TEST REPORT

No. 2012TAR040

for

ZTE CORPORATION

WCDMA/GSM（GPRS） Dual-Mode Digital Mobile Phone

Model Name: ZTE T760

FCC ID: Q78-T760

with

Hardware Version: GMAI

Software Version: W850-W2100-P173A30V1.0.1

Issued Date: Feb 21, 2012

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

DAR accreditation (DIN EN ISO/IEC 17025): No. DGA-PL-114/01-02

FCC 2.948 Listed: No.733176

IC O.A.T.S listed: No.6629A-1

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1. Test Laboratory

1.1. Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
Address:	3/F Shou Xiang Technology Building, No.51 Xueyuan Road, Hai Dian District, Beijing, P. R. China
Postal Code:	100191
Telephone:	00861062304633
Fax:	00861062304793

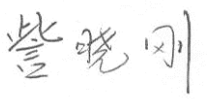
1.2. Testing Environment

Normal Temperature:	15-35℃
Relative Humidity:	20-75%

1.3. Project data

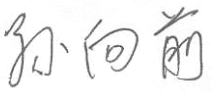
Testing Start Date:	Jan 12, 2012
Testing End Date:	Feb 21, 2012

1.4. Signature



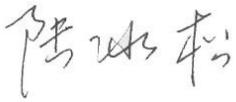
Zi Xiaogang

(Prepared this test report)



Sun Xiangqian

(Reviewed this test report)



Lu Bingsong

Deputy Director of the laboratory

(Approved this test report)

2. Client Information

2.1. Applicant Information

Company Name:	ZTE CORPORATION
Address /Post:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City:	Shenzhen
Postal Code:	518057
Country:	China
Telephone:	0086 21 68895196
Fax:	0086 21 61460600

2.2. Manufacturer Information

Company Name:	ZTE CORPORATION
Address /Post:	ZTE Plaza, Keji Road South, Hi-Tech Industrial Park, Nanshan District, Shenzhen, Guangdong, 518057, P.R.China
City:	Shenzhen
Postal Code:	518057
Country:	China
Telephone:	0086 21 68895196
Fax:	0086 21 61460600

3. Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1. About EUT

Description	WCDMA/GSM（GPRS） Dual-Mode Digital Mobile Phone
Model Name	ZTE T760
FCC ID	Q78-T760
Frequency	PCS 1900MHz; WCDMA BAND V
Antenna	Internal
Power supply	Battery or Charger (AC Adaptor)
Output power	24.52dBm maximum ERP measured for WCDMA Band V
Extreme vol. Limits	3.5VDC to 4.2VDC (nominal: 3.7VDC)
Extreme temp. Tolerance	-30°C to +50°C

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Telecommunication Metrology Center of MIIT of People's Republic of China.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
N03	862033010000196	GMAI	W850-W2100-P173A30V1.0.1
N04	862033010000006	GMAI	W850-W2100-P173A30V1.0.1

*EUT ID: is used to identify the test sample in the lab internally.

3.3. Internal Identification of AE used during the test

AE ID*	Description	SN
AE1	Battery	
AE2	Battery	
AE3	Charger	
AE4	Micro USB cable	

AE1

Model	Li3713T42P3h415266-H
Manufacturer	ZTE
Capacitance	1350mAh
Nominal Voltage	3.7V

AE2

Model	Li3715T42P3h415266
Manufacturer	ZTE
Capacitance	1500mAh
Nominal Voltage	3.7V

AE3

Model	STC-A22O501700M5-C
Manufacturer	RUIDE

AE4

Model	Micro USB cable
Manufacturer	ZTE
Length of headset line	120cm

*AE ID: is used to identify the test sample in the lab internally.

3.4. General Description

The Equipment Under Test (EUT) is a model of WCDMA/GSM（GPRS） Dual-Mode Digital Mobile Phone with integrated antenna. It consists of normal options: lithium battery, charger. Manual and specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the Client.

4. Reference Documents

4.1. Reference Documents for testing

The following documents listed in this section are referred for testing.

Reference	Title	Version
FCC Part 22	PUBLIC MOBILE SERVICES	V 10.1.09
ANSI/TIA-603-C	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards	2004
ANSI C63.4	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2003

5. LABORATORY ENVIRONMENT

Semi-anechoic chamber (23 meters×17meters×10meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Normalised site attenuation (NSA)	< ±3.2 dB, 10 m distance, from 30 to 1000 MHz
Uniformity of field strength	Between 0 and 6 dB, from 80 to 2000 MHz

Control room did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 35 ℃
Relative humidity	Min. =30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Conducted chamber did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω

Fully-anechoic chamber (6.8 meters×3.08 meters×3.53 meters) did not exceed following limits along the EMC testing:

Temperature	Min. = 15 ℃, Max. = 30 ℃
Relative humidity	Min. = 30 %, Max. = 60 %
Shielding effectiveness	> 110 dB
Electrical insulation	> 10 kΩ
Ground system resistance	< 0.5 Ω
Uniformity of field strength	Between 0 and 6 dB, from 80 to 2000 MHz

6. SUMMARY OF TEST RESULTS

Items	List	Clause in FCC rules	Verdict
1	Output Power	22.913(a)	P
2	Emission Limit	2.1051/22.917	P
3	CONDUCTED EMISSION	15.107/15.207	P
4	Frequency Stability	2.1055	P
5	Occupied Bandwidth	2.1049(h)(i)	P
6	Emission Bandwidth	22.917(b)	P
7	Band Edge Compliance	22.917(b)	P
8	Conducted Spurious Emission	2.1057/22.917	P

7. Test Equipments Utilized

NO.	NAME	TYPE	SERIES NUMBER	PRODUCER	CAL DUE DATE
1	Test Receiver	ESCI	100766	R&S	2012-06-06
2	Test Receiver	ESI40	831564/002	R&S	2012-07-12
3	BiLog Antenna	VULB9163	9163-175	Schwarzbeck	2012-07-05
4	BiLog Antenna	VULB9163	9163-302	Schwarzbeck	2012-07-10
5	Signal Generator	SMB100A	102063	R&S	2012-07-05
7	LISN	ESH2-Z5	829991/012	R&S	2012-07-20
8	Spectrum Analyzer	FSU26	200030	R&S	2012-03-18
9	Spectrum Analyzer	FSU46	100054	R&S	2012-09-14
10	Universal Radio Communication Tester	CMU200	100680	R&S	2012-02-23
11	Universal Radio Communication Tester	CMU200	109914	R&S	2012-07-21
12	Dual-Ridge Waveguide Horn Antenna	3117	00119024	ETS	2012-08-31
13	Dual-Ridge Waveguide Horn Antenna	3117	00119021	ETS	2013-07-09
14	Dual-Ridge Waveguide Horn Antenna	3116	2663	EMCO	2012-07-01
15	Dual-Ridge Waveguide Horn Antenna	3116	2661	EMCO	2012-07-01
16	Climatic chamber	PL-2G	343074	ESPEC	2012-02-15

ANNEX A: MEASUREMENT RESULTS

A.1 OUTPUT POWER (§22.913(a))

A.1.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMU-200) to ensure max power transmission and proper modulation.
This result contains peak output power and EIRP measurements for the EUT. In all cases, output power is within the specified limits.

A.1.2 Conducted

A.1.2.1 Method of Measurements

The EUT was set up for the max output power with pseudo random data modulation.
The power was measured with Rhode & Schwarz Spectrum Analyzer FSU (peak)
826.4MHz, 836.6MHz and 846.6MHz for WCDMA Band V. (bottom, middle and top of operational frequency range).

Limit

According to FCC§2.1046.

A.1.2.2 Test Condition

RBW	VBW	Sweep Time	Span
10MHz	10MHz	800ms	50MHz

WCDMA Band V

Measurement result

	CH	Frequency(MHz)	output power(dBm)
WCDMA (Band V)	4132	826.4	**23.57**
	4183	836.6	23.43
	4233	846.6	23.50

A.1.3 Radiated

A.1.3.1 Description

This is the test for the maximum radiated power from the EUT.

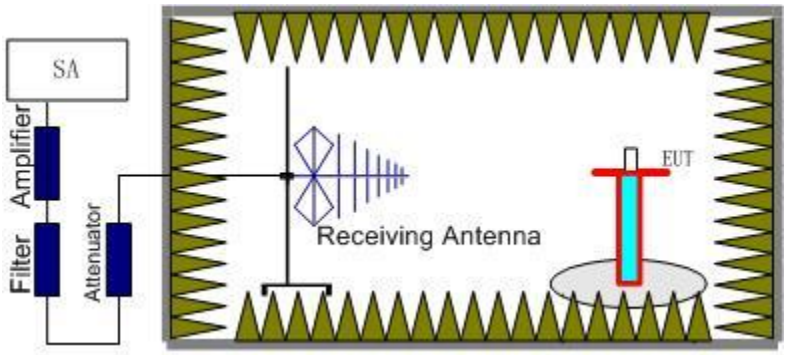
Rule Part 24.232(c) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

Rule Part 22.913(a) specifies " The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts."

