

FCC TEST REPORT

For

Shenzhen Aroccom Import & Export Co., Ltd.

Tablet PC

Model No.: TP02

Additional models NO.: Please refer to page 80

Prepared for : Shenzhen Aroccom Import & Export Co., Ltd.
Address : Room 1102, HongAn Commercial Centre, BeiHuan Road, ShaJing
Street ,BaoAn District, ShenZhen, Guangdong , 518125 P.R China

Prepared by : Shenzhen LCS Compliance Testing Laboratory Ltd.
Address : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, China

Date of receipt of test sample : December 13, 2013
Number of tested samples : 1
Serial number : Prototype
Date of Test : December 13, 2013 – January 07 , 2014
Date of Report : January 07 , 2014

FCC TEST REPORT

FCC CFR 47 PART 22 SUBPART H AND PART 24 SUBPART E

Report Reference No. : LCS131231967TF

Date of Issue : January 07 , 2014

Testing Laboratory Name..... : Shenzhen LCS Compliance Testing Laboratory Ltd.Address : 1/F., Xingyuan Industrial Park, Tongda Road, Bao'an Avenue,
Bao'an District, Shenzhen, Guangdong, ChinaFull application of Harmonised standards ☒Testing Location/ Procedure..... : Partial application of Harmonised standards ☐Other standard testing method ☐**Applicant's Name..... : Shenzhen Aroccom Import & Export Co., Ltd.**Address : Room 1102, HongAn Commercial Centre, BeiHuan Road,
ShaJing Street ,BaoAn District, ShenZhen, Guangdong , 518125
P.R China**Test Specification**Standard : FCC CFR 47 PART 2, FCC CFR 47 PART 22 SUBPART H
AND PART 24 SUBPART E**Test Report Form No..... : LCSEMC-1.0**

TRF Originator : Shenzhen LCS Compliance Testing Laboratory Ltd.

Master TRF : Dated 2011-03

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Test Item Description. : Tablet PCTrade Mark : **ARRCCOM**

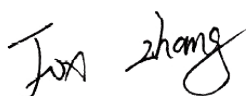
Model/ Type reference..... : TP02

Ratings : DC 3.7V by battery(3000mAh)

Charging:DC 5V

Result : **Positive****Compiled by:**

Jacky Li/ File administrators

Supervised by:

Fox Zhang/ Technique principal

Approved by:

Gavin Liang/ Manager

FCC -- TEST REPORT

Test Report No. : LCS131231967TFJanuary 07, 2014

Date of issue

Type / Model..... : TP02

EUT..... : Tablet PC

Applicant..... : Shenzhen Aroccom Import & Export Co., Ltd.Address..... : Room 1102, HongAn Commercial Centre, BeiHuan Road,
ShaJing Street ,BaoAn District, ShenZhen, Guangdong , 518125
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Telephone..... : /

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Manufacturer..... : Aroccom Technology Co., Ltd.Address..... : Room 1102, HongAn Commercial Centre, BeiHuan Road,
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ShaJing Street ,BaoAn District, ShenZhen, Guangdong , 518125
P.R China

Telephone..... : /

Fax..... : /

Test Result**Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Tablet PC
Test Model	:	TP02
Power Supply	:	DC 3.7V by battery(3000mAh) Charging:DC 5V
		<input checked="" type="checkbox"/> GSM 850 (U.S.-Band) <input checked="" type="checkbox"/> PCS 1900 (U.S.-Band)
Support Band	:	<input checked="" type="checkbox"/> UMTS FDD Band II (U.S.-Band) <input checked="" type="checkbox"/> UMTS FDD Band V (U.S.-Band) GSM 850: 824.2MHz ~ 848.8MHz
Uplink	:	PCS 1900: 1850.2MHz ~ 1909.8MHz UMTS FDD Band V:826.4MHz-846.6MHz UMTS FDD Band II:1852.4 MHz -1907.6 MHz GSM 850: 869.2MHz ~ 893.8MHz
Downlink	:	PCS 1900: 1930.2MHz ~ 1989.8MHz UMTS FDD Band V:871.4MHz-891.6MHz UMTS FDD Band II:1932.4 MHz -1987.6 MHz
Type Of Modulation	:	GSM/GPRS/EGPRS(CS-1~CS-4):GMSK, EGPRS(CS-5~CS-9)/UMTS:QPSK
Antenna Description	:	Integral Antenna, Antenna Gain: -2.35dBi@GSM850, 0.68 dBi@1900M
Software Version	:	Android 4.2.2
Hardware Version	:	H710_V2.1

1.2. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
--	--	--	--	--

1.3. External I/O Cable

Cable Description	Length(M)	From/Port	To
USB Cable	0.8	Mini USB	USB

1.4. Description of Test Facility

Site Description

EMC Lab.

: Accredited by CNAS, June 04, 2010

The Certificate Registration Number. is L4595.

Accredited by FCC, July 14, 2011

The Certificate Registration Number. is 899208.

Accredited by Industry Canada, May. 02, 2011

The Certificate Registration Number. is 9642A-1

Accredited by VCCI, Japan January 30, 2012

The Certificate Registration Number. is C-4260 and R-3804

Accredited by ESMD, April 24, 2012

The Certificate Registration Number. is ARCB0108.

Accredited by UL, June 11, 2012

The Certificate Registration Number. is 100571-492.

Accredited by TUV, November 21, 2012

The Certificate Registration Number. is SCN1081

Accredited by Intertek, December 21, 2012

The Certificate Registration Number. is 2011-RTL-L1-50.

1.5. Statement of The Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.6. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	9KHz~30MHz	$\pm 3.10\text{dB}$	(1)
		30MHz~200MHz	$\pm 2.96\text{dB}$	(1)
		200MHz~1000MHz	$\pm 3.10\text{dB}$	(1)
		1GHz~26.5GHz	$\pm 3.80\text{dB}$	(1)
Conduction Uncertainty	:	150kHz~30MHz	$\pm 1.63\text{dB}$	(1)
Power disturbance	:	30MHz~300MHz	$\pm 1.60\text{dB}$	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k=2$.

1.7. Test environment

All tests were performed under the following environmental conditions:

Condition	Minimum value	Maximum value
Barometric pressure	86kPa	106kPa
Temperature	15°C	30°C
Relative Humidity	20 %	75 %
Power supply range	$\pm 5\%$ of rated voltages	

2. TEST METHODOLOGY

All tests and measurements indicated in this document were performed in accordance with FCC CFR 47 part 2, FCC CFR 47 part 22 subpart H and part 24 subpart E.

Applicable Standards: TIA/EIA603-C, ANSI C63.4-2003. The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd..

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 that intends to maximize its emission characteristics in a continuous normal application.

2.2. Objective

This type approval report is prepared on behalf of **Shenzhen Aroccom Import & Export Co., Ltd.** in accordance with FCC CFR 47 part 2, FCC CFR 47 part 22 subpart H and part 24 subpart E.

The objective is to determine compliance with FCC rules for RF output power, modulation characteristics, occupied bandwidth, spurious emissions at antenna terminal, field strength of spurious radiation, frequency stability, band edge, and conducted and radiated margin.

2.3. General Test Procedures

2.3.1 Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable 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 maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4

2.4. Test Mode

GSM / GPRS /EGPRS 850: Channel Low (CH128), Channel Mid (CH190) and Channel High (CH251) were chosen for full testing. The test PCL(Power Control Level)/Class is level 5/class 4.

PCS / GPRS /EGPRS 1900: Channel Low (CH512), Channel Mid (CH661) and Channel High (CH810) were chosen for full testing. The test PCL(Power Control Level)/Class is level 0/class 1.

UMTS FDD Band II: Channel Low (CH9262), Channel Mid (CH9400) and Channel High (CH9538) were chosen for full testing

UMTS FDD Band V: Channel Low (CH4132), Channel Mid (CH4180) and Channel High (CH4233) were chosen for full testing

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

For the field strength of spurious emission, the worst emission was found in lie-down position (X axis) for GSM /GPRS /EGPRS 850, lie-down position (X axis) for PCS / GPRS / EGPRS 1900, lie-down position (X axis) for UMTS FDD Band II, lie-down position (X axis) for UMTS FDD Band V and the worst case was recorded.

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The EUT had been tested under operating condition. EUT staying in continuous transmitting mode.

3.2. EUT Exercise Software

N/A.

3.3. Special Accessories

N/A.

3.4. Block Diagram/Schematics

Please refer to the related document

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Test Setup

Please refer to the test setup photo.

4. SUMMARY OF TEST RESULTS

Applied Standard: 47 CFR FCC Part 22 Subpart H, Part 24 Subpart E			
FCC Rules	Description of Test		Result
§2.1046, §22.913 / §24.232	RF Output Power	Conducted Output Power	Compliant
		Radiated Output Power	
§2.1049, §22.905 §2.917, §24.238	Occupied Bandwidth		Compliant
§2.1053 §2.917, §24.238	Spurious Radiated Emissions		Compliant
§2.1051 §2.917, §24.238	Spurious Emissions at Antenna Terminals		Compliant
§2.917, §24.238	Band Edge		Compliant
§2.1055 §22.355, §24.235	Frequency Stability		Compliant
§15.107 / §15.207	AC power line conducted emissions		Compliant
§1.1310, §2.1091	RF Exposure Information		Compliant

5. TEST RESULT

5.1. RF OUTPUT POWER

5.1.1. Standard Applicable

According to FCC §2.1046 and §22.913, the maximum effective radiated power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

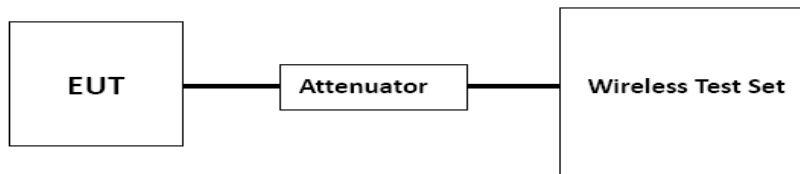
According to FCC §2.1046 and §22.232, mobile and portable stations are limited to 2 Watts and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

5.1.2. Measuring Instruments

Please refer to section 6 of equipments list in this report.

5.1.3. Test Procedures

Conducted method:



Radiated method:

TIA 603-D section 2.2.17

5.1.4. Test Results

Temperature	25°C	Humidity	60%
ATM Pressure:	101.4kPa	Test Engineer	Tree

Conducted Power:

Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
GSM 850	128	824.2	31.47	38.45
	190	836.6	31.50	38.45
	251	848.8	31.41	38.45
GPRS 850 (Slot 1)	128	824.2	30.69	38.45
	190	836.6	30.74	38.45
	251	848.8	30.72	38.45
GPRS 850 (Slot 2)	128	824.2	28.34	38.45
	190	836.6	28.36	38.45
	251	848.8	28.32	38.45
GPRS 850 (Slot 3)	128	824.2	27.01	38.45
	190	836.6	27.05	38.45
	251	848.8	27.06	38.45
GPRS 850 (Slot 4)	128	824.2	26.85	38.45
	190	836.6	26.84	38.45
	251	848.8	26.63	38.45
EGPRS 850 (Slot 1)	128	824.2	30.75	38.45
	190	836.6	30.71	38.45
	251	848.8	30.73	38.45
EGPRS 850 (Slot 2)	128	824.2	28.25	38.45
	190	836.6	28.24	38.45
	251	848.8	28.23	38.45
EGPRS 850 (Slot 3)	128	824.2	27.02	38.45
	190	836.6	27.03	38.45
	251	848.8	27.01	38.45
EGPRS 850 (Slot 4)	128	824.2	26.45	38.45
	190	836.6	26.41	38.45
	251	848.8	26.40	38.45

Mode	Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
PCS 1900	512	1850.2	28.51	33
	661	1880.0	28.42	33
	810	1909.8	28.41	33
GPRS 1900 (Slot 1)	512	1850.2	27.35	33
	661	1880.0	27.31	33
	810	1909.8	27.36	33
GPRS 1900 (Slot 2)	512	1850.2	26.45	33
	661	1880.0	26.46	33
	810	1909.8	26.44	33
GPRS 1900 (Slot 3)	512	1850.2	25.31	33
	661	1880.0	25.36	33
	810	1909.8	25.30	33
GPRS 1900 (Slot 4)	512	1850.2	24.29	33
	661	1880.0	24.25	33
	810	1909.8	24.23	33
EGPRS 1900 (Slot 1)	512	1850.2	27.24	33
	661	1880.0	27.25	33
	810	1909.8	27.26	33
EGPRS 1900 (Slot 2)	512	1850.2	26.43	33
	661	1880.0	26.44	33
	810	1909.8	26.45	33
EGPRS 1900 (Slot 3)	512	1850.2	25.25	33
	661	1880.0	25.30	33
	810	1909.8	25.32	33
EGPRS 1900 (Slot 4)	512	1850.2	24.29	33
	661	1880.0	24.28	33
	810	1909.8	24.26	33

Mode		Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
UMTS 850 HSDPA	Subtest 1	4132	826.4	22.32	38.45
		4180	836.0	22.54	38.45
		4233	846.6	22.45	38.45
	Subtest 2	4132	826.4	22.19	38.45
		4180	836.0	22.22	38.45
		4233	846.6	22.27	38.45
	Subtest 3	4132	826.4	22.02	38.45
		4180	836.0	22.16	38.45
		4233	846.6	22.22	38.45
	Subtest 4	4132	826.4	22.04	38.45
		4180	836.0	22.32	38.45
		4233	846.6	22.41	38.45
UMTS 850 HSUPA	Subtest 1	4132	826.4	21.47	38.45
		4180	836.0	21.20	38.45
		4233	846.6	21.16	38.45
	Subtest 2	4132	826.4	20.06	38.45
		4180	836.0	20.35	38.45
		4233	846.6	20.41	38.45
	Subtest 3	4132	826.4	21.00	38.45
		4180	836.0	21.45	38.45
		4233	846.6	21.23	38.45
	Subtest 4	4132	826.4	20.10	38.45
		4180	836.0	20.52	38.45
		4233	846.6	20.74	38.45
	Subtest 5	4132	826.4	21.45	38.45
		4180	836.0	21.52	38.45
		4233	846.6	21.18	38.45
UMTS 850 RMC	12.2kbps	4132	826.4	23.32	38.45
		4180	836.0	23.36	38.45
		4233	846.6	23.20	38.45
	64kbps	4132	826.4	23.39	38.45
		4180	836.0	23.21	38.45
		4233	846.6	23.12	38.45
	144kbps	4132	826.4	23.35	38.45
		4180	836.0	23.44	38.45
		4233	846.6	23.23	38.45
	384kbps	4132	826.4	23.24	38.45
		4180	836.0	23.31	38.45
		4233	846.6	23.40	38.45

Mode		Channel	Frequency (MHz)	Peak Output Power (dBm)	Limit (dBm)
UMTS 1900 HSDPA	Subtest 1	9262	1852.4	22.87	33
		9400	1880.0	22.11	33
		9538	1907.6	22.24	33
	Subtest 2	9262	1852.4	22.21	33
		9400	1880.0	21.93	33
		9538	1907.6	21.54	33
	Subtest 3	9262	1852.4	21.62	33
		9400	1880.0	21.88	33
		9538	1907.6	21.84	33
	Subtest 4	9262	1852.4	21.53	33
		9400	1880.0	21.94	33
		9538	1907.6	21.44	33
UMTS 1900 HSUPA	Subtest 1	9262	1852.4	21.82	33
		9400	1880.0	21.73	33
		9538	1907.6	21.62	33
	Subtest 2	9262	1852.4	20.70	33
		9400	1880.0	20.86	33
		9538	1907.6	20.62	33
	Subtest 3	9262	1852.4	21.45	33
		9400	1880.0	21.62	33
		9538	1907.6	21.81	33
	Subtest 4	9262	1852.4	20.04	33
		9400	1880.0	20.52	33
		9538	1907.0	20.62	33
	Subtest 5	9262	1852.4	21.74	33
		9400	1880.0	21.52	33
		9538	1907.0	21.62	33
UMTS 1900 RMC	12.2kbps	9262	1852.4	23.41	33
		9400	1880.0	23.56	33
		9538	1907.6	23.54	33
	64kbps	9262	1852.4	22.87	33
		9400	1880.0	22.93	33
		9538	1907.6	22.56	33
	144kbps	9262	1852.4	22.54	33
		9400	1880.0	22.78	33
		9538	1907.0	22.71	33
	384kbps	9262	1852.4	22.62	33
		9400	1880.0	22.91	33
		9538	1907.6	22.45	33

Radiated Power:

The worst test data as follow:

Mode	Channel	Frequency (MHz)	Test Result		Limit (dBm)
			Max. Peak ERP (dBm)	Polarization	
GSM 850	128	824.2	30.21	H	38.45
	190	836.6	30.28	H	38.45
	251	848.8	30.24	H	38.45

Mode	Channel	Frequency (MHz)	Test Result		Limit (dBm)
			Max. Peak EIRP (dBm)	Polarization	
PCS 1900	512	1850.2	27.84	H	33
	661	1880.0	27.86	H	33
	810	1909.8	27.87	H	33

Mode	Channel	Frequency (MHz)	Test Result		Limit (dBm)
			Max. Peak ERP (dBm)	Polarization	
GSM 850 (EGPRS)	128	824.2	30.35	H	38.45
	190	836.6	30.74	H	38.45
	251	848.8	30.24	H	38.45

Mode	Channel	Frequency (MHz)	Test Result		Limit (dBm)
			Max. Peak EIRP (dBm)	Polarization	
PCS 1900 (EGPRS)	512	1850.2	27.74	H	33
	661	1880.0	27.52	H	33
	810	1909.8	27.36	H	33

Mode	Channel	Frequency (MHz)	Test Result		Limit (dBm)
			Max. Peak ERP (dBm)	Polarization	
UMTS 850 12.2K RMC	4132	826.4	23.21	H	38.45
	4180	836.0	23.42	H	38.45
	4233	846.6	23.34	H	38.45

Mode	Channel	Frequency (MHz)	Test Result		Limit (dBm)
			Max. Peak EIRP (dBm)	Polarization	
UMTS 1900 12.2K RMC	9262	1852.4	23.54	H	33
	9400	1880.0	23.51	H	33
	9538	1907.6	23.47	H	33

NOTE: All conditions have been tested and we only record the worst results in each bands.

5.2. OCCUPIED BANDWIDTH

5.2.1. Standard Applicable

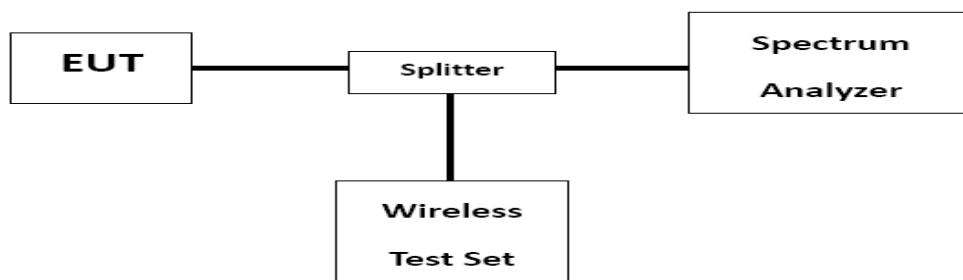
FCC §2.1049, §22.917, §22.905 and §24.238.

5.2.2. Measuring Instruments

Please refer to section 6 of equipments list in this report.

5.2.3. Test Procedures

The RF output of the transmitter was connected to the wireless communication tester and spectrum analyzer through attenuation.



The -26dB & 99% bandwidth was recorded.

5.2.4. Test Results

Temperature	25°C	Humidity	60%
ATM Pressure:	101.4kPa	Test Engineer	Tree

The worst test data as follow:

Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (kHz)	Occupied Bandwidth (99%) (kHz)
GSM 850	128	824.2	307.357	249.3248
	190	836.6	313.766	242.6885
	251	848.8	314.067	245.9322

Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (kHz)	Occupied Bandwidth (99%) (kHz)
PCS 1900	512	1850.2	317.851	242.6130
	661	1880.0	315.371	245.2331
	810	1909.8	318.264	246.6290

Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (kHz)	Occupied Bandwidth (99%) (kHz)
GSM 850 EGPRS	128	824.2	307.377	249.3942
	190	836.6	313.763	242.6445
	251	848.8	314.161	245.5352

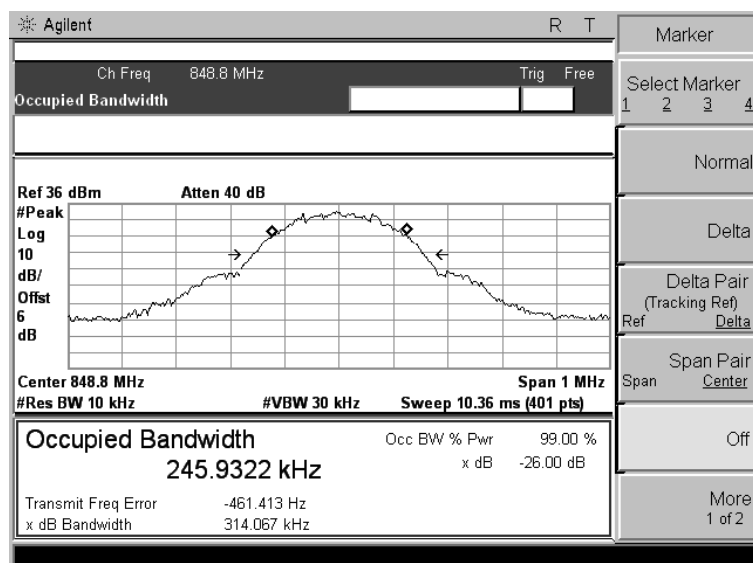
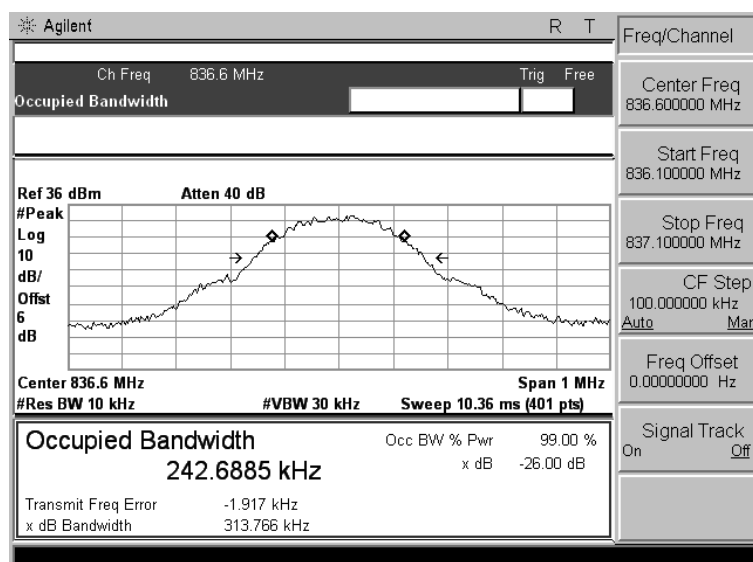
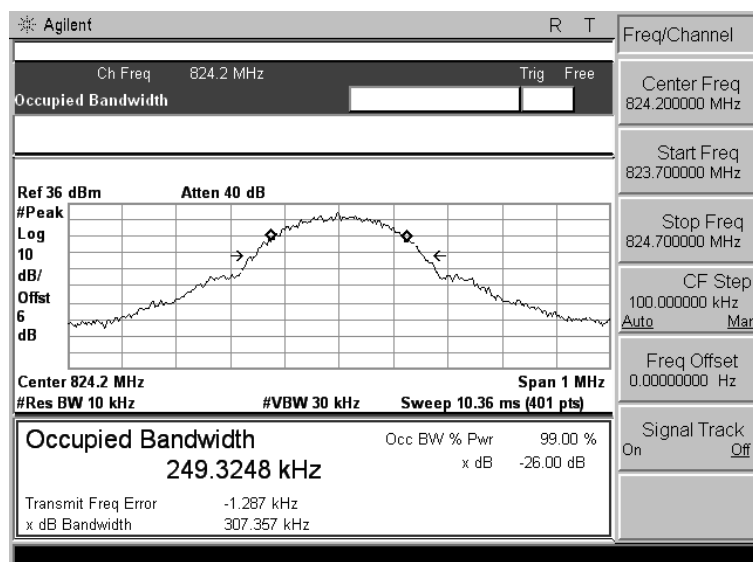
Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (kHz)	Occupied Bandwidth (99%) (kHz)
PCS 1900 EGPRS	512	1850.2	317.857	245.3133
	661	1880.0	315.575	245.5341
	810	1909.8	318.268	246.6490

Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (kHz)	Occupied Bandwidth (99%) (kHz)
UMTS 850 12.2K RMC	4132	826.40	4.695	4.1644
	4180	836.00	4.699	4.1679
	4233	846.60	4.704	4.1529
UMTS 850 HSDPA	4132	826.40	4.688	4.1552
	4180	836.00	4.692	4.1718
	4233	846.60	4.689	4.1592
UMTS 850 HSUPA	4132	826.40	4.704	4.1698
	4180	836.00	4.697	4.1654
	4233	846.60	4.679	4.1682

