

# FCC RF Test Report

**APPLICANT** : NetComm Wireless Limited  
**EQUIPMENT** : HSPA+ M2M WiFi Router  
**BRAND NAME** : NetComm Wireless Limited  
**MODEL NAME** : NTC-40WV  
**FCC ID** : XIA-NTC40WV  
**STANDARD** : FCC Part 15 Subpart C §15.247  
**CLASSIFICATION** : (DTS) Digital Transmission System

The product was received on May 07, 2012 and completely tested on Jul. 24, 2012. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Jones Tsai / Manager



## **SPORTON INTERNATIONAL INC.**

**No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.**



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### SUMMARY OF TEST RESULT

Report Section	FCC Rule	IC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	A8.2(a)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	Gen 4.6.1	99% Bandwidth	-	Pass	-
3.2	15.247(b)	A8.4	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	A8.2(b)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.2.6	15.247(d)	A8.5	Conducted Band Edges	$\leq 20\text{dBc}$	Pass	
			Conducted Spurious Emission		Pass	
3.2.6	15.247(d)	A8.5	Radiated Band Edges	15.209(a) & 15.247(d)	Pass	
			Radiated Spurious Emission		Pass	Under limit 1.20 dB at 58.620 MHz
3.6	15.207	Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass	Under limit 13.70 dB at 0.470 MHz
3.6	15.203 & 15.247(b)	A8.4	Antenna Requirement	N/A	Pass	-



# 1 General Description

## 1.1 Applicant

**NetComm Wireless Limited**  
Level 2, 18-20 Orion Road Lane Cove, NSW Australia

## 1.2 Manufacturer

**NetComm Wireless Limited**  
Level 2, 18-20 Orion Road Lane Cove, NSW Australia

## 1.3 Feature of Equipment Under Test

Product Feature	
Equipment	HSPA+ M2M WiFi Router
Brand Name	NetComm Wireless Limited
Model Name	NTC-40WV
FCC ID	XIA-NTC40WV
Radios application	GSM/EGPRS/WCDMA/HSPA/WLAN 11bgn
HW Version	V1.3
SW Version	1.9.81.0
EUT Stage	Identical Prototype

**Remark:** The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.



Product Specification subjective to this standard																						
<b>Tx/Rx Channel Frequency Range</b>	802.11b/g/n : 2412 MHz ~ 2462 MHz																					
<b>Maximum Output Power to Antenna</b>	<p>&lt;Ant. 1&gt;            802.11b : 16.61 dBm (0.0458 W)            802.11g : 22.13 dBm (0.1633 W)            802.11n HT-20 : 22.46 dBm (0.1762 W)            802.11n HT-40 : 21.54 dBm (0.1426 W)</p> <p>&lt;Ant. 1+2&gt;            802.11b : 17.64 dBm (0.0581 W)            802.11g : 23.10 dBm (0.2042 W)            802.11n HT-20 : 23.37 dBm (0.2173 W)            802.11n HT-40 : 23.54 dBm (0.2259 W)</p>																					
<b>99% Occupied Bandwidth</b>	<p>&lt;Ant. 1&gt;            802.11b : 15.10MHz            802.11g : 16.40MHz            802.11n HT-20 : 17.50MHz            802.11n HT-40 : 35.90MHz</p> <p>&lt;Ant. 1+2(1)&gt;            802.11b : 15.15MHz            802.11g : 16.40MHz            802.11n HT-20 : 17.50MHz            802.11n HT-40 : 35.90MHz</p> <p>&lt;Ant. 1+2(2)&gt;            802.11b : 15.05MHz            802.11g : 16.40MHz            802.11n HT-20 : 17.50MHz            802.11n HT-40 : 35.90MHz</p>																					
<b>Antenna Type</b>	PCB Antenna with gain 2.00 dBi																					
<b>Type of Modulation</b>	802.11b : DSSS (BPSK / QPSK / CCK) 802.11g/n : OFDM (BPSK / QPSK / 16QAM / 64QAM)																					
<b>Antenna Function for Transmitter</b>	<table border="1"> <thead> <tr> <th></th> <th>Ant. 1.</th> <th>Ant. 2.</th> </tr> </thead> <tbody> <tr> <td>802.11b SISO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11b MIMO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11g SISO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11g MIMO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11n SISO</td> <td>V</td> <td>V</td> </tr> <tr> <td>802.11n MIMO</td> <td>V</td> <td>V</td> </tr> </tbody> </table>		Ant. 1.	Ant. 2.	802.11b SISO	V	V	802.11b MIMO	V	V	802.11g SISO	V	V	802.11g MIMO	V	V	802.11n SISO	V	V	802.11n MIMO	V	V
	Ant. 1.	Ant. 2.																				
802.11b SISO	V	V																				
802.11b MIMO	V	V																				
802.11g SISO	V	V																				
802.11g MIMO	V	V																				
802.11n SISO	V	V																				
802.11n MIMO	V	V																				

## 1.4 Testing Site

<b>Test Site</b>	SPORTON INTERNATIONAL INC.			
<b>Test Site Location</b>	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978			
<b>Test Site No.</b>	<b>Sporton Site No.</b>			<b>FCC/IC Registration No.</b>
	TH02-HY	CO05-HY	03CH05-HY	722060/4086B-1

## 1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v01
- ♦ TCB Workshop 2012, April
- ♦ ANSI C63.4-2003 and ANSI C63.10-2009
- ♦ IC RSS-210 Issue 8
- ♦ IC RSS-Gen Issue 3

**Remark:**

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



### 1.6 Ancillary Equipment List

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	System Simulator	R&S	CMU 200	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	P20G	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	DELL	Latitude E6320	FCC DoC	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	Phone	HTT	HTT-198	N/A	N/A	N/A



## 2 Test Configuration of Equipment Under Test

The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conducted emission (150 KHz to 30 MHz) and radiated emission (9 KHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).

The final configuration from all the combinations and the worst-case data rates were investigated by measuring the maximum power across all the data rates and modulation modes under section 2.2.

Based on the worst configuration found above, the RF power setting is set individually to meet FCC compliance limit for the final conducted and radiated tests shown in section 2.3.

### 2.1 Carrier Frequency and Channel

Frequency Band	Channel	Freq. (MHz)	Channel	Freq. (MHz)
2400-2483.5 MHz	1	2412	7	2442
	2	2417	8	2447
	3	2422	9	2452
	4	2427	10	2457
	5	2432	11	2462
	6	2437		



## 2.2 Pre-Scanned RF Power

Preliminary tests were performed in different data rate and antenna configurations as following table and the highest power data rates were chosen for full test in the following tables. Final Output Power equals to Measured Output Power adds the duty factor.

### SISO <Ant. 1>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	16.61	16.52	16.50	16.51

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	22.13	21.50	21.90	21.80	20.97	21.96	19.02	20.06

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.46	21.94	21.81	21.70	20.54	20.70	19.66	18.86
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	21.43	21.59	21.46	22.07	20.77	20.72	19.46	19.42

5GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	21.54	20.90	21.10	20.92	19.79	20.87	18.87	18.02
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	21.23	21.31	20.96	21.17	19.99	19.59	18.27	17.36



SISO <Ant. 2>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	16.60	16.57	15.55	16.51

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	22.01	21.87	21.95	21.93	21.04	21.90	19.20	20.26

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	22.41	21.92	21.90	21.61	20.62	20.51	19.71	18.71
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	21.46	21.85	21.78	22.35	21.41	20.97	19.04	18.71

2.4GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	21.53	21.50	21.52	21.24	20.07	21.10	19.16	18.46
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	21.49	21.51	21.48	21.46	20.46	19.69	18.39	17.81



MIMO <Ant. 1+2(1)>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	14.72	14.40	14.35	14.42

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.05	19.87	20.13	19.96	19.11	19.98	16.75	18.25

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.34	20.23	19.97	19.80	18.71	18.90	17.86	16.98
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	19.74	20.00	19.78	20.53	19.03	19.04	17.72	17.96

2.4GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.33	19.46	19.65	19.58	18.74	19.17	17.42	16.18
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	19.92	20.01	19.97	20.03	18.72	18.59	17.37	15.92



MIMO <Ant. 1+2(2)>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	14.54	14.43	14.44	14.50

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	20.13	19.52	20.03	19.97	19.01	20.07	17.17	18.03

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.37	20.45	20.24	19.73	18.83	18.75	17.59	16.78
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	19.51	20.06	19.78	20.11	19.44	19.07	17.14	17.35

2.4GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	20.72	20.31	20.18	20.13	18.75	19.10	18.15	16.32
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	20.53	20.34	20.21	20.43	19.10	19.01	16.31	15.72



MIMO <Ant. 1+2>

802.11b				
Data Rate (MHz)	1M bps	2M bps	5.5M bps	11M bps
Peak Power (dBm)	17.64	17.43	17.41	17.47

802.11g								
Data Rate (MHz)	6M bps	9M bps	12M bps	18M bps	24M bps	36M bps	48M bps	54M bps
Peak Power (dBm)	23.10	22.71	23.09	22.98	22.07	23.04	19.98	21.15

2.4GHz 802.11n HT-20								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	23.37	23.35	23.12	22.78	21.78	21.84	20.74	19.89
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	22.64	23.04	22.79	23.34	22.25	22.07	20.45	20.68

2.4GHz 802.11n HT-40								
Data Rate (MHz)	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
Peak Power (dBm)	23.54	22.92	22.93	22.87	21.76	22.15	20.81	19.26
Data Rate (MHz)	MCS8	MCS9	MCS10	MCS11	MCS12	MCS13	MCS14	MCS15
Peak Power (dBm)	23.25	23.19	23.10	23.24	21.92	21.82	19.88	18.83

Note: MIMO Ant. 1+2 is a calculated result from sum of the power MIMO Ant. 1 and MIMO. Ant. 2.



### 2.3 Test Mode

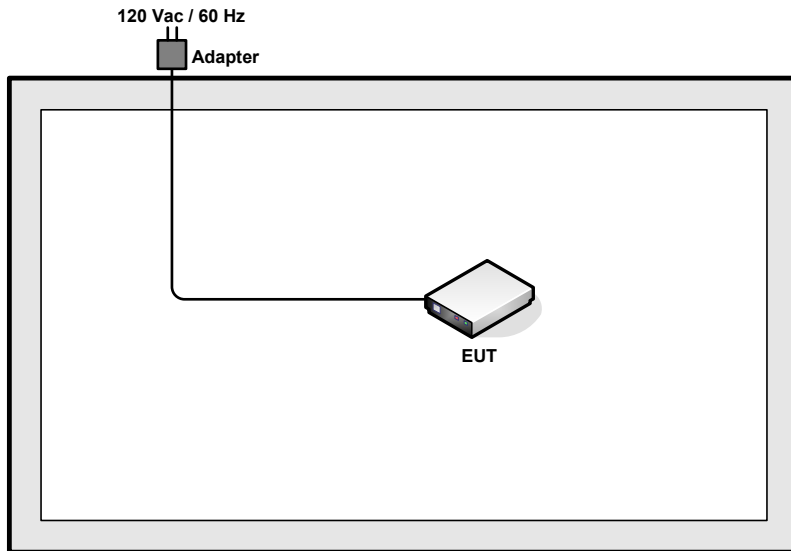
Final results of test modes, data rates and test channels are shown as following table.

Test Cases				
	Test Items	Mode	Data Rate	Test Channel
Conducted TCs	6dB and 99% BW Power Spectral Density	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT-20	6.5 Mbps	1/6/11
		802.11n HT-40	13.5 Mbps	3/6/9
	Output Power	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT-20	6.5 Mbps	1/6/11
		802.11n HT-40	13.5 Mbps	3/6/9
	Conducted Band EDGE	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT-20	6.5 Mbps	1/11
		802.11n HT-40	13.5 Mbps	3/9
	Conducted Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT-20	6.5 Mbps	1/6/11
		802.11n HT-40	13.5 Mbps	3/6/9
Radiated TCs	Radiated Band EDGE	802.11b	1 Mbps	1/11
		802.11g	6 Mbps	1/11
		802.11n HT-20	6.5 Mbps	1/11
		802.11n HT-40	13.5 Mbps	3/9
	Radiated Spurious Emission	802.11b	1 Mbps	1/6/11
		802.11g	6 Mbps	1/6/11
		802.11n HT-20	6.5 Mbps	1/6/11
		802.11n HT-40	13.5 Mbps	3/6/9

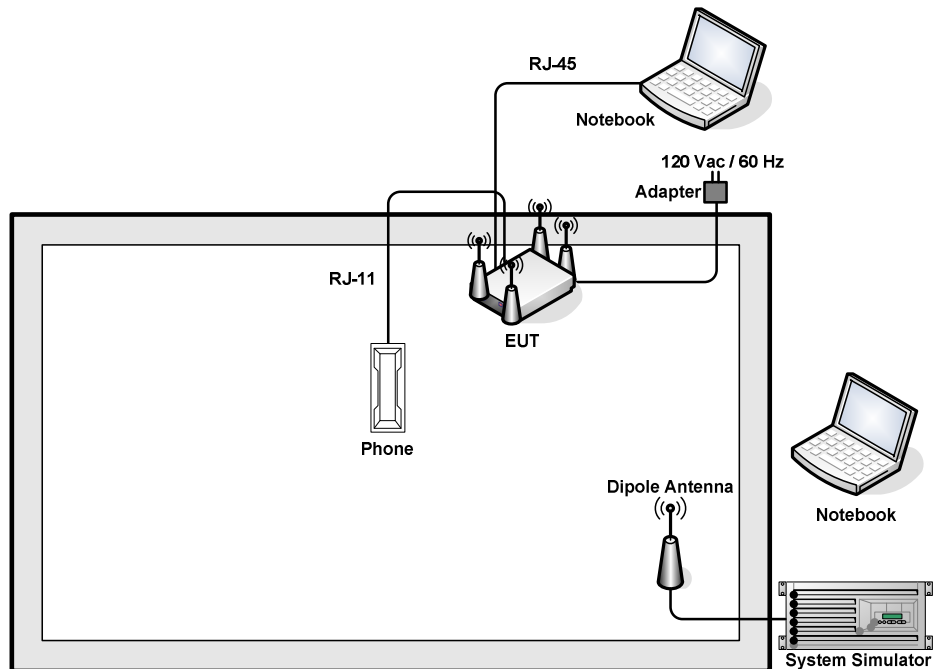
Test Cases	
AC Conducted Emission	Mode 1 : GSM850 Idle + WLAN (2.4G) Link + RJ-45 + RJ-11

## 2.4 Connection Diagram of Test System

<WLAN Tx Mode>



<AC Conducted Emission Mode>



## 2.5 RF Utility

Programmed RF utility, "command" installed in EUT to provide functions like channel selection and power level for transmitting and receiving signals continuously.



### 3 Test Result

#### 3.1 6dB and 99% Bandwidth Measurement

##### 3.1.1 Limit of 6dB Bandwidth

The minimum 6 dB bandwidth shall be at least 500 KHz.

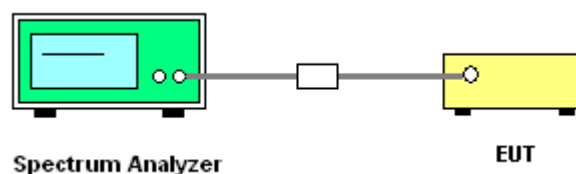
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1-5% of the emission bandwidth (EBW). Set the Video bandwidth (VBW)  $\geq 3 * RBW$ . In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 KHz.

##### 3.1.4 Test Setup





3.1.5 Test Result of 6dB Bandwidth

Test Mode :	802.11b	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>		
01	2412	12.12	12.12	12.12	0.5	Pass
06	2437	12.16	12.16	12.16	0.5	Pass
11	2462	12.16	12.16	12.16	0.5	Pass

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>		
01	2412	16.36	16.36	16.32	0.5	Pass
06	2437	16.32	16.32	16.32	0.5	Pass
11	2462	16.32	16.32	16.32	0.5	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>		
01	2412	17.32	17.32	17.32	0.5	Pass
06	2437	17.32	17.28	17.28	0.5	Pass
11	2462	17.28	17.32	17.28	0.5	Pass



Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-40 6dB Bandwidth (MHz)			6dB Bandwidth Min. Limit (MHz)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>		
03	2422	36.00	36.00	36.00	0.5	Pass
06	2437	35.84	35.84	35.84	0.5	Pass
09	2452	35.76	35.84	35.76	0.5	Pass



3.1.6 Test Result of 99% Occupied Bandwidth

Test Mode :	802.11b	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11b 99% Occupied Bandwidth (MHz)			Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	
01	2412	15.05	15.05	15.05	Pass
06	2437	15.10	15.05	15.00	Pass
11	2462	15.05	15.15	15.05	Pass

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	802.11g 99% Occupied Bandwidth (MHz)			Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	
01	2412	16.40	16.35	16.35	Pass
06	2437	16.40	16.40	16.40	Pass
11	2462	16.35	16.35	16.35	Pass

Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Channel	Frequency (MHz)	2.4GHz 802.11n HT-20 99% Occupied Bandwidth (MHz)			Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	
01	2412	17.45	17.45	17.45	Pass
06	2437	17.50	17.50	17.50	Pass
11	2462	17.45	17.45	17.45	Pass



Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

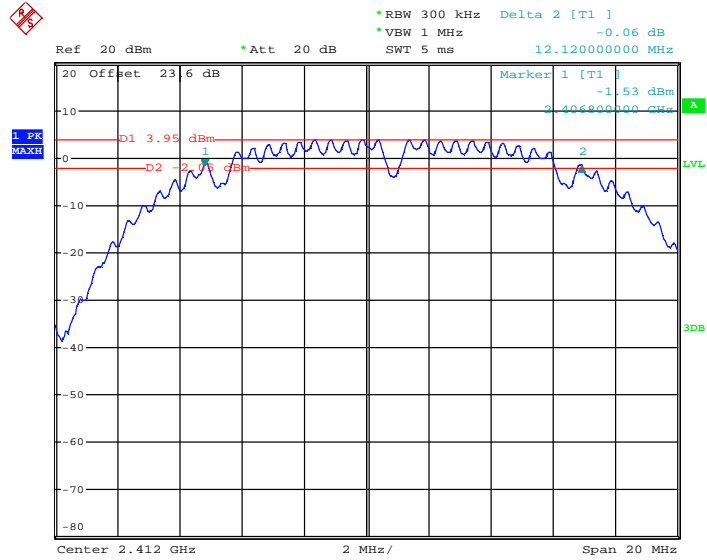
Channel	Frequency (MHz)	2.4GHz 802.11n HT-40 99% Occupied Bandwidth (MHz)			Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	
03	2422	35.80	35.80	35.90	Pass
06	2437	35.80	35.90	35.90	Pass
09	2452	35.90	35.80	35.90	Pass



### 3.1.7 Test Result of 6dB Bandwidth Plots

#### 802.11b – SISO Ant. 1

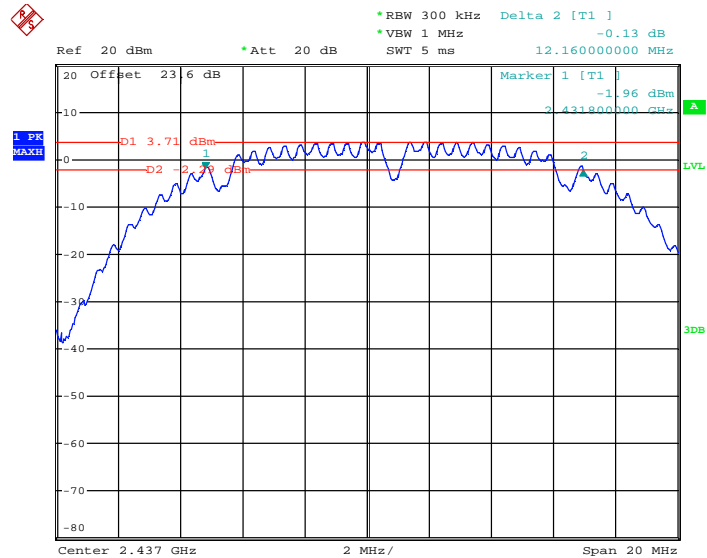
#### 6 dB Bandwidth Plot on Channel 01



Date: 7.JUN.2012 22:12:40

#### 802.11b – SISO Ant. 1

#### 6 dB Bandwidth Plot on Channel 06

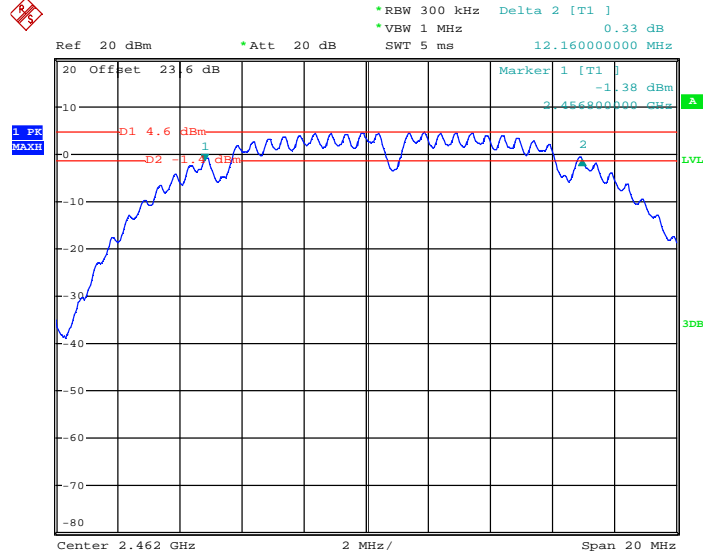


Date: 7.JUN.2012 22:15:44



802.11b – SISO Ant. 1

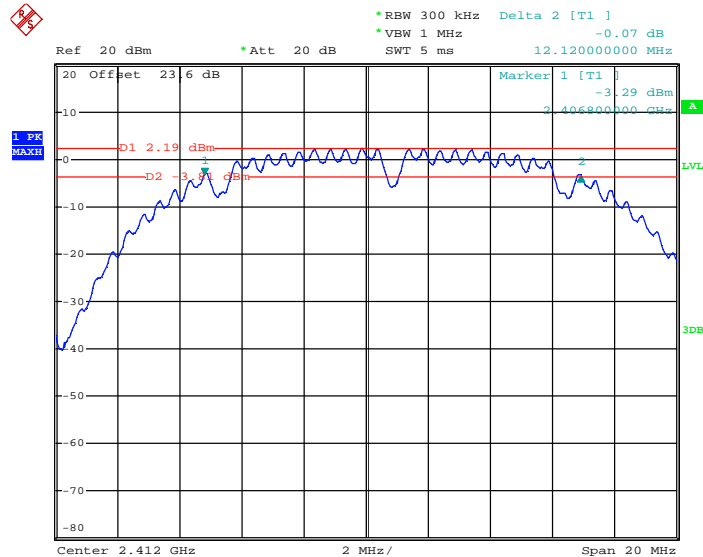
6 dB Bandwidth Plot on Channel 11



Date: 7.JUN.2012 22:18:09

802.11b – MIMO Ant. 1+2(1)

6 dB Bandwidth Plot on Channel 01

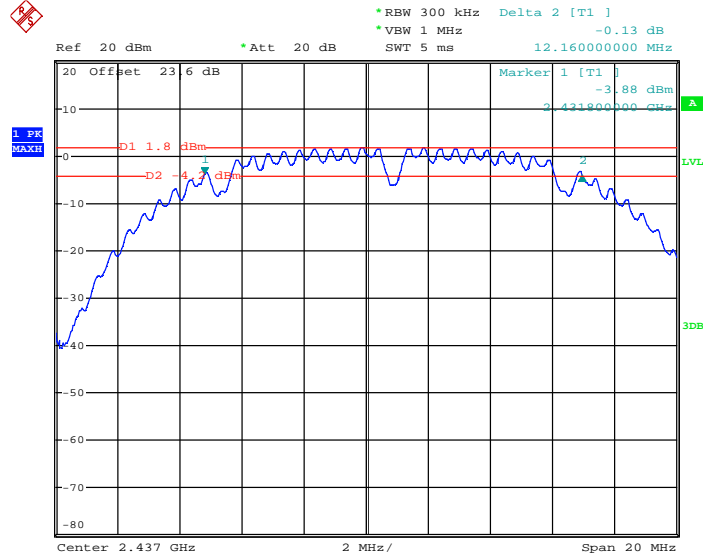


Date: 7.JUN.2012 22:26:38



802.11b – MIMO Ant. 1+2(1)

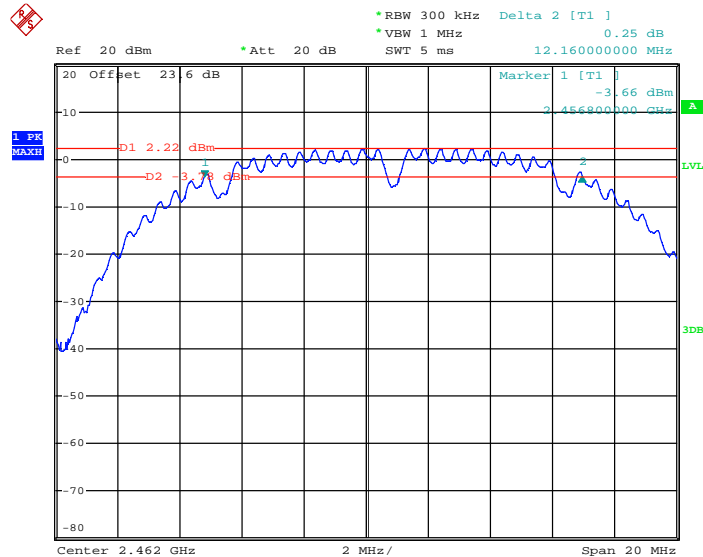
6 dB Bandwidth Plot on Channel 06



Date: 7.JUN.2012 22:24:39

802.11b – MIMO Ant. 1+2(1)

6 dB Bandwidth Plot on Channel 11



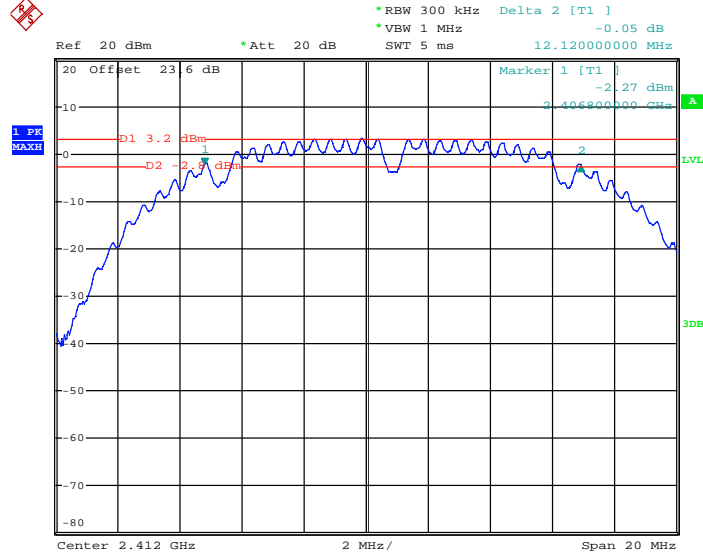
Date: 7.JUN.2012 22:21:42





802.11b – MIMO Ant. 1+2(2)

