

FCC TEST REPORT

Product Name : Wireless Dual Band Signal Amplifier
Model Number : HW8010 / HW8020 / HW8050
Trade Name : Helloway
Technical Data : DC 6V by adaptor
FCC ID : YYO-PTE2010
Report Number : SZEE101108575319
Date : January 4, 2011

Standards	Results
<input checked="" type="checkbox"/> 47 CFR FCC Part 22 Subpart H	PASS
<input checked="" type="checkbox"/> 47 CFR FCC Part 24 Subpart E	PASS

Prepared for:

Phonetone Technology (Shenzhen) Co., Ltd.
Room 404, Building 12, Qianlong Garden, Minzhi Street,
Bao'an District, Shenzhen 518031
TEL: +86-013510329652
FAX: +86-755-28199993

Prepared by:

CENTRE TESTING INTERNATIONAL
Building C, Hongwei Industrial Zone, Baoan 70 District,
Shenzhen, Guangdong, China
TEL: +86-755-3368 3668
FAX: +86-755-3368 3385

**This report shall not be reproduced, except in full, without the written approval of
CENTRE TESTING INTERNATIONAL**

Building C, Hongwei Industrial Zone, Baoan 70 District, Shenzhen

TABLE OF CONTENTS

Description	Page
1. CERTIFICATION INFORMATION	4
2. TEST SUMMARY	5
3. MEASUREMENT UNCERTAINTY	5
4. PRODUCT INFORMATION	5
5. SYSTEM TEST CONFIGURATION	6
6. TEST EQUIPMENT LIST	7
7. SUPPORT EQUIPMENT LIST	7
8. OUTPUT POWER	8
8.1. LIMITS.....	8
8.2. TEST CONFIGURATION	8
8.3. TEST METHOD.....	8
8.4. TEST RESULT	9
9. SPURIOUS EMISSIONS AT ANTENNA TERMINALS	16
9.1. LIMITS.....	16
9.2. TEST CONFIGURATION	16
9.3. TEST METHOD.....	16
9.4. TEST RESULT	16
10. OCCUPIED BANDWIDTH	45
10.1. REGULATIONS.....	45
10.2. TEST CONFIGURATION	45
10.3. TEST PROCEDURE	45
10.4. TEST RESULT	45
11. FIELD STRENGTH OF RADIATED SPURIOUS EMISSION	58
11.1. LIMITS.....	58
11.2. TEST CONFIGURATION	58
11.3. TEST METHOD.....	58
11.4. TEST PROCEDURE	59

11.5. TEST RESULT	60
12. AC POWER LINE CONDUCTED EMISSIONS	61
12.1. LIMITS	61
12.2. BLOCK DIAGRAM OF TEST SETUP	61
12.3. TEST PROCEDURE	61
12.4. TEST RESULT	61
APPENDIX 1 PHOTOGRAPHS OF TEST SETUP	66
APPENDIX 2 EXTERNAL PHOTOGRAPHS OF EUT	67
APPENDIX 3 INTERNAL PHOTOGRAPHS OF EUT	69

N/A means not applicable.

1. CERTIFICATION INFORMATION

Applicant & Address: Phonetone Technology (Shenzhen) Co., Ltd.
Room 404, Building 12, Qianlong Garden, Minzhi Street, Bao'an District, Shenzhen 518031

Manufacturer & Address: Phonetone Technology (Shenzhen) Co., Ltd.
Room 404, Building 12, Qianlong Garden, Minzhi Street, Bao'an District, Shenzhen 518031

Type of Test: FCC Part 22H and 24E (Certification)

FCC ID: YYO-PTE2010

Equipment Under Test: Wireless Dual Band Signal Amplifier

Test Model: HW8010 / HW8020 / HW8050
Model difference: all the models are identical and they have same circuit and function as declared by the applicant.

Trade Name: Helloway

Serial Number: Not Applicable

Technical Data: DC 6V by adaptor

Date of test: November 8, 2010 to January 4, 2011

Condition of Test Sample: Normal

The above equipment was tested by Centre Testing International for compliance with the requirements set forth in the FCC Rules and Regulations Part 22H and 24E, the measurement procedure according to FCC Part 2.
The test results of this report relate only to the tested sample identified in this report.

Prepared by : Louisa Lu
Louisa Lu

Reviewed by : Christy Chen
Christy Chen

Approved by : Lily Yan
Lily Yan
Supervisor



Date : January 4, 2011

2. TEST SUMMARY

Test Item	Rule	Result
Output Power	FCC Part 22.913 FCC Part 24.232 FCC Part 2.1046	PASS
Spurious Emissions at antenna terminals	FCC Part 22.917 FCC Part 24.238 FCC Part 2.1051	PASS
Field strength of radiated spurious emission	FCC Part 22.917 FCC Part 24.238 FCC Part 2.1053	PASS
Occupied Bandwidth	FCC Part 2.1049	PASS
AC power line conducted emissions	FCC 15.107	PASS

3. MEASUREMENT UNCERTAINTY

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

Measurement items	Uncertainty
Conducted Emission	2.7 dB
Radiated Emissions	4.4 dB

4. PRODUCT INFORMATION

Parameters	Downlink	Uplink
Frequency Range:	869-894 MHz	824-849 MHz
	1930-1990MHz	1850-1910MHz
Maximum Gains:	55dB	55dB
Max RF Power:	13dBm	25dBm
Typical Modulation	GSM	GSM
VSWR:	<2.0:1	
Noise Figure:	<5	
Impedance:	50ohm	
Power Supply:	DC 6V, 3A Max	

Note: The product under test it's a single channel amplifier.

5. SYSTEM TEST CONFIGURATION

5.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables were manipulated to produce worst case emissions. It was powered by 6Vdc. Only the worst case data were recorded in this test report.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The resolution is 1 MHz or greater for frequencies above 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

Radiated emission measurement were performed the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

5.2 EUT Exercising Software

There was no special software to exercise the device.

6. TEST EQUIPMENT LIST

Equipment	Manufacturer	Model Number	Serial Number	Due Date
3M Chamber & Accessory Equipment	ETS-LINDGREN	FACT-3	3510	01/19/2011
Spectrum Analyzer	Agilent	E4443A	MY46185649	01/19/2011
Spectrum Analyzer	R&S	FSP40	100416	06/04/2011
Biconilog Antenna	ETS-LINGREN	3142C	920250	01/19/2011
Multi device Controller	ETS-LINGREN	2090	00057230	01/19/2011
Horn Antenna	ETS-LINDGREN	3117	00057407	07/31/2011
Loop Antenna	ETS-LINDGREN	6502	00071730	07/19/2011
Receiver	R&S	ESCI	100009	07/10/2011
LISN	R&S	ENV216	100098	07/10/2011
Signal Generator	IFR	2023B	202307/439	07/10/2011
Wireless Communications Test Set	Agilent	8960 E5515C	GB47050534	---
Univesal Radio Communication Tester	Rohde & Schwarz	CMU200	112012	04/15/2011

7. SUPPORT EQUIPMENT LIST

No special auxiliary equipment used.

8. OUTPUT POWER

8.1. LIMITS

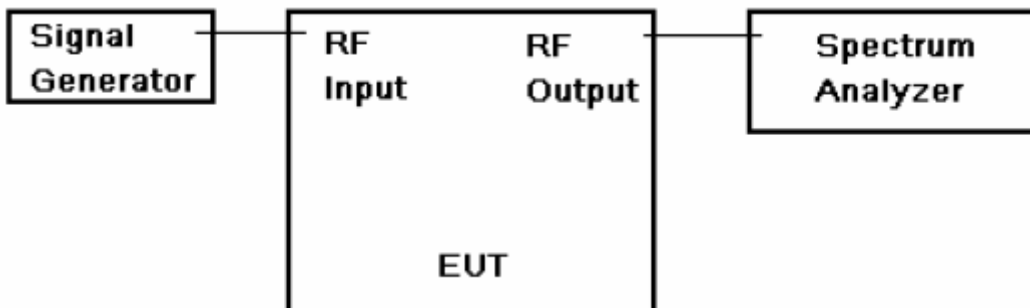
According to § 22.913 (a) Maximum ERP. In general, the effective radiated power (ERP) of base transmitters and cellular repeaters must not exceed 500 Watts.

According to § 24.232 (a) Base stations are limited to 1640 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT, except as described in paragraph (b) below. See §24.53 for HAAT calculation method. Base station antenna heights may exceed 300 meters with a corresponding reduction in power; see following table of this section. The service area boundary limit and microwave protection criteria specified in §§24.236 and 24.237 apply.

Reduced Power for Base Station Antenna Heights Over 300 Meters

HAAT in meters	Maximum EIRP watts
≤300	1640
≤500	1070
≤1000	490
≤1500	270
≤2000	160

8.2. TEST CONFIGURATION



8.3. TEST METHOD

According to §2.1046(a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in 2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

According to §2.1046(b), for single sideband, independent sideband, and single channel, controlled carrier radiotelephone transmitters, the procedure specified in paragraph (a) of this

section shall be employed and, in addition, the transmitter shall be modulated during the test as specified and as applicable in 2.1046(b) (1-5). In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

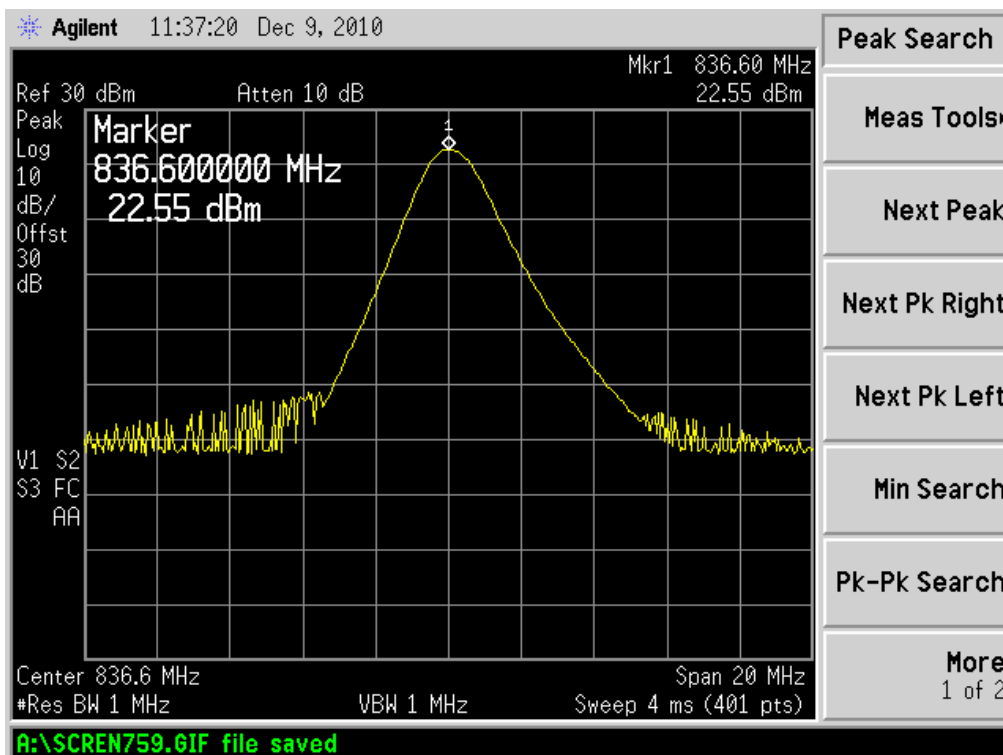
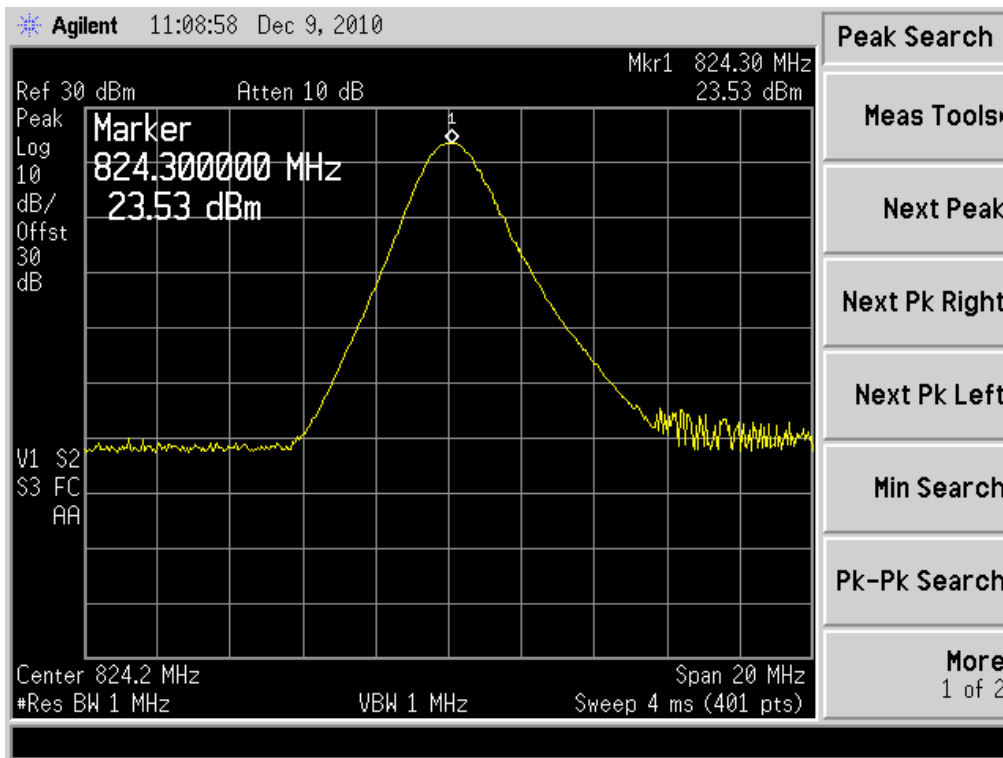
According to §2.1046(c), for measurements conducted pursuant to paragraphs (a) and (b) of this section, all calculations and methods used by the applicant for determining carrier power or peak envelope power, as appropriate, on the basis of measured power in the radio frequency load attached to the transmitter output terminals shall be shown. Under the test conditions specified, no components of the emission spectrum shall exceed the limits specified in the applicable rule parts as necessary for meeting occupied bandwidth or emission limitations.

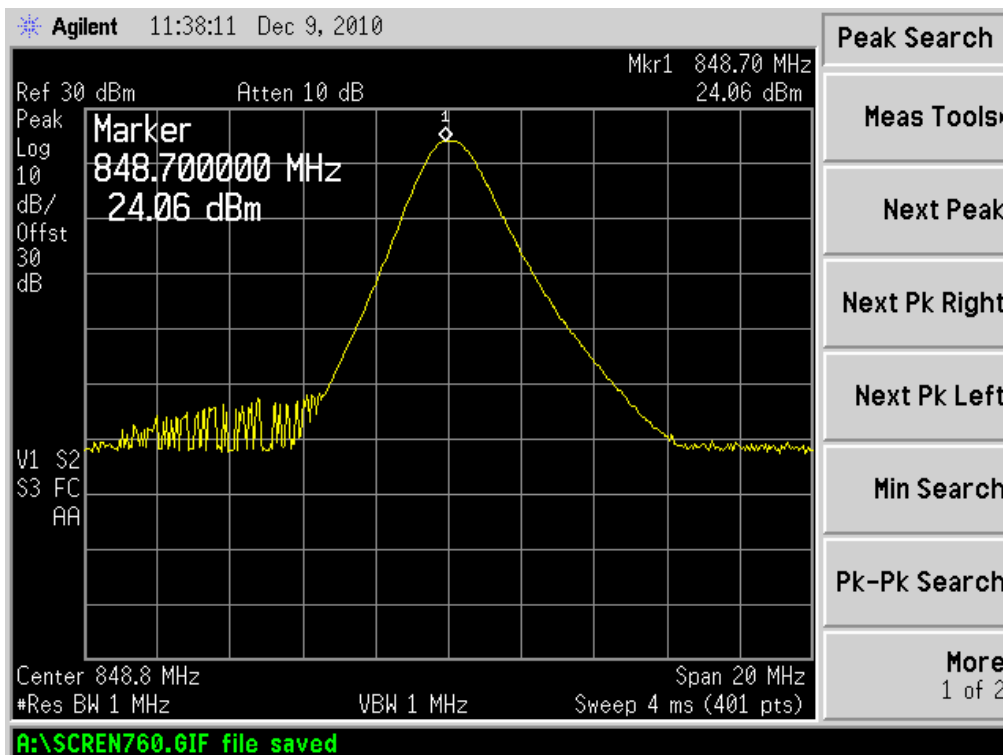
8.4. TEST RESULT

Freq. (MHz)		RF Power (dBm)	RF Power (W)	Limit (W)	Result (Pass / Fail)	
Uplink	850MHz	824.2	23.53	0.225	500	Pass
		836.6	22.55	0.179	500	Pass
		848.8	24.06	0.254	500	Pass
	1900MHz	1850	24.99	0.315	160	Pass
		1880	22.06	0.160	160	Pass
		1910	22.93	0.196	160	Pass
Downlink	850MHz	869.2	12.5	0.017	500	Pass
		881.6	12.66	0.018	500	Pass
		893.8	11.24	0.013	500	Pass
	1900MHz	1930	8.794	0.007	160	Pass
		1960	9.427	0.009	160	Pass
		1990	4.586	0.003	160	Pass

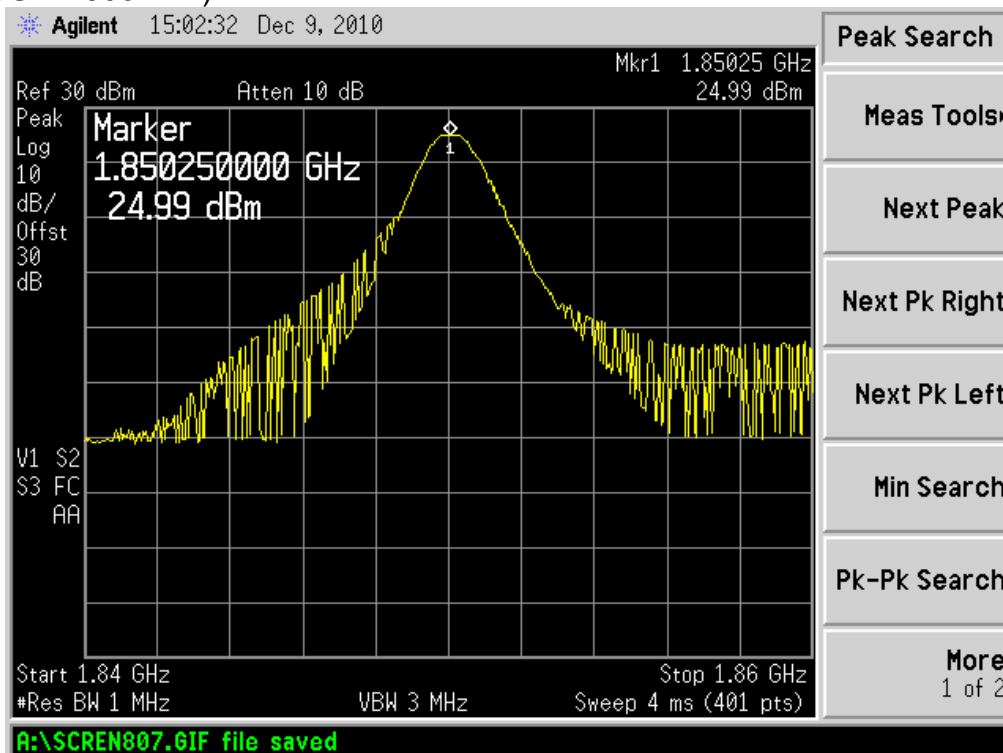
Note: Max input power is -22dBm (GSM Signal).

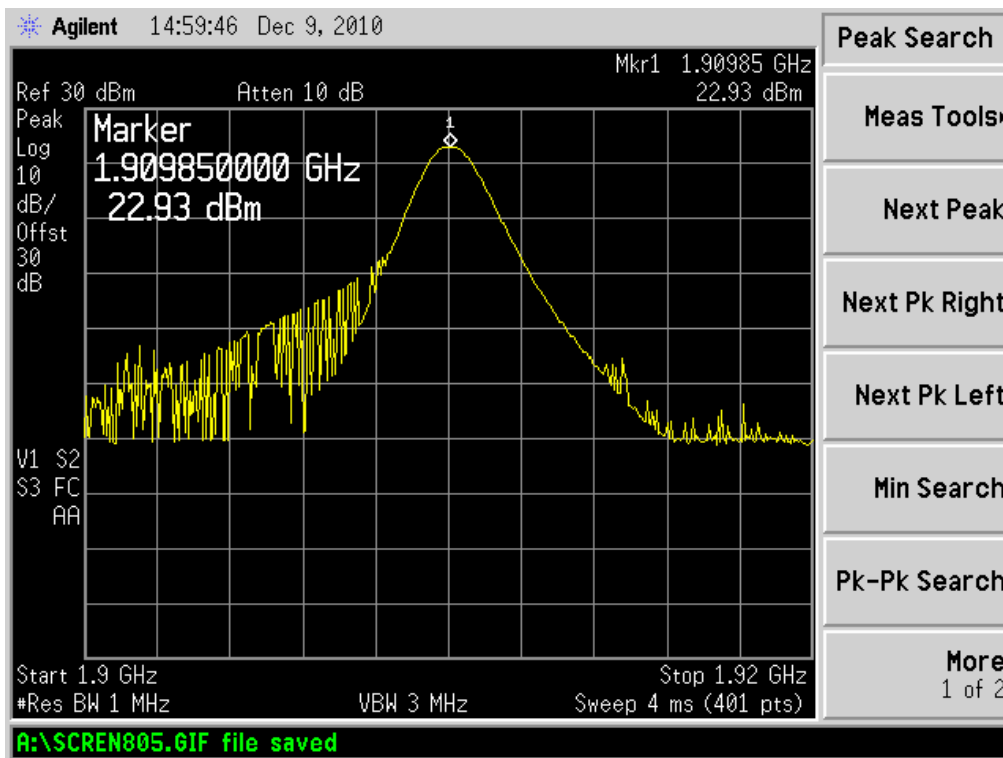
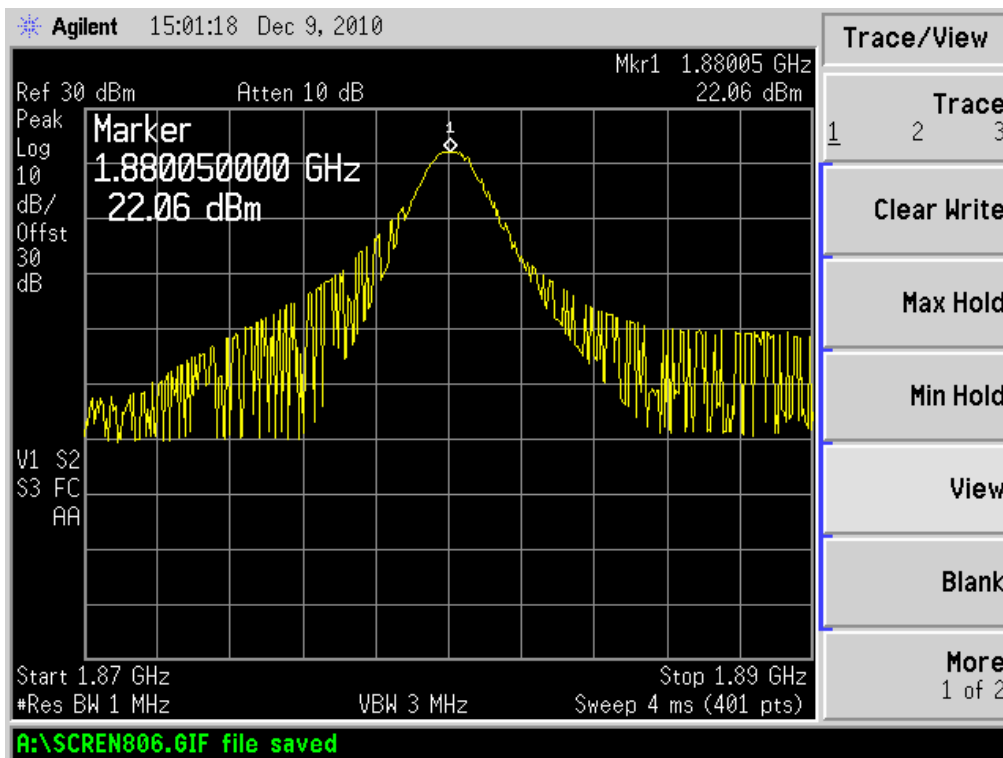
Uplink: (GSM 850MHz)



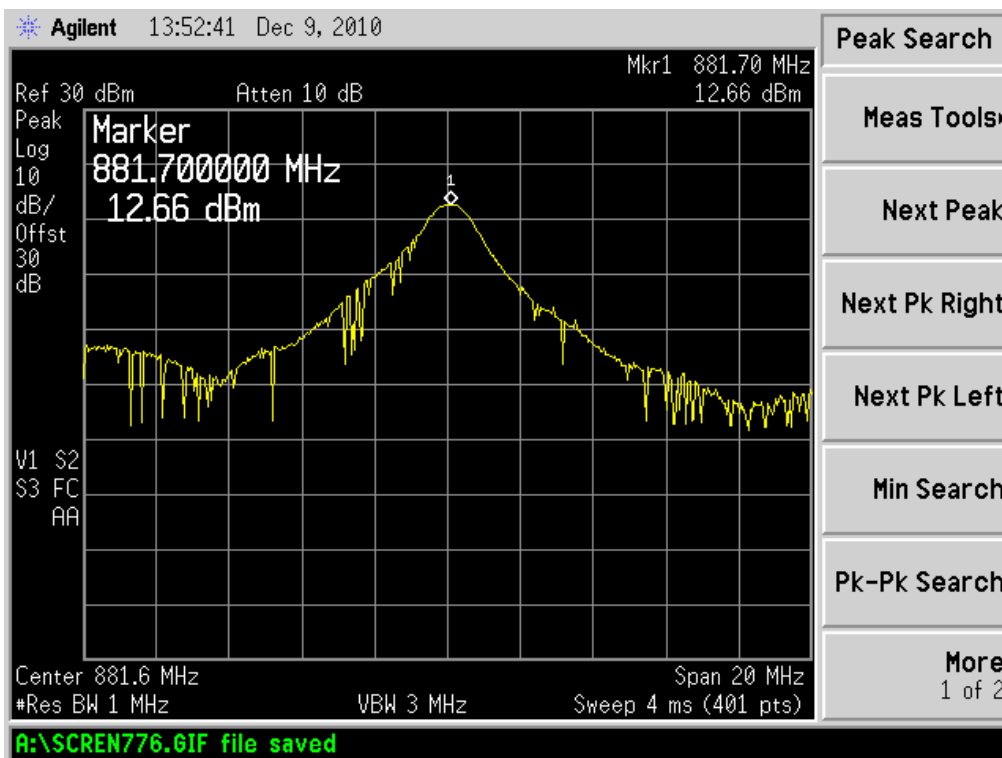
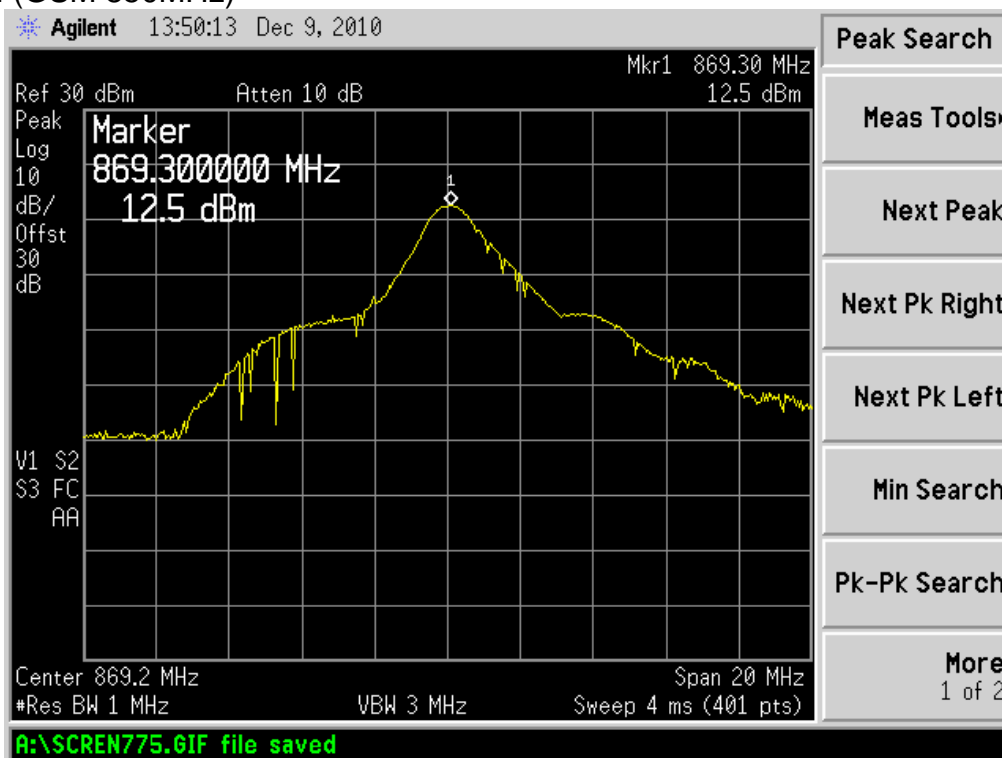


Uplink: (GSM 1900MHz)