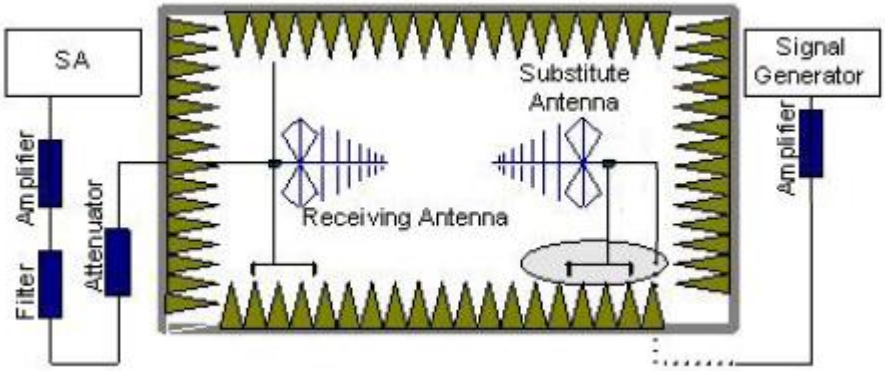
A.1.3.2 Method of Measurement

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

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all transmit frequencies in three channels (High, Middle, Low) were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere

with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. A amplifier should be connected to the Signal Source output port. And the cable should be connect between the Amplifier and the Substitution Antenna.
   The cable loss (P_{cl}) ,the Substitution Antenna Gain (G_a) and the Amplifier Gain (P_{Ag}) should be recorded after test.
   The measurement results are obtained as described below:
   Power(EIRP)=P_{Mea}+ P_{Ag} + P_{cl} + G_a
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

WCDMA Band V-ERP

Limits

	Burst Peak EIRP (dBm)
WCDMA Band V	≤38.45dBm

Measurement result

Frequency(MHz)	P_{Mea}(dBm)	P_{cl}(dB)	P_{Ag}(dB)	G_a Antenna Gain(dB)	Correction (dBm)	Peak ERP(dBm)	Polarization
826.4	-23.99	2.25	-53.00	0.85	2.15	23.76	H
836.6	-23.17	2.26	-53.00	0.90	2.15	**24.52**	V
846.6	-23.36	2.26	-53.00	0.94	2.15	24.29	V

Frequency**:** 836.6 MHz

Peak ERP(dBm)= P_{Mea}(-23.17dBm)- P_{cl}(2.26dB)- P_{Ag}(-53.00dB)-G_a (0.90dB)-2.15dBm=24.52dBm

ANALYZER SETTINGS: RBW = VBW = 3MHz

A.2 EMISSION LIMT (§2.1051/§22.917)

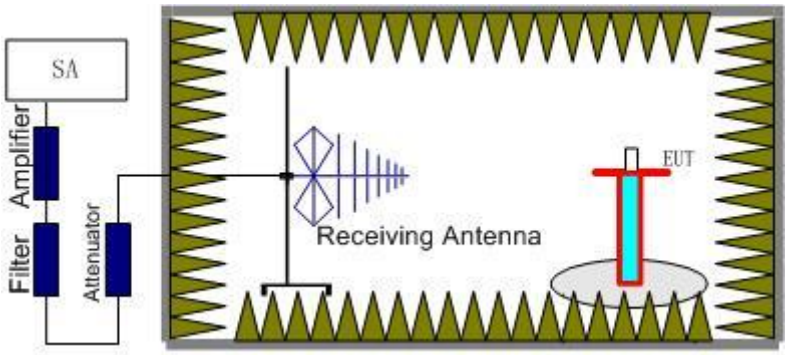
A.2.1 Measurement Method

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

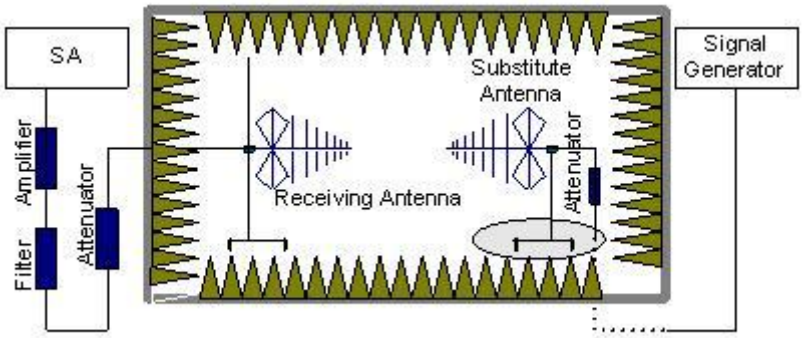
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment. The resolution bandwidth is set as outlined in Part 24.238 and Part 24.917. The spectrum is scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of WCDMA Band V.

The procedure of radiated spurious emissions is as follows:

1. EUT was placed on a 1.5 meter high non-conductive stand at a 3 meter test distance from the receive antenna. A receiving antenna was placed on the antenna mast 3 meters from the EUT for emission measurements. The height of receiving antenna is 1.5m. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT through 360° and adjusting the receiving antenna polarization. The radiated emission measurements of all non-harmonic and harmonics of the transmit frequency through the 10th harmonic were measured with peak detector.



2. The EUT is then put into continuously transmitting mode at its maximum power level during the test. And the maximum value of the receiver should be recorded as (Pr).
3. The EUT shall be replaced by a substitution antenna. The test setup refers to figure below.



In the chamber, an substitution antenna for the frequency band of interest is placed at the reference point of the chamber. An RF Signal source for the frequency band of interest is connected to the substitution antenna with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A power (P_{Mea}) is applied to the input of the

substitution antenna, and adjust the level of the signal generator output until the value of the receiver reach the previously recorded (P_r). The power of signal source (P_{Mea}) is recorded. The test should be performed by rotating the test item and adjusting the receiving antenna polarization.

4. The Path loss (P_{pl}) between the Signal Source with the Substitution Antenna and the Substitution Antenna Gain (G_a) should be recorded after test.
   A amplifier should be connected in for the test.
   The Path loss (P_{pl}) is the summation of the cable loss and the gain of the amplifier.
   The measurement results are obtained as described below:
   Power(EIRP)=P_{Mea}+ P_{pl} + G_a
5. This value is EIRP since the measurement is calibrated using an antenna of known gain (2.15 dBi) and known input power.
6. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP -2.15dBi.

A.2.2 Measurement Limit

Part 22.917 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

A.2.3 Measurement Results

Radiated emissions measurements were made only at the upper, middle, and lower carrier frequencies of the WCDMA Band V (826.4MHz, 836.6MHz and 846.6MHz) . It was decided that measurements at these three carrier frequencies would be sufficient to demonstrate compliance with emissions limits because it was seen that all the significant spurs occur well outside the band and no radiation was seen from a carrier in one block of the WCDMA Band V into any of the other blocks. The equipment must still, however, meet emissions requirements with the carrier at all frequencies over which it is capable of operating and it is the manufacturer's responsibility to verify this.

A.2.4 Measurement Results Table

Frequency	Channel	Frequency Range	Result
WCDMA Band V	Low	30MHz-10GHz	Pass
	Middle	30MHz-10GHz	Pass
	High	30MHz-10GHz	Pass

A.2.5 Sweep Table

Working Frequency	Subrange (GHz)	RBW	VBW	Sweep time (s)
WCDMA Band V	0.03~1	100KHz	300KHz	10
	1-2	1 MHz	3 MHz	2
	2~5	1 MHz	3 MHz	3
	5~8	1 MHz	3 MHz	3
	8~10	1 MHz	3 MHz	3

WCDMA BAND V Mode Channel 4132/826.4MHz

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Correction (dBm)	Peak ERP(dBm)	Limit （dBm）	Polarization
2000.08	-58.55	5.96	-3.60	2.15	-63.06	-13.00	H
3314.00	-66.11	5.06	-6.77	2.15	-66.55	-13.00	H
5200.38	-70.33	7.67	-8.38	2.15	-71.77	-13.00	H
6880.32	-64.05	7.63	-9.28	2.15	-64.55	-13.00	H
7927.87	-67.60	7.61	-10.33	2.15	-67.03	-13.00	V
9118.19	-67.78	7.98	-10.52	2.15	-67.39	-13.00	V

WCDMA BAND V Mode Channel 4183/836.6MHz

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Correction (dBm)	Peak ERP(dBm)	Limit （dBm）	Polarization
2020.26	-56.45	5.27	-3.66	2.15	-60.21	-13.00	H
2589.59	-56.23	4.25	-5.38	2.15	-57.25	-13.00	H
4135.20	-70.42	5.89	-7.61	2.15	-70.85	-13.00	H
5431.67	-64.86	8.04	-8.47	2.15	-66.58	-13.00	V
6065.06	-65.94	13.01	-8.64	2.15	-72.46	-13.00	H
7285.21	-65.86	9.37	-9.69	2.15	-67.69	-13.00	H

WCDMA BAND V Mode Channel 4233/846.6MHz

Frequency(MHz)	P_{Mea}(dBm)	Path Loss	Antenna Gain	Correction (dBm)	Peak ERP(dBm)	Limit （dBm）	Polarization
2320.36	-55.23	4.09	-4.62	2.15	-56.85	-13.00	V
4237.75	-67.22	6.02	-7.69	2.15	-67.70	-13.00	H
5898.44	-66.40	12.75	-8.58	2.15	-72.72	-13.00	V
6771.20	-66.73	7.55	-9.17	2.15	-67.26	-13.00	V
7968.90	-68.14	7.57	-10.37	2.15	-67.49	-13.00	H
8974.14	-66.76	7.88	-10.49	2.15	-66.30	-13.00	V

