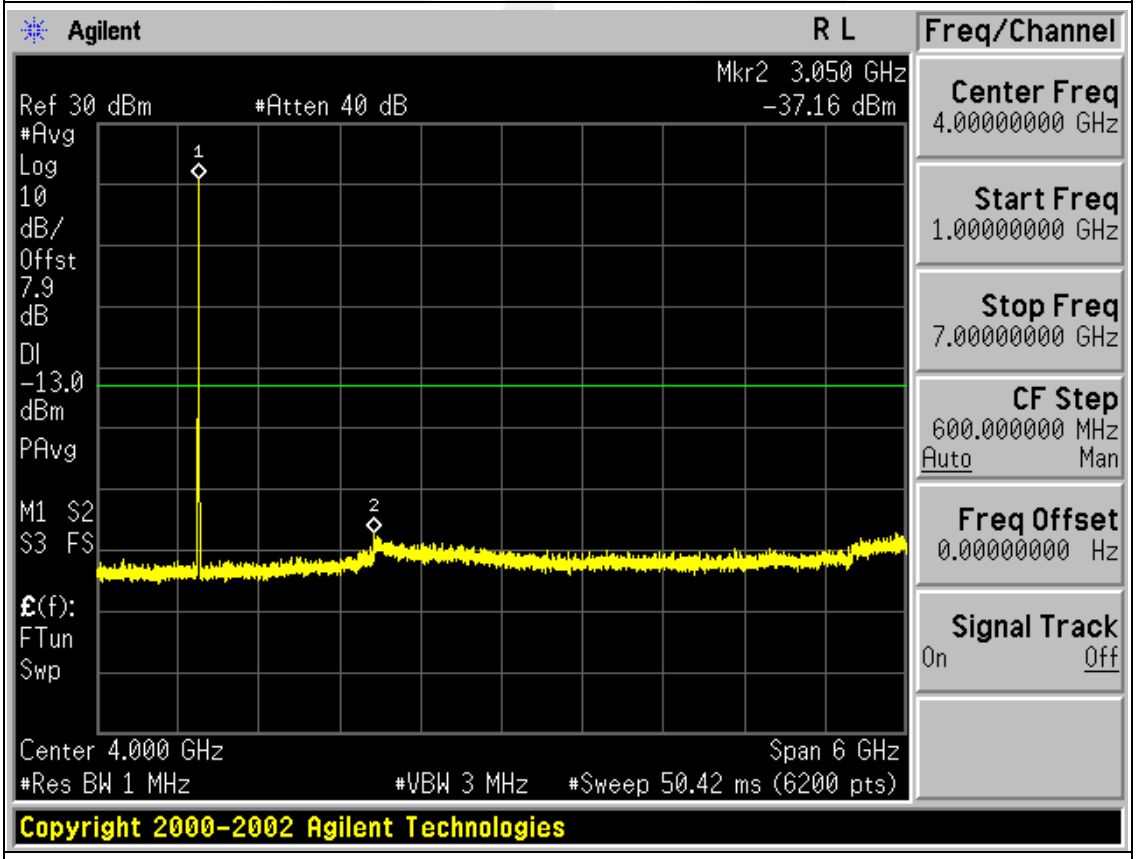
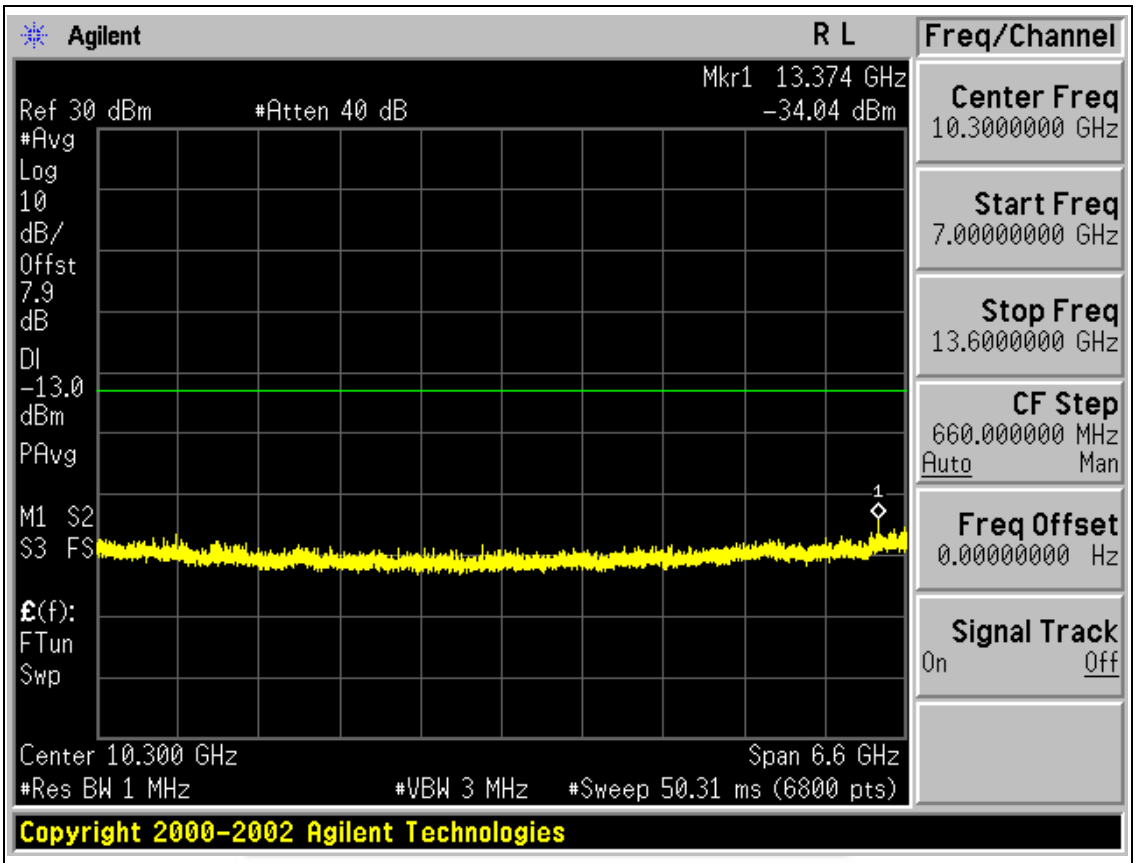
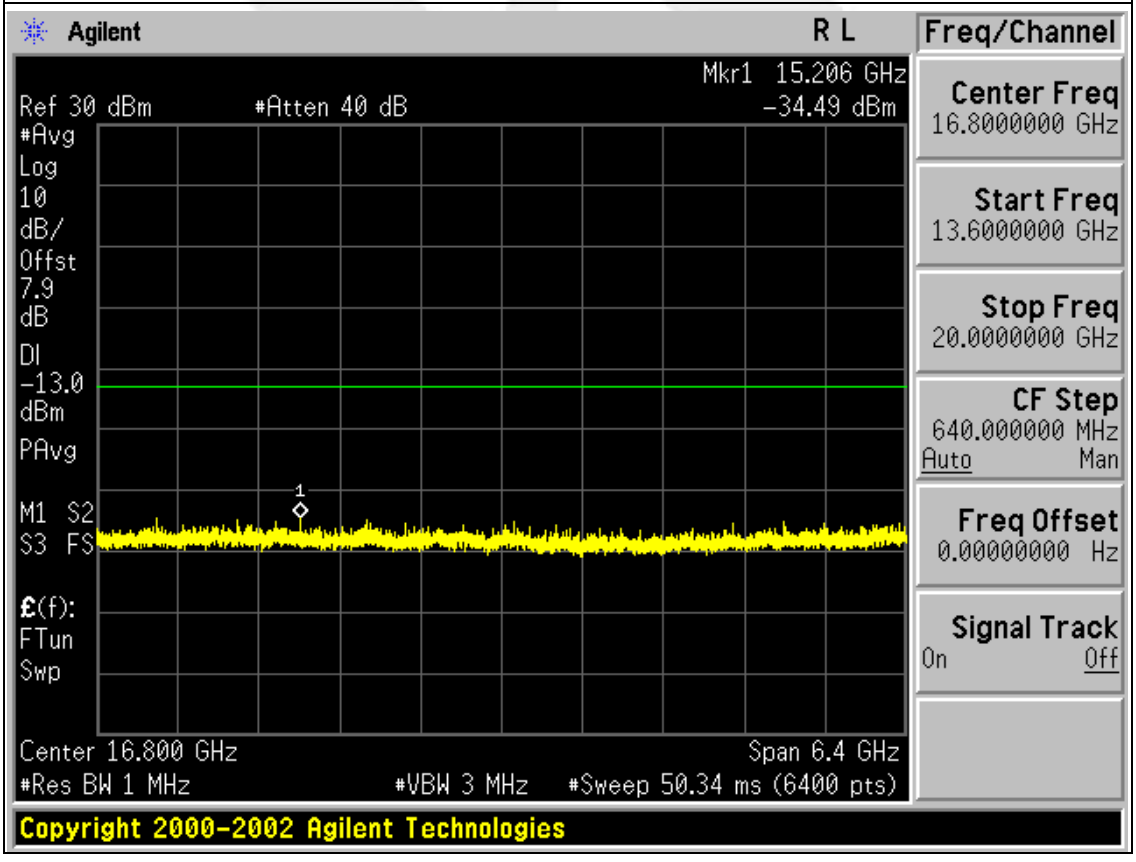
Conducted Emission Transmitting Mode CH 2087 30MHz – 20GHz






Agilent
R L
Freq/Channel
Mkr1 13.374 GHz
Ref 30 dBm
#Atten 40 dB
-34.04 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies


Agilent
R L
Freq/Channel
Mkr1 15.206 GHz
Ref 30 dBm
#Atten 40 dB
-34.49 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
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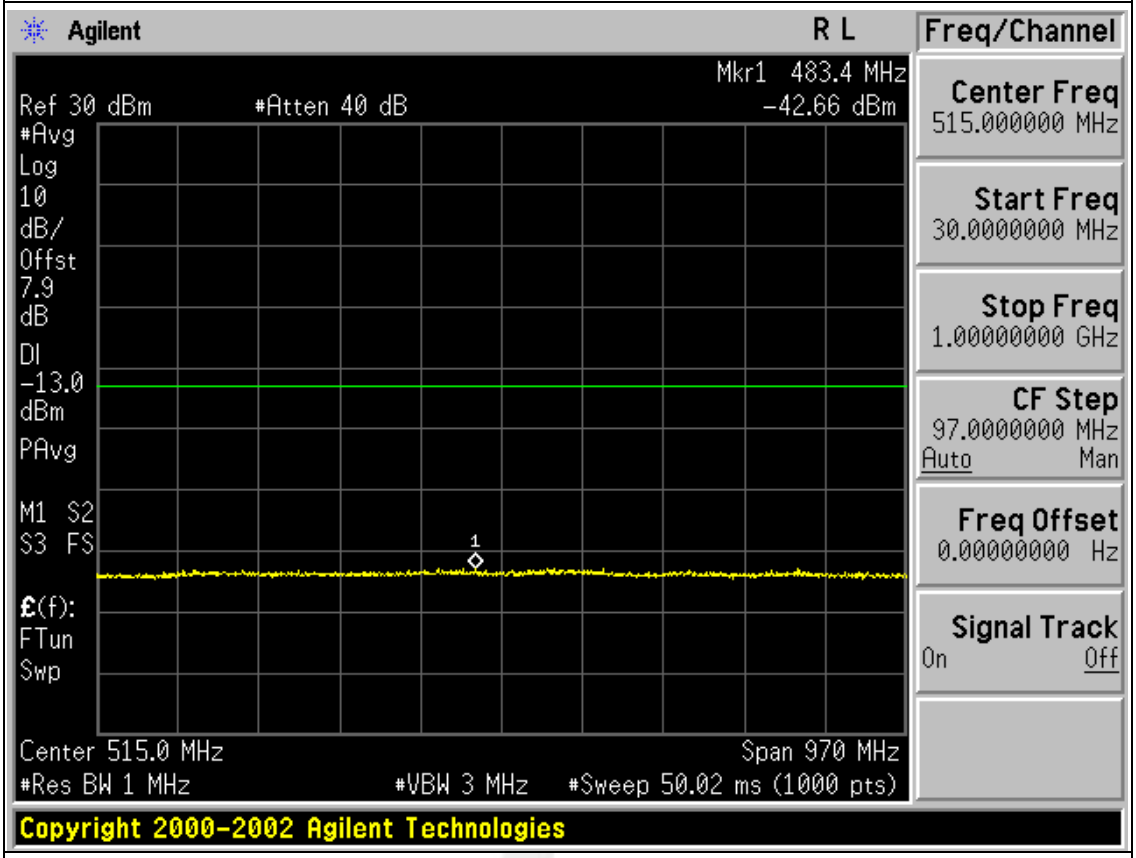
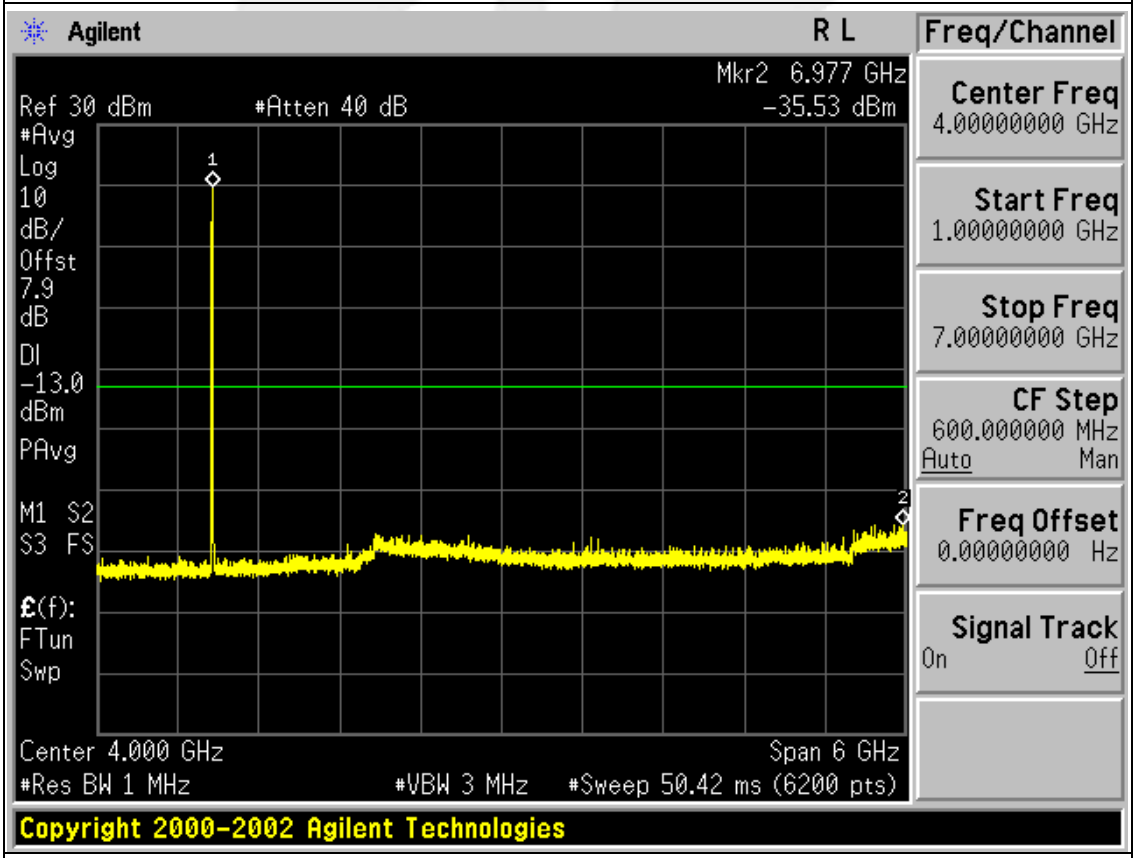
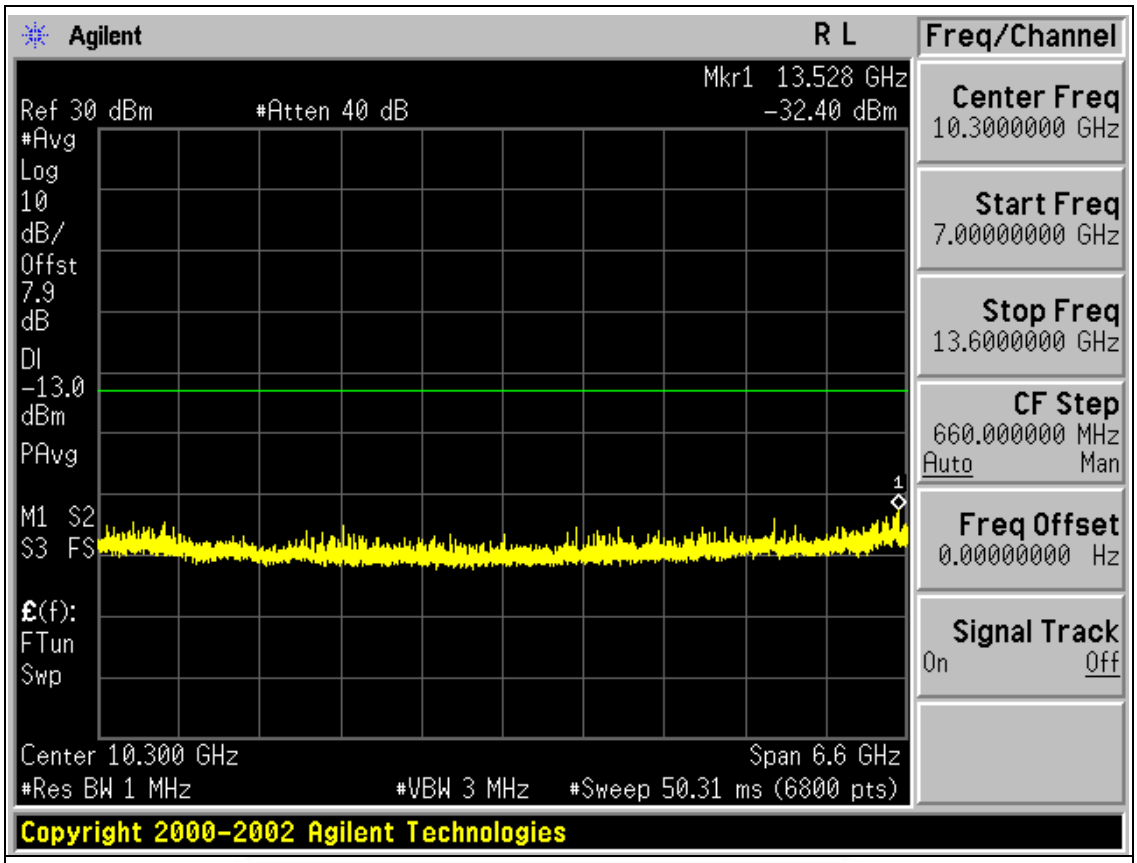
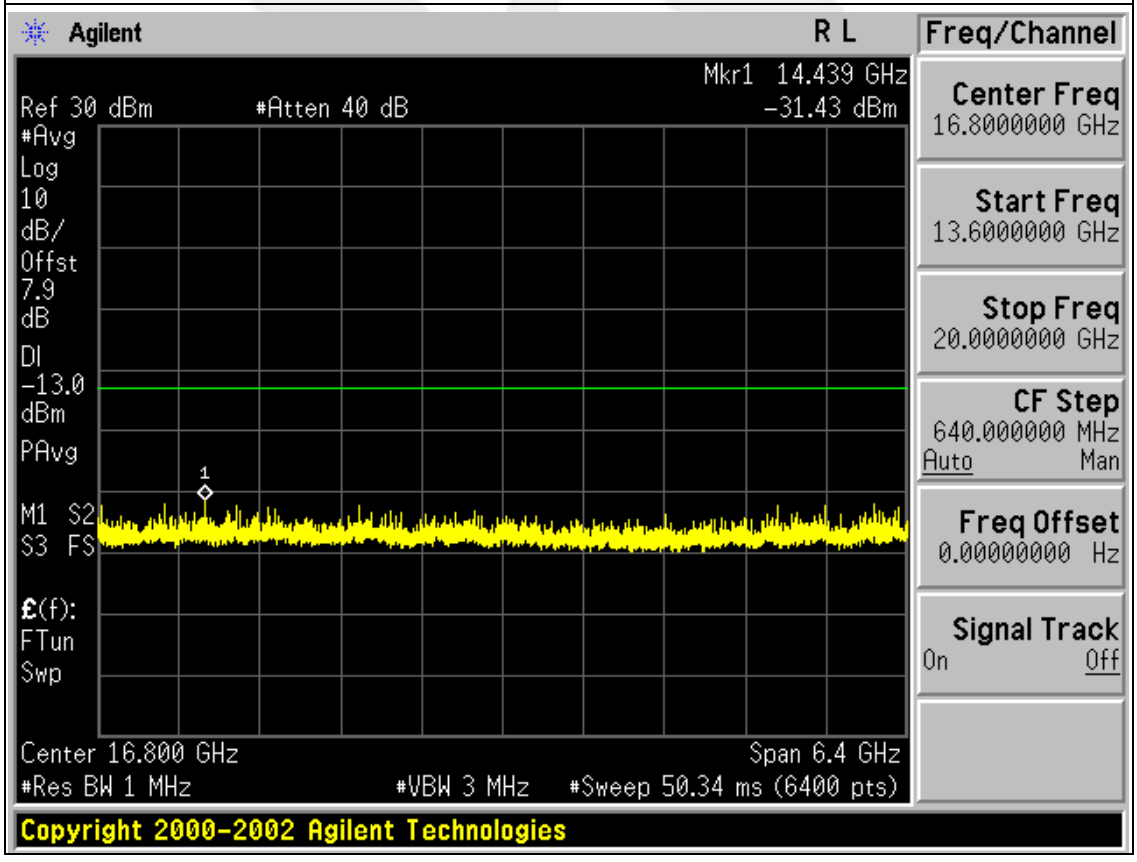
CONDUCTED EMISSION IN HSDPA band II

