TEST REPORT

No. 2012TAR073

for

TCT Mobile Limited

HSUPA/HSDPA/UMTS dual band / GSM quad bands mobile phone

Model Name: GIN S

Marketing Name：one touch 918S

FCC ID: RAD260

IC：9238A-0008

with

Hardware Version: PIO

Software Version: SW31H_AWS

Issued Date: Mar 20, 2012

Test Laboratory:

DAR accreditation (DIN EN ISO/IEC 17025): No. DAT-P-114/01-01

FCC 2.948 Listed: No.733176

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

TMC Beijing, Telecommunication Metrology Center of Ministry of Industry and Information Technology

Shouxiang Science Building, No 51, Xueyuan Road, Haidian District, Beijing, P.R.China 100191

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CONTENTS

1. Test Laboratory

1.1. Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
Address:	Shouxiang Science Building, No 51, Xueyuan Road, Haidian District, Beijing, P.R.China
Postal Code:	100191
Telephone:	00861062304633
Fax:	00861062304793

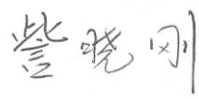
1.2. Testing Environment

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

1.3. Project data

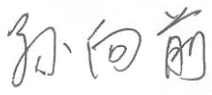
Testing Start Date:	Feb 07, 2012
Testing End Date:	Mar 20, 2012

1.4. Signature



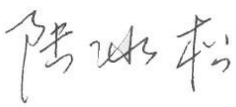
Zi Xiaogang

(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:	TCT Mobile Limited
Address /Post:	5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203
City:	Shanghai
Country:	China
Telephone:	0086-21-61460890
Fax:	0086-21-61460602

2.2. Manufacturer Information

Company Name:	TCT Mobile Limited
Address /Post:	5F, E building, No. 232, Liang Jing Road ZhangJiang High-Tech Park, Pudong Area Shanghai, P.R. China. 201203
City:	Shanghai
Country:	China
Telephone:	0086-21-61460890
Fax:	0086-21-61460602

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

3.1. About EUT

Description	HSUPA/HSDPA/UMTS dual band / GSM quad bands mobile phone
Model Name	GIN S
Marketing Name	one touch 918S
FCC ID	RAD260
IC	9238A-0008
Frequency	GSM850MHz; PCS 1900MHz; WCDMA BAND IV
Antenna	Internal
Output power	26.18 dBm maximum EIRP measured for WCDMA BAND IV
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
N05	013122000000965	PIO	SW31H_AWS
N06	013122000000767	PIO	SW31H_AWS

*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	/

AE1

Model	CAB31P0000C1
Manufacturer	BYD
Capacitance	1300mAh
Nominal Voltage	3.7V

AE2

Model	CAB31P0000C2
Manufacturer	BAK
Capacitance	1300mAh
Nominal Voltage	3.7V

AE3

Model	CBA3002AG0C1
Manufacturer	BYD
Length of DC 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 HSUPA/HSDPA/UMTS dual band / GSM quad bands mobile phone with integrated antenna. 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 27	MISCELLANEOUS WIRELESS COMMUNICATIONS 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

WCDMA Band IV

Items	Test Name	Clause in FCC rules	Clause in IC rules RSS-Gen and RSS- 133	Section in this report	Verdict
1	Output Power	27.50(d)(2)	6.4	A.1	P
2	Emission Limit	27.53(g) 2.1051	6.5	A.2	P
3	CONDUCTED EMISSION	15.107/15.207			P
4	Frequency Stability	27.54, 2.1055	6.3	A.4	P
5	Occupied Bandwidth	2.1049(h)(i)	6.1/6.6	A.5	P
6	Emission Bandwidth	27.53(g)	4.6.1	A.6	P
7	Band Edge Compliance	27.53(g)	6.5	A.7	P
8	Conducted Spurious Emission	27.53(g), 2.1057	6.5	A.8	P

Receiver Radiated Emission

Items	Test Name	Clause in FCC rules	Clause in IC rules		Section in this report	Verdict
			RSS-132	RSS-133		
1	Receiver Radiated Emissions	15.109 , 2.1053	4.6	6.6	A.9	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 (27.50(d)(2))

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)

These measurements were done at 3 frequencies, 1712.4MHz, 1740MHz, and 1752.6MHz for WCDMA Band IV; (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 IV

Measurement result

	CH	Frequency(MHz)	output power(dBm)
WCDMA (Band IV)	1312	1712.4	21.41
	1450	1740	**21.51**
	1513	1752.6	21.07

A.1.3 Radiated

A.1.3.1 Description

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

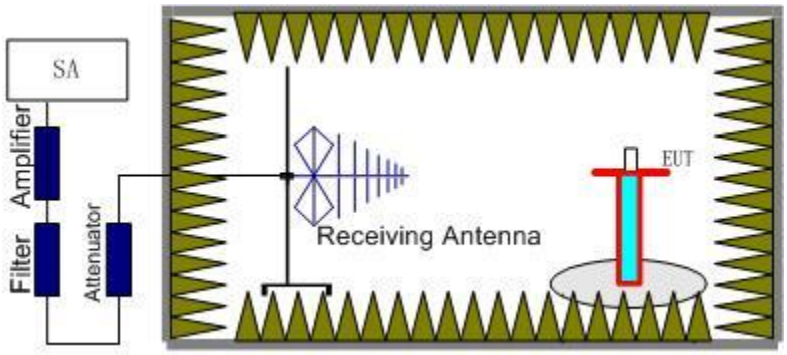
Rule Part 24.232(b) specifies, "Mobile/portable stations are limited to 2 watts e.i.r.p. Peak power" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

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

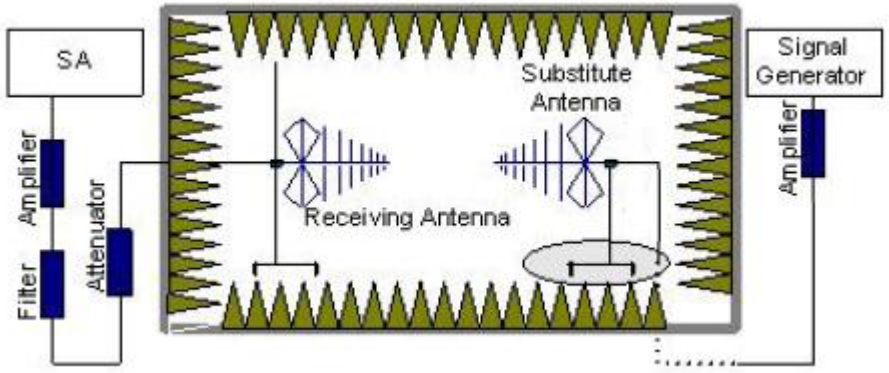
A.1.3.2 Method of Measurement

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 IV-EIRP

Limits

	Burst Peak EIRP (dBm)
WCDMA Band IV	30dBm (2W)

Measurement result

Frequency(MHz)	Peak EIRP(dBm)	P_{cl}(dB)	P_{Ag}(dB)	G_a Antenna Gain(dB)	P_{Mea}(dBm)	Polarization
1712.4	-26.07	3.66	-50.00	-5.17	25.44	H
1740	-24.50	4.36	-50.00	-5.04	**26.18**	V
1752.6	-25.55	3.85	-50.00	-4.99	25.59	V

Frequency**:** 1740MHz

Peak EIRP(dBm)= P_{Mea}(-24.50dBm)+ P_{cl}(4.36dB)+ P_{Ag}(-50.00dB)+G_a (-5.04dB) =26.18dBm

ANALYZER SETTINGS: RBW = VBW = 3 MHz

A.2 EMISSION LIMT (§2.1051/§27.53(g))

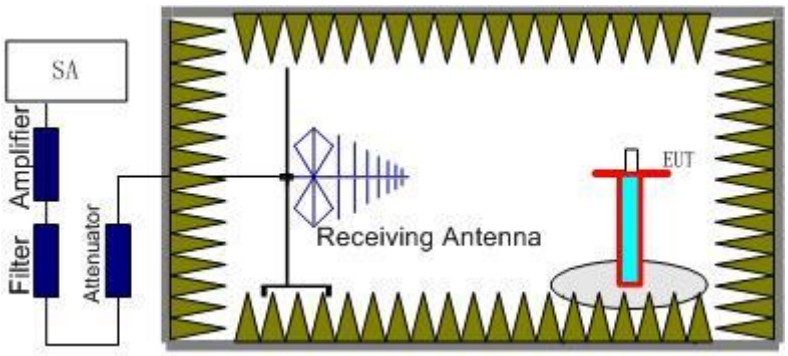
A.2.1 Measurement Method

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

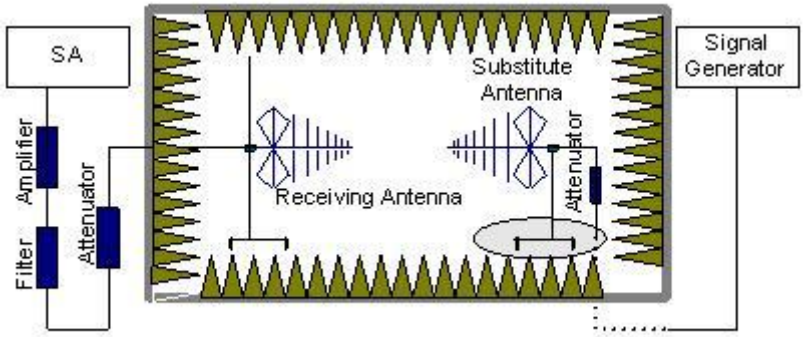
The spectrum was scanned from 30 MHz to the 10th harmonic of the highest frequency generated within the equipment, which is the transmitted carrier that can be as high as 1910 MHz. The resolution bandwidth is set as outlined in Part 27.53. The spectrum was scanned with the mobile station transmitting at carrier frequencies that pertain to low, mid and high channels of the WCDMA Band IV.

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 27.53 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 IV(1712.4MHz, 1740MHz and 1752.6MHz). 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 IV 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 IV	Low	30MHz-20GHz	Pass
	Middle	30MHz-20GHz	Pass
	High	30MHz-20GHz	Pass

A.2.5 Sweep Table

Working Frequency	Subrange (GHz)	RBW	VBW	Sweep time (s)
WCDMA Band IV	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
	8~11	1 MHz	3 MHz	3
	11~14	1 MHz	3 MHz	3
	14~18	1 MHz	3 MHz	3
	18~20	1 MHz	3 MHz	2

WCDMA BAND IV Mode Channel 1312/1712.4MHz

Frequency(MHz)	Peak EIRP(dBm)	Path Loss	Antenna Gain	P_{Mea}(dBm)	Limit （dBm）	Polarization
3426.29	-56.09	4.95	-7.72	-53.32	-13.00	V
5140.46	-57.54	7.08	-9.78	-54.84	-13.00	V
8628.58	-65.33	7.86	-12.30	-60.89	-13.00	H
10330.30	-62.08	8.64	-12.47	-58.25	-13.00	H
13296.51	-61.31	10.49	-13.60	-58.20	-13.00	H
15037.72	-63.90	11.31	-13.49	-61.72	-13.00	V

WCDMA BAND IV Mode Channel 1450/1740MHz

Frequency(MHz)	Peak EIRP(dBm)	Path Loss	Antenna Gain	P_{Mea}(dBm)	Limit （dBm）	Polarization
3482.61	-53.73	5.27	-7.86	-51.14	-13.00	V
5223.21	-62.95	7.52	-9.83	-60.64	-13.00	V
7824.70	-68.75	7.66	-11.72	-64.69	-13.00	V
10353.12	-66.58	8.66	-12.47	-62.77	-13.00	V
13255.75	-68.37	10.40	-13.56	-65.21	-13.00	H
17414.68	-61.26	11.89	-13.15	-60.00	-13.00	V

WCDMA BAND IV Mode Channel 1513/1752.6MHz

Frequency(MHz)	Peak EIRP(dBm)	Path Loss	Antenna Gain	P_{Mea}(dBm)	Limit （dBm）	Polarization
3502.87	-50.46	5.15	-7.90	-47.71	-13.00	V
5260.60	-57.38	7.57	-9.86	-55.09	-13.00	H
7005.33	-59.20	8.37	-11.10	-56.47	-13.00	V
9124.64	-65.18	7.96	-12.60	-60.54	-13.00	H
10326.74	-62.07	8.63	-12.47	-58.23	-13.00	H
13982.42	-62.55	11.90	-13.99	-60.46	-13.00	H