A.3 CONDUCTED EMISSION (§15.107§15.207)

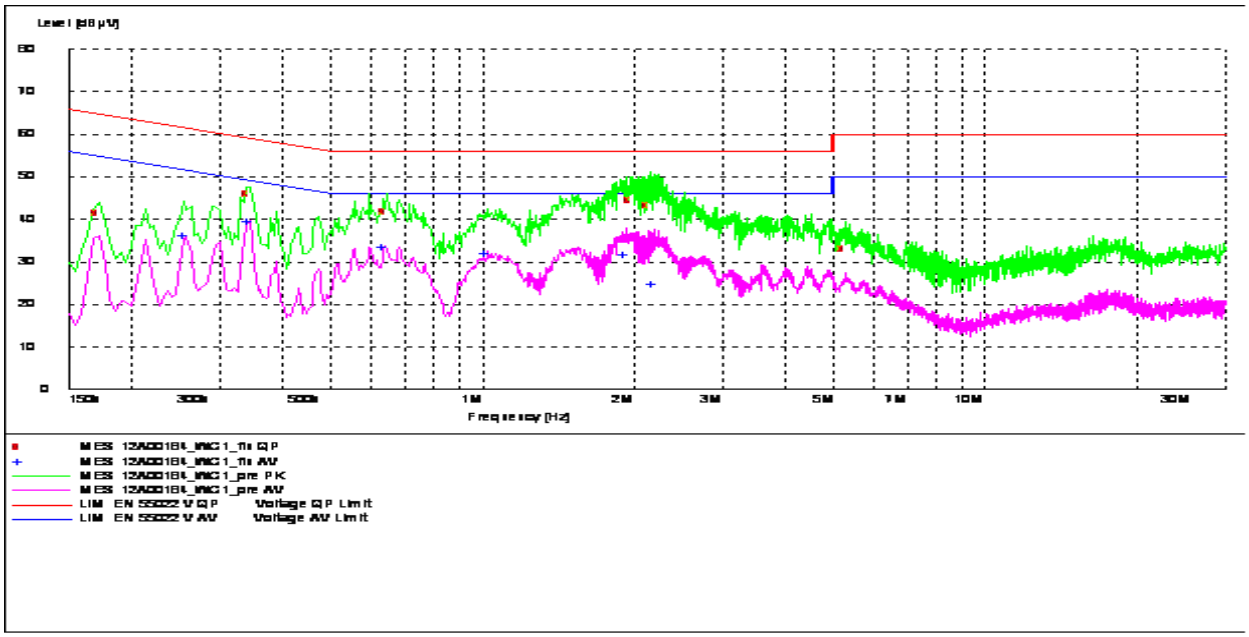
The measurement procedure in ANSI C63.4-2003 is used. Conducted Emission is measured with travel charger.

A.3.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dBµV)	
	Quasi -Peak	Average
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30	60	50
* Decreases with logarithm of the frequency		

A.3.2 Measurement result

WCDMA Band V

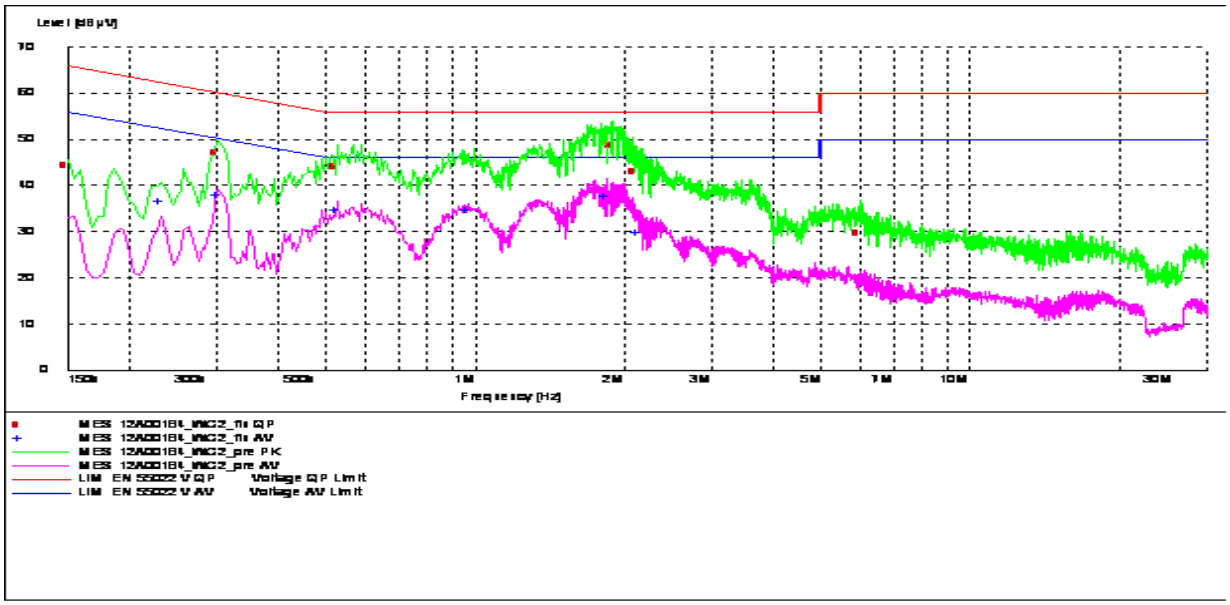


MEASUREMENT RESULT: "12A00184_WC1_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.172500	41.50	10.1	65	23.3	L1	GND
0.343500	45.80	10.1	59	13.3	L1	GND
0.645000	41.70	10.1	56	14.3	L1	GND
1.990500	44.40	10.1	56	11.6	L1	GND
2.166401	43.10	10.1	56	12.9	L1	GND
5.302469	33.00	10.2	60	27.0	N	GND

MEASUREMENT RESULT: "12A00184_WC1_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.258000	36.00	10.1	52	15.5	N	GND
0.343500	39.30	10.1	49	9.8	N	GND
0.640500	33.40	10.1	46	12.6	N	GND
1.023000	31.80	10.1	46	14.2	N	GND
1.932000	31.60	10.1	46	14.4	N	GND
2.196913	24.50	10.1	46	21.5	N	GND



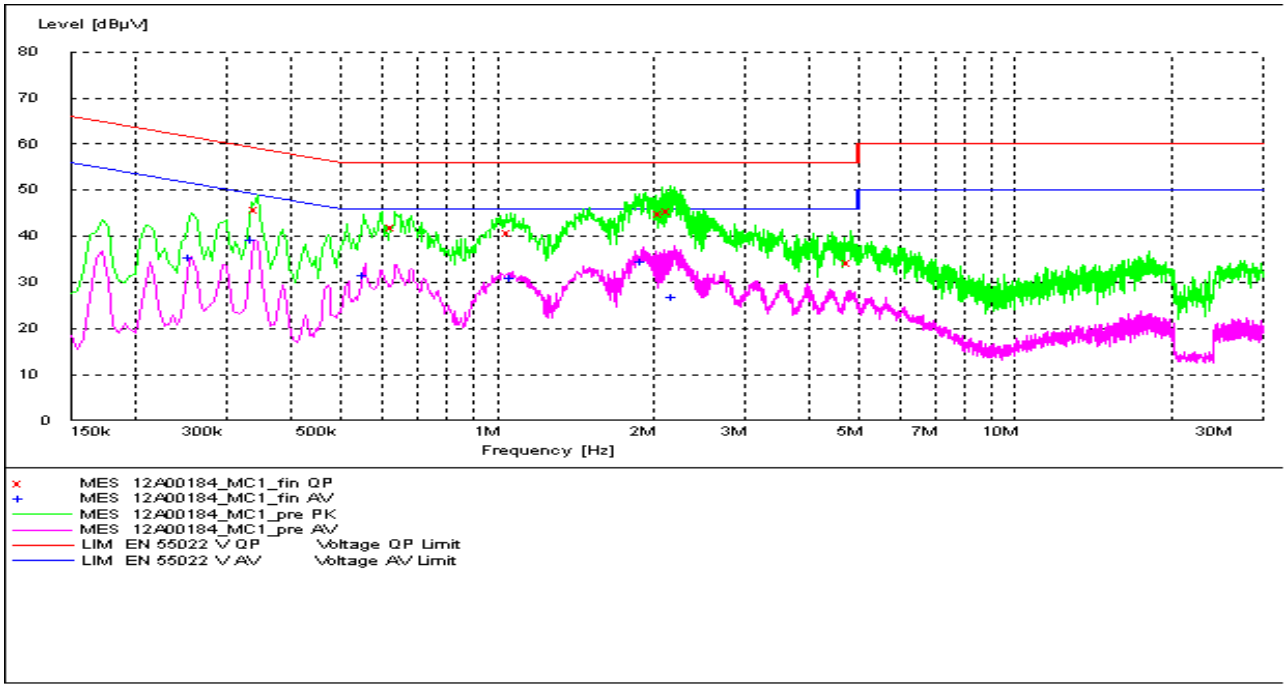
MEASUREMENT RESULT: "12A00184_WC2_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.150000	44.30	10.1	66	21.7	L1	GND
0.303000	47.00	10.1	60	13.2	L1	GND
0.528000	44.20	10.1	56	11.8	L1	GND
1.891500	48.70	10.1	56	7.3	L1	GND
2.123546	43.10	10.1	56	12.9	L1	GND
6.013739	29.80	10.2	60	30.2	L1	GND