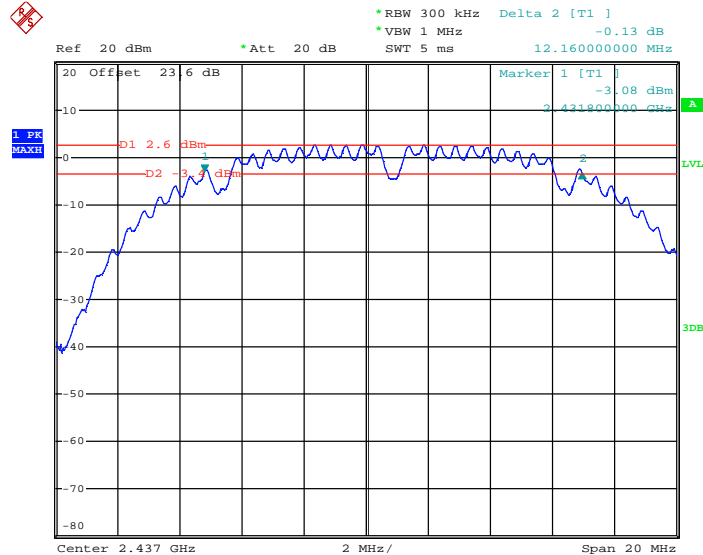
6 dB Bandwidth Plot on Channel 01



Date: 7.JUN.2012 23:06:18

802.11b – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 06

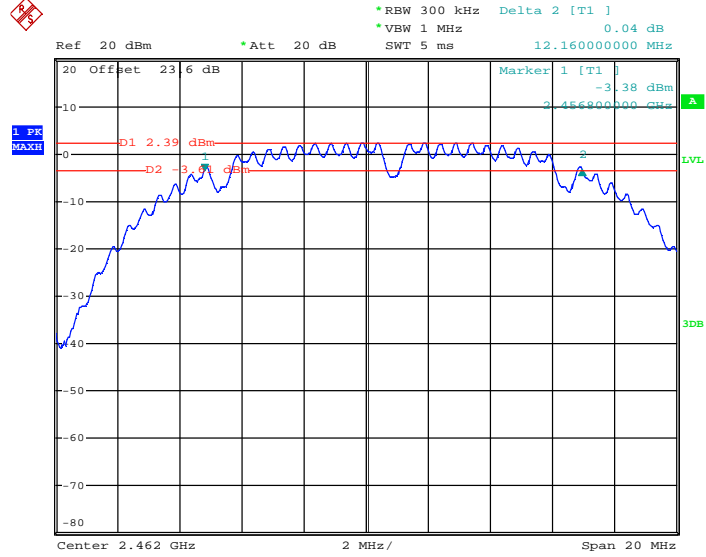


Date: 7.JUN.2012 23:08:14



802.11b – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 11

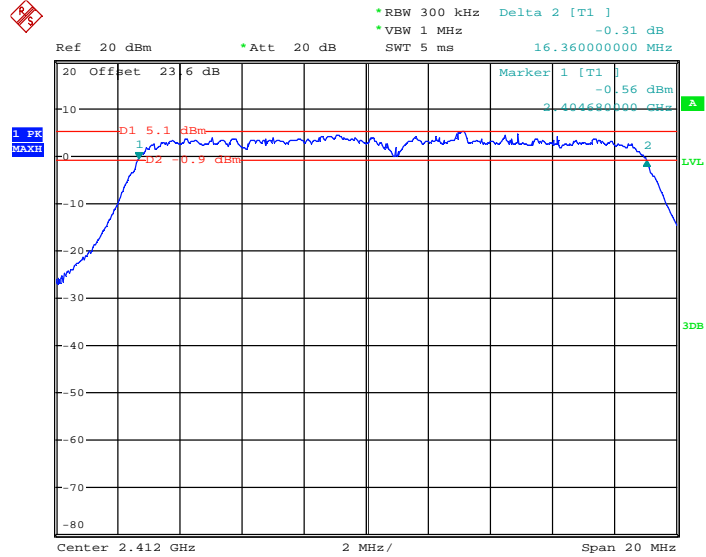


Date: 7.JUN.2012 23:10:27



802.11g – Ant. 1

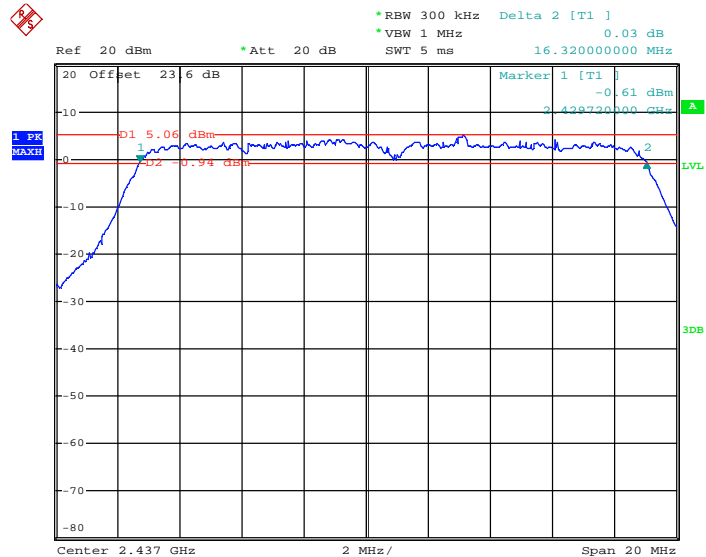
6 dB Bandwidth Plot on Channel 01



Date: 7.JUN.2012 22:08:34

802.11g – Ant. 1

6 dB Bandwidth Plot on Channel 06

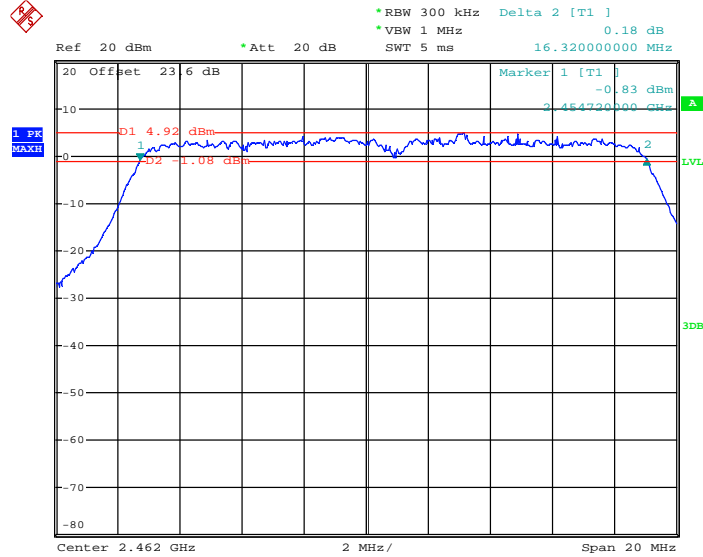


Date: 7.JUN.2012 22:06:30



802.11g – Ant. 1

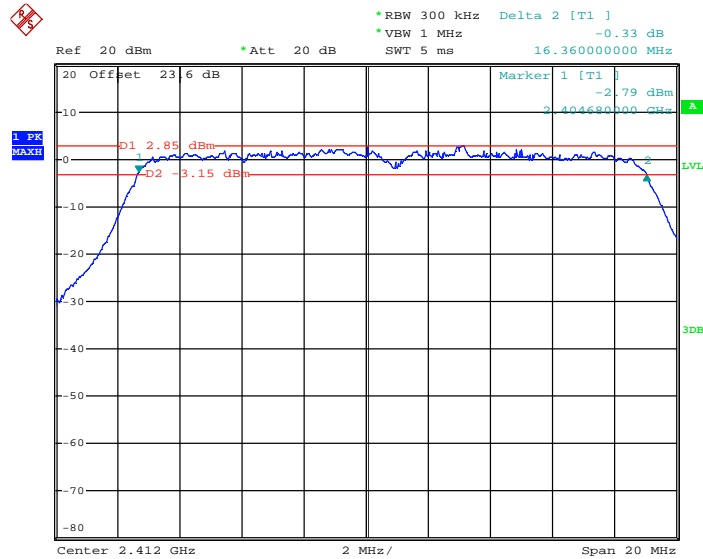
6 dB Bandwidth Plot Channel 11



Date: 7.JUN.2012 22:03:07

802.11g – MIMO Ant. 1+2(1)

6 dB Bandwidth Plot on Channel 01

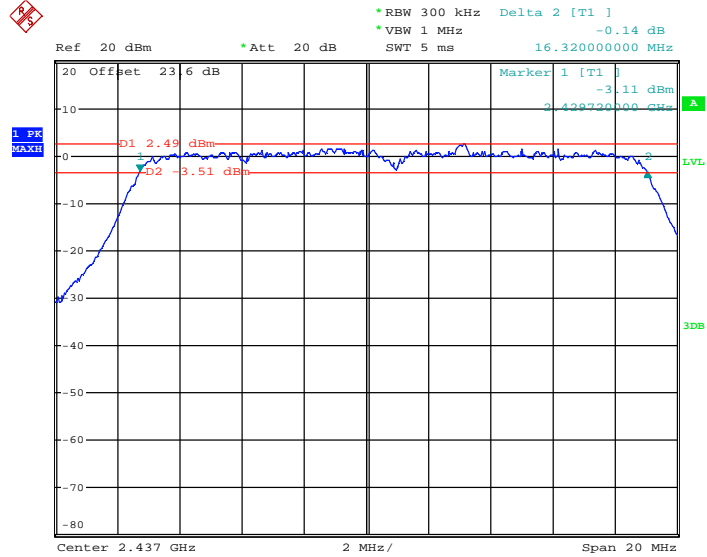


Date: 7.JUN.2012 22:30:14



802.11g – MIMO Ant. 1+2(1)

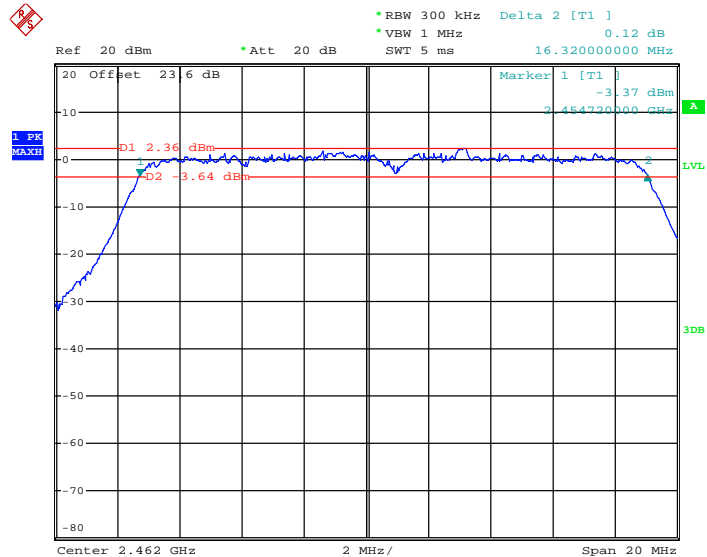
6 dB Bandwidth Plot on Channel 06



Date: 7.JUN.2012 22:33:07

802.11g – MIMO Ant. 1+2(1)

6 dB Bandwidth Plot on Channel 11

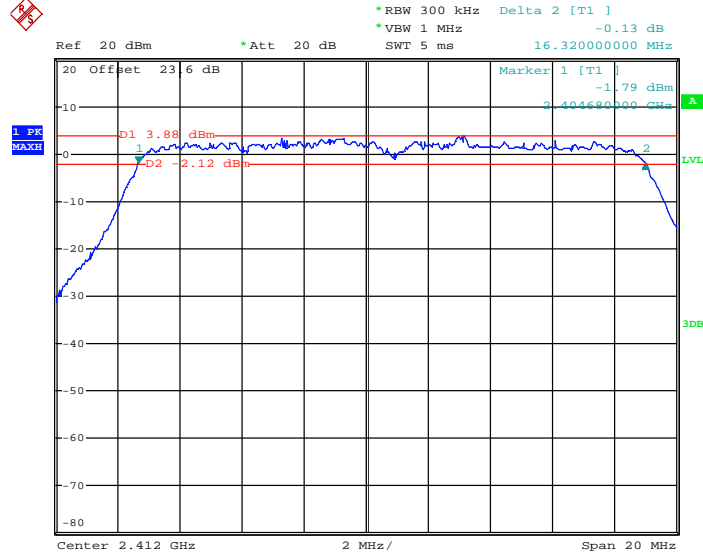


Date: 7.JUN.2012 22:35:17



802.11g – MIMO Ant. 1+2(2)

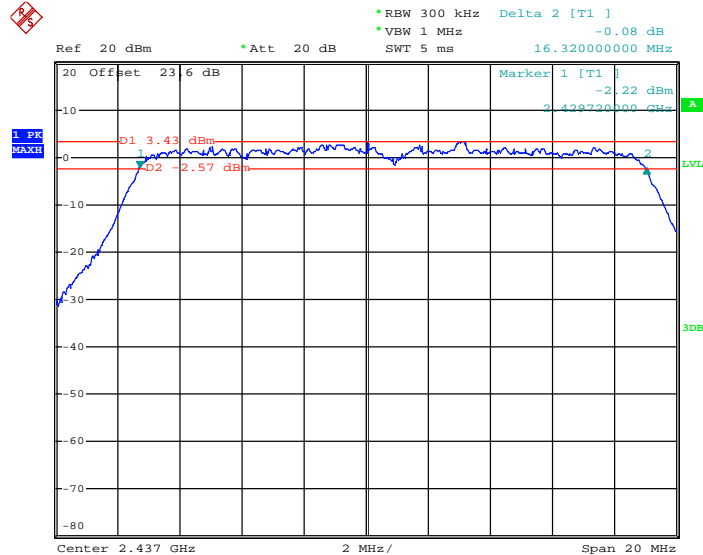
6 dB Bandwidth Plot on Channel 01



Date: 7.JUN.2012 23:03:19

802.11g – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 06

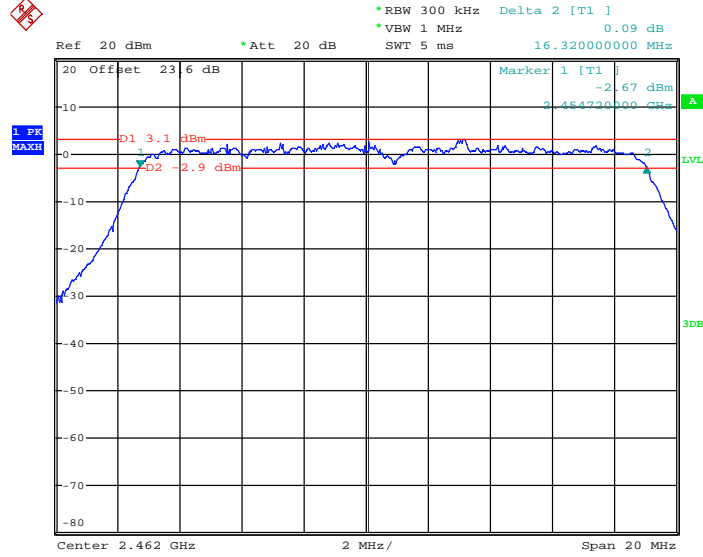


Date: 7.JUN.2012 23:00:25



802.11g – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 11

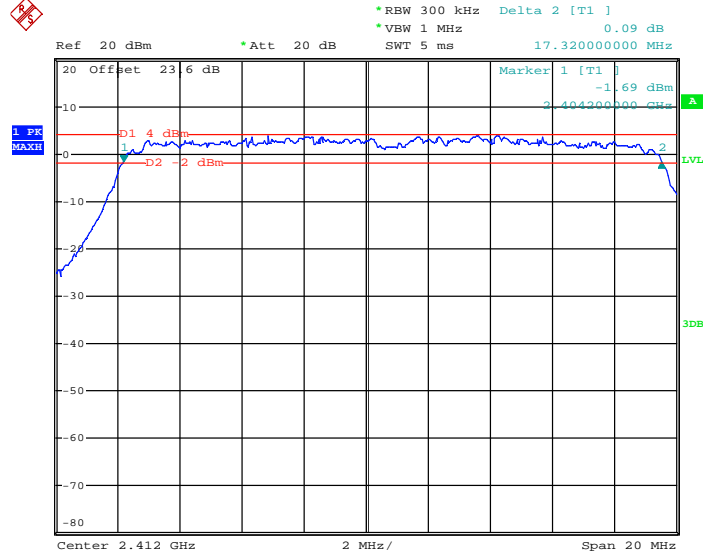


Date: 7.JUN.2012 22:57:29



802.11n HT-20 – SISO Ant. 1

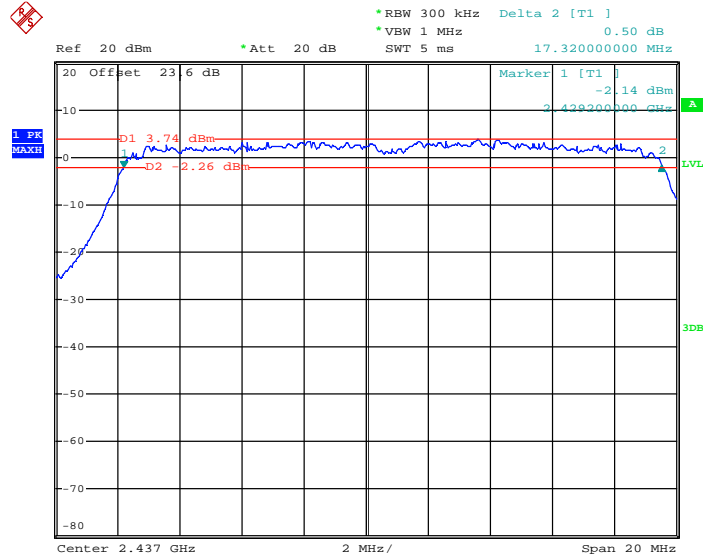
6 dB Bandwidth Plot on Channel 01



Date: 7.JUN.2012 21:50:12

802.11n HT-20 – SISO Ant. 1

6 dB Bandwidth Plot on Channel 06



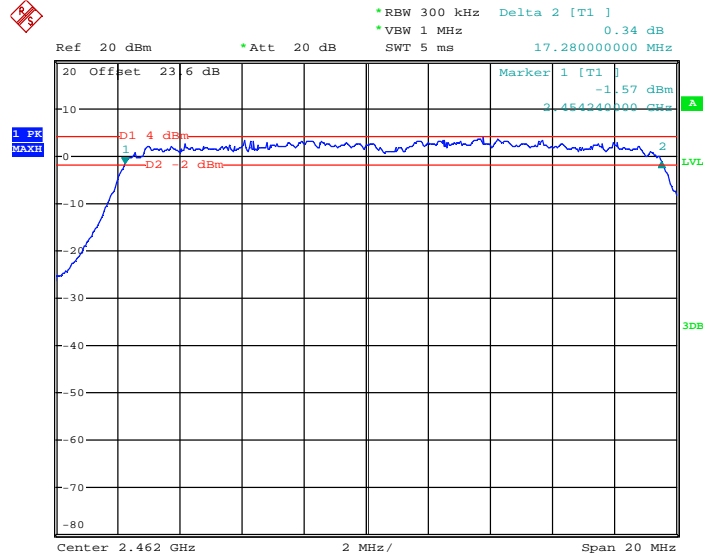
Date: 7.JUN.2012 21:54:15





802.11n HT-20 – SISO Ant. 1

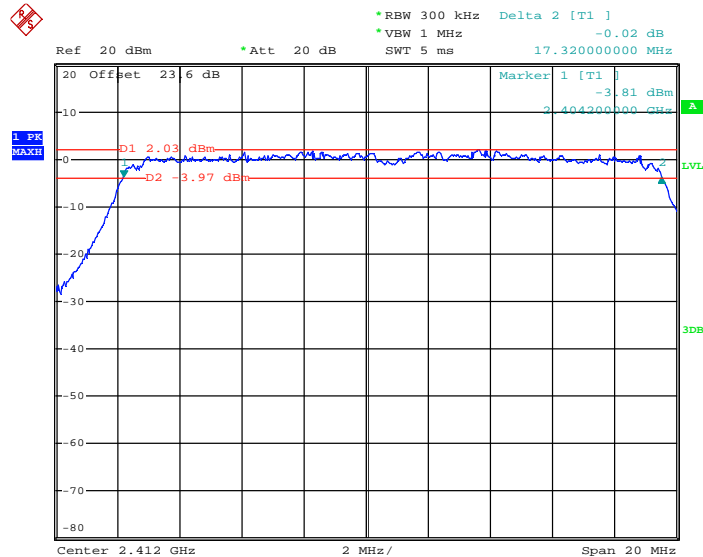
6 dB Bandwidth Plot on Channel 11



Date: 7.JUN.2012 21:59:21

802.11n HT-20 – MIMO Ant. 1+2(1)

6 dB Bandwidth Plot on Channel 01

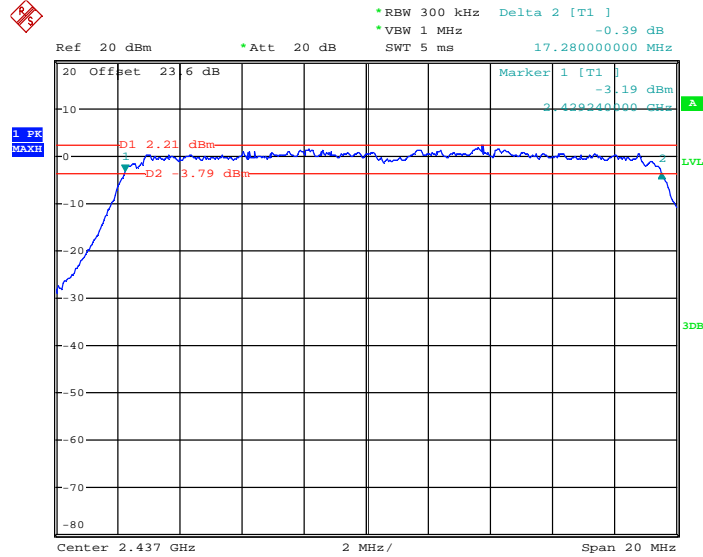


Date: 7.JUN.2012 22:43:48



802.11n HT-20 – MIMO Ant. 1+2(1)

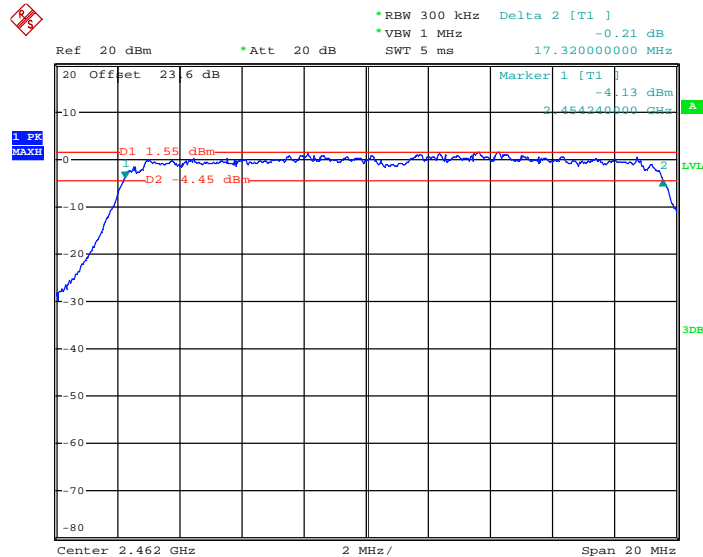
6 dB Bandwidth Plot on Channel 06



Date: 7.JUN.2012 22:41:37

802.11n HT-20 – MIMO Ant. 1+2(1)

6 dB Bandwidth Plot on Channel 11

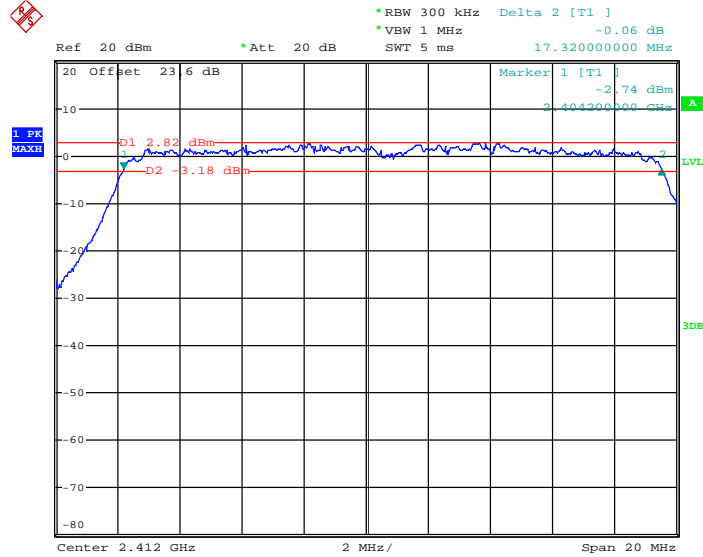


Date: 7.JUN.2012 22:38:29



802.11n HT-20 – MIMO Ant. 1+2(2)

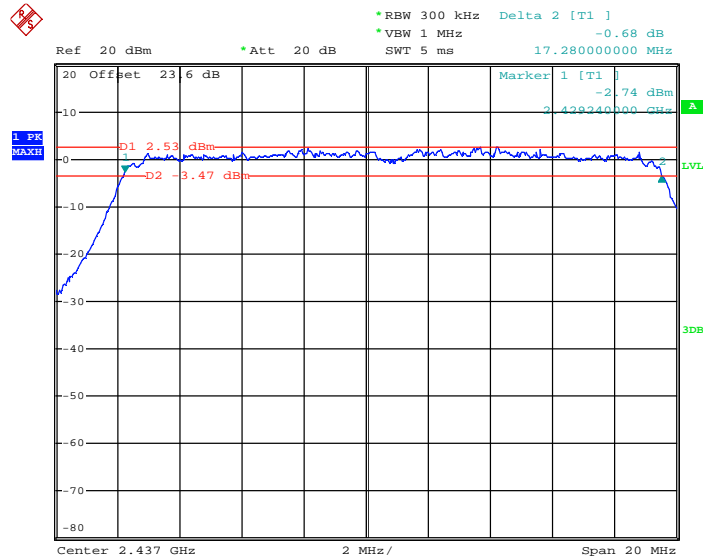
6 dB Bandwidth Plot on Channel 01



Date: 7.JUN.2012 22:48:45

802.11n HT-20 – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 06

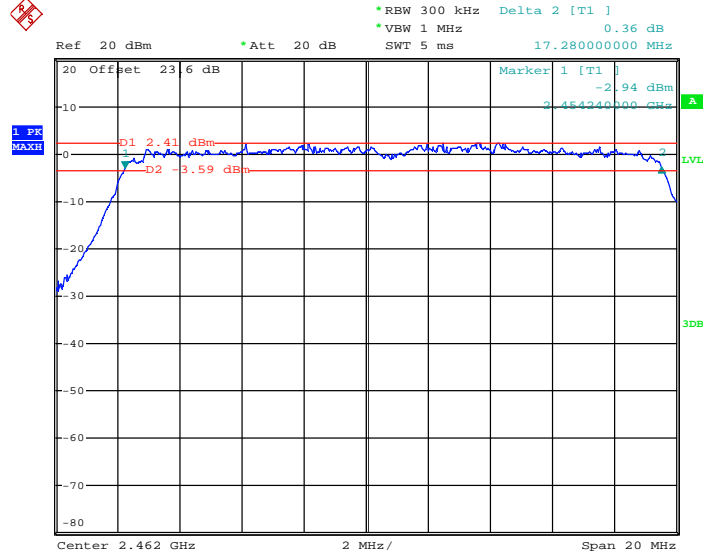


Date: 7.JUN.2012 22:51:22



802.11n HT-20 – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 11

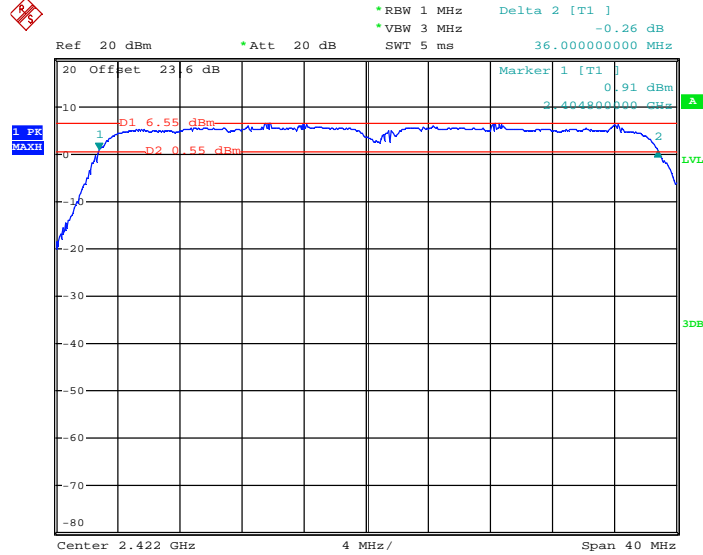


Date: 7.JUN.2012 22:53:38



802.11n HT-40 – SISO Ant. 1

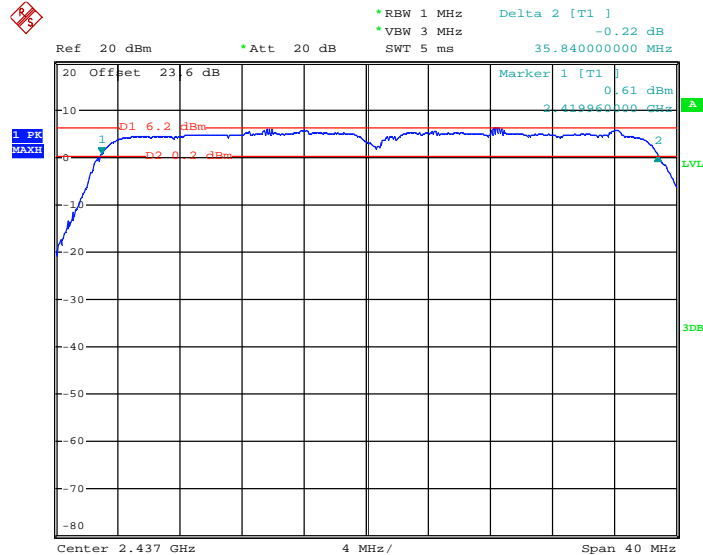
6 dB Bandwidth Plot on Channel 03



Date: 7.JUN.2012 21:43:26

802.11n HT-40 – SISO Ant. 1

6 dB Bandwidth Plot on Channel 06

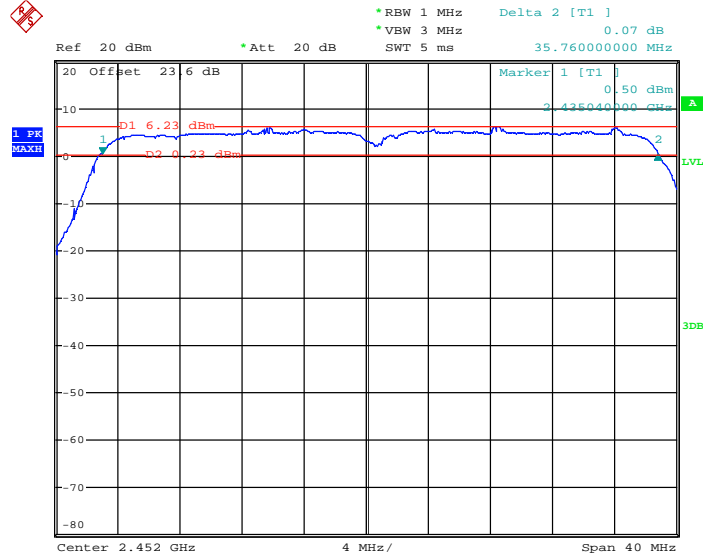


Date: 7.JUN.2012 21:36:28



802.11n HT-40 – SISO Ant. 1

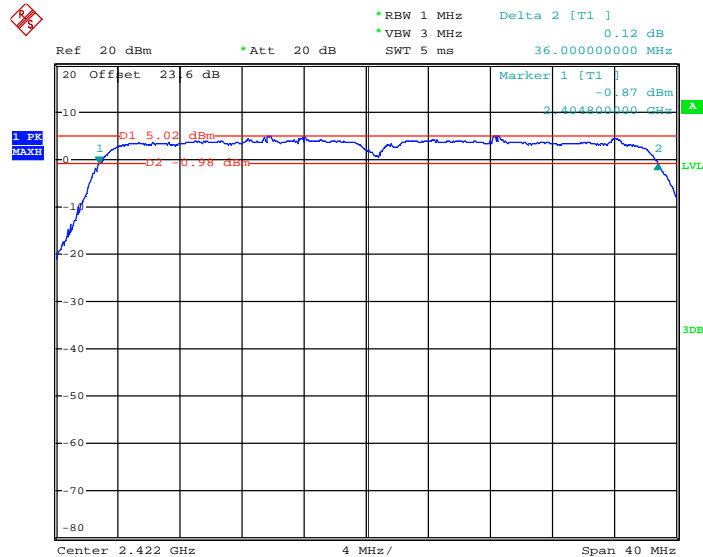
6 dB Bandwidth Plot on Channel 09



Date: 7.JUN.2012 21:38:58

802.11n HT-40 – MIMO Ant. 1+2(1)

