

## **TEST REPORT**

## According to

#### FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E

Applicant : AIR S.R.L.

Address Corrientes 733 - Rosario - Santa Fe, Argentina (ZIP

CODE: 2000)

Manufacturer : GREEN CONNECT INTERNATIONAL CORP.

Address 4F., NO.87, LN.87, SEC.1, SIHCHUAN RD., BANCIAO

DIST., NEW TAIPEI CITY 22063, TAIWAN

Equipment : CX Phone

Model No. : CX502E

Trade Name : CX

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- The test report must not be used by the clients to claim product certification approval by **NVLAP** or any agency of the Government.

Cerpass Technology Corp.

Tel:86-512-6917-5888 Fax: 86-512-6917-5666

Issued Date: Jun 23,2015

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History of this test report

ORIGINAL

 $\square$  Additional attachment as following record:

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#### I HEREBY CERTIFY THAT:

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 – 2009** and the energy emitted by this equipment was *passed* 

FCC Rule FCC PART 22 Subpart H and PART 24 Subpart E in both radiated and conducted emission limits.

Testing was carried out on Jun 09, 2015 at Cerpass Technology Corp.

Signature

Miro Chueh/ Technical director

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## 1. Report of Measurements and Examinations

FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E ANSI C63.4: 2003				
Test Parameter	Test Performed	Remark		
Conducted Emission	YES	PASS		
Field Strength of Spurious Radiation Measurement	YES	PASS		
Occupied Bandwidth	YES	PASS		
Maximum Peak Output Power	YES	PASS		
ERP & EIRP Measurement	YES	PASS		
Out of Band Emission at Antenna Terminals	YES	PASS		
Peak-Average Ratio	YES	PASS		
Frequency Stability V.S. Temperature Measurement	YES	PASS		
Requency Stability V.S. Voltage Measurement	YES	PASS		

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## 2. Test Configuration of Equipment under Test

## 2.1. Feature of Equipment under Test

CX Phone	Model No:	CX502E		
Operation Frequency	WCDMA/HSUPA/HSDPA BAND5: 826.4 – 846.6 MHz			
Range	WCDMA/HSUPA	/HSDPA BAND2: 1852.4 – 1907.6 MHz		
Release version	HSDPA: Rel 6 HSUPA: Rel 7			
EUT Power Rating:	DC 3.7V supplied by battery and DC5V supplied by adapter			
	Manufacturer:	SHENZHEN FUJIA APPLIANCE CO., LTD.		
Adapter Spec.	Model No.:	FJ-SW1160501000UA		
Adapter Spec.	Input Rating:	100-240Vac 50/60Hz 0.3A Max		
	Output Rating:	: 5V == 1000mA		

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#### 2.2. Test Manner

Test M	Test Manner			
а	During testing, the interface cables and equipment positions were varied according to 47 CFR, Part 2, PART 22 Subpart H and PART 24 Subpart E.			
b	b Adjust the EUT at the test mode and the test channel. Then test.			
The tes	The test modes:			

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## The test modes:

The EUT had been tested under operating condition.

After verification, all tests were carried out with the worst case test modes as shown below except radiated spurious emission below 1GHz and power line conducted emissions below 30MHz, which worst case was in normal link mode only.

EUT staying in continuous transmitting mode was programmed.

#### WCDMA 850:

Channel Low (CH4132), Channel Mid (CH4183) and Channel High (CH4233) were chosen for full testing.

#### WCDMA1900:

Channel Low (CH9262), Channel Mid (CH9400) and Channel High (CH9538) were chosen for full testing.

#### HSUPA 850:

Channel Low (CH4132), Channel Mid (CH4183) and Channel High (CH4233) were chosen for full testing.

#### HSUPA 1900:

Channel Low (CH9262), Channel Mid (CH9400) and Channel High (CH9538) were chosen for full testing.

#### HSDPA 850:

Channel Low (CH4132), Channel Mid (CH4183) and Channel High (CH4233) were chosen for full testing.

#### HSDPA 1900:

Channel Low (CH9262), Channel Mid (CH9400) and Channel High (CH9538) were chosen for full testing.

#### Note:

- 1. Regards to the frequency band operation: the lowest, middle and highest frequency of channel were selected to perform the test, then shown on this report.
- 2. For the ERP/EIRP and radiated emission test, every axis (X, Y, Z) was verified, and show the worst result on this report.

#### 2.3. Description of Test System

No.	Device	Manufacturer	Model No.	Description
1	N/A	N/A	N/A	N/A

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### 2.4. General Information of Test

		Cerpass Technology Corporation Test Laboratory
		Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City
	Test Site	33848, Taiwan (R.O.C.)
		Tel:+886-3-3226-888
		Fax:+886-3-3226-881
		Address: No.68-1, Shihbachongsi, Shihding Township,
		New Taipei City 223, Taiwan, R.O.C.
		Tel: +886-2-2663-8582
	FCC	TW1079, TW1061,390316, 228391, 641184
	IC	4934B-1, 4934E-1, 4934E-2
		T-2205 for Telecommunication Test
	VCCI	C-4663 for Conducted emission test
		R-3428, R-4218 for Radiated emission test
		G-812, G-813 for radiated disturbance above 1GHz
		Cerpass Technology (Suzhou) Co.,Ltd
		Address: No.66, Tangzhuang Road, Suzhou Industrial Park,
	Test Site	Jiangsu 215006, China
		Tel: +86-512-6917-5888
		Fax: +86-512-6917-5666
	FCC	916572, 331395
	IC	7290A-1, 7290A-2
		T-343 for Telecommunication Test
	VCCI	C-2919 for Conducted emission test
	V 001	R-2670 for Radiated emission test
		G-227 for radiated disturbance above 1GHz