Conducted Emission Transmitting Mode 9663 30MHz – 20GHz

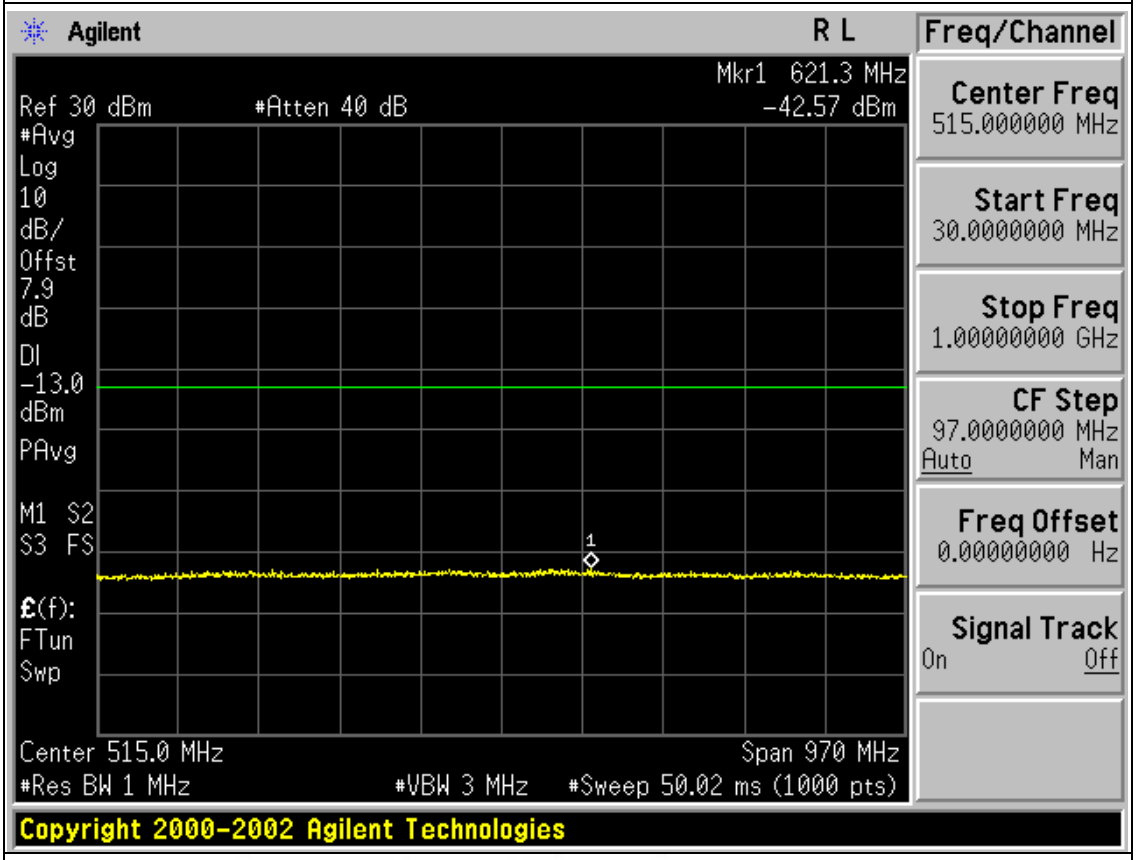


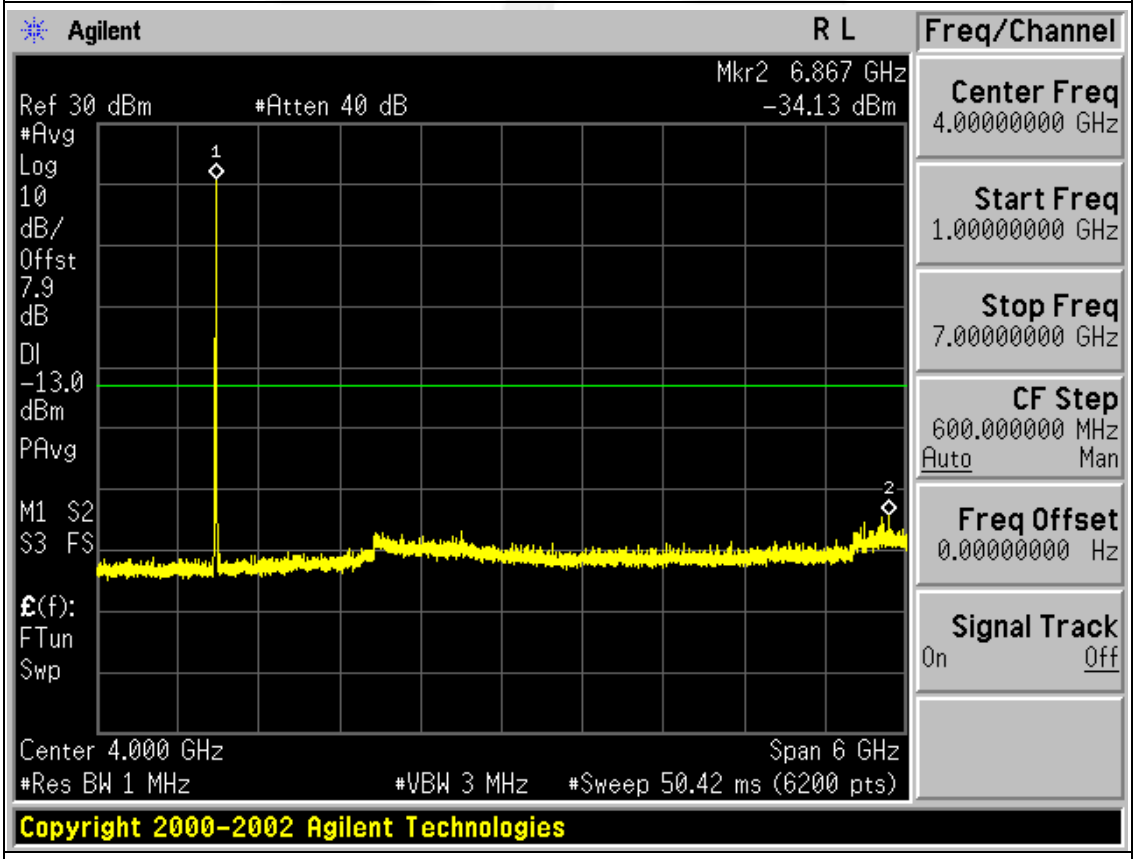


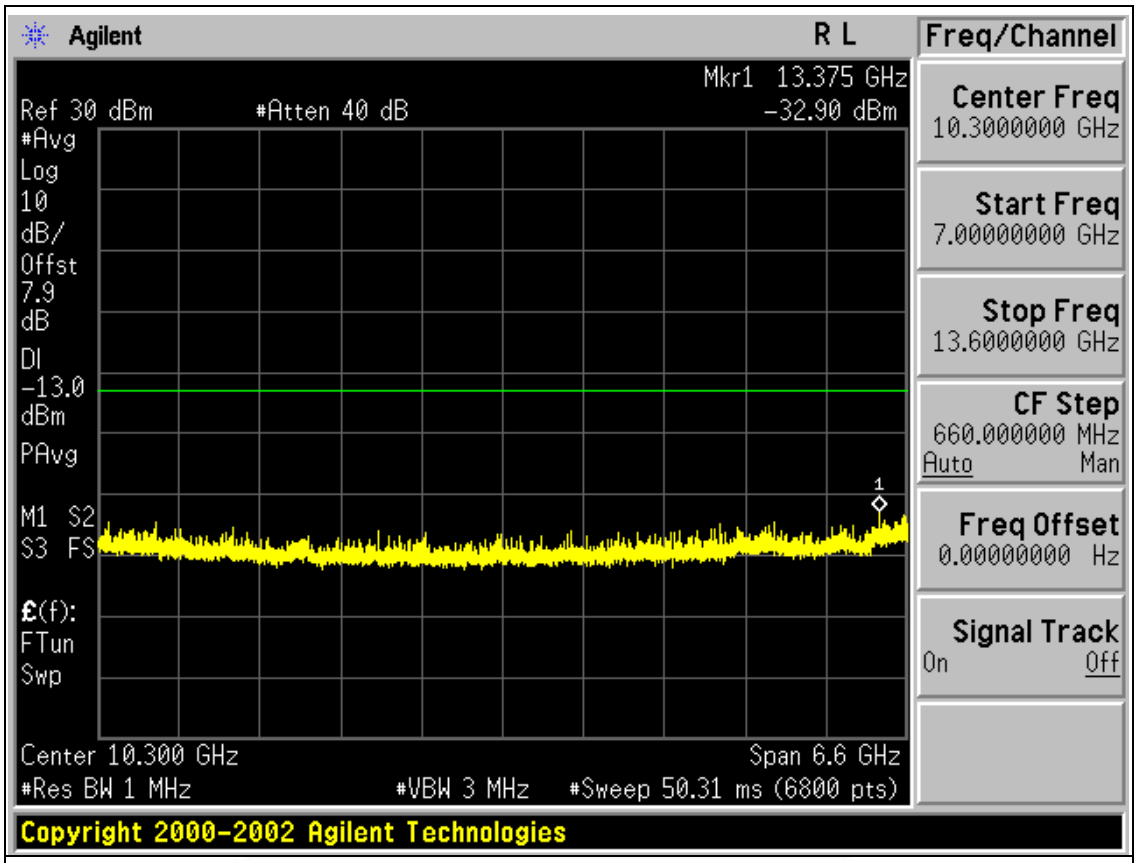

Agilent
R L
Freq/Channel
Mkr1 13.528 GHz
Ref 30 dBm
#Atten 40 dB
-32.40 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies

