

RF Test Report

Test in accordance with
Federal Communications Commission(FCC)
CFR TITLE 47, Parts 2, 22, 24

Product Name : GSM Mobile Phone
Model No. : X2S
FCC ID : OA7-X2S

Prepared for:

Global Technology Exchange LLC
Room 1607 – 08, Westin Centre, 26 Hung To Road, Kwun Tong
Kowloon, Hong Kong

Prepared by:

Unilab(Shanghai) Co.,Ltd.
FCC 2.948 register number is 714465

Date of Receipt : Sep. 05, 2013
Test Date : Sep. 05 –Sep. 14, 2013
Issued Date : Sep. 16, 2013
Report No. : UL34420130905FCC001-2

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : Sep. 16, 2013

Report No. : UL34420130905FCC001-2

Product Name : GSM Mobile Phone

Applicant : Global Technology Exchange LLC

Address : Room 1607 – 08, Westin Centre, 26 Hung To Road, Kwun Tong
Kowloon, Hong Kong

Manufacturer : Global Technology Exchange LLC

Address : Room 1607 – 08, Westin Centre, 26 Hung To Road, Kwun Tong
Kowloon, Hong Kong

Model No. : X2S

EUT Voltage : 3.7V

Brand Name : LYNXX

FCC ID : OA7-X2S

47 CFR Part 2

Applicable Standard : 47 CFR Part 22 Subpart H
47 CFR Part 24 Subpart E

Test Result : Complied

Unilab (Shanghai) Co.,Ltd.

Performed Location : FCC 2.948 register number is 714465
No.1350, Lianxi Road, Pudong New District, Shangha,China
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Documented By :



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1. GENERAL INFORMATION

1.1 EUT Description

Description:	GSM Mobile Phone
Brand Name:	LYNXX
Model Name:	X2S
Hardware Version:	F017_MB_V1.0_20130724
Software Version:	F017_DZ_WJH_LXC01_130905_6531
Support Band:	GSM 850/PCS 1900
Modulation:	GMSK
Antenna:	Internal
Frequency:	Tx: 824.2-848.8 MHz 1850.2-1909.8 MHz Rx: 849.2-893.8 MHz 1930.2-1989.8 MHz
Ancillary Equipment – Power Supply	
Description:	Travel Charger
Model Name:	X2S
Brand Name:	LYNXX
Rated Input:	AC 100-240V, 50/60Hz, 0.1A
Rated Output:	DC 5V, 500mA
Ancillary Equipment – Battery	
Description:	Lithium-ion Battery
Model Name:	BL-5C
Brand Name:	LYNXX
Capacitance:	600 mAh
Rated Voltage:	3.7V
Charge Limit:	4.2V

NOTE:

1. The EUT is a GSM Mobile station, the cellular 850MHz and PCS band was tested in this report.
2. The transmitter (Tx) frequency arrangement of the Cellular 850MHz band for the EUT can be represented with a formula $F(n)=824.2+0.2*(n-128)$, $128 \leq n \leq 251$ and the PCS 1900MHz band for the EUT can be represented with a formula $F(n)=1850.2+0.2*(n-512)$, $512 \leq n \leq 810$.
3. The normal, high and low voltage supply for the Battery of the EUT is separately 3.7V, 4.2V and 3.6V, which are specified by the applicant.
4. For a more detailed features description about the EUT, please refer to User's Manual.

1.2 Objective

The objective of the report is to perform tests according to 47 CFR Part 2, Part 24 for FCC ID Certification:

No.	Identity	Document Title
1	47 CFR Part 2(10-1-09 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 22(10-1-09 Edition)	Public Mobile Services
3	47 CFR Part 24(10-1-09 Edition)	Personal Communications Services

1.3 Test Standards and Results

Test items and the results are as bellow:

No.	Rules	Test Type	Result	Date of Test
1	§2.1046	Conducted RF Output Power at Antenna Terminal	PASS	Sep. 11, 2013
2	§2.1049	Occupied Bandwidth	PASS	Sep. 11, 2013
3	§2.1051 §2.1057 §22.917 §24.238	Conducted Spurious Emission at Antenna Terminal	PASS	Sep. 11, 2013
4	§2.1051 §2.1057 §22.917 §24.238	Transmitter Radiated Power (EIPR/ERP)	PASS	Sep. 13, 2013
5	§22.913 §24.232	Radiated Spurious Emission	PASS	Sep. 13, 2013
6	§2.1053 §2.1057 §22.917 §24.238	Frequency Stability	PASS	Sep. 11, 2013

1.4 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35°C
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

1.5 Test Facility

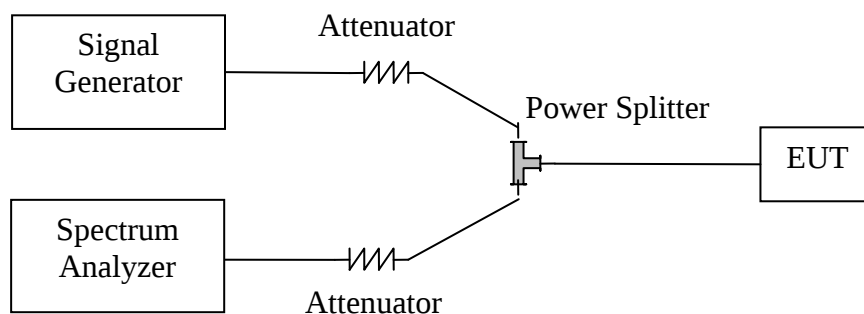
Test Site:	Unilab(Shanghai) Co.,Ltd.
Location:	No.1350, Lianxi Road, Beicai, Pudong New District, Shanghai, China
Description:	There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009 and CISPR 16 requirements. The FCC Registration Number is 714465. The CNAS Registration Number is CNAS L3573.
Site Filing:	The site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4:2009 and CISPR 16 requirements that meet industry regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

2. 47 CFR PART 2, PART 22H, PART 24E REQUIREMENTS

2.1 General Information

2.1.1 Conducted Related Tests

Based on ANSI/TIA-603-C-2004

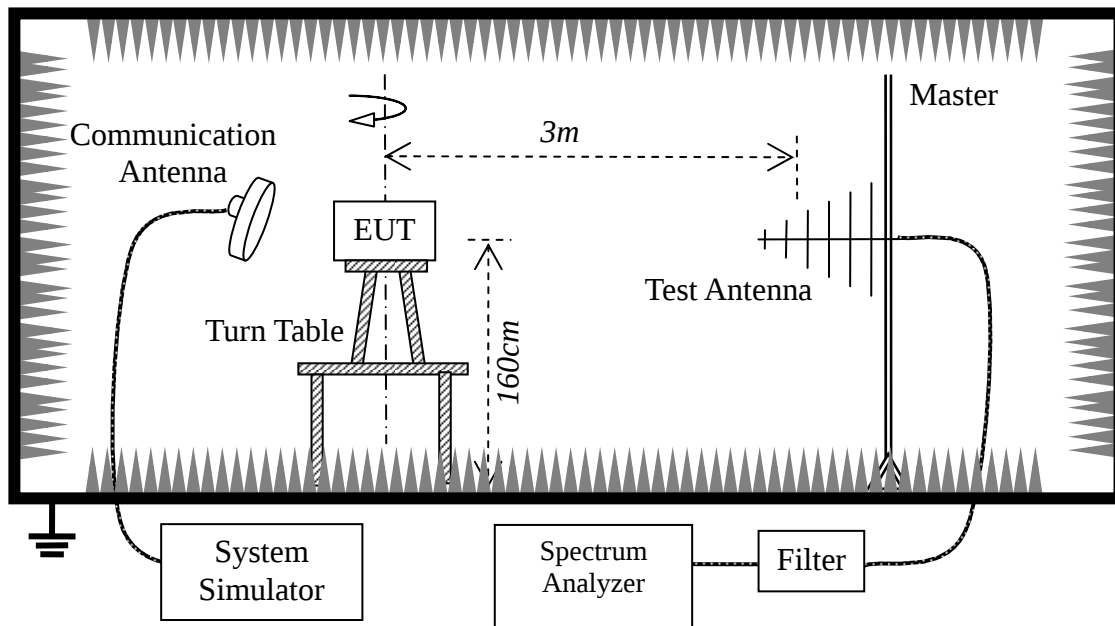


1. The EUT is coupled to the Spectrum Analyzer and the System Simulator with the suitable Attenuators through the Power Splitter; the path loss is calibrated to correct the reading.
2. The EUT is configured here as MS + Battery.
3. Set the spectrum analyzer to measure peak hold with the required settings.
4. Set the signal generator to a known output power and record the path loss in dB (LOSS) for frequencies up to the tenth harmonic of the EUT's carrier frequency. $LOSS = \text{Generator Output Power (dBm)} - \text{Analyzer reading (dBm)}$.
5. Replace the signal generator with the EUT.
6. Adjust the settings of the Digital Radio communication Tester (DRT) to set the EUT to its maximum power at the required channel.
7. Set the spectrum analyzer to measure peak hold with the required settings. Offset the spectrum analyzer reference level by the path loss measured above.
8. Measure and record all spurious emissions up to the tenth harmonic of the carrier frequency.
9. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.
10. If necessary steps 6 and 7 may be performed with the spectrum analyzer set to average detector.
11. Note: Step 4 above is performed prior to testing and LOSS is recorded by test software. Steps 3, 7, and 8 above are performed with test software.

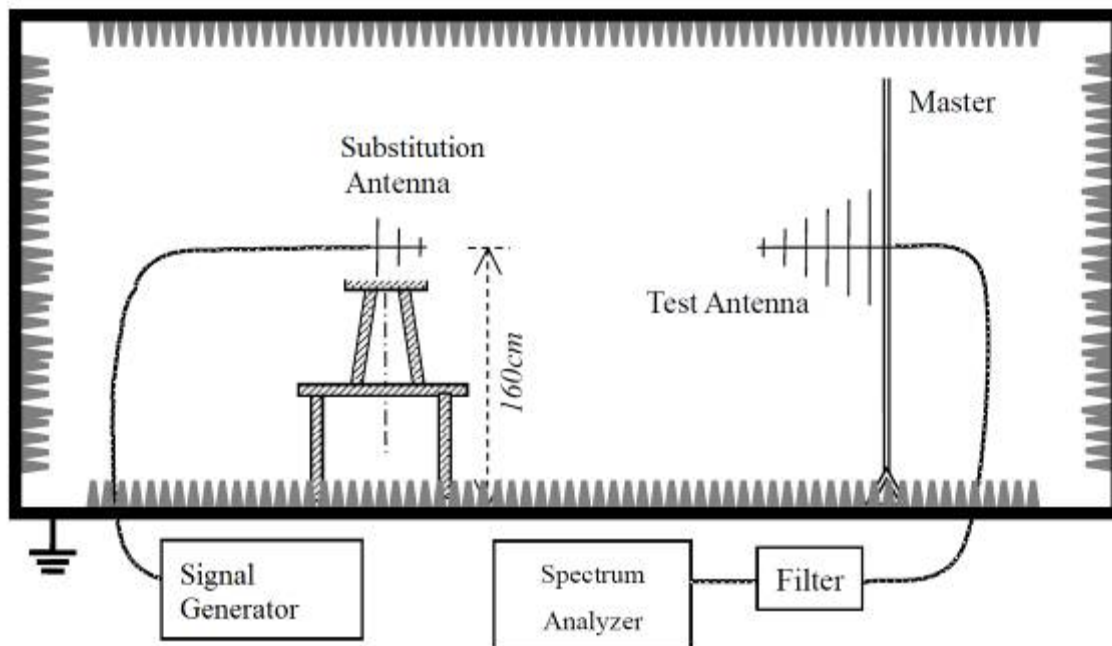
2.1.2 Radiated Power and Spurious Emission Tests

Based on ANSI/TIA-603-C-2004

Setup 1:



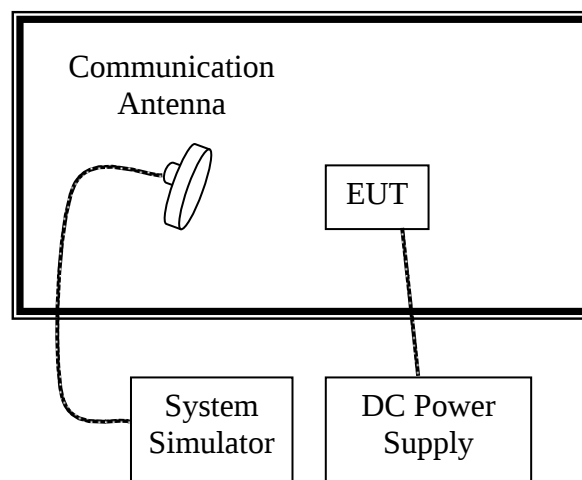
Setup 2:



1. The test is performed in a full-Anechoic Chamber, the air loss of the site and the factors of the test system are using the substitution method.
2. Connect the equipment as shown in setup 1.
3. Adjust the setting of System Simulator to set the EUT to its maximum power at the require channel.
4. Set the Spectrum Analyzer to the channel frequency, set the analyzer to measure peak hold with the required setting.
5. Rotate the EUT 360 degree, recorded the peak level in dBm(LVL).

6. The EUT is substituted by a half wave dipole or known gain antenna. The center of the antenna should be at the same location as the center of the EUT's antenna.
7. Connect the antenna to a signal generator and adjust the output power level of the signal generator (SGP) to get same received power recorded in step 5 on the Spectrum Analyze.
8. Determine the ERP using the following equation:
9. $ERP(dBm) = SGP(dBm) + Gain(dB) - Cable Loss(dB)$
10. Determine the EIRP using the following equation:
11. $EIRP(dBm) = ERP(dBm) + 2.14(dB)$
12. Measurements are to be performed with the EUT set to the low, middle and high channel of each frequency band.

2.1.3 Frequency Stability Test



1. The test is performed in a Temperature Chamber.
2. The EUT is configured as MS + DC Power Supply.

3. CONDUCTED RF OUTPUT POWER

3.1 Test Equipment

Instrument	Manufacturer	Model	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9038A	MY51210142	2014.07.27
Radio Communication Tester	Agilent	E5515C	GB46581718	2013.10.25
Signal Generator	Agilent	N5183A	MY50140938	2013.10.08
Preamplifier	CEM	EM30180	3008A0245	2014.03.01
DC Power Supply	Agilent	6612C	MY43002989	2014.03.04
Bilog Antenna	Schwarzbeck	VULB9160	9160-3316	2014.07.19
VHF-UHF-Biconical Antenna	Schwarzbeck	VUBA9117	9117-263	2014.07.19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-942	2014.07.19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-943	2014.07.19

3.2 Test Setup

See the section 2.1.1

3.3 Definition

According to FCC §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.

3.4 Test Procedure

1. The resolution bandwidth of the Spectrum Analyzer is set to be comparable to the emission bandwidth of the transmitter, e.g. for GSM modulated signal (here used): $RBW=VBW=1\text{MHz}$, for CDMA modulated signal: $RBW=VBW=3\text{MHz}$.
2. The low, middle and the high channels are selected to perform tests respectively. Set the TCH number to the low channel.
3. Set the frequency range of the Spectrum Analyzer suitably to capture the waveform; search peak and mark it; finally record the peak and the plot.
4. Set the TCH number to the middle channel, then repeat step 3.
5. Set the TCH number to the high channel, then repeat step 3.

