D-PL-12111-01-01

CNAS L0447

Registration No.910917

TEST REPORT

Report No.: SRTC2011-H024-E0030

Product Name: GSM/GPRS/EDGE/WCDMA Digital Mobile Phone with Bluetooth and WiFi

Marketing Name: one touch 901S

Product Model: yippee 3G_S

Applicant: TCT Mobile Limited

Manufacture: TCT Mobile Limited

Specification: FCC Part 27, Part2 (October 1, 2009 edition)

FCC ID: RAD162

The State Radio_monitoring_center Testing Center (SRTC)

No.80 Beilishi Road Xicheng District Beijing, China

Tel: 86-10-68009202 Fax: 86-10-68009205

CONTENTS

1. General information

1.1 Notes of the test report

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The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company: The State Radio_monitoring_center Testing Center (SRTC)
Address: No.80 Beilishi Road, Xicheng District, Beijing China
City: Beijing
Country or Region: China
Contacted person: Wang Junfeng
Tel: +86 10 68009181 +86 10 68009202
Fax: +86 10 68009195 +86 10 68009205
Email: wangjf@srrc.org.cn / wangjunfeng@srtc.org.cn

1.3 Applicant's details

Company: TCT Mobile Limited
Address: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area
City: Shanghai
Country or Region: P.R.China
Grantee Code: RAD
Contacted person: Gong Zhizhou
Tel: +86-21-61460890
Fax: +86-21-61460602
Email: zhizhou.gong@jrdcom.com

1.4 Manufacturer's details

Company: TCT Mobile Limited
Address: 5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area
City: Shanghai
Country or Region: P.R.China
Contacted person: Gong Zhizhou
Tel: +86-21-61460890
Fax: +86-21-61460602
Email: zhizhou.gong@jrdcom.com

1.5 Application details

Date of reception of test sample: 8th Mar 2011
Date of test: 9th Mar 2011 to 12th Apr 2011

1.6 Reference specification

FCC Part 27, Part 2 (October 1, 2009 edition)

1.7 Information of EUT

1.7.1 General information

Name of EUT	GSM/GPRS/EDGE/WCDMA Digital Mobile Phone with Bluetooth and WiFi
FCC ID	RAD162
Frequency range	WCDMA Band IV: Tx:1710~1755MHz Rx:2110~2155MHz
Rated output power	24.0dBm
Modulation type	QPSK
Emission Designator	4M50F9W
Duplex mode	FDD
Duplex spacing:	400MHz
Antenna type	Integral
Power Supply	Battery or charger
Rated Power Supply Voltage	3.8V
Extreme Temperature	Lowest: -30°C Highest: +50°C
Extreme Voltage	Minimum: 3.5V Maximum: 4.2V
HW Version	PIO2
SW Version	sw523

1.7.2 EUT details

Product Name	Marketing Name	Product Model	IMEI
GSM/GPRS/EDGE/WCDMA Digital Mobile Phone with Bluetooth and WiFi	one touch 901S	yippee 3G_S	EUT 1: 012614000010417 EUT 2: 012614000010243

1.7.3 Auxiliary equipment details

Equipment	Charger1
Manufacturer	Ten Pao International Ltd.
Model Number	CBA3120AG0C2
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz

Equipment	Charger2
Manufacturer	HUIZHOU BYD ELECTRONIC CO., LTD.
Model Number	CBA3001AG0C1
Input Voltage	100V-240V a.c.
Output Voltage	5.0V d.c.
Frequency	50/60Hz

Equipment	Battery1
Manufacturer	BYD LITHIUM BATTERY CO., LTD
Model Number	CAB31L0000C1
Capacity	1000mAh
Rated Voltage	3.7V d.c.

Equipment	Battery2
Manufacturer	SHENZHEN BAK BATTERY CO., LTD
Model Number	CAB31L0000C2
Capacity	1000mAh
Rated Voltage	3.7V d.c.

Equipment	Data Cable1
Manufacturer	Shen Zhen Ju Wei Electronic Co.,LTD
Model Number	CDA3122001C1

Equipment	Data Cable2
Manufacturer	Huizhou Shenghua Industry Co.,Ltd
Model Number	CDA3122001C2

Note: As the information described above, there are two different models of charger manufactured by two different companies, and two different models of battery manufactured by two different companies.

The relevant tests have been performed in order to verify in which combination case (EUT exercised by only one model of battery and one model of charger) the EUT would have the worst features. So all the tests shown in this test report are performed when the EUT exercised by the charger CBA3120AG0C2 and the battery CAB31L0000C1.

2. Test information

2.1 Summary of the test results

No.	Test case	FCC reference	Verdict
1	RF Power Output	2.1046(a)	Pass
2	Effective Isotropic Radiated Power	27.50(d)	Pass
3	Occupied Bandwidth	2.1049(h)	Pass
4	Emission Bandwidth	27.53(g)	Pass
5	Spurious Emissions at antenna terminals	2.1051/27.53	Pass
6	Band Edges Compliance	27.53(g)	Pass
7	Frequency Stability	2.1055/27.54	Pass
8	Radiated Spurious Emissions	2.1053/27.53	Pass

This Test Report Is Issued by: Mr. Song Qizhu Director of the test lab	Checked by: Mr. Wang Junfeng Deputy director of the test lab
Tested by: Mr. Li Boyu Test engineer	Issued date: **2011.05.20**

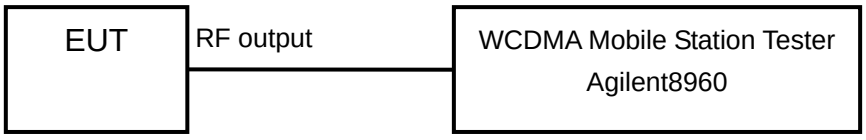
2.2 Test result

2.2.1 RF Power Output-FCC Part 2.1046(a)

Ambient condition:

Temperature	Relative humidity	Pressure
21°C	44%	101.5kPa

Test Setup:



Test procedure:

After a radio link has been established between EUT and Tester, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. Then the test data can be read at the tester screen. The loss between RF output port of the EUT and the input port of the tester will be taken into consideration.
The measurement will be conducted at three channels No1312, No1413 and No1513 (Bottom, middle and top channels of WCDMA band IV)

Limits	≤24dBm

Test result:

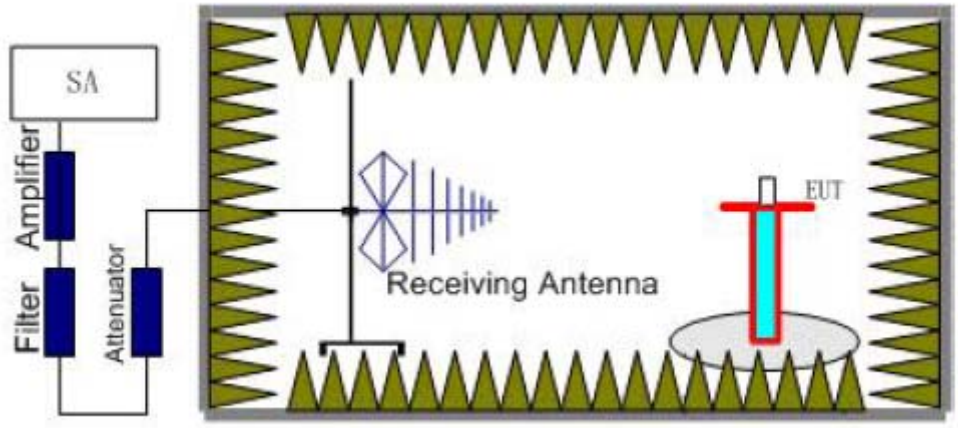
Carrier frequency (MHz)	Channel No.	RF Power Output (dBm)
1712.4	1312	22.1
1732.6	1413	22.2
1752.6	1513	21.9