A.3 CONDUCTED EMISSION (§15.107§15.207)

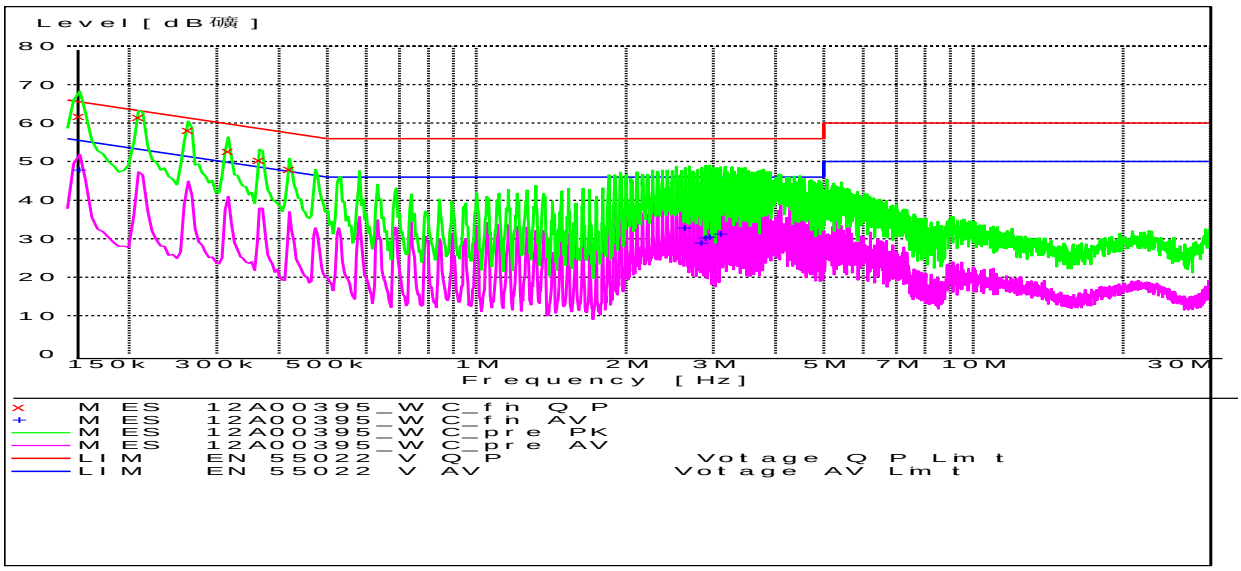
The measurement procedure in ANSI C63.4-2003 is used. Conducted Emission is measured with travel charger.

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 IV



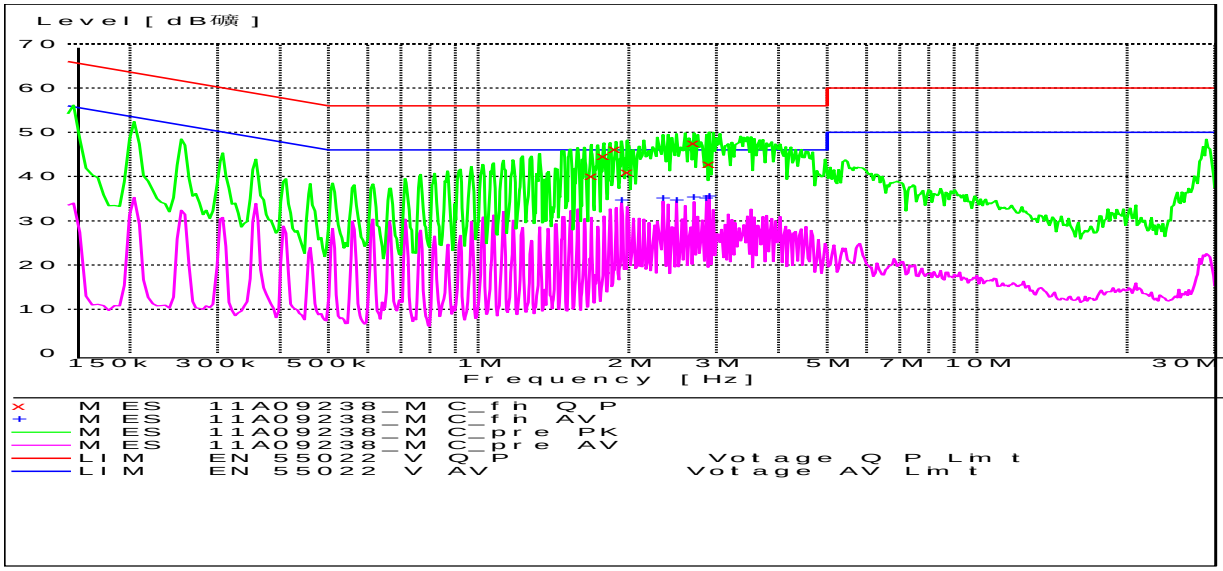
MEASUREMENT RESULT: "12A00395_WC_fin QP"

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Line	PE
0.159000	61.90	10.1	66	3.6	L1	GND
0.208500	61.50	10.1	63	1.8	L1	GND
0.262500	58.10	10.1	61	3.3	L1	GND
0.316500	52.80	10.1	60	7.0	L1	GND
0.366000	50.50	10.1	59	8.1	N	GND
0.420000	48.00	10.1	57	9.4	L1	GND

MEASUREMENT RESULT: "12A00395_WC_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
0.159000	47.90	10.1	56	7.7	N	GND
2.629710	32.70	10.1	46	13.3	L1	GND
2.842818	28.70	10.1	46	17.3	L1	GND
2.894400	30.10	10.1	46	15.9	L1	GND
2.946917	30.40	10.1	46	15.6	L1	GND
3.104050	31.10	10.1	46	14.9	L1	GND

MP3



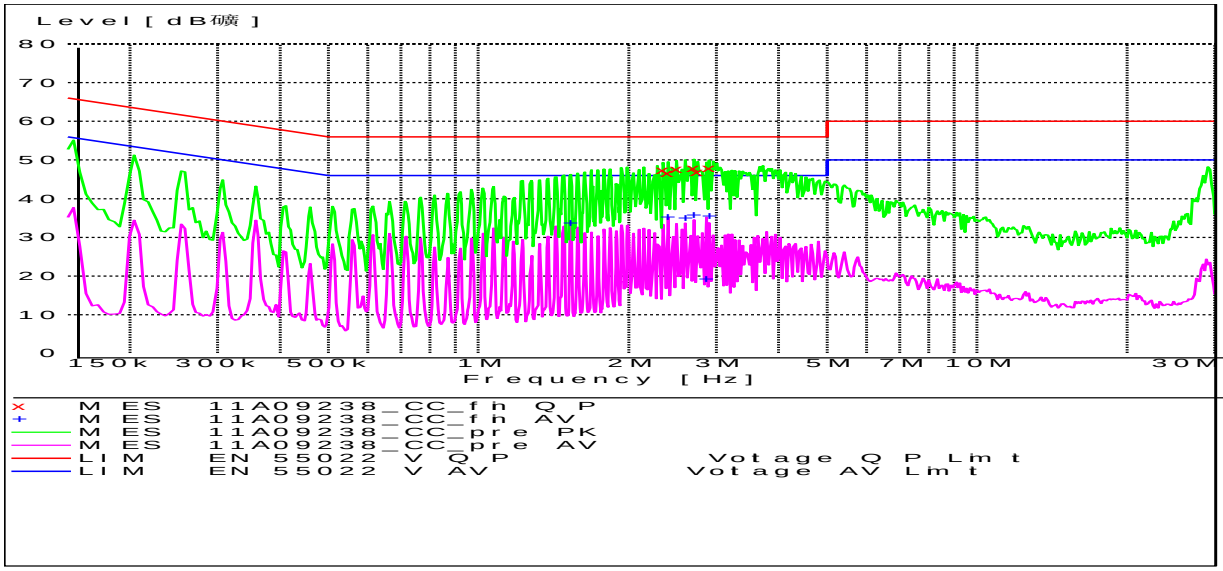
MEASUREMENT RESULT: "11A09238_MC_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
1.684500	40.20	10.2	56	15.9	L1	GND
1.788000	44.60	10.2	56	11.4	N	GND
1.887000	46.20	10.2	56	9.8	N	GND
1.990500	41.10	10.2	56	15.0	L1	GND
2.707262	47.50	10.2	56	8.5	N	GND
2.908540	42.90	10.2	56	13.1	L1	GND

MEASUREMENT RESULT: "11A09238_MC_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
1.941000	34.80	10.2	46	11.2	N	GND
2.345528	35.10	10.2	46	10.9	N	GND
2.499913	34.80	10.2	46	11.2	N	GND
2.707262	35.40	10.2	46	10.6	N	GND
2.862556	35.20	10.2	46	10.8	N	GND
2.908540	35.60	10.2	46	10.4	N	GND

CAMERA



MEASUREMENT RESULT: "11A09238_CC_fin QP"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
2.345528	47.40	10.2	56	8.6	N	GND
2.402272	46.50	10.2	56	9.5	N	GND
2.499913	47.70	10.2	56	8.3	N	GND
2.707262	47.80	10.2	56	8.2	N	GND
2.750751	46.90	10.2	56	9.1	N	GND
2.908540	47.90	10.2	56	8.1	N	GND

MEASUREMENT RESULT: "11A09238_CC_fin AV"

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Line	PE
1.531500	33.70	10.2	46	12.3	N	GND
2.402272	35.30	10.2	46	10.7	N	GND
2.601522	34.90	10.2	46	11.1	N	GND
2.707262	35.80	10.2	46	10.2	N	GND
2.862556	19.10	10.2	46	26.9	N	GND
2.908540	35.50	10.2	46	10.5	N	GND

A.4 FREQUENCY STABILITY (§2.1055/§27.54)

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 IV 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 IV

Frequency Error vs Voltage

Voltage(V)	Frequency error(Hz)	Frequency error(ppm)
3.5	7	0.027
3.7	5	0.019
4.2	8	0.030

Frequency Error vs Temperature

temperature(℃)	Frequency error(Hz)	Frequency error(ppm)
-30	8	0.030
-20	7	0.027
-10	7	0.027
0	5	0.019
10	5	0.019
20	5	0.019
30	7	0.027
40	7	0.027
50	8	0.030

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

A.5.1 Occupied Bandwidth Results

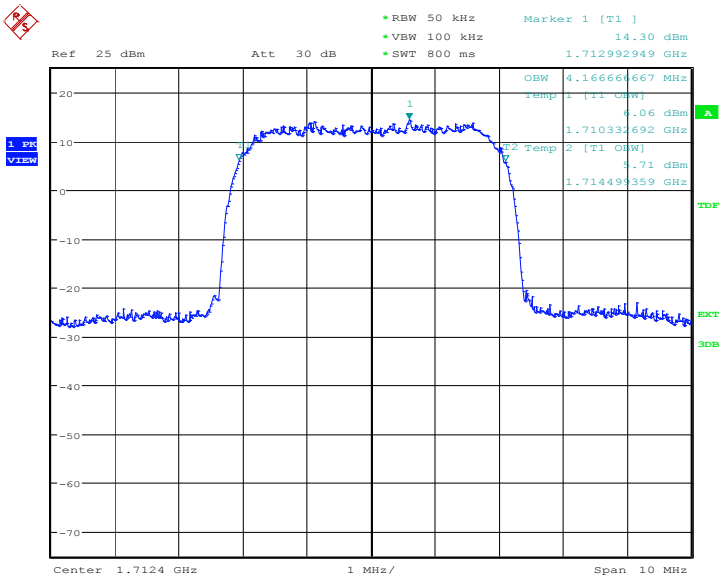
Similar to conducted emissions; occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of WCDMA IV. The table below lists the measured -20dBc BW. Spectrum analyzer plots are included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

WCDMA Band IV(-20dBc)

Frequency(MHz)	Occupied Bandwidth (-20dBc BW)(MHz)
1712.4	4.166
1740	4.182
1752.6	4.182