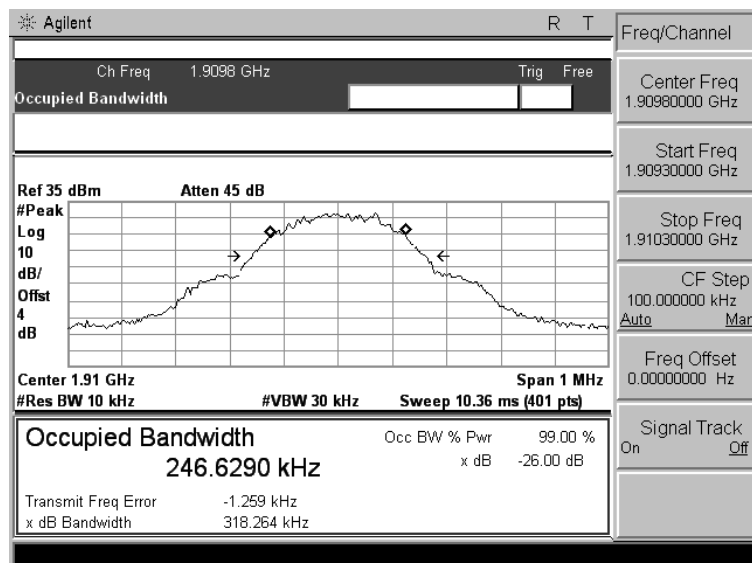
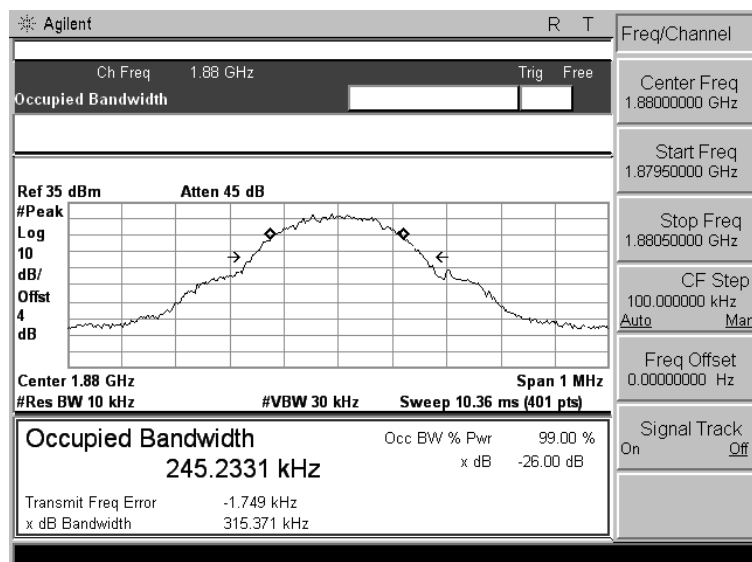
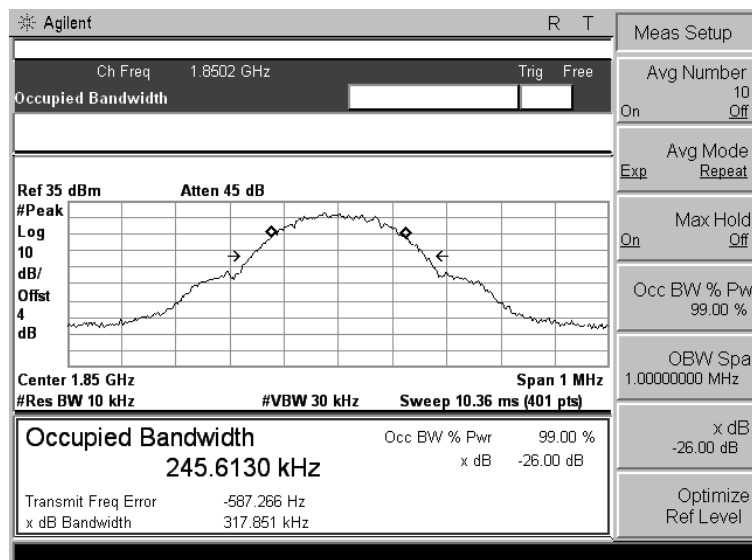
Mode	Channel	Frequency (MHz)	Emission Bandwidth (-26dBc) (kHz)	Occupied Bandwidth (99%) (kHz)
UMTS 1900 12.2K RMC	9262	1852.4	4.687	4.1644
	9400	1880.0	4.708	4.1739
	9538	1907.6	4.712	4.1656
UMTS 1900 HSDPA	9262	1852.4	4.713	4.1726
	9400	1880.0	4.711	4.1645
	9538	1907.6	4.688	4.1714
UMTS 1900 HSUPA	9262	1852.4	4.691	4.1630
	9400	1880.0	4.677	4.1481
	9538	1907.6	4.699	4.1517

NOTE: All conditions have been tested and we only record the worst results in each bands.

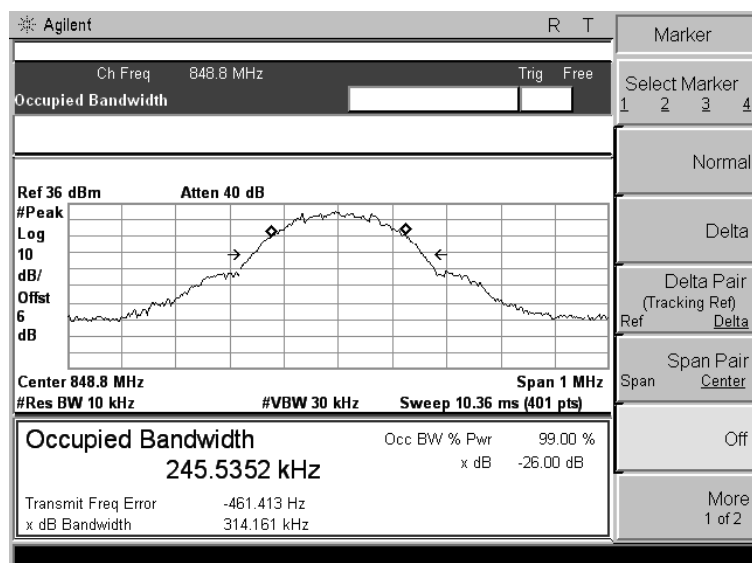
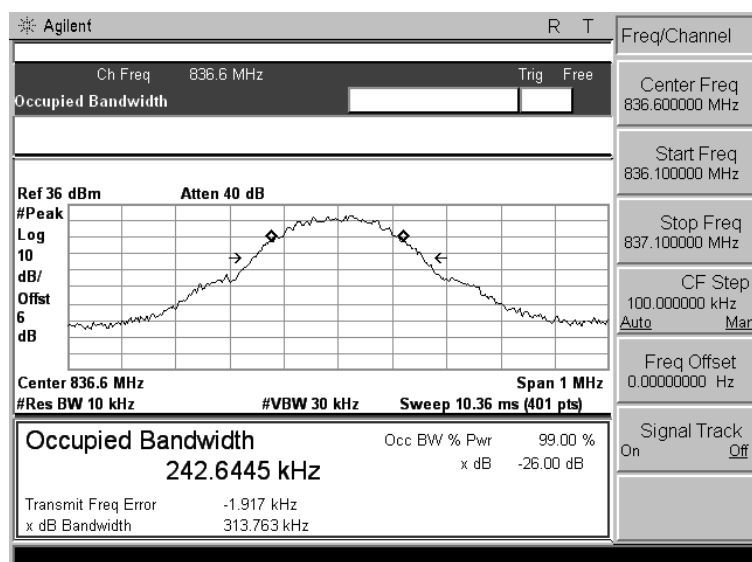
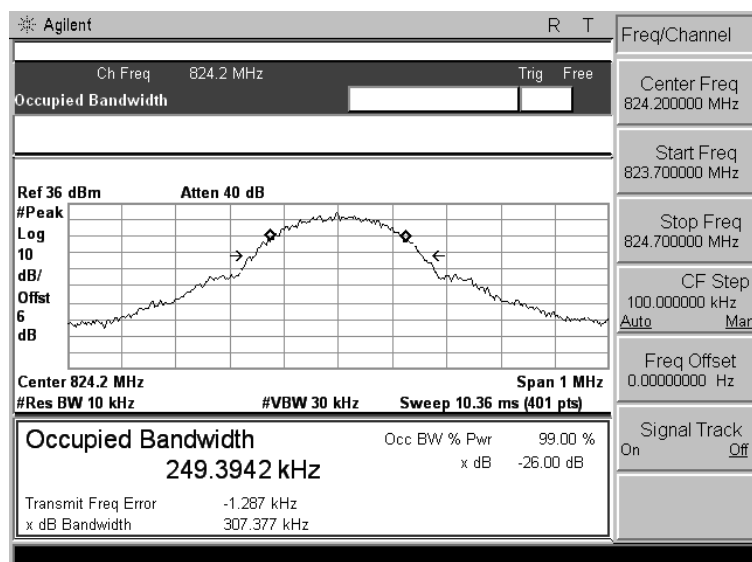
Test Plots For GSM 850



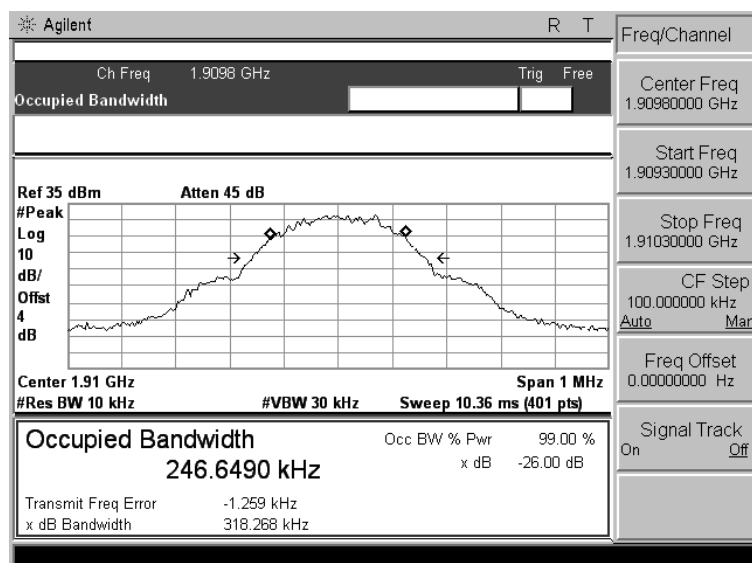
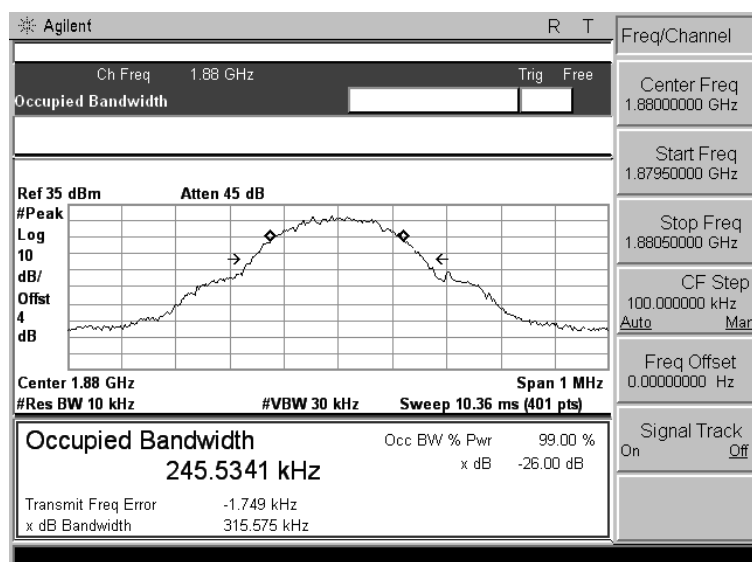
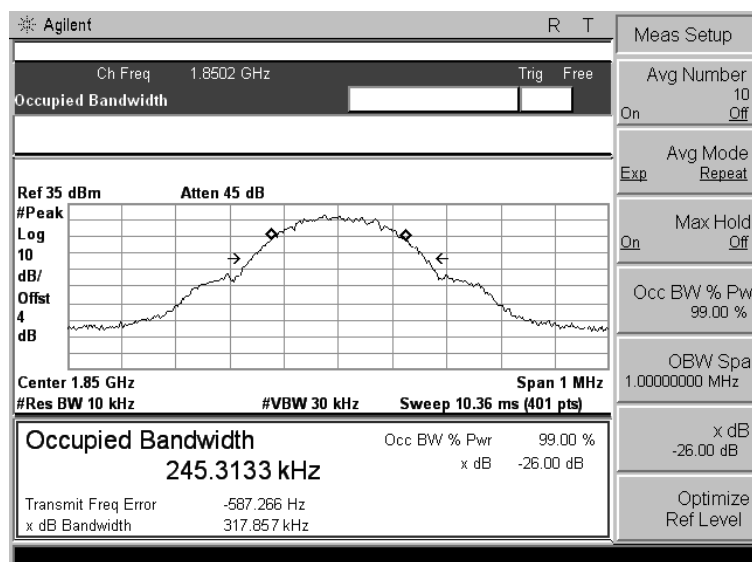
Test Plots For PCS 1900



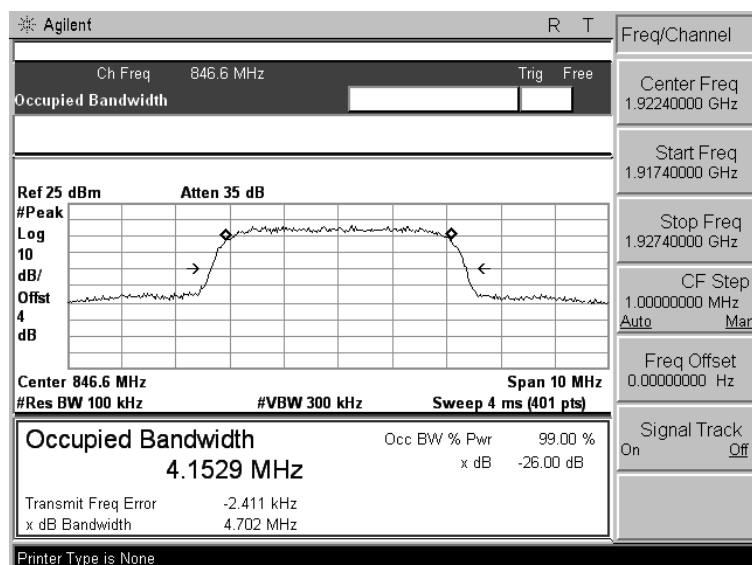
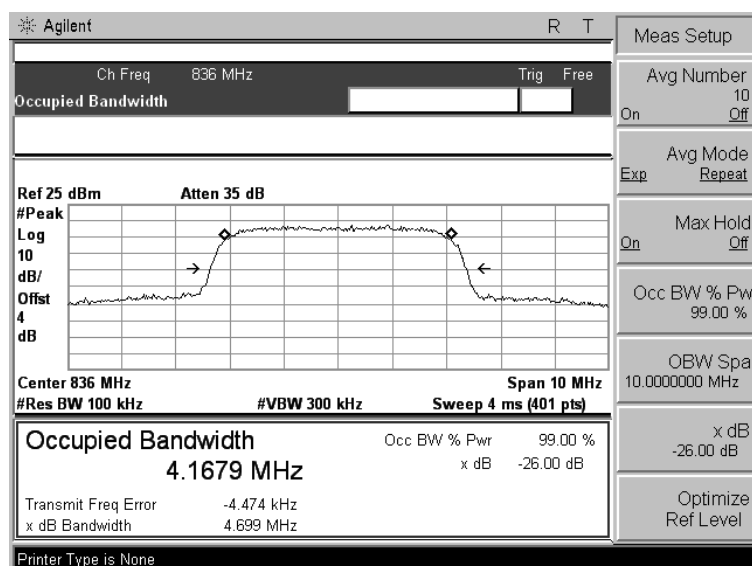
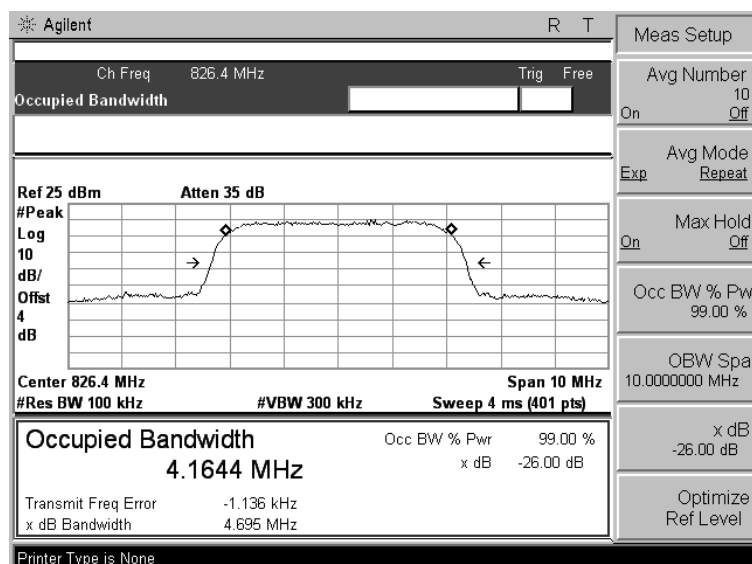
Test Plots For GSM 850 EGPRS



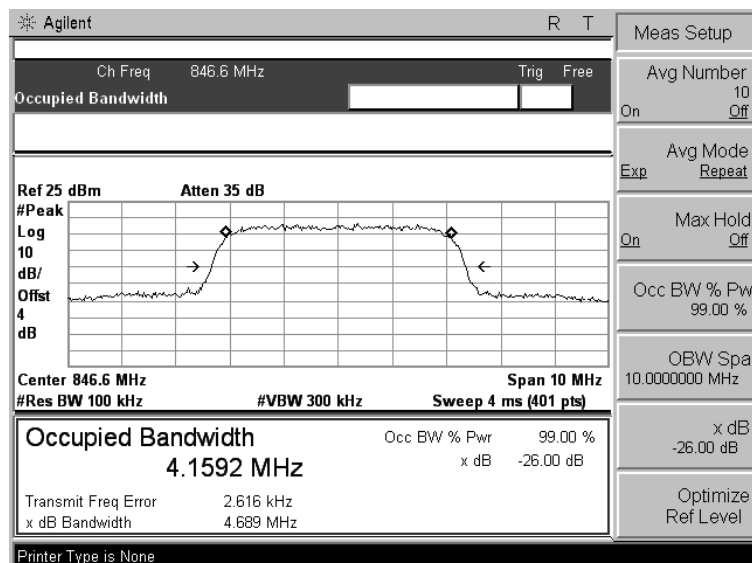
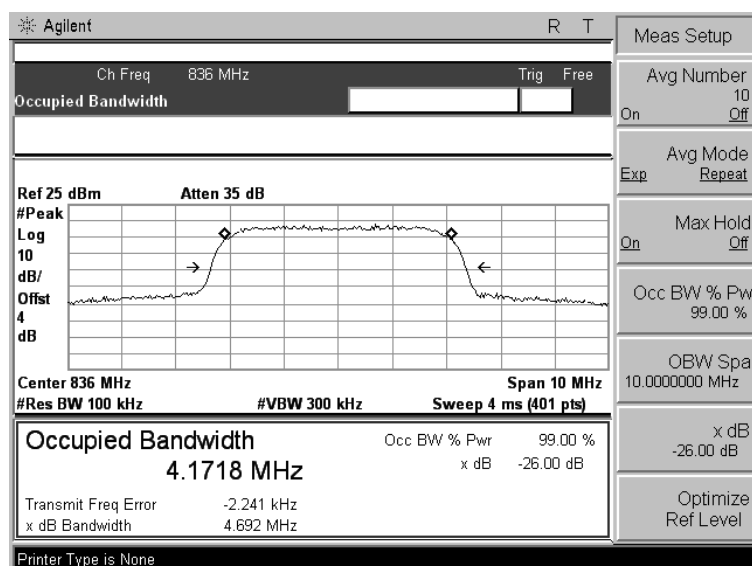
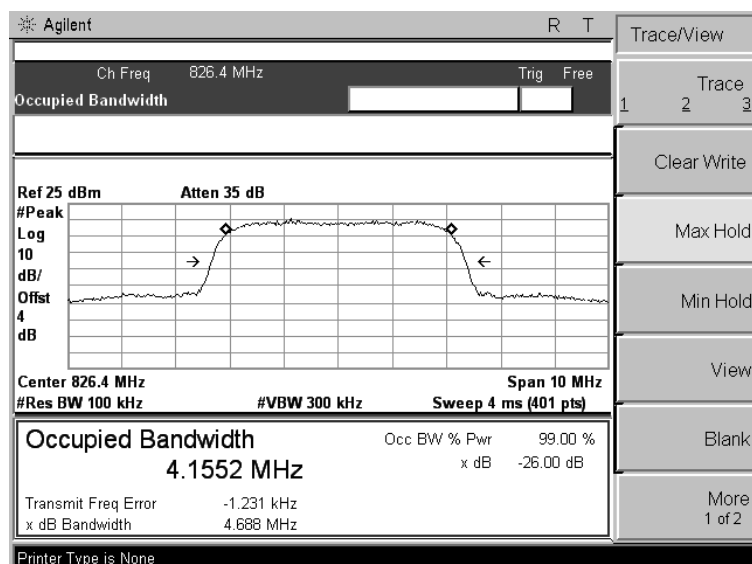
Test Plots For PCS 1900 EGPRS



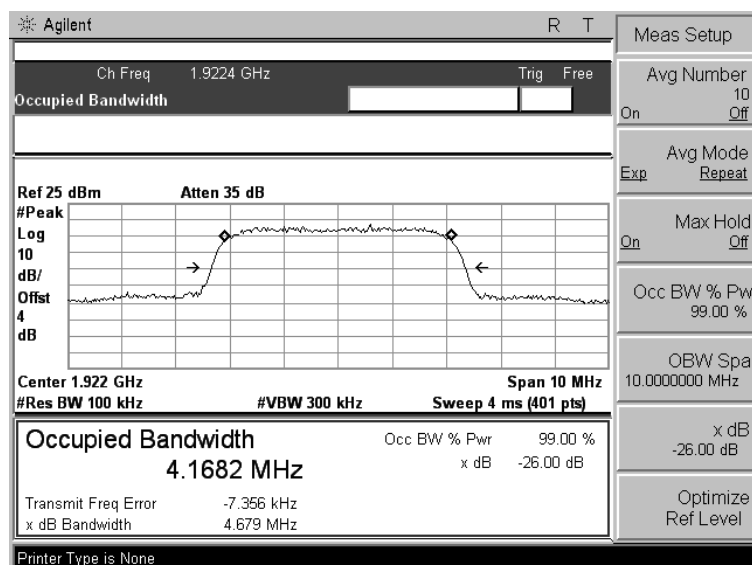
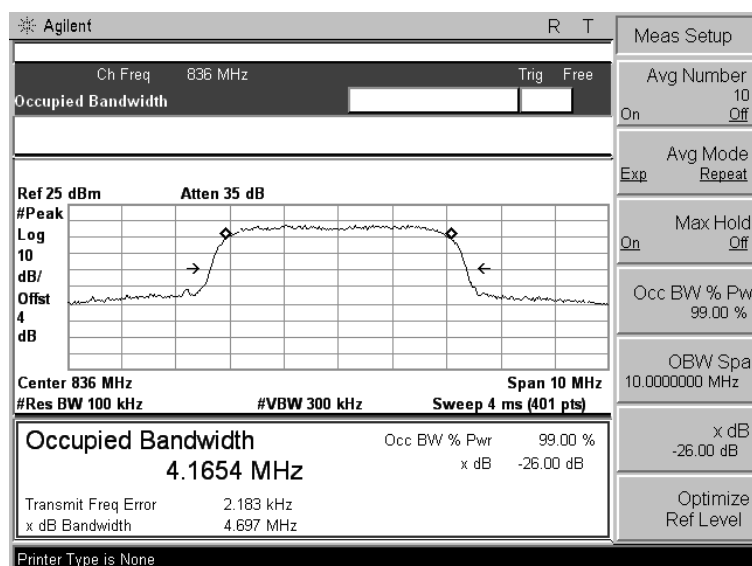
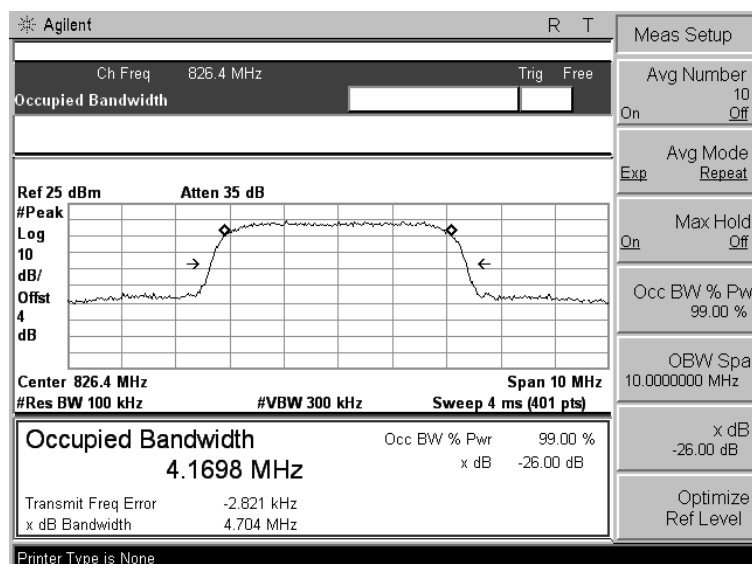
Test Plots For PCS UMTS 850 12.2K RMC