6 dB Bandwidth Plot on Channel 03

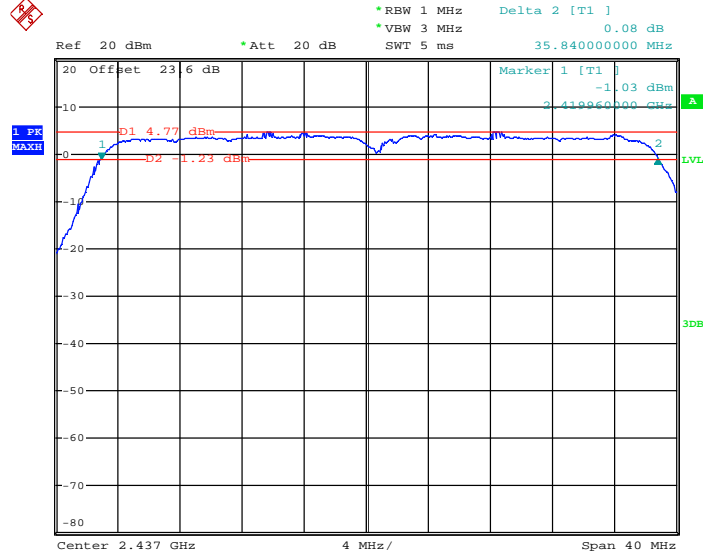


Date: 7.JUN.2012 21:27:26



802.11n HT-40 – MIMO Ant. 1+2(1)

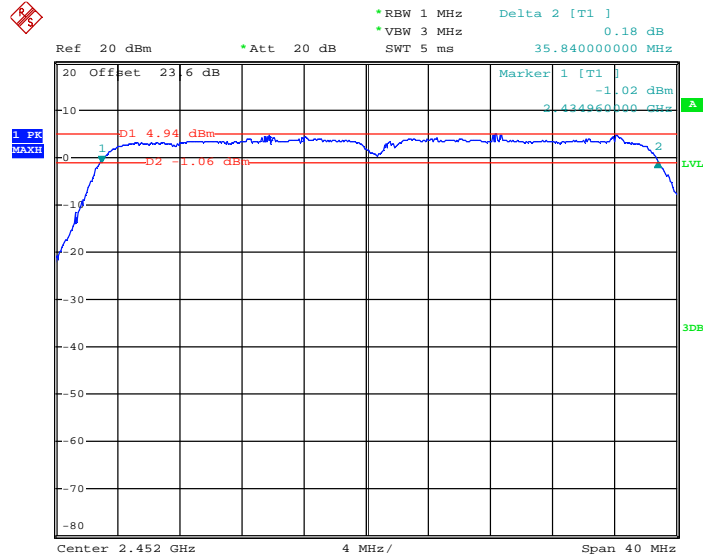
6 dB Bandwidth Plot on Channel 06



Date: 7.JUN.2012 21:23:32

802.11n HT-40 – MIMO Ant. 1+2(1)

6 dB Bandwidth Plot on Channel 09

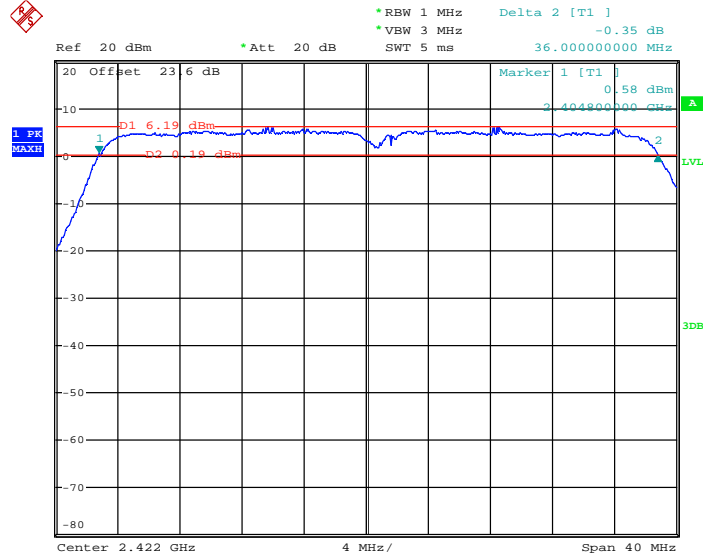


Date: 7.JUN.2012 21:20:38



802.11n HT-40 – MIMO Ant. 1+2(2)

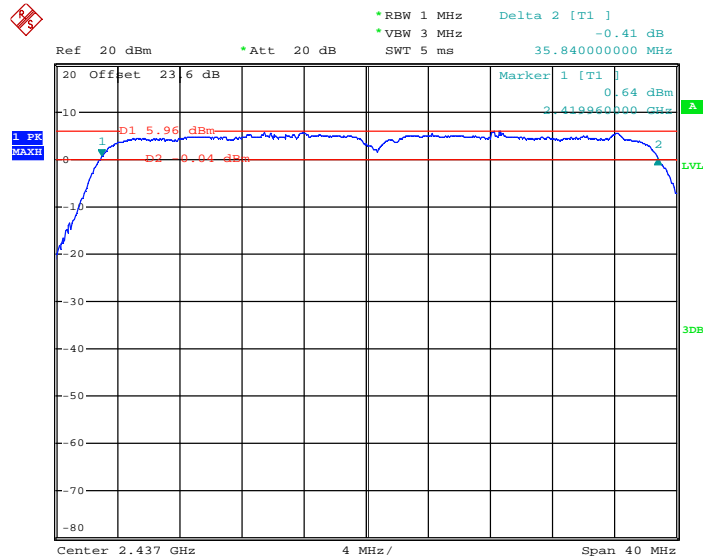
6 dB Bandwidth Plot on Channel 03



Date: 7.JUN.2012 20:56:29

802.11n HT-40 – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 06



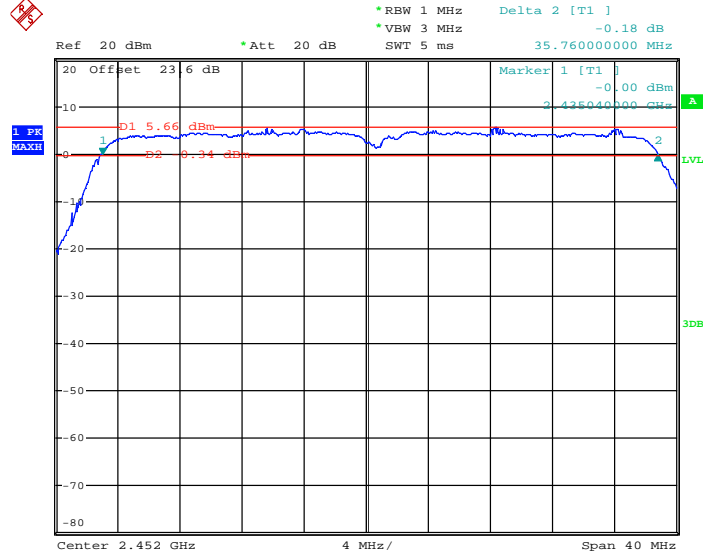
Date: 7.JUN.2012 21:08:21





802.11n HT-40 – MIMO Ant. 1+2(2)

6 dB Bandwidth Plot on Channel 09



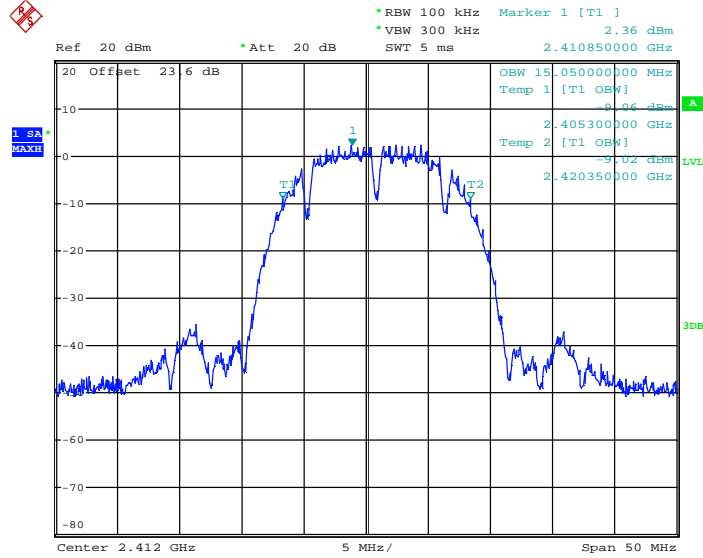
Date: 7.JUN.2012 21:12:07



### 3.1.8 Test Result of 99% Bandwidth Plots

#### 802.11b – SISO Ant. 1

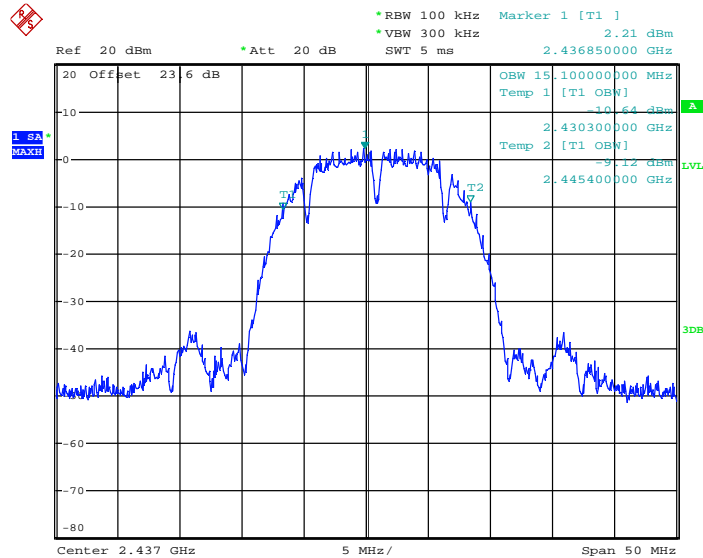
#### 99% Occupied Bandwidth Plot on Channel 01



Date: 7.JUN.2012 22:14:10

#### 802.11b – SISO Ant. 1

#### 99% Occupied Bandwidth Plot on Channel 06

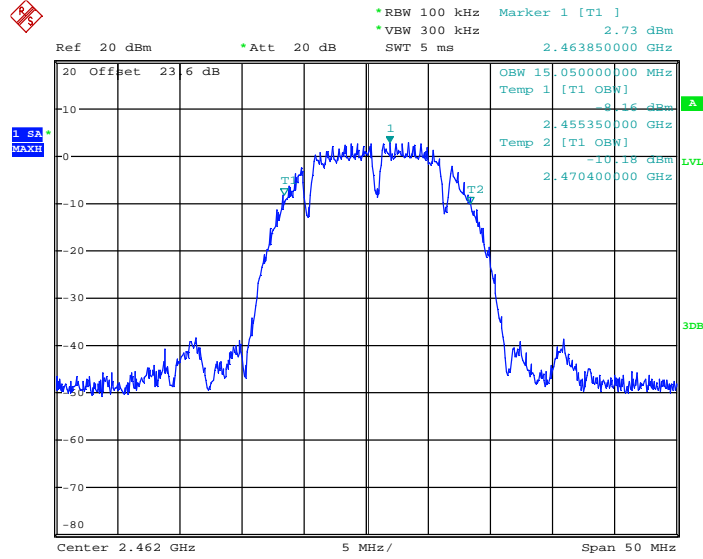


Date: 7.JUN.2012 22:16:57



802.11b – SISO Ant. 1

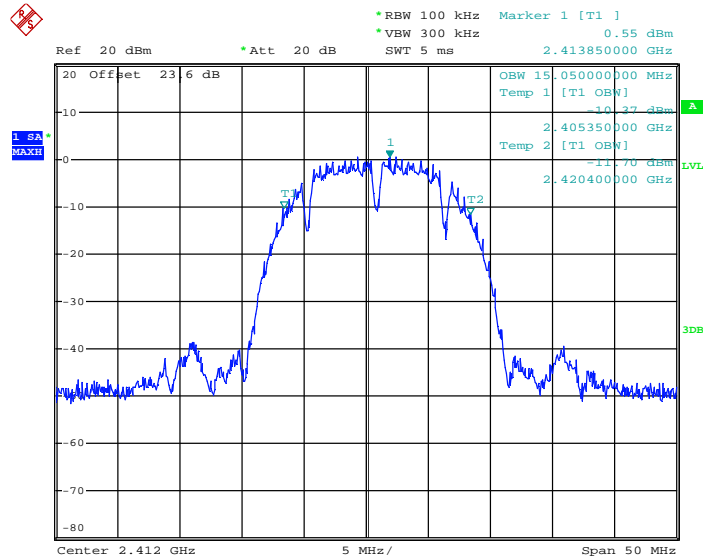
99% Occupied Bandwidth Plot on Channel 11



Date: 7.JUN.2012 22:19:32

802.11b – MIMO Ant. 1+2(1)

99% Occupied Bandwidth Plot on Channel 01

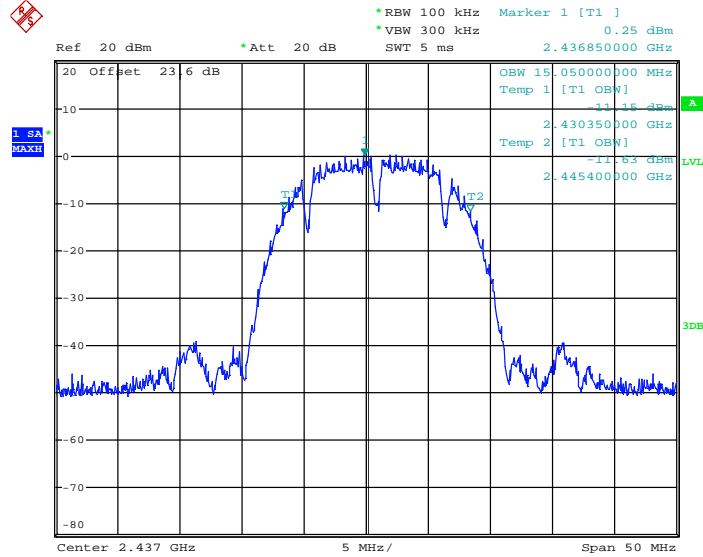


Date: 7.JUN.2012 22:27:59



802.11b – MIMO Ant. 1+2(1)

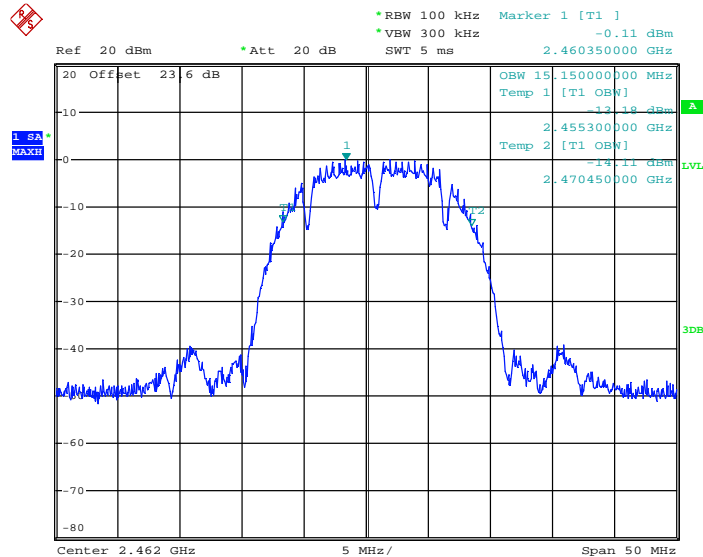
99% Occupied Bandwidth Plot on Channel 06



Date: 7.JUN.2012 22:25:44

802.11b – MIMO Ant. 1+2(1)

99% Occupied Bandwidth Plot on Channel 11

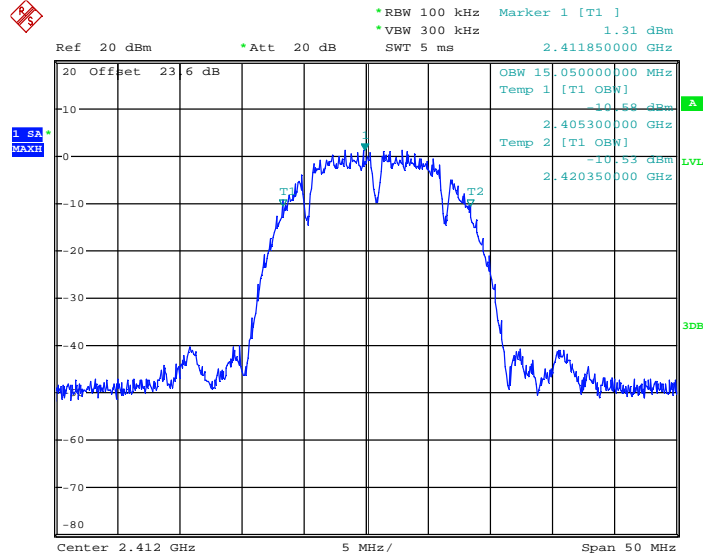


Date: 7.JUN.2012 22:23:25



802.11b – MIMO Ant. 1+2(2)

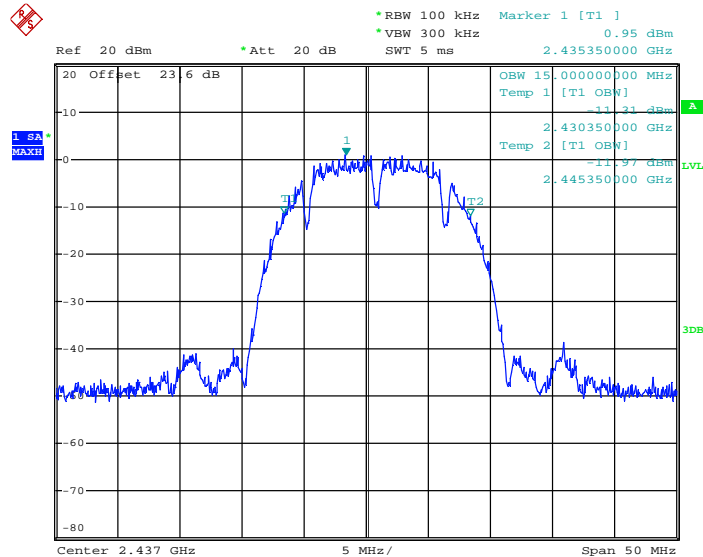
99% Occupied Bandwidth Plot on Channel 01



Date: 7.JUN.2012 23:07:40

802.11b – MIMO Ant. 1+2(2)

99% Occupied Bandwidth Plot on Channel 06

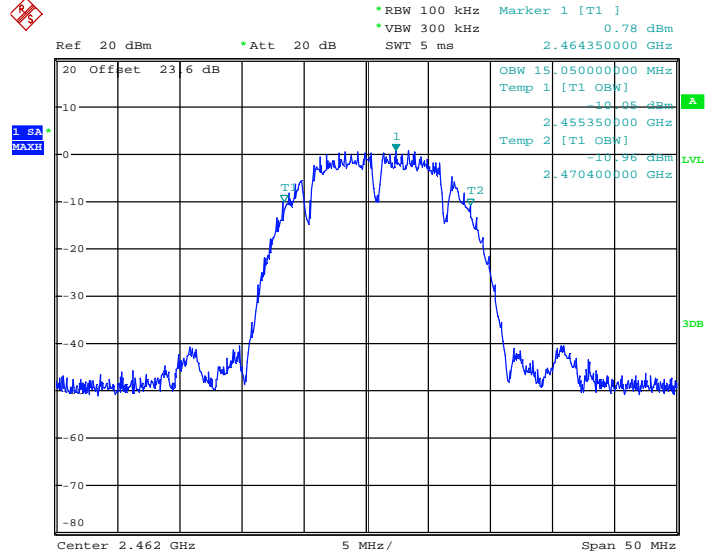


Date: 7.JUN.2012 23:09:30



802.11b – MIMO Ant. 1+2(2)

99% Occupied Bandwidth Plot on Channel 11

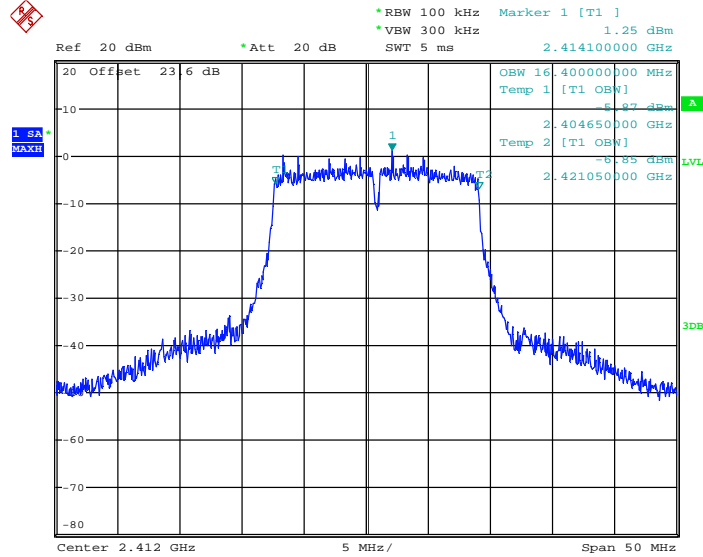


Date: 7.JUN.2012 23:11:48



802.11g – SISO Ant. 1

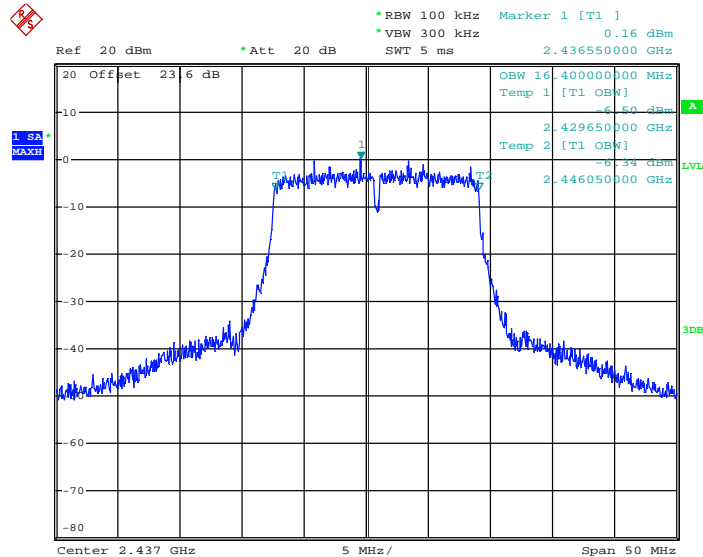
99% Occupied Bandwidth Plot on Channel 01



Date: 7.JUN.2012 22:09:56

802.11g – SISO Ant. 1

99% Occupied Bandwidth Plot on Channel 06

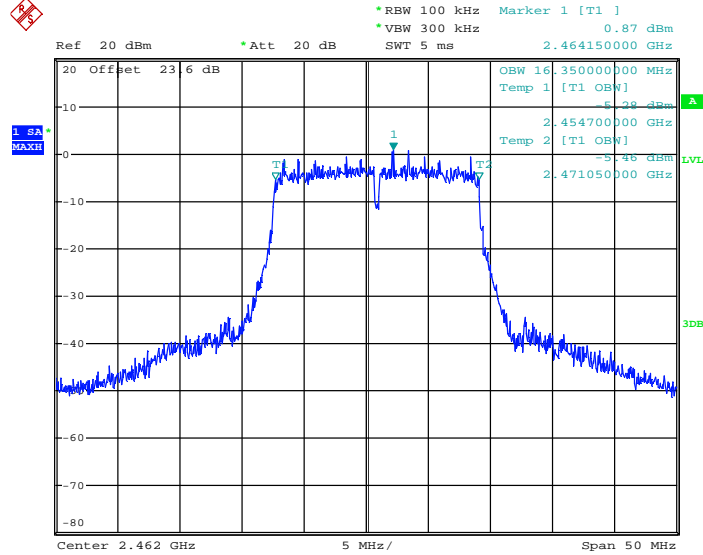


Date: 7.JUN.2012 22:07:39



802.11g – SISO Ant. 1

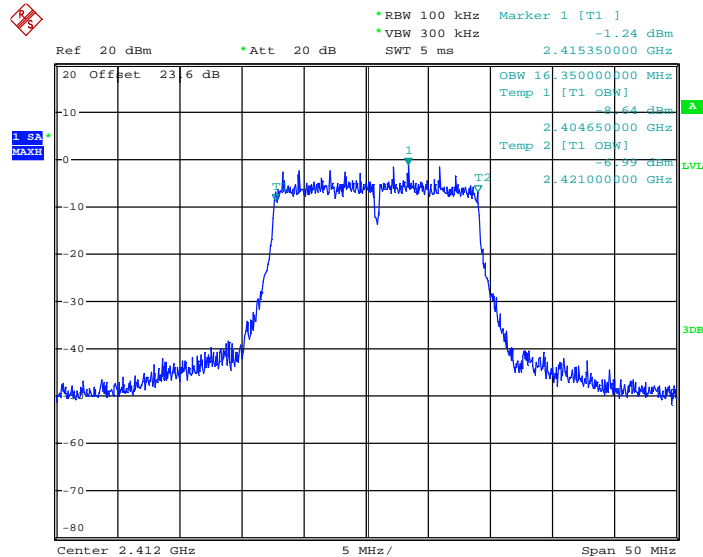
99% Occupied Bandwidth Plot Channel 11



Date: 7.JUN.2012 22:04:45

802.11g – MIMO Ant. 1+2(1)

