



A Test Lab Techno Corp.

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Part 27 Test Report



Test Report No.	: 0712FR11
Applicant	: BandRich Inc. No.188, 4F, Sec. 2, Jhong-Sing Rd, Sin-Dian City, Taipei Country 23146, Taiwan
Manufacturer	: Kenmec Mechanical Engineering CO., LTD
Model Name	: HSDPA ExpressCard
Trade Mark	: BandLuxe™
Model Number	: C105
FCC ID	: UZI-C105
Tx Frequency Range	: 1712.4 - 1752.6 MHz(UMTS FDD IV)
Dates of Test	: Dec. 25, 2007 ~ Jan. 02, 2008
Test Specification	: 47 CFR Part 27
Location of Test Lab.	: Chang-an Lab.

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full.


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Measurement Center Manager


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1. General Information

Applicant :

BandRich Inc.

No.188, 4F, Sec. 2, Jhong-Sing Rd, Sin-Dian City, Taipei Country 23146, Taiwan

Manufacturer	:	Kenmec Mechanical Engineering CO., LTD No.5, Tzu-Chiang 1 st Road, Chungli Industrial Zone, Taoyuan Hsien, Taiwan
Product Name	:	HSDPA ExpressCard
Trade Mark	:	BandLuxe™
Model Number	:	C105
FCC ID	:	UZI-C105
Hardware	:	BandRich_C105_HW_01
Software	:	405070_001_029
TX Frequency	:	1712.4 – 1752.6 MHz
Antenna Type	:	Internal antenna
Maximum Output Power to Antenna	:	23.48 dBm (UMTS FDD IV/WCDMA) 23.76 dBm (UMTS FDD IV/HSDPA)
Max. ERP Power	:	0.445 W / 26.48 dBm (UMTS FDD IV/WCDMA) 0.400 W / 26.02 dBm (UMTS FDD IV/HSDPA)
Digital Modulation Emission	:	QPSK / 16QAM
Power Supply Type	:	Powered By USB interface
DC Power Cord	:	USB Cable, 0.68 meter
DUT Stage	:	Production Unit



2. Test Configuration of Equipment under Test

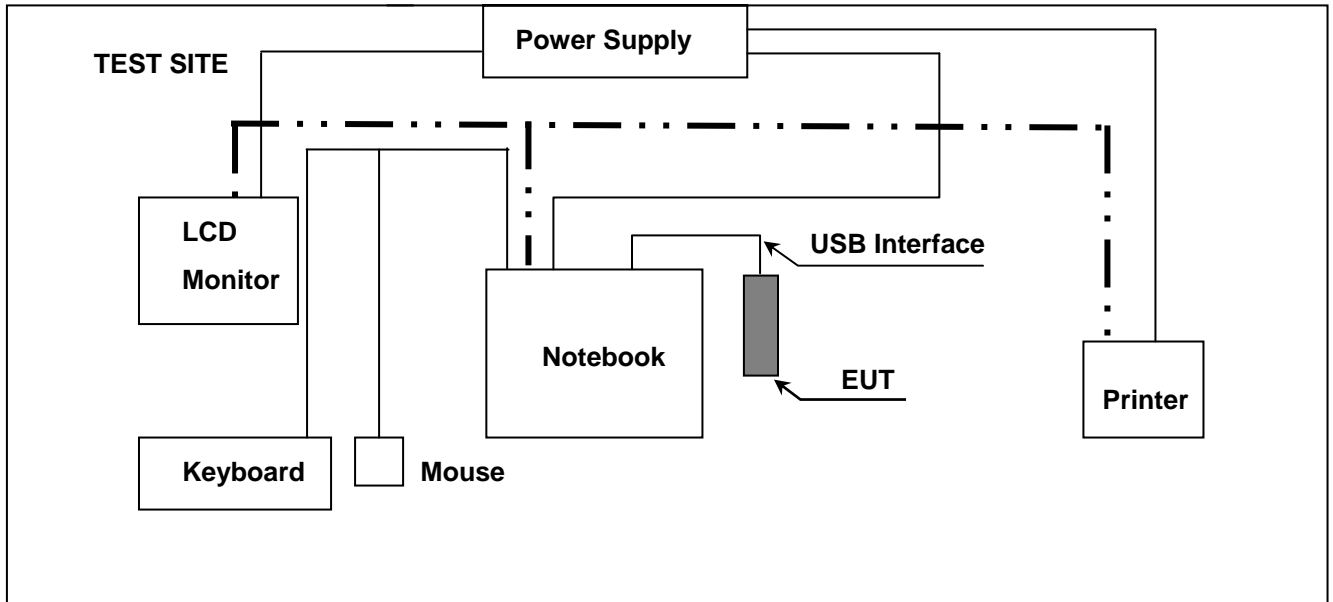
2.1 Test Manner

1. The spurious emission measurements were carried out in semi-anechoic chamber with 3-meter test range.
2. During all testing, EUT is in link mode with base station emulator at maximum power level.
3. Frequency range investigated: radiated emission 30 MHz to 18000 MHz for UMTS FDD IV.

2.2 Test Mode

Application	UMTS FDD IV _ WCDMA	UMTS FDD IV _ HSDPA
Conducted Measurement	<input checked="" type="checkbox"/> CH1312 <input checked="" type="checkbox"/> CH1412 <input checked="" type="checkbox"/> CH1513	<input checked="" type="checkbox"/> CH1312 <input checked="" type="checkbox"/> CH1412 <input checked="" type="checkbox"/> CH1513
Radiated Emission	<input checked="" type="checkbox"/> CH1312 <input checked="" type="checkbox"/> CH1412 <input checked="" type="checkbox"/> CH1513	<input checked="" type="checkbox"/> CH1312 <input checked="" type="checkbox"/> CH1412 <input checked="" type="checkbox"/> CH1513

2.3 Connection Diagram of Test System



During EMI testing (LINK Mode) the EUT (HSDPA ExpressCard)'s USB port connected to AE's Notebook. A mouse was connected to the USB port of Notebook. And a keyboard & printer were connected to the USB ports of Notebook. An external LCD monitor connected the VGA port on AE' Notebook.

2.4 Ancillary Equipment List

1. Base Station(R&S) CMU200 106656
2. Computer(DELL) PP49L UF230 A03
3. Keyboard(DELL) SK-8115 MY-0DJ325-71619-7113-1366
4. Monitor(DELL) E177FPc CN-0FJ179-64180-6BT-4LYS
5. Mouse(DELL) M056U0A F1F026E1
6. Printer(EPSON) C60 DR3K041323



3. General Information of Test Site

Test Site Location: No. 140 -1, Changan Street, Bade City, Taoyuan County, Taiwan R.O.C.
TEL: 886-3-271-0188 FAX: 886-3-271-0190

Registration Number : 854525
Designation Number : TW1330

The chamber meets the characteristics of ANSI C63.4-2003. This site is on file with the FCC.

3.1 Test Voltage

AC 110V (Powered by USB interface)

3.2 Test in Compliance with

47 CFR Part 27.

3.3 Frequency Range Investigated

Radiation: from 30 MHz to 18000 MHz for UMTS Band IV.

3.4 Test Distance

The test distance of radiated emission from antenna to EUT is 3 m.



4. Test Data and Test Result

4.1 List of Measurements and Examinations

FCC Rule	DESCRIPTION OF TEST	Result	Section
CFR Part 2.1046	RF Output Power Conducted	---	4.2
CFR Part 27.50(d)(2)	ERP / EIRP	Passed	4.3
CFR Part 27.53(g)(1), 2.1049 CFR Part 27.53(g), 2.1051	Occupied Bandwidth & Band Edge Measurement	Passed	4.4
CFR Part 27.53(g), 2.1051	Conducted Spurious Emission	Passed	4.5
CFR Part 15.207	AC Power Conducted Emissions Requirements	Passed	4.6
CFR Part 27.53(g), 2.1053	Radiated Emissions	Passed	4.7
CFR Part 15.247(c)	Receiver Radiated Emissions	Passed	4.8
CFR Part 27.54, 2.1055	Frequency Stability	Passed	4.9&4.10

4.2 RF Output Power Conducted

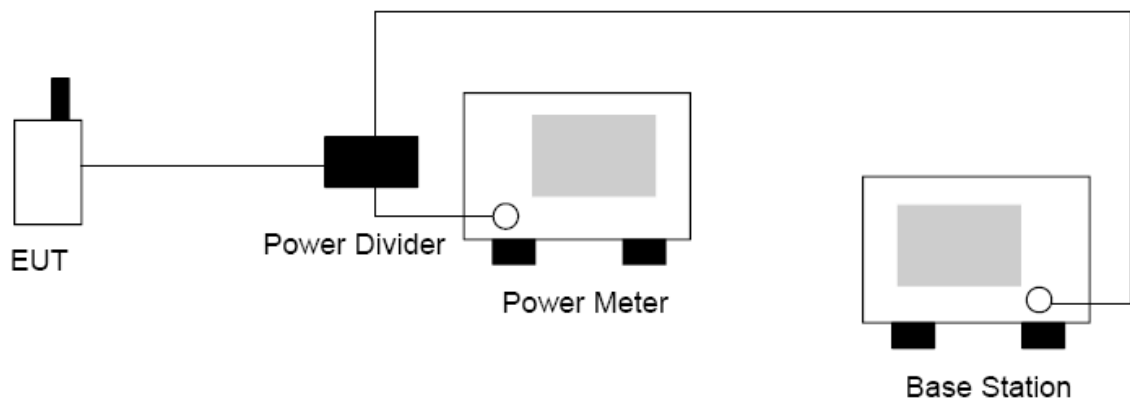
4.2.1 Measurement Instruments :

As described in chapter 5 of this test report.

4.2.2 Test Procedure :

1. The transmitter output was connected to power meter and base station through power divider.
2. Set EUT at PCL= 3 for WCDMA through base station.
3. Select lowest, middle, and highest channels for each band.

4.2.3 Test Setup Layout :





4.2.4 Test Result :

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
WCDMA	1312	Low	1712.4	23.46	0.222
	1412	Mid	1732.4	23.39	0.218
	1513	High	1752.6	23.48	0.223

Bands	Channel	Frequency (MHz)		Conducted Power (dBm)	Conducted Power (Watts)
HSDPA	1312	Low	1712.4	23.76	0.238
	1412	Mid	1732.4	23.35	0.216
	1513	High	1752.6	23.14	0.206



4.3 ERP / EIRP Measurement

Equivalent isotropic radiated power measurements by substitution method according to ANSI/TIA/EIA-603-A.

4.3.1 Measurement Instruments

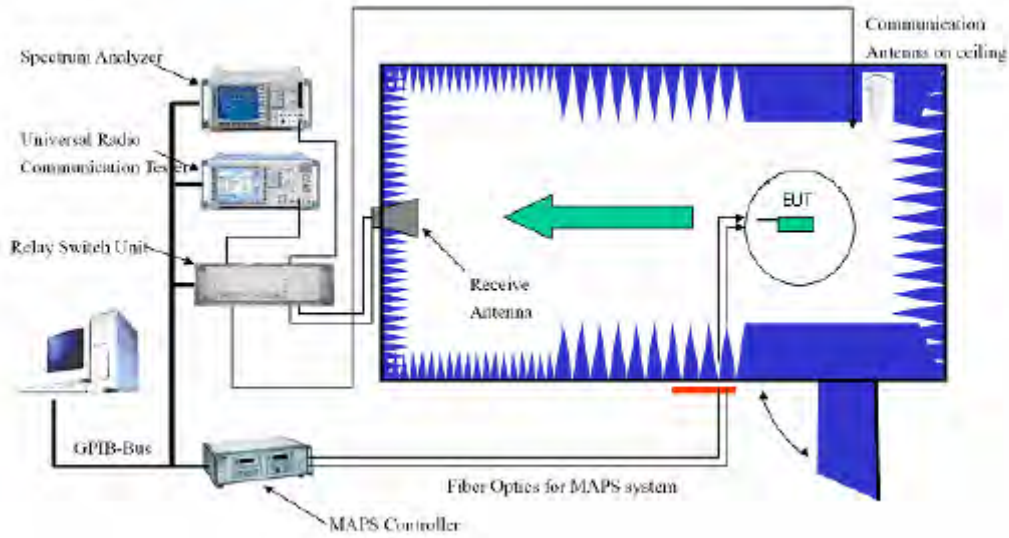
As described in chapter 5 of this test report.

4.3.2 Test Procedure

The phone was tested in an anechoic chamber with a 3-axis position system that permits taking complete spherical scans of the EUT's 3-axis radiation patterns. For all tests, the phone was supported in a free space type environment, vertically oriented in the chamber. Tests were done for UMTS FDD IV three frequencies (1712.4 MHz, 1732.4 MHz and 1752.6 MHz).

WCDMA measurements were made with the phone placed in a call using the CMU200 mobile station test set. The phone was weakly coupled to the test set and configured to transmit in full data rate mode. The radiated power was measured using ETS-LINDGREN OTA Chamber. From these measurements, the software calculates the angle at which maximum radiated power occurs for each case, and the radiated power at this angle was extracted from the data.

4.3.3 Test Setup Layout of ERP/EIRP



4.3.4 Test Result

WCDMA Radiated Power ERP			
Maximum Output Power			
Frequency (MHz)	ERP (dBm)	ERP (W)	Limit (W)
1712.4	25.20	0.331	1
1732.4	26.48	0.445	1
1752.6	26.39	0.436	1

HSDPA Radiated Power ERP			
Maximum Output Power			
Frequency (MHz)	ERP (dBm)	ERP (W)	Limit (W)
1712.4	24.72	0.296	1
1732.4	26.02	0.400	1
1752.6	25.99	0.397	1



4.4 Occupied Bandwidth and Band Edge Measurement

4.4.1 Measurement Instruments

As described in chapter 5 of this test report.

4.4.2 Test Procedure

Occupied Bandwidth

1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. The occupied bandwidth of middle channel for the highest and lowest RF powers was measured.
3. The band edge of low and high channels for the highest RF powers within the transmitting frequency band were measured. Setting RBW as roughly BW/100.
4. Part 27 requires a measurement bandwidth of at least 1% of the occupied bandwidth. For ca. 5 MHz, this equates to a resolution bandwidth of at least 50 kHz. For this testing, a resolution bandwidth 100 kHz was used.

Band edge

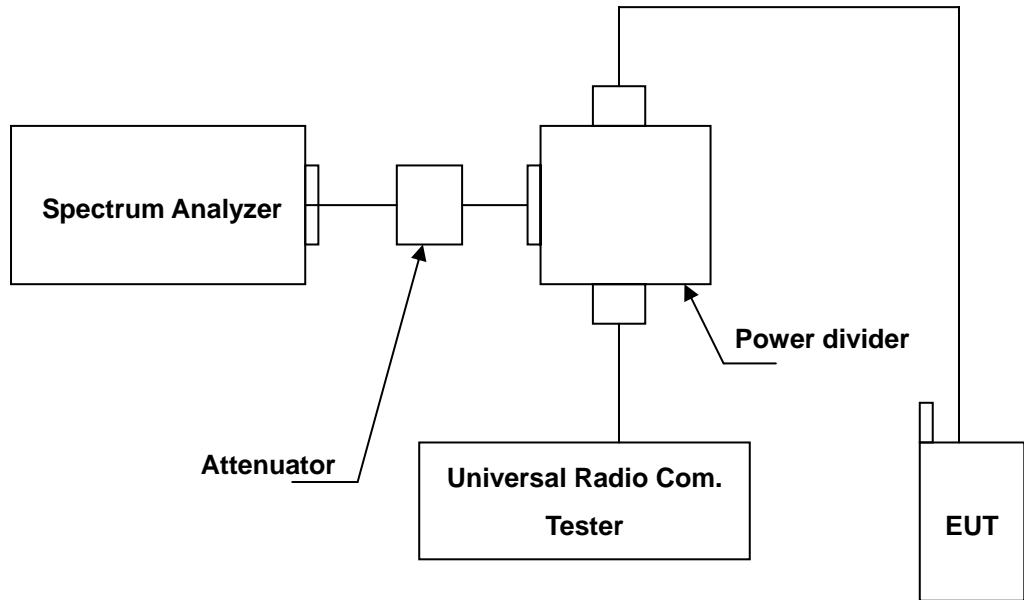
The emissions on the harmonics frequencies, the limits, and the margin of compliance are presented. These tests were made when the transmitter was in full radiated power. The additional test was performed to show compliance with the requirement at the band-edge frequency 1732.4 MHz and up to 1752.6 MHz and at 1712.40 MHz.

The transmitter was configured with the worst case antenna and setup to transmit at the highest channel. Then the field strength was measured at 1752.6 MHz.

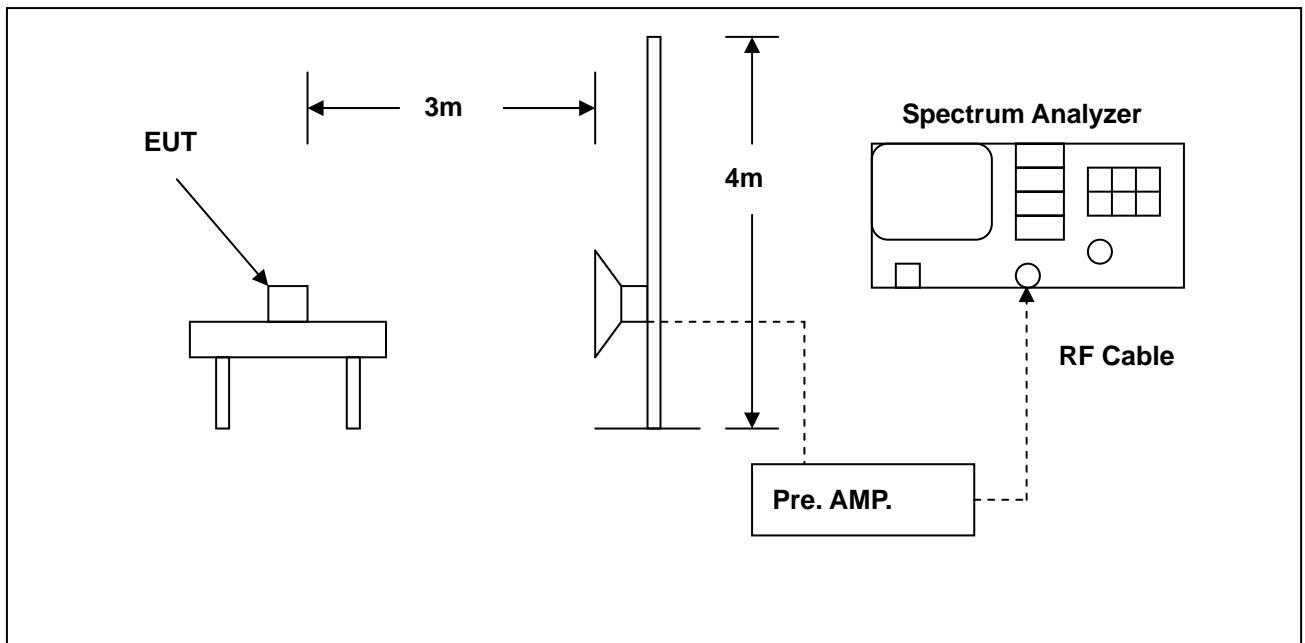
The transmitter was then configured with the worst case antenna and setup to transmit at the lowest channel. Then the field strength was measured at 1712.4 MHz. These tests were performed at 4 different bit rates.

4.4.3 Test Setup Layout

Occupied Bandwidth



Band edge





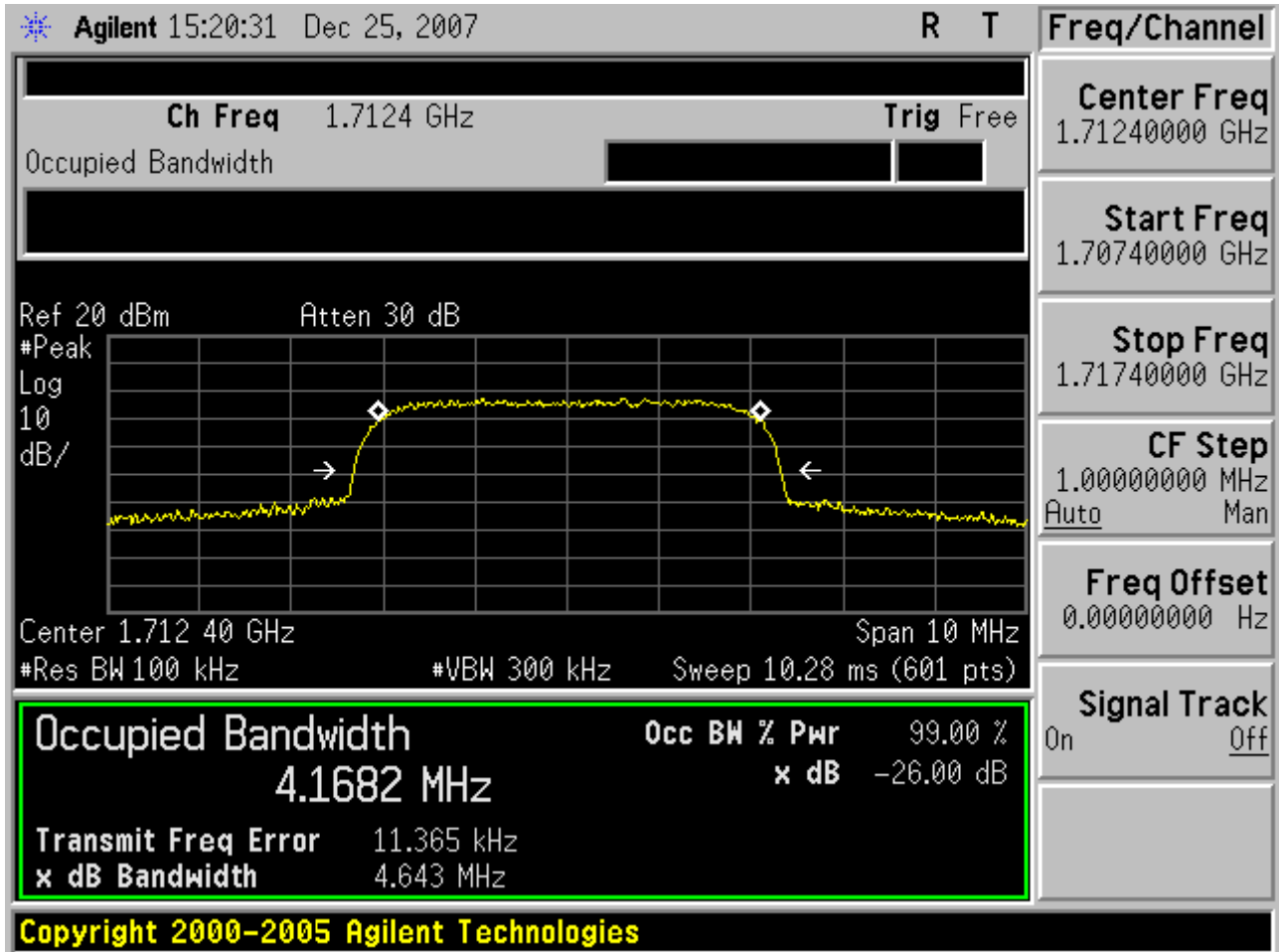
4.4.4 Occupied Bandwidth Test Result

WCDMA		
Channel	Frequency (MHz)	Output Power -26 dBc Bandwidth (MHz)
1312	1712.4	4.1682
1412	1732.4	4.1732
1513	1752.6	4.1567
RB:30KHz , VBW:300KHz		

HSDPA		
Channel	Frequency (MHz)	Output Power -26 dBc Bandwidth (MHz)
1312	1712.4	4.1567
1412	1732.4	4.1737
1513	1752.6	4.1805
RB:30KHz , VBW:300KHz		