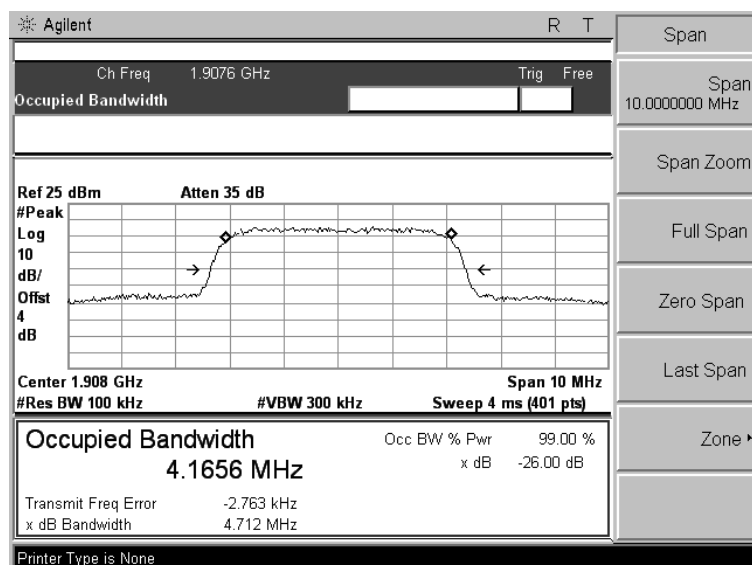
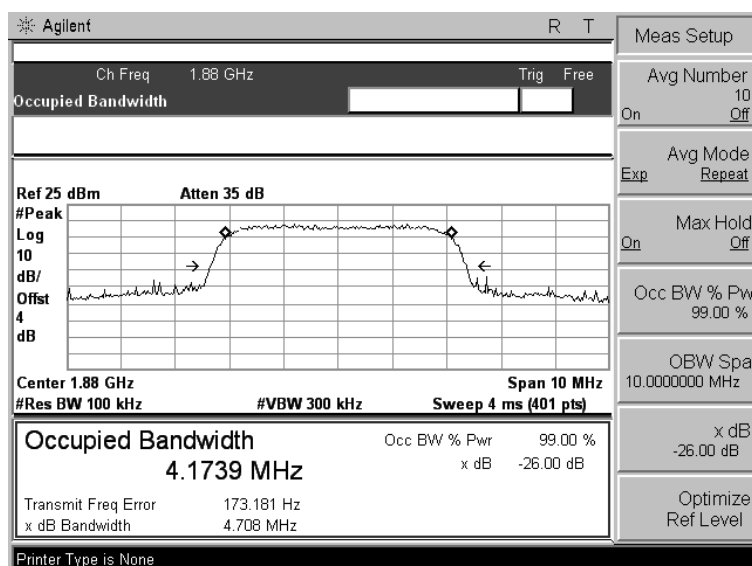
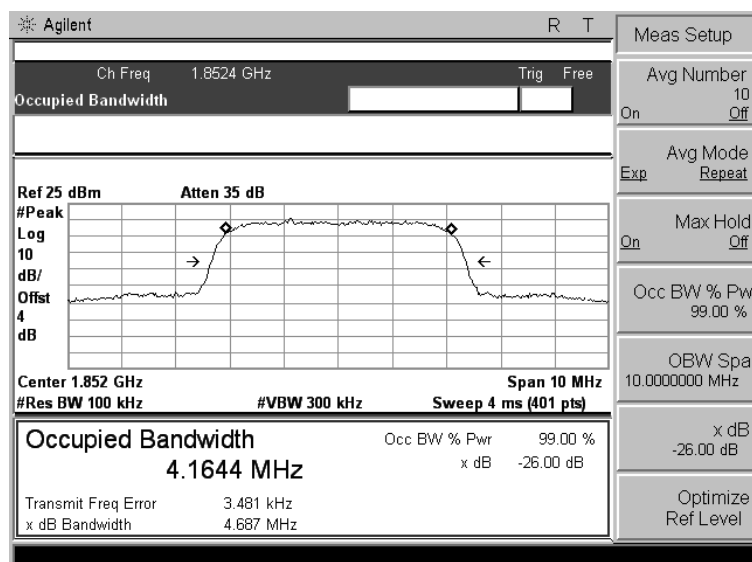
Test Plots For PCS UMTS 850 HSDPA



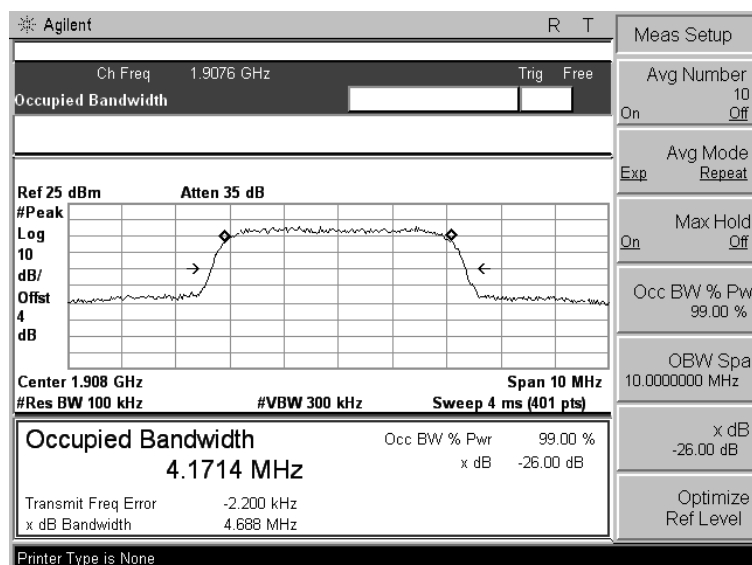
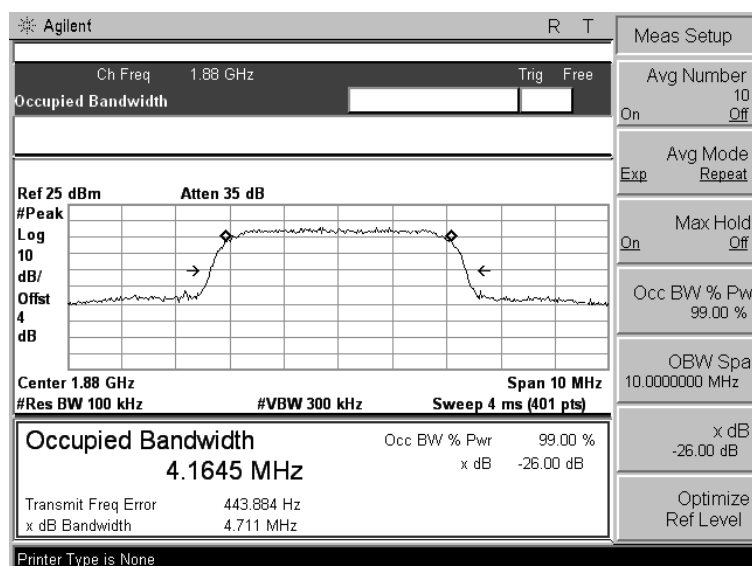
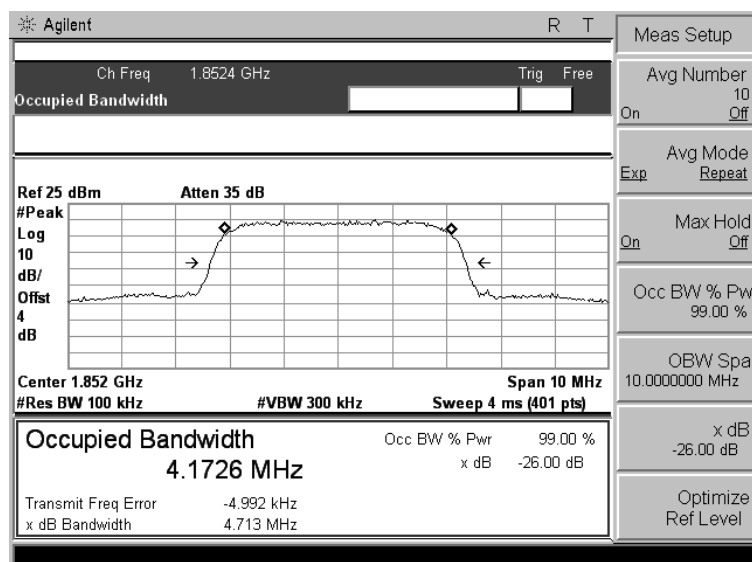
Test Plots For PCS UMTS 850 HSUPA



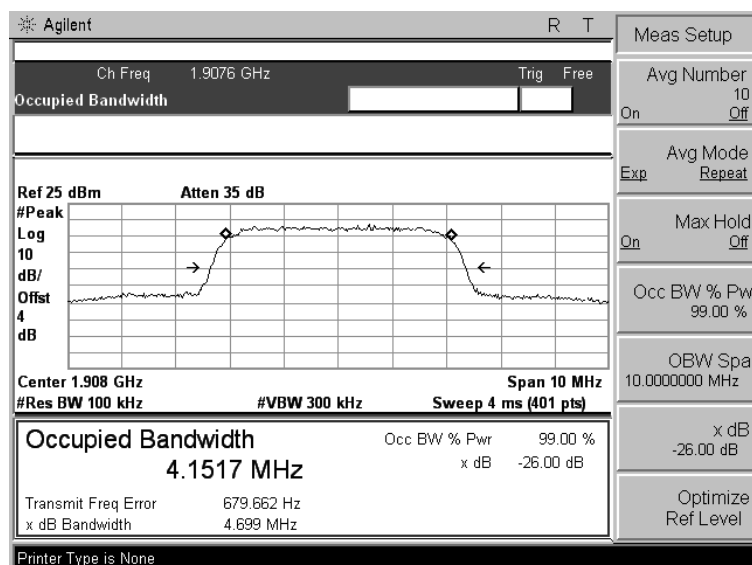
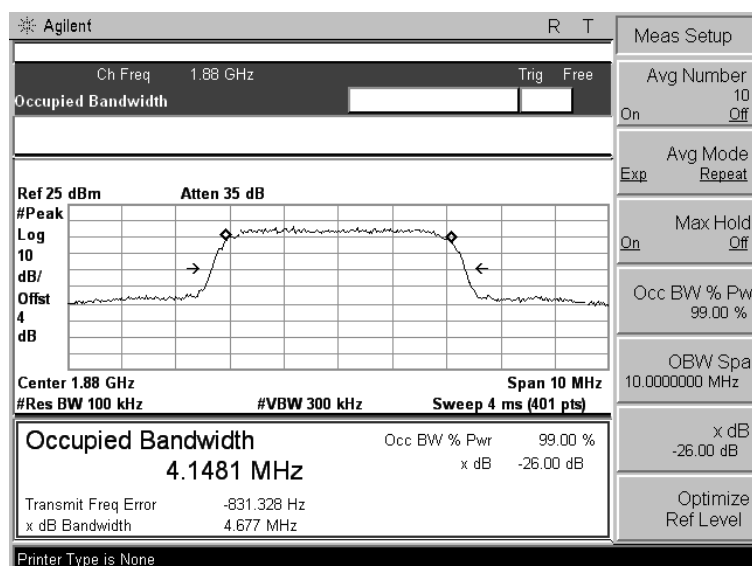
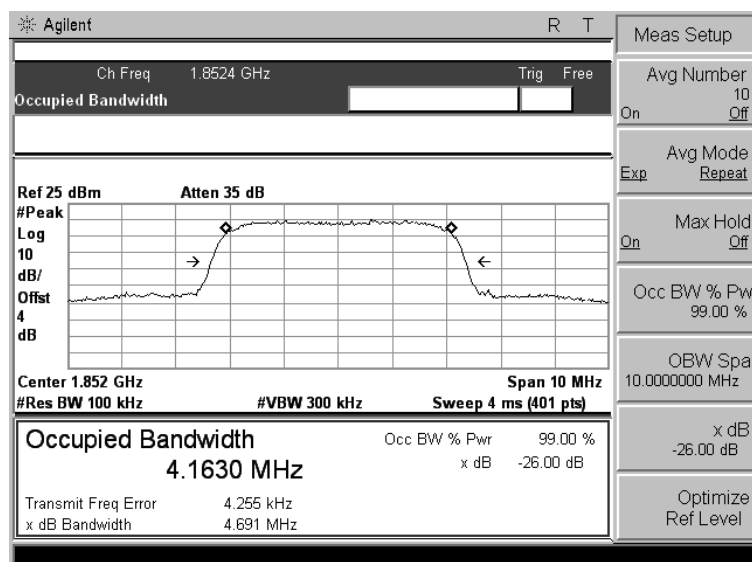
Test Plots For PCS UMTS 1900 12.2K RMC



Test Plots For PCS UMTS 1900 HSDPA



Test Plots For PCS UMTS 1900 HSUPA



5.3. SPURIOUS AND HARMONIC EMISSION AT ANTENNA TERMINAL

5.3.1. Standard Applicable

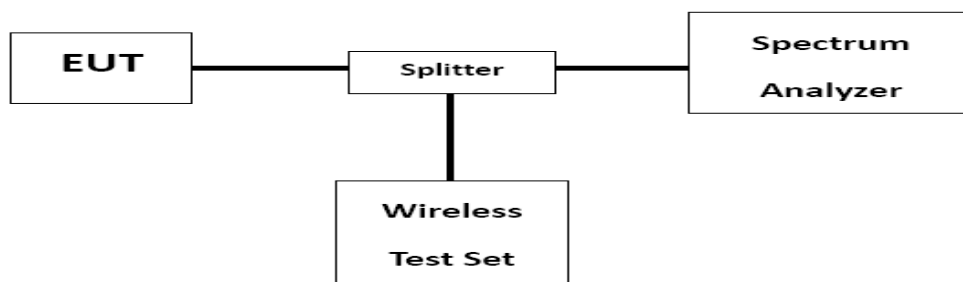
FCC §2.1051, §22.917 and §24.238.

5.3.2. Measuring Instruments

Please refer to section 6 of equipments list in this report.

5.3.3. Test Procedures

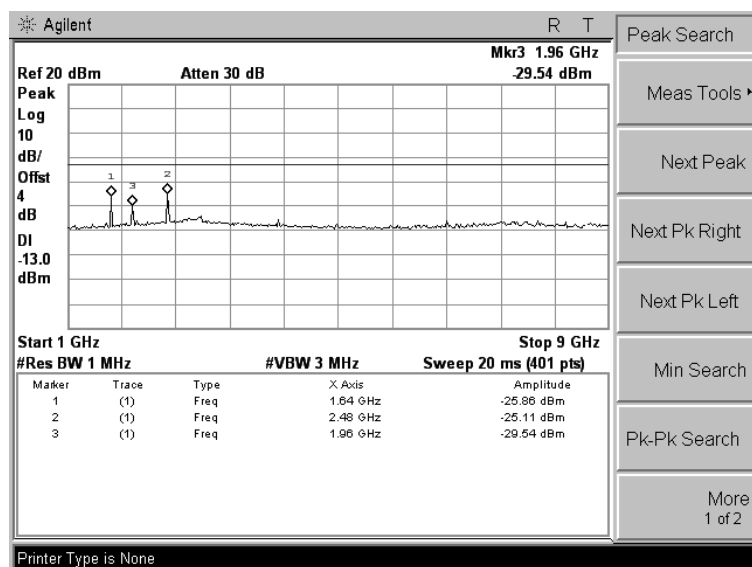
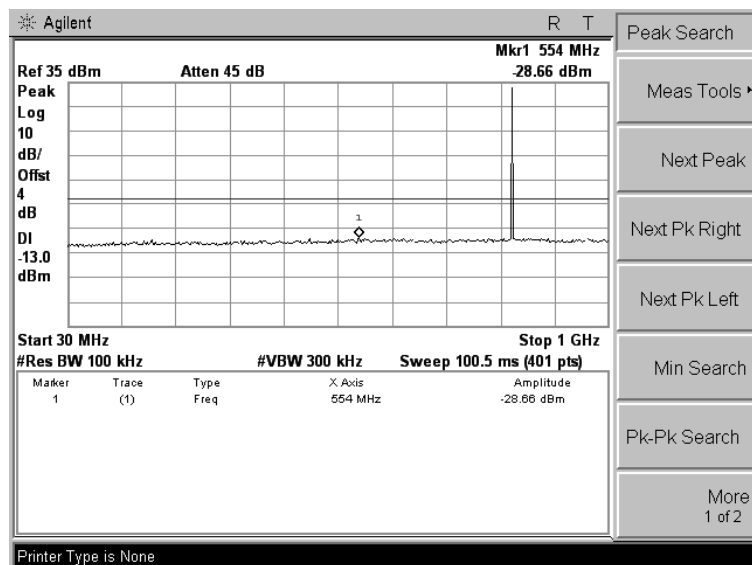
The RF output of the transmitter was connected to the wireless communication tester and spectrum analyzer through attenuation.



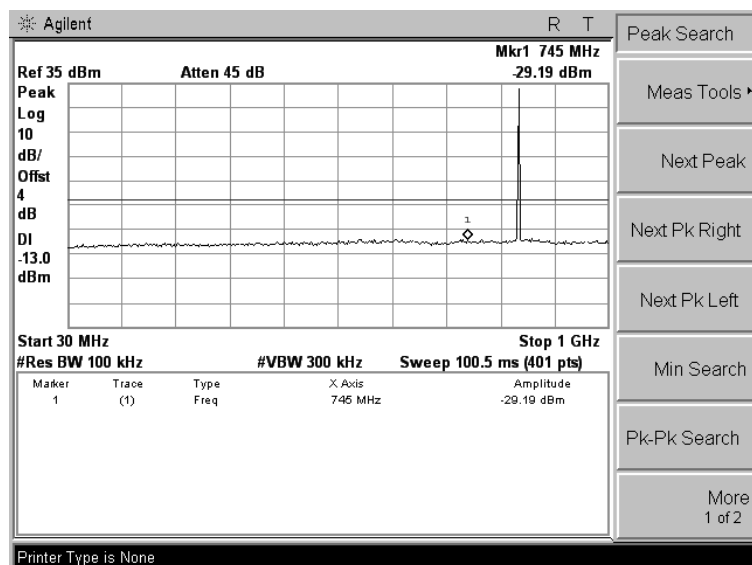
5.3.4. Test Results

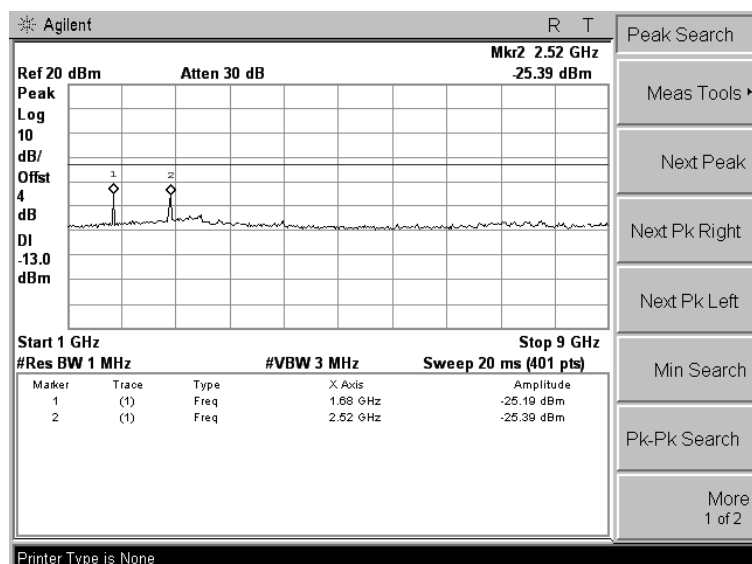
Please refer to the following plots.

Transmitting Mode, CH 128, GSM 850

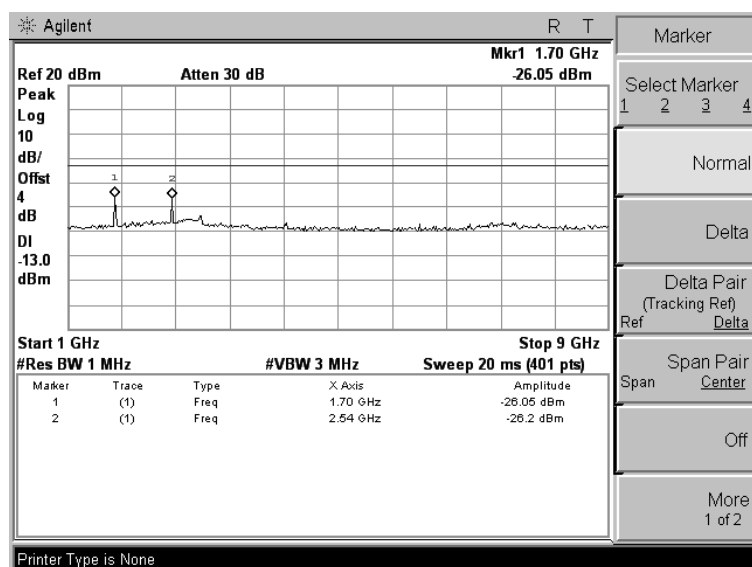
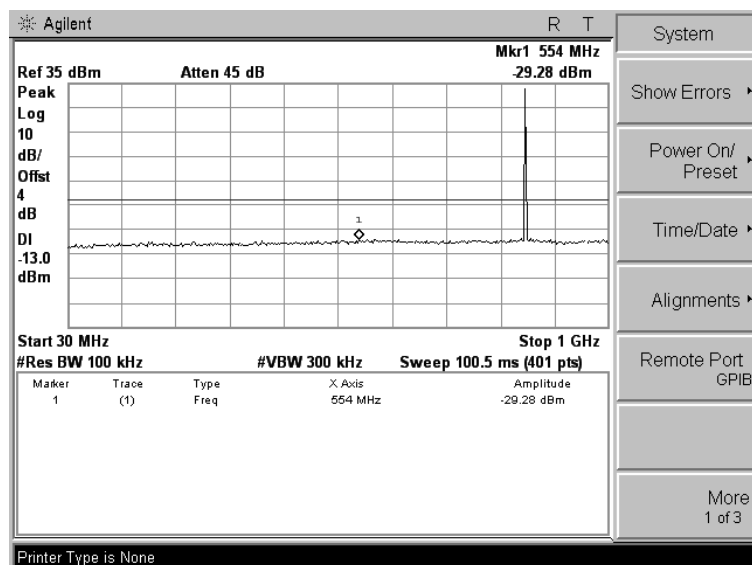


Transmitting Mode, CH 190, GSM 850

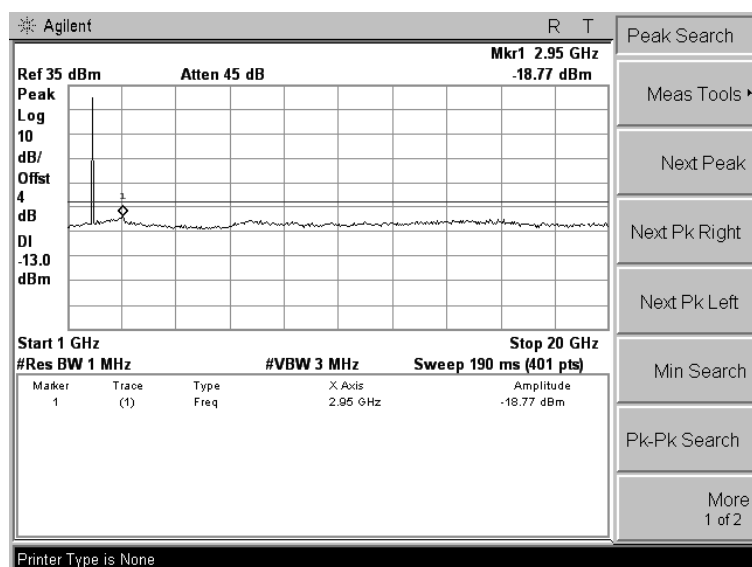
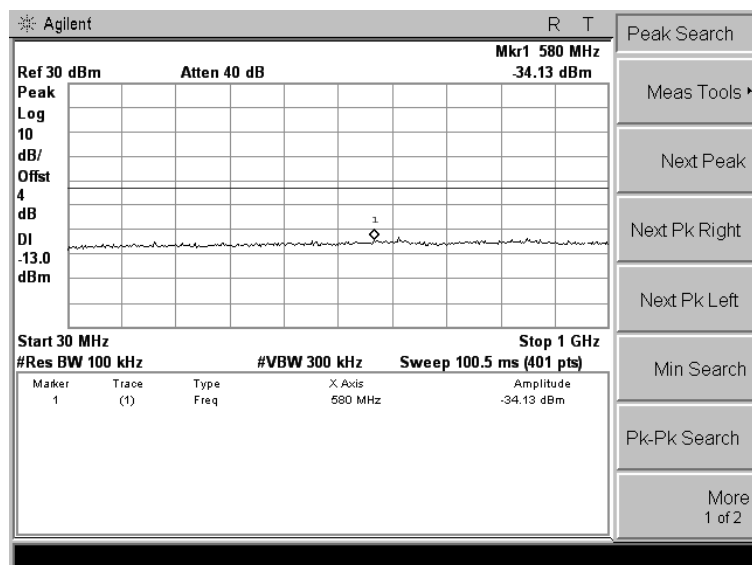