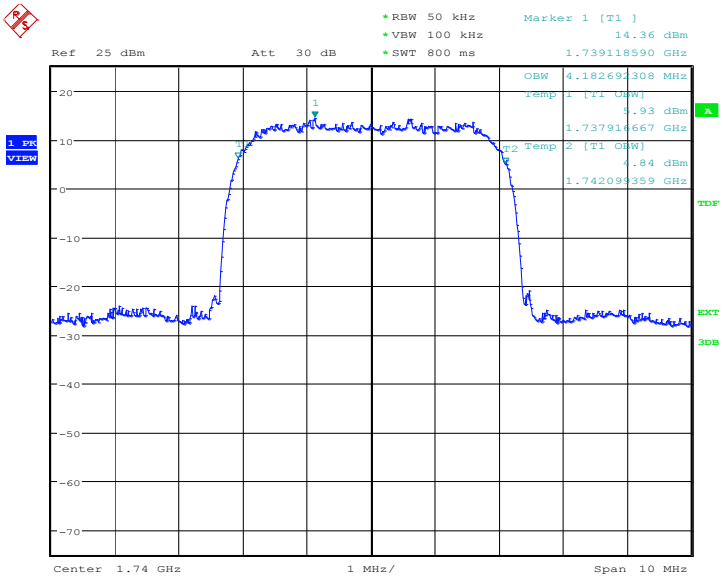
WCDMA Band IV

Channel 1312-Occupied Bandwidth (-20dBc BW)



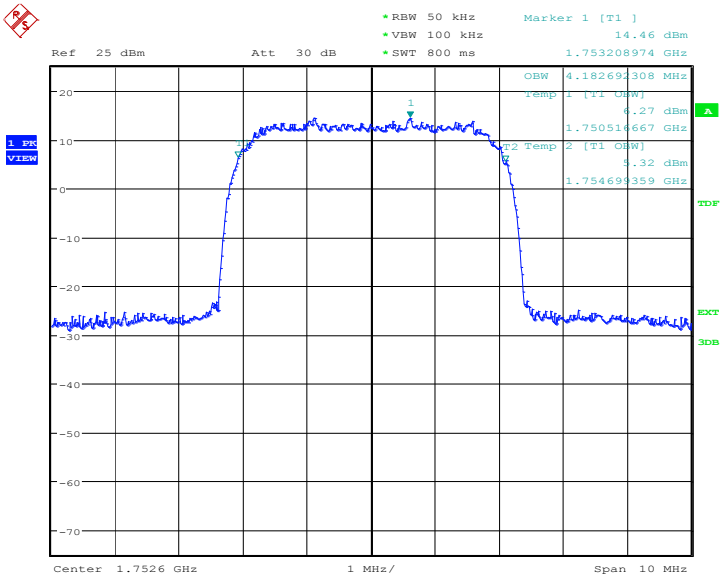
Date: 19.MAR.2012 08:39:05

Channel 1450-Occupied Bandwidth (-20dBc BW)



Date: 19.MAR.2012 08:39:39

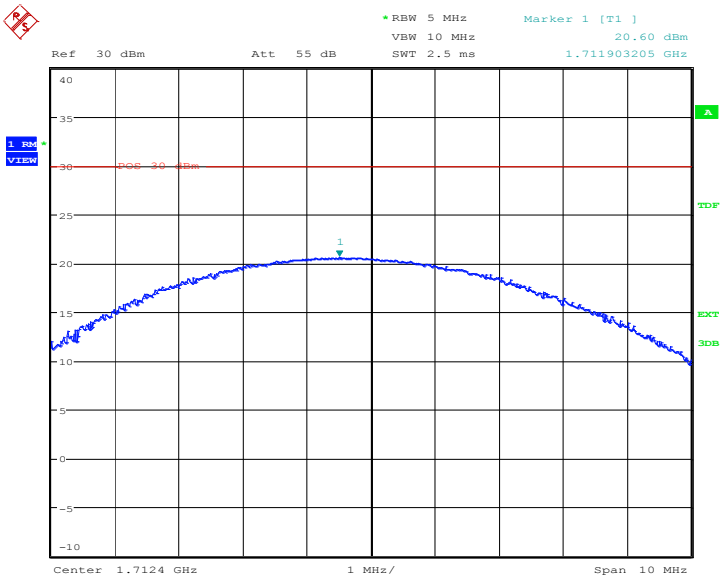
Channel 1513-Occupied Bandwidth (-20dBc)



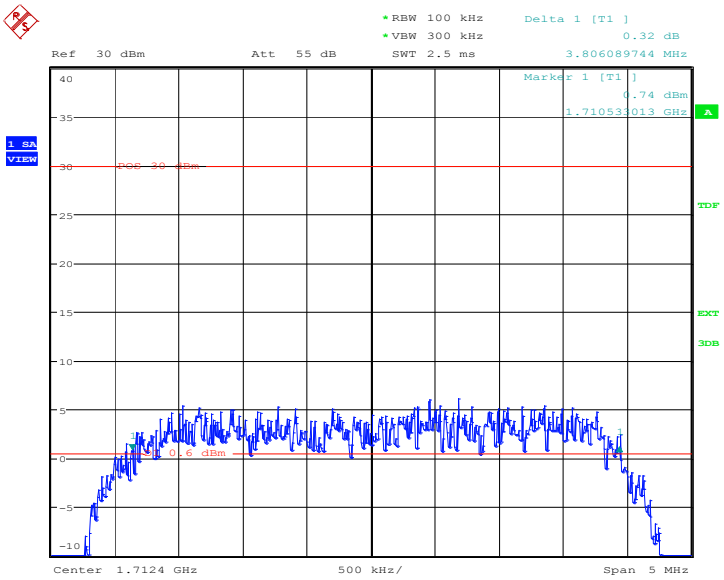
WCDMA Band IV(-20dBc)-IC

Frequency(MHz)	Occupied Bandwidth (-20dBc BW)(MHz)
1712.4	3.918
1740	3.934
1752.6	3.942

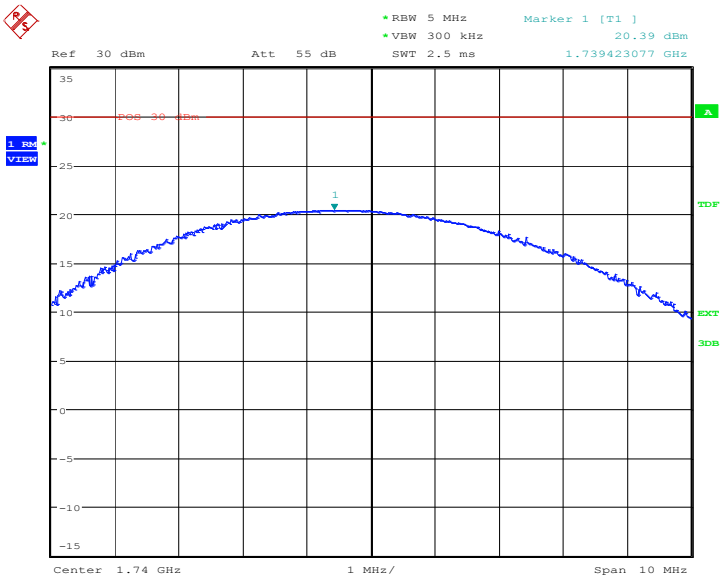
Channel 1312-Occupied Bandwidth Reference Level



Channel 1312-Occupied Bandwidth (-20dBc BW)

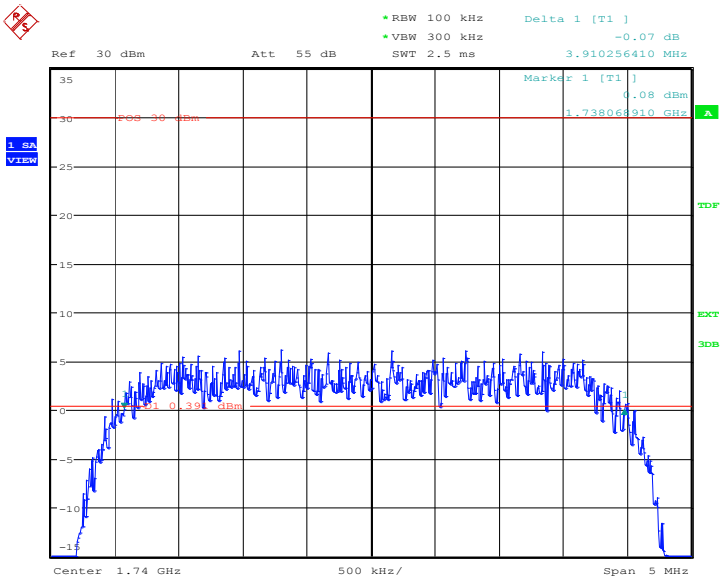


Channel 1450-Occupied Bandwidth Reference Level



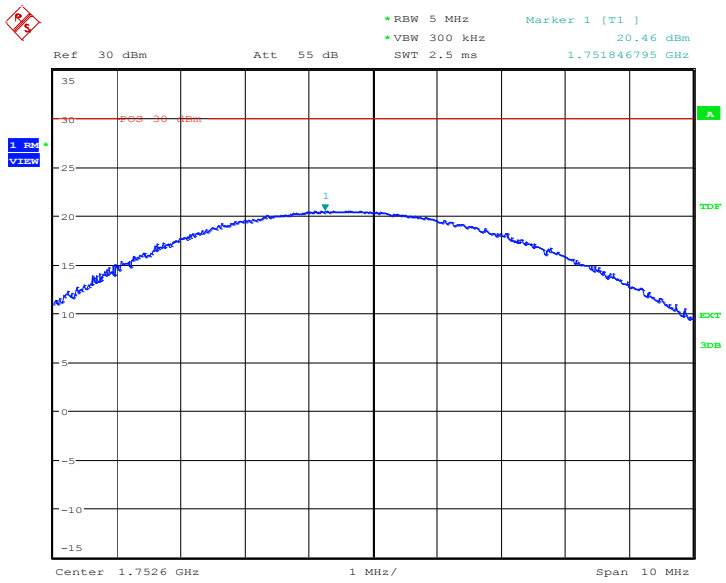
Date: 10.FEB.2012 09:02:50

Channel 1450-Occupied Bandwidth (-20dBc BW)



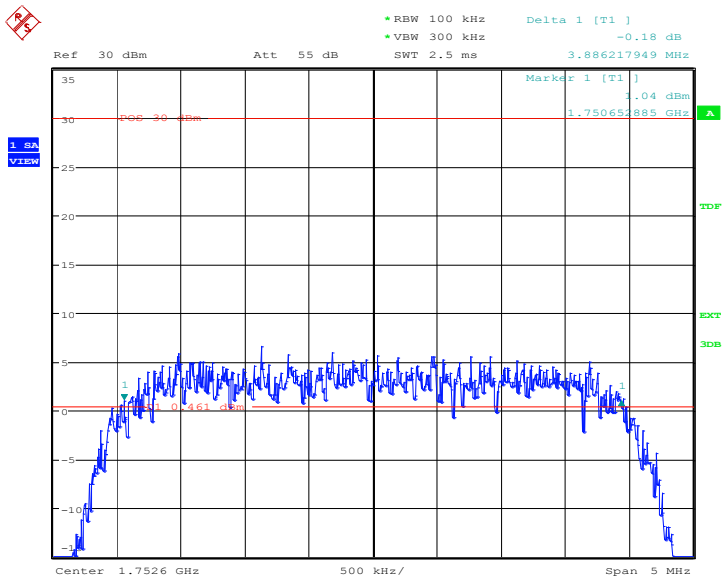
Date: 10.FEB.2012 09:03:38

Channel 1513-Occupied Reference Level (-20dBc BW)



Date: 10.FEB.2012 09:04:35

Channel 1513-Occupied Bandwidth (-20dBc BW)