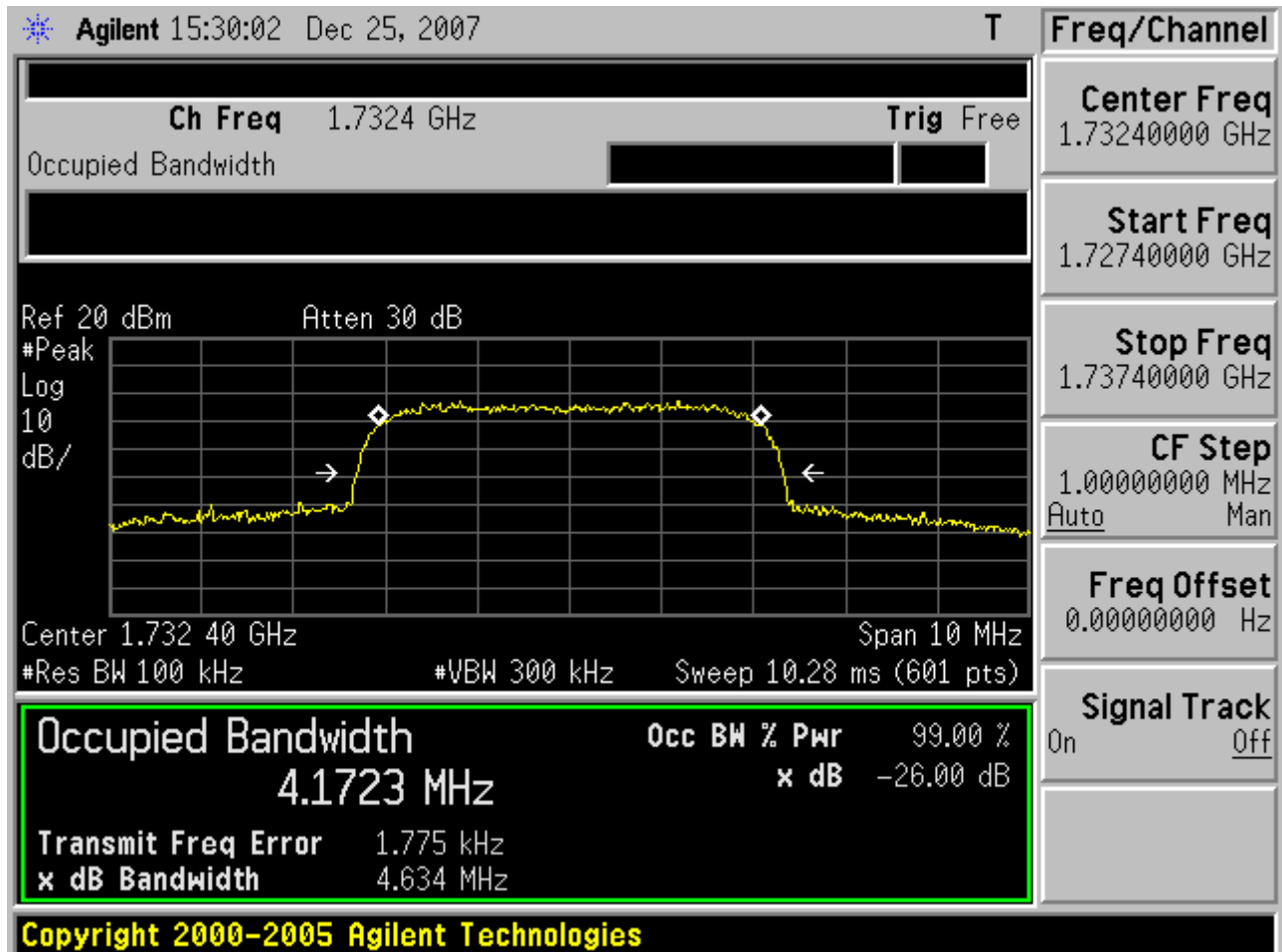


Test Mode: WCDMA CH1312 99% Occupied Bandwidth



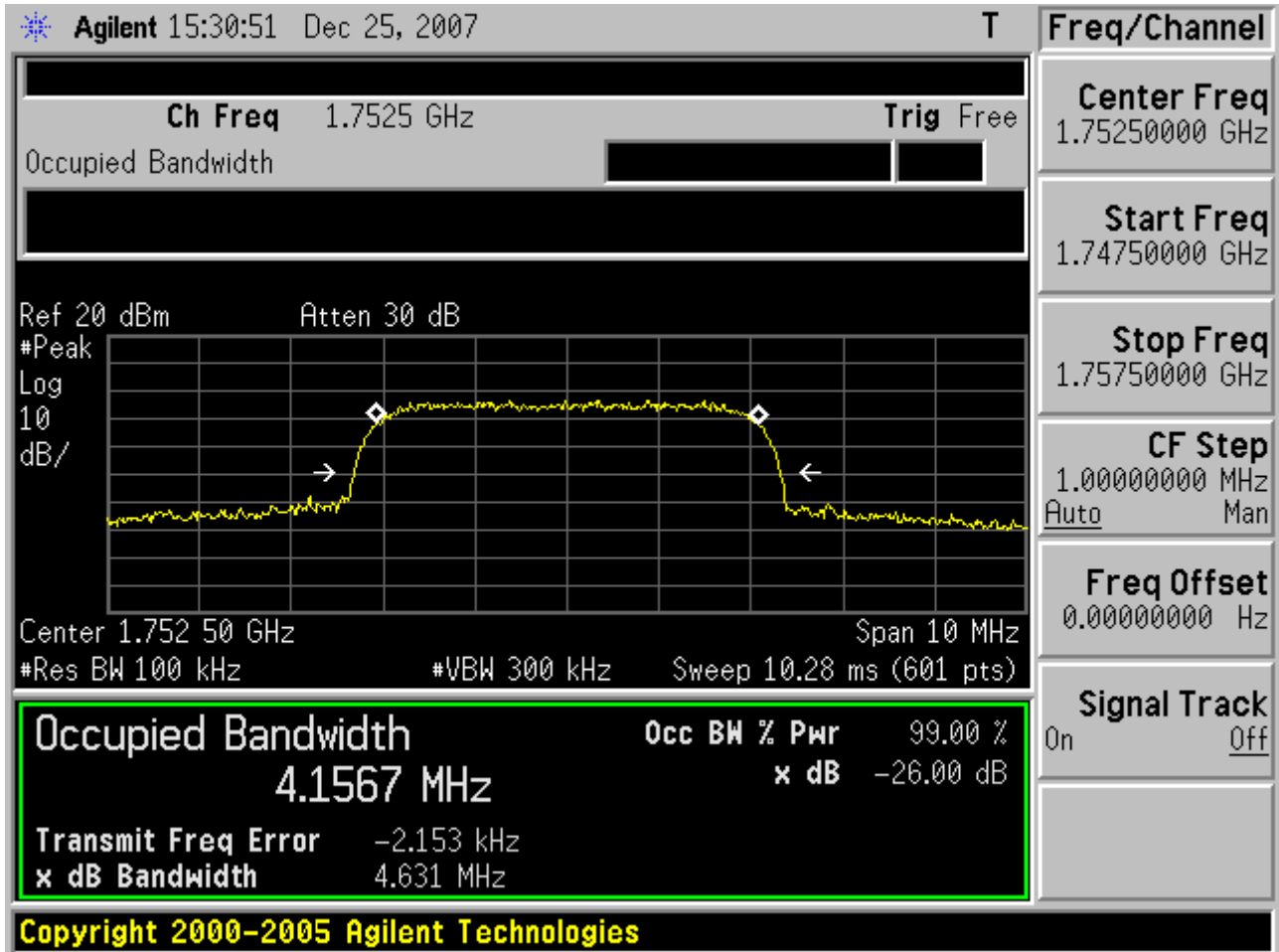


Test Mode: WCDMA CH1412 99% Occupied Bandwidth



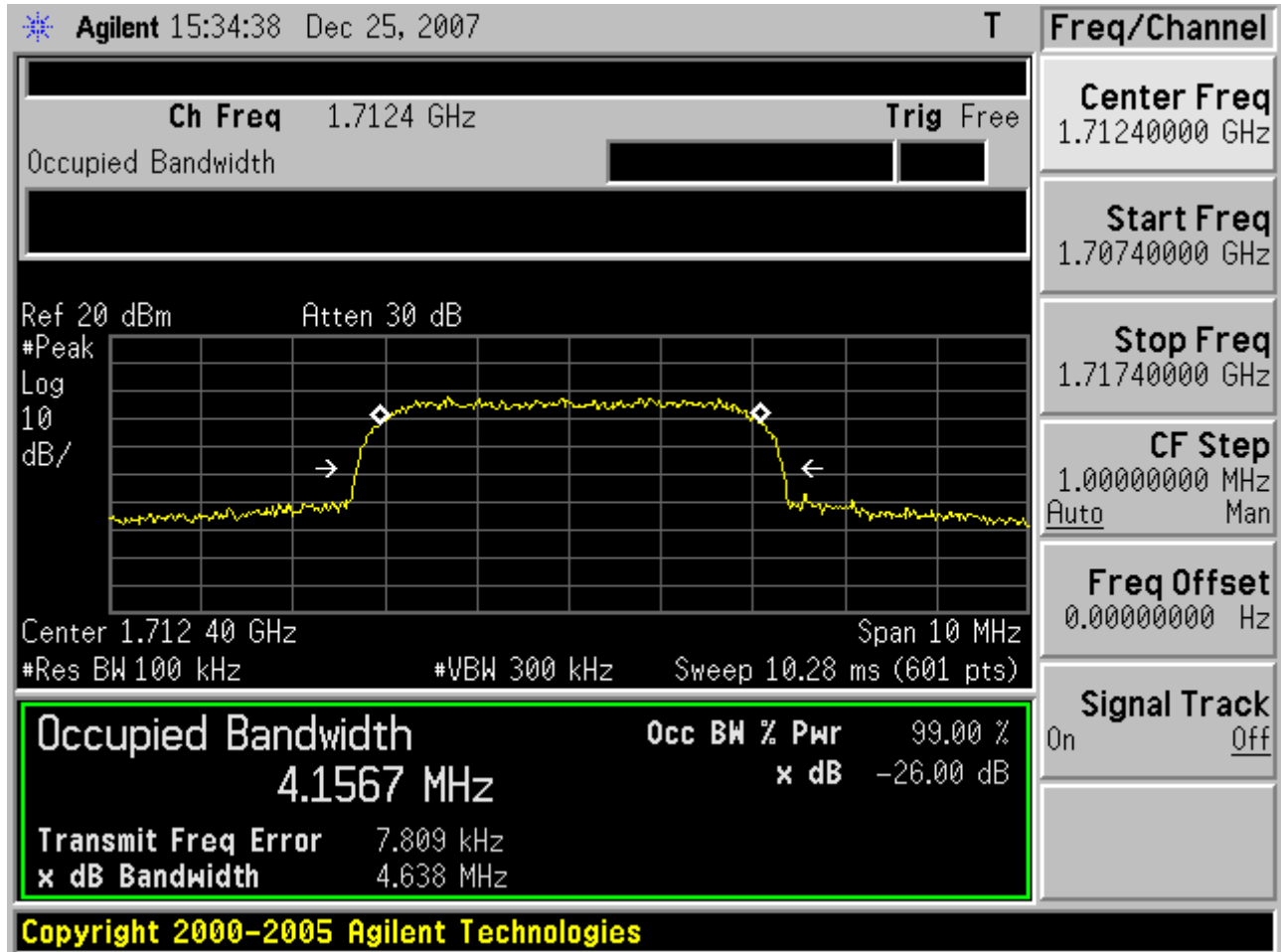


Test Mode: WCDMA CH1513 99% Occupied Bandwidth



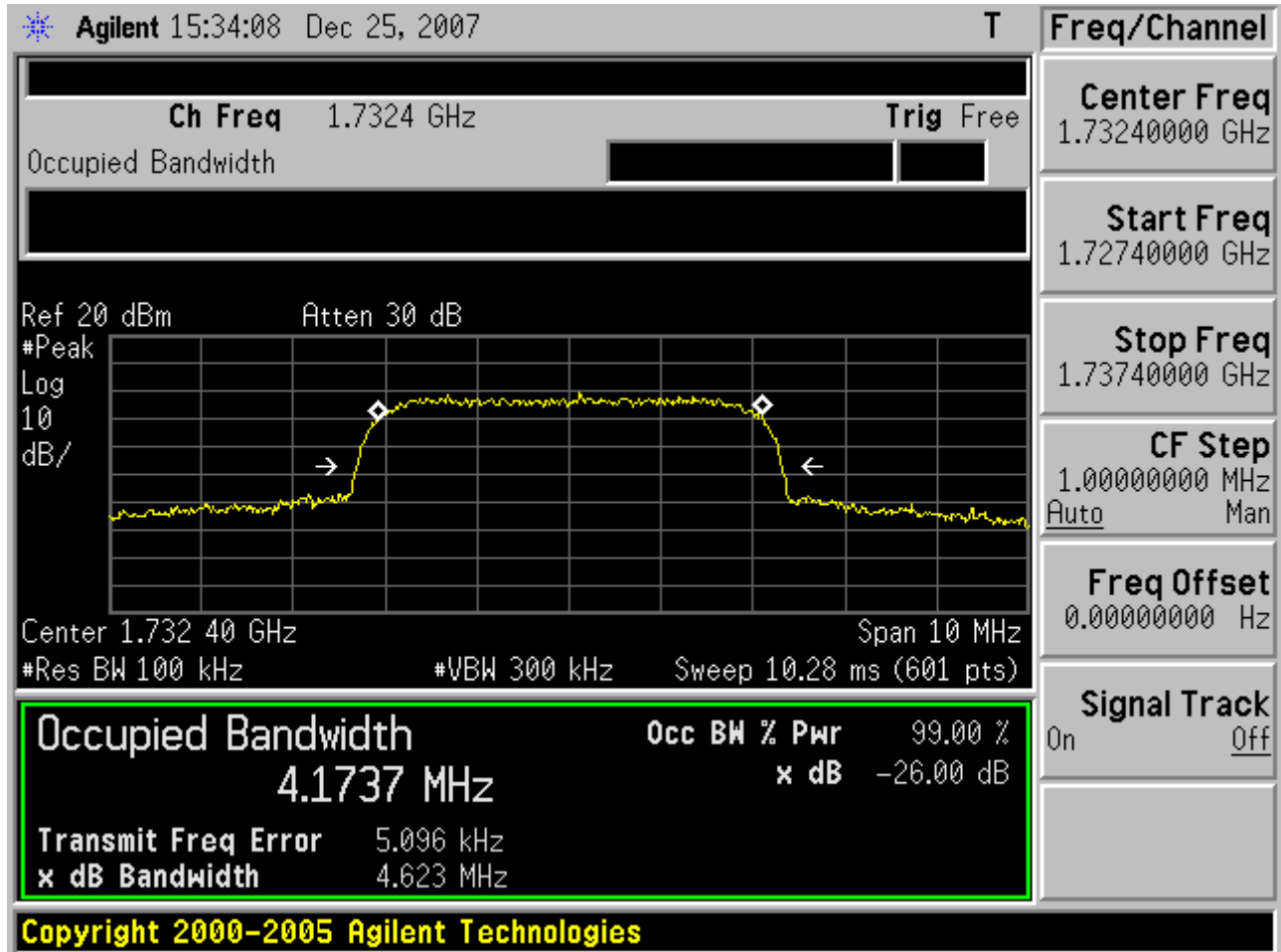


Test Mode: HSDPA CH1312 99% Occupied Bandwidth



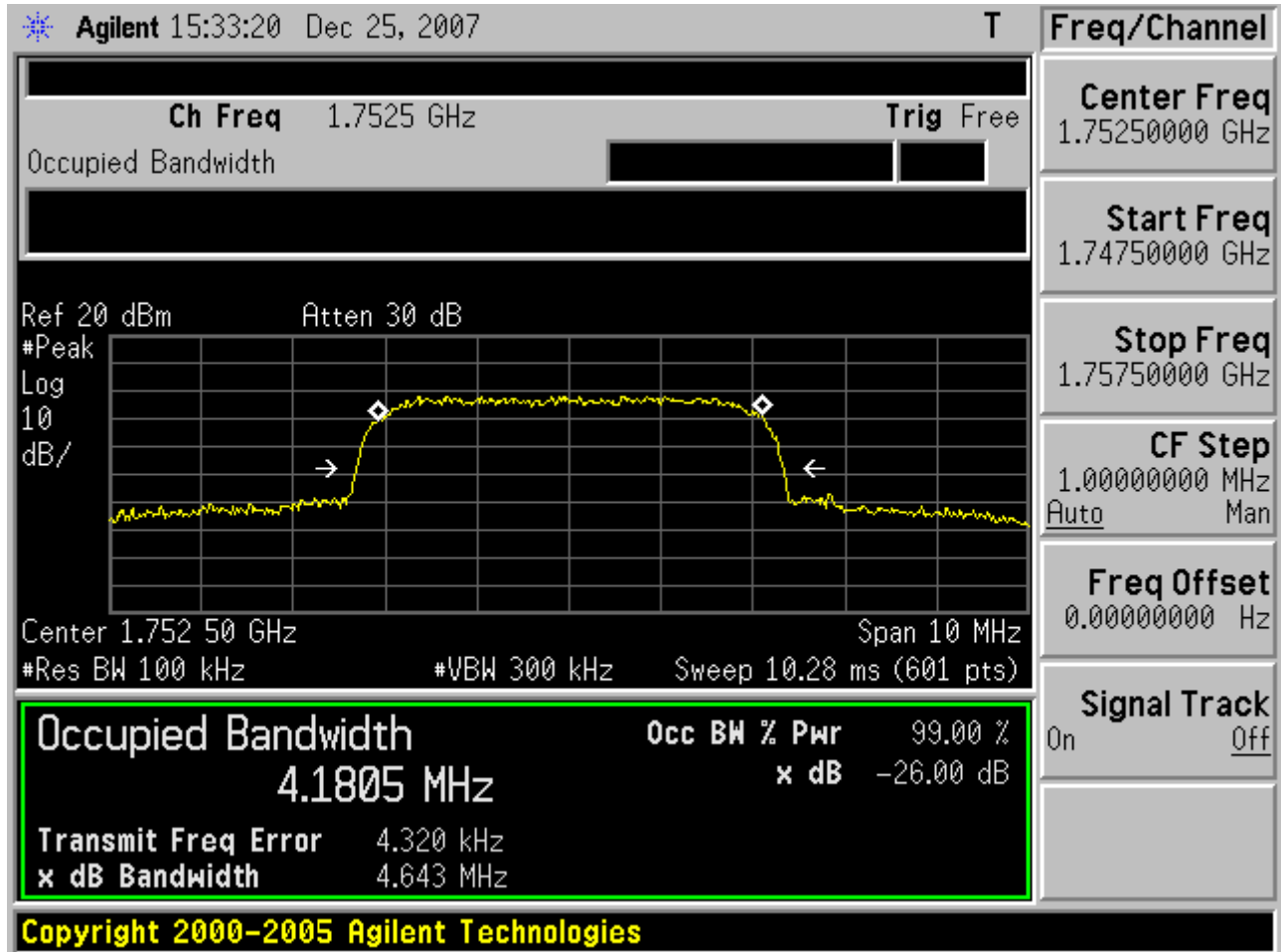


Test Mode: HSDPA CH1412 99% Occupied Bandwidth





Test Mode: HSDPA CH1513 99% Occupied Bandwidth





4.4.5 Bandedge Test Result

WCDMA			
Lower Band Edge			
Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
1312	1712.4	-18.18	-13
Higher Band Edge			
Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
1513	1752.6	-15.96	-13

HSDPA			
Lower Band Edge			
Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
1312	1712.4	-15.68	-13
Higher Band Edge			
Channel	Frequency (MHz)	Bandwidth (dBm)	Limit (dBm)
1513	1752.6	-15.46	-13



Test Mode: WCDMA CH1312 Low Band Edge

Power State: Normal

RB=100kHz ; VB=100kHz

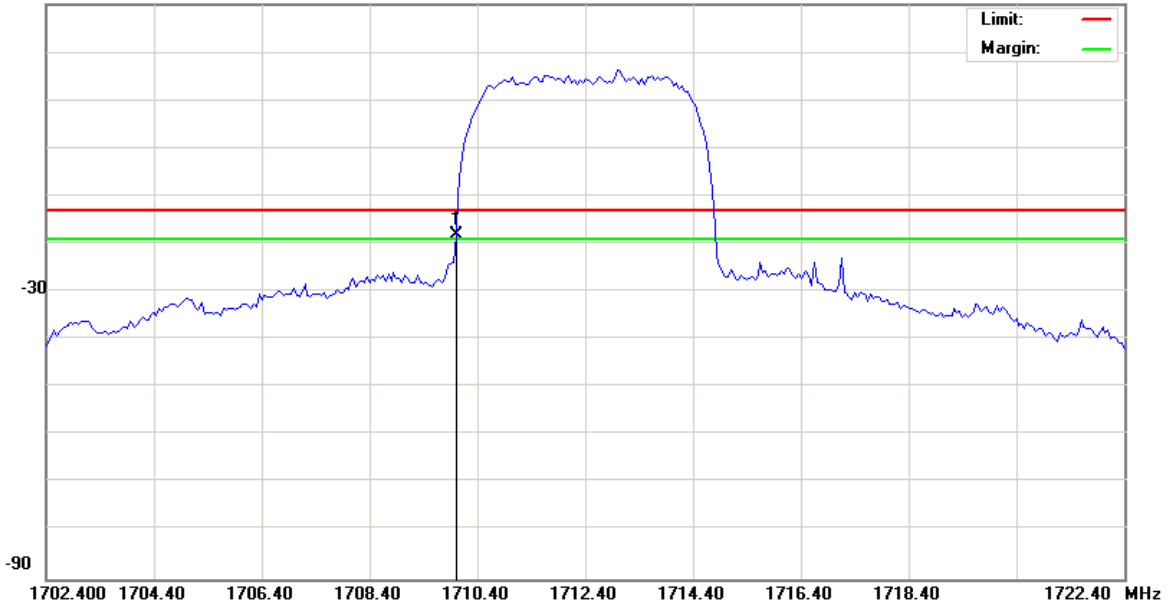
File :C105(Bandedge)(100K)

Data :#1

Date: 2008/01/02

Time: 下午 03:35:14

30.0 dBm



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power:	Humidity: 55 %
EUT:	Distance:	RBW: 100 KHz
M/N: C105		VBW: 100 KHz
Mode: WCDMA		Sweep Time: 200 ms
Note: CH1312		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Detector	Comment
1	*	1710.000	-22.53	4.35	-18.18	-13.00	-5.18			peak	

*:Maximum data x:Over limit !:over margin

●Reference Only

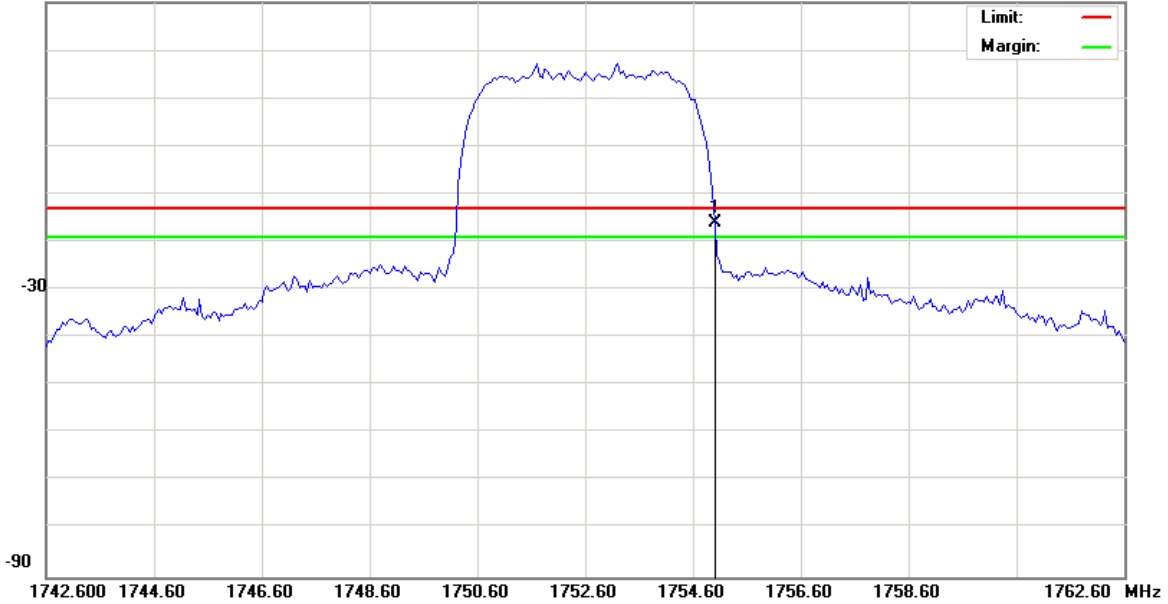


Test Mode: WCDMA CH1513 High Band Edge

Power State: Normal

RB=100kHz ; VB=100kHz

File :C105(Bandedge)(100K) Data :#2 Date: 2008/01/02 Time: 下午 03:44:32



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power:	Humidity: 55 %
EUT:	Distance:	RBW: 100 KHz
M/N: C105		VBW: 100 KHz
Mode: WCDMA		Sweep Time: 200 ms
Note: CH1513		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1755.000	-20.58	4.62	-15.96	-13.00	-2.96	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



Test Mode: HSDPA CH1312 Low Band Edge

Power State: Normal

RB=100kHz ; VB=100kHz

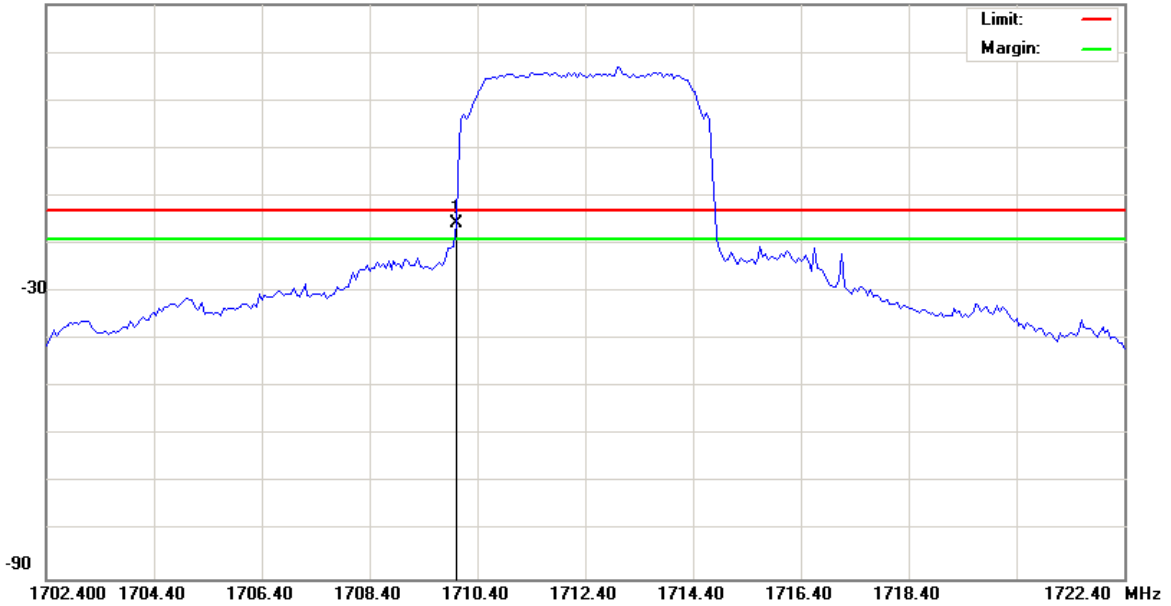
File :C105(Bandedge)(100K)

Data :#3

Date: 2008/01/02

Time: 下午 03:48:22

30.0 dBm



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power:	Humidity: 55 %
EUT:	Distance:	RBW: 100 KHz
M/N: C105		VBW: 100 KHz
Mode: HSDPA		Sweep Time: 200 ms
Note: CH1312		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree	Detector	Comment
1	*	1710.000	-20.03	4.35	-15.68	-13.00	-2.68			peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



Test Mode: HSDPA CH1513 High Band Edge

Power State: Normal

RB=100kHz ; VB=100kHz

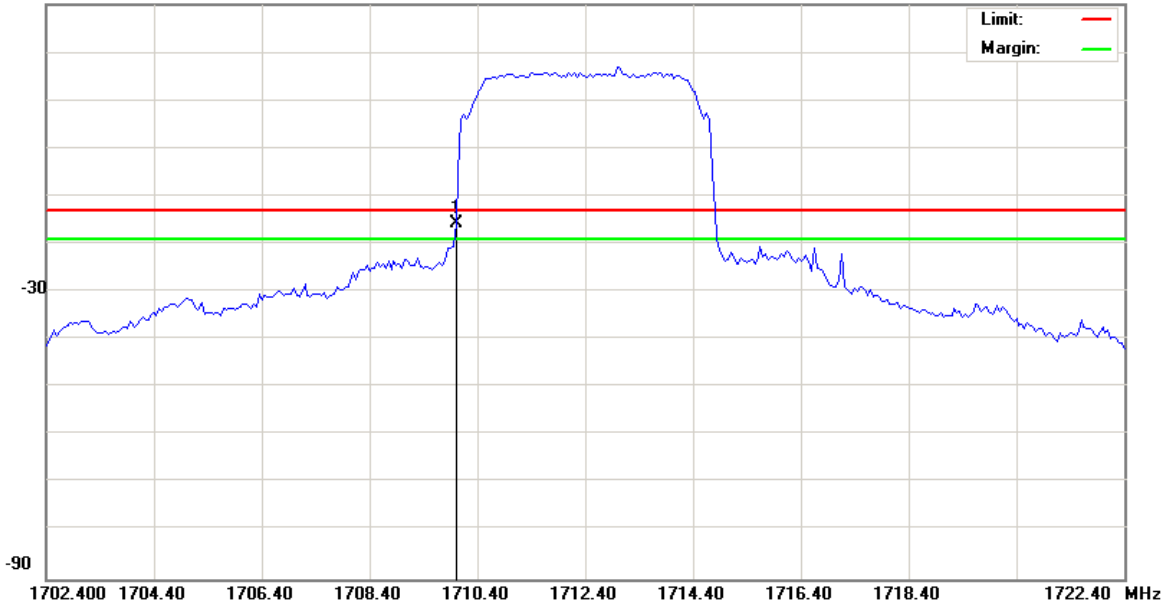
File :C105(Bandedge)(100K)

Data :#3

Date: 2008/01/02

Time: 下午 03:48:22

30.0 dBm



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power:	Humidity: 55 %
EUT:	Distance:	RBW: 100 KHz
M/N: C105		VBW: 100 KHz
Mode: HSDPA		Sweep Time: 200 ms
Note: CH1312		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	1710.000	-20.03	4.35	-15.68	-13.00	-2.68	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



4.5 Conducted Spurious Emission

4.5.1 Measurement Instruments

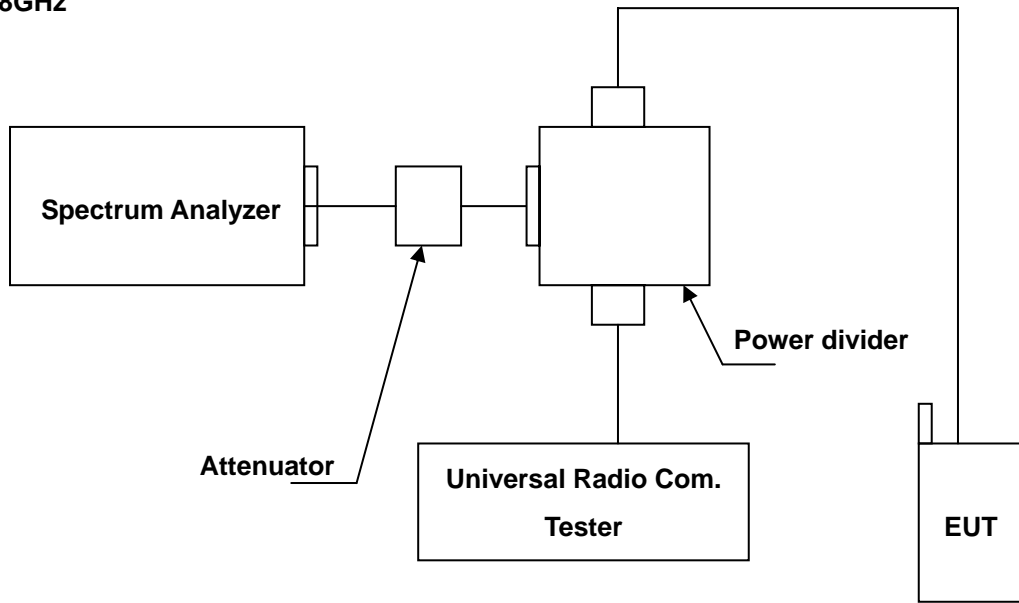
As described in chapter 5 of this test report.

4.5.2 Test Procedure

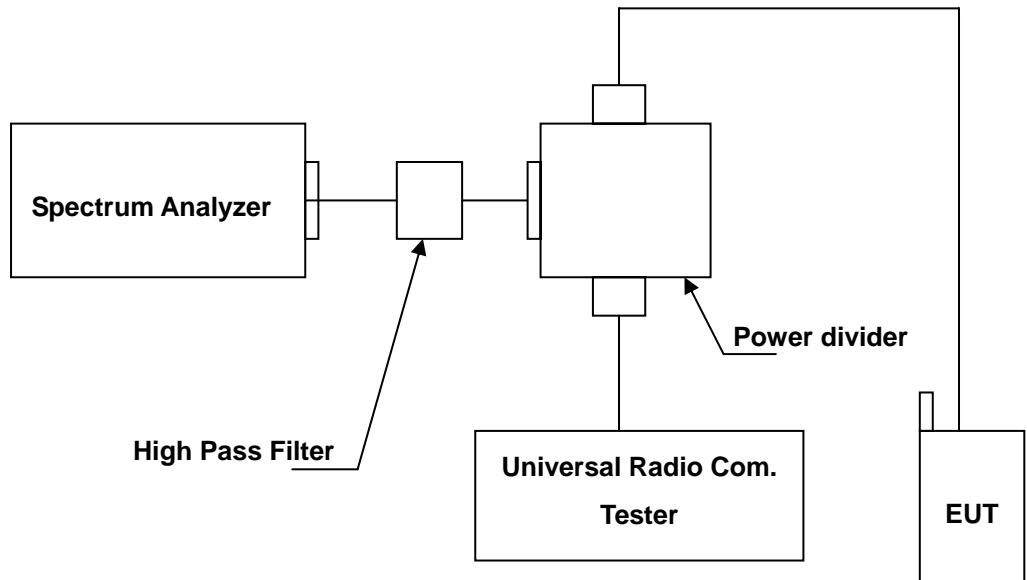
1. The EUT was connected to Spectrum Analyzer and Base Station via power divider.
2. Determine frequency range for measurements: From CFR 2.1057 the spectrum should be investigated from the lowest radio frequency generated in the equipment up to at least the 10th harmonic of the carrier frequency. For the mobile station equipment tested, this equates to a frequency range of 13 MHz to 19.1 GHz, data taken from 10 MHz to 20 GHz
3. Determine mobile station transmits frequencies: below outlines the band edge frequencies pertinent to conducted emissions testing.
UMTS Transmitter Channel Frequency:
CH1312-1712.4 MHz, CH1412-1732.4 MHz, CH1513-1752.6 MHz
4. Test setting at RB=1 MHz, VB= 1 MHz.
5. a) On any frequency outside frequency band of the UMTS spectrum, the power of any emission shall be attenuated below the transmitter power (P, in Watts) by at least $43+10\log(P)$ dB. For all power levels +30 dBm to 0 dBm, this becomes a constant specification limit of -13 dBm.

4.5.3 Test Setup Layout

Below 2.8GHz



Above 2.8GHz





4.5.4 Test Result

4.5.4.1 WCDMA Test Result

Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : WCDMA (Low CH1312 / Middle CH1412 / High CH 1513)
Test Date : 12/25/2007

Please refer to next pager of detail testing data.