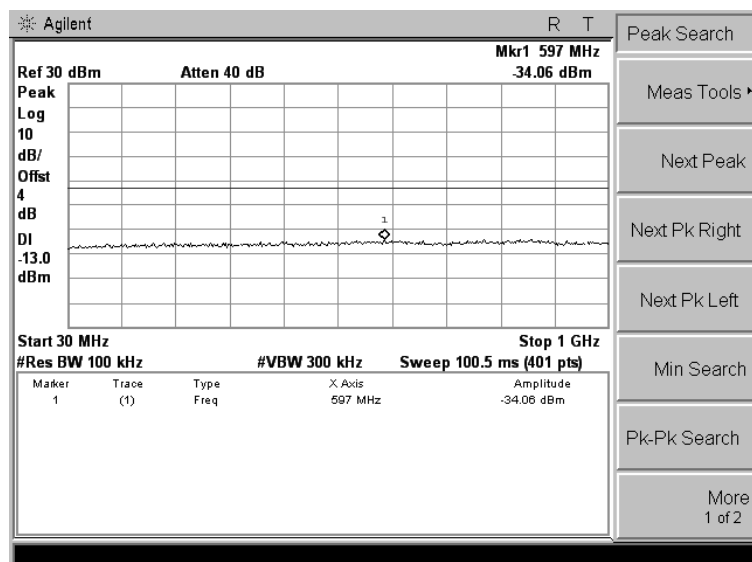
Transmitting Mode, CH 251, GSM 850

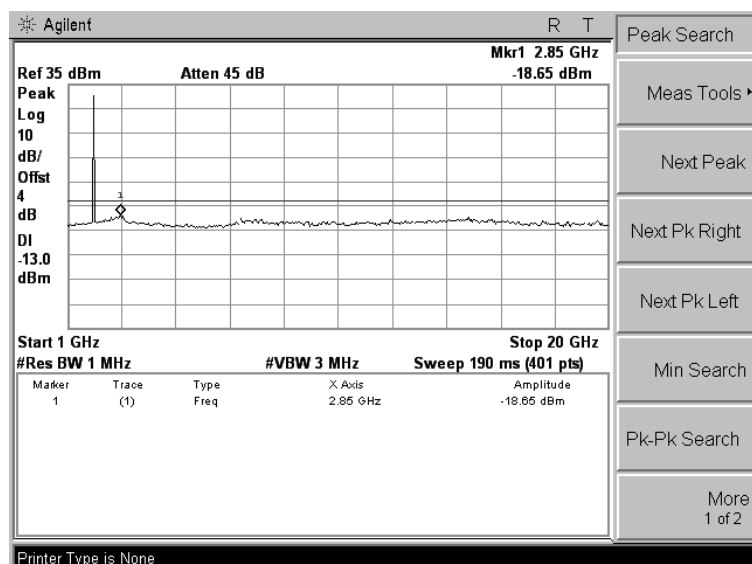


Transmitting Mode, CH 512, PCS 1900

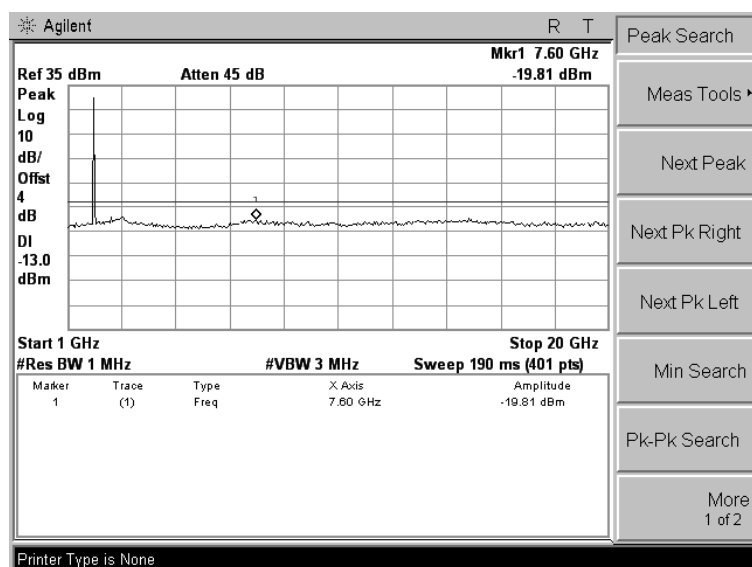
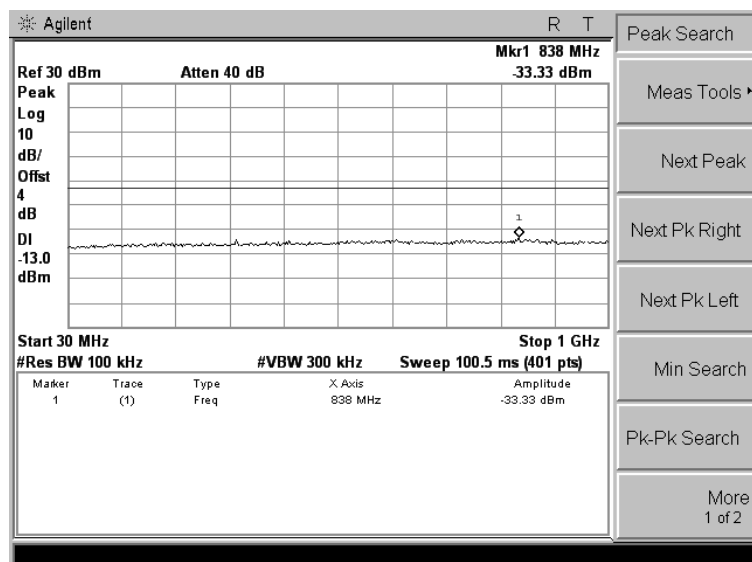


Transmitting Mode, CH 661, PCS 1900

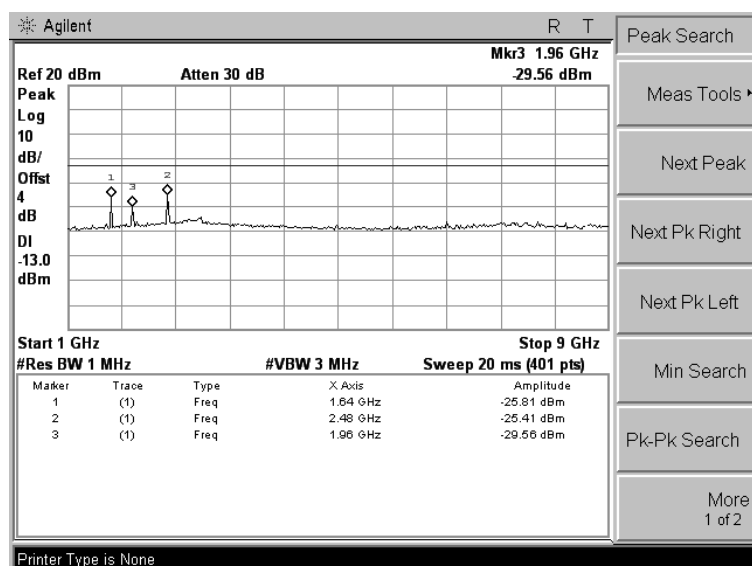
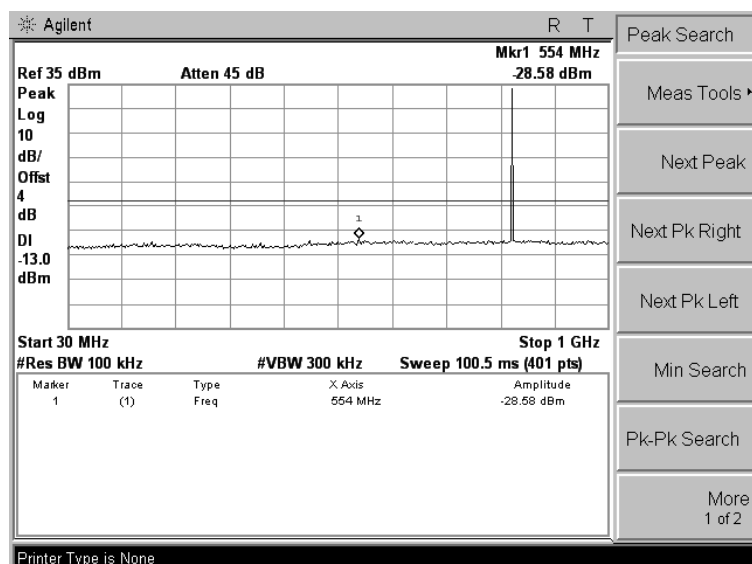




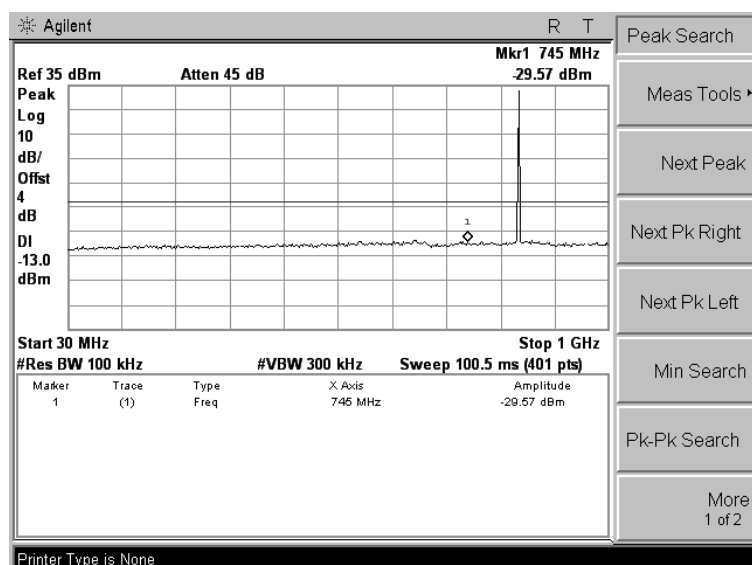
Transmitting Mode, CH 810, PCS 1900

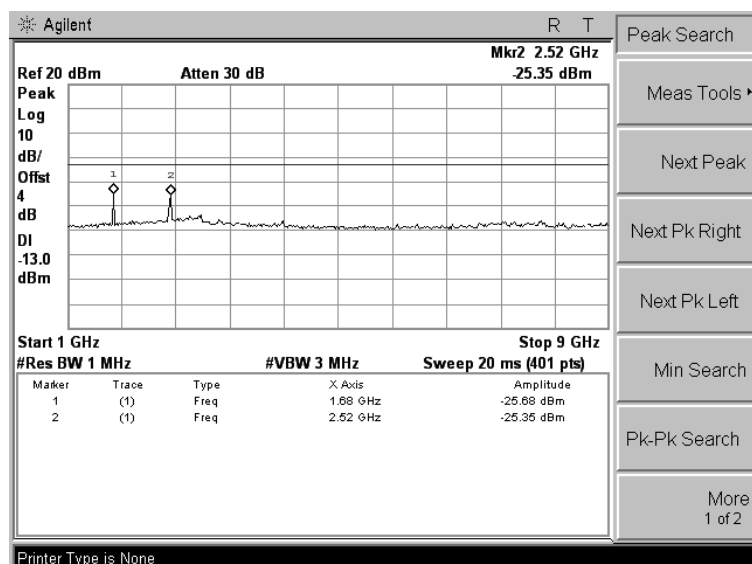


Transmitting Mode, CH 128, GSM 850 EGPRS

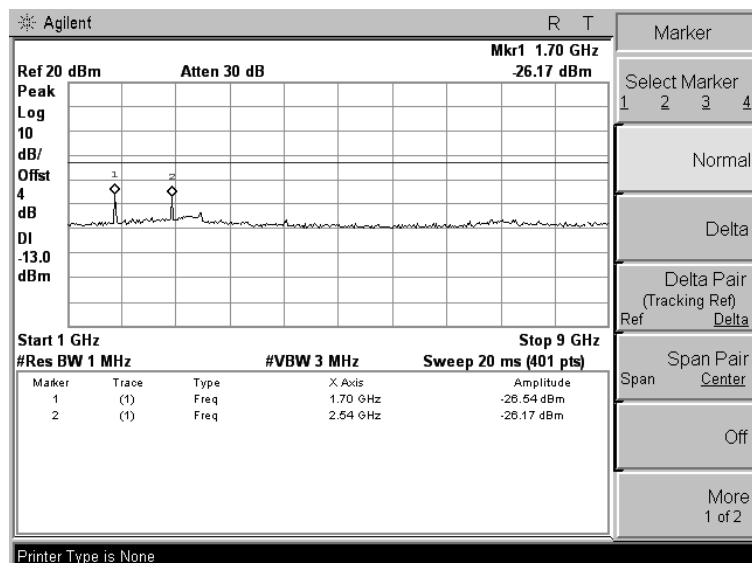
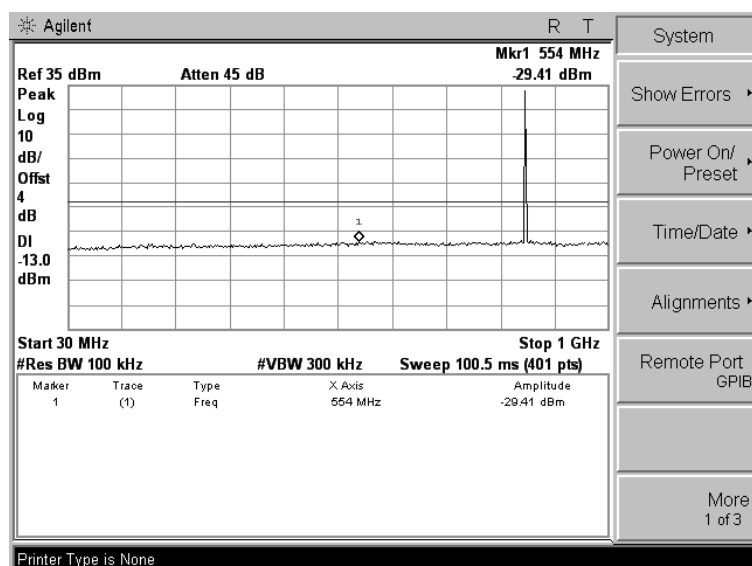


Transmitting Mode, CH 190, GSM 850 EGPRS

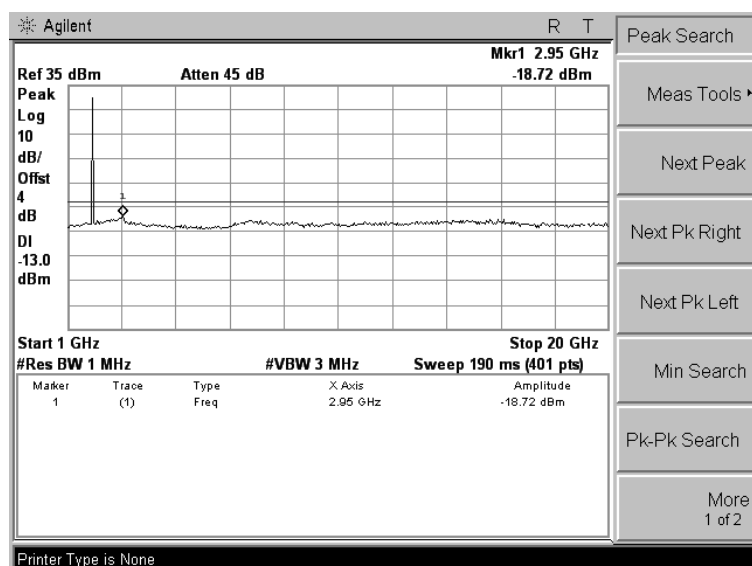
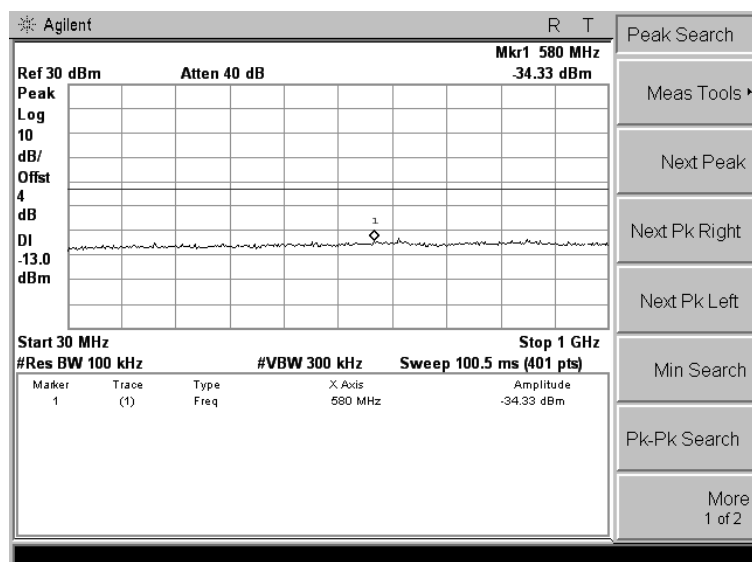




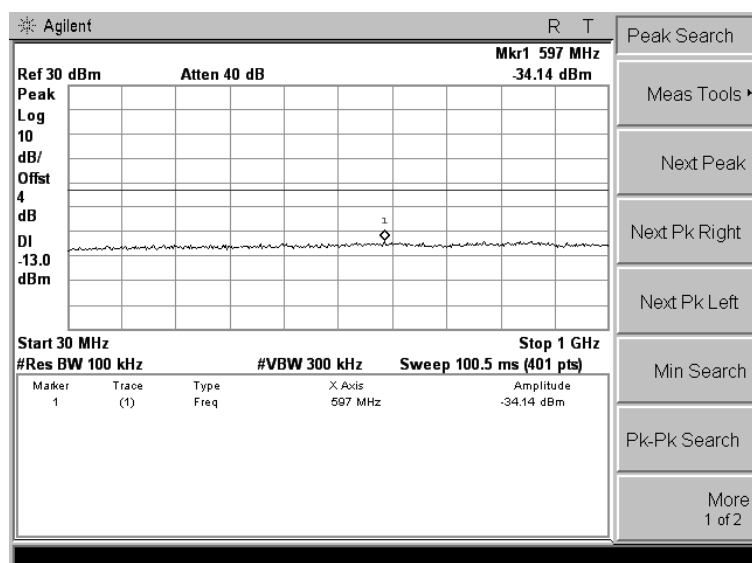
Transmitting Mode, CH 251, GSM 850 EGPRS

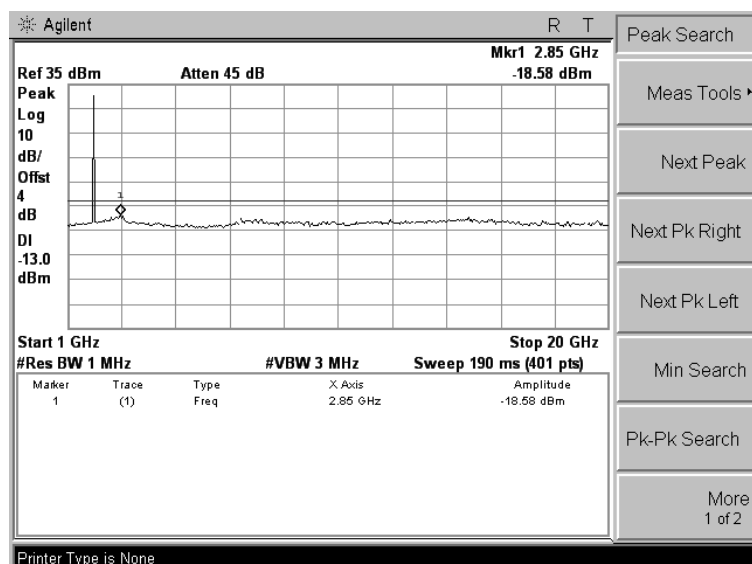


Transmitting Mode, CH 512, PCS 1900 EGPRS

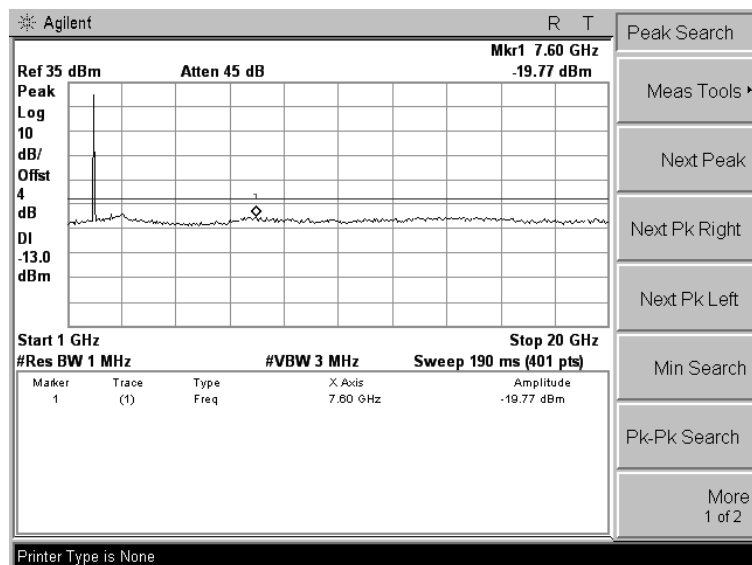
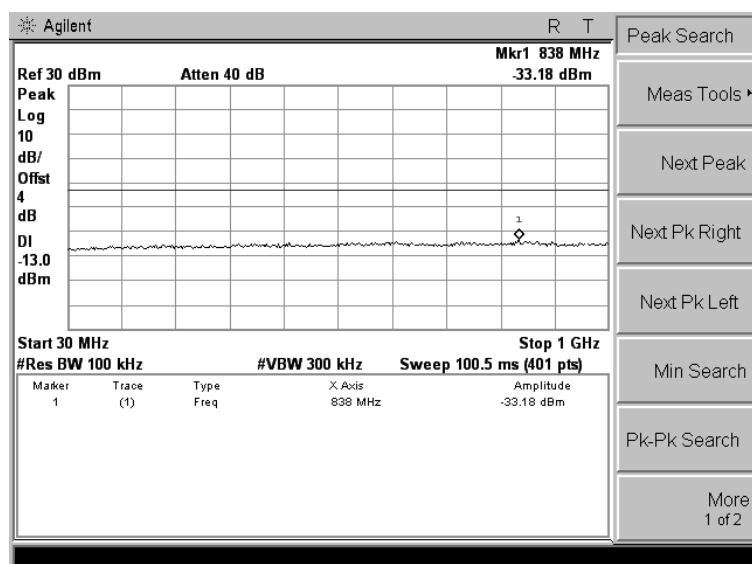


Transmitting Mode, CH 661, PCS 1900 EGPRS

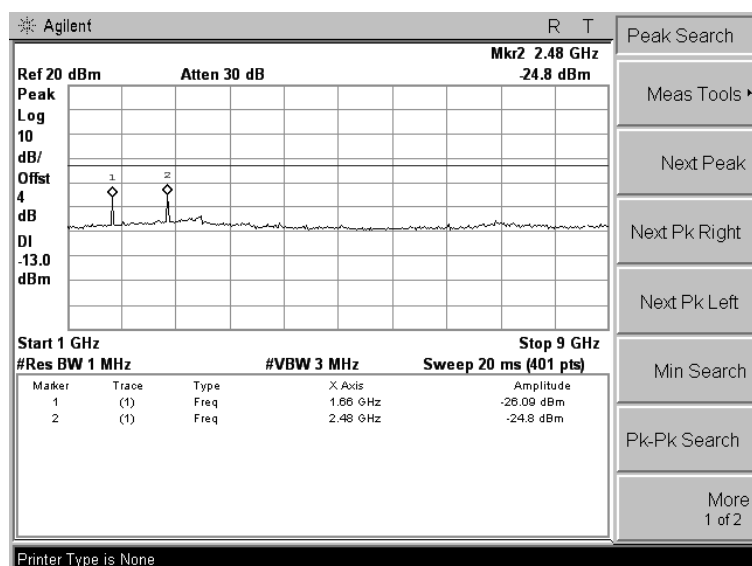
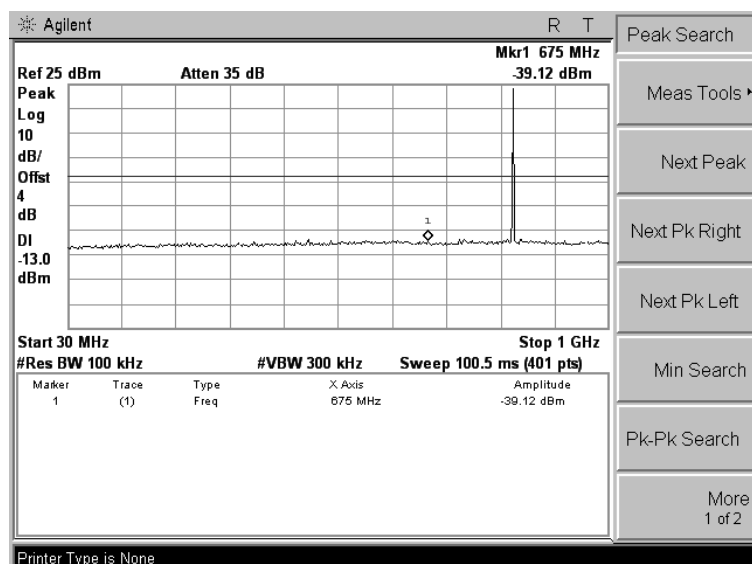




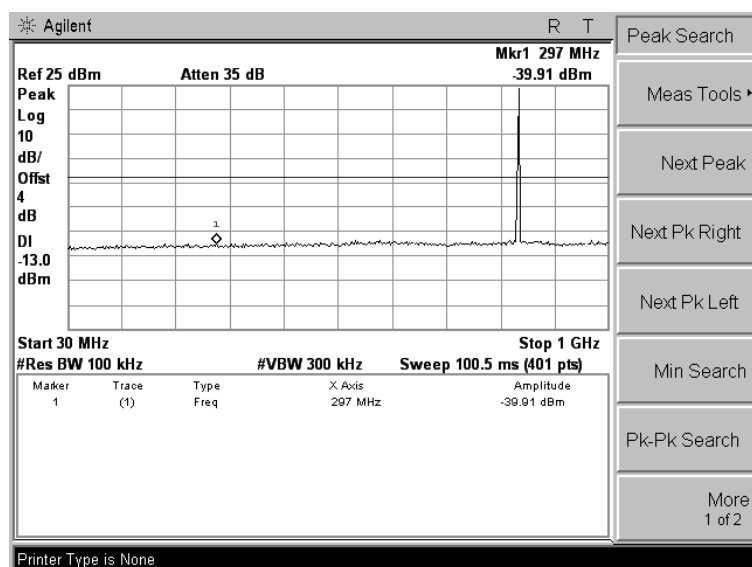
Transmitting Mode, CH 810, PCS 1900 EGPRS