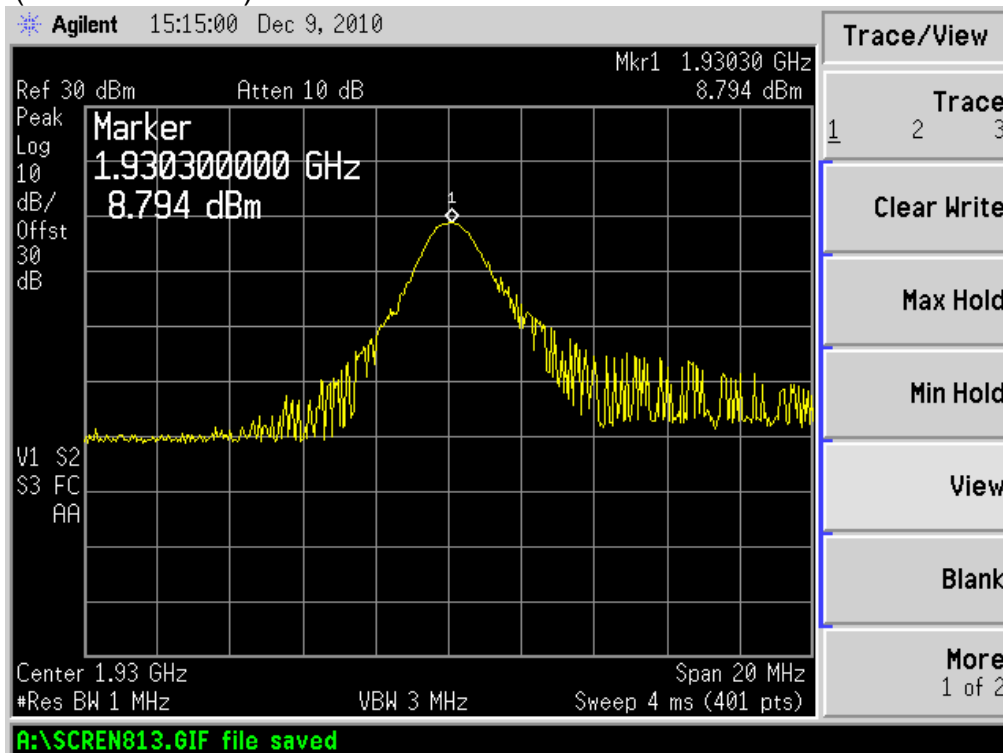


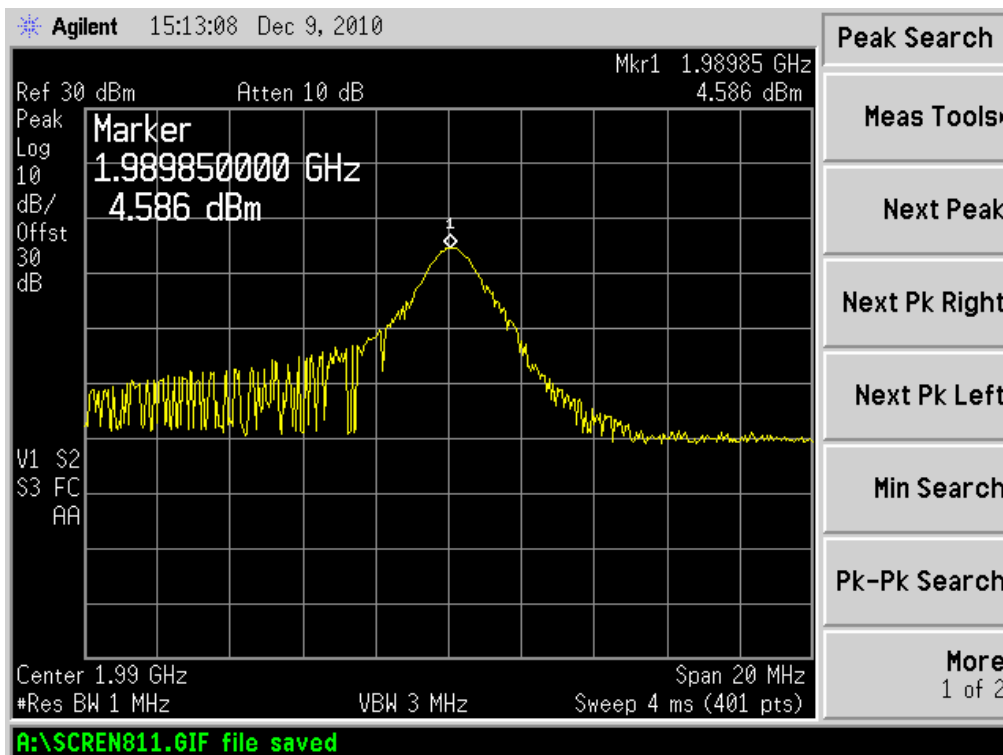
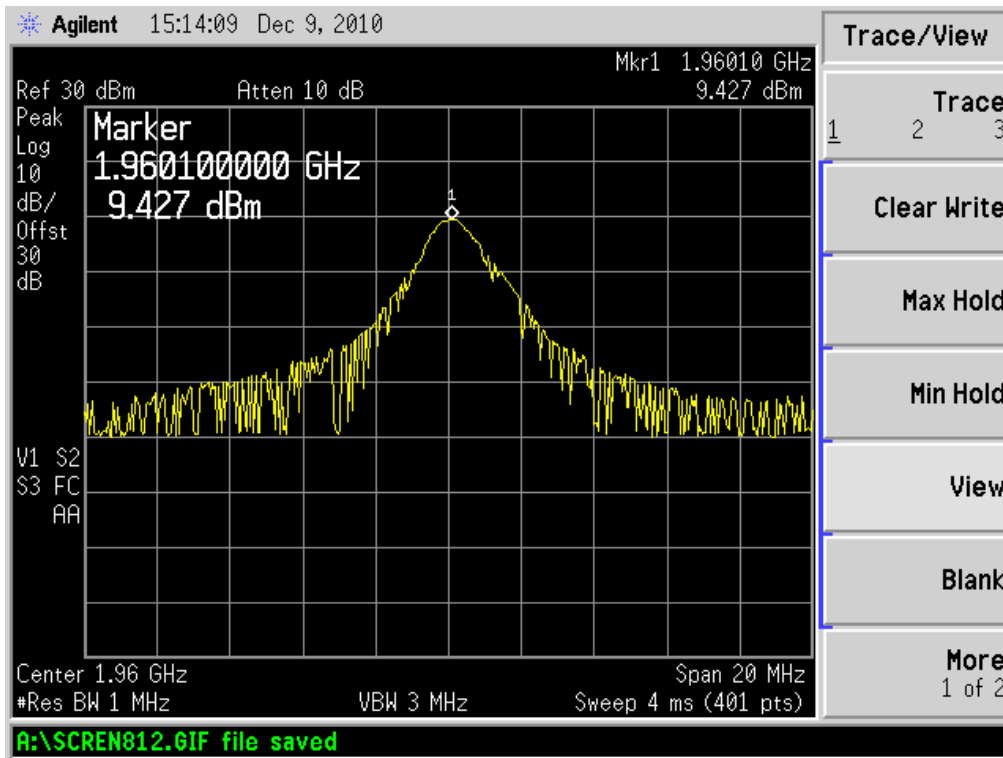
Downlink: (GSM 850MHz)





Downlink: (GSM 1900MHz)





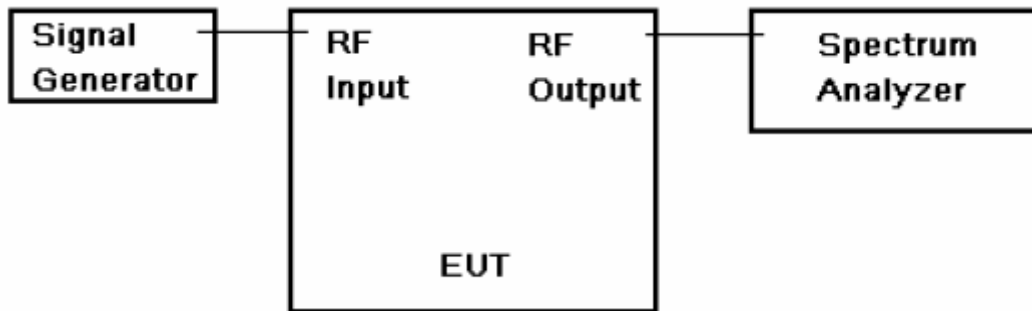
9. SPURIOUS EMISSIONS AT ANTENNA TERMINALS

9.1. LIMITS

According to § 22.913 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to § 24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

9.2. TEST CONFIGURATION



9.3. TEST METHOD

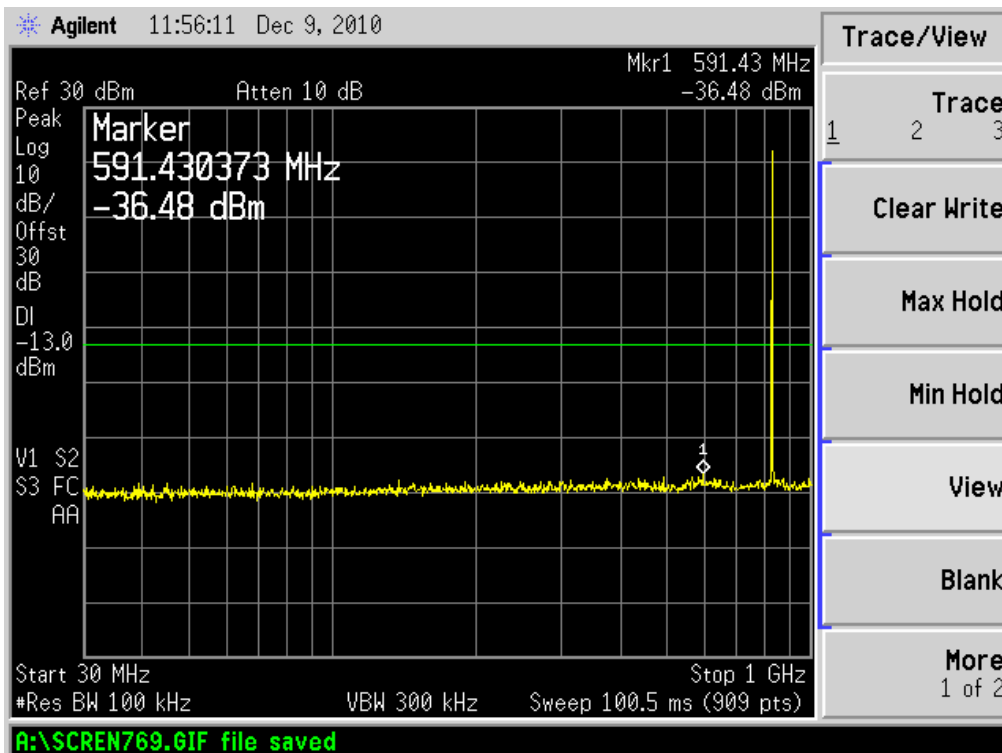
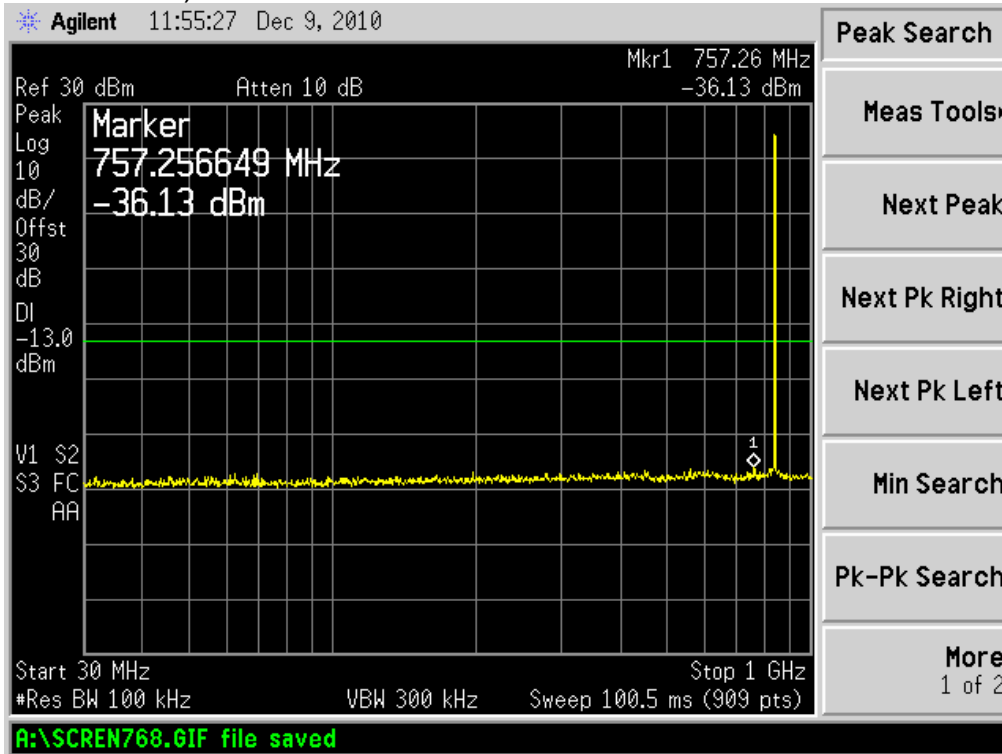
The radio frequency voltage or powers generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminals when properly loaded with a suitable artificial antenna. Curves or equivalent data shall show the magnitude of each harmonic and other spurious emission that can be detected when the equipment is operated under the conditions specified in §2.1049 as appropriate. The magnitude of spurious emissions which are attenuated more than 20 dB below the permissible value need not be specified.

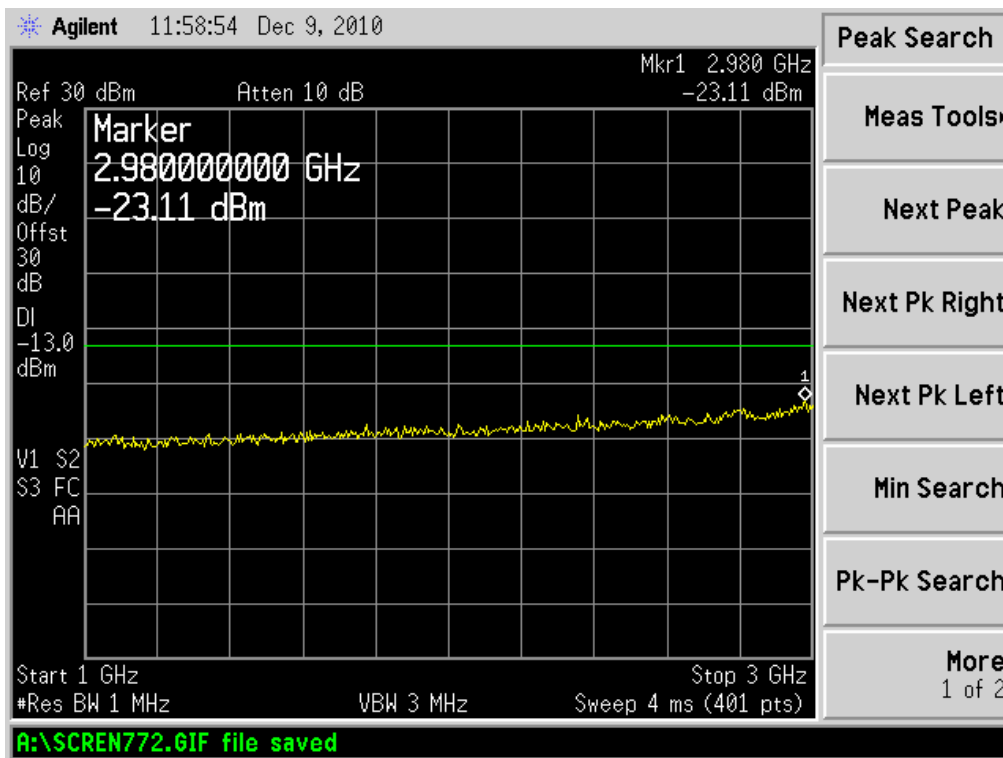
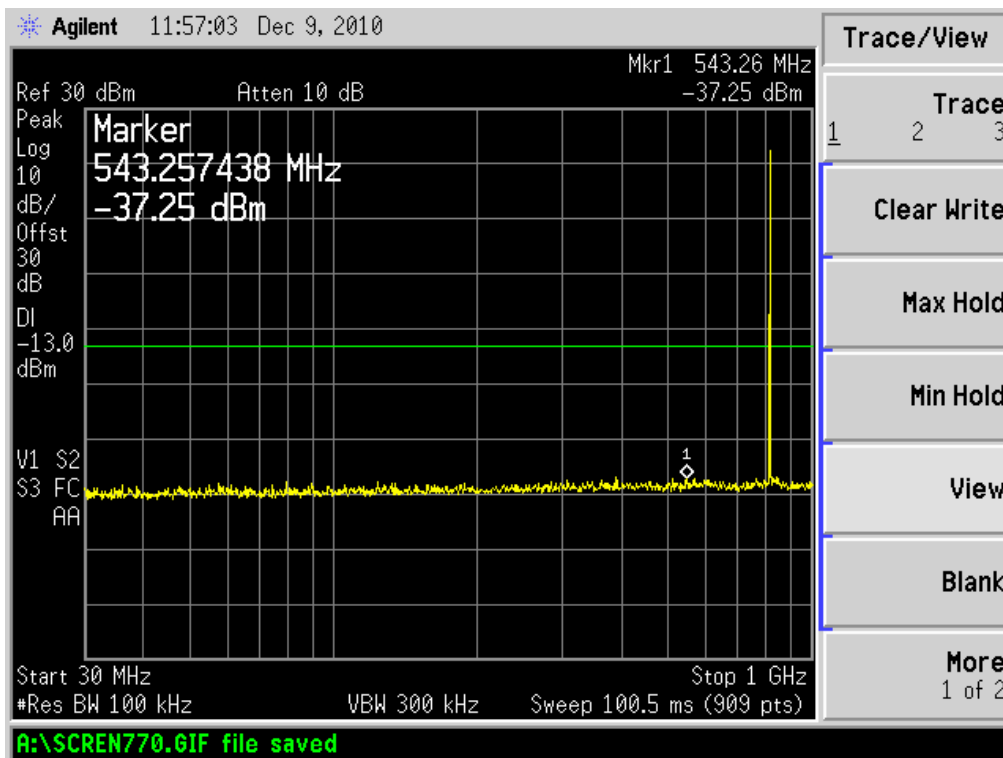
9.4. TEST RESULT

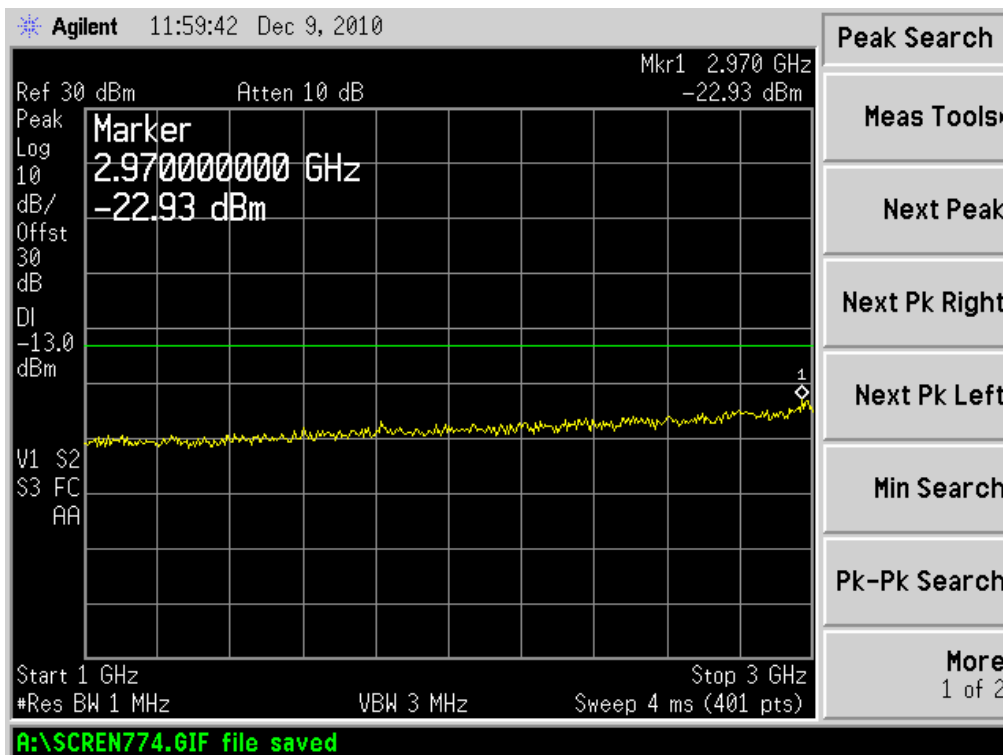
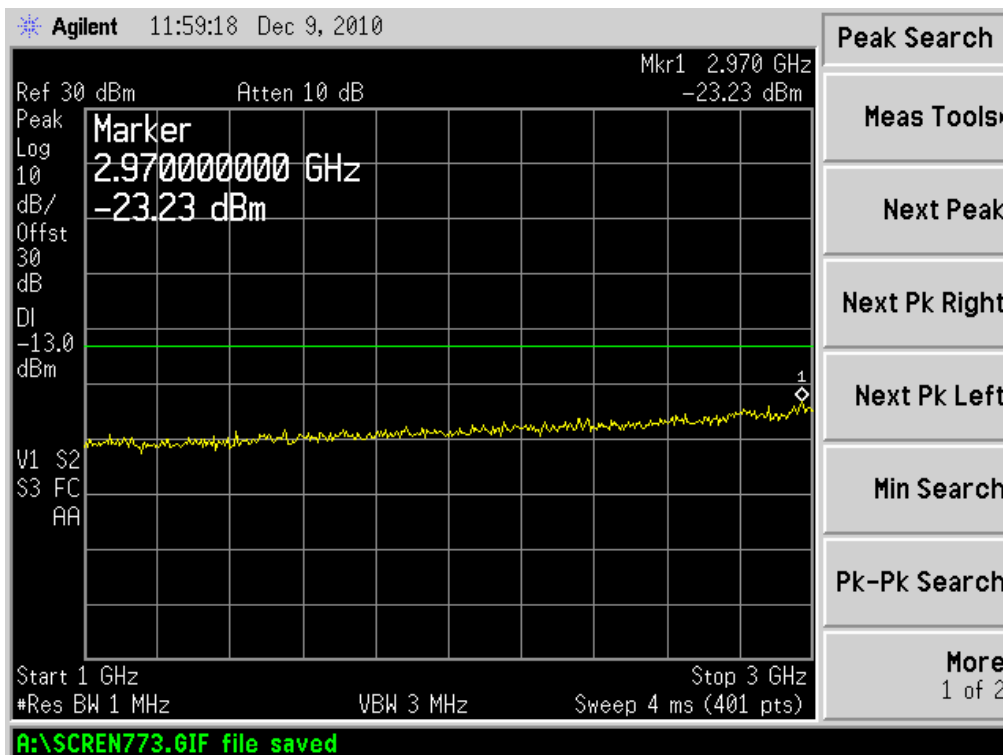
Please see the following plots.

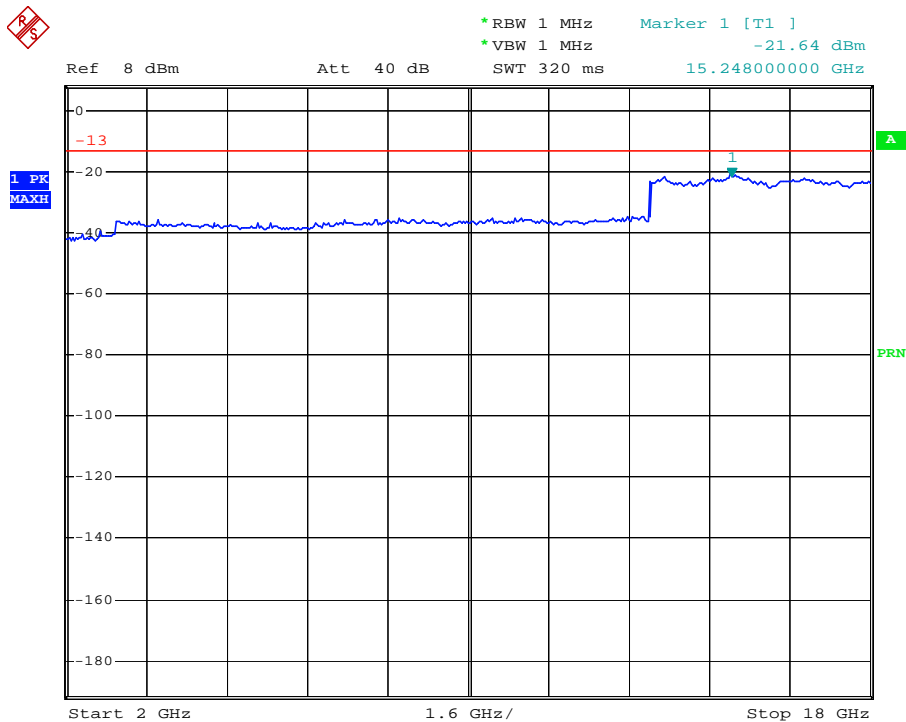
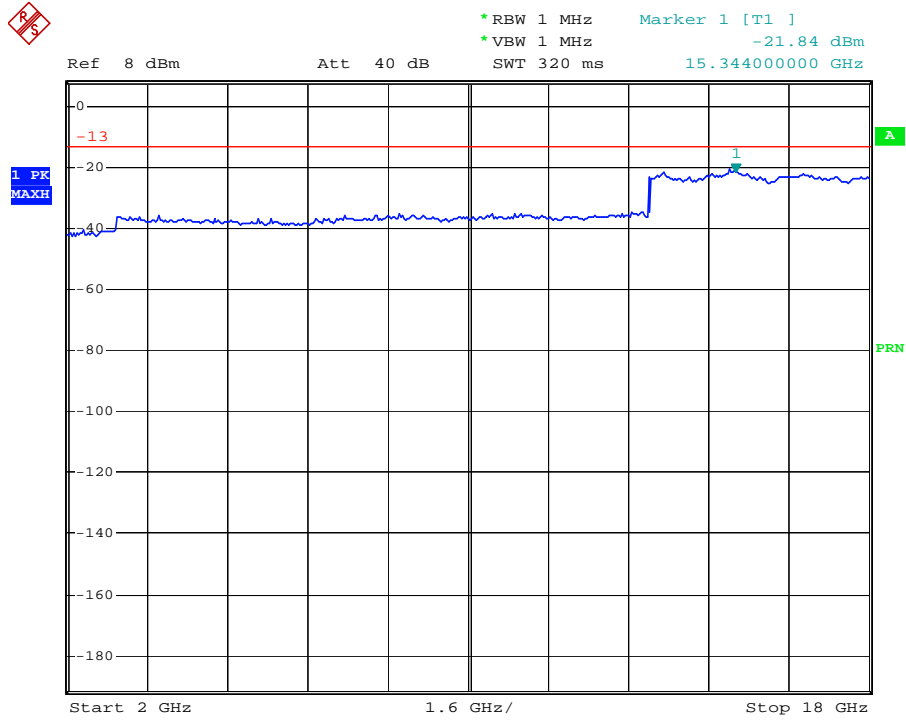
Note: Max input power is -22dBm (GSM Signal).

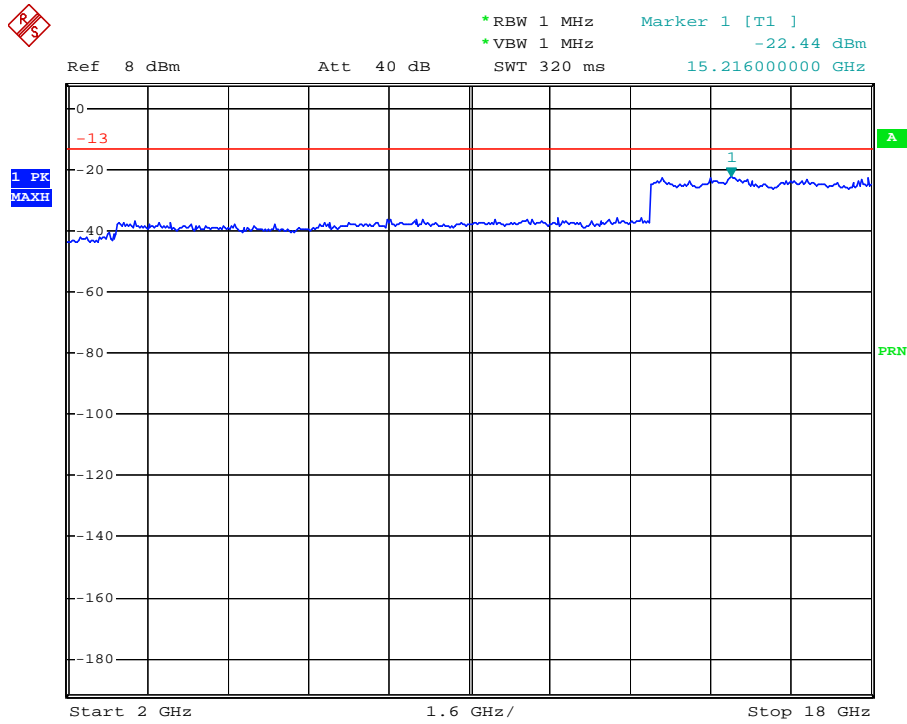
Uplink: (GSM 850MHz)



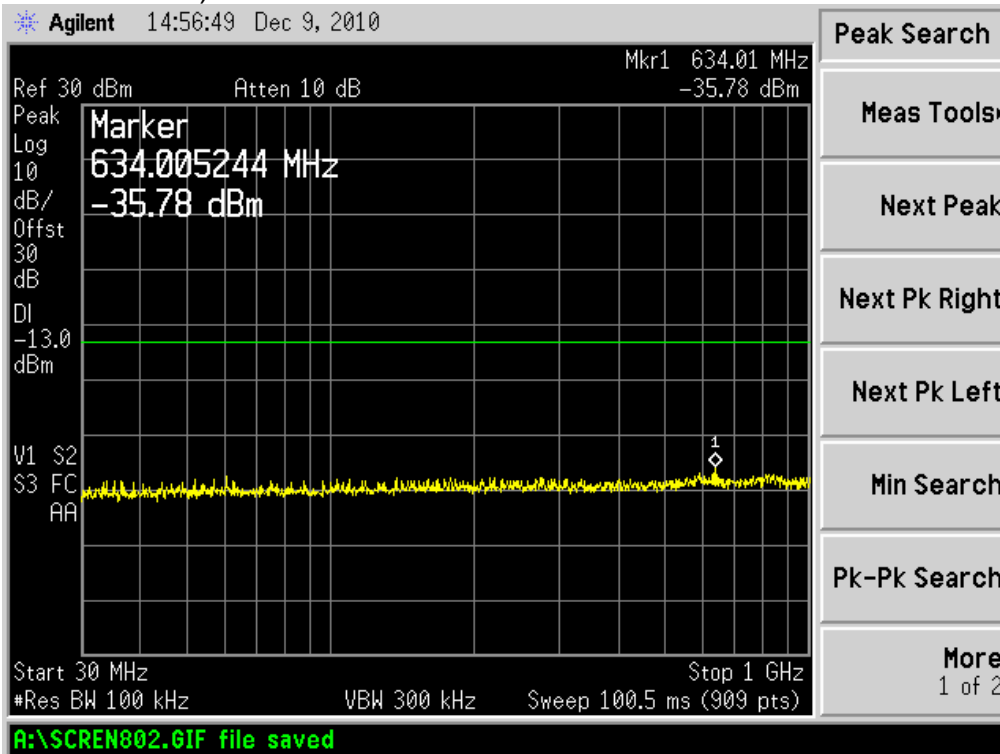


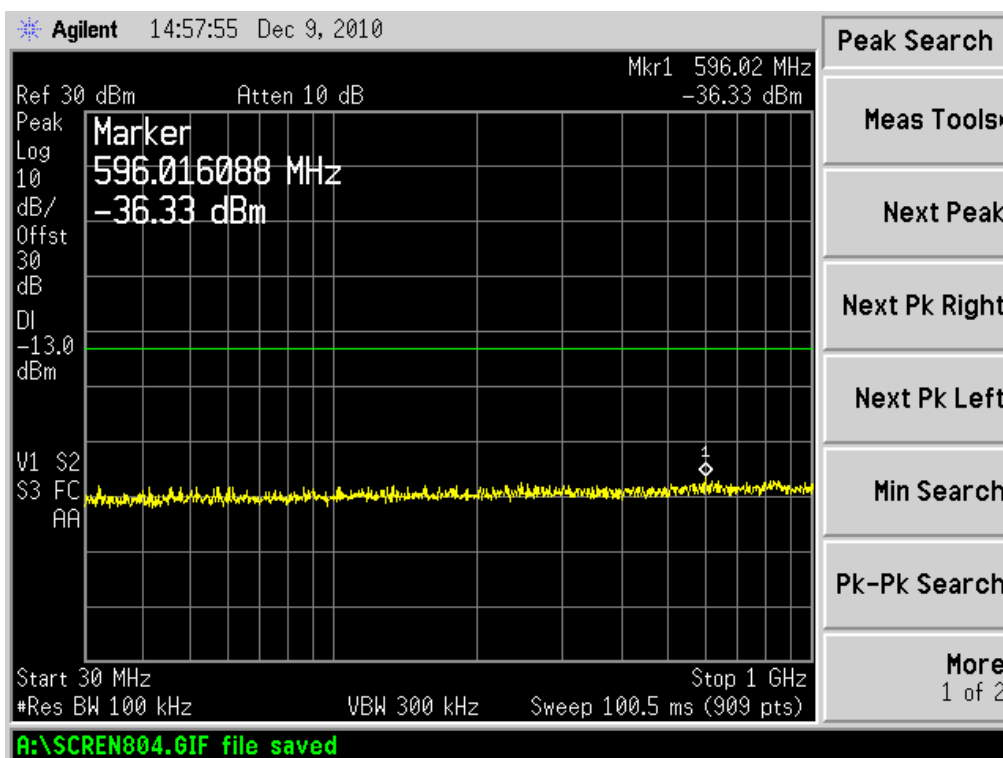
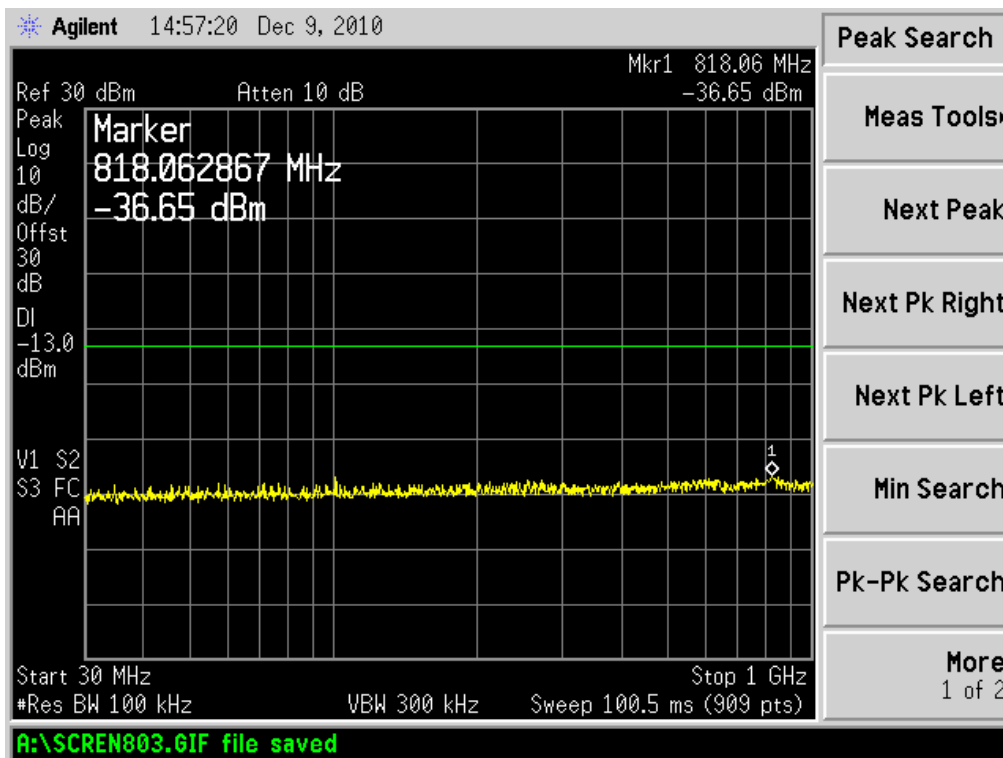