## 2.5. Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	LINE/NEUTRAL	±2.71 dB
Radiated Emission	30 MHz ~ 25GHz	Vertical	±4.11 dB
Radiated Emission	30 MH2 ~ 25GH2	Horizontal	±4.10 dB
Occupied Bandwidth			±7500 Hz
Maximum Peak Output Power			±1.4 dB
Band Edges			±2.2 dB
Power Spectral Density			±2.2 dB

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#### 3. Test of Conducted Emission

#### 3.1. Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2003 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

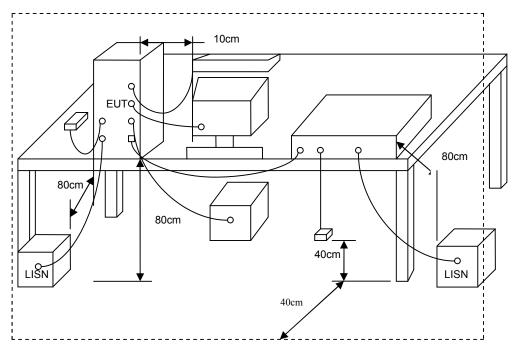
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

<sup>\*</sup>Decreases with the logarithm of the frequency.

#### 3.2. Test Procedures

- 1. The EUT was placed on a table, which is 0.8m above ground plane.
- 2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
- 3. Repeat above procedures until all frequency measured were complete.

#### 3.3. Typical Test Setup



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## 3.4. Measurement Equipment

Instrument/Ancilla ry	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date.
Test Receiver	R&S	ESCI	100565	2015.03.24	2016.03.23
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
AMN	R&S	ESH2-Z5	100182	2014.09.04	2015.09.03
Two-Line V-Network	R&S	ENV216	100325	2014.12.04	2015.12.05
ISN	FCC	FCC-TLISN-T2-02	20379	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T4-02	20380	2015.03.24	2016.03.23
ISN	FCC	FCC-TLISN-T8-02	20381	2015.03.24	2016.03.23
ISN	TESEQ	ISN ST08	30175	2015.03.24	2016.03.23
Current Probe	R&S	EZ-17	100303	2015.04.04	2016.04.03
Passive Voltage Probe	R&S	ESH2-Z3	100026	2015.03.24	2016.03.23
Pulse Limiter	R&S	ESH3-Z2	100529	2015.03.24	2016.03.23
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-004	2015.03.31	2016.03.30

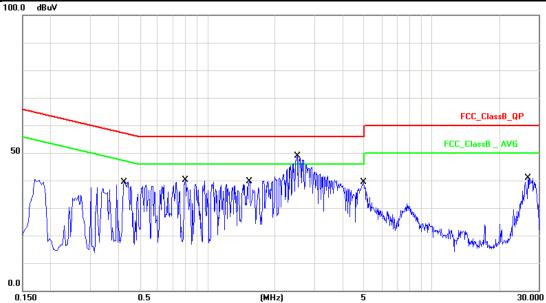
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#### 3.5. Test Result and Data

Test Item	Conduction Emission
Product	CX502E
Test Mode	Normal Link
Phase	Line
Test Date	2015/06/23



	0.130	0.5	(MI12	·) ·	<u> </u>	30.	000
No.	Frequency	Factor	Reading	Level	Limit	Margin	Detector
	(MHz)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dB)	
1	0.4260	10.15	22.22	32.37	57.33	-24.96	QP
2	0.4260	10.15	2.09	12.24	47.33	-35.09	AVG
3	0.7980	10.15	17.08	27.23	56.00	-28.77	QP
4	0.7980	10.15	0.08	10.23	46.00	-35.77	AVG
5	1.5420	10.17	20.69	30.86	56.00	-25.14	QP
6	1.5420	10.17	3.20	13.37	46.00	-32.63	AVG
7	2.5260	10.18	32.24	42.42	56.00	-13.58	QP
8	2.5260	10.18	13.39	23.57	46.00	-22.43	AVG
9	4.9860	10.24	23.29	33.53	56.00	-22.47	QP
10	4.9860	10.24	4.01	14.25	46.00	-31.75	AVG
11	26.8740	10.43	26.38	36.81	60.00	-23.19	QP
12	26.8740	10.43	18.42	28.85	50.00	-21.15	AVG

Note: Measurement Level = Reading Level + Correct Factor

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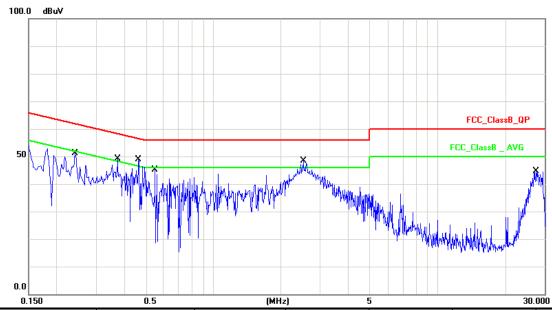
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Test Item	Conduction Emission
Product	CX502E
Test Mode	Normal Link
Phase	Neutral
Test Date	2015/06/23



