



# Part 27

## TEST REPORT

Product Name	Neptune pine
FCC ID	2ABWUP312
Model	P312
Client	NEPTUNE COMPUTER INC.
Manufacturer	NEPTUNE COMPUTER INC.
Date of issue	June 6, 2014

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

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**GENERAL SUMMARY**

<b>Reference Standard(s)</b>	<p><b>FCC CFR47 Part 2 (2012)</b> Frequency Allocations And Radio Treaty Matters; General Rules And Regulations</p> <p><b>FCC CFR47 Part 27C (2012)</b> MISCELLANEOUS WIRELESS COMMUNICATIONS SERVICES</p> <p><b>ANSI/TIA-603-C(2004)</b> Land mobile FM or PM Communications Equipment Measurements and Performance Standards.</p> <p><b>KDB 971168 D01 Power Meas License Digital Systems v02r01</b> Measurement Guidance for Certification of Licensed Digital Transmitters</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>
<b>Comment</b>	<p>The test result only responds to the measured sample.</p>

Approved by Weizhong Yang

Weizhong Yang  
Director

Revised by Lingling Kang

Lingling Kang  
RF Manager

Performed by Yiqi Chen

Yiqi Chen  
RF Engineer

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## **1. General Information**

### **1.1. Notes of the test report**

**TA Technology (Shanghai) Co., Ltd.** has obtained the accreditation of China National Accreditation Service for Conformity Assessment (CNAS), and accreditation number: L2264.

**TA Technology (Shanghai) Co., Ltd.** has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements. The site recognition number is 428261.

**TA Technology (Shanghai) Co., Ltd.** has been listed by industry Canada to perform electromagnetic emission measurement. The site recognition number is 8510A.

**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. The sample under test was selected by the Client. This report only refers to the item that has undergone the test.

This report alone does 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.

If the electronic report is inconsistent with the printed one, it should be subject to the latter.

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### 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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Telephone: +86-021-50791141/2/3  
Fax: +86-021-50791141/2/3-8000  
Website: <http://www.ta-shanghai.com>  
E-mail: [yangweizhong@ta-shanghai.com](mailto:yangweizhong@ta-shanghai.com)

### 1.3. Applicant Information

Company: NEPTUNE COMPUTER INC.  
Address: 666 SHERBROOKE ST. W., SUITE 1000  
City: MONTREAL  
Postal Code: H3A 1E7  
Country: CANADA

### 1.4. Manufacturer Information

Company: NEPTUNE COMPUTER INC.  
Address: 666 SHERBROOKE ST. W., SUITE 1000  
City: MONTREAL  
Postal Code: H3A 1E7  
Country: CANADA

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## 1.5. Information of EUT

### General information

Name of EUT:	Neptune pine		
IMEI:	354727049900715		
Hardware Version:	P1		
Software Version:	JB_V0.29		
Antenna Type:	Internal Antenna		
Device Operating Configurations:			
Tested Mode(s):	WCDMA Band IV		
HSDPA UE Category:	8		
HSUPA UE Category:	6		
Maximum E.I.R.P.	19.64 dBm		
Power Supply:	Battery or Charger (AC adaptor)		
Rated Power Supply Voltage:	3.8 V		
Extreme Voltage:	Minimum: 3.5 V    Maximum: 4.2 V		
Extreme Temperature:	Lowest: -20°C    Highest: +60°C		
Operating Frequency Range(s)	Mode	Tx (MHz)	Rx (MHz)
	WCDMA Band IV	1712.4 ~ 1752.6	2112.4 ~ 2152.6

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### Auxiliary equipment details

#### AE1: Battery

Model: Mini Phone

Manufacturer: Tian Yu Communication Technology (Kun Shan) CO.,Ltd

S/N: /

### 1.6. Test Date

The test is performed from March 5, 2014 to March 8, 2014.

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## 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	27.50(d)(4)	PASS
3	Occupied Bandwidth	2.1049	PASS
4	Band Edge Compliance	27.53(h)	PASS
5	Peak-to-Average Power Ratio	KDB 971168 D01(5.7)	PASS
6	Frequency Stability	2.1055 / 27.54	PASS
7	Spurious Emissions at Antenna Terminals	2.1051 / 27.53(h)	PASS
8	Radiates Spurious Emission	2.1053 /27.53(h)	PASS



## 2.2.RF Power Output

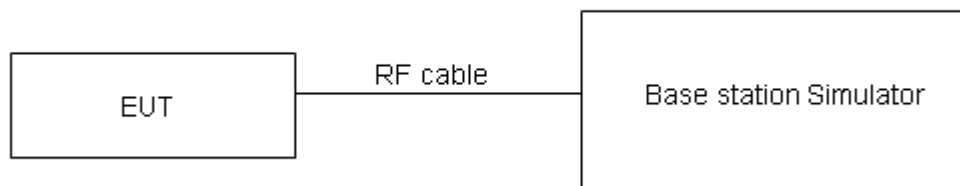
### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~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: 1312, 1413, 1513 for WCDMA Band IV.

### 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

WCDMA Band IV		Conducted Power(dBm)		
		Channel 1312	Channel 1413	Channel 1513
		1712.4(MHz)	1732.6(MHz)	1752.6(MHz)
RMC		19.11	18.88	19.06
HSDPA	Sub - Test 1	19.28	18.78	19.2
	Sub - Test 2	19.09	18.7	19.17
	Sub - Test 3	18.77	18.39	18.84
	Sub - Test 4	18.79	18.38	18.73
HSUPA	Sub - Test 1	18.33	17.77	18.49
	Sub - Test 2	17.39	16.98	17.42
	Sub - Test 3	17.61	17.16	17.89
	Sub - Test 4	17.5	16.87	17.61
	Sub - Test 5	18.82	18.08	18.57

## 2.3. Effective Isotropic Radiated Power

### Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

### Methods of Measurement

The measurement procedures in TIA- 603C are used.

1. The EUT was placed on a turntable with 1.5 meter height in a fully anechoic chamber.
2. The EUT was set at 3 meters from the receiving antenna, which was mounted on the antenna tower.
3. GSM operating modes: Set RBW= 1MHz, VBW= 3MHz, RMS detector over burst;  
UMTS operating modes: Set RBW= 100 KHz, VBW= 300 KHz, RMS detector over frame, and use channel power option with bandwidth=5MHz, per section 4.0 of KDB 971168 D01.
4. The table was rotated 360 degrees to determine the position of the highest radiated power.
5. The height of the receiving antenna is adjusted to look for the maximum ERP/EIRP.
6. Taking the record of maximum ERP/EIRP.
7. A dipole antenna was substituted in place of the EUT and was driven by a signal generator.
8. The conducted power at the terminal of the dipole antenna is measured.
9. Repeat step 3 to step 5 to get the maximum ERP/EIRP of the substitution antenna.
10.  $ERP/EIRP = P_s + E_t - E_s + G_s = P_s + R_t - R_s + G_s$

$P_s$  (dBm) : Input power to substitution antenna.

$G_s$  (dBi or dBd) : Substitution antenna Gain.

$E_t = R_t + AF$

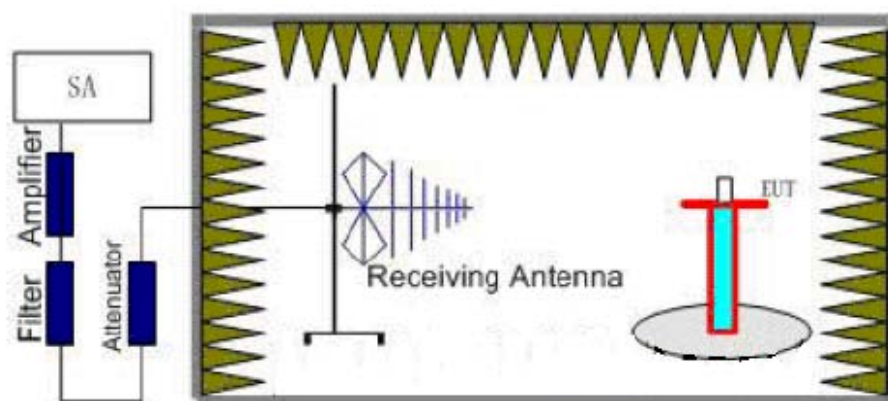
$E_s = R_s + AF$

$AF$  (dB/m) : Receive antenna factor

$R_t$  : The highest received signal in spectrum analyzer for EUT.

$R_s$  : The highest received signal in spectrum analyzer for substitution antenna.

### Test Setup



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### Limits

Rule Part 27.50(d)(4) specifies that " Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP" and Rule Part 27.50(d)(6) 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)	$\leq 1 \text{ W}$ (30 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: Pass**

WCDMA Band IV					
Horizontal Polarization					
Frequency(MHz)	Rt(dBm)	Rs(dBm)	Ps(dBm)	Gs(dBi)	EIRP(dBm)
1712.4	-37.72	-54.85	0	1.44	18.57
1732.6	-37.64	-54.86	0	1.57	18.79
1752.6	-38.87	-54.98	0	1.70	17.81
Vertical Polarization					
Frequency(MHz)	Rt(dBm)	Rs(dBm)	Ps(dBm)	Gs(dBi)	EIRP(dBm)
1712.4	-37.47	-55.46	0	1.44	19.43
1732.6	-37.47	-55.54	0	1.57	19.64
1752.6	-38.91	-55.83	0	1.70	18.62

## 2.4. Occupied Bandwidth

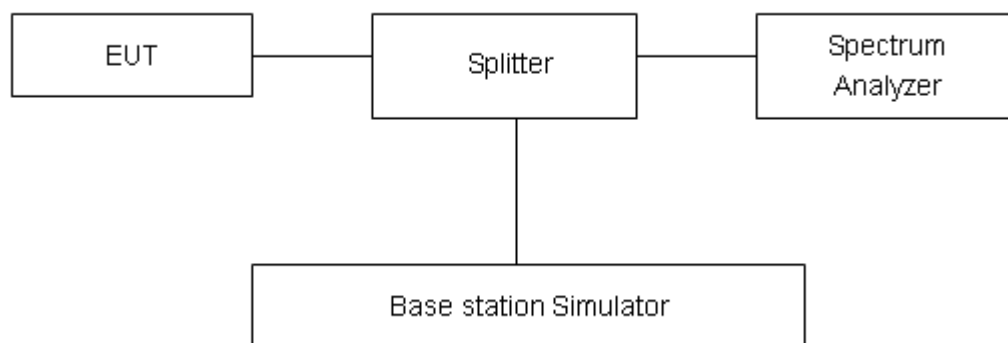
### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~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 51 kHz, VBW is set to 100 kHz 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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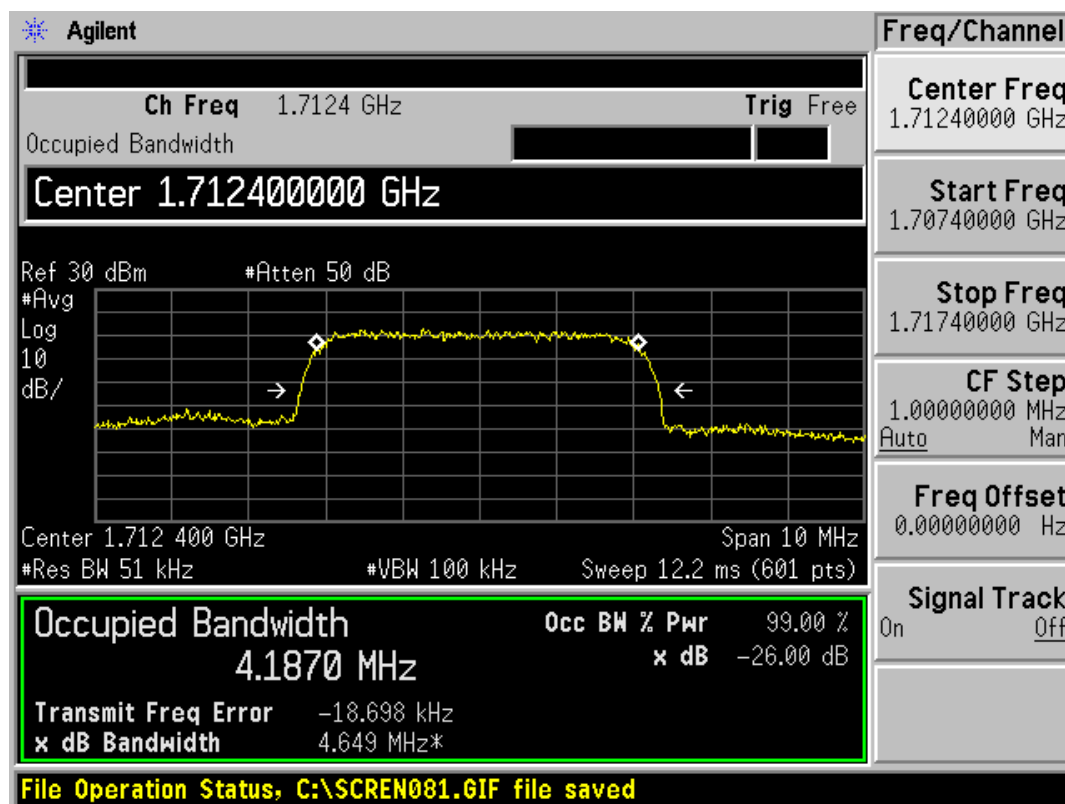
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### Test Result

WCDMA Band IV	Channel	Frequency (MHz)	99% Power Bandwidth (MHz)	-26dBc Bandwidth(MHz)
RMC	1312	1712.4	4.1870	4.649
	1413	1732.6	4.1830	4.653
	1513	1752.6	4.1943	4.637
HSDPA	1312	1712.4	4.1517	4.654
	1413	1732.6	4.1810	4.631
	1513	1752.6	4.1755	4.642
HSUPA	1312	1712.4	4.1802	4.653
	1413	1732.6	4.1679	4.655
	1513	1752.6	4.1799	4.652