Note: Amplitude= Reading Amplitude + Factor (Cable loss + Filter Amplitude= Insertion loss)
(Auto calculate in spectrum analyzer)



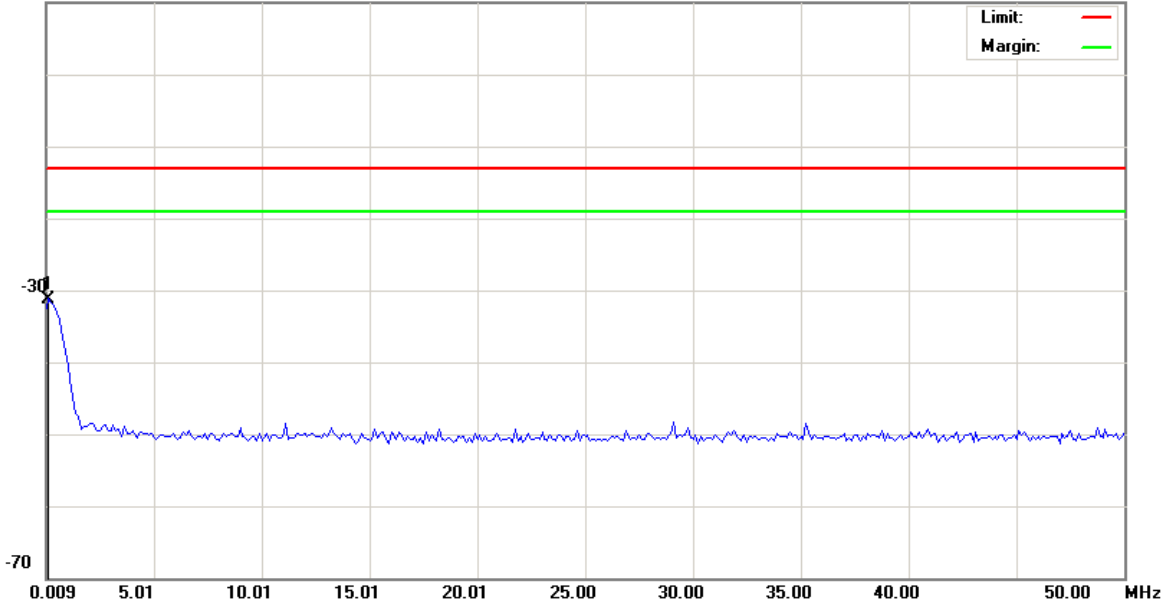
File :C105(CH1312)

Data :#1

Date: 2007/12/25

Time: 下午 04:27:19

10.0 dBm



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1312(1712.4MHz)
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	0.1340	-43.68	12.48	-31.20	-13.00	-18.20			peak

*:Maximum data x:Over limit !:over margin

●Reference Only

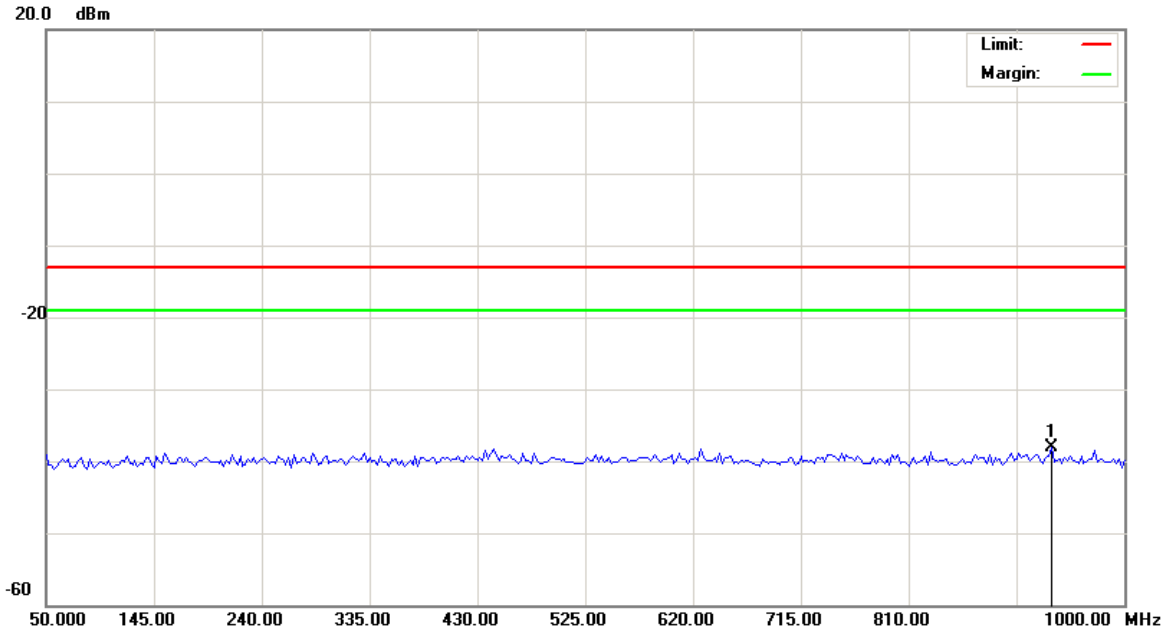


File :C105(CH1312)

Data :#2

Date: 2007/12/25

Time: 下午 04:27:38



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: WCDMA		Sweep Time: 100 ms
Note: CH1312(1712.4MHz)		
加10db衰减器		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	935.8750	-51.36	13.18	-38.18	-13.00	-25.18	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

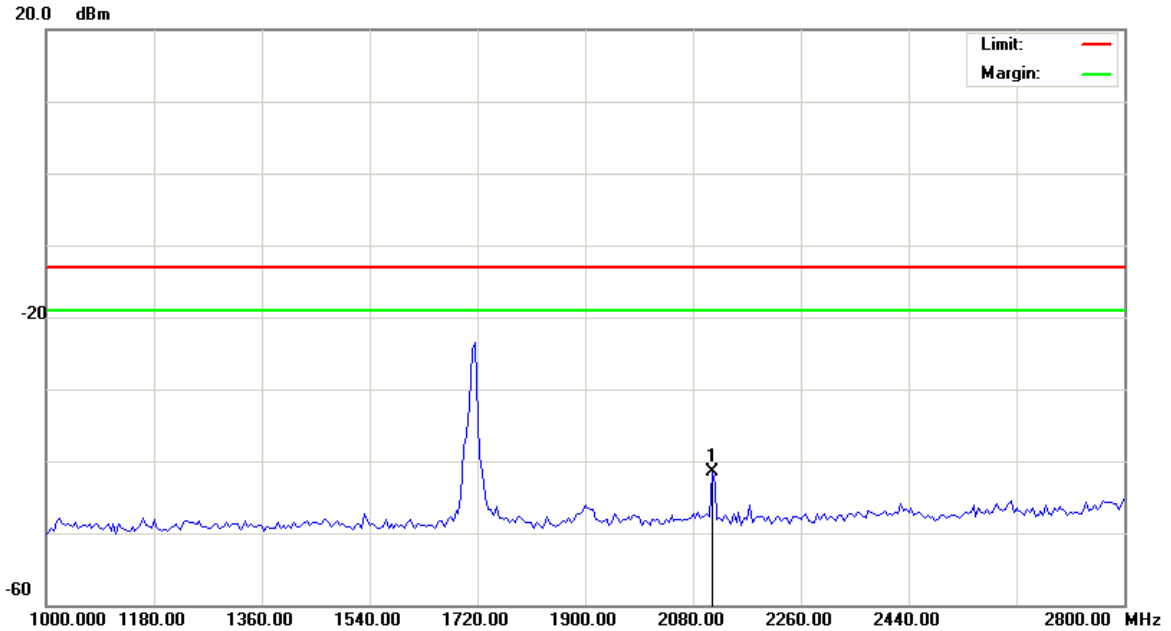


File :C105(CH1312)

Data :#3

Date: 2007/12/25

Time: 下午 05:08:55



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: WCDMA		Sweep Time: 100 ms
Note: CH1312(1712.4MHz)		
加Notch(5TNF-1700)		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2111.500	-46.27	4.71	-41.56	-13.00	-28.56	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

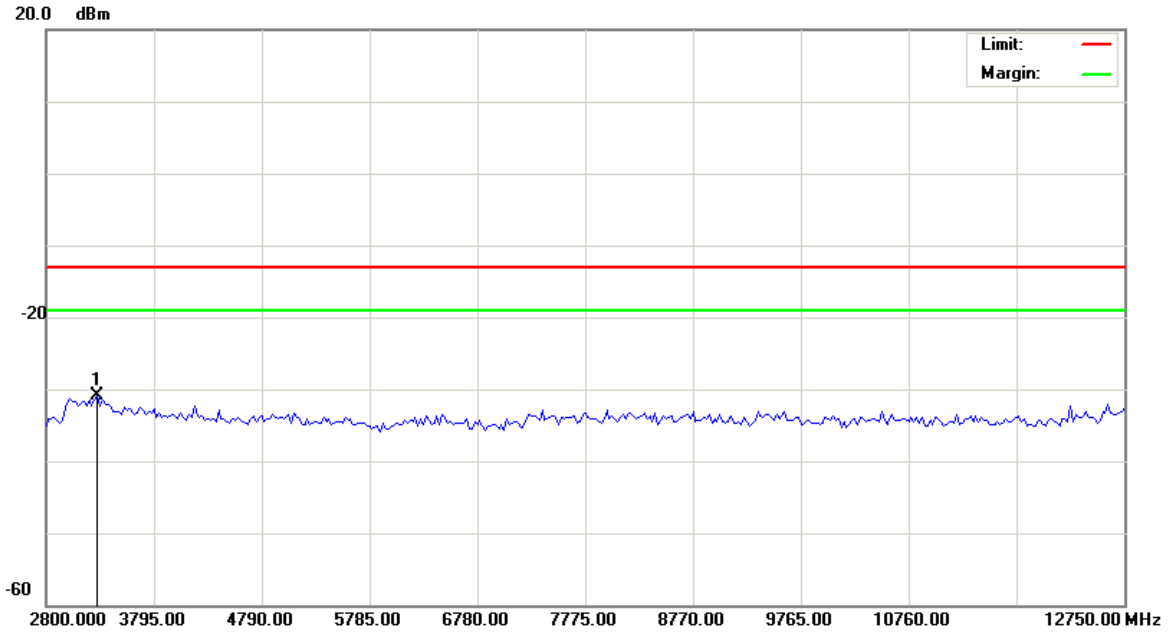


File :C105(CH1312)

Data :#4

Date: 2007/12/25

Time: 下午 07:06:44



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1312(1712.4MHz)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3272.625	-36.03	5.09	-30.94	-13.00	-17.94	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

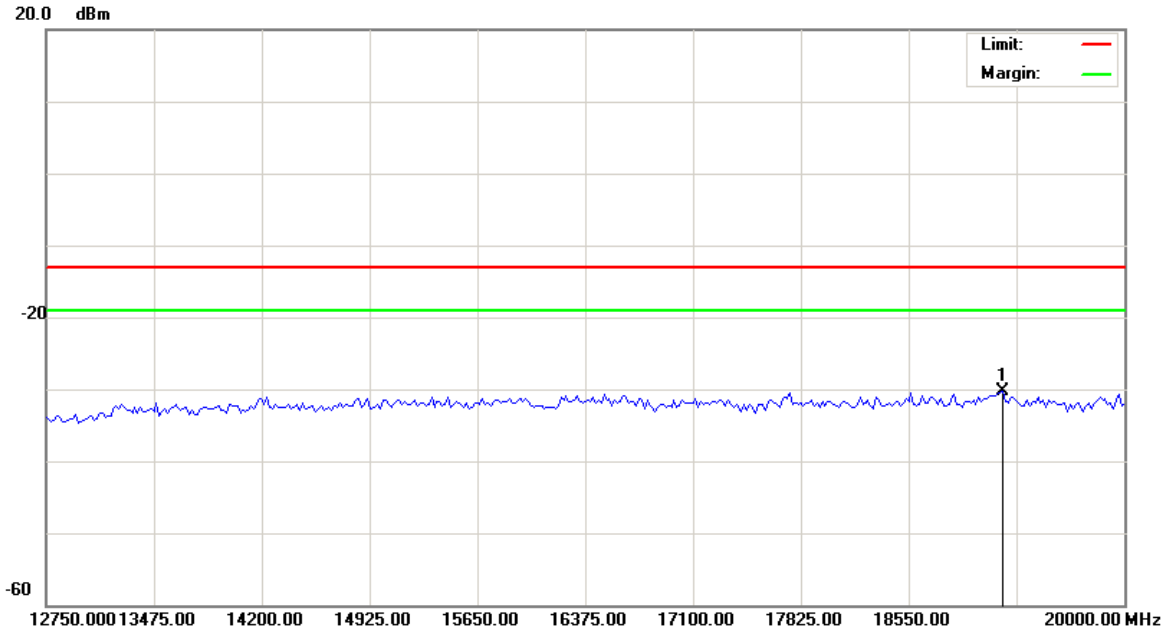


File :C105(CH1312)

Data :#5

Date: 2007/12/25

Time: 下午 07:07:05



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: WCDMA		Sweep Time: 100 ms
Note: CH1312(1712.4MHz)		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	19184.37	-37.55	7.21	-30.34	-13.00	-17.34	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

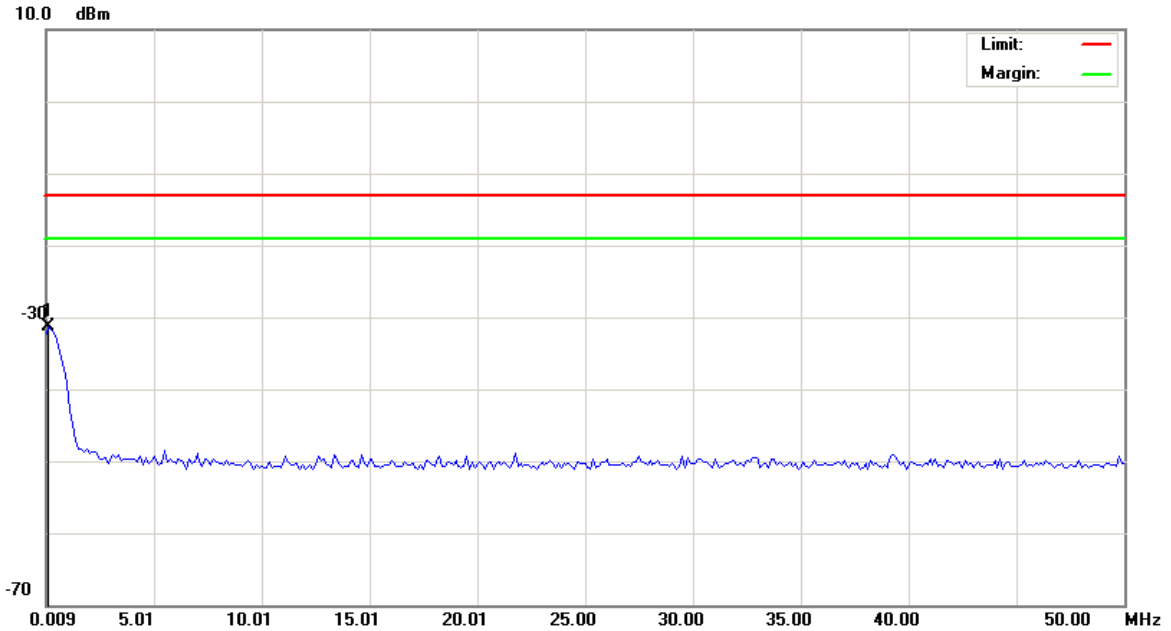


File :C105(CH1412)

Data :#1

Date: 2007/12/25

Time: 下午 04:29:37



Site site#1
 Limit: FCC Part 27 conducted
 EUT:
 M/N: C105
 Mode: WCDMA
 Note: CH1412(1732.4MHz)
 加10db衰减器

Polarization: **Conducted po**
 Power: AC 110V/60Hz
 Distance:
 RBW: 1000 KHz
 VBW: 1000 KHz

Temperature: 26 °C
 Humidity: 55 %
 Sweep Time: 100 ms

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	0.1340	-43.86	12.48	-31.38	-13.00	-18.38	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

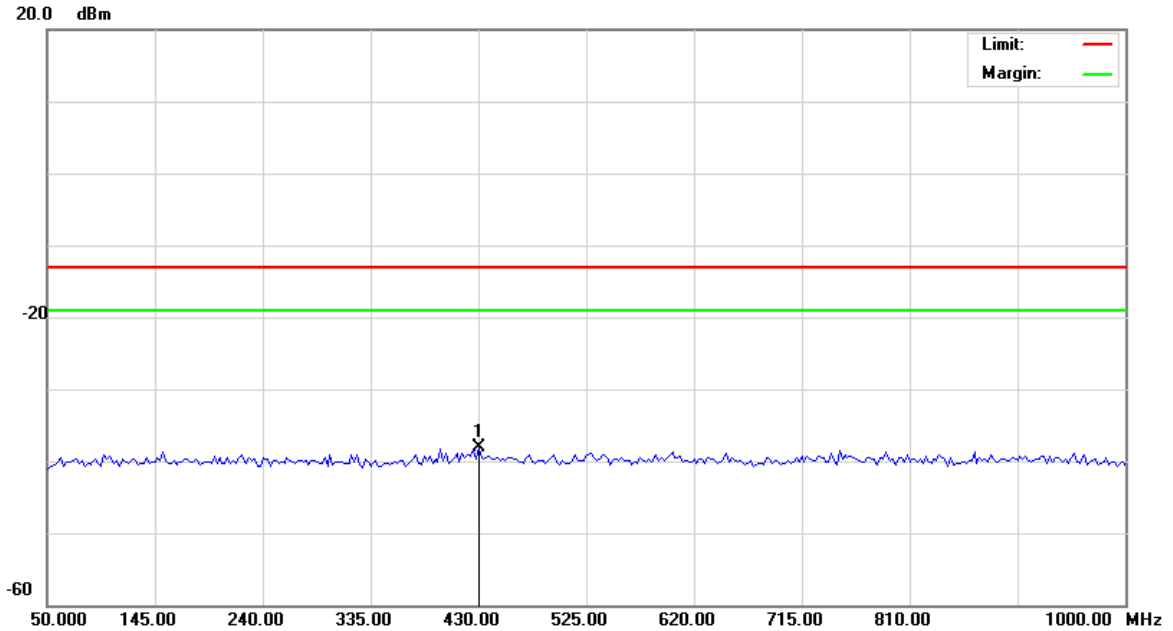


File :C105(CH1412)

Data :#2

Date: 2007/12/25

Time: 下午 04:29:56



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1412(1732.4MHz)
 加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	430.0000	-51.31	13.25	-38.06	-13.00	-25.06	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

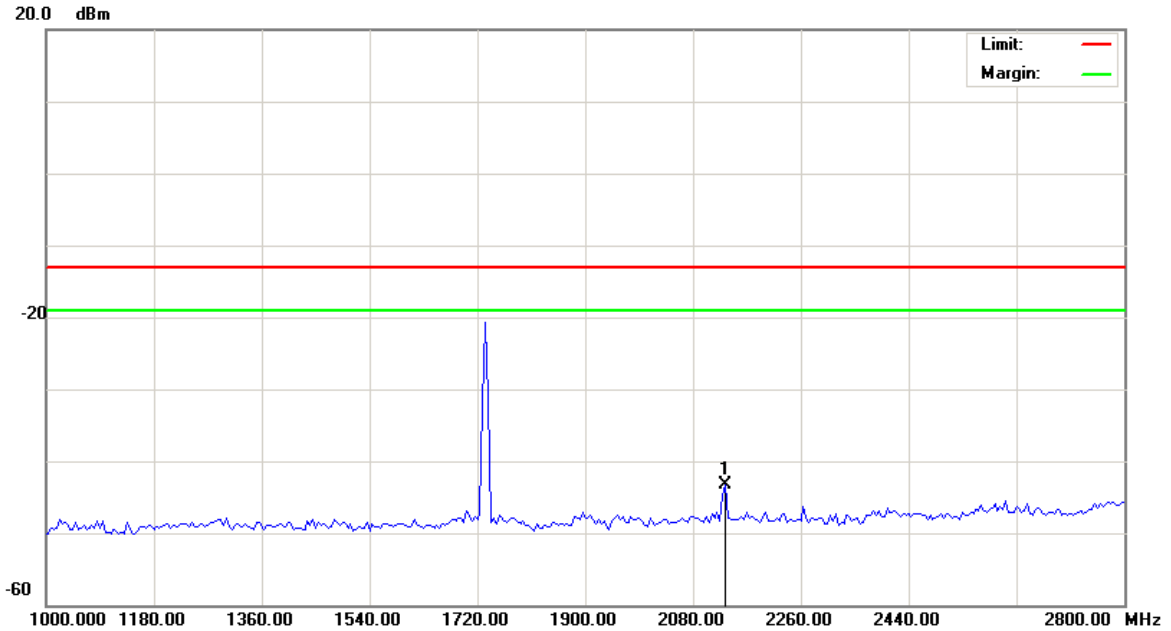


File :C105(CH1412)

Data :#3

Date: 2007/12/25

Time: 下午 05:11:27



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: WCDMA		Sweep Time: 100 ms
Note: CH1412(1732.4MHz)		
加Notch(5TNF-1700)		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2134.000	-47.91	4.63	-43.28	-13.00	-30.28			peak

*:Maximum data x:Over limit !:over margin

●Reference Only

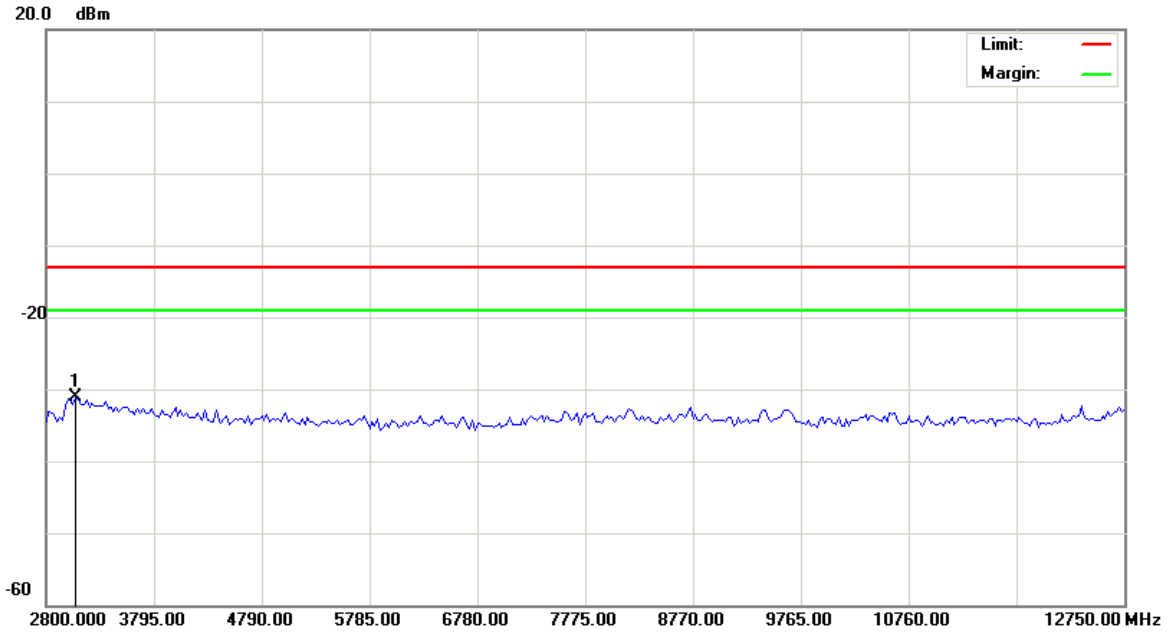


File :C105(CH1412)

Data :#4

Date: 2007/12/25

Time: 下午 07:08:07



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1412(1732.4MHz)

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	3073.625	-36.41	5.40	-31.01	-13.00	-18.01	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

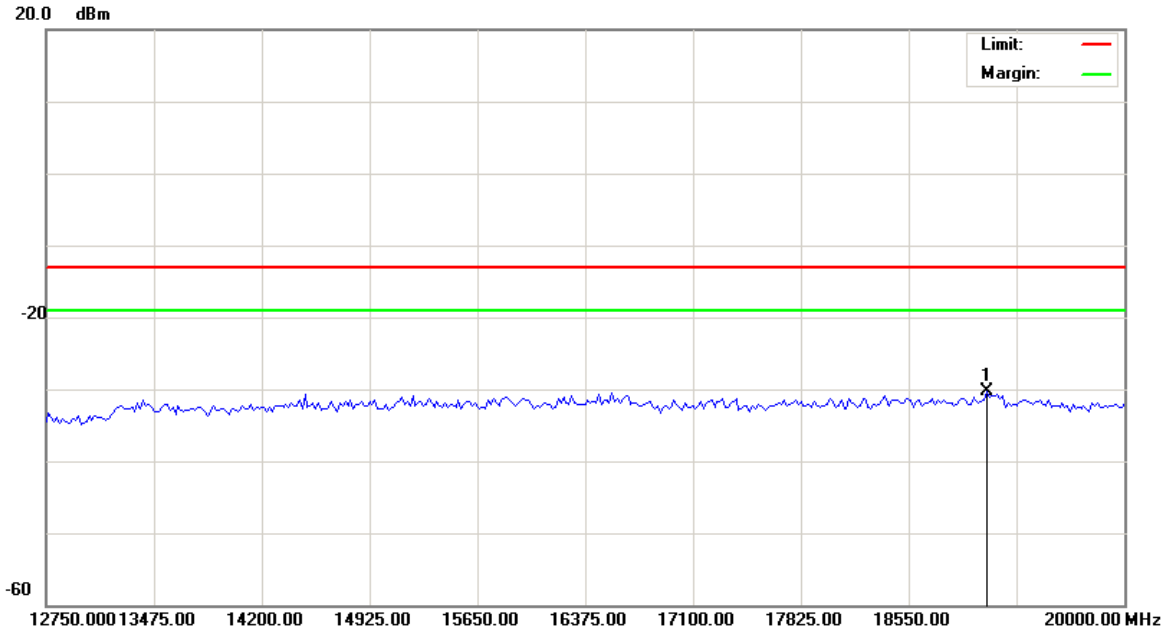


File :C105(CH1412)

Data :#5

Date: 2007/12/25

Time: 下午 07:08:28



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1412(1732.4MHz)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	19075.62	-37.40	7.18	-30.22	-13.00	-17.22	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

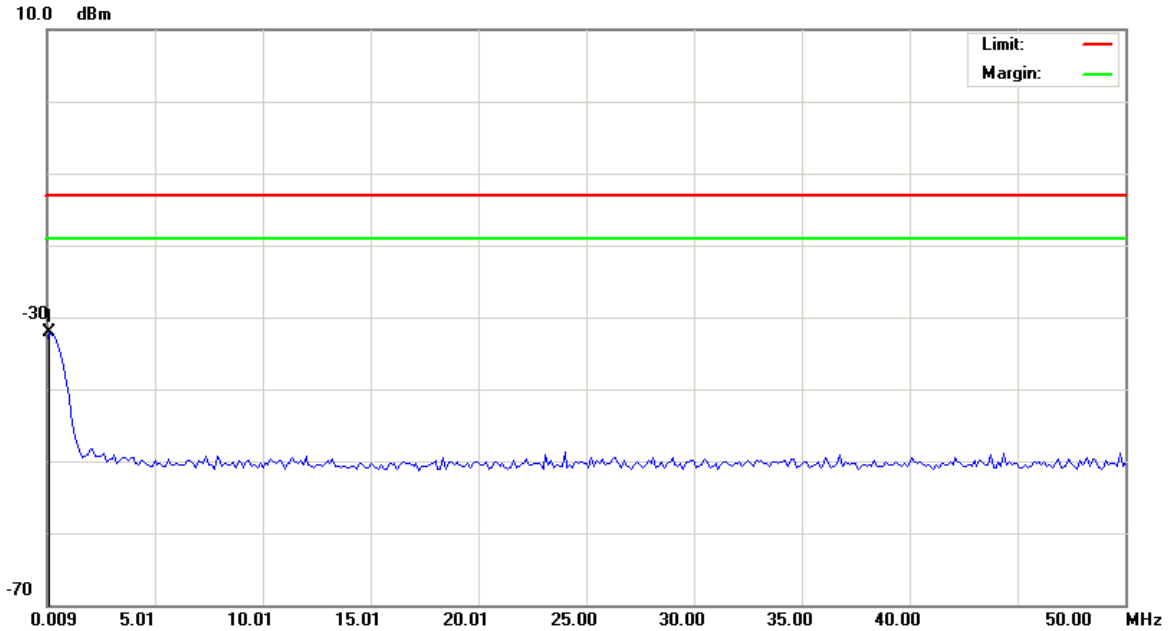


File :C105(CH1513)

Data :#1

Date: 2007/12/25

Time: 下午 04:58:46



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1513(1752.6MHz)
 加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	0.1340	-44.65	12.48	-32.17	-13.00	-19.17			peak

*:Maximum data x:Over limit !:over margin

●Reference Only

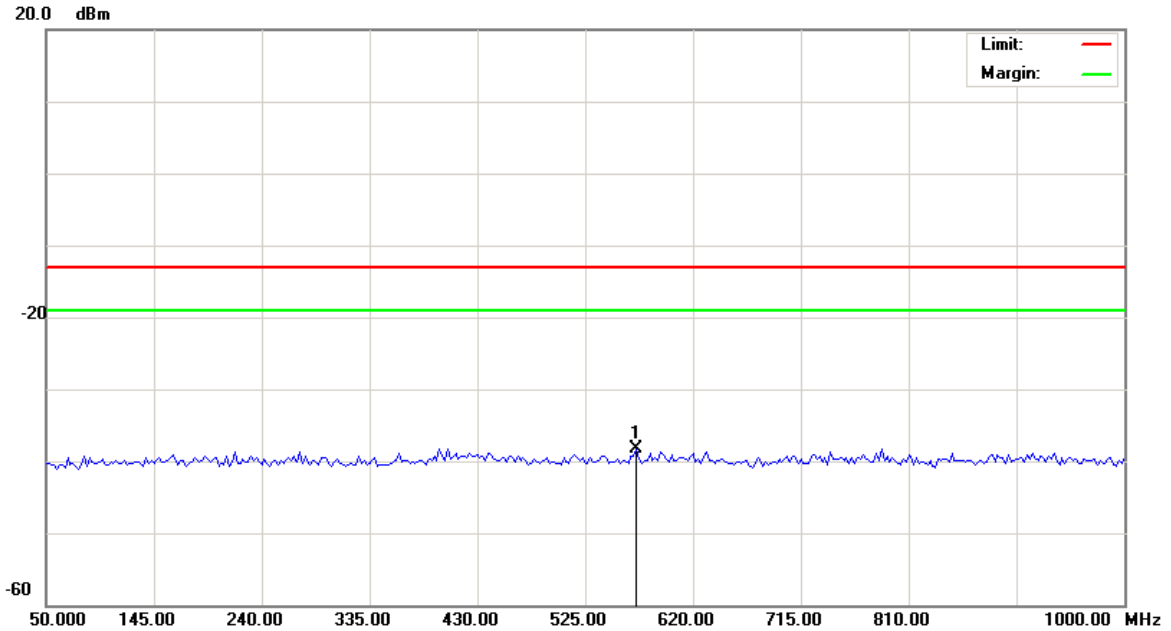


File :C105(CH1513)

Data :#2

Date: 2007/12/25

Time: 下午 04:59:05



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1513(1752.6MHz)
 加10db衰減器

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	570.1250	-51.40	13.14	-38.26	-13.00	-25.26	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

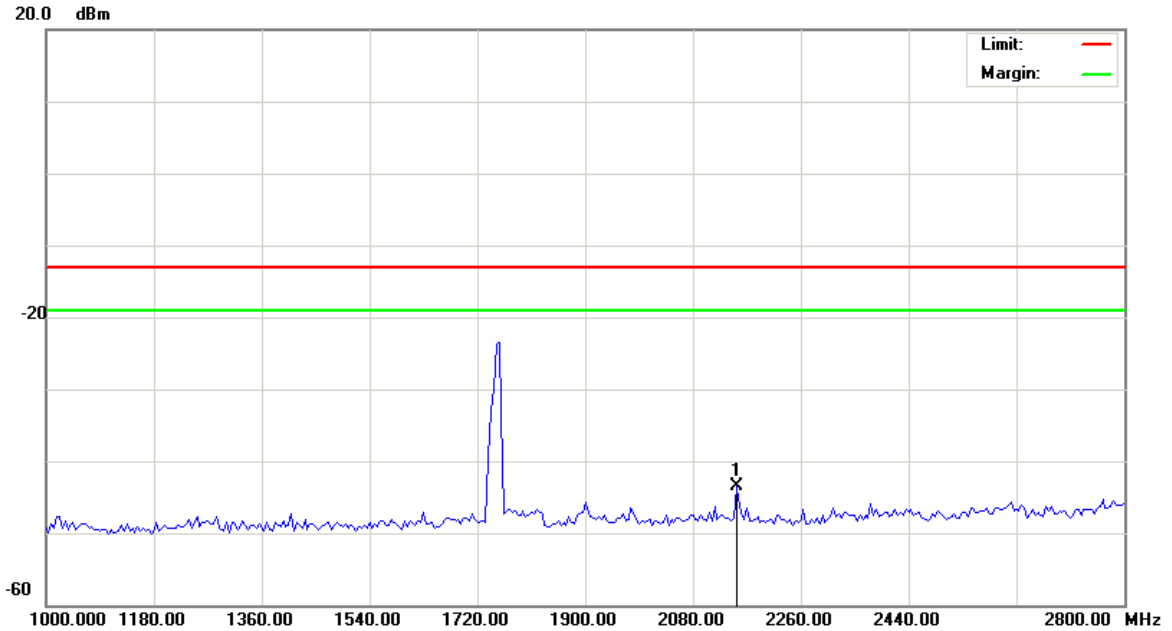


File :C105(CH1513)

Data :#3

Date: 2007/12/25

Time: 下午 05:14:55



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1513(1752.6MHz)
 加Notch(5TNF-1700)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2152.000	-48.15	4.60	-43.55	-13.00	-30.55	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

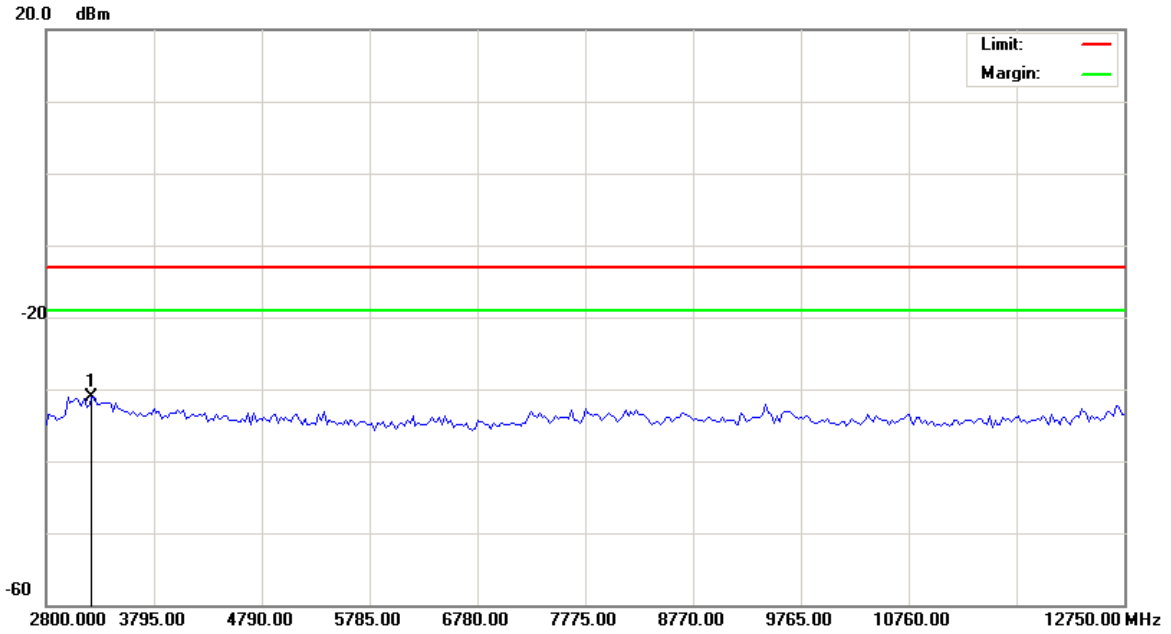


File :C105(CH1513)

Data :#4

Date: 2007/12/25

Time: 下午 07:09:26



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: WCDMA
 Note: CH1513(1752.6MHz)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3222.875	-36.27	5.17	-31.10	-13.00	-18.10	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

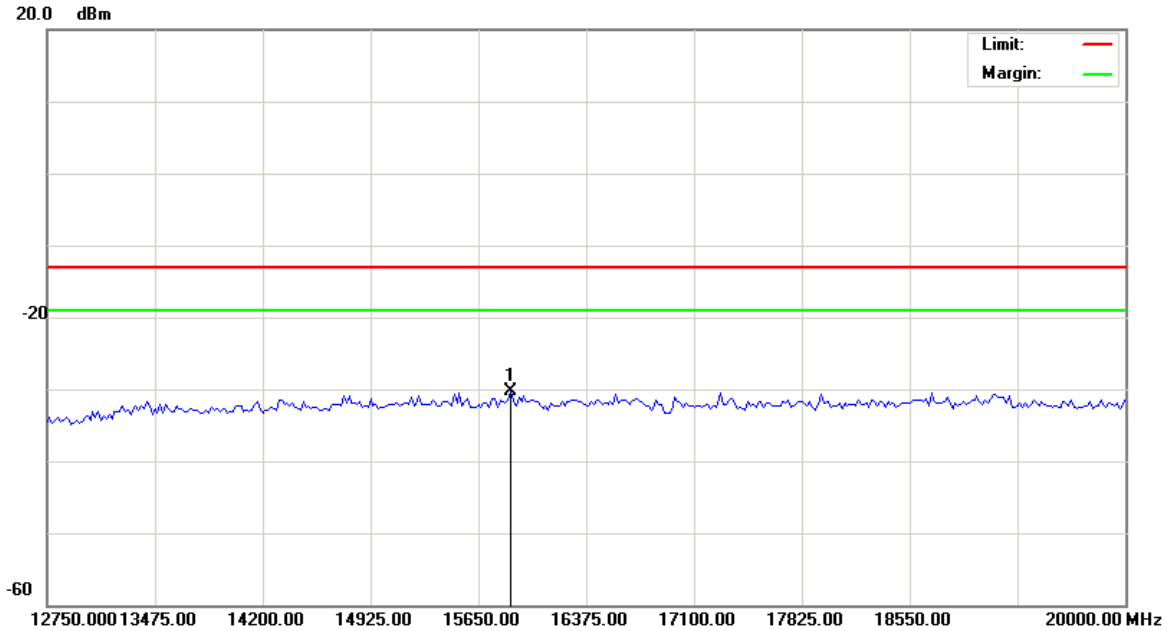


File :C105(CH1513)

Data :#5

Date: 2007/12/25

Time: 下午 07:09:47



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: WCDMA		Sweep Time: 100 ms
Note: CH1513(1752.6MHz)		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	15867.50	-36.57	6.26	-30.31	-13.00	-17.31	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



4.5.4.2 HSDPA Test Result

Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : HSDPA (Low CH1312 / Middle CH1412 / High CH1513)
Test Date : 12/25/2007

Please refer to next pager of detail testing data.