99% Occupied Bandwidth Plot on Channel 01



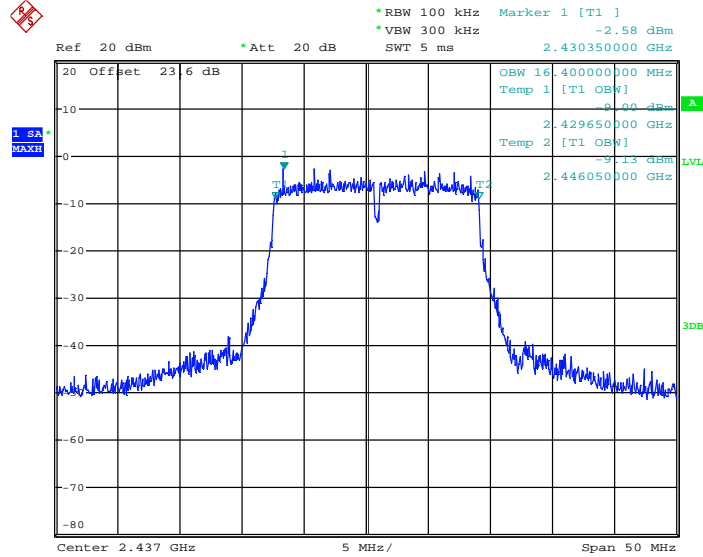
Date: 7.JUN.2012 22:32:09





802.11g – MIMO Ant. 1+2(1)

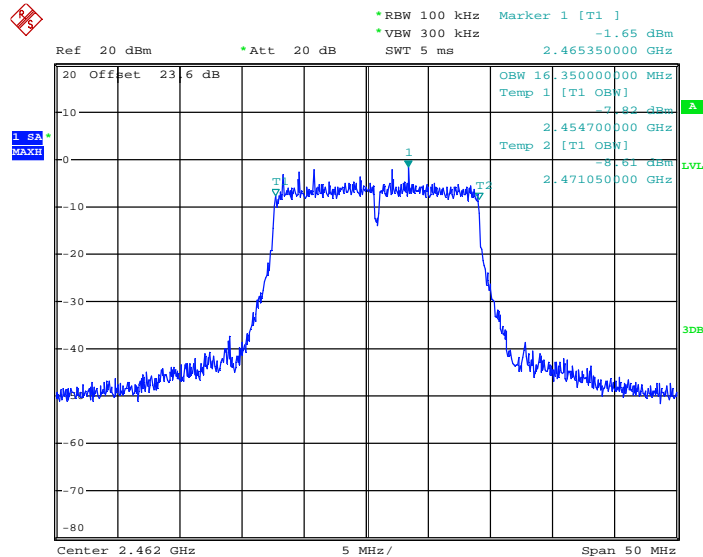
99% Occupied Bandwidth Plot on Channel 06



Date: 7.JUN.2012 22:34:14

802.11g – MIMO Ant. 1+2(1)

99% Occupied Bandwidth Plot on Channel 11

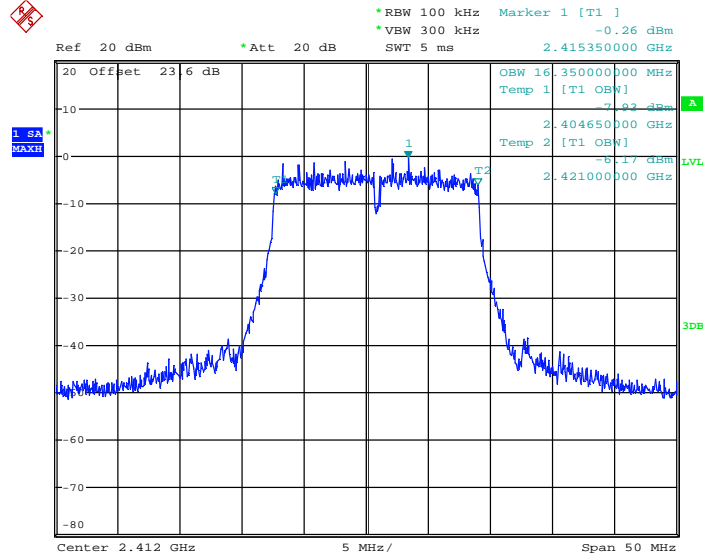


Date: 7.JUN.2012 22:36:41



802.11g – MIMO Ant. 1+2(2)

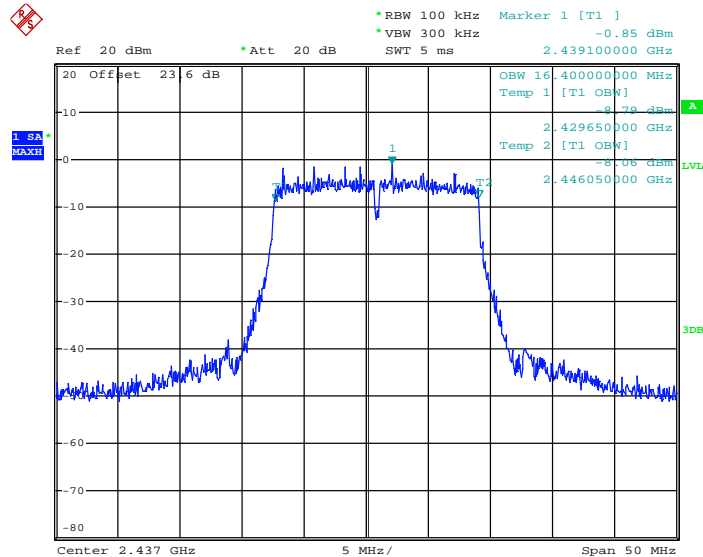
99% Occupied Bandwidth Plot on Channel 01



Date: 7.JUN.2012 23:04:54

802.11g – MIMO Ant. 1+2(2)

99% Occupied Bandwidth Plot on Channel 06



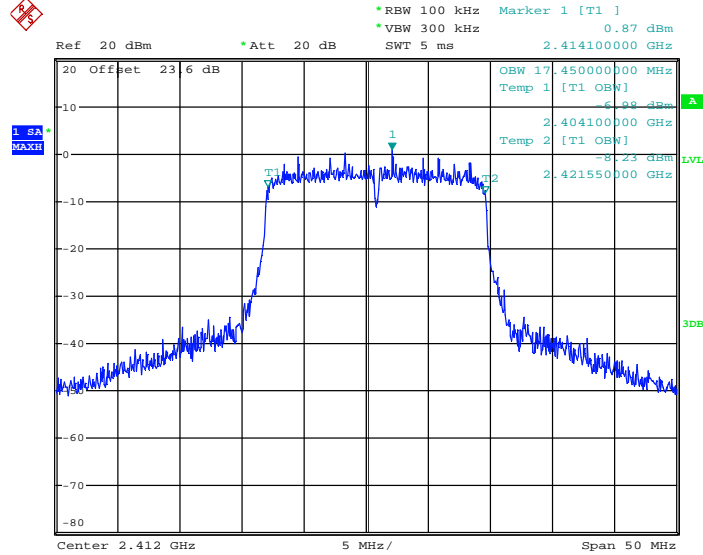
Date: 7.JUN.2012 23:01:39





802.11n HT-20 – SISO Ant. 1

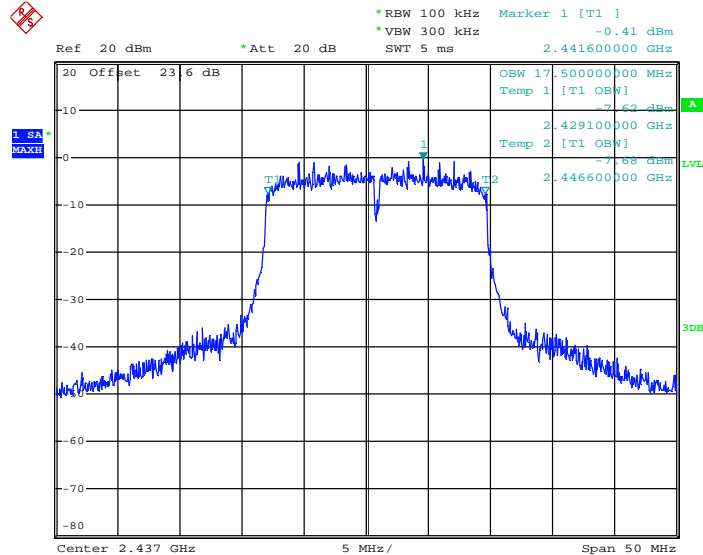
99% Occupied Bandwidth Plot on Channel 01



Date: 7.JUN.2012 21:51:51

802.11n HT-20 – SISO Ant. 1

99% Occupied Bandwidth Plot on Channel 06

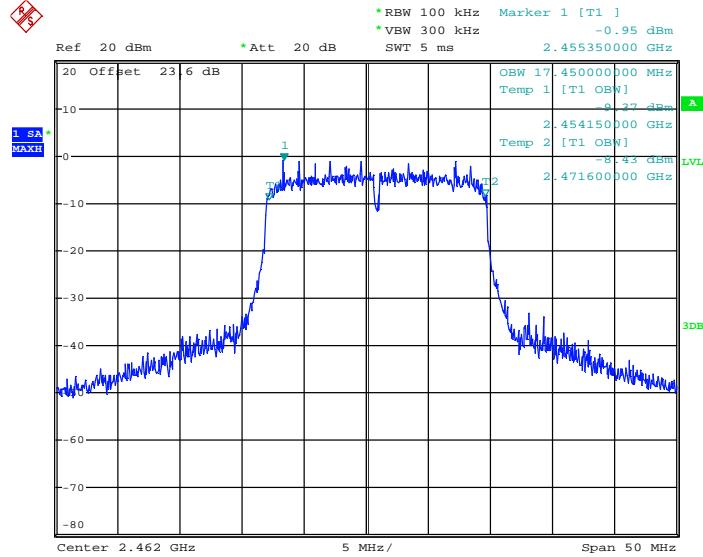


Date: 7.JUN.2012 21:55:32



802.11n HT-20 – SISO Ant. 1

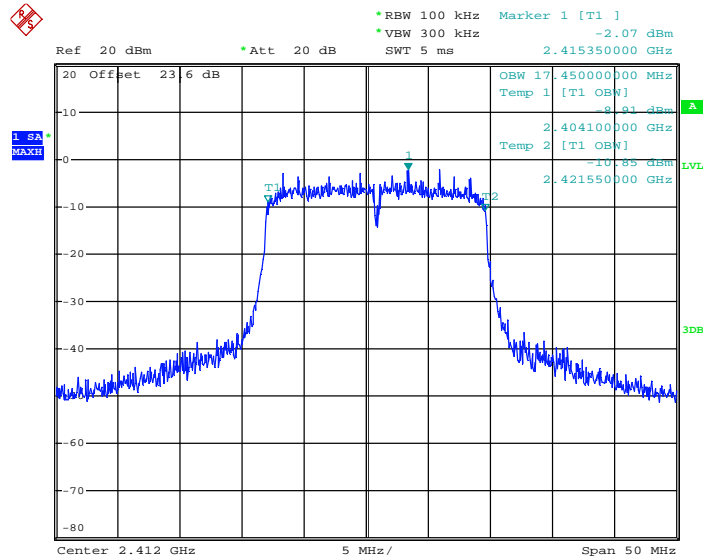
99% Occupied Bandwidth Plot on Channel 11



Date: 7.JUN.2012 22:00:51

802.11n HT-20 – MIMO Ant. 1+2(1)

99% Occupied Bandwidth Plot on Channel 01

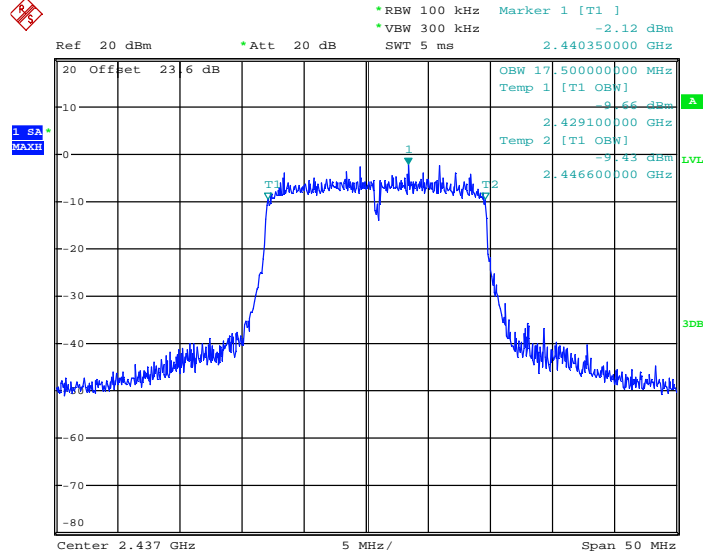


Date: 7.JUN.2012 22:45:14



802.11n HT-20 – MIMO Ant. 1+2(1)

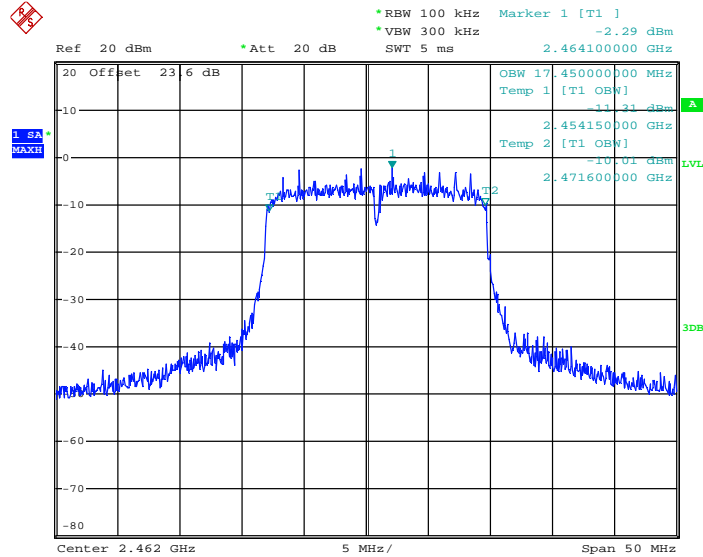
99% Occupied Bandwidth Plot on Channel 06



Date: 7.JUN.2012 22:42:47

802.11n HT-20 – MIMO Ant. 1+2(1)

99% Occupied Bandwidth Plot on Channel 11

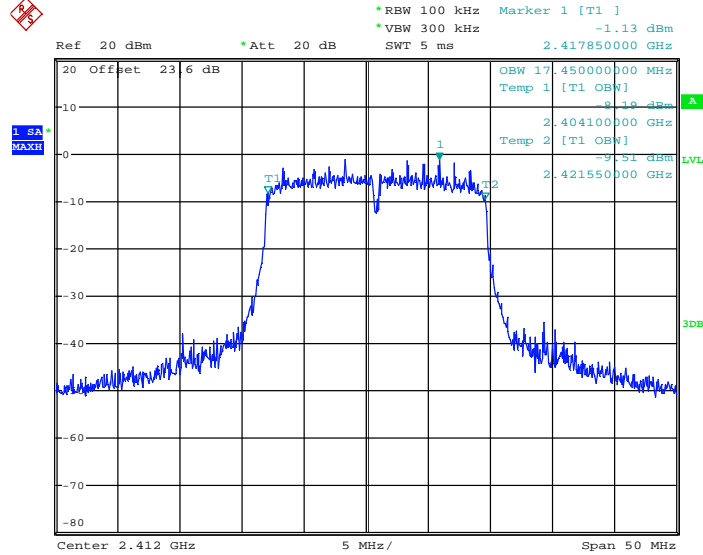


Date: 7.JUN.2012 22:39:55



802.11n HT-20 – MIMO Ant. 1+2(2)

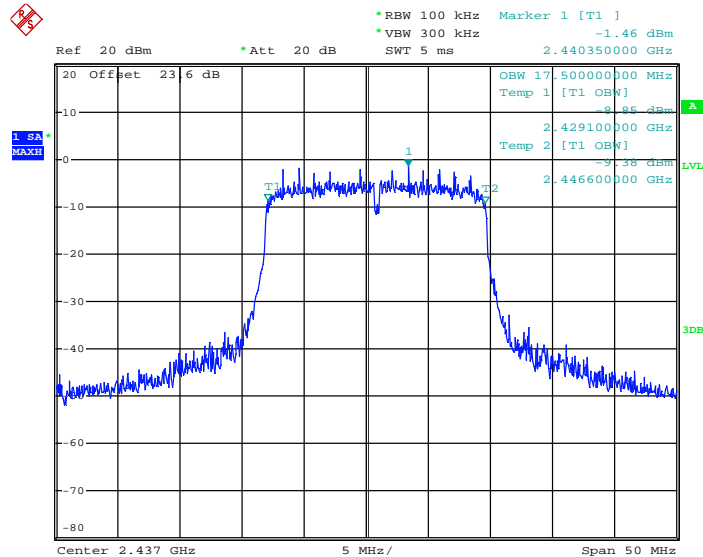
99% Occupied Bandwidth Plot on Channel 01



Date: 7.JUN.2012 22:50:06

802.11n HT-20 – MIMO Ant. 1+2(2)

99% Occupied Bandwidth Plot on Channel 06

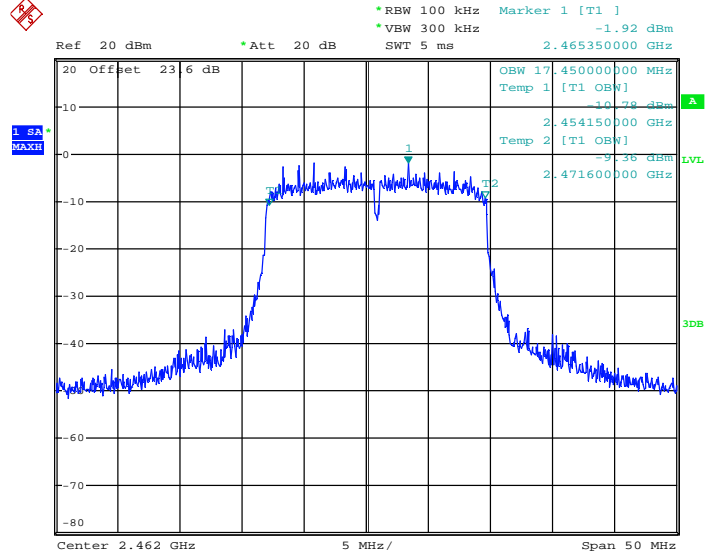


Date: 7.JUN.2012 22:52:29



802.11n HT-20 – MIMO Ant. 1+2(2)

99% Occupied Bandwidth Plot on Channel 11



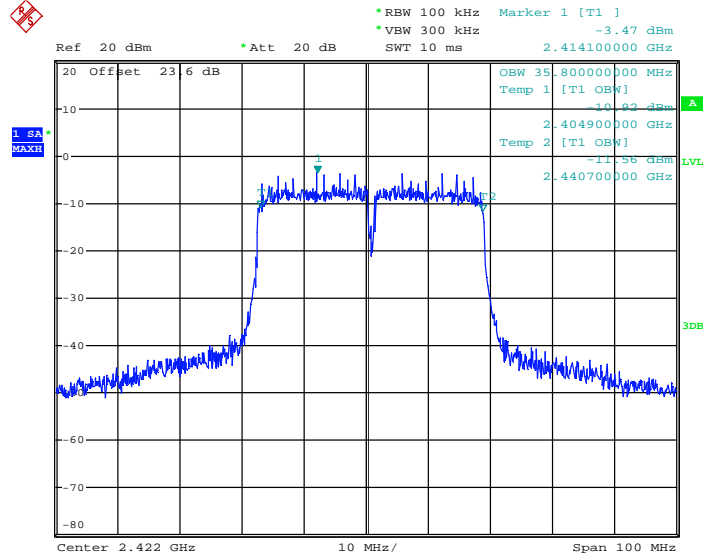
Date: 7.JUN.2012 22:55:30





802.11n HT-40 – SISO Ant. 1

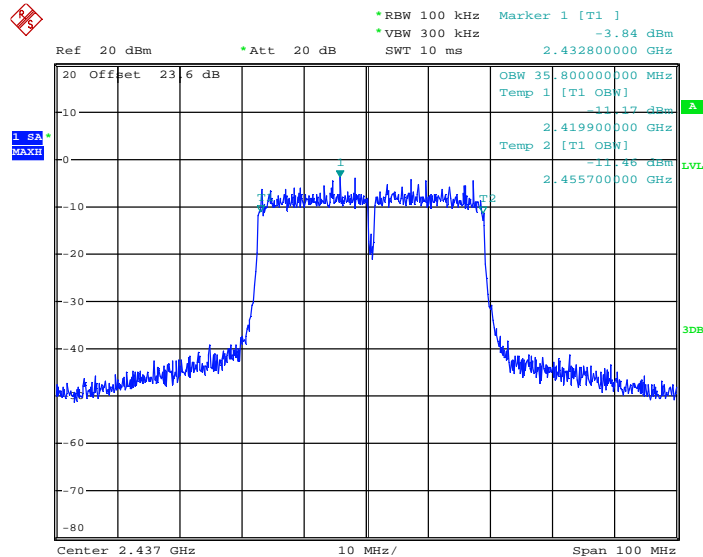
99% Occupied Bandwidth Plot on Channel 03



Date: 7.JUN.2012 21:47:41

802.11n HT-40 – SISO Ant. 1

99% Occupied Bandwidth Plot on Channel 06

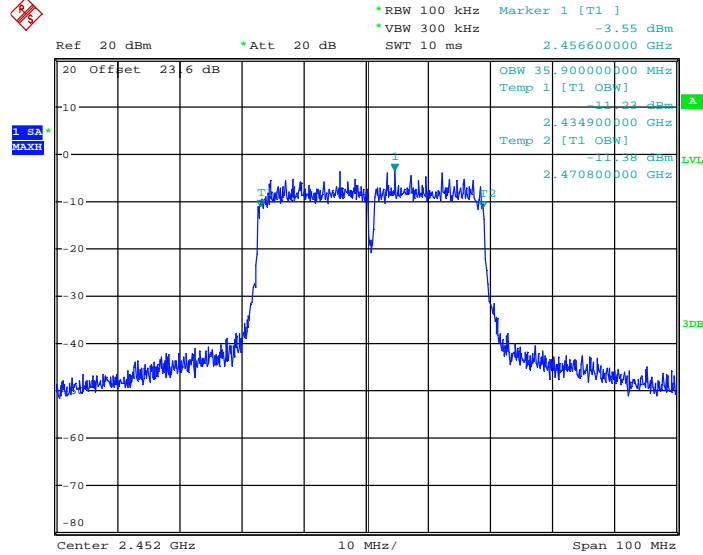


Date: 7.JUN.2012 21:37:33



802.11n HT-40 – SISO Ant. 1

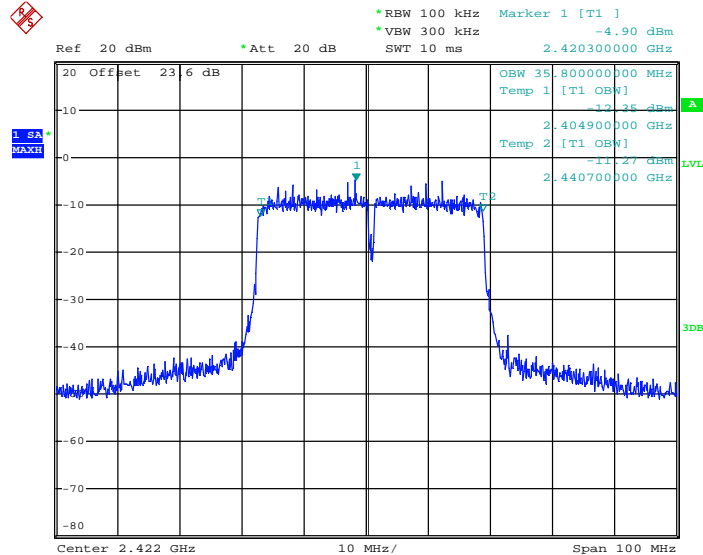
99% Occupied Bandwidth Plot on Channel 09



Date: 7.JUN.2012 21:42:29

802.11n HT-40 –MIMO Ant. 1+2(1)

99% Occupied Bandwidth Plot on Channel 03

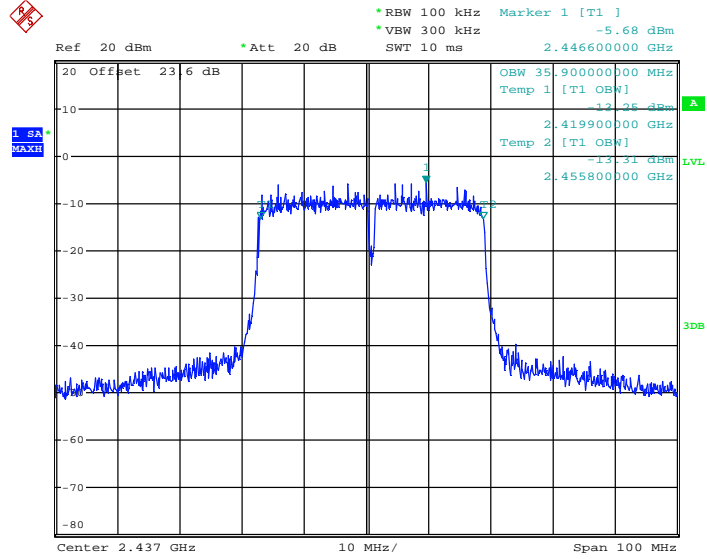


Date: 7.JUN.2012 21:29:38



802.11n HT-40 –MIMO Ant. 1+2(1)

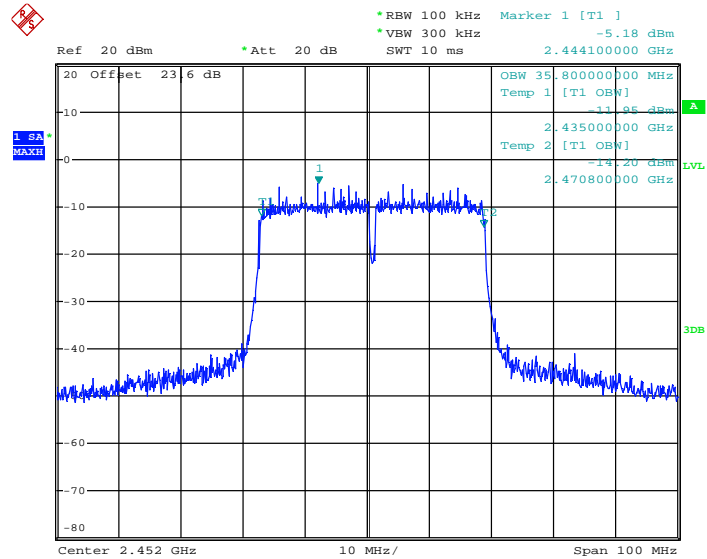
99% Occupied Bandwidth Plot on Channel 06



Date: 7.JUN.2012 21:25:18

802.11n HT-40 –MIMO Ant. 1+2(1)

99% Occupied Bandwidth Plot on Channel 09

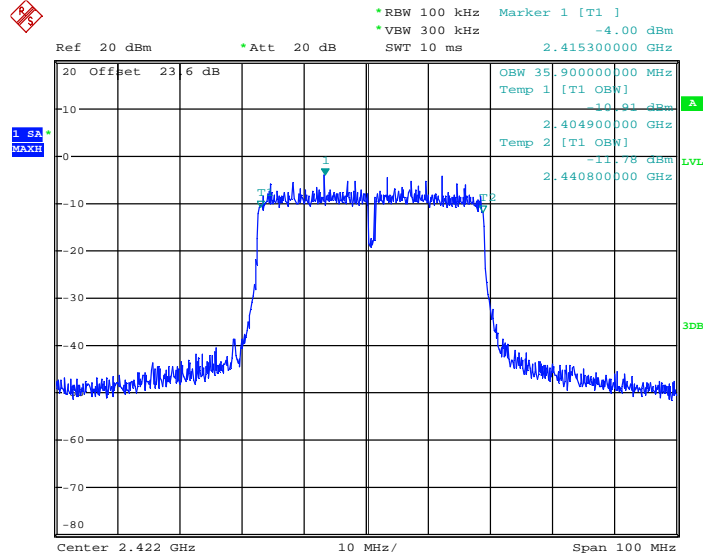


Date: 7.JUN.2012 21:22:06



802.11n HT-40 –MIMO Ant. 1+2(2)

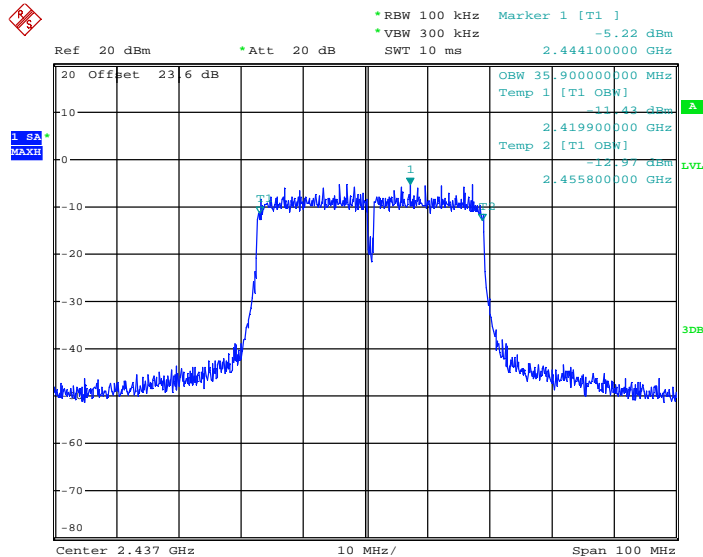
99% Occupied Bandwidth Plot on Channel 03



Date: 7.JUN.2012 20:59:25

802.11n HT-40 –MIMO Ant. 1+2(2)

99% Occupied Bandwidth Plot on Channel 06

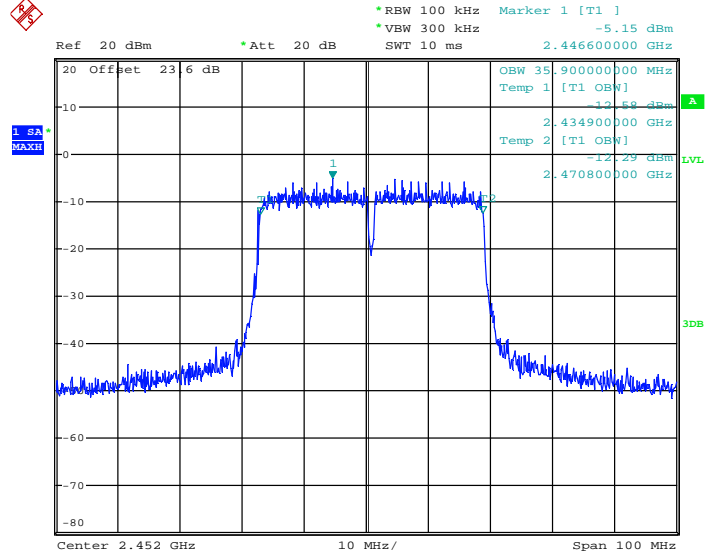


Date: 7.JUN.2012 21:10:34



802.11n HT-40 –MIMO Ant. 1+2(2)

99% Occupied Bandwidth Plot on Channel 09



Date: 7.JUN.2012 21:13:35

## 3.2 Output Power Measurement

### 3.2.1 Limit of Output Power

For systems using digital modulation in the 2400-2483.5MHz and 5725-5850MHz, the limit for peak output power is 30dBm. If transmitting Antenna of directional gain greater than 6dBi are used the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the Antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the Antenna exceeds 6dBi.