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.2420	10.13	36.58	46.71	62.02	-15.31	QP
2	0.2420	10.13	13.19	23.32	52.02	-28.70	AVG
3	0.3740	10.15	34.33	44.48	58.41	-13.93	QP
4	0.3740	10.15	6.47	16.62	48.41	-31.79	AVG
5	0.4660	10.15	33.44	43.59	56.58	-12.99	QP
6	0.4660	10.15	8.81	18.96	46.58	-27.62	AVG
7	0.5500	10.15	27.75	37.90	56.00	-18.10	QP
8	0.5500	10.15	5.18	15.33	46.00	-30.67	AVG
9	2.5220	10.19	31.94	42.13	56.00	-13.87	QP
10	2.5220	10.19	11.53	21.72	46.00	-24.28	AVG
11	4.2020	10.22	13.60	23.82	56.00	-32.18	QP
12	4.2020	10.22	1.29	11.51	46.00	-34.49	AVG

Note: Measurement Level = Reading Level + Correct Factor

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## 4. Occupied Bandwidth

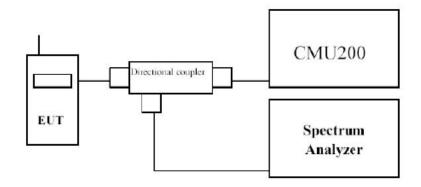
#### 4.1. Test Limit

According to §FCC 2.1049.

#### 4.2. Test Procedures

The EUT's output RF connector was connected with a short cable to the spectrum analyzer, RBW was set to about 1% of emission BW, VBW is set to 3 times the RBW, -26dBc display line was placed on the screen (or 99% bandwidth), the occupied bandwidth is the delta frequency between the two points where the display line intersects the signal trace.

#### 4.3. Test Setup Layout



### 4.4. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.12	2015.09.11
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30

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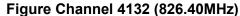
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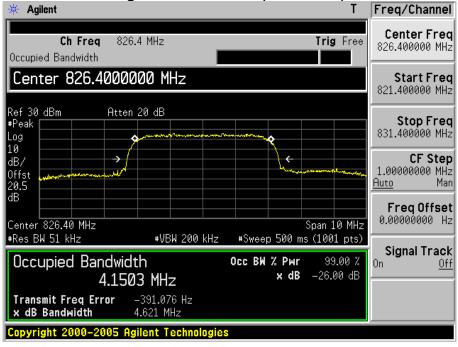


#### 4.5. Test Result and Data

Test Item	Occupied Channel Bandwidth
Test Mode	WCDMA 850
Test Date	2015/06/19

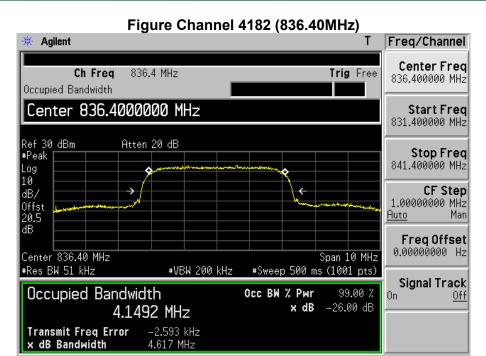
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
4132	826.4	4621.0	4150.3
4182	836.4	4617.0	4149.2
4233	846.6	4618.0	4148.0



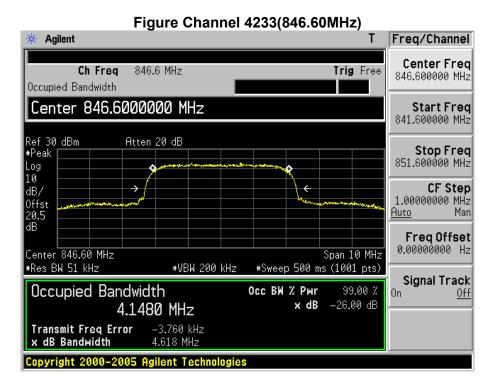


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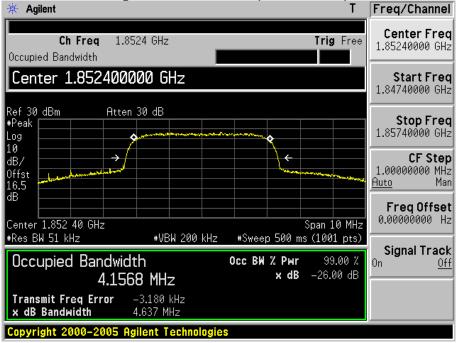
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Test Mode	WCDMA 1900
Test Date	2015/06/19

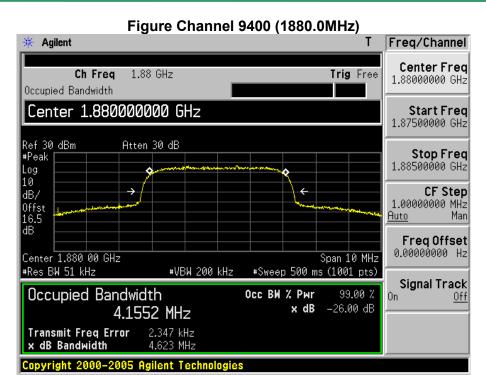
Channel No.	Frequency (MHz)	-26dB Occupied Bandwidth (kHz)	99% Occupied Bandwidth (kHz)
9262	1852.4	4637.0	4156.8
9400	1880.0	4623.0	4155.2
9538	1907.6	4626.0	4145.2

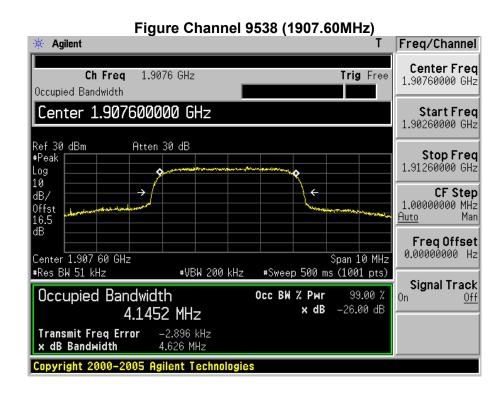




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# 5. Maximum Output Power and Effective Isotropic Radiated Power Measurement

#### 5.1. Test Limit

According to FCC §2.1046.