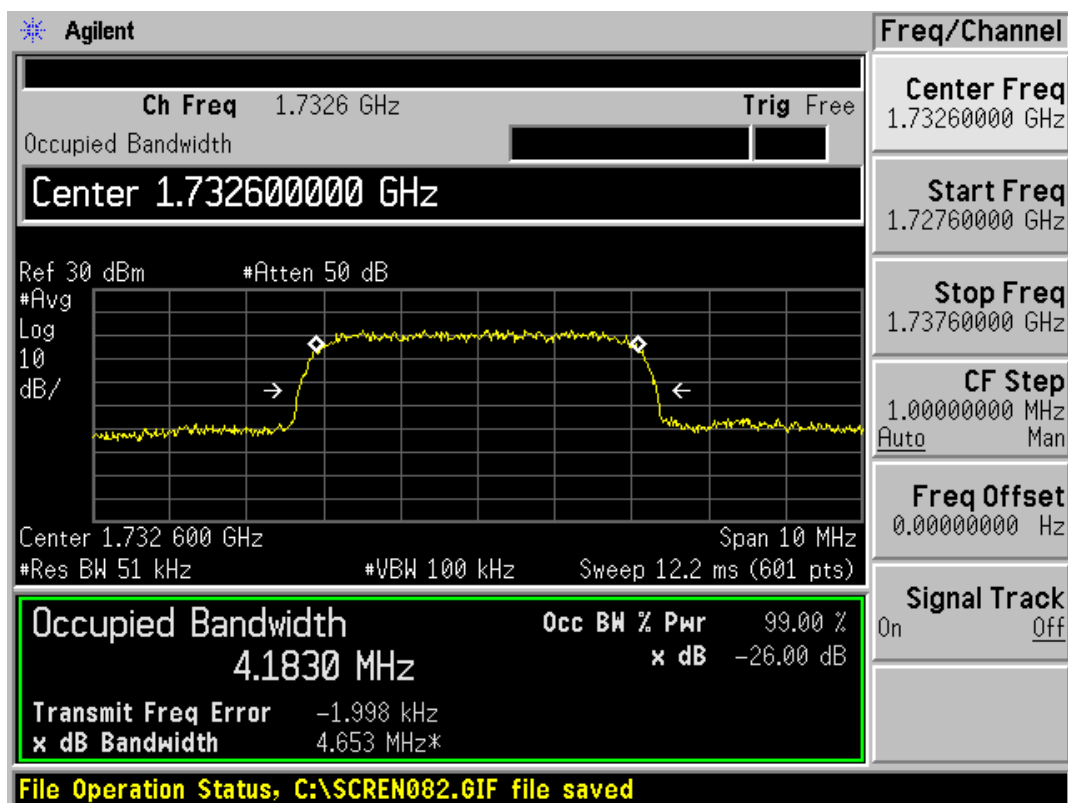


WCDMA Band IV CH1312 Occupied Bandwidth

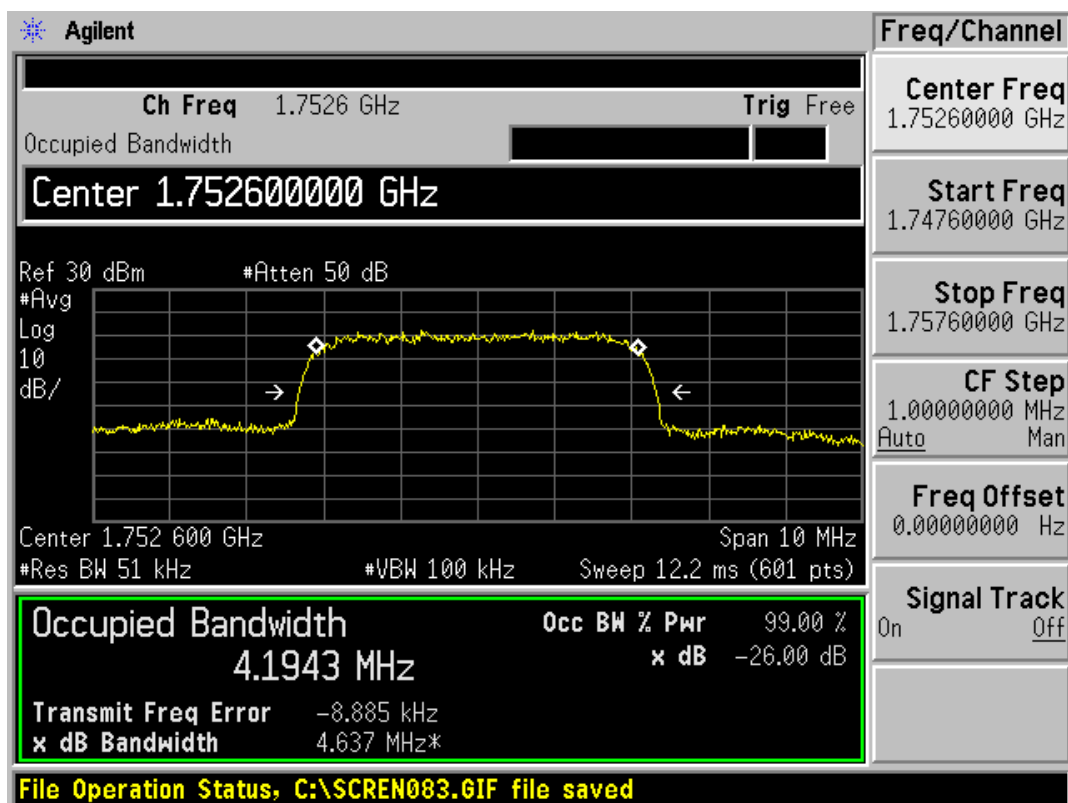
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WCDMA Band IV CH1413 Occupied Bandwidth



WCDMA Band IV CH1513 Occupied Bandwidth

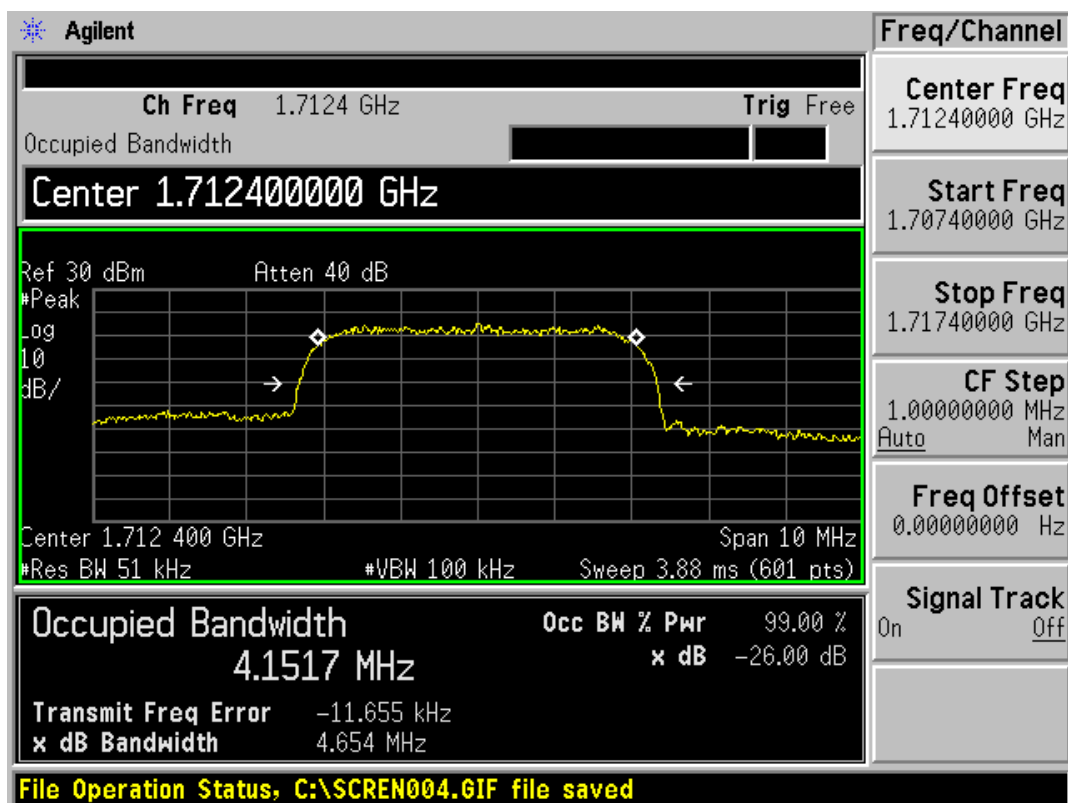


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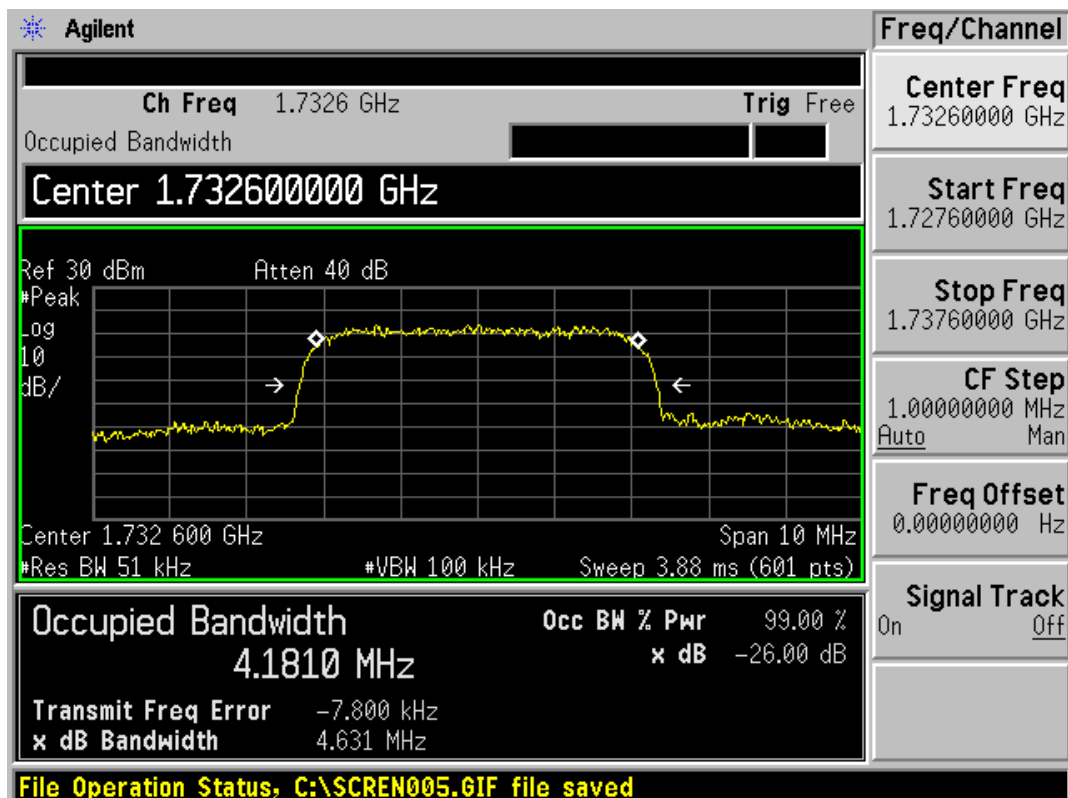
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WCDMA Band IV HSDPA CH1312 Occupied Bandwidth



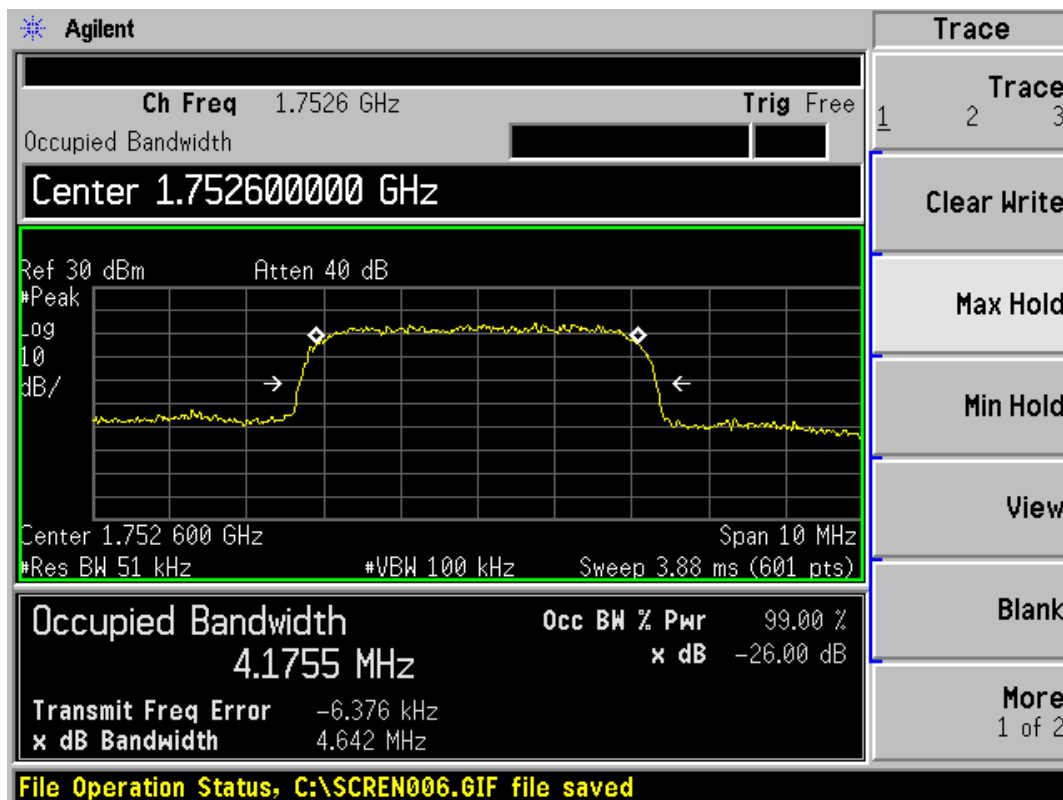
WCDMA Band IV HSDPA CH1413 Occupied Bandwidth

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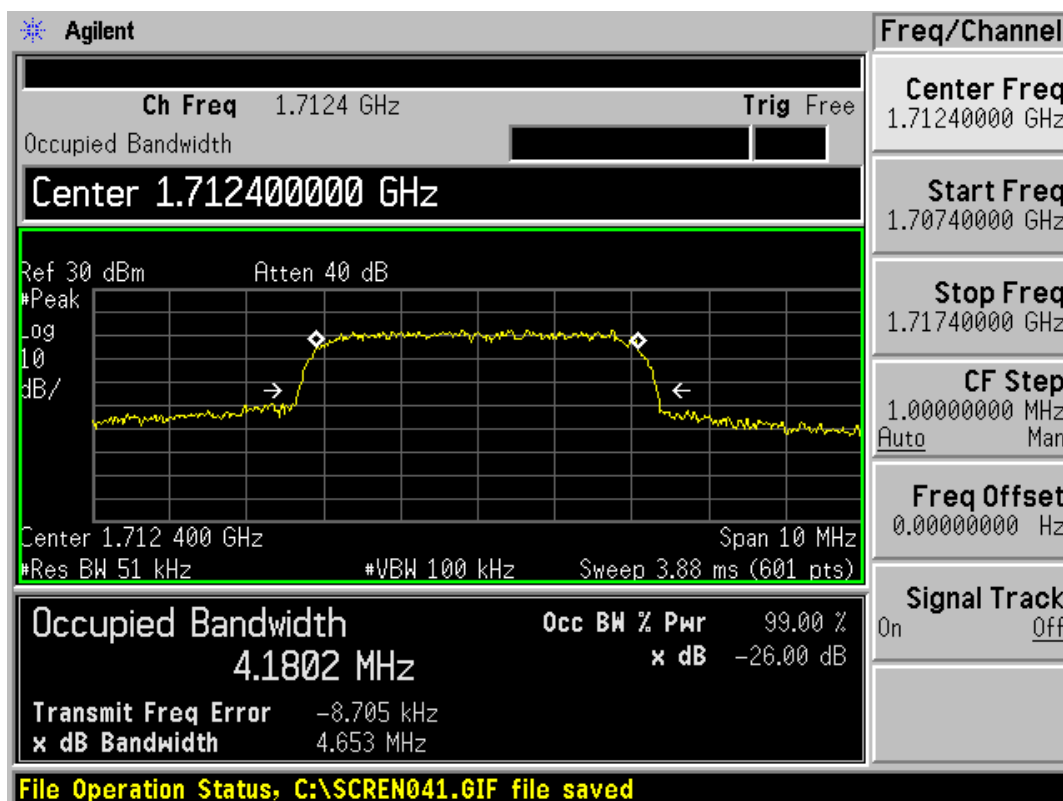
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WCDMA Band IV HSDPA CH1513 Occupied Bandwidth

