



Report No.: RZA2010-0531\_24



# Part 24

# TEST REPORT

**Product Name** HSPA USB Modem

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**FCC ID** WA6M950

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**Type** m950

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**Applicant** Verykool USA, Inc.

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**TA Technology (Shanghai) Co., Ltd.**



## GENERAL SUMMARY

<b>Product Name</b>	HSPA USB Modem	<b>Model</b>	m950
<b>FCC ID</b>	WA6M950	<b>Report No.</b>	RZA2010-0531_24
<b>Client</b>	Verykool USA, Inc.		
<b>Manufacturer</b>	Shanghai BroadMobi Communication Technology Co., Ltd.		
<b>Reference Standard(s)</b>	<p><b>FCC Part 2</b>      Frequency allocations and radio treaty matters; general rules and regulation. (December 17, 2009)</p> <p><b>FCC Part 24</b>    Personal Communications Services. (December 17, 2009)</p> <p><b>ANSI/TIA-603-C</b>   Land mobile FM or PM Communications Equipment Measurements and Performance Standards.(2004)</p>		
<b>Conclusion</b>	<p>This portable wireless equipment has been measured in all cases requested by the relevant standards. Test results in Chapter 2 of this test report are below limits specified in the relevant standards.</p> <p>General Judgment: <b>Pass</b></p> <div style="text-align: right;">  <p>(Stamp) Date of issue: April 29<sup>th</sup>, 2010</p> </div>		
<b>Comment</b>	The test result only responds to the measured sample.		

Approved by 杨伟中  
Yang Weizhong

Revised by 徐凯  
Xu Kai

Performed by 刘继刚  
Liu Jigang

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## 1. General Information

### 1.1. Notes of the test report

**TA Technology (Shanghai) Co., Ltd.** guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

**TA Technology (Shanghai) Co., Ltd.** is liable to the client for the maintenance by its personnel of the confidentiality of all information related to the items under test and the results of the test. This report only refers to the item that has undergone the test.

This report standalone dose not constitute or imply by its own an approval of the product by the certification Bodies or competent Authorities. This report cannot be used partially or in full for publicity and/or promotional purposes without previous written approval of **TA Technology (Shanghai) Co., Ltd.** and the Accreditation Bodies, if it applies.

### 1.2. Testing laboratory

Company: TA Technology (Shanghai) Co., Ltd.  
Address: No.145, Jintang Rd, Tangzhen Industry Park, Pudong  
City: Shanghai  
Post code: 201201  
Country: P. R. China  
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E-mail: [yangweizhong@ta-shanghai.com](mailto:yangweizhong@ta-shanghai.com)

### **1.3. Applicant Information**

Company: Verykool USA, Inc.  
Address: 4350 Executive Drive. Suite 100, San Diego, CA 92121, USA  
City: San Diego  
Postal Code: 92121  
Country: USA  
Contact: Sunny Choi  
Telephone: +1-858-373-1600  
Fax: +1-858-373-1505

### **1.4. Manufacturer Information**

Company: Shanghai BroadMobi Communication Technology Co., Ltd.  
Address: Rm. 808, Bld. 9, No.1515 Gumei Rd, Xuhui District, Shanghai, P. R. China  
City: Shanghai  
Postal Code: 200233  
Country: China  
Telephone: +86-21-60913308-833  
Fax: +86-21-60913308-818

**1.5. Information of EUT**

**General information**

Device type:	Portable device		
Name of EUT:	HSPA USB Modem		
Device operating configurations:			
IMEI or SN:	355189030026902		
Operating mode(s):	GSM1900: ( tested ) WCDMA Band II: ( tested )		
GPRS multi-slot class:	10		
EGPRS multi-slot class:	10		
Antenna type:	internal antenna		
Power supply:	Notebook( IBM T61)		
Rated Power Supply Voltage:	5V		
Extreme Voltage:	Minimum: 4.75V    Maximum: 5.25V		
Extreme Temperature:	Lowest: -10°C    Highest: +55°C		
Operating frequency range(s)	Band	Tx (MHz)	Rx (MHz)
	GSM1900	1850.2 ~ 1909.8	1930.2 ~ 1989.8
	WCDMA Band II	1852.4 ~ 1907.6	1932.4 ~ 1987.6
Hardware version:	V1.0		
Software version:	V1.0		

Equipment Under Test (EUT) is HSPA USB Modem with integrated antenna. The EUT supports GSM1900 and WCDMA Band II band in this report.

The sample under test was selected by the Client.

Components list please refer to documents of the manufacturer.

**1.6. Test Date**

The test is performed from April 27, 2010 to April 29, 2010.

## 2. Test Information

### 2.1. Summary of test results

Number	Test Case	Clause in FCC rules	Verdict
1	RF power output	2.1046	PASS
2	Effective Isotropic Radiated power	24.232	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	24.238	PASS
5	Frequency Stability	2.1055 / 24.235	PASS
6	Spurious Emissions at Antenna Terminals	2.1051 / 24.238	PASS
7	Radiates Spurious Emission	2.1053 / 24.238	PASS

## 2.2. RF Power Output

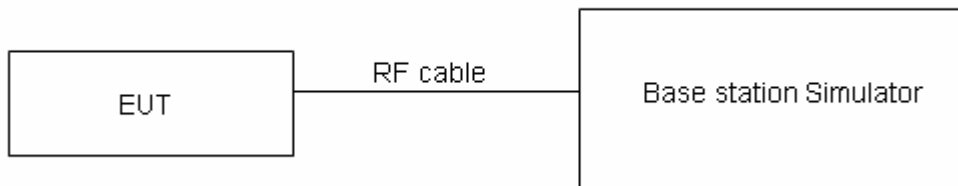
### Ambient condition

Temperature	Relative humidity	Pressure
24°C	50%	101.5kPa

### Methods of Measurement

During the process of the testing, The EUT is controlled by the Base Station Simulator to ensure max power transmission and proper modulation. These measurements have been tested at following channels: 512,661,810 for GSM 1900 band and 9262,9400,9538 for WCDMA Band II band.

### Test Setup



The loss between RF output port of the EUT and the input port of the tester has been taken into consideration.

### Limits

No specific RF power output requirements in part 2.1046.

### Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U = 0.4$  dB.



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### Test Results

#### GSM 1900

Channel	Frequency(MHz)	RF Output Power (dBm)
512	1850.2	29.47
661	1880.0	29.63
810	1909.8	29.38

#### GSM 1900 GPRS

Channel	Frequency(MHz)	1 down 1up RF Output Power (dBm)	1 down 2up RF Output Power (dBm)
512	1850.2	29.53	27.94
661	1880.0	29.70	28.08
810	1909.8	29.45	27.85

#### GSM 1900 EGPRS

Channel	Frequency(MHz)	1 down 1up RF Output Power (dBm)	1 down 2up RF Output Power (dBm)
512	1850.2	25.61	24.23
661	1880.0	25.78	24.38
810	1909.8	25.53	24.18

#### WCDMA Band II

Channel	Frequency(MHz)	RF Output Power (dBm)
9262	1852.4	22.18
9400	1880.0	22.60
9538	1907.6	22.75

### 2.3. Effective Isotropic Radiated Power

#### Ambient condition

Temperature	Relative humidity	Pressure
24°C	50%	101.5kPa

#### Methods of Measurement

Test procedure:

The measurement was done according to TIA/EIA 603C.

Step 1:

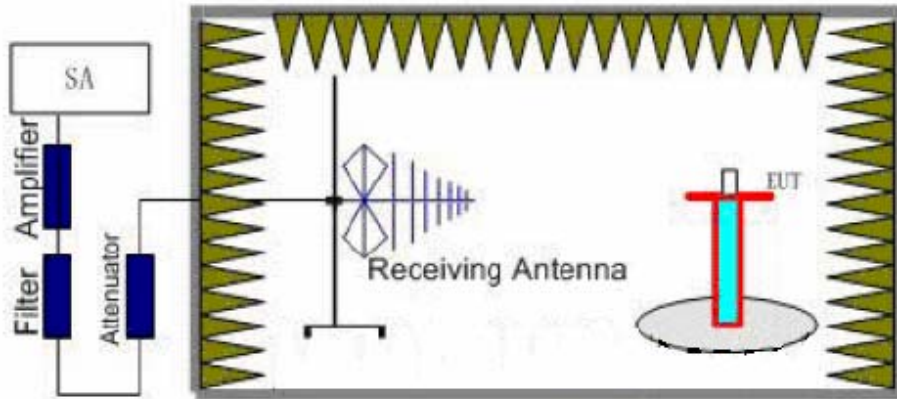
The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 0.8 meters high non-conductive table at a 3 meters test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. A radio link shall be established between EUT and Tester. The output power of the cell signal of the tester will be decreased until the output power of the EUT reach a maximum value. A peak detector is used while RBW and VBW are both set to 3MHz. During the measurement, the highest emission was recorded from analyzer power level (LVL) from the 360 degrees rotation of the turntable and the test antenna moved up and down over a range from 1 to 4 meters in both horizontally and vertically polarized orientations.

Step 2:

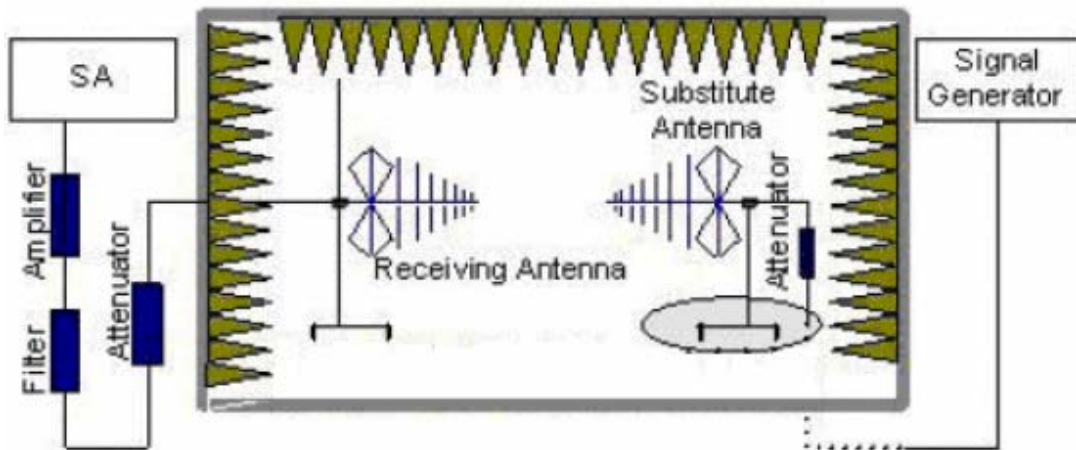
A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a known power S.G. applied through a Tx cable. Then the maximum Analyzer reading is recorded while the antenna was moving up and down. The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.

The correction factor (in dB)=S.G. - Tx Cable loss + Substitution antenna gain - Analyzer reading – 2.15. Then the EUT's E.R.P. was calculated with the correction factor, E.R.P. = LVL + Correction factor. The measurement will be conducted at three channels No.512, No.661 and No.810 of GSM 1900 and No.9262, No.9400 and No.9538of WCDMA Band II.

Test Setup



Step 1



Step 2

Limits

Rule Part 24.232(b) specifies that "Mobile/portable stations are limited to 2 watts EIRP. Peak power" and Rule Part 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage".

Limit (EIRP)	$\leq 2 \text{ W (33 dBm)}$
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Measurement Uncertainty

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U = 1.19 \text{ dB}$

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### Test Results

#### GSM 1900

Channel	Frequency (MHz)	LVL (EUT)	S.G	Gain (dBi)	Cable Loss	Pr (dBm)	Correction Factor (dBm)	EIRP (dBm)
512	1850.2	-27.02	0	1.91	14.7	-67.38	54.59	27.57
661	1880.0	-28.03	0	1.94	14.72	-68.49	55.71	27.68
810	1909.8	-29.52	0	1.90	14.77	-70.05	57.18	27.66

#### GSM 1900 GPRS(1 down 1up)

Channel	Frequency (MHz)	LVL (EUT)	S.G	Gain (dBi)	Cable Loss	Pr (dBm)	Correction Factor (dBm)	EIRP (dBm)
512	1850.2	-26.72	0	1.91	14.7	-67.38	54.59	27.87
661	1880.0	-27.73	0	1.94	14.72	-68.49	55.71	27.98
810	1909.8	-29.42	0	1.90	14.77	-70.05	57.18	27.76

#### GSM 1900 EGPRS(1 down 1up)

Channel	Frequency (MHz)	LVL (EUT)	S.G	Gain (dBi)	Cable Loss	Pr (dBm)	Correction Factor (dBm)	EIRP (dBm)
512	1850.2	-31.27	0	1.91	14.7	-67.38	54.59	23.32
661	1880.0	-32.56	0	1.94	14.72	-68.49	55.71	23.15
810	1909.8	-33.94	0	1.90	14.77	-70.05	57.18	23.24

#### WCDMA Band II

Channel	Frequency (MHz)	LVL (EUT)	S.G	Gain (dBi)	Cable Loss	Pr (dBm)	Correction Factor (dBm)	EIRP (dBm)
9262	1852.4	-34.18	0	1.91	14.7	-67.44	54.65	20.47
9400	1880.0	-34.92	0	1.94	14.72	-68.49	55.71	20.79
9538	1907.6	-36.52	0	1.90	14.77	-69.95	57.08	20.56

**2.4. Occupied Bandwidth**

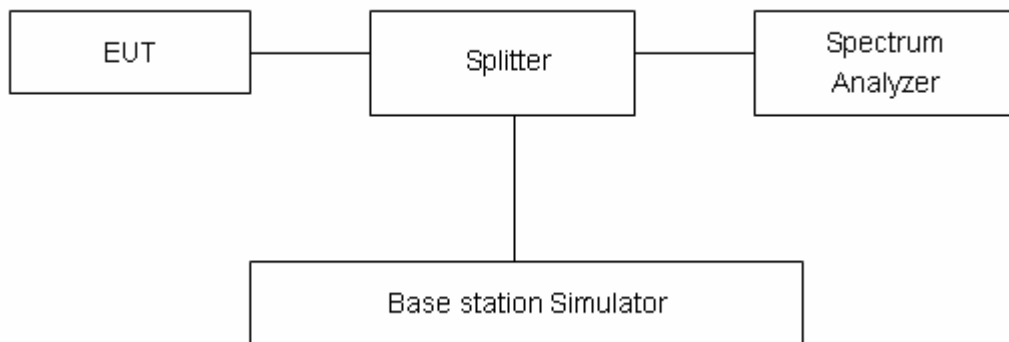
**Ambient condition**

Temperature	Relative humidity	Pressure
24°C	50%	101.5kPa

**Method of Measurement**

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The occupied bandwidth is measured using spectrum analyzer. RBW is set to 3kHz & 51kHz on spectrum analyzer. 99% power and -26dBC occupied bandwidths are recorded. Spectrum analyzer plots are included on the following pages.

**Test Setup**



**Limits**

No specific occupied bandwidth requirements in part 2.1049.

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 2$ .  $U = 624\text{Hz}$ .

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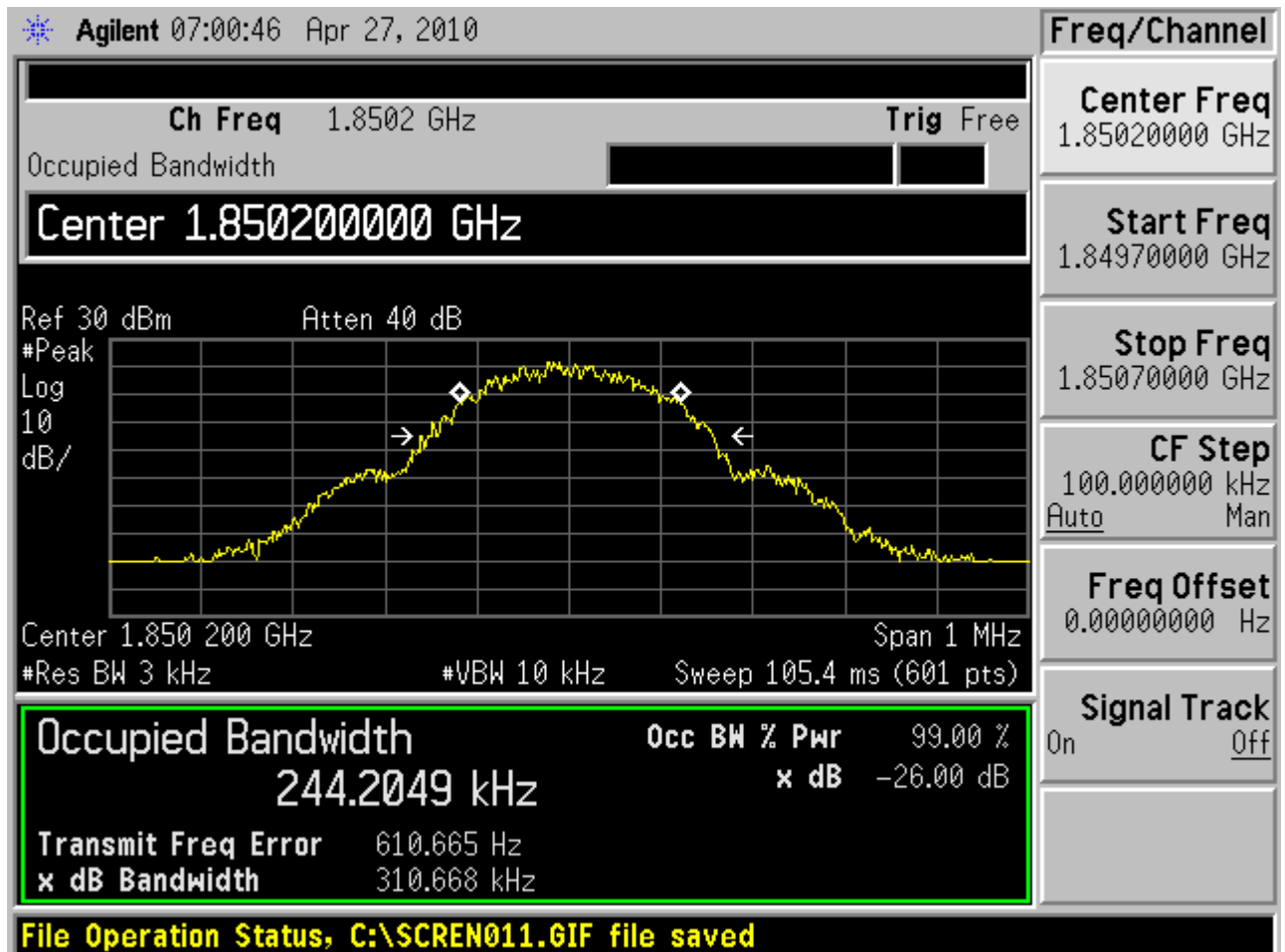
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### Test Result

GSM 1900

Channel	Frequency (MHz)	99% Power Bandwidth (kHz)	-26dBc Bandwidth(kHz)
512	1850.2	244.20	310.67
661	1880.0	246.07	311.82
810	1909.8	248.77	306.14