#### 5.2. Test Procedure

#### For Conducted Power Measurement:

- a) The RF output of the transmitter was connected to base station simulator.
- b) The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement..

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- c) Set EUT at maximum average power by base station simulator.
- d) Measure lowest, middle, and highest channels for each bandwidth and different modulation.

#### For Effective Isotropic Radiated Power Measurement:

- a) The EUT shall be placed at the specified height on a support, and in the position closest to normal use as declared by provider.
- b) The test antenna shall be oriented initially for vertical polarization and shall be chosen to correspond to the frequency of the transmitter
- c) The output of the test antenna shall be connected to the measuring receiver.
- d) The transmitter shall be switched on and the measuring receiver shall be tuned to the frequency of the transmitter under test.
- e) The test antenna shall be raised and lowered through the specified range of height until a maximum signal level is detected by the measuring receiver.
- f) The transmitter shall then be rotated through 360° in the horizontal plane, until the maximum signal level is detected by the measuring receiver.
- g) The test antenna shall be raised and lowered again through the specified range of height until a maximum signal level is detected by the measuring receiver.
- h) The maximum signal level detected by the measuring receiver shall be noted.
- i) The transmitter shall be replaced by a substitution antenna.
- j) The substitution antenna shall be orientated for vertical polarization and the length of the substitution antenna shall be adjusted to correspond to the frequency of the transmitter.
- k) The substitution antenna shall be connected to a calibrated signal generator.
- I) If necessary, the input attenuator setting of the measuring receiver shall be adjusted in order to increase the sensitivity of the measuring receiver.
- m) The test antenna shall be raised and lowered through the specified range of height to ensure that the maximum signal is received.
- n) The input signal to the substitution antenna shall be adjusted to the level that produces a level detected by the measuring receiver, that is equal to the level noted while the transmitter radiated power was measured, corrected for the change of input attenuator setting of the measuring receiver.
- o) The measurement shall be repeated with the test antenna and the substitution antenna orientated for horizontal polarization.
- p) The measure of the effective radiated power is the larger of the two levels recorded at the input to the substitution antenna, corrected for gain of the substitution antenna if necessary.
- g) Test site anechoic chamber refer to ANSI C63.4: 2009.

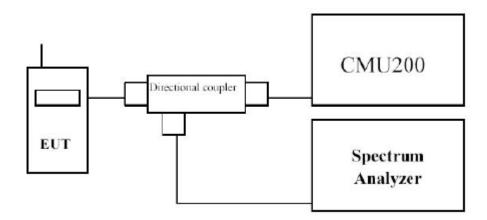
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## 5.3. Test Setup Layout Conducted Power Measurement:



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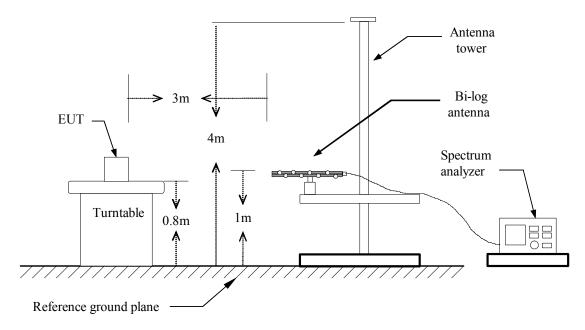
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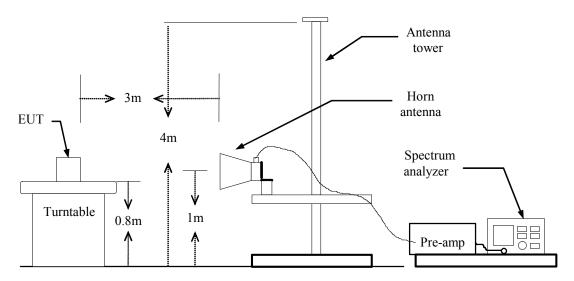
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#### **Below 1 GHz**



#### **Above 1 GHz**

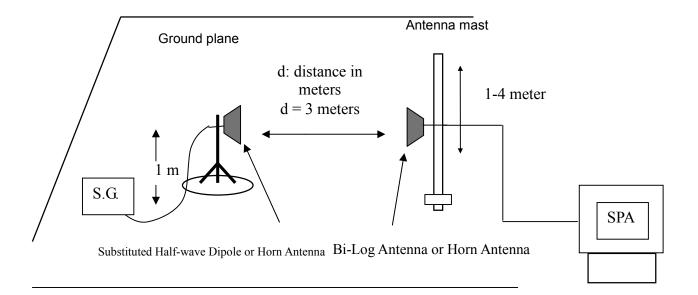


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#### For Substituted Method Test Set-UP



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**5.4. Measurement Equipment** 

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.25	2015.09.25
H64 Amplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
Preamplifier	Agilent	8449B	ED-HE-EMI-077	2015.03.24	2016.03.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-618	2015.05.24	2016.05.23
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30