MEASUREMENT RESULT: "12A00184_WC2_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.231000	36.60	10.1	52	15.8	L1	GND
0.303000	37.90	10.1	50	12.3	L1	GND
0.528000	34.70	10.1	46	11.3	L1	GND
0.969000	34.60	10.1	46	11.4	L1	GND
1.842000	37.50	10.1	46	8.5	L1	GND
2.136313	29.70	10.1	46	16.3	N	GND

MP3



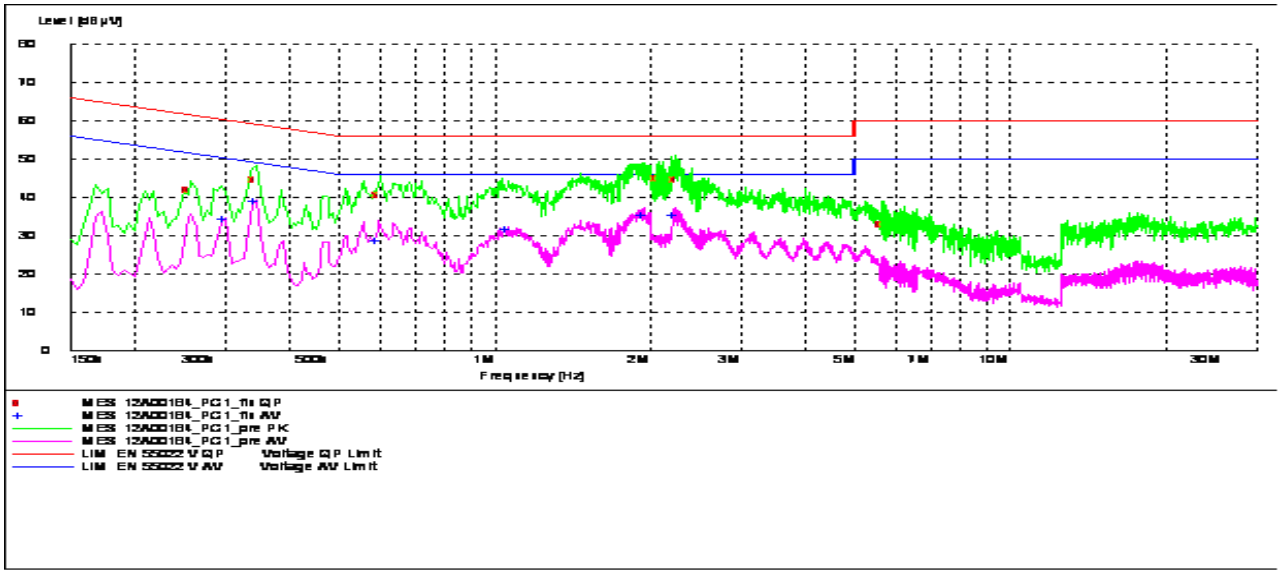
MEASUREMENT RESULT: "12A00184_MC1_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.343500	45.60	10.1	59	13.6	L1	GND
0.636000	41.90	10.1	56	14.1	L1	GND
1.063500	40.70	10.1	56	15.3	L1	GND
2.089873	44.80	10.1	56	11.2	L1	GND
2.153454	45.50	10.1	56	10.5	L1	GND
4.817564	34.10	10.2	56	21.9	N	GND

MEASUREMENT RESULT: "12A00184_MC1_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.258000	35.50	10.1	52	16.0	N	GND
0.339000	39.10	10.1	49	10.2	N	GND
0.555000	31.50	10.1	46	14.5	L1	GND
1.068000	30.90	10.1	46	15.1	L1	GND
1.905000	34.50	10.1	46	11.5	L1	GND
2.192528	26.80	10.1	46	19.2	L1	GND

CAMERA



MEASUREMENT RESULT: "12A00184_PC1_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.258000	42.00	10.1	62	19.5	L1	GND
0.343500	44.70	10.1	59	14.4	L1	GND
0.600000	40.60	10.1	56	15.4	L1	GND
2.085701	44.90	10.1	56	11.1	L1	GND
2.245732	44.80	10.1	56	11.2	L1	GND
5.675193	33.10	10.2	60	26.9	L1	GND

MEASUREMENT RESULT: "12A00184_PC1_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.298500	34.20	10.1	50	16.1	N	GND
0.343500	38.80	10.1	49	10.3	N	GND
0.595500	28.70	10.1	46	17.3	L1	GND
1.063500	31.70	10.1	46	14.3	N	GND
1.945500	35.50	10.1	46	10.5	L1	GND
2.232311	35.50	10.1	46	10.5	L1	GND

A.4 FREQUENCY STABILITY (§2.1055)

A.4.1 Method of Measurement

In order to measure the carrier frequency under the condition of AFC lock, it is necessary to make measurements with the EUT in a “call mode”. This is accomplished with the use of R&S CMU200 DIGITAL RADIO COMMUNICATION TESTER.

1. Measure the carrier frequency at room temperature.
2. Subject the EUT to overnight soak at -30℃.
3. With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on mid channel of WCDMA Band V, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
4. Repeat the above measurements at 10℃ increments from -30℃ to +50℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.
5. Remeasure carrier frequency at room temperature with nominal voltage. Vary supply voltage from minimum voltage to maximum voltage, in 0.1Volt increments remeasuring carrier frequency at each voltage. Pause at nominal voltage for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.
6. Subject the EUT to overnight soak at +50℃.
7. With the EUT, powered via nominal voltage, connected to the CMU200 and in a simulated call on the centre channel, measure the carrier frequency. These measurements should be made within 2 minutes of Powering up the EUT, to prevent significant self-warming.
8. Repeat the above measurements at 10 C increments from +50℃ to -30℃. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.
9. At all temperature levels hold the temperature to +/- 0.5℃ during the measurement procedure.

A.4.2 Measurement Limit

A.4.2.1 For Hand carried battery powered equipment

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. As this transceiver is considered "Hand carried, battery powered equipment" Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 3.5VDCand 4.2VDC with a nominal voltage of 3.7VDC. Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of -10 % and +12.5 %. For the purposes of measuring frequency stability these voltage limits are to be used.

A.4.2.2 For equipment powered by primary supply voltage

According to the JTC standard the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. For this EUT section

2.1055(d)(1) applies. This requires varying primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

A.4.3 Measurement results

WCDMA Band Ⅴ

Frequency Error vs Voltage

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.5	8	0.043
3.7	5	0.027
4.2	11	0.059

Frequency Error vs Temperature

temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-30	11	0.059
-20	8	0.043
-10	8	0.043
0	5	0.027
10	5	0.027
20	5	0.027
30	8	0.043
40	8	0.043
50	11	0.059

A.5 OCCUPIED BANDWIDTH (§2.1049(h)(i))

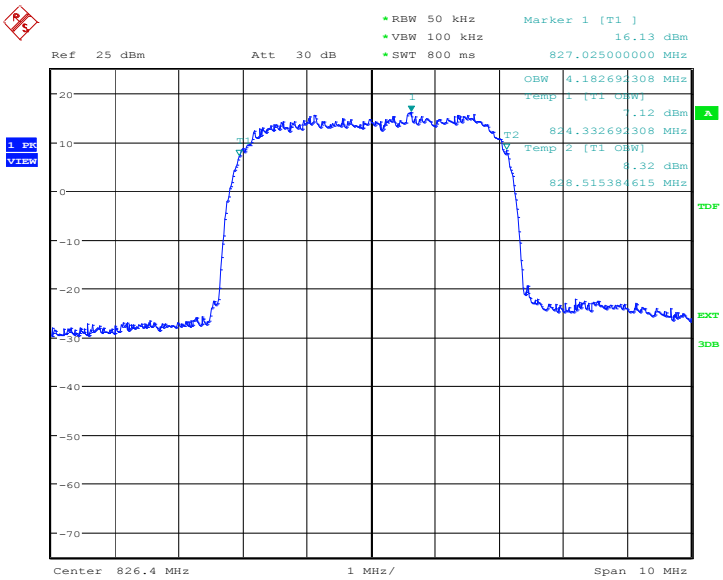
A.5.1 Occupied Bandwidth Results

Similar to conducted emissions; occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of WCDMA Band V. The table below lists the measured -20dBc BW. Spectrum analyzer plots are included on the following pages.