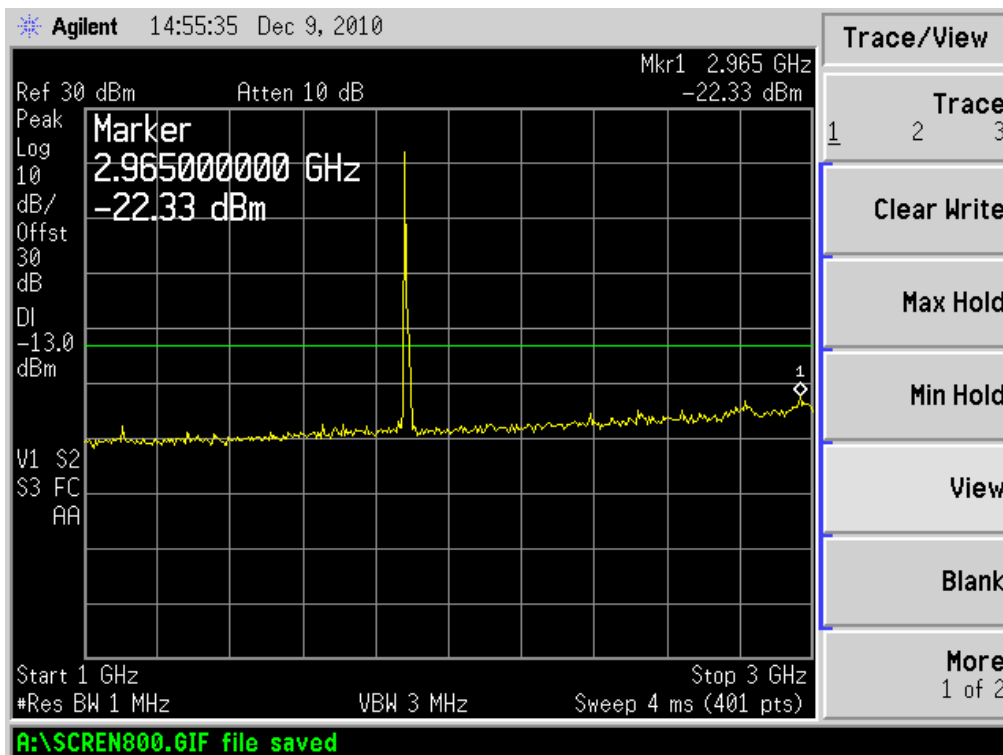
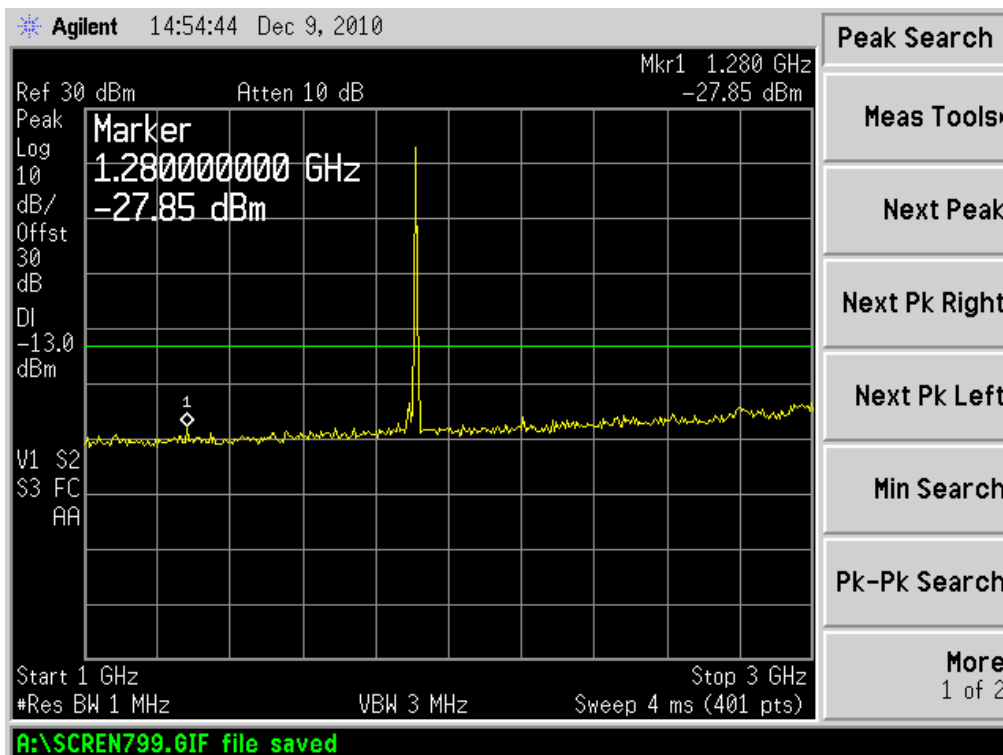


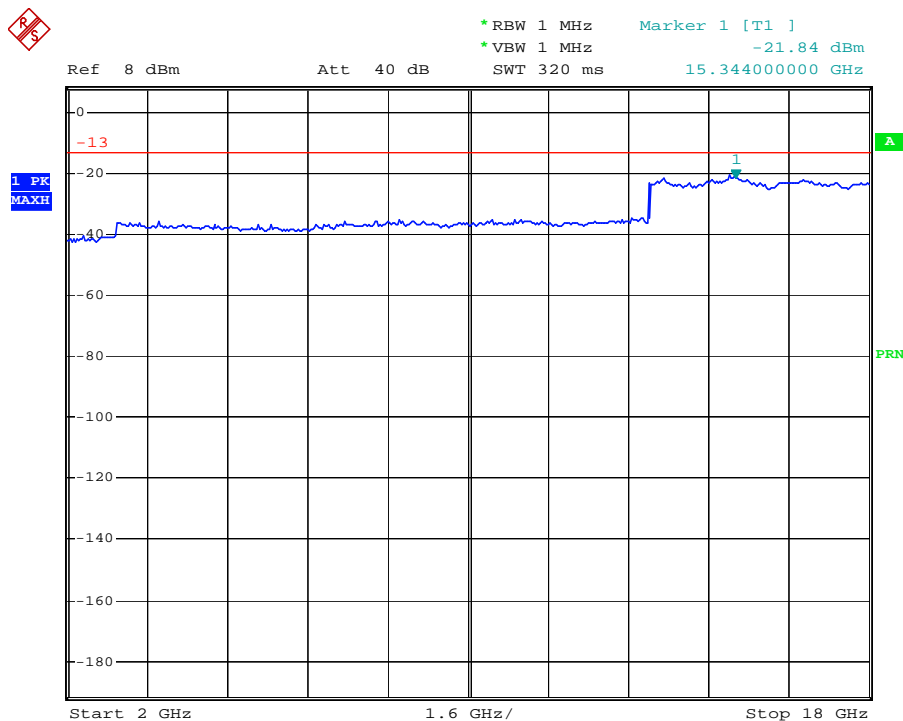
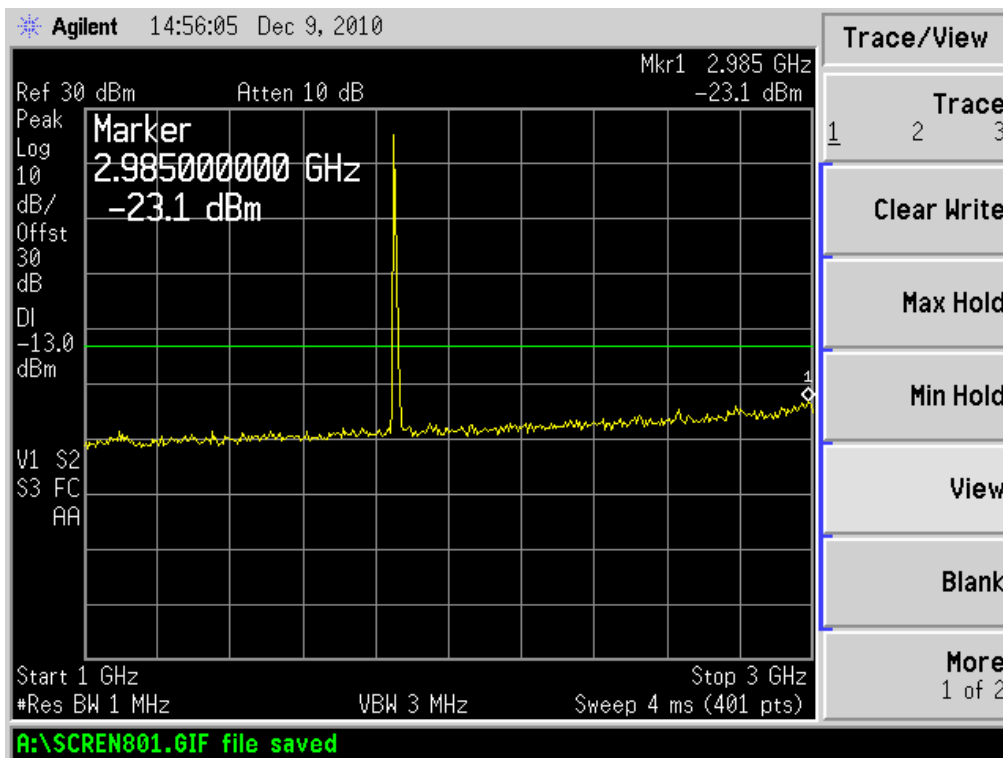


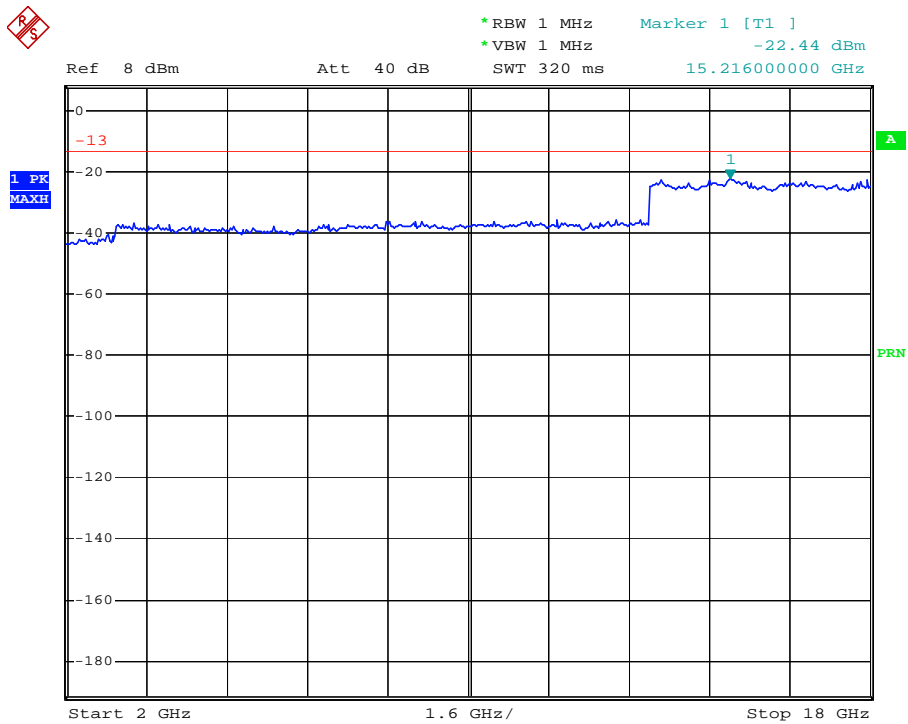
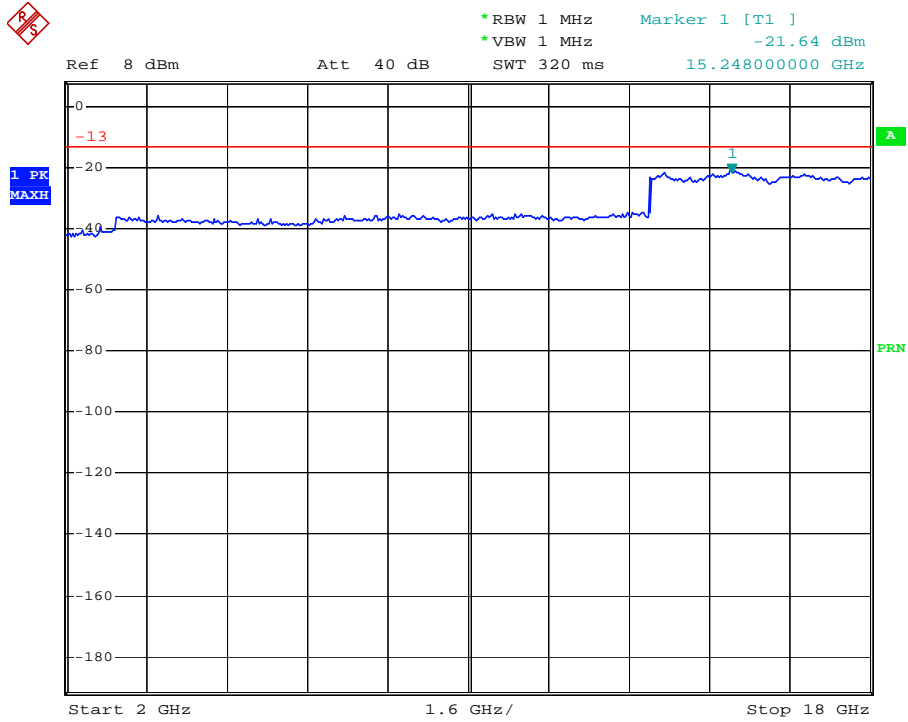
Uplink: (GSM 1900MHz)



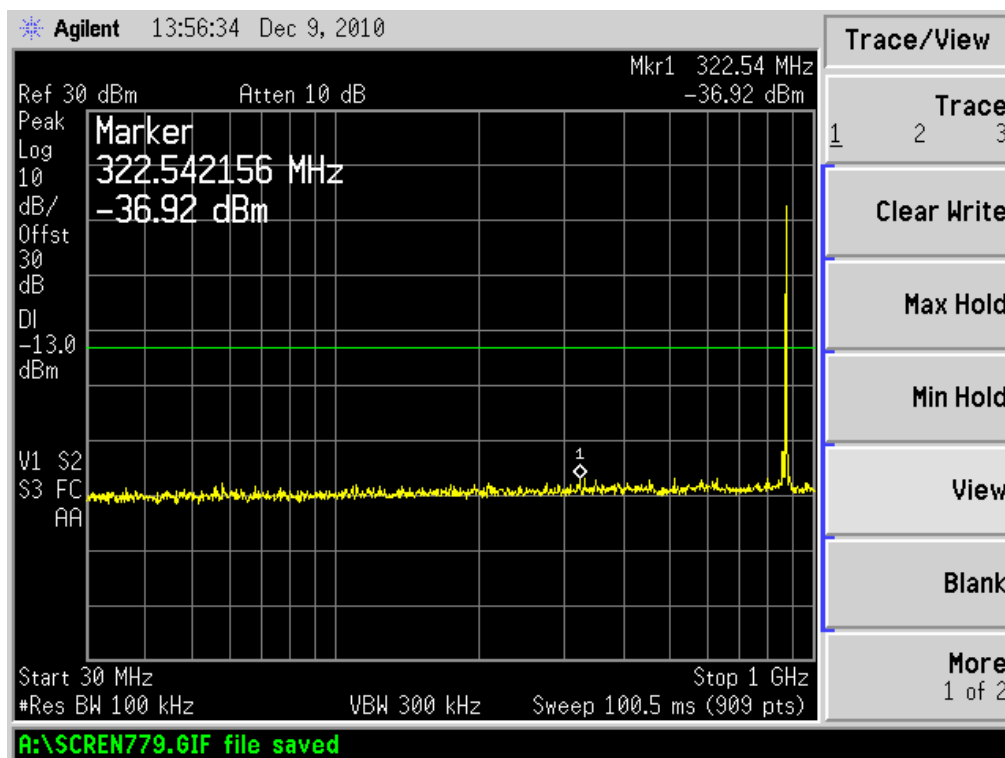
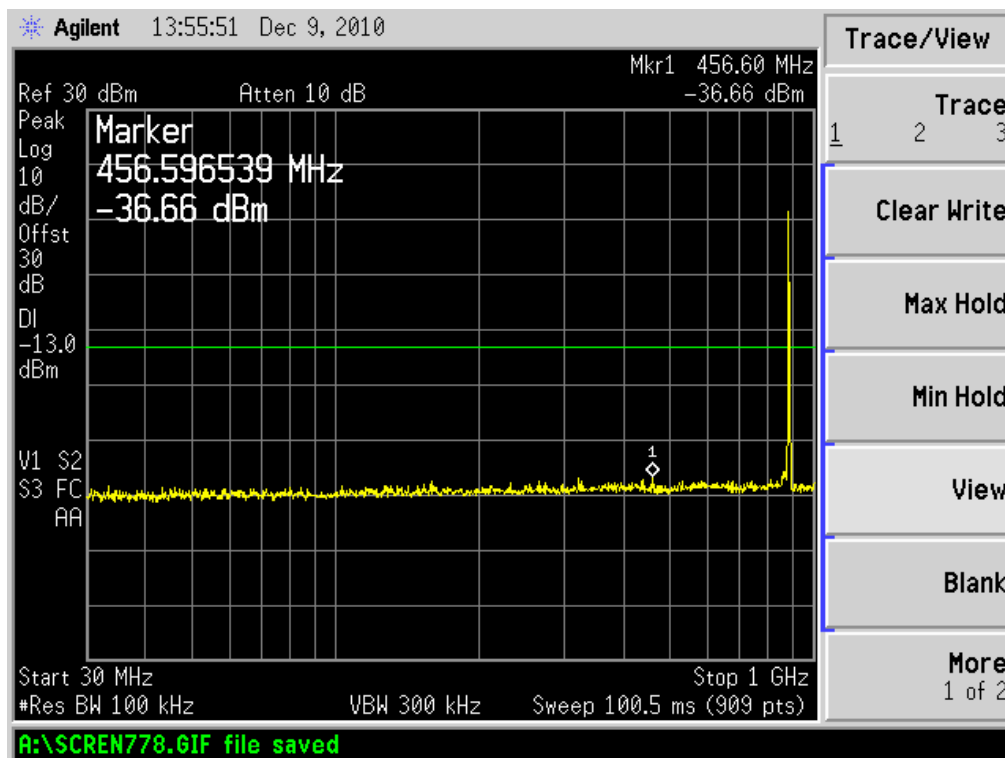


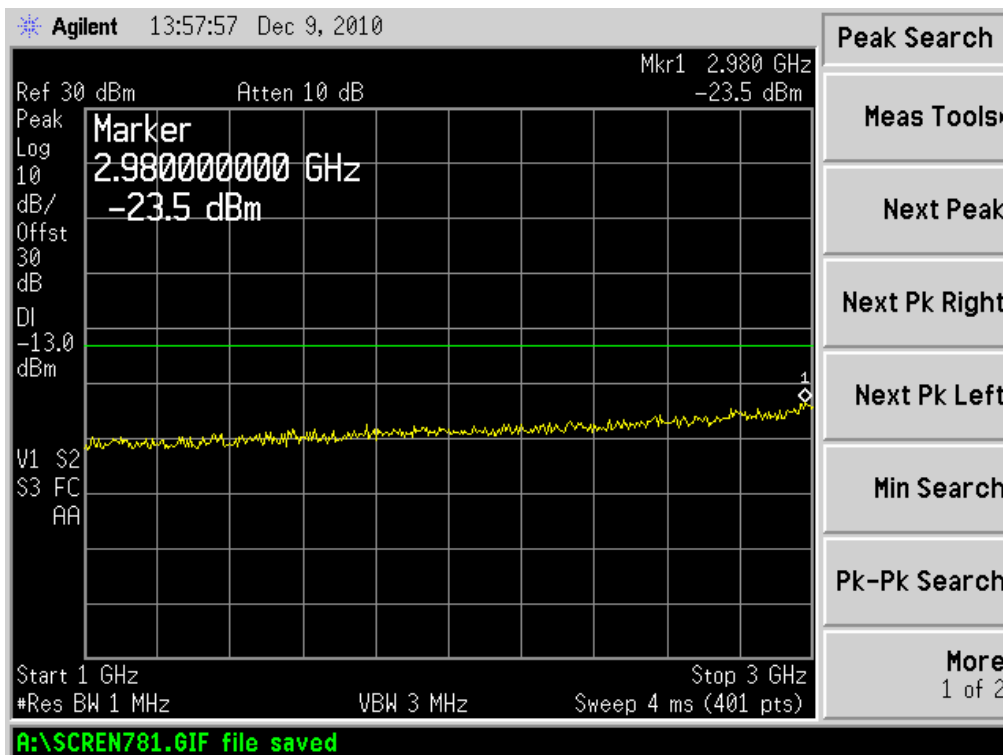
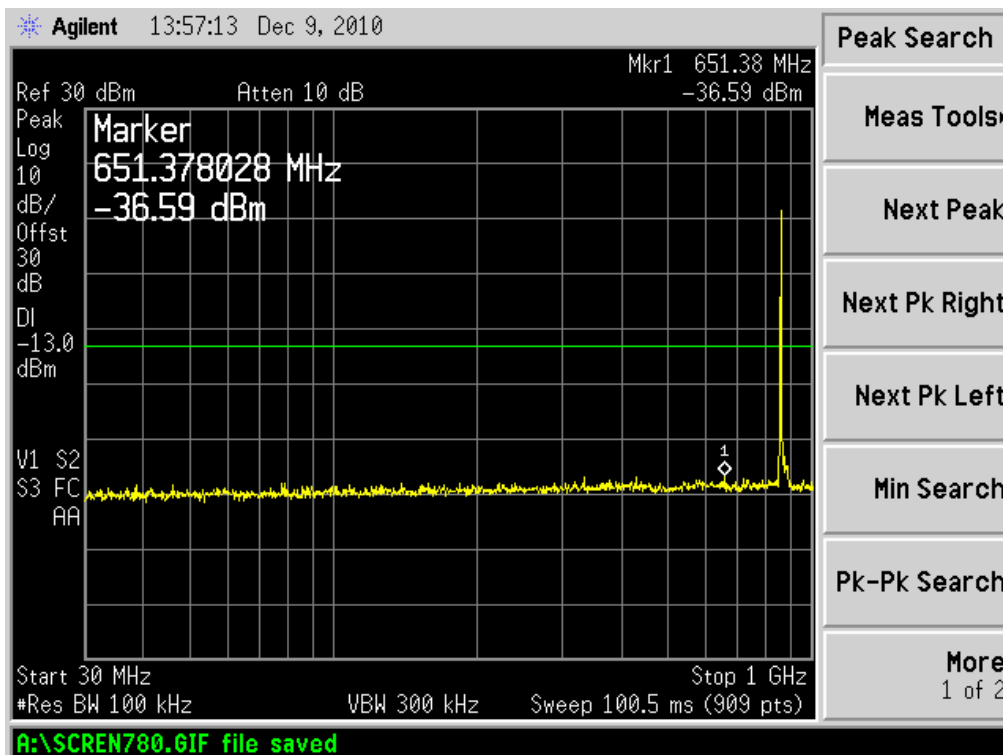


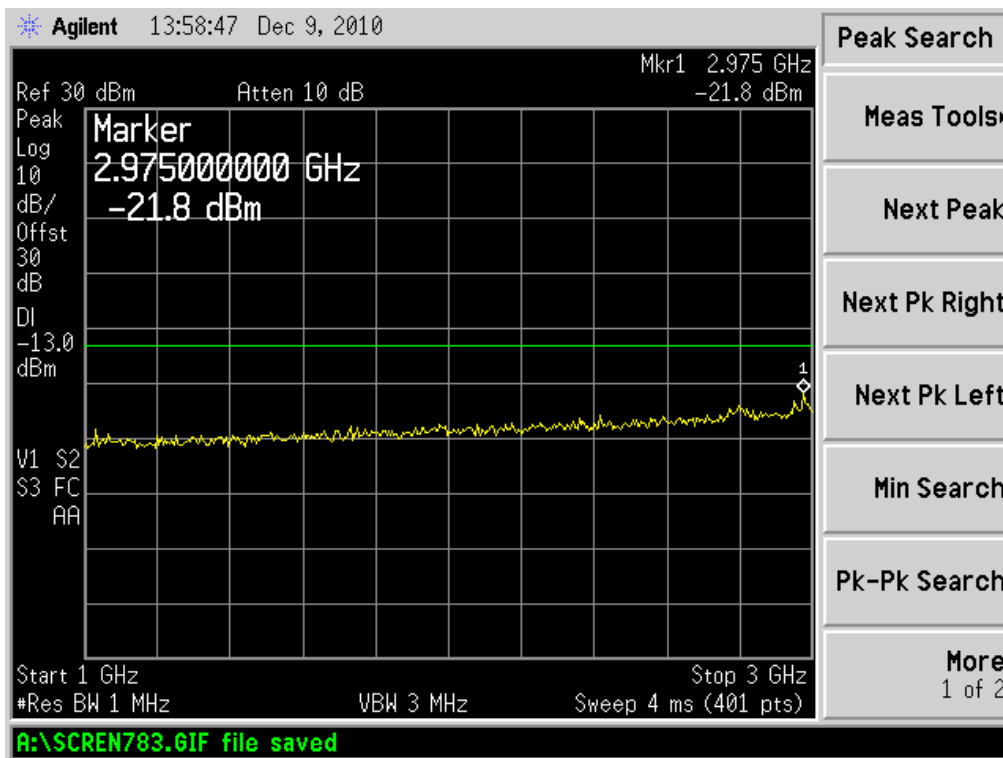
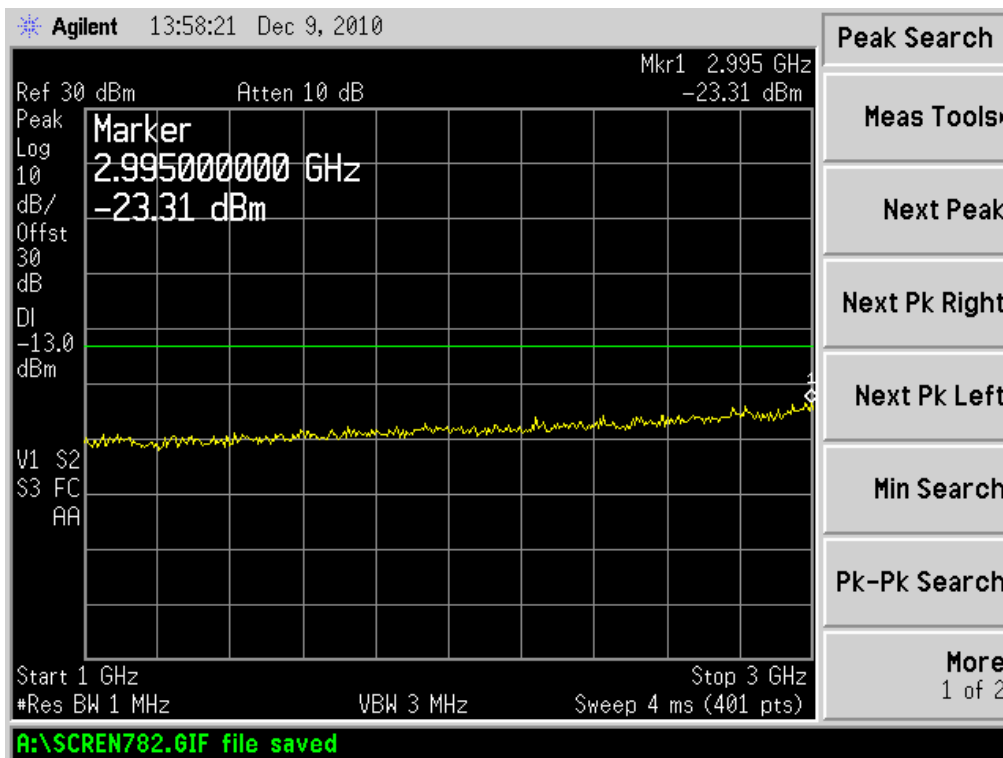


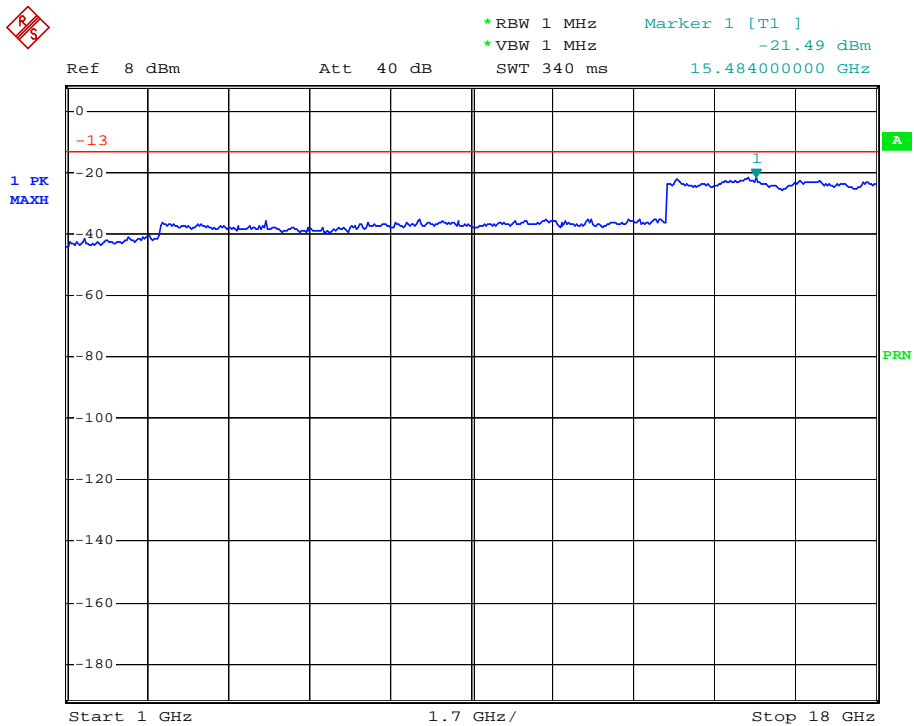
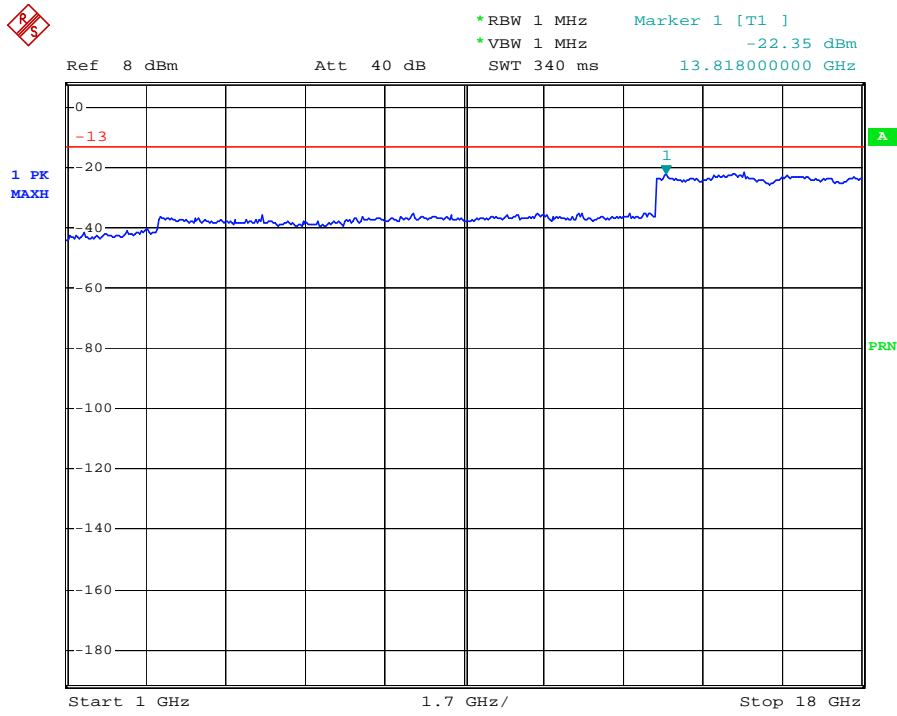