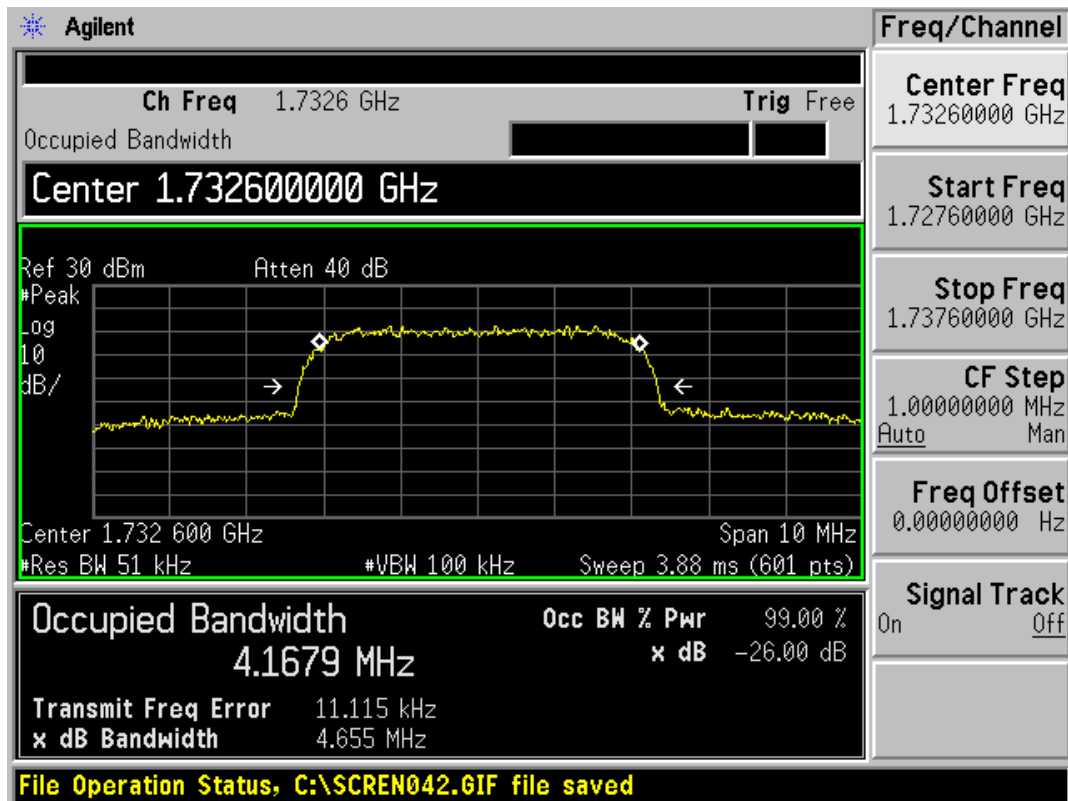


WCDMA Band IV HSUPA CH1312 Occupied Bandwidth

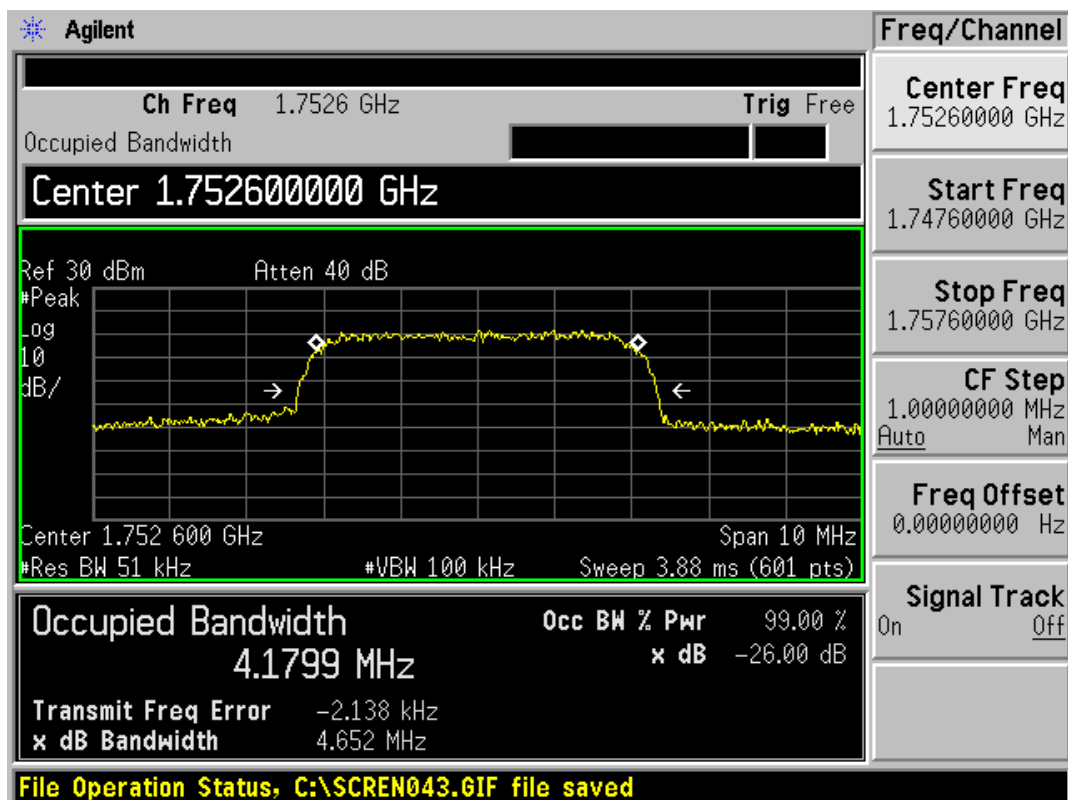
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WCDMA Band IV HSUPA CH1413 Occupied Bandwidth



WCDMA Band IV HSUPA CH1513 Occupied Bandwidth

## 2.5. Band Edge Compliance

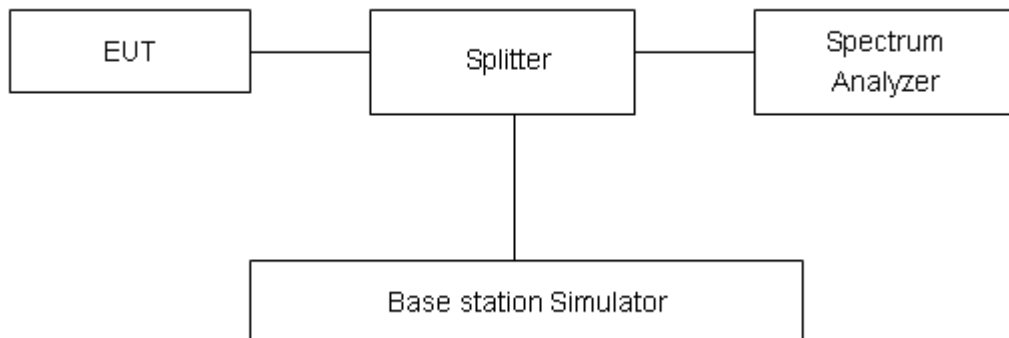
### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~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 51 kHz and VBW is set to 100 kHz on spectrum analyzer. Spectrum analyzer plots are included on the following pages.

### Test Setup



### Limits

Rule Part 27.53(h) specifies that “the power of any emission outside a licensee's frequency block 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  $k = 1.96$ ,  $U=0.684$ dB.

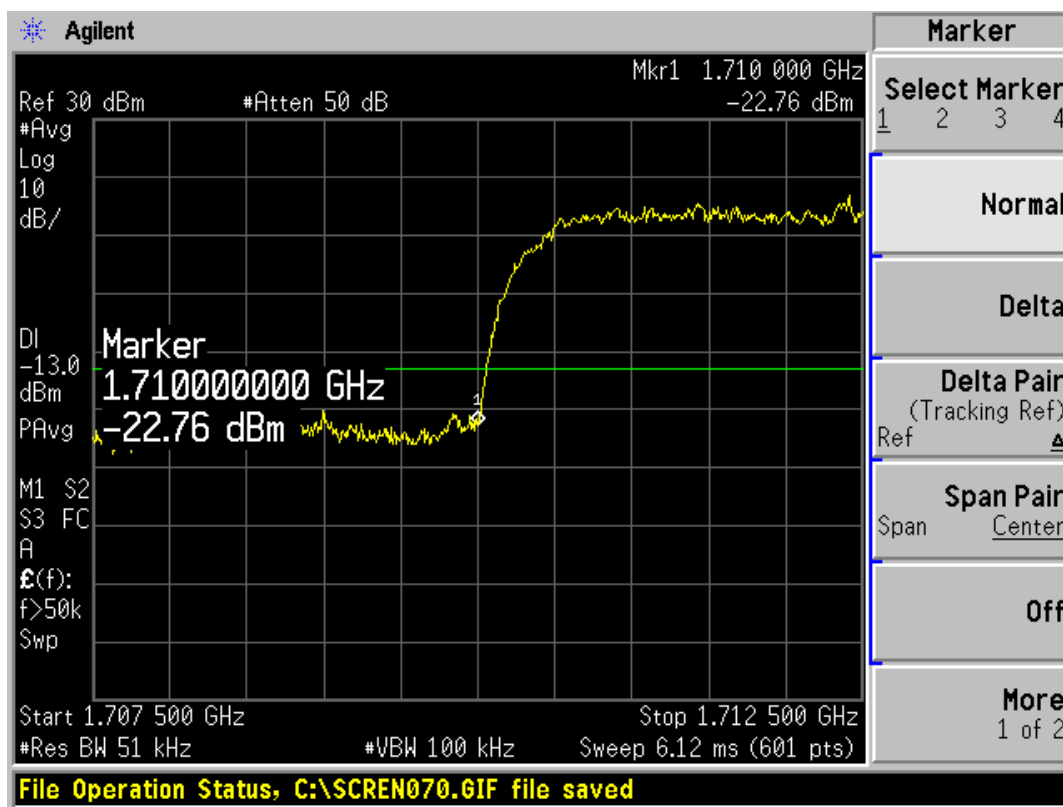
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WCDMA Band IV	Carrier frequency (MHz)	Reference value (dBm)	Limit (dBm)	Conclusion
RMC	1710	-22.76	-13	PASS
	1755	-24.69	-13	PASS
HSDPA	1710	-21.86	-13	PASS
	1755	-27.18	-13	PASS
HSUPA	1710	-20.74	-13	PASS
	1755	-23.99	-13	PASS

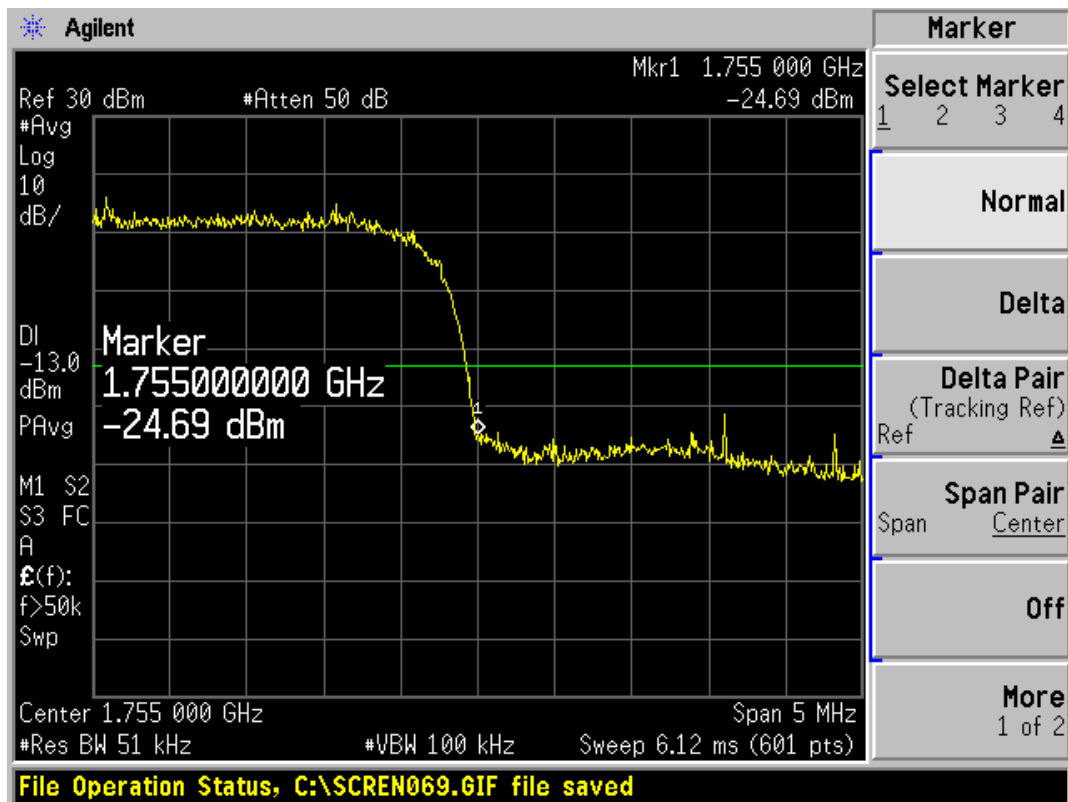


WCDMA Band IV 1312 Channel

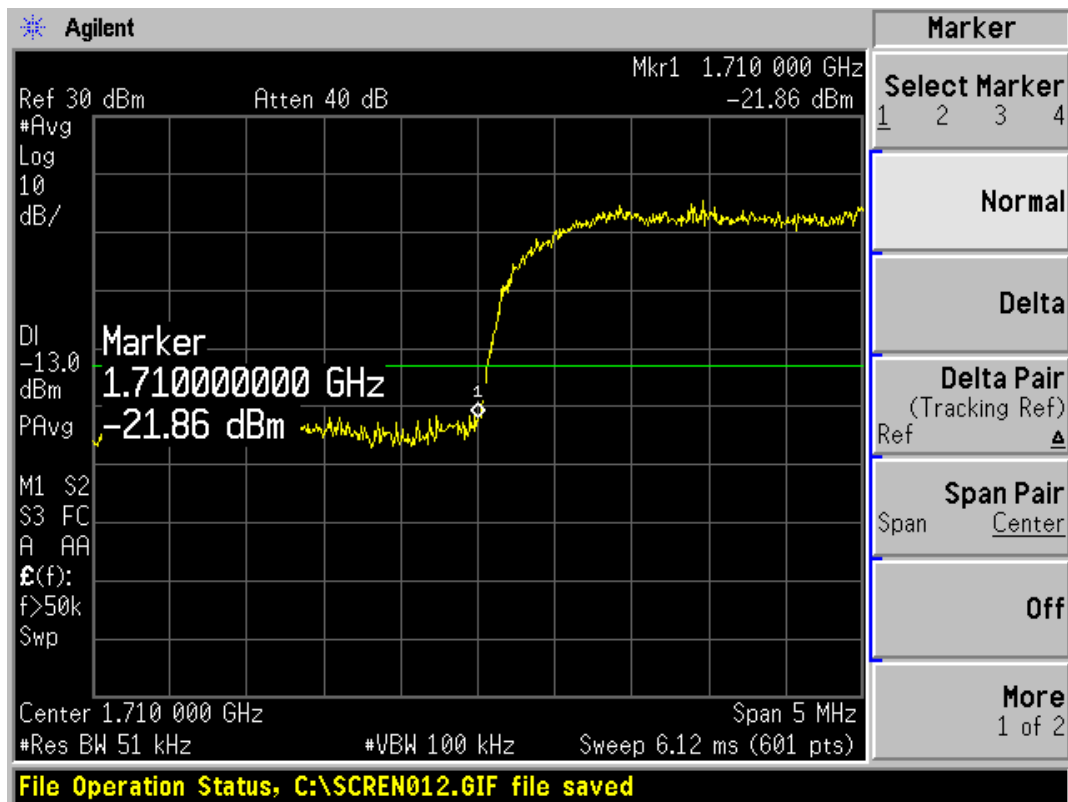
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WCDMA Band IV 1513 Channel