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## 5.5. Test Result and Data WCDMA/HSDPA/HSUPA

	0000	Band II (1900MHz) Channel			MPR
Mode	3GPP Subtest	Co			
		9262	9400	9538	
WCDMA R99	1	22.33	22.39	22.23	N/A
	1	22.09	22.11	22.13	0
Rel5 HSDPA	2	20.86	20.92	20.81	0
Keis HSDFA	3	20.34	20.37	20.26	0.5
	4	20.08	20.15	20.12	0.5
	1	22.56	22.59	22.38	0.0
Rel6 HSUPA	2	21.19	21.24	21.12	2.0
	3	20.36	20.39	20.23	1.0
	4	19.82	19.89	19.71	2.0
	5	19.26	19.29	19.16	0.0

		Band V (850MHz) Channel			
Mode	3GPP Subtest	Conducted Power (dBm)			MPR
		4132	4183	4233	
WCDMA R99	1	22.17	22.23	22.28	N/A
	1	22.06	22.13	22.09	0
Rel5 HSDPA	2	21.34	21.42	21.46	0
Keis HSDFA	3	20.22	20.27	20.23	0.5
	4	20.08	20.13	20.15	0.5
	1	22.87	22.40	22.58	0.0
	2	21.27	21.31	21.26	2.0
Rel6 HSUPA	3	20.33	20.45	20.32	1.0
	4	19.97	19.89	19.84	2.0
	5	19.34	19.42	19.32	0.0

Note: All conducted measurements are based on a RMS detector.

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Product	Wireless Module		
Test Item	Effective Isotropic Radiated Power		
Date of Test	2015/06/18	Test Site	AC104

Band	Modulation	Freq. (MHz)	EIRP (dBm)	H/V
WCDMA Band 2	QPSK	1852.4	21.63	Н
		1880.0	21.24	Н
		1907.6	21.25	Н
		1852.4	22.44	V
		1880.0	22.64	V
		1907.6	22.78	V

Band	Modulation	Freq. (MHz)	ERP (dBm)	H/V
WCDMA Band 5	QPSK	826.4	21.53	Н
		836.4	21.72	Н
		846.6	21.23	Н
		826.4	22.64	V
		836.4	22.53	V
		846.6	22.72	V

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## 6. Spurious Emission

#### 6.1. Test Limit

According to FCC §2.1051, FCC §22.917, FCC §24.238(a).

Out of Band Emissions: The mean power of emission must be attenuated below the mean power of the non-modulated carrier (P) on any frequency twice or more than twice the fundamental frequency by at lease 43 + 10 log P dB.

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Mobile Emissions in Base Frequency Range: The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not exceed -80 dBm at the transmit antenna connector.

Band Edge Requirements: In the 1MHz bands immediately outside and adjacent to the frequency block, a resolution bandwidth of at lease 1% of the emission bandwidth of the fundamental emission of the transmitter may be employed to measure the Out of band Emission.

#### **6.2.** Test Procedure

#### **Conducted Spurious Measurement:**

- a) Place the EUT on a bench and set it in transmitting mode.
- b) Connect a low loss RF cable from the antenna port to a spectrum analyzer and CMU200 by a Directional Couple.
- c) EUT Communicate with CMU200, then select a channel for testing.
- d) Add a correction factor to the display of spectrum, and then test.
- e) The resolution bandwidth of the spectrum analyzer was set at 1 MHz, sufficient scans were taken to show the out of band Emission if any up to 10<sup>th</sup> harmonic.

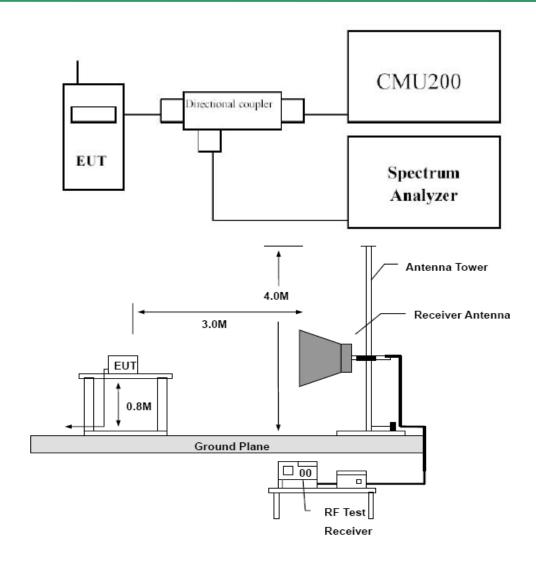
#### **Radiated Spurious Measurement:**

- f) The EUT was placed on a rotatable wooden table with 1.5 meter above ground.
- g) The EUT was set 3 meters from the receiving antenna, which was mounted on the antenna tower.
- h) The table was rotated 360 degrees to determine the position of the highest spurious emission.
- i) The height of the receiving antenna is varied between one meter and four meters to search the maximum spurious emission for both horizontal and vertical polarizations.
- i) Make the measurement with the spectrum analyzer's RBW = 1MHz, VBW = 1MHz, Sweep 500ms, Taking the record of maximum spurious emission.
- k) A horn antenna was substituted in place of the EUT and was driven by a signal generator.
- I) Tune the output power of signal generator to the same emission level with EUT maximum spurious emission.
- m) Taking the record of output power at antenna port
- n) Repeat step 7 to step 8 for another polarization. I receiver.
- o) EIRP = SG Cable loss + Antenna Gain