Date: 10.FEB.2012 09:05:40

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

A.6.1Emission Bandwidth Results

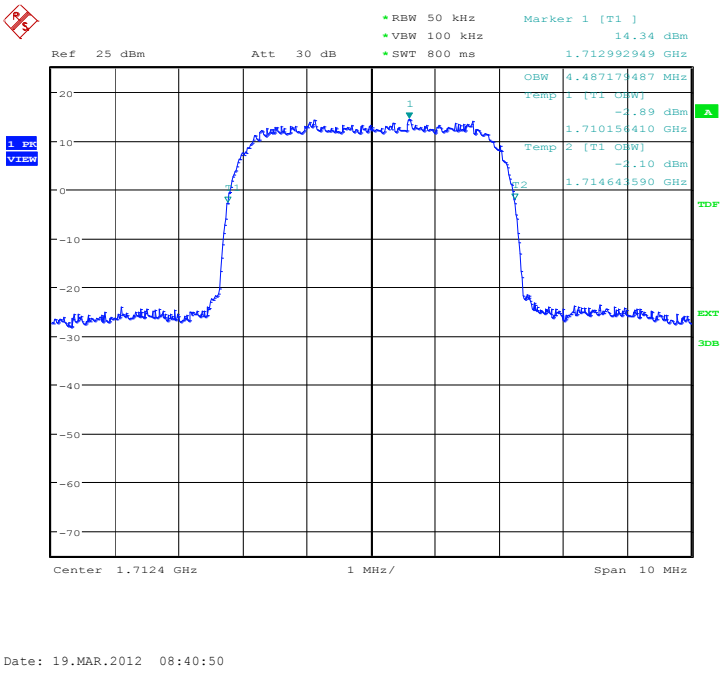
Similar to conducted emissions; Emission bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of WCDMA Band IV. Table below lists the measured -26dBc BW. Spectrum analyzer plots are included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

WCDMA Band IV(-26dBc)

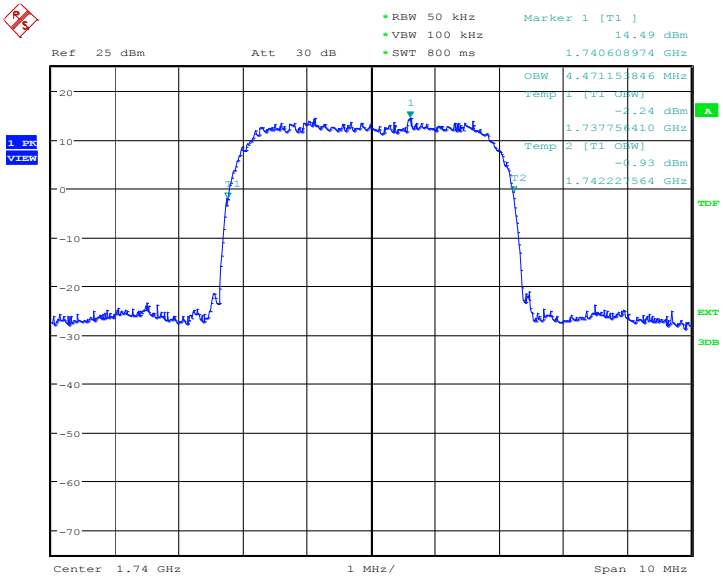
Frequency(MHz)	Occupied Bandwidth (–26dBc BW)(MHz)
1712.4	4.487
1740	4.471
1752.6	4.487

WCDMA Band IV

Channel 1312-Occupied Bandwidth (-26dBc BW)

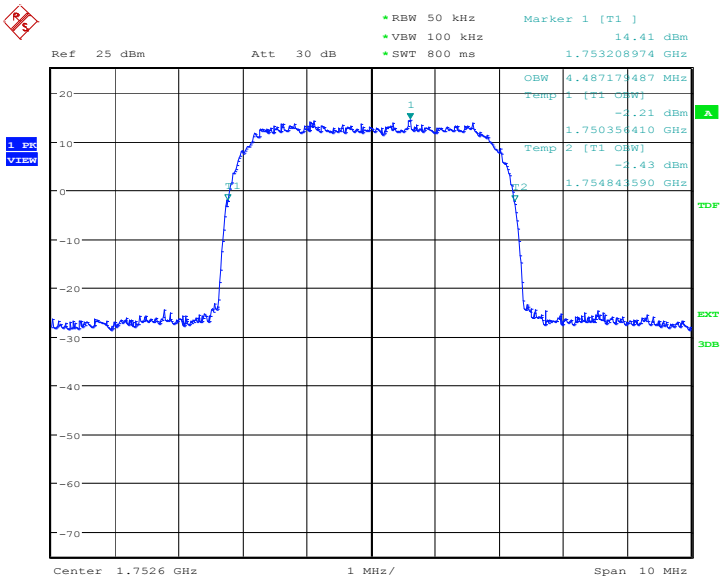


Channel 1450-Occupied Bandwidth (-26dBc BW)



Date: 19.MAR.2012 08:41:24

Channel 1513-Occupied Bandwidth (-26dBc BW)

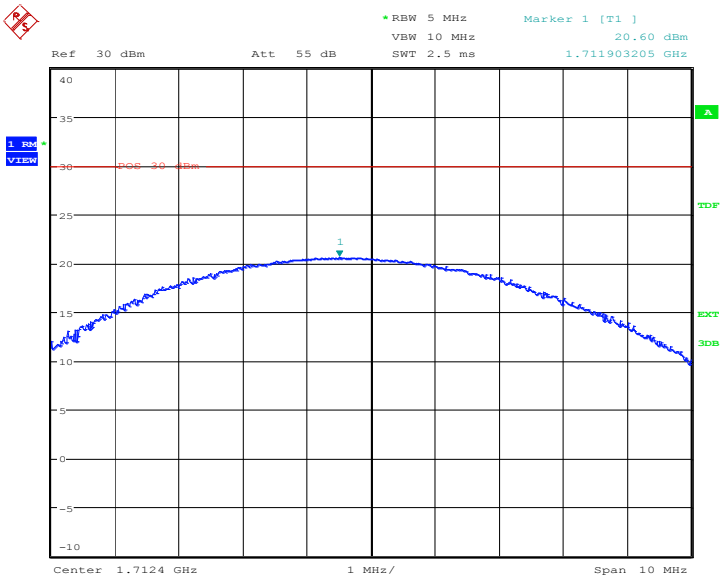


Date: 19.MAR.2012 08:41:59

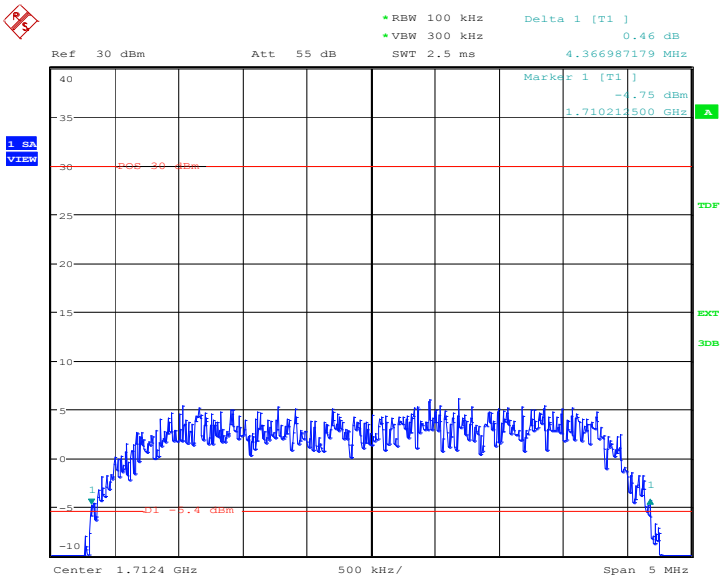
WCDMA Band IV(-26dBc)-IC

Frequency(MHz)	Occupied Bandwidth (–26dBc BW)(MHz)
1712.4	4.294
1740	4.342
1752.6	4.358

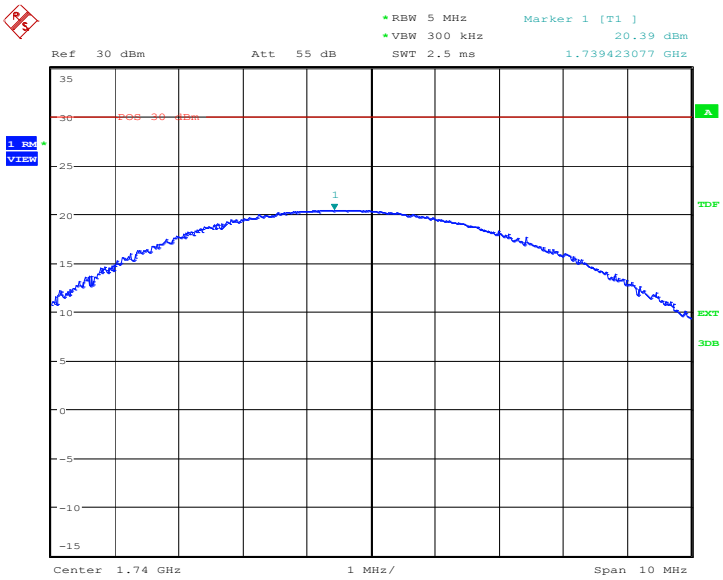
Channel 1312-Occupied Bandwidth Reference Level



Channel 1312-Occupied Bandwidth (-26dBc BW)

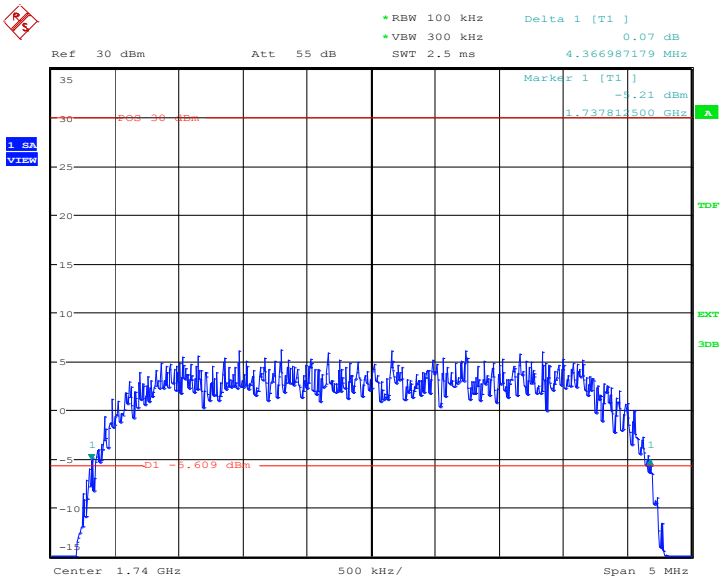


Channel 1450-Occupied Bandwidth Reference Level



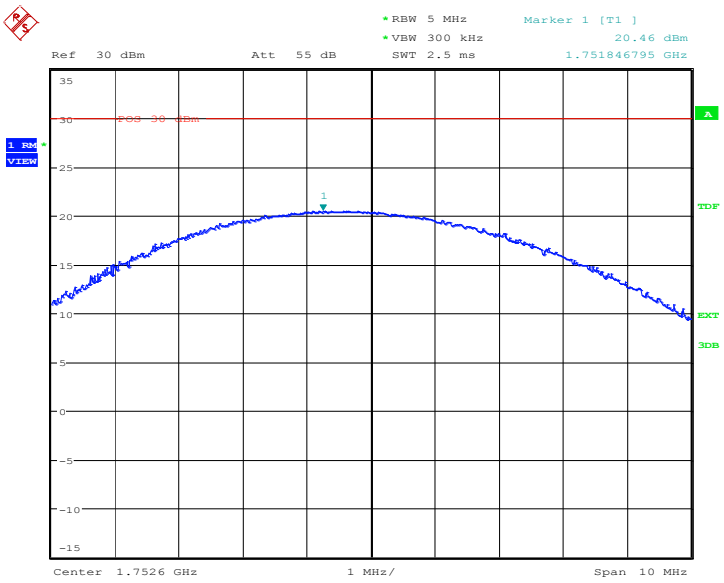
Date: 10.FEB.2012 09:02:50

Channel 1450-Occupied Bandwidth (-26dBc BW)