WCDMA Band V(-20dBc)

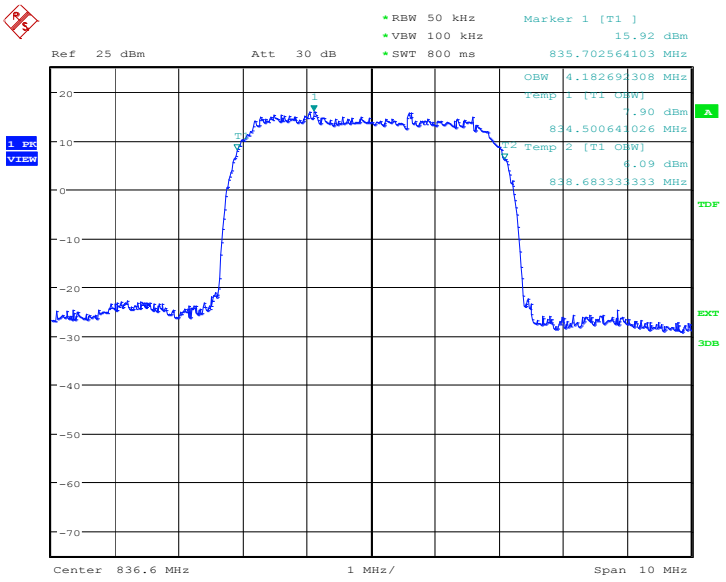
Frequency(MHz)	Occupied Bandwidth (-20dBc BW)(MHz)
826.4	4.182
836.6	4.182
846.6	4.182

Channel 4132-Occupied Bandwidth (-20dBc BW)



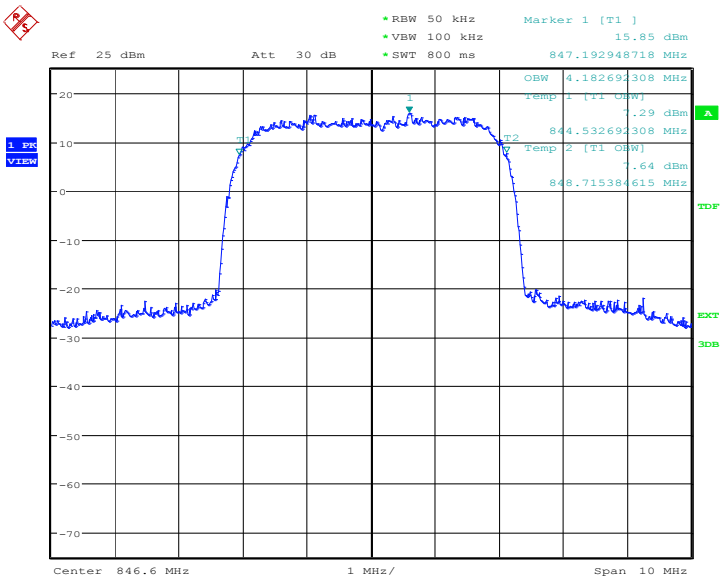
Date: 6.FEB.2012 01:54:46

Channel 4183-Occupied Bandwidth (-20dBc BW)



Date: 6.FEB.2012 01:55:20

Channel 4233-Occupied Bandwidth (-20dBc BW)



Date: 6.FEB.2012 01:55:54

A.6 EMISSION BANDWIDTH (§22.917(b)/§24.238(b))

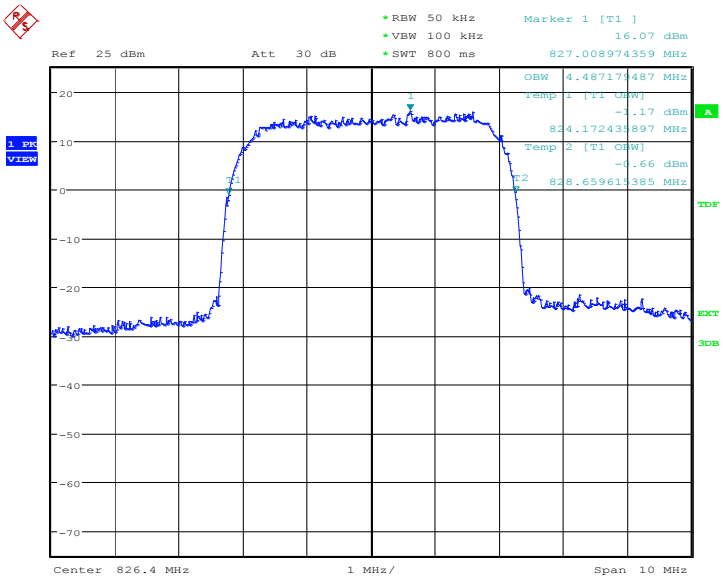
A.6.1Emission Bandwidth Results

Similar to conducted emissions; Emission bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of WCDMA Band II and WCDMA Band V. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included on the following pages.

WCDMA Band V(-26dBc)

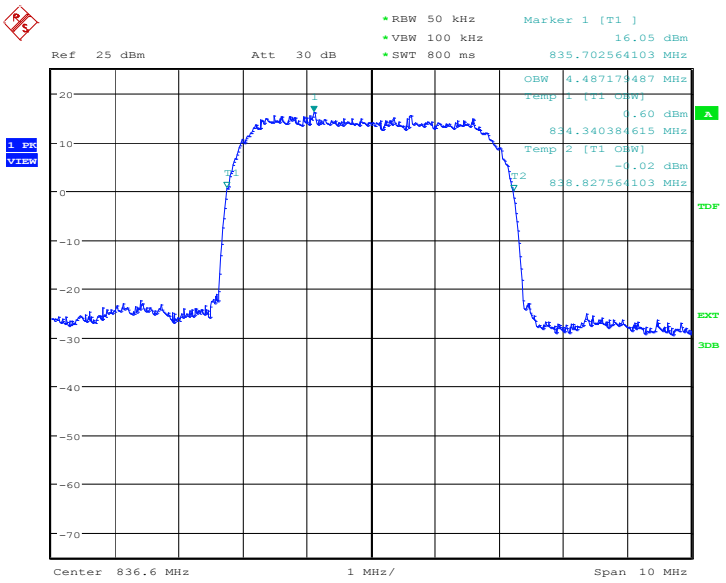
Frequency(MHz)	Occupied Bandwidth (–26dBc BW)(MHz)
826.40	4.487
836.60	4.487
846.60	4.487

Channel 4132-Occupied Bandwidth (-26dBc BW)



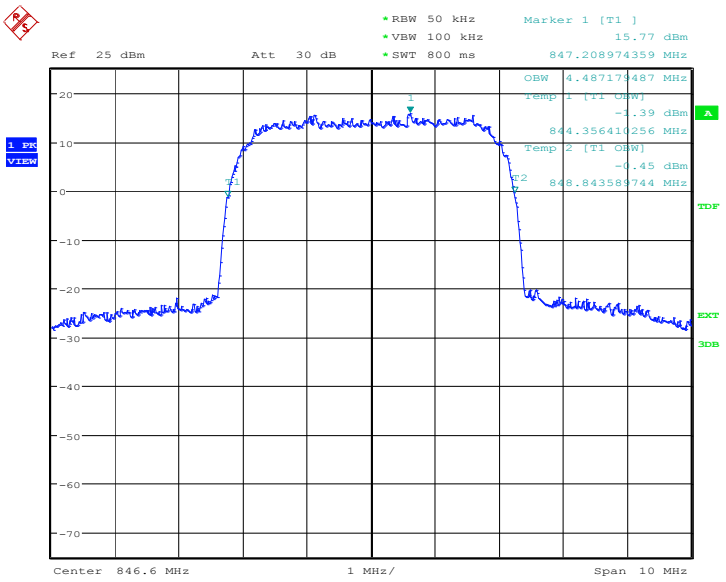
Date: 6.FEB.2012 01:56:29

Channel 4183-Occupied Bandwidth (-26dBc BW)



Date: 6.FEB.2012 01:57:04

Channel 4233-Occupied Bandwidth (-26dBc BW)

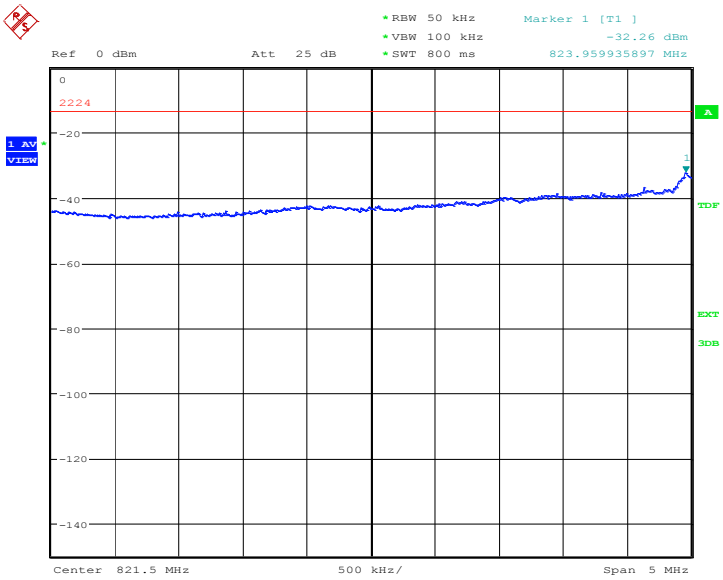


Date: 6.FEB.2012 01:57:38

A.7 BAND EDGE COMPLIANCE (§22.917(b)/§24.238(b))