### **6.3.** Test Setup Layout

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## **6.4.** Measurement Equipment

Instrument	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date.
EMI Test Receiver	R&S	ESCI	100563	2015.03.24	2016.03.23
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.12	2015.09.11
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
H64 Preamplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Preamplifier	Agilent	8449B	3008A02342	2015.03.24	2016.03.23
Ultra Broadband Antenna	R&S	HL562	100362	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	9170-348	2015.05.24	2016.05.23
Spectrum Analyzer	R&S	FSP40	100324	2015.03.23	2016.03.24
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30

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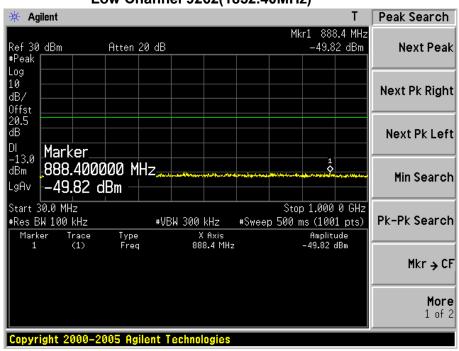
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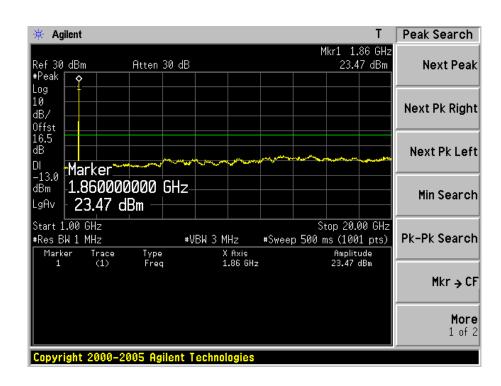


#### 6.5. Test Result and Data

Test Item	Conducted spurious emissions, 30MHz - 20GHz
Test Mode	WCDMA Band II Link
Test Date	2015-06-18

#### Low Channel 9262(1852.40MHz)



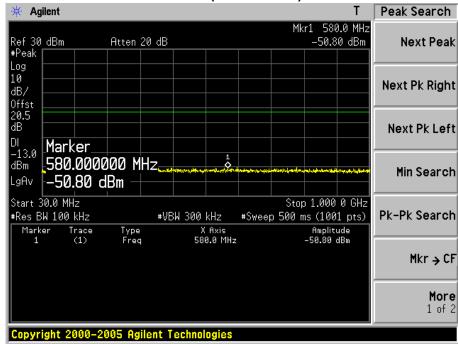


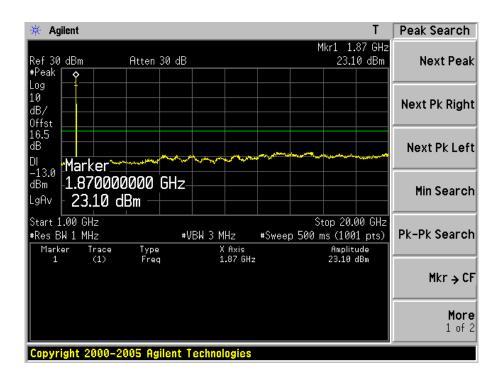
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#### Mid Channel 9400(1880.00MHz)



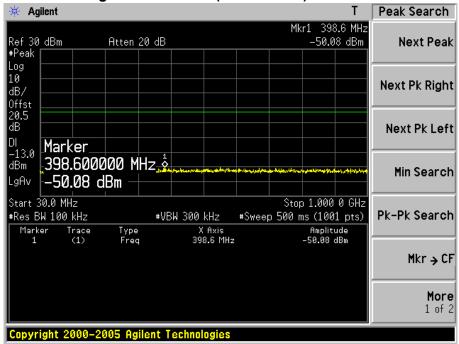


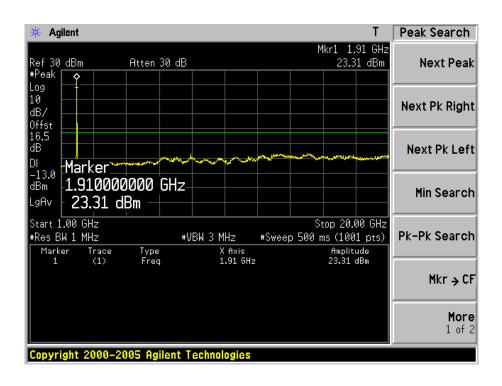
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#### High Channel 9538(1907.60MHz)





Test Item Conducted spurious emissions, 30MHz - 20GHz

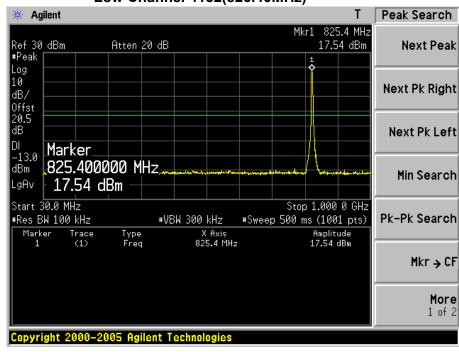
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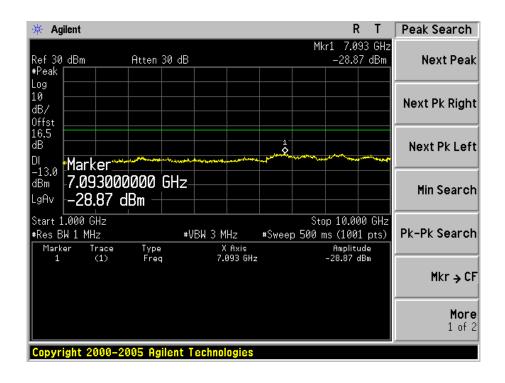
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Test Mode	WCDMA Band V Link
Test Date	2015-06-18