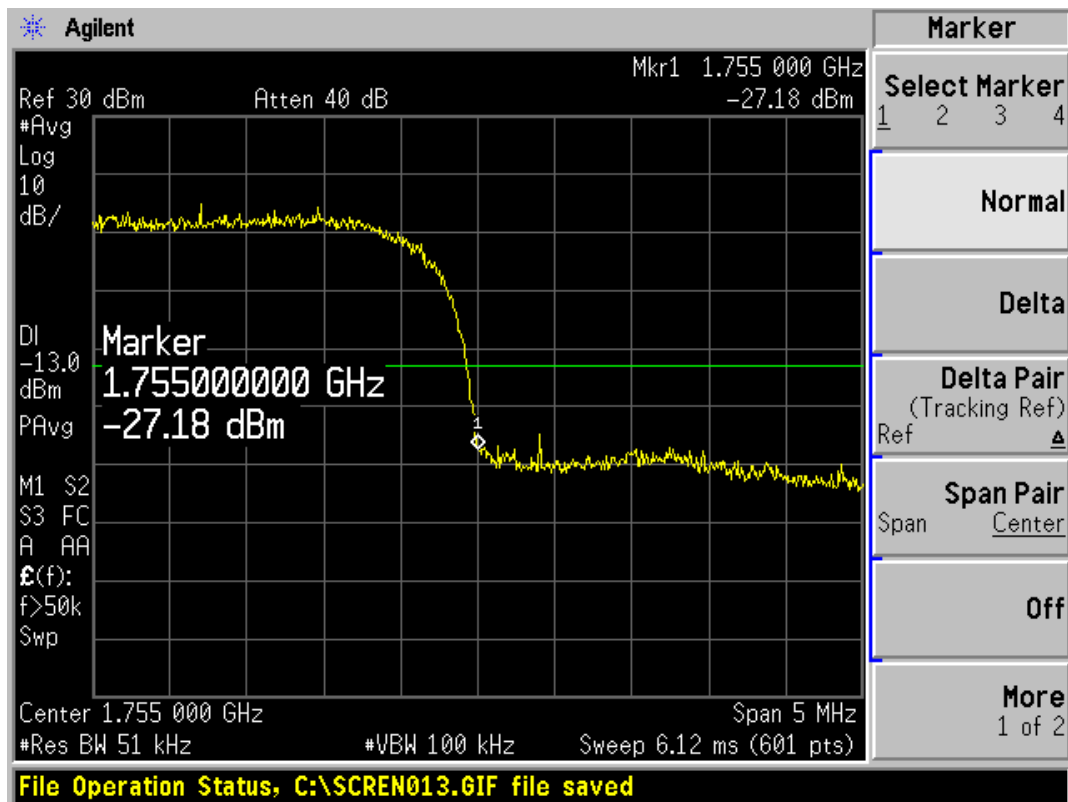


WCDMA Band IV HSDPA1312 Channel

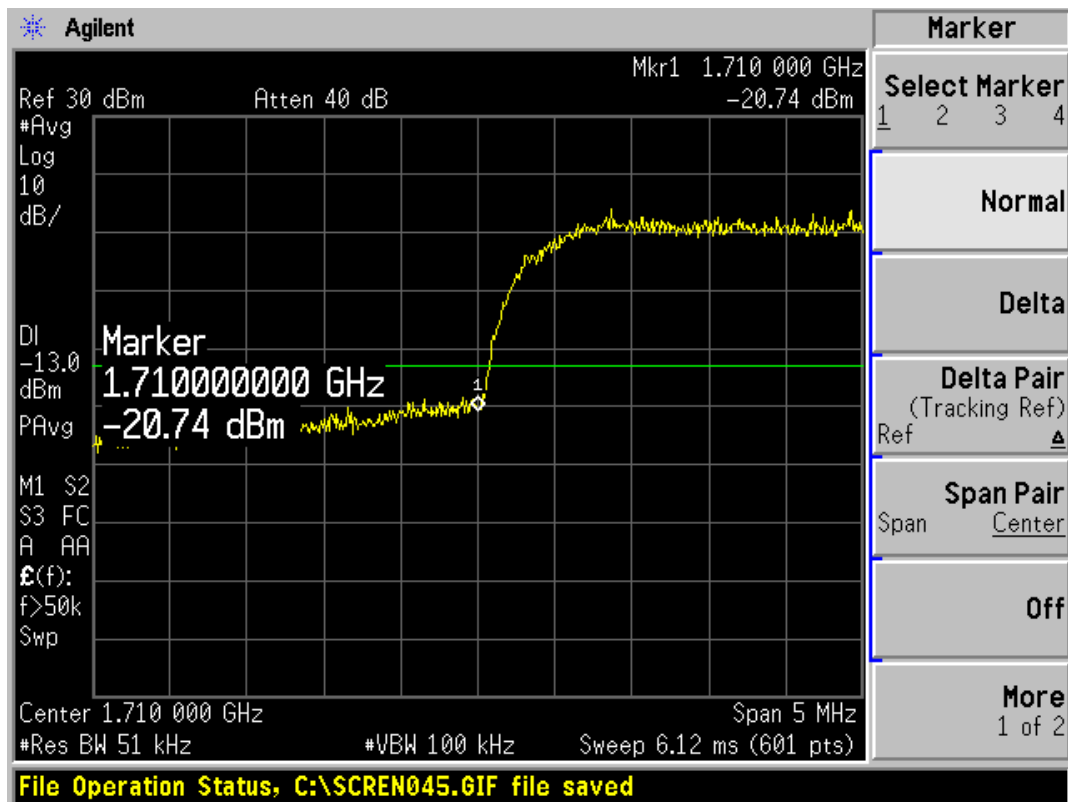
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WCDMA Band IV HSDPA1513 Channel

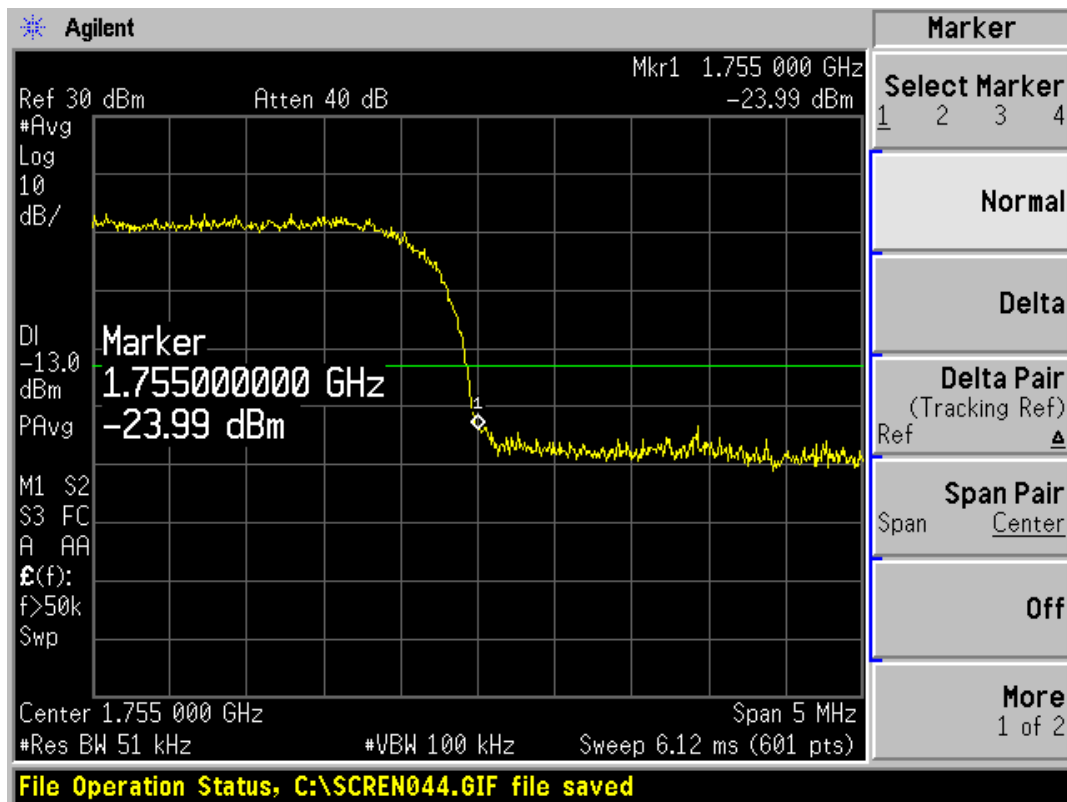


WCDMA Band IV HSUPA1312 Channel

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WCDMA Band IV HSUPA1513 Channel



## 2.6. Peak-to-Average Power Ratio (PAPR)

### Ambient condition

Temperature	Relative humidity
21°C ~25°C	40%~60%

### Methods of Measurement

The measurement procedures in KDB971168 are used.

The inherent randomness of the power peaks in a noise-like signal makes it difficult to quantify the peak power using traditional measurement techniques for determining the peak power of an analog signal. The peak power of a digitally-modulated signal is predictable only on a statistical basis. Thus, for these types of signals, a statistical measurement of the peak power is necessary.

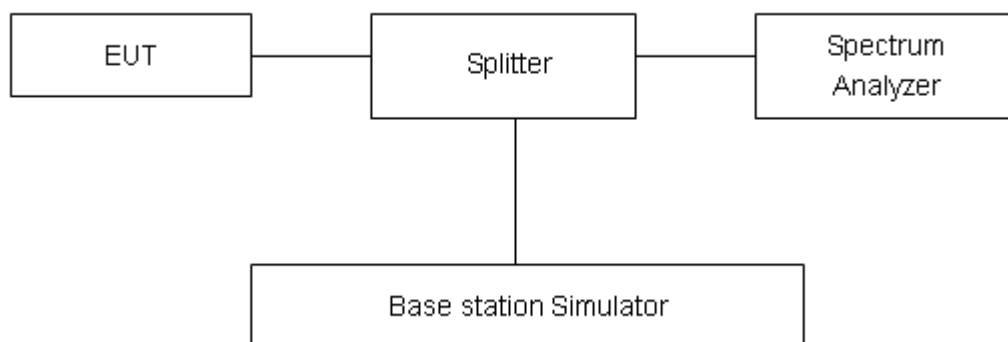
Power Complementary Cumulative Distribution Function (CCDF) curves provide a means for characterizing the power peaks of a digitally modulated signal on a statistical basis. A CCDF curve depicts the probability of the peak signal amplitude exceeding the average power level. Most contemporary measurement instrumentation include the capability to produce CCDF curves for an input signal provided that the instrument's resolution bandwidth can be set wide enough to accommodate the entire input signal bandwidth.

Step 1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.

Step 2. Set the CCDF option in Spectrum analyzer.

Step 3. Record the maximum PAPR level associated with a probability of 0.1%.

### Test Setup



### Limits

No specific Peak-to-Average Ratio requirements in KDB 971168.

### 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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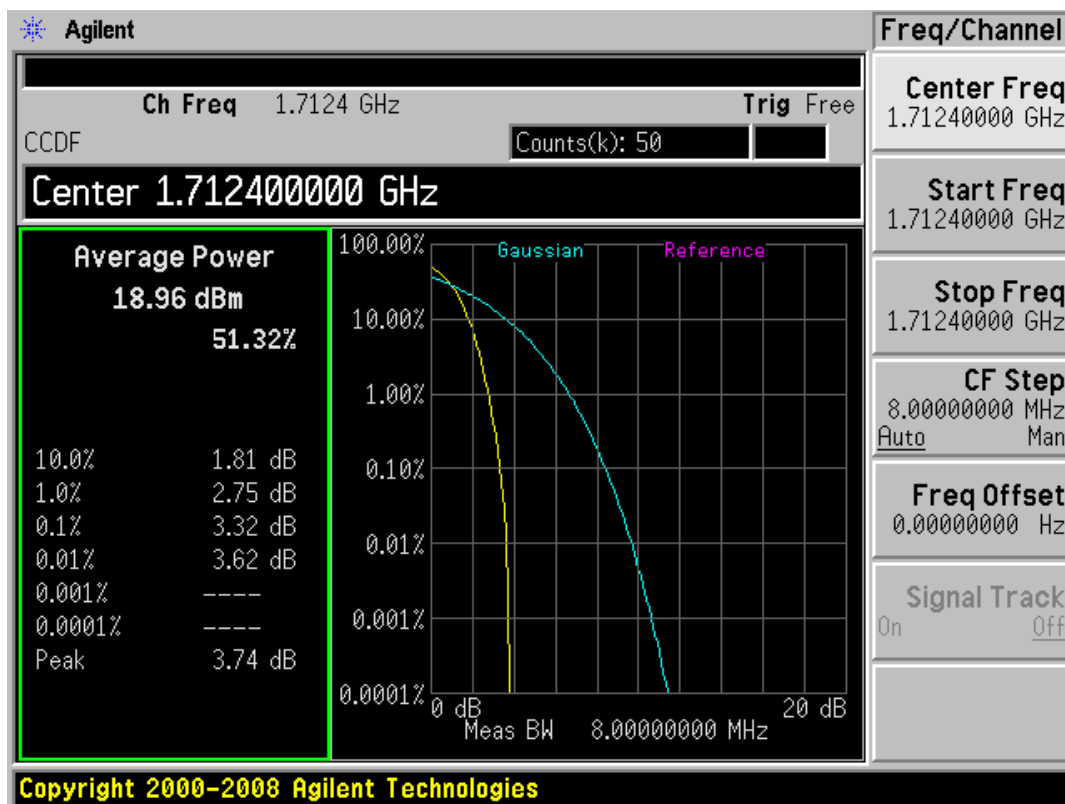
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### Test Results

WCDMA Band IV	Channel	Frequency (MHz)	Test Result(dB)
RMC	1312	1712.4	3.32
	1413	1732.6	3.13
	1513	1752.6	3.44
HSDPA	1312	1712.4	3.35
	1413	1732.6	3.15
	1513	1752.6	3.43
HSUPA	1312	1712.4	3.31
	1413	1732.6	3.13
	1513	1752.6	3.44