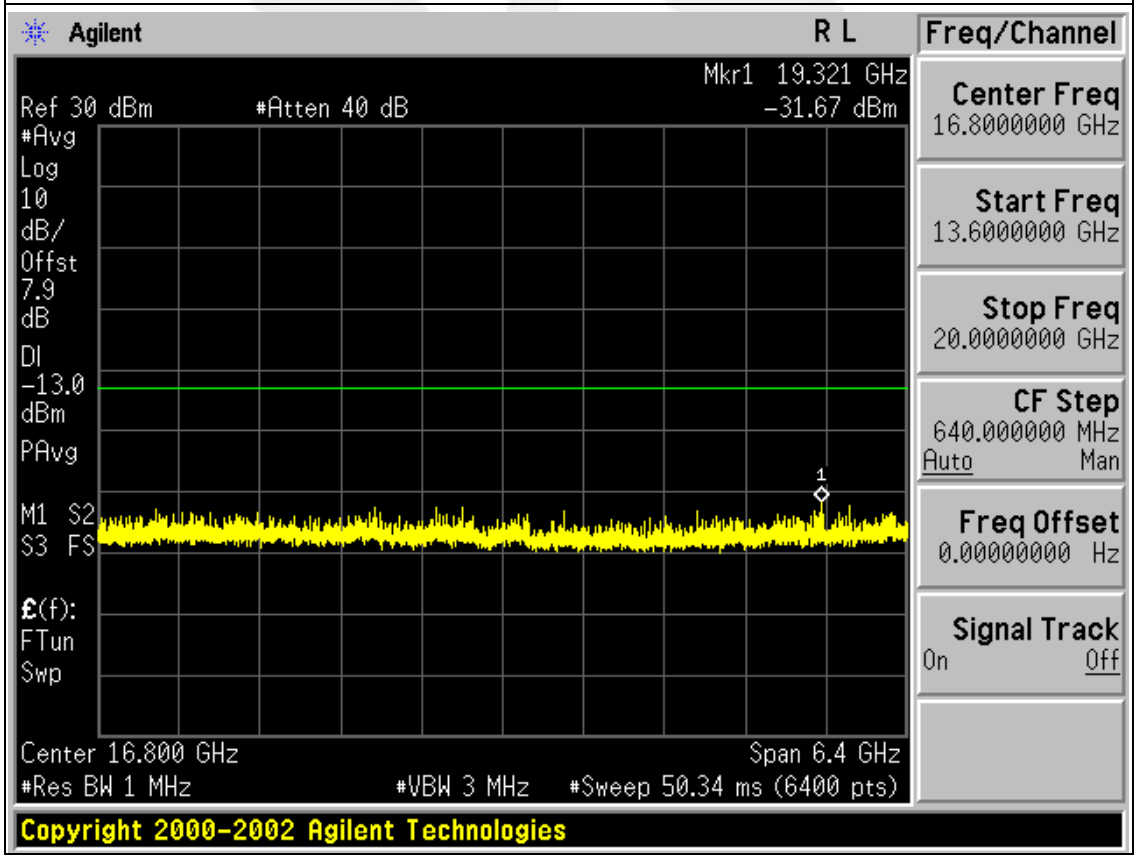

Agilent
R L
Freq/Channel
Mkr1 14.439 GHz
Ref 30 dBm
#Atten 40 dB
-31.43 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
Copyright 2000-2002 Agilent Technologies

Conducted Emission Transmitting Mode CH 9800 30MHz – 20GHz

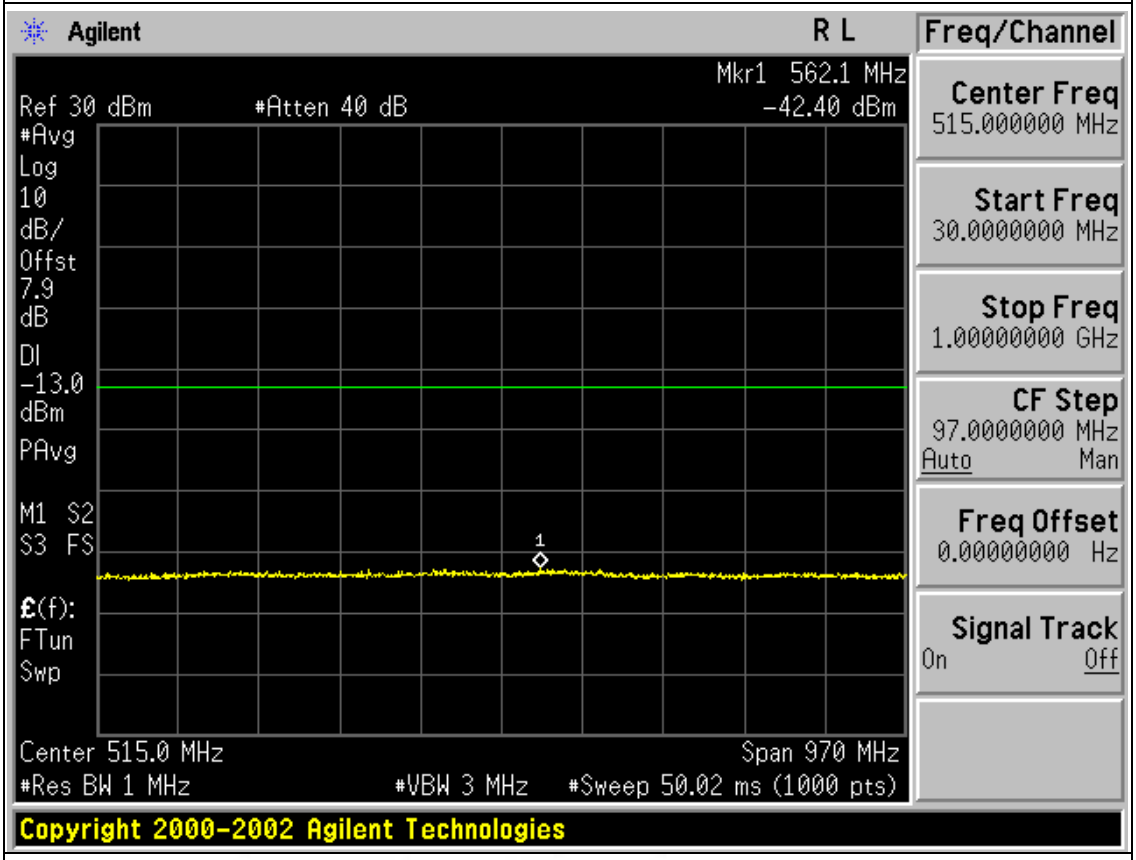


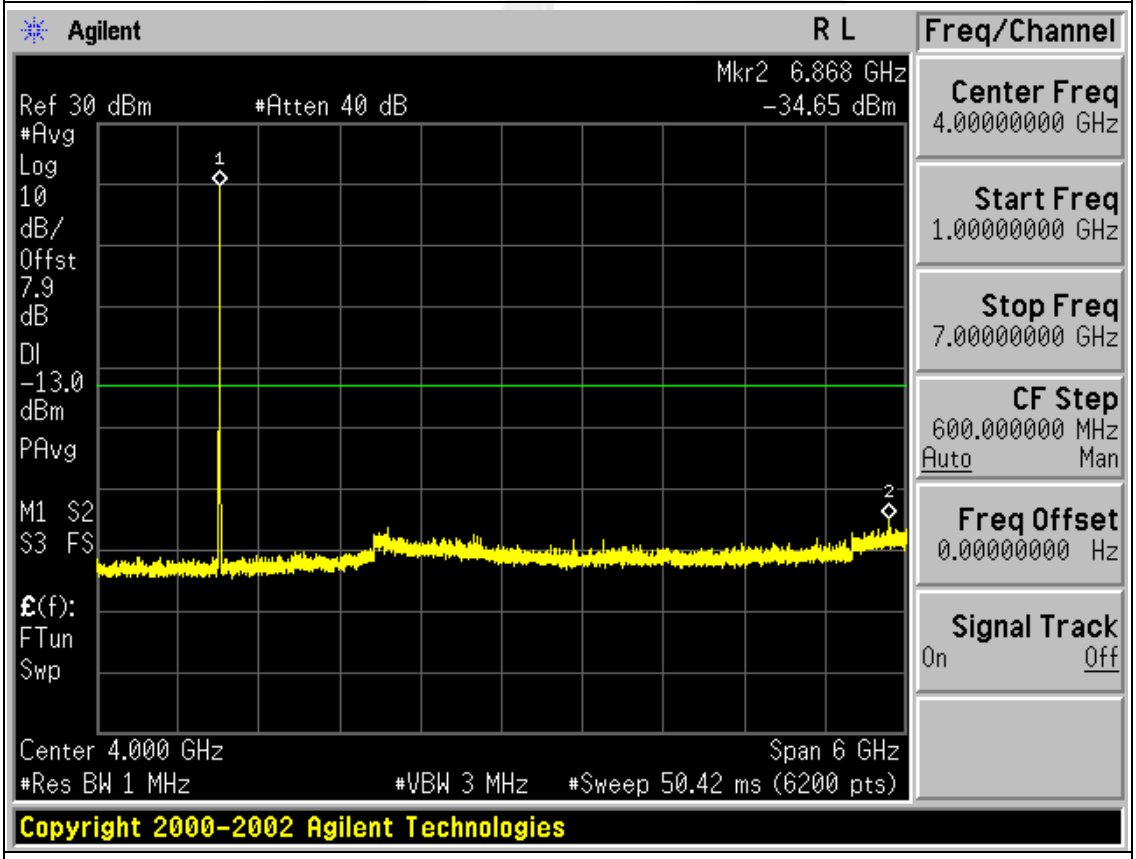


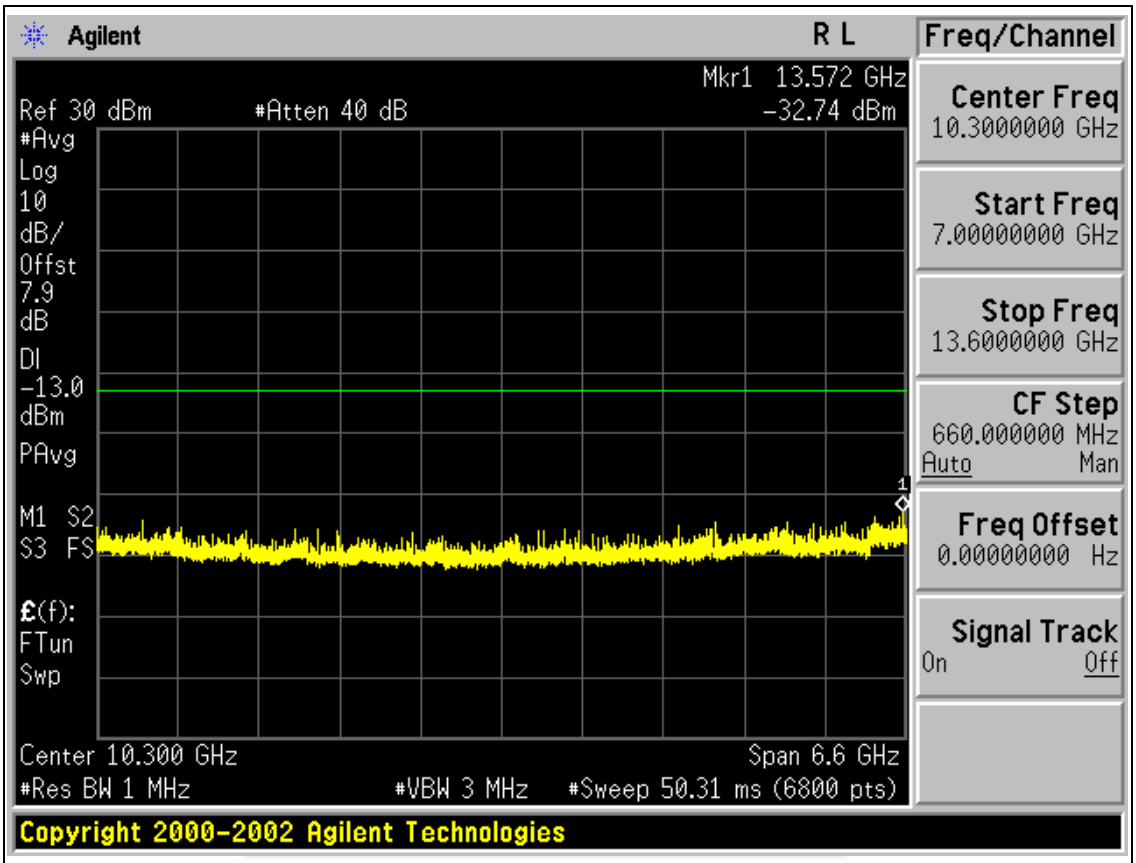

Agilent
R L
Freq/Channel
Mkr1 13.375 GHz
Ref 30 dBm
#Atten 40 dB
-32.90 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies

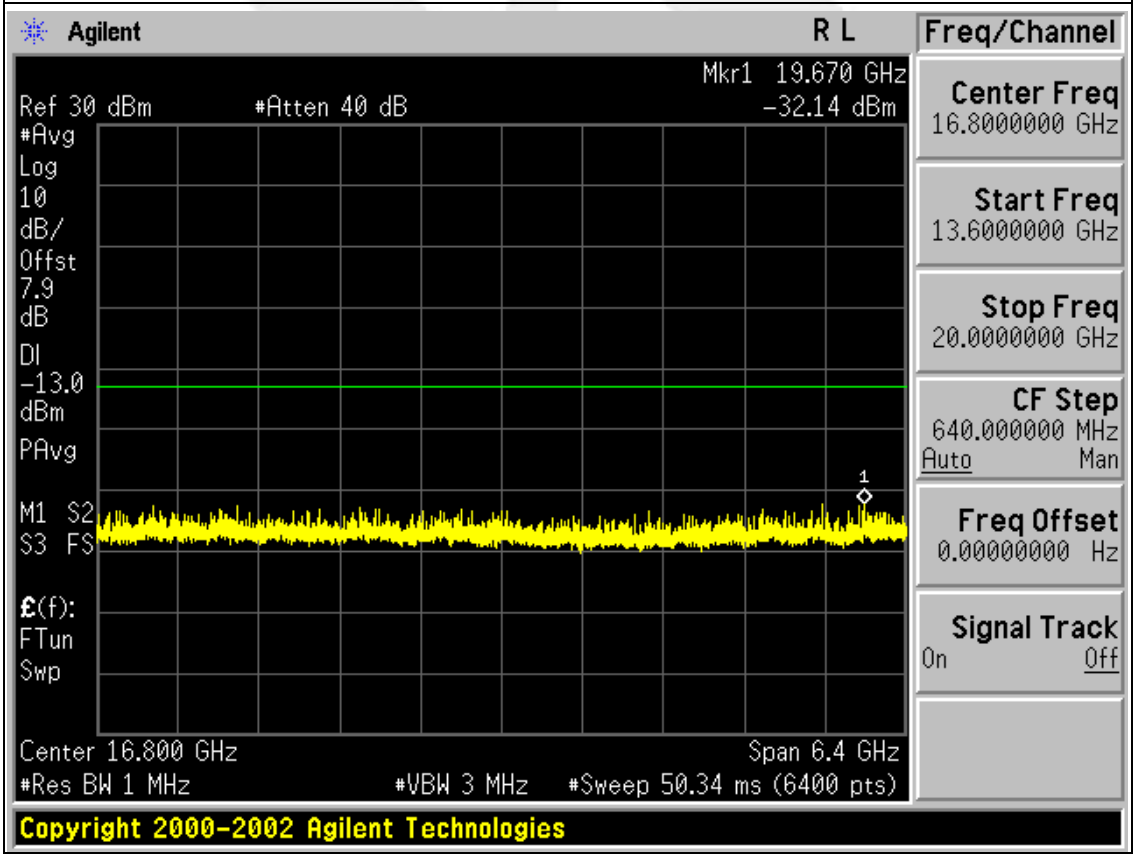

Agilent
R L
Freq/Channel
Mkr1 19.321 GHz
Ref 30 dBm
#Atten 40 dB
-31.67 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
Copyright 2000-2002 Agilent Technologies

Conducted Emission Transmitting Mode CH 9937 30MHz – 20GHz






Agilent
R L
Freq/Channel
Mkr1 13.572 GHz
Ref 30 dBm
#Atten 40 dB
-32.74 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
10.3000000 GHz
Start Freq
7.00000000 GHz
Stop Freq
13.6000000 GHz
CF Step
660.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 10.300 GHz
Span 6.6 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.31 ms (6800 pts)
Copyright 2000-2002 Agilent Technologies


Agilent
R L
Freq/Channel
Mkr1 19.670 GHz
Ref 30 dBm
#Atten 40 dB
-32.14 dBm
#Avg
Log
10
dB/
Offst
7.9
dB
Dl
-13.0
dBm
PAvg
M1 S2
S3 FS
£(f):
FTun
Swp
Center Freq
16.8000000 GHz
Start Freq
13.6000000 GHz
Stop Freq
20.0000000 GHz
CF Step
640.000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Center 16.800 GHz
Span 6.4 GHz
#Res BW 1 MHz
#VBW 3 MHz
#Sweep 50.34 ms (6400 pts)
Copyright 2000-2002 Agilent Technologies