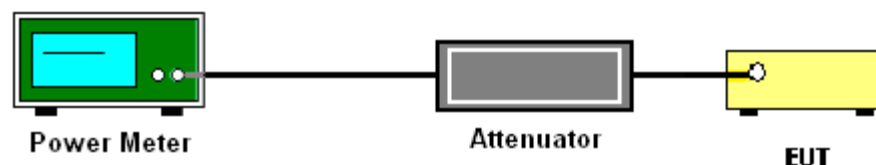
### 3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

### 3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the power meter by a low loss cable
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v01r01.

### 3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power

Test Mode :	802.11b	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Ch.	Frequency (MHz)	802.11b Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>		
01	2412	16.61	14.72	14.54	17.64	30	Pass
06	2437	16.44	13.73	14.16	16.96	30	Pass
11	2462	16.41	13.12	14.00	16.59	30	Pass

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Ch.	Frequency (MHz)	802.11g Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>		
01	2412	22.13	20.05	20.13	23.10	30	Pass
06	2437	20.71	18.71	19.22	21.98	30	Pass
11	2462	20.21	18.03	18.89	21.49	30	Pass



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Ch.	Frequency (MHz)	802.11n HT-20 Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>		
01	2412	22.46	20.34	20.37	23.37	30	Pass
06	2437	21.07	19.41	20.08	22.77	30	Pass
11	2462	20.57	18.90	19.89	22.43	30	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Ch.	Frequency (MHz)	802.11n HT-40 Peak Output Power (dBm)				Max. Limits (dBm)	Pass/Fail
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>		
03	2422	21.54	20.33	20.72	23.54	30	Pass
06	2437	20.72	19.56	20.25	22.93	30	Pass
09	2452	20.43	19.16	19.88	22.55	30	Pass





3.2.6 Test Result of Average output Power (Reporting Only)

<b>Test Mode :</b>	802.11b	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Bill Kuo	<b>Relative Humidity :</b>	50~53%
<b>Duty Cycle:</b>	97.80% for SISO Ant. 1 97.80% for MIMO <Ant. 1+2(1)> 97.82% for MIMO <Ant. 1+2(2)>	<b>Duty Factor:</b>	0.10dB for SISO Ant. 1 0.10dB for MIMO <Ant. 1+2(1)> 0.10dB for MIMO <Ant 1+2(2)>

Channel	Frequency (MHz)	802.11b Average Output Power (dBm)			
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>
01	2412	14.96	11.98	12.00	15.00
06	2437	14.56	11.88	11.95	14.92
11	2462	14.55	11.26	11.92	14.61

Note :

1. MIMO ANT 1+2 is a calculated result from sum of the power MIMO ANT 1 and MIMO ANT 2.
2. The average power is measured by power meter with average power sensor and is reporting only.



<b>Test Mode :</b>	802.11g	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Bill Kuo	<b>Relative Humidity :</b>	50~53%
<b>Duty Cycle:</b>	87.24% for SISO Ant. 1 87.12% for MIMO <Ant 1+2(1)> 87.39% for MIMO <Ant 1+2(2)>	<b>Duty Factor:</b>	0.59dB for SISO Ant. 1 0.60dB for MIMO <Ant 1+2(1)> 0.59dB for MIMO <Ant 1+2(2)>

Channel	Frequency (MHz)	802.11g Average Output Power (dBm)			
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>
01	2412	13.52	11.00	10.97	13.99
06	2437	12.53	10.44	10.81	13.64
11	2462	11.96	9.87	10.66	13.29

**Note :**

1. MIMO ANT 1+2 is a calculated result from sum of the power MIMO ANT 1 and MIMO ANT 2.
2. The average power is measured by power meter with average power sensor and is reporting only.



<b>Test Mode :</b>	802.11n HT-20	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Bill Kuo	<b>Relative Humidity :</b>	50~53%
<b>Duty Cycle:</b>	86.72% for SISO Ant. 1 86.58% for MIMO <Ant 1+2(1)> 87.04% for MIMO <Ant 1+2(2)>	<b>Duty Factor:</b>	0.62dB for SISO Ant. 1 0.63dB for MIMO <Ant 1+2(1)> 0.60dB for MIMO <Ant 1+2(2)>

Channel	Frequency (MHz)	802.11n HT-20 Average Output Power (dBm)			
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>
01	2412	13.13	10.82	11.14	13.99
06	2437	11.99	10.14	10.70	13.44
11	2462	11.50	9.64	10.44	13.07

**Note :**

1. MIMO ANT 1+2 is a calculated result from sum of the power MIMO ANT 1 and MIMO ANT 2.
2. The average power is measured by power meter with average power sensor and is reporting only.



<b>Test Mode :</b>	802.11n HT-40	<b>Temperature :</b>	24~26°C
<b>Test Engineer :</b>	Bill Kuo	<b>Relative Humidity :</b>	50~53%
<b>Duty Cycle:</b>	75.92% for SISO Ant. 1 76.03% for MIMO <Ant 1+2(1)> 76.01% for MIMO <Ant 1+2(2)>	<b>Duty Factor:</b>	1.20dB for SISO Ant. 1 1.19dB for MIMO <Ant 1+2(1)> 1.19dB for MIMO <Ant 1+2(2)>

Channel	Frequency (MHz)	802.11n HT-40 Average Output Power (dBm)			
		SISO Ant. 1	MIMO <Ant. 1+2(1)>	MIMO <Ant. 1+2(2)>	MIMO <Ant. 1+2>
03	2422	12.56	10.62	11.30	13.98
06	2437	11.87	10.61	11.24	13.95
09	2452	11.53	10.17	10.87	13.55

**Note :**

1. MIMO ANT 1+2 is a calculated result from sum of the power MIMO ANT 1 and MIMO ANT 2.
2. The average power is measured by power meter with average power sensor and is reporting only.



### **3.3 Power Spectral Density Measurement**

#### **3.3.1 Limit of Power Spectral Density**

The peak power spectral density shall not be greater than 8dBm in any 3KHz band at any time interval of continuous transmission.

#### **3.3.2 Measuring Instruments**

See list of measuring instruments of this test report.

### 3.3.3 Test Procedures

1. The testing follows Measurement Procedure 5.3.1 (Peak PSD) of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance and TCB Workshop 2012, April.
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 KHz. Video bandwidth (VBW)  $\geq$  300 KHz In order to make an accurate measurement, set the span to 5-30% greater than Emission Bandwidth (EBW)
5. Detector = peak, Sweep time = auto couple, Trace mode = max hold, Allow trace to fully stabilize. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
6. Record the measurement data derived from spectrum analyzer.
7. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where  $BWCF = 10\log(3 \text{ kHz}/100 \text{ kHz} = -15.2 \text{ dB})$ .
8. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v01r01.

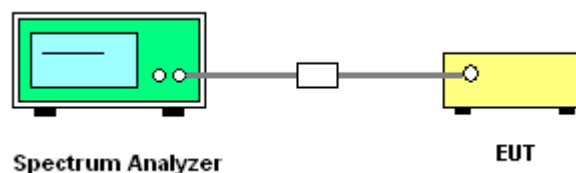
If measurements performed using method (2) plus  $10 \log(N)$  exceeds the emission limit, the test should choose method (1) before declaring that the device fails the emission limit.

Method (1): Measure and sum the spectra across the outputs.

The total final Power Spectral Density is from a device with 2 transmitter outputs. The spectrum measurements of the individual outputs are all performed with the same span and number of points, the spectrum value in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 to obtain the value for the first frequency bin of the summed spectrum.

Method (2): Measure and add  $10 \log(N)$  dB, where N is the number of outputs. (N=2)

### 3.3.4 Test Setup



3.3.5 Test Result of Power Spectral Density

Test Mode :	802.11b	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Ch.	Freq. (MHz)	802.11b Power Density						Max. Limits (dBm)	Pass /Fail
		SISO Ant. 1		MIMO <Ant. 1+2(1)>		MIMO <Ant. 1+2(2)>			
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2		
01	2412	2.77	-12.43	0.80	-14.40	1.62	-13.58	8	Pass
06	2437	2.44	-12.76	0.48	-14.72	1.41	-13.79	8	Pass
11	2462	3.20	-12.00	0.78	-14.42	1.12	-14.08	8	Pass

Test Mode :	802.11g	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Ch.	Freq. (MHz)	802.11g Power Density						Max. Limits (dBm)	Pass /Fail
		SISO Ant. 1		MIMO <Ant. 1+2(1)>		MIMO <Ant. 1+2(2)>			
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2		
01	2412	1.17	-14.03	-1.06	-16.26	-0.26	-15.46	8	Pass
06	2437	1.01	-14.19	-1.45	-16.65	-0.58	-15.78	8	Pass
11	2462	0.97	-14.23	-1.67	-16.87	-1.06	-16.26	8	Pass



Test Mode :	802.11n HT-20	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Ch.	Freq. (MHz)	802.11n HT-20 Power Density						Max. Limits (dBm)	Pass /Fail
		SISO Ant. 1		MIMO <Ant. 1+2(1)>		MIMO <Ant. 1+2(2)>			
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2		
01	2412	0.65	-14.55	-1.43	-16.63	-0.46	-15.66	8	Pass
06	2437	0.37	-14.83	-1.70	-16.90	-0.80	-16.00	8	Pass
11	2462	0.17	-15.03	-1.92	-17.12	-0.94	-16.14	8	Pass

Test Mode :	802.11n HT-40	Temperature :	24~26°C
Test Engineer :	Bill Kuo	Relative Humidity :	50~53%

Ch.	Freq. (MHz)	802.11n HT-40 Power Density						Max. Limits (dBm)	Pass /Fail
		SISO Ant. 1		MIMO <Ant. 1+2(1)>		MIMO <Ant. 1+2(2)>			
		Measured PSD/100KHz (dBm)	PSD/3KHz (dBm)	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2	Measured PSD/100KHz (dBm)	PSD/3KHz (dBm) +10log2		
03	2422	-2.95	-18.15	-4.47	-19.67	-3.44	-18.64	8	Pass
06	2437	-3.20	-18.40	-4.64	-19.84	-3.78	-18.98	8	Pass
09	2452	-3.28	-18.48	-4.53	-19.73	-4.15	-19.35	8	Pass

Note:

1. Measured power density (dBm) has offset with cable loss.
2. BWCF (dB) =  $10 \log (3k/100k) = -15.2 \text{ dB}$
3. Power Density/ 3KHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB)
4. MIMO Power Density/ 3KHz (dBm) = Measured power density/ 100KHz (dBm) + BWCF (dB) +  $10 \log(N=2)$ , where N=2 transmitters.

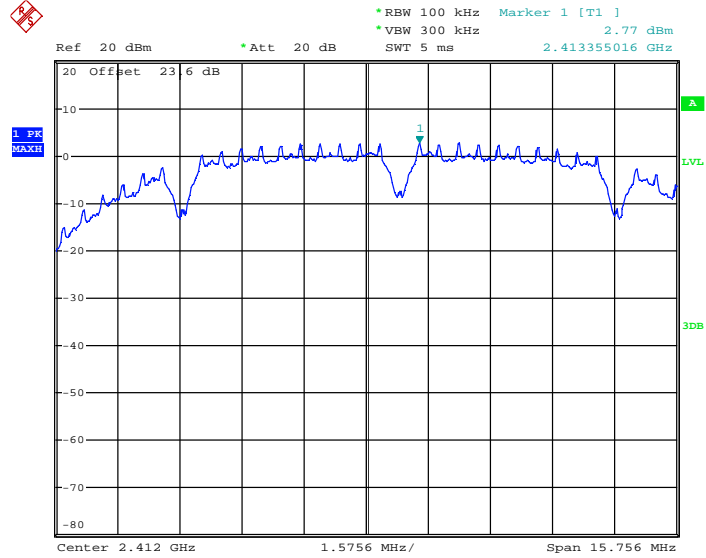




### 3.3.6 Test Result of Power Spectral Density Plots

#### 802.11b –SISO Ant. 1

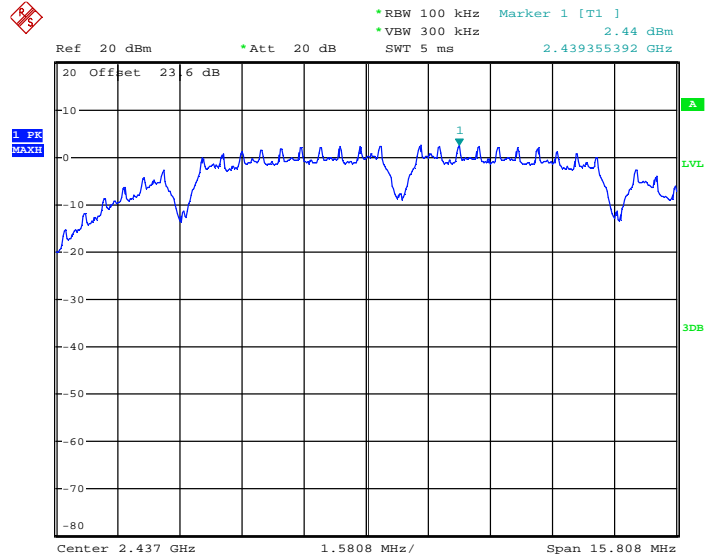
#### PSD Plot on Channel 01



Date: 7.JUN.2012 22:12:59

#### 802.11b –SISO Ant. 1

#### PSD Plot on Channel 06

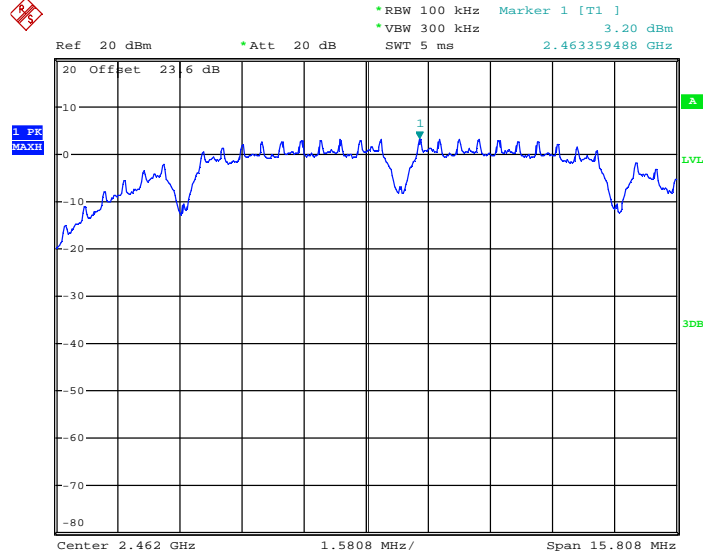


Date: 7.JUN.2012 22:16:02



802.11b –SISO Ant. 1

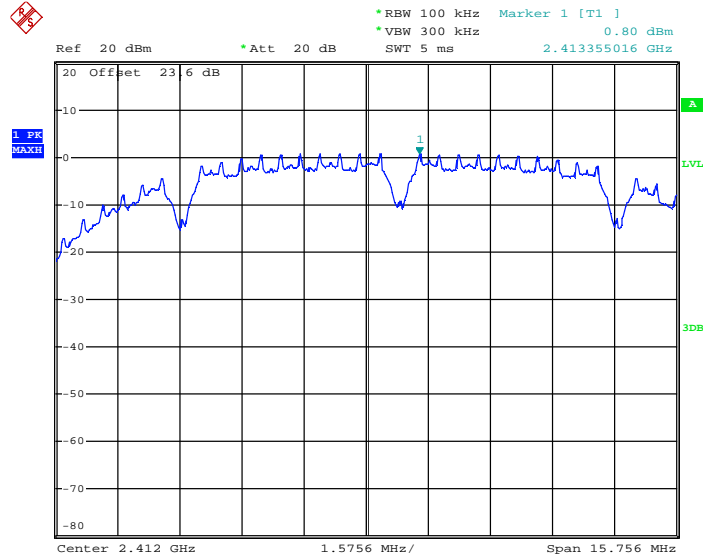
PSD Plot on Channel 11



Date: 7.JUN.2012 22:18:27

802.11b –MIMO Ant. 1+2(1)

PSD Plot on Channel 01

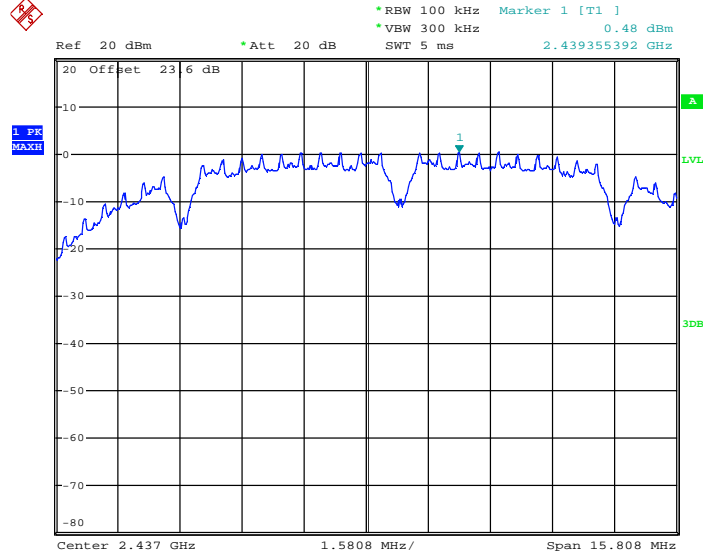


Date: 7.JUN.2012 22:26:56



802.11b –MIMO Ant. 1+2(1)

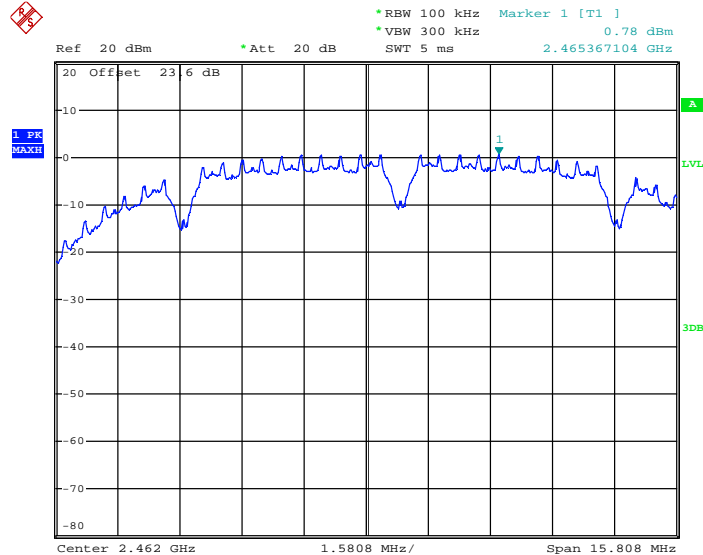
PSD Plot on Channel 06



Date: 7.JUN.2012 22:24:58

802.11b –MIMO Ant. 1+2(1)

PSD Plot on Channel 11

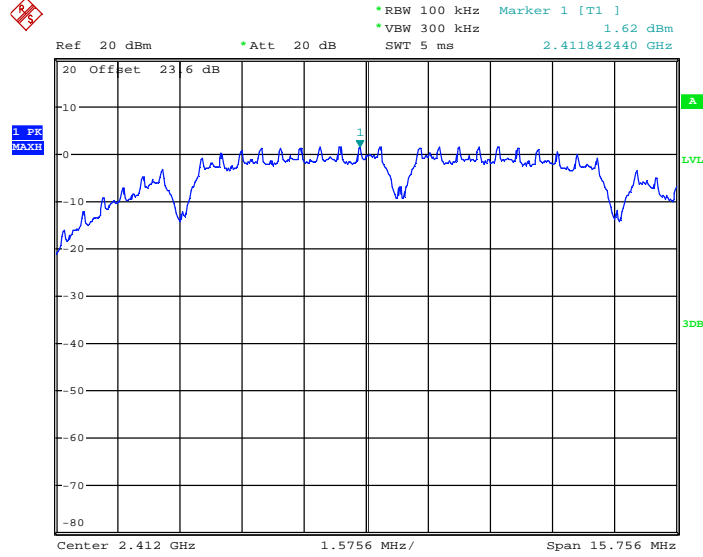


Date: 7.JUN.2012 22:22:01



802.11b –MIMO Ant. 1+2(2)

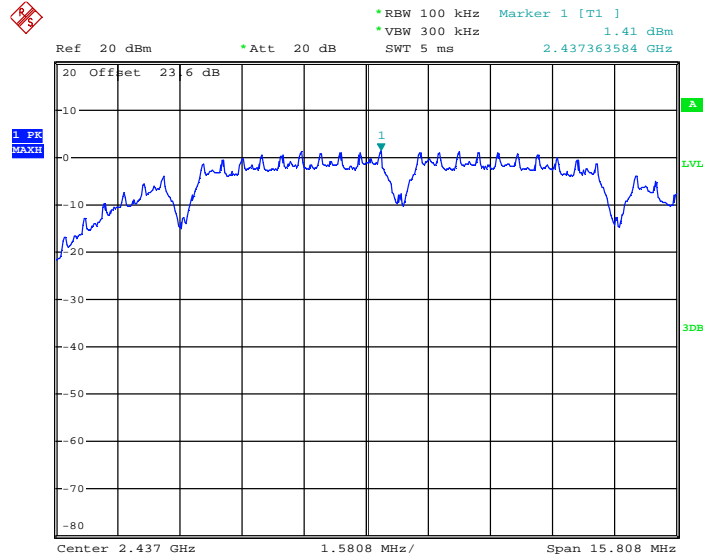
PSD Plot on Channel 01



Date: 7.JUN.2012 23:06:37

802.11b –MIMO Ant. 1+2(2)

PSD Plot on Channel 06

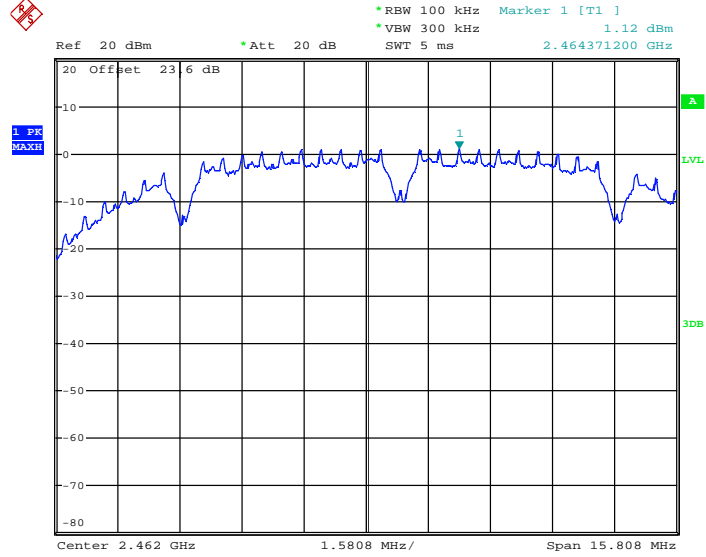


Date: 7.JUN.2012 23:08:32



802.11b –MIMO Ant. 1+2(2)