Note: Amplitude= Reading Amplitude + Factor (Cable loss + Filter Amplitude= Insertion loss)
(Auto calculate in spectrum analyzer)



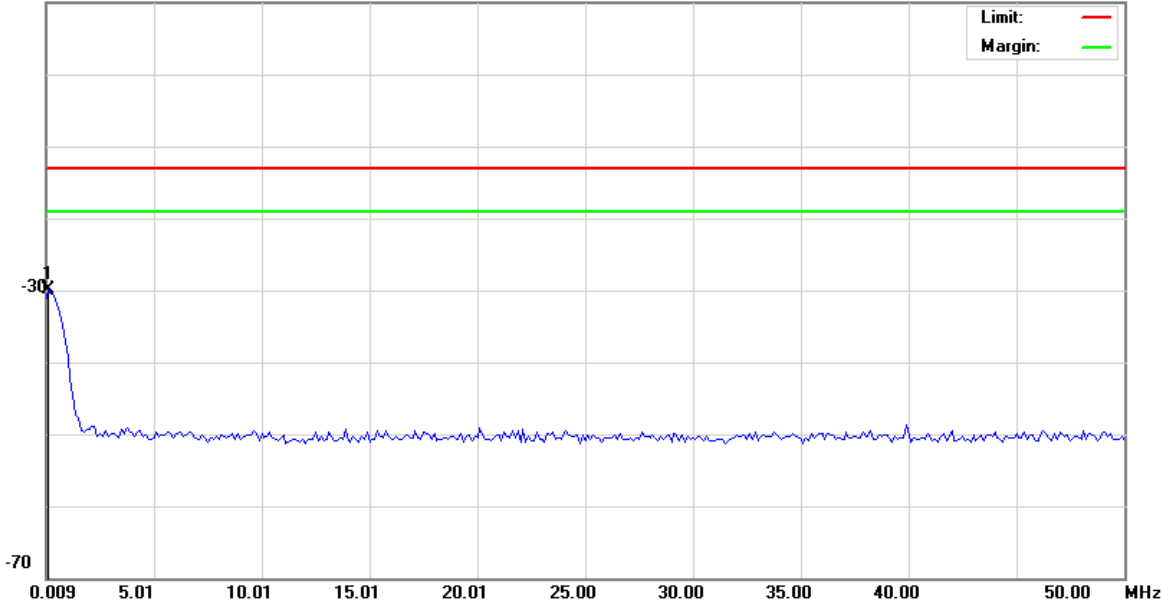
File :C105(CH1312)

Data :#1

Date: 2007/12/25

Time: 下午 03:30:53

10.0 dBm



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1312(1712.4MHz)
 加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	0.1340	-42.41	12.48	-29.93	-13.00	-16.93	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

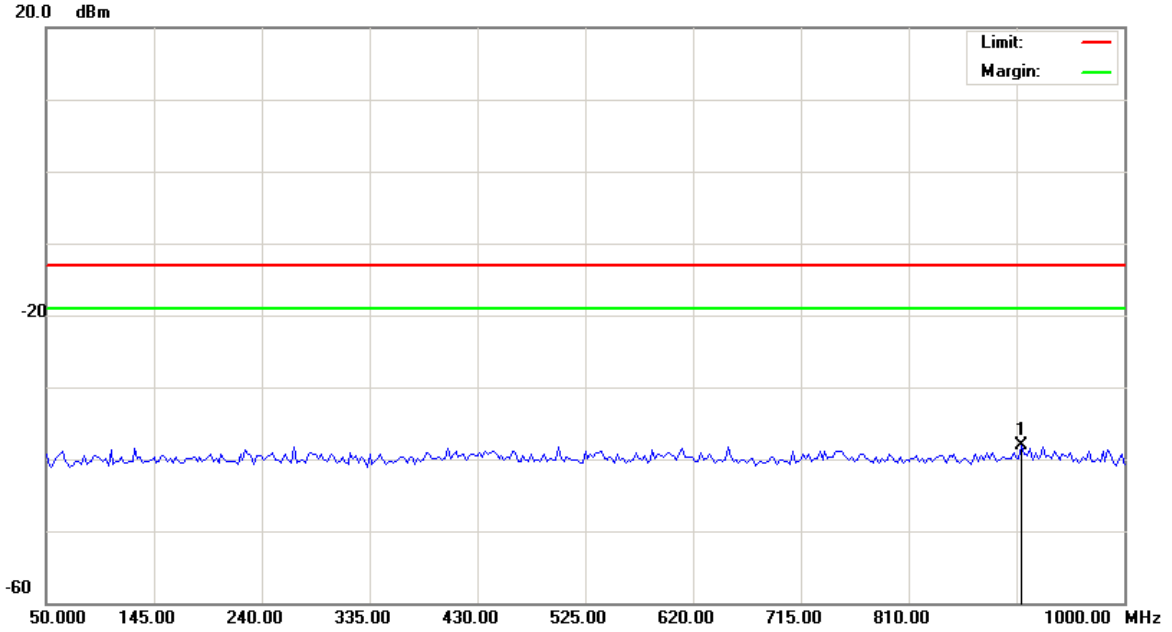


File :C105(CH1312)

Data :#2

Date: 2007/12/25

Time: 下午 03:31:12



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1312(1712.4MHz)
 加10db衰減器

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	909.7500	-51.30	13.23	-38.07	-13.00	-25.07	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

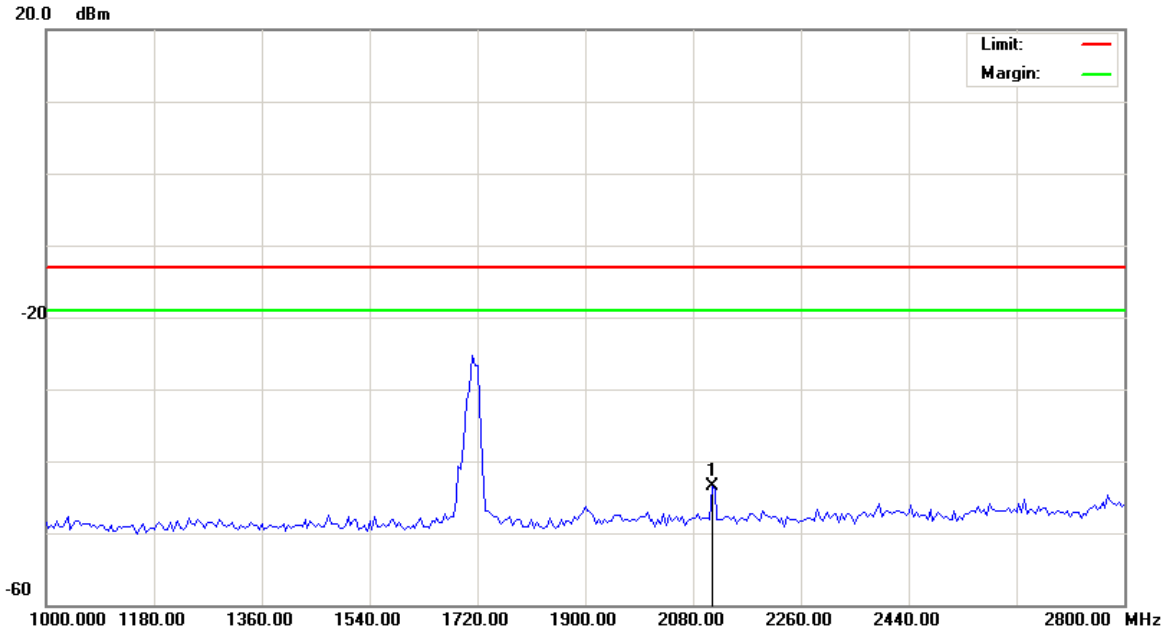


File :C105(CH1312)

Data :#3

Date: 2007/12/25

Time: 下午 05:29:25



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: HSDPA		Sweep Time: 100 ms
Note: CH1312(1712.4MHz)		
加Notch(5TNF-1700)		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2111.500	-48.14	4.71	-43.43	-13.00	-30.43			peak

*:Maximum data x:Over limit !:over margin

●Reference Only

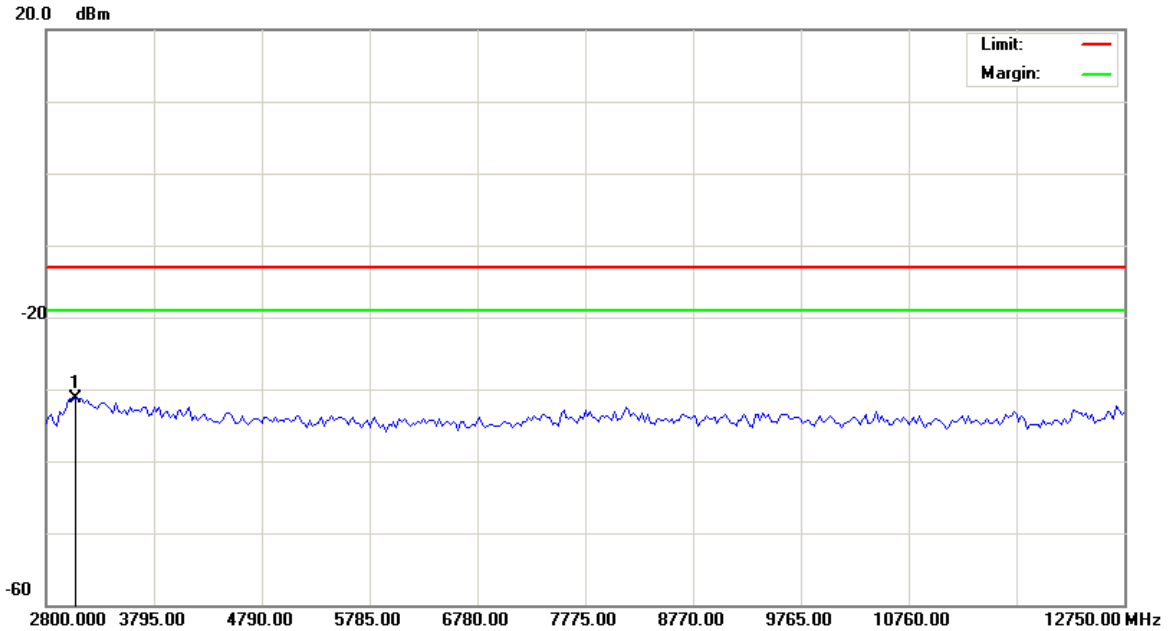


File :C105(CH1312)

Data :#4

Date: 2007/12/25

Time: 下午 07:00:02



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1312(1712.4MHz)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3073.625	-36.64	5.40	-31.24	-13.00	-18.24	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

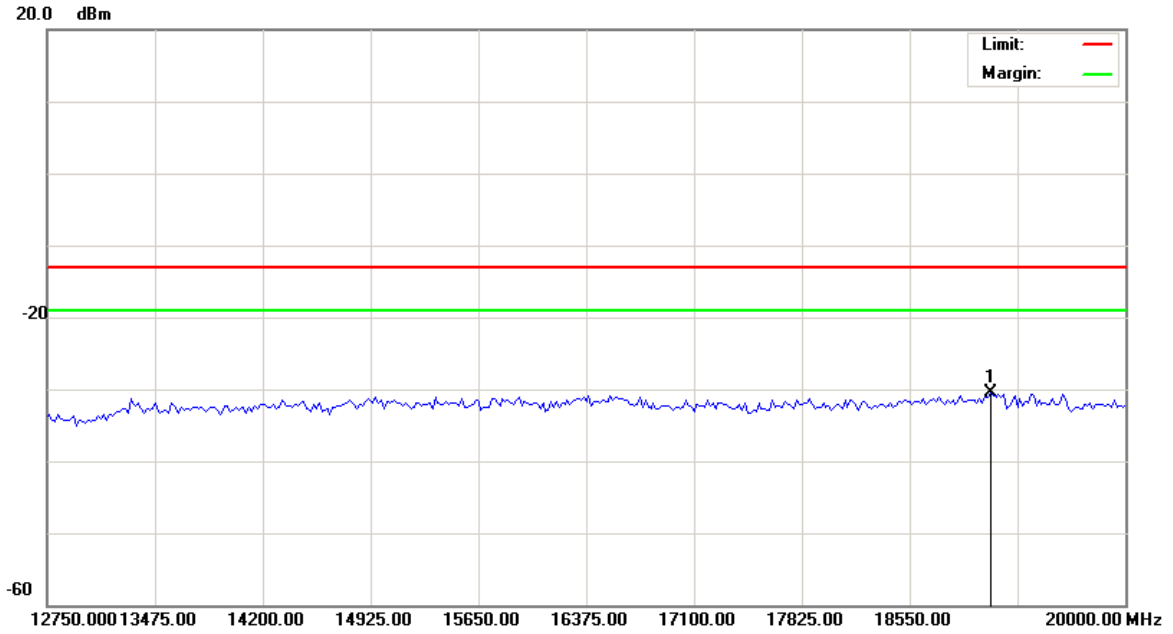


File :C105(CH1312)

Data :#5

Date: 2007/12/25

Time: 下午 07:00:23



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1312(1712.4MHz)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	19093.75	-37.61	7.18	-30.43	-13.00	-17.43	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

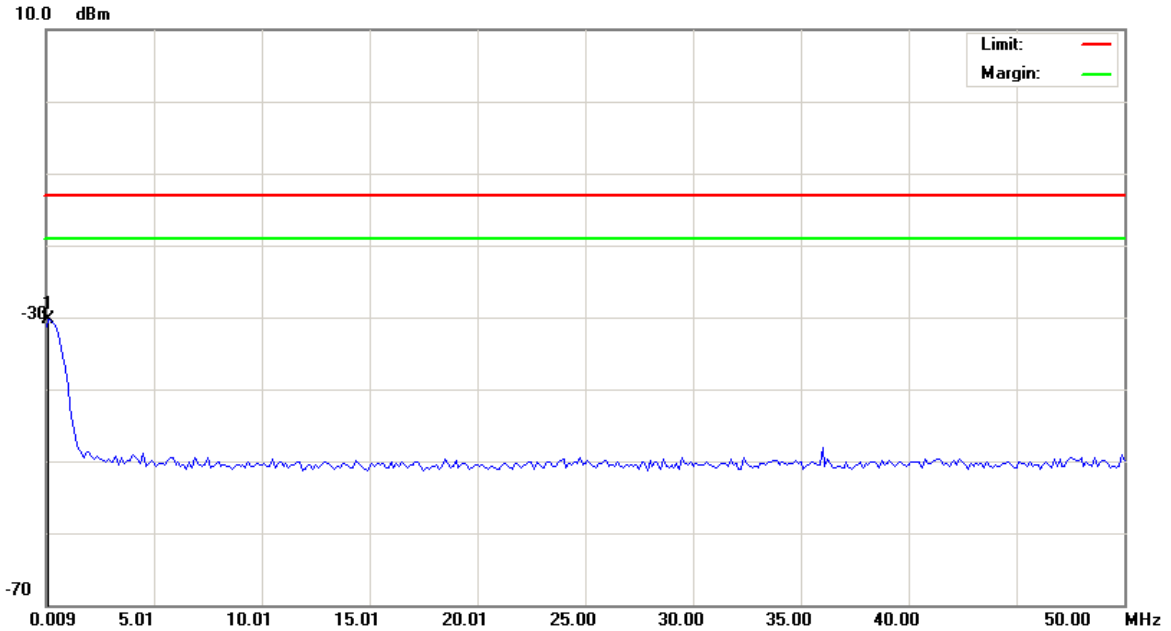


File :C105(CH1412)

Data :#1

Date: 2007/12/25

Time: 下午 03:40:02



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: HSDPA		Sweep Time: 100 ms
Note: CH1412(1732.4MHz)		
加10db衰减器		

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	0.1340	-42.69	12.48	-30.21	-13.00	-17.21			peak

*:Maximum data x:Over limit !:over margin

●Reference Only

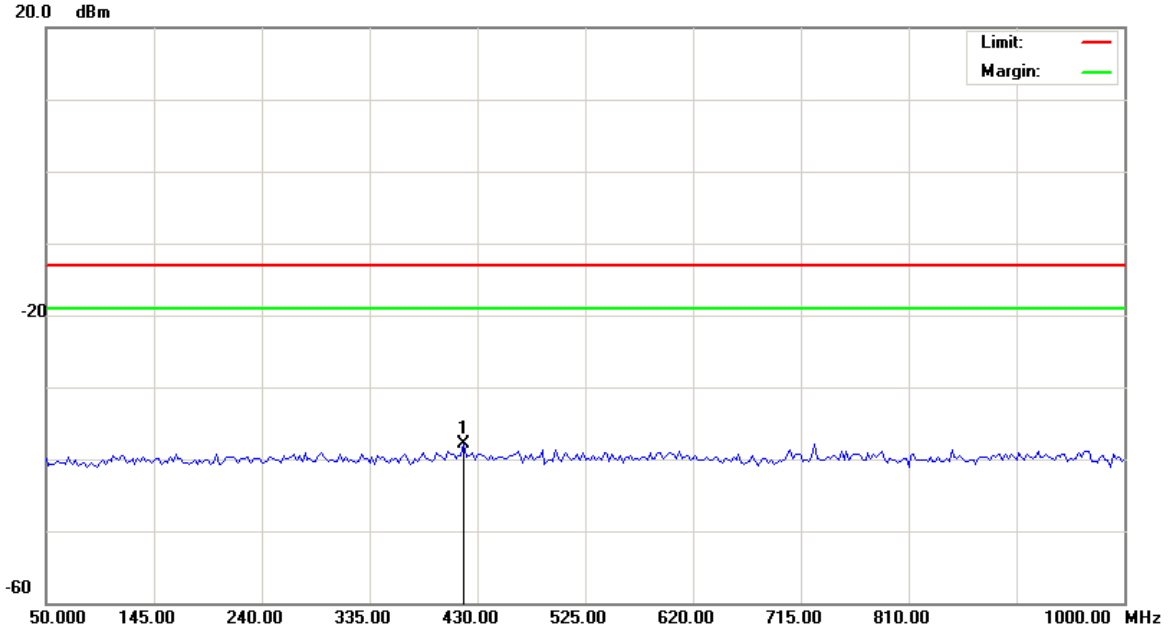


File :C105(CH1412)

Data :#2

Date: 2007/12/25

Time: 下午 03:40:21



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1412(1732.4MHz)
 加10db衰减器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	418.1250	-51.06	13.23	-37.83	-13.00	-24.83	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

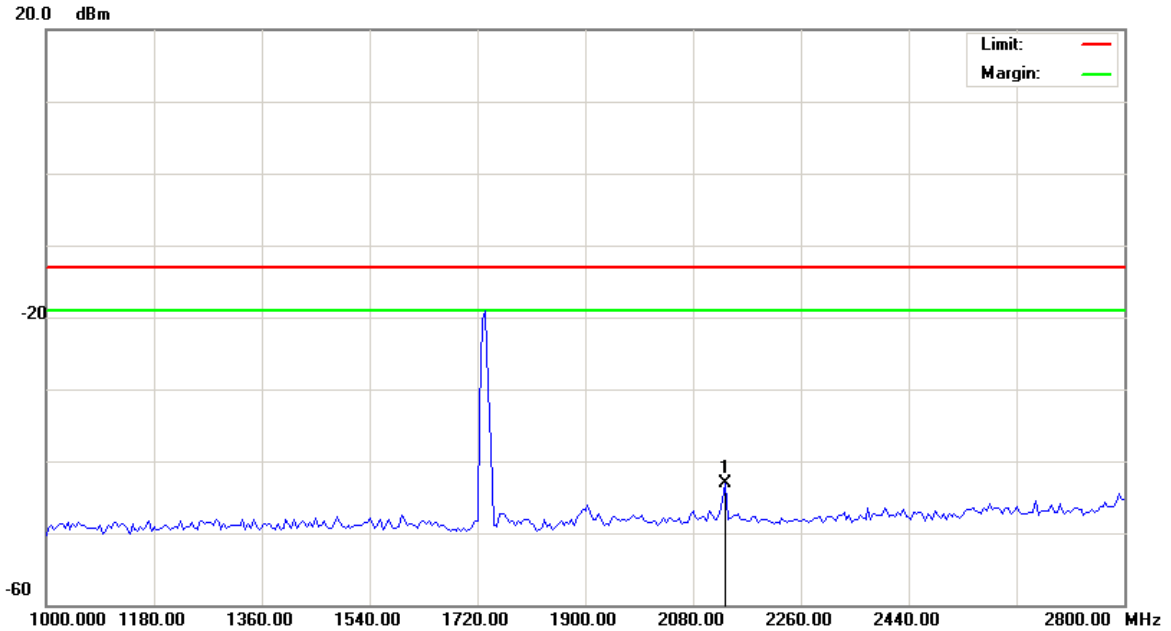


File :C105(CH1412)

Data :#3

Date: 2007/12/25

Time: 下午 05:32:05



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1412(1732.4MHz)
 加Notch(5TNF-1700)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2134.000	-47.76	4.63	-43.13	-13.00	-30.13	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

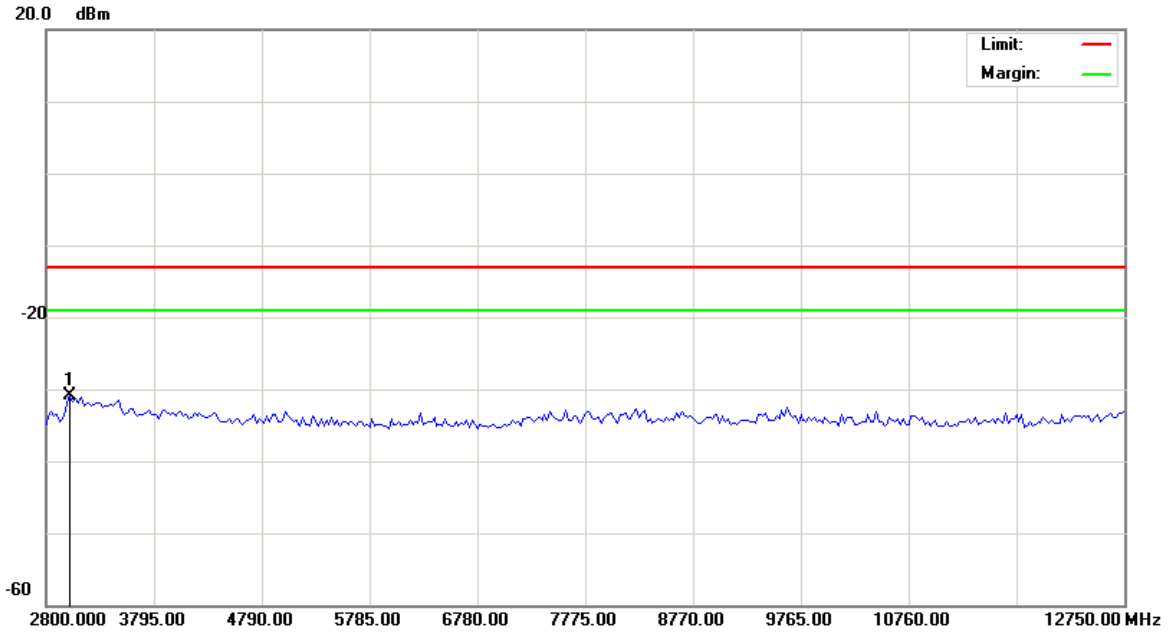


File :C105(CH1412)

Data :#4

Date: 2007/12/25

Time: 下午 07:02:26



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1412(1732.4MHz)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3023.875	-36.32	5.48	-30.84	-13.00	-17.84	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

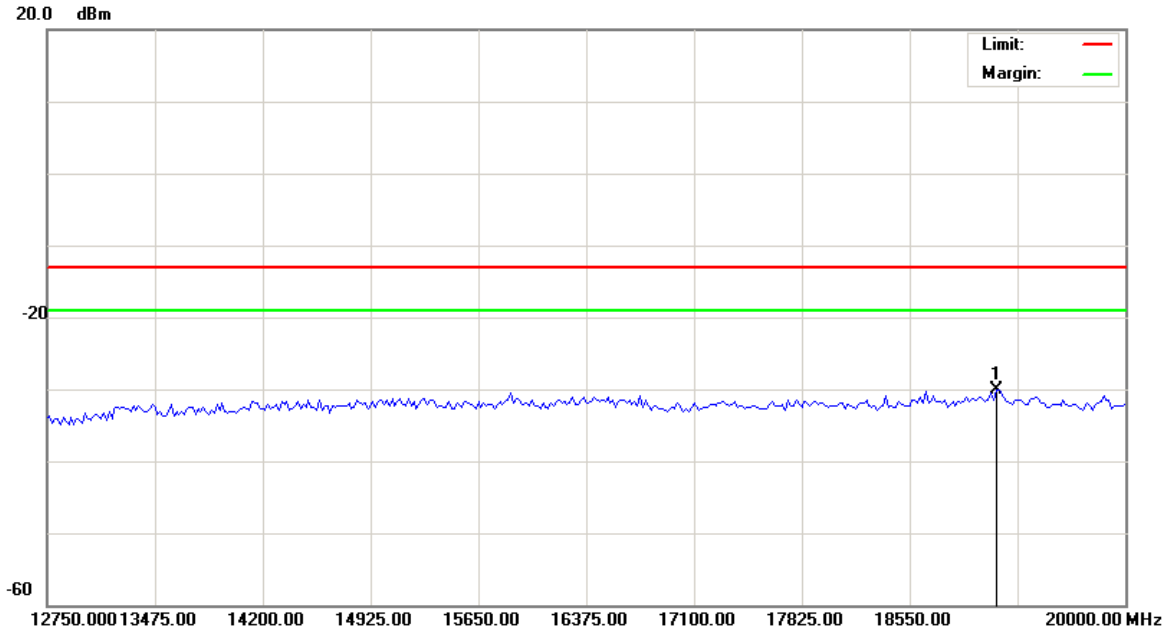


File :C105(CH1412)

Data :#5

Date: 2007/12/25

Time: 下午 07:02:46



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: HSDPA		Sweep Time: 100 ms
Note: CH1412(1732.4MHz)		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	19130.00	-37.30	7.19	-30.11	-13.00	-17.11	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



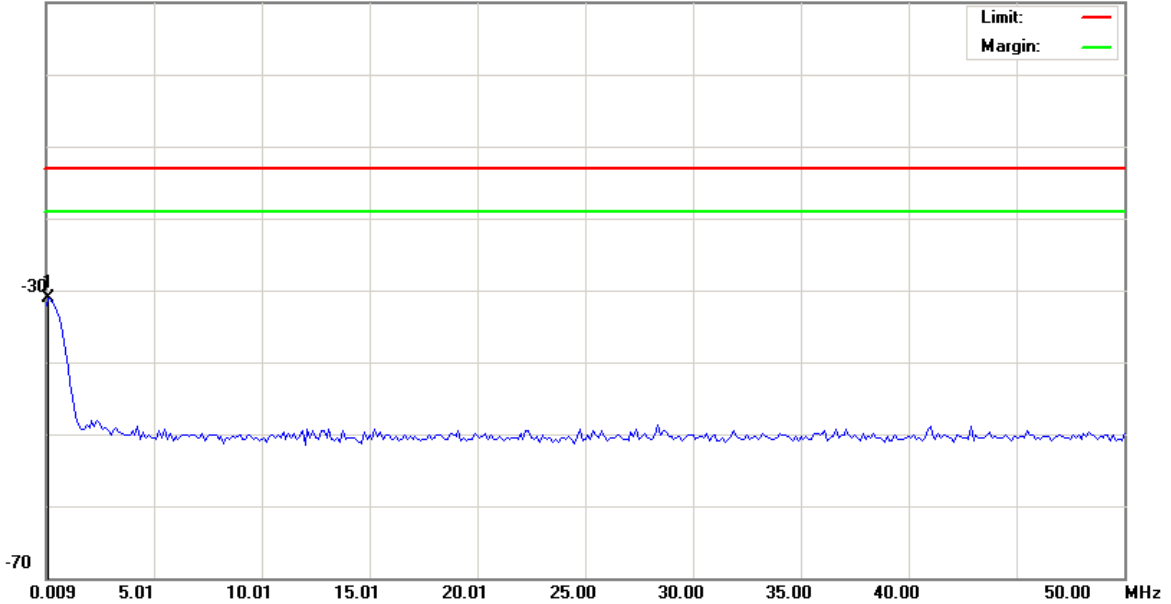
File :C105(CH1513)

Data :#1

Date: 2007/12/25

Time: 下午 05:01:08

10.0 dBm



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1513(1752.6MHz)
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	0.1340	-43.51	12.48	-31.03	-13.00	-18.03			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