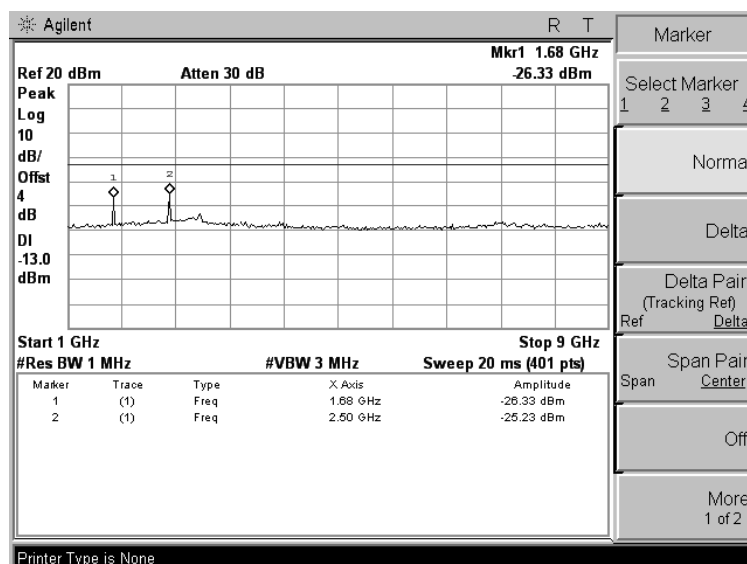


Transmitting Mode, CH 4132, UMTS 850 12.2K RMC

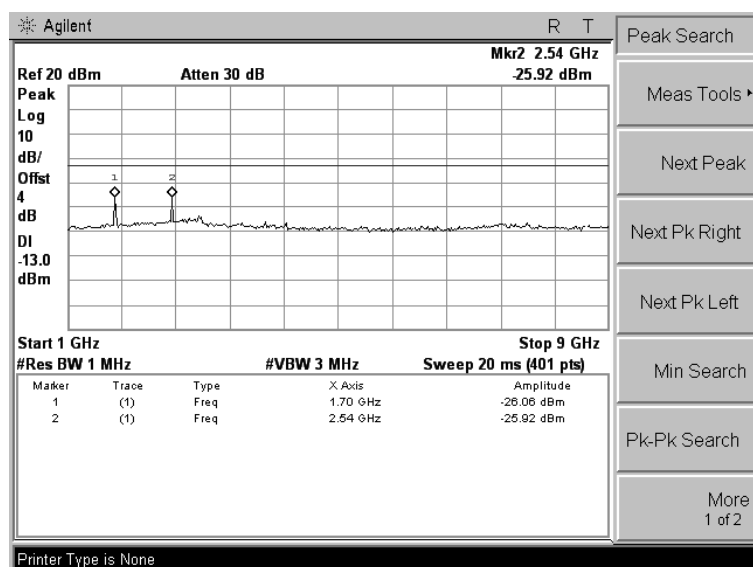
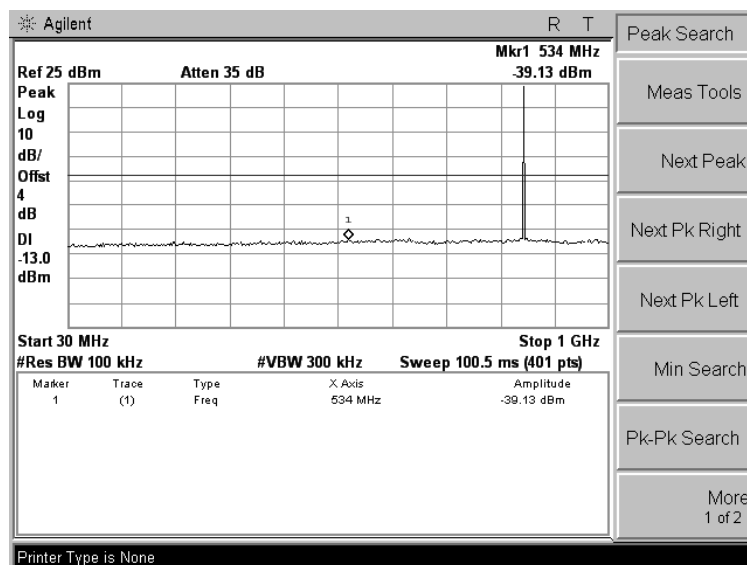


Transmitting Mode, CH 4180, UMTS 850 12.2K RMC

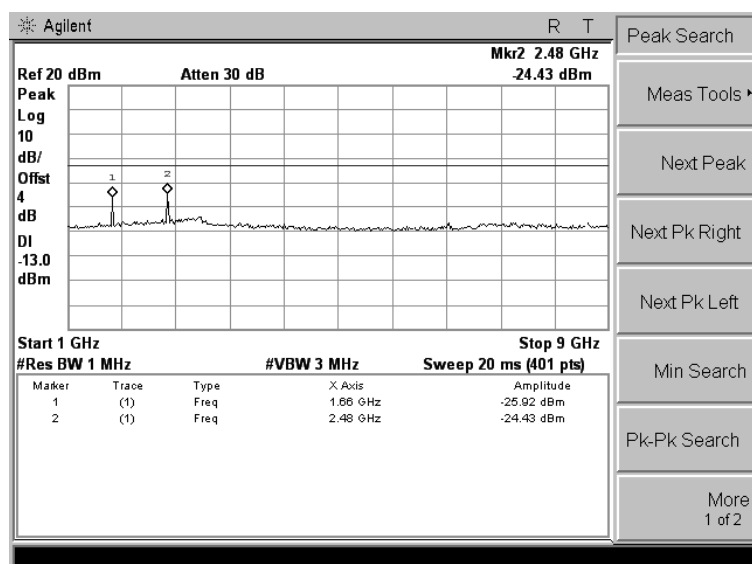
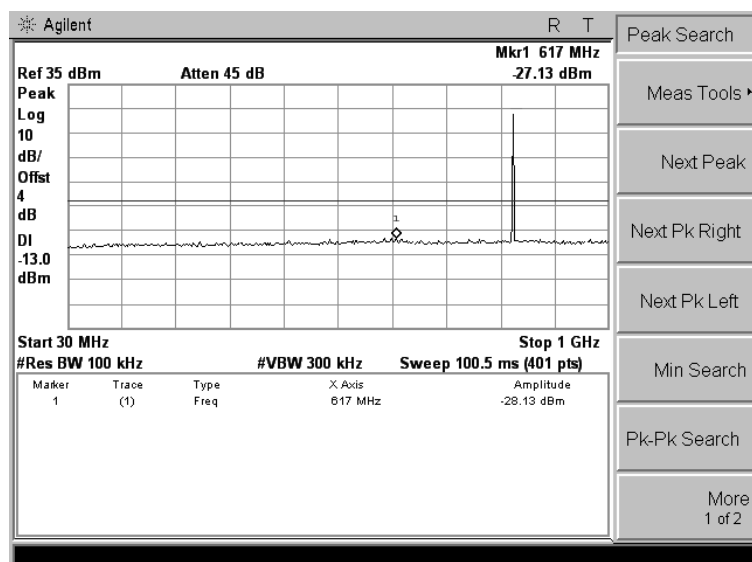




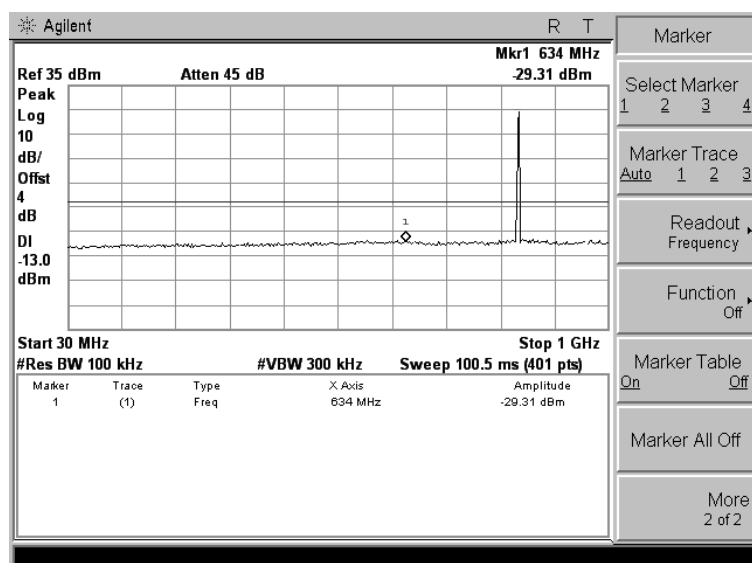
Transmitting Mode, CH 4233, UMTS 850 12.2K RMC

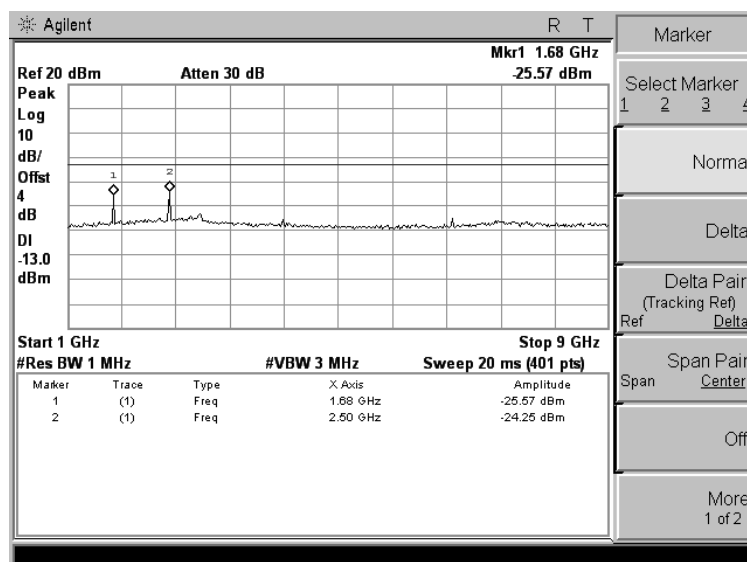


Transmitting Mode, CH 4132, UMTS 850 HSDPA

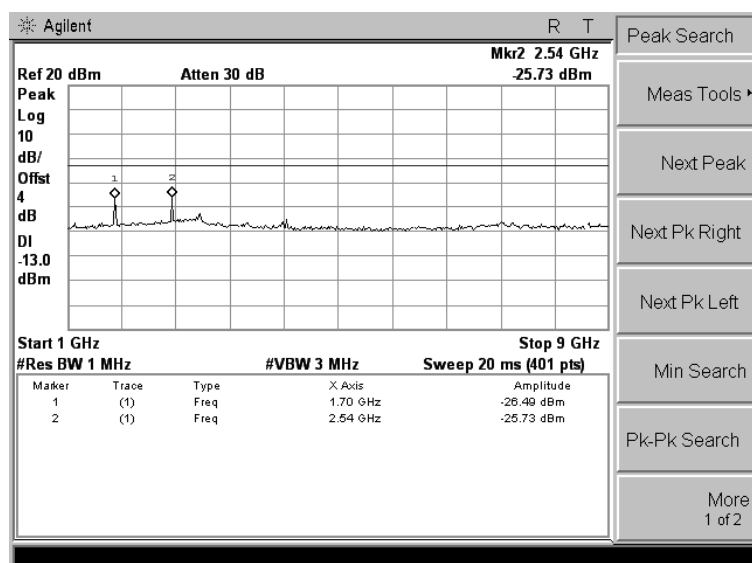
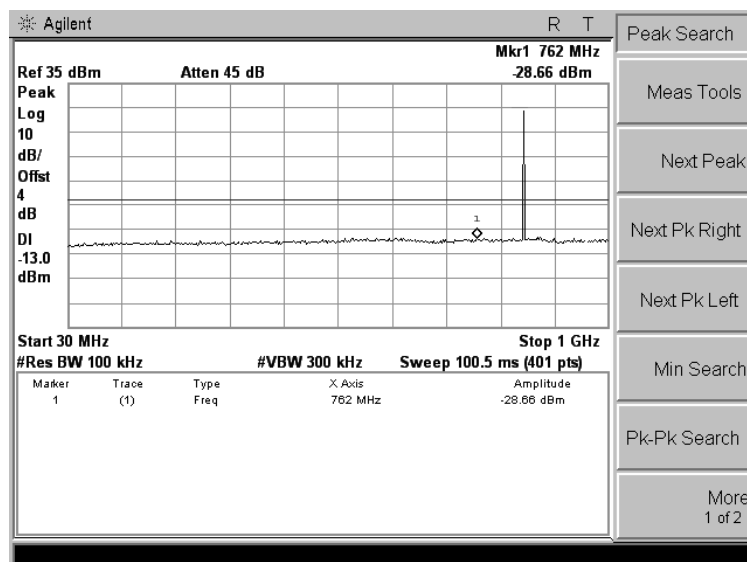


Transmitting Mode, CH 4180, UMTS 850 HSDPA

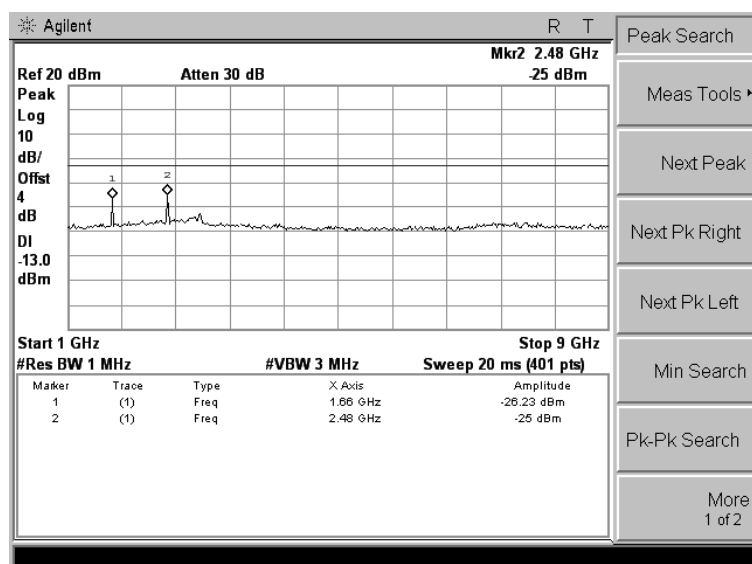
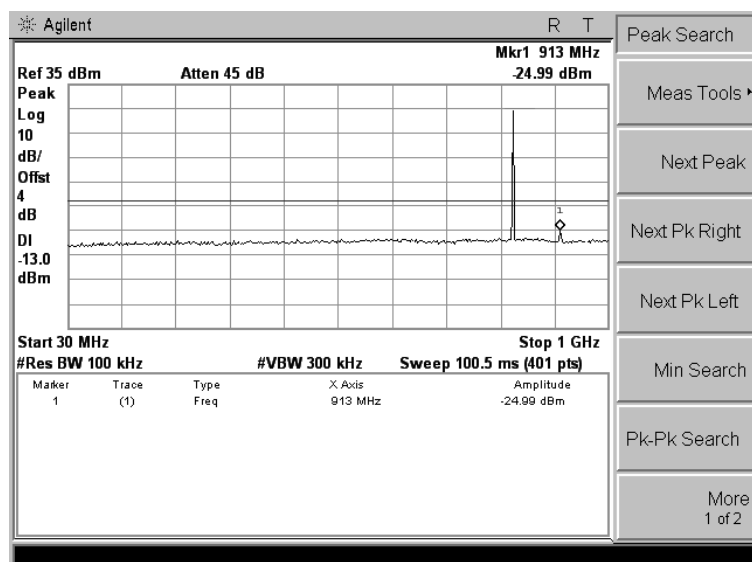




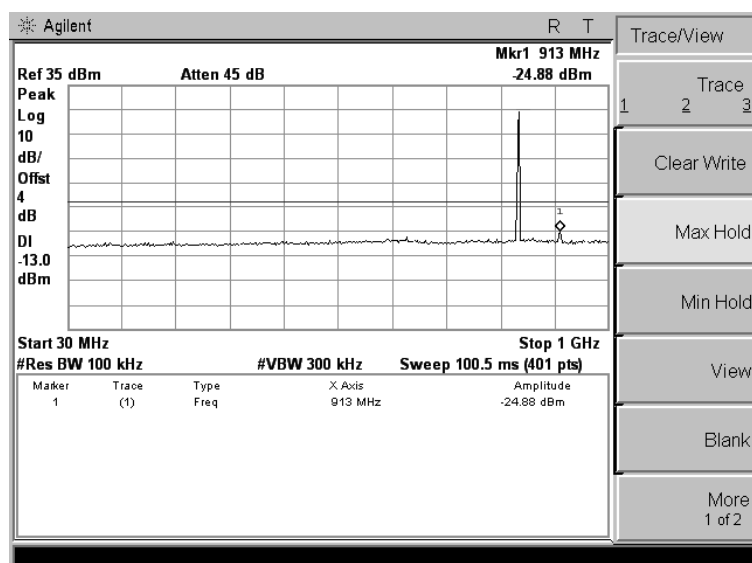
Transmitting Mode, CH 4233, UMTS 850 HSDPA

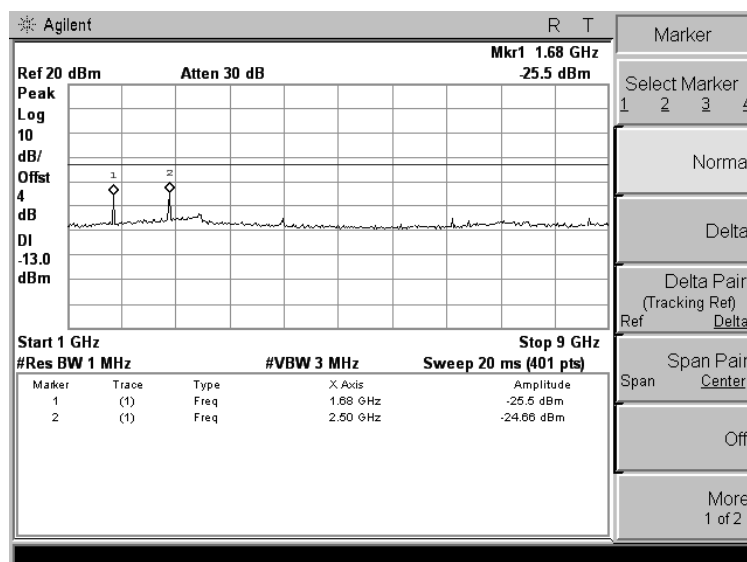


Transmitting Mode, CH 4132, UMTS 850 HSUPA

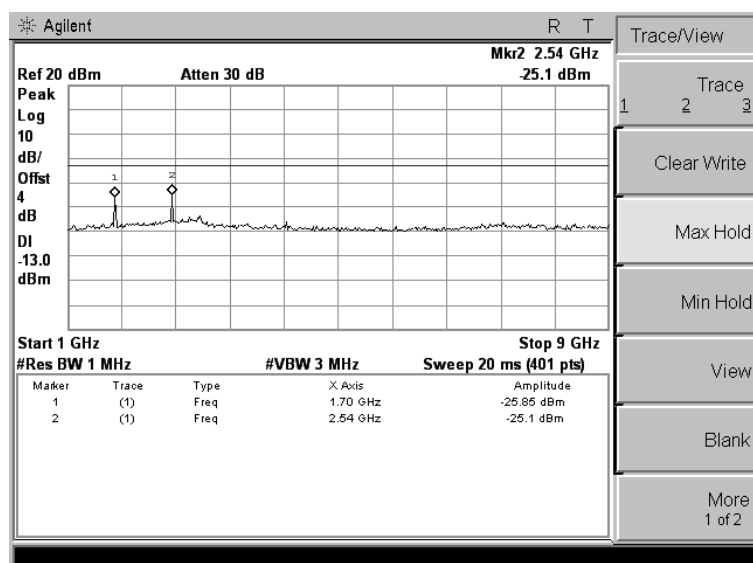
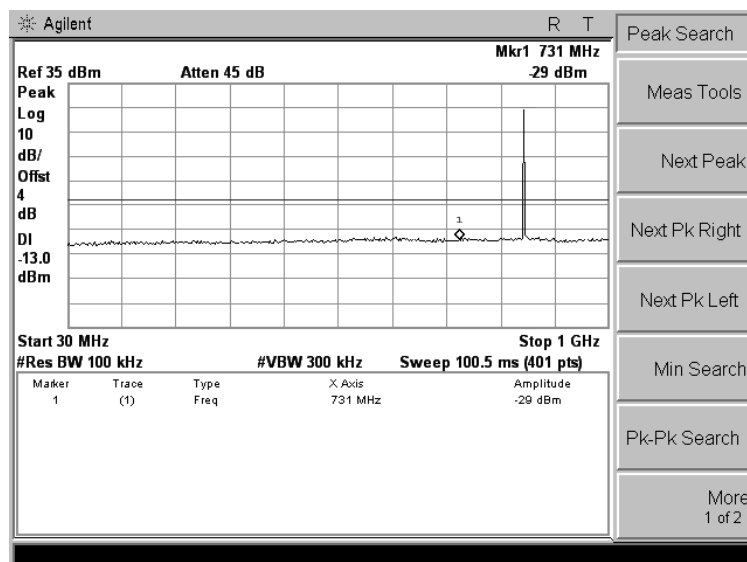


Transmitting Mode, CH 4180, UMTS 850 HSUPA

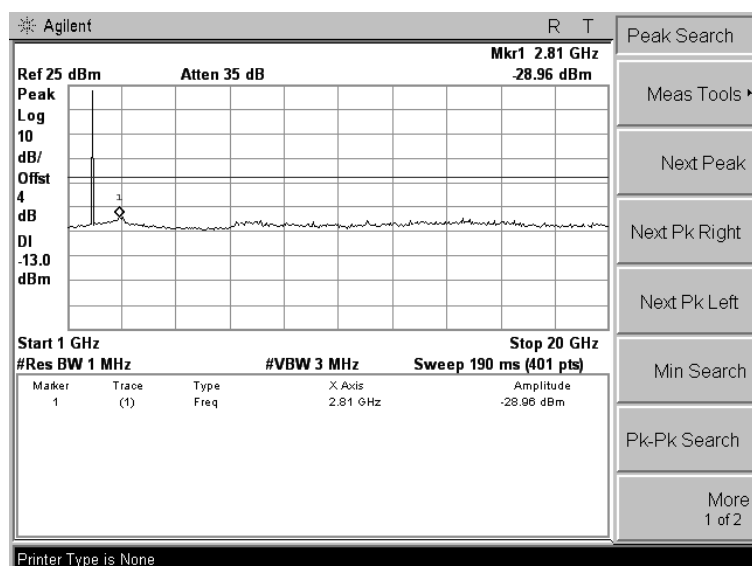
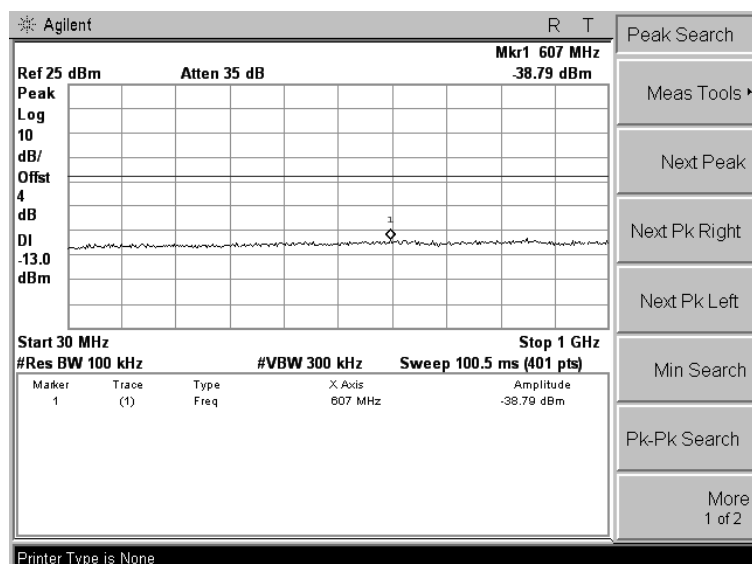




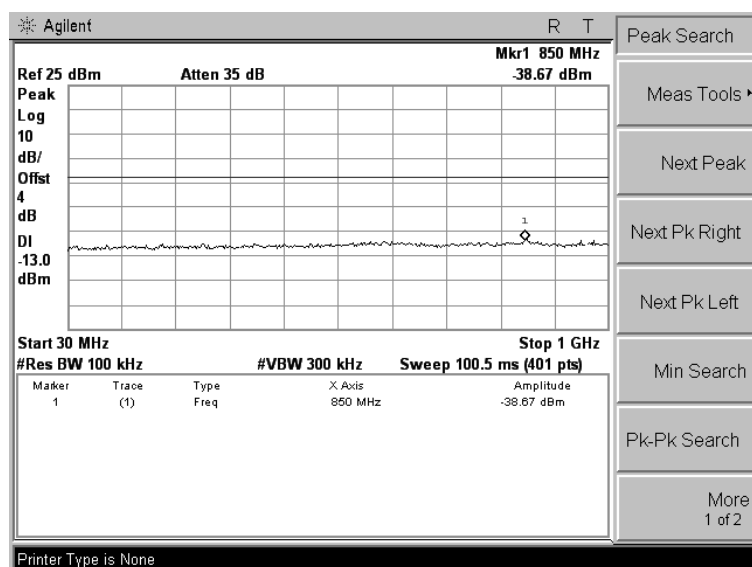
Transmitting Mode, CH 4233, UMTS 850 HSUPA