PSD Plot on Channel 11

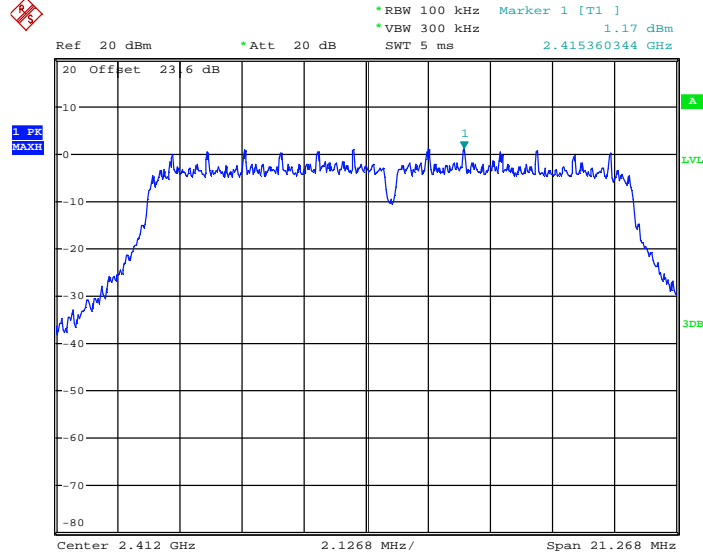


Date: 7.JUN.2012 23:10:45



802.11g –SISO Ant. 1

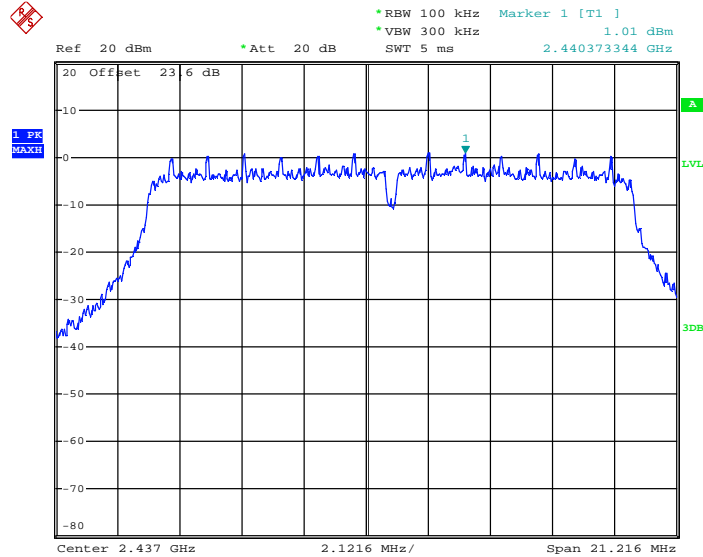
PSD Plot on Channel 01



Date: 7.JUN.2012 22:08:52

802.11g –SISO Ant. 1

PSD Plot on Channel 06

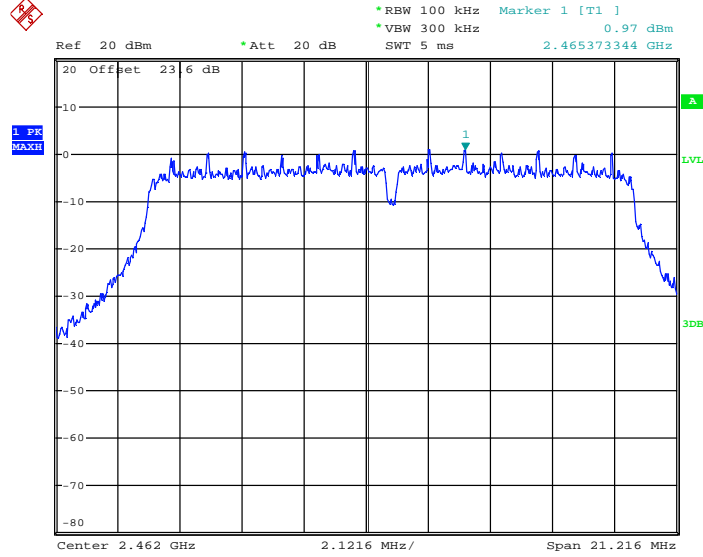


Date: 7.JUN.2012 22:06:49



802.11g –SISO Ant. 1

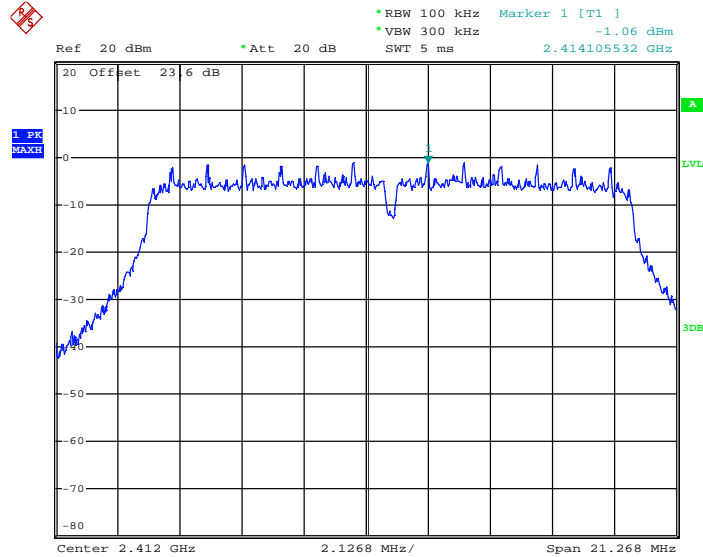
PSD Plot Channel 11



Date: 7.JUN.2012 22:03:26

802.11g –MIMO Ant. 1+2(1)

PSD Plot on Channel 01

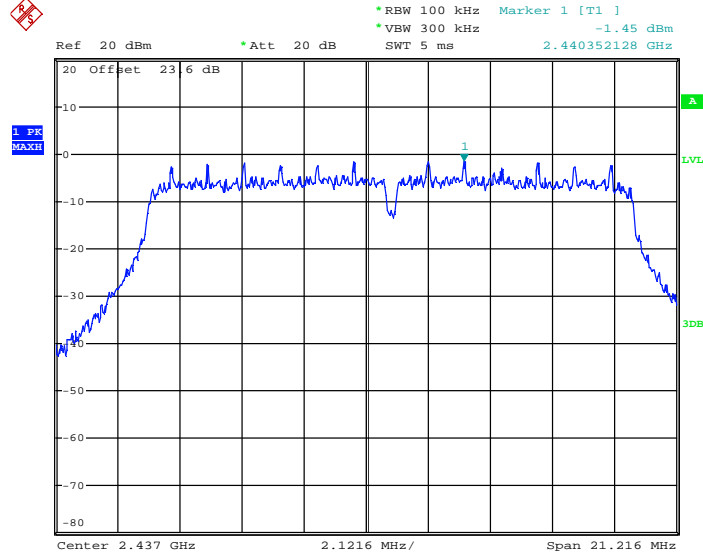


Date: 7.JUN.2012 22:30:32



802.11g –MIMO Ant. 1+2(1)

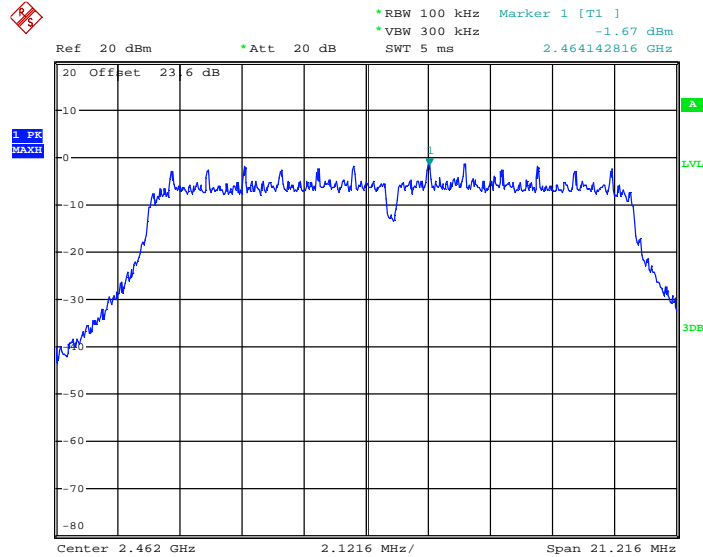
PSD Plot on Channel 06



Date: 7.JUN.2012 22:33:25

802.11g –MIMO Ant. 1+2(1)

PSD Plot on Channel 11



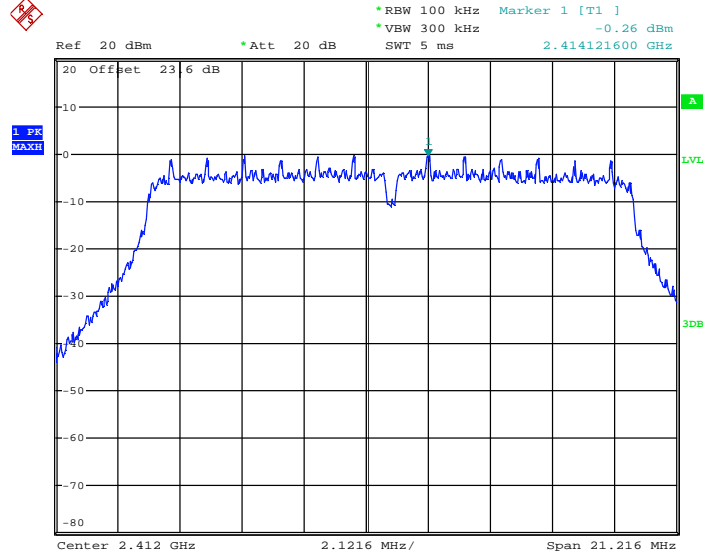
Date: 7.JUN.2012 22:35:36





802.11g –MIMO Ant. 1+2(2)

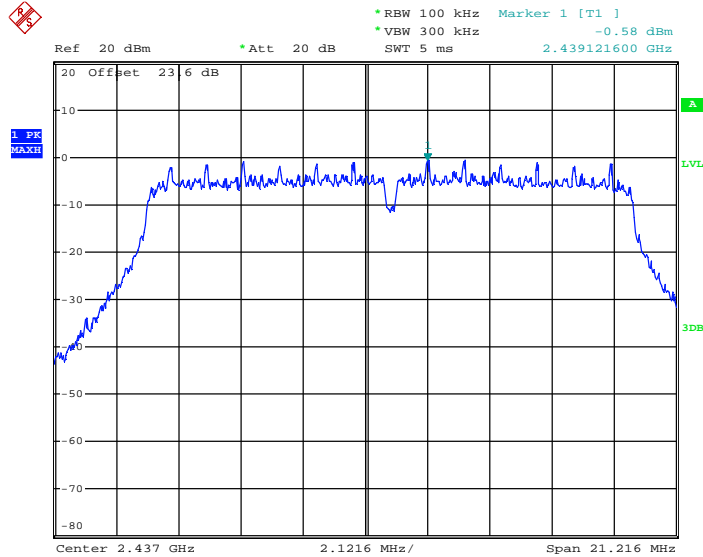
PSD Plot on Channel 01



Date: 7.JUN.2012 23:03:38

802.11g –MIMO Ant. 1+2(2)

PSD Plot on Channel 06

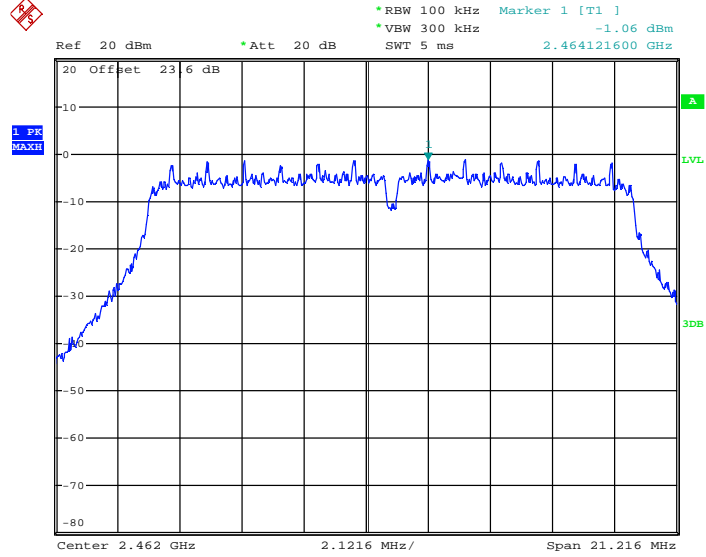


Date: 7.JUN.2012 23:00:43



802.11g –MIMO Ant. 1+2(2)

PSD Plot on Channel 11

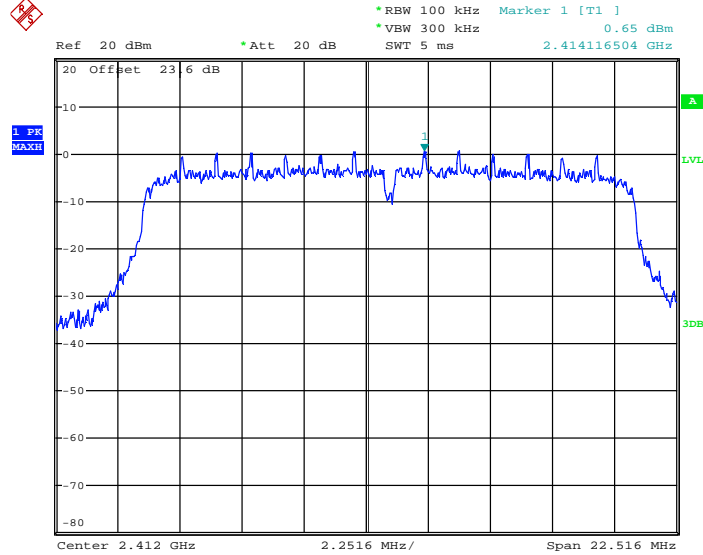


Date: 7.JUN.2012 22:57:47



802.11n HT-20 – SISO Ant. 1

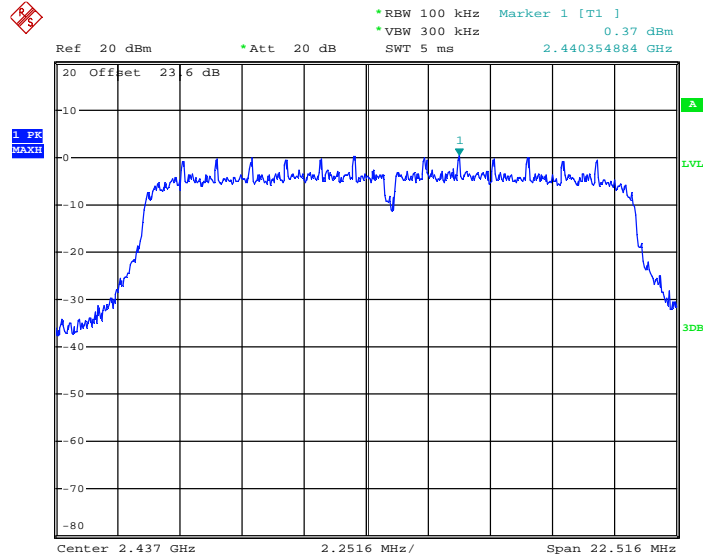
PSD Plot on Channel 01



Date: 7.JUN.2012 21:50:31

802.11n HT-20 – SISO Ant. 1

PSD Plot on Channel 06

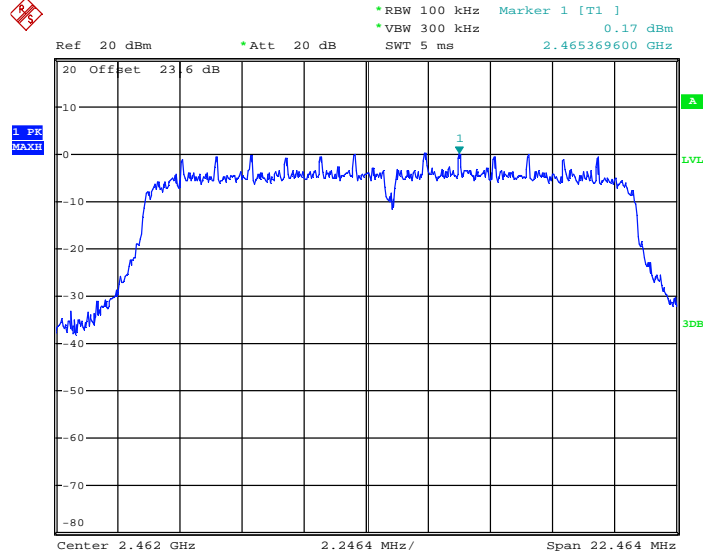


Date: 7.JUN.2012 21:54:34



802.11n HT-20 – SISO Ant. 1

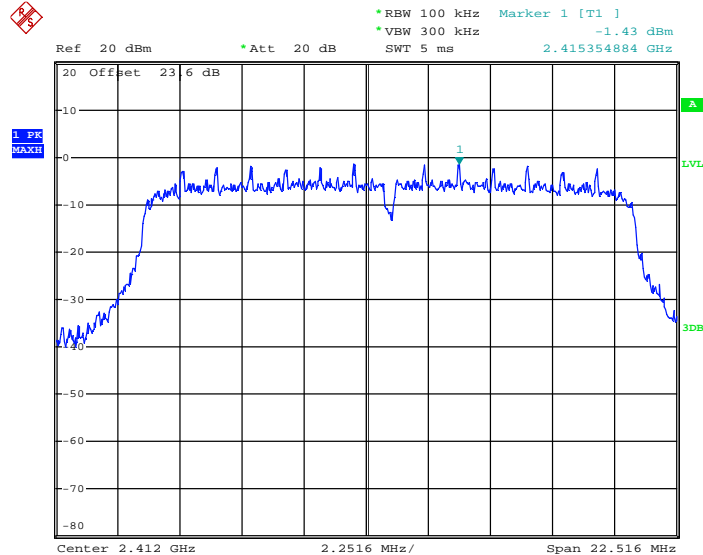
PSD Plot on Channel 11



Date: 7.JUN.2012 21:59:40

802.11n HT-20 –MIMO Ant. 1+2(1)

PSD Plot on Channel 01

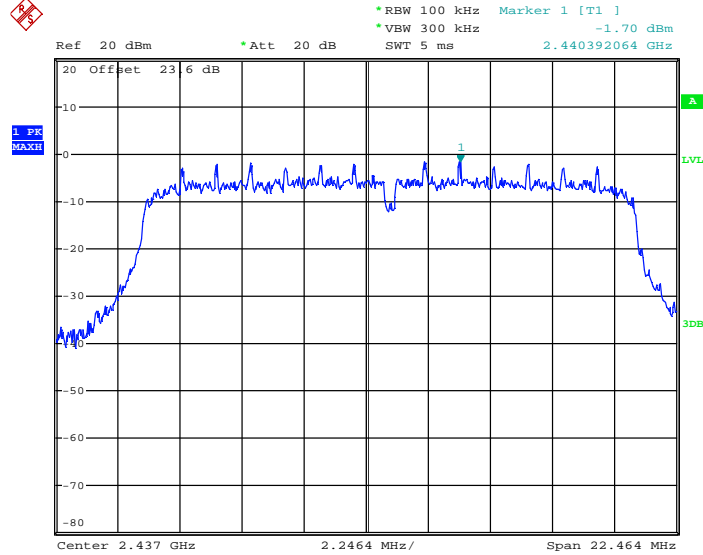


Date: 7.JUN.2012 22:44:07



802.11n HT-20 –MIMO Ant. 1+2(1)

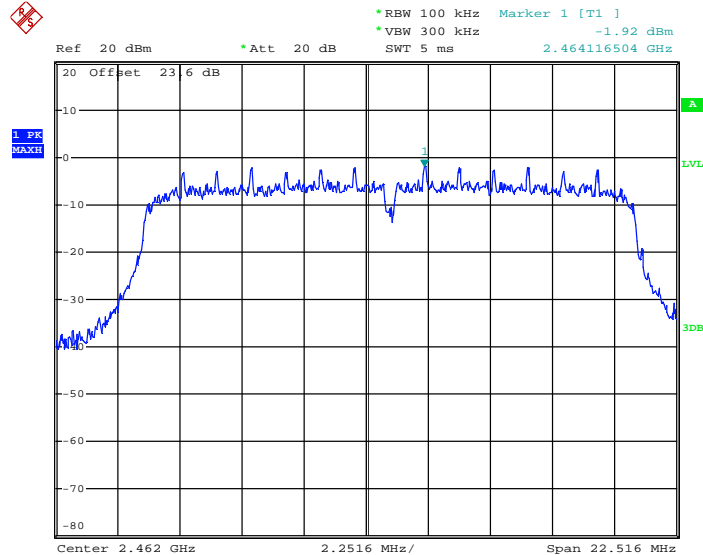
PSD Plot on Channel 06



Date: 7.JUN.2012 22:41:55

802.11n HT-20 –MIMO Ant. 1+2(1)

PSD Plot on Channel 11

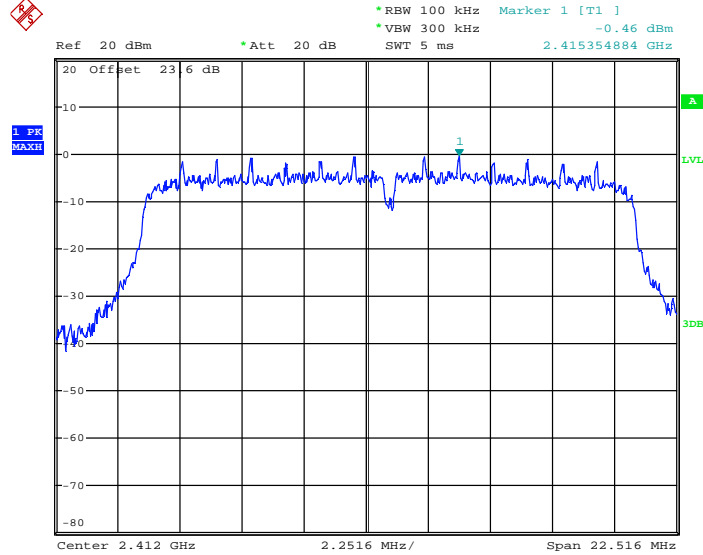


Date: 7.JUN.2012 22:38:48



802.11n HT-20 –MIMO Ant. 1+2(2)

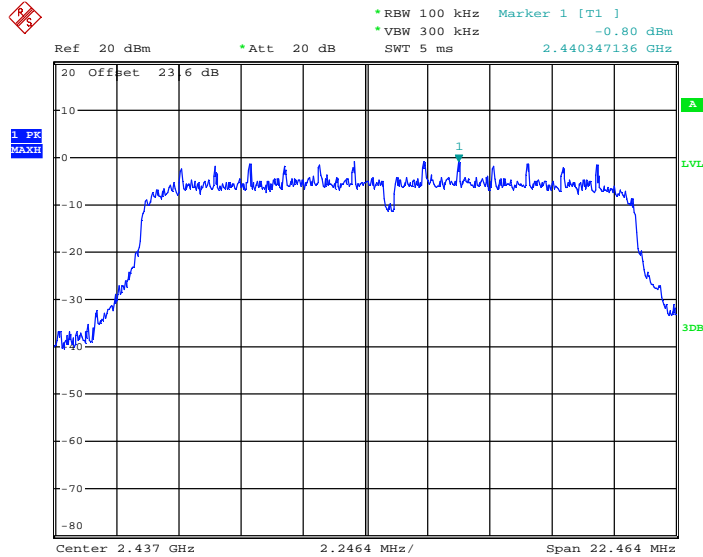
PSD Plot on Channel 01



Date: 7.JUN.2012 22:49:03

802.11n HT-20 –MIMO Ant. 1+2(2)

PSD Plot on Channel 06

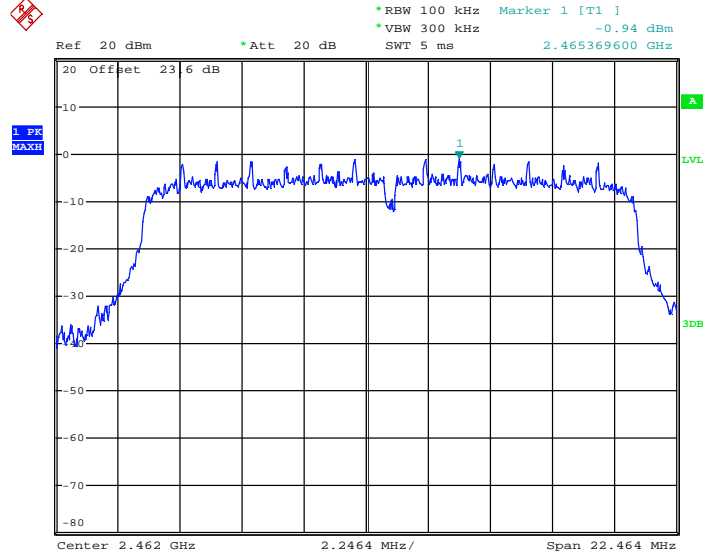


Date: 7.JUN.2012 22:51:40



802.11n HT-20 –MIMO Ant. 1+2(2)

PSD Plot on Channel 11

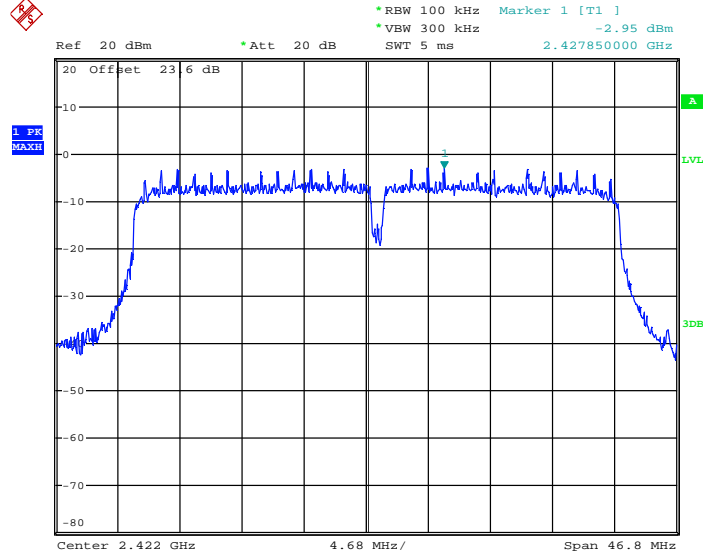


Date: 7.JUN.2012 22:53:56



802.11n HT-40 – SISO Ant. 1

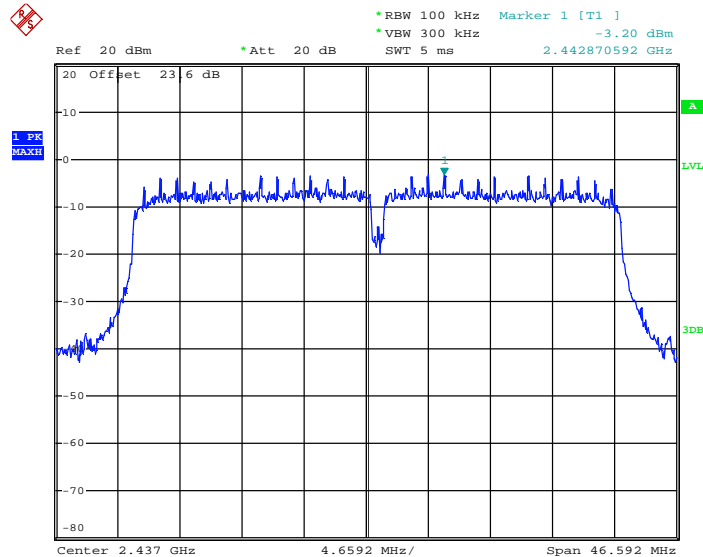
PSD Plot on Channel 03



Date: 7.JUN.2012 21:43:44

802.11n HT-40 – SISO Ant. 1

PSD Plot on Channel 06



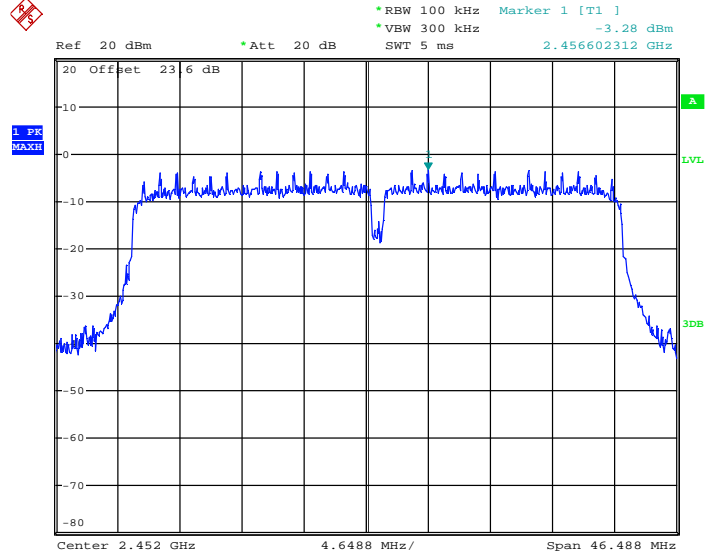
Date: 7.JUN.2012 21:36:46





802.11n HT-40 – SISO Ant. 1

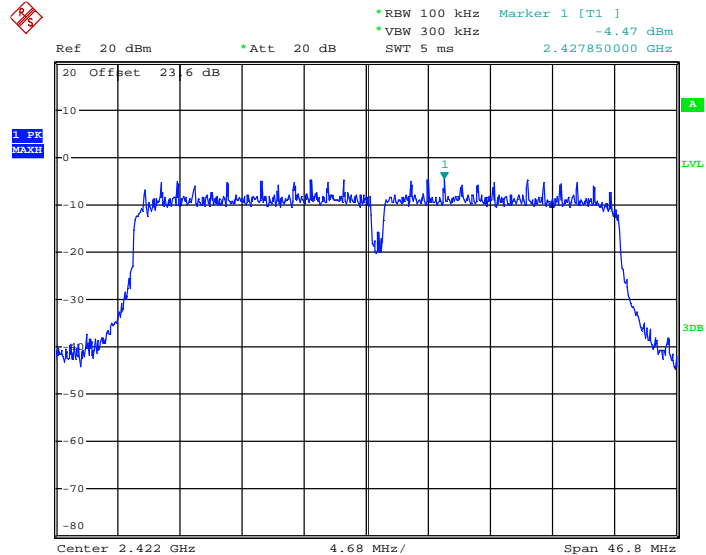
PSD Plot on Channel 09



Date: 7.JUN.2012 21:39:17

802.11n HT-40 –MIMO Ant. 1+2(1)