#### Low Channel 4132(826.40MHz)



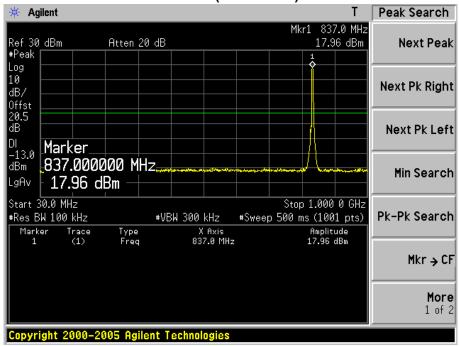


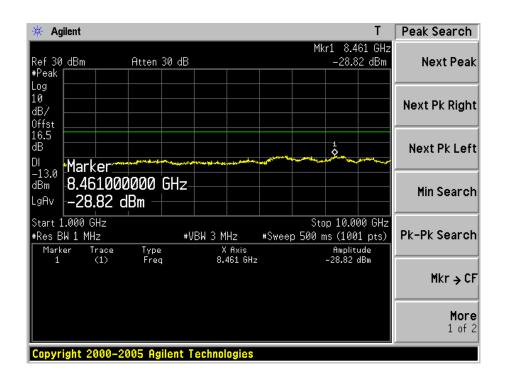
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#### Mid Channel 4182(836.40MHz)

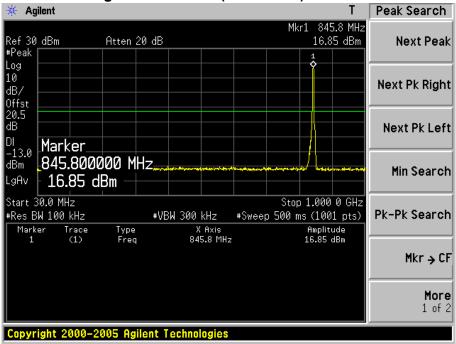


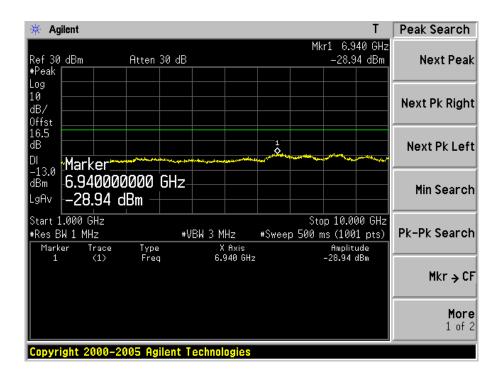


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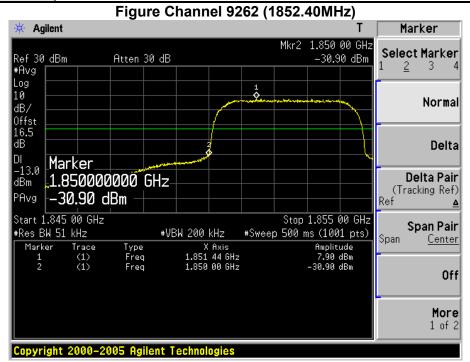
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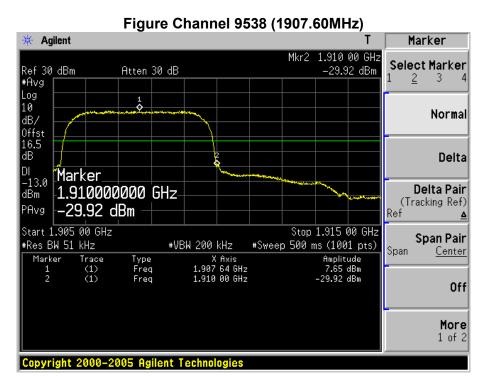
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Test Item	Band Edge emissions
Test Mode	WCDMA Band II Link
Test Date	2015-06-18





Test Item	Band Edge emissions
Test Mode	WCDMA Band V Link

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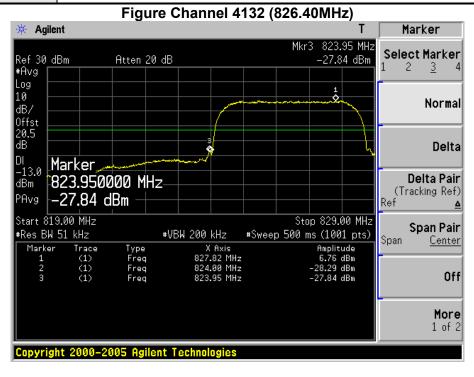
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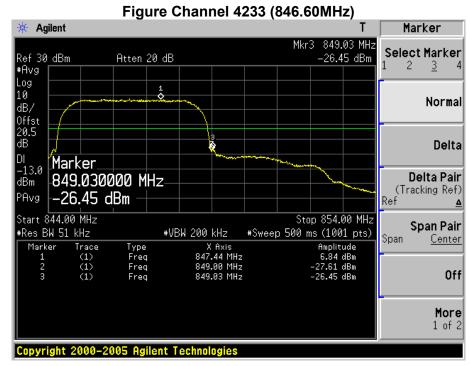
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## 7. Peak-Average Ratio

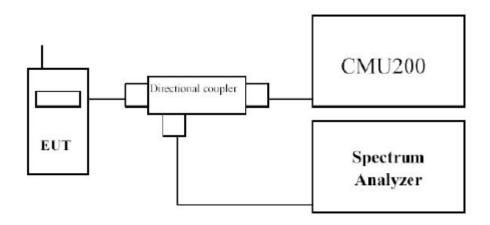
#### 7.1. Test Limit

The transmitter's peak-to-average power ratio (PAPR) shall not exceed 13 dB for more than 0.1% of the time using a signal corresponding to the highest PAPR during periods of continuous transmission.