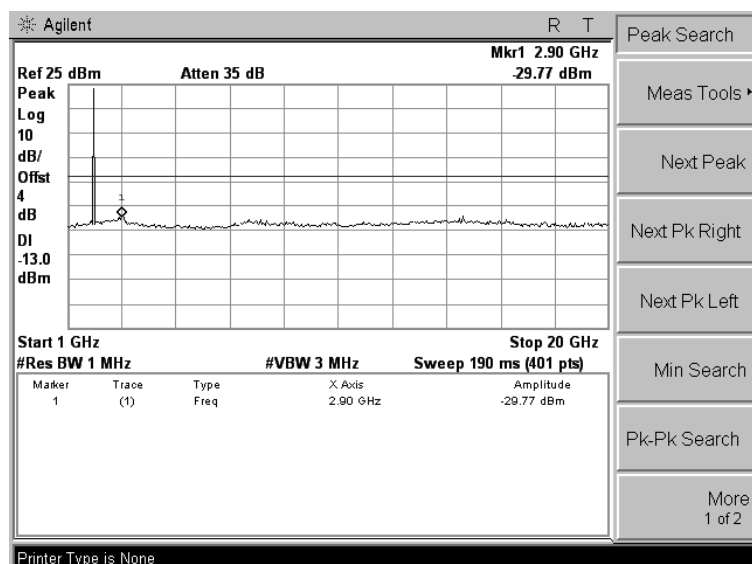


Transmitting Mode, CH 9262, UMTS 1900 12.2K RMC

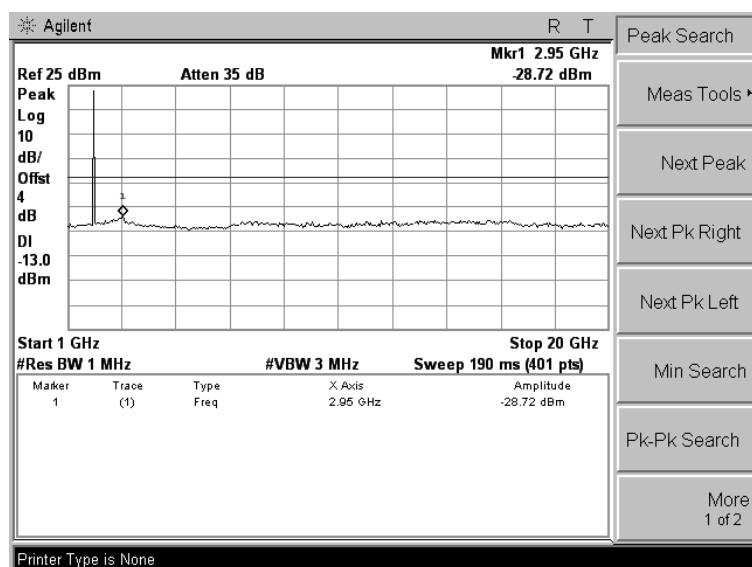
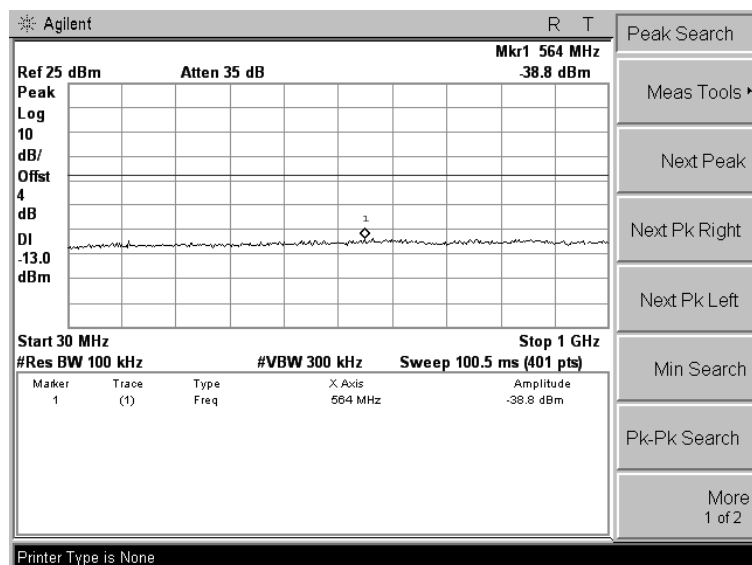


Transmitting Mode, CH 9400, UMTS 1900 12.2K RMC

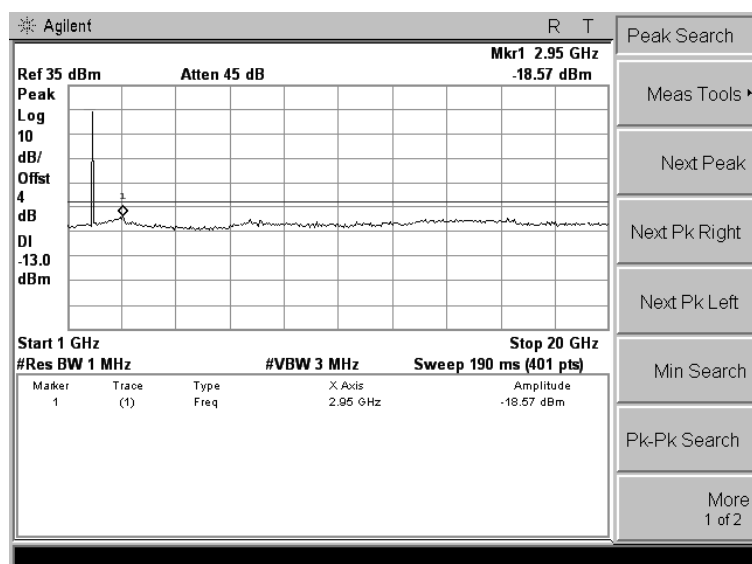
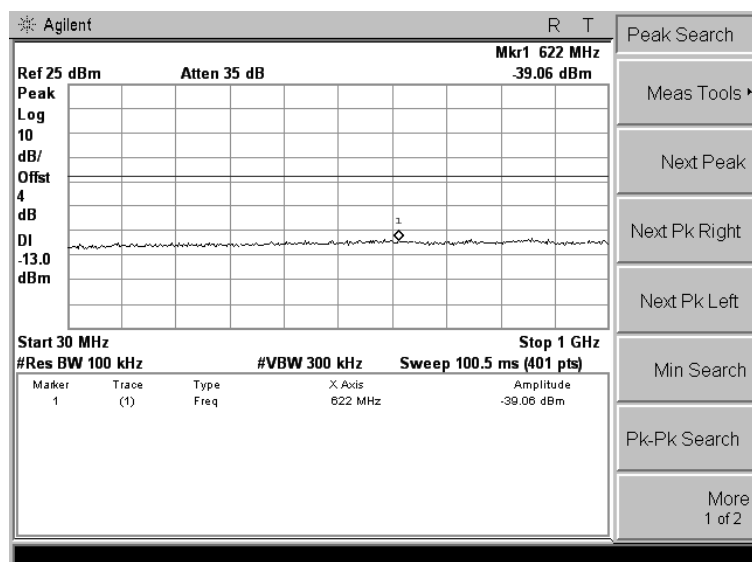




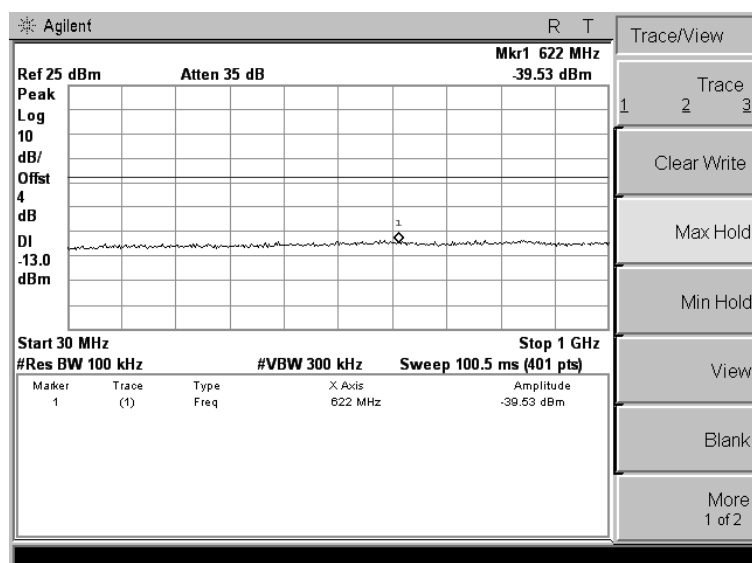
Transmitting Mode, CH 9538, UMTS 1900 12.2K RMC

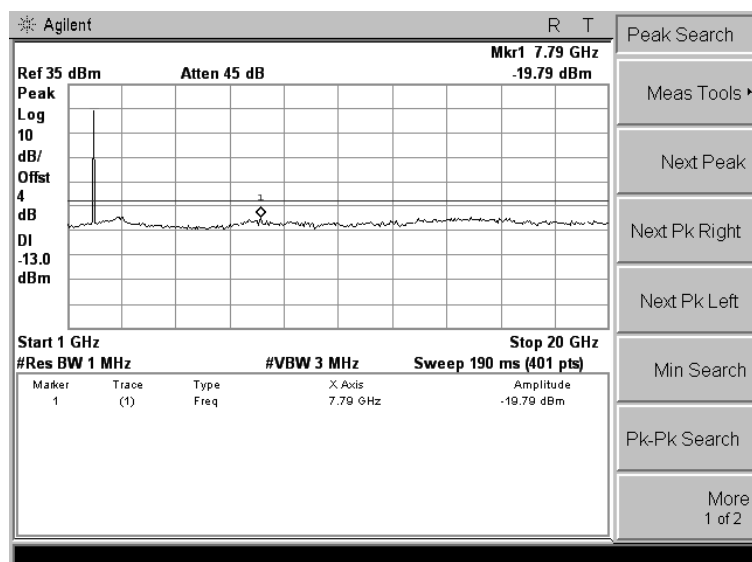


Transmitting Mode, CH 9262, UMTS 1900 HSDPA

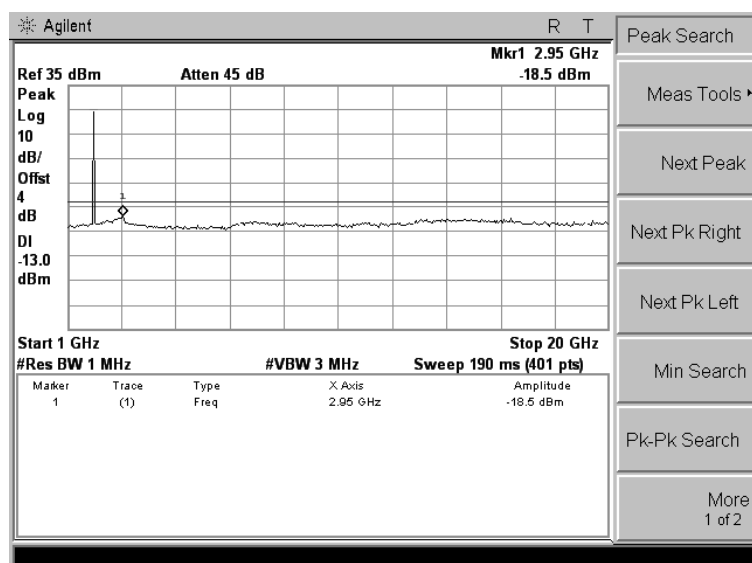
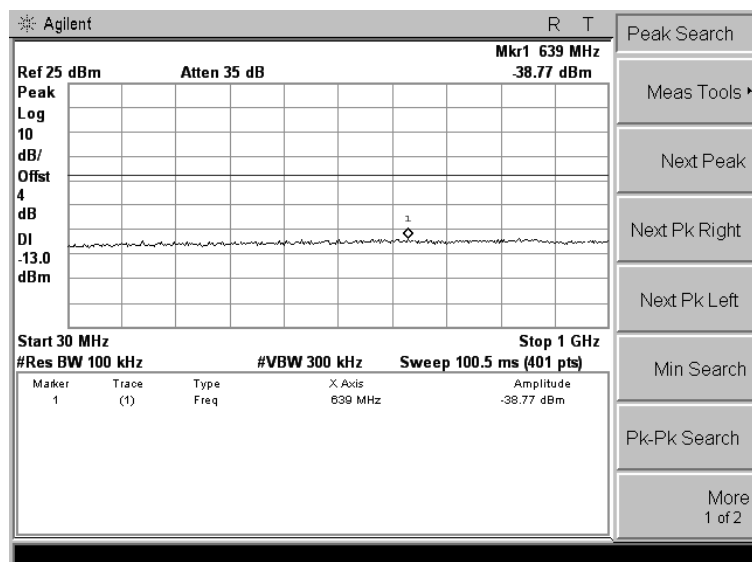


Transmitting Mode, CH 9400, UMTS 1900 HSDPA

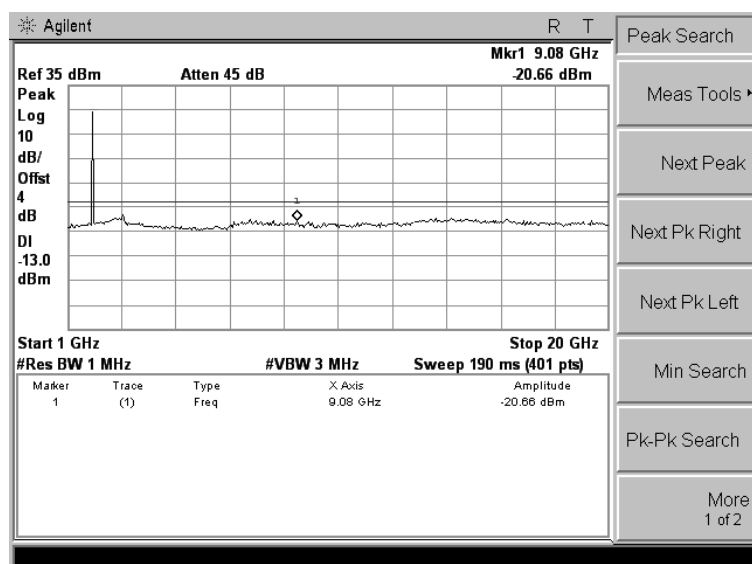
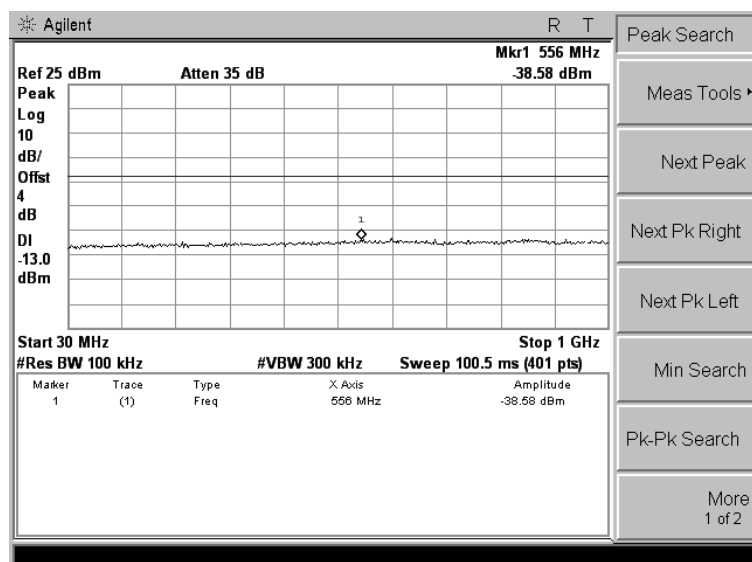




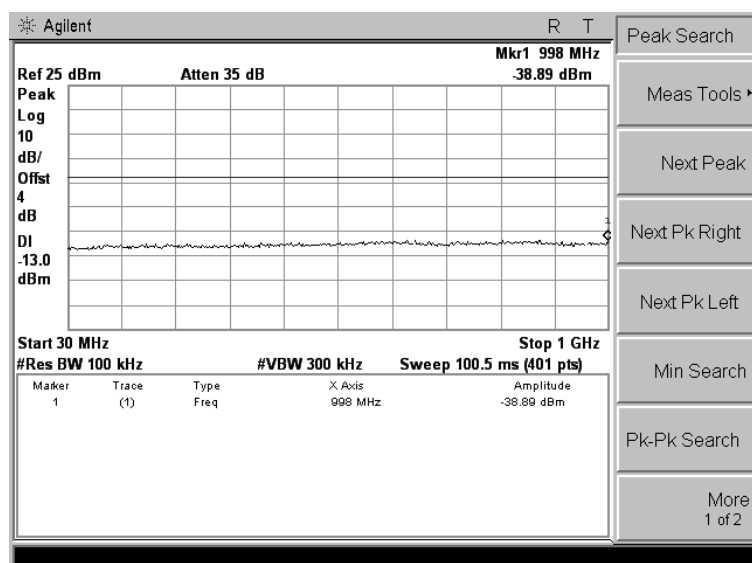
Transmitting Mode, CH 9538, UMTS 1900 HSDPA

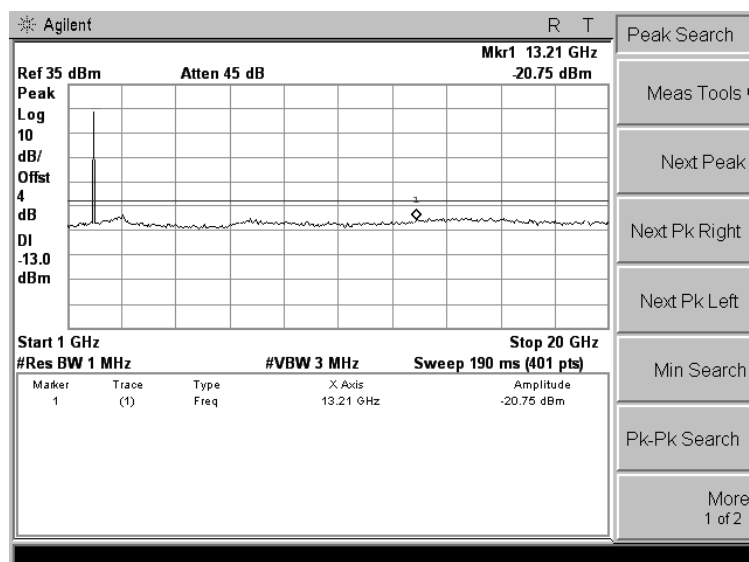


Transmitting Mode, CH 9262, UMTS 1900 HSUPA

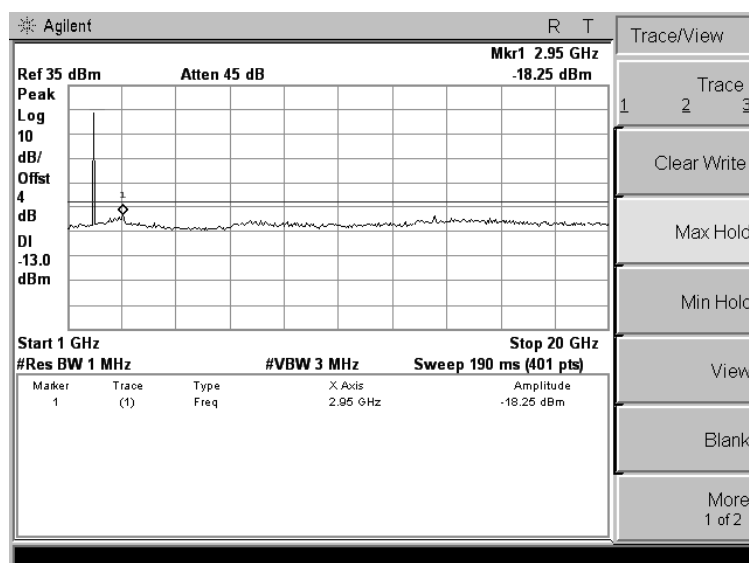
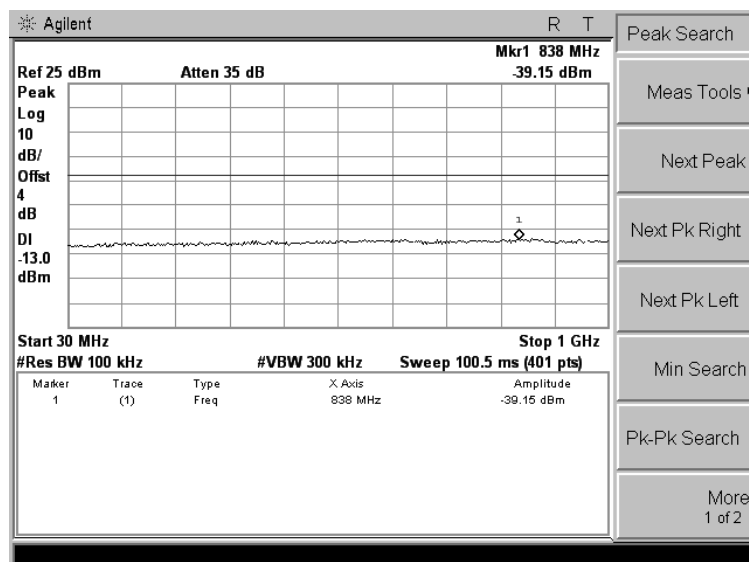


Transmitting Mode, CH 9400, UMTS 1900 HSUPA

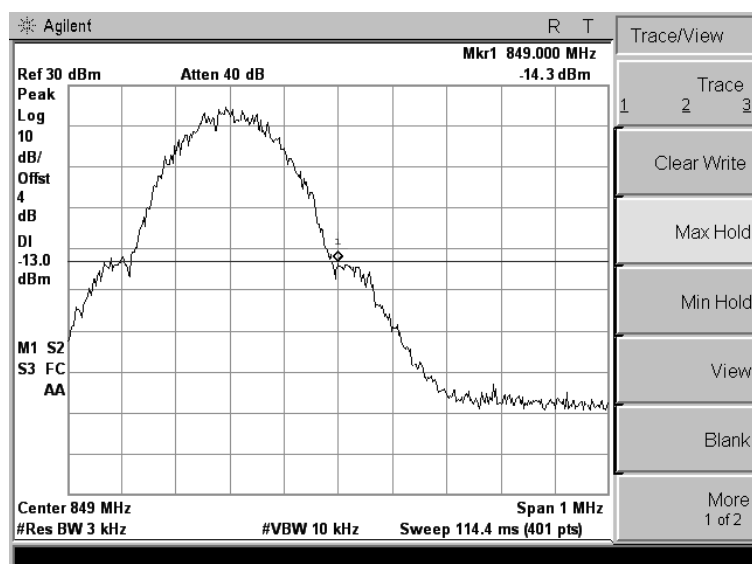
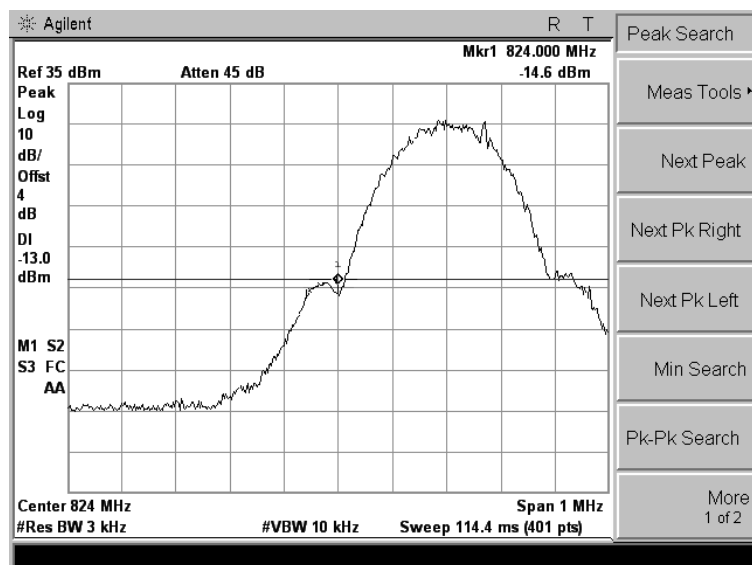




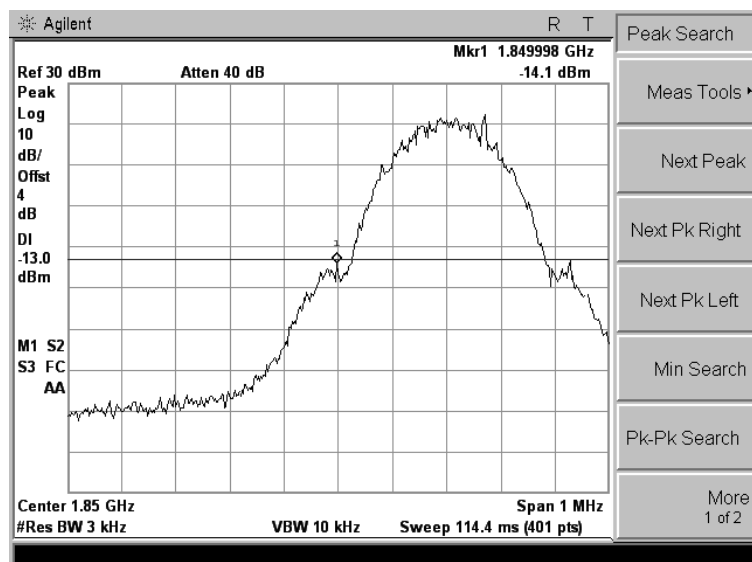
Transmitting Mode, CH 9538, UMTS 1900 HSUPA