GSM1900 CH512 Occupied Bandwidth

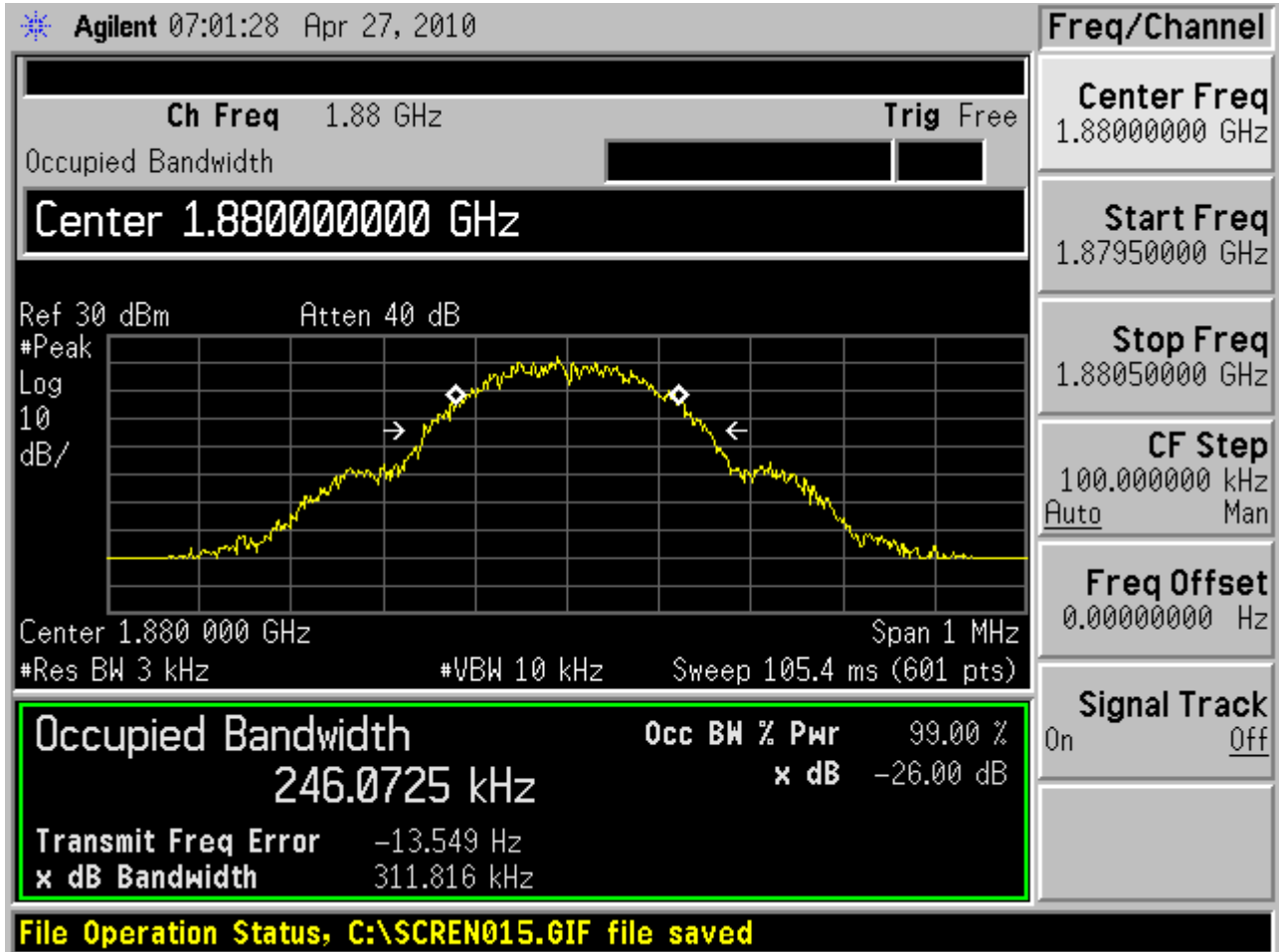
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GSM 1900 CH661 Occupied Bandwidth

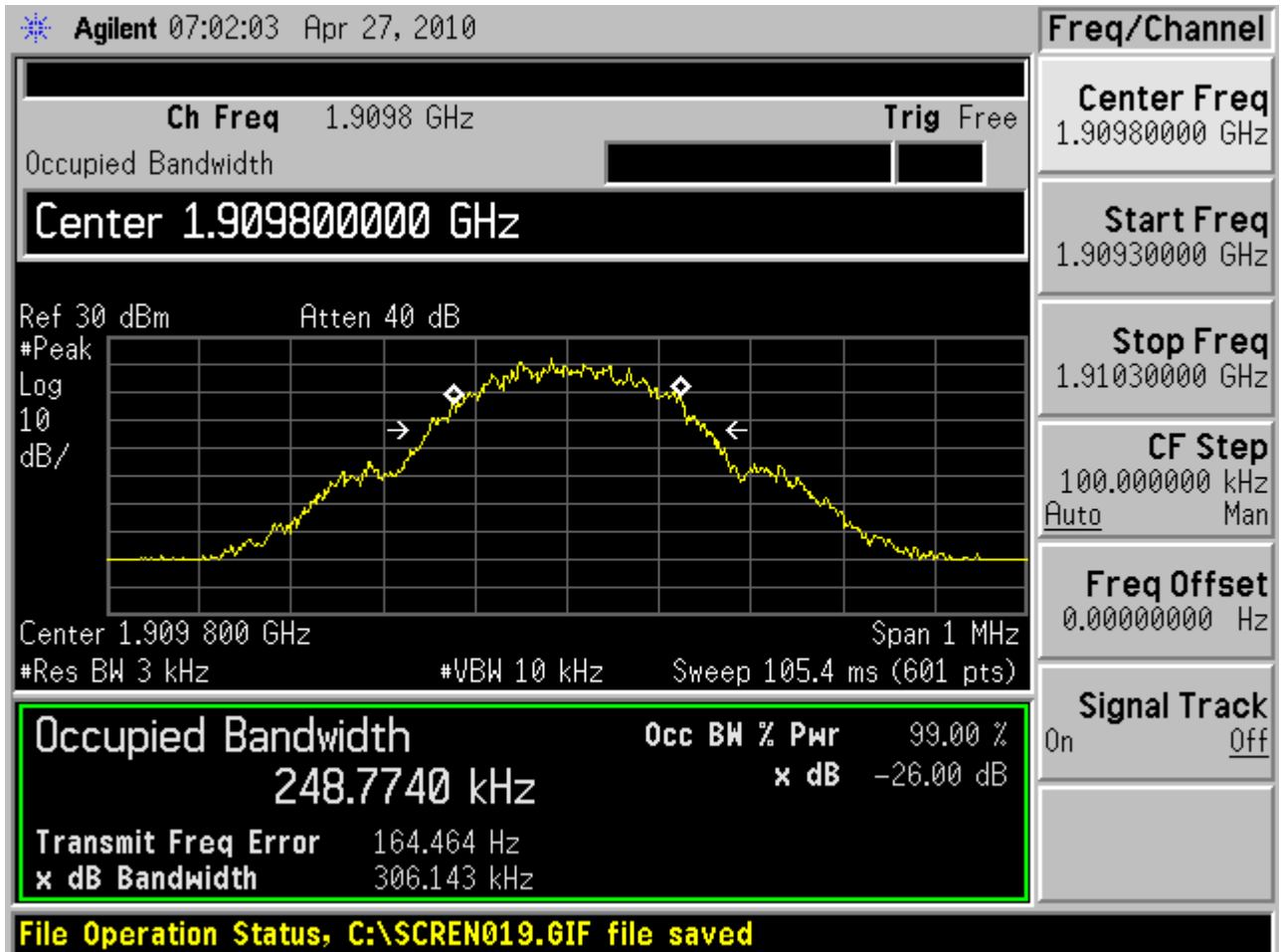
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GSM 1900 CH810 Occupied Bandwidth



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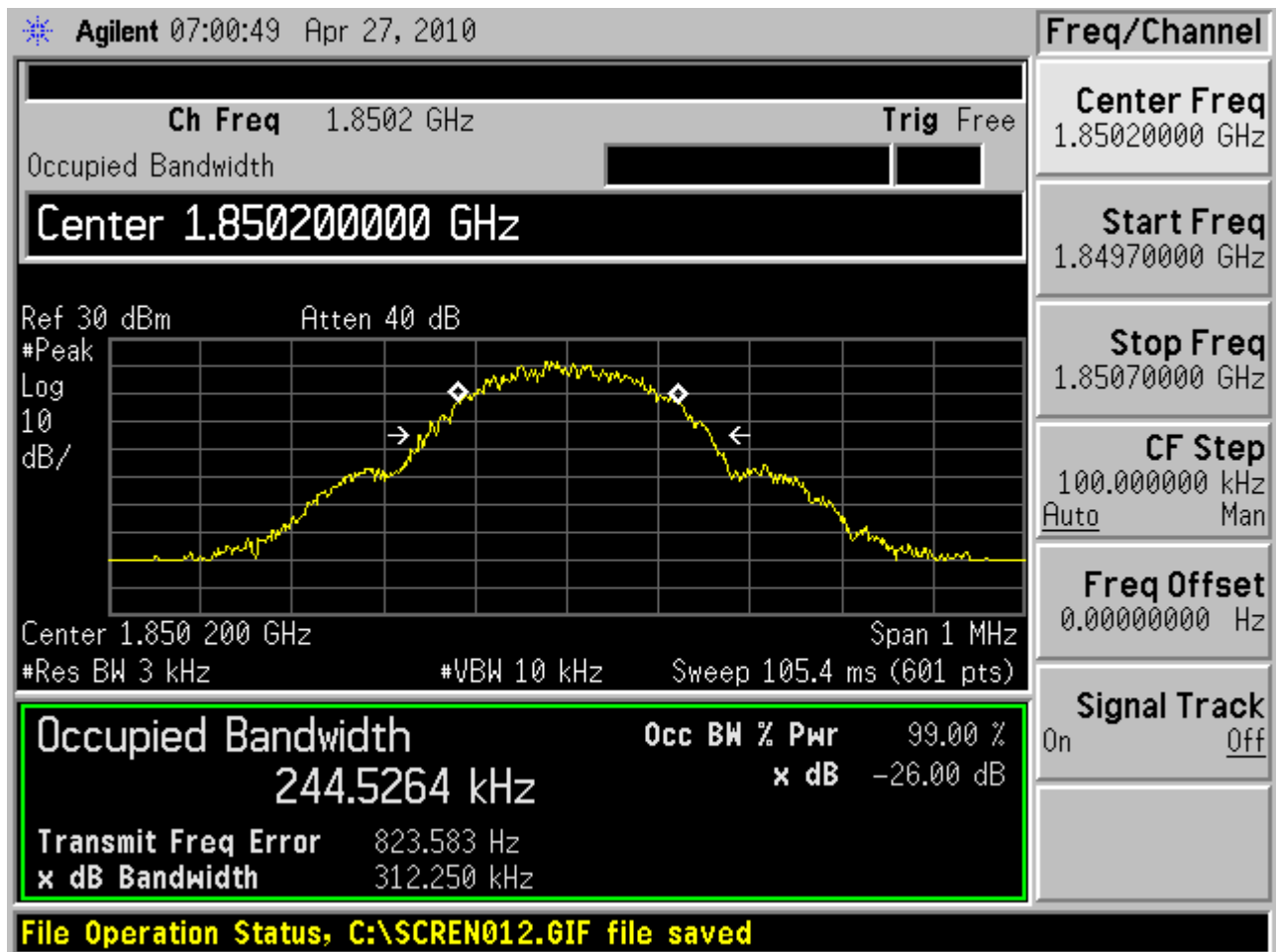
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GSM 1900 GPRS

Channel	Frequency (MHz)	99% Power Bandwidth (kHz)	-26dBc Bandwidth(kHz)
512	1850.2	244.53	312.25
661	1880.0	245.28	311.61
810	1909.8	248.71	307.17



GSM1900 GPRS CH512 Occupied Bandwidth

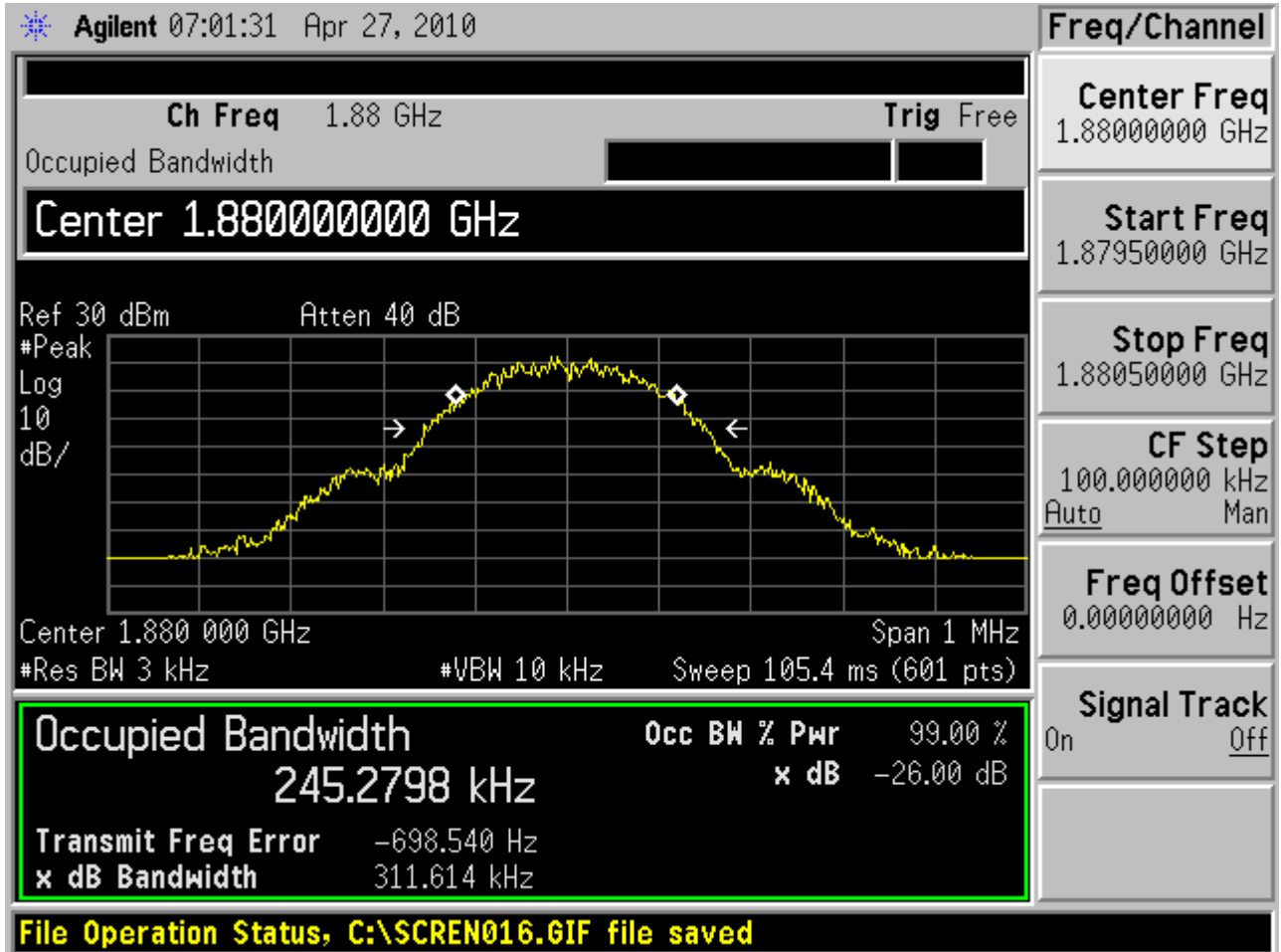
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GSM 1900 GPRS CH661 Occupied Bandwidth

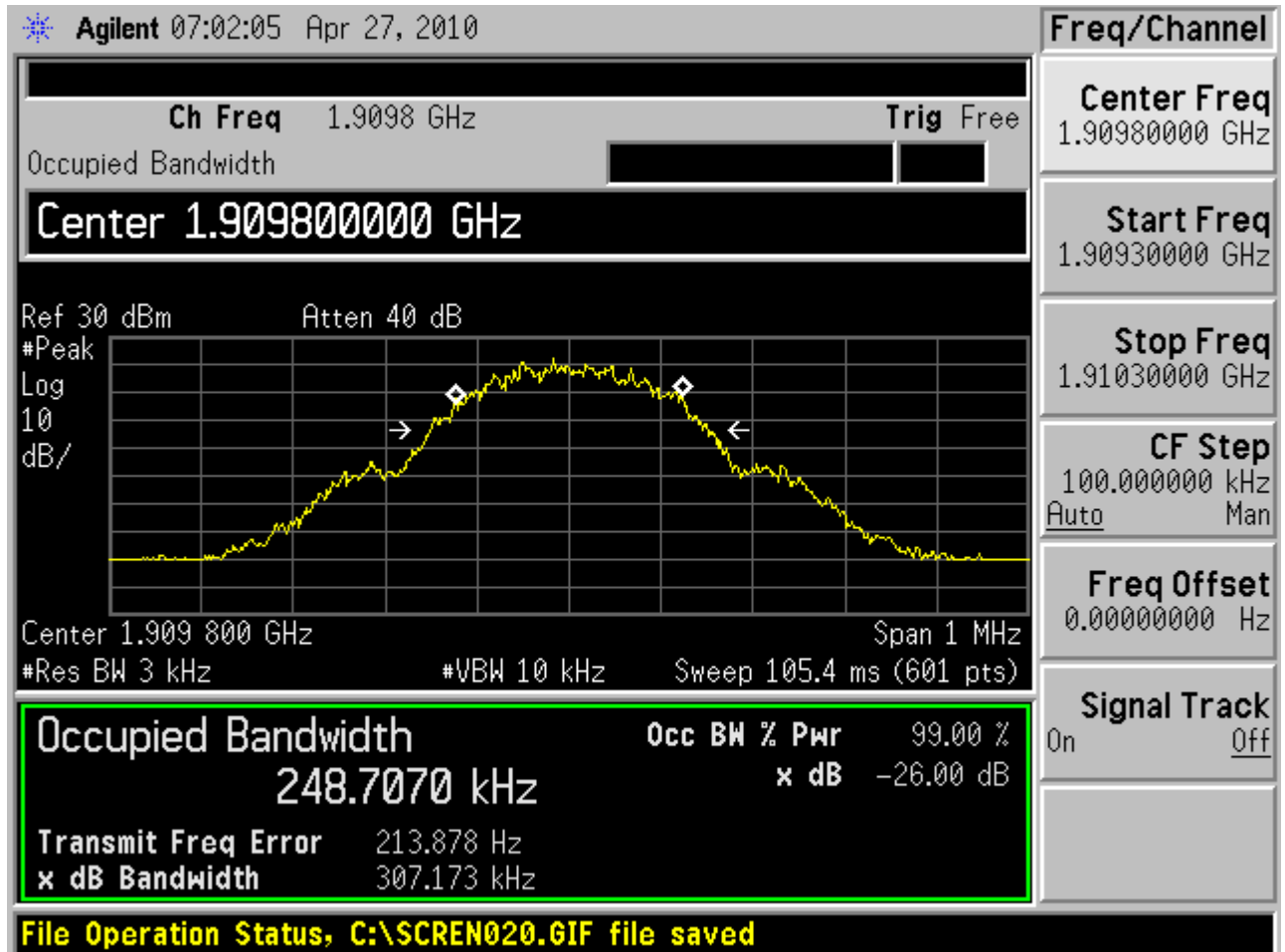
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GSM 1900 GPRS CH810 Occupied Bandwidth