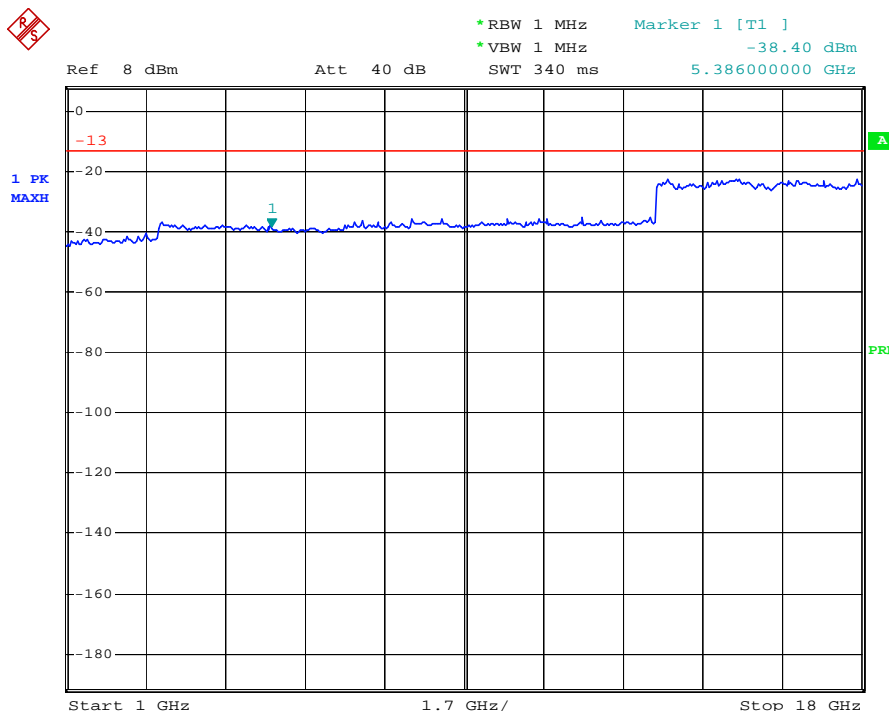
Downlink: (GSM 850MHz)



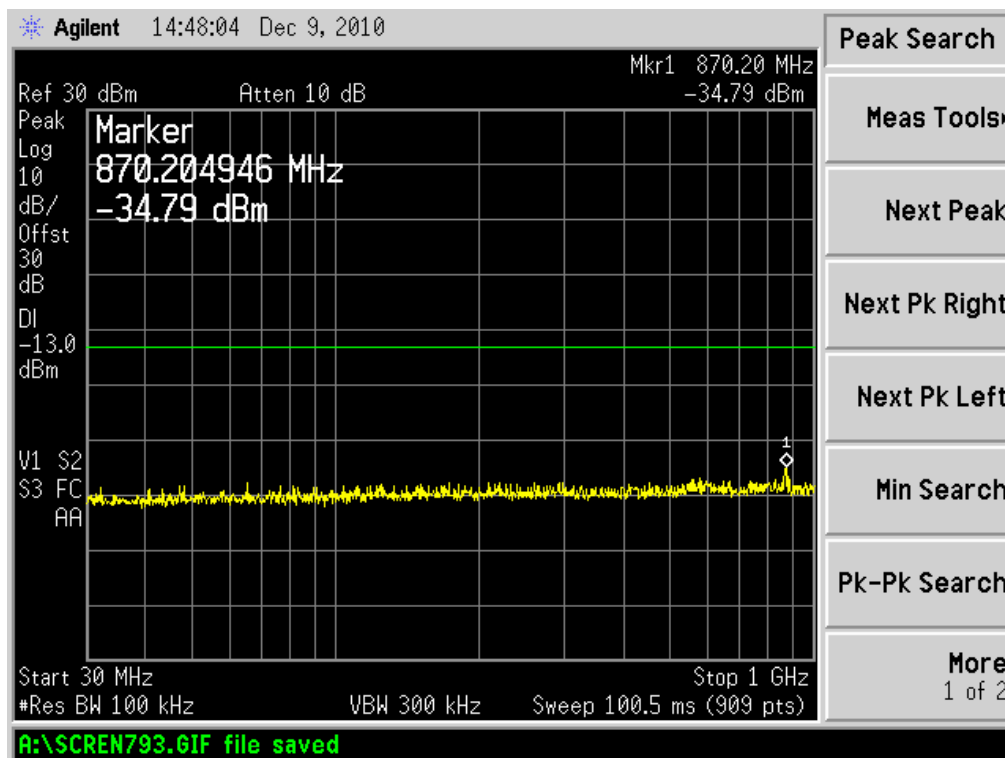


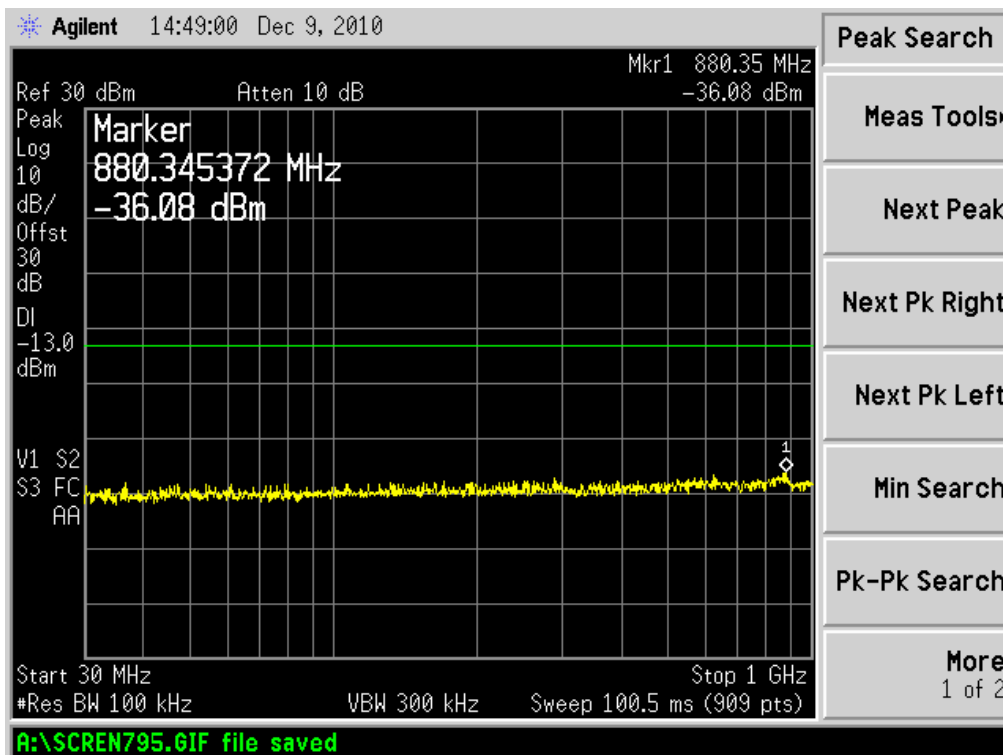
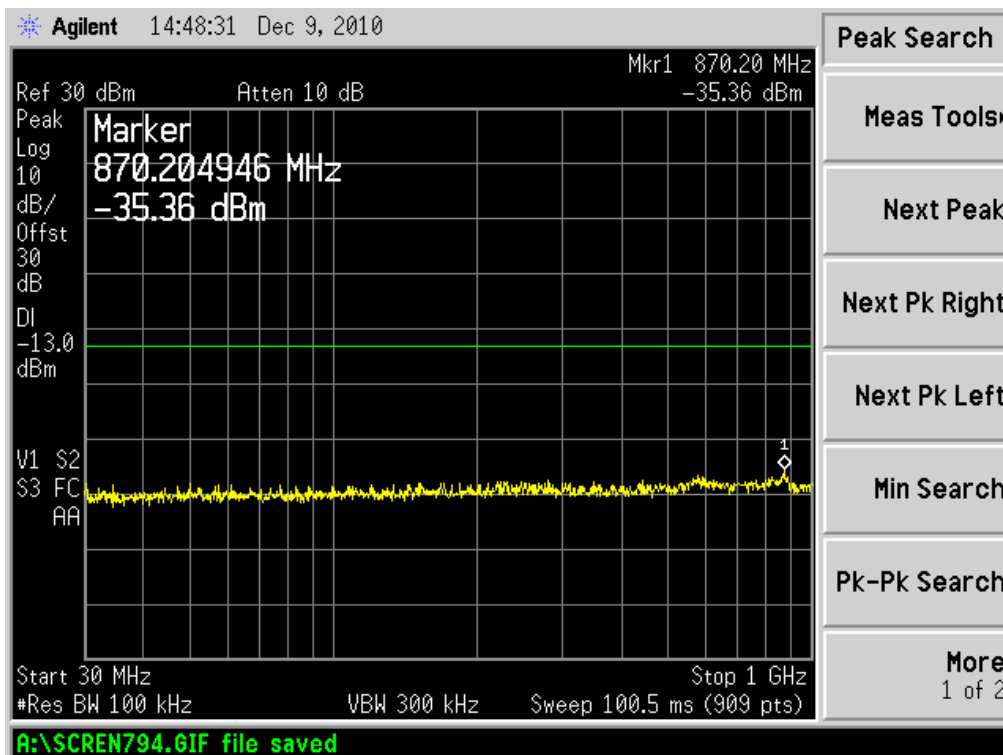


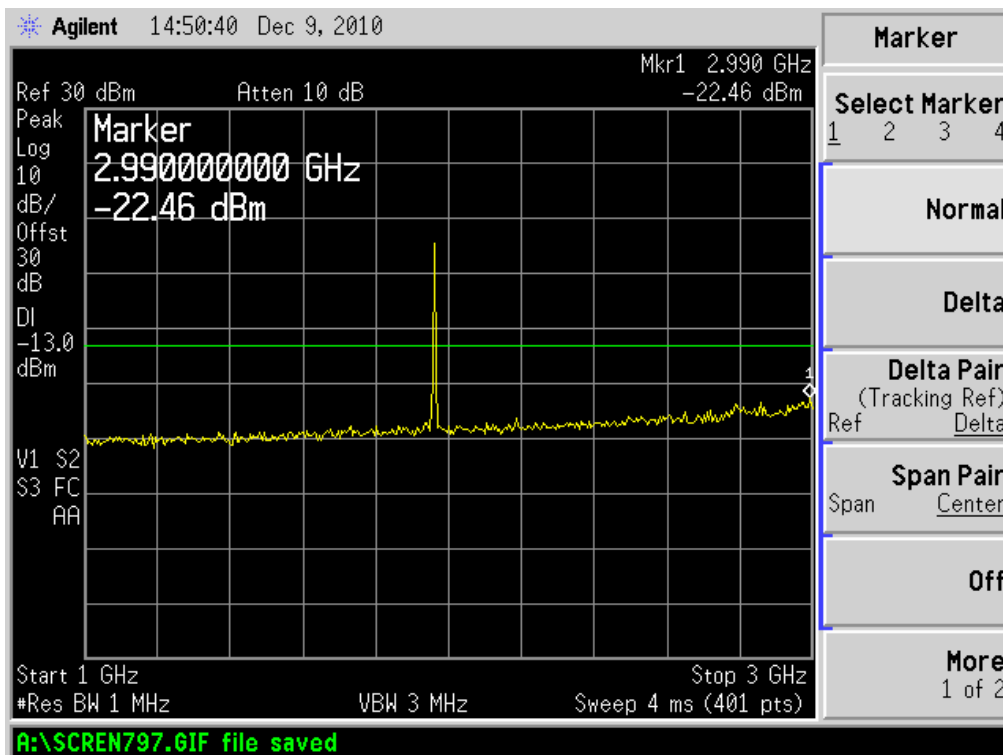
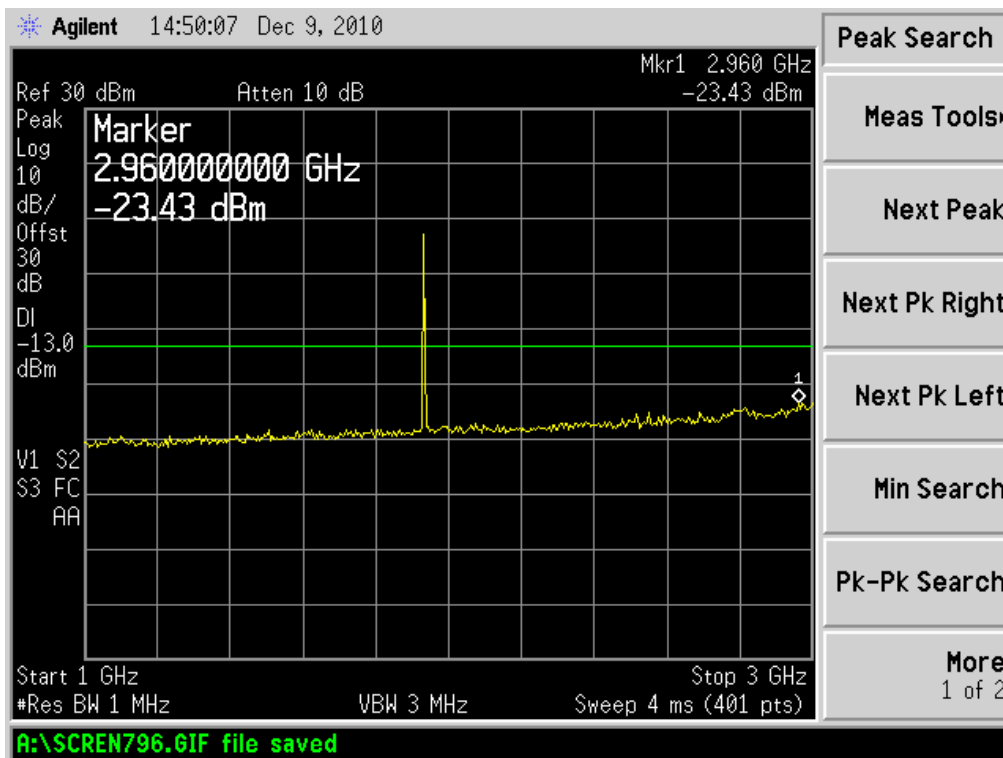


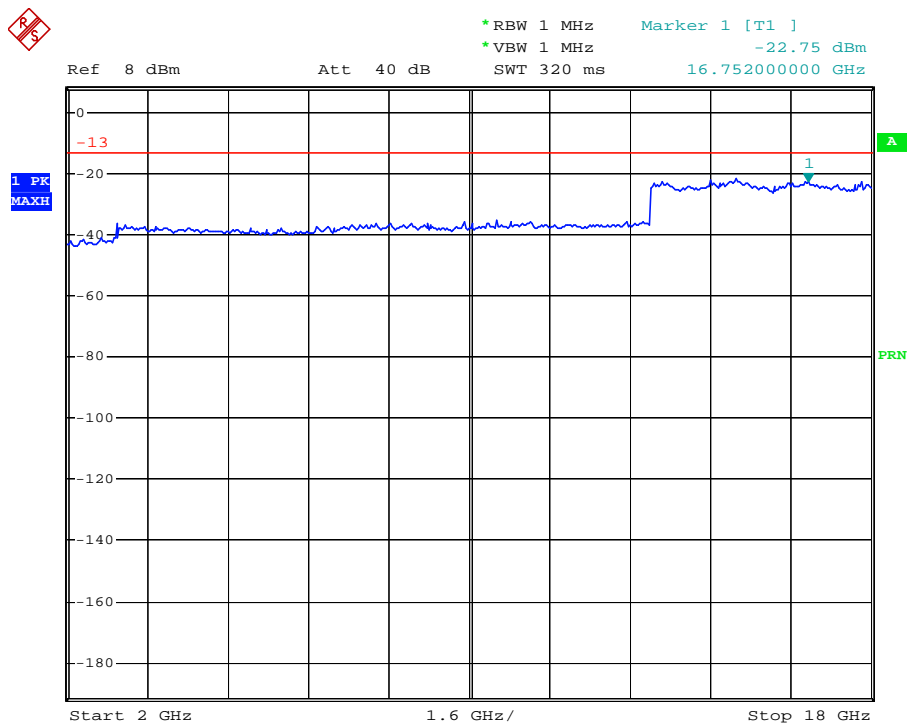
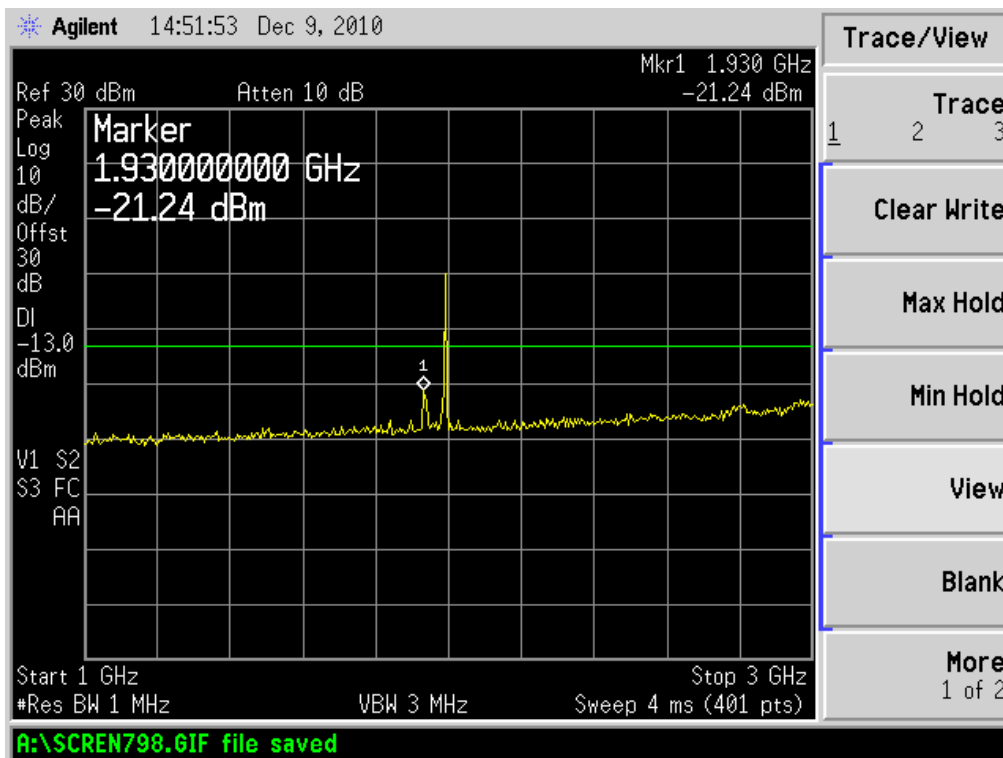


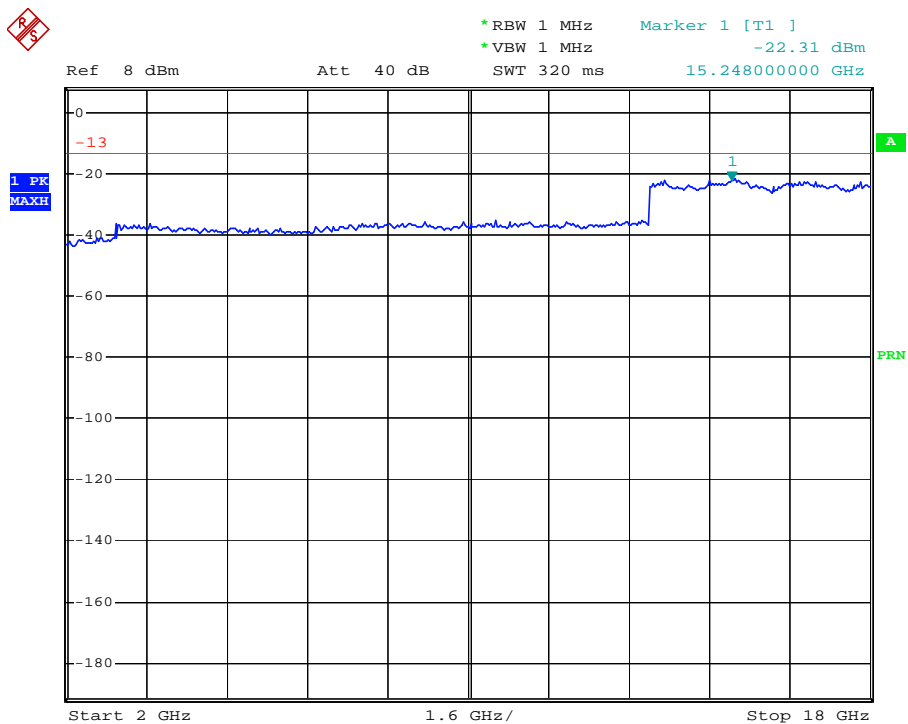
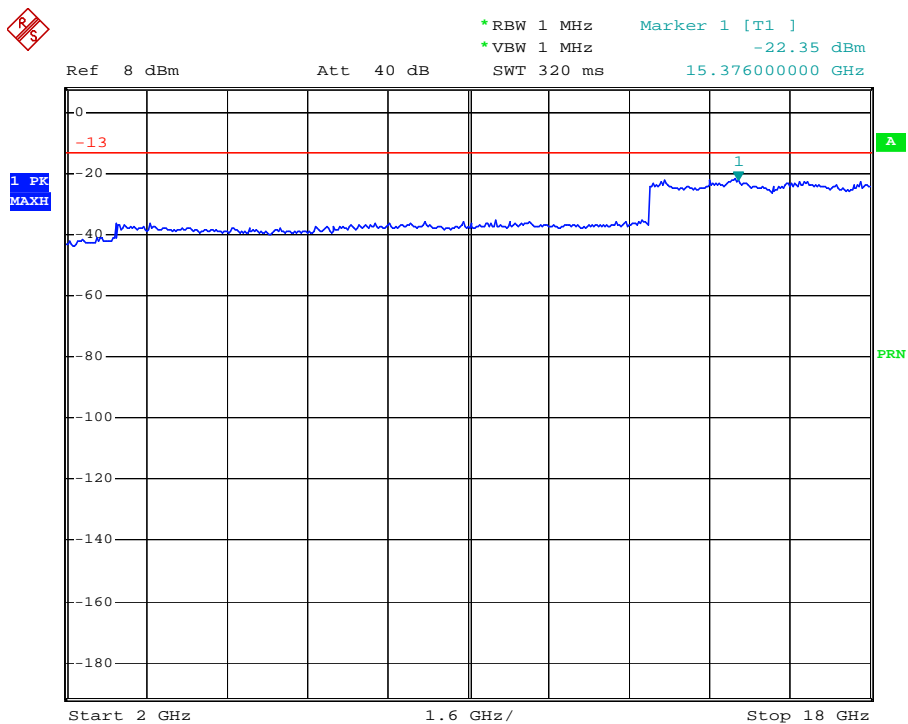
Downlink: (GSM 1900MHz)



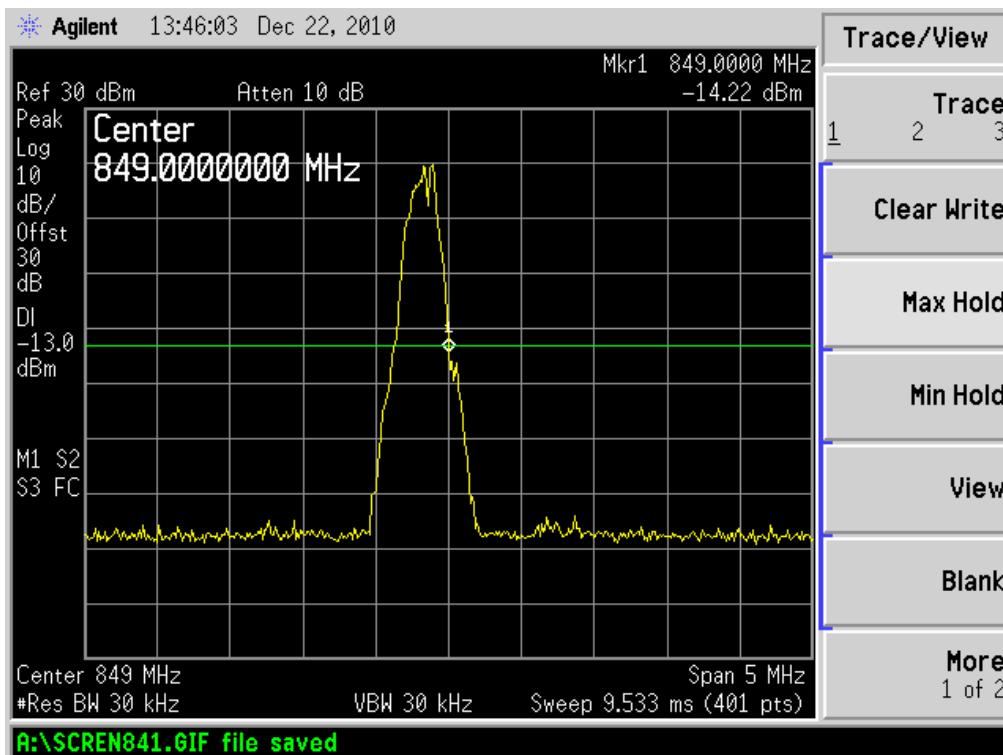
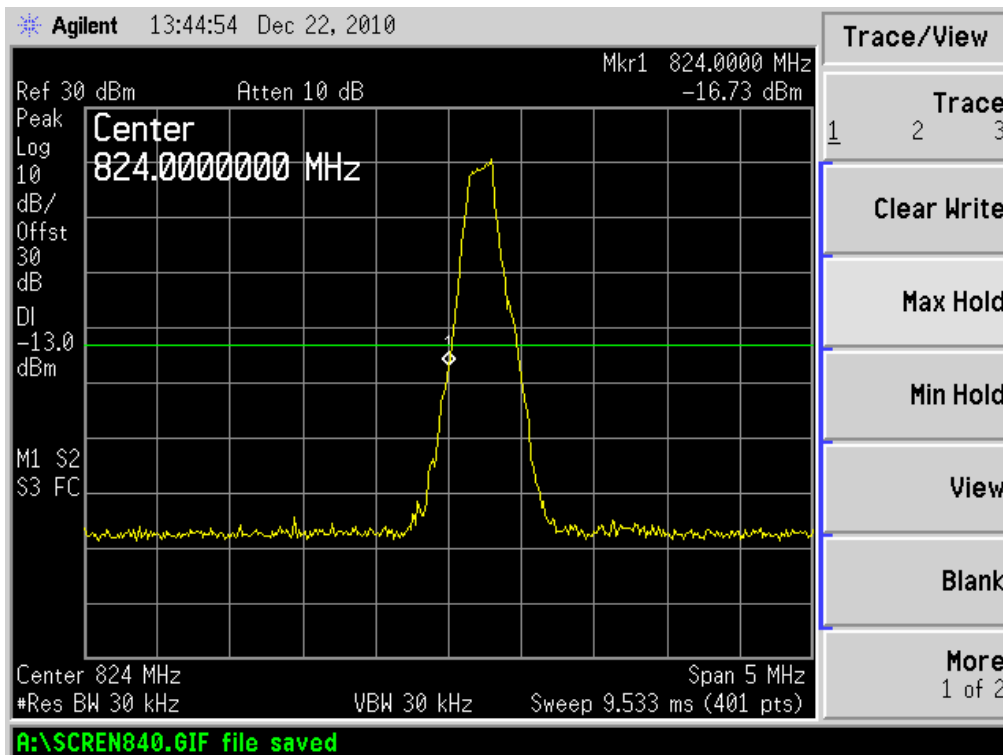




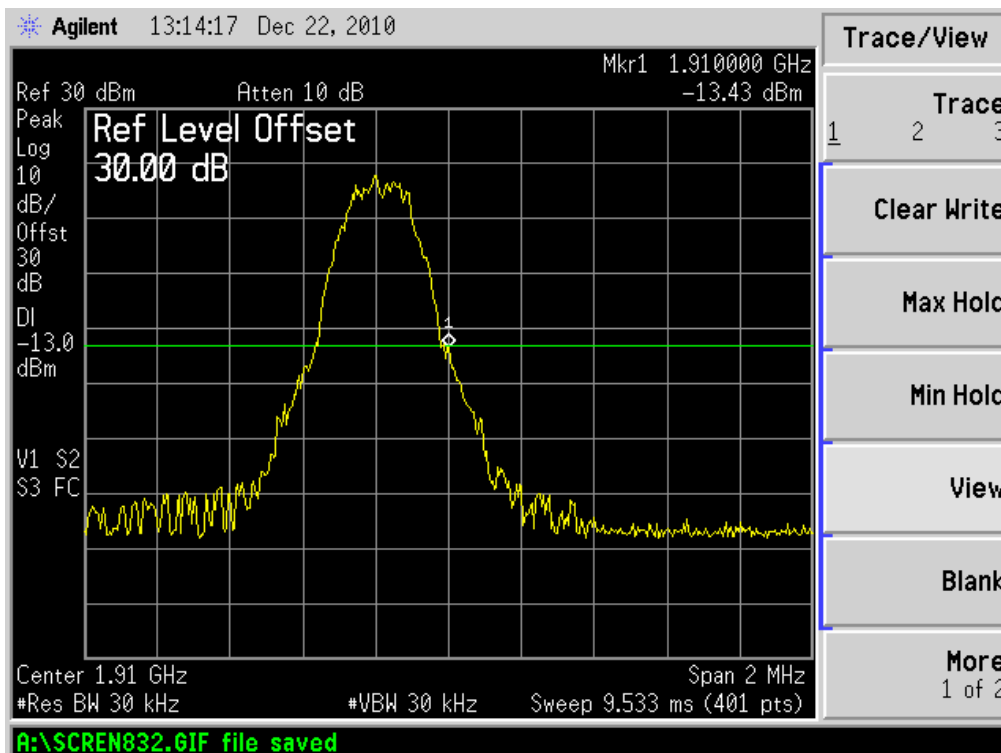
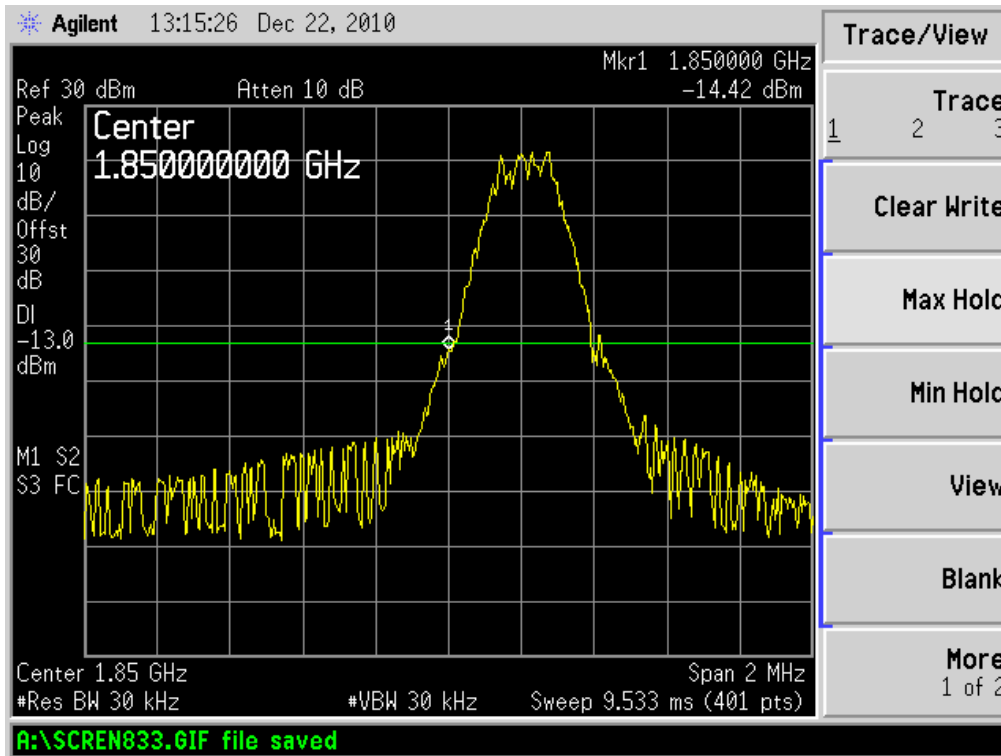