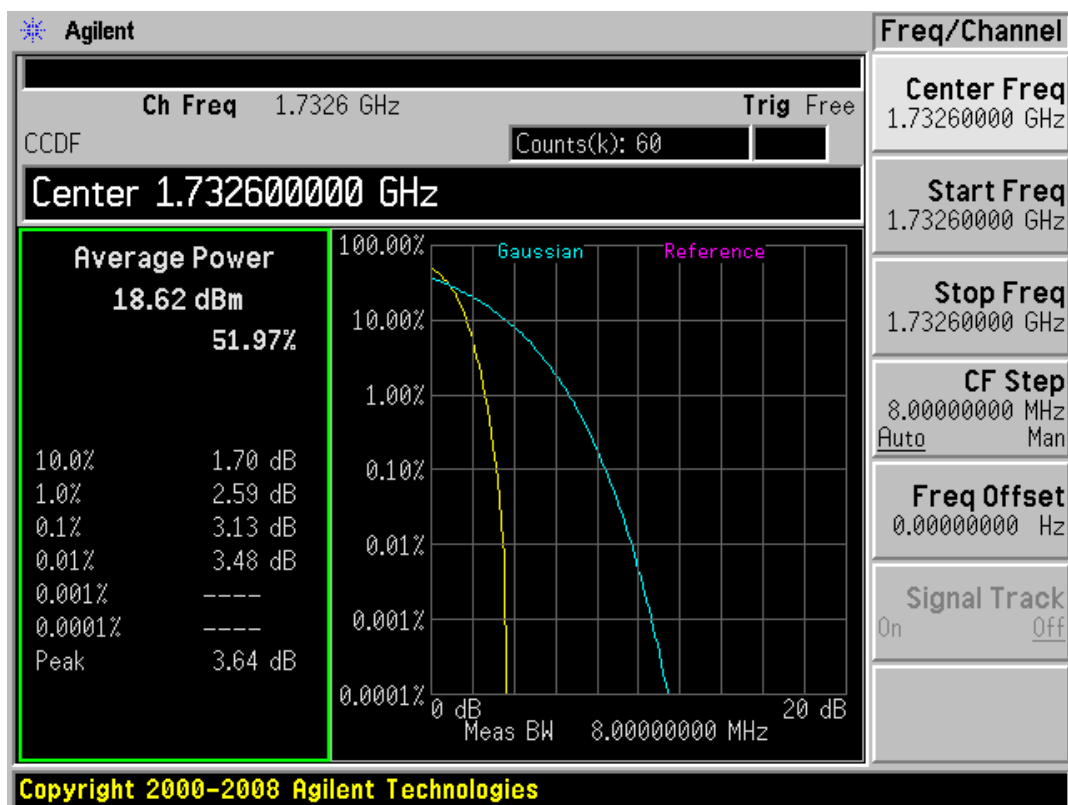


WCDMA Band IV 1312 Channel

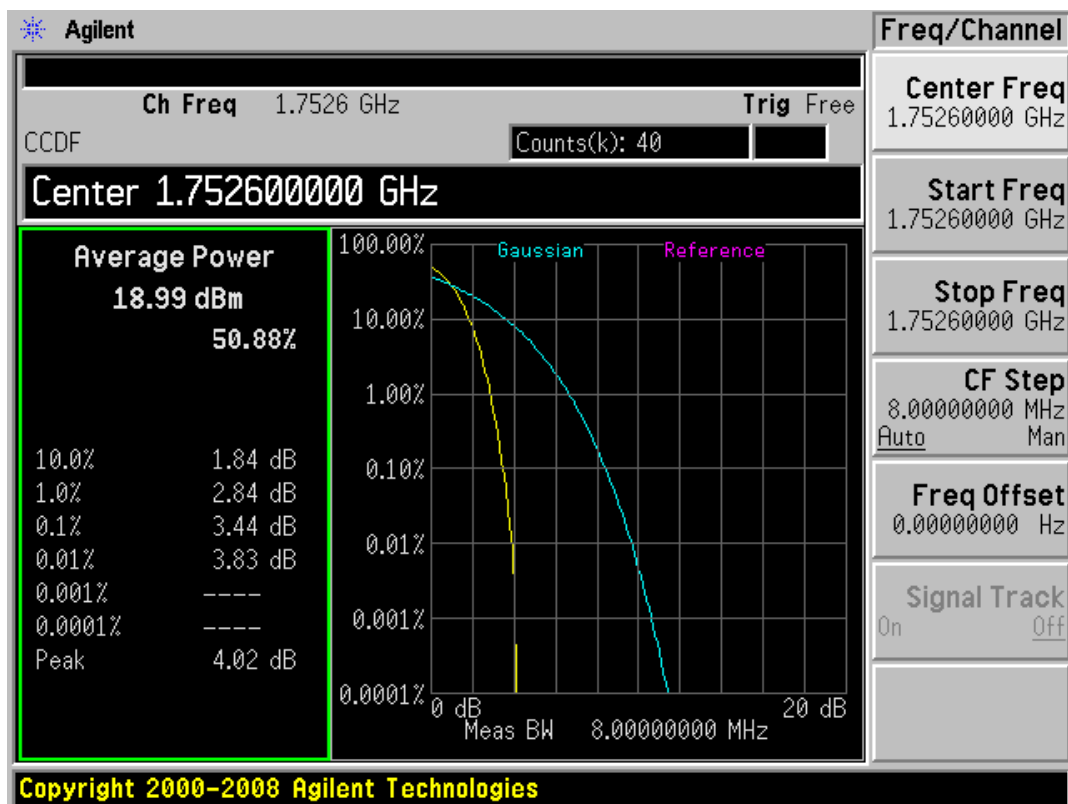
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WCDMA Band IV 1413 Channel

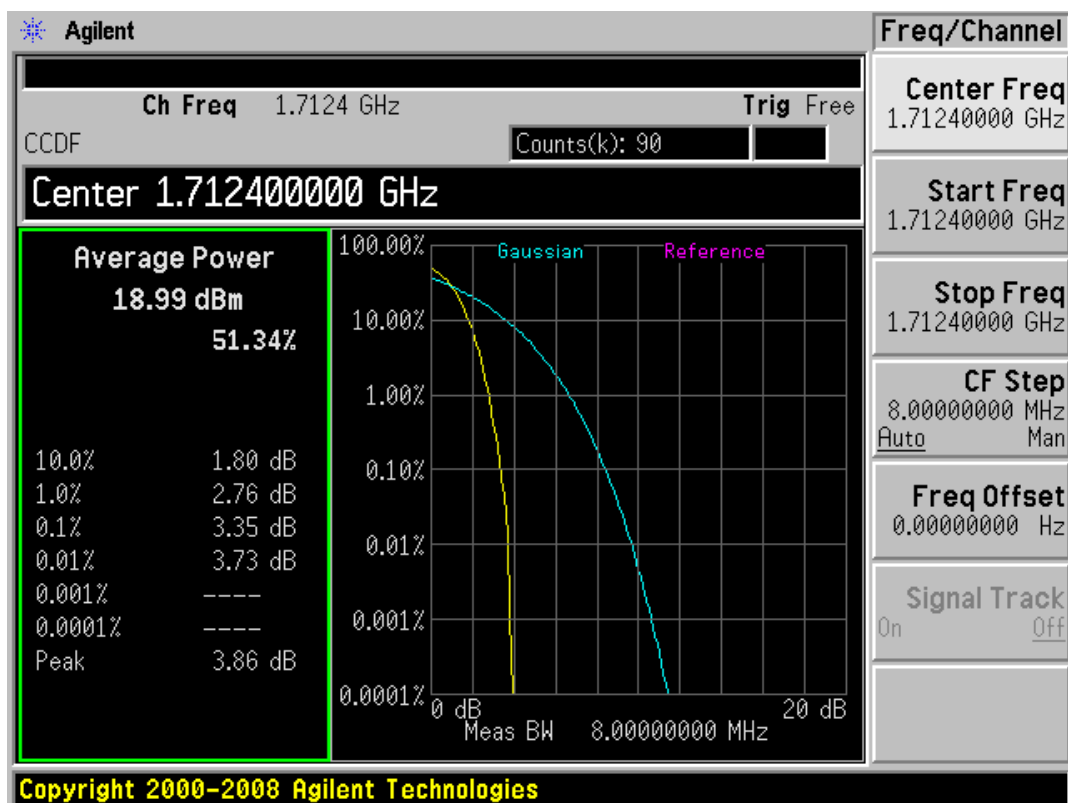


WCDMA Band IV 1513 Channel

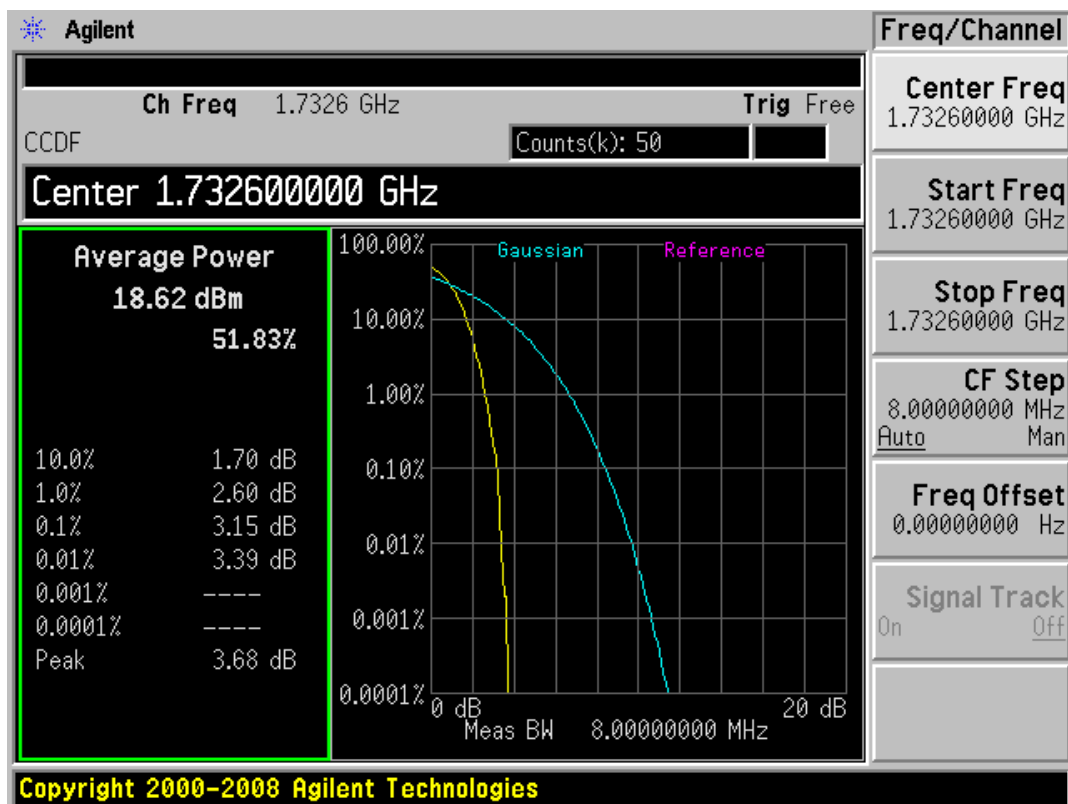
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WCDMA Band IV HSDPA 1312 Channel

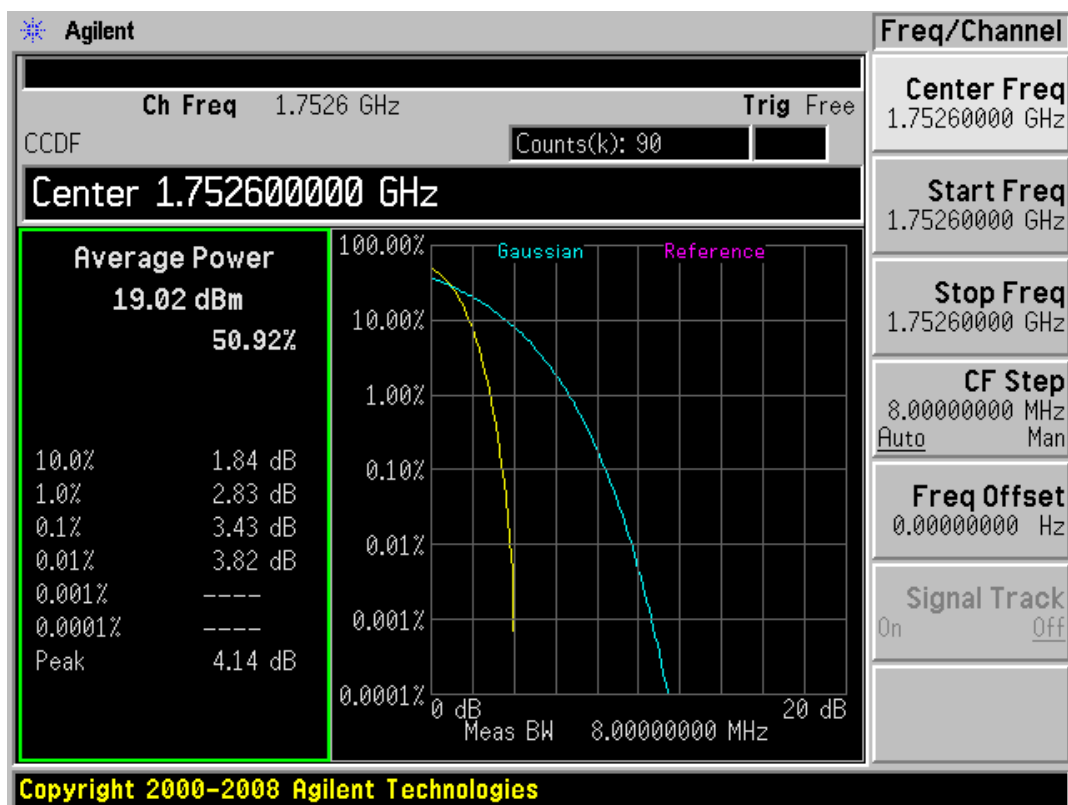


WCDMA Band IV HSDPA 1413 Channel

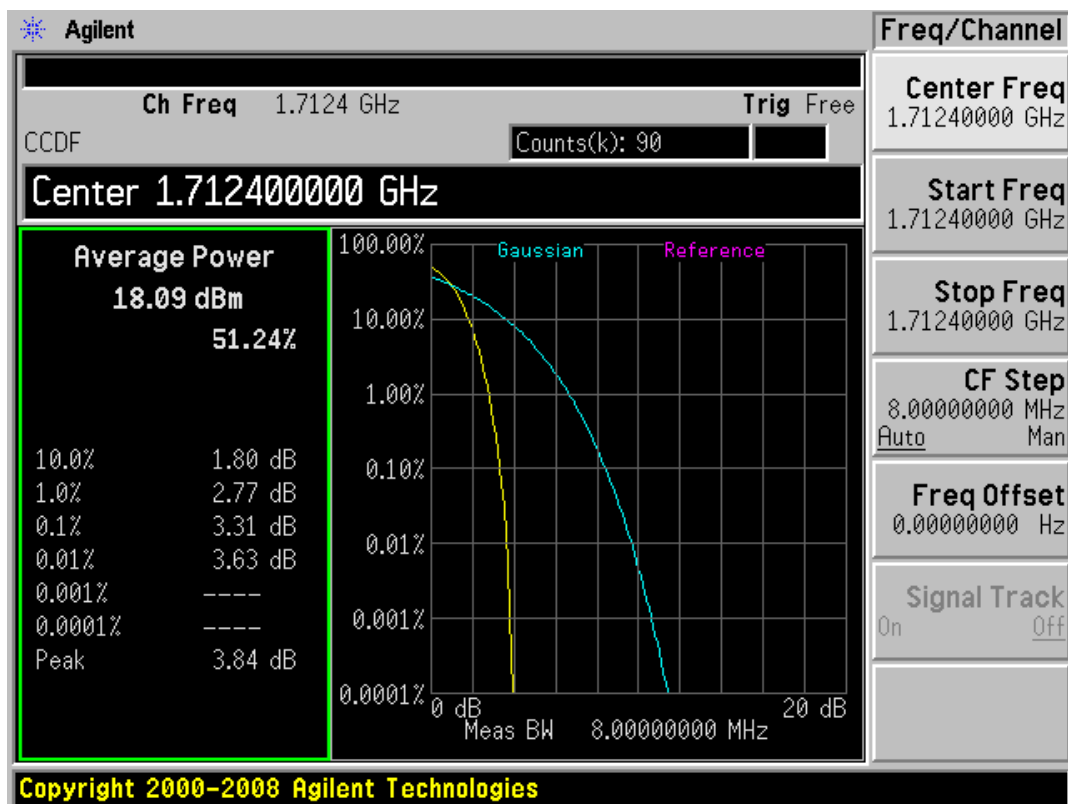
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WCDMA Band IV HSDPA 1513 Channel