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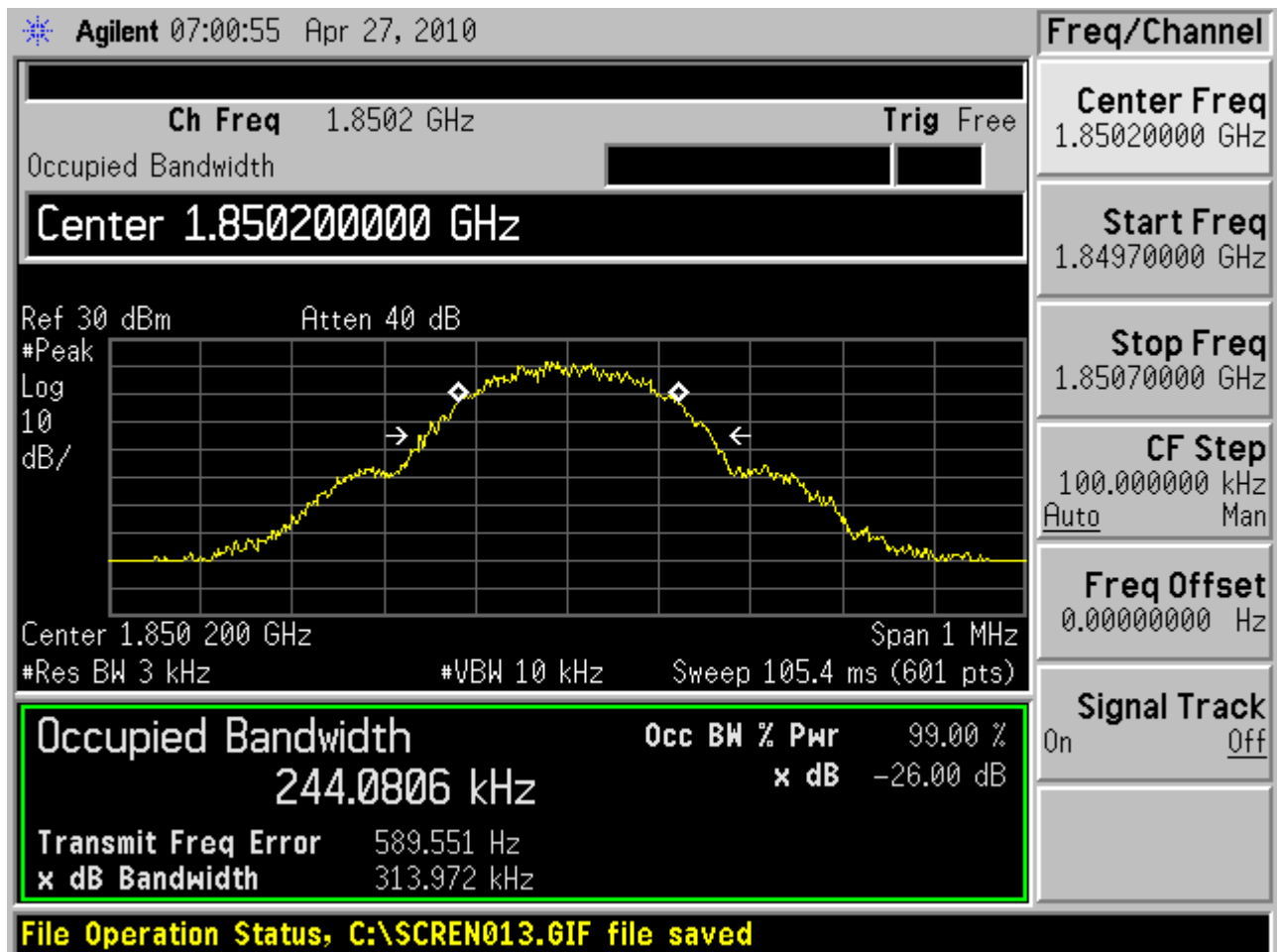
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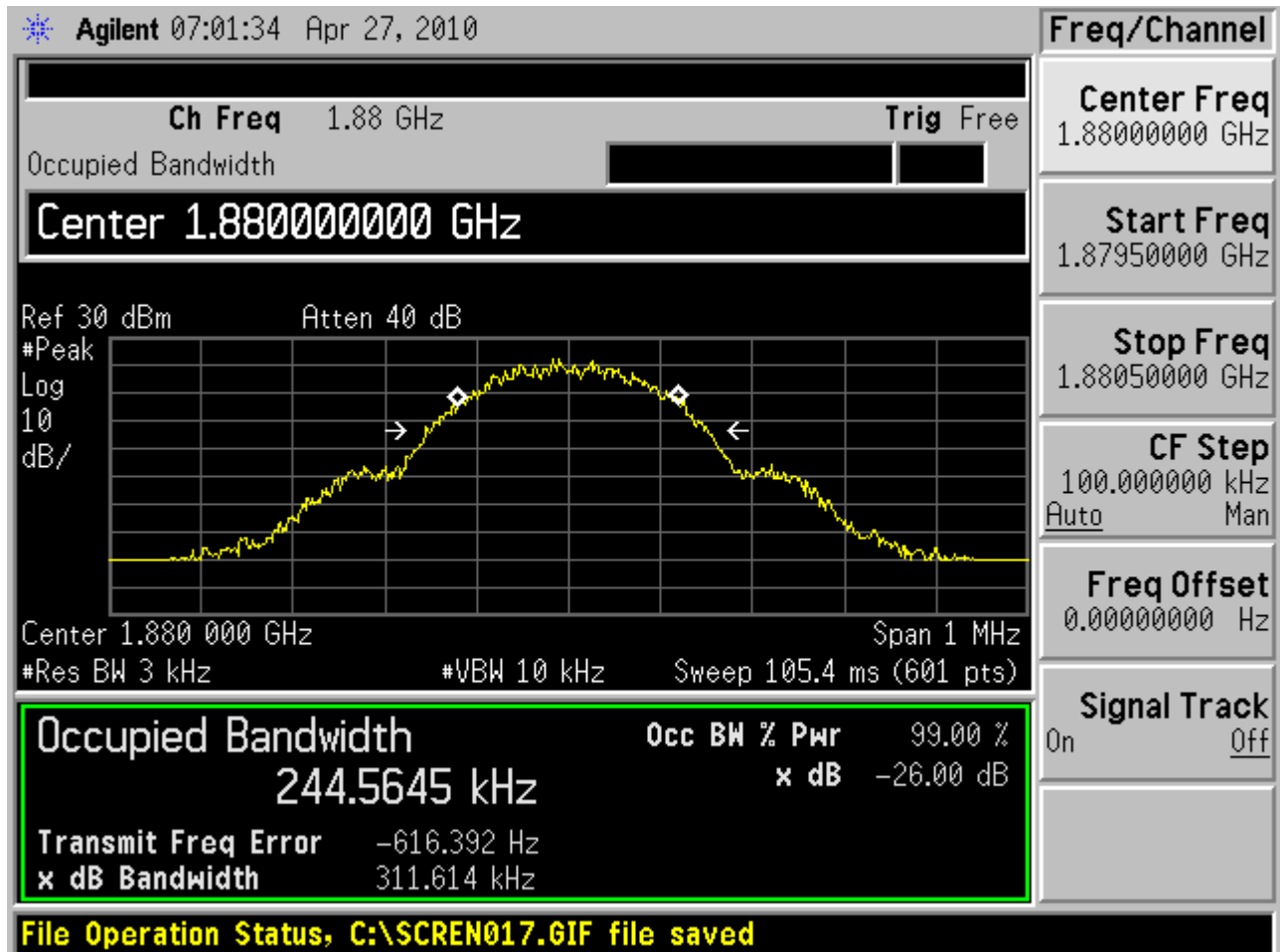
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GSM 1900 EGPRS

Channel	Frequency (MHz)	99% Power Bandwidth (kHz)	-26dBc Bandwidth(kHz)
512	1850.2	244.08	313.97
661	1880.0	244.56	311.61
810	1909.8	249.14	308.36



GSM1900 EGPRS CH512 Occupied Bandwidth



GSM 1900 EGPRS CH661 Occupied Bandwidth

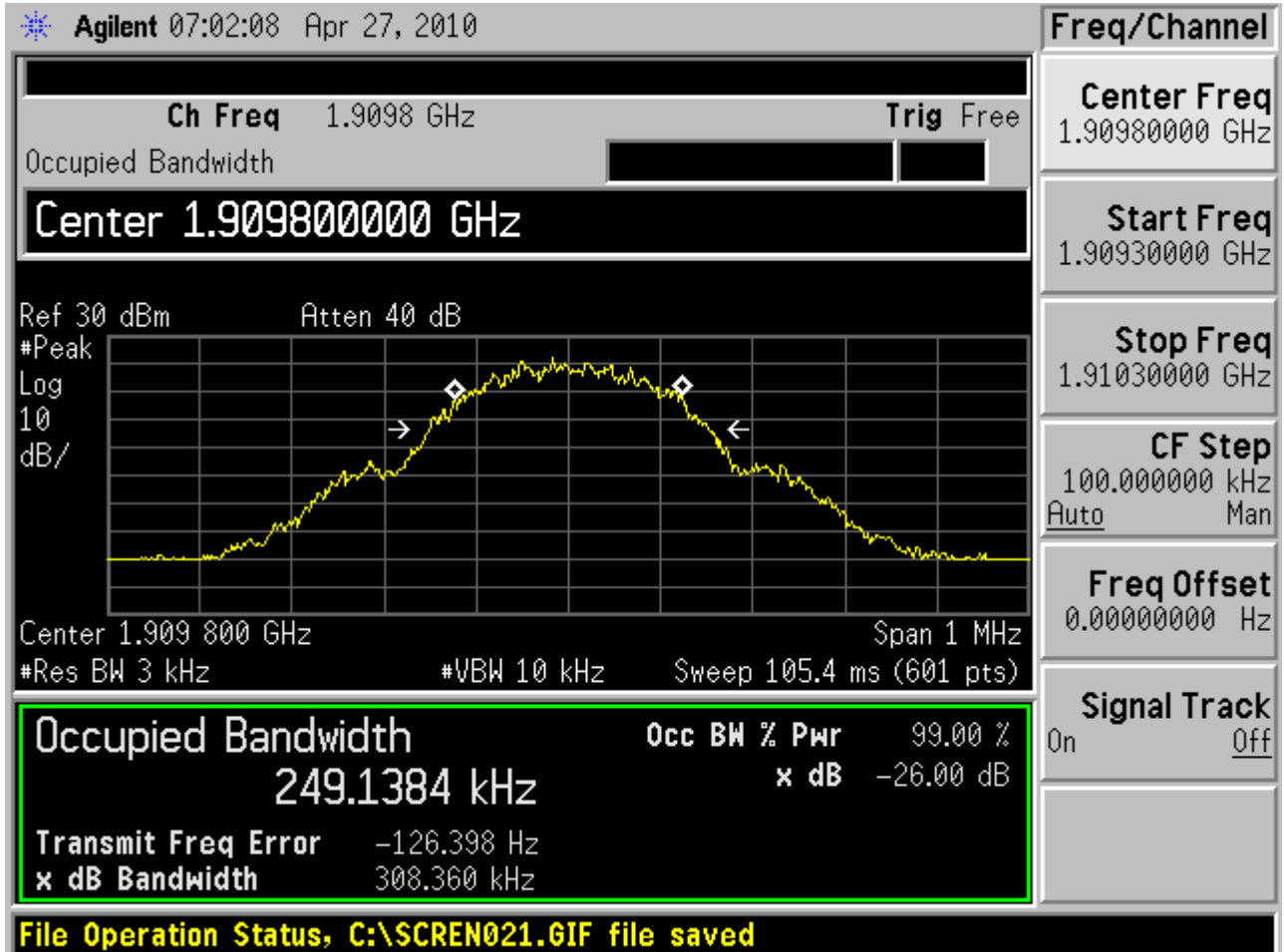
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GSM 1900 EGPRS CH810 Occupied Bandwidth

**2.5. Band Edge Compliance**

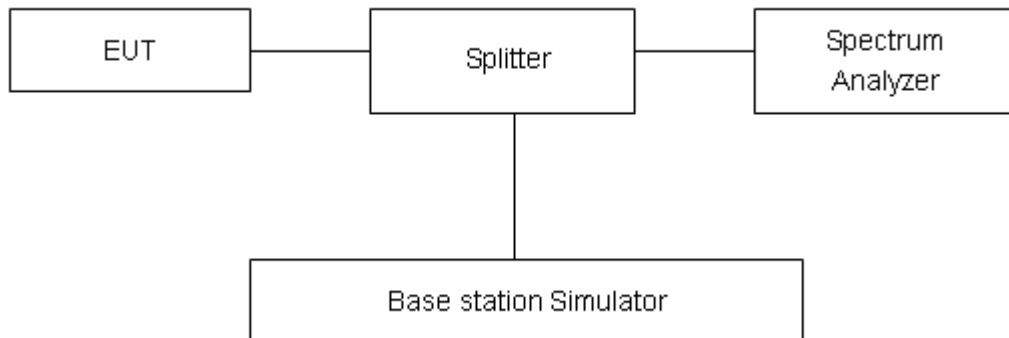
**Ambient condition**

Temperature	Relative humidity	Pressure
24°C	50%	101.5kPa

**Method of Measurement**

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The band edge of the lowest and highest channels were measured. The Average detector is used and RBW is set to 3kHz & 51 kHz on spectrum analyzer. Spectrum analyzer plots are included on the following pages.

**Test Setup**



**Limits**

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10} (P)$  dB.”

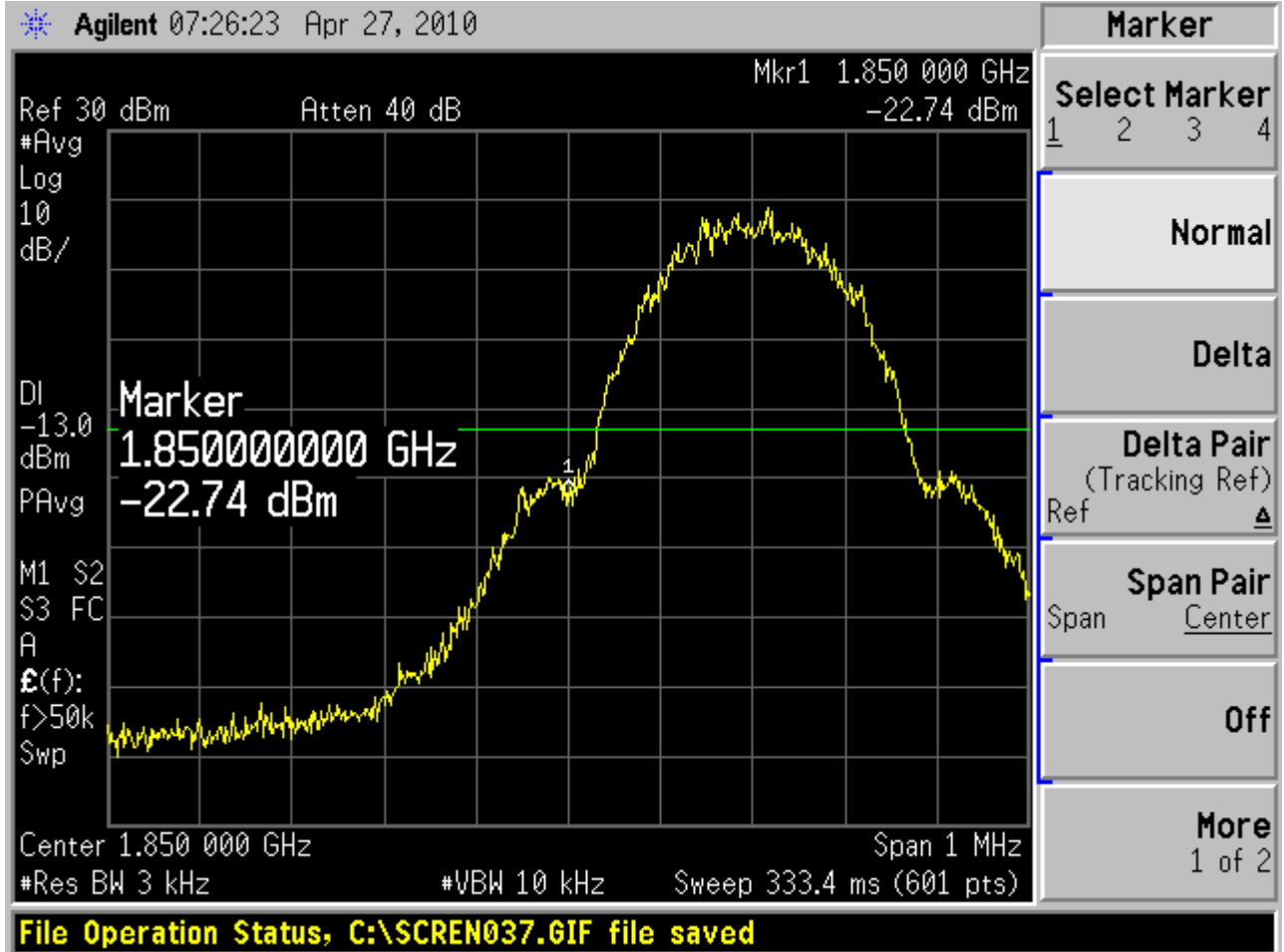
Limit	-13 dBm
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**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .  $U=0.684\text{dB}$ .