3.5 Test Result

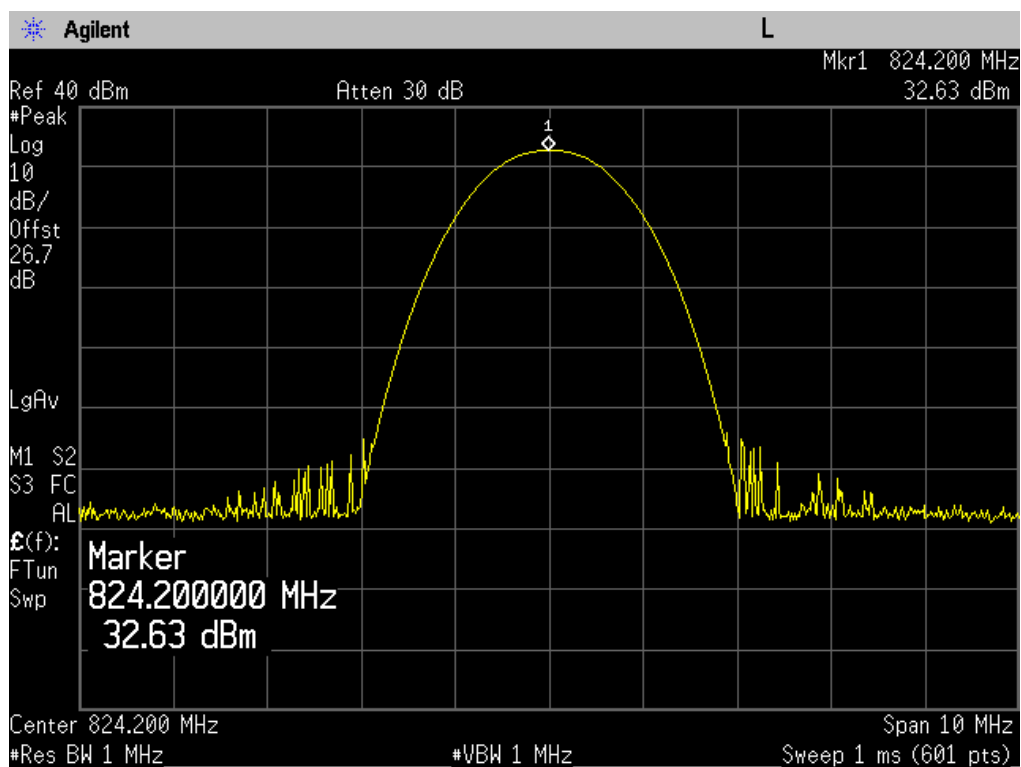
A. Test Verdict:

Test Mode	Channel Number	Frequency (MHz)	Measured Power		Rated Power	
			dBm	W	dBm	W
GSM 850	128	824.2	32.63	1.832	33	2
	190	836.6	32.73	1.875	33	2
	251	848.8	32.62	1.828	33	2
GPRS 850	128	824.2	32.62	1.828	33	2
	190	836.6	32.67	1.849	33	2
	251	848.8	32.47	1.766	33	2
PCS 1900	512	1850.2	29.69	0.931	30	1
	661	1880.0	29.23	0.838	30	1
	810	1909.8	28.74	0.748	30	1
GPRS 1900	512	1850.2	29.49	0.889	30	1
	661	1880.0	28.75	0.750	30	1
	810	1909.8	28.50	0.708	30	1

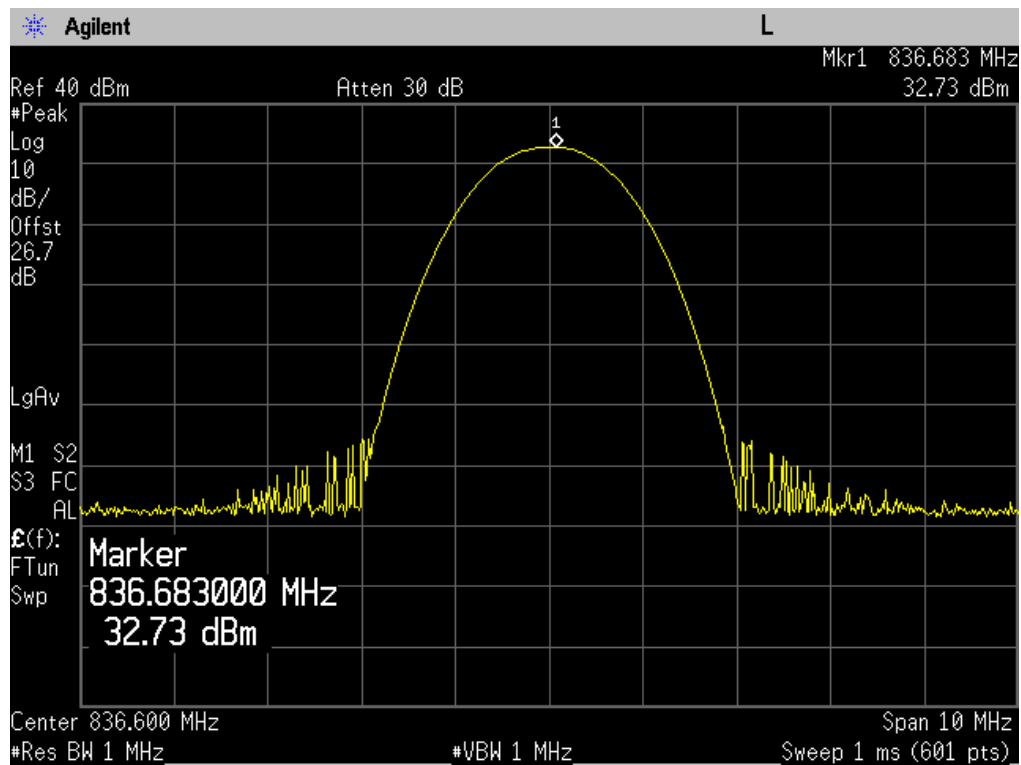
B. Test Plots:

GSM 850:

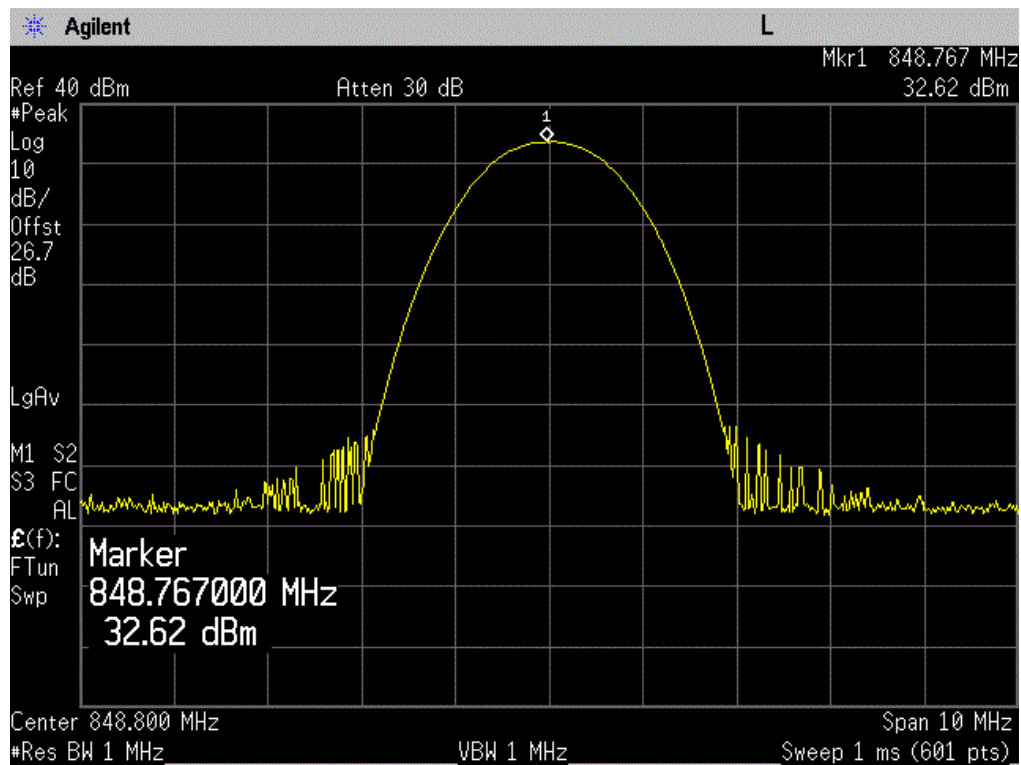
- Plot when the TCH number set to 128:



2. Plot when the TCH number set to 190:

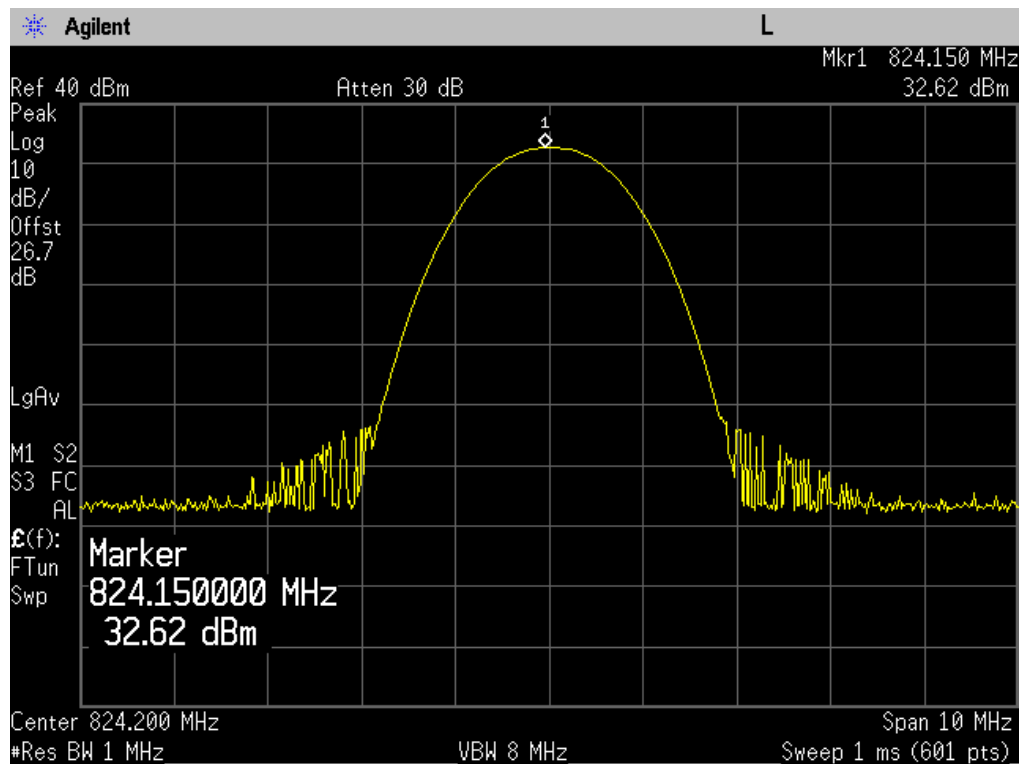


3. Plot when the TCH number set to 251:

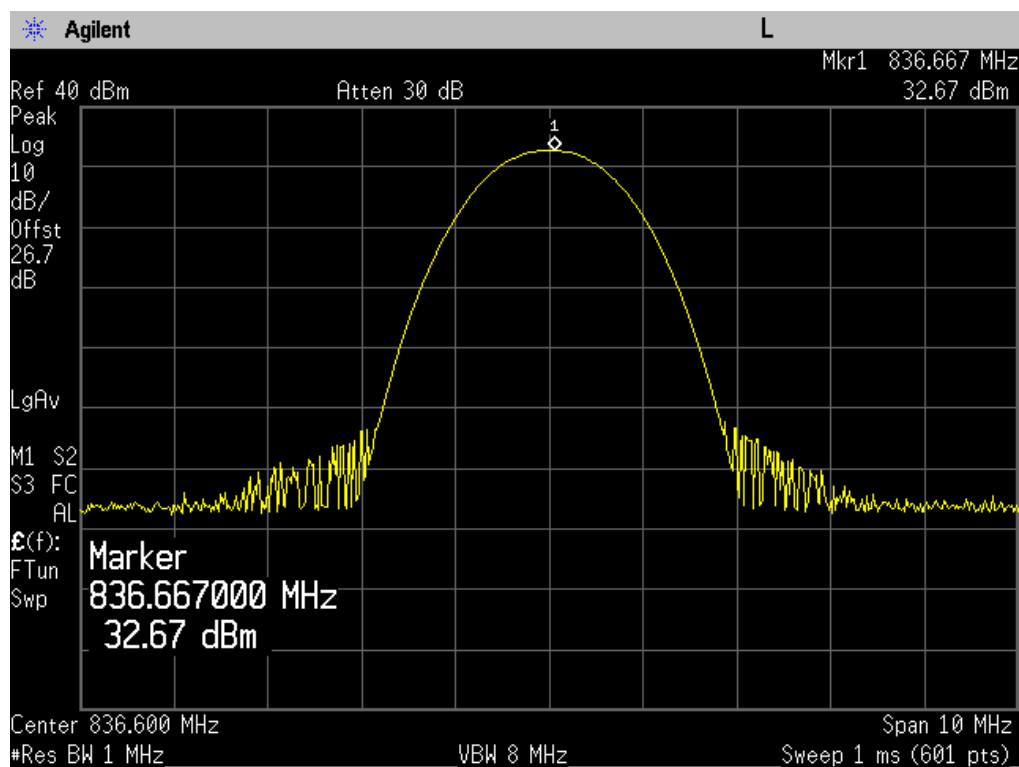


GPRS 850:

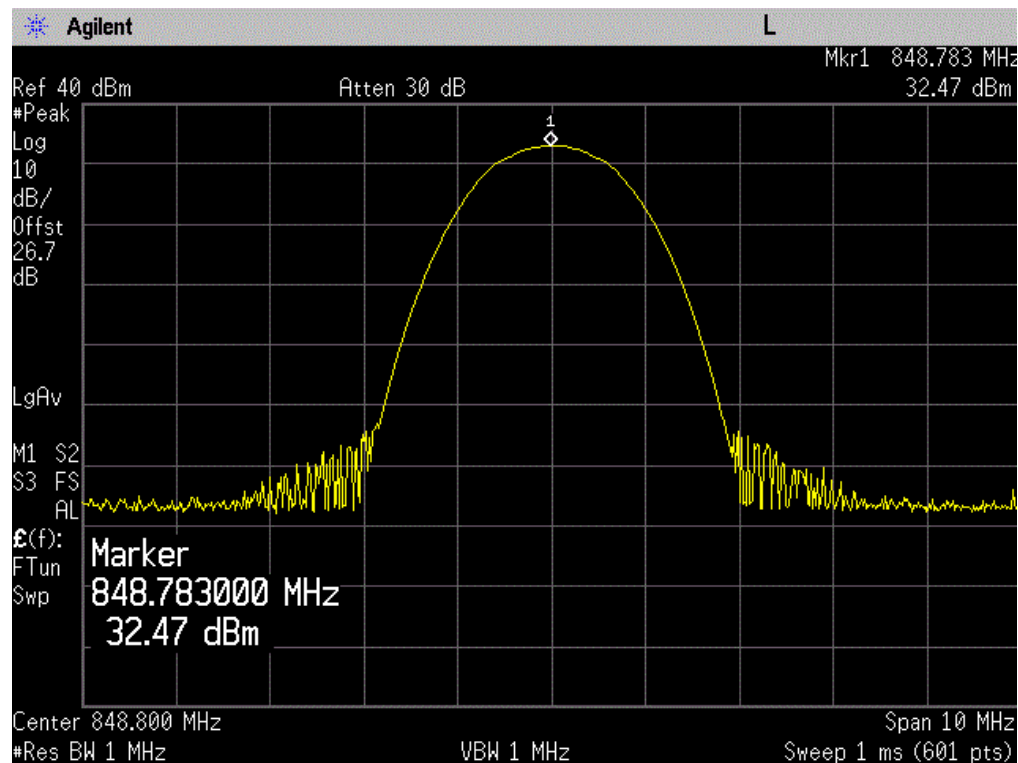
1. Plot when the TCH number set to 128:



2. Plot when the TCH number set to 190:

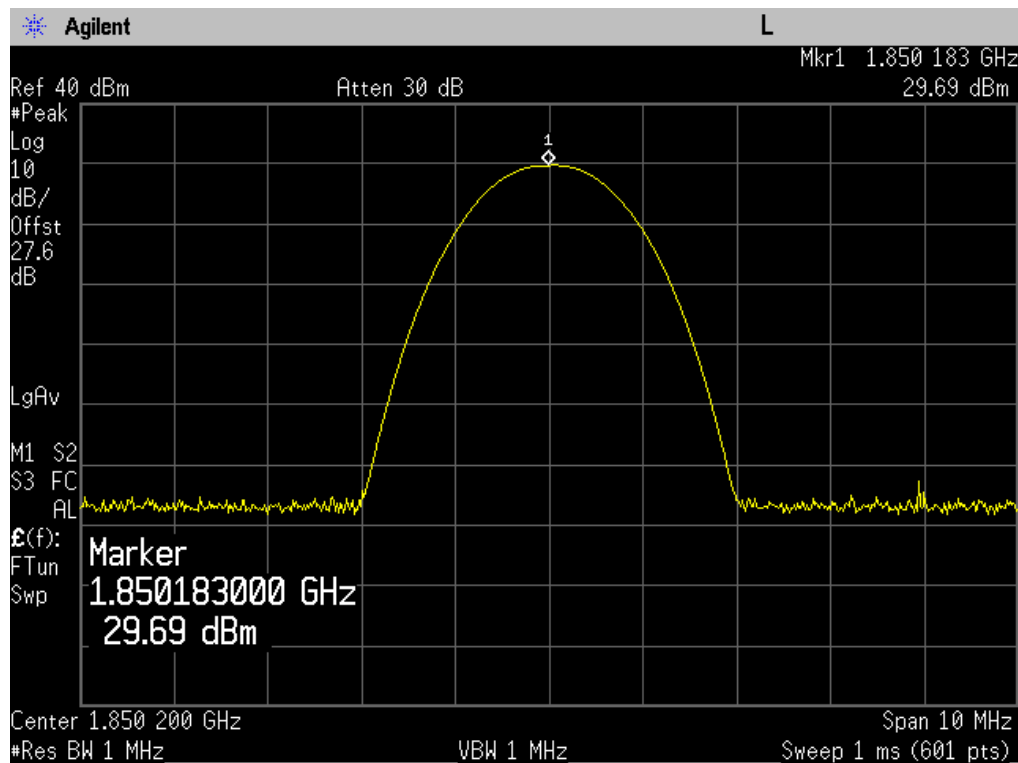


3. Plot when the TCH number set to 251:

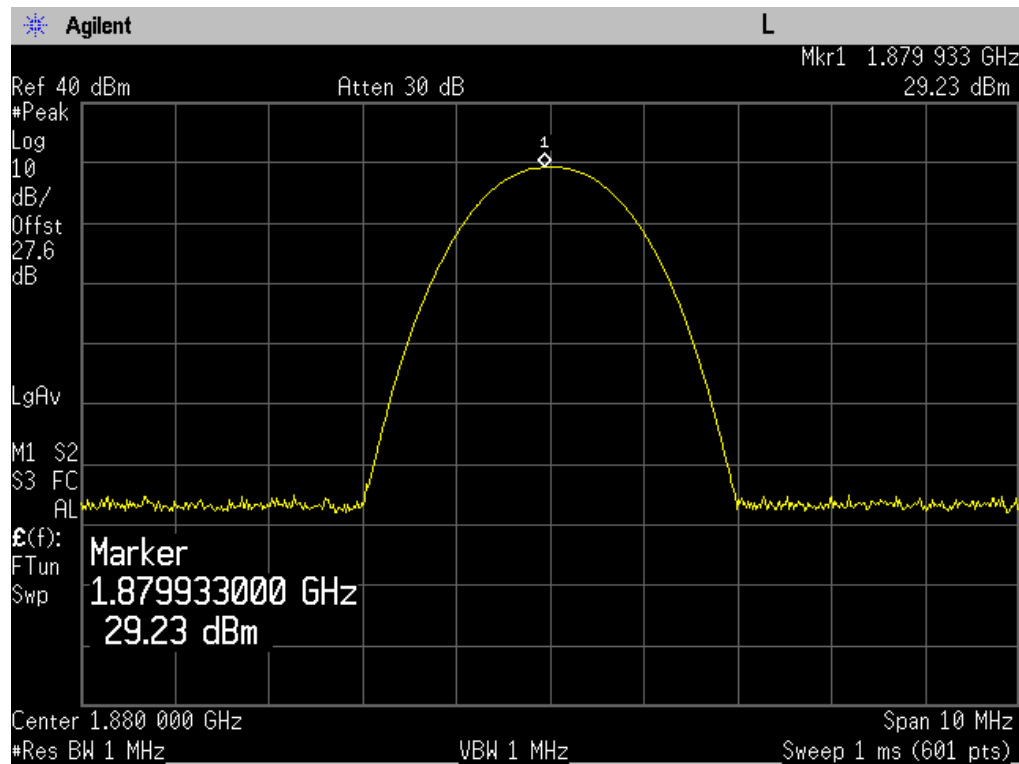


PCS 1900:

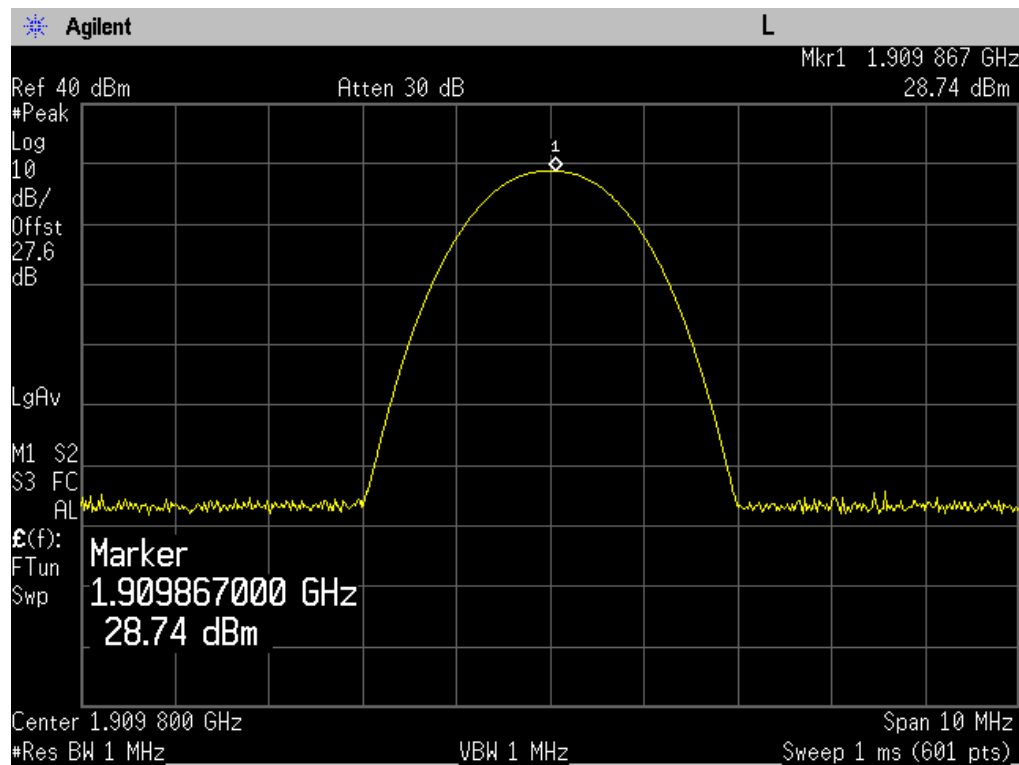
1. Plot when the TCH number set to 512:



2. Plot when the TCH number set to 661:

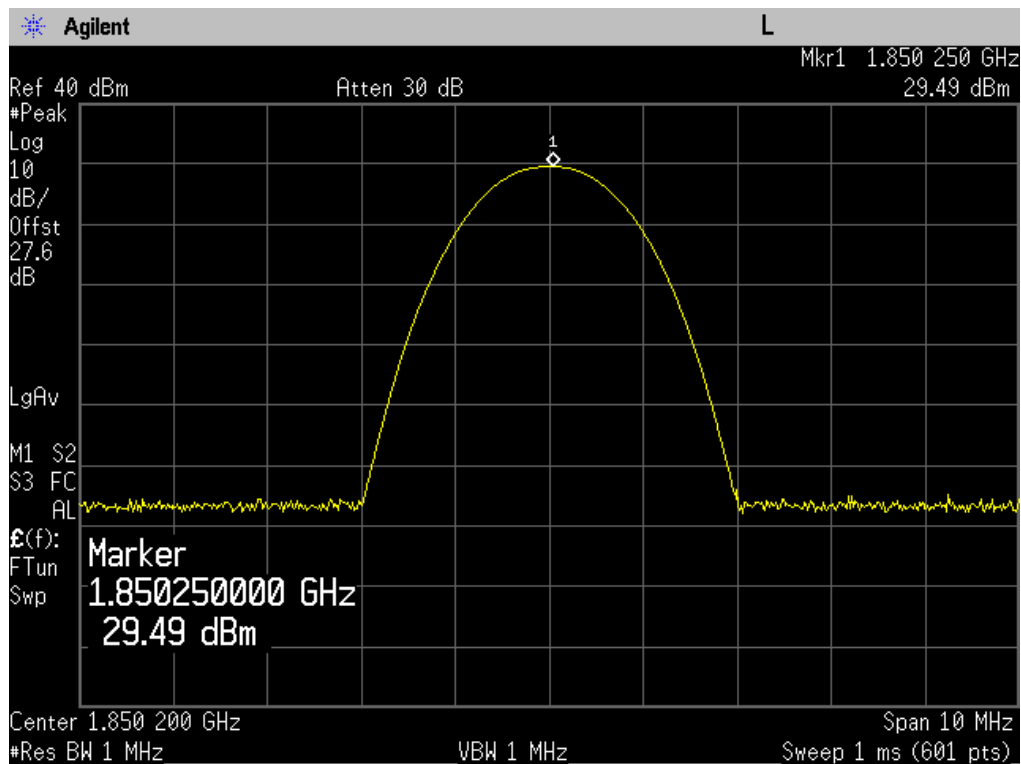


3. Plot when the TCH number set to 810:

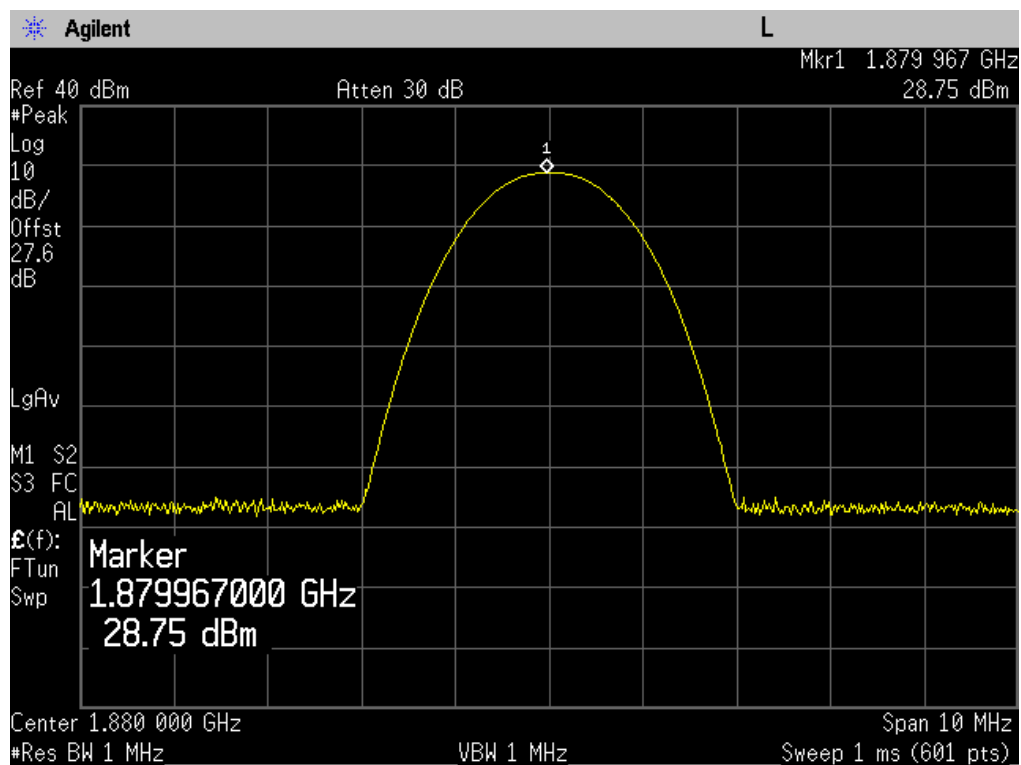


GPRS 1900:

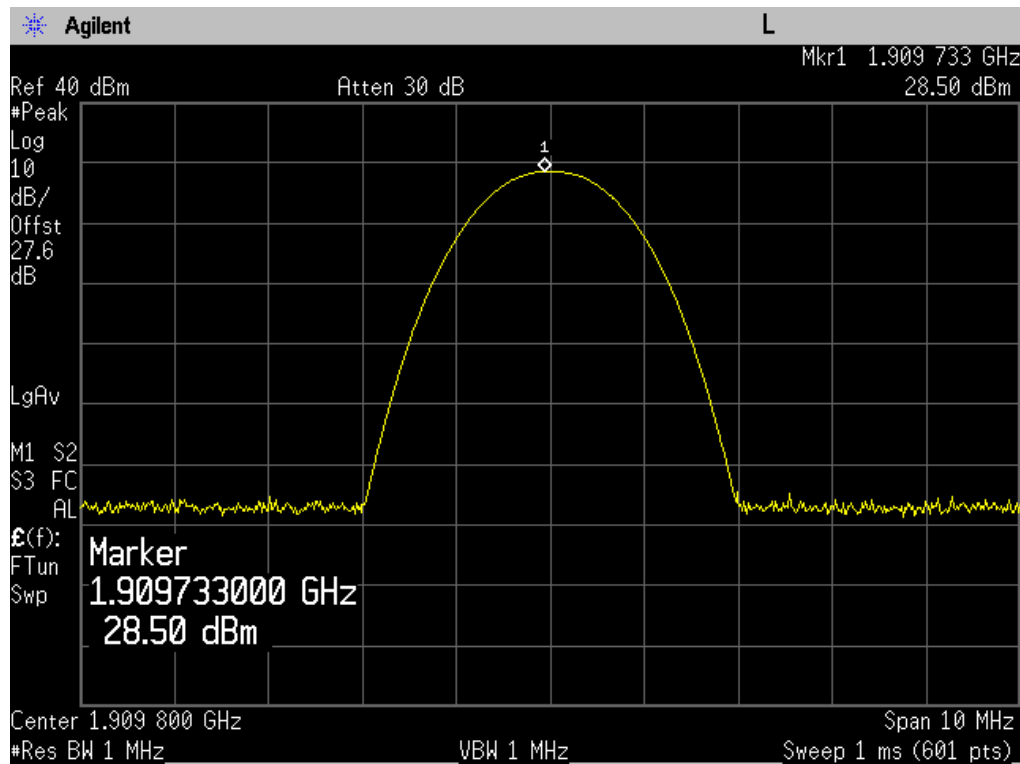
1. Plot when the TCH number set to 512:



2. Plot when the TCH number set to 661:



3. Plot when the TCH number set to 810:



4. OCCUPIED BANDWIDTH

4.1 Test Equipment

Instrument	Manufacturer	Model	Serial No	Cal. Date
Radio Communication Tester	Agilent	E5515C	GB46581718	2013.10.25
Spectrum Analyzer	Agilent	N9038A	MY51210142	2014.07.27
DC Power Supply	Agilent	6612C	MY43002989	2014.03.04

4.2 Test Setup

See the section 2.1.1

4.3 Definition

According to FCC §2.1049, the occupied bandwidth 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.

Occupied bandwidth is also known as the 99% emission bandwidth, or 20dB bandwidth ($10 \cdot \log 1\%$ is equal to 20dB) taking the total RF output power as reference.

4.4 Test Procedure

1. The resolution bandwidth of the Spectrum Analyzer is set to at least one percent of the emission bandwidth, e.g. for GSM modulated signal (here used): $RBW=VBW=3$ kHz, for CDMA modulated signal: $RBW=VBW=30$ kHz.
2. The low, middle and the high channels are selected to perform tests respectively. Set the TCH number to the low channel.
3. Set the frequency range of the Spectrum Analyzer suitably to capture the waveform; search peak; measurement and record the 99% occupied bandwidth.
4. Set the TCH number to middle channel, then repeat step 3.
5. Set the TCH number to high channel, then repeat step 3.

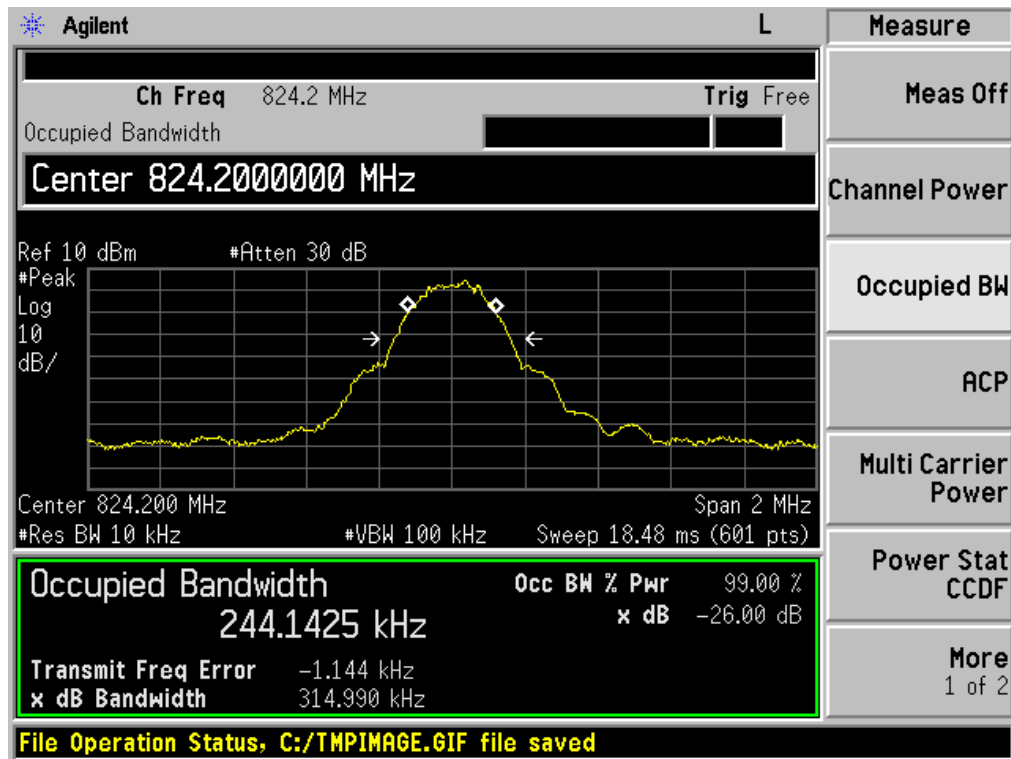
4.5 Test Result

A. Test Verdict:

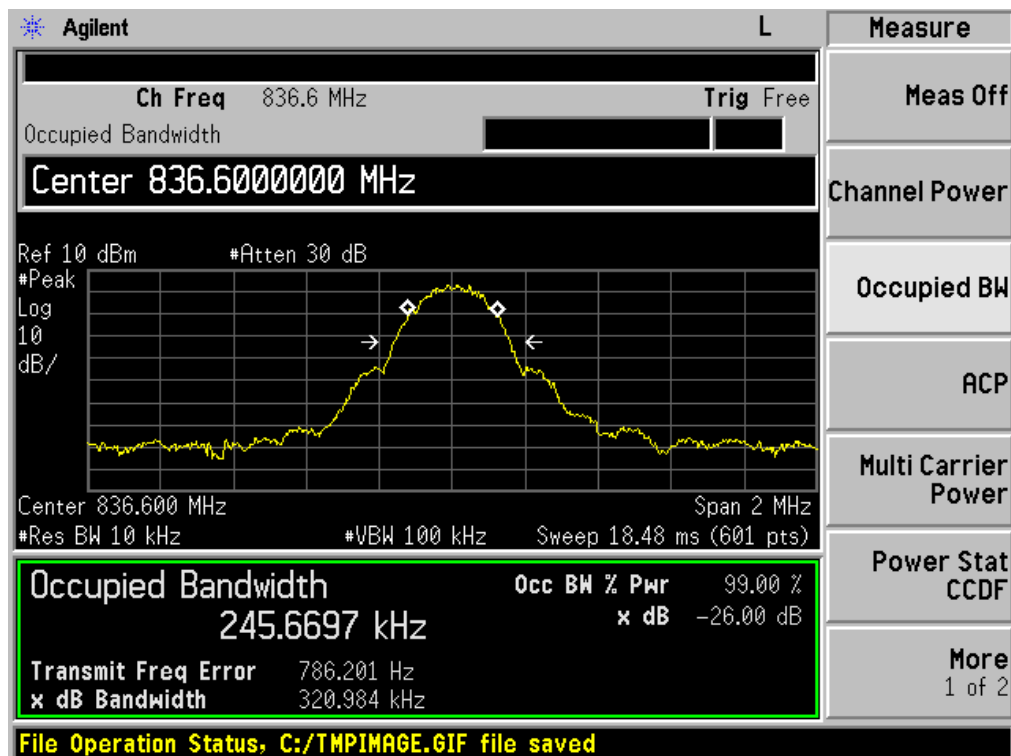
Test Mode	Channel	Frequency (MHz)	Measured Occupied Bandwidth (kHz)
GSM 850	128	824.2	244.1425
	190	836.6	245.6697
	251	848.8	241.8032
PCS 1900	512	1850.2	238.5821
	661	1880.0	246.2644
	810	1909.8	245.7055