PSD Plot on Channel 03

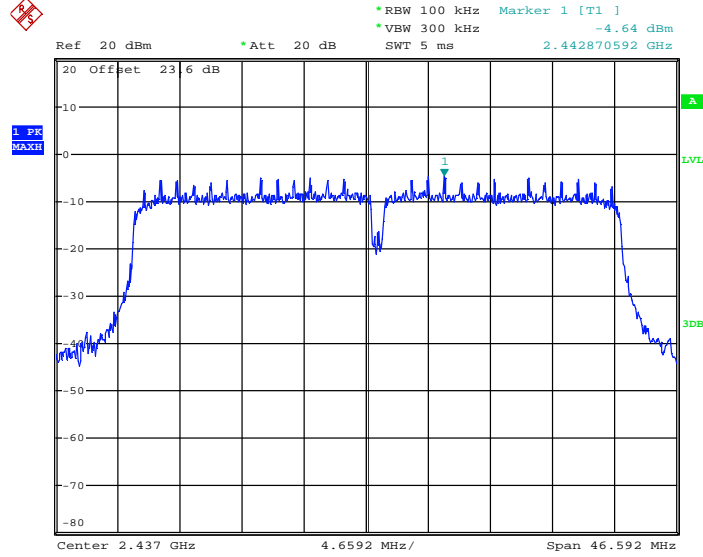


Date: 7.JUN.2012 21:27:45



802.11n HT-40 –MIMO Ant. 1+2(1)

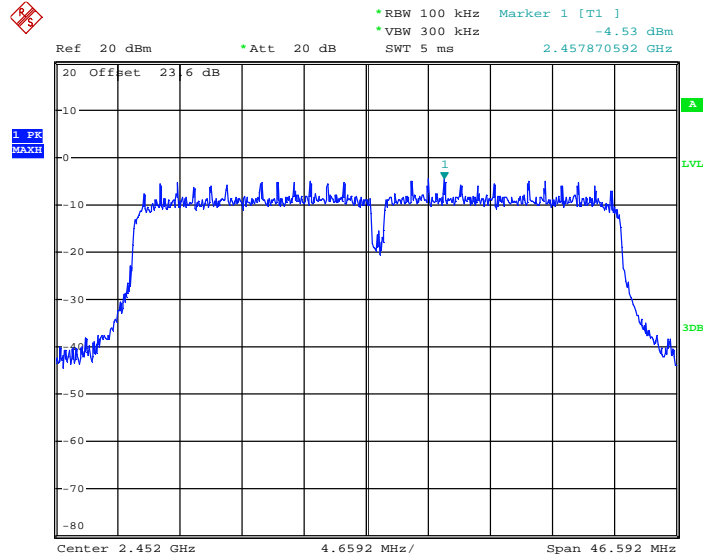
PSD Plot on Channel 06



Date: 7.JUN.2012 21:23:52

802.11n HT-40 –MIMO Ant. 1+2(1)

PSD Plot on Channel 09

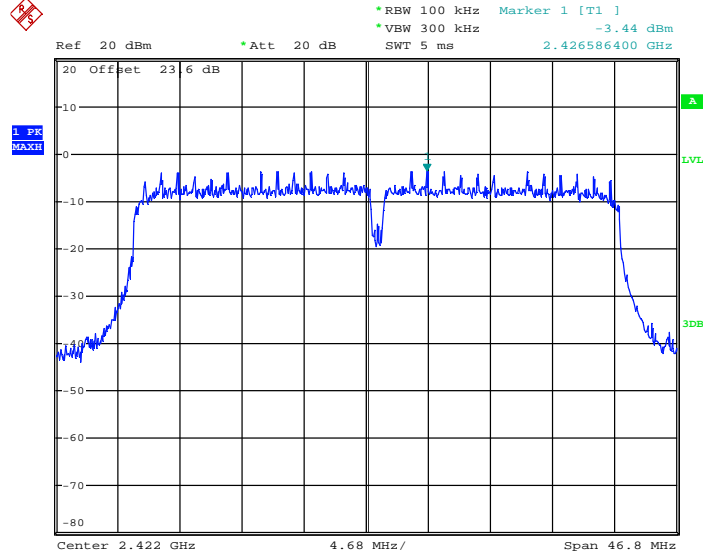


Date: 7.JUN.2012 21:20:56



802.11n HT-40 –MIMO Ant. 1+2(2)

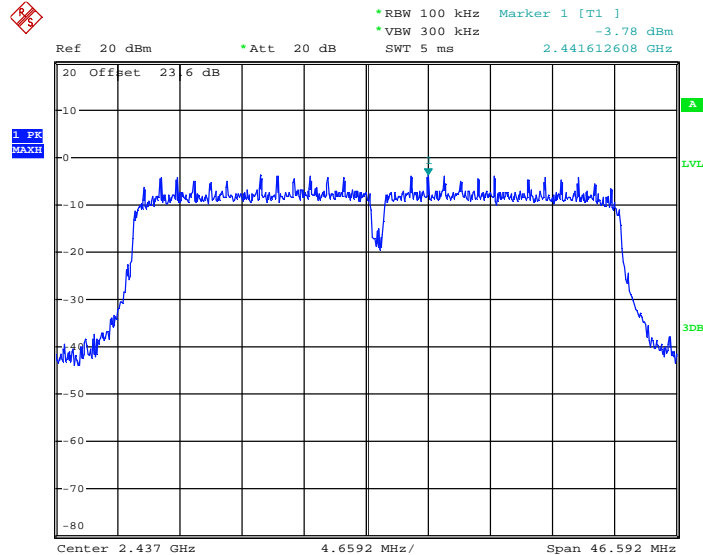
PSD Plot on Channel 03



Date: 7.JUN.2012 20:56:48

802.11n HT-40 –MIMO Ant. 1+2(2)

PSD Plot on Channel 06

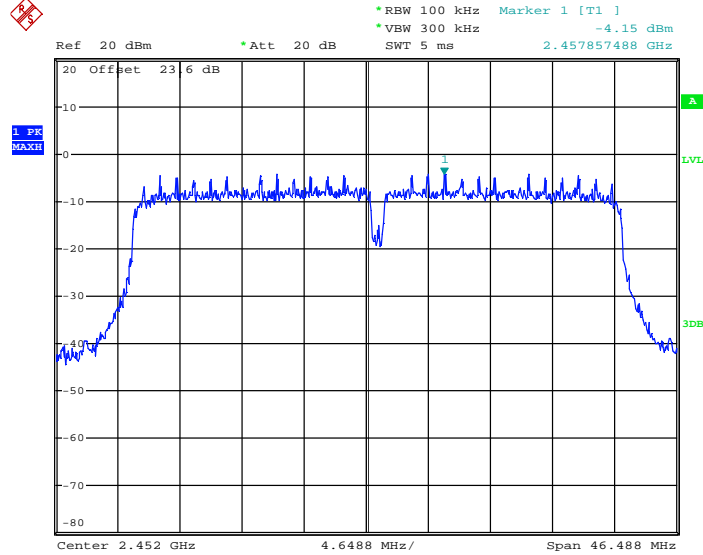


Date: 7.JUN.2012 21:08:56



802.11n HT-40 –MIMO Ant. 1+2(2)

PSD Plot on Channel 09



Date: 7.JUN.2012 21:12:29

### 3.4 Conducted Band Edges and Spurious Emission Measurement

#### 3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement and radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

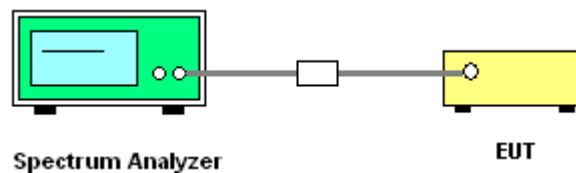
#### 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.4.3 Test Procedures

1. The testing follows the guidelines in the Measurement Procedure of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance, ANSI C63.4-2003, and ANSI C63.10-2009.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Set RBW = 100 KHz, VBW=300 KHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz, when maximum peak conducted output power procedure is used. The attenuation is set to 30dB, when maximum conducted output power procedure is used.
4. Measure and record the results in the test report.

#### 3.4.4 Test Setup

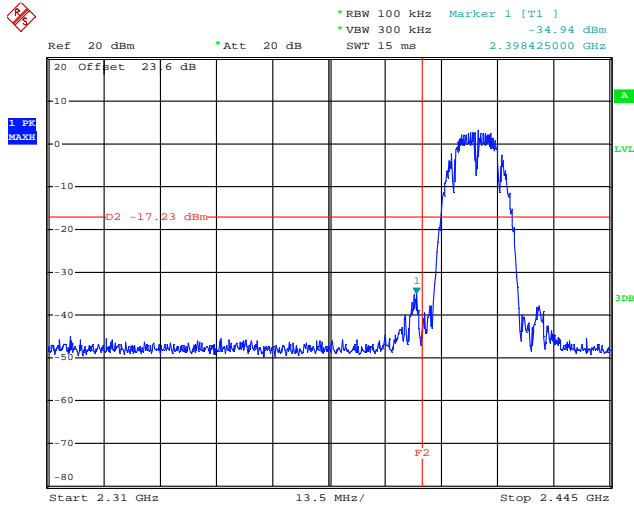


### 3.4.5 Test Result of Conducted Spurious at Band Edges

Test Mode :	802.11b (SISO Ant. 1)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

#### 802.11b

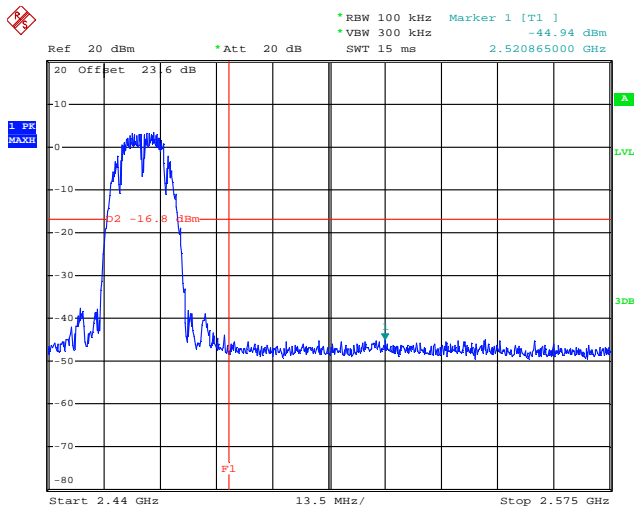
#### Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 22:13:12

#### 802.11b

#### High Band Edge Plot on Channel 11



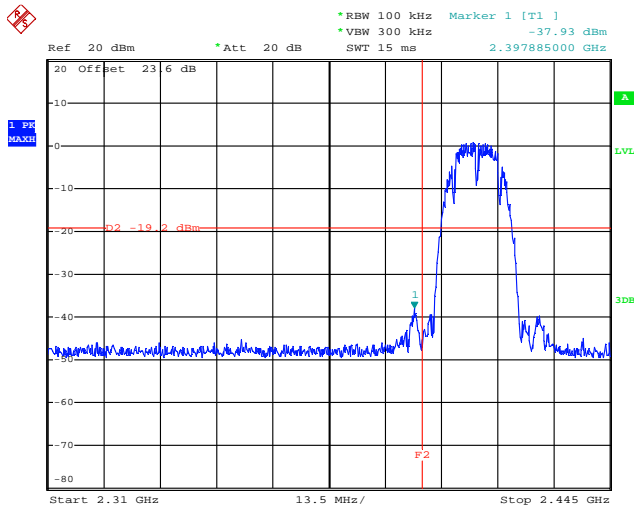
Date: 7.JUN.2012 22:18:43



Test Mode :	802.11b MIMO Ant. 1+2(1)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

802.11g

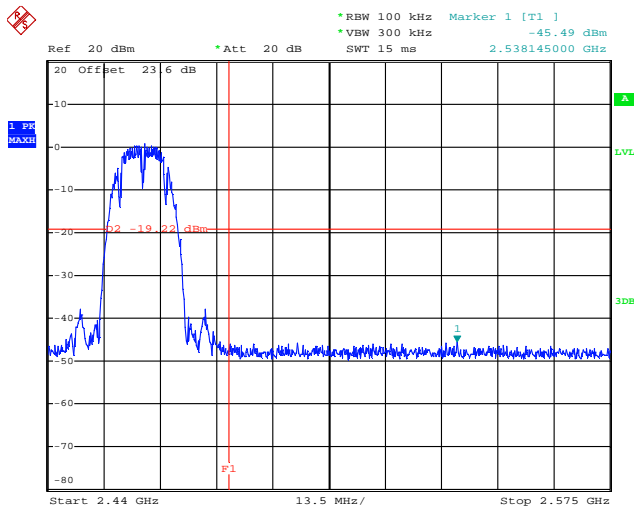
Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 22:27:10

802.11g

High Band Edge Plot on Channel 11



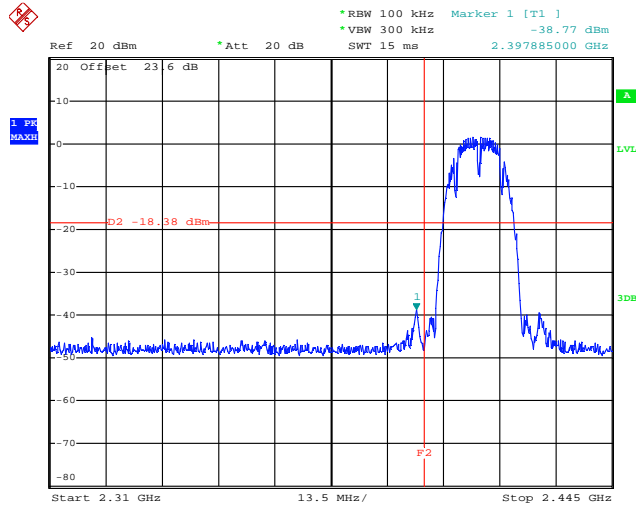
Date: 7.JUN.2012 22:22:17



Test Mode :	802.11b MIMO Ant. 1+2(2)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

802.11b

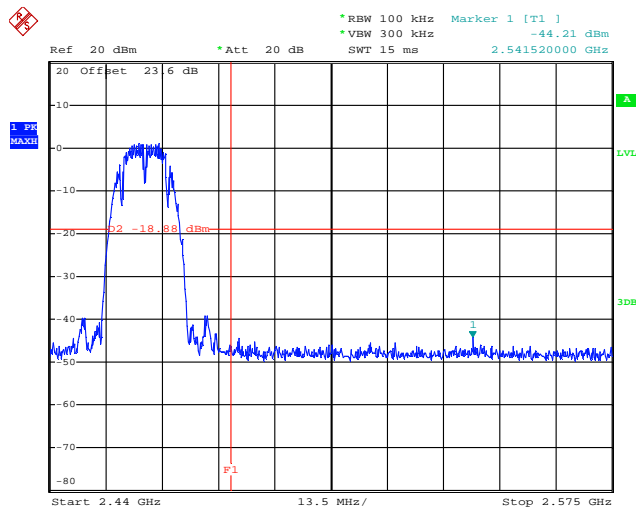
Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 23:06:51

802.11b

High Band Edge Plot on Channel 11



Date: 7.JUN.2012 23:11:00

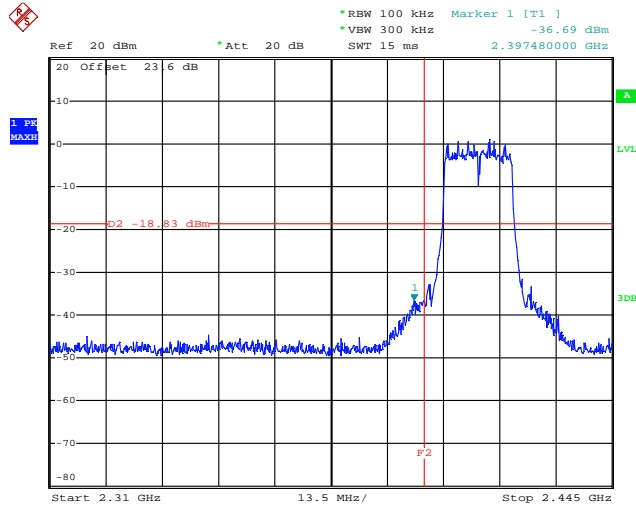




Test Mode :	802.11g (SISO Ant. 1)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

802.11g

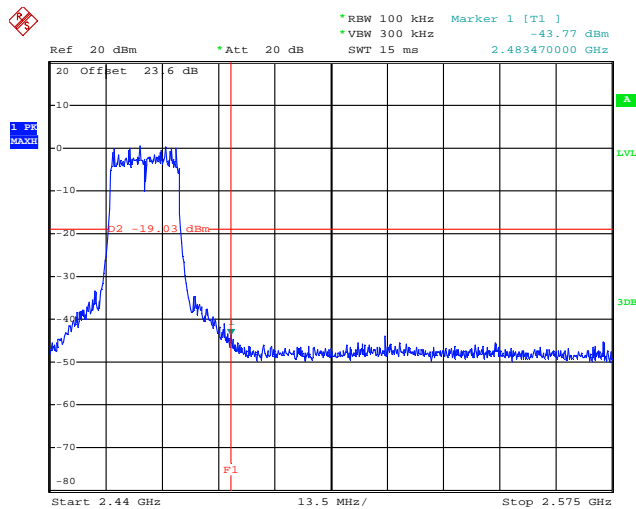
Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 22:09:05

802.11g

High Band Edge Plot on Channel 11



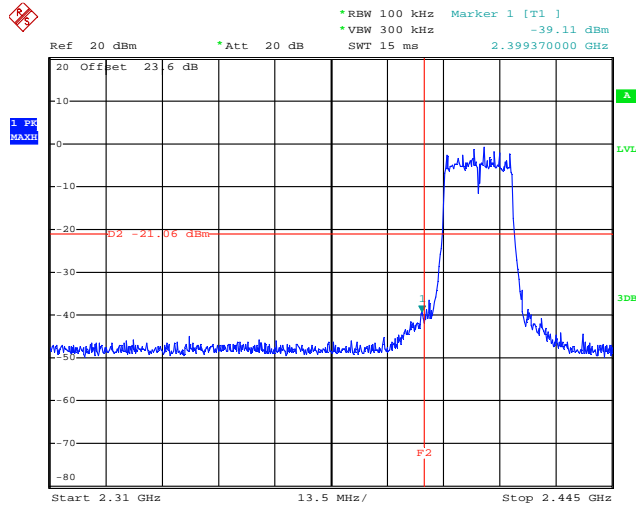
Date: 7.JUN.2012 22:03:44



Test Mode :	802.11g MIMO Ant. 1+2(1)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

802.11g

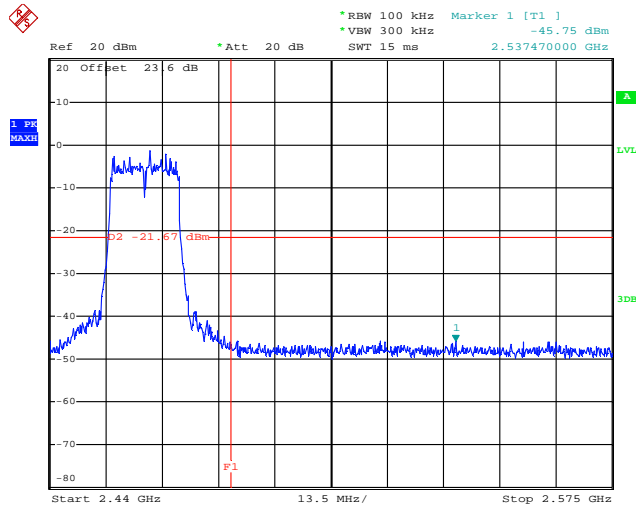
Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 22:30:46

802.11g

High Band Edge Plot on Channel 11



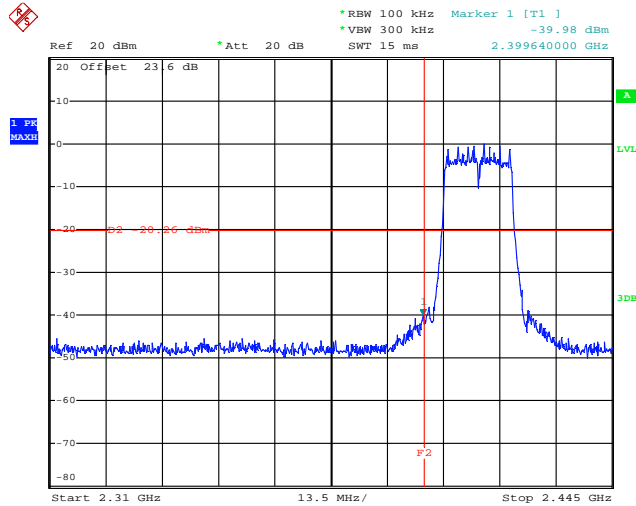
Date: 7.JUN.2012 22:35:51



Test Mode :	802.11g MIMO Ant. 1+2(2)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

802.11g

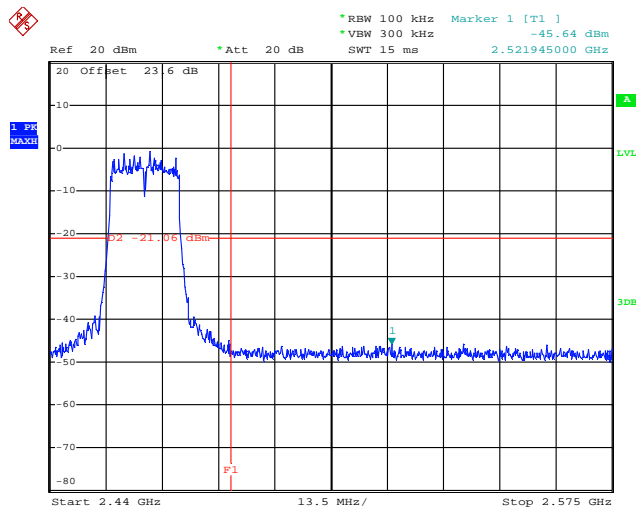
Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 23:04:01

802.11g

High Band Edge Plot on Channel 11



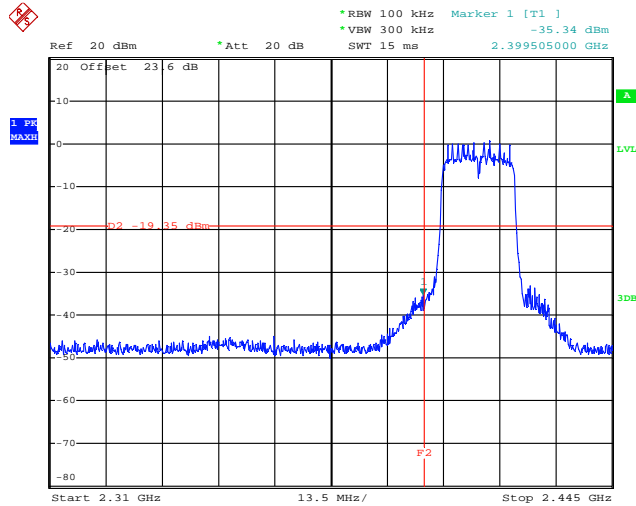
Date: 7.JUN.2012 22:58:01



Test Mode :	802.11n HT-20 SISO Ant. 1	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

802.11n HT-20

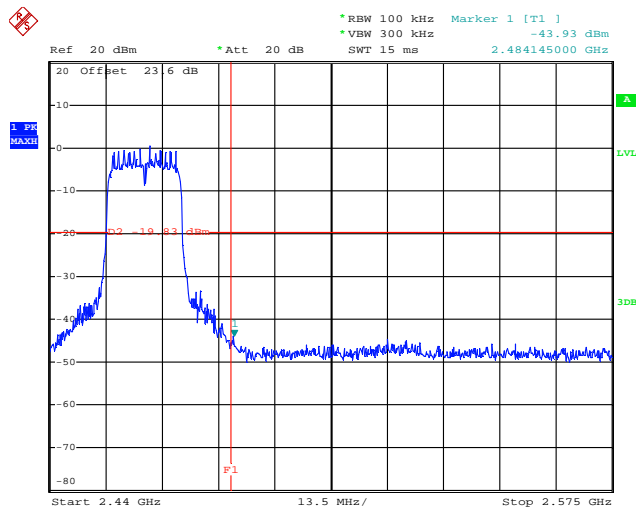
Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 21:50:52

802.11n HT-20

High Band Edge Plot on Channel 11



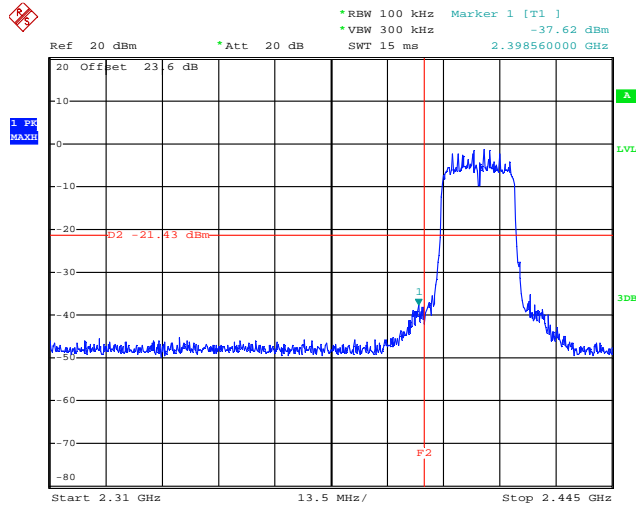
Date: 7.JUN.2012 21:59:59



Test Mode :	802.11n HT-20 MIMO Ant. 1+2(1)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

802.11n HT-20

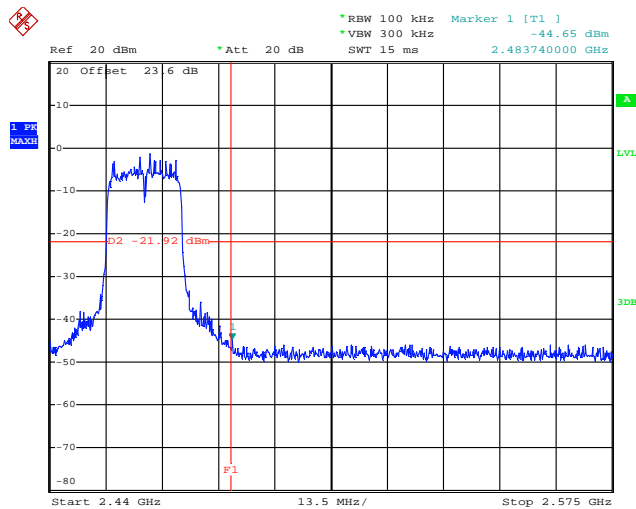
Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 22:44:24

802.11n HT-20

High Band Edge Plot on Channel 11



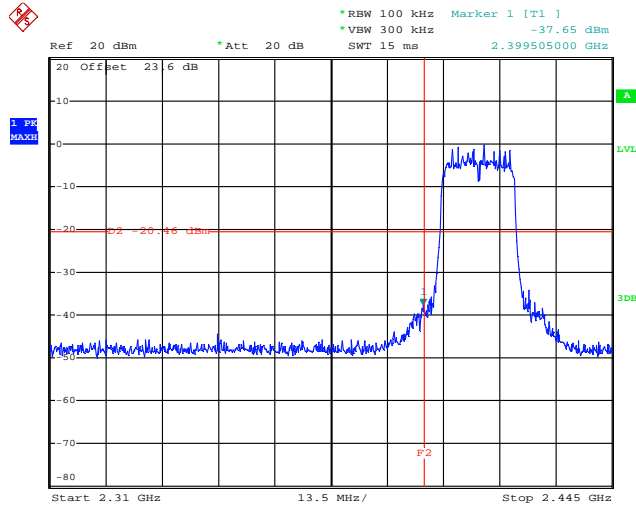
Date: 7.JUN.2012 22:39:04



Test Mode :	802.11n HT-20 MIMO Ant. 1+2(2)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	01 and 11	Test Engineer :	Bill Kuo