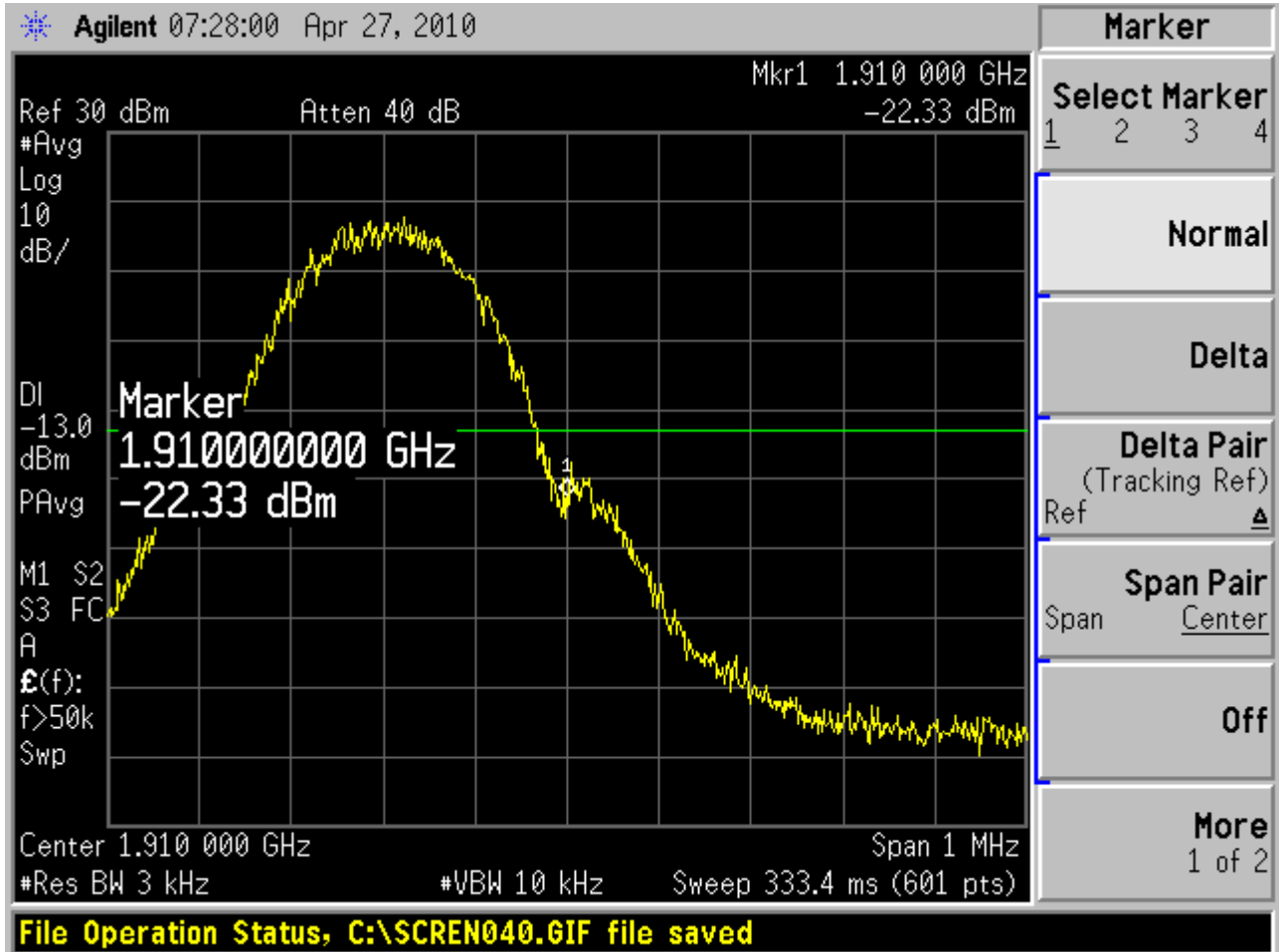
Test Result

GSM 1900



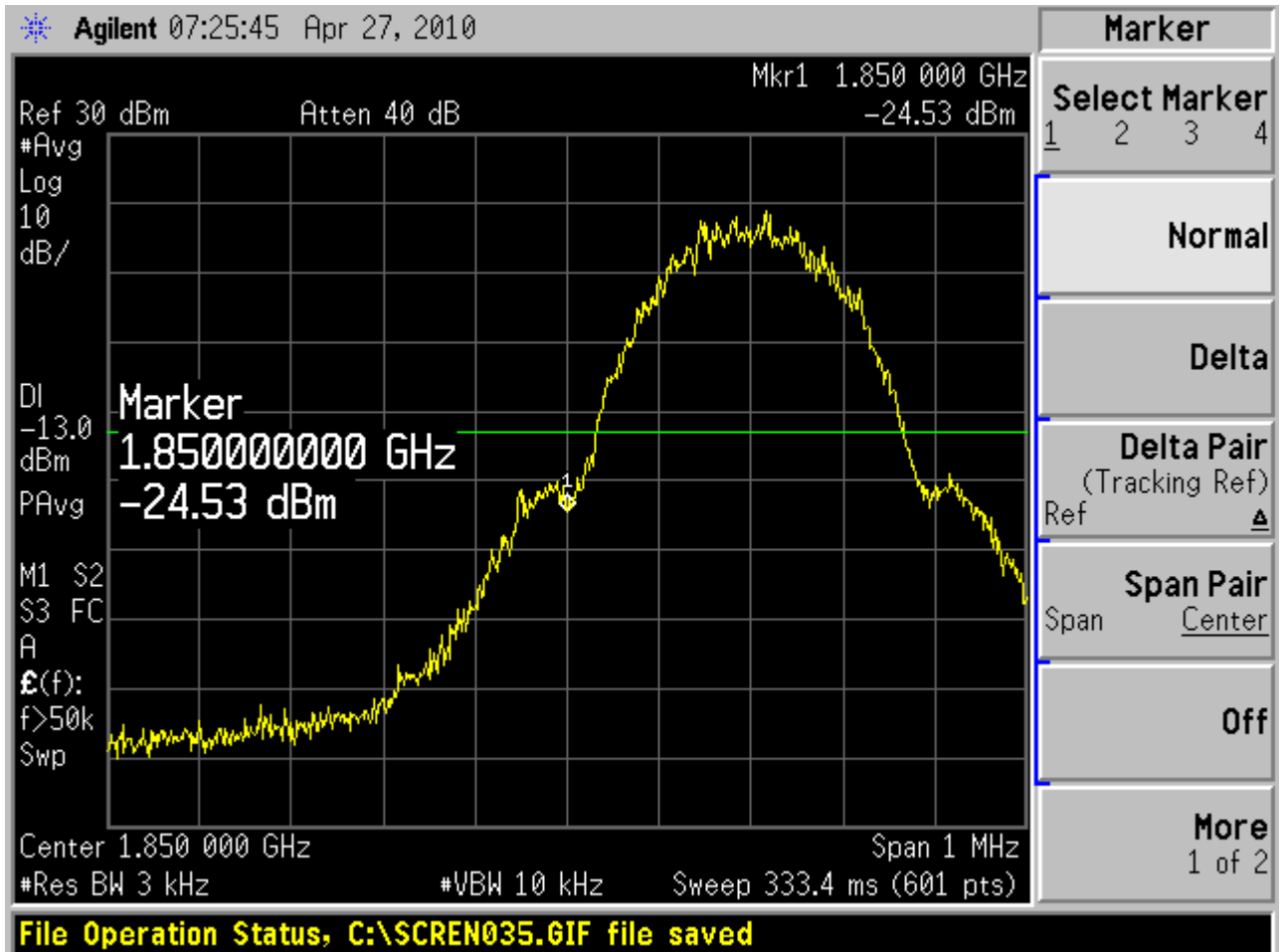
GSM 1900 512 Channel



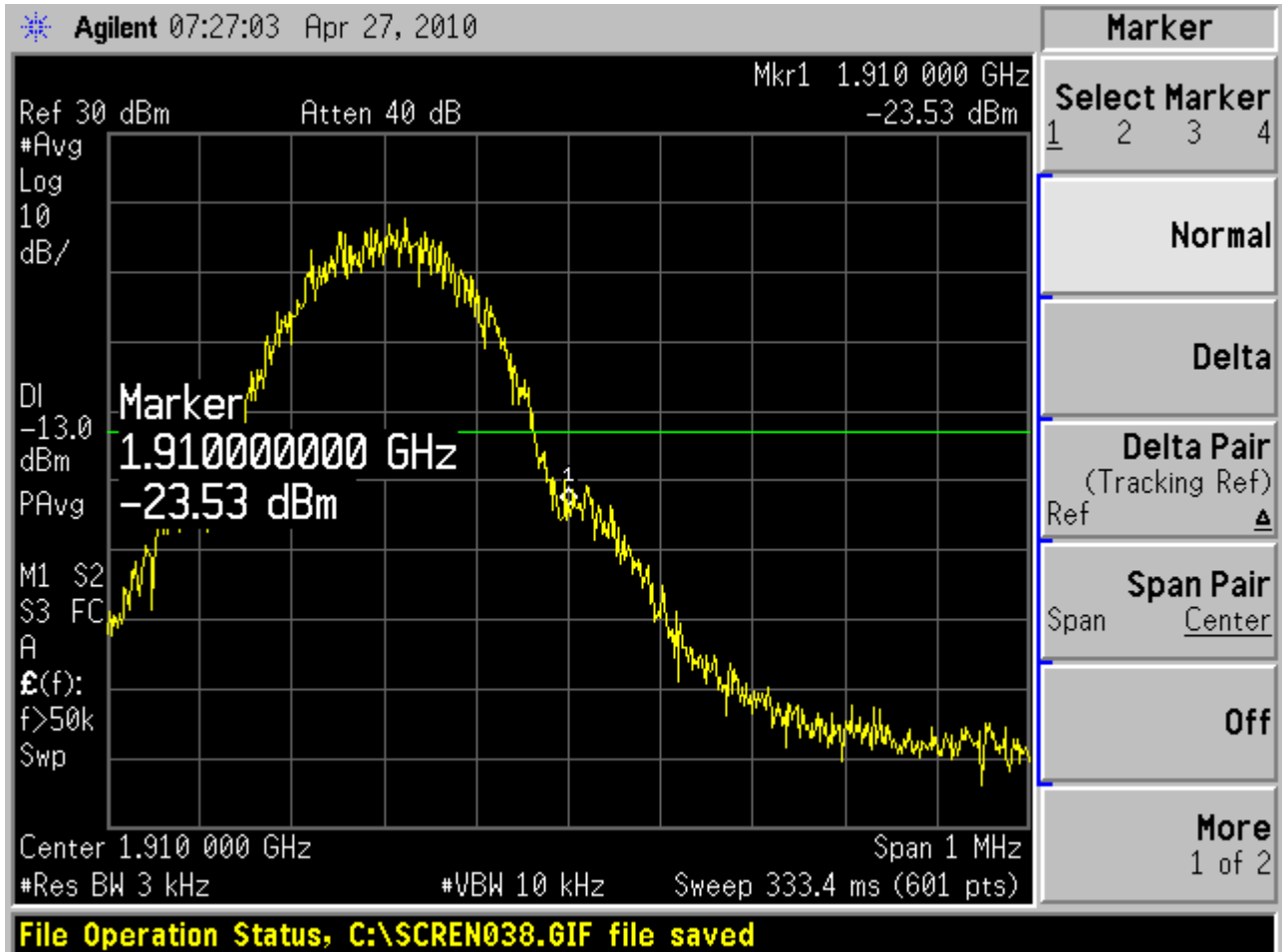


GSM1900 810 Channel

GSM 1900 GPRS



GSM 1900 GPRS 512 Channel



GSM1900 GPRS 810 Channel

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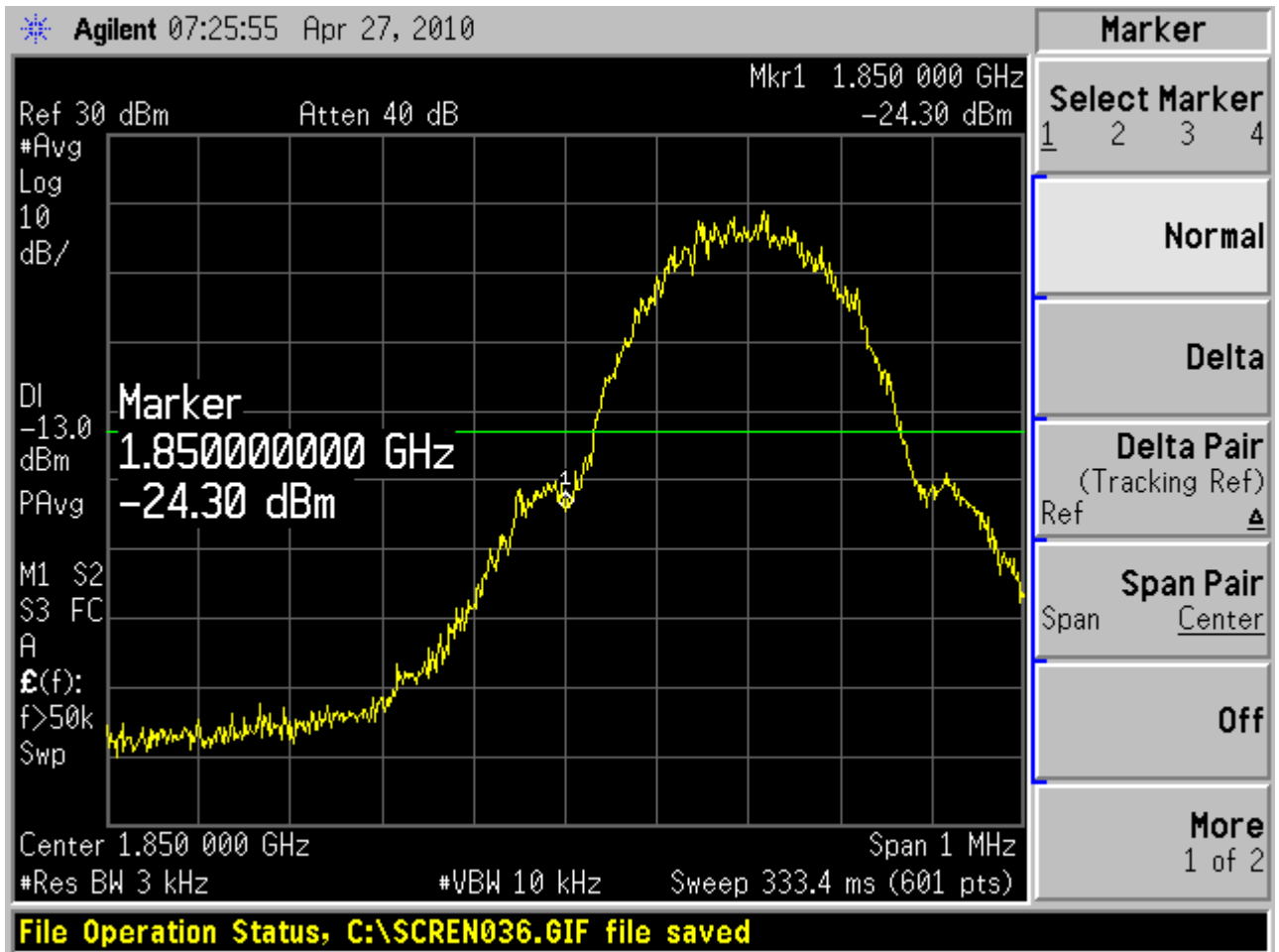
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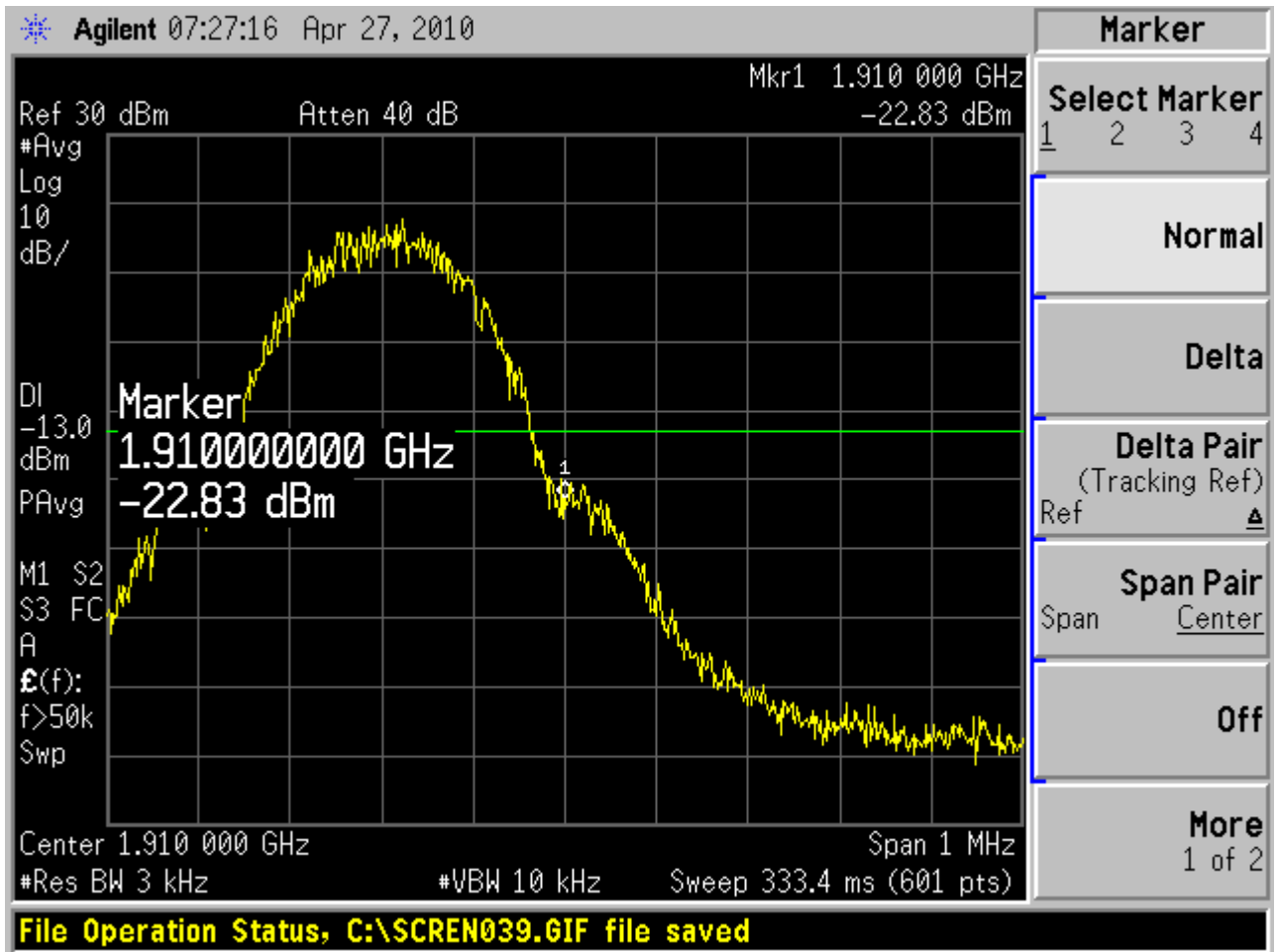
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GSM 1900 EGPRS



GSM 1900 EGPRS 512 Channel



GSM1900 EGPRS 810 Channel

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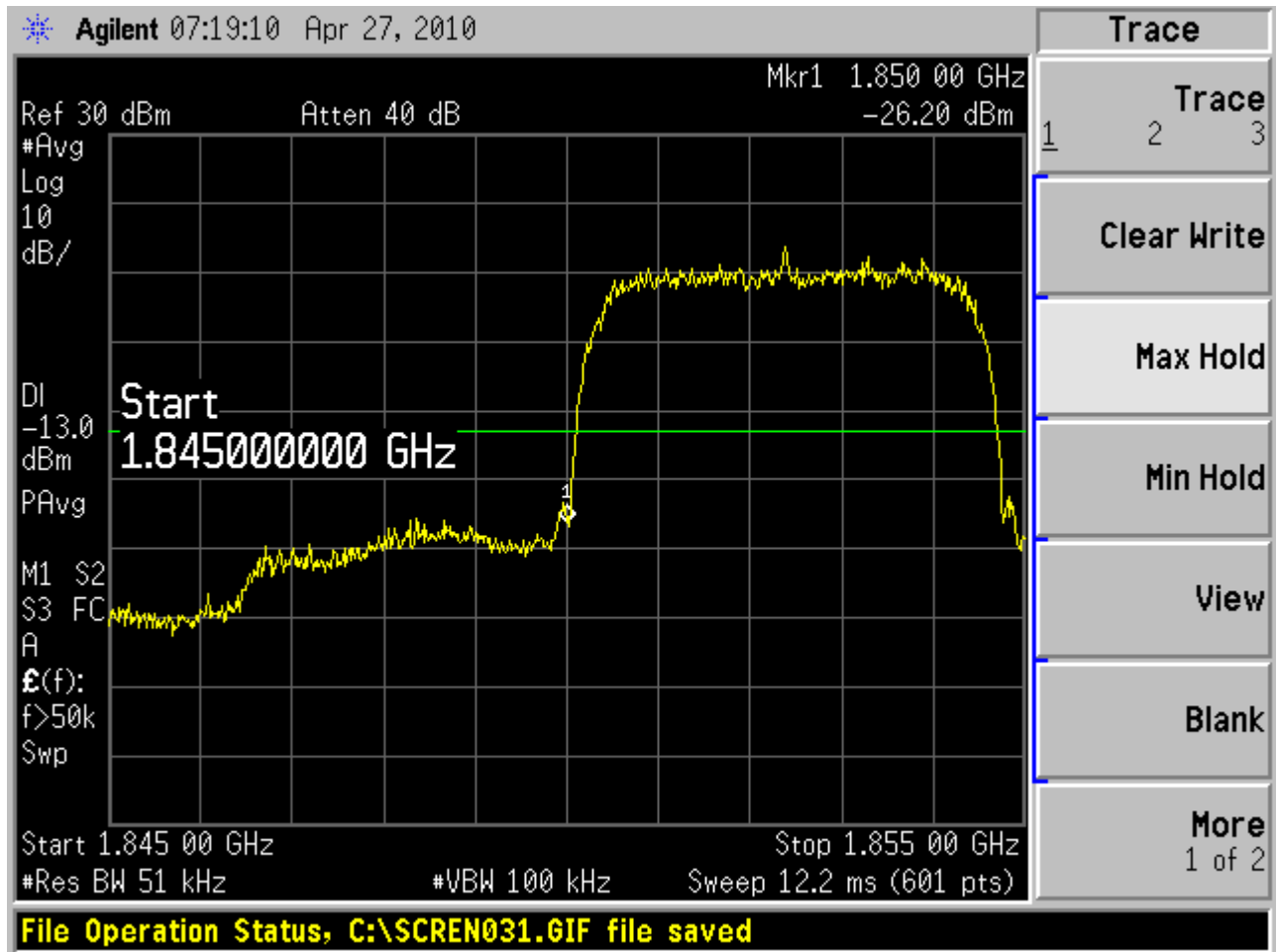
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WCDMA Band II