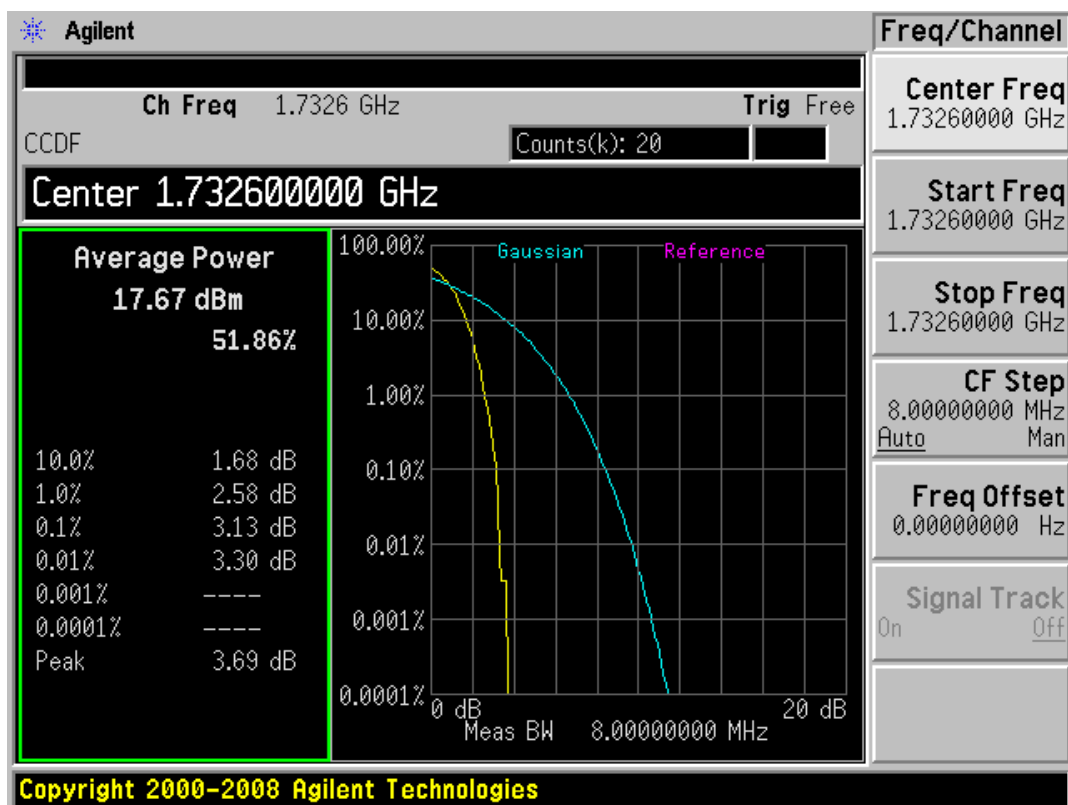


WCDMA Band IV HSUPA 1312 Channel

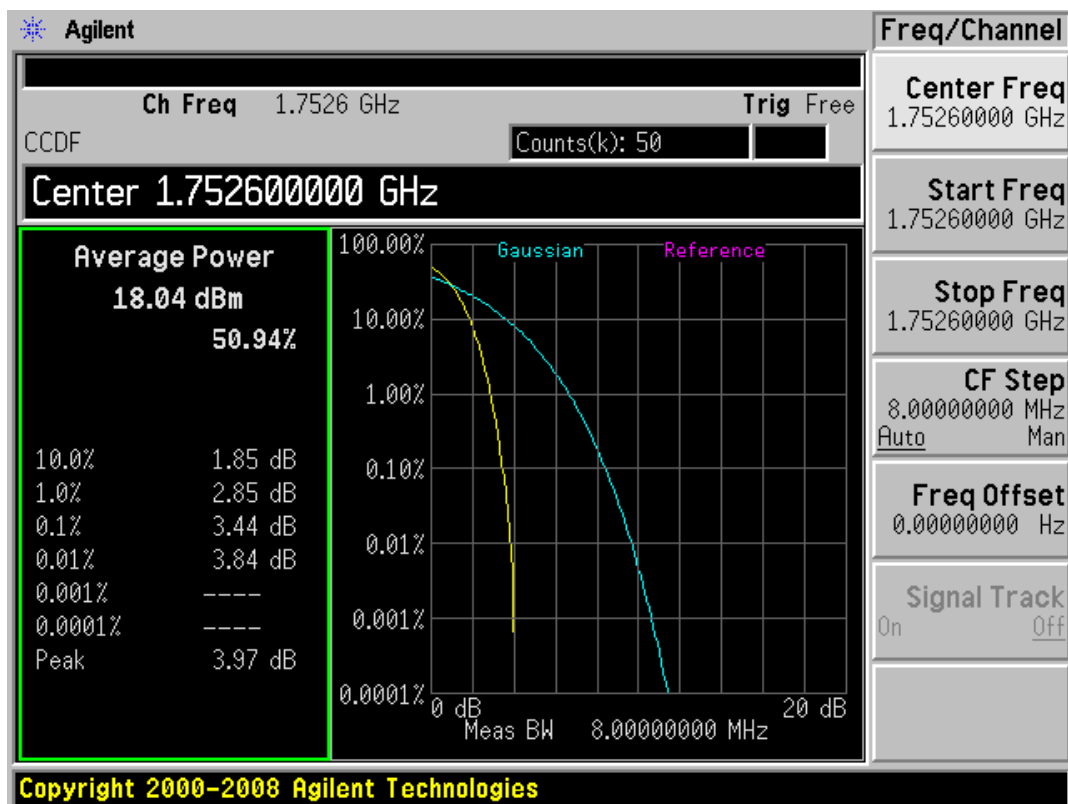
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WCDMA Band IV HSUPA 1413 Channel



WCDMA Band IV HSUPA 1513 Channel

## 2.7. Frequency Stability

### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

#### 1. Frequency Stability (Temperature Variation)

The temperature inside the climate chamber is varied from -20°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 -20°C to +50°C. Allow at least 1.5 hours at each temperature, un-powered, before making measurements.

#### 2. Frequency Stability (Voltage Variation)

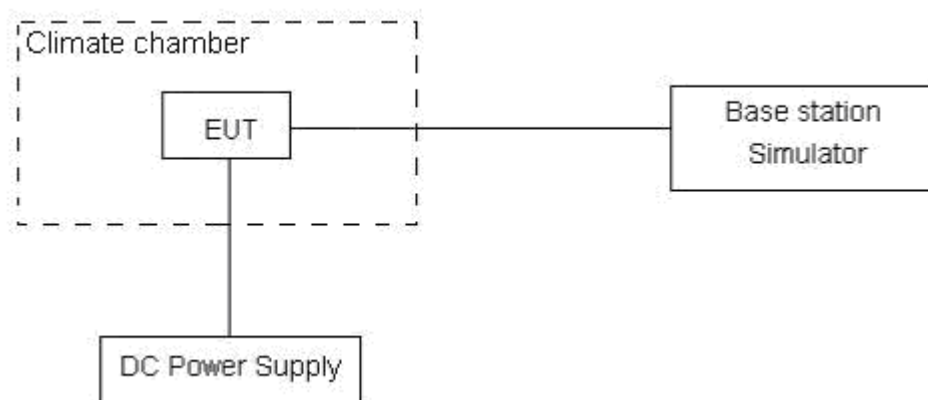
The frequency stability shall be measured with variation of primary supply voltage as follows:

(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 3.5 V and 4.2 V, with a nominal voltage of 3.8V.

### Test setup



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**Limits**

No specific frequency stability requirements in part 27.54

**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**

WCDMA Band IV

Temperature (° C)	Test Results (ppm) / 3.8 V Power supply
	WCDMA Band IV Channel 1413
-20	0.0011
-10	0.0024
0	0.0012
10	0.0025
20	-0.0003
30	0.0017
40	0.0012
50	0.0014
60	0.0011

Voltage (V)	Test Results(ppm) / 20°C
	WCDMA Band IV Channel 1413
3.5	0.0015
3.8	-0.0003
4.2	0.0033



## 2.8. Spurious Emissions at Antenna Terminals

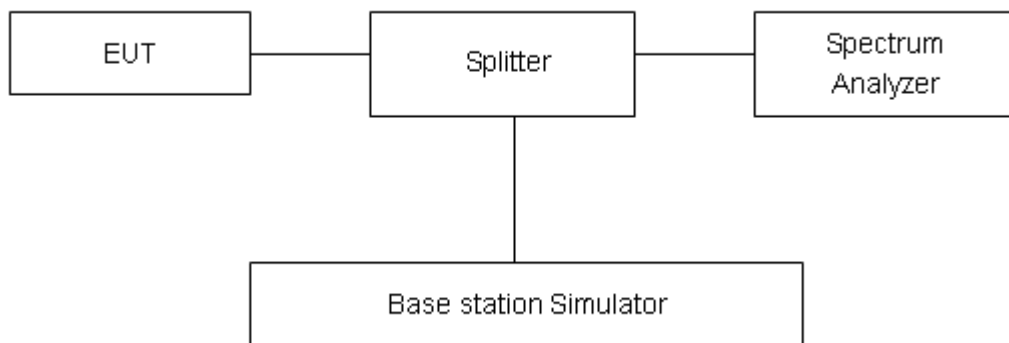
### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~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. RBW and VBW are set to 100 kHz for the carrier frequency, or RBW and VBW are set to 1MHz(other frequency), Sweep is set to ATUO.

### Test setup



### Limits

Rule Part 27.53(h) specifies that “the power of any emission outside a licensee's frequency block 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 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

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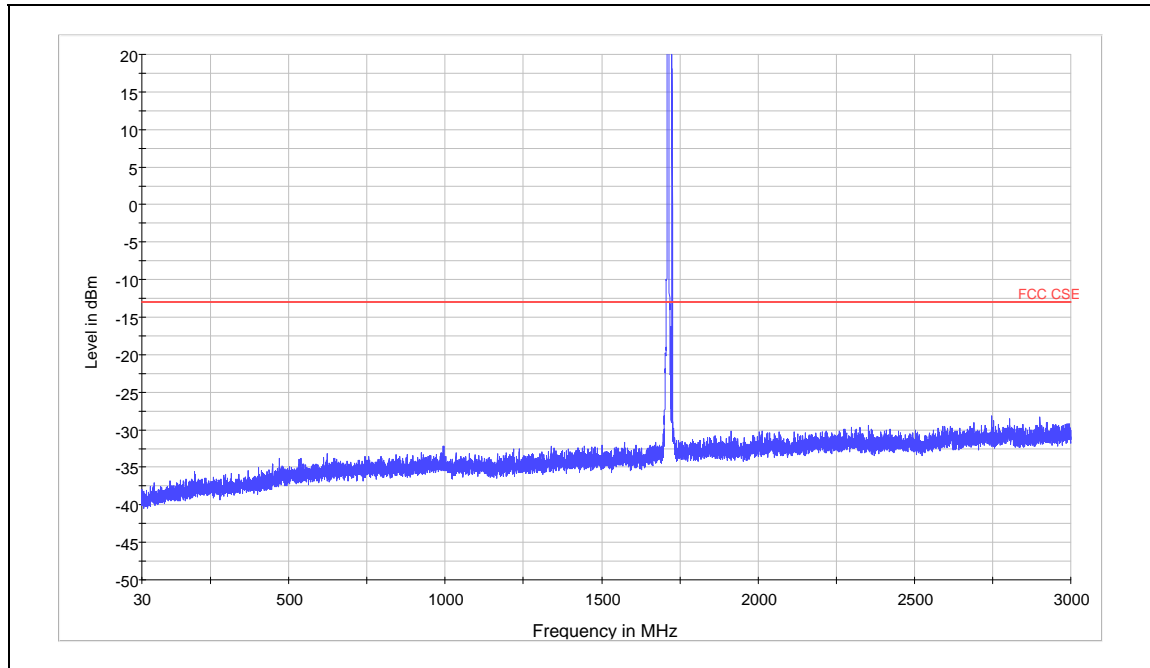
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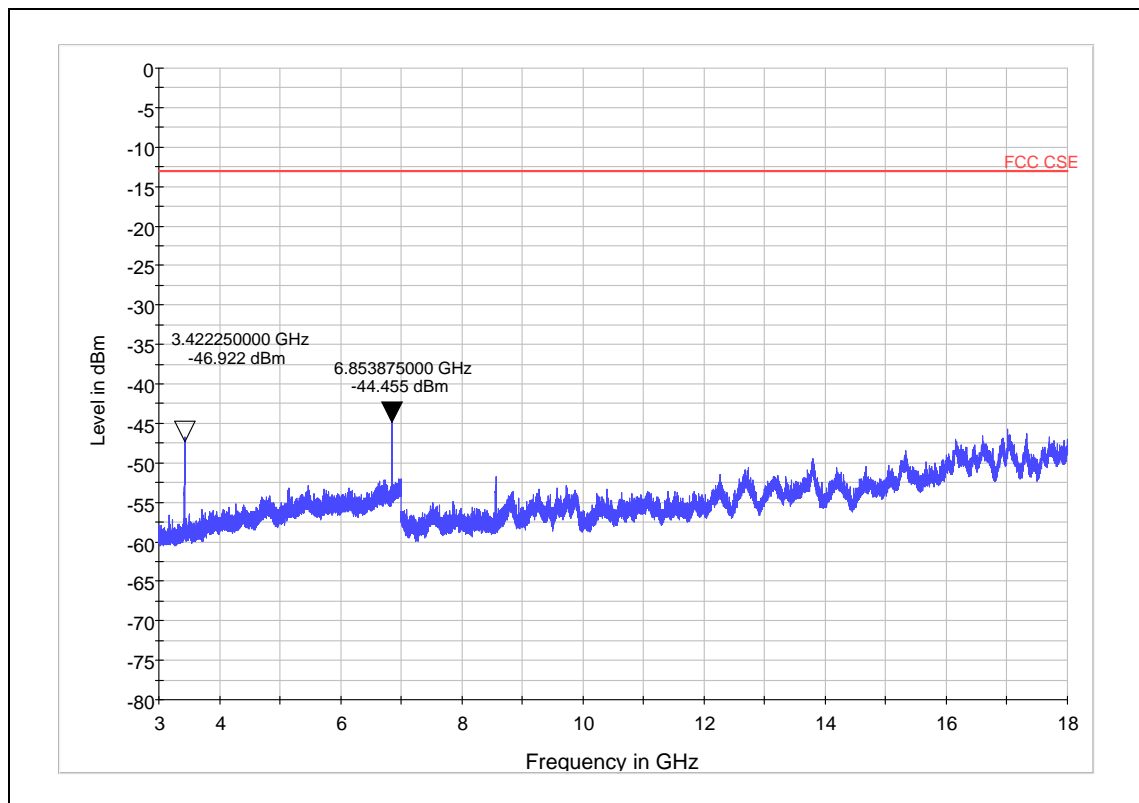
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**Test Result: PASS**