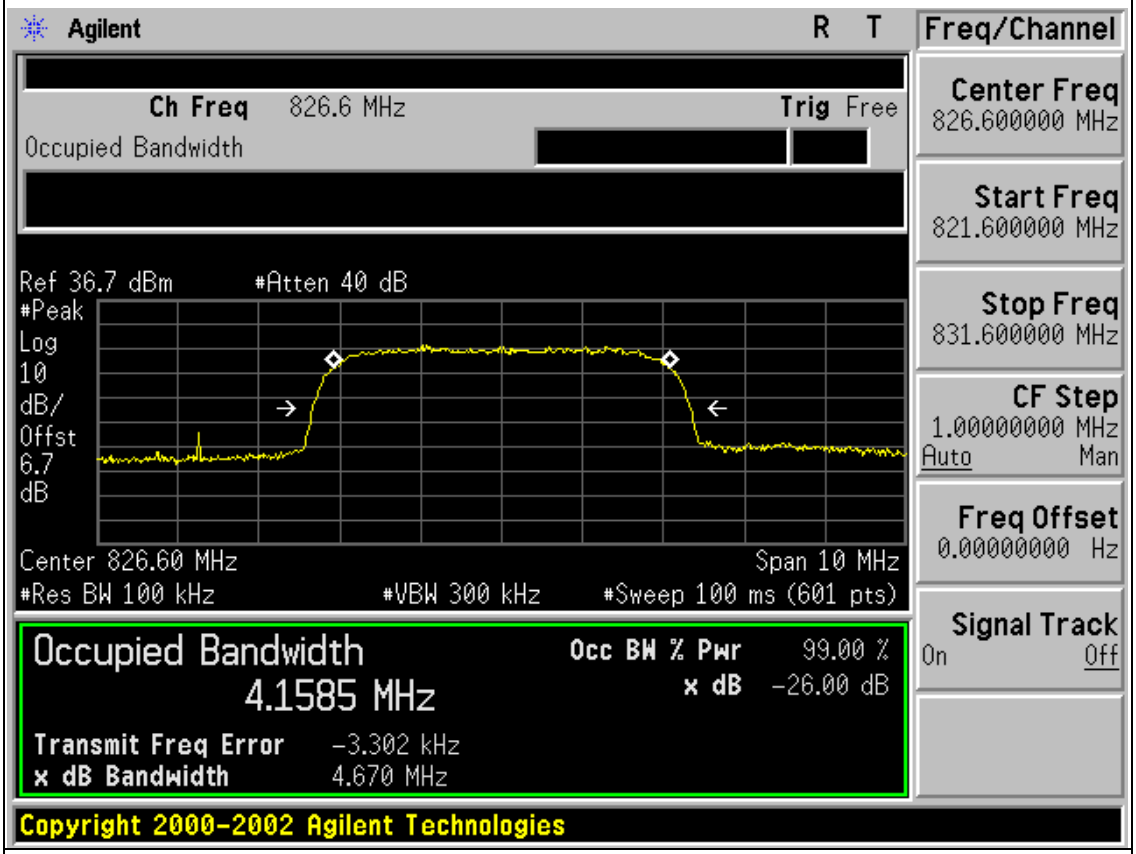
APPENDIX II

TEST PLOTS FOR OCCUPIED BANDWIDTH (99%)

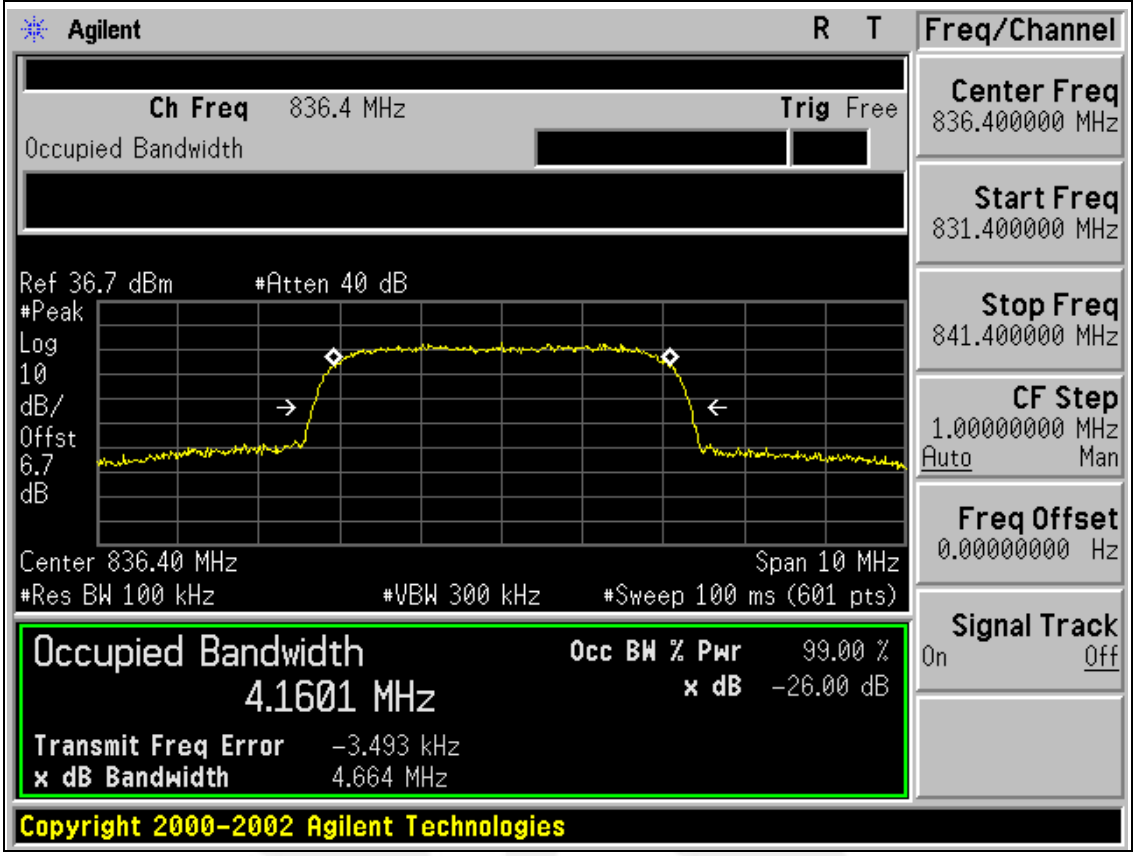
EMISSION BANDWIDTH (-26dBC)

For module B

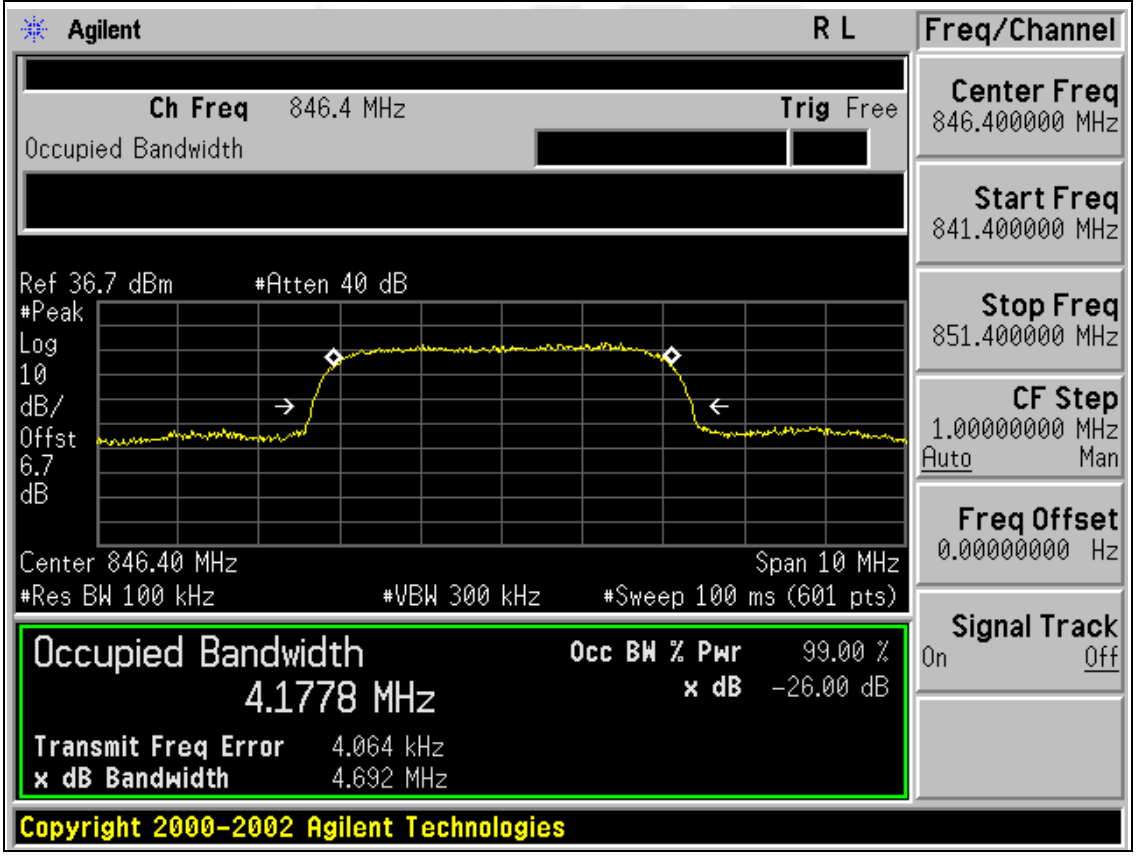
Occupied Bandwidth (99%) UMTS HSDPA V CH 4358



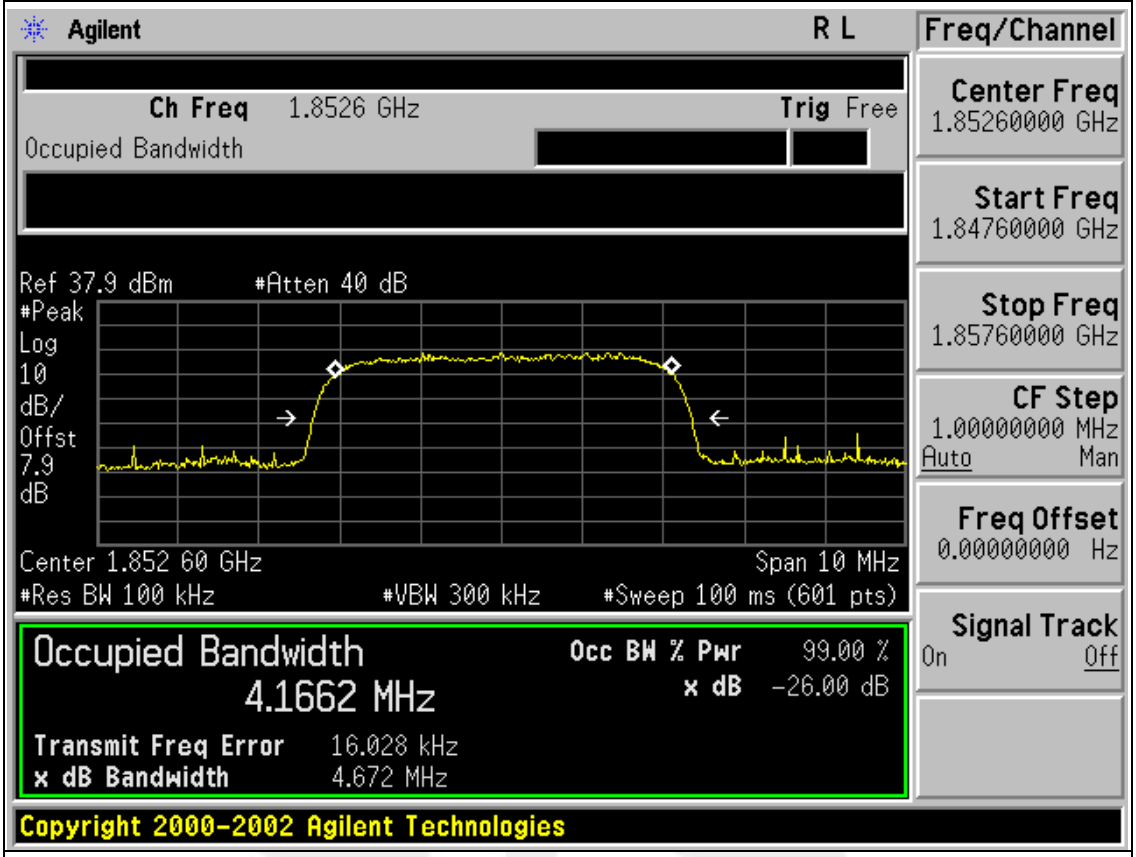
Occupied Bandwidth (99%) HSDPA BAND V CH 4407



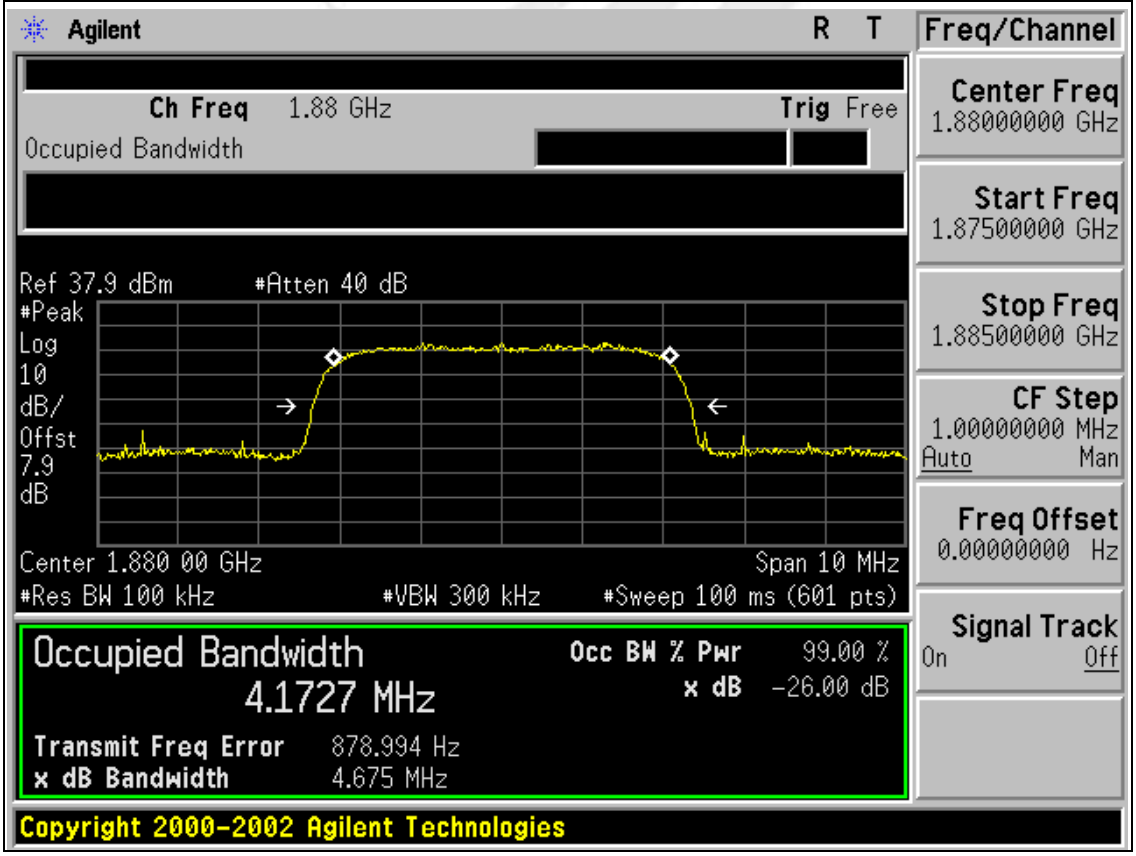
Occupied Bandwidth (99%) HSDPA BAND V CH 4457