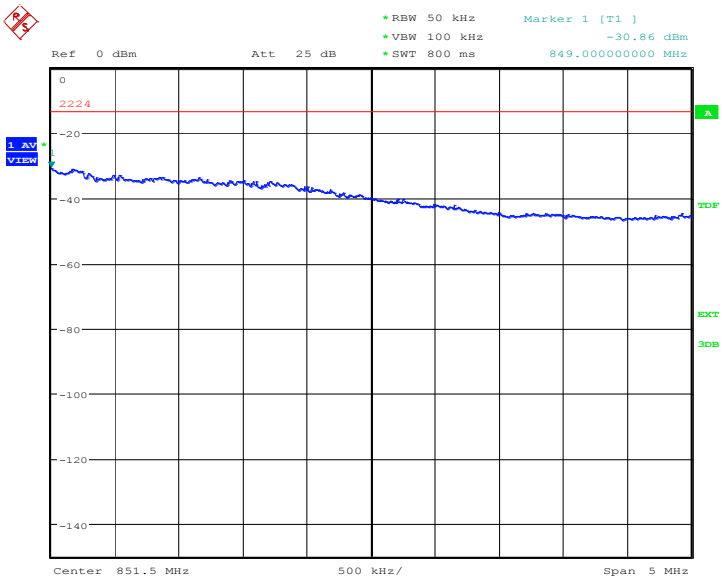
WCDMA Band V

LOW BAND EDGE BLOCK-A (WCDMA Band Ⅴ)-Channel 4132



Date: 6.FEB.2012 01:57:49

HIGH BAND EDGE BLOCK-C (WCDMA Band Ⅴ) –Channel 4233



Date: 6.FEB.2012 01:58:00

A.8 CONDUCTED SPURIOUS EMISSION (§2.1057/§22.917/§24.238)

A.8.1 Measurement Method

The following steps outline the procedure used to measure the conducted emissions from the EUT.

1. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For WCDMA Band V, data taken from 30 MHz to 10GHz.
2. The sweep time is set automatically by instrument itself. That should be the optimal sweep time for the span and the RBW. If the sweep time is too short, that is sweep is too fast, the sweep result is not accurate; If the sweep time is too long, that is sweep is too low, some frequency components may be lost. The instrument will give a optimal sweep time according the selected span and RBW.
3. The procedure to get the conducted spurious emission is as follows:
   The trace mode is set to MaxHold to get the highest signal at each frequency;
   Wait 25 seconds;
   Get the result.
4. Determine EUT transmit frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.

WCDMA Band Ⅴ Transmitter

Channel	Frequency (MHz)
4132	826.40
4183	836.60
4233	846.60

A. 8.2 Measurement Limit

Part 24.238 and Part 22.917 specify that the power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. At 0.001 W (0 dBm) the minimum attenuation is 13 dB, which again yields a limit of -13 dBm. In this way a translation of the specification from relative to absolute terms is carried out.

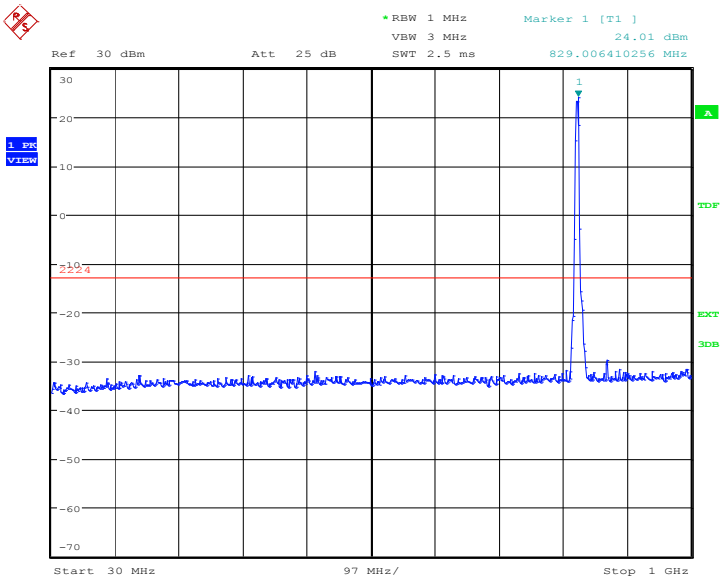
A.8.3 Measurement result

WCDMA Band Ⅴ

A. 8.3.1 Channel 4132: 30MHz –1GHz

Spurious emission limit –13dBm.

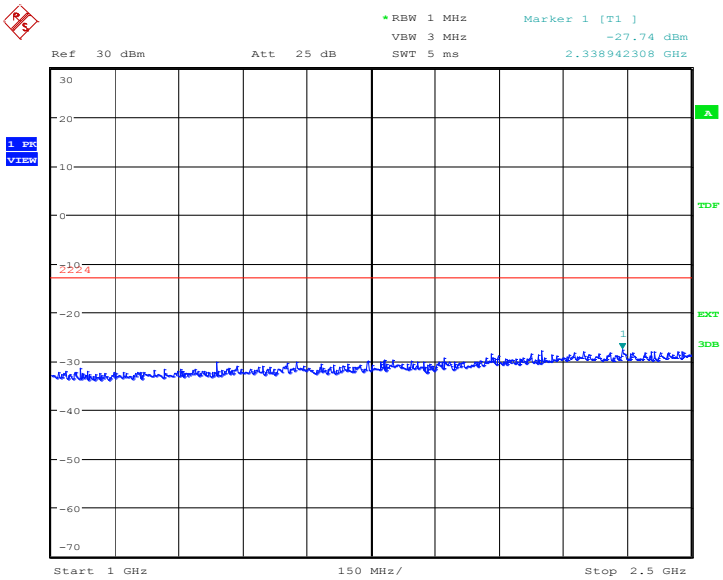
NOTE: peak above the limit line is the carrier frequency.



Date: 6.FEB.2012 01:58:31

A. 8.3.2 Channel 4132: 1GHz – 2.5GHz

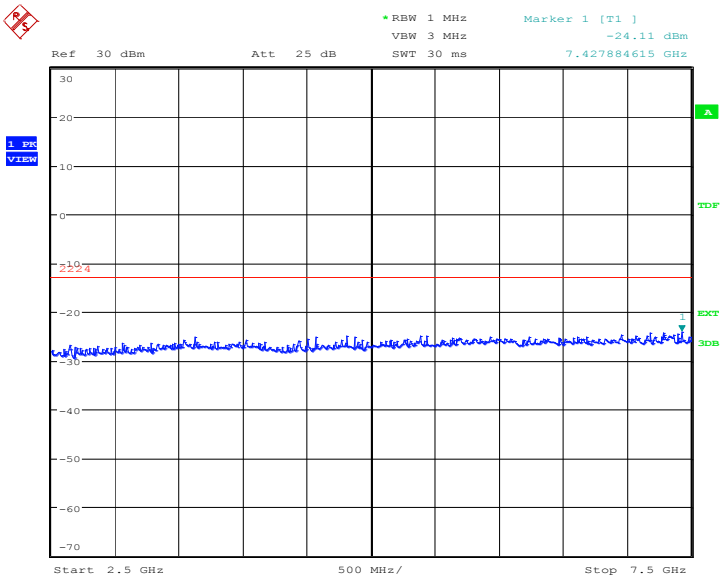
Spurious emission limit –13dBm.



Date: 6.FEB.2012 01:59:00

A. 8.3.3 Channel 4132: 2.5GHz –7.5GHz

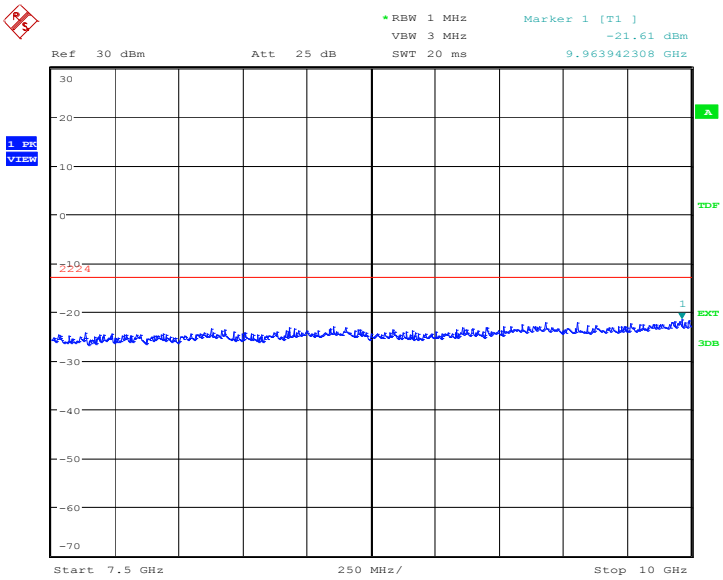
Spurious emission limit –13dBm.



Date: 6.FEB.2012 01:59:28

A. 8.3.4 Channel 4132: 7.5GHz – 10GHz

Spurious emission limit –13dBm.