B. Test Plots:**GSM 850:**

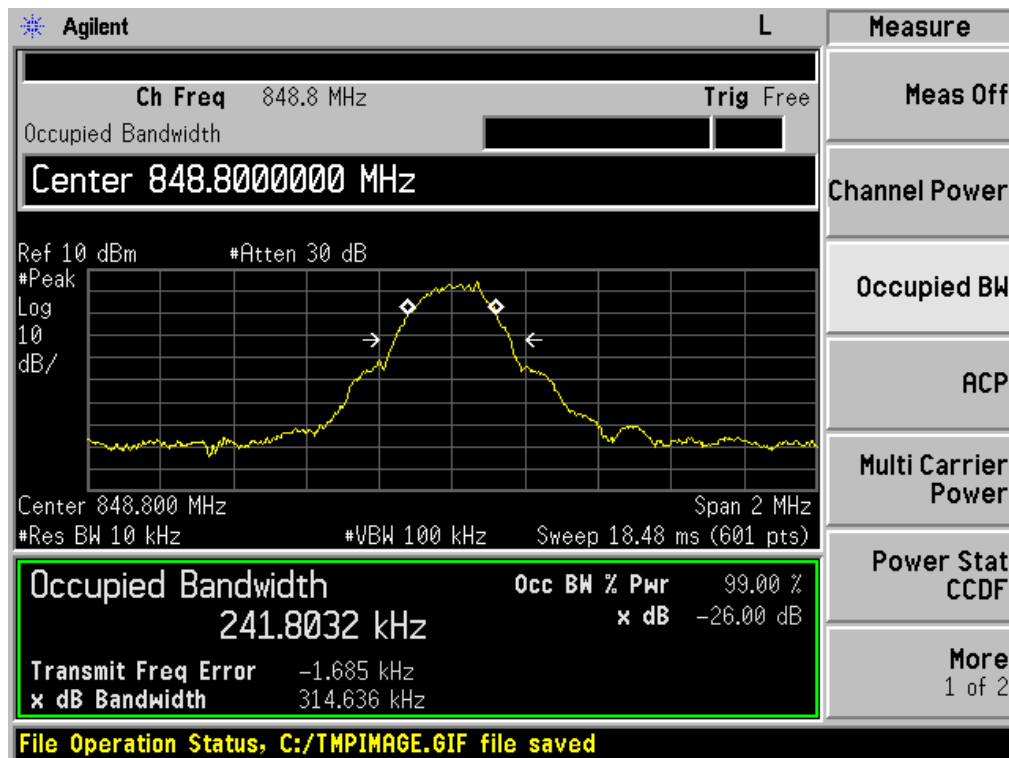
1. Plot when the TCH number set to 128:



2. Plot when the TCH number set to 190:

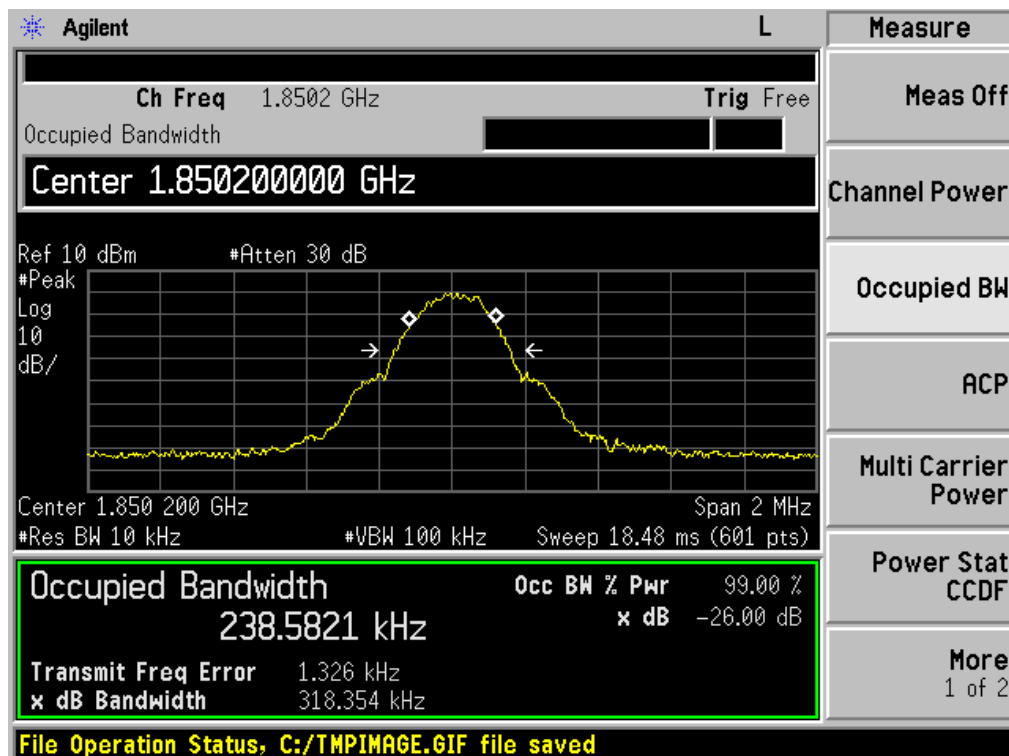


3. Plot when the TCH number set to 251:

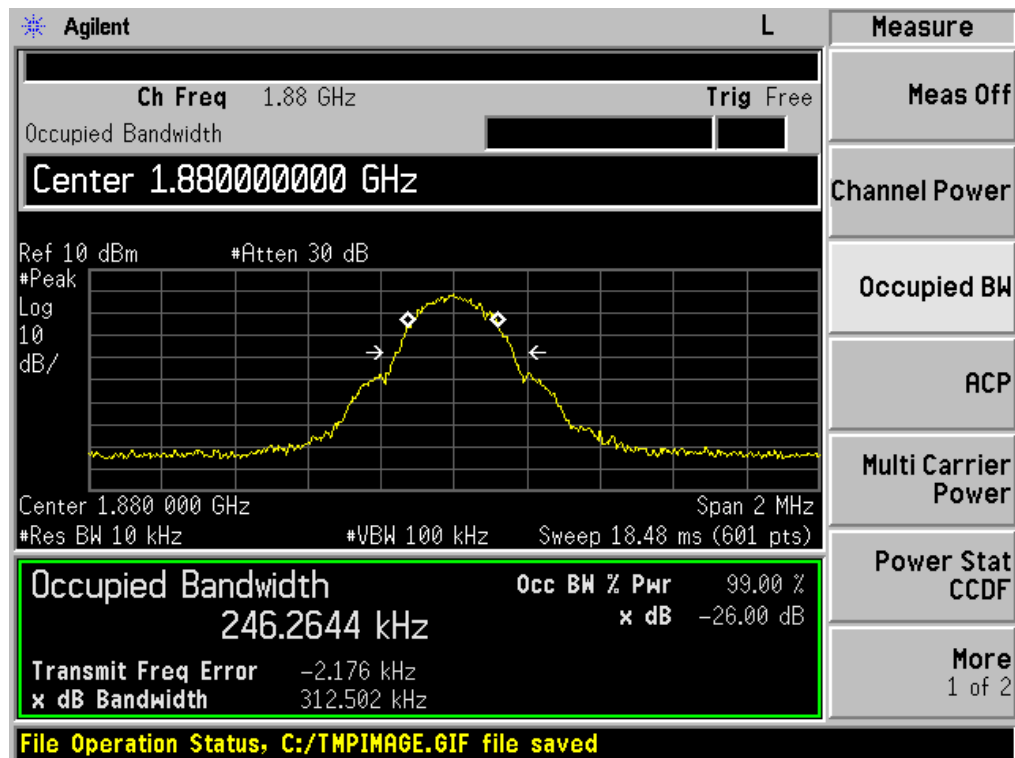


PCS 1900:

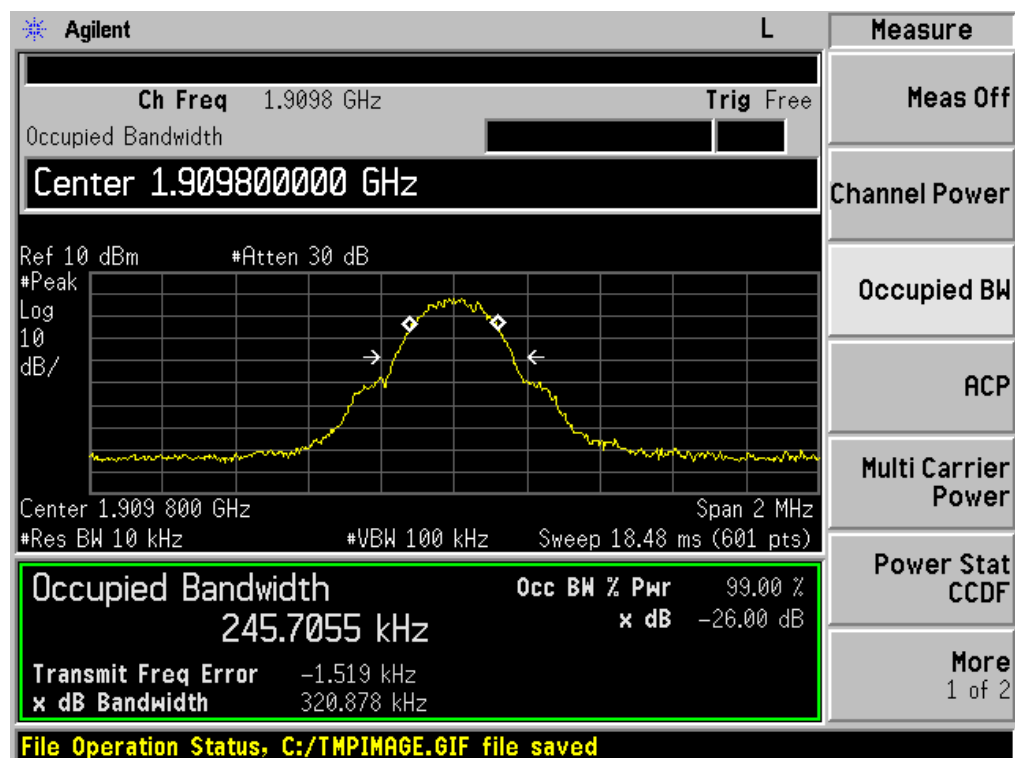
1. Plot when the TCH number set to 512:



2. Plot when the TCH number set to 661:



3. Plot when the TCH number set to 810:



5. CONDUCTED SPURIOUS EMISSION

5.1 Test Equipment

Instrument	Manufacturer	Model	Serial No	Cal. Date
Radio Communication Tester	Agilent	E5515C	GB46581718	2013.10.25
Spectrum Analyzer	Agilent	N9038A	MY51210142	2014.07.27
DC Power Supply	Agilent	6612C	MY43002989	2014.03.04

5.2 Test Setup

See the section 2.1.1

5.3 Definition

According to FCC §22.917(a), 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. This calculated to be -13dBm.

According to FCC §22.917 (a), in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. Thus the 26dB emission bandwidth is measurement for showing compliance at the band-edge.

According to FCC §24.238(a), 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. This calculated to be -13dBm.

According to FCC §24.238(b), in the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. Thus the 26dB emission bandwidth is measurement for showing compliance at the band-edge.

5.4 Test Procedure

1. Make a limit line whose value is -13dBm on the Spectrum Analyzer.
2. The lowest, middle and the highest channels are selected to perform tests respectively. Set the lowest channel.
3. Set the RBW of the Spectrum Analyzer to 1MHz, and the measuring frequency range from 9kHz to 10th harmonic of the fundamental frequency (here used 26.5GHz); mark the fundamental frequency and the harmonics thereof; finally record the harmonics and the plot. Note, the measuring frequency range can be divided into several parts to perform tests.
4. In the 1MHz bands immediately outside and adjacent to the frequency black, the RBW of the Spectrum Analyzer was set to at least one percent of the emission bandwidth of the fundamental emission of the transmitter, e.g. for GSM modulated signal (here used): RBW=3kHz, for CDMA modulated signal: RBW=30kHz.

5. Set the middle channel, then repeat step 3.
6. Set the highest channel, then repeat step 3 and 4.

5.5 Test Result

1. Table for the Harmonics:

NOTE: “---” in the table following means that the emission power was too small to be measured and was at least 12dB below the limit.

No.	Frequency (MHz)	Emission Power (dBm)	Limit (dBm)
GSM 850-TCH number set to 128 (824.20MHz)			
1	1648.40	---	-13
2	2472.60	---	-13
3	3296.80	---	-13
4	4121.00	---	-13
5	4945.20	---	-13
6	5769.40	---	-13
7	6593.60	---	-13
8	7417.80	---	-13
9	8242.00	---	-13
GSM 850-TCH number set to 190 (836.60MHz)			
1	1673.20	---	-13
2	2509.80	---	-13
3	3346.40	---	-13
4	4183.00	---	-13
5	5019.60	---	-13
6	5856.20	---	-13
7	6692.80	---	-13
8	7529.40	---	-13
9	8366.00	---	-13
GSM 850-TCH number set to 251 (848.80MHz)			
1	1697.60	---	-13
2	2546.40	---	-13
3	3395.20	---	-13
4	4244.00	---	-13
5	5092.80	---	-13
6	5941.60	---	-13
7	6790.40	---	-13
8	7639.20	---	-13
9	8488.00	---	-13
PCS 1900 TCH number set to 512 (1850.20MHz)			
1	3700.40	---	-13
2	5550.60	---	-13
3	7400.80	---	-13
4	9251.00	---	-13
5	11101.20	---	-13
6	12951.40	---	-13
7	14801.60	---	-13
8	16651.80	---	-13
9	18502.00	---	-13
PCS 1900 TCH number set to 661 (1880.00MHz)			
1	3760.00	---	-13
2	5640.00	---	-13

3	7520.00	---	-13
4	9400.00	---	-13
5	11280.00	---	-13
6	13160.00	---	-13
7	15040.00	---	-13
8	16920.00	---	-13
9	18800.00	---	-13
PCS 1900 TCH number set to 810 (1909.80MHz)			
1	3819.60	---	-13
2	5729.40	---	-13
3	7639.20	---	-13
4	9549.00	---	-13
5	11458.80	---	-13
6	13368.60	---	-13
7	15278.40	---	-13
8	17188.20	---	-13
9	19098.00	---	-13

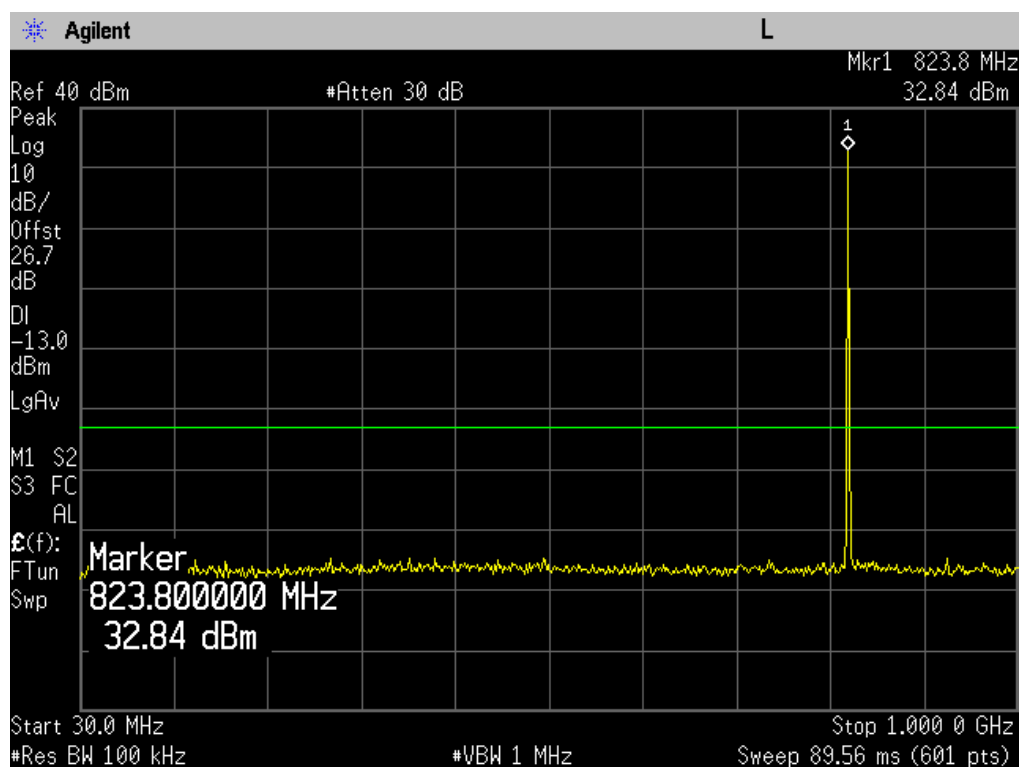
2. Plot for Spurious Emission:

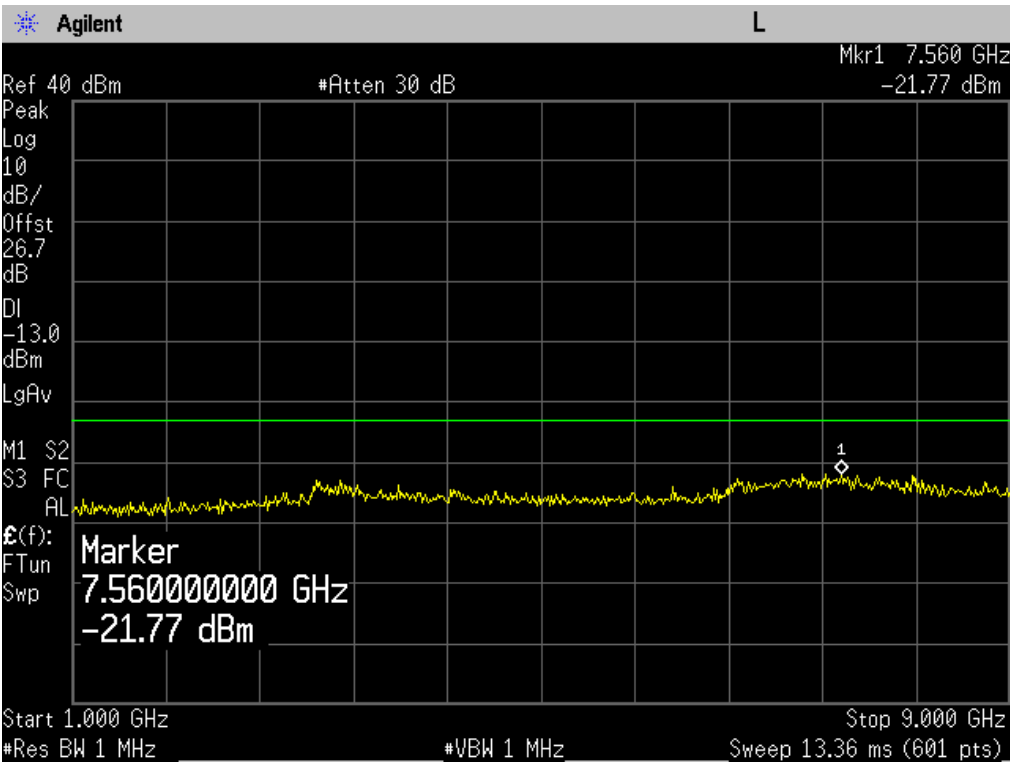
The measuring frequency range was from 9 kHz to 10GHz.

NOTE: The marker points are the Mobile Phone and/or System Simulator transmitting frequencies which should be ignored.

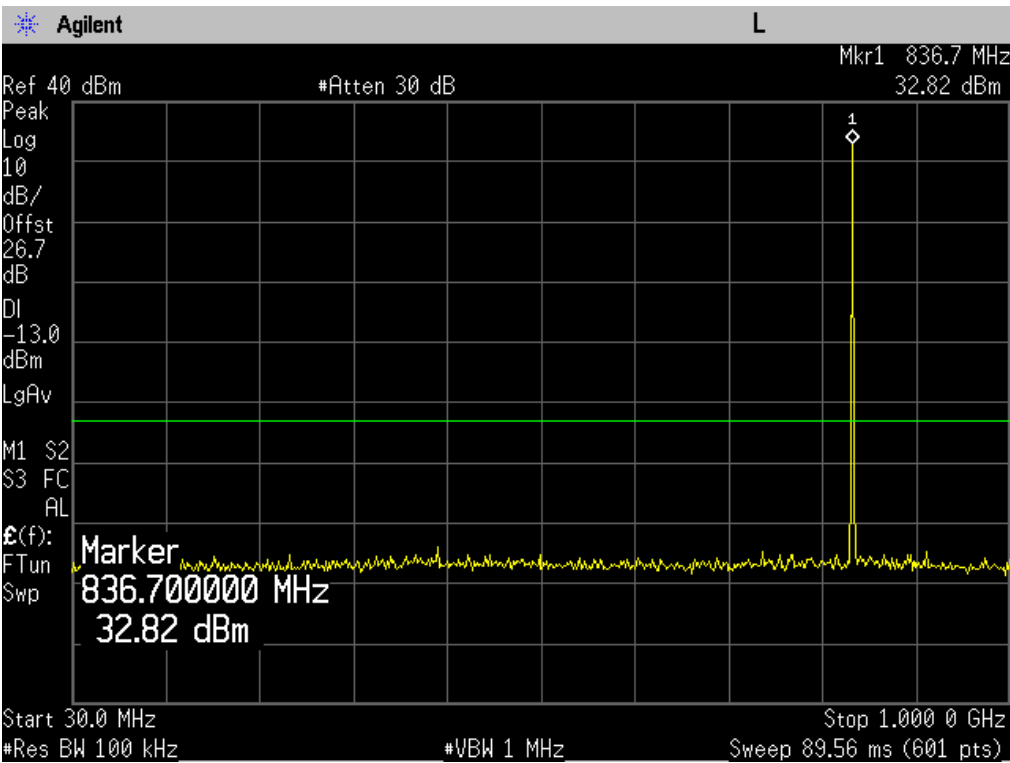
GSM 850:

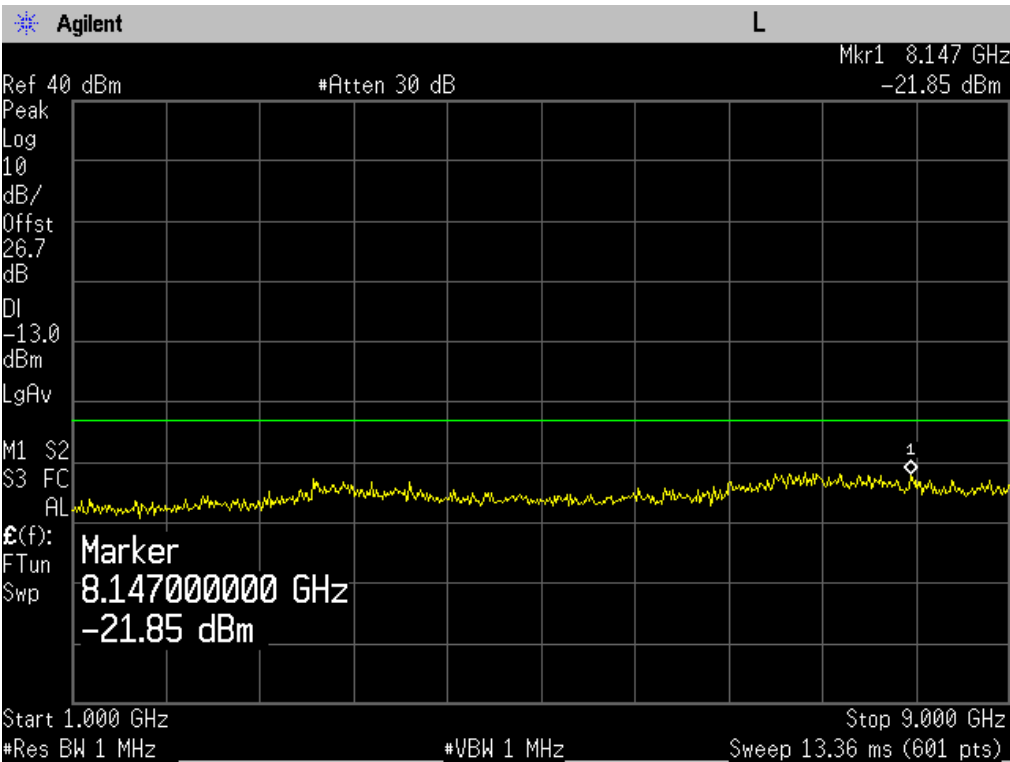
1) Plot when the TCH number set to 128:



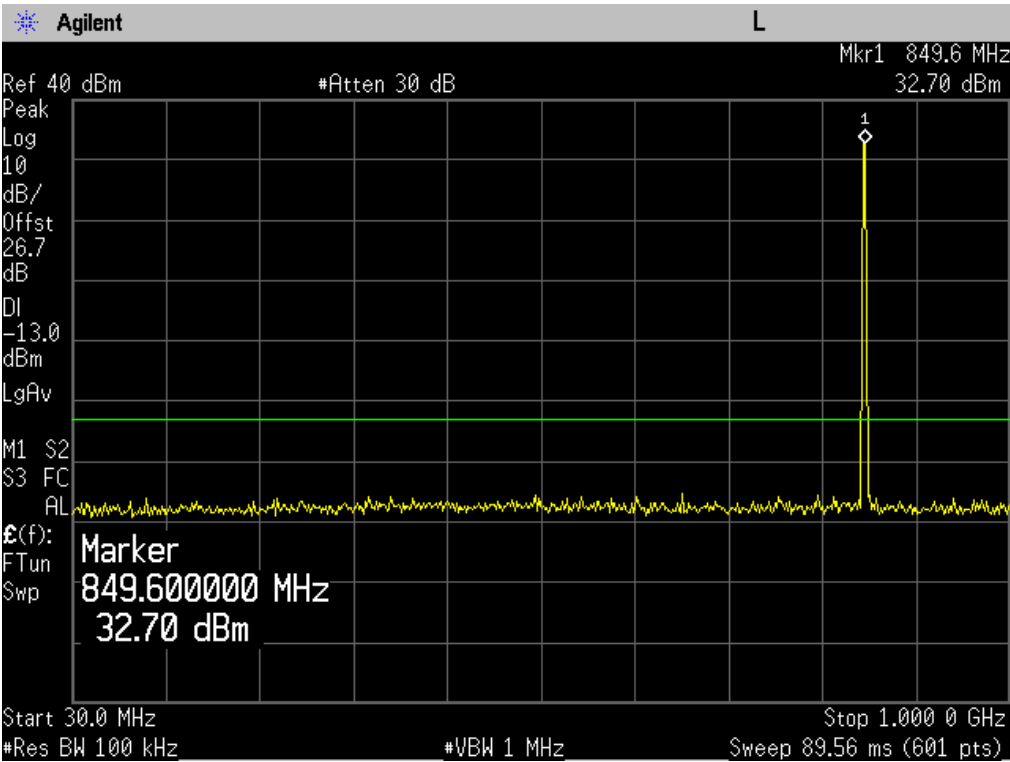


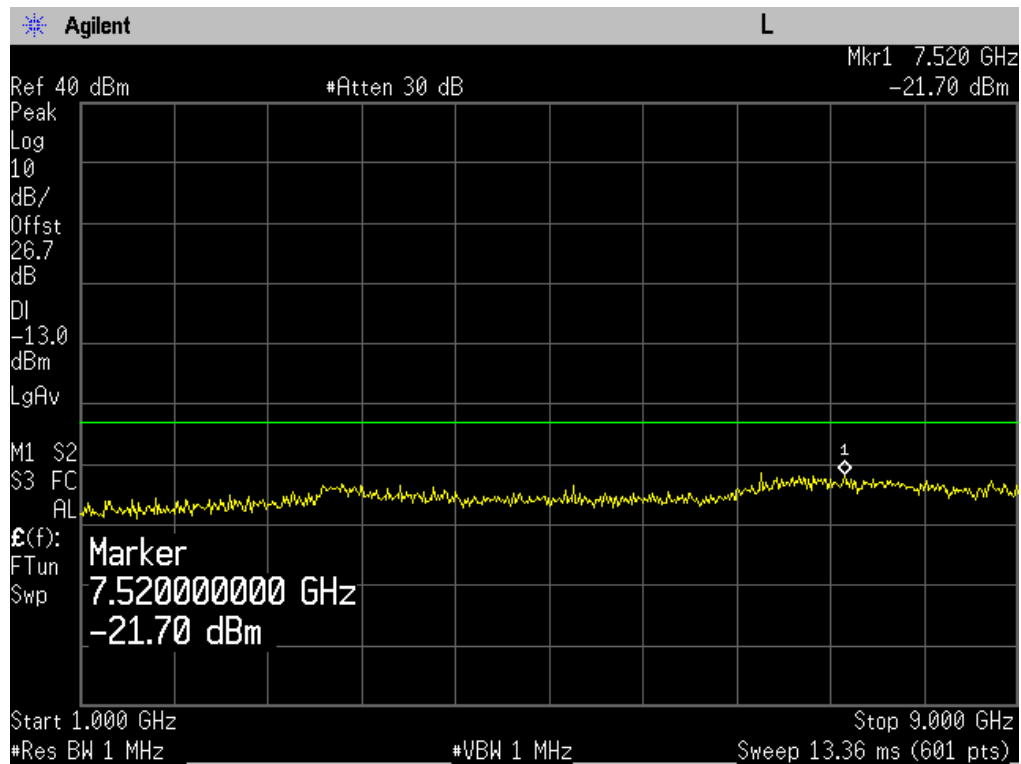
2) Plot when the TCH number set to 190:



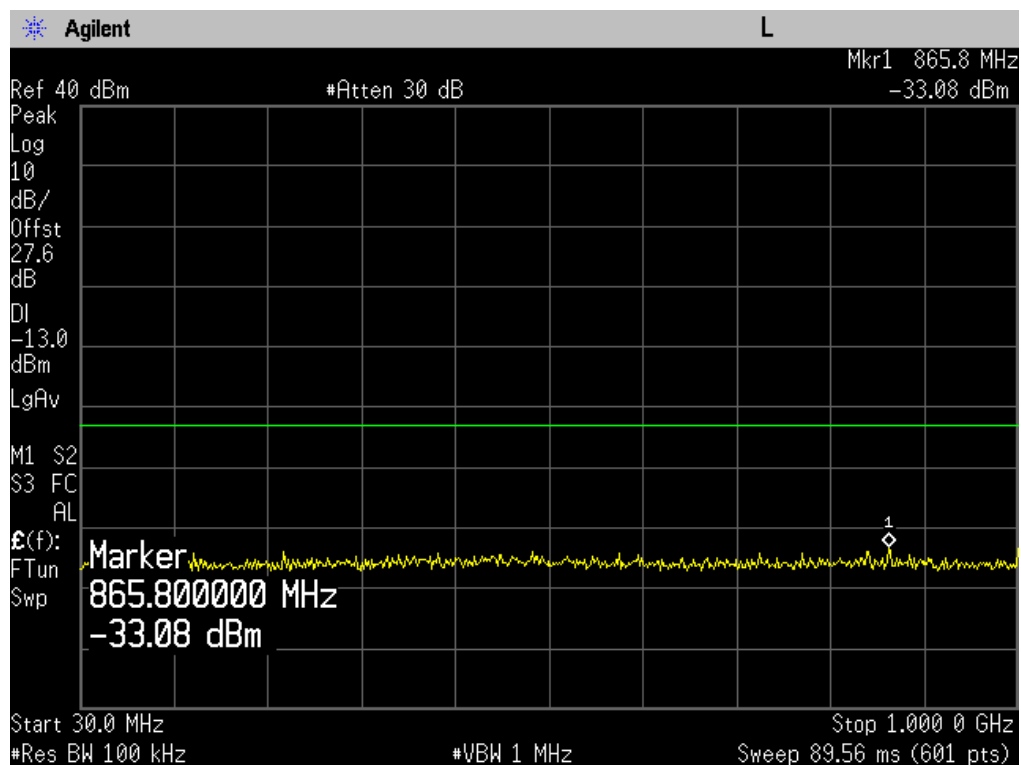


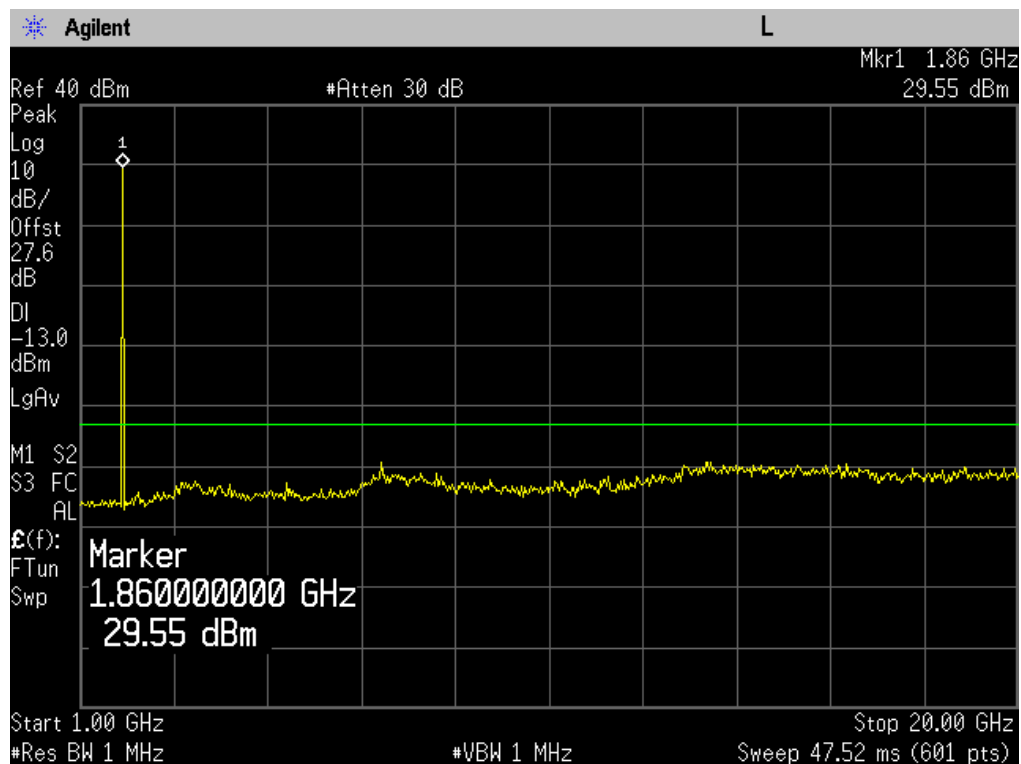
3) Plot when the TCH number set to 251:



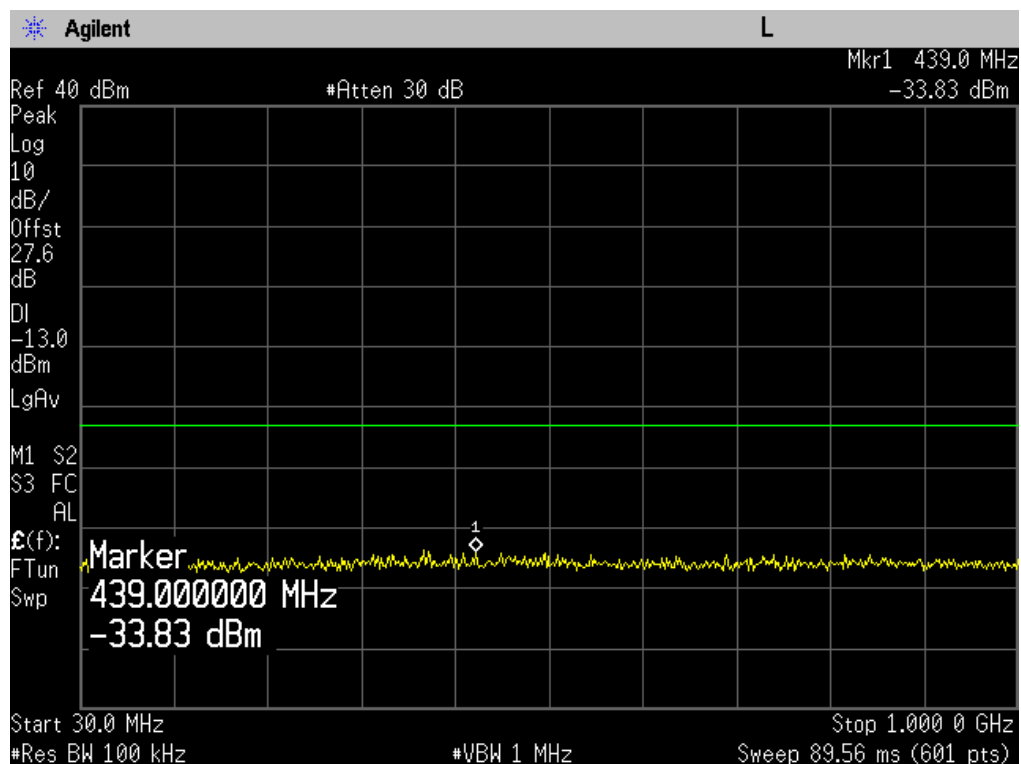
**PCS 1900:**

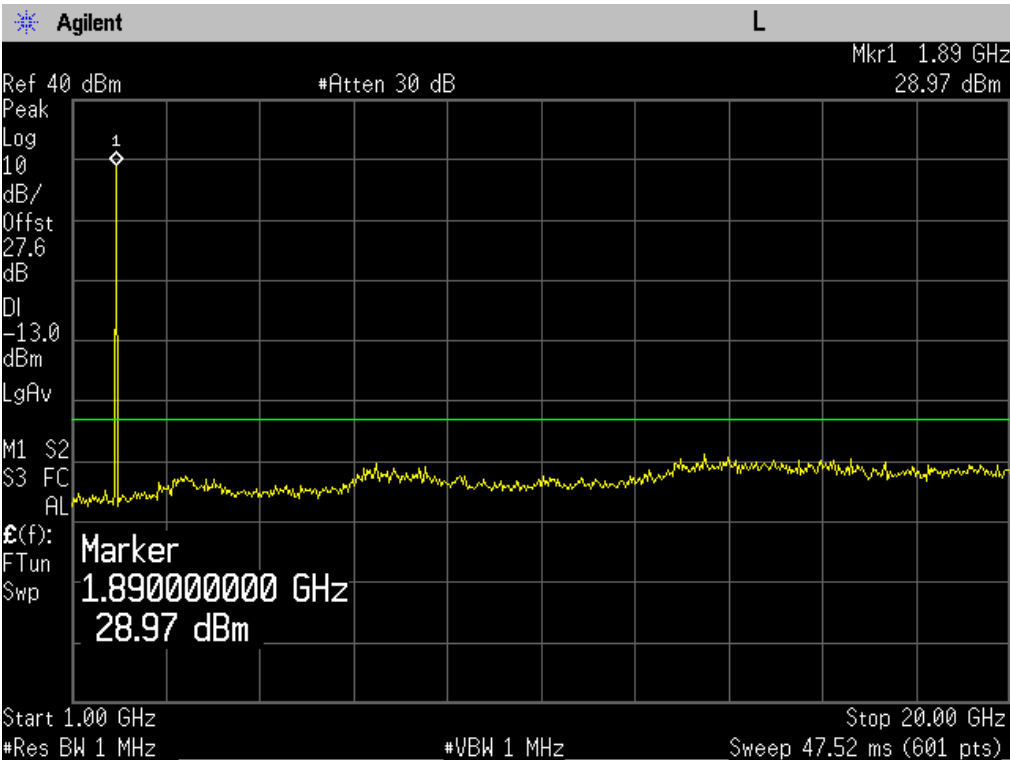
- 1) Plot when the TCH number set to 512:



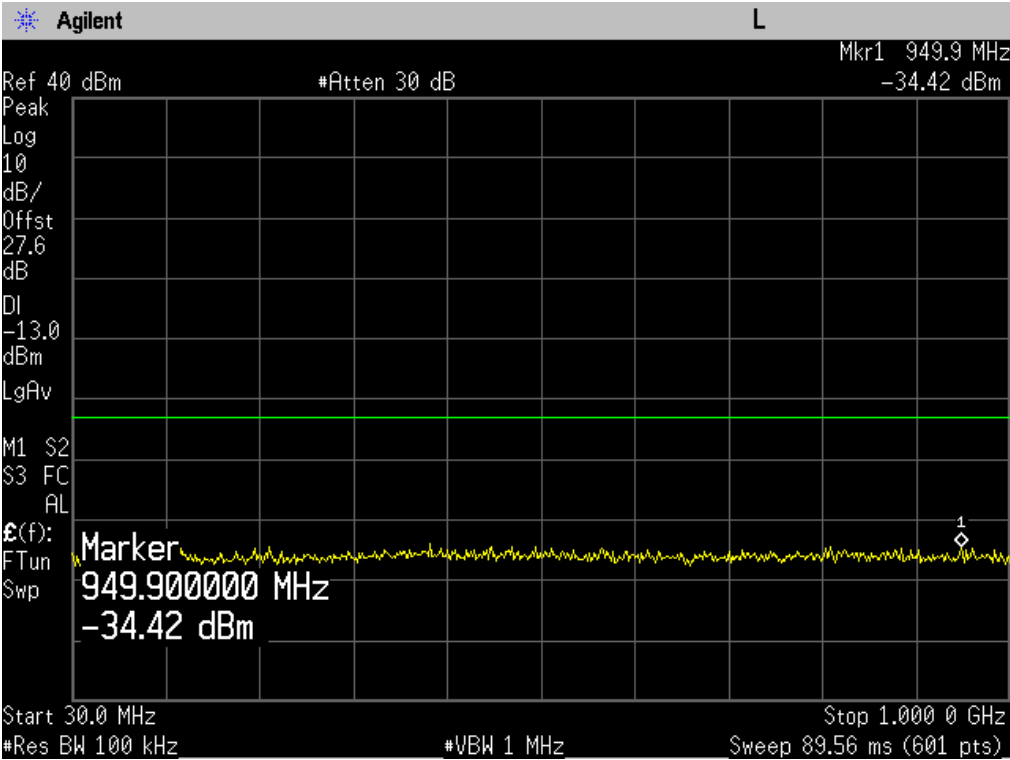


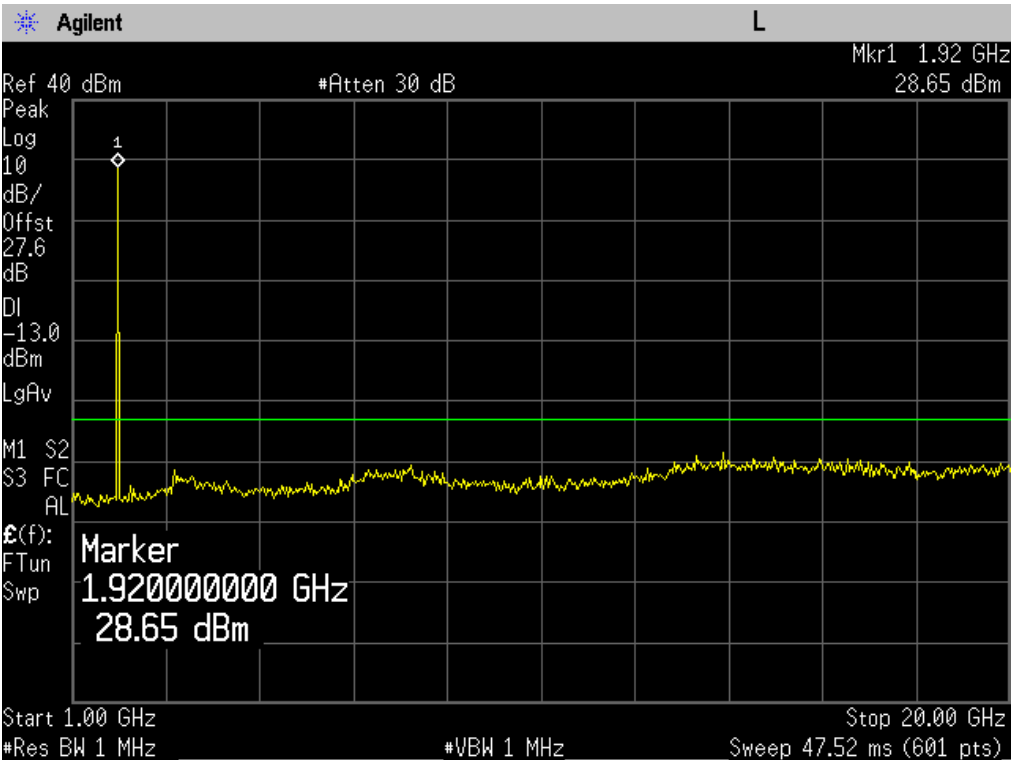
2) Plot when the TCH number set to 661:





3) Plot when the TCH number set to 810:

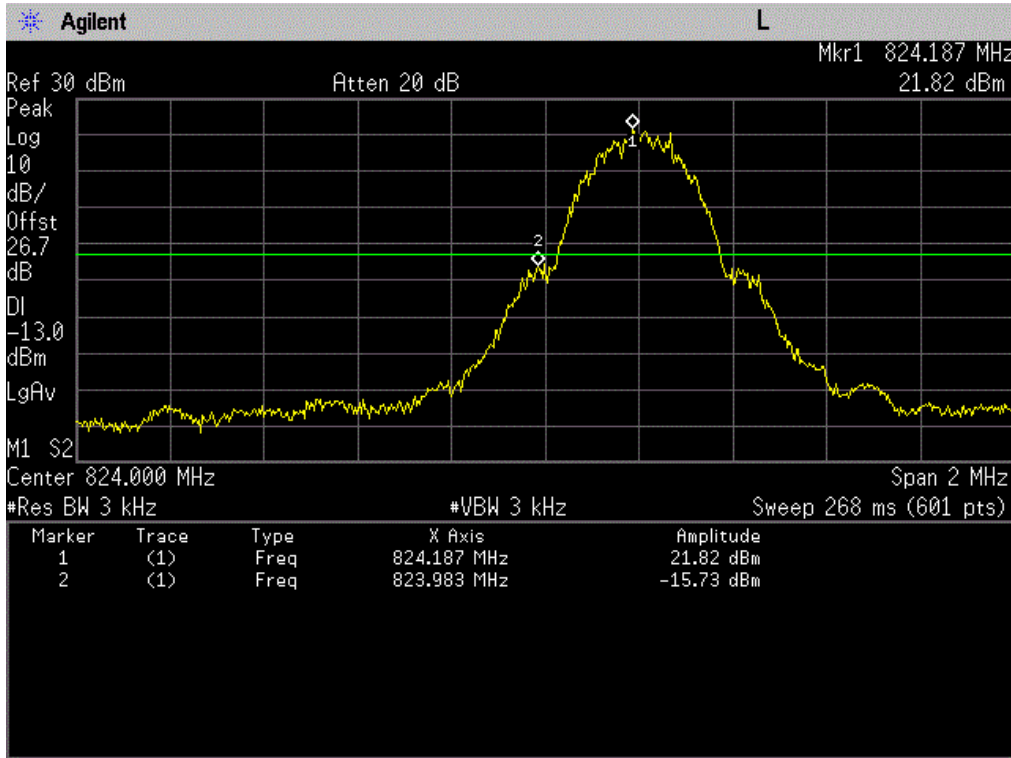




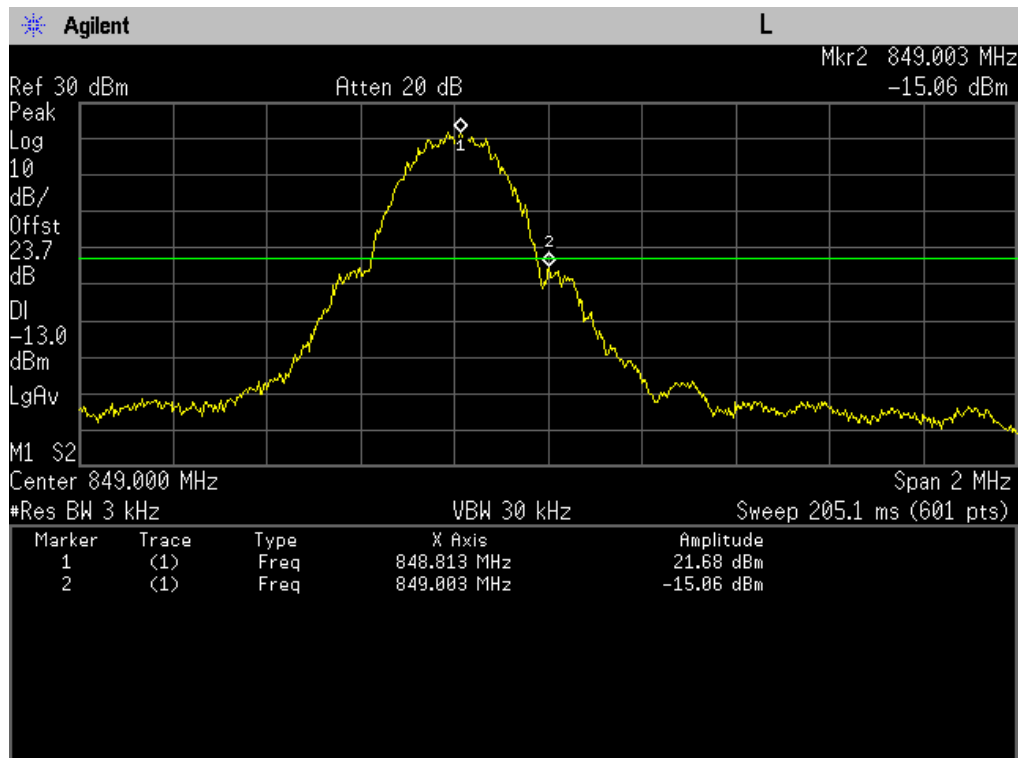
3. Plot for Band-edge

GSM 850:

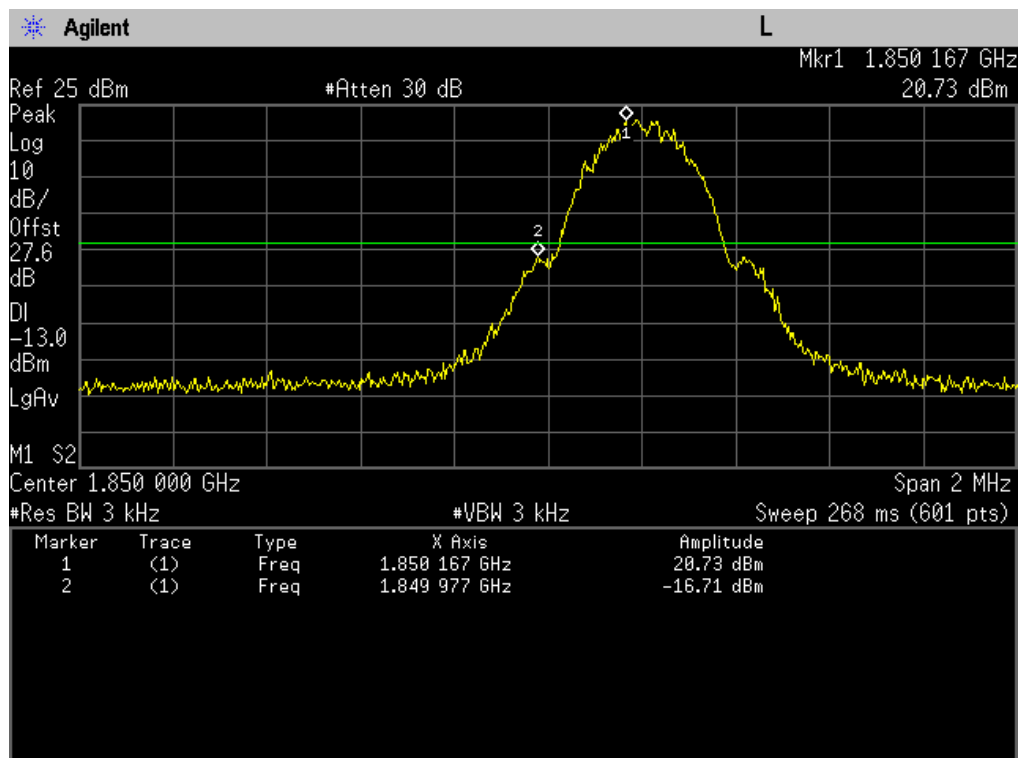
1) Plot when the TCH number set to 128:



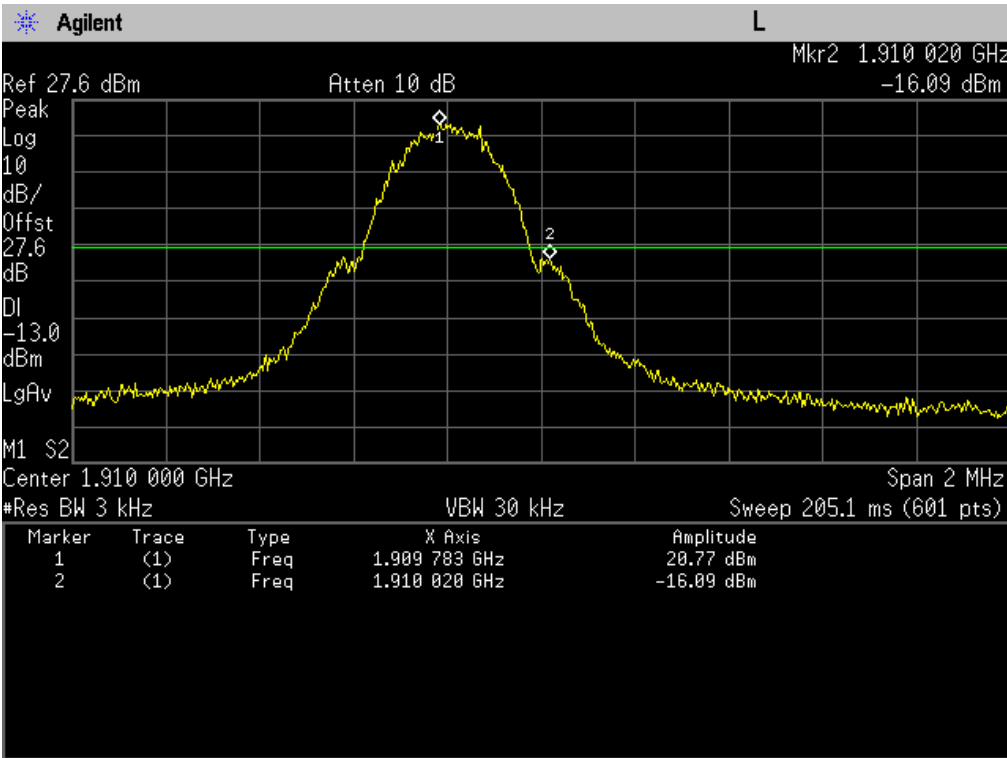
2) Plot when the TCH number set to 251:

**PCS 1900:**

1) Plot when the TCH number set to 512:



2) Plot when the TCH number set to 810:



6. TRANSMITTER RADIATED POWER (EIRP/ERP)

6.1 Test Equipment

Instrument	Manufacturer	Model	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9038A	MY51210142	2014.07.27
Radio Communication Tester	Agilent	E5515C	GB46581718	2013.10.25
Signal Generator	Agilent	N5183A	MY50140938	2013.10.08
Preamplifier	CEM	EM30180	3008A0245	2014.03.01
DC Power Supply	Agilent	6612C	MY43002989	2014.03.04
Bilog Antenna	Schwarzbeck	VULB9160	9160-3316	2014.07.19
VHF-UHF-Biconical Antenna	Schwarzbeck	VUBA9117	9117-263	2014.07.19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-942	2014.07.19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-943	2014.07.19

6.2 Test Setup

See the section 2.1.2

6.3 Definition

According to FCC §22.913, the Effective Radiated Power (ERP) of mobile transmitters and auxiliary test transmitters must not exceed 7Watts, and FCC §24.232, the broadband PCS mobile station is limited to 2Watts e.i.r.p. peak power..

6.4 Test Procedure

See the section 2.1.2

6.5 Test Result

Test Mode	Channel	Frequency (MHz)	Measured ERP		Limit ERP		Result
			dBm	W	dBm	W	
GSM 850	128	824.20	32.28	1.690	< 38.5	< 7	PASS
	190	836.60	32.15	1.641	< 38.5	< 7	PASS
	251	848.80	32.07	1.611	< 38.5	< 7	PASS
GPRS 850	128	824.20	32.12	1.629	< 38.5	< 7	PASS
	190	836.60	31.94	1.563	< 38.5	< 7	PASS
	251	848.80	31.88	1.542	< 38.5	< 7	PASS
PCS 1900	512	1850.20	29.13	0.818	< 33.0	< 2	PASS
	661	1880.00	29.06	0.805	< 33.0	< 2	PASS
	810	1909.80	28.92	0.780	< 33.0	< 2	PASS
GPRS 1900	512	1850.20	29.03	0.800	< 33.0	< 2	PASS
	661	1880.00	28.86	0.769	< 33.0	< 2	PASS
	810	1909.80	28.98	0.791	< 33.0	< 2	PASS

7. RADIATED SPURIOUS EMISSION

7.1 Test Equipment

Instrument	Manufacturer	Model	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9038A	MY51210142	2014.07.27
Radio Communication Tester	Agilent	E5515C	GB46581718	2013.10.25
Signal Generator	Agilent	N5183A	MY50140938	2013.10.08
Preamplifier	CEM	EM30180	3008A0245	2014.03.01
DC Power Supply	Agilent	6612C	MY43002989	2014.03.04
Bilog Antenna	Schwarzbeck	VULB9160	9160-3316	2014.07.19
VHF-UHF-Biconical Antenna	Schwarzbeck	VUBA9117	9117-263	2014.07.19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-942	2014.07.19
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-943	2014.07.19

7.2 Test Setup

See the section 2.1.2

7.3 Definition

According to FCC §22.917(a) and §24.238(a), 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. This calculated to be -13dBm.

7.4 Test Procedure

See the section 2.1.2

7.5 Test Result

No.	Frequency (MHz)	Emission Power (dBm)		Limit (dBm)
		Test Antenna Vertical	Test Antenna Horizontal	
GSM 850 TCH number set to 128 (824.20MHz)				
1	1648.40	-36.18	-40.79	-13
2	2472.60	---	---	-13
3	3296.80	---	---	-13
4	4121.00	---	---	-13
5	4945.20	---	---	-13
6	5769.40	---	---	-13
7	6593.60	---	---	-13
8	7417.80	---	---	-13
9	8242.00	---	---	-13
GSM 850 TCH number set to 190 (836.60MHz)				
1	1673.20	-37.53	-39.06	-13
2	2509.80	---	---	-13
3	3346.40	---	---	-13
4	4183.00	---	---	-13
5	5019.60	---	---	-13
6	5856.20	---	---	-13
7	6692.80	---	---	-13

No.	Frequency (MHz)	Emission Power (dBm)		Limit (dBm)
		Test Antenna Vertical	Test Antenna Horizontal	
8	7529.40	---	---	-13
9	8366.00	---	---	-13
GSM 850 TCH number set to 251 (848.80MHz)				
1	1697.60	-36.29	-38.78	-13
2	2546.40	---	---	-13
3	3395.20	---	---	-13
4	4244.00	---	---	-13
5	5092.80	---	---	-13
6	5941.60	---	---	-13
7	6790.40	---	---	-13
8	7639.20	---	---	-13
9	8488.00	---	---	-13
GPRS 850-TCH number set to 128 (824.20MHz)				
1	1648.40	-37.11	-41.34	-13
2	2472.60	---	---	-13
3	3296.80	---	---	-13
4	4121.00	---	---	-13
5	4945.20	---	---	-13
6	5769.40	---	---	-13
7	6593.60	---	---	-13
8	7417.80	---	---	-13
9	8242.00	---	---	-13
GPRS 850-TCH number set to 190 (836.60MHz)				
1	1673.20	-36.81	-40.16	-13
2	2509.80	---	---	-13
3	3346.40	---	---	-13
4	4183.00	---	---	-13
5	5019.60	---	---	-13
6	5856.20	---	---	-13
7	6692.80	---	---	-13
8	7529.40	---	---	-13
9	8366.00	---	---	-13
GPRS 850-TCH number set to 251 (848.80MHz)				
1	1697.60	-37.51	-38.25	-13
2	2546.40	---	---	-13
3	3395.20	---	---	-13
4	4244.00	---	---	-13
5	5092.80	---	---	-13
6	5941.60	---	---	-13
7	6790.40	---	---	-13
8	7639.20	---	---	-13
9	8488.00	---	---	-13
PCS 1900 TCH number set to 512 (1850.20MHz)				
1	3700.40	-38.52	-41.27	-13
2	5550.60	---	---	-13
3	7400.80	---	---	-13
4	9251.00	---	---	-13
5	11101.20	---	---	-13
6	12951.40	---	---	-13
7	14801.60	---	---	-13
8	16651.80	---	---	-13
9	18502.00	---	---	-13

No.	Frequency (MHz)	Emission Power (dBm)		Limit (dBm)
		Test Antenna Vertical	Test Antenna Horizontal	
PCS 1900 TCH number set to 661 (1880.0MHz)				
1	3760.00	-36.77	-39.53	-13
2	5640.00	---	---	-13
3	7520.00	---	---	-13
4	9400.00	---	---	-13
5	11280.00	---	---	-13
6	13160.00	---	---	-13
7	15040.00	---	---	-13
8	16920.00	---	---	-13
9	18800.00	---	---	-13
PCS 1900 TCH number set to 810 (1909.80MHz)				
1	3819.60	-37.08	-40.22	-13
2	5729.40	---	---	-13
3	7639.20	---	---	-13
4	9549.00	---	---	-13
5	11458.80	---	---	-13
6	13368.60	---	---	-13
7	15278.40	---	---	-13
8	17188.20	---	---	-13
9	19098.00	---	---	-13
GPRS 1900-TCH number set to 512 (1850.20MHz)				
1	3700.40	-37.15	-39.27	-13
2	5550.60	---	---	-13
3	7400.80	---	---	-13
4	9251.00	---	---	-13
5	11101.20	---	---	-13
6	12951.40	---	---	-13
7	14801.60	---	---	-13
8	16651.80	---	---	-13
9	18502.00	---	---	-13
GPRS 1900-TCH number set to 661 (1880.0MHz)				
1	3760.00	-39.76	-37.02	-13
2	5640.00	---	---	-13
3	7520.00	---	---	-13
4	9400.00	---	---	-13
5	11280.00	---	---	-13
6	13160.00	---	---	-13
7	15040.00	---	---	-13
8	16920.00	---	---	-13
9	18800.00	---	---	-13
GPRS 1900-TCH number set to 810 (1909.80MHz)				
1	3819.60	-38.46	-39.22	-13
2	5729.40	---	---	-13
3	7639.20	---	---	-13
4	9549.00	---	---	-13
5	11458.80	---	---	-13
6	13368.60	---	---	-13
7	15278.40	---	---	-13
8	17188.20	---	---	-13
9	19098.00	---	---	-13

8. Frequency Stability

8.1 Test Equipment

Instrument	Manufacturer	Model	Serial No.	Cali. Due Date
Spectrum Analyzer	Agilent	N9038A	MY51210142	2014.07.27
Radio Communication Tester	Agilent	E5515C	GB46581718	2013.10.25
DC Power Supply	Agilent	6612C	MY43002989	2014.03.04
DC Power Supply	ITECH	IT5612	01600210661201014	2013.11.16
Temperature Chamber	WEISS	DU/20/40	58226017340050	2013.12.04

8.2 Test Setup

See the section 2.1.3

8.3 Definition

According to FCC §22.355 and §24.235, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

According to FCC §2.1055, the test conditions are:

a) Temperature:

The temperature is varied from -30°C to +50°C at intervals of not more than 10°C.

b) Primary Supply Voltage:

For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

8.4 Test Procedure

1. Set the voltage of the DC Power Supply to normal supply voltage (here used 3.7V) and the temperature of the Temperature Chamber to vary from -30°C to +50°C at intervals of 10°C.
2. At each temperature level, the EUT is powered off and kept in the Temperature Chamber for two hours.
3. After sufficient stabilization, turn on the EUT, command it via the System Simulator (SS) to operate at the maximum output power and then establish a communication link between the EUT and the SS.
4. The low, middle and the high channels are selected to perform tests respectively. Set the low channel.
5. The frequency deviation is measured (directly read from the SS, which can report the parameter)

within three minutes.

6. Set the middle channel, then repeat step 4.
7. Set the high channel, then repeat step 4.
8. Adjust the temperature of the Temperature Chamber as specified in step 1, then repeat step 2 to 6.
9. Set the voltage of the DC Power Supply to high extreme supply voltage (here used 4.2V) and the temperature of the Temperature Chamber to normal (here used +22°C), then repeat step 2 to 7.
10. Set the voltage of the DC Power Supply to low extreme supply voltage (here used 3.6V) and the temperature of the Temperature Chamber to normal (here used +22°C), then repeat step 2 to 7.