WCDMA Band IV CH1312



Note: The signal beyond the limit is carrier.  
WCDMA Band IV 1312 Channel 30MHz~3GHz

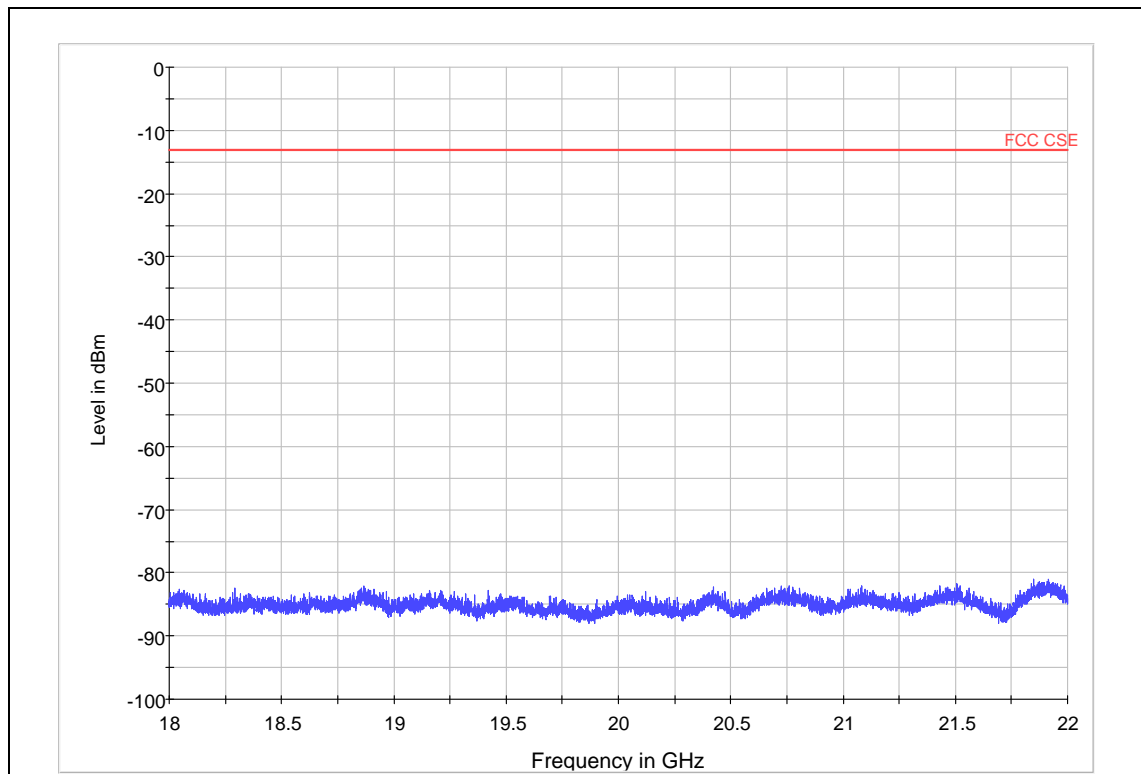


WCDMA Band IV 1312 Channel 3GHz ~18GHz

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WCDMA Band IV 1312 Channel 18GHz ~22GHz

Harmonic	TX ch.1312 Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	3422.3	-46.92	-13	33.92
4	6853.9	-44.46	-13	31.46

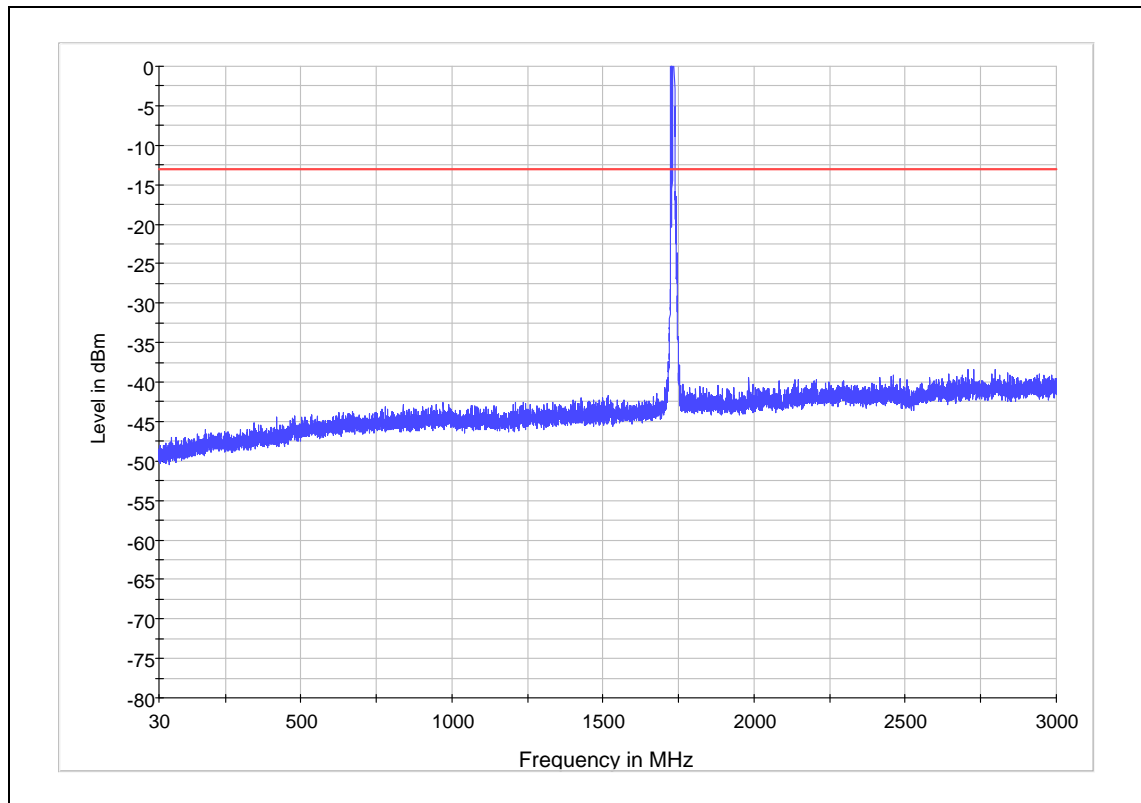
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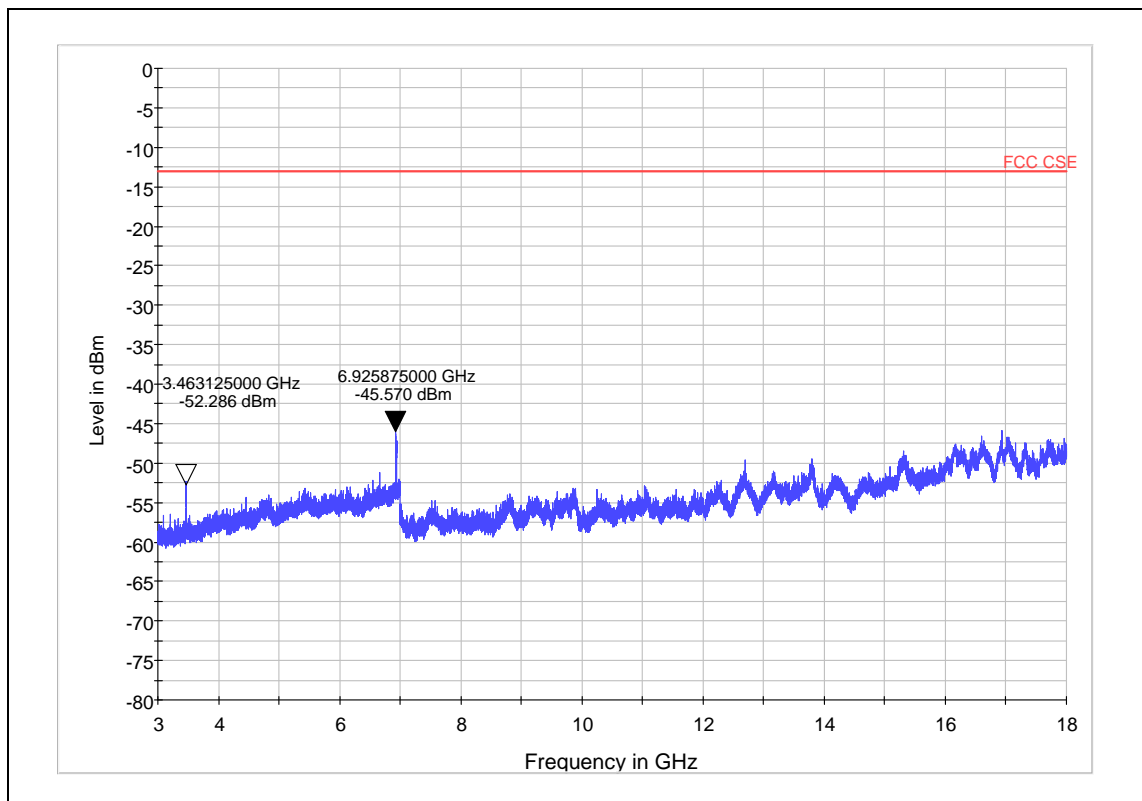
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### WCDMA Band IV CH1413



Note: The signal beyond the limit is carrier.  
WCDMA Band IV 1413 Channel 30MHz~3GHz

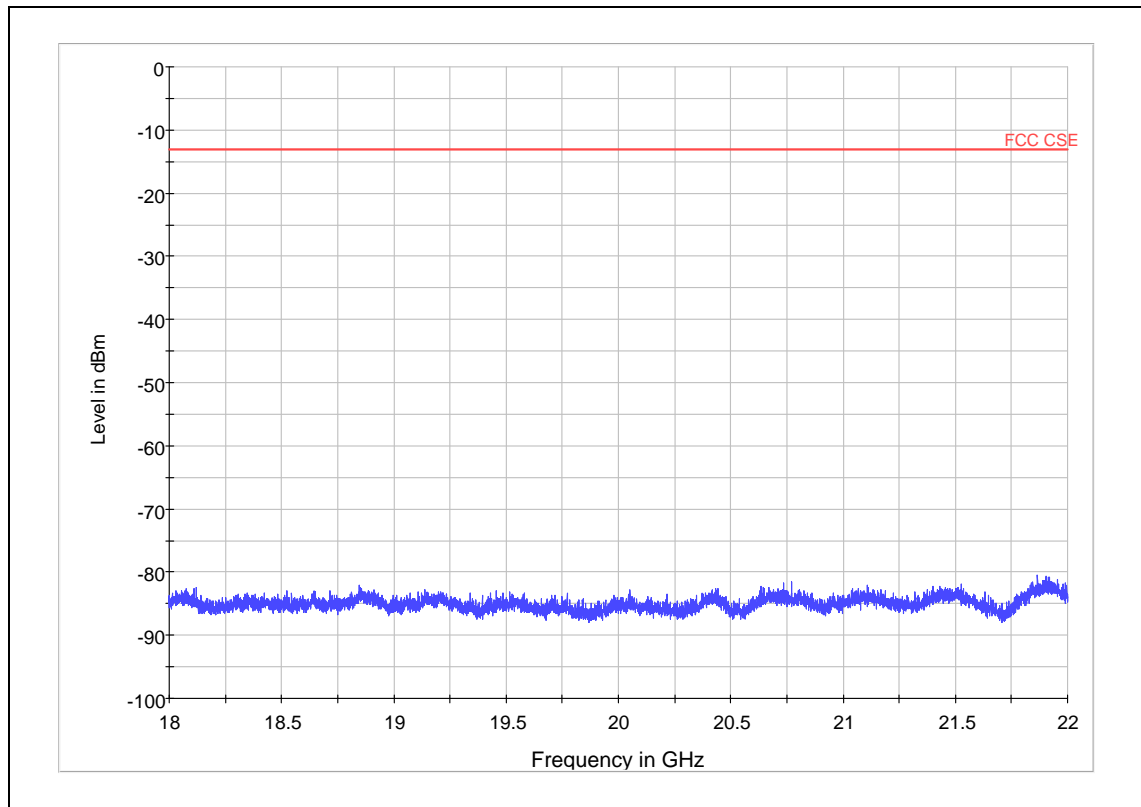


WCDMA Band IV 1413 Channel 3GHz~18GHz

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WCDMA Band IV 1413 Channel 18GHz ~22GHz

Harmonic	TX ch.1413 Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	3463.1	-52.29	-13	39.29
4	6925.9	-45.57	-13	32.57

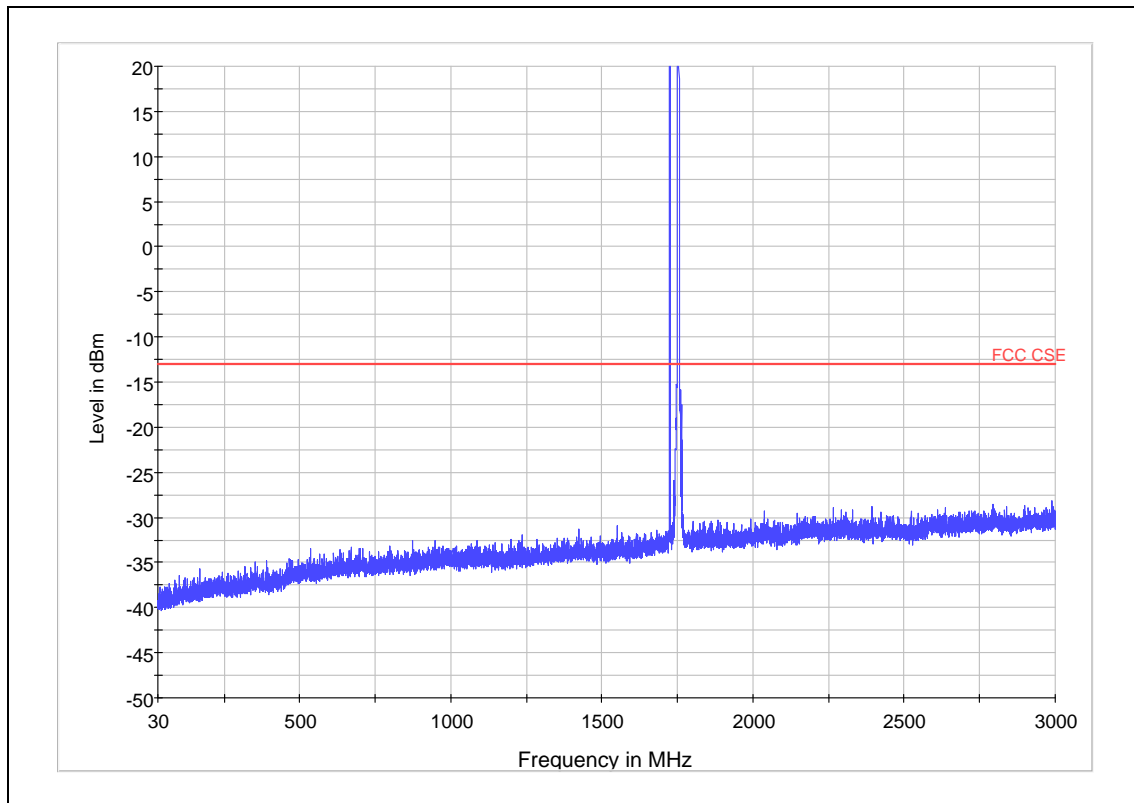
# TA Technology (Shanghai) Co., Ltd.