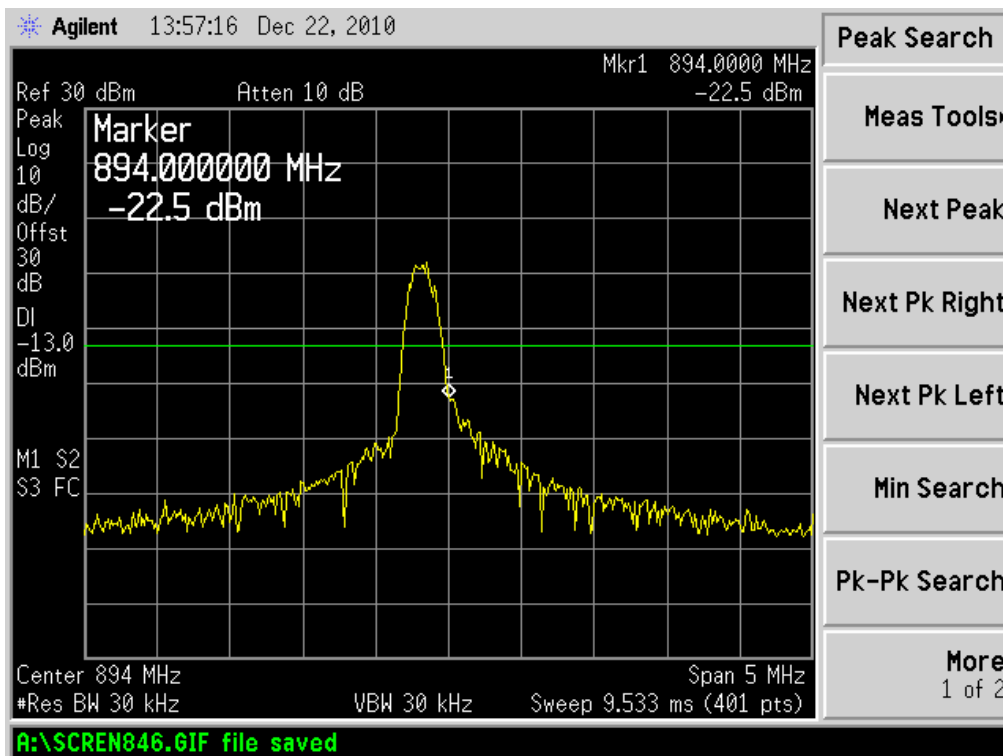
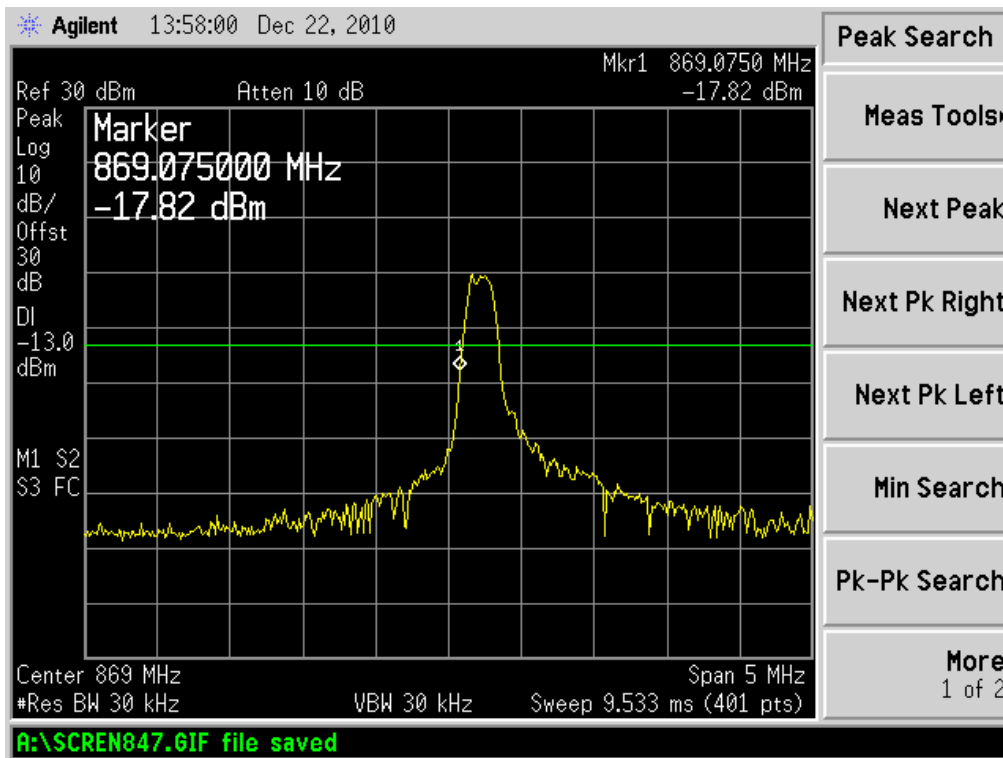
Bandedge: Uplink (GSM 850MHz)



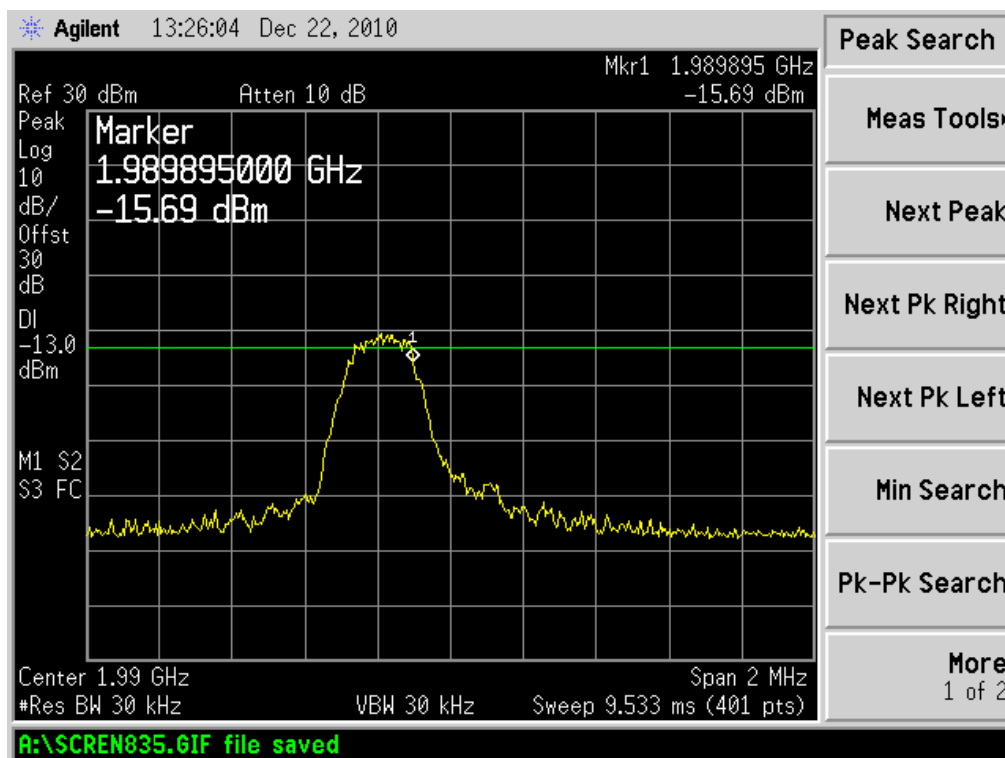
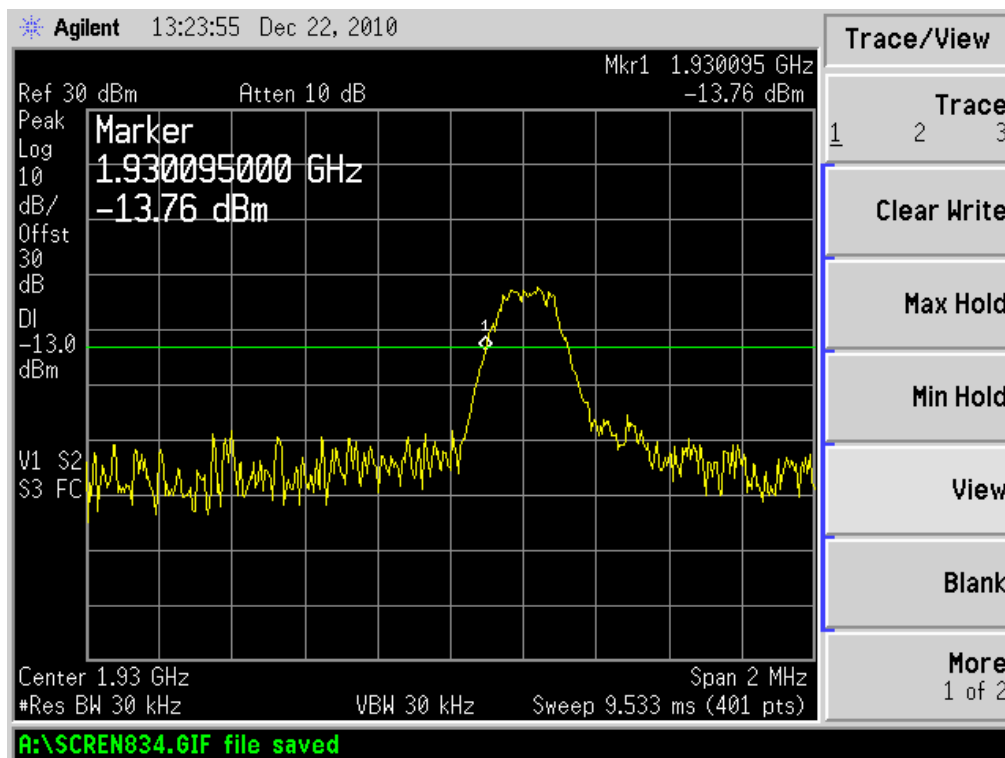
Bandedge: Uplink (GSM 1900MHz)



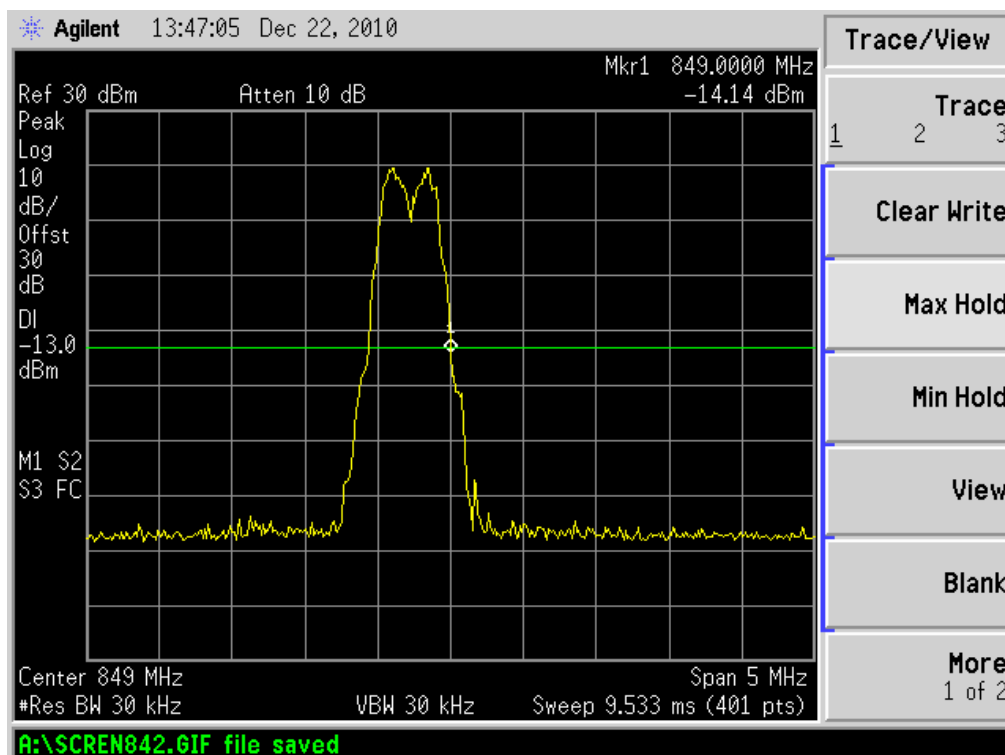
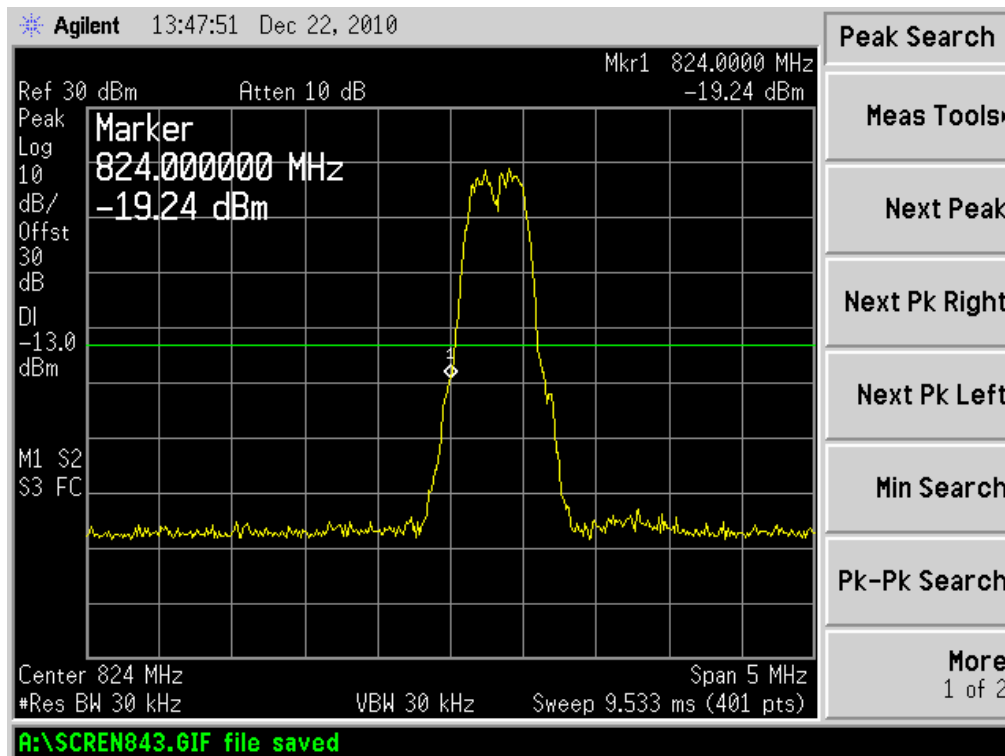
Bandedge: Downlink (GSM 850MHz)



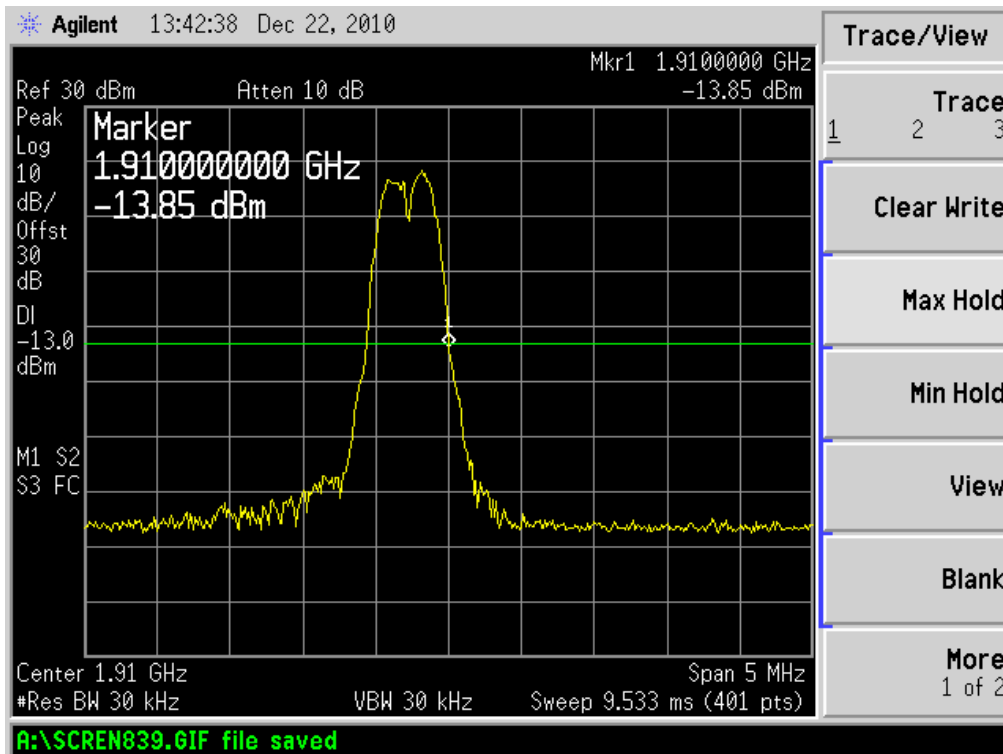
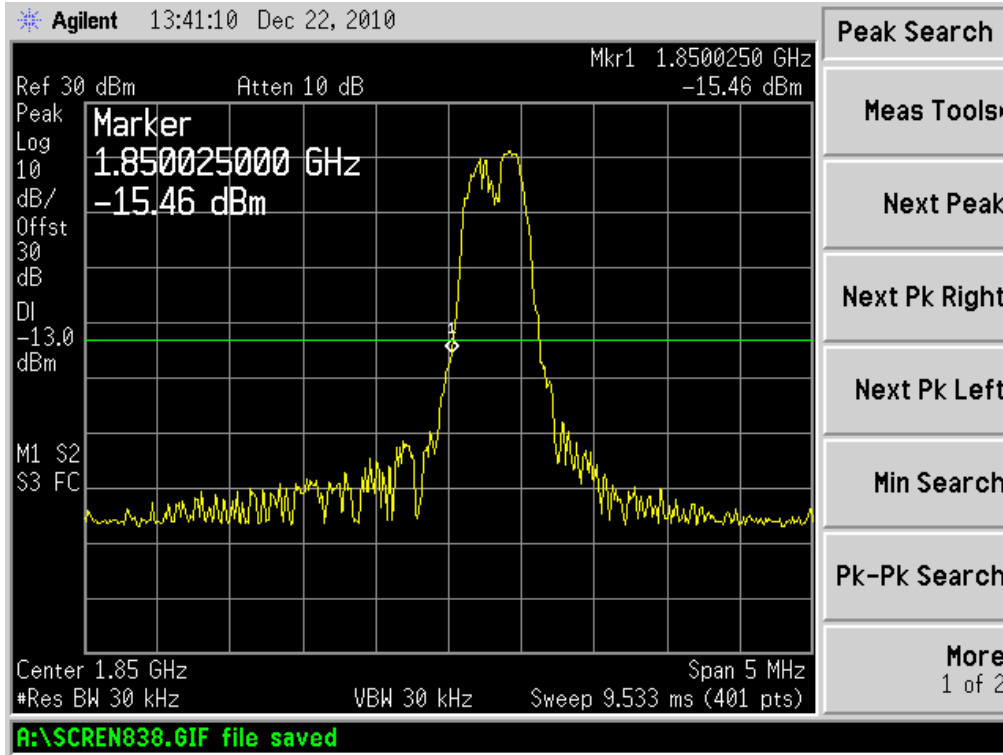
Bandedge: Downlink (GSM 1900MHz)



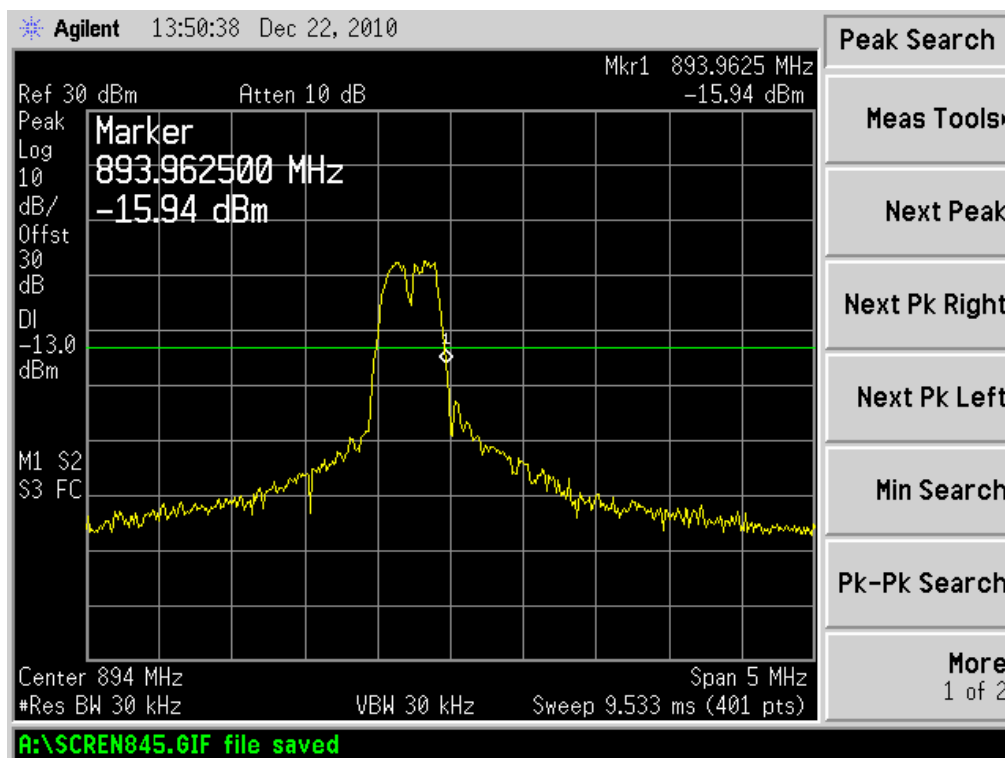
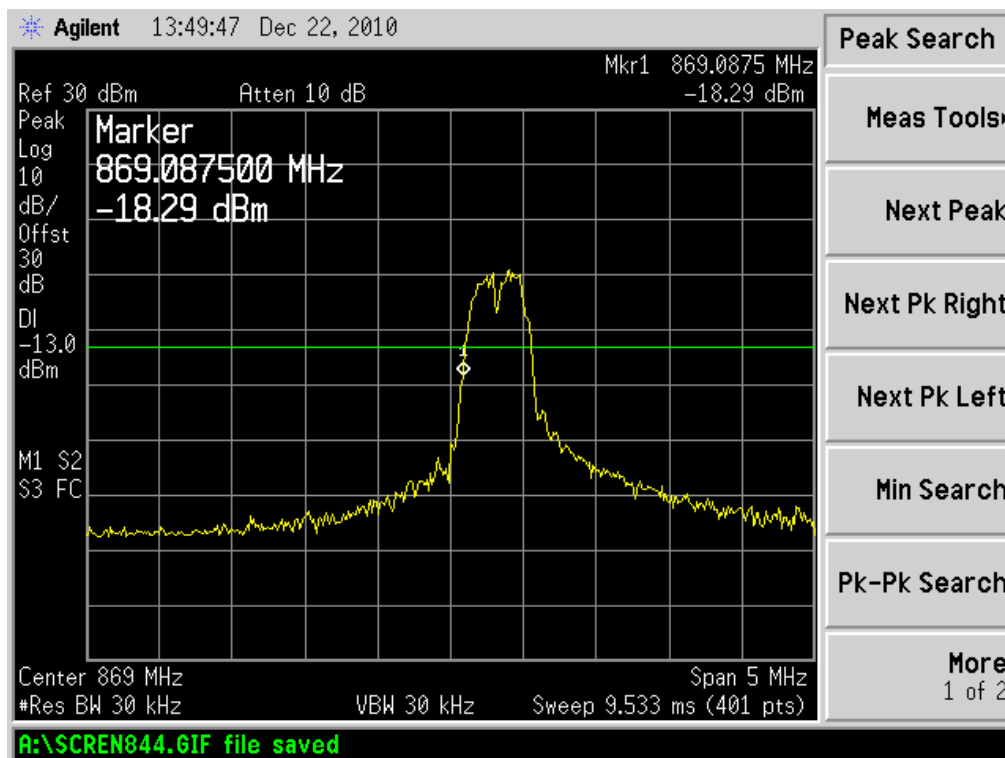
Intermodulation: Uplink (GSM 850MHz)



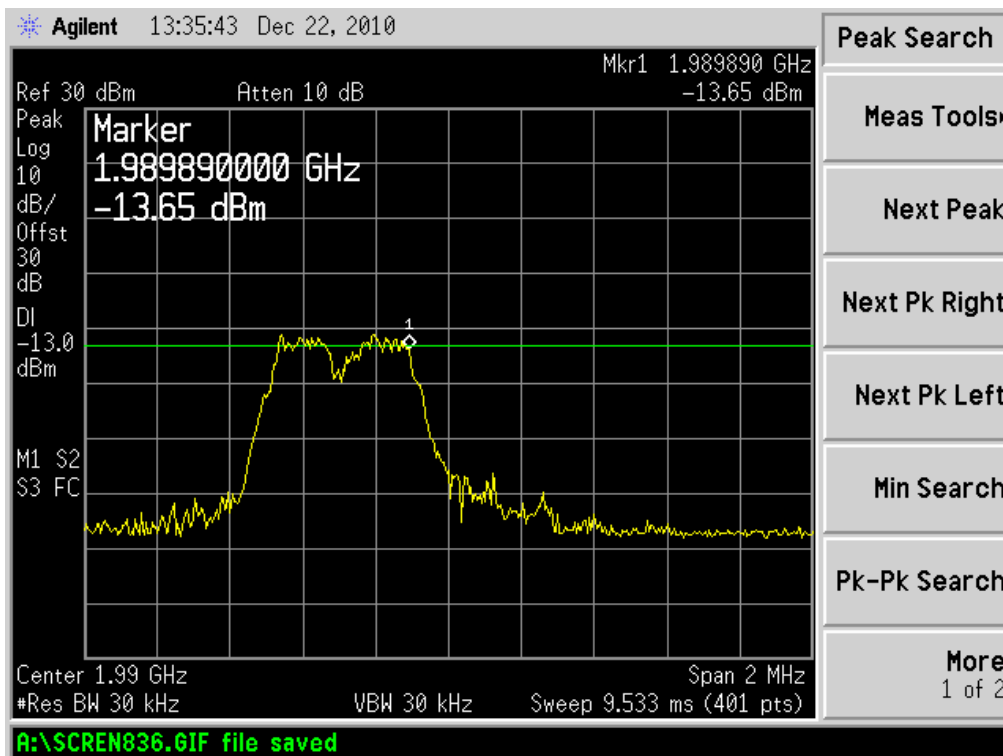
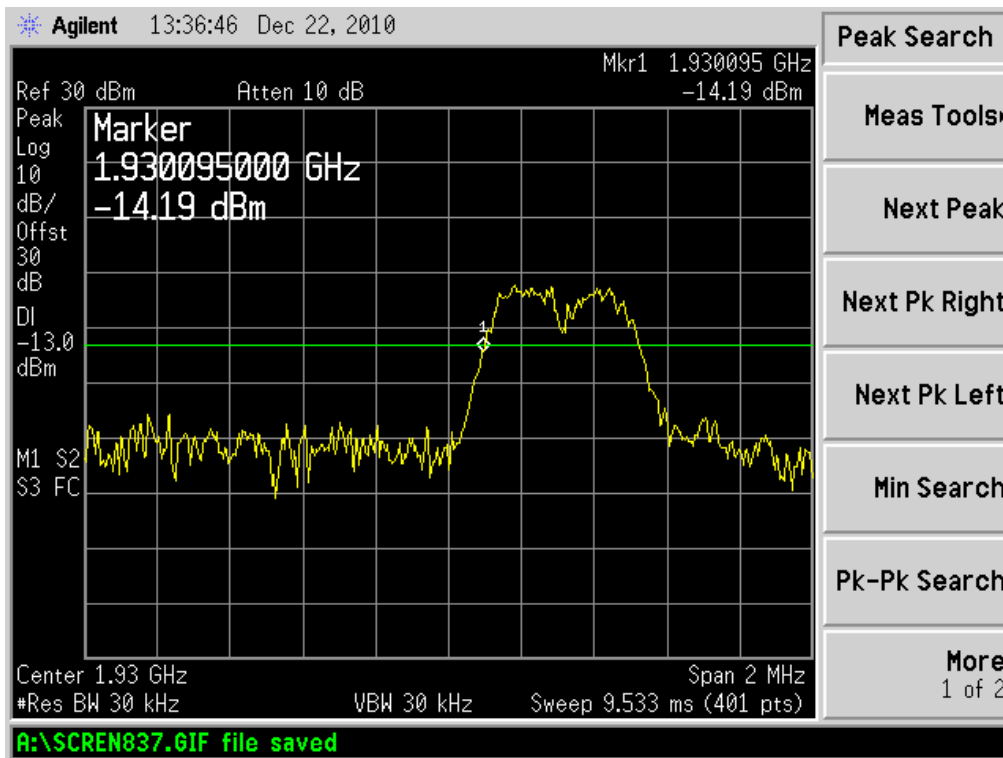
Intermodulation: Uplink (GSM 1900MHz)



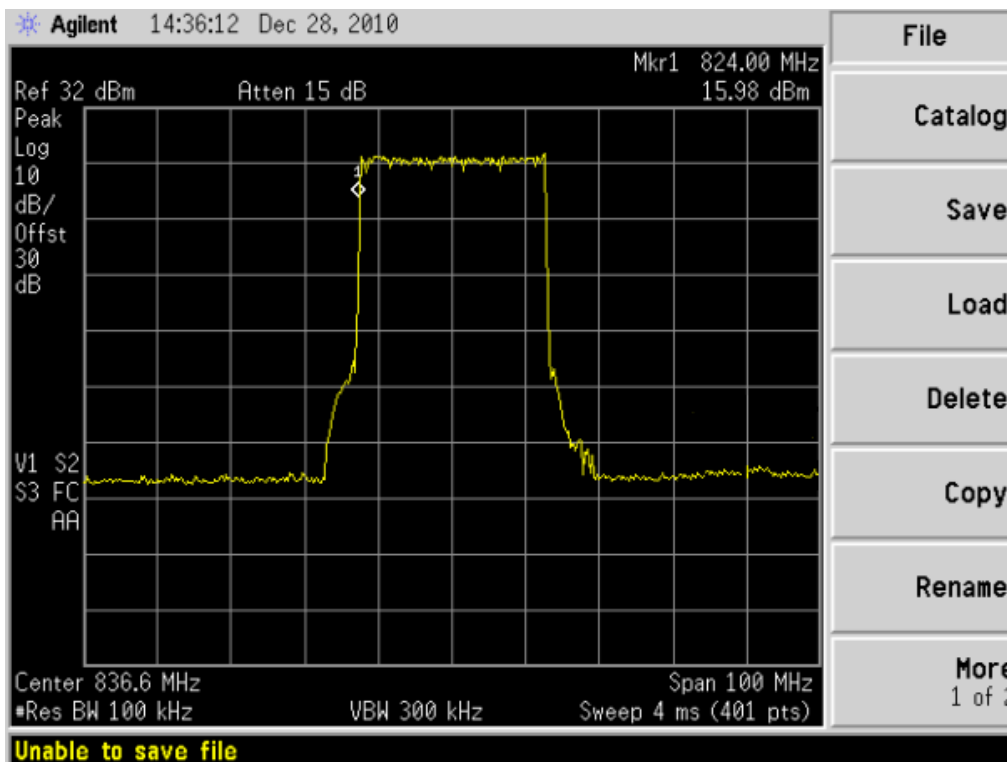
Intermodulation: Downlink (GSM 850MHz)