WCDMA Band II 9262 Channel

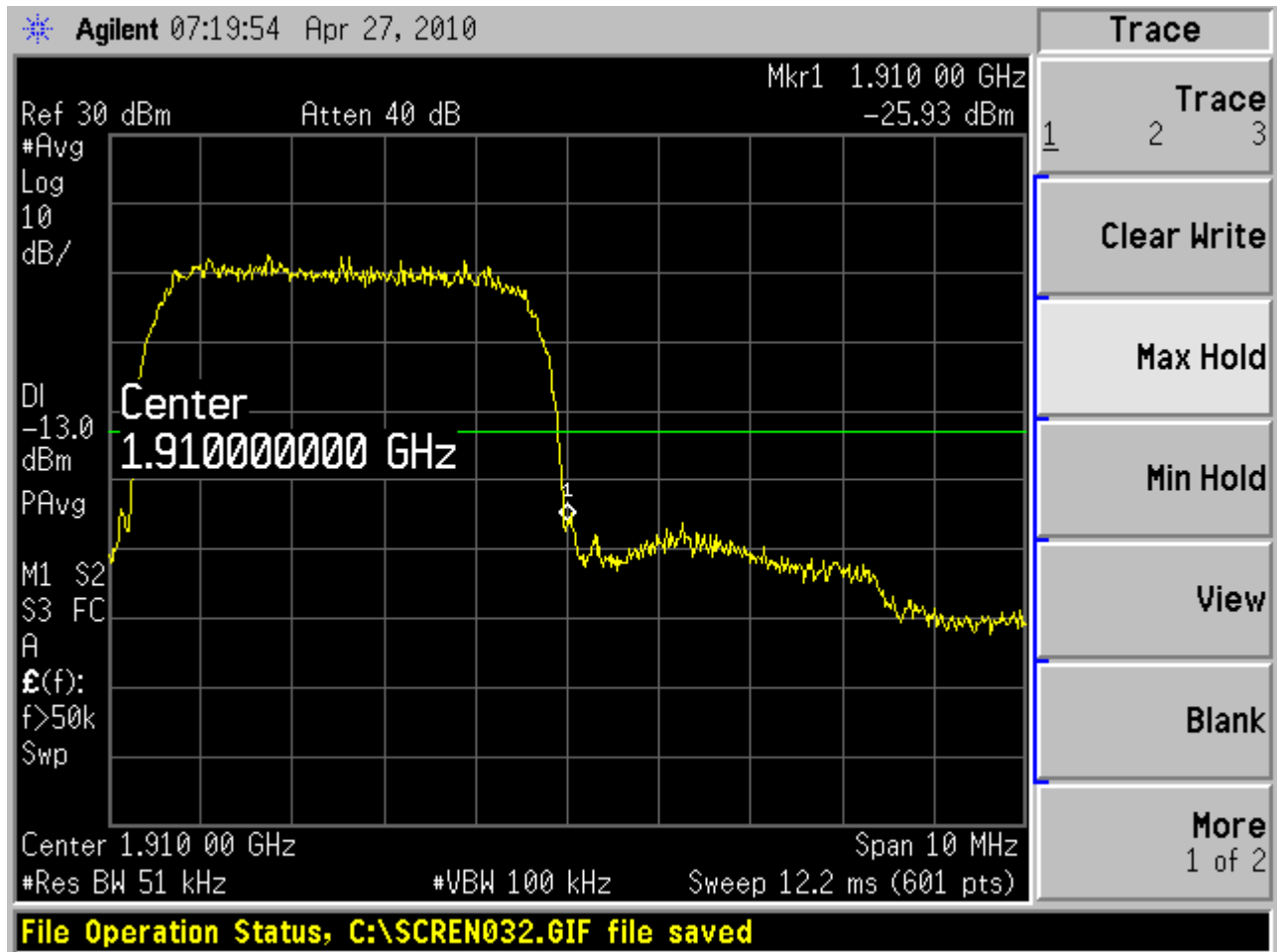
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WCDMA Band II 9538 Channel

**2.6. Frequency Stability**

**Ambient condition**

Temperature	Relative humidity	Pressure
24°C	50%	101.5kPa

**Method of Measurement**

1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -30°C to +50°C in 10°C step size,

(1) With all power removed, the temperature was decreased to -20°C and permitted to stabilize for three hours.

(2) Measure the carrier frequency with the test equipment in a “call mode”. These measurements should be made within 1 minute of powering up the mobile station, to prevent significant self warming.

(3) Repeat the above measurements at 10°C increments from -30°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

2. Frequency Stability (Voltage Variation)

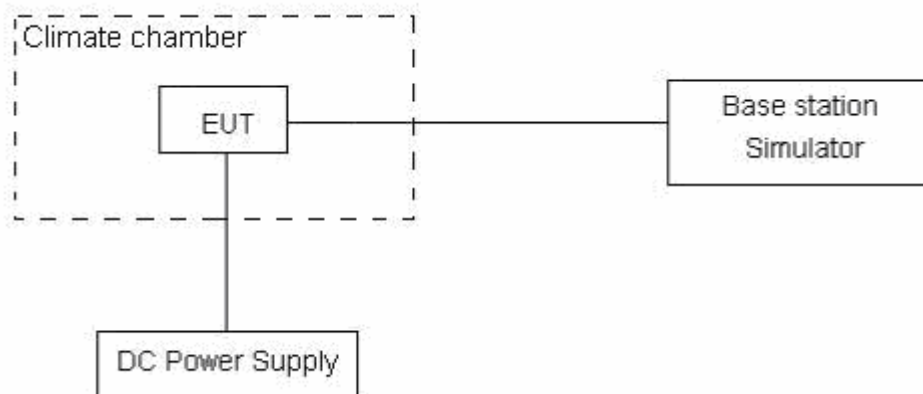
The frequency stability shall be measured with variation of primary supply voltage as follows:

(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

(2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery-operating end point which shall be specified by the manufacturer.

This transceiver is specified to operate with an input voltage of between 4.75 V and 5.25 V, with a nominal voltage of 5V.

**Test setup**





**Limits**

No specific frequency stability requirements in part 24.235

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 3$ .  $U = 0.01\text{ppm}$ .

**Test Result**

Temperature (° C)	Test Results (ppm) / 5 V Power supply
	GSM 1900 Channel 661
-30	0.026
-20	0.019
-10	0.015
0	0.036
10	0.023
20	0.023
30	0.018
40	0.034
50	0.039

Voltage (V)	Test Results(ppm) / 20° C
	Channel 661
4.75	0.039
5	0.023
5.25	0.044

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Temperature (° C)	Test Results (ppm) / 5 V Power supply
	WCDMA Band II Channel 9400
-30	0.039
-20	0.036
-10	0.034
0	0.027
10	0.019
20	0.019
30	0.016
40	0.041
50	0.036

Voltage (V)	Test Results(ppm) / 20° C
	WCDMA Band II Channel 9400
4.75	0.039
5	0.019
5.25	0.016

**2.7. Spurious Emissions at Antenna Terminals**

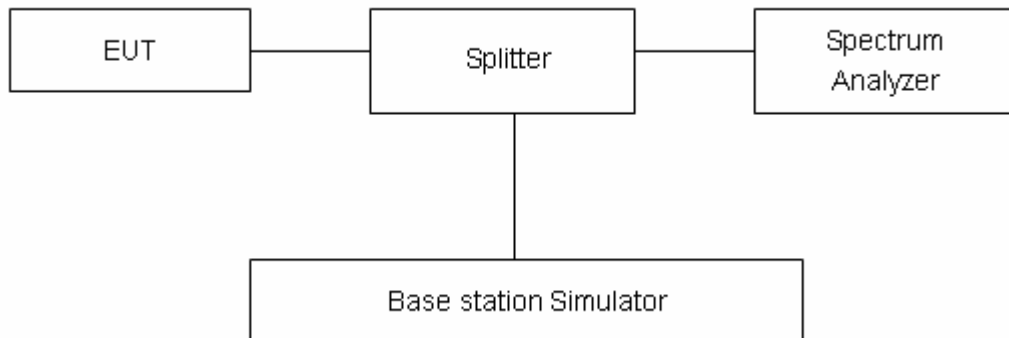
**Ambient condition**

Temperature	Relative humidity	Pressure
24°C	50%	101.5kPa

**Method of Measurement**

The EUT was connected to Spectrum Analyzer and Base Station Simulator via power Splitter. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to the 10th harmonic of the carrier. The peak detector is used and RBW is set to 1MHz on spectrum analyzer.

**Test setup**



**Limits**

Rule Part 24.238(a) specifies that “on any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10} (P)$  dB.”

Limit	-13 dBm
-------	---------

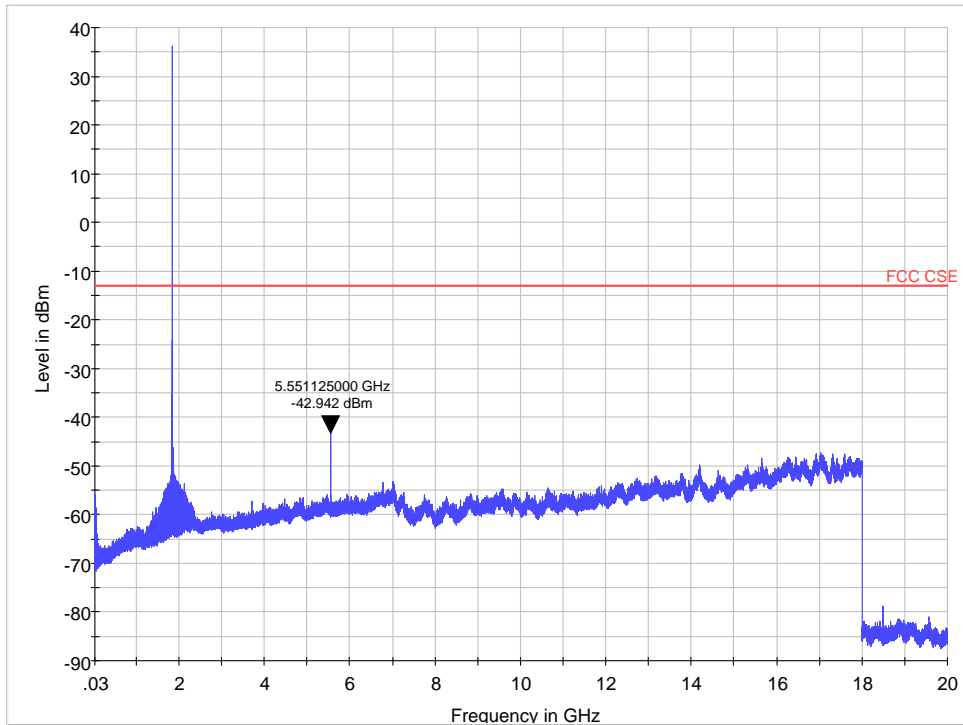
**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 99.75% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .

Frequency	Uncertainty
100kHz-2GHz	0.684 dB
2GHz-12.75GHz	1.407 dB

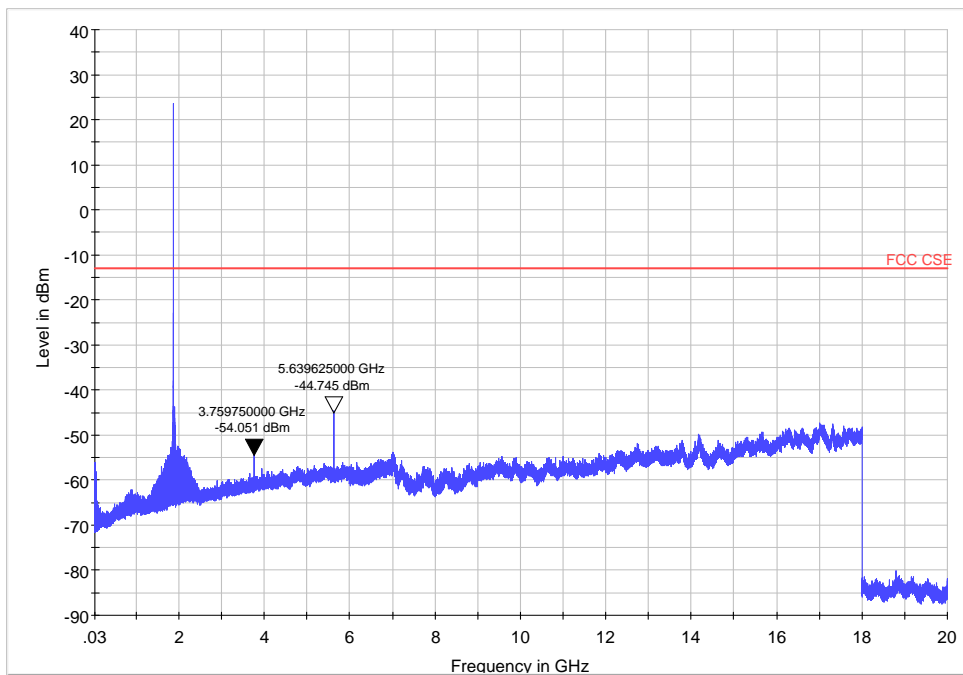
Test Result

GSM 1900 GPRS CH512



Note: The signal beyond the limit is carrier.  
GSM 1900 GPRS 512 Channel 30MHz~20GHz

GSM 1900 GPRS CH661



Note: The signal beyond the limit is carrier.  
GSM 1900 GPRS CH661 Channel 30MHz~20GHz

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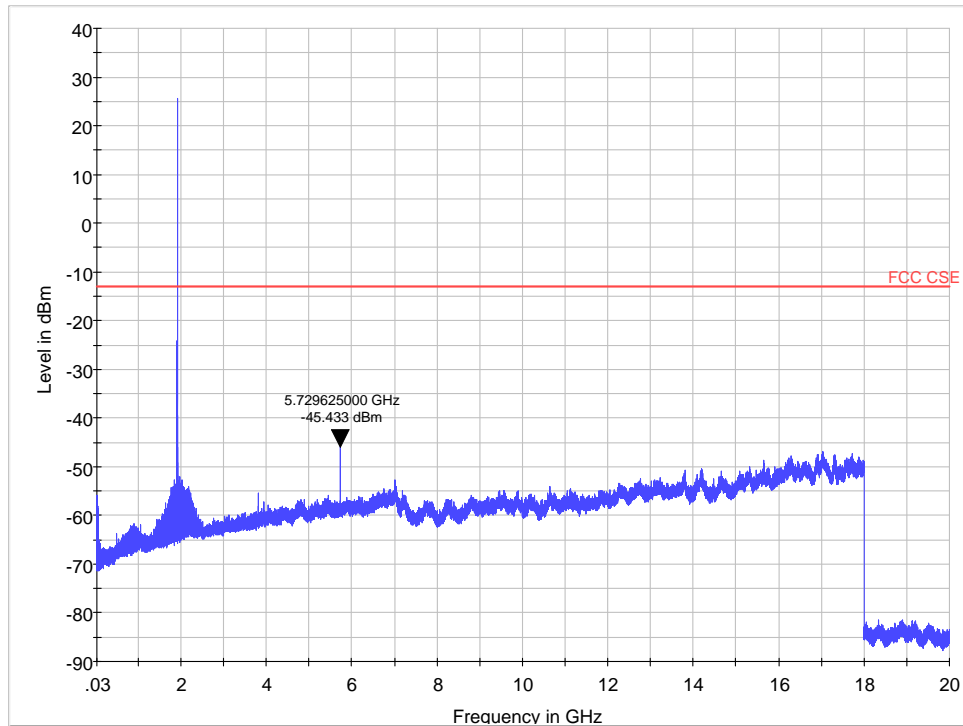
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GSM 1900 GPRS CH810



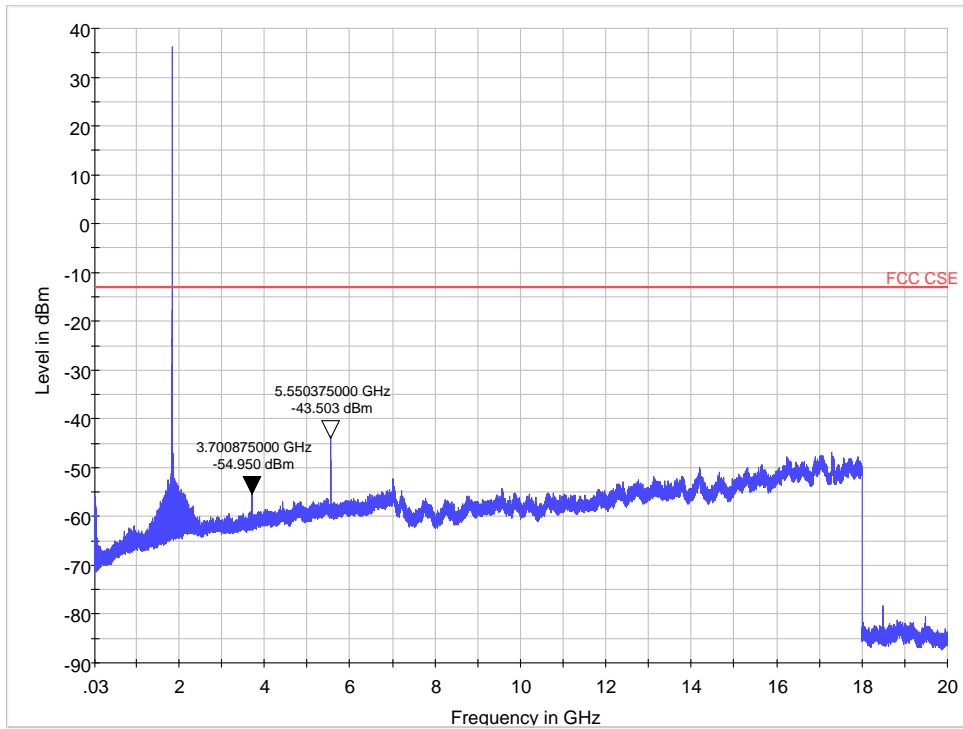
Note: The signal beyond the limit is carrier.

GSM 1900 GPRS 810 Channel 30MHz~20GHz

Harmonic	TX ch.512 Frequency (MHz)	Level (dBm)	TX ch.661 Frequency (MHz)	Level (dBm)	TX ch.810 Frequency (MHz)	Level (dBm)
2	3700.125	nf	3760.125	-54.051	3819.375	nf
3	5550.6	-42.942	5640	-44.745	5729.25	-45.433
4	7400.8	nf	7520	nf	7639.2	nf
5	9251.0	nf	9400	nf	9549.0	nf
6	11101.2	nf	11280	nf	11458.8	nf
7	12951.4	nf	13160	nf	13368.6	nf
8	14801.6	nf	15040	nf	15278.4	nf
9	1651.8	nf	16920	nf	17188.2	nf
10	18502.5	nf	18800.5	nf	19097.25	nf

nf: noise floor

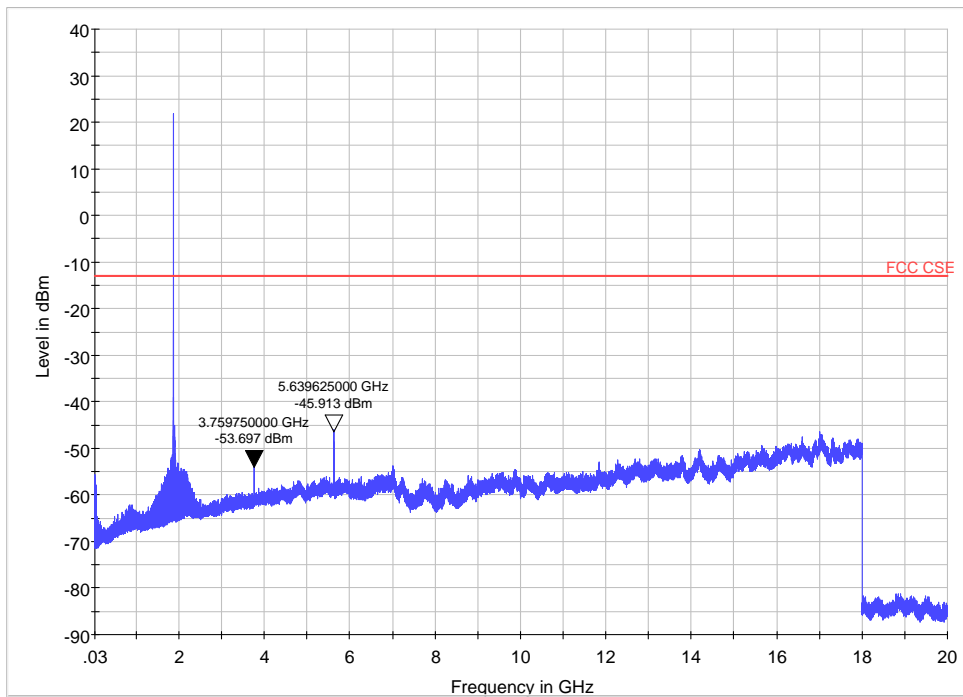
GSM 1900 EGPRS CH512



Note: The signal beyond the limit is carrier.

GSM 1900 EGPRS 512 Channel 30MHz~20GHz

GSM 1900 EGPRS CH661



Note: The signal beyond the limit is carrier.