2.2.2 Effective Isotropic Radiated Power-FCC Part 27.50(d)

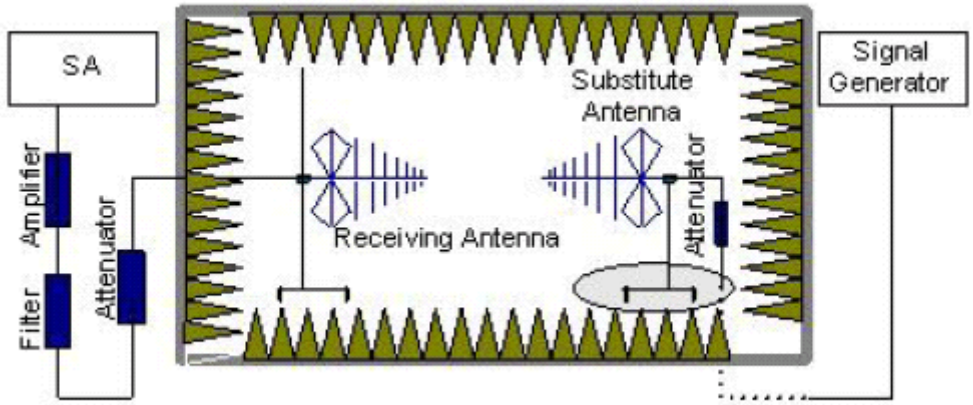
Ambient condition:

Temperature	Relative humidity	Pressure
21°C	44%	101.5kPa

Test setup:



Step 1



Step 2

Test procedure:

The measurements procedures in TIA-603C-2004 are used.

Step 1:

The measurement is carried out in the fully anechoic chamber. EUT was placed on a 2.4 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. The height of receiving antenna is 2.4m and varies in certain range to find the maximum power value. 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 and RBW is set to 3MHz. Then the height of receive antenna shall be moved from 1 to 4 meters, and the antenna shall be performed under horizontal and vertical polarization. The turn table shall be rotated from 0 to 360 degrees for detecting the maximum power value on spectrum analyzer or receiver. And the maximum value of the receiver should be recorded as (Pr).

Step 2:
A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator. To repeat the same procedure as step1 and the level of signal generator will be adjusted till the same power value on the spectrum analyzer or receiver. The ERP/EIRP 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.
A power (Pmea) is applied to the input of the substitution antenna, and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (Pmea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
A “reference path loss” should be calculated after test. The attenuation of “reference path loss” is the cable loss between the Signal Source with the Substitution Antenna (Pca) and the Substitution Antenna Gain (Ga).
The measurement results are obtained as described below:
Power (EIRP) = Pmea+ Pca+ Ga

The measurement will be done at three channels No1312, No1413 and No1513 (Bottom, middle and top channels of WCDMA band IV).

Limits	≤33dBm

Test result:

Frequency (MHz)	Peak EIRP(dBm)	Pca Cable loss	Ga Antenna Gain (dB)	Pmea (dBm)	Polarization
1712.4	22.9	-4.8	8.6	19.1	Vertical
1732.6	23.1	-4.8	8.6	19.3	Vertical
1752.6	22.7	-4.8	8.6	18.9	Vertical

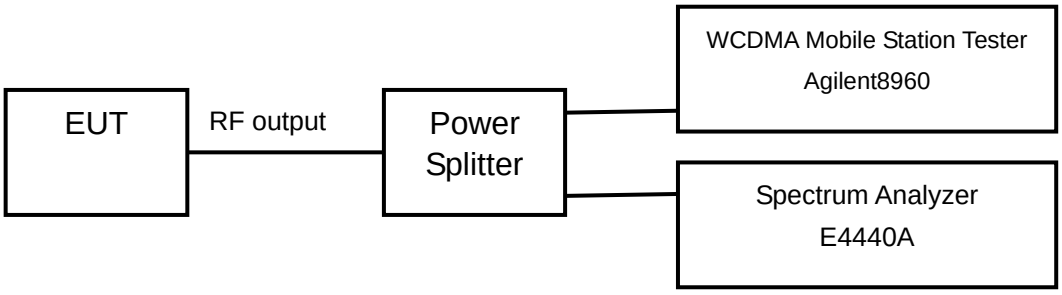
Frequency: 1732.6MHz
Peak ERP (dBm) =Pmea (19.3dBm)+Pca(-4.8dB)+Ga(8.6dB) = 23.1 dBm

2.2.3 Occupied Bandwidth-FCC Part 2.1049(h)

Ambient condition:

Temperature	Relative humidity	Pressure
21°C	44%	101.5kPa

Test Setup:



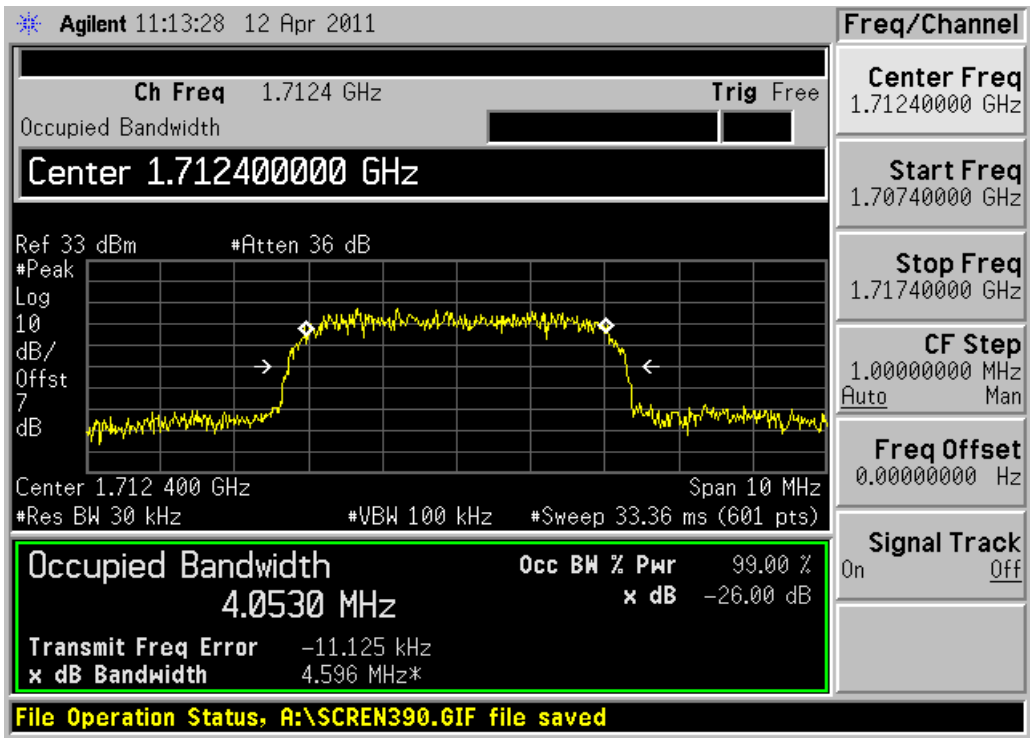
Test procedure:

After a radio link has been established between EUT and Tester, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. The occupied bandwidth is measured using spectrum analyzer. RBW is set to 30kHz on spectrum analyzer. The bandwidth of 99% power can be read on spectrum analyzer.
The measurement will be conducted at three channels No1312, No1413 and No1513 (Bottom, middle and top channels of WCDMA band IV)

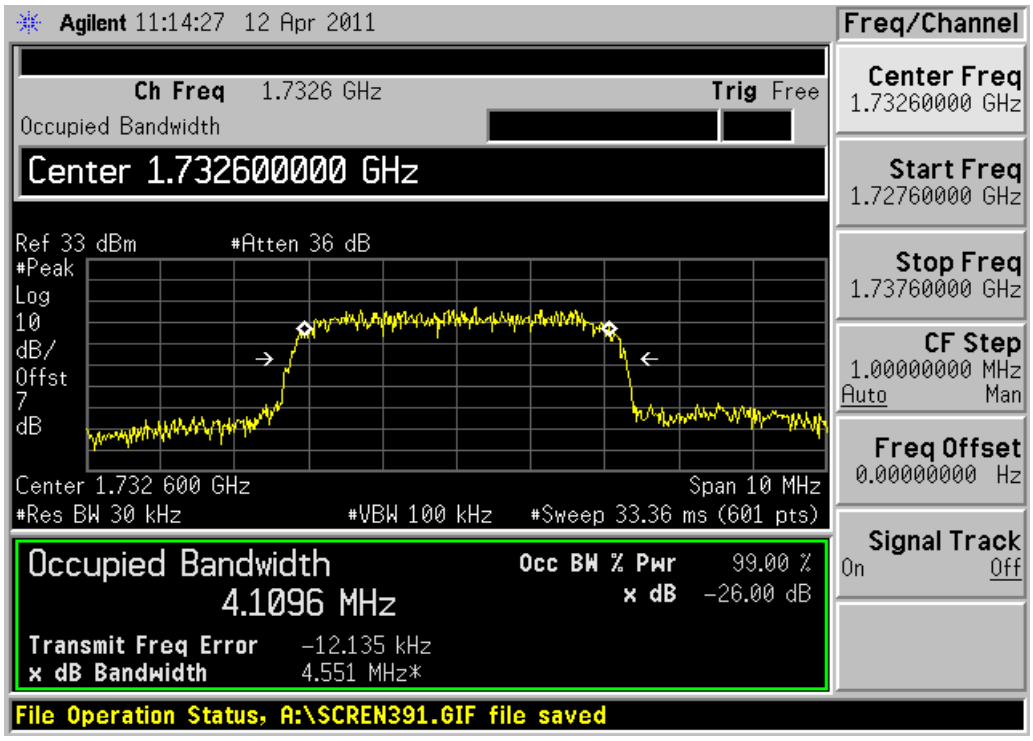
Limits: No specific occupied bandwidth requirements in part 2.1049

Test result:

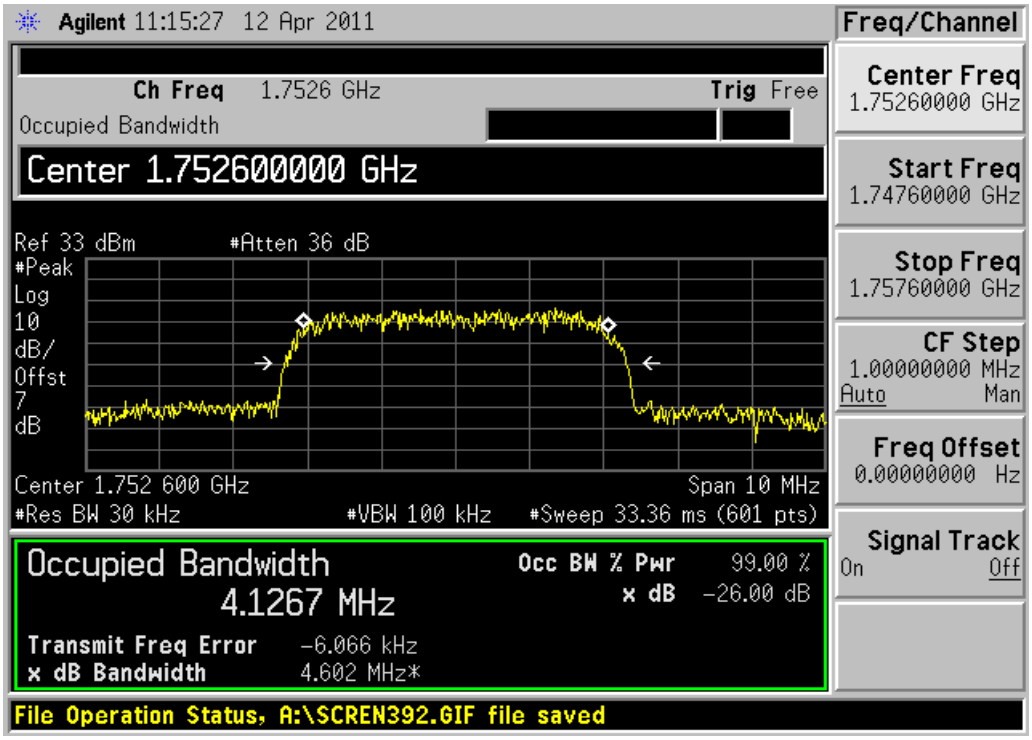
Carrier frequency (MHz)	Channel No.	Bandwidth of 99%Power(MHz)
1712.4	1312	4.0530
1732.6	1413	4.1096
1752.6	1513	4.1267



Channel 1312



Channel 1413



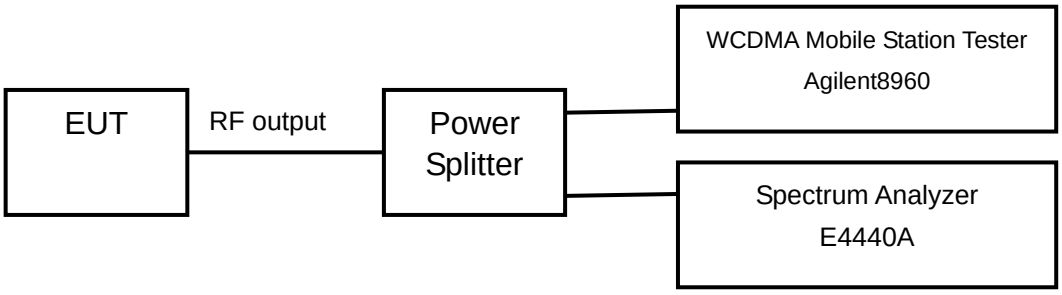
Channel 1513

2.2.4 Emission Bandwidth-FCC Part 27.53(g)

Ambient condition:

Temperature	Relative humidity	Pressure
21°C	44%	101.5kPa

Test Setup:



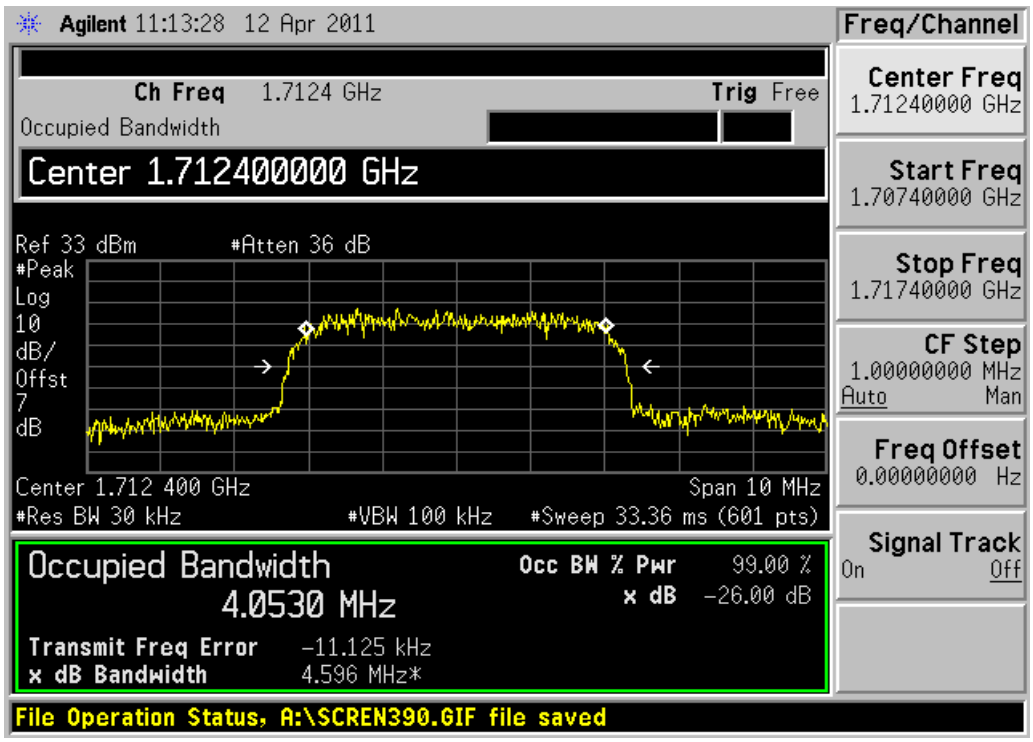
Test procedure:

After a radio link has been established between EUT and Tester, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. The emission bandwidth is measured using spectrum analyzer. RBW is set to 30kHz on spectrum analyzer. The bandwidth of -26dBc power can be read on spectrum analyzer. The measurement will be conducted at three channels No1312, No1413 and No1513 (Bottom, middle and top channels of WCDMA band IV)

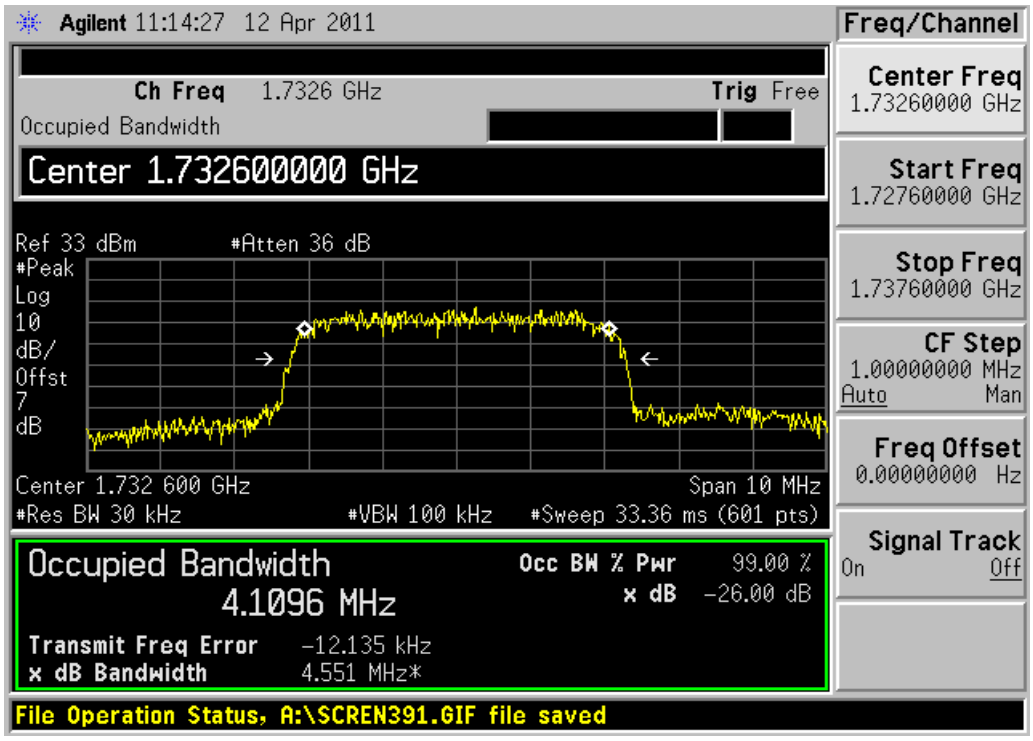
Limits: No specific occupied bandwidth requirements in part 27.53

Test result:

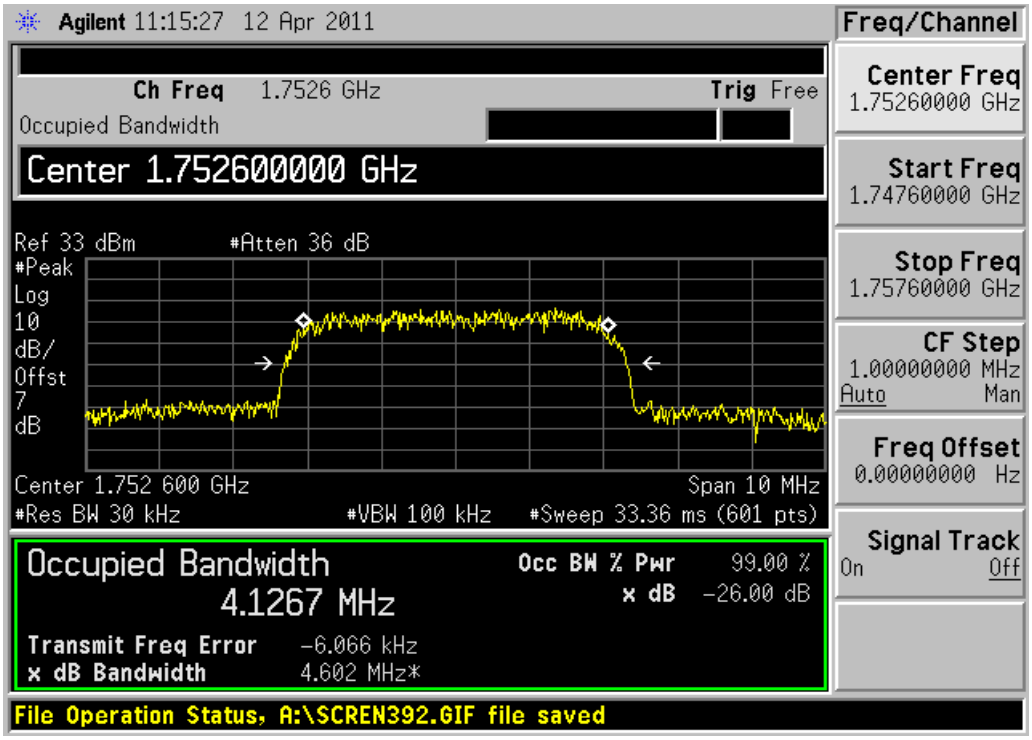
Carrier frequency (MHz)	Channel No.	Bandwidth of -26dBc Power (MHz)
1712.4	1312	4.596
1732.6	1413	4.551
1752.6	1513	4.602