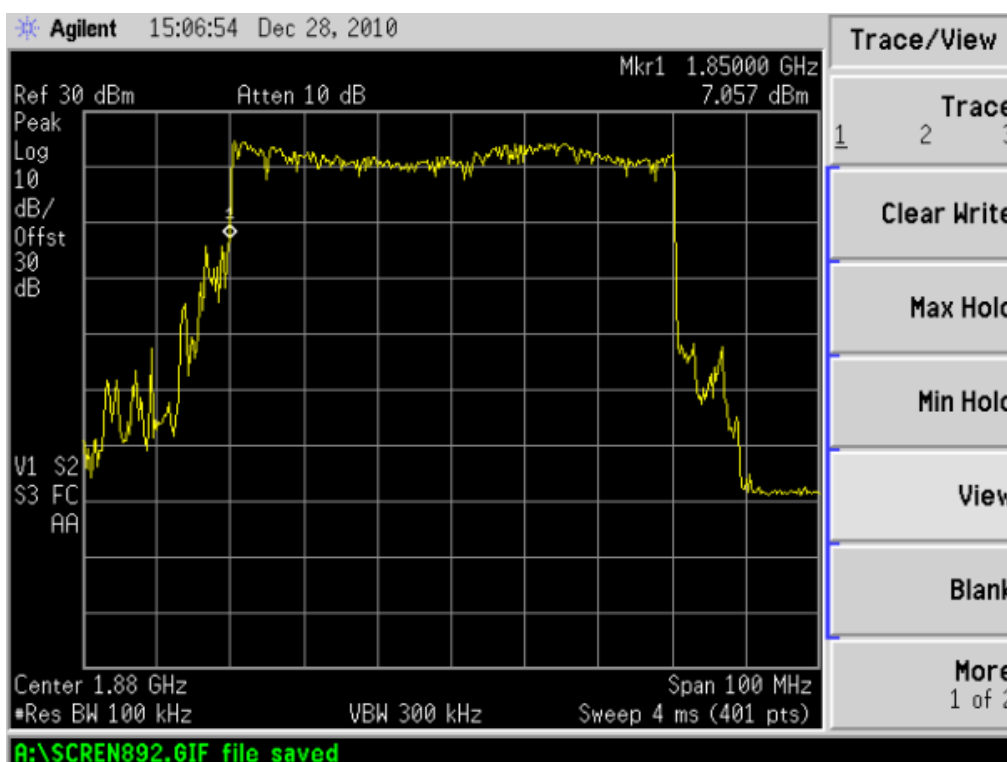
Intermodulation: Downlink (GSM 1900MHz)



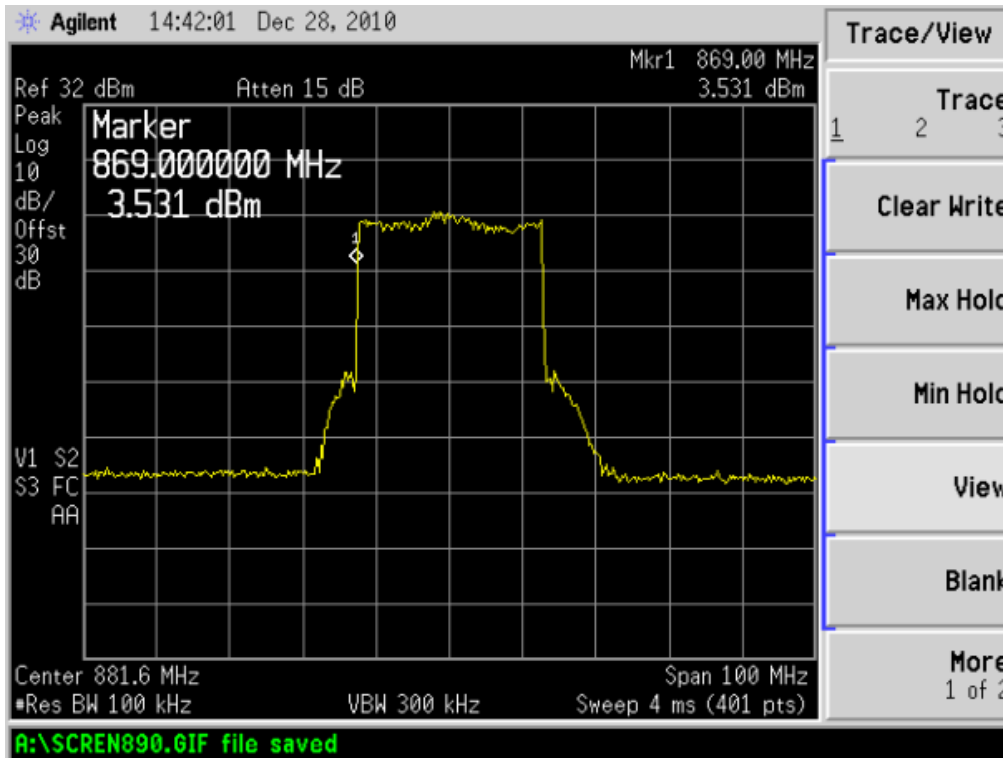
Out of Band Rejection: Uplink (GSM 850MHz)



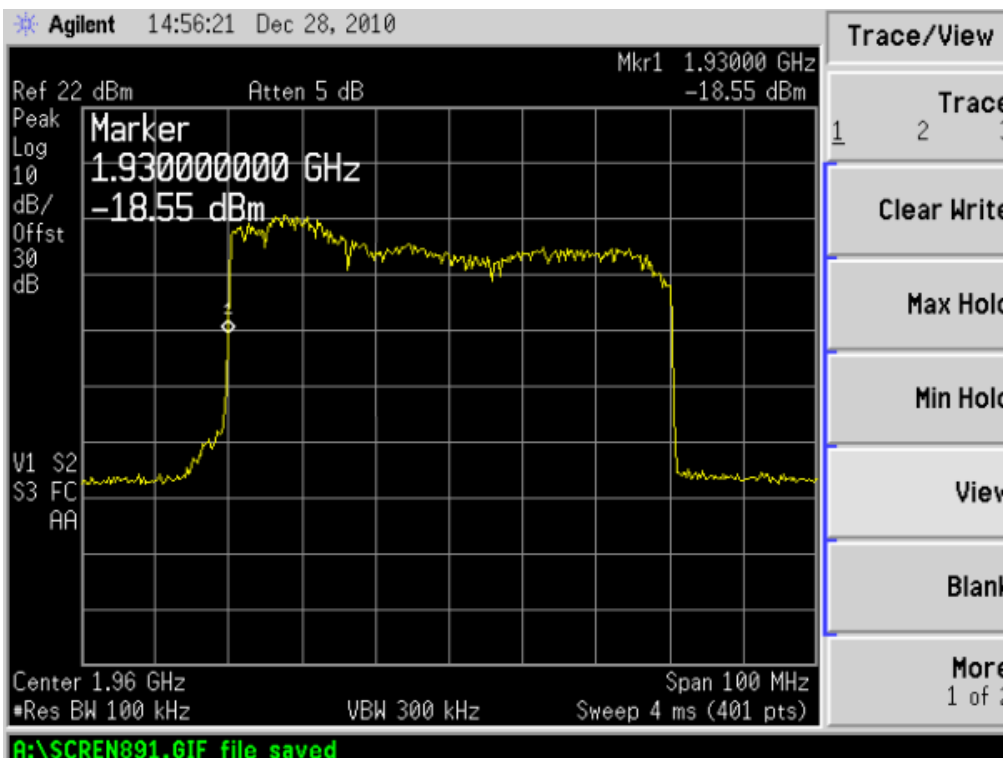
Out of Band Rejection: Uplink (GSM 1900MHz)



Out of Band Rejection: Downlink (GSM 850MHz)



Out of Band Rejection: Downlink (GSM 1900MHz)

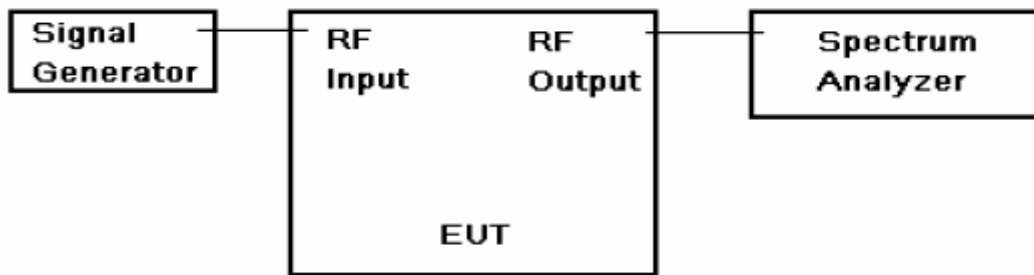


10. OCCUPIED BANDWIDTH

10.1. REGULATIONS

According to §2.1049, the occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured under the specified conditions of part 2.1049 (a) through (i) as applicable.

10.2. TEST CONFIGURATION



10.3. TEST PROCEDURE

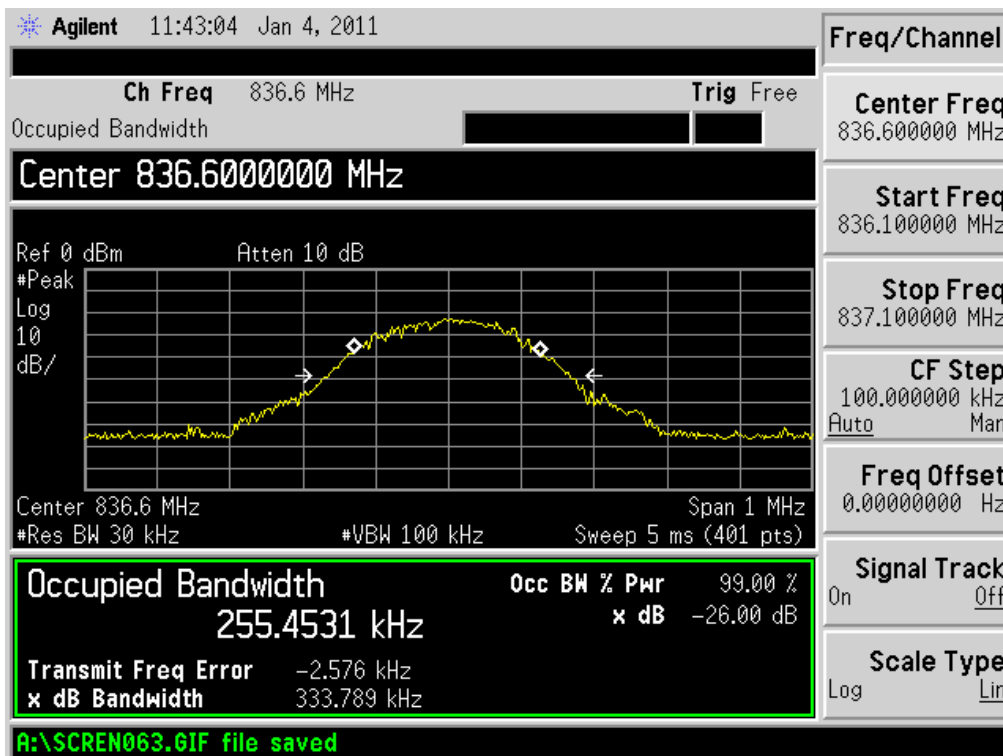
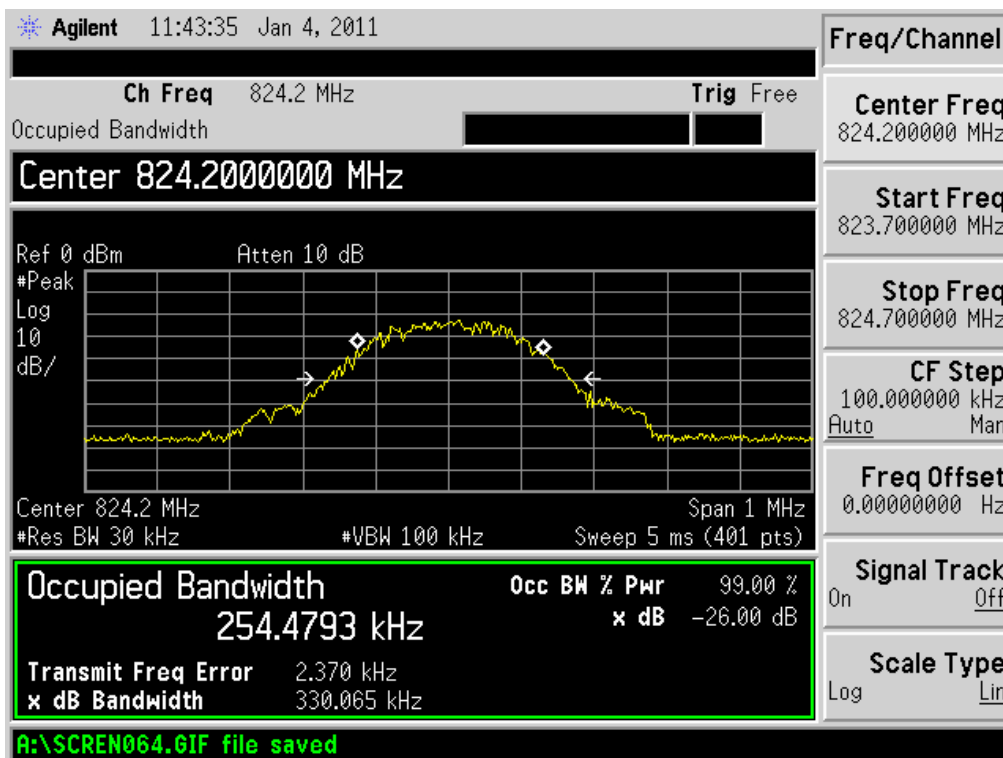
1. The EUT was connect as above configuration.
2. Set the test receiver’s RBW and VBW to applicable value with Peak in Max Hold.
3. Select the “% power bandwidth” function under the menu of “occupied bandwidth” from the test receiver, then enter “99” and read the test result from the test receiver directly.

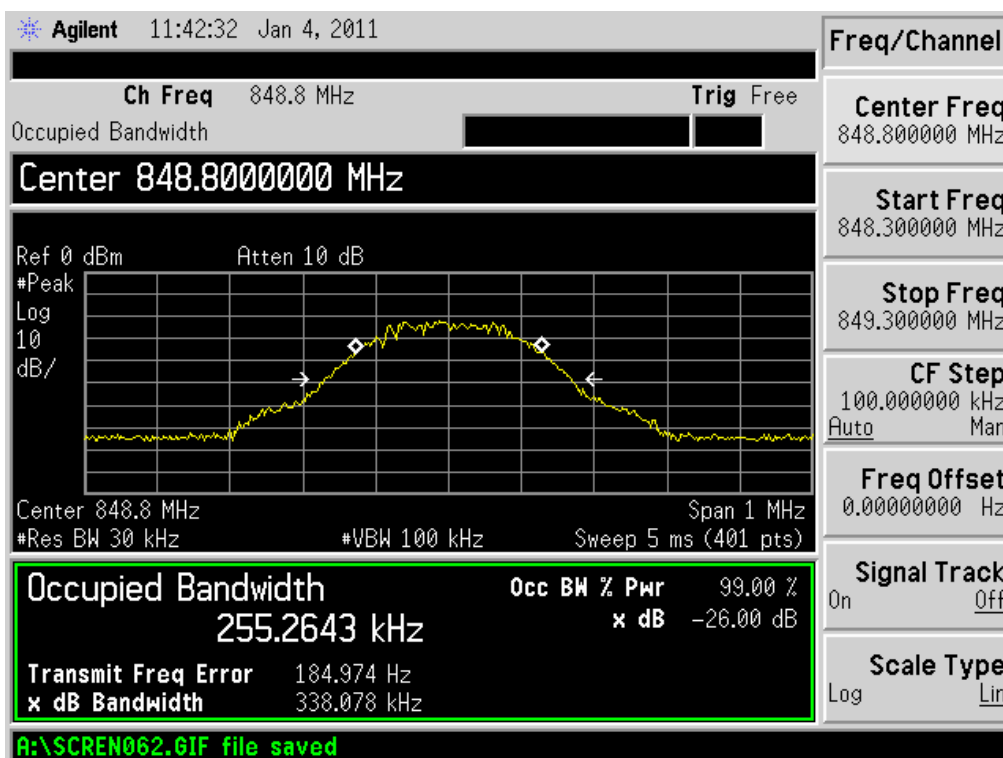
10.4. TEST RESULT

Freq. (MHz)		Occupied Bandwidth (MHz)
Uplink	850MHz	824.2
		836.6
		848.8
	1900MHz	1850
		1880
		1910
Downlink	850MHz	869.2
		881.6
		893.8
	1900MHz	1930
		1960
		1990

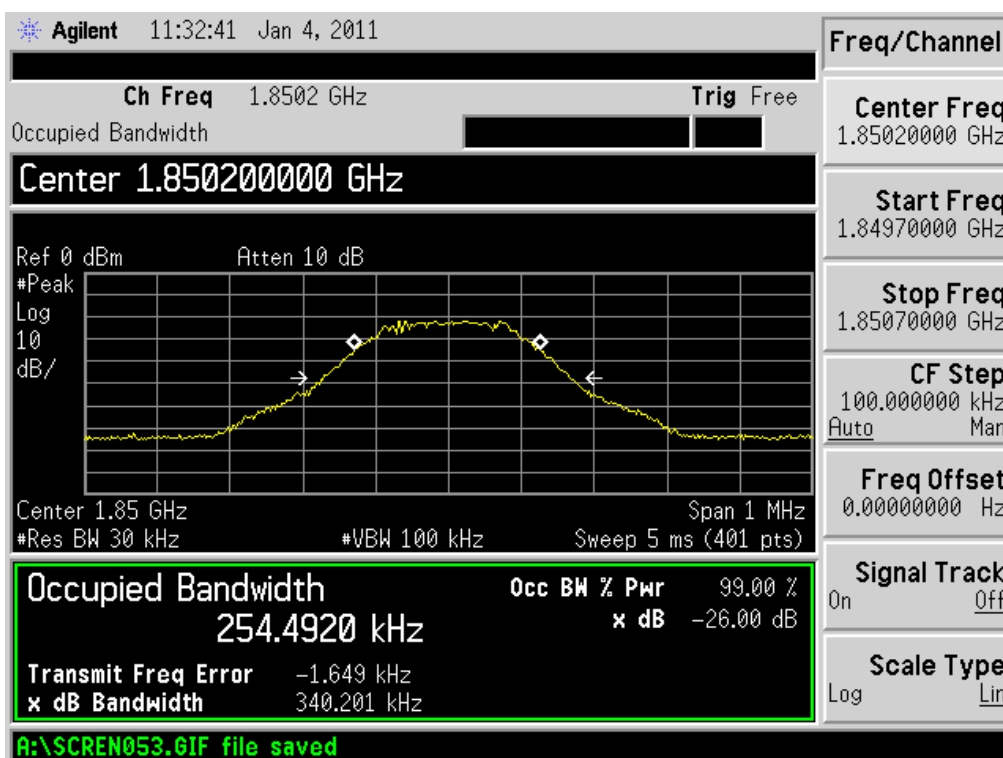
Note: Max input power is -22dBm.

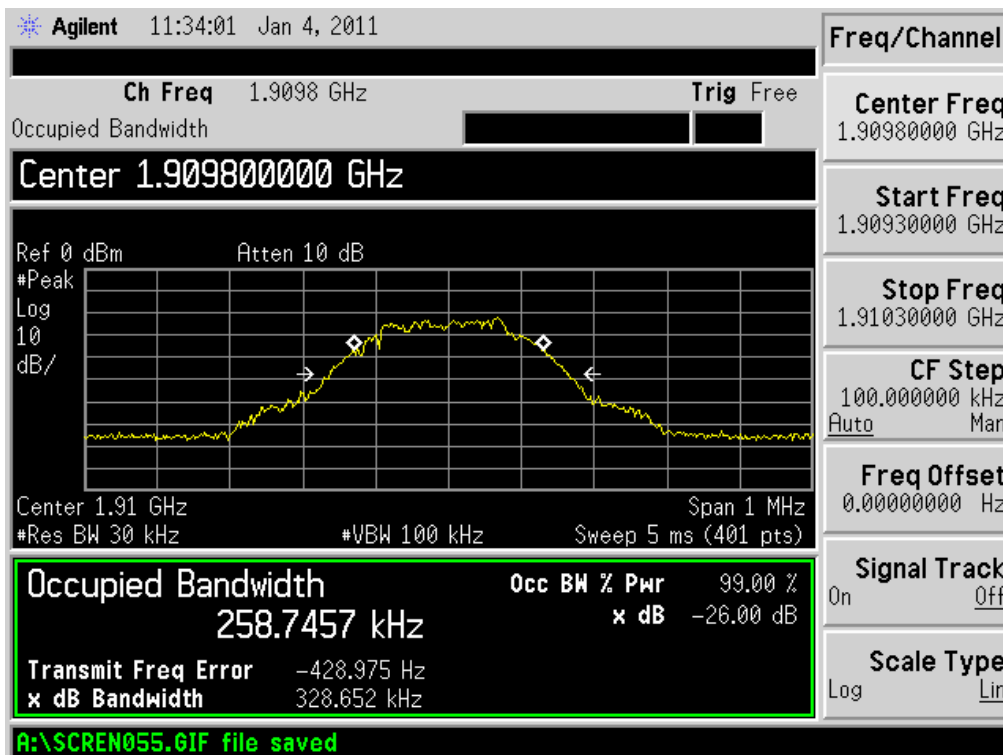
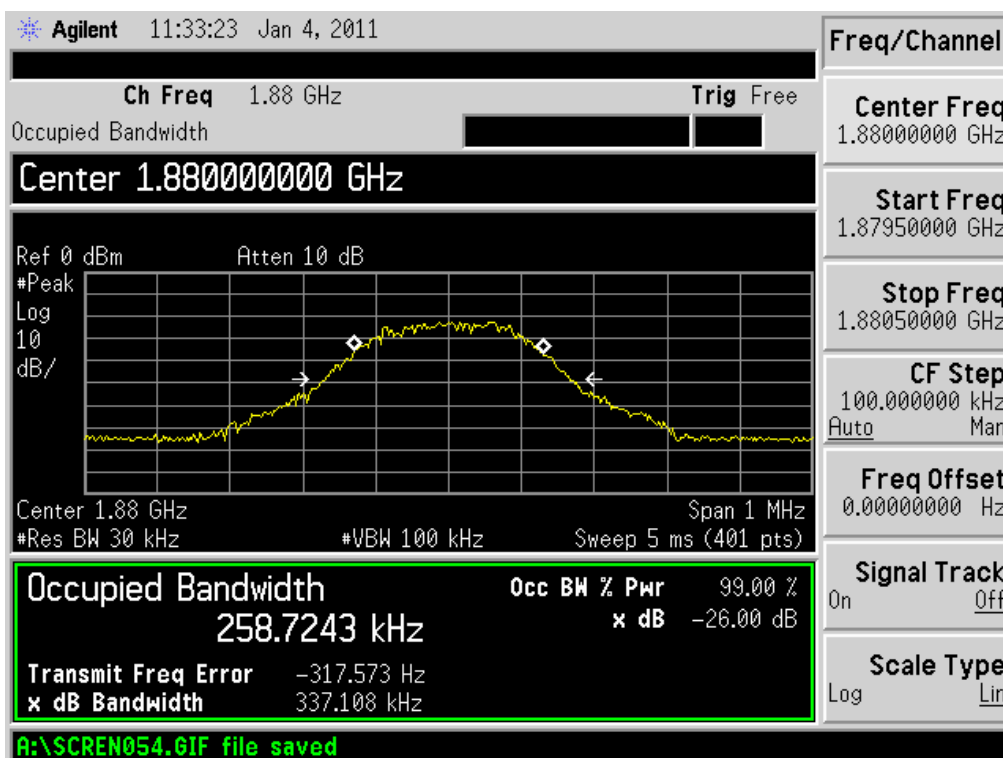
Input Signal Waveform: Uplink (GSM 850MHz)



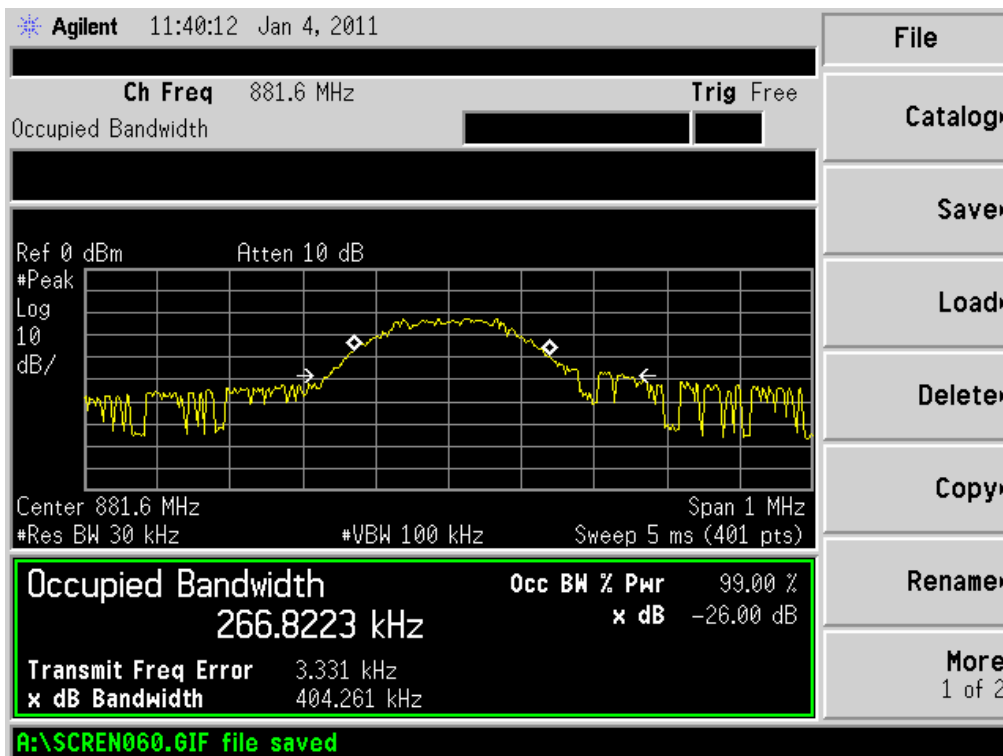
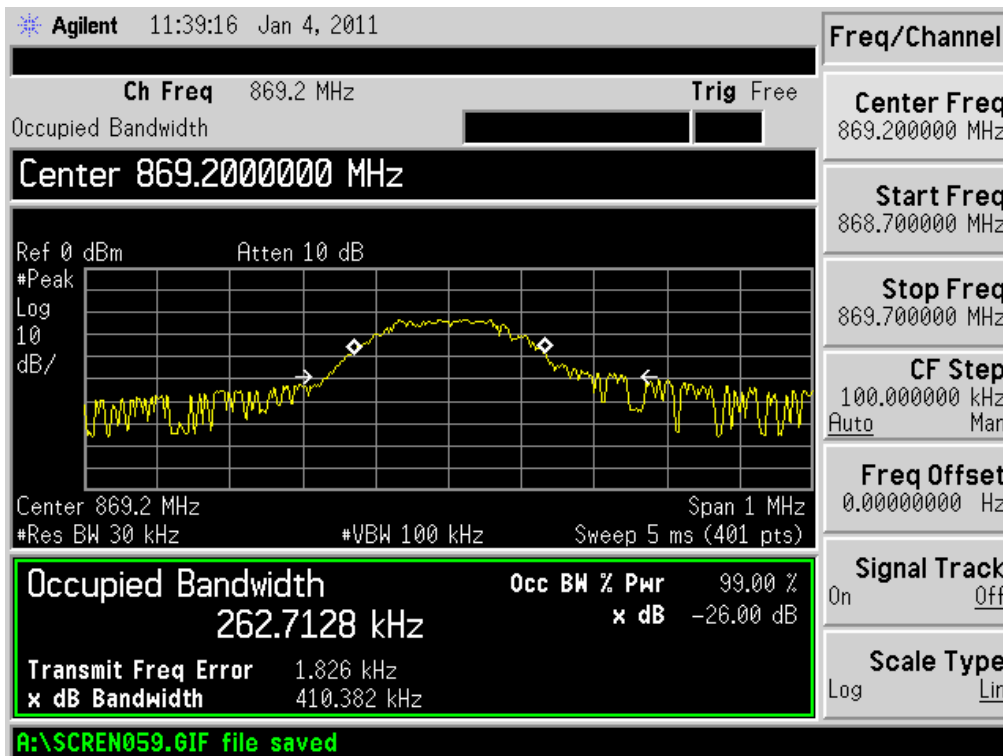


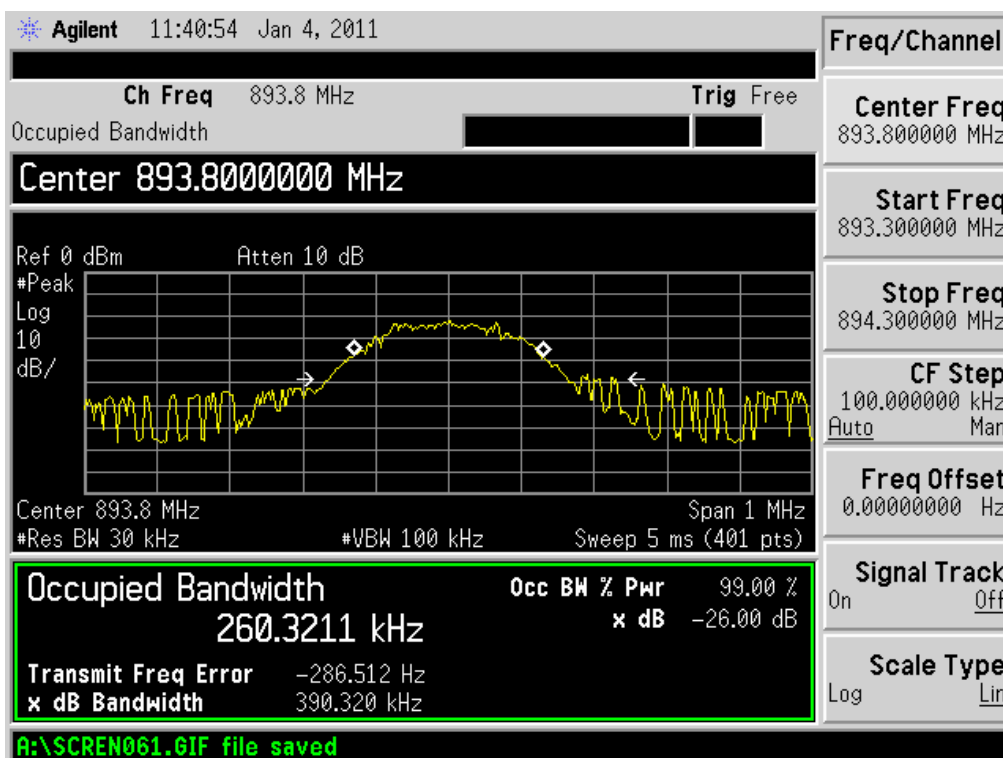
Input Signal Waveform: Uplink (GSM 1900MHz)