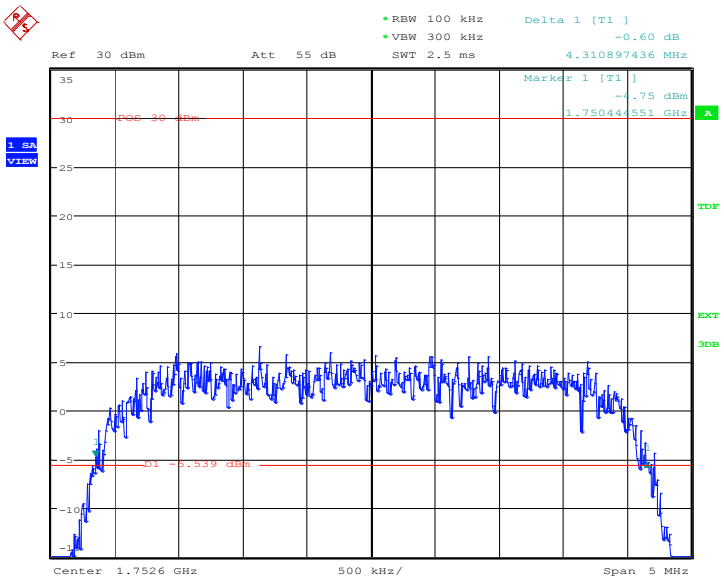
Date: 10.FEB.2012 09:04:20

Channel 1513-Occupied Reference Level



Date: 10.FEB.2012 09:04:35

Channel 1513-Occupied Bandwidth (-26dBc BW)

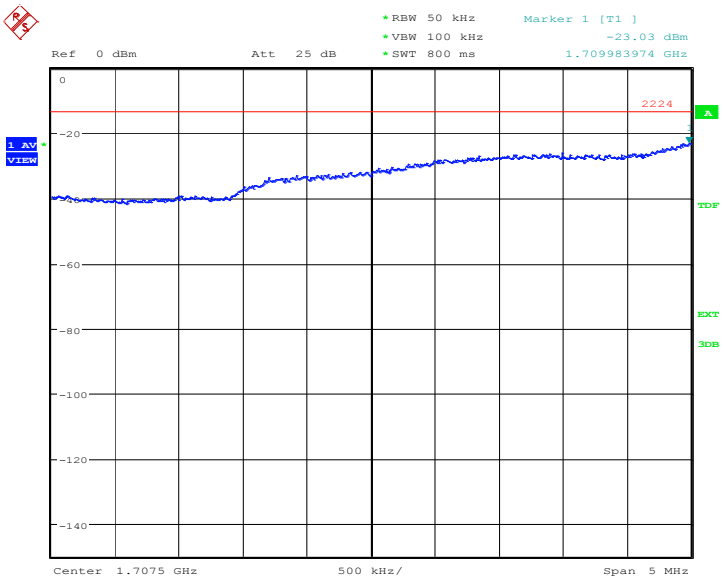


Date: 10.FEB.2012 09:06:20

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

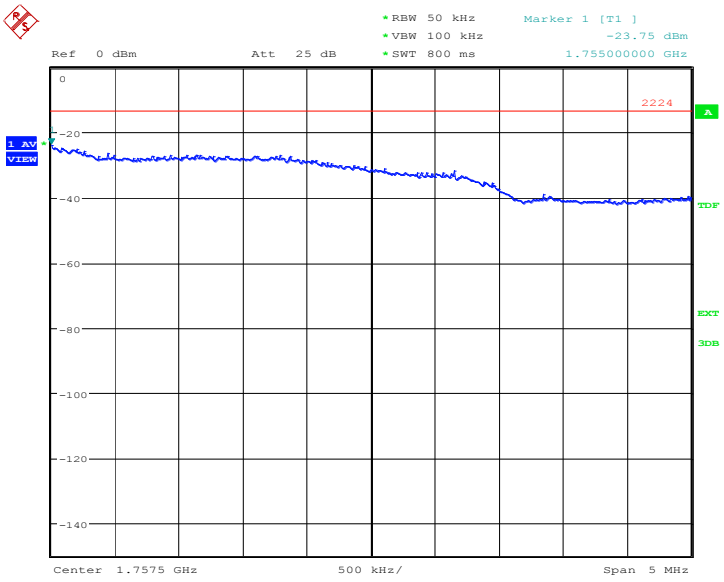
WCDMA Band IV

LOW BAND EDGE BLOCK-A (WCDMA Band IV)-Channel 1312



Date: 10.FEB.2012 08:27:34

HIGH BAND EDGE BLOCK-C (WCDMA Band IV) –Channel 1513



Date: 10.FEB.2012 08:27:45

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 the equipment of WCDMA Band IV, this equates to a frequency range of 30 MHz to 17.55 GHz, data taken from 30 MHz to 20 GHz.
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 IV Transmitter

Channel	Frequency (MHz)
1312	1712.40
1450	1740.00
1513	1752.60

A. 8.2 Measurement Limit

Part 27.53(h) 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.

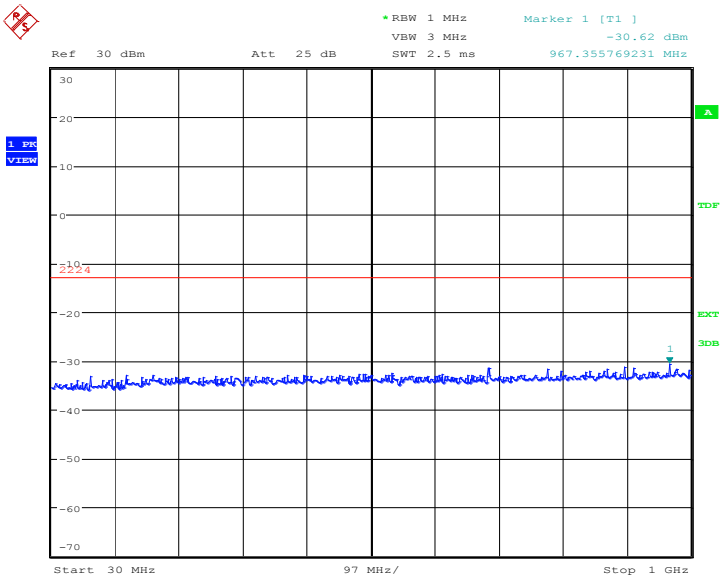
The specification that emissions shall be attenuated below the transmitter power (P) by at least 43 + 10 log (P) dB, translates in the relevant power range (1 to 0.001 W) to -13 dBm. At 1 W the specified minimum attenuation becomes 43 dB and relative to a 30 dBm (1 W) carrier becomes a limit of -13 dBm. 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 IV

A. 8.3.1 Channel 1312: 30MHz –1GHz

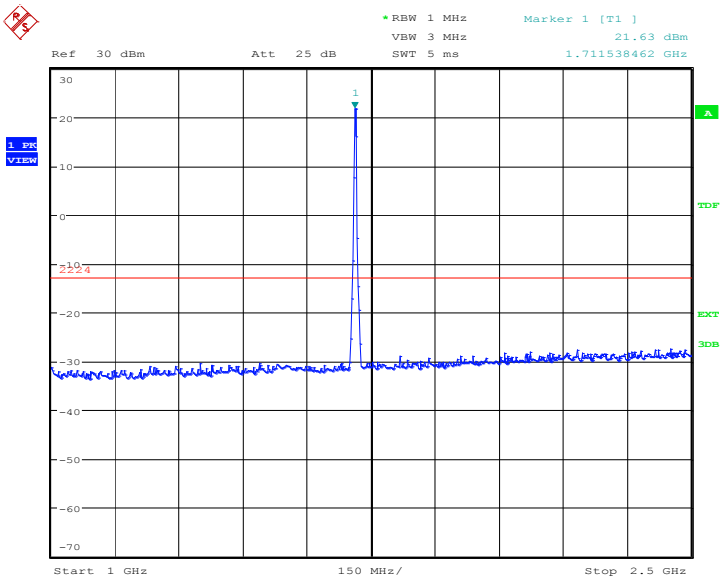
Spurious emission limit –13dBm.



A. 8.3.2 Channel 1312: 1GHz –2.5GHz

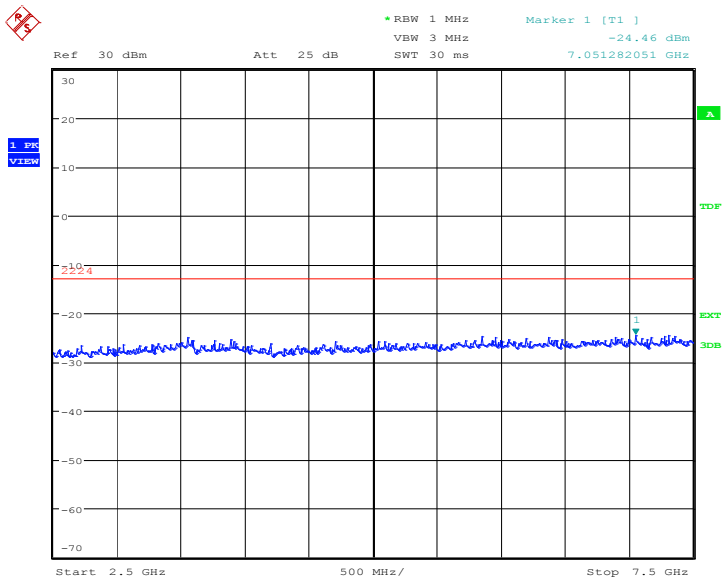
Spurious emission limit –13dBm.

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



A. 8.3.3 Channel 1312: 2.5GHz –7.5GHz

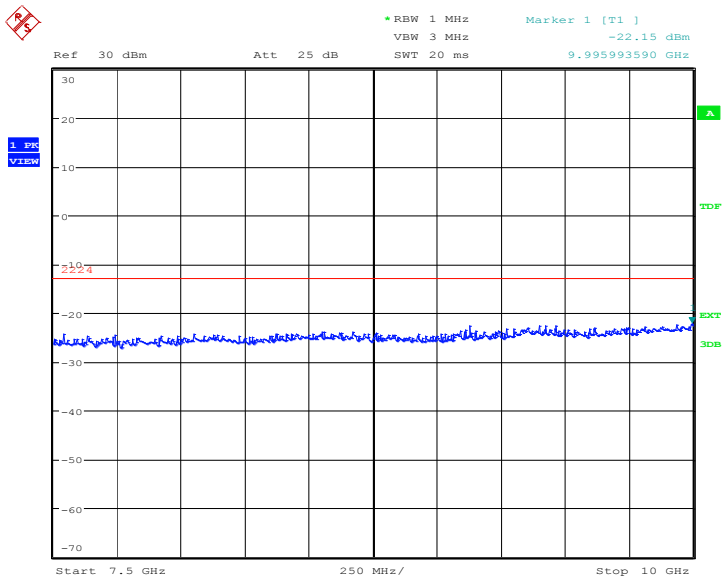
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:29:12

A. 8.3.4 Channel 1312: 7.5GHz –10GHz

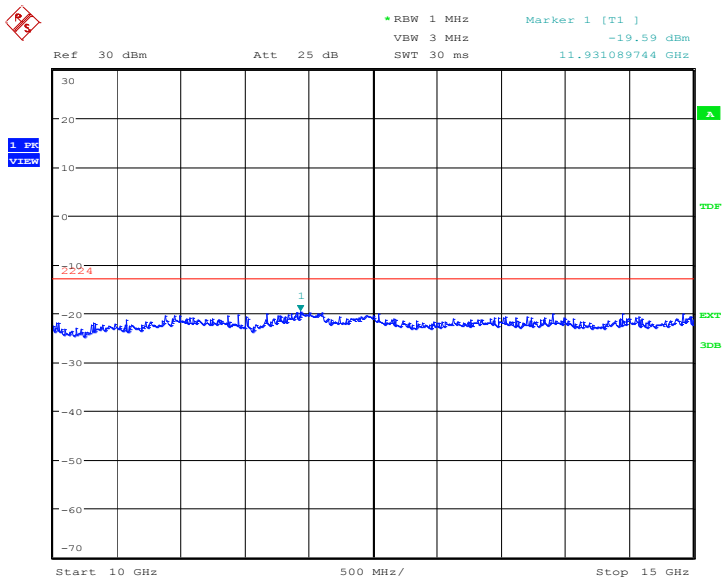
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:29:40