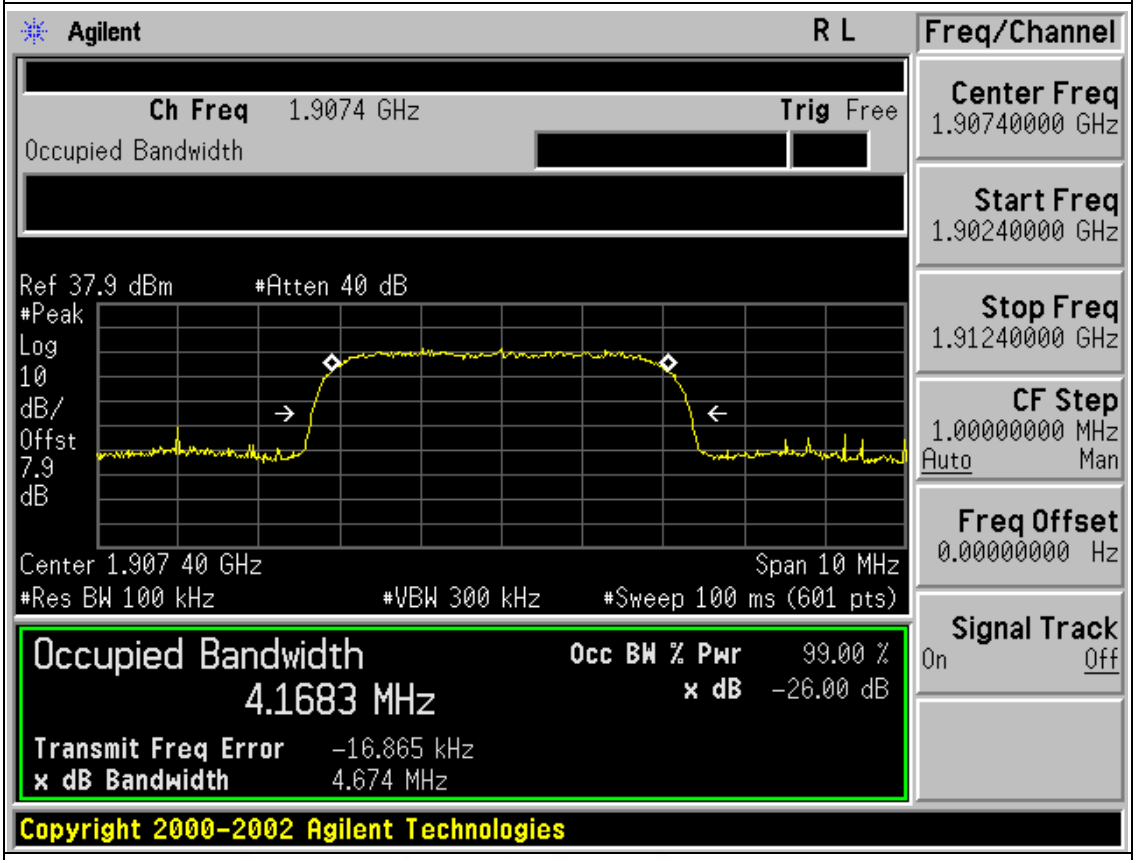
Occupied Bandwidth (99%) HSDPA BAND II CH 9663



Occupied Bandwidth (99%) HSDPA BAND II CH 9800

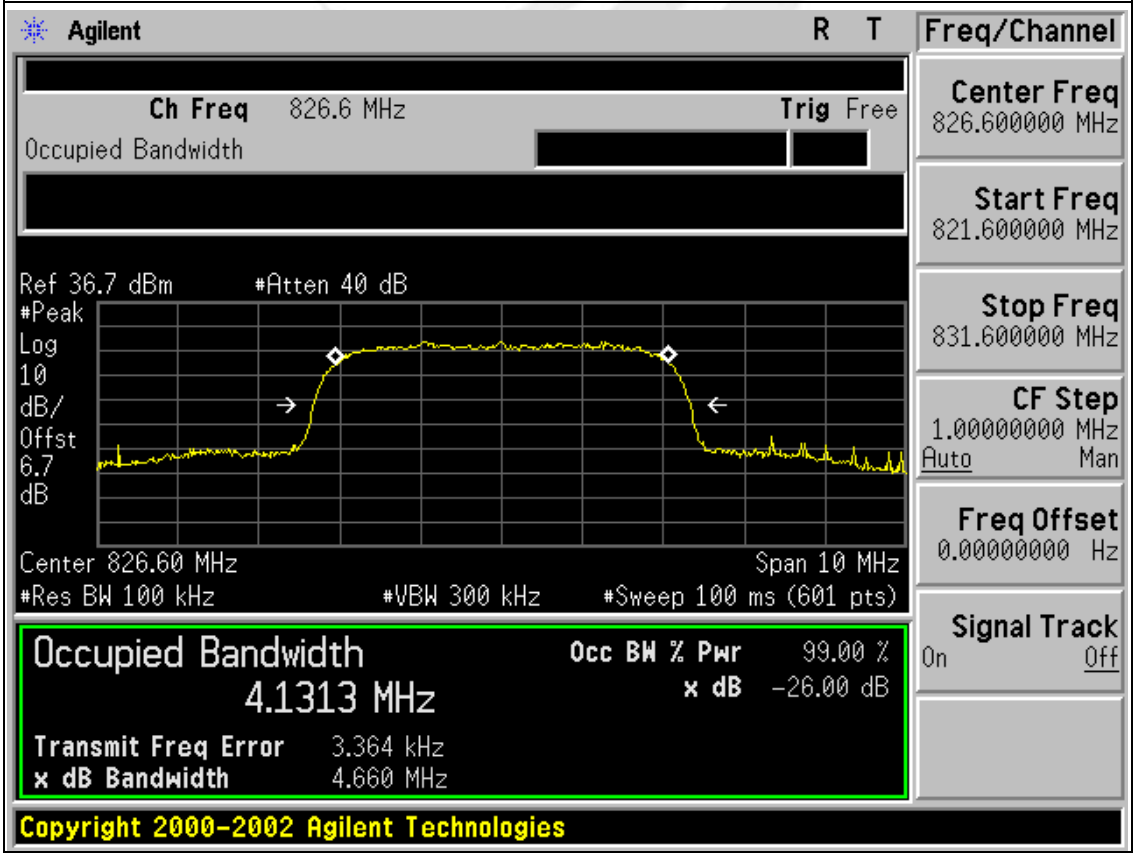


Occupied Bandwidth (99%) HSDPA BAND II CH 9937

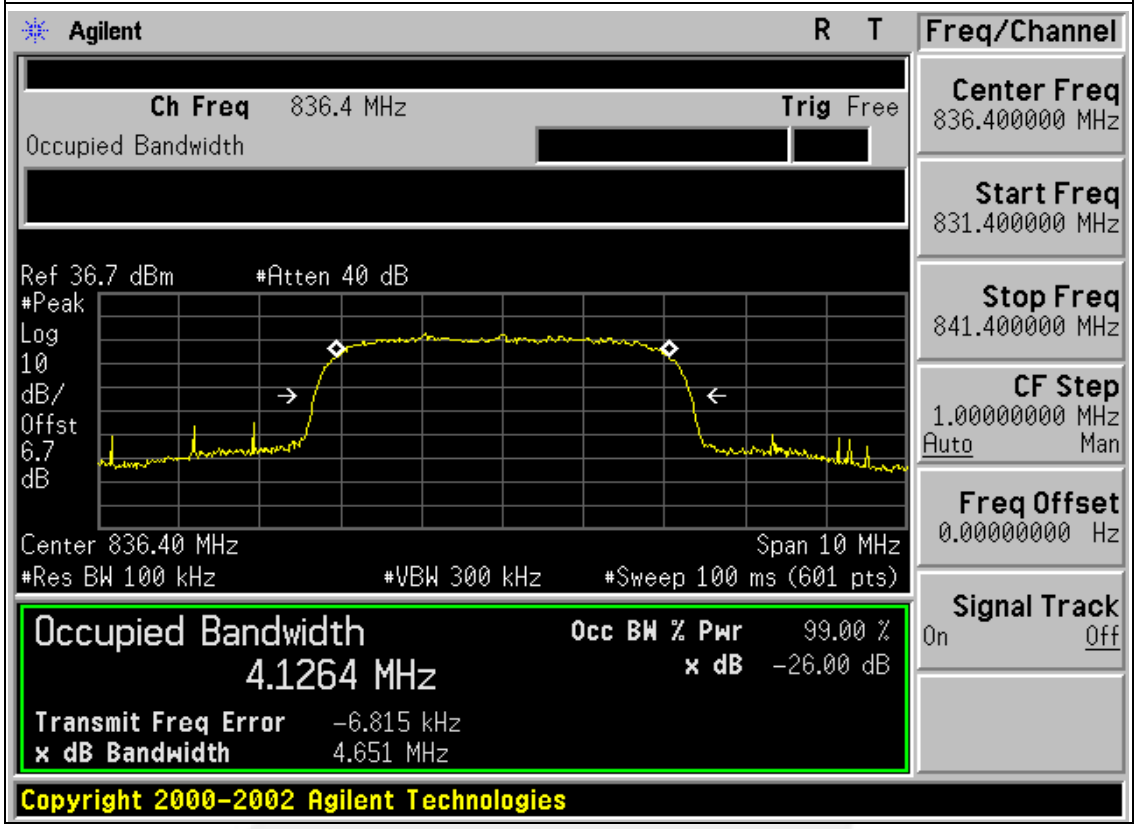


For module A

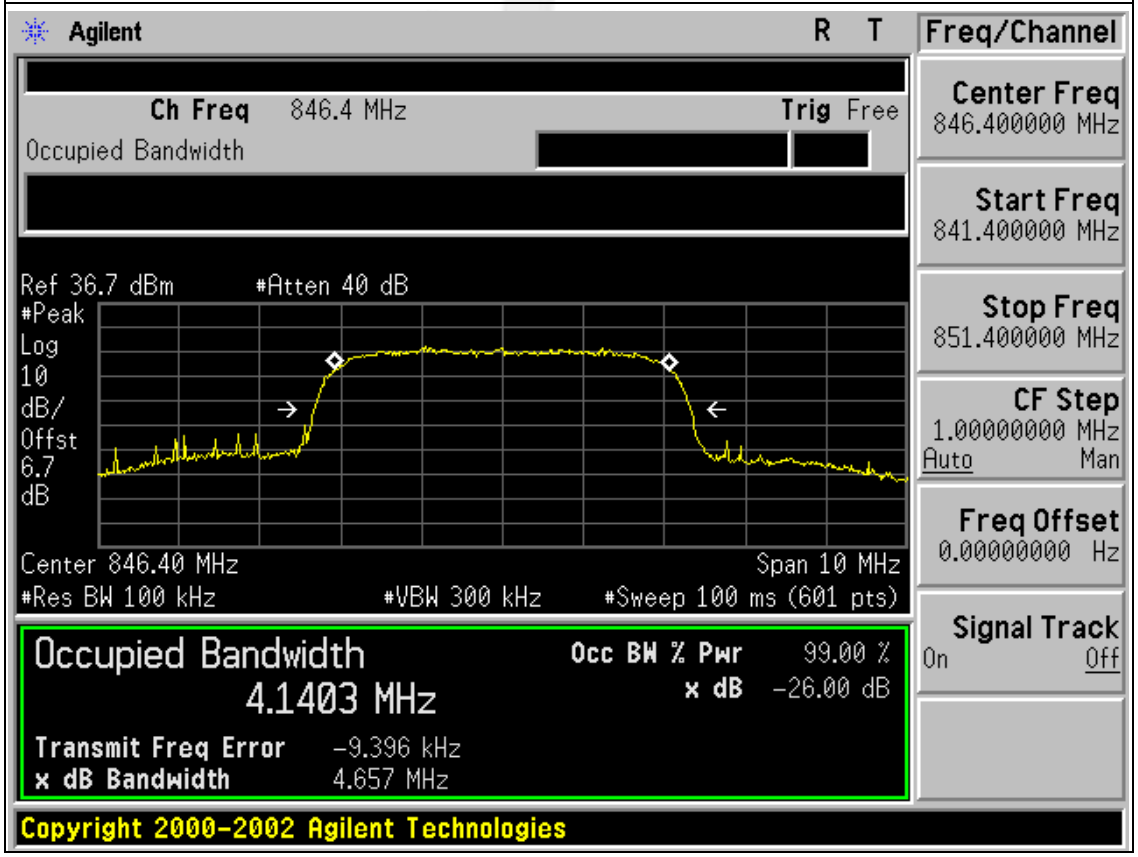
Occupied Bandwidth (99%) HSDPA BAND V CH 4358



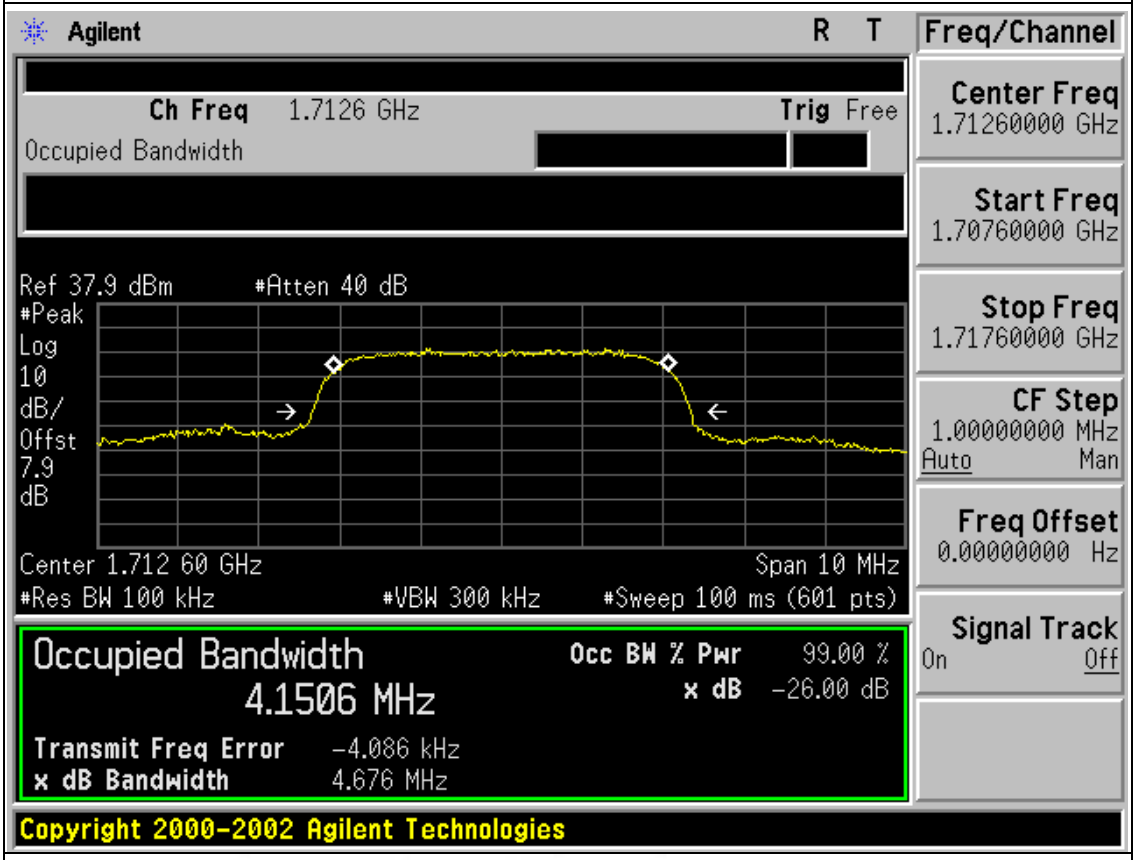
Occupied Bandwidth (99%) HSDPA BAND V CH 4407