#### 7.2. Test Procedure

KDB 971168 D01v02r01 - Section 5.7 & ANSI/TIA-603-C-2004

#### 7.3. Test Setup



## 7.4. Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	N9010A	MY53400169	2014.11.03	2016.11.03
H64 Amplifier	HP	8447F	3113A05582	2015.03.24	2016.03.23
Universal Radio Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
Preamplifier	Agilent	8449B	ED-HE-EMI-077	2015.03.24	2016.03.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-619	2015.05.24	2016.05.23
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	9120D-618	2015.05.24	2016.05.23
Temperature/ Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30

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#### 7.5. Test Result



## 8. Frequency Stability Under Temperature & Voltage Variations

#### 8.1. Test Limit

According to FCC §2.1055, FCC §22.355, .FCC §24.235.

Frequency Tolerance: 2.5 ppm

#### 8.2. Test Procedure

#### **Frequency Stability Under Temperature Variations:**

The equipment under test was connected to an external AC or DC power supply and input rated voltage. RF output was connected to a frequency counter or spectrum analyzer via feed through attenuators. The EUT was placed inside the temperature chamber. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and measure EUT 20oC operating frequency as reference frequency. Turn EUT off and set the chamber temperature to –30oC. After the temperature stabilized for approximately 30 minutes recorded the frequency. Repeat step measure with 10oC increased per stage until the highest temperature of +50oC reached.

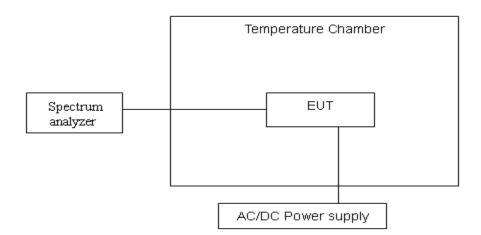
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#### Frequency Stability Under Voltage Variations:

Set chamber temperature to 20°C. Use a variable AC power supply / DC power source to power the EUT and set the voltage to rated voltage. Set the spectrum analyzer RBW low enough to obtain the desired frequency resolution and recorded the frequency.

Reduce the input voltage to specify extreme voltage variation ( $\pm$  10%) and endpoint, record the maximum frequency change.

#### 8.3. Test Setup Layout



## 8.4. Measurement Equipment

Instrument/Ancillary	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	Agilent	E4407B	MY44211883	2014.09.12	2015.09.11
Universal Radio	CMU200	R&S	108823	2015.03.29	2016.03.28
Communication Tester	CIVIUZUU	Ras	100023	2015.03.29	2010.03.26
Universal Radio	CMILIZOO	D O C	100000	2015 02 20	2016 02 20
Communication Tester	CMU200	R&S	108823	2015.03.29	2016.03.28
Temperature/	Zhiohona	701 11	CED TH 002	2015 02 21	2016 02 20
Humidity Meter	Zhicheng	ZC1-11	CEP-TH-002	2015.03.31	2016.03.30



## 8.5. Test Result and Data

Test Item	Frequency Stability Under Temperature & Voltage Variations		
Test Mode	Mode 1: WCDMA Band II Link		
Date of Test	2015/06/19	Test Site	AC104

## Frequency Stability under Temperature

Temperature Interval (°ℂ)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	1880.00	26	± 4700
-20	1880.00	30	± 4700
-10	1880.00	25	± 4700
0	1880.00	34	± 4700
10	1880.00	28	± 4700
20	1880.00	35	± 4700
30	1880.00	43	± 4700
40	1880.00	77	± 4700
50	1880.00	-6	± 4700

## Frequency Stability under Voltage

DC Voltage	Test Frequency	Deviation	Limit
(V)	(MHz)	(Hz)	(Hz)
3.4	1880.00	20	± 4700
3.7	1880.00	-10	± 4700
4.2	1880.00	29	± 4700

Test Item	Frequency Stability Under Temperatu	ure & Voltage Var	riations
Test Mode	Mode 2: WCDMA Band V Link		
Date of Test	2015/06/19	Test Site	AC104

## Frequency Stability under Temperature

Temperature Interval (°ℂ)	Test Frequency (MHz)	Deviation (Hz)	Limit (Hz)
-30	836.40	19	± 2091
-20	836.40	45	± 2091
-10	836.40	-33	± 2091
0	836.40	41	± 2091
10	836.40	23	± 2091
20	836.40	35	± 2091
30	836.40	47	± 2091
40	836.40	50	± 2091
50	836.40	-47	± 2091

## Frequency Stability under Voltage

DC Voltage	Test Frequency (MHz)	Deviation	Limit
(V)	, , ,	(Hz)	(Hz)
3.4	836.40	-64	± 2091
3.7	836.40	44	± 2091
4.2	836.40	29	± 2091