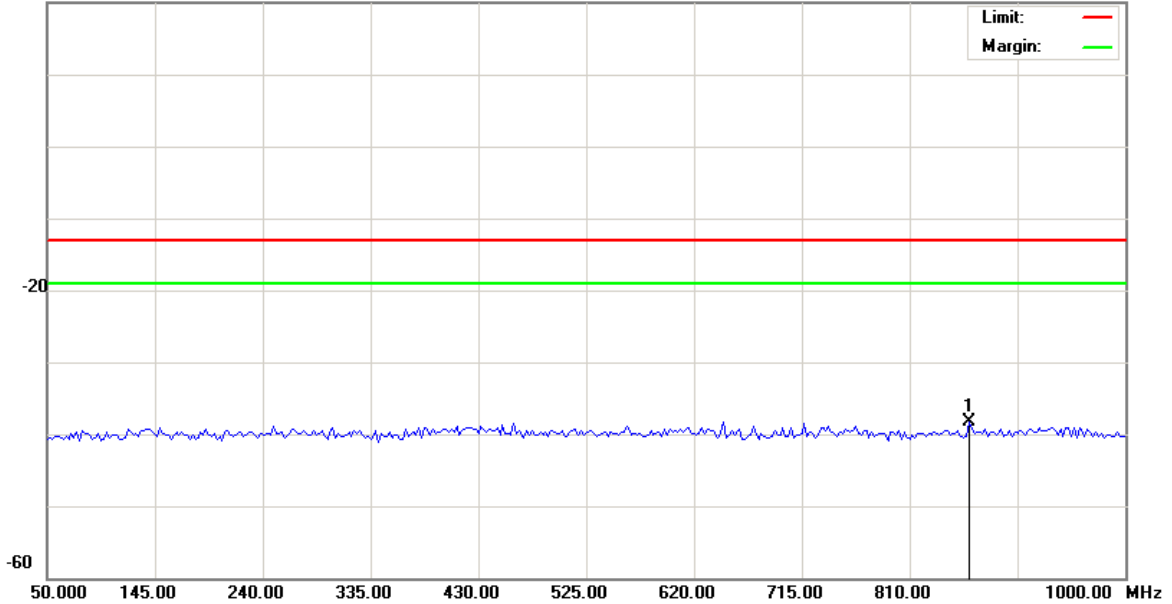
File :C105(CH1513)

Data :#2

Date: 2007/12/25

Time: 下午 05:01:27

20.0 dBm



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1513(1752.6MHz)
 加10db衰減器

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBm	dB	dBm	dBm	dB	cm	degree	Comment
1	*	862.2500	-51.54	13.27	-38.27	-13.00	-25.27			peak

*:Maximum data x:Over limit !:over margin

●Reference Only

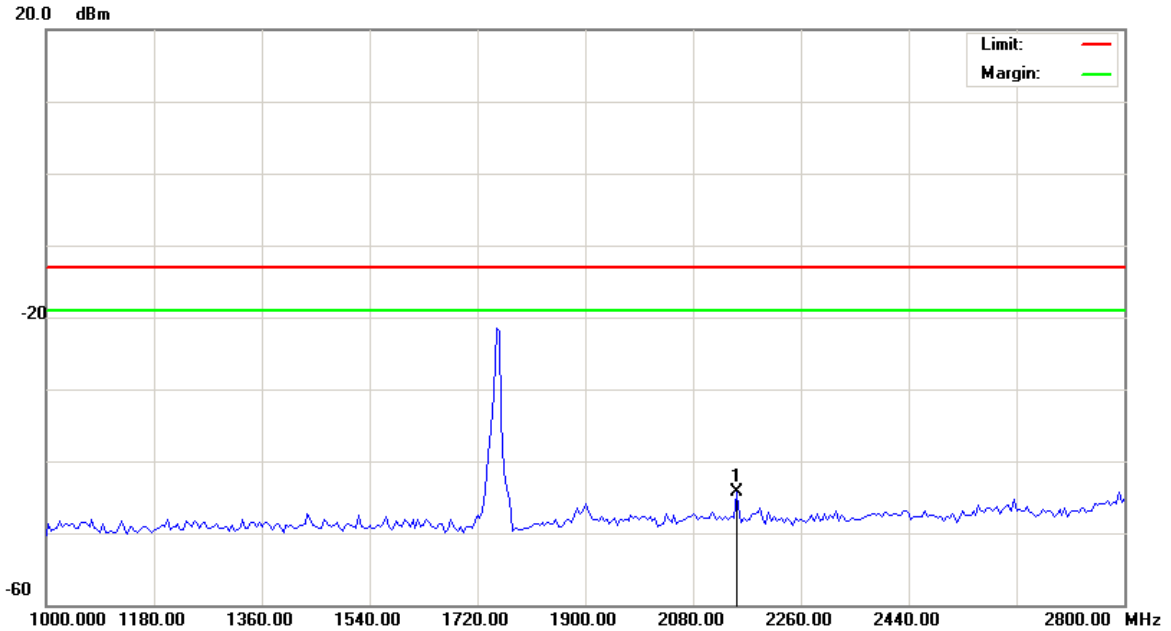


File :C105(CH1513)

Data :#3

Date: 2007/12/25

Time: 下午 05:17:42



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: HSDPA		Sweep Time: 100 ms
Note: CH1513(1752.6MHz)		
加Notch(5TNF-1700)		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	2152.000	-48.92	4.60	-44.32	-13.00	-31.32			peak

*:Maximum data x:Over limit !:over margin

●Reference Only

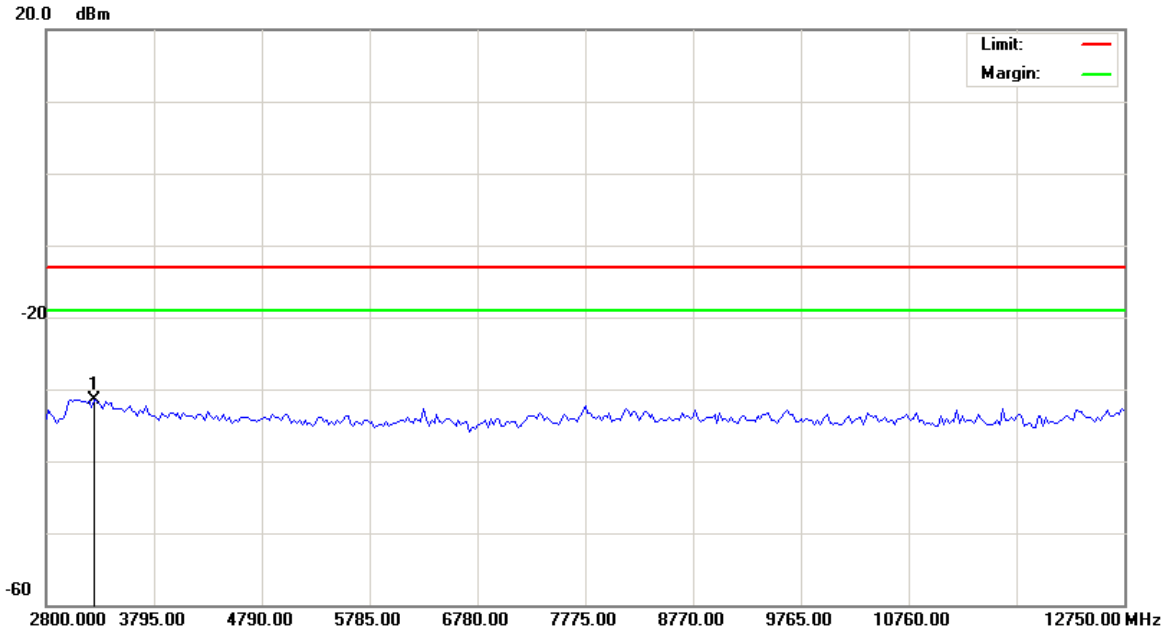


File :C105(CH1513)

Data :#4

Date: 2007/12/25

Time: 下午 07:04:17



Site site#1 Polarization: **Conducted po** Temperature: 26 °C
 Limit: FCC Part 27 conducted Power: AC 110V/60Hz Humidity: 55 %
 EUT: Distance: RBW: 1000 KHz
 M/N: C105 VBW: 1000 KHz Sweep Time: 100 ms
 Mode: HSDPA
 Note: CH1513(1752.6MHz)

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	3247.750	-36.51	5.11	-31.40	-13.00	-18.40	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

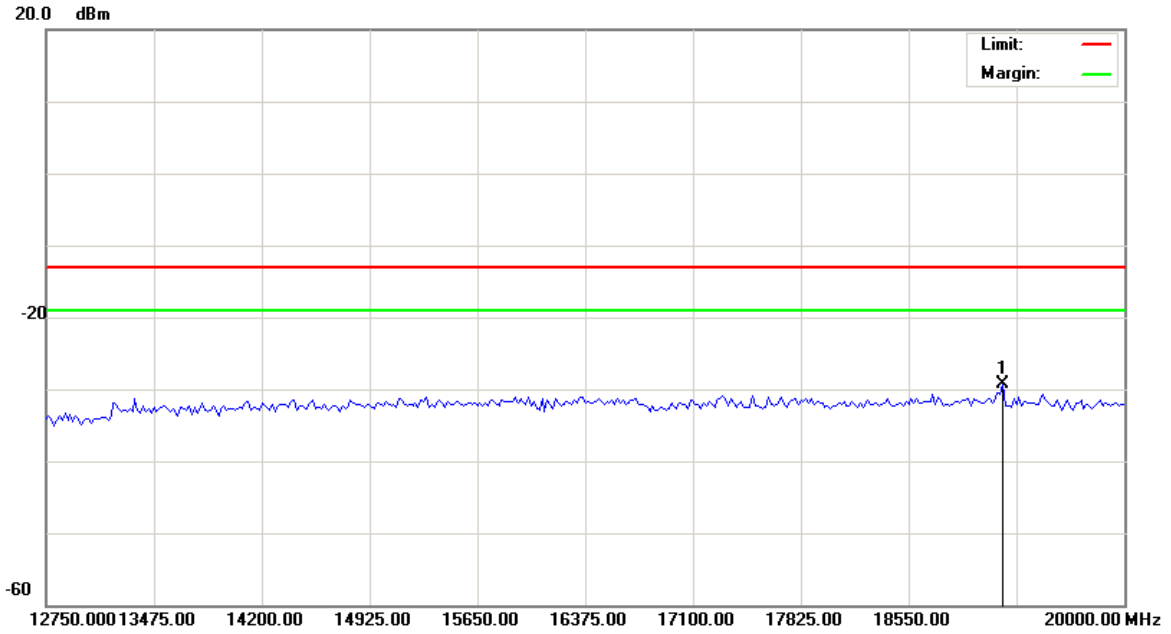


File :C105(CH1513)

Data :#5

Date: 2007/12/25

Time: 下午 07:04:38



Site site#1	Polarization: Conducted po	Temperature: 26 °C
Limit: FCC Part 27 conducted	Power: AC 110V/60Hz	Humidity: 55 %
EUT:	Distance:	RBW: 1000 KHz
M/N: C105		VBW: 1000 KHz
Mode: HSDPA		Sweep Time: 100 ms
Note: CH1513(1752.6MHz)		

No.	Mk.	Freq. MHz	Reading Level dBm	Correct Factor dB	Measure- ment dBm	Limit dBm	Over dB	Antenna Height cm	Table Degree degree	Comment
1	*	19184.37	-36.55	7.21	-29.34	-13.00	-16.34	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



4.6 AC Power Conducted Emissions Requirements

4.6.1 Measurement Instrument

As described in chapter 5 of this test report.

4.6.2 Test Procedure

The power line conducted emission measurements were performed in a shielded enclosure. The EUT was assembled on a wooden table which is 80 centimeters high, was placed 40 centimeters from the back wall and at least 1 meter from the sidewall.

Power was fed to the EUT from the public utility power grid through a line filter and EMCO Model 3162/2 SH Line Impedance Stabilization Networks (LISN). The LISN housing, measuring instrumentation case, ground plane, etc., were electrically bonded together at the same RF potential. The Spectrum analyzer was connected to the AC line through an isolation transformer. The 50-ohm output of the LISN was connected to the spectrum analyzer directly. Conducted emission levels were in the CISPR quasi-peak detection mode. The analyzer's 6 dB bandwidth was set to 9 KHz. No post-detector video filter was used.

The spectrum was scanned from 150 KHz to 30 MHz. The physical arrangement of the test system and associated cabling was varied (within the scope of arrangements likely to be encountered in actual use) to determine the effect on the unit's emanations in amplitude and frequency. All spurious emission frequencies were observed. The highest emission amplitudes relative to the appropriate limit were measured and have been recorded in paragraph 2.6.

4.6.3 Test Configuration:



Figure 1. Front View of the Test Configuration

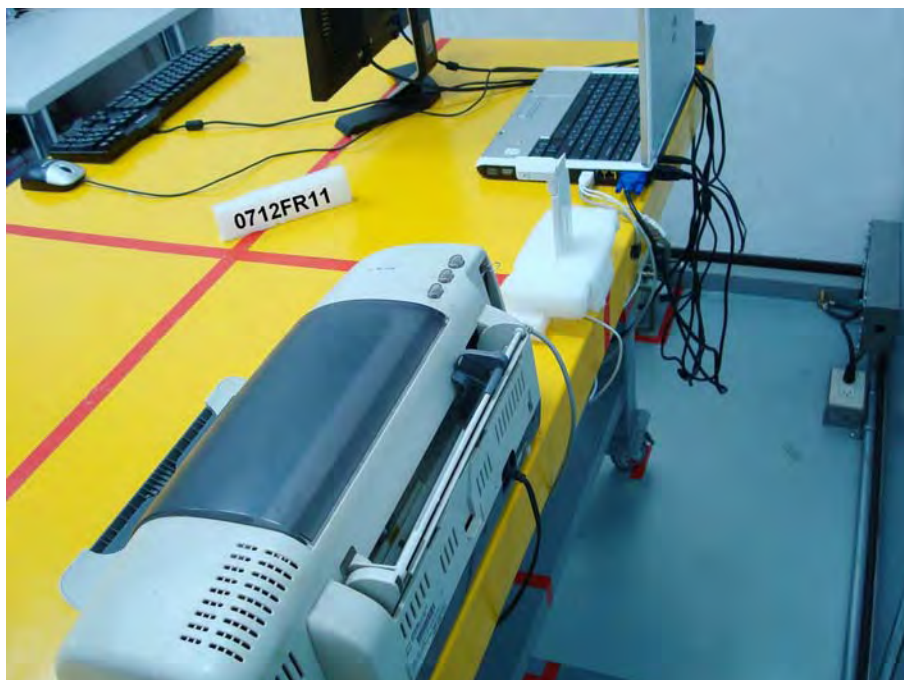


Figure 2. Rear View of the Test Configuration



4.6.4 Test condition:

EUT tested in accordance with the specifications given by the Manufacturer, and exercised in the most unfavorable manner.

4.6.5 Conducted Emissions Limits:

Frequency range (MHz)	Limits (dBuV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5.0	56	46
5.0 to 30	60	50



4.6.6 Test Result

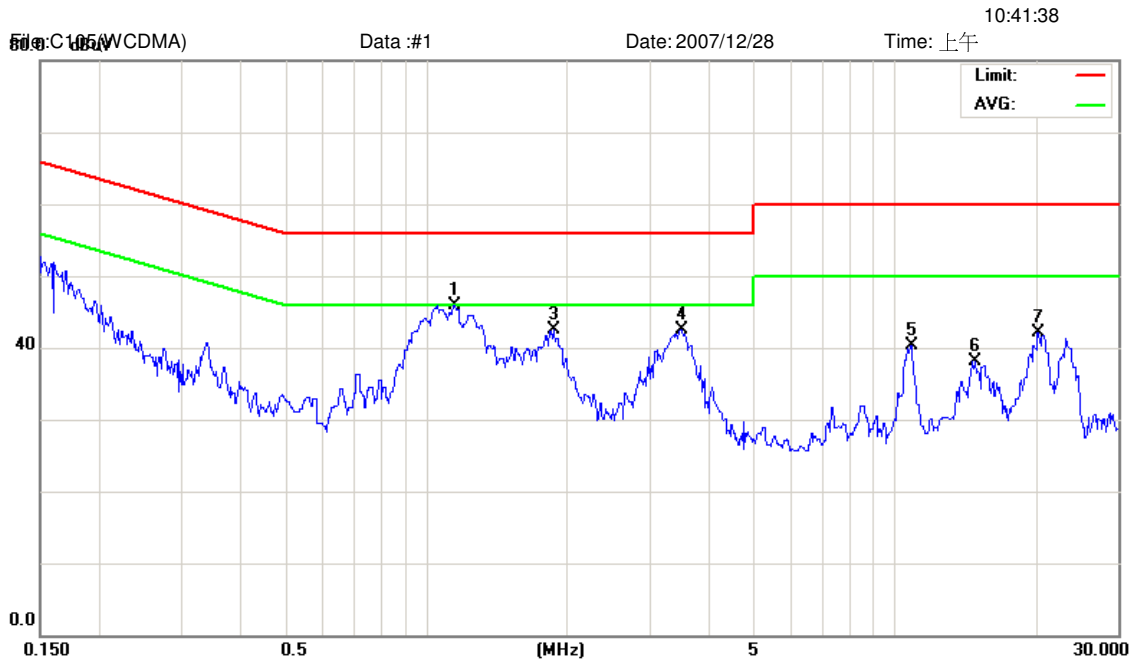
4.6.6.1 WCDMA Test Result

Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : WCDMA (Low CH1312 / Middle CH1412 / High CH 1513)
Test Date : 12/26/2007

Please refer to next pager of detail testing data.



Conducted Emission Measurement



Site site#1 Phase: **L1** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: WCDMA(CH1312)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		1.1480	36.11	9.80	45.91	56.00	-10.09	peak	
2	*	1.1480	26.40	9.80	36.20	46.00	-9.80	AVG	
3		1.8680	32.62	9.82	42.44	56.00	-13.56	peak	
4		3.4970	32.63	9.95	42.58	56.00	-13.42	peak	
5		10.8000	30.24	10.07	40.31	60.00	-19.69	peak	
6		14.8000	27.97	10.20	38.17	60.00	-21.83	peak	
7		20.2000	31.83	10.29	42.12	60.00	-17.88	peak	

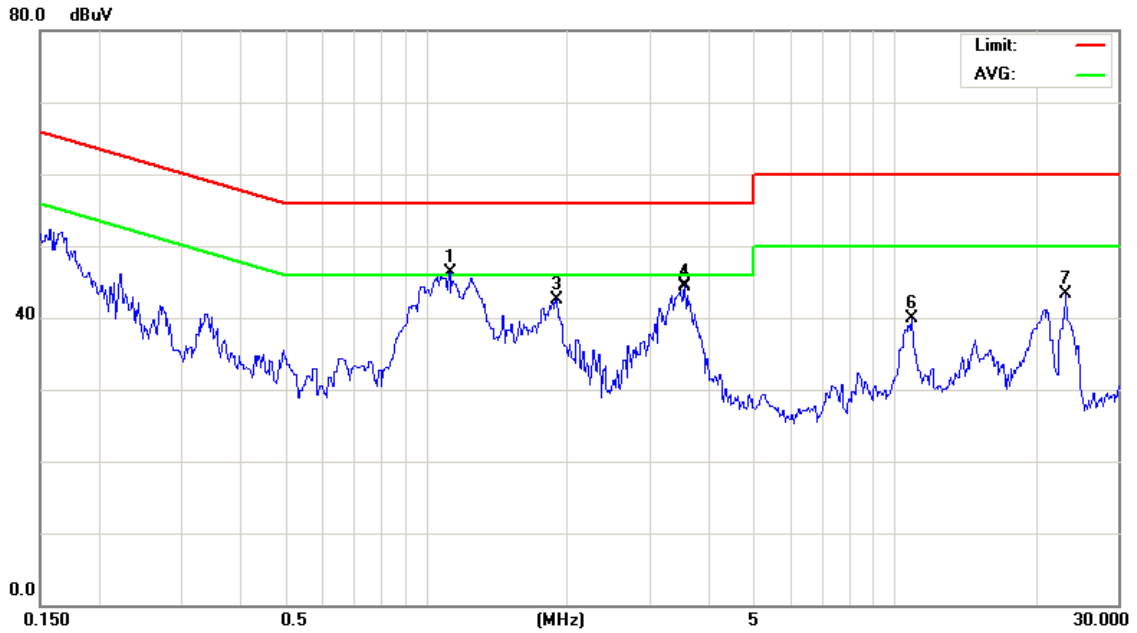
*:Maximum data x:Over limit !:over margin

●Reference Only



Conducted Emission Measurement

10:46:38



Site site#1 Phase: **L2** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: WCDMA(CH1312)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	1.1210	36.45	9.80	46.25	56.00	-9.75	peak	
2		1.1210	25.60	9.80	35.40	46.00	-10.60	AVG	
3		1.8950	32.66	9.83	42.49	56.00	-13.51	peak	
4		3.5600	34.46	9.94	44.40	56.00	-11.60	peak	
5		3.5600	18.26	9.94	28.20	46.00	-17.80	AVG	
6		10.8500	29.78	10.08	39.86	60.00	-20.14	peak	
7		23.1000	32.86	10.38	43.24	60.00	-16.76	peak	

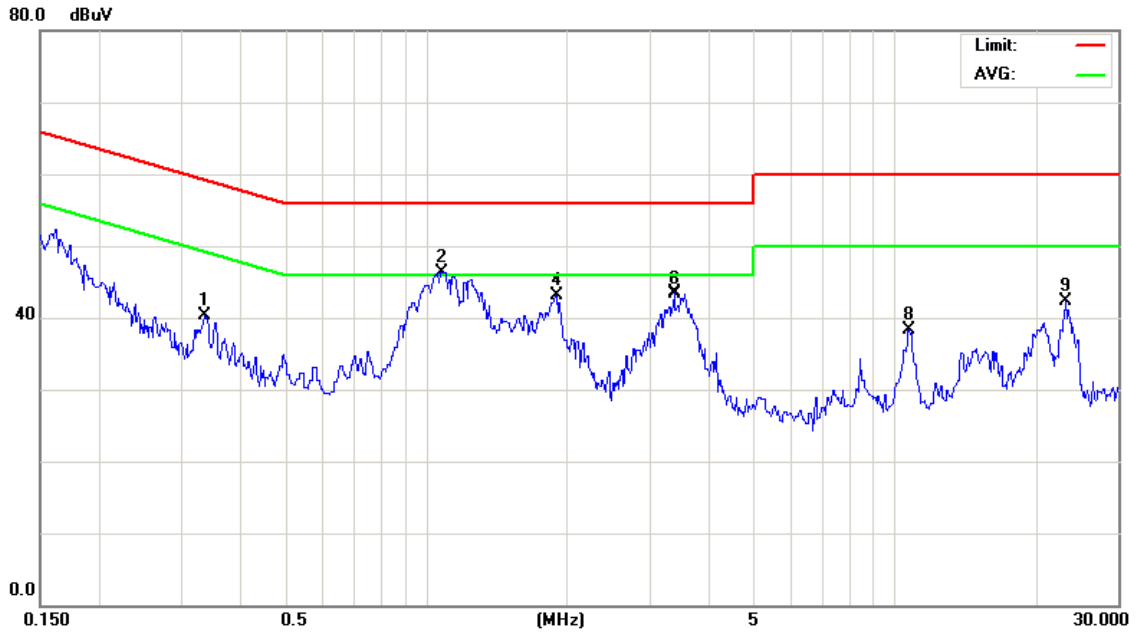
*:Maximum data x:Over limit !:over margin

●Reference Only



Conducted Emission Measurement

11:02:43



Site site#1 Phase: **L1** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: WCDMA(CH1412)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.3362	30.57	9.78	40.35	59.29	-18.94	peak	
2	*	1.0760	36.52	9.80	46.32	56.00	-9.68	peak	
3		1.0760	25.60	9.80	35.40	46.00	-10.60	AVG	
4		1.8950	33.20	9.83	43.03	56.00	-12.97	peak	
5		1.8950	24.17	9.83	34.00	46.00	-12.00	AVG	
6		3.3800	33.46	9.94	43.40	56.00	-12.60	peak	
7		3.3800	17.36	9.94	27.30	46.00	-18.70	AVG	
8		10.7000	28.23	10.06	38.29	60.00	-21.71	peak	
9		23.1000	31.90	10.38	42.28	60.00	-17.72	peak	

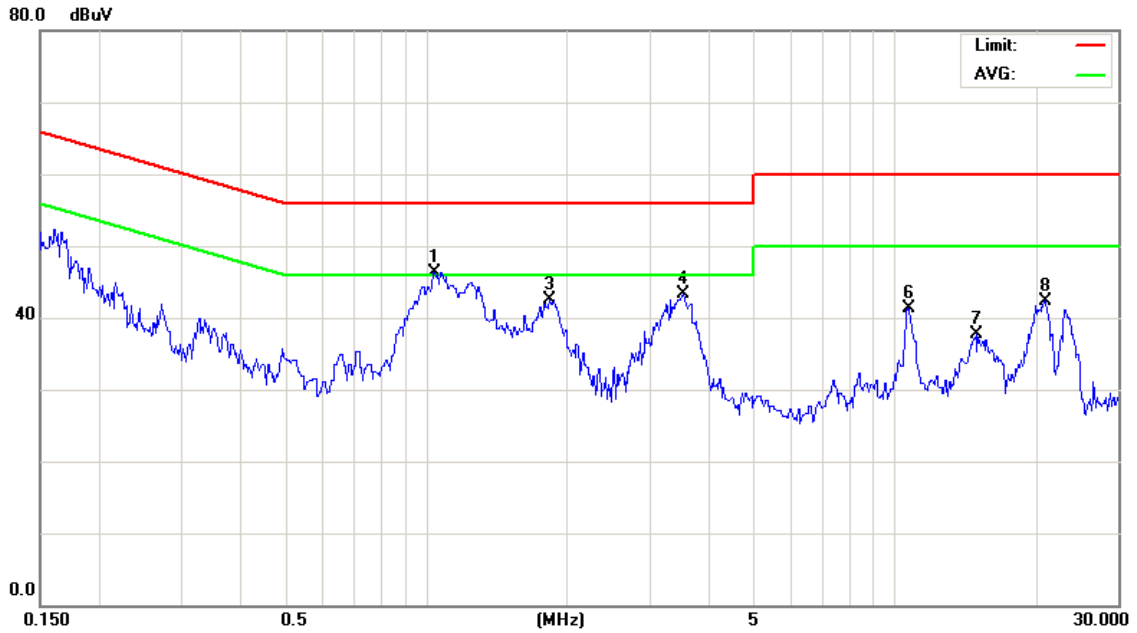
*:Maximum data x:Over limit !:over margin

●Reference Only



Conducted Emission Measurement

11:19:57



Site site#1 Phase: **L2** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: WCDMA(CH1412)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		1.0400	36.47	9.80	46.27	56.00	-9.73	peak	
2	*	1.0400	26.70	9.80	36.50	46.00	-9.50	AVG	
3		1.8320	32.77	9.82	42.59	56.00	-13.41	peak	
4		3.5420	33.36	9.94	43.30	56.00	-12.70	peak	
5		3.5420	17.66	9.94	27.60	46.00	-18.40	AVG	
6		10.7000	31.24	10.06	41.30	60.00	-18.70	peak	
7		14.9000	27.44	10.21	37.65	60.00	-22.35	peak	
8		20.9500	32.05	10.28	42.33	60.00	-17.67	peak	

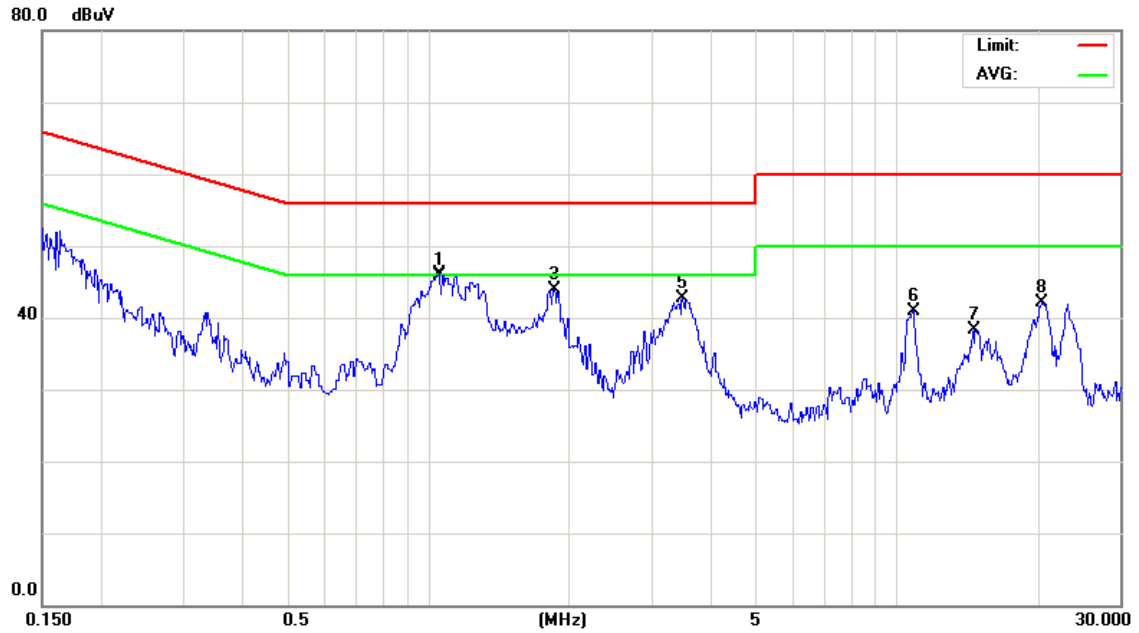
*:Maximum data x:Over limit !:over margin

●:Reference Only



Conducted Emission Measurement

11:35:24



Site site#1 Phase: **L1** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: WCDMA(CH1513)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		1.0580	36.20	9.80	46.00	56.00	-10.00	peak	
2	*	1.0580	26.40	9.80	36.20	46.00	-9.80	AVG	
3		1.8500	34.13	9.82	43.95	56.00	-12.05	peak	
4		1.8500	22.98	9.82	32.80	46.00	-13.20	AVG	
5		3.4880	32.73	9.95	42.68	56.00	-13.32	peak	
6		10.8000	30.86	10.07	40.93	60.00	-19.07	peak	
7		14.6500	28.09	10.20	38.29	60.00	-21.71	peak	
8		20.3500	31.82	10.36	42.18	60.00	-17.82	peak	

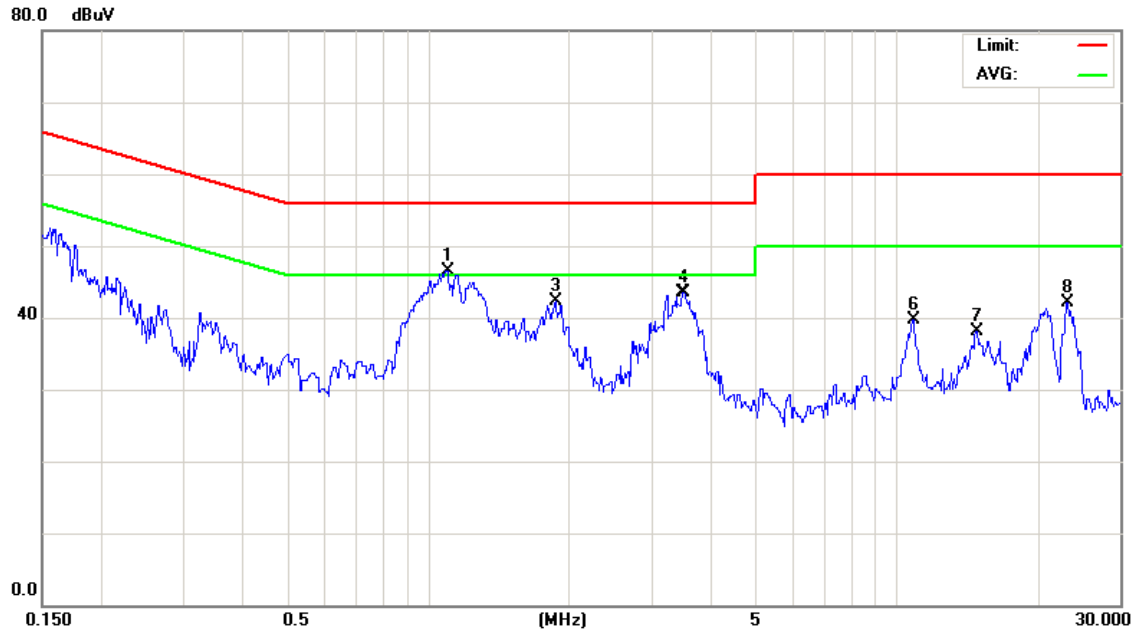
*:Maximum data x:Over limit !:over margin

●Reference Only



Conducted Emission Measurement

11:47:13



Site site#1 Phase: **L2** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: WCDMA(CH1513)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	1.0940	36.74	9.80	46.54	56.00	-9.46	peak	
2		1.0940	26.70	9.80	36.50	46.00	-9.50	AVG	
3		1.8680	32.57	9.82	42.39	56.00	-13.61	peak	
4		3.4970	33.60	9.94	43.54	56.00	-12.46	peak	
5		3.4970	19.86	9.94	29.80	46.00	-16.20	AVG	
6		10.8000	29.69	10.07	39.76	60.00	-20.24	peak	
7		14.7500	27.94	10.20	38.14	60.00	-21.86	peak	
8		23.0500	31.67	10.38	42.05	60.00	-17.95	peak	

*:Maximum data x:Over limit !:over margin

●Reference Only



4.6.6.2 HSDPA Test Result

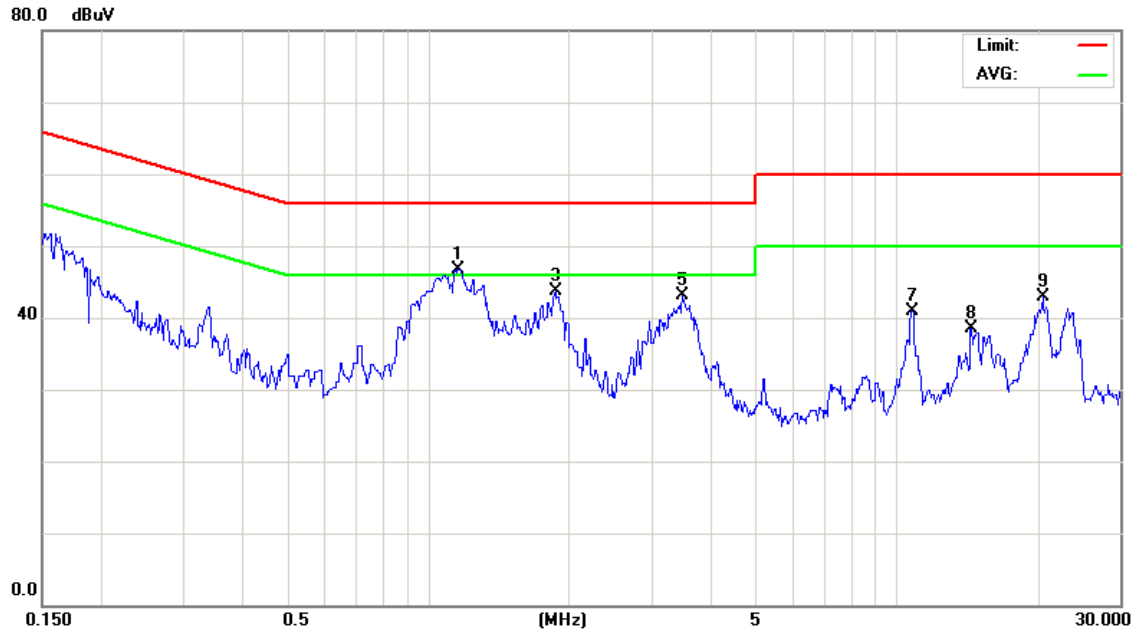
Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : HSDPA (Low CH1312 / Middle CH1412 / High CH1513)
Test Date : 12/28/2007

Please refer to next pager of detail testing data.