GSM 1900 EGPRS CH661 Channel 30MHz~20GHz

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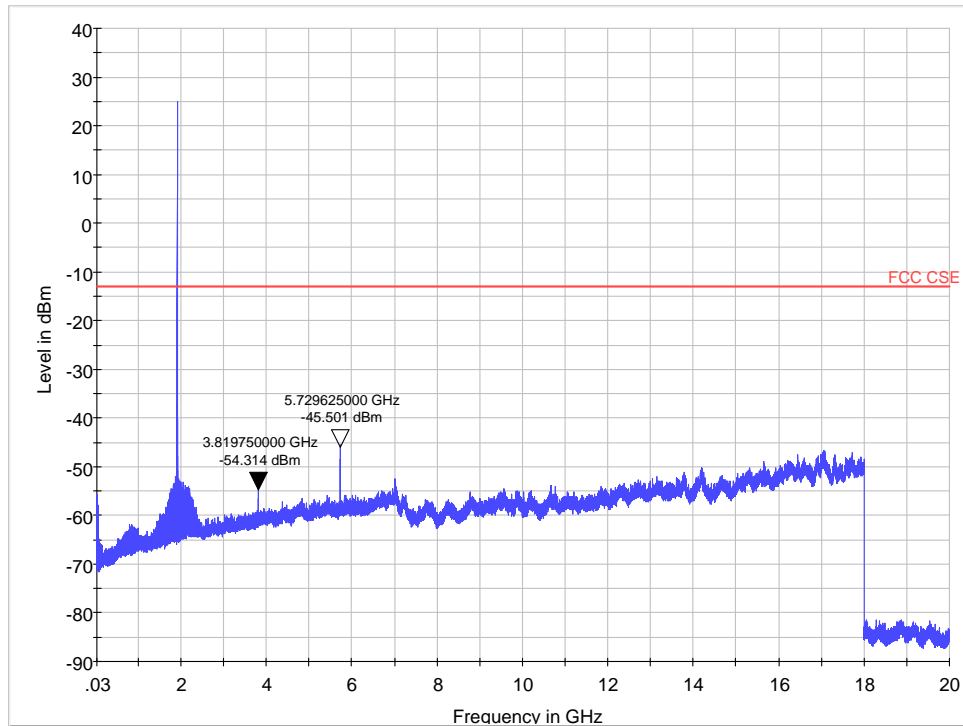
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### GSM 1900 EGPRS CH810



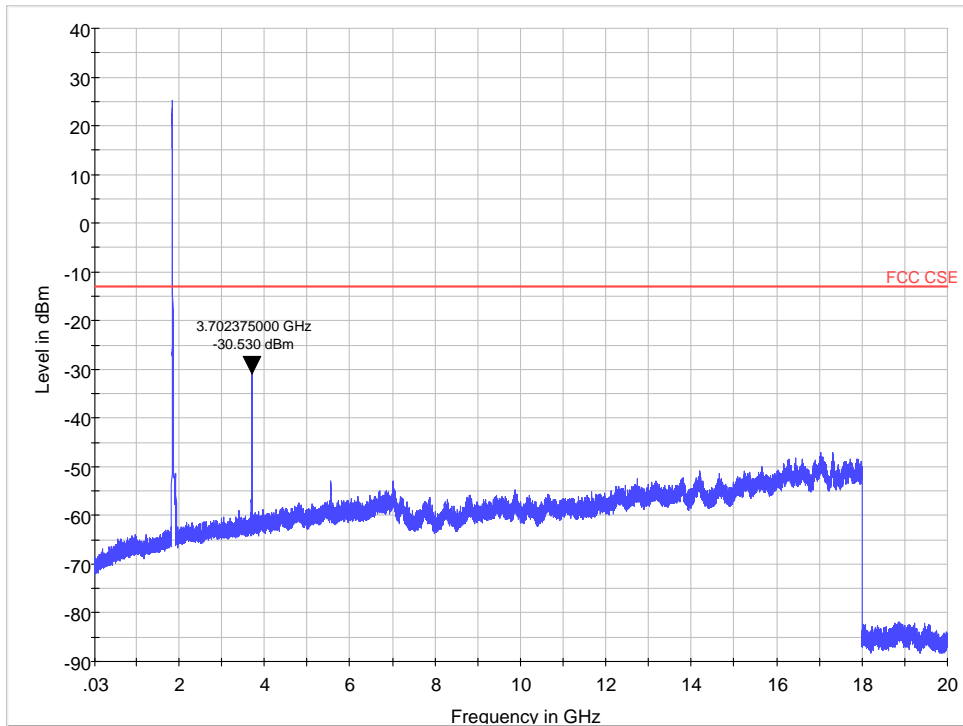
Note: The signal beyond the limit is carrier.

#### GSM 1900 EGPRS CH810 Channel 30MHz~20GHz

Harmonic	TX ch.512 Frequency (MHz)	Level (dBm)	TX ch.661 Frequency (MHz)	Level (dBm)	TX ch.810 Frequency (MHz)	Level (dBm)
2	3700.125	-54.95	3760.125	-53.697	3819.375	54.314
3	5550.6	-43.503	5640	-45.913	5729.25	-45.501
4	7400.8	nf	7520	nf	7639.2	nf
5	9251.0	nf	9400	nf	9549.0	nf
6	11101.2	nf	11280	nf	11458.8	nf
7	12951.4	nf	13160	nf	13368.6	nf
8	14801.6	nf	15040	nf	15278.4	nf
9	1651.8	nf	16920	nf	17188.2	nf
10	18502.5	nf	18800.5	nf	19097.25	nf

nf: noise floor

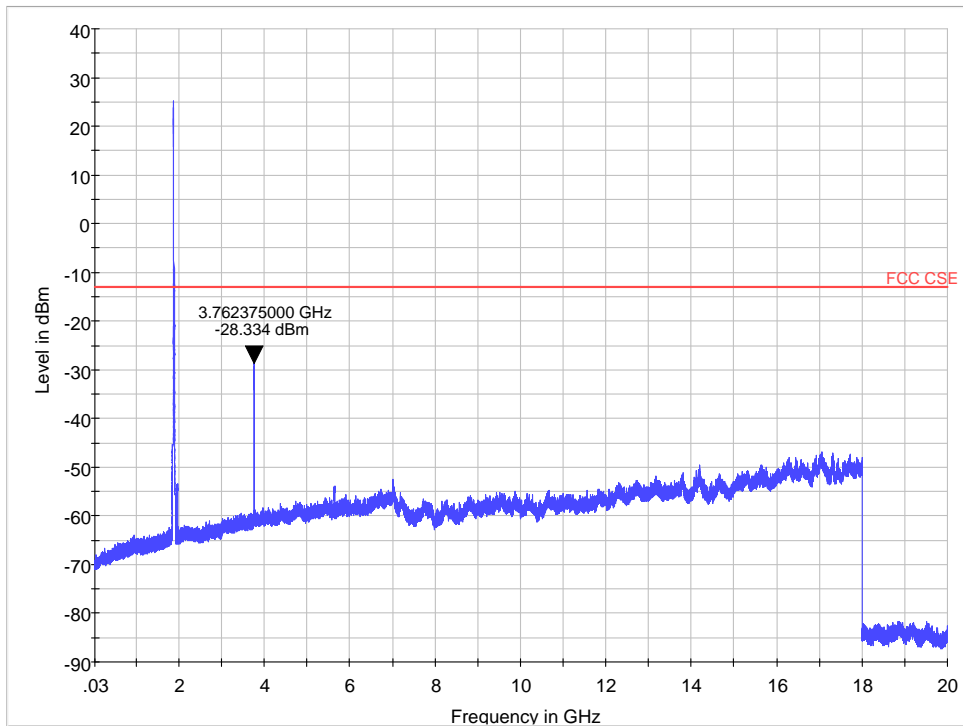
WCDMA Band II CH9262



Note: The signal beyond the limit is carrier.

WCDMA Band II CH9262 Channel 30MHz~20GHz

WCDMA Band II CH9400



Note: The signal beyond the limit is carrier.

WCDMA Band II CH9400 Channel 30MHz~20GHz



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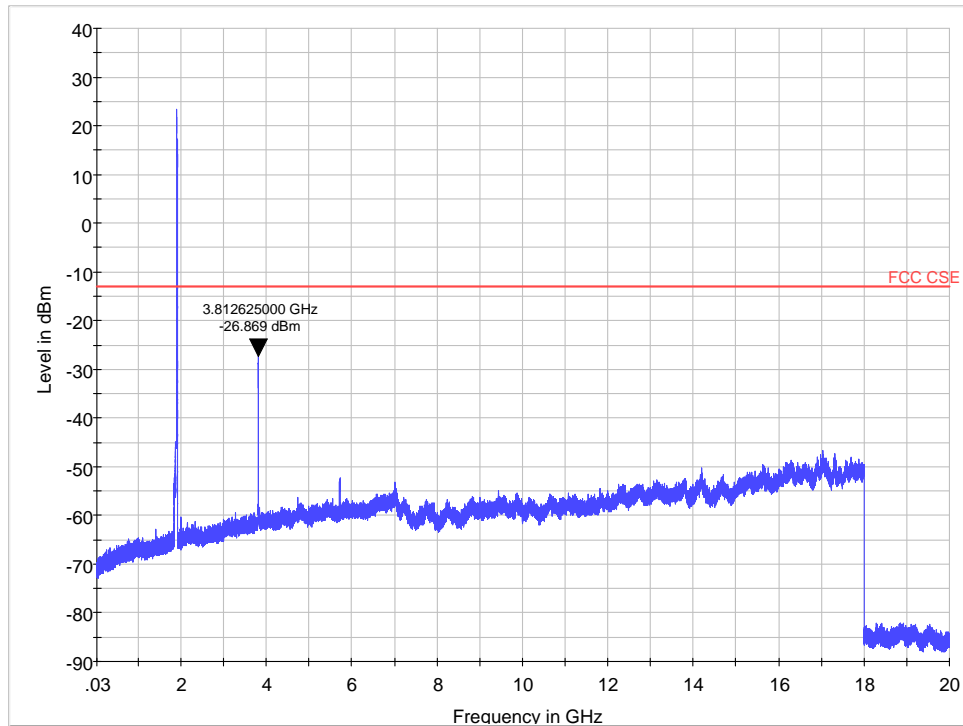
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WCDMA Band II CH9538



Note: The signal beyond the limit is carrier.

WCDMA Band II CH9538 Channel 30MHz~20GHz

Harmonic	TX ch.9262 Frequency (MHz)	Level (dBm)	TX ch.9400 Frequency (MHz)	Level (dBm)	TX ch.9538 Frequency (MHz)	Level (dBm)
2	3704.8	-54.95	3760	-53.697	3815.2	54.314
3	5557.2	-43.503	5640	-45.913	5722.8	-45.501
4	7409.6	nf	7520	nf	7630.4	nf
5	9262	nf	9400	nf	9538	nf
6	11114.4	nf	11280	nf	11445.6	nf
7	12966.8	nf	13160	nf	13353.2	nf
8	14819.2	nf	15040	nf	15260.8	nf
9	16671.6	nf	16920	nf	17168.4	nf
10	18524	nf	18800	nf	19076	nf

nf: noise floor

## 2.1. Radiates Spurious Emission

### Ambient condition

Temperature	Relative humidity	Pressure
24°C	50%	101.5kPa

### Method of Measurement

The measurements procedures in TIA -603C are used.

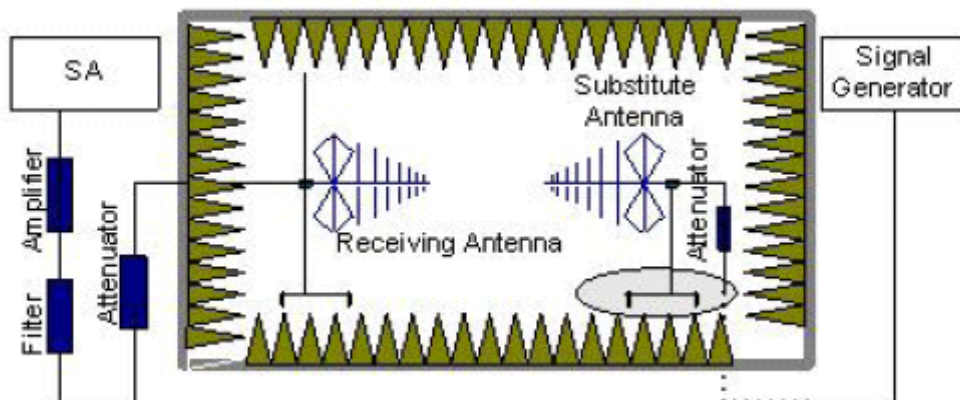
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The measurement will be conducted at channels 512,661,810 of GSM1900 and 9262,9400,9538 of WCDMA Band II.

. The procedure of Radiates Spurious Emission is as follows:

#### 1. Pre-calibration

In an fully anechoic chamber, A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted at a 3 meter test distance from the receive antenna. An RF signal source is connected to the dipole with a Tx cable that has been constructed to not interfere with radiation pattern of the antenna. A known (measured) power ( $P_{in}$ ) is applied to input of dipole, and the power received ( $P_r$ ) is recorded from the spectrum analyzer.

“Reference Path loss” is established as  $P_{in} - P_r - Tx \text{ cable loss} + \text{Substitution antenna gain}$ .



#### 2. EUT Test

EUT was placed on a 1.5 meter high non – conductive table at a 3 meter test distance from the receive antenna. The height of receiving antenna is 1.5 m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the table and adjusting the receiving antenna polarization. The measurement is carried out using a spectrum analyzer .The radiated emission measurements of all non-harmonic and harmonic of the transmit frequency from 30MHz to the 10th harmonic were measured with peak detector and 1MHz bandwidth. A notch filter is necessary in the band near to the carrier frequency. A high pass filter is needed to avoid the distortion of the testing equipment in the band above the carrier frequency. If the harmonic could not be detected above the noise floor, the ambient level was recorded.

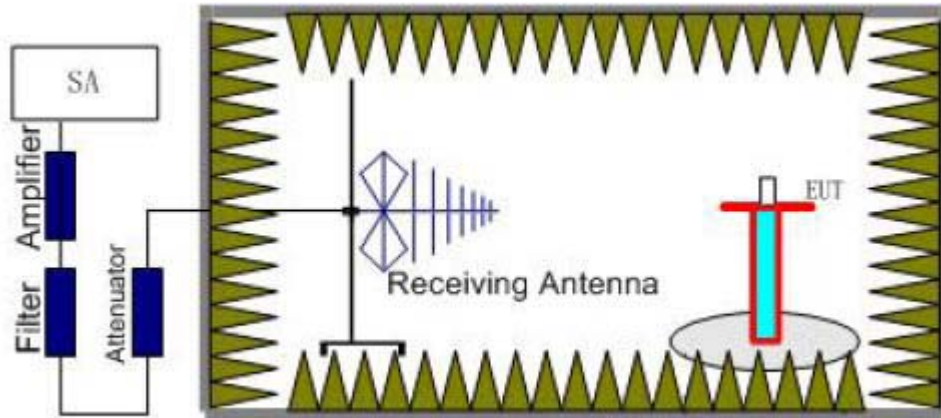
The level of the spurious emissions can be calculated through the level of the signal generator,

cable loss, the gain of the substitution antenna and the reading of the spectrum analyzer or receiver.

Calculation procedure:

$$RSE = Rx \text{ (dBm)} + \text{Reference Path loss}$$

Rx: reading of the receiver



**Limits**

Rule Part 24.238(a) specifies that “on any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log_{10} (P)$  dB.”

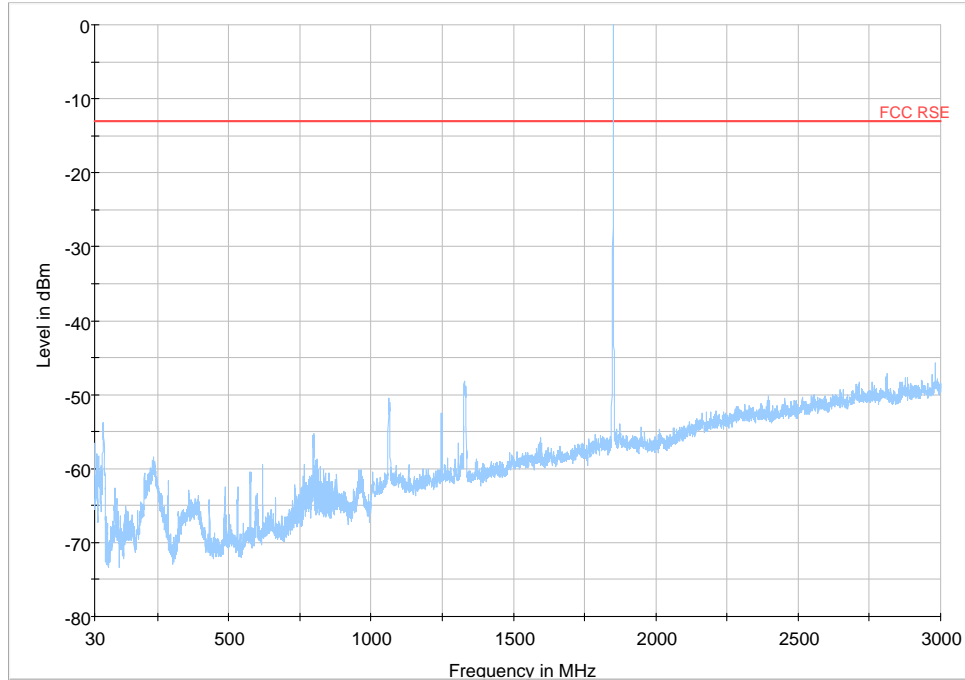
Limit	-13 dBm
-------	---------

**Measurement Uncertainty**

The assessed measurement uncertainty to ensure 95% confidence level for the normal distribution is with the coverage factor  $k = 1.96$ .  $U=3.16$  dB.