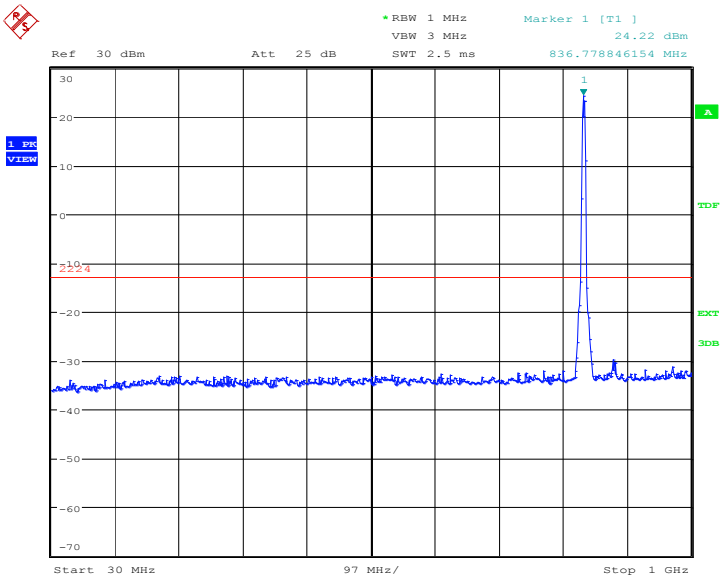


Date: 6.FEB.2012 01:59:56

A. 8.3.5 Channel 4183: 30MHz –1GHz

Spurious emission limit –13dBm.

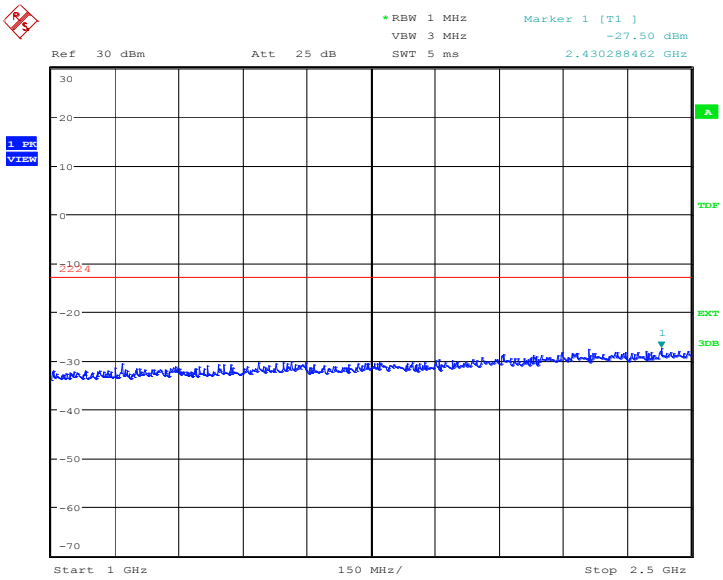
NOTE: peak above the limit line is the carrier frequency.



Date: 6.FEB.2012 02:00:27

A.8.3.6 Channel 4183: 1GHz – 2.5GHz

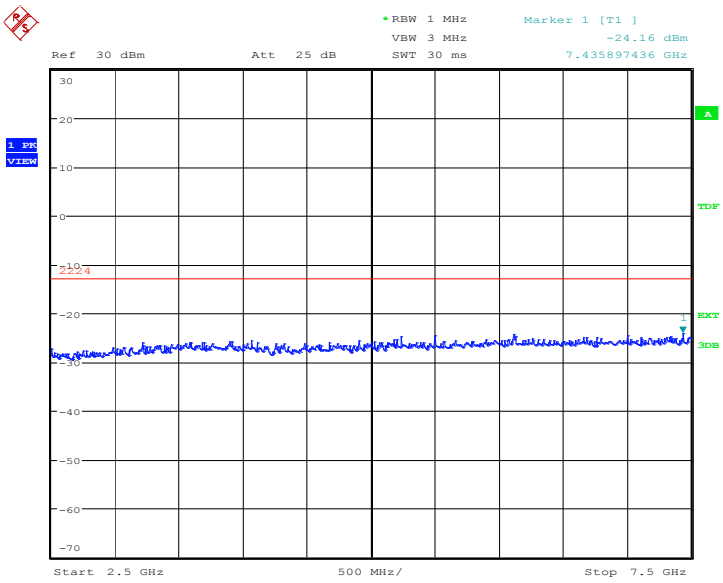
Spurious emission limit –13dBm.



Date: 6.FEB.2012 02:00:55

A. 8.3.7 Channel 4183: 2.5GHz –7.5GHz

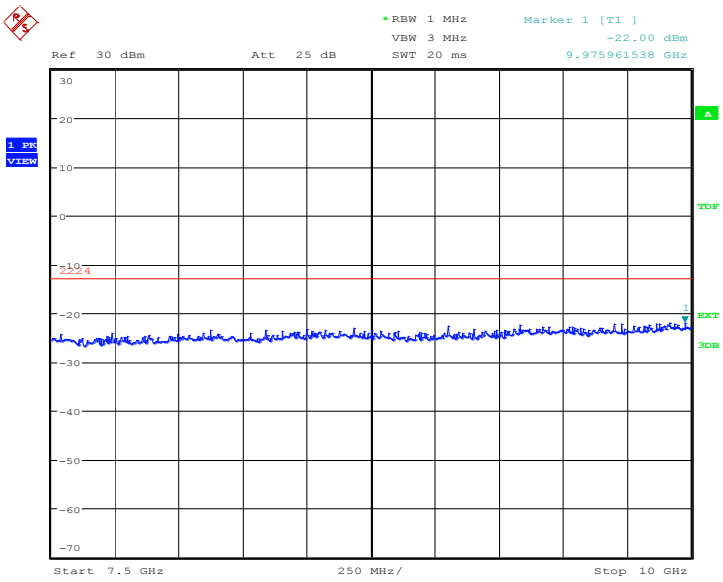
Spurious emission limit –13dBm.



Date: 6.FEB.2012 02:01:24

A. 8.3.8 Channel 4183: 7.5GHz – 10GHz

Spurious emission limit –13dBm.

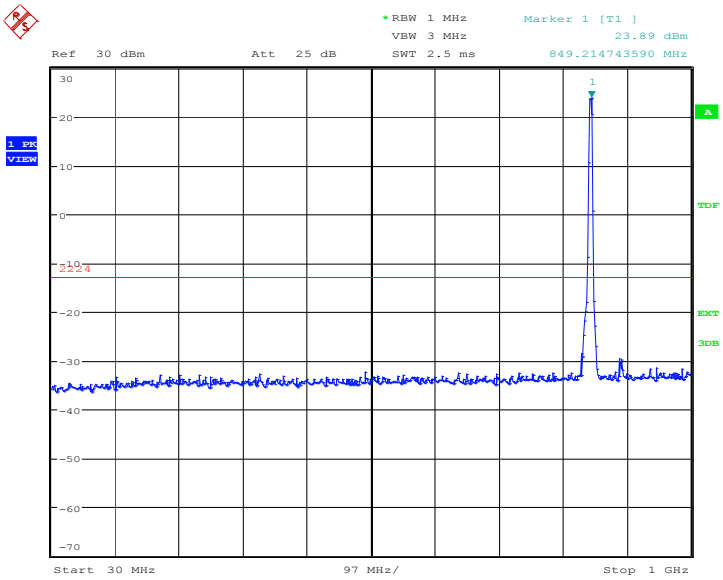


Date: 6.FEB.2012 02:01:52

A. 8.3.9 Channel 4233: 30MHz –1GHz

Spurious emission limit –13dBm.

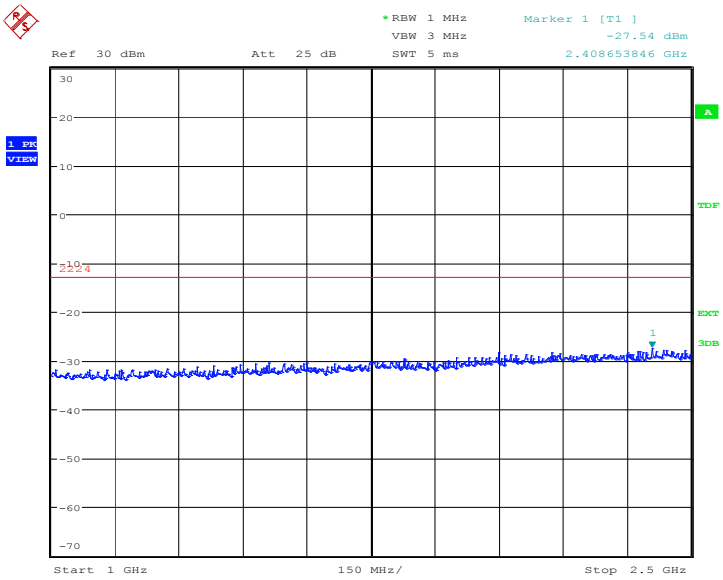
NOTE: peak above the limit line is the carrier frequency.