Conducted Emission Measurement

12:14:47



Site site#1 Phase: **L1** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: HSDPA(CH1312)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	1.1570	36.87	9.80	46.67	56.00	-9.33	peak	
2		1.1570	26.20	9.80	36.00	46.00	-10.00	AVG	
3		1.8680	33.89	9.82	43.71	56.00	-12.29	peak	
4		1.8680	23.08	9.82	32.90	46.00	-13.10	AVG	
5		3.4880	33.13	9.95	43.08	56.00	-12.92	peak	
6		3.4880	17.65	9.95	27.60	46.00	-18.40	AVG	
7		10.7500	30.85	10.07	40.92	60.00	-19.08	peak	
8		14.4000	28.36	10.20	38.56	60.00	-21.44	peak	
9		20.4500	32.50	10.40	42.90	60.00	-17.10	peak	

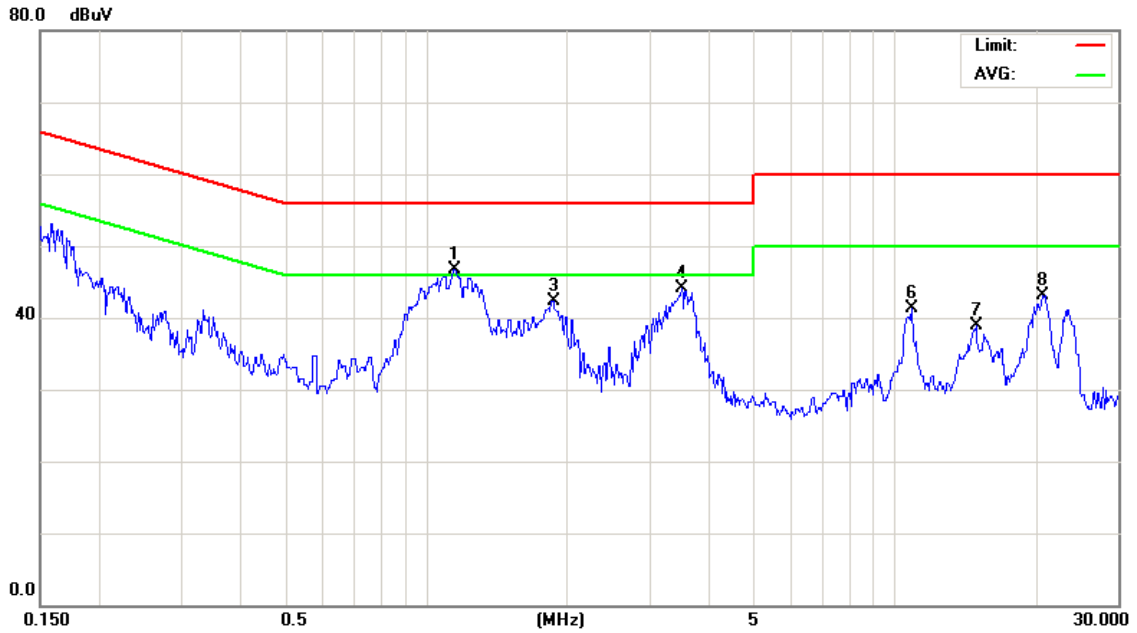
*:Maximum data x:Over limit !:over margin

●:Reference Only



Conducted Emission Measurement

01:33:33



Site site#1 Phase: **L2** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: HSDPA(CH1312)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	1.1480	36.96	9.80	46.76	56.00	-9.24	peak	
2		1.1480	26.10	9.80	35.90	46.00	-10.10	AVG	
3		1.8680	32.58	9.82	42.40	56.00	-13.60	peak	
4		3.5060	34.23	9.94	44.17	56.00	-11.83	peak	
5		3.5060	18.66	9.94	28.60	46.00	-17.40	AVG	
6		10.8500	31.18	10.08	41.26	60.00	-18.74	peak	
7		14.9000	28.77	10.21	38.98	60.00	-21.02	peak	
8		20.7000	32.70	10.39	43.09	60.00	-16.91	peak	

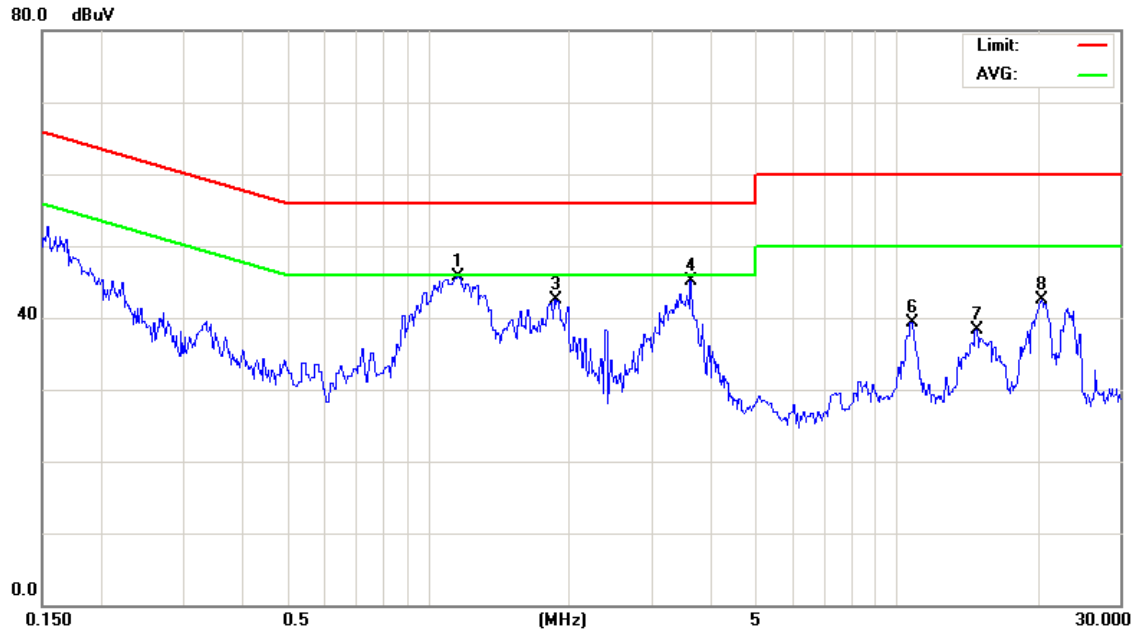
*:Maximum data x:Over limit !:over margin

●:Reference Only



Conducted Emission Measurement

01:43:30



Site site#1 Phase: **L1** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: HSDPA(CH1412)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		1.1570	35.99	9.80	45.79	56.00	-10.21	peak	
2	*	1.1570	28.40	9.80	38.20	46.00	-7.80	AVG	
3		1.8590	32.68	9.82	42.50	56.00	-13.50	peak	
4		3.6230	35.23	9.93	45.16	56.00	-10.84	peak	
5		3.6230	19.27	9.93	29.20	46.00	-16.80	AVG	
6		10.7500	29.27	10.07	39.34	60.00	-20.66	peak	
7		14.7500	28.15	10.20	38.35	60.00	-21.65	peak	
8		20.3000	32.10	10.33	42.43	60.00	-17.57	peak	

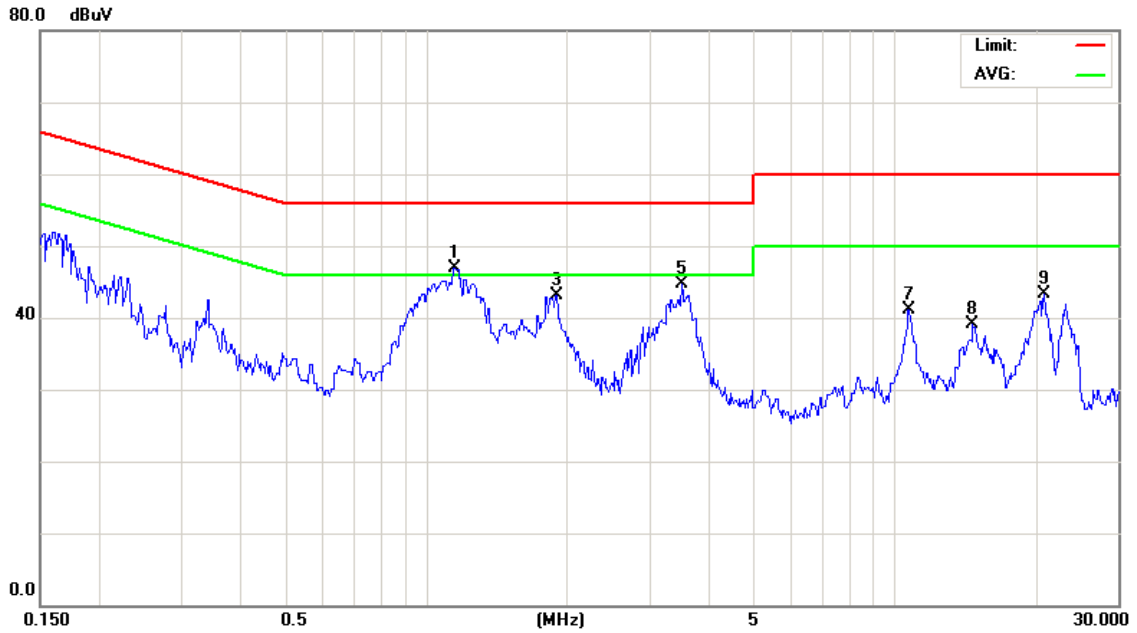
*:Maximum data x:Over limit !:over margin

●:Reference Only



Conducted Emission Measurement

01:51:13



Site site#1 Phase: **L2** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: HSDPA(CH1412)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	1.1480	37.03	9.80	46.83	56.00	-9.17	peak	
2		1.1480	26.20	9.80	36.00	46.00	-10.00	AVG	
3		1.8950	33.19	9.83	43.02	56.00	-12.98	peak	
4		1.8950	22.17	9.83	32.00	46.00	-14.00	AVG	
5		3.5060	34.75	9.94	44.69	56.00	-11.31	peak	
6		3.5060	17.86	9.94	27.80	46.00	-18.20	AVG	
7		10.7000	31.14	10.06	41.20	60.00	-18.80	peak	
8		14.6500	28.96	10.20	39.16	60.00	-20.84	peak	
9		20.8000	32.98	10.34	43.32	60.00	-16.68	peak	

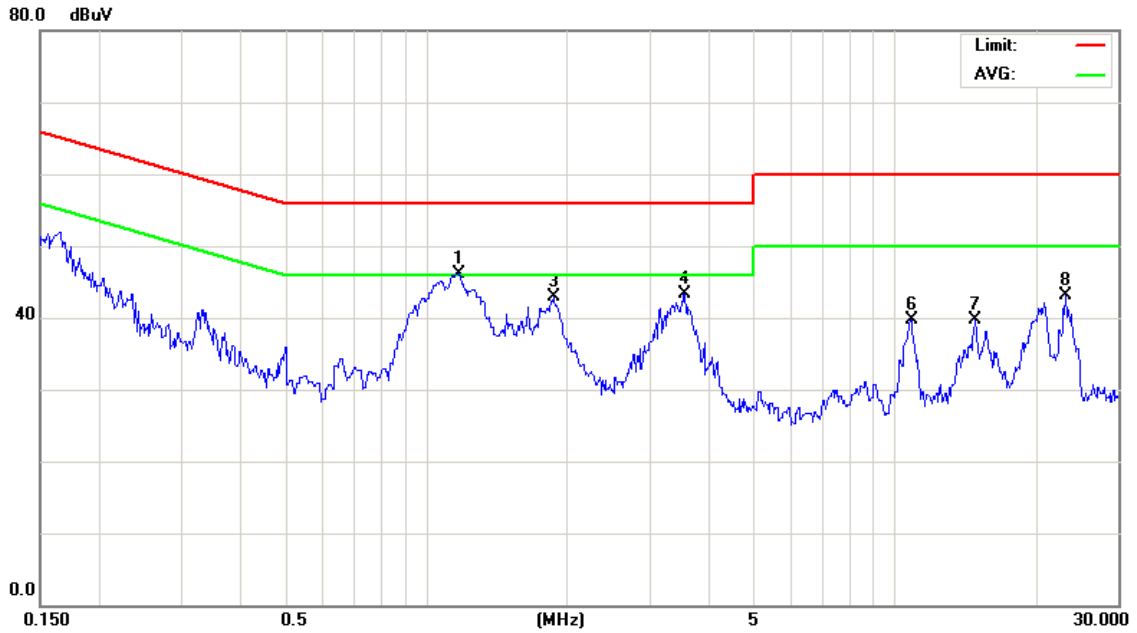
*:Maximum data x:Over limit !:over margin

●Reference Only



Conducted Emission Measurement

02:05:17



Site site#1 Phase: **L1** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: HSDPA(CH1513)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	1.1660	36.36	9.80	46.16	56.00	-9.84	peak	
2		1.1660	26.10	9.80	35.90	46.00	-10.10	AVG	
3		1.8680	32.99	9.82	42.81	56.00	-13.19	peak	
4		3.5600	33.41	9.94	43.35	56.00	-12.65	peak	
5		3.5600	19.06	9.94	29.00	46.00	-17.00	AVG	
6		10.8000	29.60	10.07	39.67	60.00	-20.33	peak	
7		14.8000	29.51	10.20	39.71	60.00	-20.29	peak	
8		23.1000	32.76	10.38	43.14	60.00	-16.86	peak	

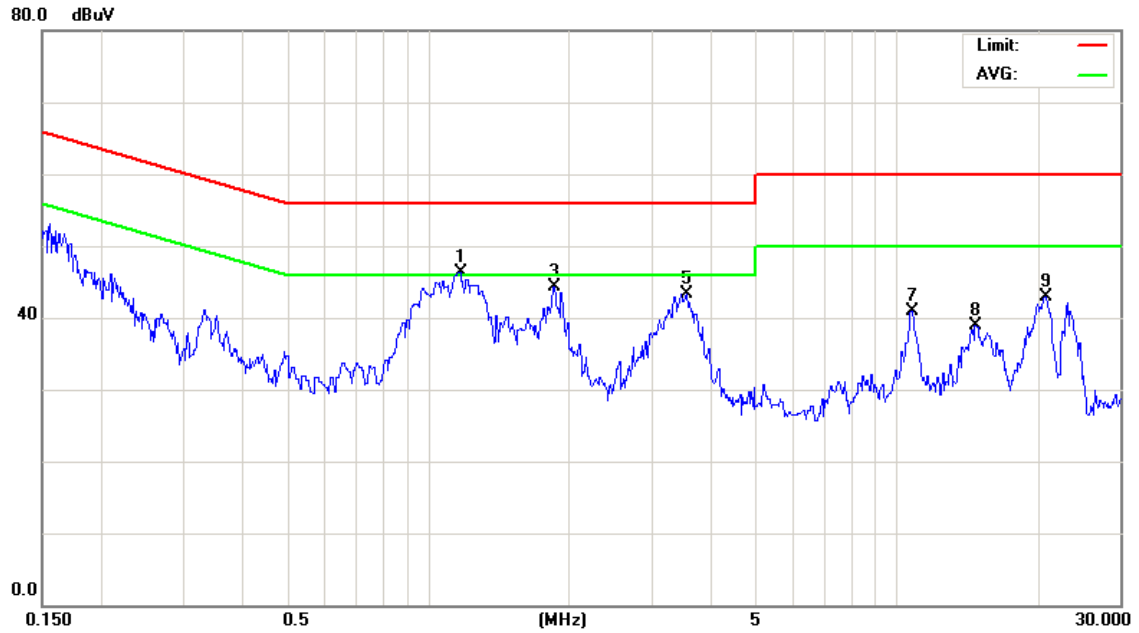
*:Maximum data x:Over limit !:over margin

●Reference Only



Conducted Emission Measurement

02:15:11



Site site#1 Phase: **L2** Temperature: 26 °C
 Limit: CISPR22 Class B Conduction(QP) Power: AC 110V/60Hz Humidity: 55 %
 EUT:
 M/N: C105
 Mode: HSDPA(CH1513)
 Note: NB-02,USB右上方

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1	*	1.1660	36.54	9.80	46.34	56.00	-9.66	peak	
2		1.1660	26.50	9.80	36.30	46.00	-9.70	AVG	
3		1.8500	34.50	9.82	44.32	56.00	-11.68	peak	
4		1.8500	21.08	9.82	30.90	46.00	-15.10	AVG	
5		3.5600	33.43	9.94	43.37	56.00	-12.63	peak	
6		3.5600	18.76	9.94	28.70	46.00	-17.30	AVG	
7		10.7500	30.84	10.07	40.91	60.00	-19.09	peak	
8		14.7000	28.66	10.20	38.86	60.00	-21.14	peak	
9		20.7500	32.57	10.37	42.94	60.00	-17.06	peak	

*:Maximum data x:Over limit !:over margin

●:Reference Only



4.7 Radiated Emissions

4.7.1 Measurement Instruments

As described in chapter 5 of this test report.

4.7.2 Test Procedure

The equipment under test is placed inside the semi-anechoic chamber on a wooden table at the turntable center. For each spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters and the turntable is rotated 360 degrees to obtain a maximum reading on the spectrum analyzer. This is repeated for both horizontal and vertical polarizations of the receive antenna.

The equipment under test is then replaced with a substitution antenna fed by a signal generator. With the signal generator tuned to a particular spurious frequency, the antenna mast is raised and lowered from 1 to 4 meters to obtain a maximum reading at the spectrum analyzer. The output of the signal generator is then adjusted until a reading identical to that obtained with the actual transmitter is achieved.

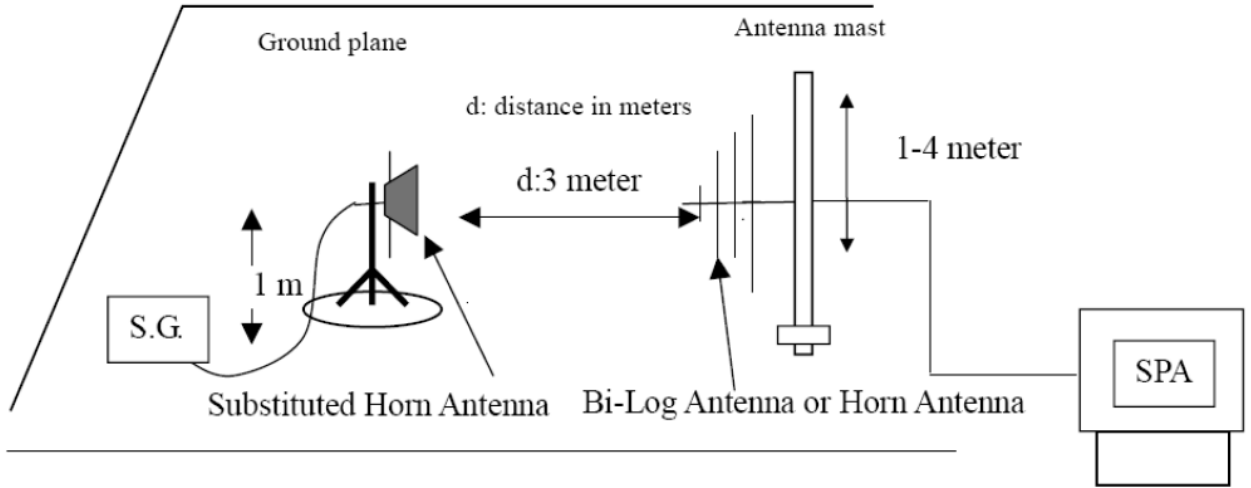
The power in dBm of each spurious emission is calculated by correcting the signal generator level for cable loss and gain of the substitution antenna referenced to a dipole. A fully charged battery was used for the supply voltage.

The settings of the receiver were as follows:

Units	dBm
Resolution Bandwidth	1 MHz
Video Bandwidth	Auto
Sweep Time	Auto

4.7.3 Test Setup Layout

Substituted Method Test Set-up



4.7.4 Test Configuration:



Figure 3. Front View of the Test Configuration



Figure 4. Rear View of the Test Configuration



Figure 5. Front View of the Test Configuration



Figure 6. Rear View of the Test Configuration



4.7.5 Test Result

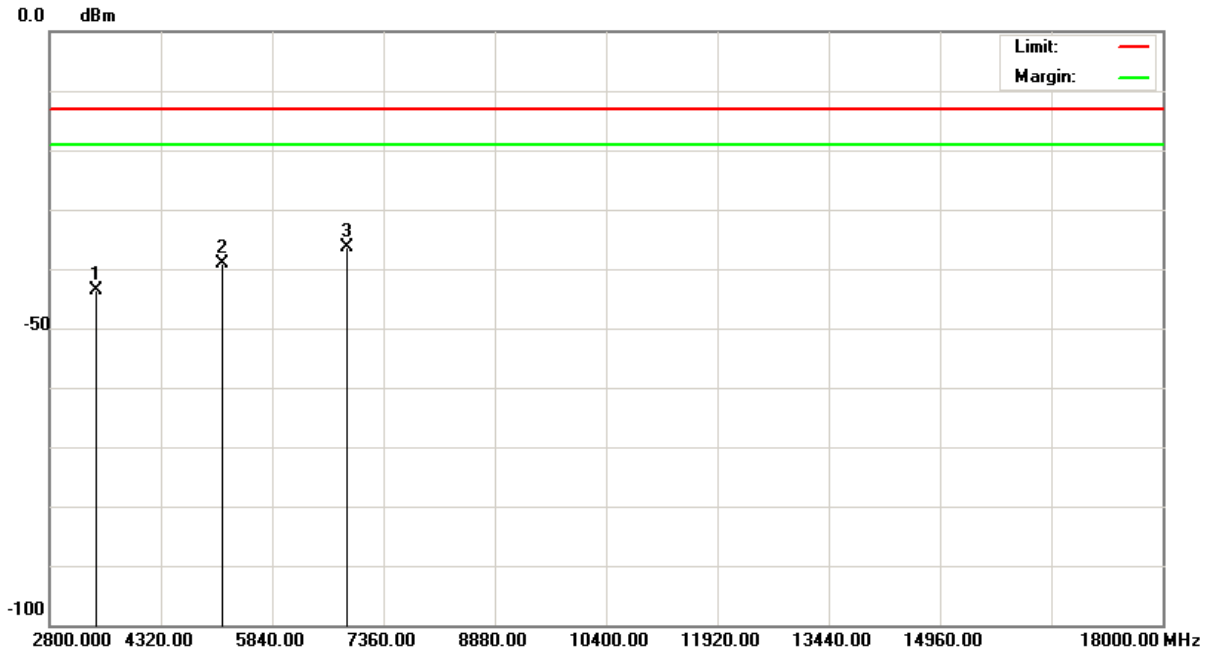
4.7.5.1 WCDMA Test Result

Applicant : BandRich Inc.
 Model No : C105
 EUT : HSDPA ExpressCard
 Test Mode : WCDMA (Low CH1312)
 Test Date : 12/28/2007

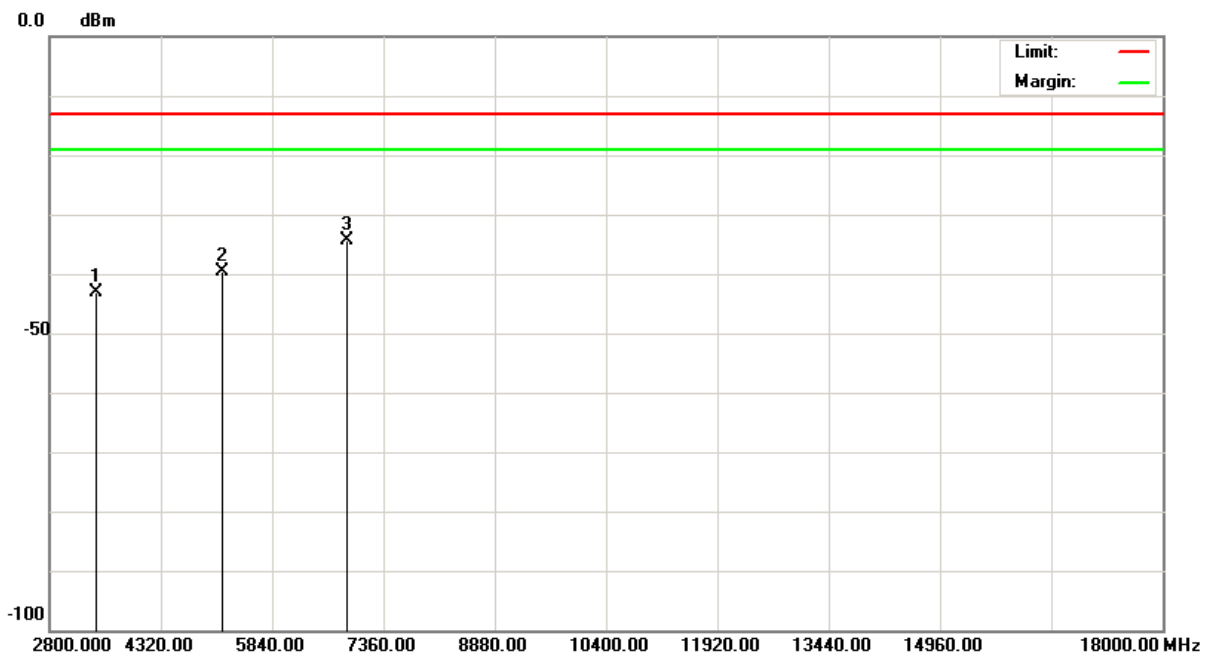
Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	-43.67	-43.22
3rd harmonic	-13	-39.16	-39.50
4th harmonic	-13	-36.35	-34.47
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*

Notes:

- * Indicates the spurious emission could not be detected due to noise limitations or ambients.
- Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
- The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.