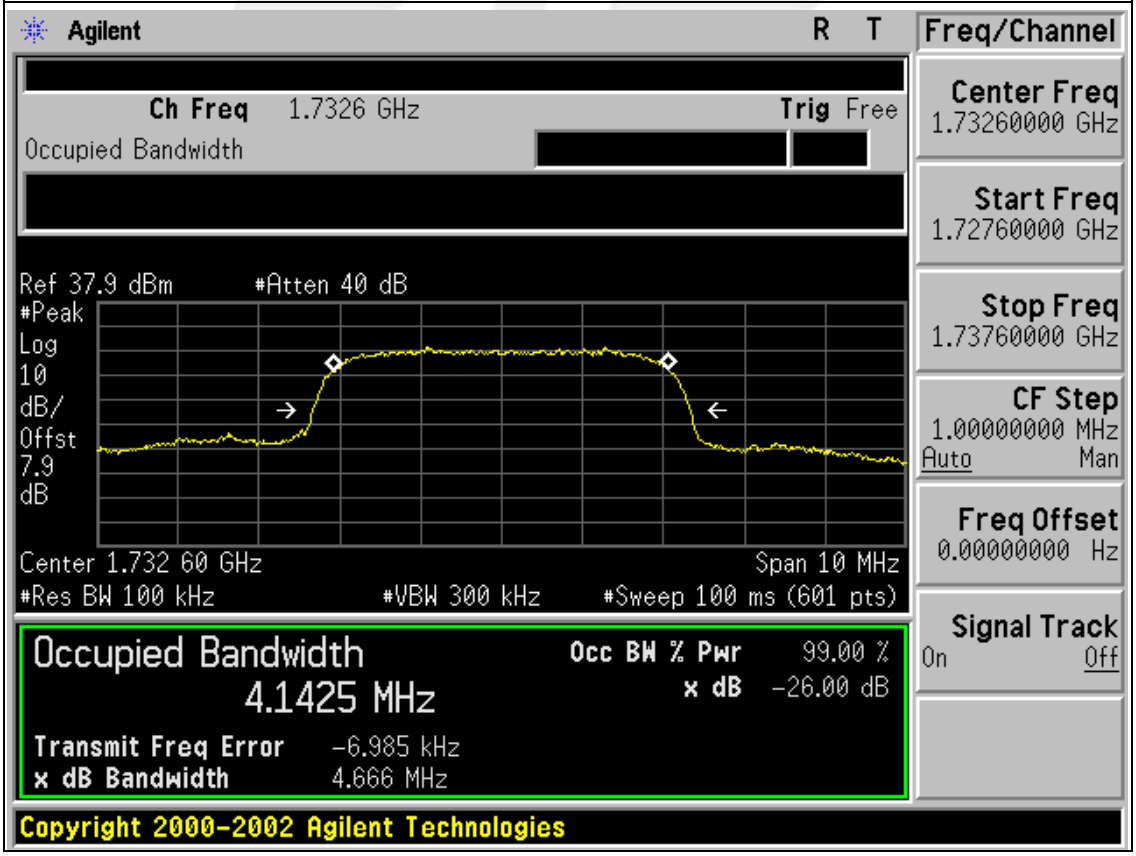
Occupied Bandwidth (99%) HSDPA BAND V CH 4457



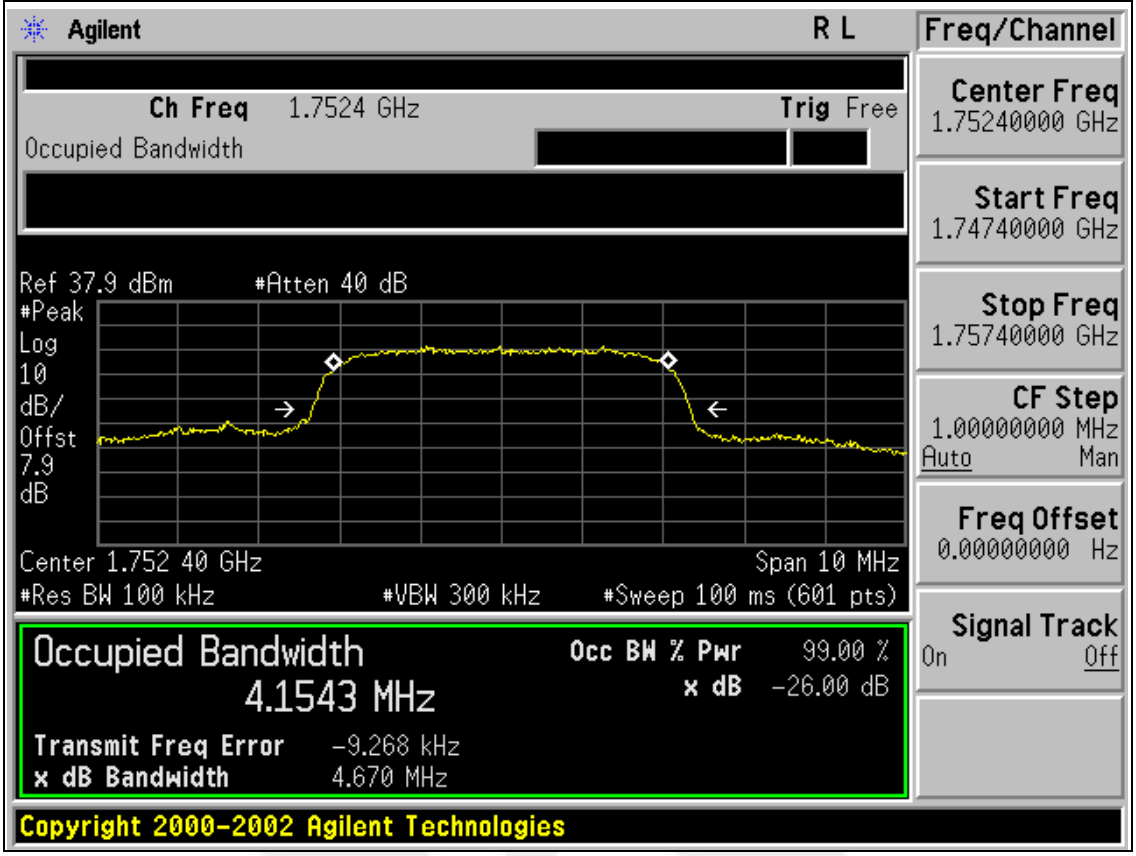
Occupied Bandwidth (99%) HSDPA BAND IV CH 1887



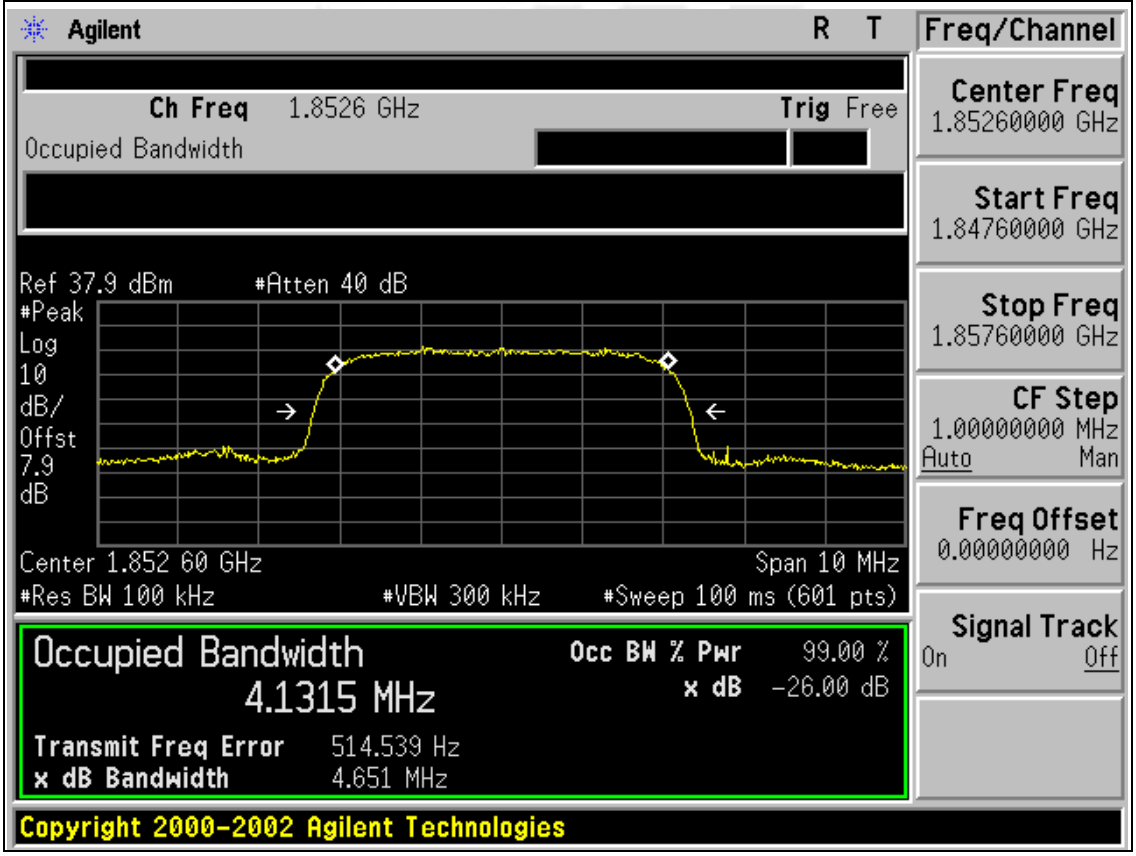
Occupied Bandwidth (99%) HSDPA BAND IV CH 1987



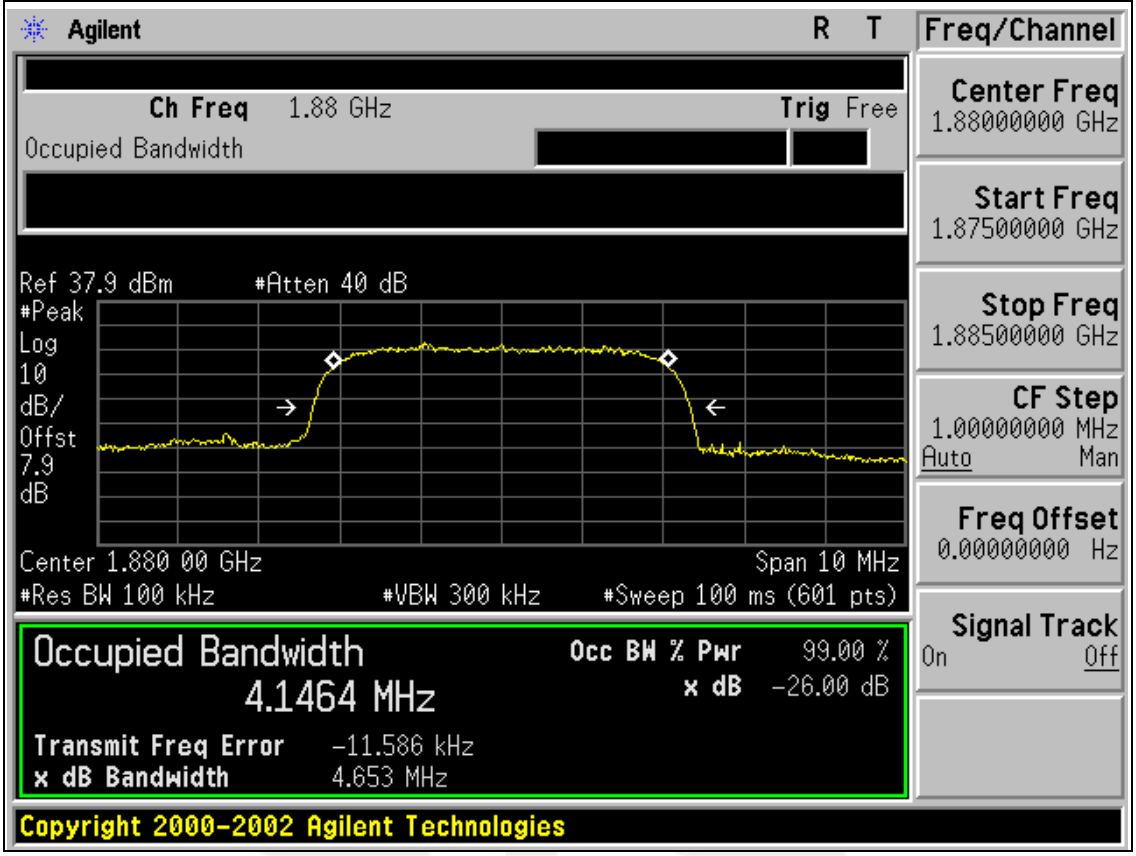
Occupied Bandwidth (99%) HSDPA BAND IV CH 2087



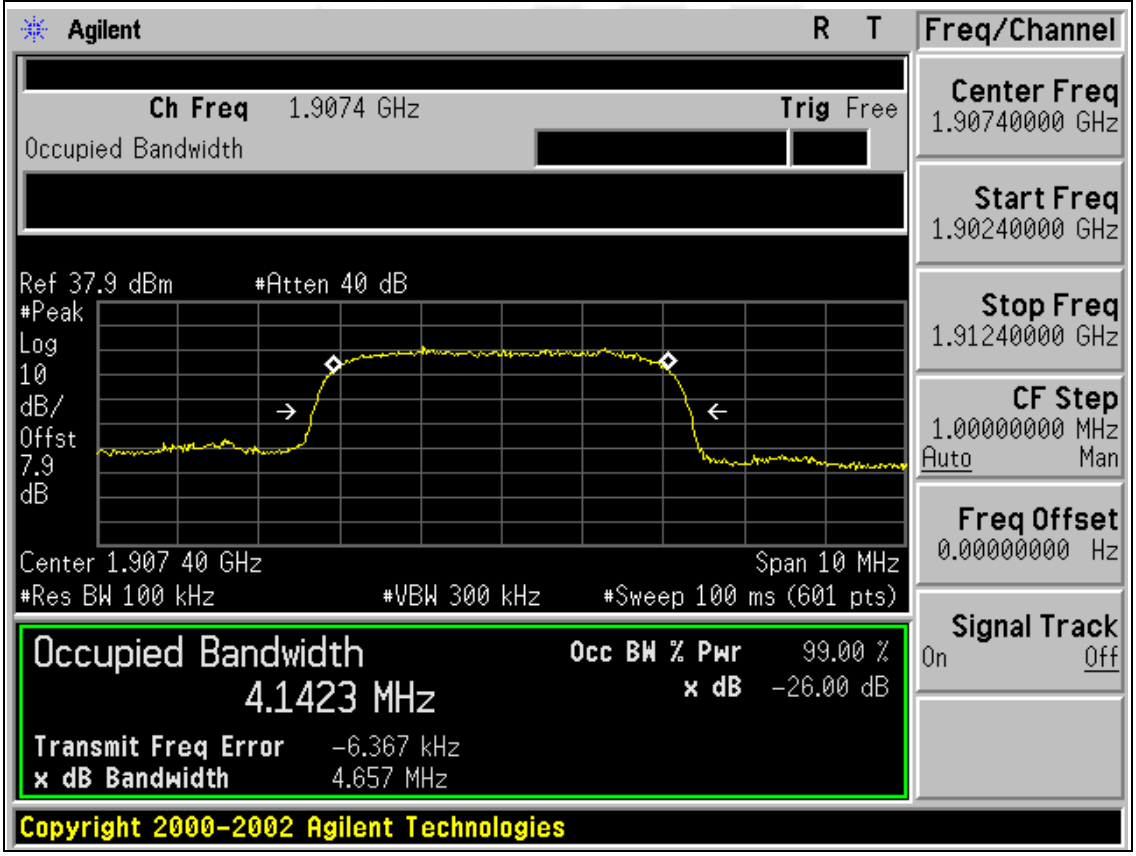
Occupied Bandwidth (99%) HSDPA BAND II CH 9663