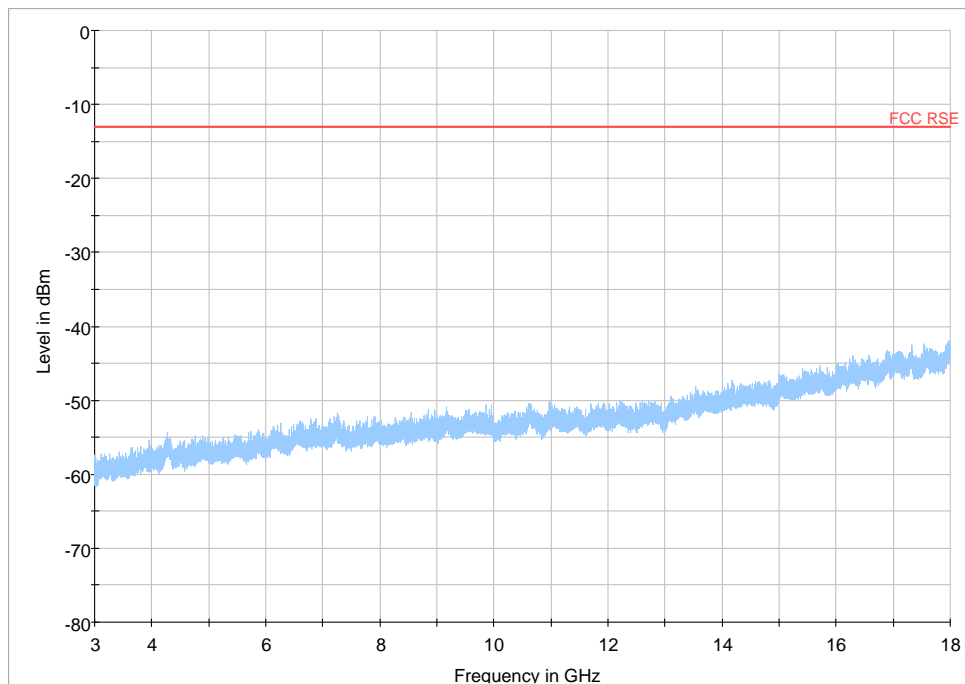
Test Result

GSM 1900 GPRS CH512



— FCC RSE.LimitLine — Preview Result 1

Note: The signal beyond the limit is carrier.  
GSM 1900 GPRS CH512 Channel 30MHz~3GHz



— FCC RSE.LimitLine — Preview Result 1

GSM 1900 GPRS CH512 Channel 3GHz ~18GHz

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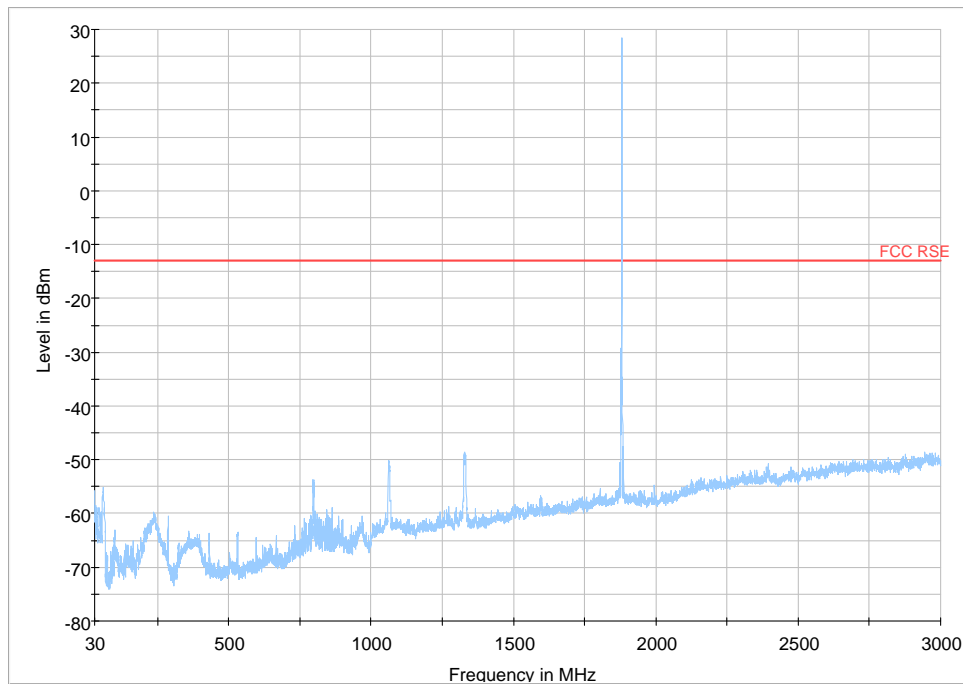
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Harmonic	TX ch.512 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3700.4	Nf	-13
3	5550.6	Nf	-13
4	7400.8	Nf	-13
5	9251	Nf	-13
6	11101.2	Nf	-13
7	12951.4	Nf	-13
8	14801.6	Nf	-13
9	16651.8	Nf	-13
10	18502	Nf	-13

Nf: noise floor

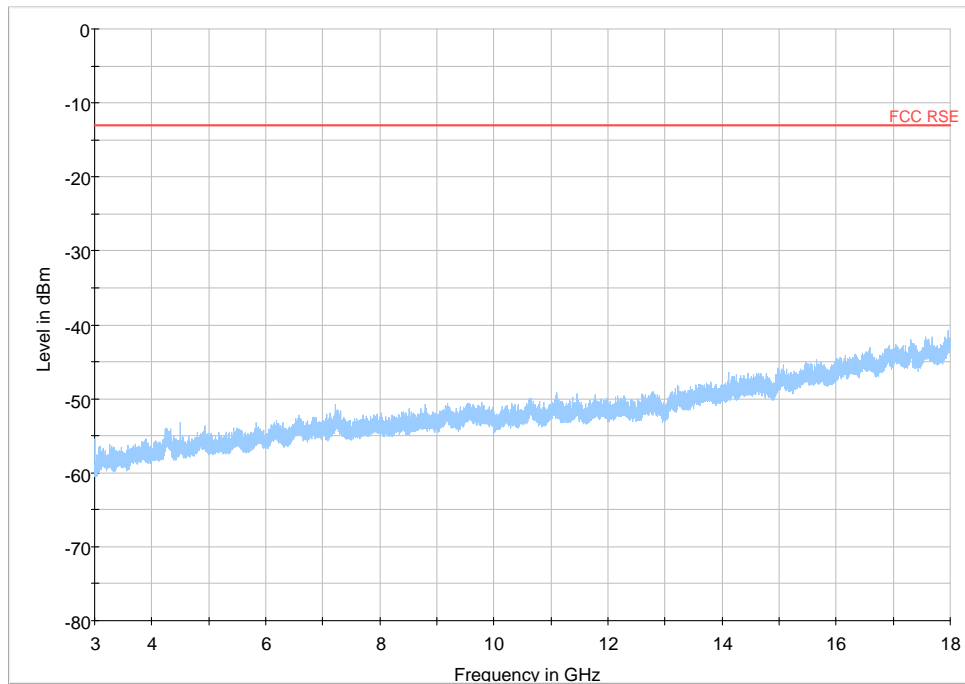
### GSM 1900 GPRS CH661



— FCC RSE.LimitLine — Preview Result 1

Note: The signal beyond the limit is carrier.

GSM 1900 GPRS CH661 Channel 30MHz~3GHz

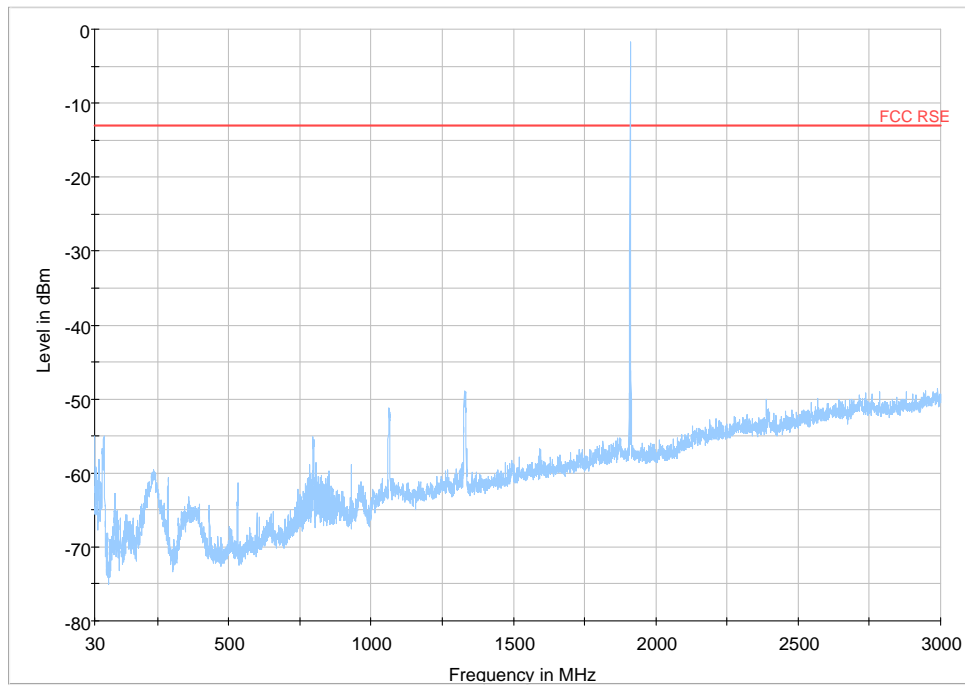


— FCC RSE.LimitLine    — Preview Result 1

GSM 1900 GPRS CH661 Channel 3GHz ~18GHz

Harmonic	TX ch.661 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3760	Nf	-13
3	5640	Nf	-13
4	7520	Nf	-13
5	9400	Nf	-13
6	11280	Nf	-13
7	13160	Nf	-13
8	15040	Nf	-13
9	16920	Nf	-13
10	18800	Nf	-13
Nf: noise floor			

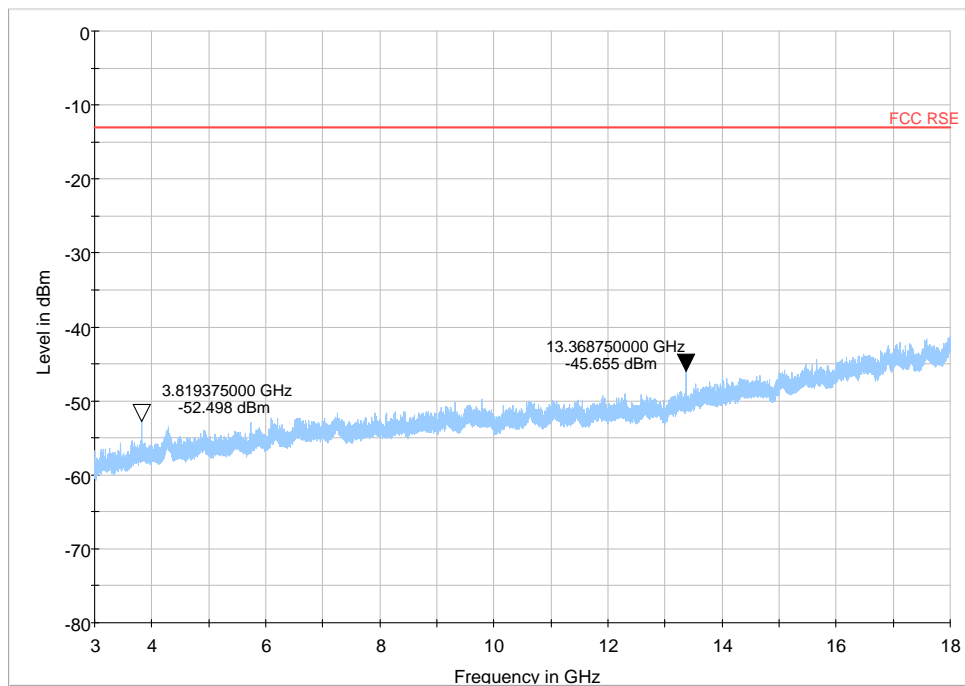
GSM 1900 GPRS CH810



FCC RSE.LimitLine    Preview Result 1

Note: The signal beyond the limit is carrier.

GSM 1900 GPRS CH810 Channel 30MHz~3GHz



FCC RSE.LimitLine    Preview Result 1

GSM 1900 GPRS CH810 Channel 3GHz ~18GHz

# TA Technology (Shanghai) Co., Ltd.

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Registration Num:428261

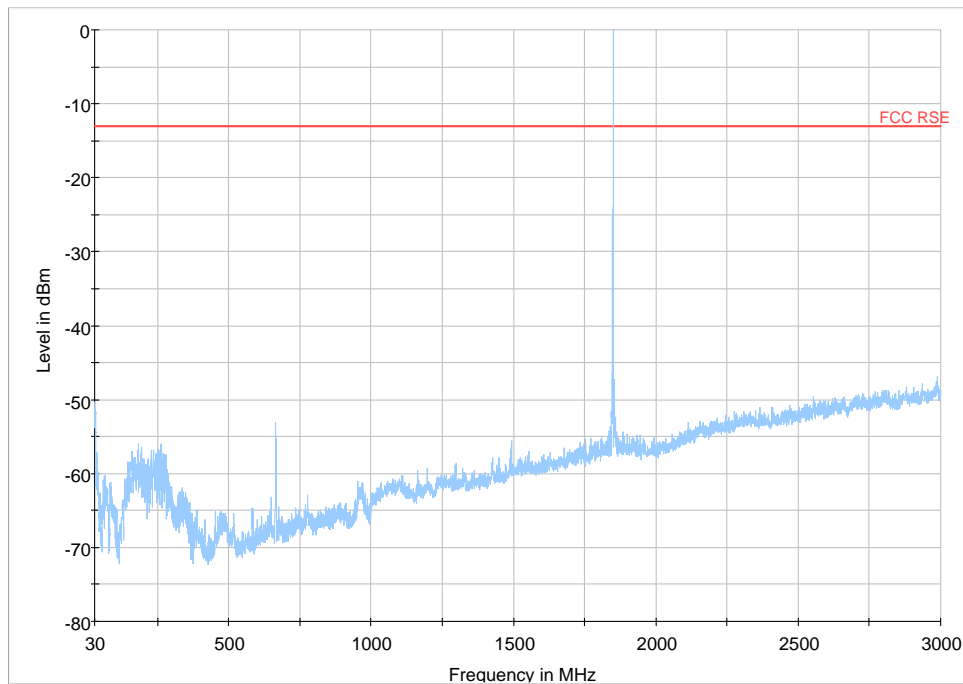
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Harmonic	TX ch.810 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3819.4	-52.498	-13
3	5729.4	Nf	-13
4	7639.2	Nf	-13
5	9549	Nf	-13
6	11458.8	Nf	-13
7	13368.6	-45.655	-13
8	15278.4	Nf	-13
9	17188.2	Nf	-13
10	19098	Nf	-13

Nf: noise floor

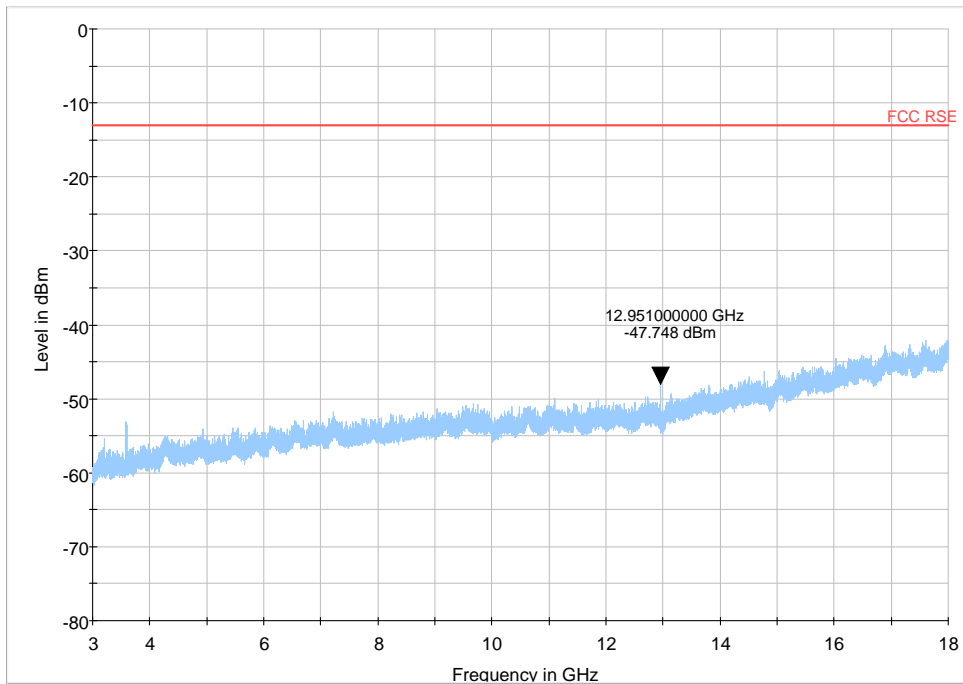
GSM 1900 EGPRS CH512



— FCC RSE.LimitLine — Preview Result 1

Note: The signal beyond the limit is carrier.  
GSM 1900 EGPRS CH512 Channel 30MHz~3GHz





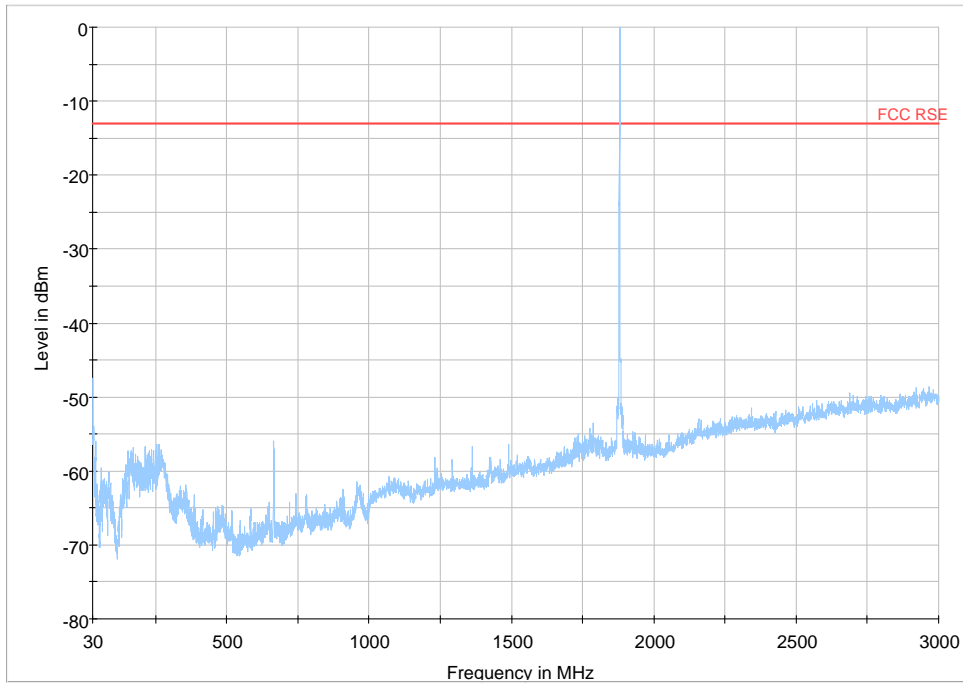
— FCC RSE.LimitLine — Preview Result 1

GSM 1900 EGPRS CH512 Channel 3GHz ~18GHz

Harmonic	TX ch.512 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3700.4	Nf	-13
3	5550.6	Nf	-13
4	7400.8	Nf	-13
5	9251	Nf	-13
6	11101.2	Nf	-13
7	12951.0	-47.478	-13
8	14801.6	Nf	-13
9	16651.8	Nf	-13
10	18502	Nf	-13

Nf: noise floor

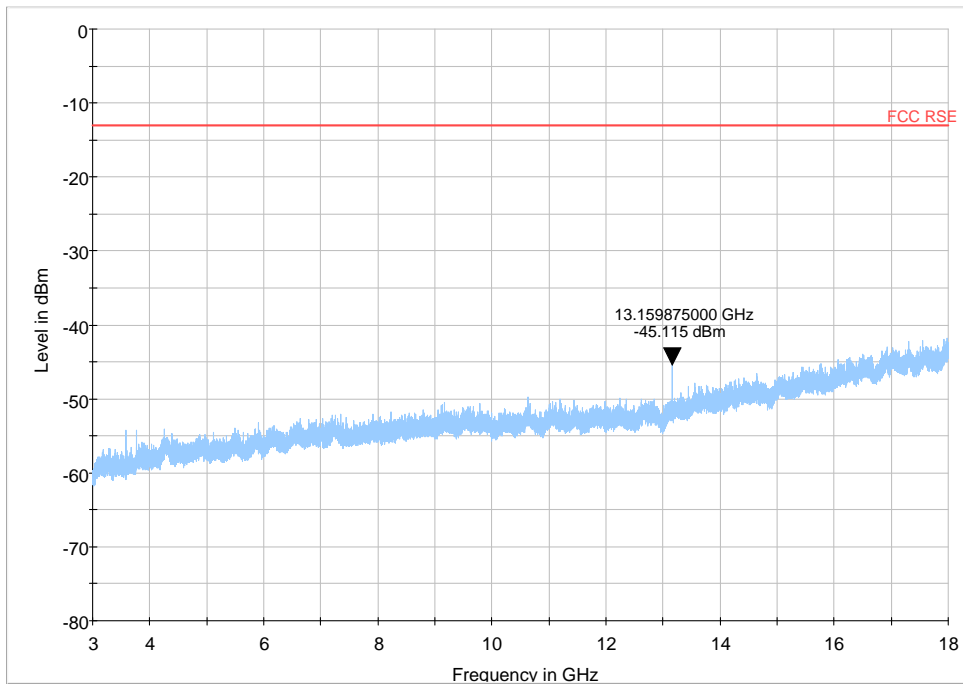
GSM 1900 EGPRS CH661



FCC RSE.LimitLine Preview Result 1

Note: The signal beyond the limit is carrier.