Test Result of Band Edge Emissions, GSM 850

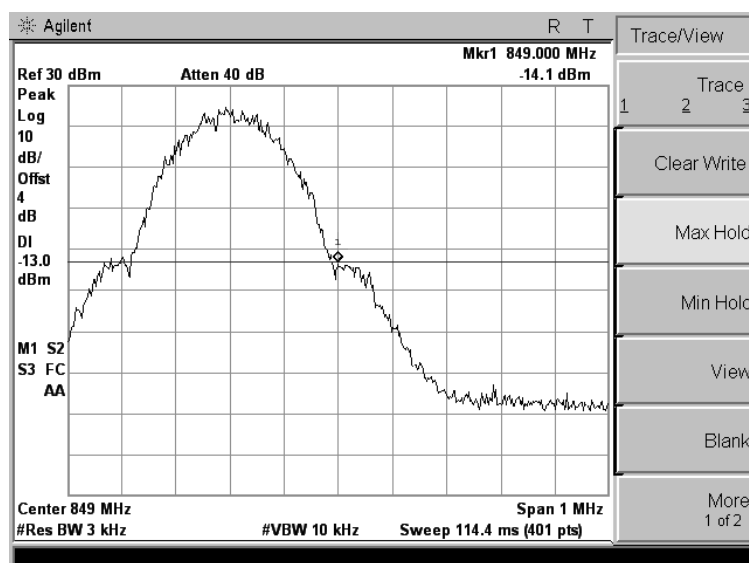
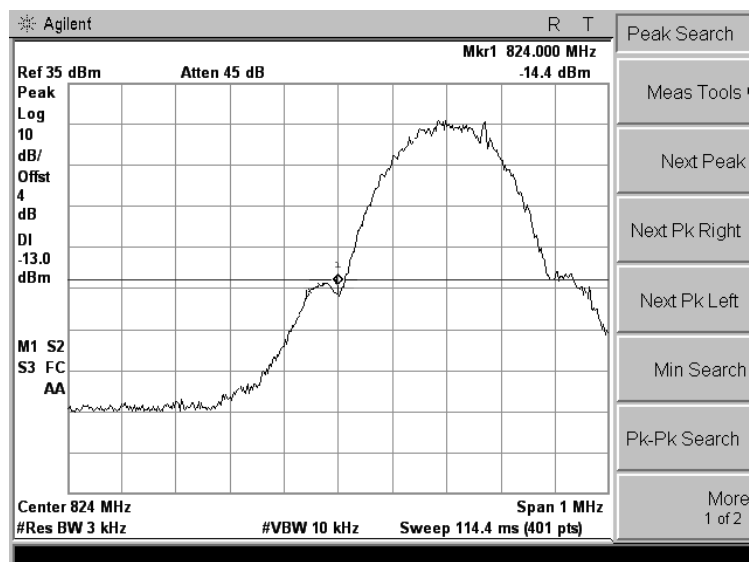


Test Result of Band Edge Emissions, PCS 1900

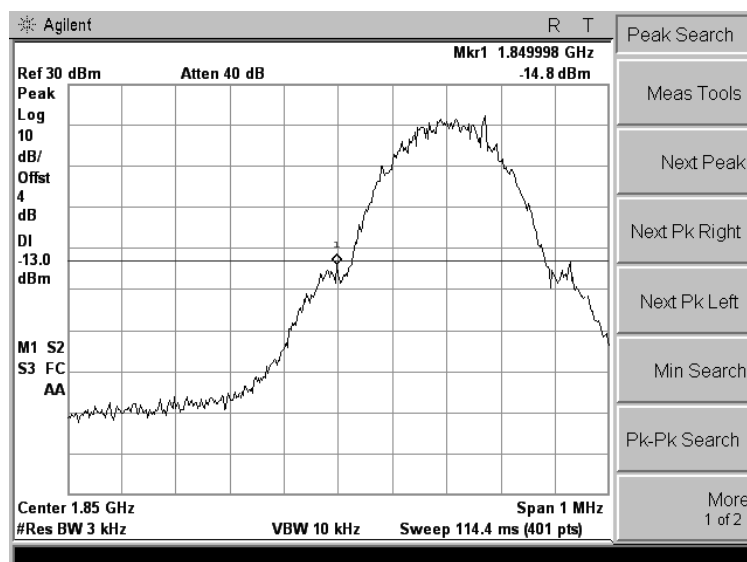




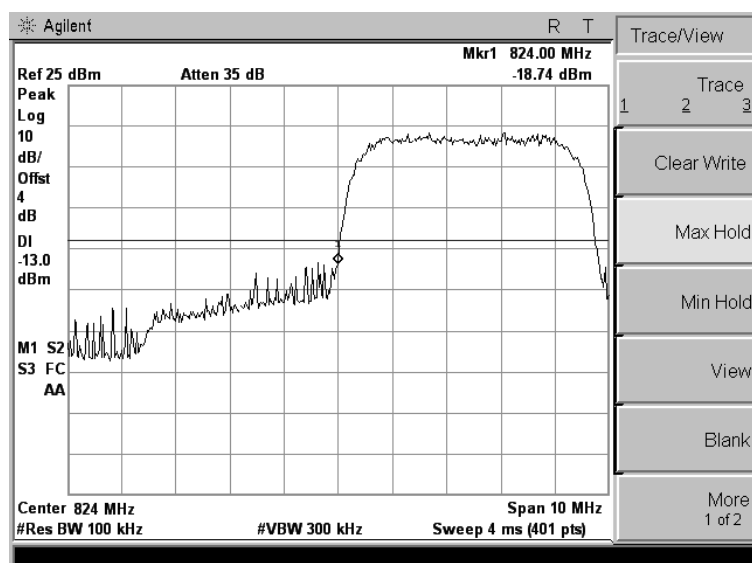
Test Result of Band Edge Emissions, GSM 850 EGPRS

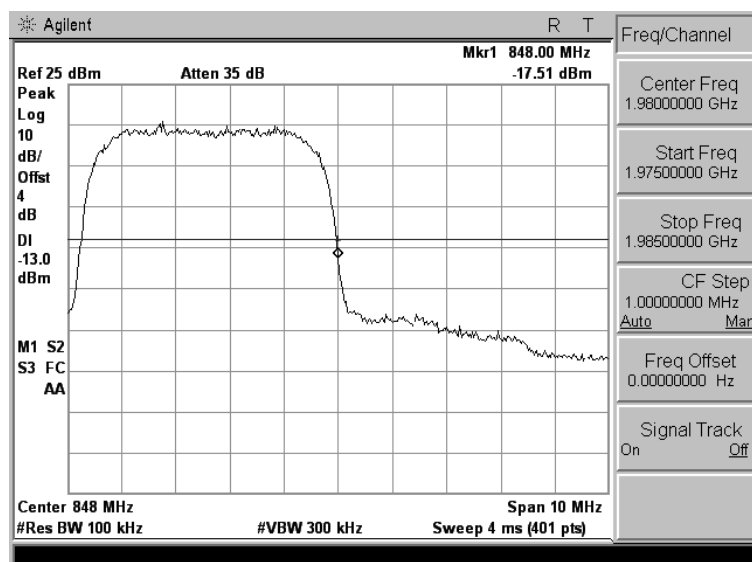


Test Result of Band Edge Emissions, PCS 1900 EGPRS

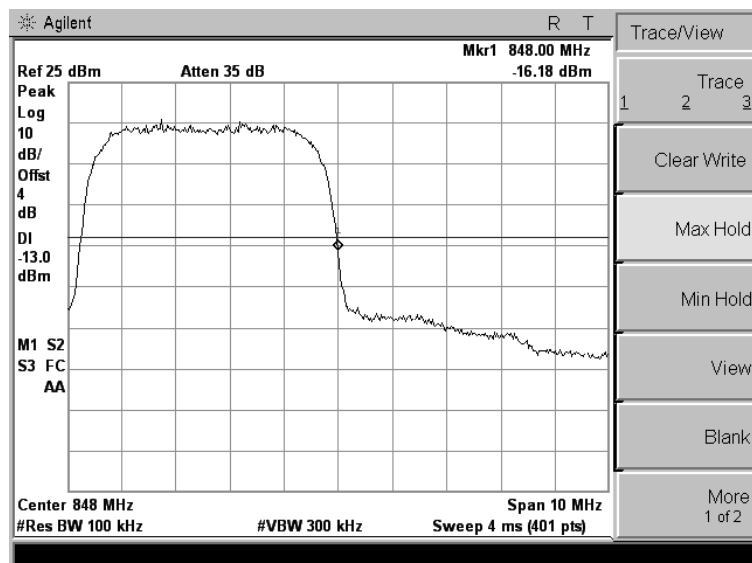
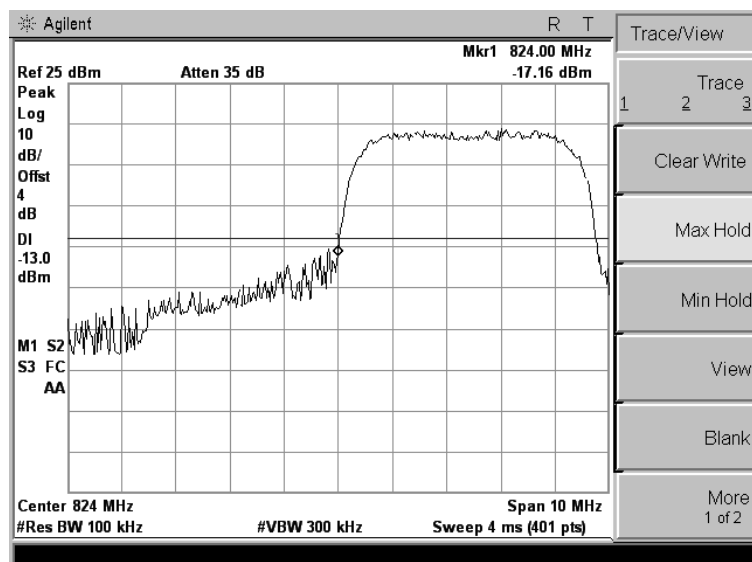


Test Result of Band Edge Emissions, UMTS 850 12.2K RMC

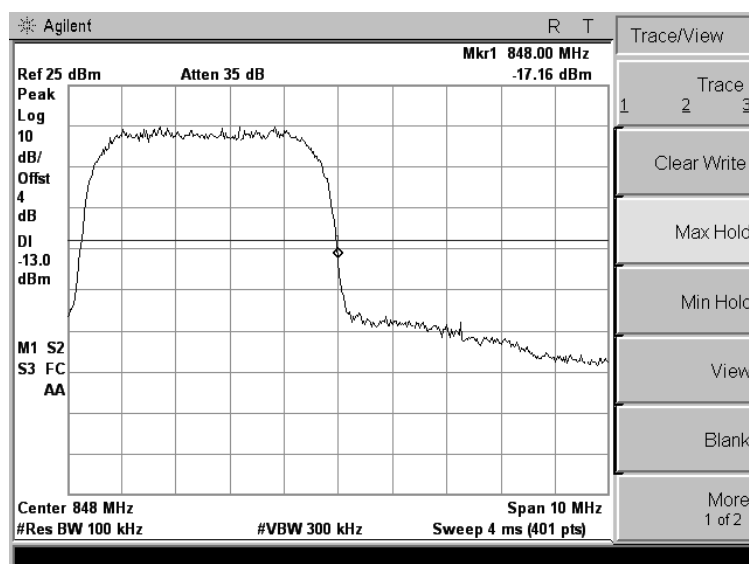
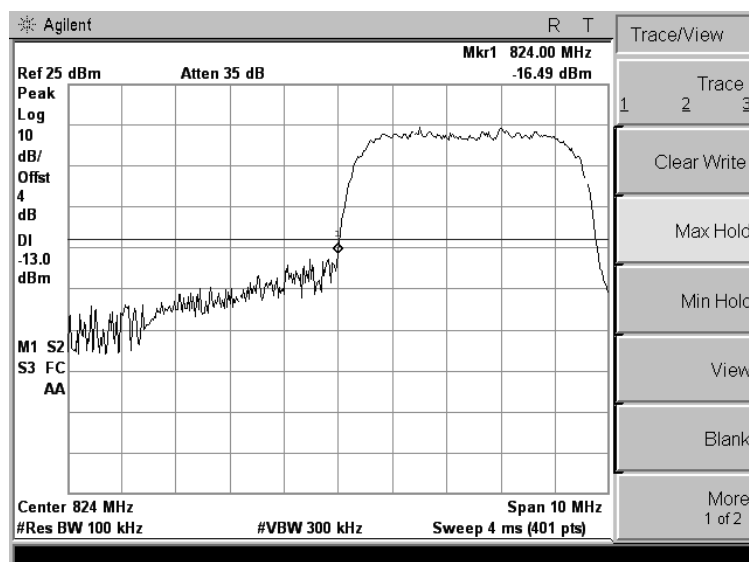




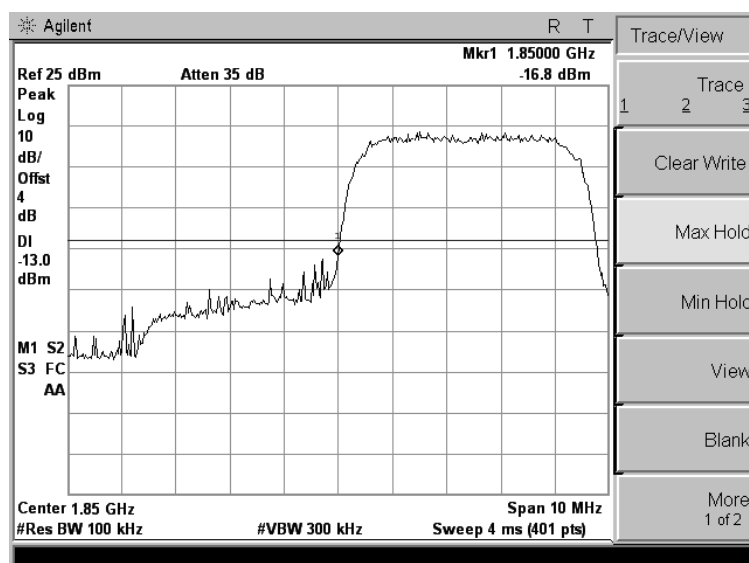
Test Result of Band Edge Emissions, UMTS 850 HSDPA

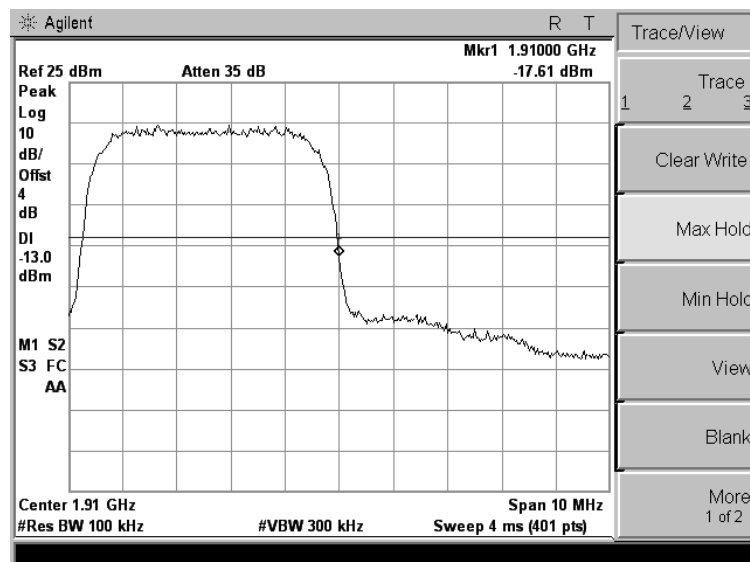


Test Result of Band Edge Emissions, UMTS 850 HSUPA

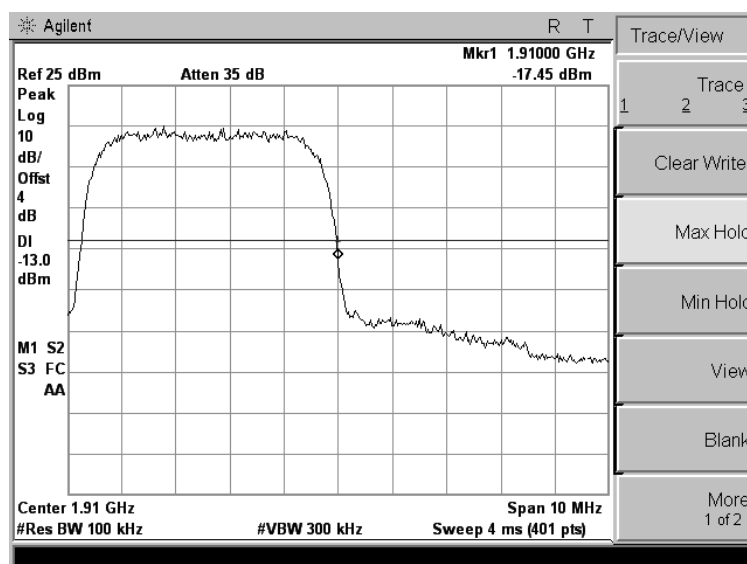
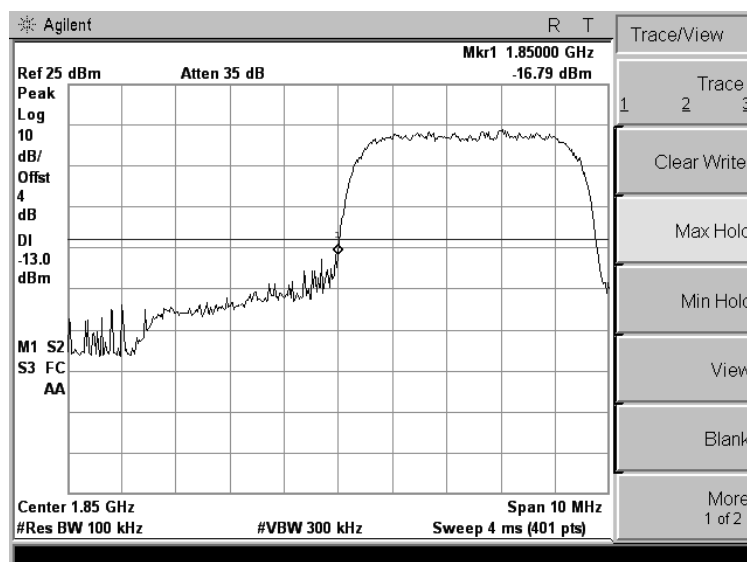


Test Result of Band Edge Emissions, UMTS 1900 12.2K RMC

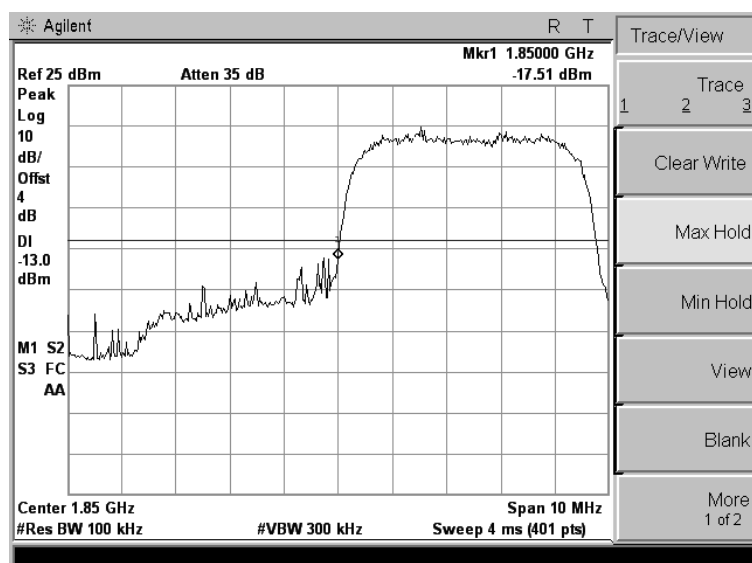


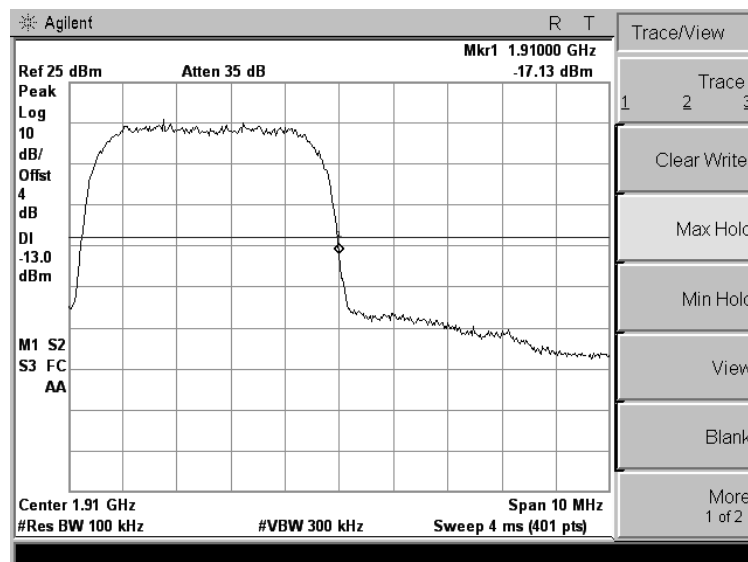


Test Result of Band Edge Emissions, UMTS 1900 HSDPA



Test Result of Band Edge Emissions, UMTS 1900 HSUPA





NOTE: All conditions have been tested and we only record the worst results in each bands.

5.4. RADIATED SPURIOUS EMISSIONS MEASUREMENT

5.4.1. Standard Applicable

FCC §2.1053, §22.917 and §24.238.

5.4.2. Measuring Instruments

Please refer to section 6 of equipments list in this report.

5.4.3. Test Procedures

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

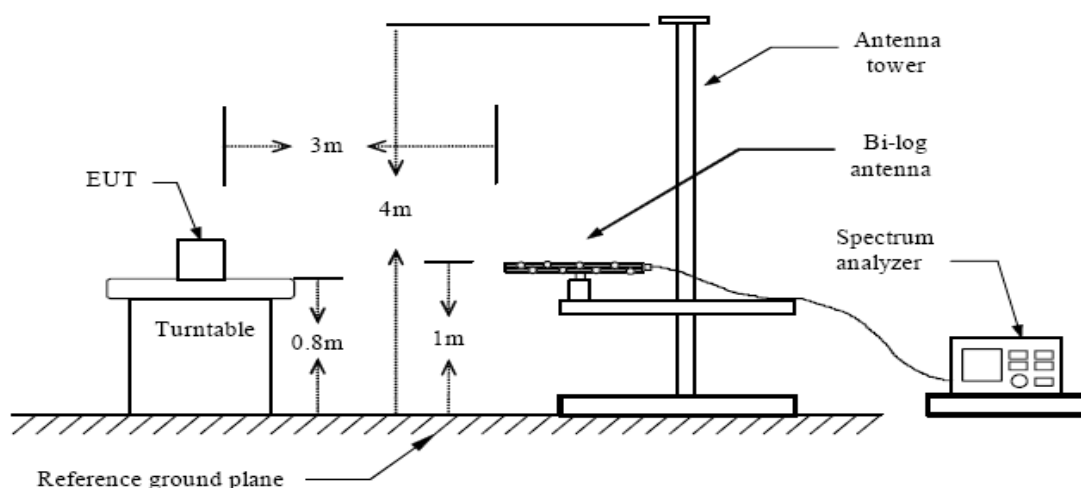
The frequency range up to tenth harmonic was investigated for each of three fundamental frequency (low, middle and high channels). Once spurious emission were identified, the power of the emission was determined using the substitution method.