Occupied Bandwidth (99%) HSDPA BAND II CH 9800



Occupied Bandwidth (99%) HSDPA BAND II CH 9937

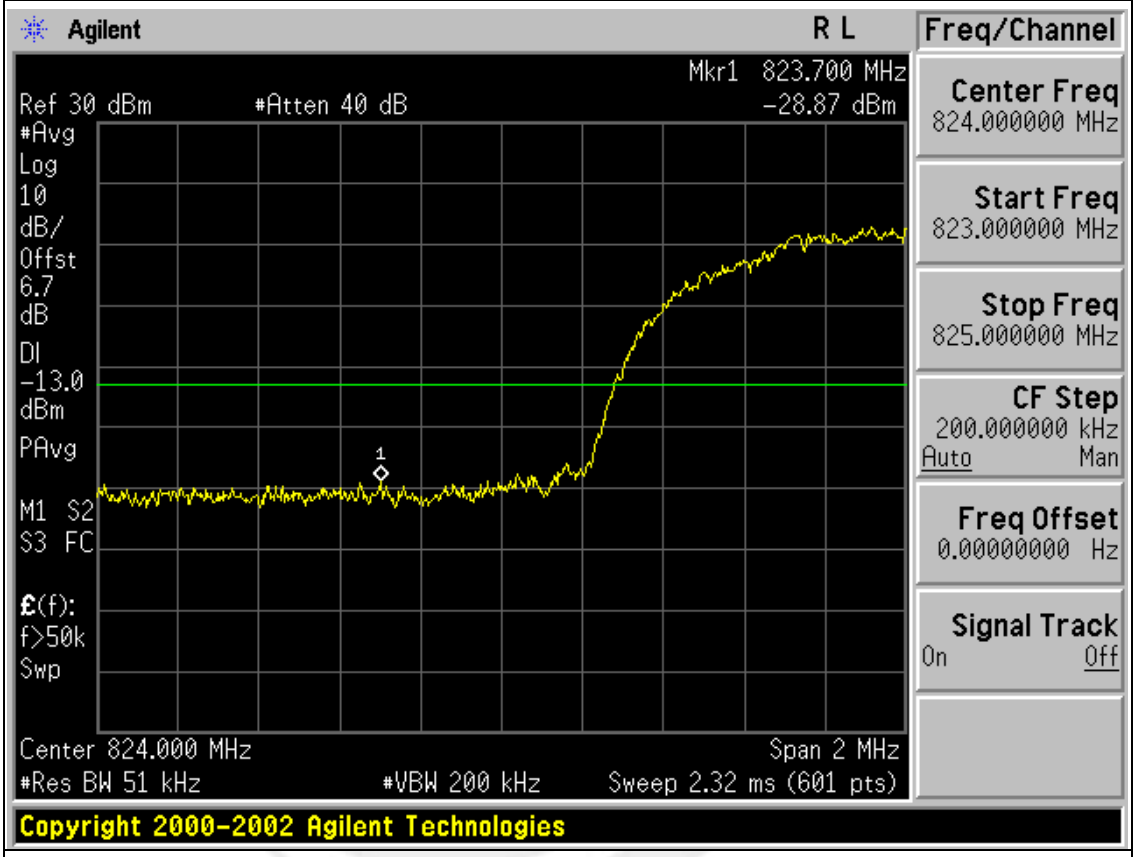


APPENDIX III

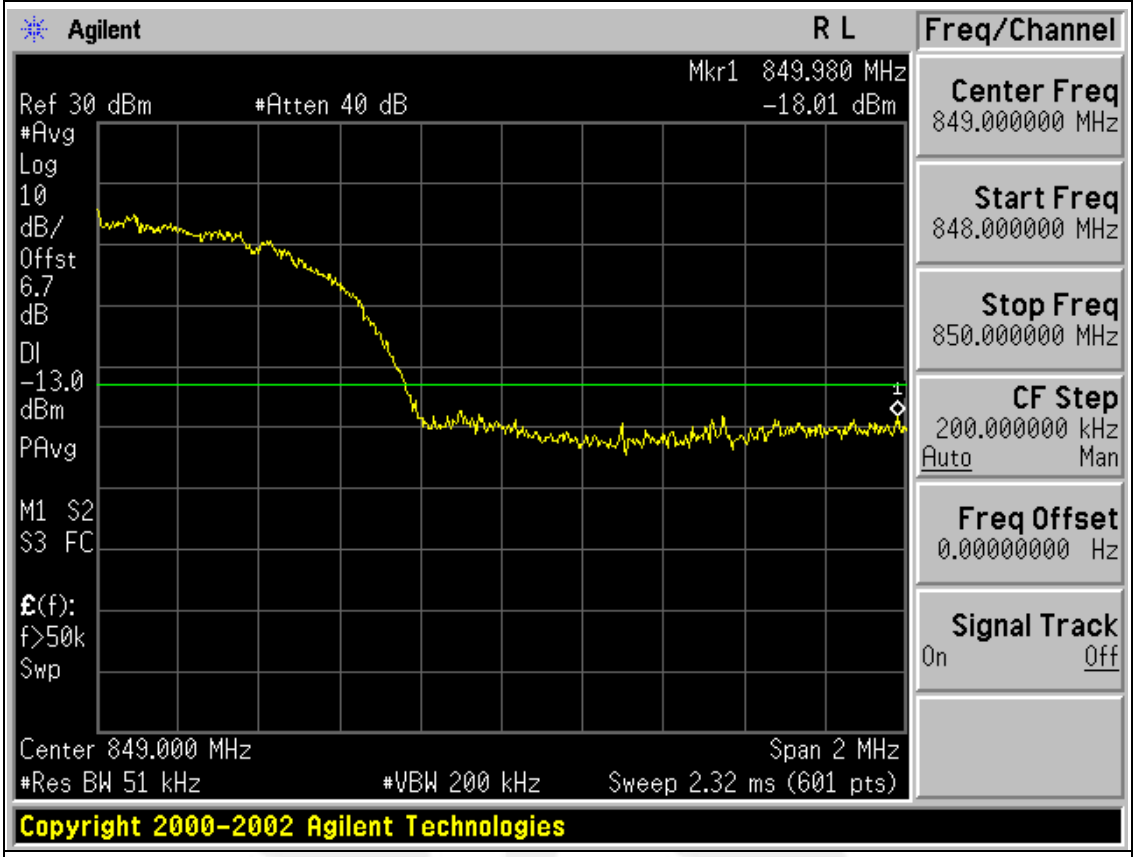
TEST PLOTS FOR BAND EDGES

For module B

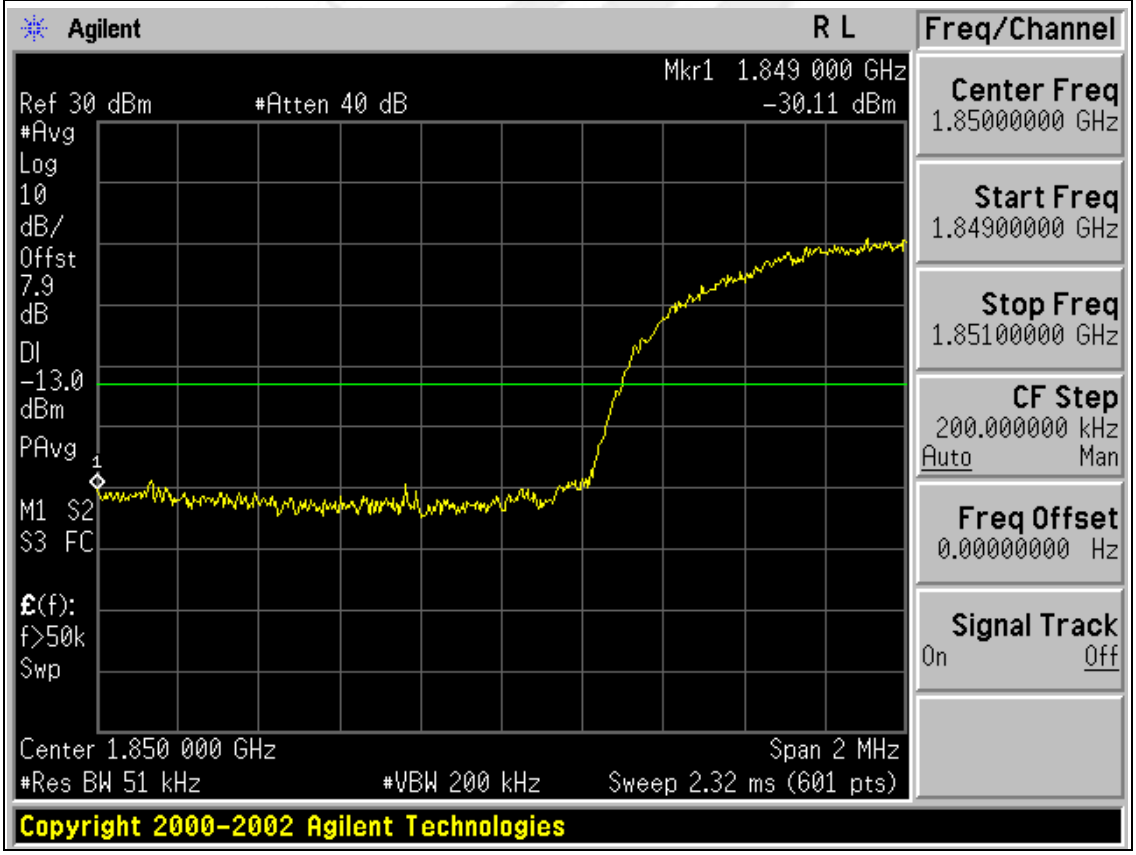
Low Band Edge HSDPA BAND V CH 4358



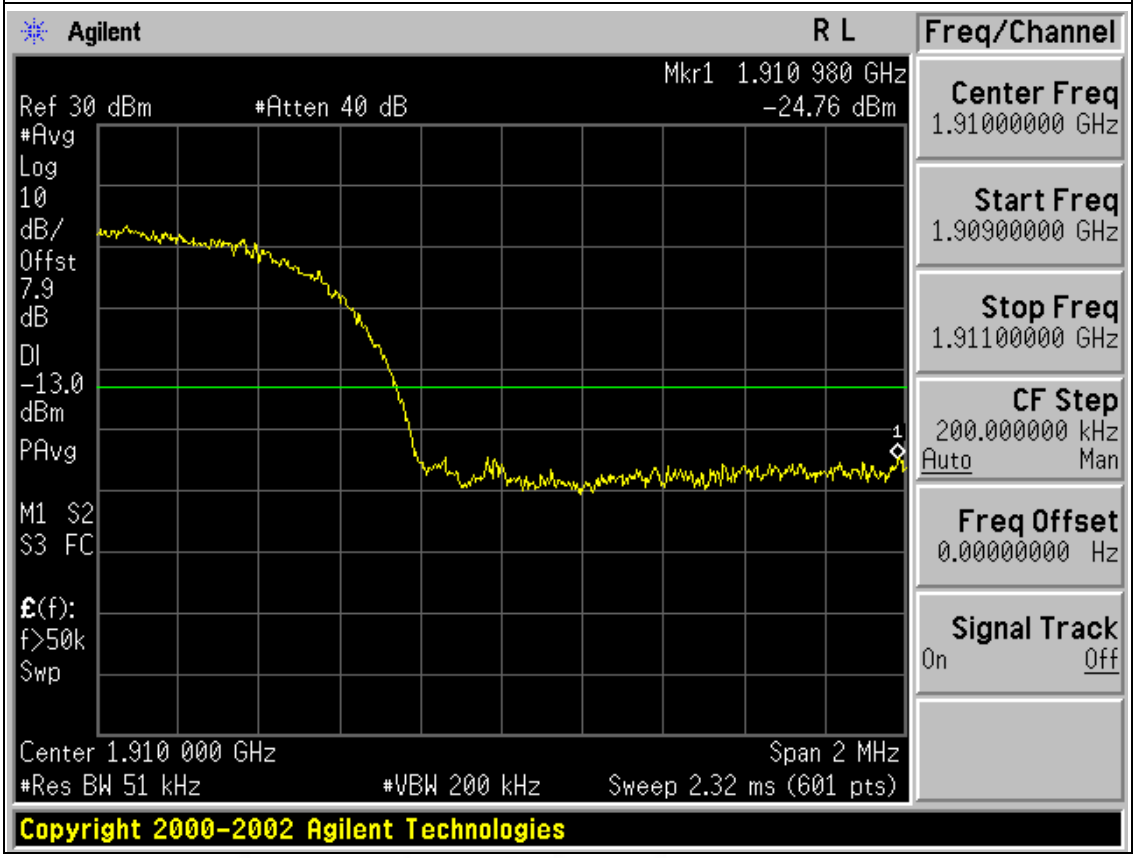
High Band Edge HSDPA BAND V CH 4457



Low Band Edge HUSDPA BAND II CH 9663

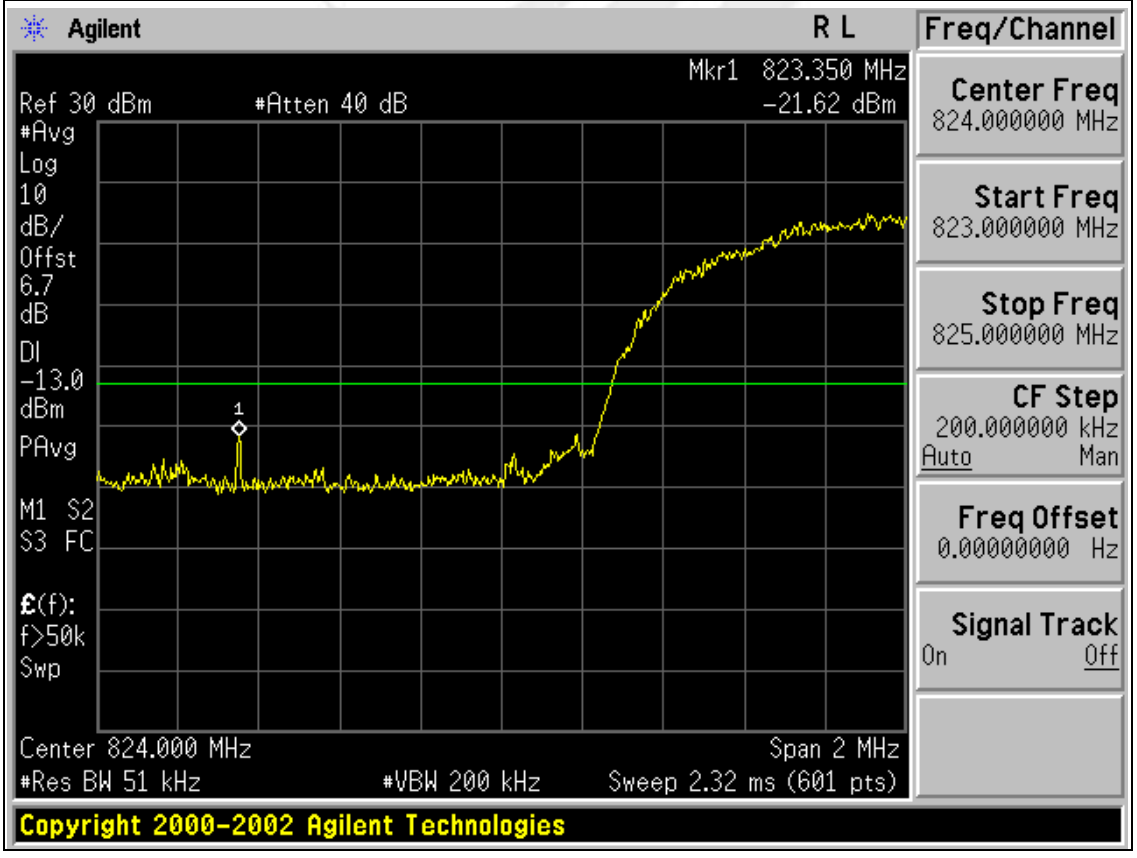


High Band Edge HSDPA BAND II CH 9937

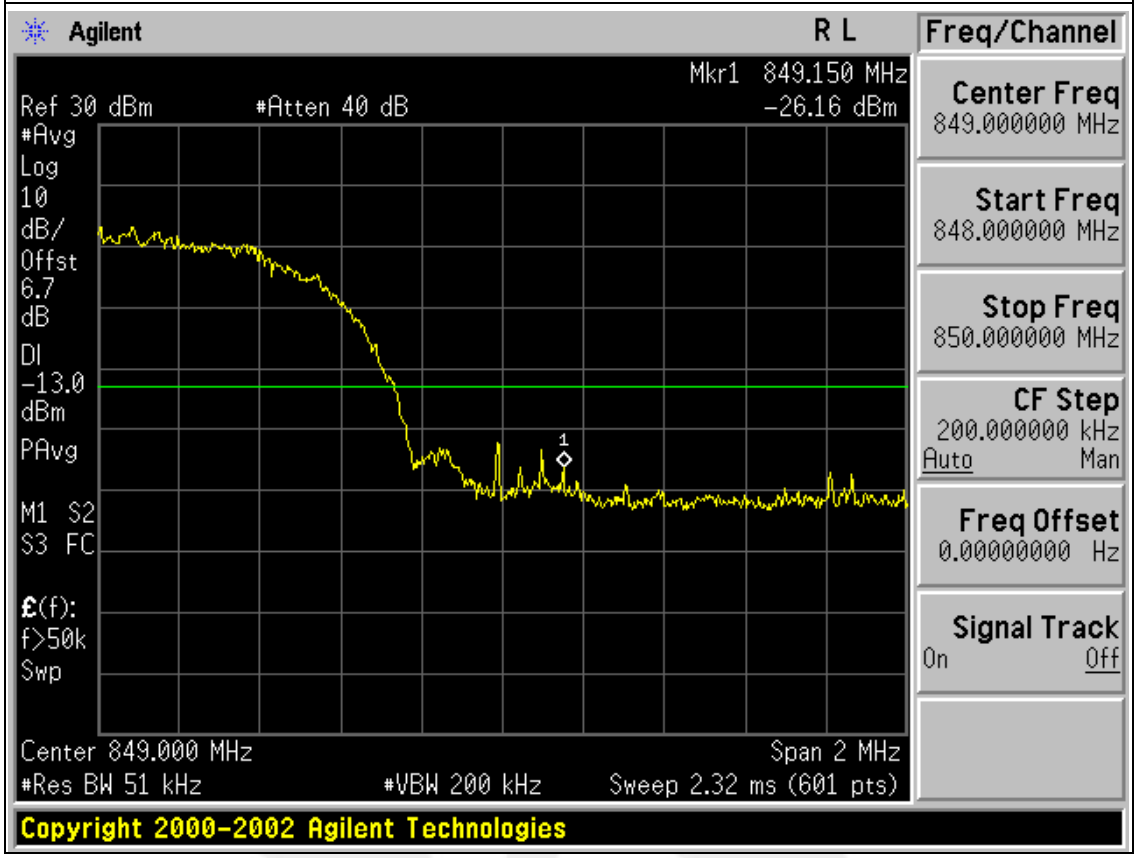