## Test Report

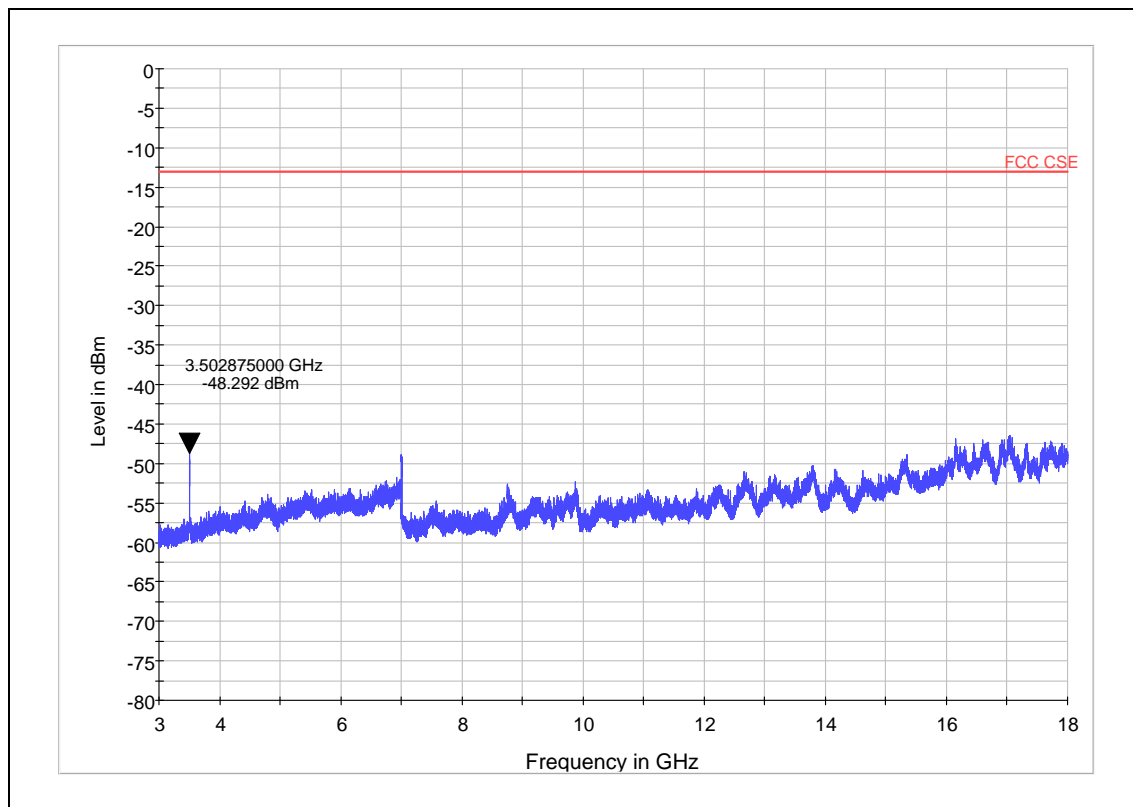
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### WCDMA Band IV CH1513



Note: The signal beyond the limit is carrier.  
WCDMA Band IV 1513 Channel 30MHz~3GHz

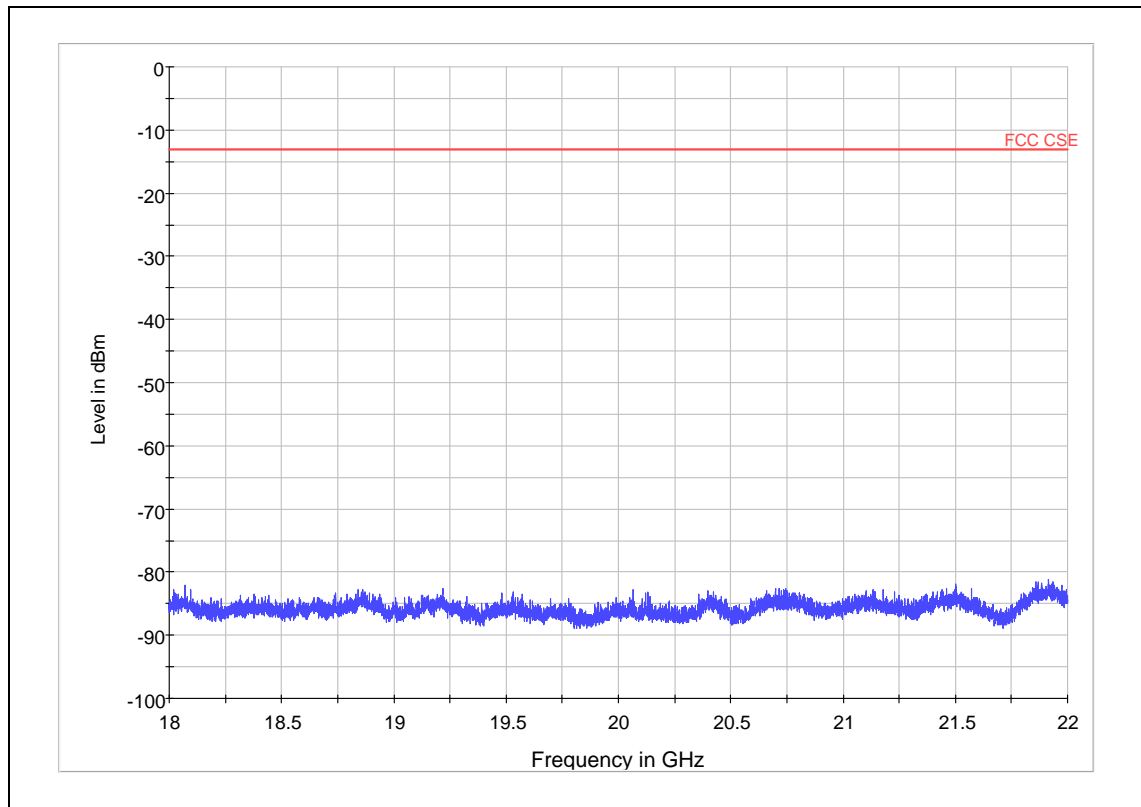


WCDMA Band IV 1513 Channel 3GHz ~18GHz

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WCDMA Band IV 1513 Channel 18GHz ~22GHz

Harmonic	TX ch.1513 Frequency (MHz)	Level (dBm)	Limit (dBm)	Margin (dB)
2	3502.9	-48.29	-13	35.29

## 2.9. Radiates Spurious Emission

### Ambient condition

Temperature	Relative humidity	Pressure
23°C ~25°C	45%~50%	101.5kPa

### Method of Measurement

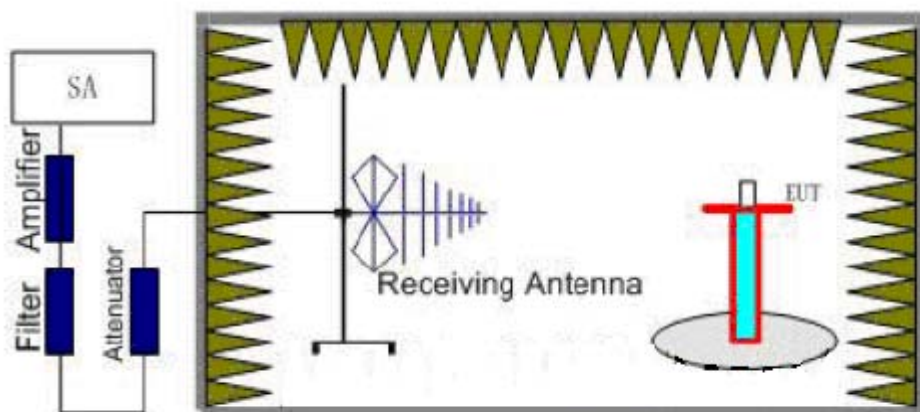
The measurements procedures in TIA -603C are used.

The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment.

The procedure of Radiates Spurious Emission is as follows:

Step 1:

The measurement is carried out in the semi-anechoic chamber. EUT was placed on a 1.5 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. The test setup refers to figure below.



Step 2:

A dipole antenna shall be substituted in place of the EUT. The antenna will be driven by a signal generator with a adjustable S.G. applied through a Tx cable. Adjust the level of the signal generator output until the value of the receiver reach the previously recorded analyzer power level (LVL). Then The E.R.P. /E.I.R.P. of the EUT can be calculated through the level of the signal generator, Tx cable loss and the gain of the substitution antenna. The test setup refers to figure below.

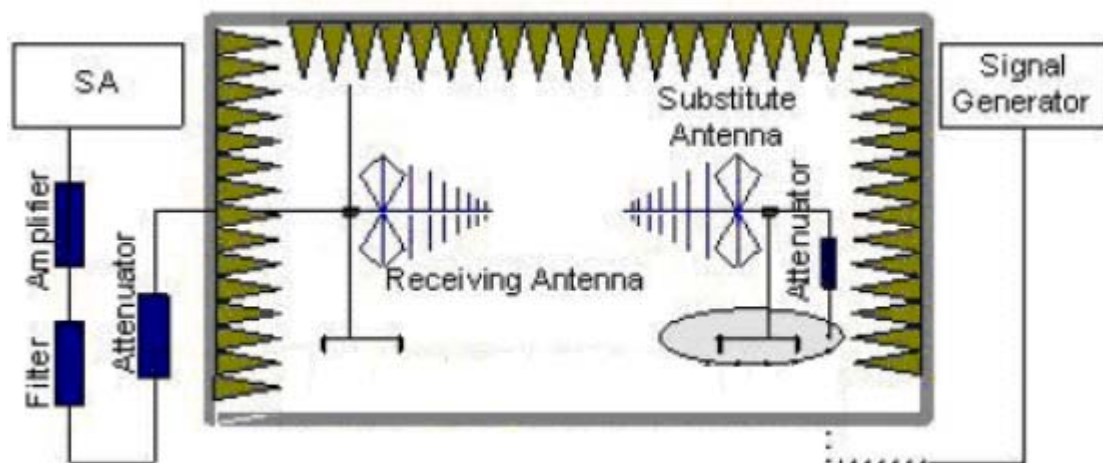


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$E.R.P \text{ (peak power)} = S.G. - Tx \text{ Cable loss} + \text{Substitution antenna gain} - 2.15.$   
 $EIRP = E.R.P + 2.15$

The field strength of spurious emission was measured in the following position: EUT stand-up position (Z axis), lie-down position (X, Y axis). The worst emission was found in stand-up position (Z axis) and the antenna is vertical.

### Limits

Rule Part 27.53(h) specifies that “the power of any emission outside a licensee's frequency block 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  $k = \pm 1.96$ ,  $U = \pm 3.55$  dB.

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**Test Result**

WCDMA Band IV CH1312

Harmonic	TX ch.1312 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3422.3	-51.51	2.6	10.15	Vertical	-46.11	-13	33.11	135
3	5139.8	-54.72	2.4	11.35	Vertical	-47.92	-13	34.92	90
4	6854.3	-52.76	4.5	10.85	Vertical	-48.56	-13	35.56	180
5	8562	-59.35	5.1	11.35	Vertical	-55.25	-13	42.25	180
6	10274.4	-58.20	5.3	11.95	Vertical	-53.70	-13	40.70	270
7	11986.8	-59.70	5.5	13.55	Vertical	-53.80	-13	40.80	0
8	13699.2	-54.79	6.3	13.75	Vertical	-49.49	-13	36.49	180
9	15411.6	-43.82	6.7	13.85	Vertical	-38.82	-13	25.82	90
10	17124	-45.44	6.8	14.25	Vertical	-40.14	-13	27.14	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

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WCDMA Band IV CH1413

Harmonic	TX ch.1413 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3466.9	-60.95	2.6	10.75	Vertical	-54.95	-13	41.95	135
3	5197.8	-53.30	2.4	11.05	Vertical	-46.80	-13	33.80	90
4	6930.4	-60.26	4.5	11.15	Vertical	-55.76	-13	42.76	180
5	8663	-60.72	5.1	11.15	Vertical	-56.82	-13	43.82	270
6	10395.6	-59.09	5.3	11.95	Vertical	-54.59	-13	41.59	0
7	12128.2	-57.09	5.5	13.55	Vertical	-51.19	-13	38.19	180
8	13860.8	-55.24	6.3	13.75	Vertical	-49.94	-13	36.94	90
9	15593.4	-44.58	6.7	13.85	Vertical	-39.58	-13	26.58	0
10	17326	-42.40	6.8	14.25	Vertical	-37.10	-13	24.10	270

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

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WCDMA Band IV CH1513

Harmonic	TX ch.1513 Frequency (MHz)	SG (dBm)	Cable Loss (dB)	Gain (dBi)	Antenna Polarization	ERP Level (dBm)	Limit (dBm)	Margin (dB)	Azimuth (deg)
2	3502.9	-55.52	2.6	10.15	Vertical	-50.12	-13	37.12	45
3	5257.8	-56.06	2.4	11.05	Vertical	-49.56	-13	36.56	270
4	7010.4	-60.92	4.5	11.15	Vertical	-56.42	-13	43.42	0
5	8763	-60.70	5.1	11.15	Vertical	-56.80	-13	43.80	180
6	10515.6	-60.17	5.3	11.95	Vertical	-55.67	-13	42.67	90
7	12268.2	-56.57	5.5	13.55	Vertical	-50.67	-13	37.67	0
8	14020.8	-52.24	6.3	13.75	Vertical	-46.94	-13	33.94	90
9	15773.4	-48.00	6.7	13.85	Vertical	-43.00	-13	30.00	0
10	17526	-44.50	6.8	14.25	Vertical	-39.20	-13	26.20	0

Note: 1.The other Spurious RF Radiated emissions level is no more than noise floor.

2.The worst emission was found in the antenna is vertical position.

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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	2013-06-29	One year
02	Power Splitter	SHX-GF2-2-13	Hua Xiang	10120101	NA	NA
03	Spectrum Analyzer	E4445A	Agilent	MY46181146	2013-06-29	One year
04	Universal Radio Communication Tester	E5515C	Agilent	MY48367192	2013-06-29	One year
05	Signal Analyzer	FSV30	R&S	100815	2013-06-29	One year
06	Signal generator	SMB 100A	R&S	102594	2013-06-29	One year
07	EMI Test Receiver	ESCI	R&S	100948	2013-06-29	One year
08	Trilog Antenna	VUBL 9163	SCHWARZBECK	9163-201	2013-06-19	Three years
09	Horn Antenna	HF907	R&S	100126	2012-07-01	Three years
10	Climatic Chamber	PT-30B	Re Ce	20101891	2013-09-09	Three years

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

## ANNEX A: EUT Appearance and Test Setup

### A.1 EUT Appearance



a: EUT



b: Adapter

Picture 1 Constituents of EUT

## **A.2 Test Setup**



**Picture 2: Radiated Spurious Emissions Test setup**