Channel 1312



Channel 1413



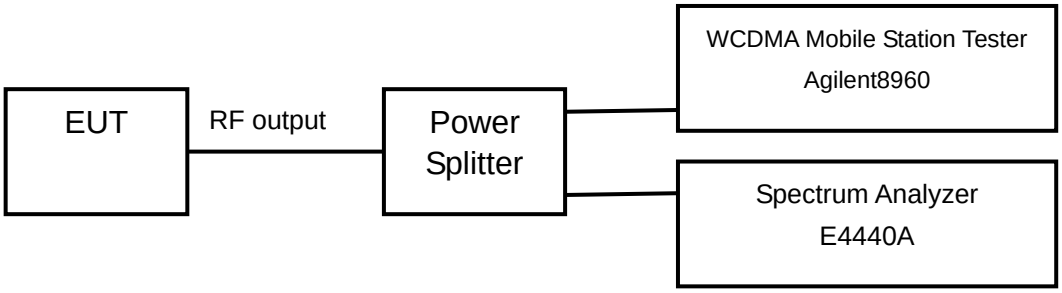
Channel 1513

2.2.5 Conducted Spurious Emissions-FCC Part 2.1051/Part 27.53

Ambient condition:

Temperature	Relative humidity	Pressure
21°C	44%	101.5kPa

Test Setup:

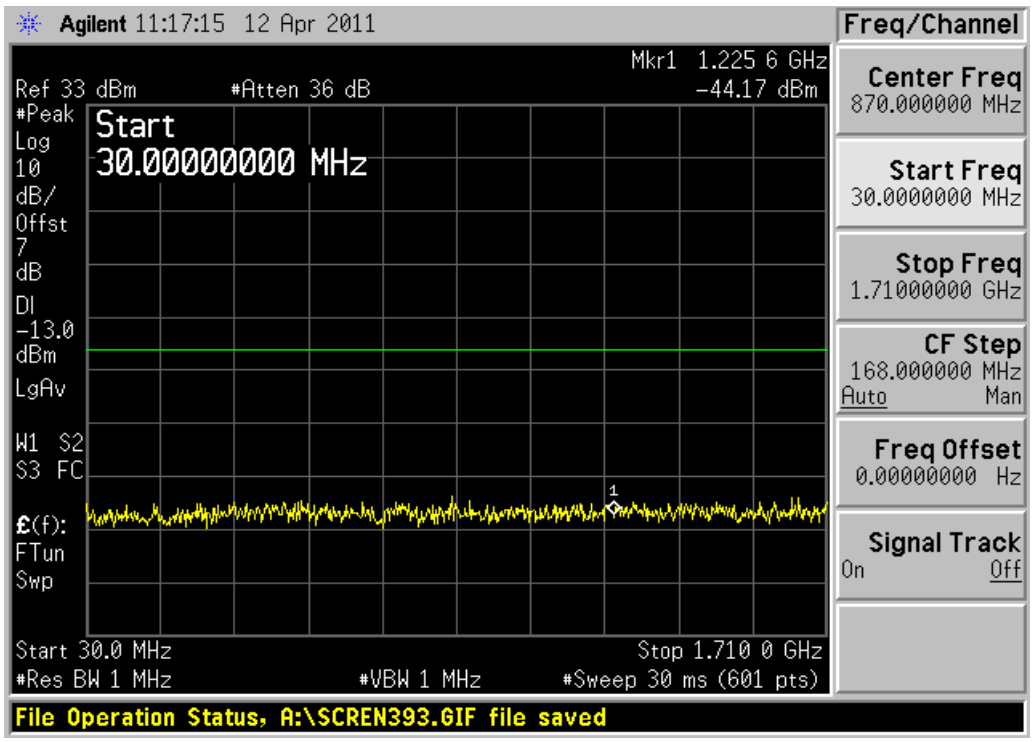


Test procedure:

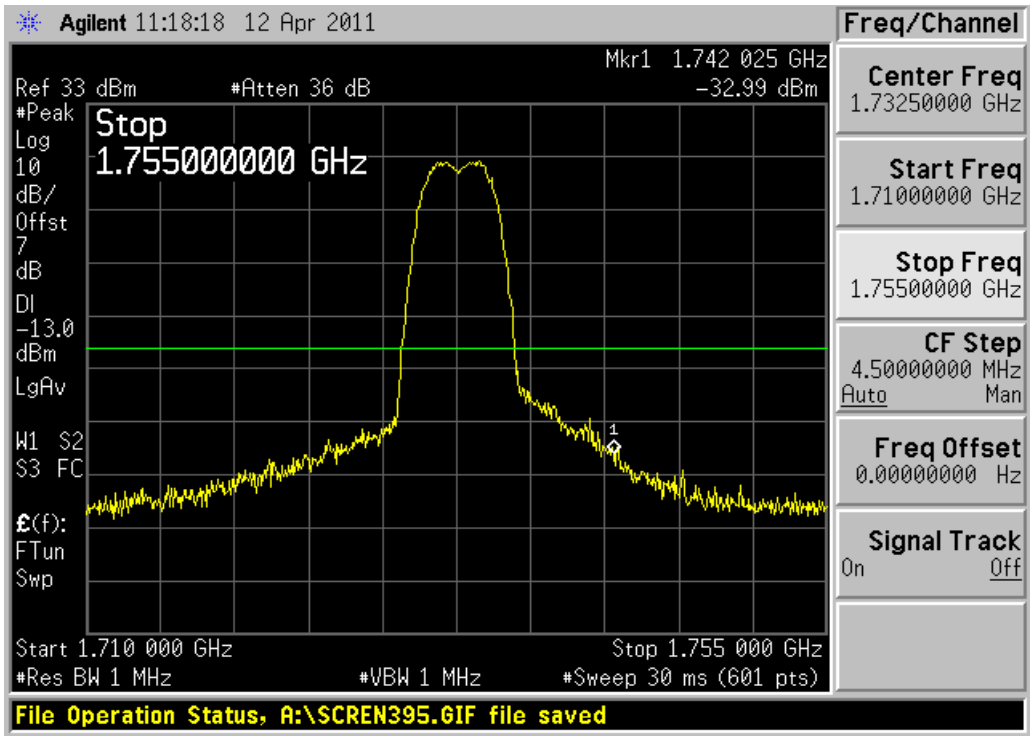
After a radio link has been established between EUT and Tester, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. The measurement is carried out using a spectrum analyzer. The spectrum analyzer scans from 30MHz to 20GHz (higher than the 10^{th} harmonic of the carrier). The peak detector is used and RBW is set to 1MHz on spectrum analyzer.
The measurement will be conducted at one channel No 1413 (middle channel of WCDMA band IV)

Limits	≤-13dBm

Test result:
Refer to the following figures.