Horizontal



Vertical

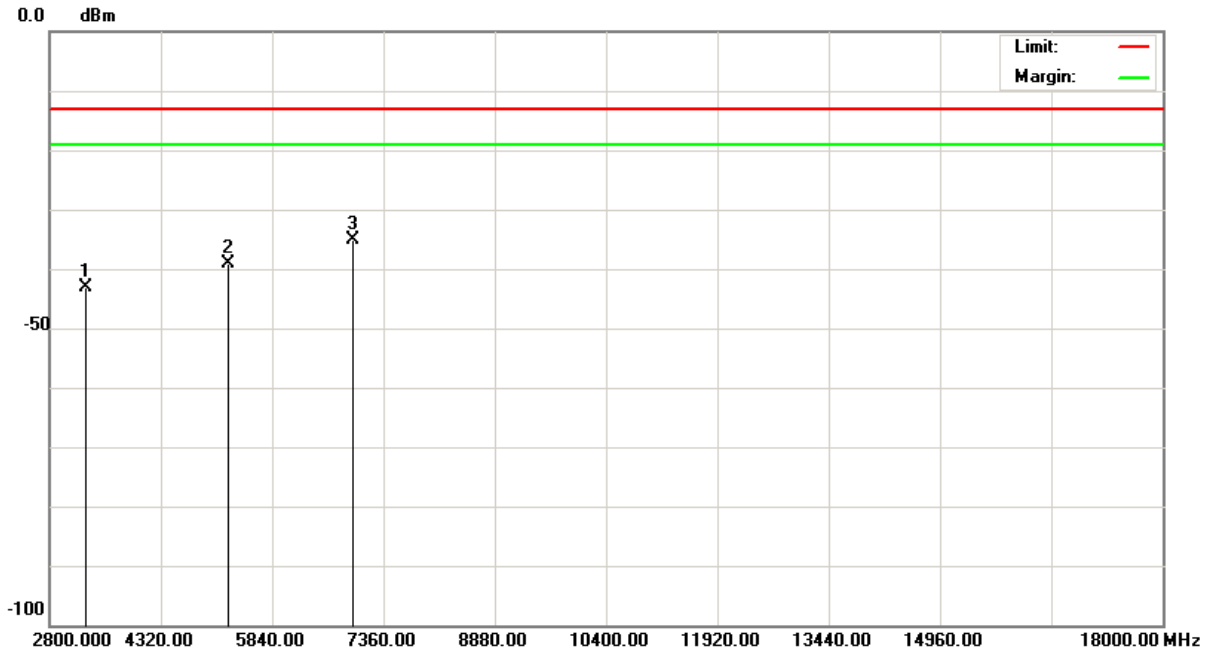


Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : WCDMA (Middle CH1412)
Test Date : 12/28/2007

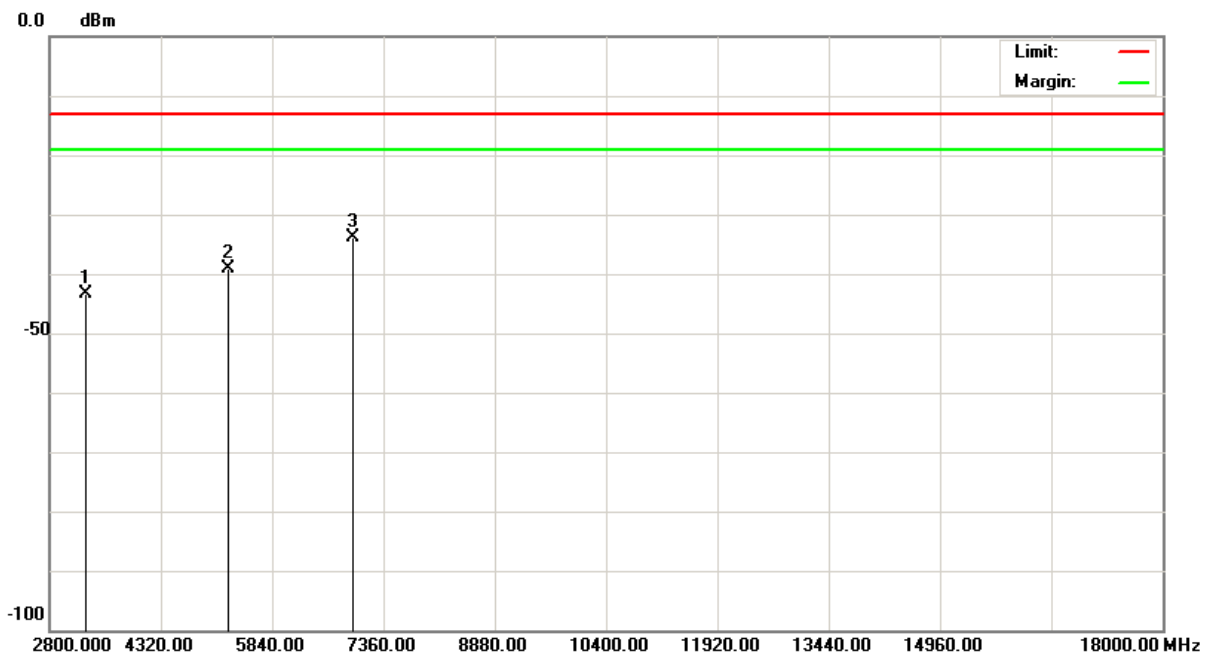
Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	-43.19	-43.26
3rd harmonic	-13	-39.14	-39.19
4th harmonic	-13	-35.08	-33.78
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*

Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.



Horizontal



Vertical

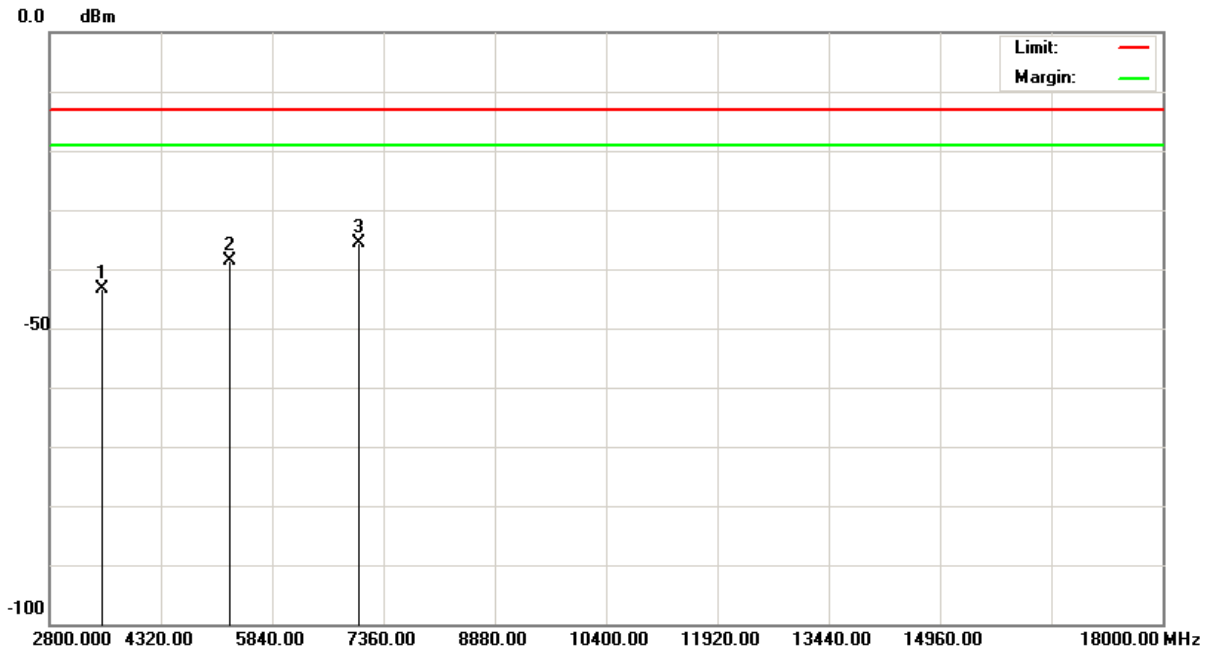


Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : WCDMA (High CH1513)
Test Date : 12/28/2007

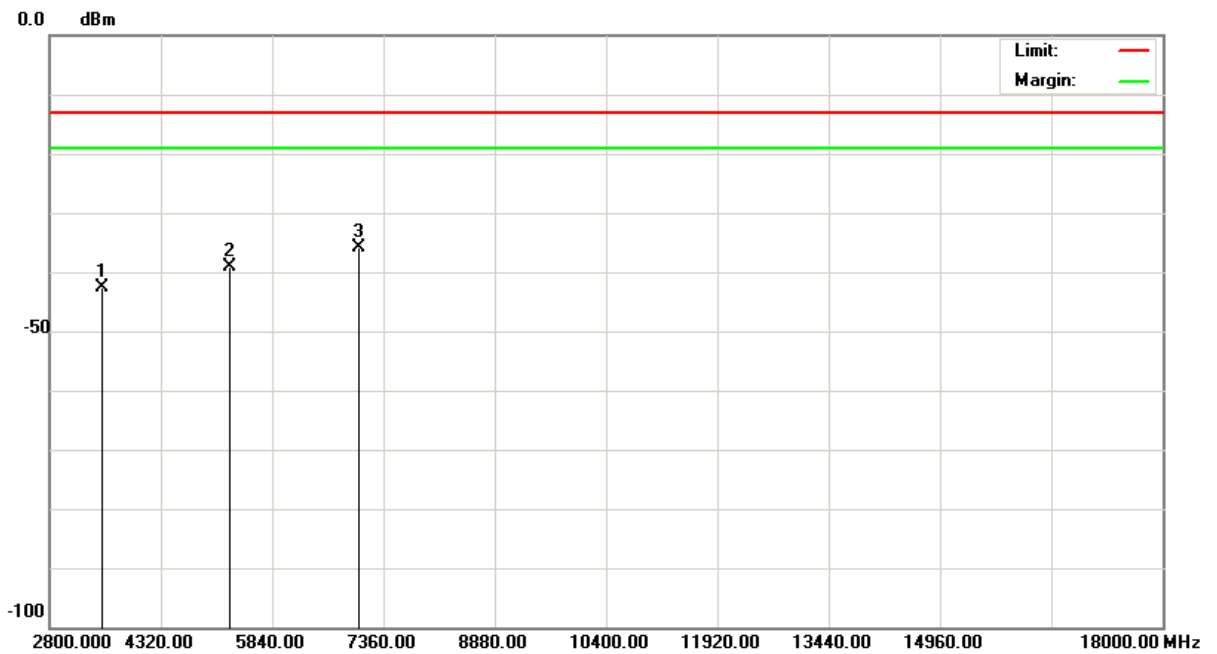
Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	-43.43	-42.68
3rd harmonic	-13	-38.65	-39.03
4th harmonic	-13	-35.70	-35.77
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*

Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.



Horizontal



Vertical



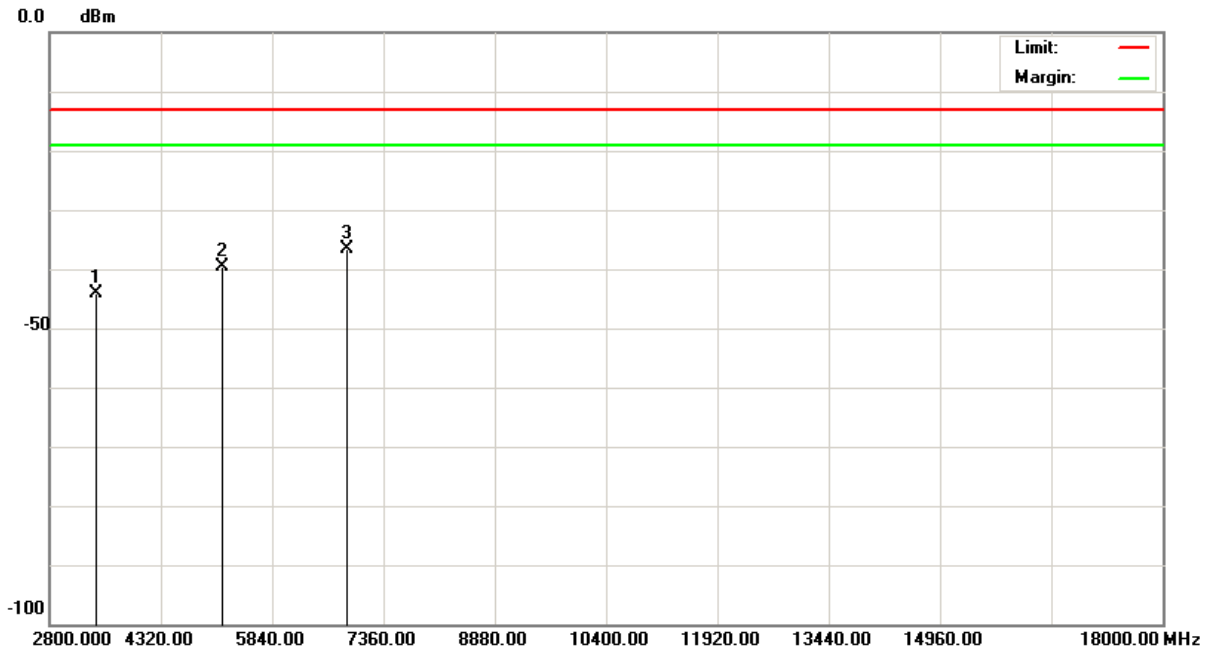
4.7.5.2 HSDPA Test Result

Applicant : BandRich Inc.
 Model No : C105
 EUT : HSDPA ExpressCard
 Test Mode : HSDPA (Low CH1312)
 Test Date : 12/31/2007

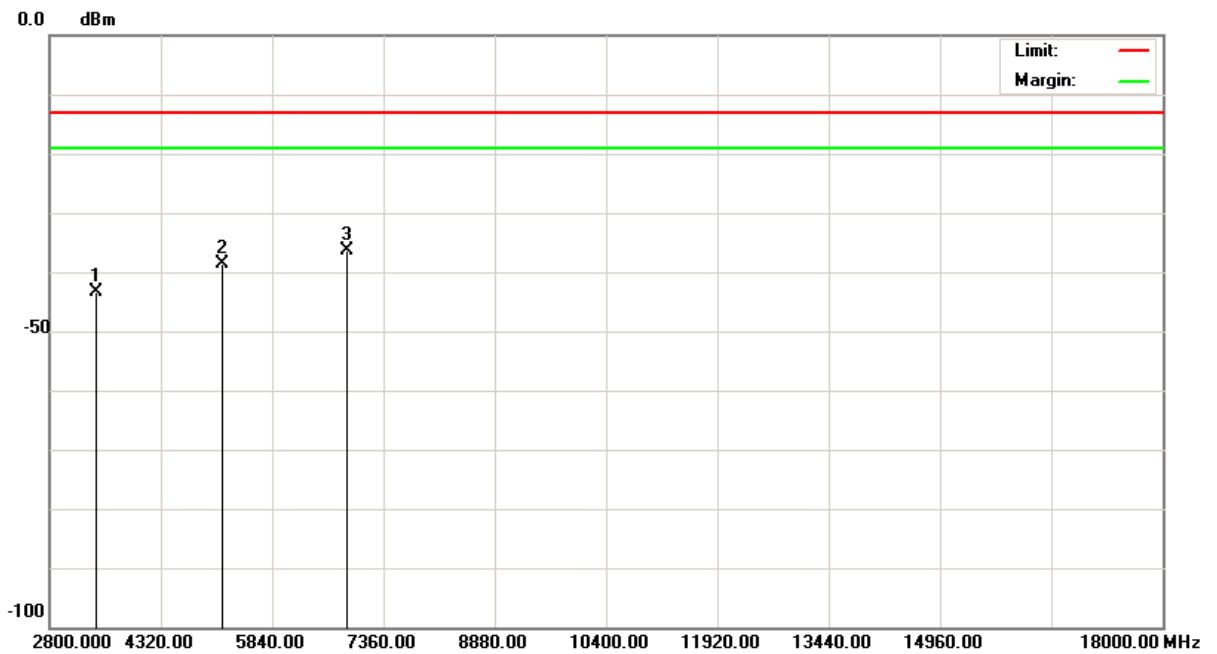
Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	-44.13	-43.34
3rd harmonic	-13	-39.52	-39.16
4th harmonic	-13	-36.63	-36.35
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*

Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.



Horizontal



Vertical

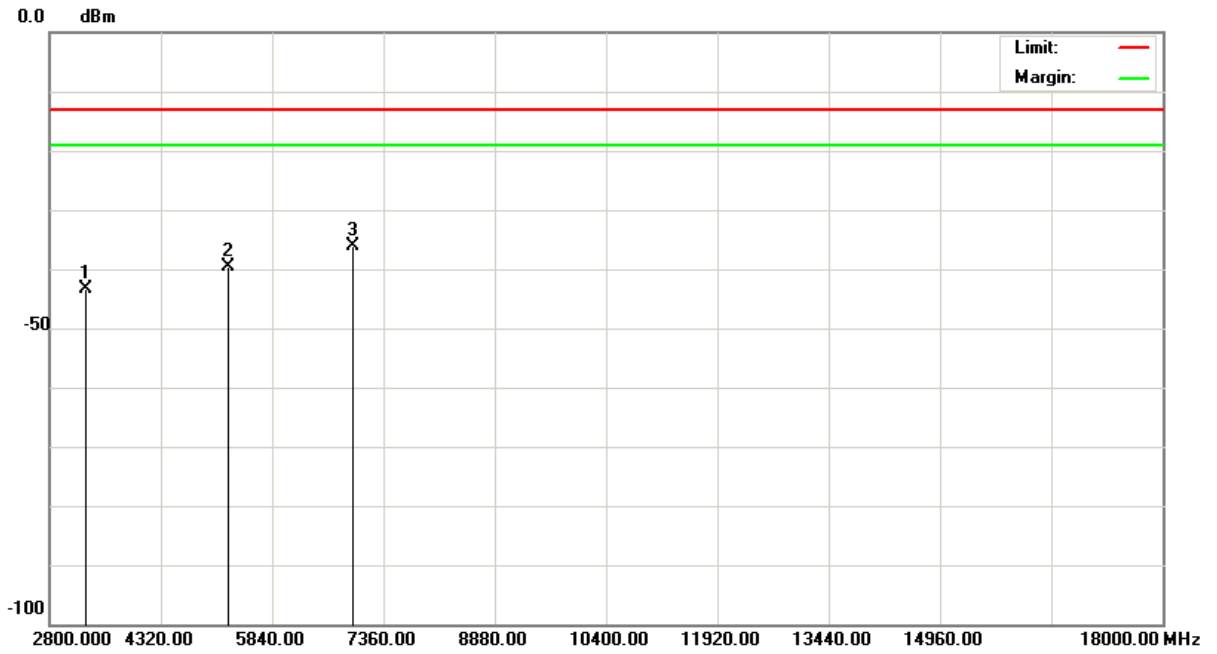


Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : HSDPA (Middle CH1412)
Test Date : 12/31/2007

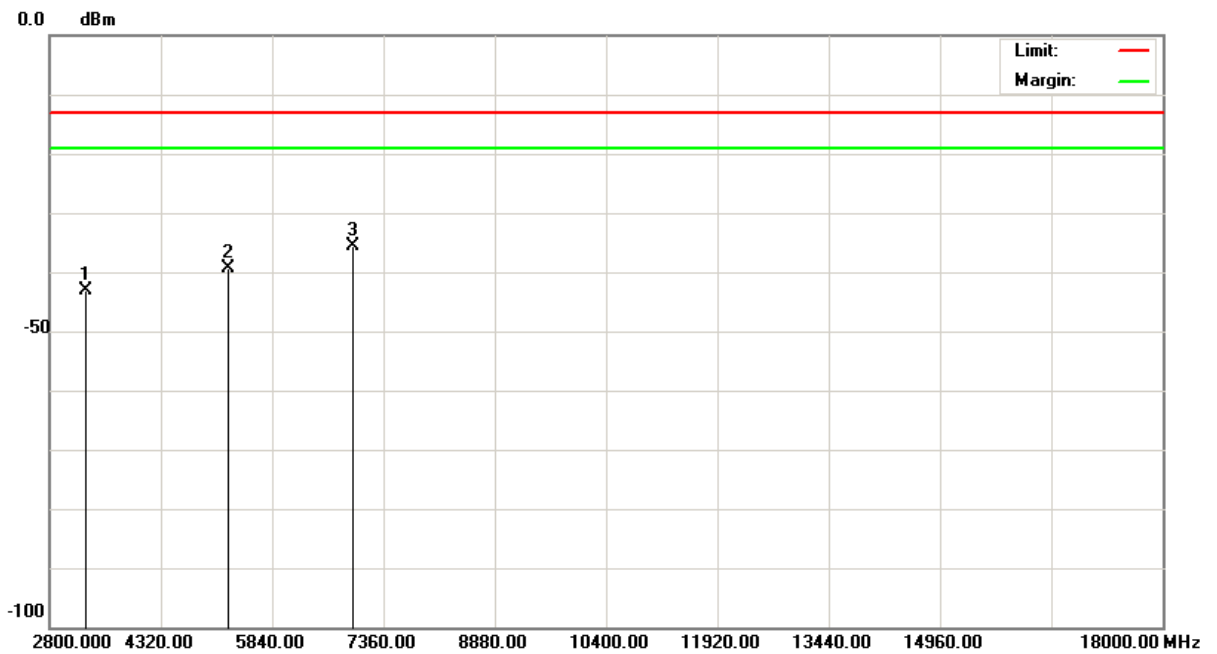
Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	-43.25	-43.17
3rd harmonic	-13	-39.67	-39.30
4th harmonic	-13	-36.08	-35.73
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*

Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.



Horizontal



Vertical

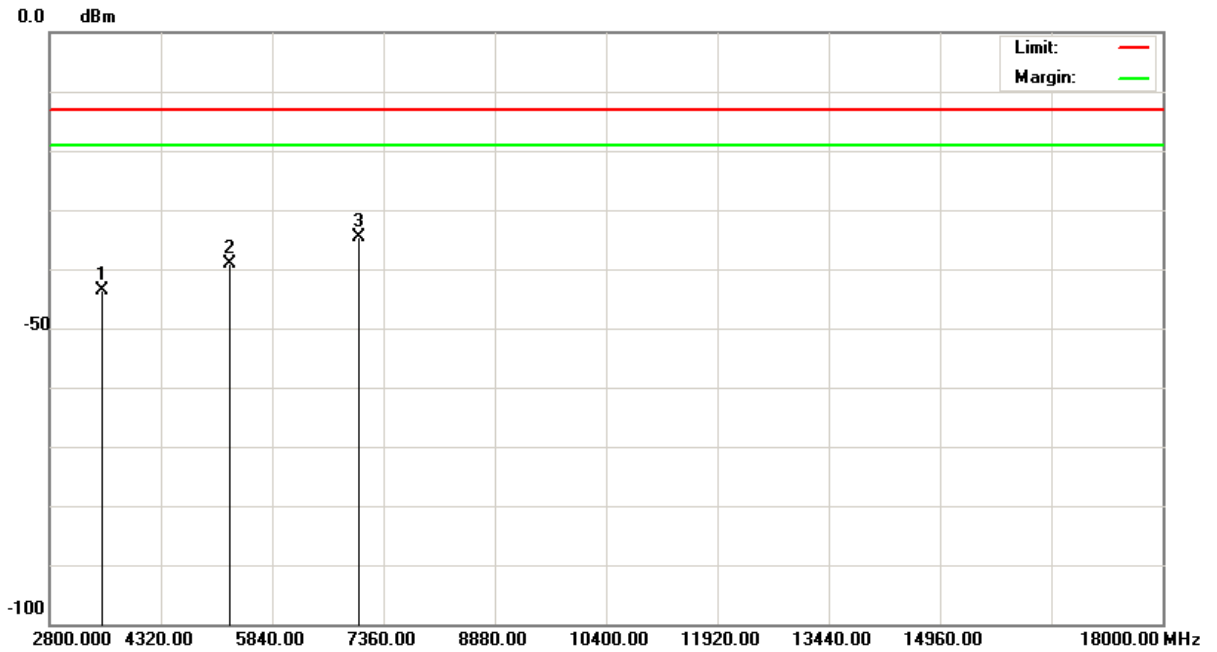


Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : HSDPA (High CH1513)
Test Date : 12/31/2007

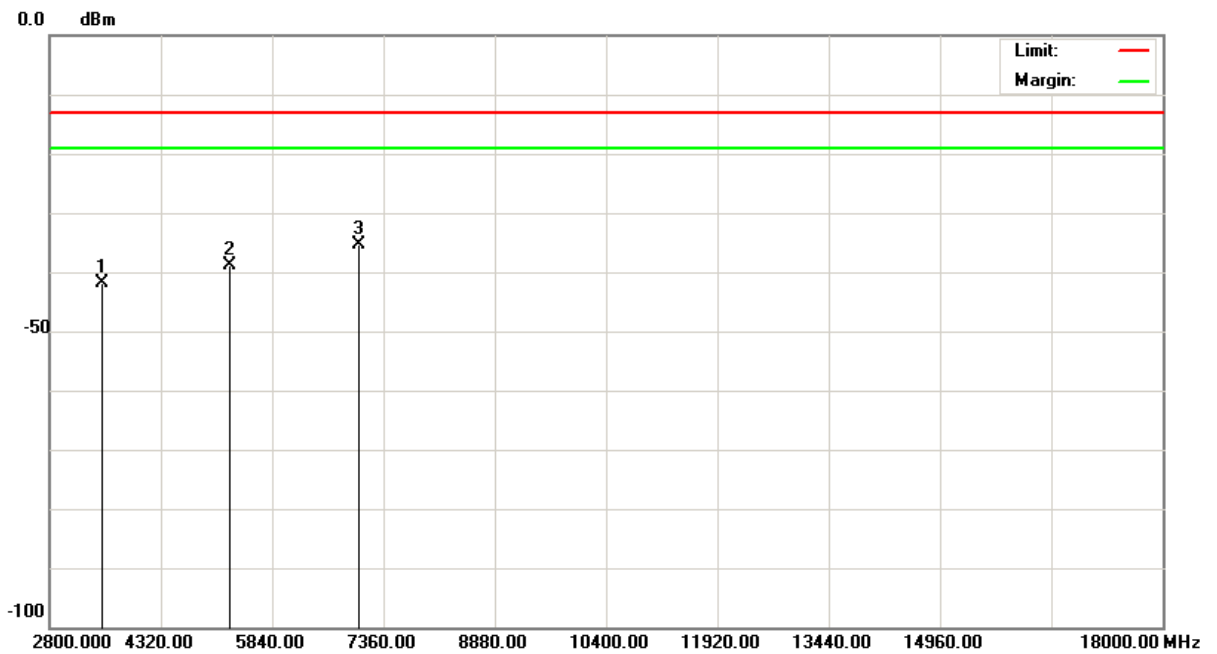
Frequency (MHz)	FCC Maximum Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
2nd harmonic	-13	-43.66	-41.95
3rd harmonic	-13	-39.03	-38.88
4th harmonic	-13	-34.58	-35.28
5th harmonic	-13	*	*
6th harmonic	-13	*	*
7th harmonic	-13	*	*
8th harmonic	-13	*	*
9th harmonic	-13	*	*
10th harmonic	-13	*	*

Notes:

1. * Indicates the spurious emission could not be detected due to noise limitations or ambients.
2. Each emission reported reflects the highest absolute level at the specific harmonic for the low, mid, and high channels at maximum power.
3. The Spectrum was investigated from 30 MHz to the tenth harmonic of the fundamental.



Horizontal



Vertical



4.8 Receiver Radiated Emissions

4.8.1 Measurement Instruments

As described in chapter 5 of this test report.

4.8.2 Test Procedure

Final radiation measurements were made on a three-meter, Semi Anechoic Chamber. The EUT system was placed on a nonconductive turntable which is 0.8 meters height, top surface 1.0 x 1.5 meter. The spectrum was examined from 250 MHz to 2.5 GHz in order to cover the whole spectrum below 10th harmonic which could generate from the EUT. During the test, EUT was set to working & Measurements spectrum range from 30 MHz to 26.5 GHz is investigated.

For measurements below 1 GHz the resolution bandwidth is set to 120 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, and then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

A nonconductive material surrounded the EUT to supporting the EUT for standing on three orthogonal planes. At each condition, the EUT was rotated 360 degrees, and the antenna was raised and lowered from one to four meters to find the maximum emission levels. Measurements were taken using both horizontal and vertical antenna polarization.

SCHWARZBECK MESS-ELEKTRONIK Biconilog Antenna (mode VULB9163) at 3 Meter and the SCHWARZBECK Double Ridged Guide Antenna (model BBHA9120D&9170) was used in frequencies 1 – 26.5 GHz at a distance of 3 or 1 meter. All test results were extrapolated to equivalent signal at 3 meters utilizing an inverse linear distance extrapolation Factor (20dB/decade).

For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.



Appropriate preamplifiers were used for improving sensitivity and precautions were taken to avoid overloading or desensitizing the spectrum analyzer. No post – detector video filters were used in the test.

The spectrum analyzer's 6 dB bandwidth was set to 1 MHz, and the analyzer was operated in the peak detection mode, for frequencies both below and up 1 GHz. The average levels were obtained by subtracting the duty cycle correction factor from the peak readings.

The following procedures were used to convert the emission levels measured in decibels referenced to 1 microvolt (dBuV) into field intensity in micro volts per meter (uV/m).

The actual field intensity in decibels referenced to 1 microvolt in to field intensity in micro volts per meter (dBuV/m).

The actual field intensity in decibels referenced to 1 microvolt per meter (dBuV/m) is determined by algebraically adding the measured reading in dBuV, the antenna factor (dB), and cable loss (dB) and subtracting the gain of preamplifier (dB) is auto calculate in spectrum analyzer.

$$(1) \text{ Amplitude (dBuV/m)} = \text{FI (dBuV)} + \text{AF (dBuV)} + \text{CL (dBuV)} - \text{Gain (dB)}$$

FI= Reading of the field intensity.

AF= Antenna factor.

CL= Cable loss.

P.S Amplitude is auto calculate in spectrum analyzer.

$$(2) \text{ Actual Amplitude (dBuV/m)} = \text{Amplitude (dBuV)} - \text{Dis(dB)}$$

The FCC specified emission limits were calculated according the EUT operating frequency and by following linear interpolation equations:

(a) For fundamental frequency :

Transmitter Output < +30dBm

(b) For spurious frequency :

Spurious emission limits = fundamental emission limit /10

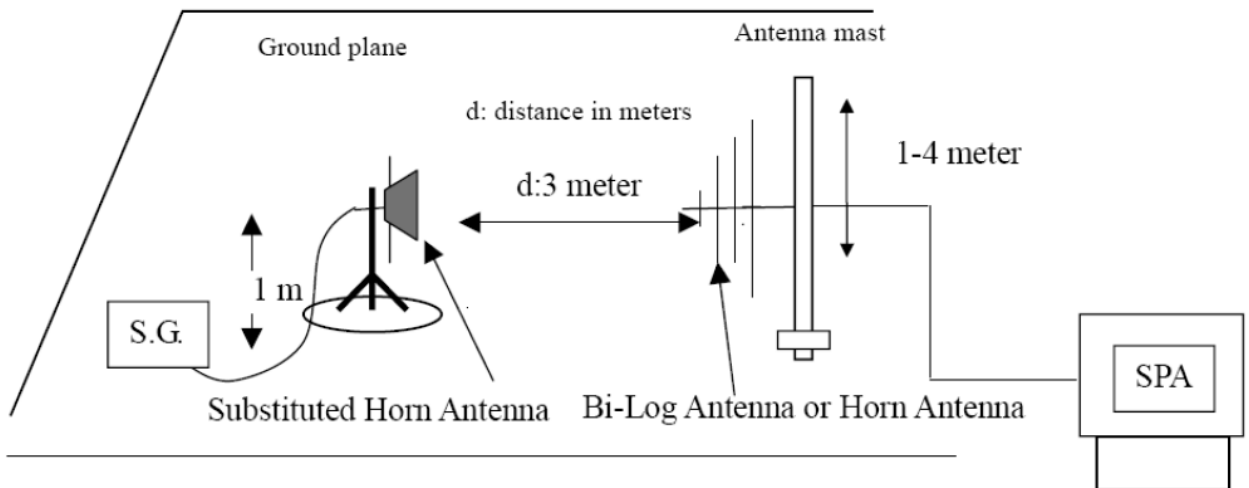
EUT tested in accordance with the specifications given by the manufacturer, and exercised in the most unfavorable manner.

Radiated Emissions Limits:

Frequency range (MHz)	Peak(dBuV)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960	54

4.8.3 Test Setup Layout

Substituted Method Test Set-up



4.8.4 Test Configuration:



Figure 7. Front View of the Test Configuration



Figure 8. Rear View of the Test Configuration



4.8.5 Test Result

4.8.5.1 Open Field Radiated Emissions (Subpart B)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : PC USB LINK _ WCDMA Mode CH1312
Test Date : 12/19/2007

Please refer to next pager of detail testing data.