A. 8.3.5 Channel 1312: 10GHz –15GHz

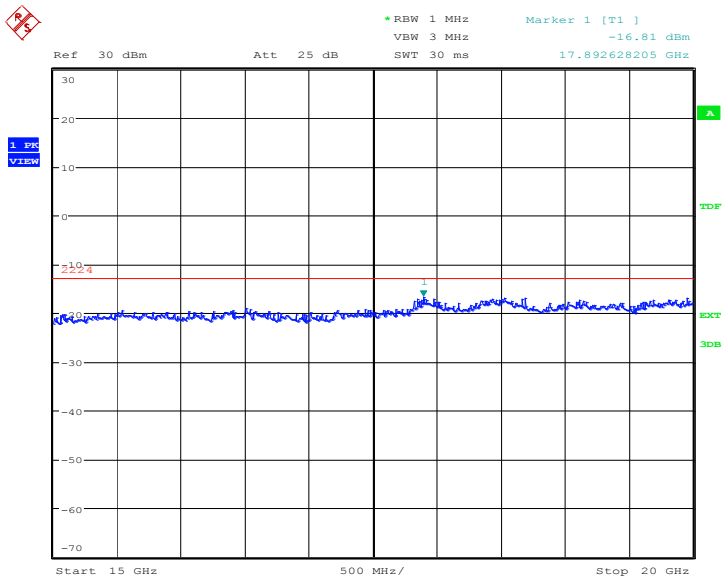
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:30:09

A. 8.3.6 Channel 1312: 15GHz –20GHz

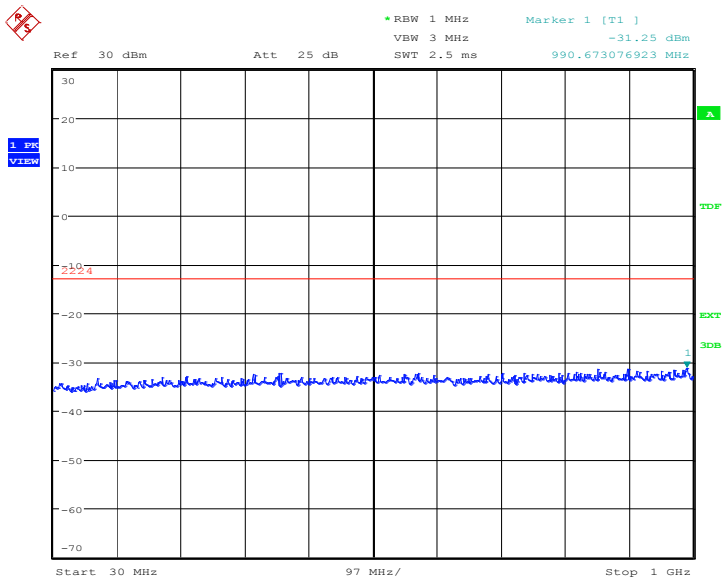
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:30:37

A. 8.3.7 Channel 1450: 30MHz –1GHz

Spurious emission limit –13dBm.

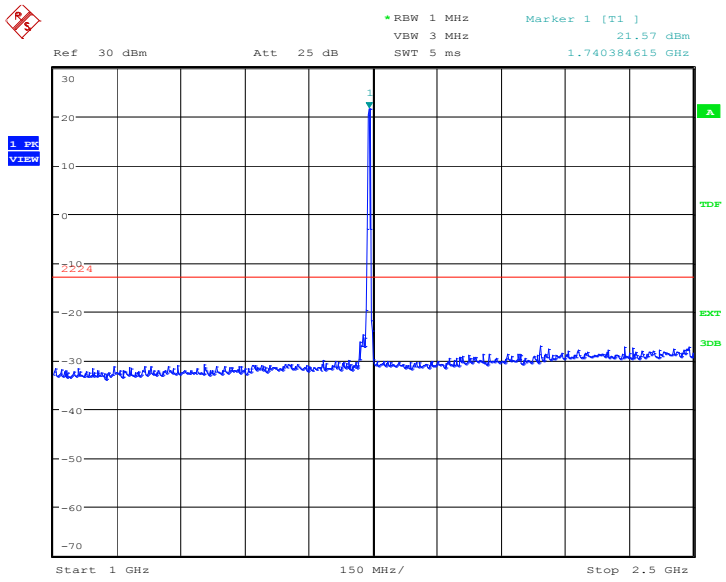


Date: 10.FEB.2012 08:31:08

A. 8.3.8 Channel 1450: 1GHz –2.5GHz

Spurious emission limit –13dBm.

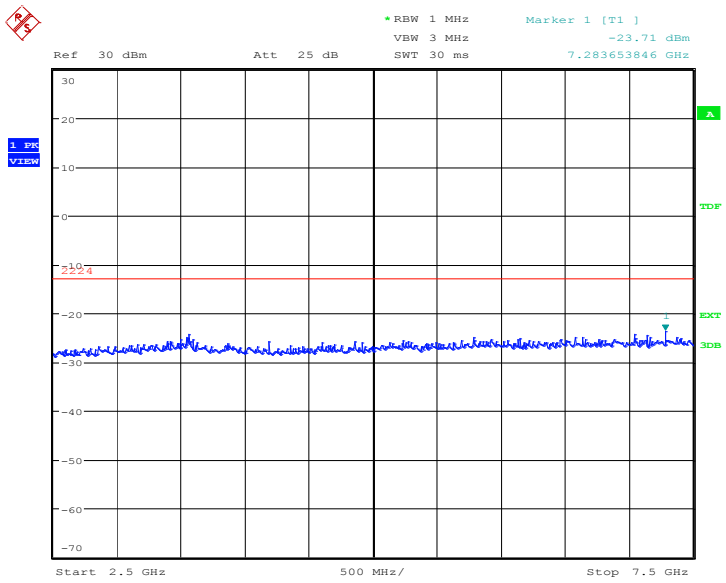
NOTE: peak above the limit line is the carrier frequency.



Date: 10.FEB.2012 08:31:36

A. 8.3.9 Channel 1450: 2.5GHz –7.5GHz

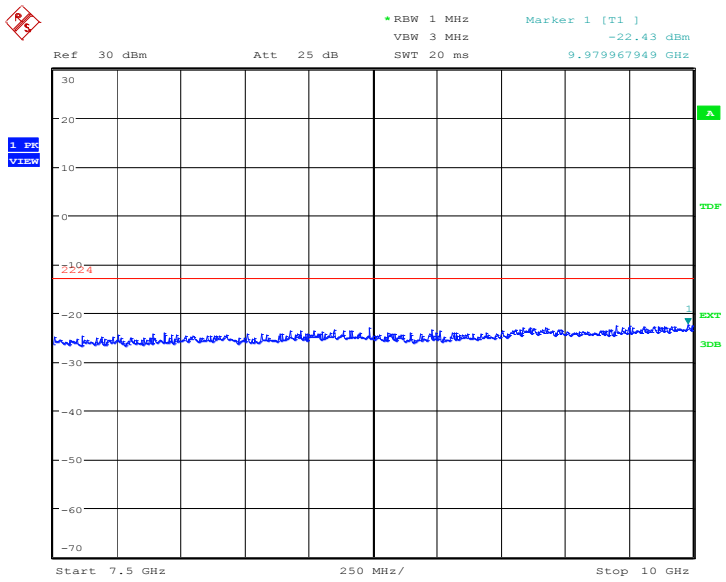
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:32:05

A. 8.3.10 Channel 1450: 7.5GHz –10GHz

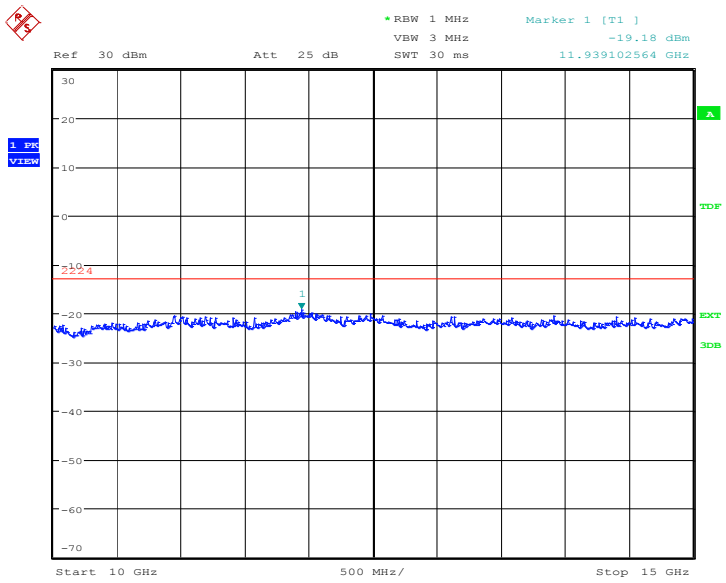
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:32:33

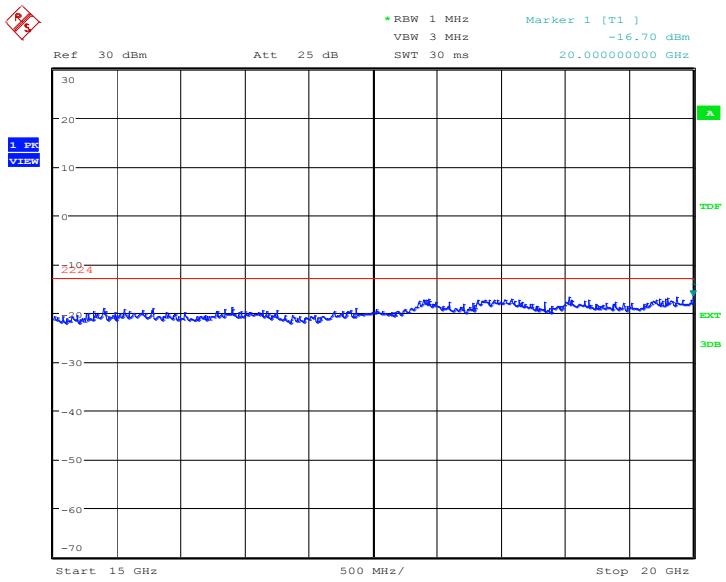
A. 8.3.11 Channel 1450: 10GHz –15GHz

Spurious emission limit –13dBm.



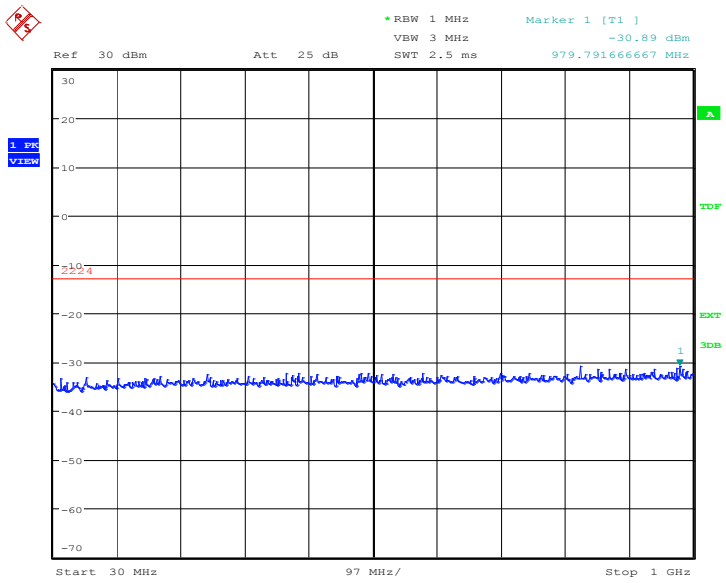
A. 8.3.12 Channel 1450: 15GHz –20GHz

Spurious emission limit –13dBm.



A. 8.3.13 Channel 1513: 30MHz –1GHz

Spurious emission limit –13dBm.