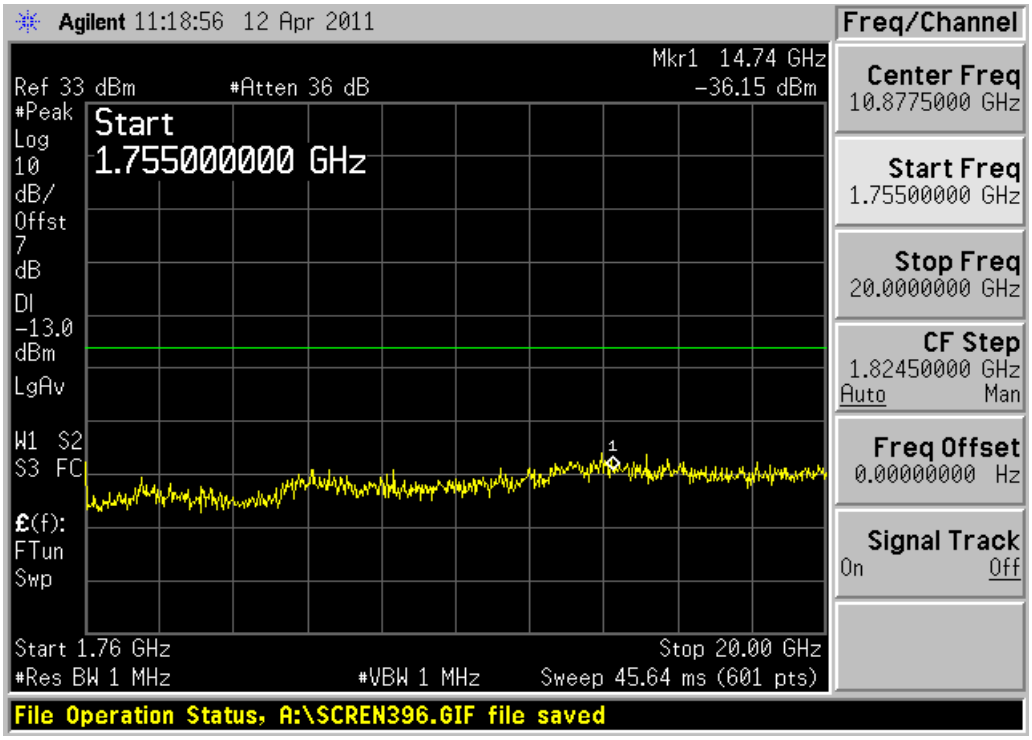


Channel 1413, 30MHz~1710MHz



Channel 1413, 1710MHz~1755MHz

Note: The signal beyond the limit is the base station simulator carrier.



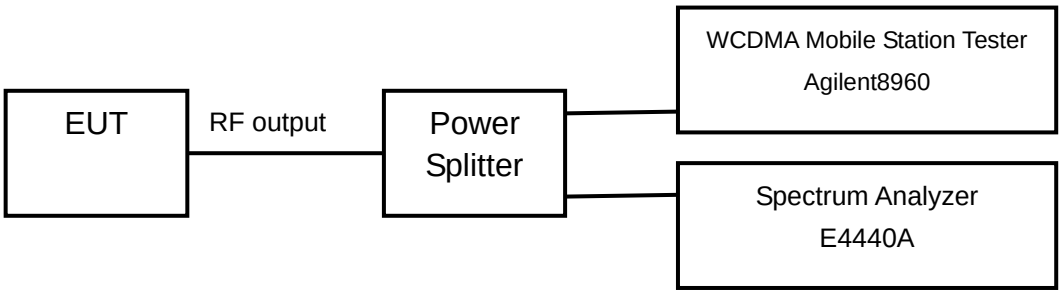
Channel 1413, 1760MHz~20GHz

2.2.6 Band Edges Compliance-FCC Part 27.53(g)

Ambient condition:

Temperature	Relative humidity	Pressure
21°C	44%	101.5kPa

Test Setup:

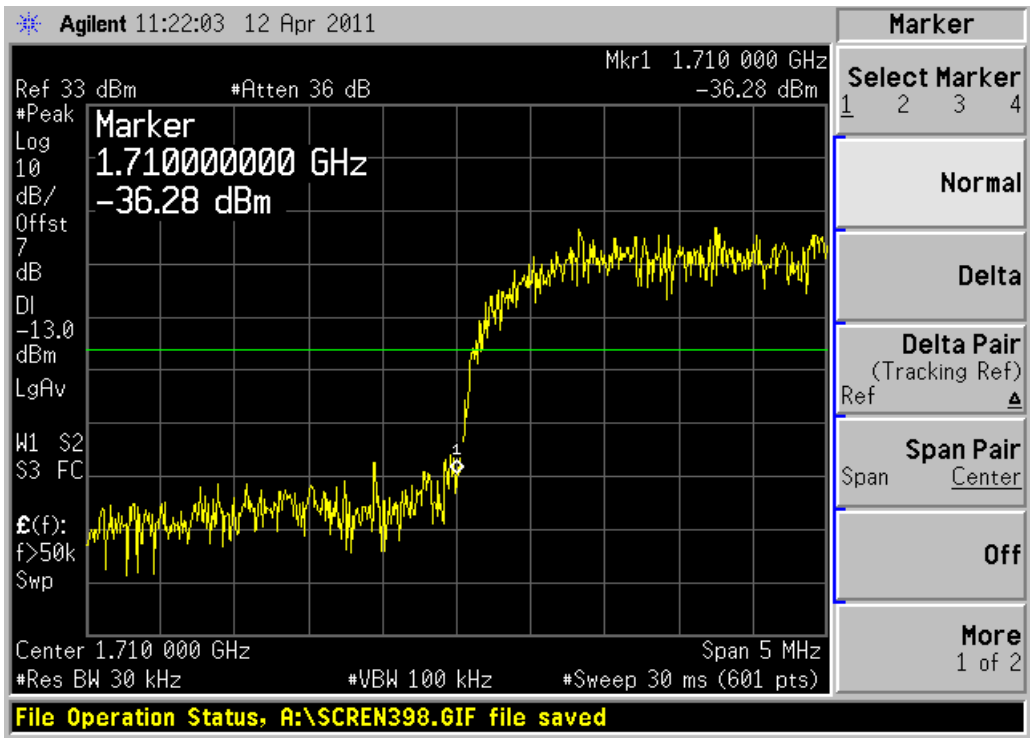


Test procedure:

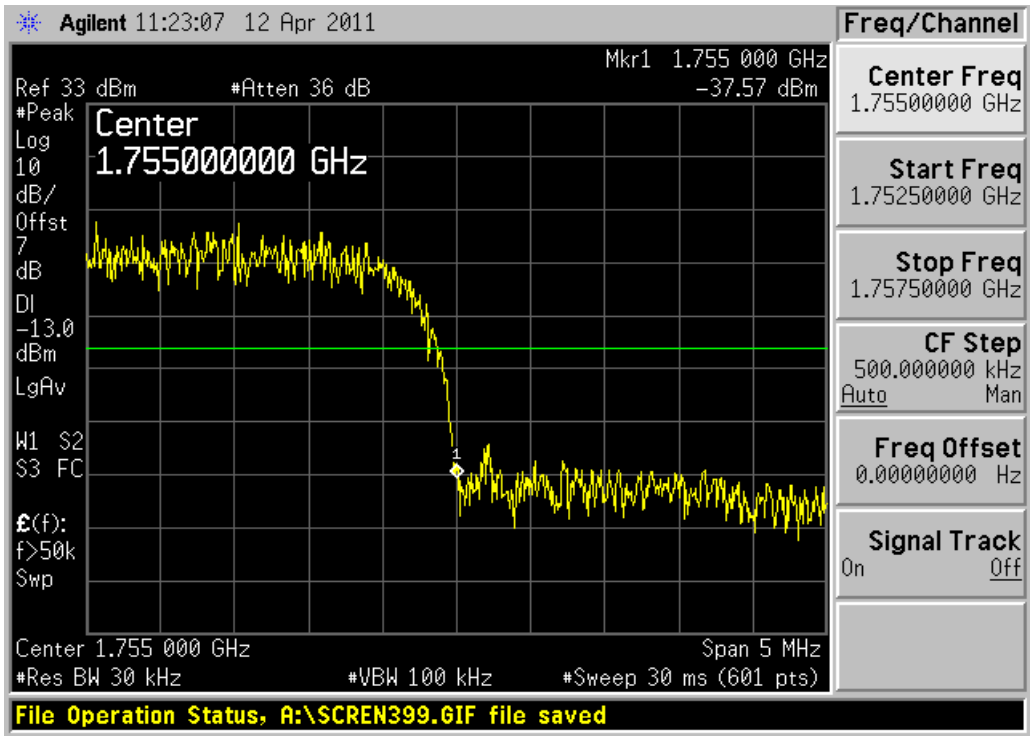
After a radio link has been established between EUT and Tester, the output power of the cell signal of the testing equipment will be decreased until the output power of the EUT reach a maximum value. The measurement is carried out using a spectrum analyzer. The peak detector is used and RBW is set to 30KHz on spectrum analyzer.
The measurement will be conducted at two channels No1312 and No1513 (Bottom and top channels of WCDMA band IV)

Limits	≤-13dBm

Test result:
Refer to the following figures.



Channel 1312



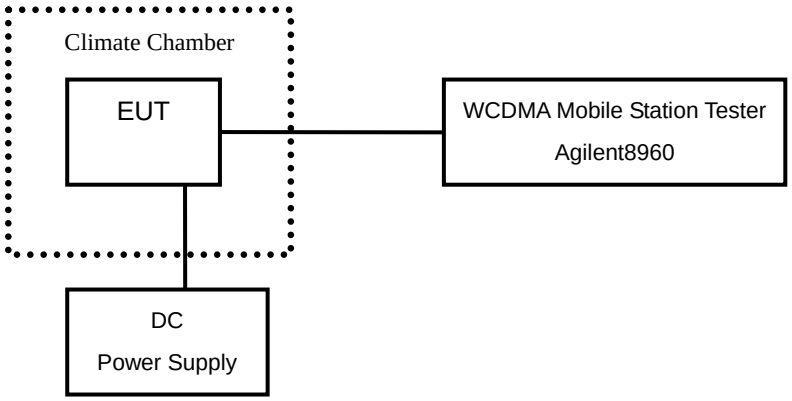
Channel 1513

2.2.7 Frequency Stability-FCC Part 2.1055/27.54

Ambient condition:

Temperature	Relative humidity	Pressure
21°C	44%	101.5kPa

Test setup:



Test Procedure:
A radio link shall be established between EUT and Tester. The tester will sample the transmitter RF output signal and measure its frequency. The temperature inside the climate chamber is varied from -30 to +50° C in 10° C step size, and also the DC power supply voltage to the EUT is varied from 3.5 to 4.2 V. The measurement will be conducted at three channels No1312, No1413 and No1513 (Bottom, middle and top channels of WCDMA band IV).

Limits: No specific frequency stability requirements in part 2.1055 and part 27.54

Test result:

Temperature(°C)	Test Result (ppm)@3.8V		
	Channel 1312	Channel 1413	Channel 1513
-30	0.001	0.001	0.002
-20	0.002	0.001	0.001
-10	0.001	0.001	0.002
0	0.001	0.001	0.001
+10	0.001	0.002	0.001
+20	0.001	0.001	0.000
+30	0.001	0.000	0.002
+40	0.002	0.001	0.001
+50	0.001	0.002	0.001

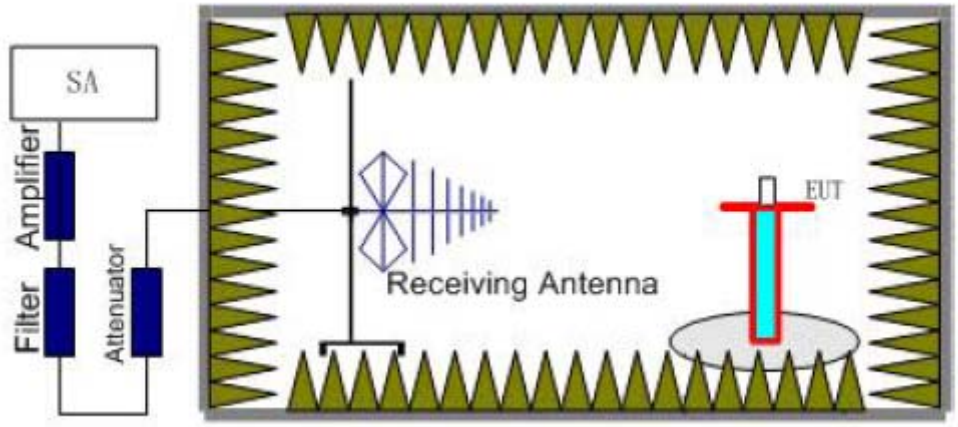
Voltage (V)	Test Result (ppm)@20°C		
	Channel 1312	Channel 1413	Channel 1513
3.5	0.001	0.000	0.001
4.2	0.001	0.002	0.000