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)



Radiated Emission Measurement

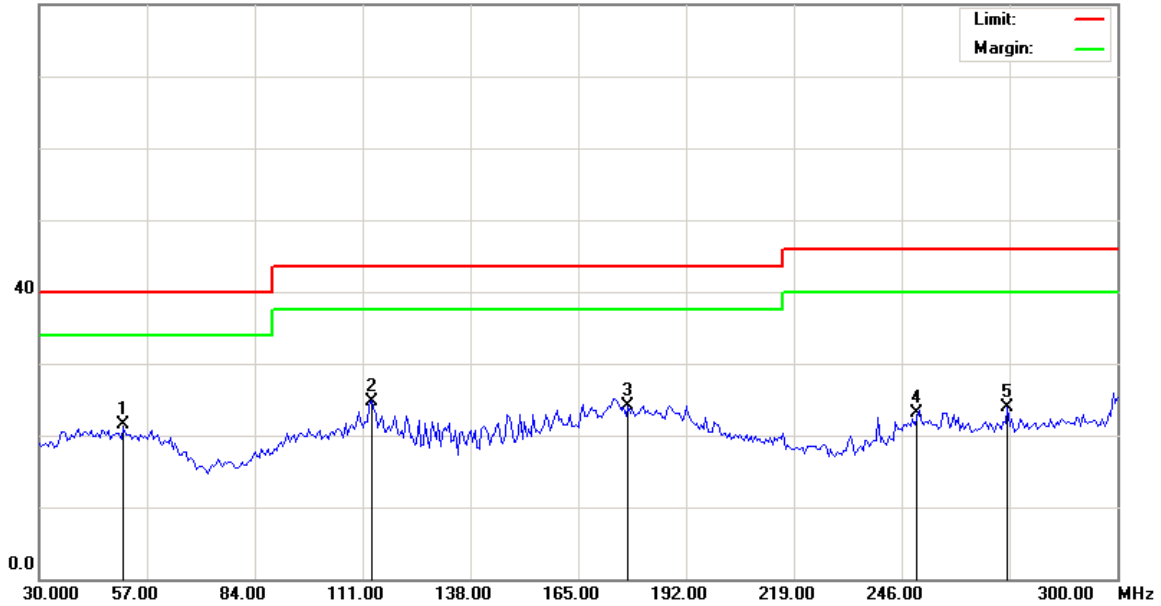
File :C105(WCDMA)

Data :#1

Date: 2007/12/19

Time: 上午 09:13:37

80.0 dBuV



Site Polarization: **Vertical** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: C105
 Mode: WCDMA
 Note: CH1312(1712.4MHz)
 接USB線至(Nell NB NO.2右下);open

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1	*	51.0600	33.59	-12.12	21.47	40.00	-18.53			peak
2		113.1600	37.71	-12.94	24.77	43.50	-18.73			peak
3		177.4200	38.45	-14.34	24.11	43.50	-19.39			peak
4		249.7800	33.83	-10.69	23.14	46.00	-22.86			peak
5		272.4600	34.68	-10.70	23.98	46.00	-22.02			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



Radiated Emission Measurement

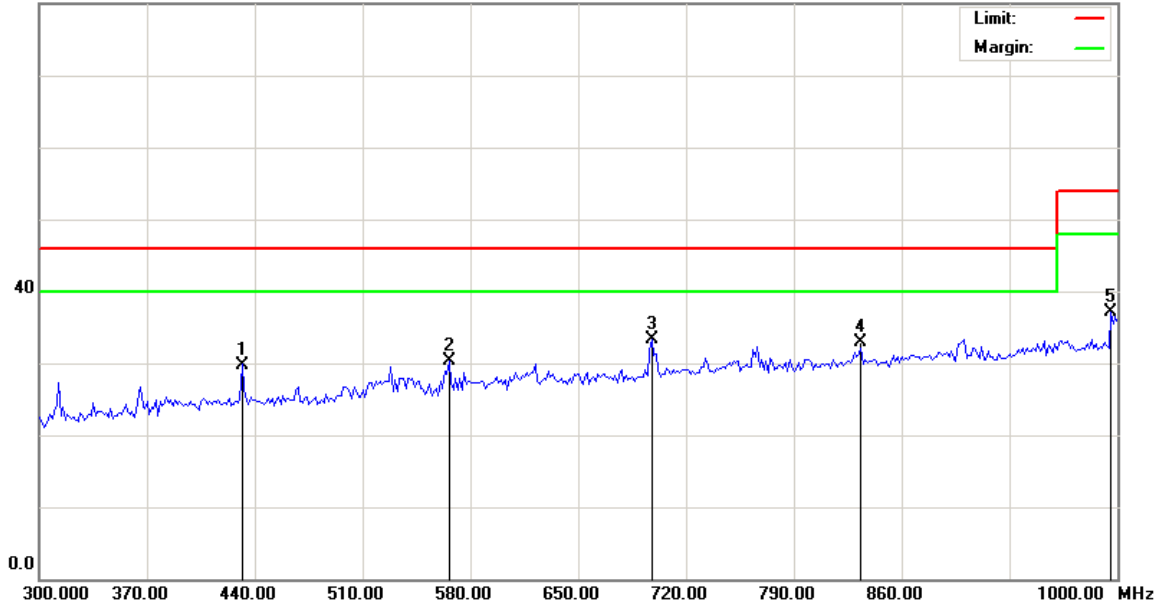
File :C105(WCDMA)

Data :#2

Date: 2007/12/19

Time: 上午 09:15:43

80.0 dBuV



Site Polarization: **Vertical** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: C105
 Mode: WCDMA
 Note: CH1312(1712.4MHz)
 接USB線至(Nell NB NO.2右下);open

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	Comment
1		431.6000	37.59	-7.82	29.77	46.00	-16.23	peak		
2		566.0000	35.68	-5.39	30.29	46.00	-15.71	peak		
3	*	697.6000	36.73	-3.51	33.22	46.00	-12.78	peak		
4		833.4000	33.85	-0.98	32.87	46.00	-13.13	peak		
5		995.8000	35.61	1.55	37.16	54.00	-16.84	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



Radiated Emission Measurement

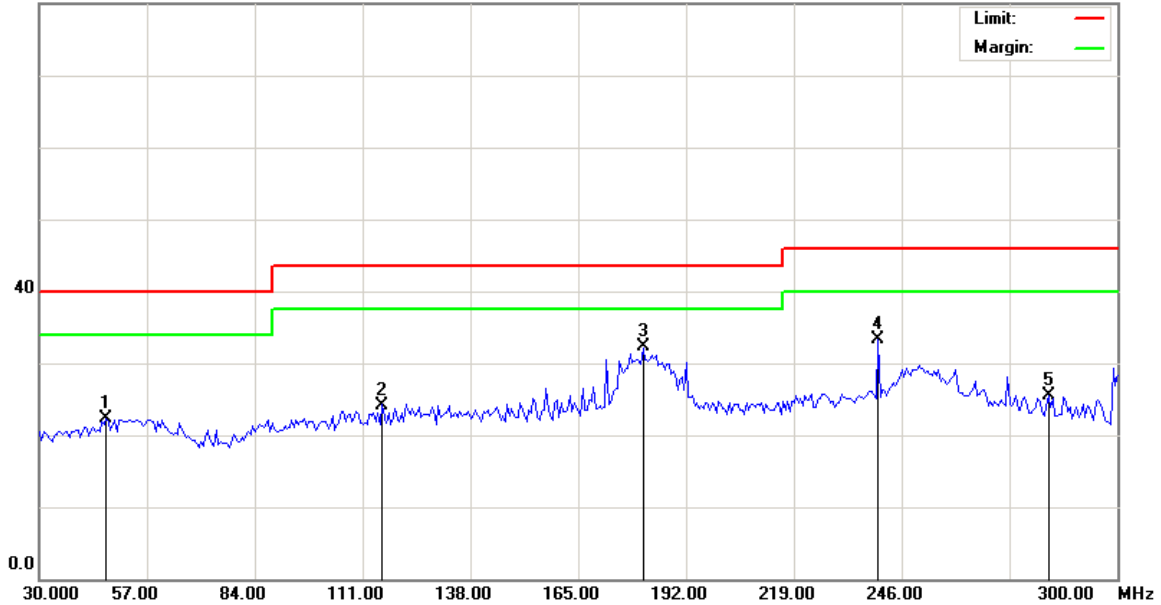
File :C105(WCDMA)

Data :#3

Date: 2007/12/19

Time: 上午 09:19:13

80.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: C105
 Mode: WCDMA
 Note: CH1312(1712.4MHz)
 接USB線至(Nell NB NO.2右下);open

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		46.7400	34.17	-11.90	22.27	40.00	-17.73	peak		
2		115.8600	37.58	-13.39	24.19	43.50	-19.31	peak		
3	*	181.2000	46.29	-14.05	32.24	43.50	-11.26	peak		
4		240.0600	44.58	-11.27	33.31	46.00	-12.69	peak		
5		282.7200	35.65	-10.18	25.47	46.00	-20.53	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



Radiated Emission Measurement

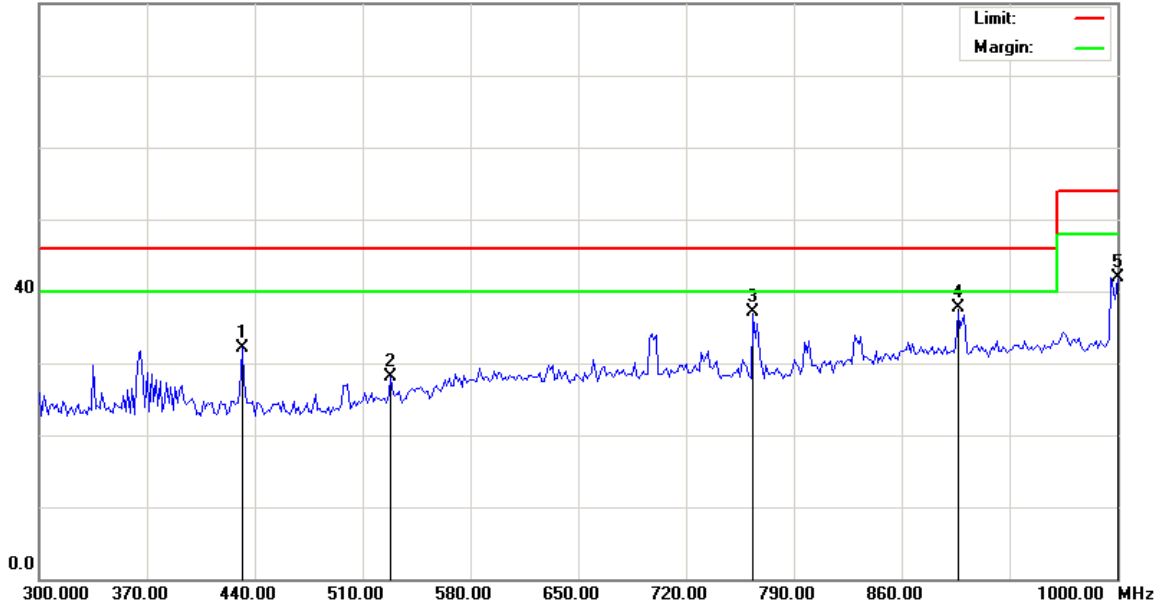
File :C105(WCDMA)

Data :#4

Date: 2007/12/19

Time: 上午 09:23:45

80.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: C105
 Mode: WCDMA
 Note: CH1312(1712.4MHz)
 接USB線至(Nell NB NO.2右下);open

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	Comment
1		431.6000	39.89	-7.82	32.07	46.00	-13.93			peak
2		528.2000	34.21	-6.07	28.14	46.00	-17.86			peak
3		763.4000	39.63	-2.45	37.18	46.00	-8.82			peak
4	*	896.4000	37.59	0.07	37.66	46.00	-8.34			peak
5		1000.000	40.52	1.43	41.95	54.00	-12.05			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



4.8.6 Open Field Radiated Emissions (Subpart B)

The highest peak values of radiated emissions from the EUT at various antenna heights, antenna polarization, EUT orientation, etc. are recorded on the following

Applicant : BandRich Inc.
Model No : C105
EUT : HSDPA ExpressCard
Test Mode : PC USB LINK _ WCDMA + HSDPA Mode CH1312
Test Date : 12/18/2007

Please refer to next pager of detail testing data.

Notes:

1. Margin= Amplitude - Limits
2. Distance of Measurement: 3 Meter (30-1000MHz) & (1-10GHz), 1 Meter (10-26.5GHz)
3. Height of table for EUT placed: 0.8 Meter.
4. ANT= Antenna height.
5. Amplitude= Reading Amplitude – Amplifier gain + Cable loss + Antenna factor
(Auto calculate in spectrum analyzer)



Radiated Emission Measurement

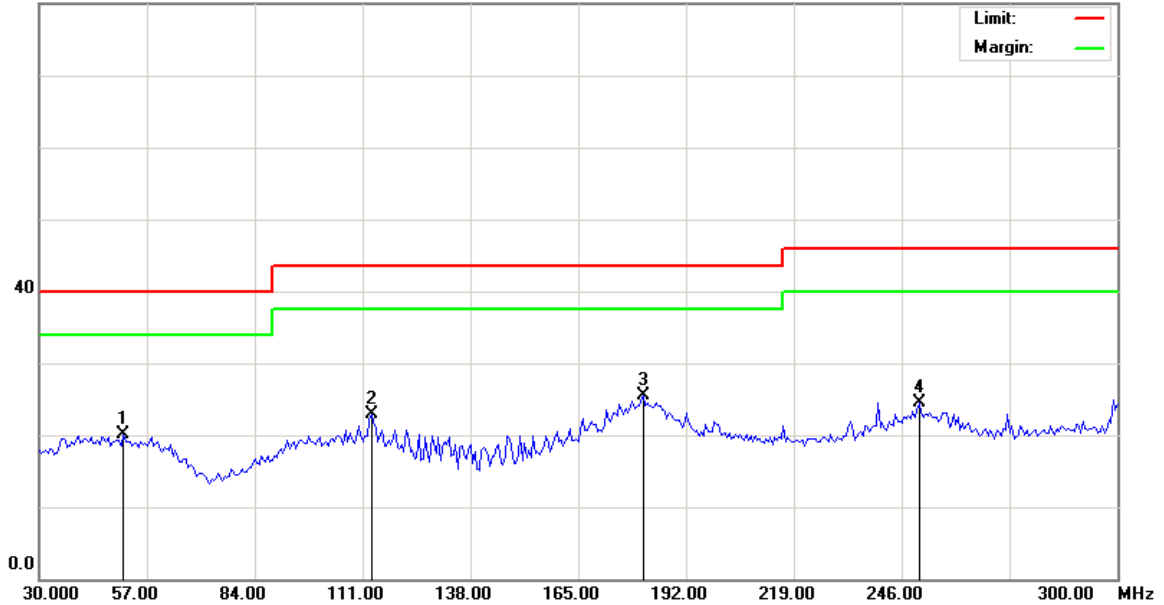
File :C105(HSDPA)

Data :#1

Date: 2007/12/18

Time: 下午 10:59:41

80.0 dBuV



Site Polarization: **Vertical** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: C105
 Mode: HSDPA
 Note: CH1312(1712.4MHz)
 接USB線至(Nell NB NO.2右下);open

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1		51.0600	32.24	-12.12	20.12	40.00	-19.88	peak			
2		113.1600	35.82	-12.94	22.88	43.50	-20.62	peak			
3	*	181.2000	39.59	-14.05	25.54	43.50	-17.96	peak			
4		250.3200	35.14	-10.69	24.45	46.00	-21.55	peak			

*:Maximum data x:Over limit !:over margin

●Reference Only



Radiated Emission Measurement

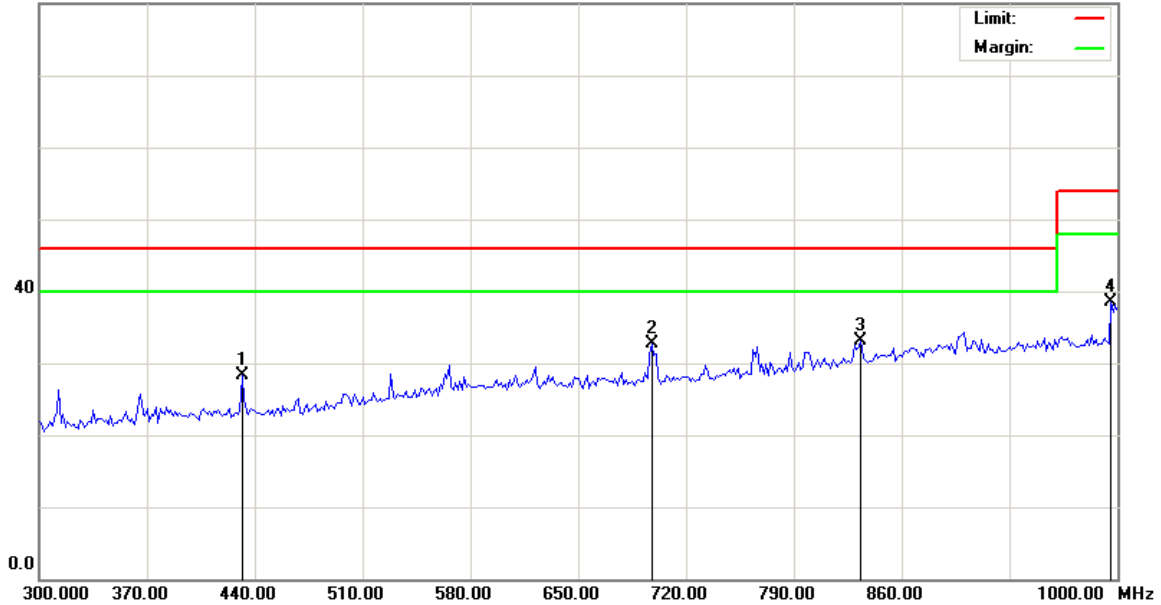
File :C105(HSDPA)

Data :#2

Date: 2007/12/18

Time: 下午 11:03:57

80.0 dBuV



Site Polarization: **Vertical** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: C105
 Mode: HSDPA
 Note: CH1312(1712.4MHz)
 接USB線至(Nell NB NO.2右下);open

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV	dBuV	dB	cm	degree	Comment
1		431.6000	36.13	-7.82	28.31	46.00	-17.69			peak
2		697.6000	36.23	-3.51	32.72	46.00	-13.28			peak
3	*	833.4000	34.17	-0.98	33.19	46.00	-12.81			peak
4		995.8000	36.97	1.55	38.52	54.00	-15.48			peak

*:Maximum data x:Over limit !:over margin

●Reference Only



Radiated Emission Measurement

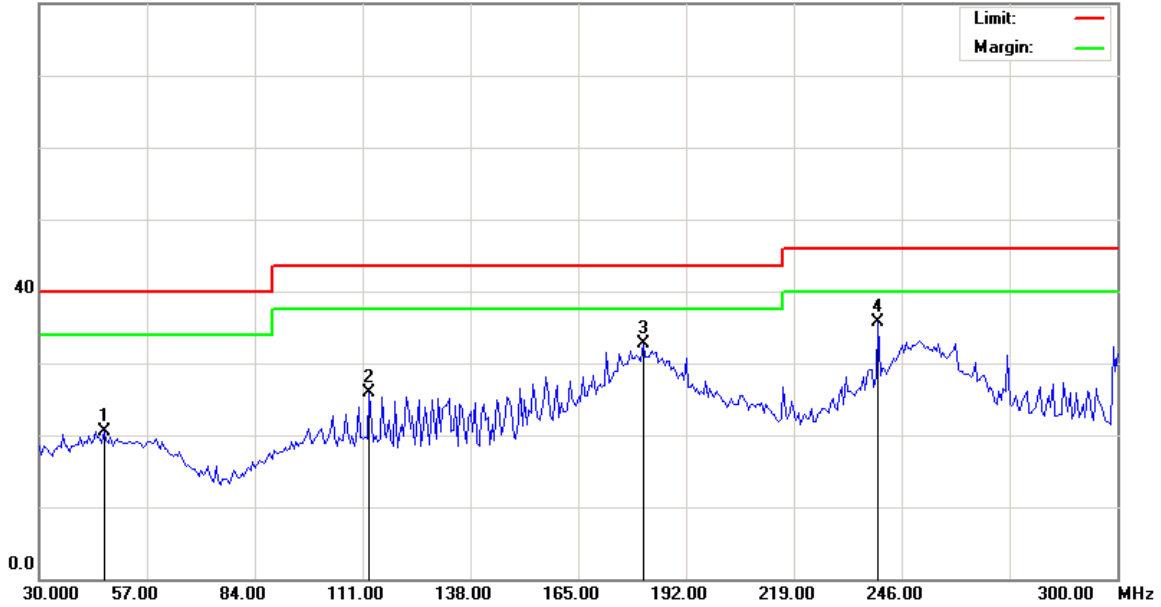
File :C105(HSDPA)

Data :#3

Date: 2007/12/18

Time: 下午 11:08:15

80.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: C105
 Mode: HSDPA
 Note: CH1312(1712.4MHz)
 接USB線至(Nell NB NO.2右下);open

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	Comment
1		46.2000	32.46	-11.87	20.59	40.00	-19.41	peak		
2		112.6200	38.67	-12.84	25.83	43.50	-17.67	peak		
3		181.2000	46.73	-14.05	32.68	43.50	-10.82	peak		
4	*	240.0600	47.00	-11.27	35.73	46.00	-10.27	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only



Radiated Emission Measurement

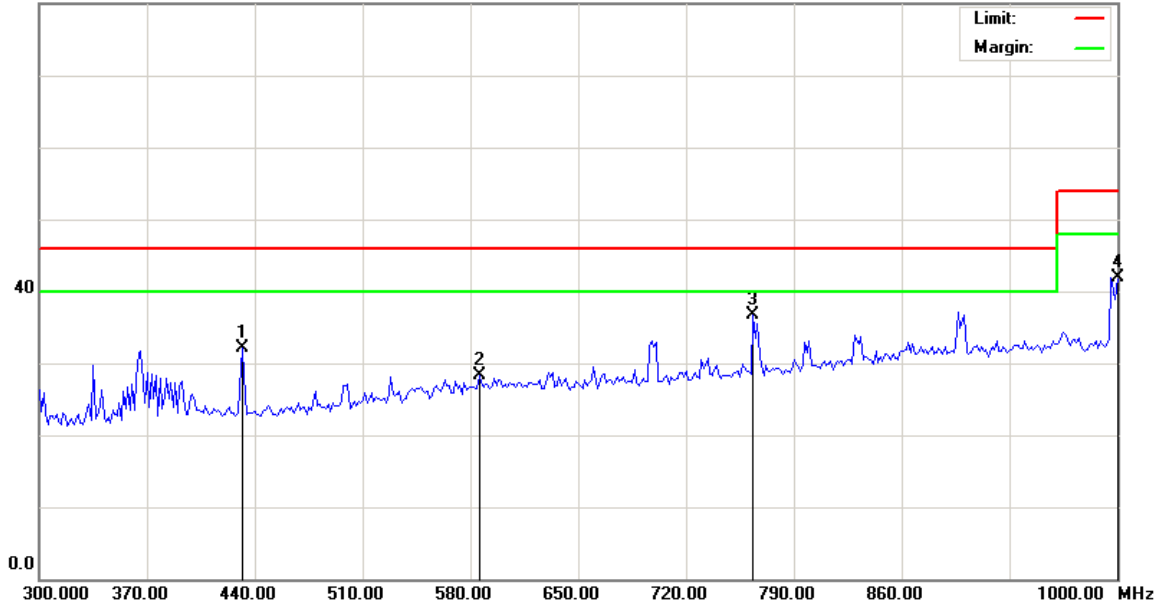
File :C105(HSDPA)

Data :#4

Date: 2007/12/18

Time: 下午 11:13:40

80.0 dBuV



Site Polarization: **Horizontal** Temperature: 22 °C
 Limit: FCC Class B 3M Radiation Power: Humidity: 60 %
 EUT: Distance: 3m
 M/N: C105
 Mode: HSDPA
 Note: CH1312(1712.4MHz)
 接USB線至(Nell NB NO.2右下);open

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Antenna Height cm	Table Degree	Comment
1		431.6000	39.85	-7.82	32.03	46.00	-13.97	peak		
2		585.6000	32.99	-4.76	28.23	46.00	-17.77	peak		
3	*	763.4000	39.22	-2.45	36.77	46.00	-9.23	peak		
4		1000.000	40.41	1.43	41.84	54.00	-12.16	peak		

*:Maximum data x:Over limit !:over margin

●Reference Only

4.9 Frequency Stability (Temperature Variation)

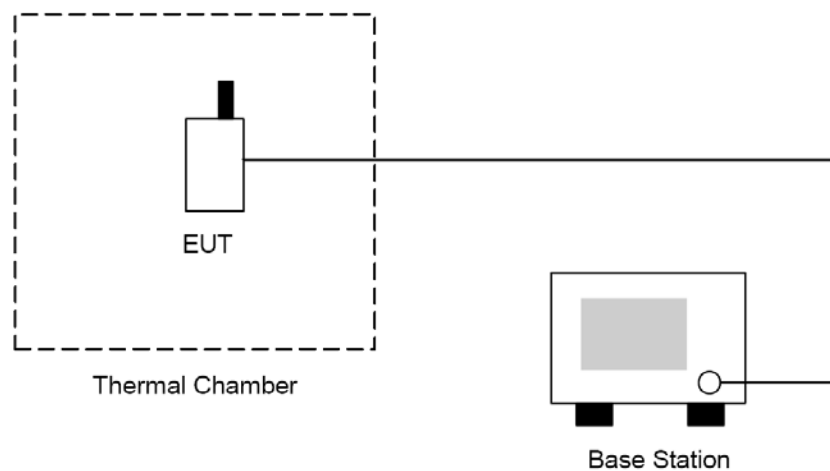
4.9.1 Measurement Instrument

As described in chapter 5 of this test report.

4.9.2 Test Procedure

1. The EUT and test equipment were set up as shown on the following section.
2. With all power removed, the temperature was decreased to -30°C and permitted to stabilize for three hours. Power was applied and the maximum change in frequency was note within one minute.
3. With power OFF, the temperature was raised in 10°C steps. The sample was permitted to stabilize at each step for at least one-half hour. Power was applied and the maximum frequency change was noted within one minute.
4. The temperature tests were performed for the worst case.
5. Test data was recorded.

4.9.3 Test Setup Layout





4.9.4 Test Result

Test Mode: WCDMA CH1412

Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
-30	-26	-0.0150	2.5
-20	-28	-0.0162	2.5
-10	-31	-0.0179	2.5
0	-24	-0.0139	2.5
10	-33	-0.0190	2.5
20	-30	-0.0173	2.5
30	-24	-0.0139	2.5
40	-32	-0.0185	2.5
50	-39	-0.0225	2.5

Test Mode: HSDPA CH1412

Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)
-30	-28	-0.0162	2.5
-20	-26	-0.0150	2.5
-10	-33	-0.0190	2.5
0	-38	-0.0219	2.5
10	-37	-0.0214	2.5
20	-25	-0.0144	2.5
30	-21	-0.0121	2.5
40	-38	-0.0219	2.5
50	-33	-0.0190	2.5

4.10 Frequency Stability (Voltage Variation)

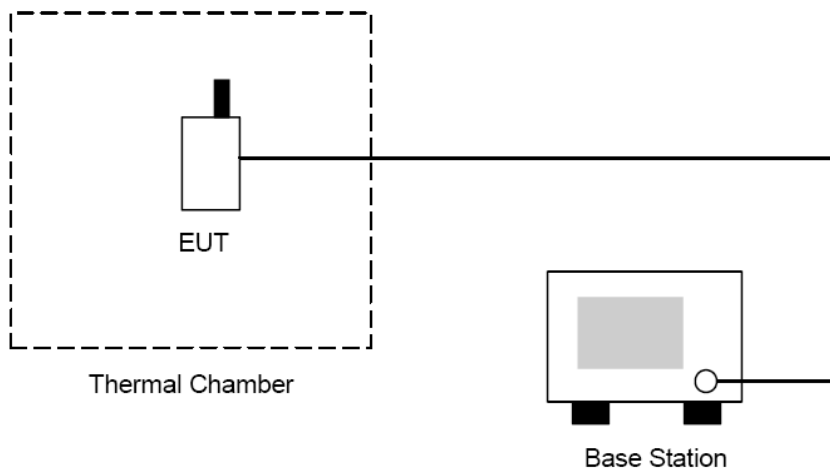
4.10.1 Measurement Instrument

As described in chapter 5 of this test report.

4.10.2 Test Procedure

1. The EUT was placed in a temperature chamber at 25 ± 5 °C and connected as the following section.
2. The power supply voltage to the EUT was varied from BEP to 115% of the nominal value measured at the input to the EUT.
3. The variation in frequency was measured for the worst case.

4.10.3 Test Setup Layout





4.10.4 Test Result

Test Mode: WCDMA CH1412

Level	Voltage [V]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]
Battery full point	126.5	-36	-0.0208	2.5
Normal	110.0	-23	-0.0133	2.5
Battery cut-off point	93.5	-25	-0.0144	2.5

Test Mode: HSDPA CH1412

Level	Voltage [V]	Deviation [Hz]	Deviation [ppm]	Limit [ppm]
Battery full point	126.5	-26	-0.0150	2.5
Normal	110.0	-29	-0.0167	2.5
Battery cut-off point	93.5	-34	-0.0196	2.5



5. List of Measurement Equipments

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
Agilent	Spectrum analyzer	E4408B	MY45107753	May. 28, 2007	May. 28, 2008
R&S	Receiver	ESCI	100367	May. 23, 2007	May. 23, 2008
SCHWARZBECK	Trilog Broadband Antenna	VULB 9163	9163-270	Jun. 26, 2007	Jun. 26, 2008
SCHWARZBECK	Broadband Horn Antenna	BBHA 9120D	9120D-550	Jun. 26, 2007	Jun. 26, 2008
SCHWARZBECK	Broadband Horn Antenna	BBHA 9170	9170-320	Jun. 09, 2007	Jun. 09, 2008
Agilent	Amplifier	8447D	2944A10961	Jun. 09, 2007	Jun. 09, 2008
Universal Radio Communication Tester	ROHDE & SCHWARZ	CMU200	112387	Apr. 02, 2007	Apr. 02, 2008
Spectrum Analyzer	Agilent	E4445A	MY45300744	Nov. 29, 2007	Nov. 29, 2008
Loop Dipole	ETS-Lindgren	3127-1880	00052640	Jul. 02, 2007	Jul. 02, 2008
Loop Dipole	ETS-Lindgren	3127-836	00055272	Jun. 29, 2007	Jun. 29, 2008
Sleeve Dipole	ETS-Lindgren	3126-1845	00056670	Jun. 29, 2007	Jun. 29, 2008
Sleeve Dipole	ETS-Lindgren	3126-880	00052705	Jun. 29, 2007	Jun. 29, 2008
Anechoic Chamber	ETS-Lindgren	AMS 8500	S/N 102165	NA	
High Pass Filter	MICRO-TRONICS	HPM50108	020	NA	
High Pass Filter	MICRO-TRONICS	HPM50111	021	NA	
Circularly Polarized Communication Antennas	EMCO	3102	00051714	NA	
Pattern Measurement Software	ETS-Lindgren	EMQuest™ EMQ-100	NA	NA	
Desktop Computer with Windows XP		Dell Computers	NA	NA	
Antenna Positioner Controller	EMCO	2090	00052447	NA	
MAPS Positioner	EMCO	2010/2015	NA	NA	
Filter	K&L	5TNF-1700/ 2000-0.1N/N	166	NA	
Filter	K&L	3TNF-800/ 1000-0.2N/N	274	NA	
Attenuator	RADIALL	R41572000	0603033073	NA	
Splitter	Powercom	SGR-GFQ-2-D	41106609	NA	
Power divider	Agilent	87302C	3239A00760	NA	



6. Uncertainty Evaluation

Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Contribution	Uncertainty of x_i		$U(x_i)$
	dB	Probability Distribution	
Receiver reading	0.41	Normal(k=2)	0.21
Antenna factor calibration	0.83	Normal(k=2)	0.42
Cable loss calibration	0.25	Normal(k=2)	0.13
Pre Amplifier Gain calibration	0.27	Normal(k=2)	0.14
RCV/SPA specification	2.50	Rectangular	0.72
Antenna Factor Interpolation for Frequency	1.00	Rectangular	0.29
Site imperfection	1.43	Rectangular	0.83
Mismatch	+0.39/-0.41	U-shaped	0.28
combined standard uncertainty Uc(y)	1.27		
Measuring uncertainty for a level of confidence of 95% U=2Uc(y)	2.54		

Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Contribution	Uncertainty of x_i		$U(x_i)$	C_i	$C_i * U(x_i)$
	dB	Probability Distributio			
Receiver reading	±0.10	Normal(k=1)	0.10	1	0.10
Antenna factor calibration	±1.70	Normal(k=2)	0.85	1	0.85
Cable loss calibration	±0.50	Normal(k=2)	0.25	1	0.25
Receiver Correction	±2.00	Rectangular	1.15	1	1.15
Antenna Factor Directional	±1.50	Rectangular	0.87	1	0.87
Site imperfection	±2.80	Triangular	1.14	1	1.14
Mismatch Receiver VSWR $\sqrt{1} = 0.197$ Antenna VSWR $\sqrt{2} = 0.194$ Uncertainty= $20\log(1-\sqrt{1} * \sqrt{2} * \sqrt{3})$	+0.34/-0.35	U-shaped	0.244	1	0.244
Combined standard uncertainty Uc(y)	2.36				
Measuring uncertainty for a level of confidence of 95% U=2Ue(y)	4.72				