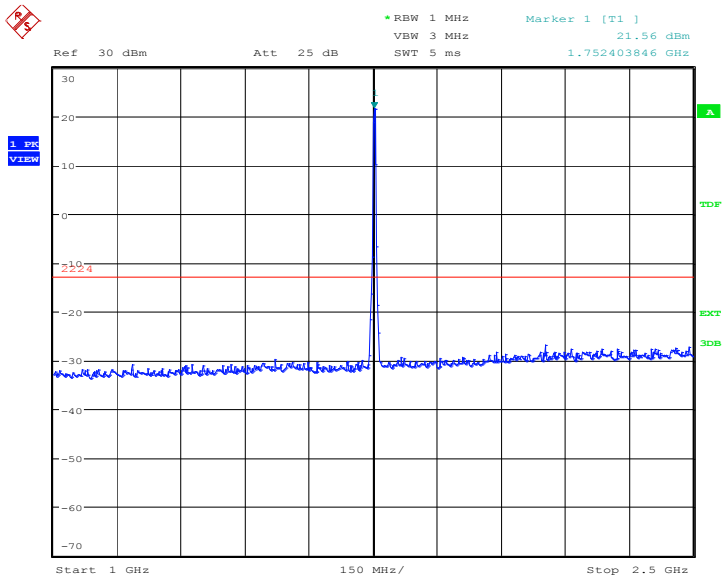


Date: 10.FEB.2012 08:34:00

A. 8.3.14 Channel 1513: 1GHz –2.5GHz

Spurious emission limit –13dBm.

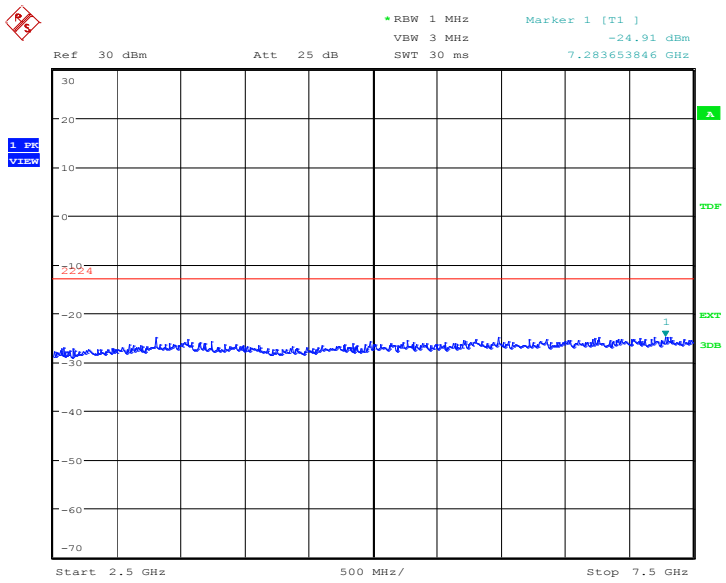
NOTE: peak above the limit line is the carrier frequency.



Date: 10.FEB.2012 08:34:29

A. 8.3.15 Channel 1513: 2.5GHz –7.5GHz

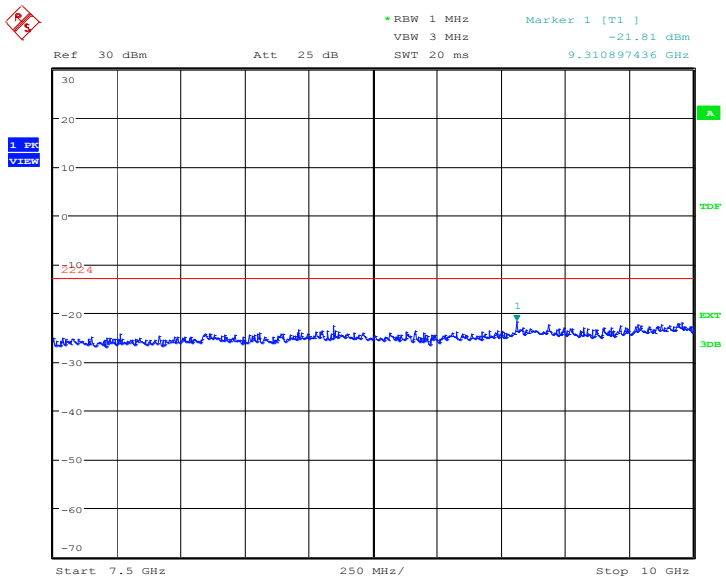
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:34:57

A. 8.3.16 Channel 1513: 7.5GHz –10GHz

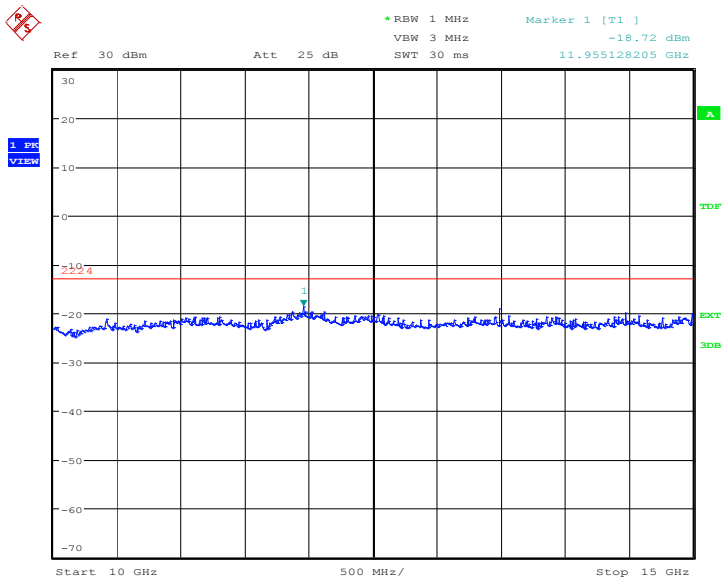
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:35:25

A. 8.3.17 Channel 1513: 10GHz –15GHz

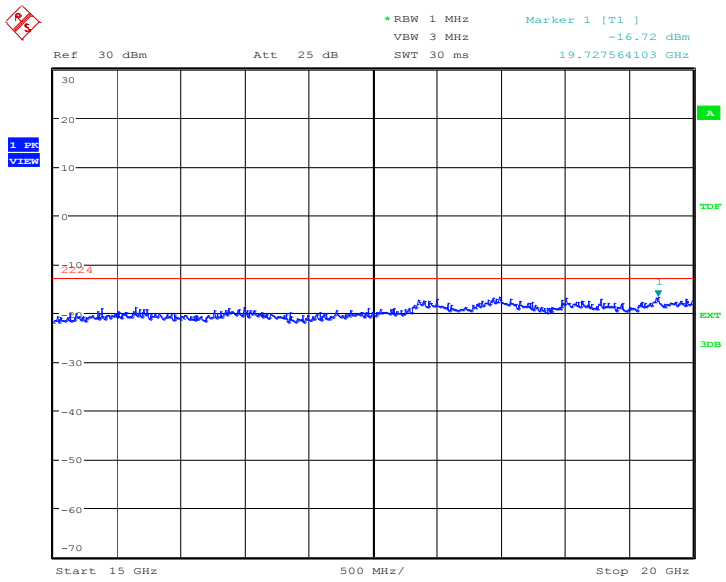
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:35:54

A. 8.3.18 Channel 1513: 15GHz –20GHz

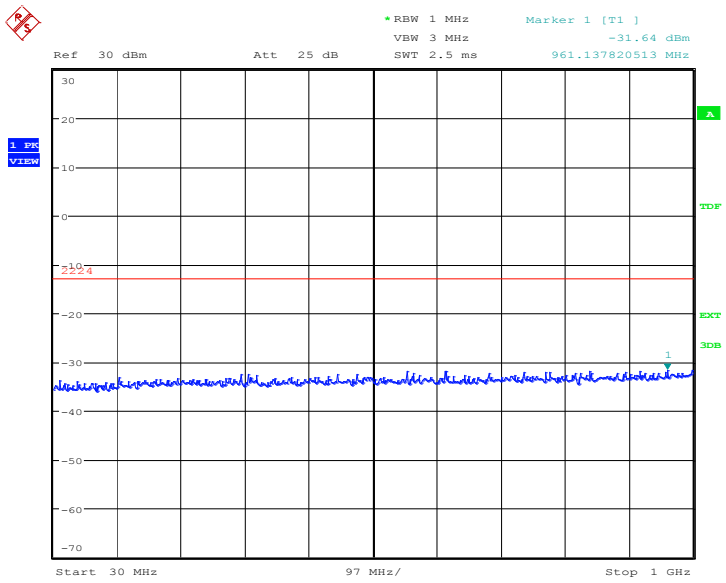
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:36:22

A. 8.3.19 Idle mode: 30MHz –1GHz

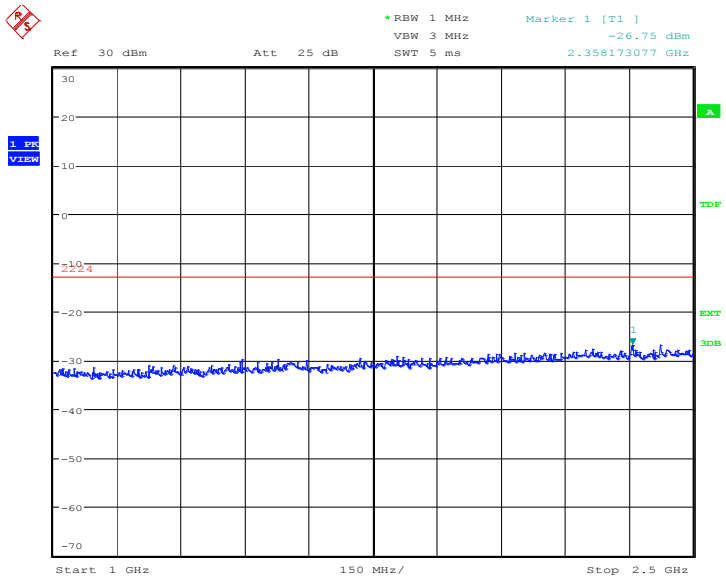
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:36:51

A.8.3.20 Idle mode: 1GHz –2.5GHz

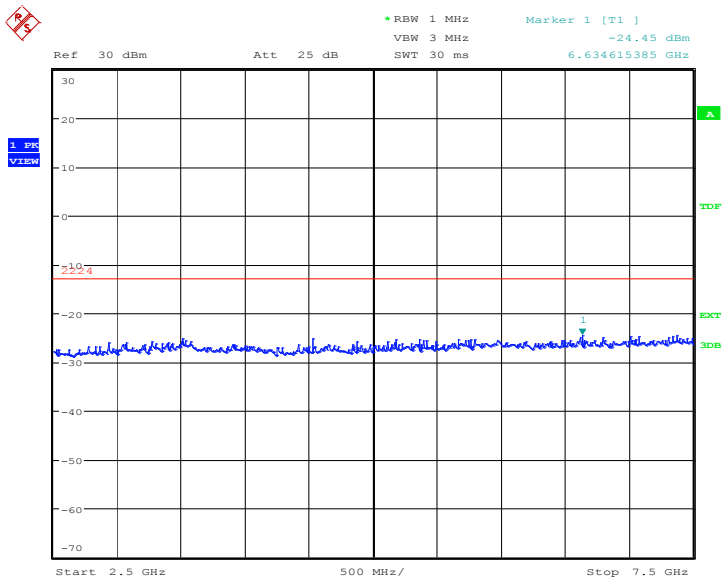
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:37:19

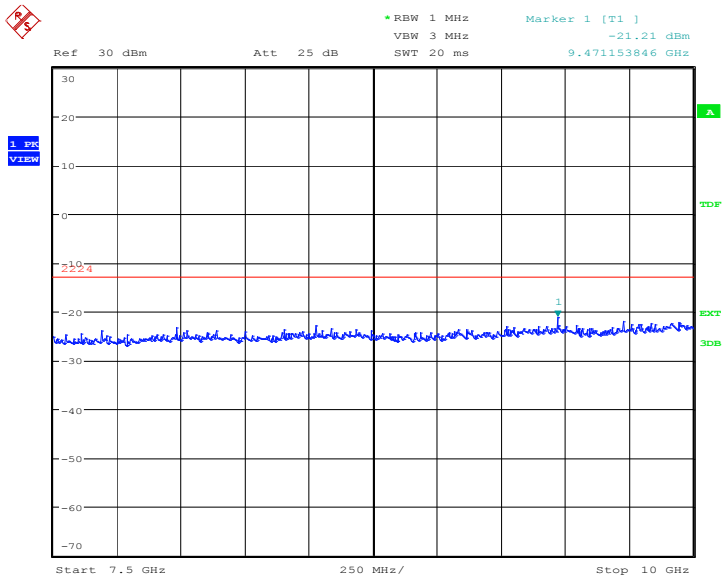
A.8.3.21 Idle mode: 2.5GHz –7.5GHz

Spurious emission limit –13dBm.