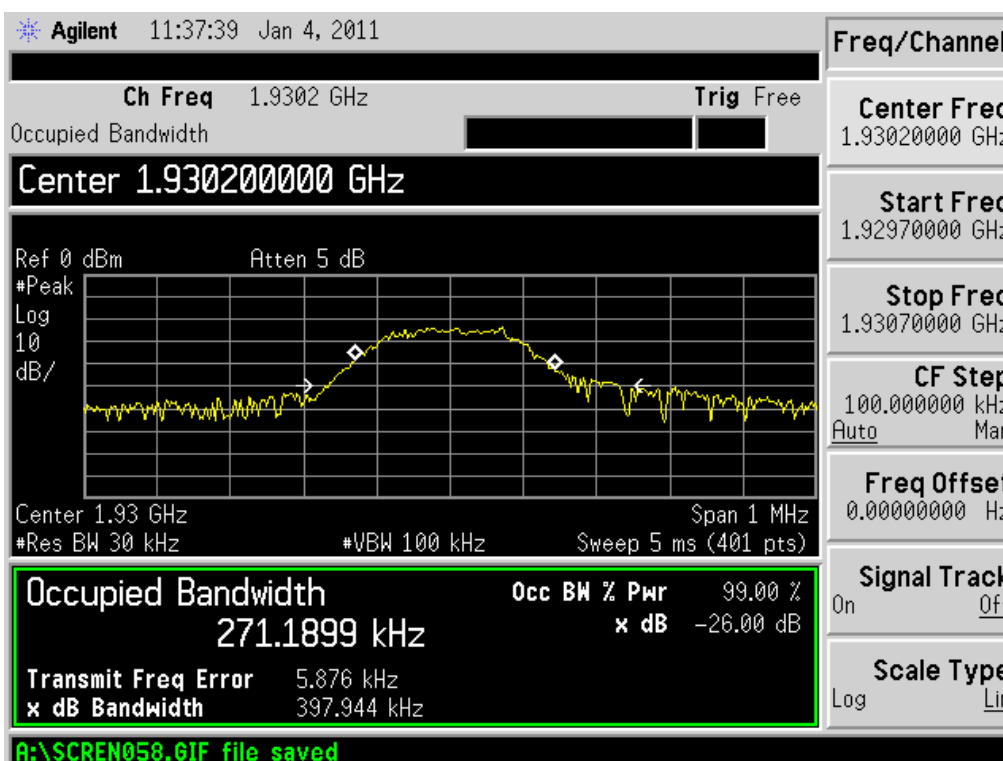


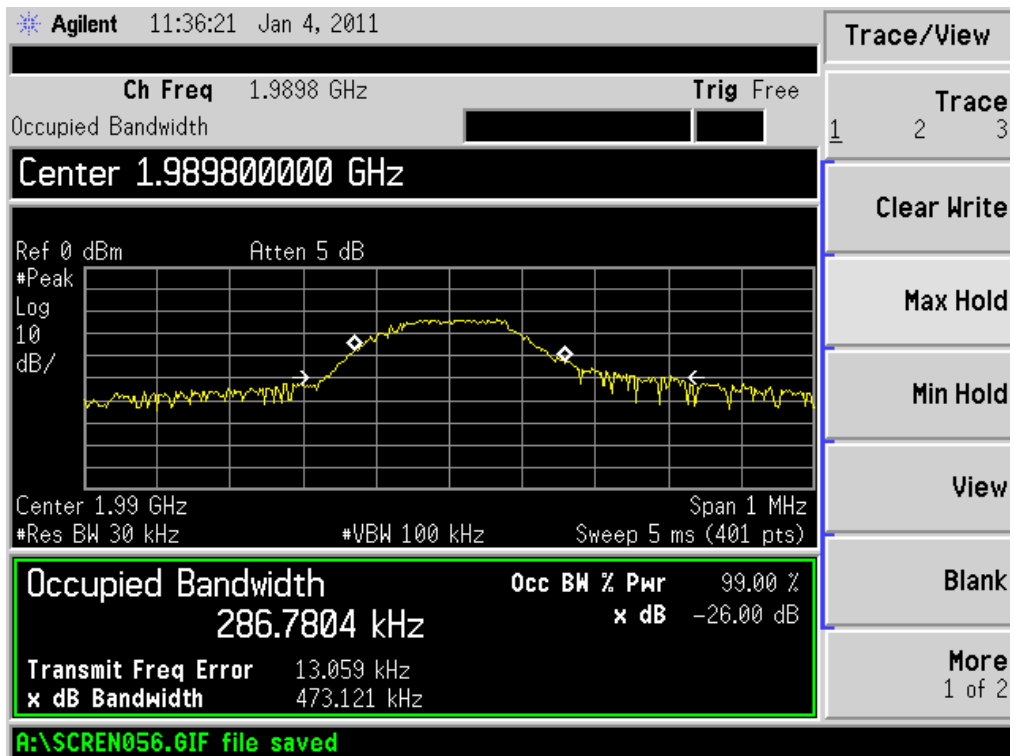
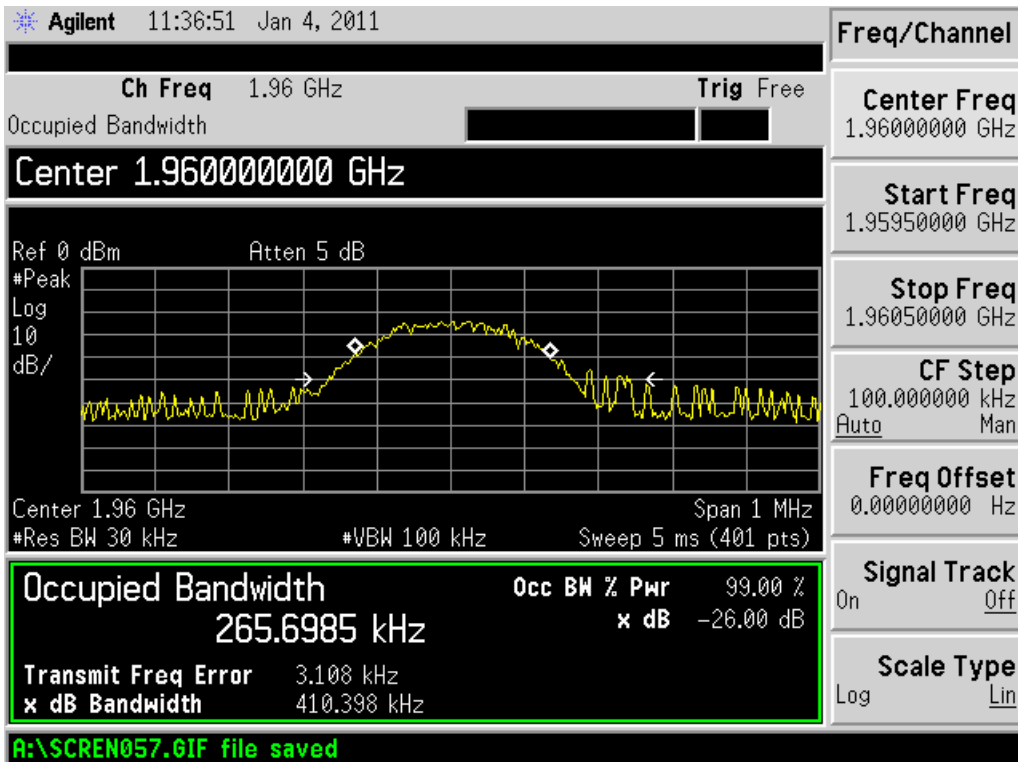
Input Signal Waveform: Downlink (GSM 850MHz)



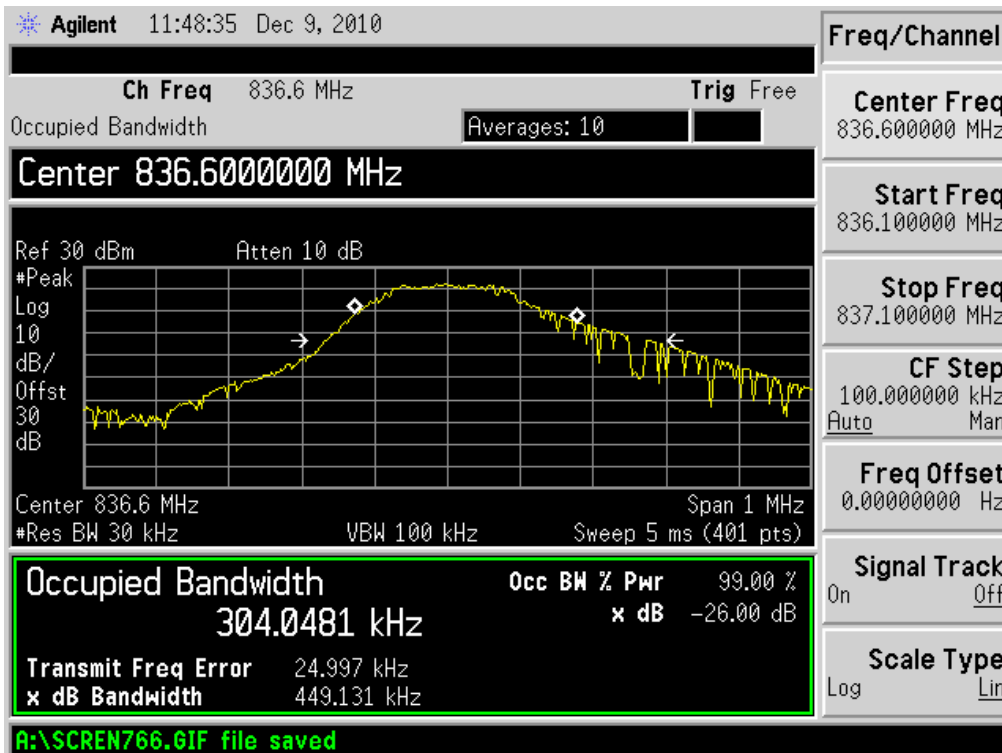
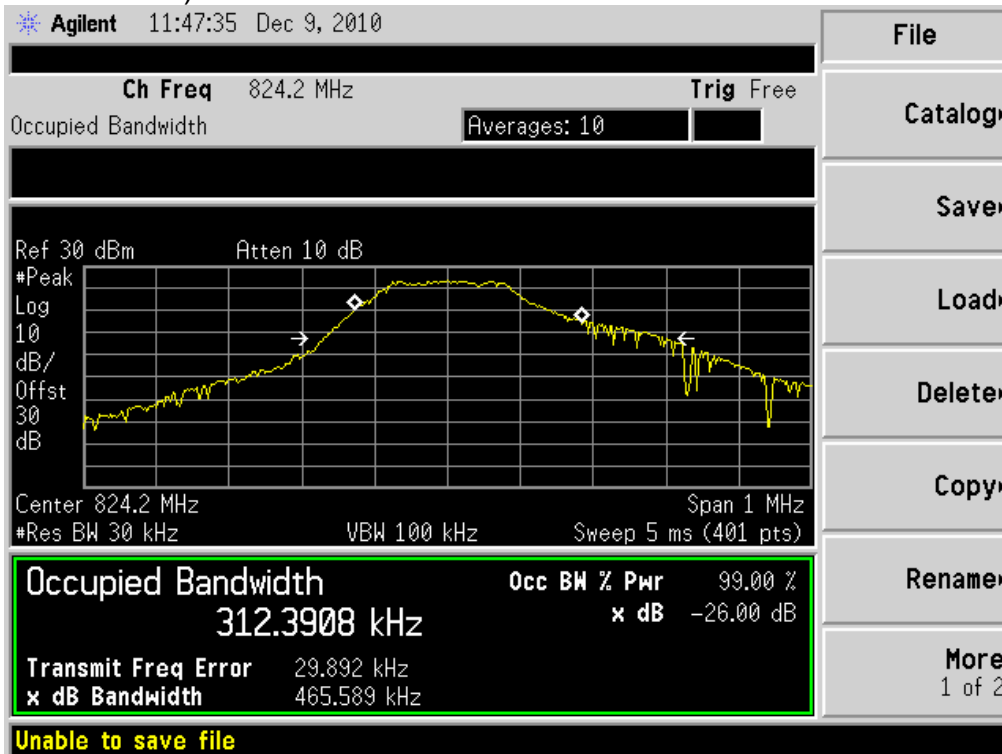


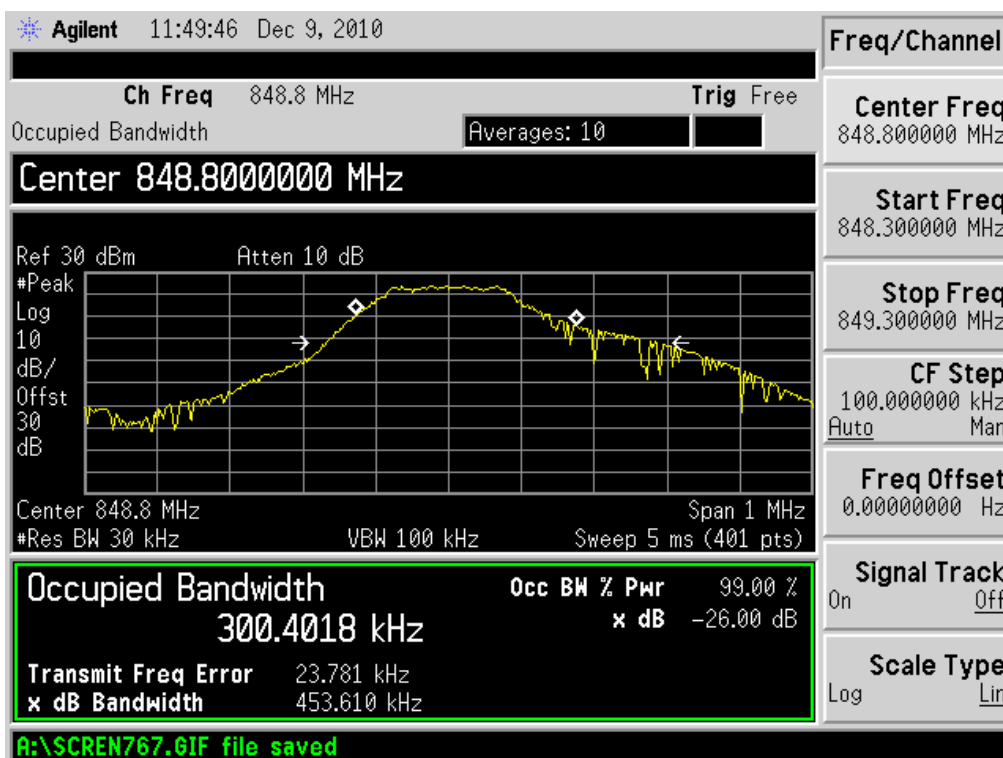
Input Signal Waveform: Downlink (GSM 1900MHz)



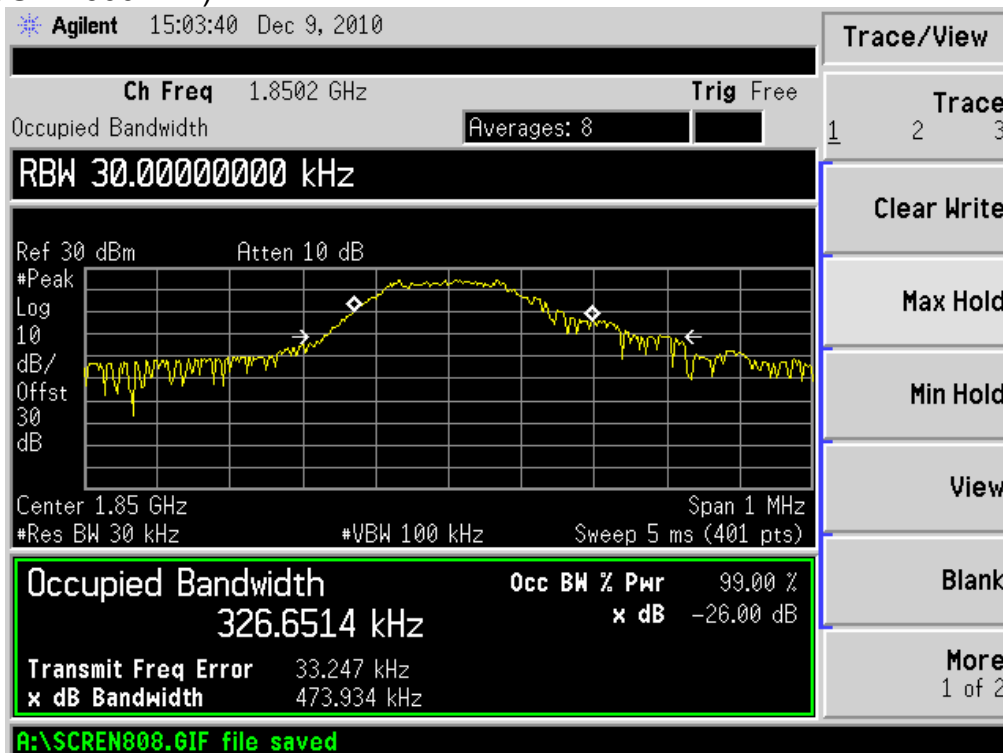


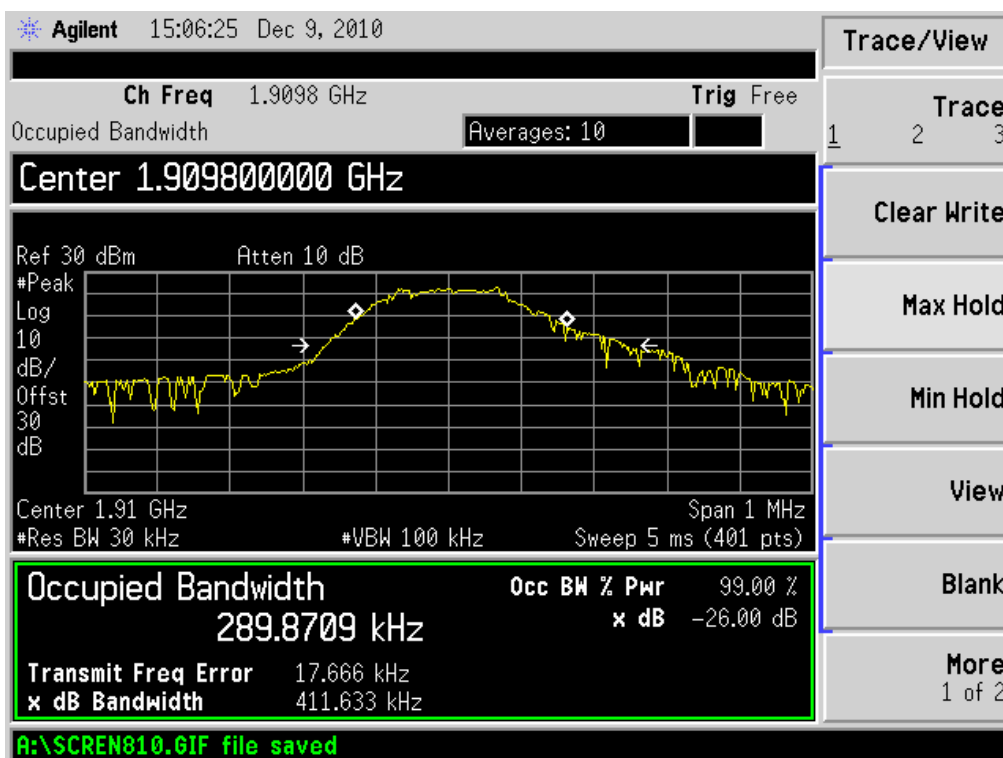
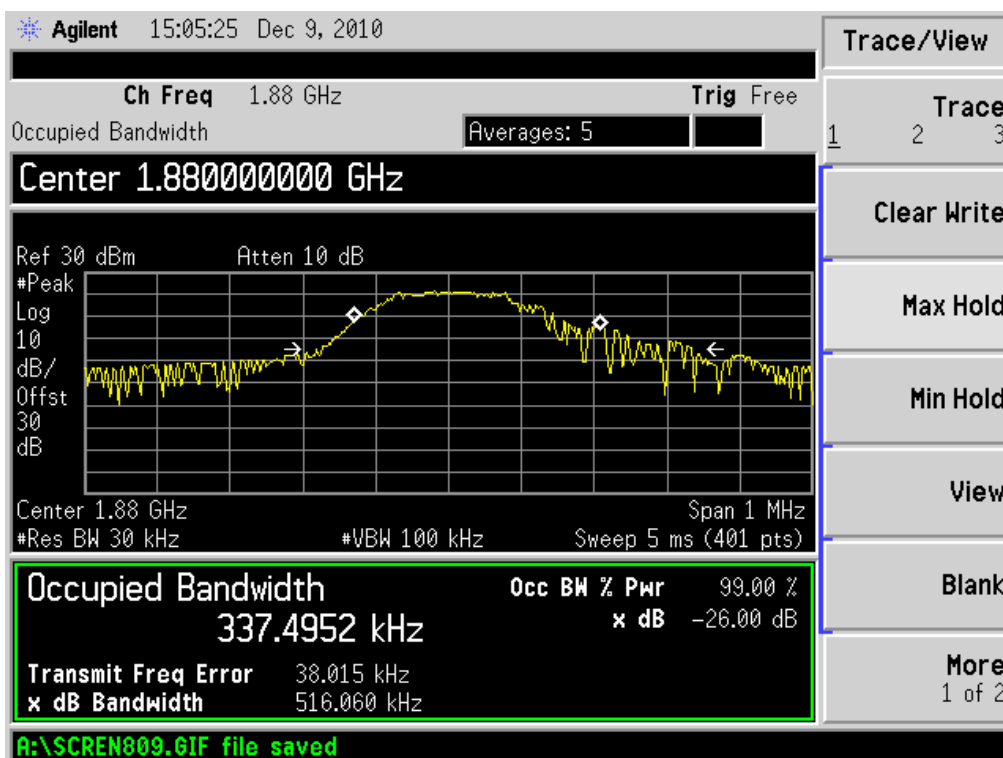
Uplink: (GSM 850MHz)



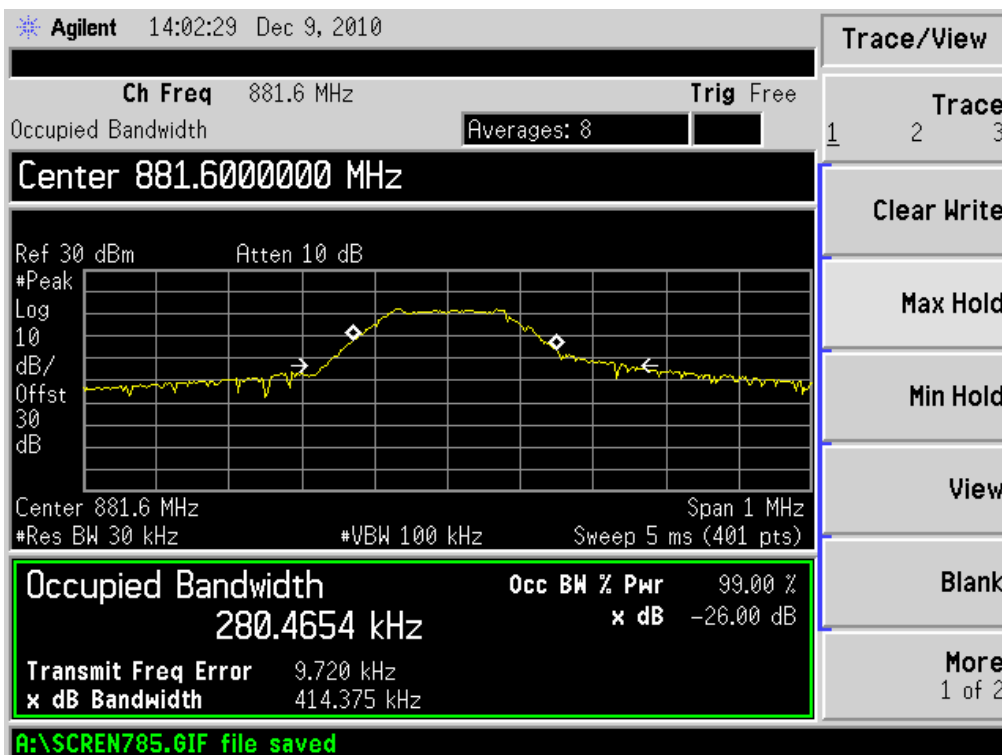
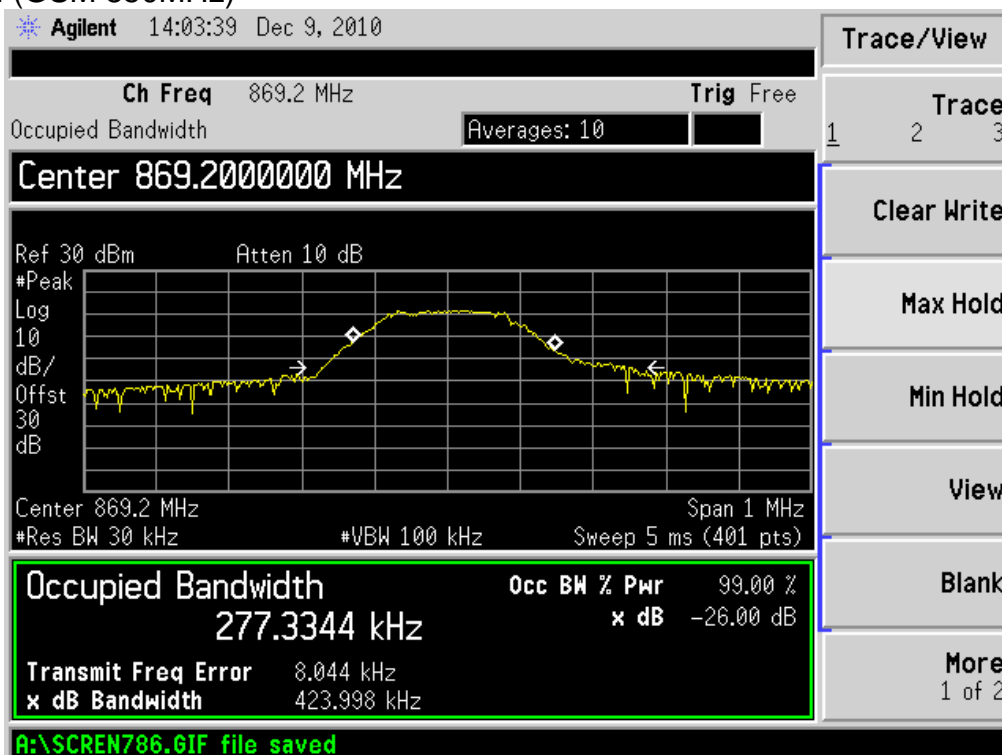


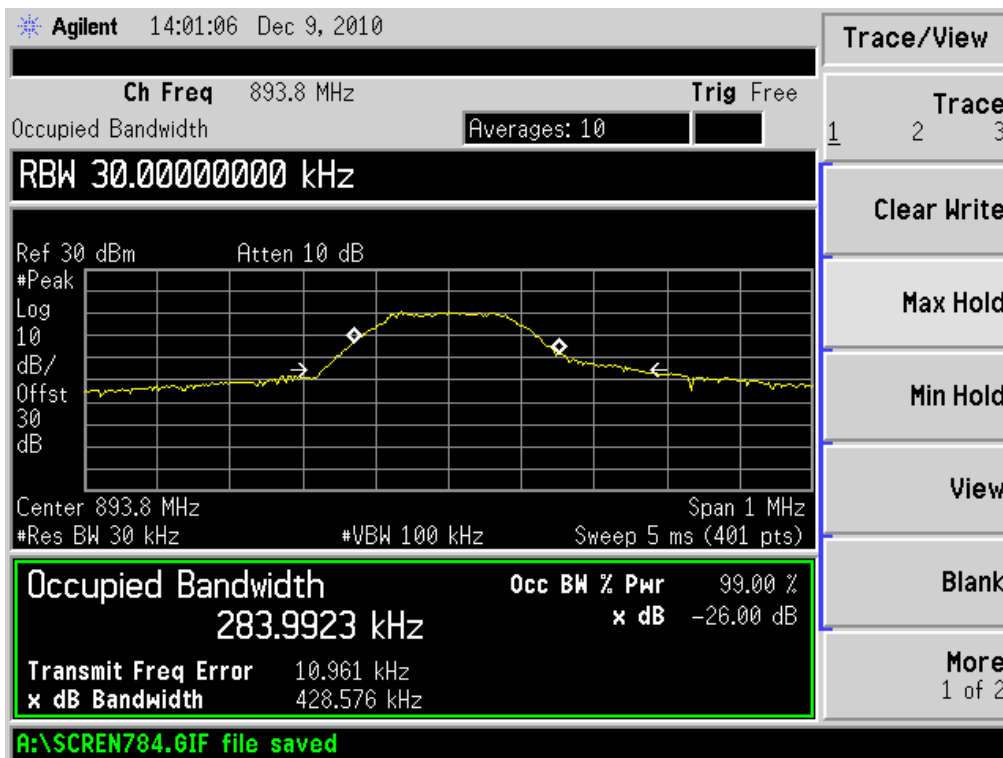
Uplink: (GSM 1900MHz)



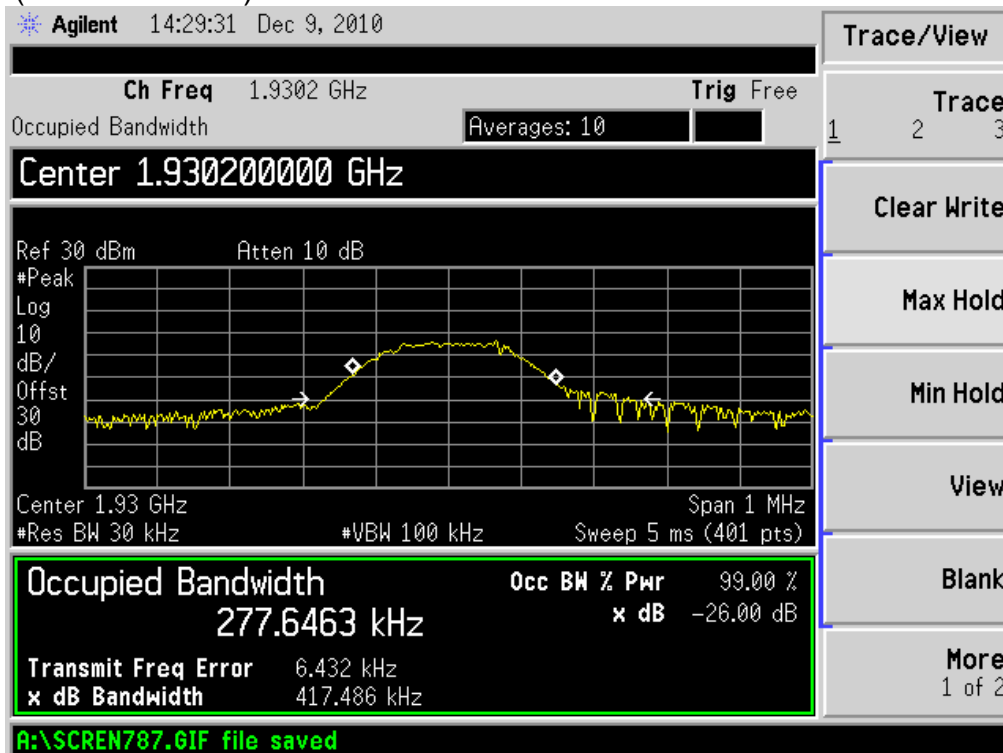


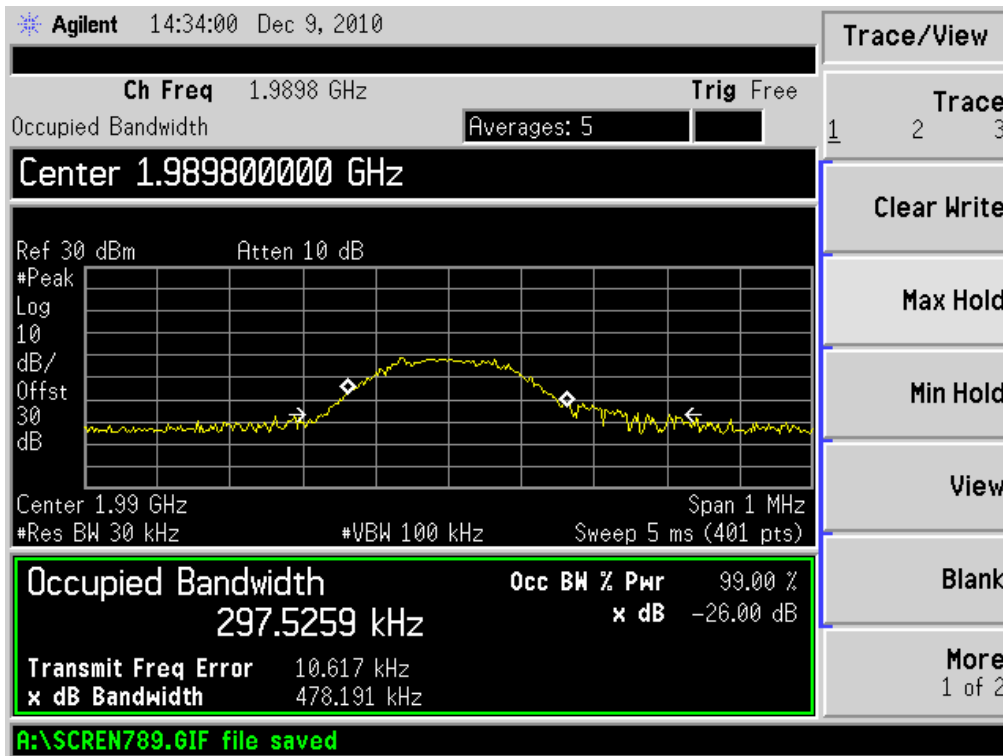
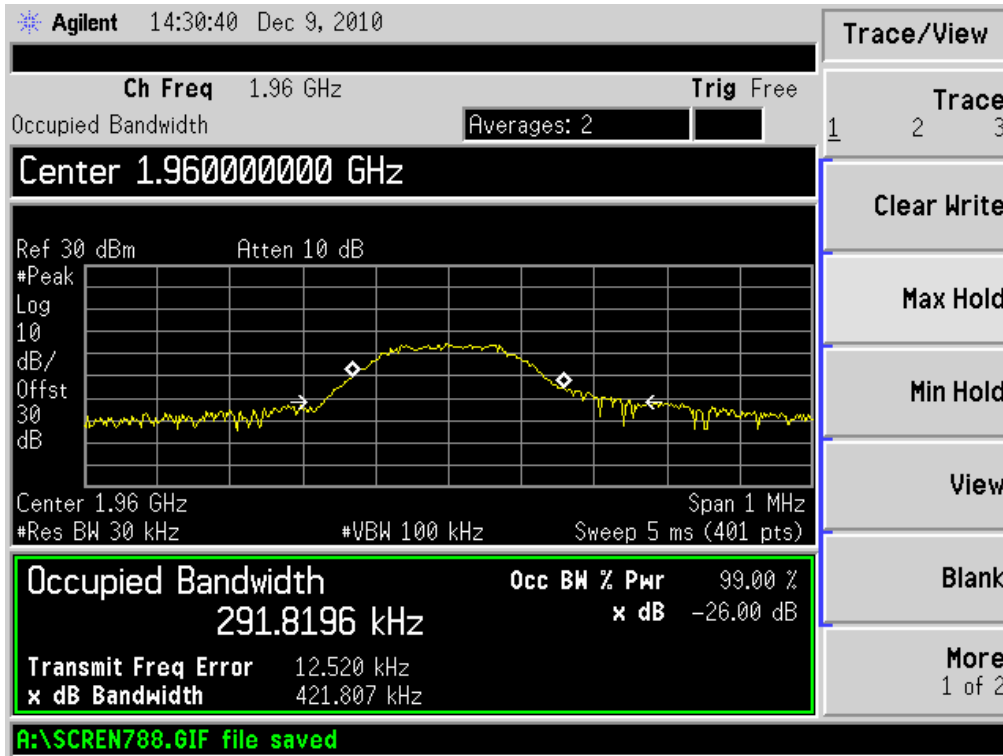
Downlink: (GSM 850MHz)





Downlink: (GSM 1900MHz)





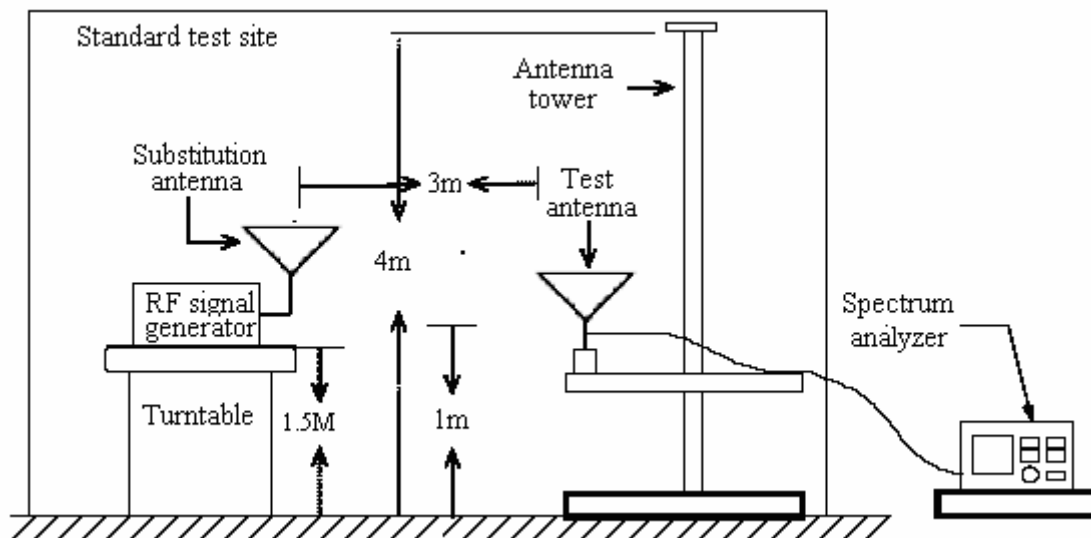
11. FIELD STRENGTH OF RADIATED SPURIOUS EMISSION

11.1. LIMITS

According to § 22.913 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

According to § 24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log(P)$ dB.