8.5 Test Result

Band	Test Conditions		Frequency Deviation (Hz) at Channels Used			
	Voltage	Temperature	128	190	251	Limit ($\pm 2.5\text{ppm}$)
GSM 850	V-nor	-30°C	-14.69	-22.74	12.45	(a) $\pm 2060\text{Hz}$ for 128 Channel (b) $\pm 2096\text{Hz}$ for 190 Channel (c) $\pm 3055\text{Hz}$ for 251 Channel
		-20°C	-9.48	25.12	-8.40	
		-10°C	19.95	13.85	12.37	
		0°C	-23.16	-8.33	-9.49	
		+10°C	11.40	27.37	10.59	
		+20°C	-6.42	-22.66	-23.15	
		+30°C	14.65	-12.25	-15.67	
		+40°C	-21.53	10.96	-34.47	
	V-high	+22°C	-30.06	19.68	-26.65	
	V-low	+22°C	-13.63	-12.35	-20.84	
Result:PASS						
Band	Test Conditions		Frequency Deviation (Hz) at Channels Used			
	Voltage	Temperature	128	190	251	Limit ($\pm 2.5\text{ppm}$)
GPRS 850	V-nor	-30°C	-24.36	-11.35	13.01	(a) $\pm 2060\text{Hz}$ for 128 Channel (b) $\pm 2096\text{Hz}$ for 190 Channel (c) $\pm 3055\text{Hz}$ for 251 Channel
		-20°C	-11.30	-15.83	-12.16	
		-10°C	-21.73	-14.56	-12.93	
		0°C	-12.38	2.38	-11.07	
		+10°C	-12.18	-21.08	11.15	
		+20°C	-14.36	-11.95	-10.59	
		+30°C	-15.43	-13.46	15.96	
		+40°C	-5.22	11.67	-13.91	
	V-high	+22°C	-9.28	10.39	-16.09	
	V-low	+22°C	-11.15	-15.36	-10.28	
Result:PASS						

Band	Test Conditions		Frequency Deviation (Hz) at Channels Used			
	Voltage	Temperature	512	661	810	Limit (±1ppm)
PCS 1900	V-nor	-30°C	-18.41	-11.57	14.12	(a) ±1850Hz at 512 Channel (b) ±1880Hz at 661 Channel (c) ±1910Hz at 810 Channel
		-20°C	-15.35	-16.05	-17.29	
		-10°C	-25.78	-14.78	-18.06	
		0°C	-16.43	12.16	-16.20	
		+10°C	-16.23	-21.38	-13.98	
		+20°C	18.41	-12.17	-25.72	
		+30°C	-19.48	13.68	-19.17	
		+40°C	-9.27	11.45	-19.04	
	+50°C	-17.16	-11.31	-21.69		
	V-high	+22°C	-13.33	10.17	-21.22	
V-low	+22°C	-15.22	-15.58	-25.41		
Result:PASS						
Band	Test Conditions		Frequency Deviation (Hz) at Channels Used			
	Voltage	Temperature	512	661	810	Limit (±1ppm)
GPRS 1900	V-nor	-30°C	-15.97	-18.97	-20.84	(a) ±1850Hz at 512 Channel (b) ±1880Hz at 661 Channel (c) ±1910Hz at 810 Channel
		-20°C	-15.71	-11.48	-16.86	
		-10°C	-4.87	-6.35	-16.76	
		0°C	16.73	-7.04	-24.47	
		+10°C	-17.85	-0.94	-29.05	
		+20°C	16.80	-12.55	16.59	
		+30°C	-10.78	-10.93	-19.35	
		+40°C	-10.72	-9.54	-23.07	
	+50°C	17.31	-12.71	-12.63		
	V-high	+22°C	-16.84	12.13	-19.56	
V-low	+22°C	-12.03	-7.48	-11.72		
Result:PASS						

APPENDIX I PHOTOGRAPHS OF TEST SETUP

RF TEST SETUP



RADIATED EMISSION TEST SETUP





Frequency Stability TEST SETUP



APPENDIX II PHOTOGRAPHS OF EUT

FRONT VIEW OF SAMPLE



BACK VIEW OF SAMPLE



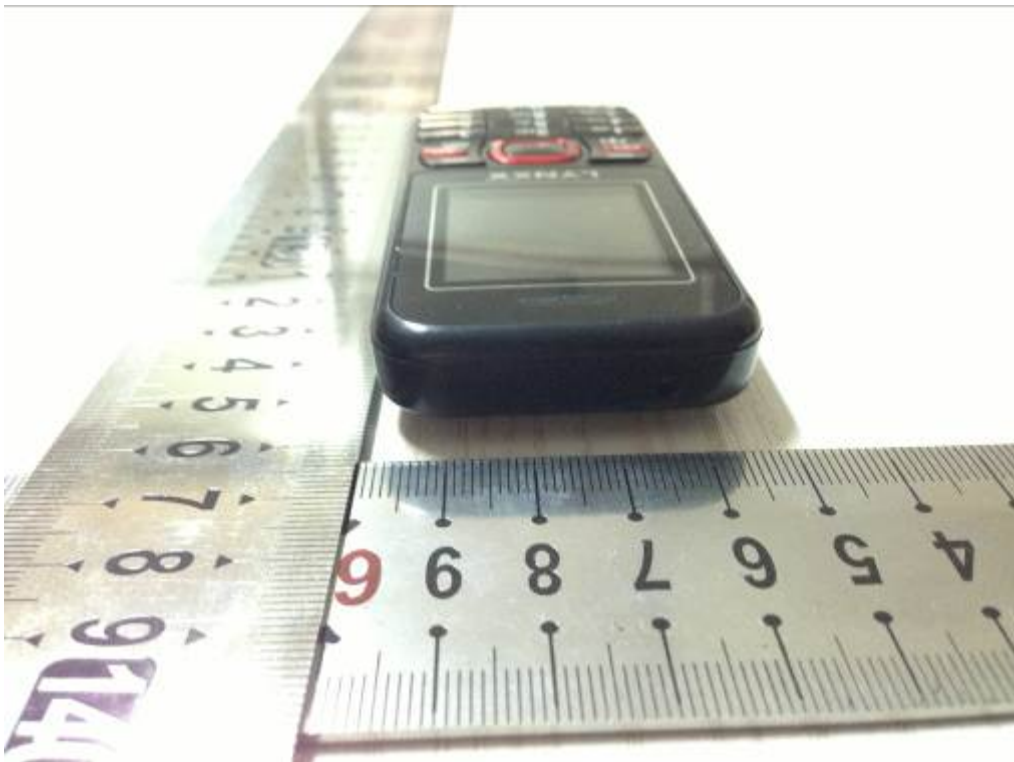
LEFT VIEW OF SAMPLE



RIGHT VIEW OF SAMPLE



UP VIEW OF SAMPLE



DOWN VIEW OF SAMPLE



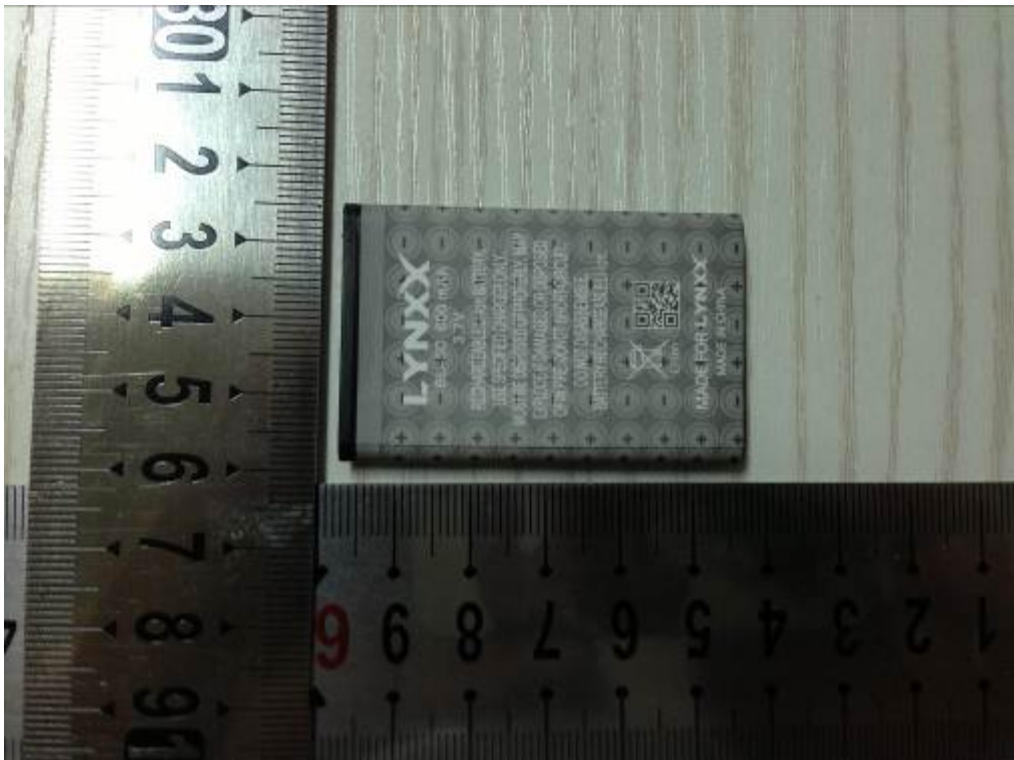
PHOTO OF CHARGER



PHOTO OF HEADPHONE



PHOTO OF BATTERY



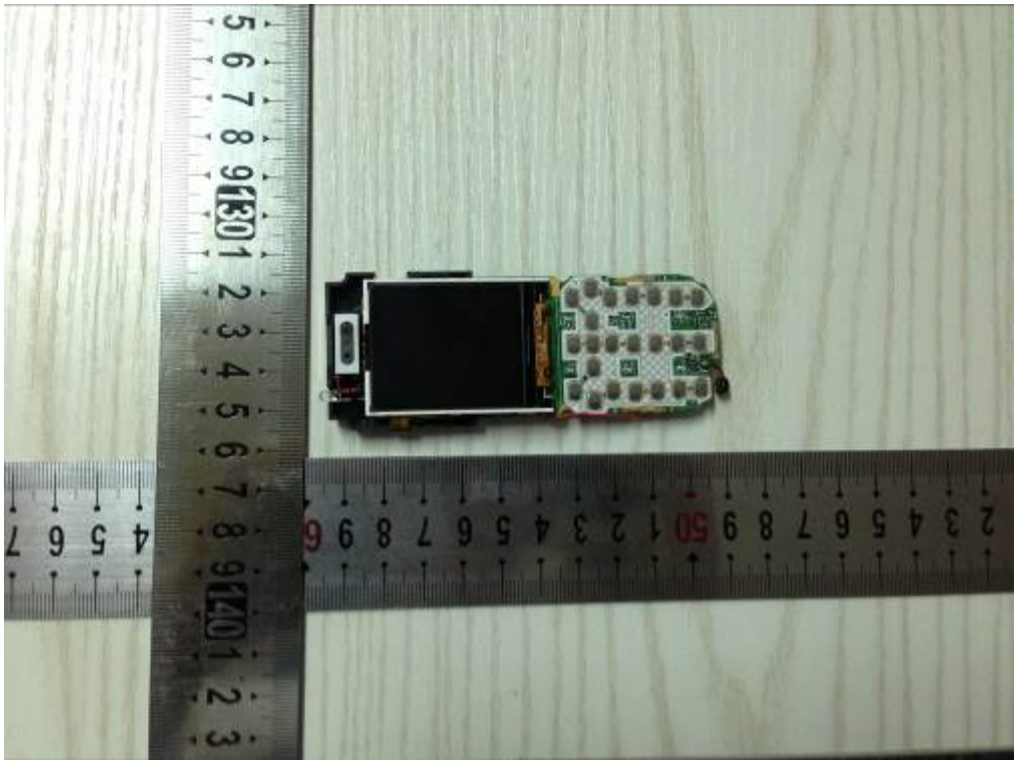
INTERNAL PHOTO OF SAMPLE - 1



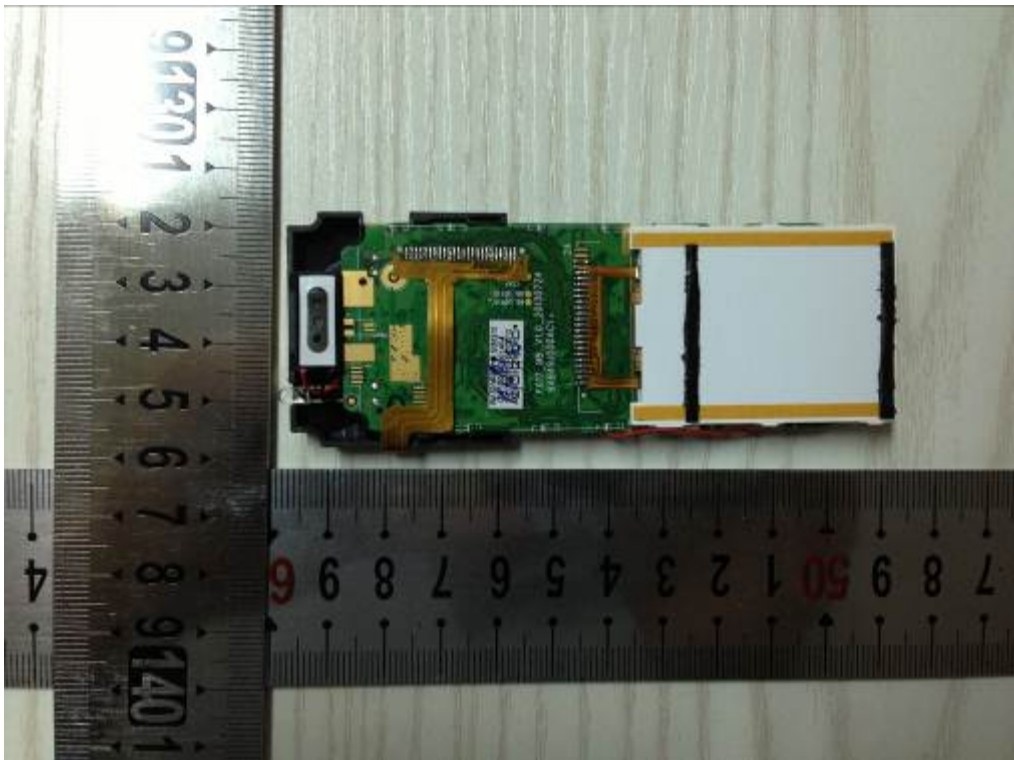
INTERNAL PHOTO OF SAMPLE -2



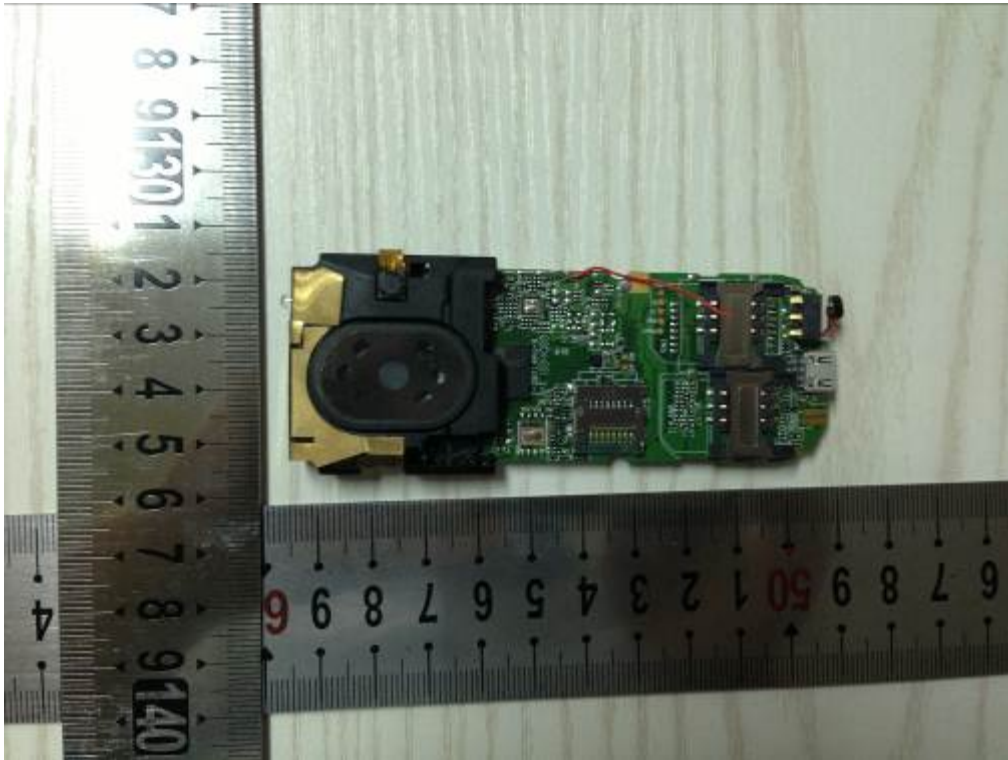
INTERNAL PHOTO OF SAMPLE - 3



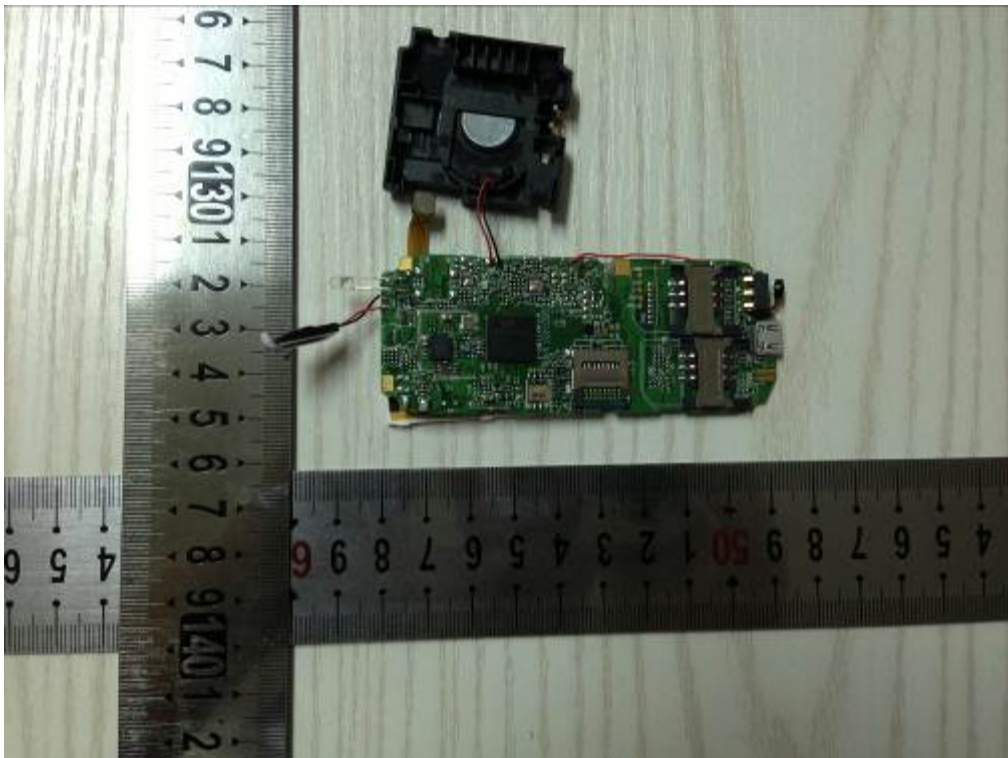
INTERNAL PHOTO OF SAMPLE - 4



INTERNAL PHOTO OF SAMPLE - 5



INTERNAL PHOTO OF SAMPLE - 6



INTERNAL PHOTO OF SAMPLE - 7



-- END OF REPROT --