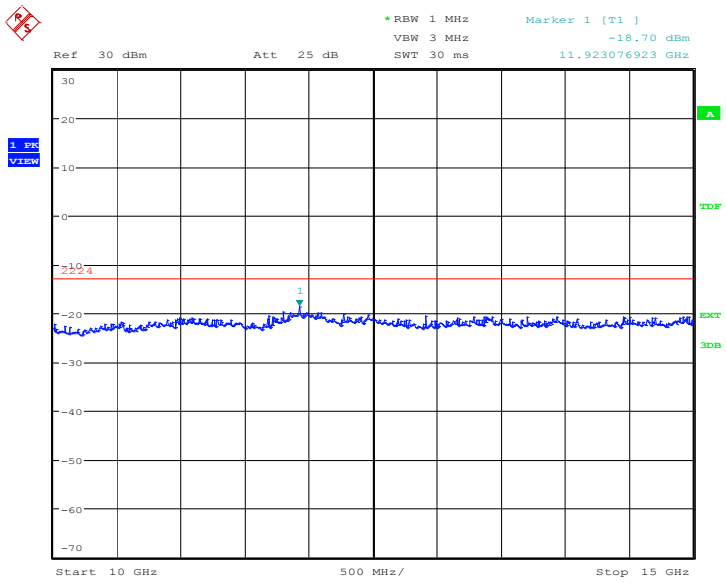
A.8.3.22 Idle mode: 7.5GHz –10GHz

Spurious emission limit –13dBm.



A.8.3.23 Idle mode: 10GHz –15GHz

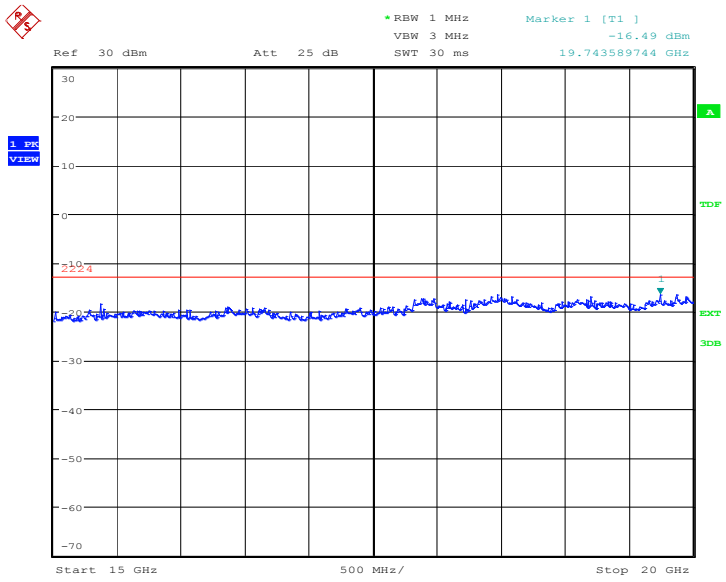
Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:38:44

A.8.3.24 Idle mode: 15GHz –20GHz

Spurious emission limit –13dBm.



Date: 10.FEB.2012 08:39:12

A.9 RECEIVER RADIATION EMISSION

Reference

FCC: CFR Part 15.109, 2.1053

IC: RSS 132, Issue 2, Section 4.6. RSS 133, Issue 5, Section 6.6

A.9.1 Method of Measurement

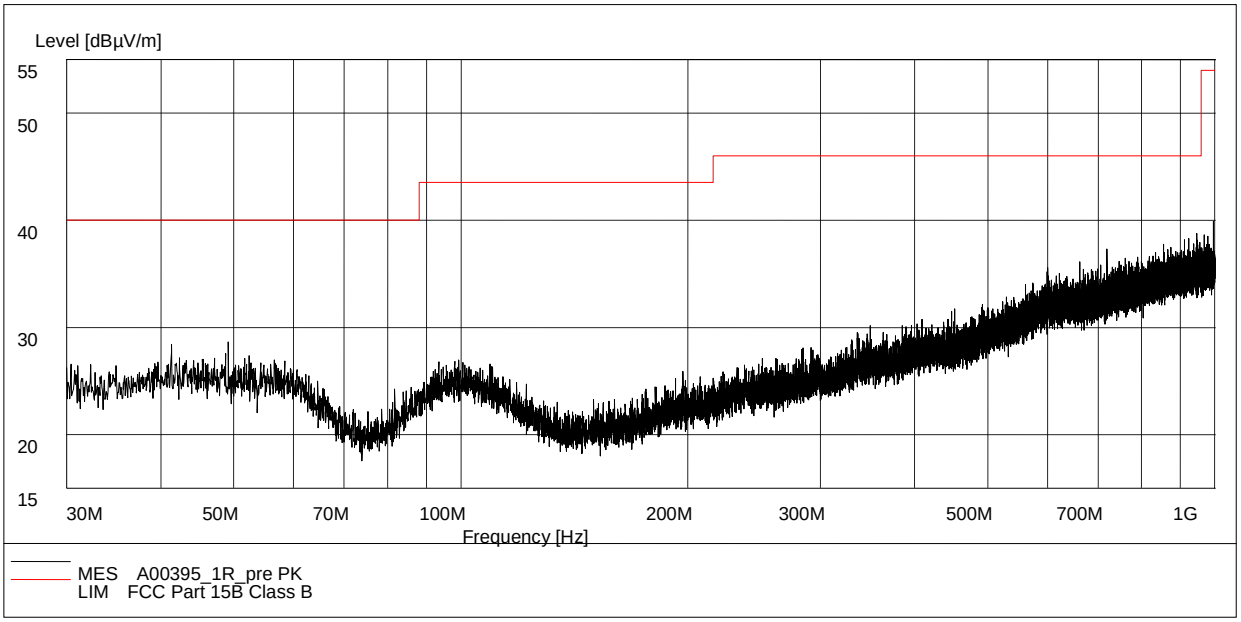
The measurement procedure in ANSI C64.4-2003 is used. The EUT is placed on a 80cm height non-conductive table locating on the center of turntable. From 30MHz-1GHz, the measurement distance is 10m. For frequency range above 1GHz, the measurement distance is 3m.

The EUT is measured with travel charger and the operating mode is idle without CMU200's signaling.

A.9.2 Method of Measurement

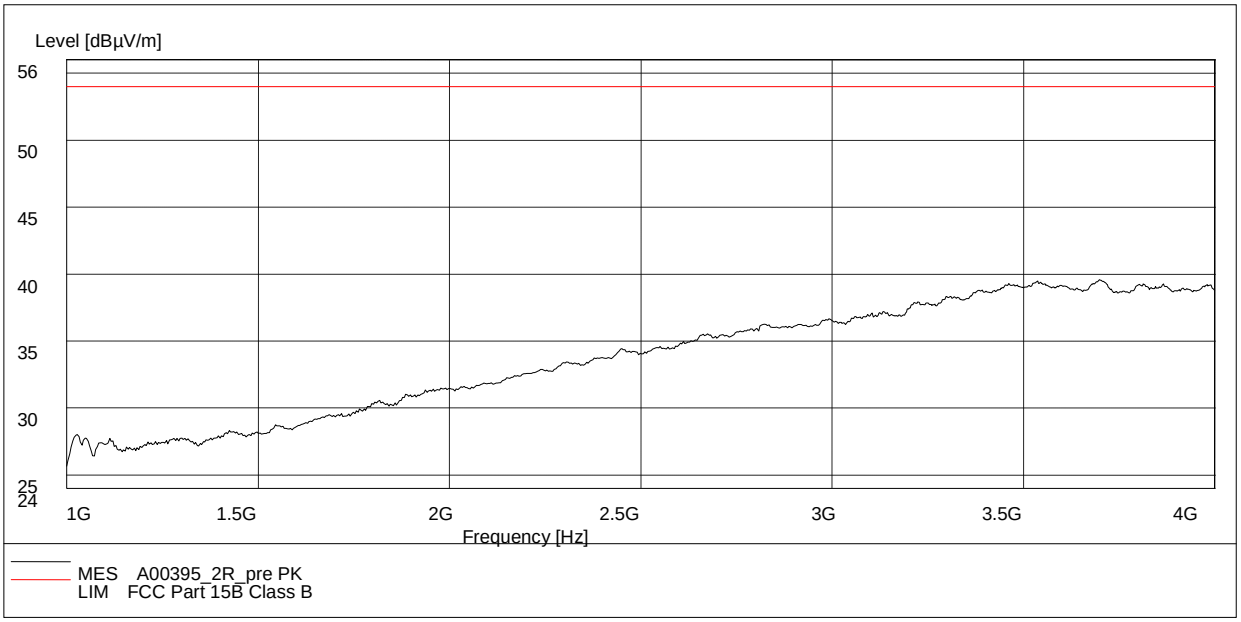
Frequency of Emission (MHz)	Limit (dBμV/m)	Measurement Distance (m)
30-88	30	10
88-216	33.5	10
216-960	36	10
960-1000	44	10
>1000	54	3

A. 9.3 Measurement results



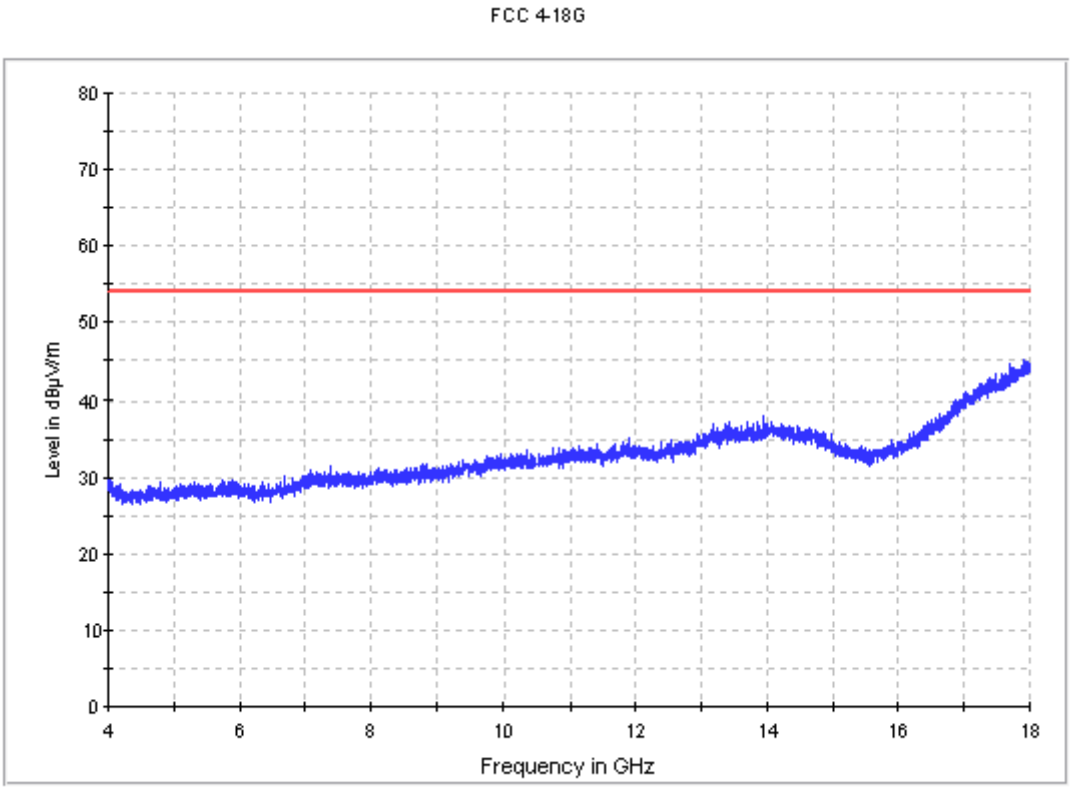
IF bandwidth: 120 kHz

Idle Mode: 30MHz-1GHz



RBW / VBW 1 MHz

Idle Mode: 1GHz-4GHz



RBW / VBW 1 MHz

Idle Mode: 4GHz-18GHz

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