11.2. TEST CONFIGURATION



11.3. TEST METHOD

According to § 2.1053 (a) Measurements shall be made to detect spurious emissions that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal conditions of installation and operation. Curves or equivalent data shall be supplied showing the magnitude of each harmonic and other spurious emission. For this test, single sideband, independent sideband, and controlled carrier transmitters shall be modulated under the conditions specified in paragraph (c) of §2.1049, as appropriate. For equipment operating on frequencies below 890 MHz, an open field test is normally required, with the measuring instrument antenna located in the far-field at all test frequencies. In the event it is either impractical or impossible to make open field measurements (e.g. a broadcast transmitter installed in a building) measurements will be accepted of the equipment as installed. Such measurements must be accompanied by a description of the site where the measurements were made showing the location of any possible source of reflections which might distort the field strength measurements. Information submitted shall include the relative radiated power of each spurious emission

with reference to the rated power output of the transmitter, assuming all emissions are radiated from halfwave dipole antennas.

(b) The measurements specified in paragraph (a) of this section shall be made for the following equipment:

- (1) Those in which the spurious emissions are required to be 60 dB or more below the mean power of the transmitter.
- (2) All equipment operating on frequencies higher than 25 MHz.
- (3) All equipment where the antenna is an integral part of, and attached directly to the transmitter.
- (4) Other types of equipment as required, when deemed necessary by the Commission.

11.4. TEST PROCEDURE

- 1) On a test site, the EUT shall be placed on a turntable and in the position closest to the normal use as declared by the user.
- 2) The test antenna shall be oriented initially for vertical polarization located 3m from the EUT to correspond to the transmitter.
- 3) The output of the antenna shall be connected to the measuring receiver and either a peak or quasi-peak detector was used for the measurement as indicated on the report. The detector selection is based on how close the emission level was approaching the limit.
- 4) The transmitter shall be switched on; if possible, without the modulation and the measurement receiver shall be tuned to the frequency of the transmitter under test.
- 5) The test antenna shall be raised and lowered through the specified range of height until the measuring receiver detects a maximum signal level.
- 6) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- 7) The test antenna shall be raised and lowered again through the specified range of height until the measuring receiver detects a maximum signal level.
- 8) The maximum signal level detected by the measuring receiver shall be noted.
- 9) The measurement shall be repeated with the test antenna set to horizontal polarization.
- 10) Remove the transmitter and replace it with a substitution antenna (the antenna should be half-wavelength for each frequency involved). The center of the substitution antenna should be approximately at the same location as the center of the transmitter.
- 11) The substitution antenna shall be oriented for vertical polarization and, if necessary, the length of the substitution antenna shall be adjusted to correspond to the frequency of transmitting.
- 12) The substitution antenna shall be connected to a calibrated signal generator.

If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.

13) The test antenna shall be raised and lowered through the specified range of the height to ensure that the maximum signal is received.

14) The input signal to substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuation setting of the measuring receiver.

15) The input level to the substitution antenna shall be recorded as power level in dBm, corrected for any change of input attenuator setting of the measuring receiver.

16) The measurement shall be repeated with the test antenna and the substitution antenna oriented for horizontal polarization.

11.5. TEST RESULT

Frequency (MHz)	Reading (dBm)	S.G. output (dBm)	Antenna Gain (dBi)	Cable Loss (dB)	E.I.RP (dB)	Limit (dB)	Result (Pass / Fail)
							Pass
<p><i>No emissions were detected higher than the background in all frequency band and the background It's lower the limit, so it deems to compliance with the limit without reported.</i></p>							Pass
							Pass
							Pass
							Pass

Note: Max input power is -22dBm.

12. AC POWER LINE CONDUCTED EMISSIONS

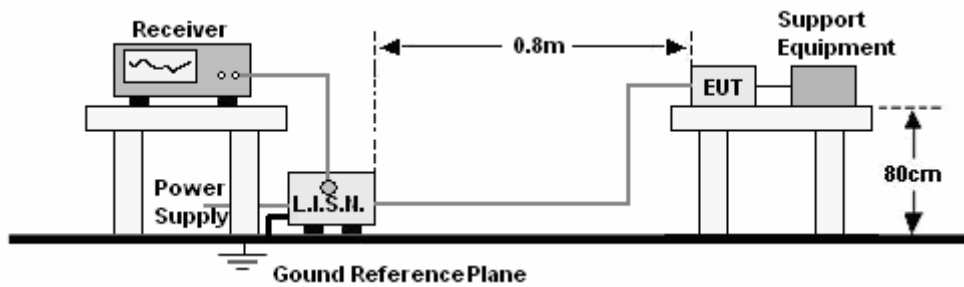
12.1. LIMITS

Limits for Class B digital devices

Frequency range (MHz)	Limits dB(μV)	
	Quasi-peak	Average
0,15 to 0,50	66 to 56	56 to 46
0,50 to 5	56	46
5 to 30	60	50

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

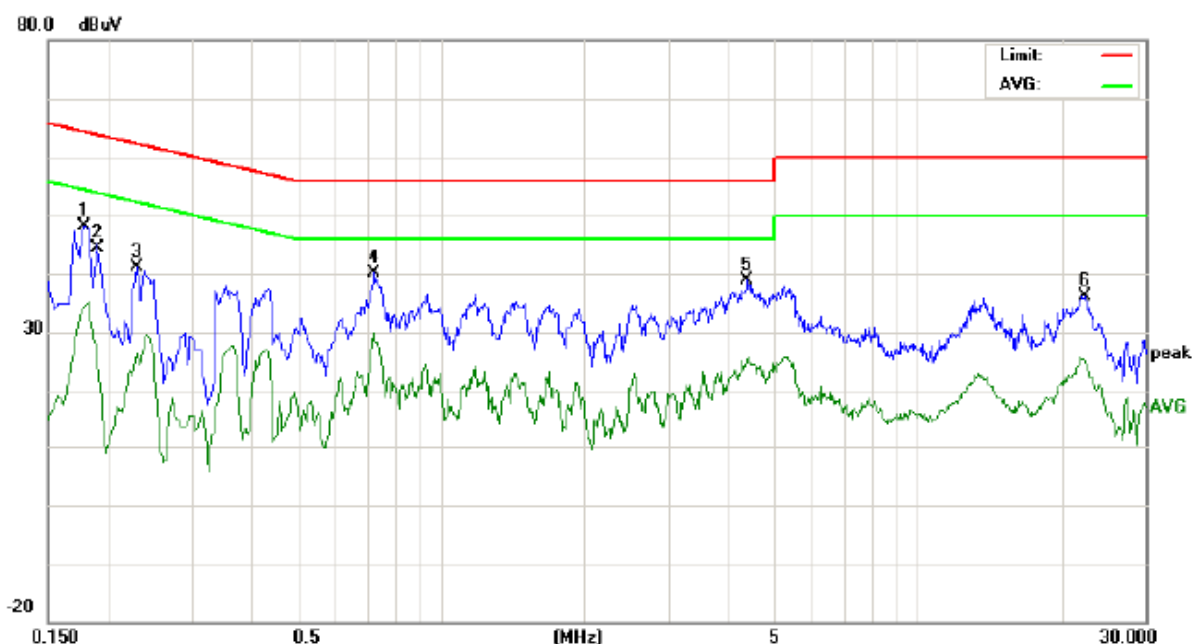
12.2. BLOCK DIAGRAM OF TEST SETUP



12.3. TEST PROCEDURE

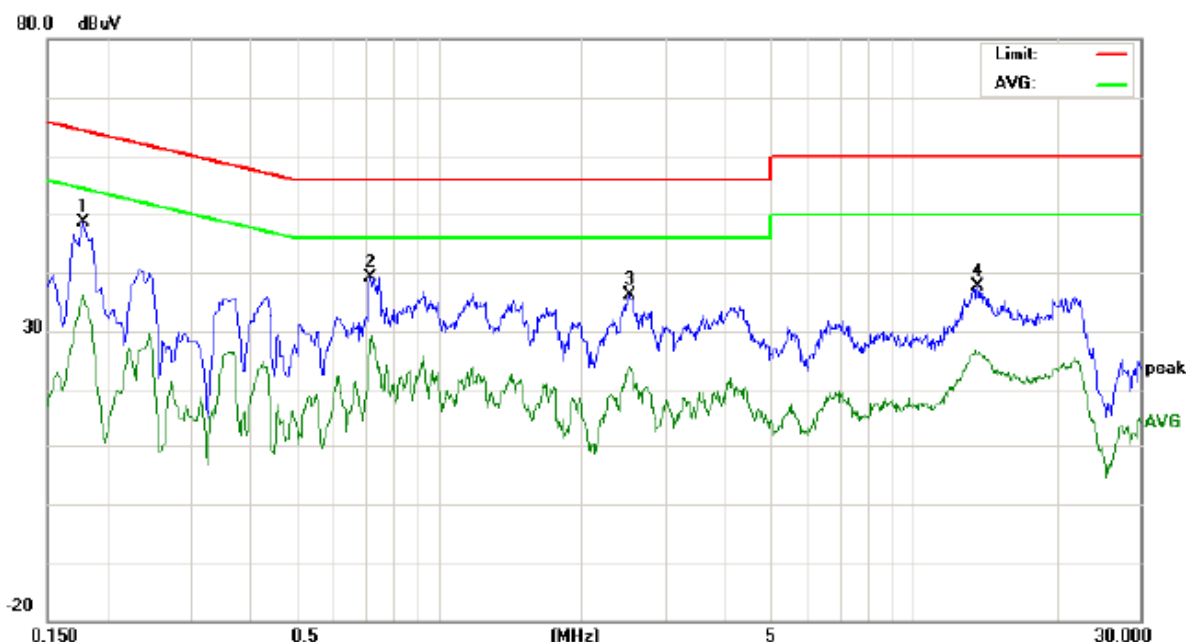
- The EUT was placed on a nonconductive table above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from EUT in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

12.4. TEST RESULT



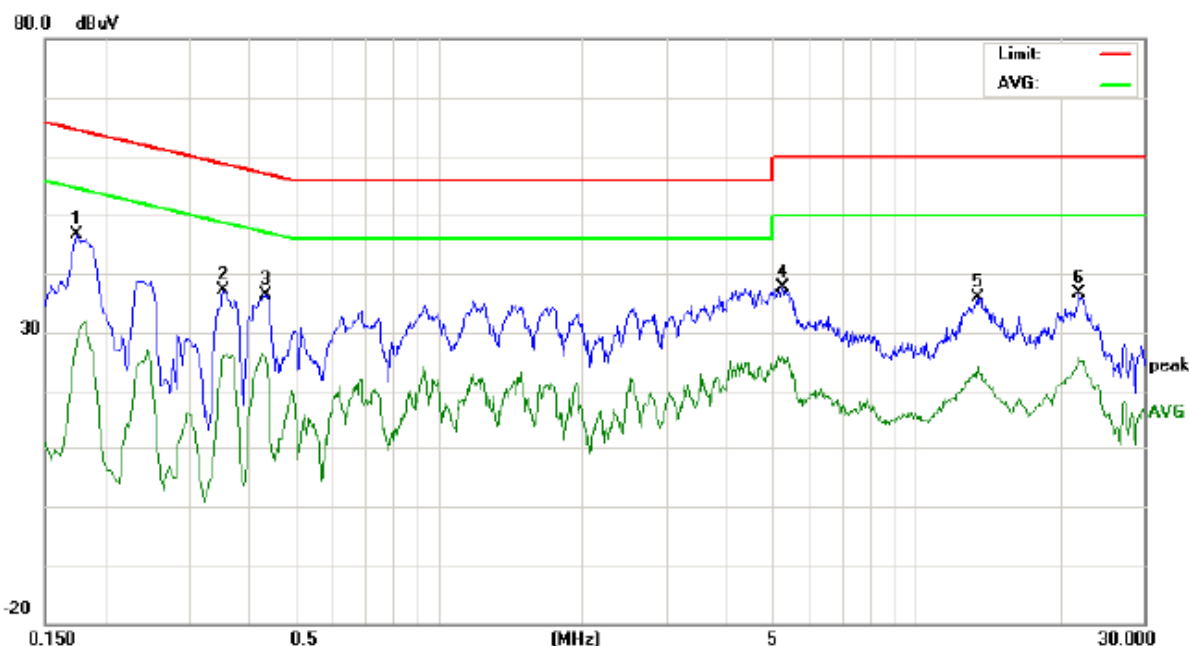
Site site #1 Phase: **L1** Temperature: 24
 Limit: FCC Class B Conduction (QP) Power: AC 120V/60Hz Humidity: 50 %
 EUT: Wireless DaulBand Signal Amplifier
 M/N: HW8050
 Mode: Downlink
 Note: 869MHz

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1780	38.33		24.28	9.80	48.13	34.08	64.57	54.57	-16.44	-20.49	P		
2	0.1924	28.70		5.14	9.81	38.51	14.95	63.93	53.93	-25.42	-38.98	P		
3	0.2300	31.38		16.65	9.81	41.19	26.46	62.45	52.45	-21.26	-25.99	P		
4	0.7260	30.34		19.00	9.84	40.18	28.84	56.00	46.00	-15.82	-17.16	P		
5	4.3980	28.82		15.51	9.96	38.78	25.47	56.00	46.00	-17.22	-20.53	P		
6	22.4500	25.89		14.25	10.27	36.16	24.52	60.00	50.00	-23.84	-25.48	P		



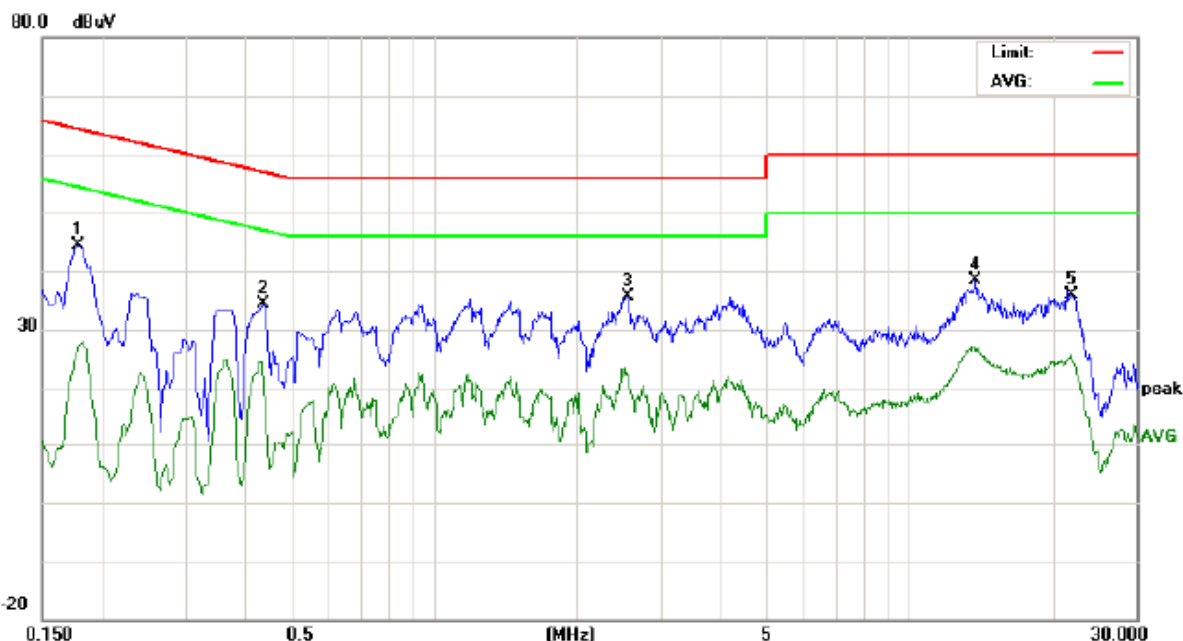
Site site #1 Phase: **N** Temperature: 24
 Limit: FCC Class B Conduction (QP) Power: AC 120V/60Hz Humidity: 50 %
 EUT: Wireless DaulBand Signal Amplifier
 M/N: HW8050
 Mode: Downlink
 Note: 869MHz

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1780	38.93		26.44	9.80	48.73	36.24	64.57	54.57	-15.84	-18.33	P		
2	0.7180	29.32		18.39	9.84	39.16	28.23	56.00	46.00	-16.84	-17.77	P		
3	2.5180	26.29		13.67	9.91	36.20	23.58	56.00	46.00	-19.80	-22.42	P		
4	13.6580	27.51		16.11	10.08	37.59	26.19	60.00	50.00	-22.41	-23.81	P		



Site site #1 Phase: **L1** Temperature: 24
 Limit: FCC Class B Conduction (QP) Power: AC 120V/60Hz Humidity: 50 %
 EUT: Wireless DaulBand Signal Amplifier
 M/N: HW8050
 Mode: Downlink
 Note: 1990MHz

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1740	36.91		18.27	9.80	46.71	28.07	64.76	54.76	-18.05	-26.69	P		
2	0.3540	27.29		16.28	9.81	37.10	26.09	58.87	48.87	-21.77	-22.78	P		
3	0.4340	26.52		15.71	9.81	36.33	25.52	57.18	47.18	-20.85	-21.66	P		
4	5.2500	27.53		15.82	9.99	37.52	25.81	60.00	50.00	-22.48	-24.19	P		
5	13.4420	25.82		13.97	10.08	35.90	24.05	60.00	50.00	-24.10	-25.95	P		
6	21.8779	26.40		14.57	10.24	36.64	24.81	60.00	50.00	-23.36	-25.19	P		



Site site #1 Phase: **N** Temperature: 24
 Limit: FCC Class B Conduction (QP) Power: AC 120V/60Hz Humidity: 50 %
 EUT: Wireless DaulBand Signal Amplifier
 M/N: HW8050
 Mode: Downlink
 Note: 1990MHz

No.	Freq. MHz	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1780	34.65		16.94	9.80	44.45	26.74	64.57	54.57	-20.12	-27.83	P		
2	0.4380	24.57		11.66	9.81	34.38	21.47	57.10	47.10	-22.72	-25.63	P		
3	2.5540	25.73		12.50	9.91	35.64	22.41	56.00	46.00	-20.36	-23.59	P		
4	13.8340	28.31		16.38	10.07	38.38	26.45	60.00	50.00	-21.62	-23.55	P		
5	22.0500	25.71		14.77	10.25	35.96	25.02	60.00	50.00	-24.04	-24.98	P		

APPENDIX 1 PHOTOGRAPHS OF TEST SETUP



TEST SETUP OF RADIATED EMISSION

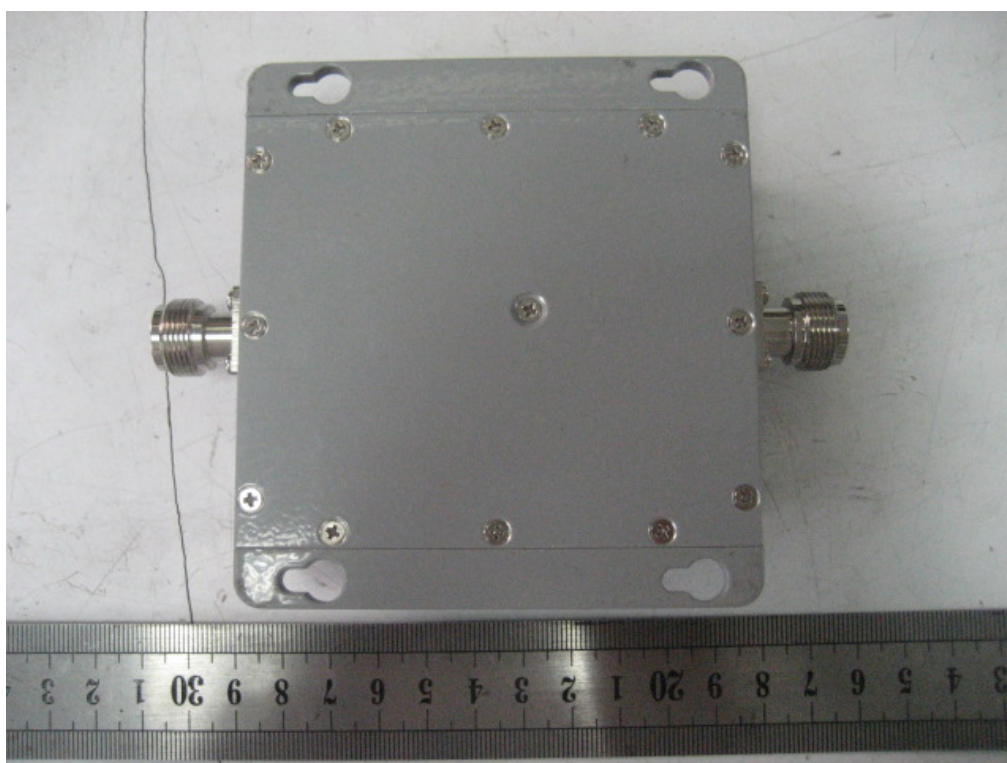


TEST SETUP OF CONDUCTED EMISSION

APPENDIX 2 EXTERNAL PHOTOGRAPHS OF EUT



Front View of EUT



Rear View of EUT

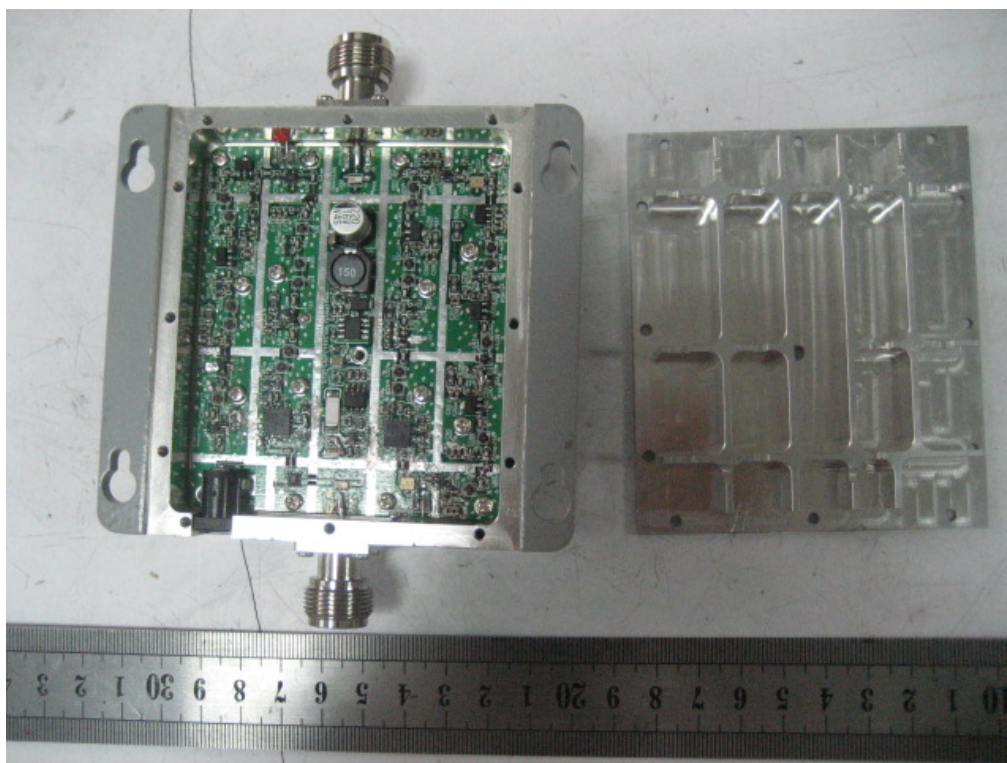


Left View of EUT

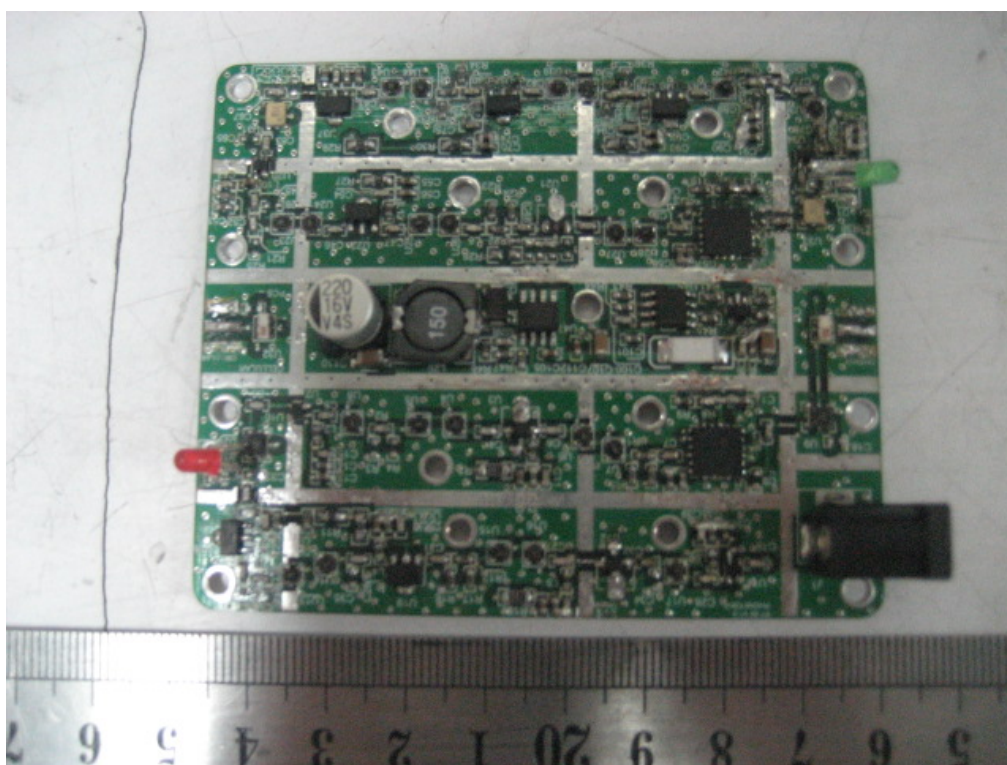


Right View of EUT

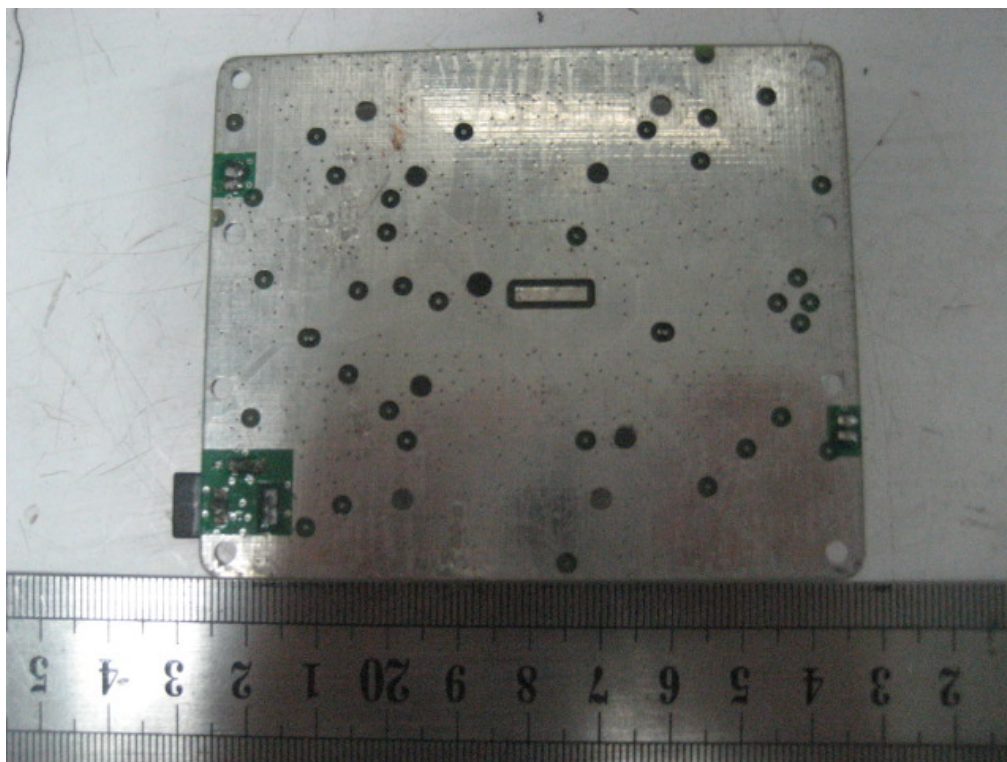
APPENDIX 3 INTERNAL PHOTOGRAPHS OF EUT



Internal View of EUT-1



Internal View of EUT-2



Internal View of EUT-3

----- End of report -----