2.2.8 Radiated Spurious Emissions-FCC Part 2.1053/27.53

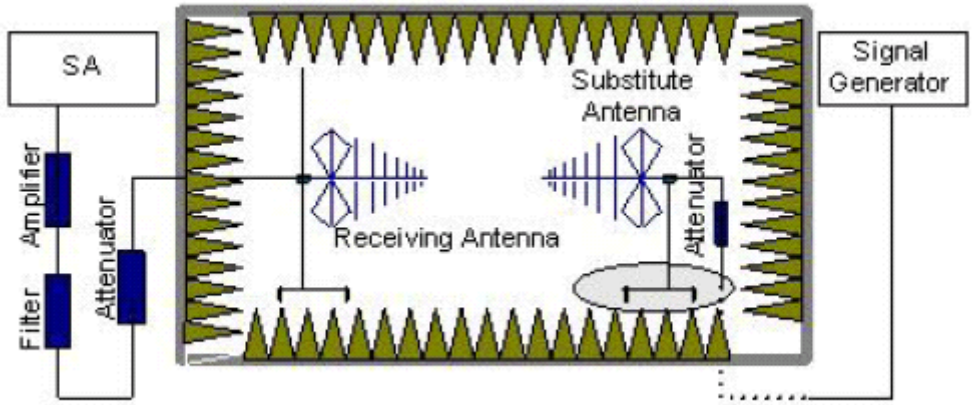
Ambient condition

Temperature	Relative humidity	Pressure
21°C	44%	101.5kPa

Test Setup:



Step 1



Step 2

Test procedure:

The measurements procedures in TIA-603C-2004 are used.

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

Step 1:

The measurement is carried out in the fully anechoic chamber. EUT was

placed on a 2.4 meter high non-conductive table at a 3 meter test distance from the test receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT. The height of receiving antenna is 2.4m and varies in certain range to find the maximum power value. 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. The measurement is carried out using a spectrum analyzer or receiver. The spectrum analyzer scans from 30MHz to 20GHz (higher than the 10^{th} harmonic of the carrier). The peak detector is used and RBW is set to 1MHz on spectrum analyzer. Then the antenna height and turn table rotation is adjusted till the maximum power value is founded on spectrum analyzer or receiver. 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.

Step 2:
A log-periodic antenna or double-ridged waveguide horn antenna shall be substituted in place of the EUT. The log-periodic antenna will be driven by a signal generator and the level will be adjusted till the same power value on the spectrum analyzer or receiver. 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.
A power (Pmea) is applied to the input of the substitution antenna, and adjusts the level of the signal generator output until the value of the receiver reach the previously recorded (Pr). The power of signal source (Pmea) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.
A “reference path loss” should be calculated after test. The attenuation of “reference path loss” is the cable loss between the Signal Source with the Substitution Antenna (Pca) and the Substitution Antenna Gain (Ga).

Calculation procedure:
The data of cable loss and antenna gain has been calibrated in full testing frequency range before the testing.

The power of the Radiated Spurious Emissions is calculated by adding the cable loss and antenna gain. The basic equation with a sample calculation is as followed:
Power(EIRP) = P_{mea}+ P_{ca} + G_a
This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15dB) and known input power. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP – 2.15 (dB).

Assumed the power of signal source record is -20dBm. A cable loss of -30dB, and an antenna gain of 11dB are added.
$P=P_{mea}+P_{ca}+G_a=(-20dBm)+(-30dB)+(11dB)= -39dBm$

The measurement will be done at carrier frequencies that pertain to bottom (Channel 1312), middle (Channel 1413) and top (Channel 1513) channels of WCDMA band IV.

Test result:

Channel 1312:

Frequency (MHz)	Power (dBm)	Pca Cable loss (dB)	Ga Antenna Gain (dB)	Pmea (dBm)	Limited (dBm)	Polarization
2537.61	-36.7	-5.6	8.6	-39.7	-13	Vertical
2825.02	-32.0	-5.8	8.9	-35.1	-13	Horizontal
6665.29	-41.9	-8.6	11.2	-44.5	-13	Vertical
6987.88	-42.3	-8.6	12.7	-46.4	-13	Vertical
9987.96	-38.5	-13.7	13.8	-38.6	-13	Vertical
17894.67	-31.9	-15.9	12.4	-28.4	-13	Horizontal

Channel 1413:

Frequency (MHz)	Power (dBm)	Pca Cable loss (dB)	Ga Antenna Gain (dB)	Pmea (dBm)	Limited (dBm)	Polarization
2549.41	-36.4	-5.6	8.6	-39.4	-13	Vertical
2816.37	-32.3	-5.8	8.9	-35.4	-13	Vertical
6682.53	-41.8	-8.6	11.2	-44.4	-13	Vertical
6995.45	-42.6	-8.6	12.7	-46.7	-13	Horizontal
10000.12	-38.4	-13.7	13.8	-38.5	-13	Vertical
17899.64	-31.7	-15.9	12.4	-28.2	-13	Vertical

Channel 1513:

Frequency (MHz)	Power (dBm)	Pca Cable loss (dB)	Ga Antenna Gain (dB)	Pmea (dBm)	Limited (dBm)	Polarization
2565.03	-36.4	-5.6	8.6	-39.4	-13	Vertical
2828.93	-32.1	-5.8	8.9	-35.2	-13	Horizontal
6665.89	-41.6	-8.6	11.2	-44.2	-13	Vertical
6977.17	-42.2	-8.6	12.7	-46.3	-13	Horizontal
10019.24	-38.3	-13.7	13.8	-38.4	-13	Horizontal
17889.97	-31.2	-15.9	12.4	-27.7	-13	Vertical

2.3. List of test equipments

No.	Name/Model	Manufacturer	S/N	Calibration Due Date
1	E5515C(8960) Mobile Station Tester	Agilent	GB44050904	19th Aug. 2011
2	PSA E4440A Spectrum Analyzer	Agilent	MY41000183	19th Aug. 2011
3	66309B DC Power Supply	Agilent	MY43000461	19th Aug. 2011
4	1506A Power Splitter	Weinschel	MN154	19th Aug. 2011
5	9.080m×5.255m×3.525m Shielding room	FRANKONIA	-----	19th Aug. 2011
6	ESI 40 EMI test receiver	R&S	100015	19th Aug. 2011
7	SMR 20 Signal generator	R&S	100086	19th Aug. 2011
8	CMU 200 Radio tester	R&S	100313	19th Aug. 2011
9	12.65m*8.03m*7.50m Fully-Anechoic Chamber	FRANKONIA	-----	19th Aug. 2011
10	HL562 Ultra log test antenna	R&S	100016	19th Aug. 2011
11	23.18m×16.88m×9.60m Semi-Anechoic Chamber	FRANKONIA	-----	19th Aug. 2011
12	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100030	19th Aug. 2011
13	HF 906 Double-Ridged Waveguide Horn Antenna	R&S	100029	19th Aug. 2011
14	PS2000 Turn Table	FRANKONIA	-----	19th Aug. 2011
15	MA260 Antenna Master	FRANKONIA	-----	19th Aug. 2011
16	SH-241Climatic Chamber	ESPEC	92000389	19th Aug. 2011
17	ES-K1EMI test software	R&S	-----	19th Aug. 2011
18	HL562 Receive antenna	R&S	100167	19th Aug. 2011

Appendix

Appendix1 Test Setup