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

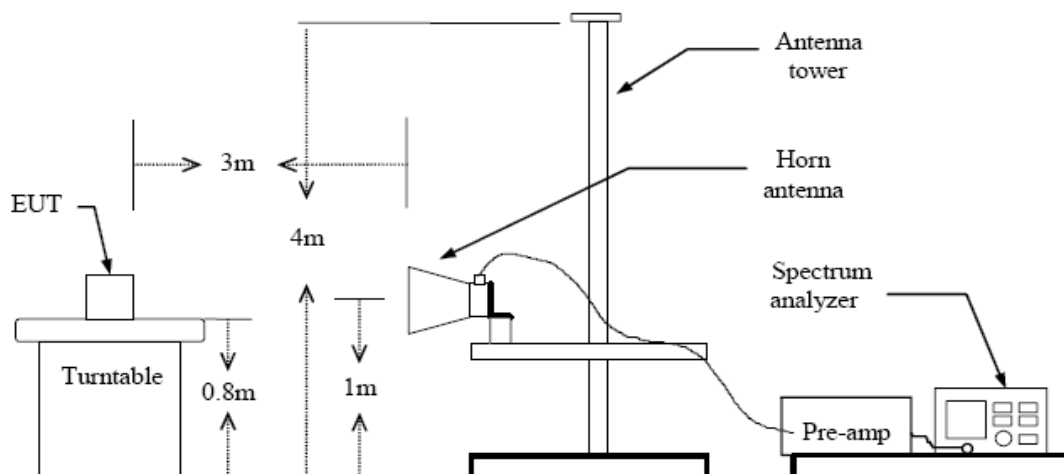
$$\text{ERP} = \text{S.G. output (dBm)} + \text{Antenna Gain (dBd)} - \text{Cable (dB)}$$

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

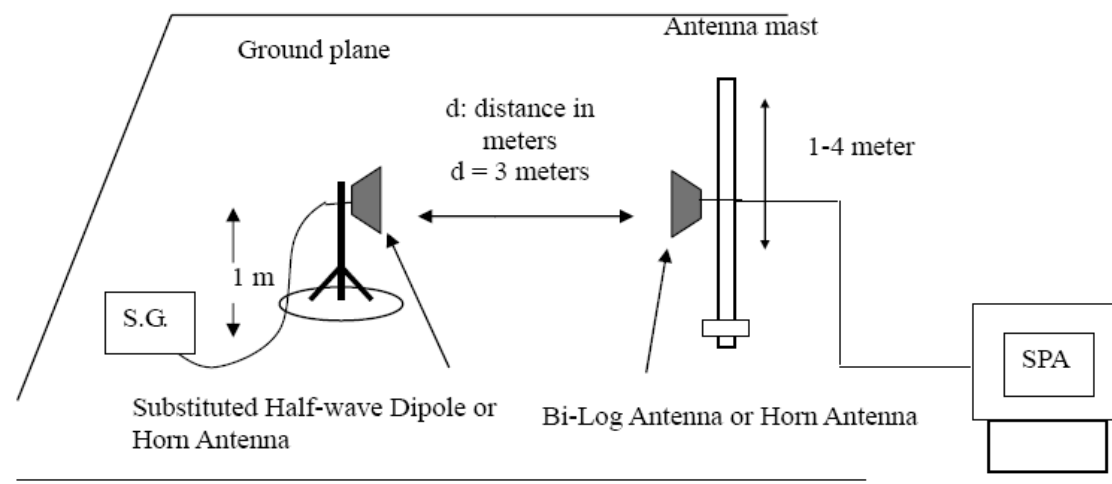
For radiated spurious emissions below 1GHz



For radiated spurious emissions above 1GHz



Substituted Method



5.4.4. Test Results

The worst test data as follow:

30MHz~10GHz

The Worst Test Result For GSM 850, CH 128				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
78.86	-65.47	-13	Pass	H
189.03	-72.14			
697.44	-73.54			
1778.86	-28.24			
2500.16	-33.64			
84.75	-65.98	-13	Pass	V
184.26	-71.36			
719.72	-73.97			
1649.21	-28.18			
2474.70	-34.01			

The Worst Test Result For GSM 850, CH 190				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
85.21	-65.57	-13	Pass	H
180.65	-72.24	-13		
672.88	-73.36	-13		
1672.63	-28.15	-13		
2511.28	-33.65	-13		
81.07	-65.82	-13	Pass	V
195.59	-71.37	-13		
467.55	-73.95	-13		
1672.95	-28.24	-13		
2511.47	-34.05	-13		

The Worst Test Result For GSM 850, CH 251				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
91.48	-65.36	-13	Pass	H
186.59	-72.37	-13		
720.22	-73.85	-13		
1601.10	-28.14	-13		
2558.78	-33.55	-13		
85.61	-65.71	-13	Pass	V
193.26	-71.54	-13		
718.08	-73.82	-13		
1697.12	-28.61	-13		
2507.47	-33.98	-13		

30MHz~20GHz

The Worst Test Result For PCS 1900, CH 512				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
73.84	-67.74	-13	Pass	H
183.77	-72.85	-13		
692.39	-76.11	-13		
3650.33	-28.14	-13		
5434.11	-34.46	-13		
68.71	-67.52	-13	Pass	V
169.00	-67.35	-13		
656.68	-79.41	-13		
3613.10	-26.82	-13		
5752.95	-36.16	-13		

The Worst Test Result For PCS 1900, CH 661				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
87.00	-67.65	-13	Pass	H
185.12	-72.25	-13		
641.45	-76.32	-13		
3819.97	-28.54	-13		
5729.49	-34.68	-13		
83.40	-67.11	-13	Pass	V
196.46	-67.66	-13		
452.39	-79.52	-13		
3819.66	-26.84	-13		
5726.94	-36.78	-13		

The Worst Test Result For PCS 1900, CH 810				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
102.96	-67.24	-13	Pass	H
189.26	-72.13	-13		
670.71	-76.25	-13		
3809.74	-28.65	-13		
5727.65	-34.44	-13		
98.61	-67.56	-13	Pass	V
185.53	-67.18	-13		
675.30	-79.61	-13		
3780.76	-26.71	-13		
5680.60	-36.35	-13		

30MHz~10GHz

The Worst Test Result For GSM 850 EGPRS, CH 128				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
78.61	-64.86	-13	Pass	H
187.46	-72.89			
697.47	-71.83			
1782.02	-29.78			
2499.72	-32.14			
82.19	-65.79	-13	Pass	V
186.48	-71.71			
714.98	-71.97			
1647.72	-27.30			
2477.25	-35.73			

The Worst Test Result For GSM 850 EGPRS, CH 190				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
86.37	-67.00	-13	Pass	H
177.81	-73.94	-13		
669.68	-73.01	-13		
1672.62	-28.12	-13		
2509.04	-35.22	-13		
78.78	-65.02	-13	Pass	V
193.99	-71.84	-13		
472.45	-73.86	-13		
1677.69	-29.23	-13		
2516.64	-33.98	-13		

The Worst Test Result For GSM 850 EGPRS, CH 251				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
89.08	-65.64	-13	Pass	H
186.31	-74.63	-13		
715.08	-73.19	-13		
1603.13	-27.92	-13		
2561.44	-32.87	-13		
86.95	-63.49	-13	Pass	V
191.85	-71.89	-13		
721.05	-71.76	-13		
1696.41	-26.86	-13		
2510.34	-33.81	-13		

30MHz~20GHz

The Worst Test Result For PCS 1900 EGPRS, CH 512				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
74.70	-66.06	-13	Pass	H
183.27	-73.79	-13		
688.52	-74.87	-13		
3653.70	-30.01	-13		
5434.27	-32.75	-13		
70.67	-68.25	-13	Pass	V
170.71	-66.61	-13		
652.25	-77.63	-13		
3615.24	-25.35	-13		
5758.54	-35.34	-13		

The Worst Test Result For PCS 1900 EGPRS, CH 661				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
87.28	-68.00	-13	Pass	H
188.17	-73.04	-13		
647.29	-74.15	-13		
3814.99	-28.41	-13		
5729.62	-35.43	-13		
78.87	-68.70	-13	Pass	V
201.58	-66.18	-13		
449.06	-77.55	-13		
3820.54	-26.56	-13		
5725.86	-36.90	-13		

The Worst Test Result For PCS 1900 EGPRS, CH 810				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
105.82	-66.24	-13	Pass	H
186.49	-72.91	-13		
675.57	-75.49	-13		
3812.72	-27.47	-13		
5727.51	-33.31	-13		
99.49	-65.75	-13	Pass	V
188.45	-68.84	-13		
669.63	-79.31	-13		
3779.61	-26.45	-13		
5677.22	-34.67	-13		

30MHz~10GHz

The Worst Test Result For UMTS 850, CH 4132, 12.2K RMC				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
78.86	-69.34	-13	Pass	H
189.03	-75.71			
697.44	-76.25			
1778.86	-30.61			
2500.16	-35.35			
84.75	-70.62	-13	Pass	V
184.26	-75.14			
719.72	-76.30			
1649.21	-30.44			
2474.70	-35.35			

The Worst Test Result For UMTS 850, CH 4180, 12.2K RMC				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
78.86	-69.41	-13	Pass	H
189.03	-75.52			
697.44	-76.74			
1778.86	-30.62			
2500.16	-35.51			
84.75	-70.05	-13	Pass	V
184.26	-75.36			
719.72	-76.62			
1649.21	-30.62			
2474.70	-35.41			

The Worst Test Result For UMTS 850, CH 4233, 12.2K RMC				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
78.86	-69.95	-13	Pass	H
189.03	-75.45			
697.44	-76.25			
1778.86	-30.41			
2500.16	-35.62			
84.75	-70.71	-13	Pass	V
184.26	-75.34			
719.72	-76.82			
1649.21	-30.51			
2474.70	-35.10			

30MHz~20GHz

The Worst Test Result For UMTS 1900, CH 9262, 12.2K RMC				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
73.84	-70.64	-13	Pass	H
183.77	-74.47	-13		
692.39	-77.15	-13		
3650.33	-30.02	-13		
5434.11	-34.35	-13		
68.71	-70.47	-13	Pass	V
169.00	-71.52	-13		
656.68	-79.93	-13		
3613.10	-29.64	-13		
5752.95	-37.47	-13		

The Worst Test Result For UMTS 1900, CH 9400, 12.2K RMC				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
73.84	-70.38	-13	Pass	H
183.77	-74.92	-13		
692.39	-77.56	-13		
3650.33	-30.68	-13		
5434.11	-34.25	-13		
68.71	-70.84	-13	Pass	V
169.00	-71.65	-13		
656.68	-79.28	-13		
3613.10	-29.69	-13		
5752.95	-37.84	-13		

The Worst Test Result For UMTS 1900, CH 9538, 12.2K RMC				
Frequency (MHz)	Emission Level (dBm)	Limit (dBm)	Result	Polarity
73.84	-70.12	-13	Pass	H
183.77	-74.24	-13		
692.39	-77.54	-13		
3650.33	-30.32	-13		
5434.11	-34.85	-13		
68.71	-70.62	-13	Pass	V
169.00	-71.41	-13		
656.68	-79.64	-13		
3613.10	-29.69	-13		
5752.95	-37.74	-13		

NOTE : The result below 30MHz is too low, there is only base environmental noise. We Only record the worst results above 30MHz.

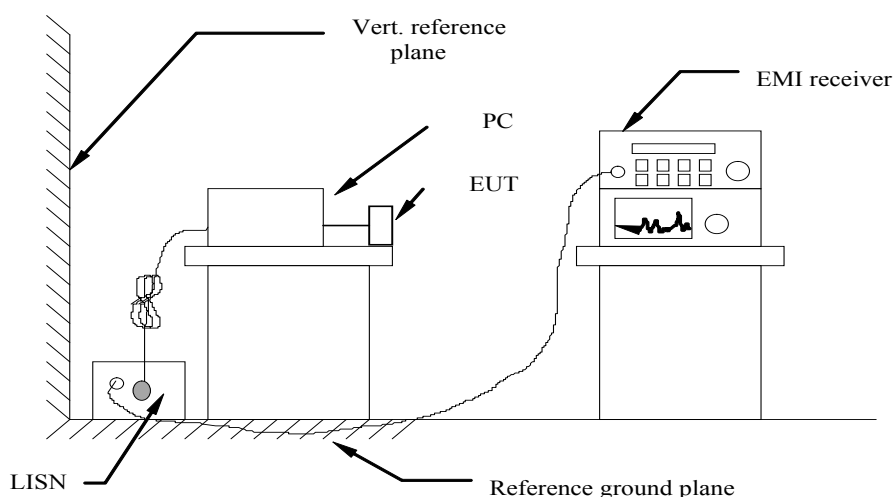
5.5. POWER LINE CONDUCTED EMISSIONS

5.5.1 Standard Applicable

According to §15.107 (a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolt (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

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

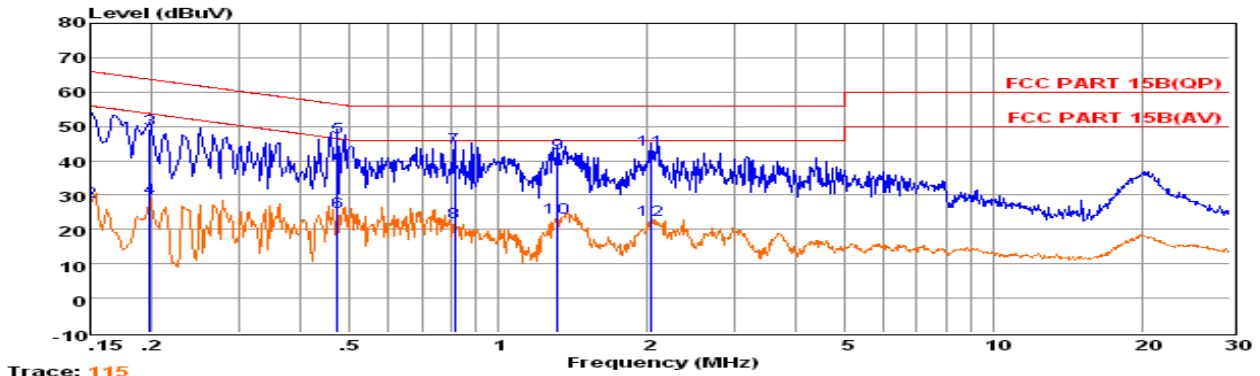
5.5.2 Block Diagram of Test Setup



5.5.3 Test Results

PASS.

The test data please refer to following page.

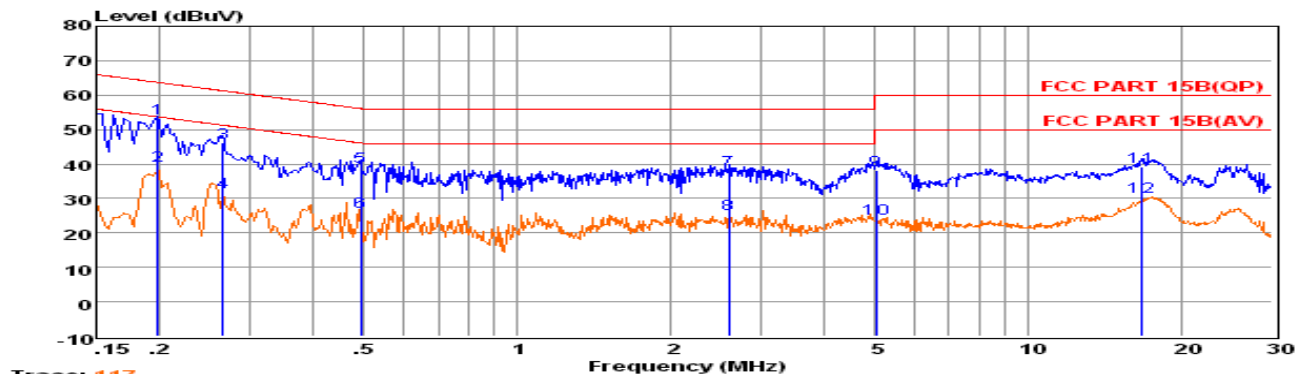


Trace: 115

Env. Ins: 24*/56%
 EUT: Tablet PC
 M/N: TP02
 Power Rating: AC 120V/60Hz
 Test Mode: GSM850 TX
 Operator: JACKY
 Memo:
 Pol: NEUTRAL

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.15000	42.74	9.70	0.02	52.46	66.00	-13.54	QP
2	0.15001	18.54	9.70	0.02	28.26	56.00	-27.74	Average
3	0.19758	39.46	9.59	0.02	49.07	63.71	-14.64	QP
4	0.19759	19.53	9.59	0.02	29.14	53.71	-24.57	Average
5	0.47360	37.38	9.62	0.04	47.04	56.45	-9.41	QP
6	0.47361	15.36	9.62	0.04	25.02	46.45	-21.43	Average
7	0.81737	34.25	9.63	0.04	43.92	56.00	-12.08	QP
8	0.81738	12.36	9.63	0.04	22.03	46.00	-23.97	Average
9	1.31678	32.47	9.63	0.05	42.15	56.00	-13.85	QP
10	1.31778	13.84	9.63	0.05	23.52	46.00	-22.48	Average
11	2.03328	33.65	9.63	0.05	43.33	56.00	-12.67	QP
12	2.03428	13.14	9.63	0.05	22.82	46.00	-23.18	Average

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.
 2. The emission levels that are 20dB below the official limit are not reported.



Trace: 117

Env. Ins: 24*/56%
 EUT: Tablet PC
 M/N: TP02
 Power Rating: AC 120V/60Hz
 Test Mode: GSM850 TX
 Operator: JACKY
 Memo:
 Pol: LINE

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.19758	43.68	9.63	0.02	53.33	63.71	-10.38	QP
2	0.19759	29.81	9.63	0.02	39.46	53.71	-14.25	Average
3	0.26583	36.65	9.63	0.03	46.31	61.25	-14.94	QP
4	0.26584	22.19	9.63	0.03	31.85	51.25	-19.40	Average
5	0.49411	29.49	9.62	0.04	39.15	56.10	-16.95	QP
6	0.49412	16.54	9.62	0.04	26.20	46.10	-19.90	Average
7	2.59445	28.58	9.64	0.05	38.27	56.00	-17.73	QP
8	2.59545	15.66	9.64	0.05	25.35	46.00	-20.65	Average
9	5.03123	28.48	9.65	0.06	38.19	60.00	-21.81	QP
10	5.03223	14.34	9.65	0.06	24.05	50.00	-25.95	Average
11	16.66122	29.47	9.73	0.11	39.31	60.00	-20.69	QP
12	16.66222	20.52	9.73	0.11	30.36	50.00	-19.64	Average

Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.
 2. The emission levels that are 20dB below the official limit are not reported.

Note: Pre-scan all mode and recorded the worst case results in this report (GSM 850, Normal Link)

5.6. FREQUENCY STABILITY OVER TEMPERATURE AND VOLTAGE VARIATIONS

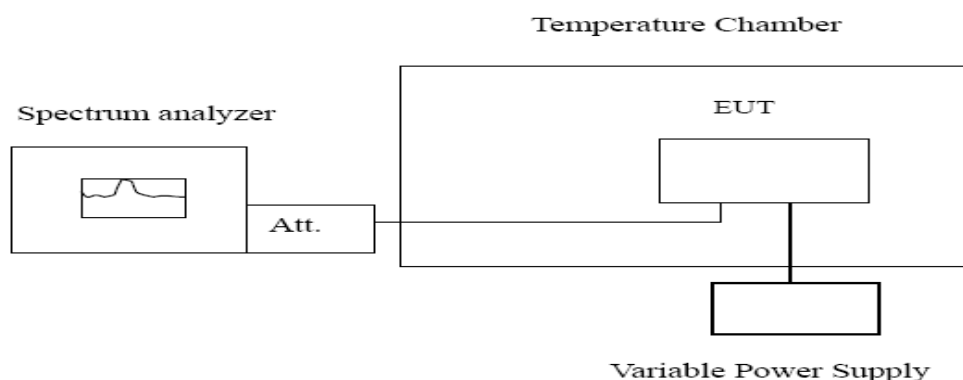
5.6.1. Standard Applicable

FCC §2.1055, §22.355 and §24.235, Frequency Tolerance: 2.5ppm

5.6.2. Test Procedures

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 20°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.



5.6.3. Test Results

Pass

The worst test data as follow:

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	21	0.025102	2.5	Pass
	-20	24	0.028688		
	-10	13	0.015539		
	0	16	0.019125		
	10	26	0.031078		
	20	11	0.013148		
	30	20	0.023906		
	40	27	0.032273		
	50	34	0.040641		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error			Result
		Hz	ppm		
3.70	-30	18	0.009574	2.5	Pass
	-20	20	0.010638		
	-10	19	0.010106		
	0	18	0.009574		
	10	14	0.007447		
	20	17	0.009043		
	30	32	0.017021		
	40	25	0.013298		
	50	32	0.017021		

Reference Frequency: GSM850 EGPRS Middle channel=190 channel=836.6MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	17	0.020320	2.5	Pass
	-20	25	0.029882		
	-10	24	0.028687		
	0	19	0.022711		
	10	16	0.019125		
	20	17	0.020320		
	30	13	0.015539		
	40	25	0.029883		
	50	24	0.028688		
Reference Frequency: PCS1900 EGPRS Middle channel=661 channel=1880MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error			Result
		Hz	ppm		
3.70	-30	17	0.009042	2.5	Pass
	-20	15	0.007979		
	-10	26	0.013829		
	0	21	0.011170		
	10	25	0.013298		
	20	15	0.007979		
	30	18	0.009574		
	40	27	0.014362		
	50	18	0.009574		

Reference Frequency: UMTS850 12.2k RMC Middle channel=4180 channel=836MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	23	0.027512	2.5	Pass
	-20	27	0.032297		
	-10	22	0.026316		
	0	38	0.045455		
	10	18	0.021531		
	20	37	0.044258		
	30	20	0.023923		
	40	20	0.023923		
	50	31	0.037081		
Reference Frequency: UMTS1900 12.2k RMC Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	27	0.014362	2.5	Pass
	-20	10	0.005319		
	-10	31	0.016489		
	0	10	0.005319		
	10	12	0.006383		
	20	38	0.020213		
	30	14	0.007447		
	40	28	0.014894		
	50	14	0.007447		

Reference Frequency: UMTS850 HSDPA Middle channel=4180 channel=836MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	14	0.016746	2.5	Pass
	-20	30	0.035885		
	-10	32	0.038278		
	0	21	0.025120		
	10	38	0.045455		
	20	13	0.015550		
	30	12	0.014354		
	40	23	0.027512		
	50	18	0.021531		
Reference Frequency: UMTS1900 HSDPA Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	31	0.016489	2.5	Pass
	-20	16	0.008511		
	-10	28	0.014894		
	0	38	0.020213		
	10	30	0.015957		
	20	12	0.006383		
	30	32	0.017021		
	40	33.	0.017553		
	50	28	0.014894		

Reference Frequency: UMTS850 Voice Middle channel=4180 channel=836MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	31	0.037081	2.5	Pass
	-20	13	0.015550		
	-10	12	0.014354		
	0	31	0.037081		
	10	30	0.035885		
	20	21	0.025120		
	30	14	0.016746		
	40	32	0.038278		
	50	10	0.011962		
Reference Frequency: UMTS1900 Voice Middle channel=9400 channel=1880MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
3.70	-30	16	0.008511	2.5	Pass
	-20	11	0.005851		
	-10	21	0.01117		
	0	16	0.008511		
	10	23	0.012234		
	20	12	0.006383		
	30	21	0.01117		
	40	25	0.013298		
	50	33	0.017553		

Reference Frequency: GSM850 Middle channel=190 channel=836.6MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	36	0.043031	2.5	Pass
	3.70	34	0.040641		
	3.40	46	0.054984		
Reference Frequency: PCS1900 Middle channel=661 channel=1880MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	43	0.022872	2.5	Pass
	3.70	45	0.023936		
	3.40	46	0.024468		
Reference Frequency: UMTS 850 12.2k RMC Middle channel=4180 channel=836MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	33	0.039474	2.5	Pass
	3.70	47	0.056220		
	3.40	36	0.043062		
Reference Frequency: UMTS 1900 12.2k RMC Middle channel=9400 channel=1880MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	41	0.021809	2.5	Pass
	3.70	45	0.023936		
	3.40	34	0.018085		

Reference Frequency: UMTS 850 HSDPA Middle channel=4180 channel=836MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	37	0.044258	2.5	Pass
	3.70	49	0.058612		
	3.40	32	0.038278		
Reference Frequency: UMTS 1900 HSDPA Middle channel=9400 channel=1880MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	42	0.022340	2.5	Pass
	3.70	45	0.023936		
	3.40	33	0.017553		
Reference Frequency: UMTS 850 Voice Middle channel=4180 channel=836MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	34	0.040670	2.5	Pass
	3.70	45	0.053828		
	3.40	31	0.037081		
Reference Frequency: UMTS 1900 Voice Middle channel=9400 channel=1880MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
25	4.25	40	0.021277	2.5	Pass
	3.70	45	0.023936		
	3.40	30	0.015957		

NOTE: All conditions have been tested and we only record the worst results in each bands.

6. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal Date	Due Date
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	June 18,2013	June 17,2014
Signal analyzer	Agilent	E4448A(External mixers to 40GHz)	US44300469	9kHz~40GHz	July 18,2013	July 17,2014
LISN	MESS Tec	NNB-2/16Z	99079	9KHz-30MHz	June 25,2013	June 24,2014
LISN (Support Unit)	EMCO	3819/2NM	9703-1839	9KHz-30MHz	June 25,2013	June 24,2014
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9KHz-30MHz	June 25,2013	June 24,2014
ISN	SCHAFFNER	ISN ST08	21653	9KHz-30MHz	June 25,2013	June 24,2014
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30M-1GHz 3m	June 18,2013	June 17,2014
Amplifier	SCHAFFNER	COA9231A	18667	9kHz-2GHz	June 16,2013	June 15,2014
Amplifier	Agilent	8449B	3008A02120	1GHz-26.5GHz	July 16,2013	July 15,2014
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz-40GHz	July 16,2013	July 15,2014
Spectrum Analyzer	Agilent	E4407B	MY41440292	9k-26.5GHz	July 16,2013	July 15,2014
Loop Antenna	R&S	HFH2-Z2	860004/001	9k-30MHz	June 16,2013	June 15,2014
By-log Antenna	SCHWARZBECK	VULB9163	9163-470	30MHz-1GHz	June 16,2013	June 15,2014
Horn Antenna	EMCO	3115	6741	1GHz-18GHz	June 16,2013	June 15,2014
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz-40GHz	June 16,2013	June 15,2014
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz-1GHz	June 25,2013	June 24,2014
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz-40GHz	June 25,2013	June 24,2014
Spectrum Meter	R&S	FSP 30	100023	9kHz-30GHz	July 16,2013	July 15,2014
Power Meter	R&S	NRVS	100444	DC-40GHz	June 18,2013	June 17,2014
Power Sensor	R&S	NRV-Z51	100458	DC-30GHz	June 18,2013	June 17,2014
Power Sensor	R&S	NRV-Z32	10057	30MHz-6GHz	June 18,2013	June 17,2014
AC Power Source	HPC	HPA-500E	HPA-9100024	AC 0~300V	June 18,2013	June 17,2014
DC power Source	GW	GPC-6030D	C671845	DC 1V-60V	June 18,2013	June 17,2014
Temp. and Humidity	Giant Force	GTH-225-20-S	MAB0103-00	N/A	June 18,2013	June 17,2014
RF CABLE-1m	JYE Bao	RG142	CB034-1m	20MHz-7GHz	June 25,2013	June 24,2014
RF CABLE-2m	JYE Bao	RG142	CB)35-2m	20MHz-1GHz	June 25,2013	June 24,2014
Vector signal Generator	R&S	SMU200A	102098	100kHz~6GHz	June 18,2013	June 17,2014
Signal Generator	R&S	SMR40	10016	10MHz~40GHz	July 16,2013	July 15,2014
Universal Radio Communication	R&S	CMU200	112012	N/A	July 18,2013	July 17,2014

Note: All equipment through GRGT EST calibration

7. MANUFACTURER/ APPROVAL HOLDER DECLARATION

The following identical model(s):

TP01	TP03	TP04	TP05
TP06	TP07	TP08	TP09
TP10	TP11	TP12	TP13
TP14	TP15		

Belong to the tested device:

Product description : Tablet PC

Model name : TP02

Remark: PCB board, structure and internal of these model(s) are the same,

So no additional models were tested.

-----THE END OF REPORT-----