For module A

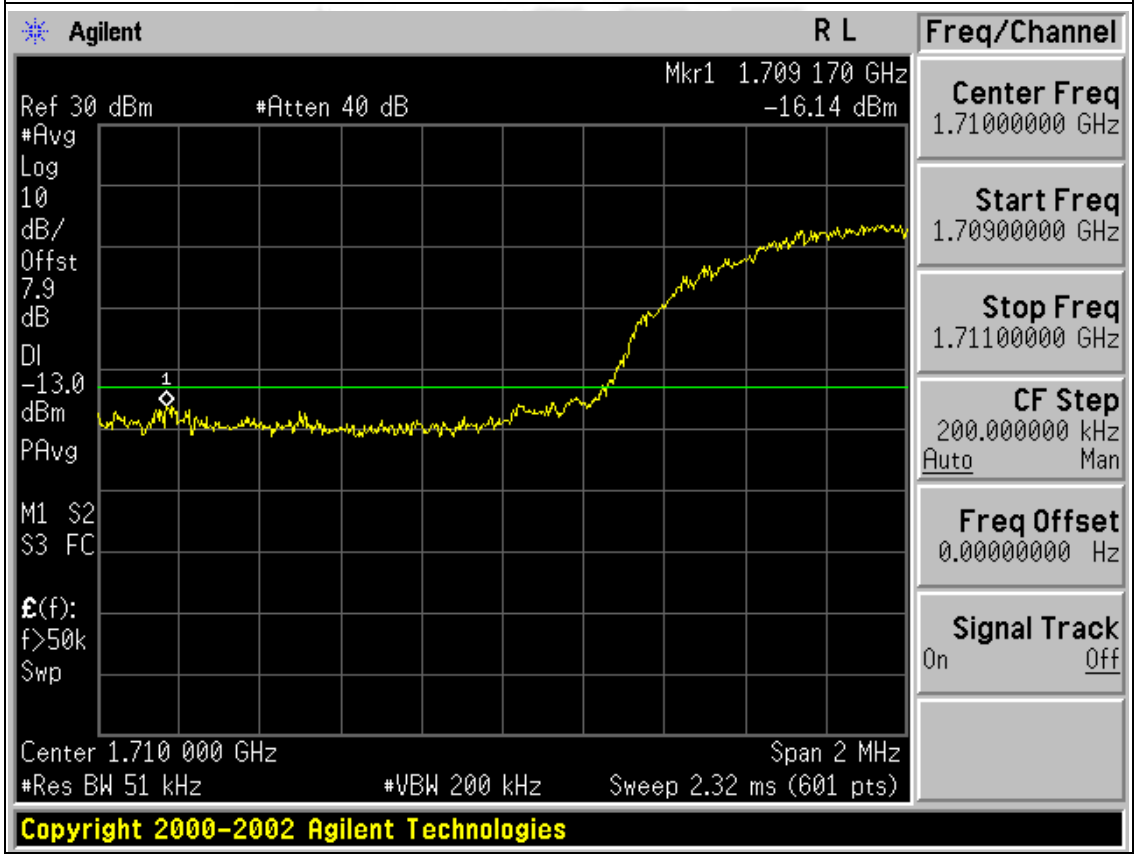
Low Band Edge HSDPA BAND V CH 4358



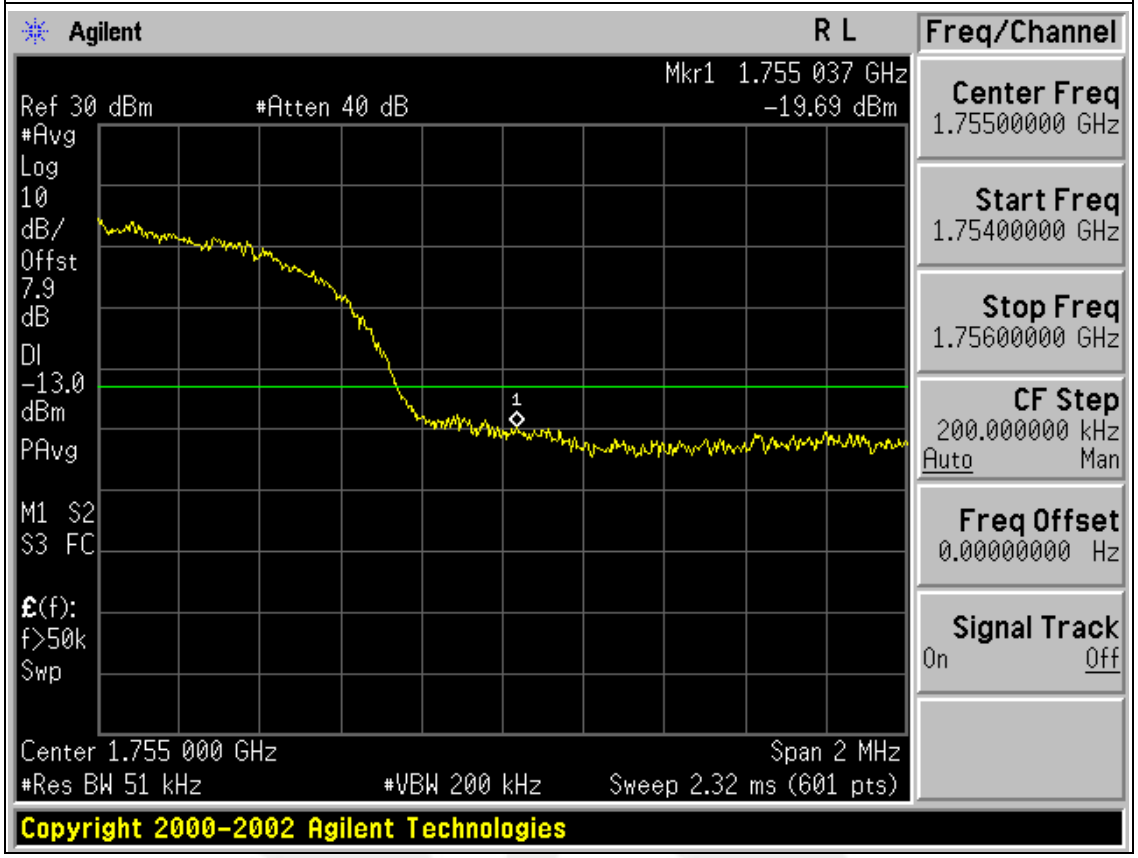
High Band Edge HSDPA BAND V CH 4457



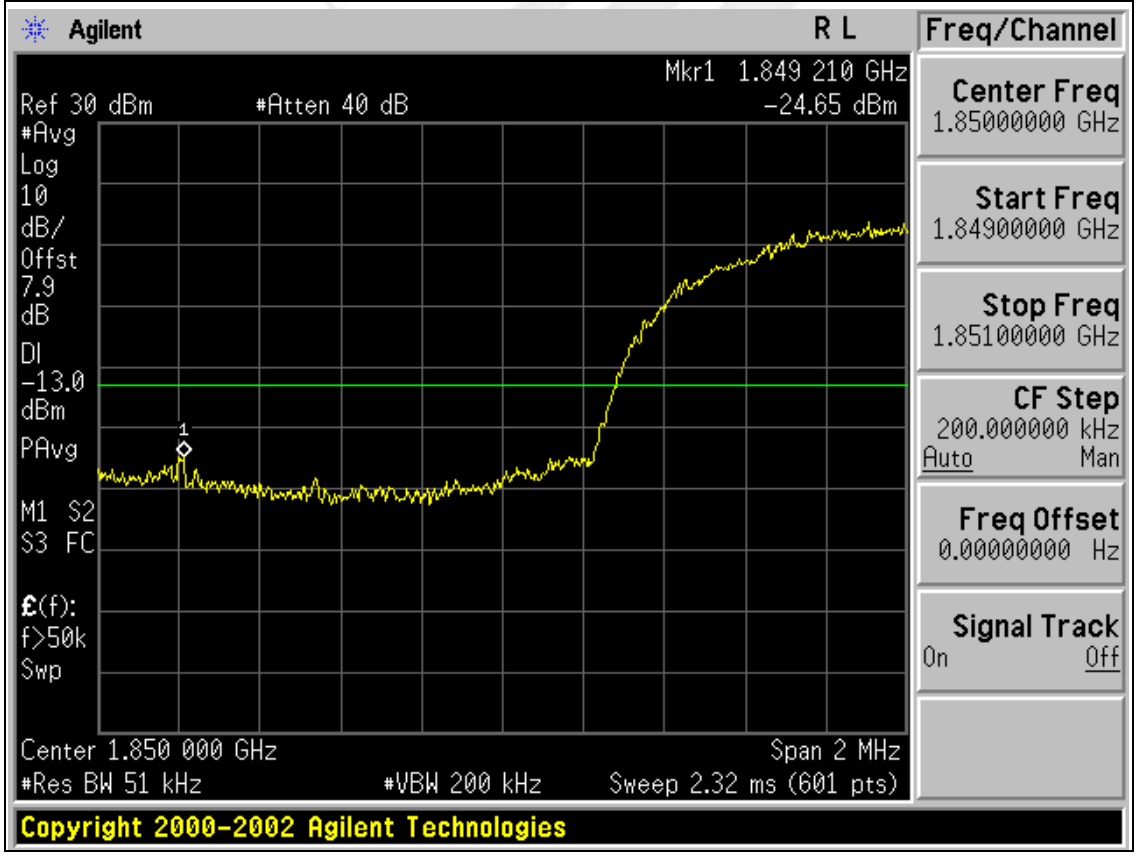
Low Band Edge HSDPA BAND IV CH 1887

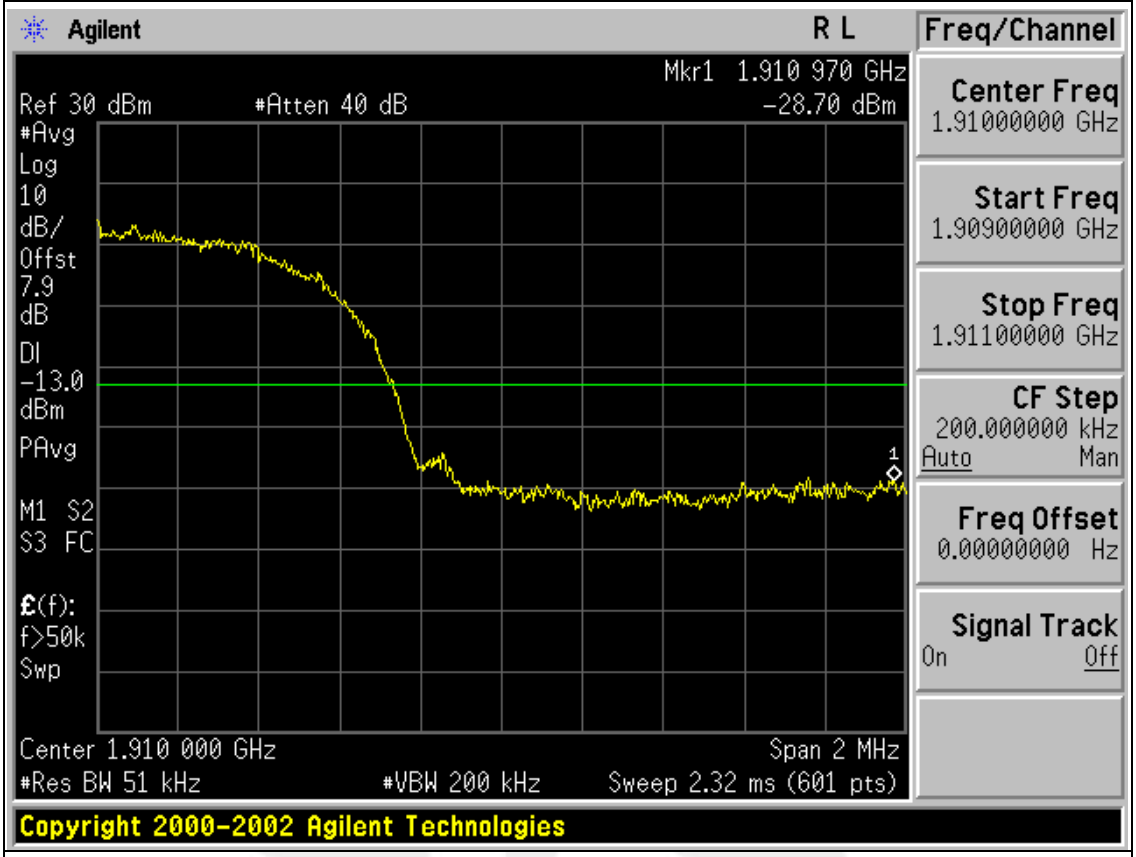


High Band Edge HSDPA BAND IV CH 2087



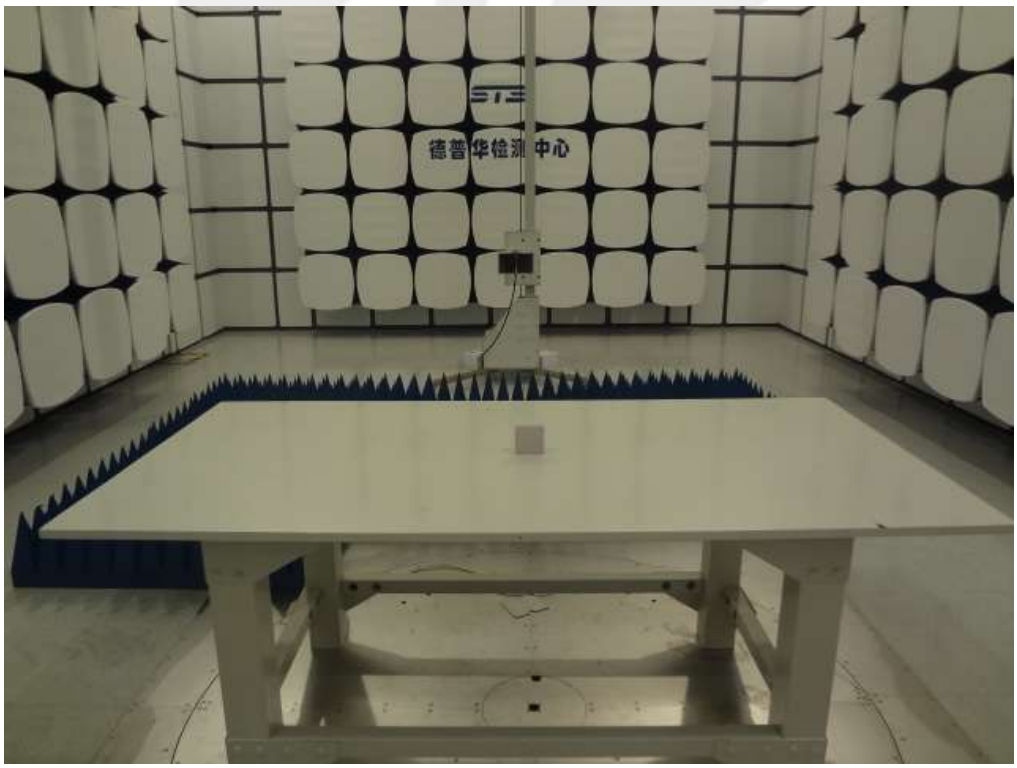
Low Band Edge HSDPA BAND II CH 9663



High Band Edge HSDPA BAND II CH 9937


APPENDIX IV
PHOTOS OF TEST SETUP

RADIATED SPURIOUS EMISSION



----END OF REPORT----