GSM 1900 EGPRS CH661 Channel 30MHz~3GHz



FCC RSE.LimitLine Preview Result 1

GSM 1900 EGPRS CH661 Channel 3GHz ~18GHz

# TA Technology (Shanghai) Co., Ltd.

## Test Report

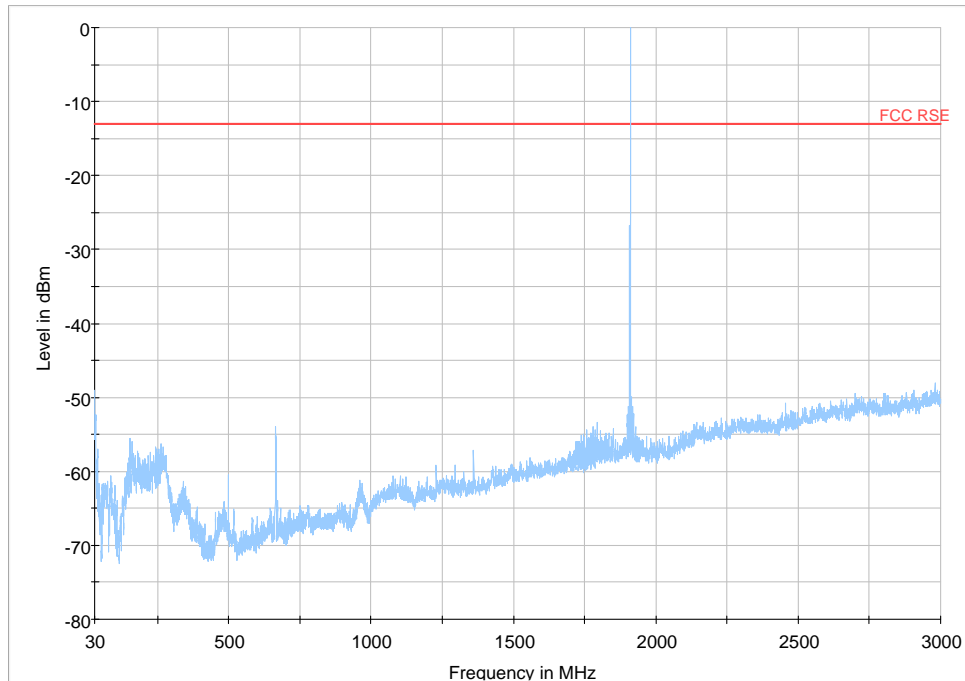
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Harmonic	TX ch.661 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3760	Nf	-13
3	5640	Nf	-13
4	7520	Nf	-13
5	9400	Nf	-13
6	11280	Nf	-13
7	13160	-45.115	-13
8	15040	Nf	-13
9	16920	Nf	-13
10	18800	Nf	-13
Nf: noise floor			

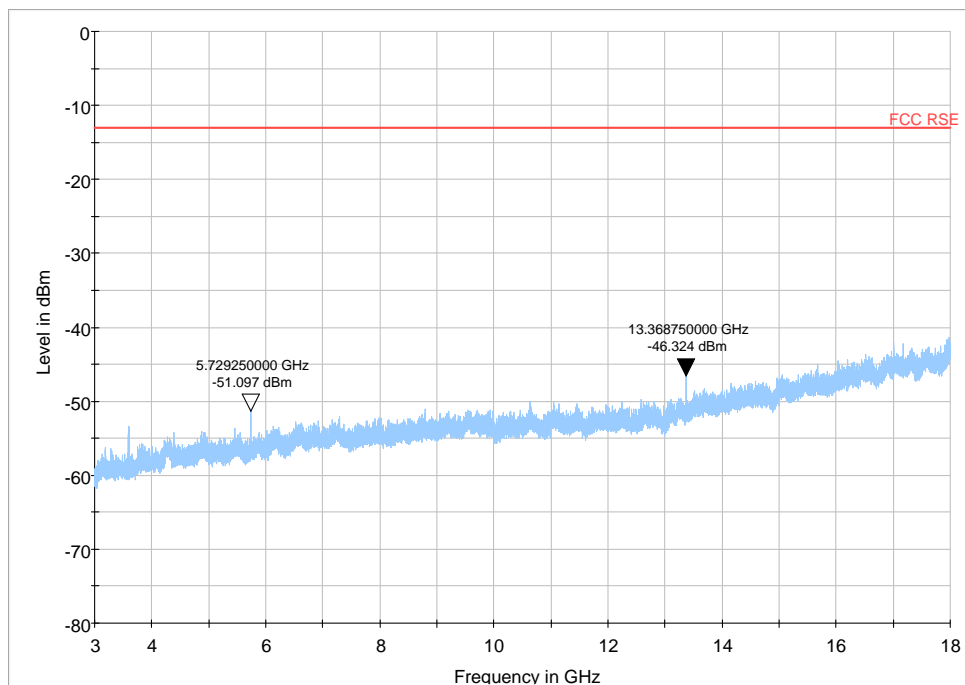
GSM 1900 EGPRS CH810



FCC RSE.LimitLine Preview Result 1

Note: The signal beyond the limit is carrier.

GSM 1900 EGPRS CH810 Channel 30MHz~3GHz



FCC RSE.LimitLine Preview Result 1

GSM 1900 EGPRS CH810 Channel 3GHz ~18GHz

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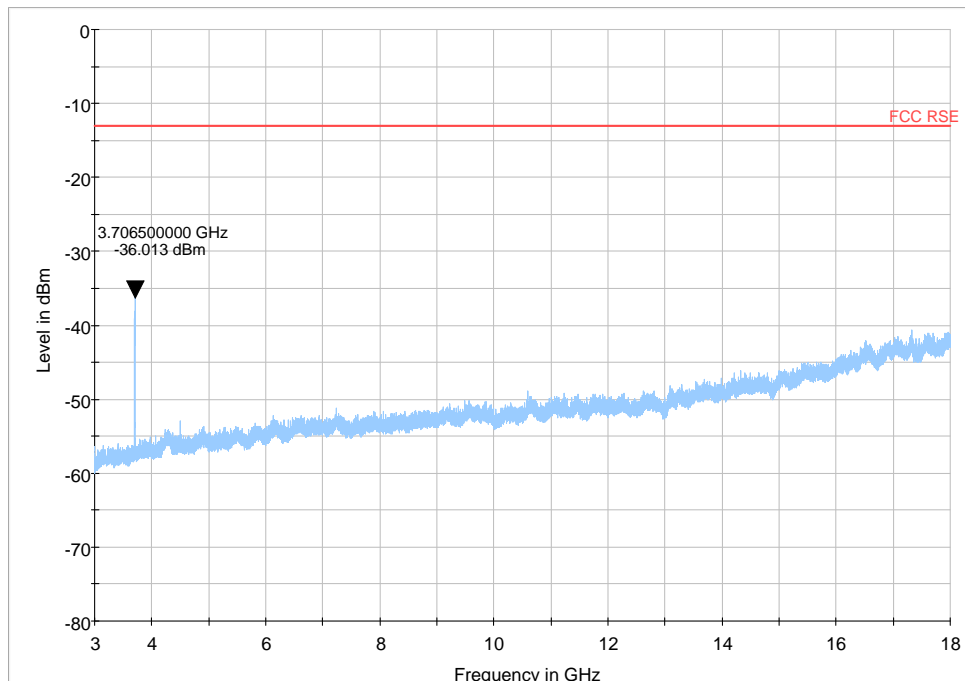
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Harmonic	TX ch.810 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3819.4	Nf	-13
3	5729.4	-51.097	-13
4	7639.2	Nf	-13
5	9549	Nf	-13
6	11458.8	Nf	-13
7	13368.6	-46.324	-13
8	15278.4	Nf	-13
9	17188.2	Nf	-13
10	19098	Nf	-13

Nf: noise floor

WCDMA Band II CH9262

Note: The signal beyond the limit is carrier.  
WCDMA Band II CH9262 Channel 30MHz~3GHz



— FCC RSE.LimitLine     — Preview Result 1

WCDMA Band II CH9262Channel 3GHz ~18GHz

# TA Technology (Shanghai) Co., Ltd.

## Test Report

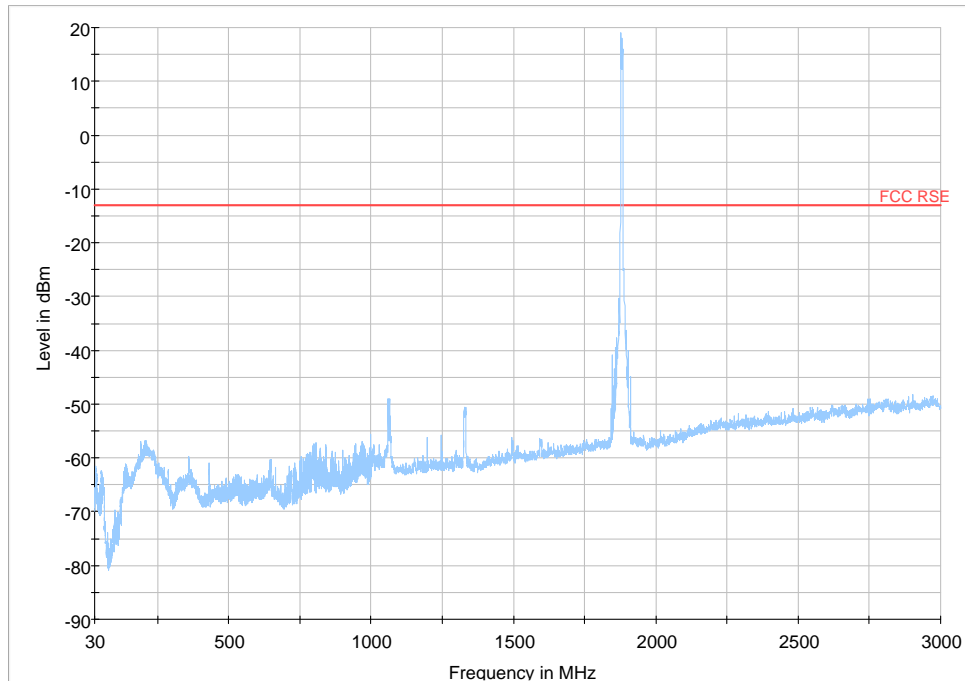
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Harmonic	TX ch.9262 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3704.8	-36.013	-13
3	5557.2	-51.097	-13
4	7409.6	Nf	-13
5	9262	Nf	-13
6	11114.4	Nf	-13
7	12966.8	-46.324	-13
8	14819.2	Nf	-13
9	16671.6	Nf	-13
10	18524	Nf	-13
Nf: noise floor			

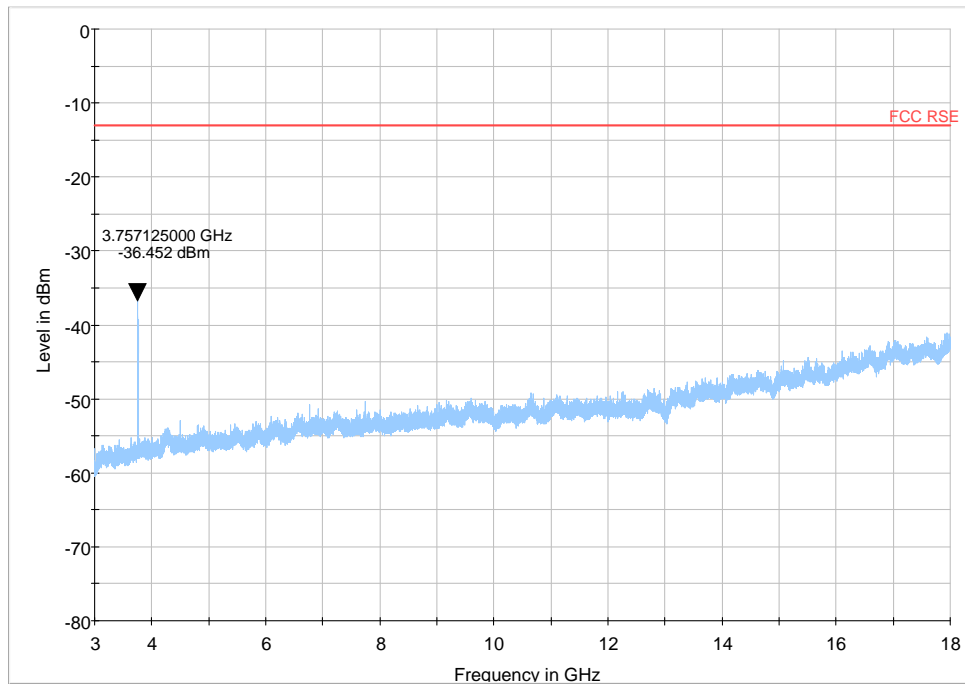
WCDMA Band II CH9400



FCC RSE.LimitLine Preview Result 1

Note: The signal beyond the limit is carrier.

WCDMA Band II CH9400 Channel 30MHz~3GHz



FCC RSE.LimitLine Preview Result 1

WCDMA Band II CH9400 Channel 3GHz ~18GHz

# TA Technology (Shanghai) Co., Ltd.

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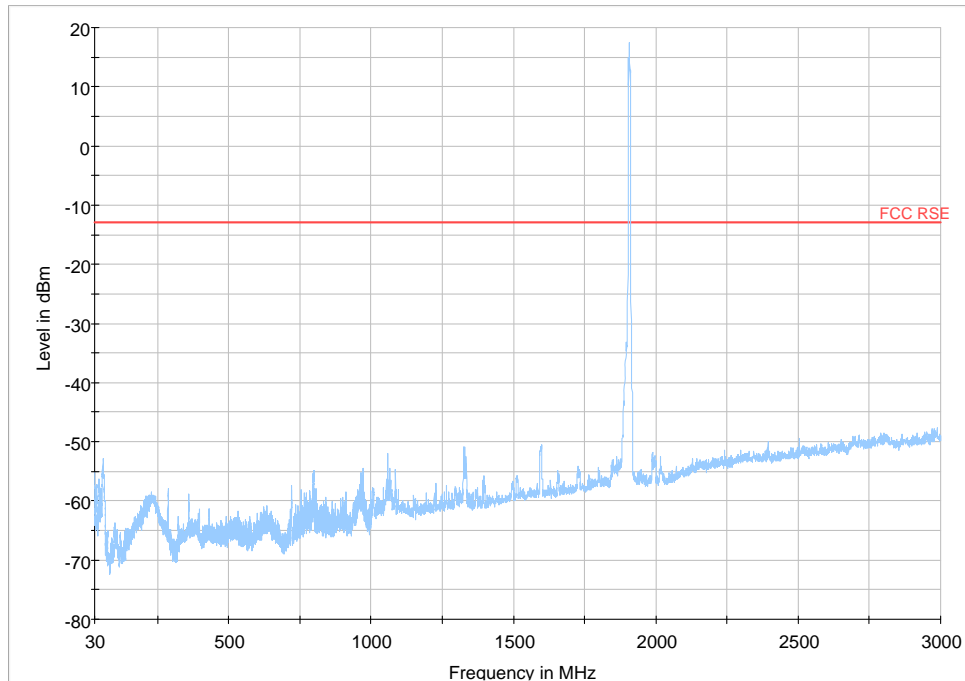
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Harmonic	TX ch.9400 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3760	-36.452	-13
3	5640	Nf	-13
4	7520	Nf	-13
5	9400	Nf	-13
6	11280	Nf	-13
7	13160	Nf	-13
8	15040	Nf	-13
9	16920	Nf	-13
10	18800	Nf	-13
Nf: noise floor			



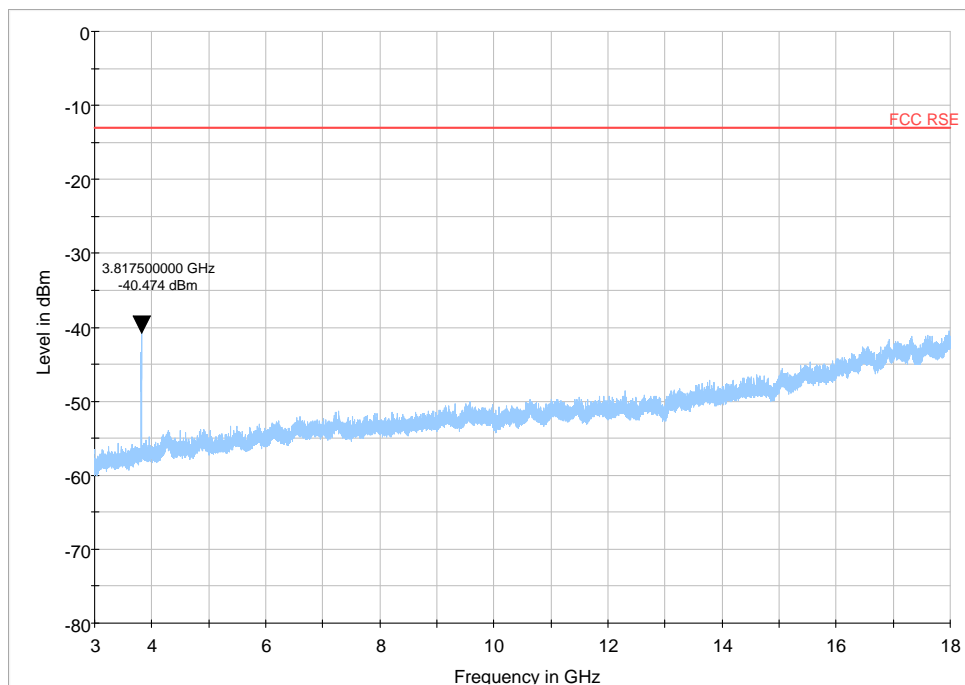
WCDMA Band II CH9538



FCC RSE.LimitLine Preview Result 1

Note: The signal beyond the limit is carrier.

WCDMA Band II CH9538 Channel 30MHz~3GHz



FCC RSE.LimitLine Preview Result 1

WCDMA Band II CH9538 Channel 3GHz ~18GHz

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Harmonic	TX ch.9538 Frequency (MHz)	Level (dBm)	Limit (dBm)
2	3815.2	-40.474	-13
3	5722.8	Nf	-13
4	7630.4	Nf	-13
5	9538	Nf	-13
6	11445.6	Nf	-13
7	13353.2	Nf	-13
8	15260.8	Nf	-13
9	17168.4	Nf	-13
10	19076	Nf	-13
Nf: noise floor			

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### 3. Main Test Instruments

No.	Name	Type	Manufacturer	Serial Number	Calibration Date	Valid Period
01	Base Station Simulator	CMU200	R&S	118133	2009-06-02	One year
	Base Station Simulator	E5515C	Agilent	MY48360957	2009-12-04	One year
03	Signal Analyzer	FSV	R&S	100815	2009-06-29	One year
04	Signal generator	SMR27	R&S	1606.6000.02	2009-06-29	One year
05	Spectrum Analyzer	E4445A	Agilent	MY46181166	2009-06-08	One year
06	EMI Test Receiver	ESCI	R&S	100948	2009-07-02	One year
07	Trilog Antenna	VULB 9163	SCHWARZB ECK	9163-391	2009-05-14	One year
08	Horn Antenna	HF907	R&S	100126	2009-07-02	One year
09	Biconical Antenna	VUBA 9117	SCHWARZB ECK	9117-225	2009-05-14	One year
10	Quad-Ridge Horn Antenna	3164-03	ETS-Lindgren	1064	2009-05-20	One year
11	Power Splitter	11667A	Agilent	52960	NA	NA
12	DC Power Supply	GPS-3030D	GM	E877677	NA	NA
13	Climatic Chamber	ESS-SDH401	YIN HE	2006001	2010-02-22	One year
14	Semi-Anechoic Chamber	9.6*6.7*6.6m	ETS-Lindgren	NA	NA	NA
15	OTA Fully-Anechoic Chamber	7.4*3.6*3.6m	ETS-Lindgren	3658	NA	NA
16	EMI test software	ES-K1	R&S	NA	NA	NA
17	OTA test software	EMQuest	ETS-Lindgren	NA	NA	NA

\*\*\*\*\*END OF REPORT BODY\*\*\*\*\*

## ANNEX A: EUT Appearance and Test Setup

### A.1 EUT Appearance



Picture 1 EUT

## A.2 Test Setup



Picture 2: Radiated Spurious Emissions Test setup