Date: 6.FEB.2012 02:02:23

A. 8.3.10 Channel 4233: 1GHz – 2.5GHz

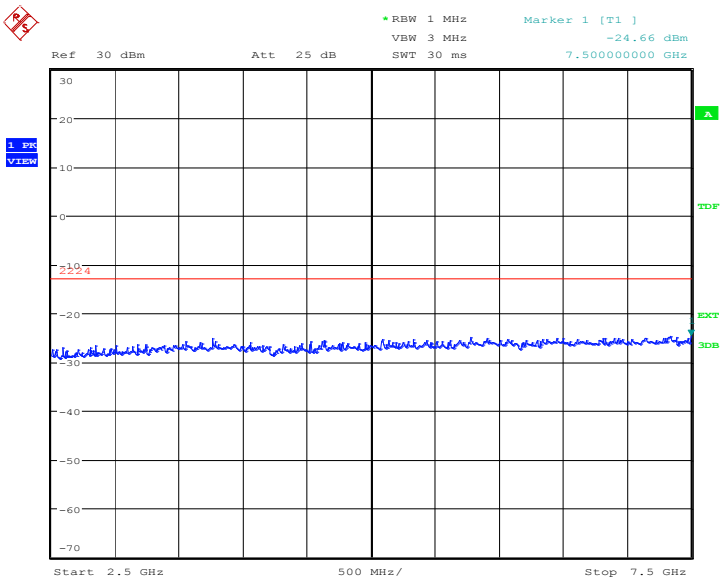
Spurious emission limit –13dBm.



Date: 6.FEB.2012 02:02:51

A. 8.3.11 Channel 4233: 2.5GHz –7.5GHz

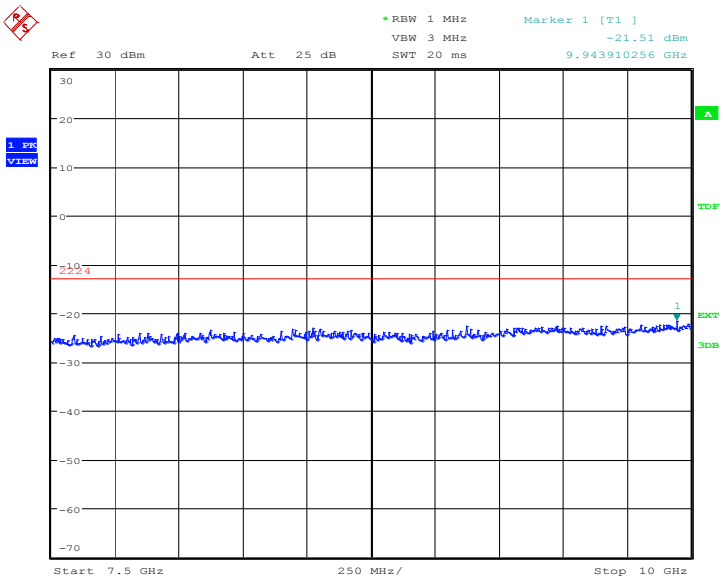
Spurious emission limit –13dBm.



Date: 6.FEB.2012 02:03:19

A. 8.3.12 Channel 4233: 7.5GHz – 10GHz

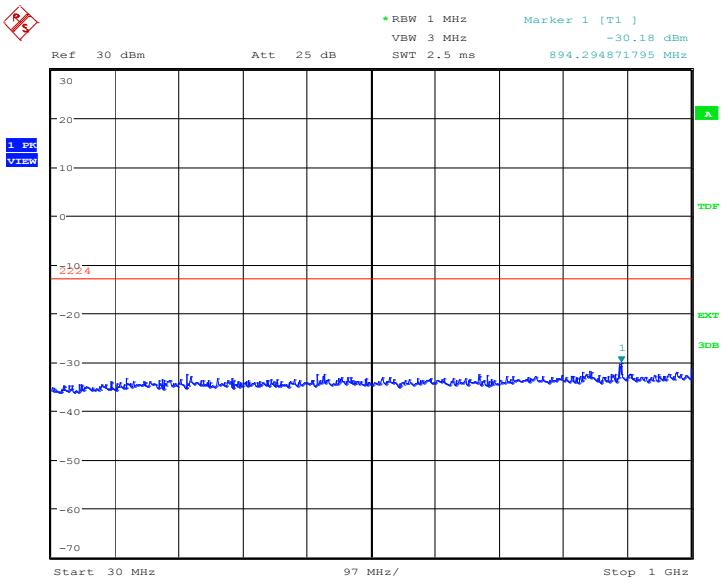
Spurious emission limit –13dBm.



Date: 6.FEB.2012 02:03:47

A. 8.3.13 Idle mode: 30MHz – 1GHz

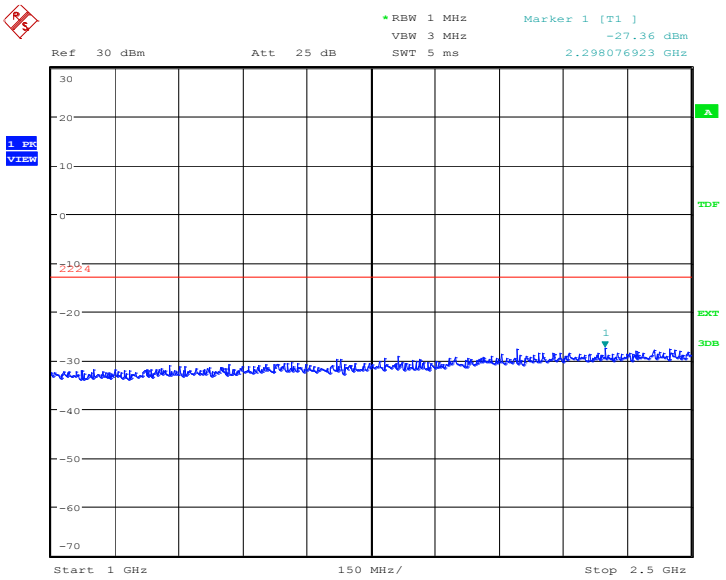
Spurious emission limit -13dBm.



Date: 6.FEB.2012 02:04:17

A.8.3.14 Idle mode: 1GHz – 2.5GHz

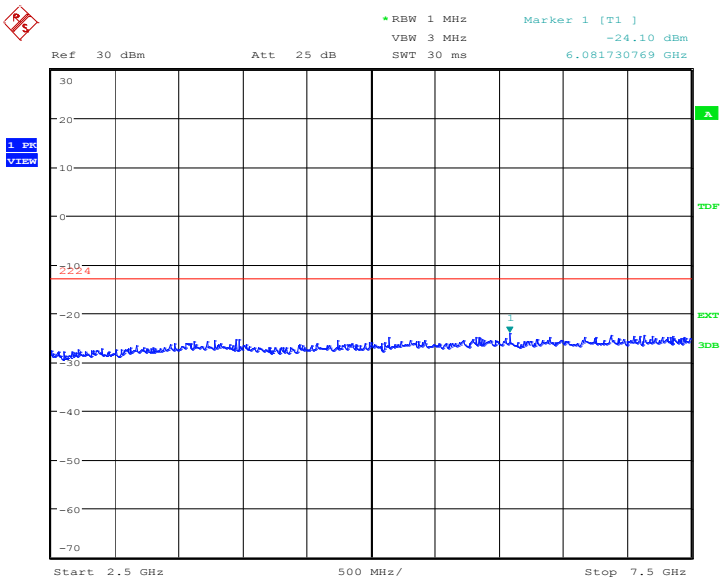
Spurious emission limit -13dBm.



Date: 6.FEB.2012 02:04:45

A.8.3.15 Idle mode: 2.5GHz – 7.5GHz

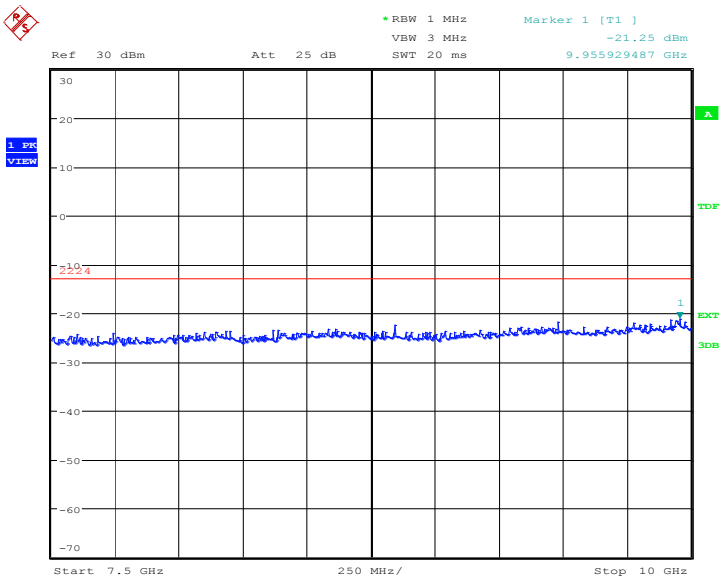
Spurious emission limit -13dBm.



Date: 6.FEB.2012 02:05:13

A.8.3.16 Idle mode: 7.5GHz – 10GHz

Spurious emission limit -13dBm.



Date: 6.FEB.2012 02:05:41

*****END OF REPORT*****