802.11n HT-20

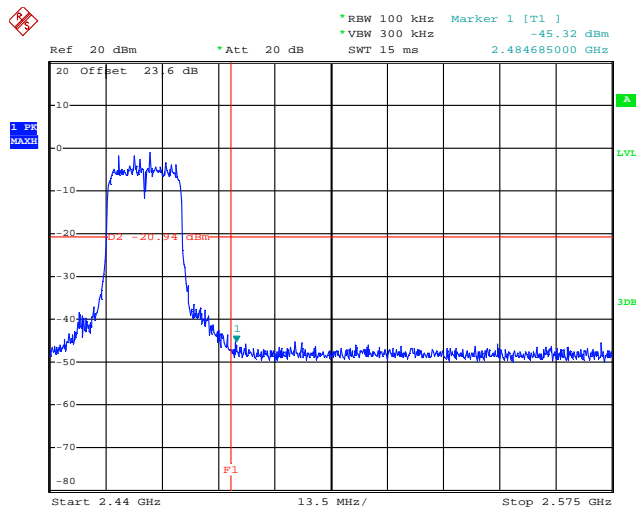
Low Band Edge Plot on Channel 01



Date: 7.JUN.2012 22:49:18

802.11n HT-20

High Band Edge Plot on Channel 11



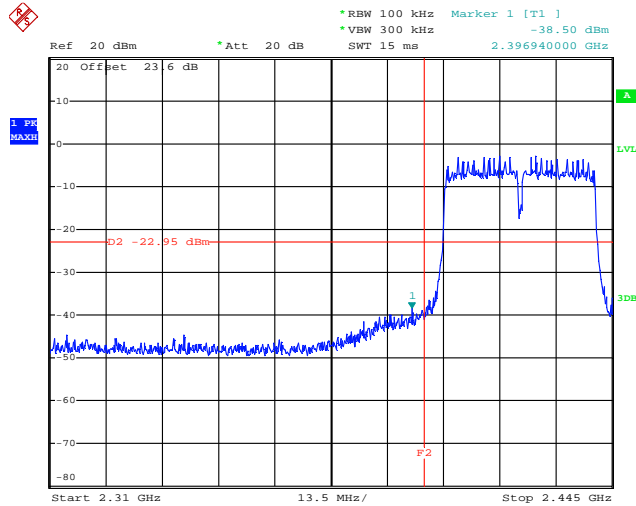
Date: 7.JUN.2012 22:54:10



Test Mode :	802.11n HT-40 SISO Ant. 1	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	03 and 09	Test Engineer :	Bill Kuo

802.11n HT-40

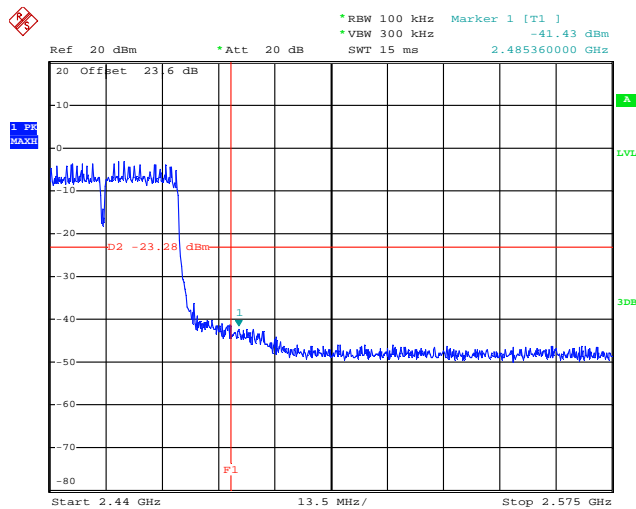
Low Band Edge Plot on Channel 03



Date: 7.JUN.2012 21:43:57

802.11n HT-40

High Band Edge Plot on Channel 09



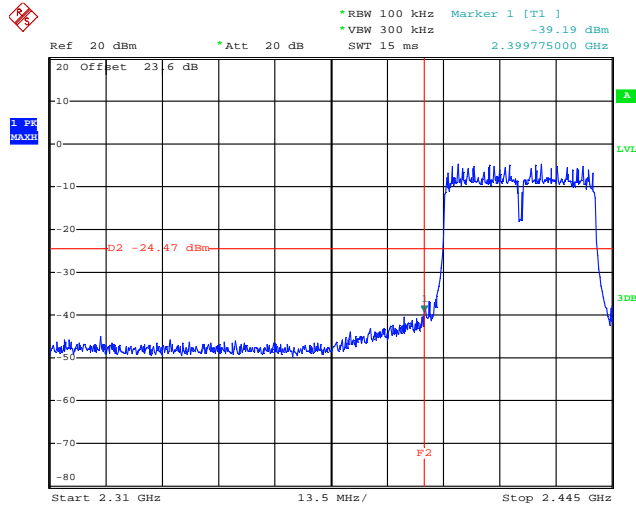
Date: 7.JUN.2012 21:39:31



Test Mode :	802.11n HT-40 MIMO Ant. 1+2(1)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	03 and 09	Test Engineer :	Bill Kuo

802.11n HT-40

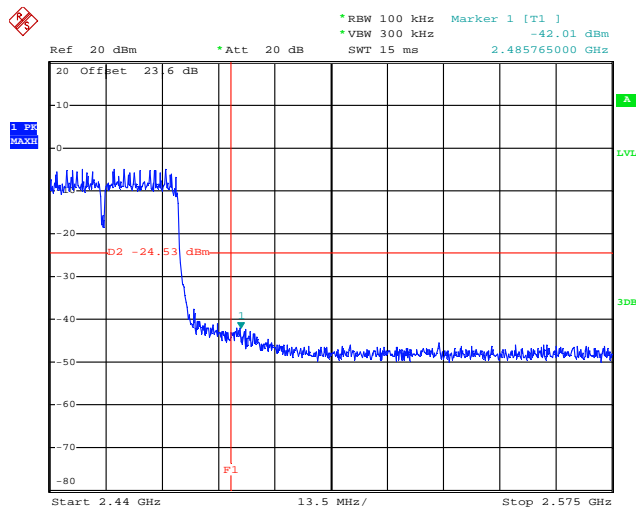
Low Band Edge Plot on Channel 03



Date: 7.JUN.2012 21:28:02

802.11n HT-40

High Band Edge Plot on Channel 09



Date: 7.JUN.2012 21:21:10

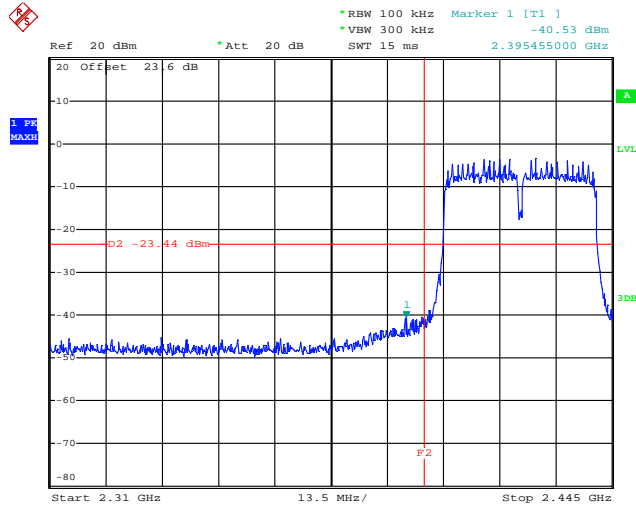




Test Mode :	802.11n HT-40 MIMO Ant. 1+2(2)	Temperature :	24~26°C
Test Band :	Low and High	Relative Humidity :	50~53%
Test Channel :	03 and 09	Test Engineer :	Bill Kuo

802.11n HT-40

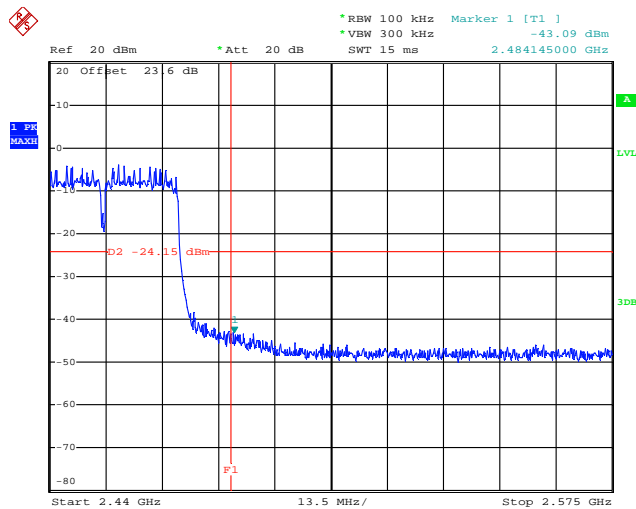
Low Band Edge Plot on Channel 03



Date: 7.JUN.2012 20:58:32

802.11n HT-40

High Band Edge Plot on Channel 09



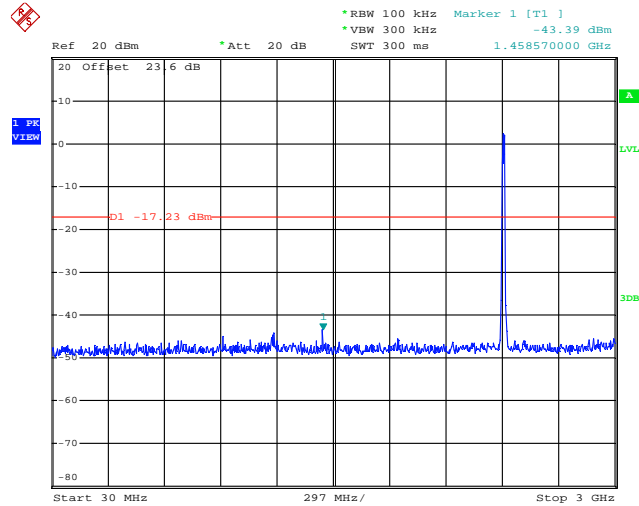
Date: 7.JUN.2012 21:12:45

### 3.4.5 Test Result of Conducted Spurious Emission

Test Mode :	802.11b SISO Ant. 1	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

#### 802.11b 30 MHz~3 GHz

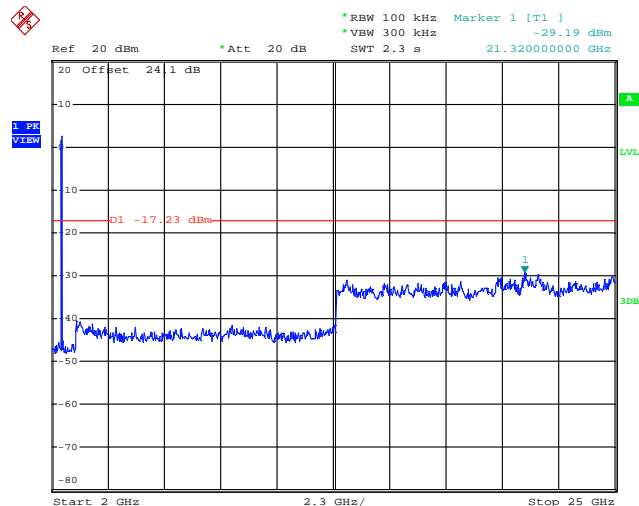
#### Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 22:13:34

#### 802.11b 2 GHz~25 GHz

#### Conducted Spurious Emission Plot on Channel 01

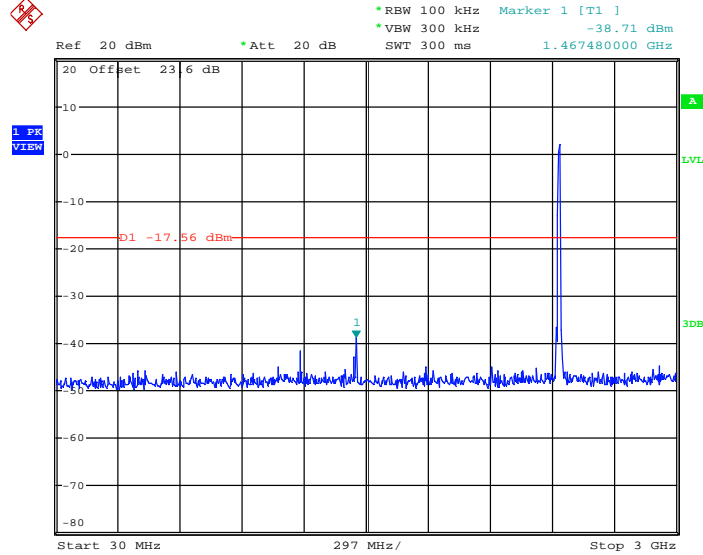


Date: 7.JUN.2012 22:13:51



### 802.11b 30 MHz~3 GHz

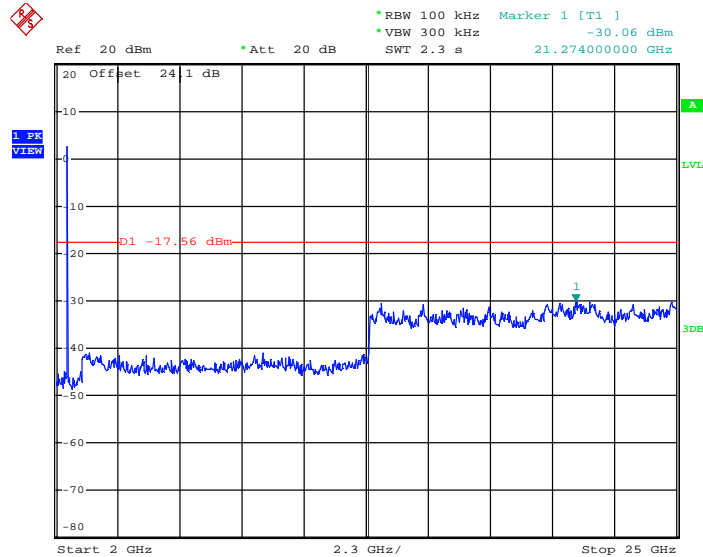
#### Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 22:16:26

### 802.11b 2 GHz~25 GHz

#### Conducted Spurious Emission Plot on Channel 06

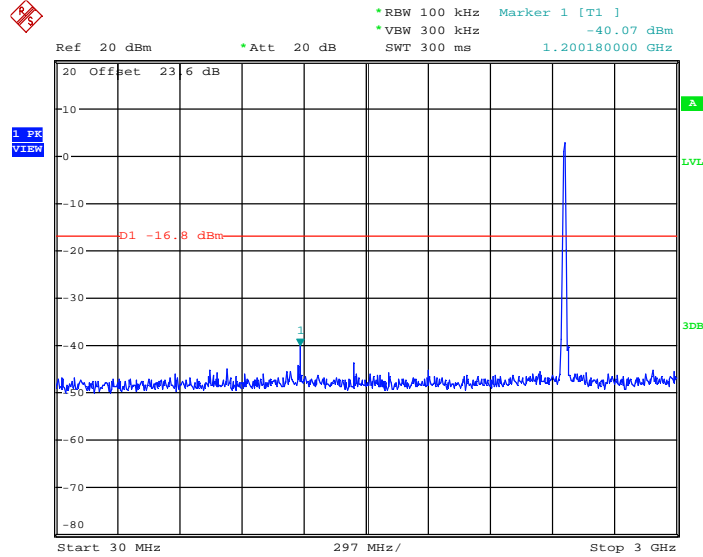


Date: 7.JUN.2012 22:16:44



802.11b 30 MHz~3 GHz

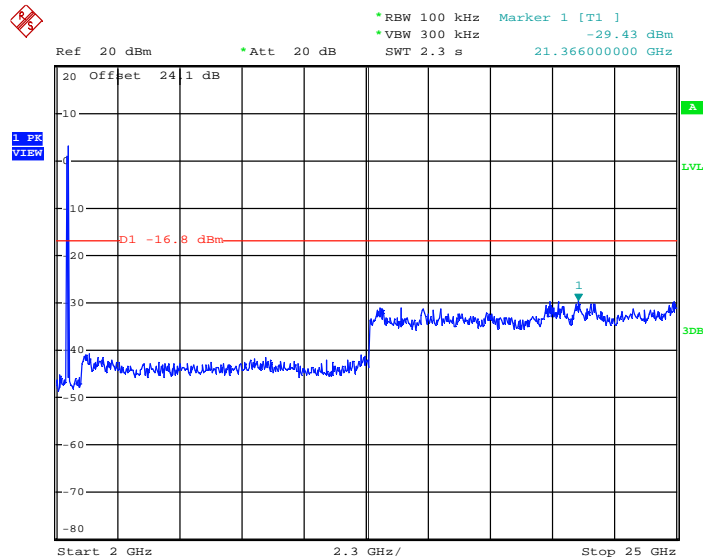
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:19:03

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



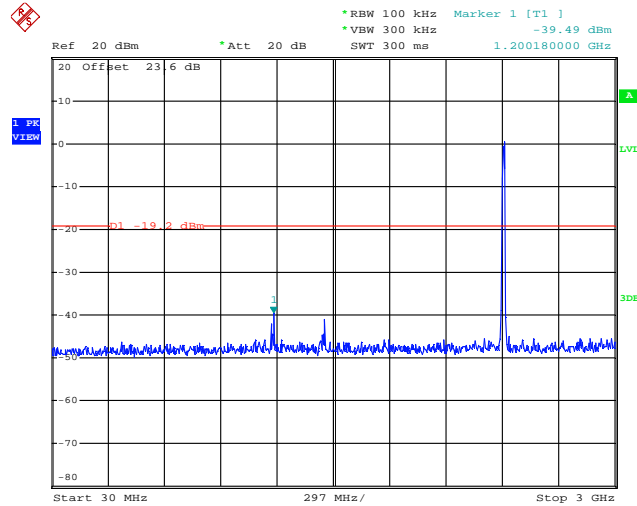
Date: 7.JUN.2012 22:19:20



Test Mode :	802.11b MIMO Ant. 1+2(1)	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

802.11b 30 MHz~3 GHz

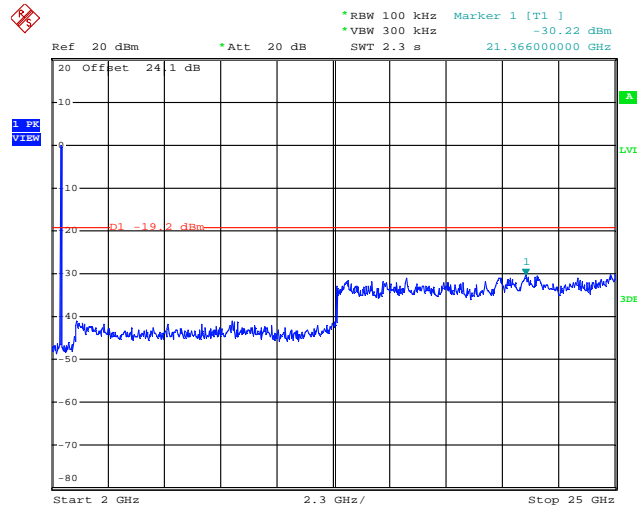
Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 22:27:30

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

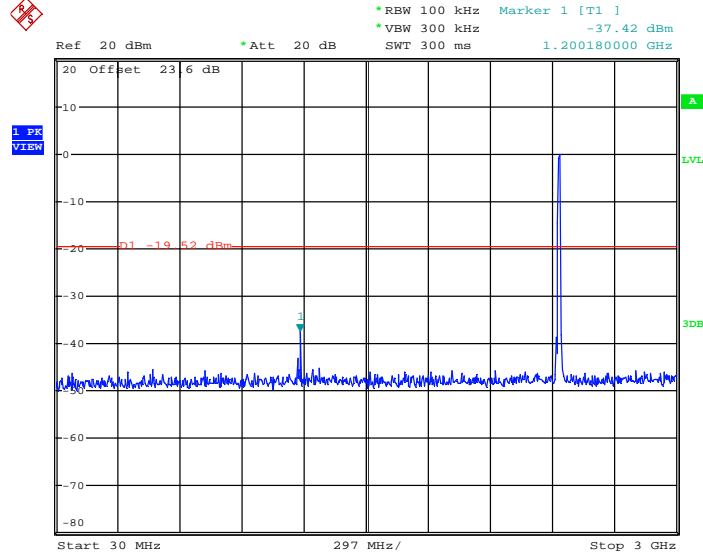


Date: 7.JUN.2012 22:27:47



802.11b 30 MHz~3 GHz

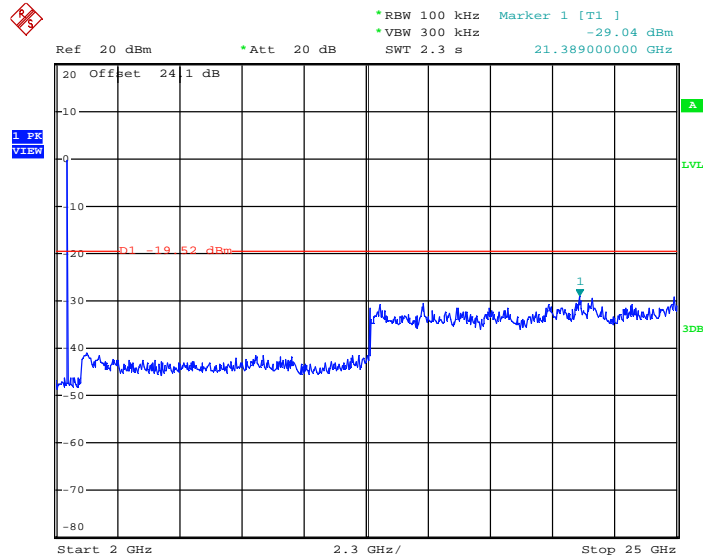
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 22:25:16

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

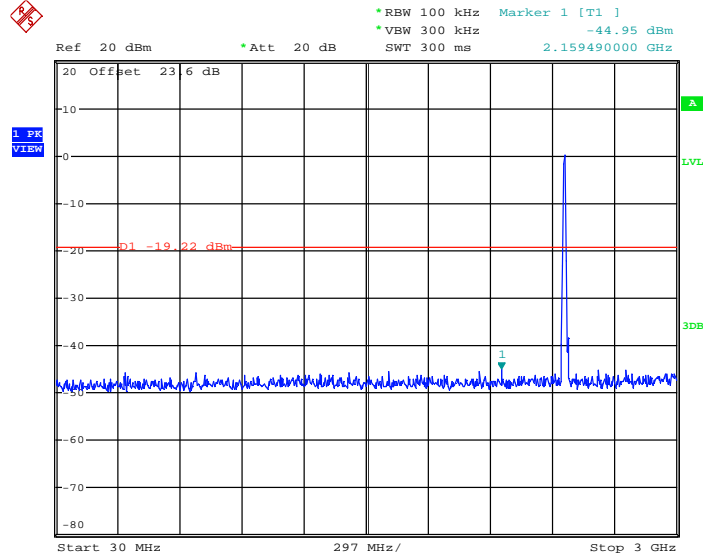


Date: 7.JUN.2012 22:25:34



802.11b 30 MHz~3 GHz

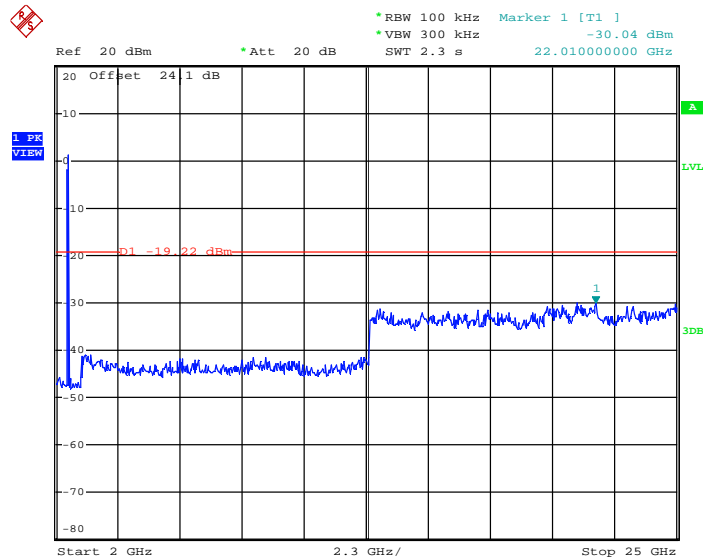
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:22:37

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



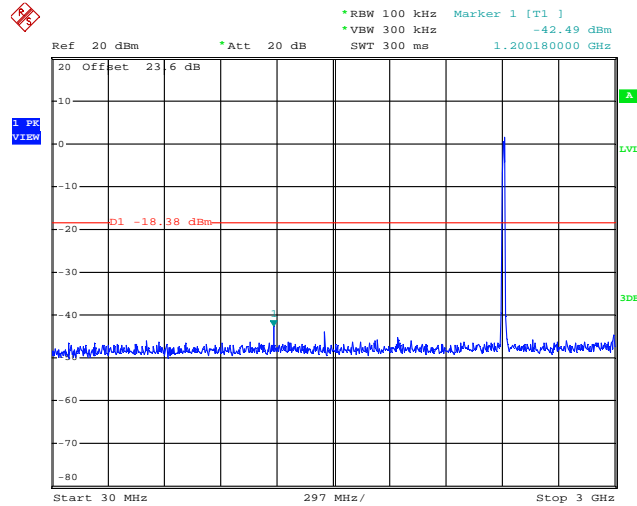
Date: 7.JUN.2012 22:22:54



Test Mode :	802.11b MIMO Ant. 1+2(2)	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

802.11b 30 MHz~3 GHz

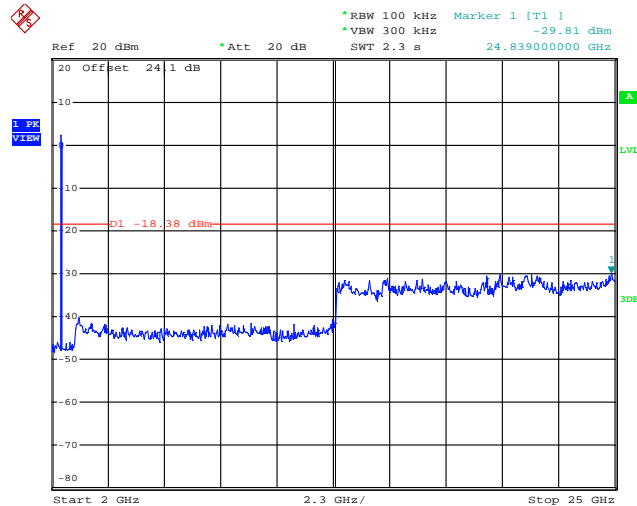
Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 23:07:11

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01



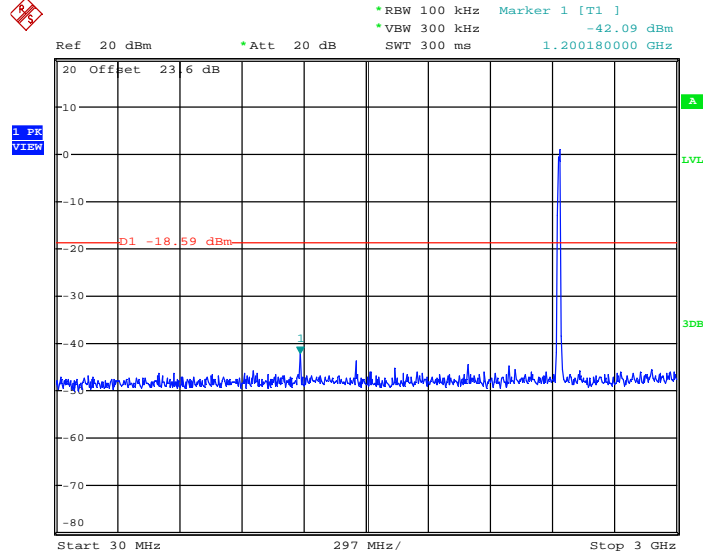
Date: 7.JUN.2012 23:07:28





802.11b 30 MHz~3 GHz

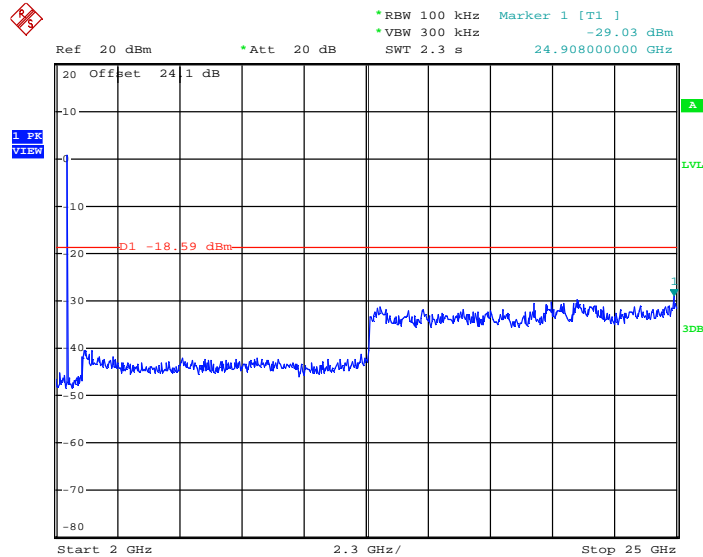
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 23:08:57

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

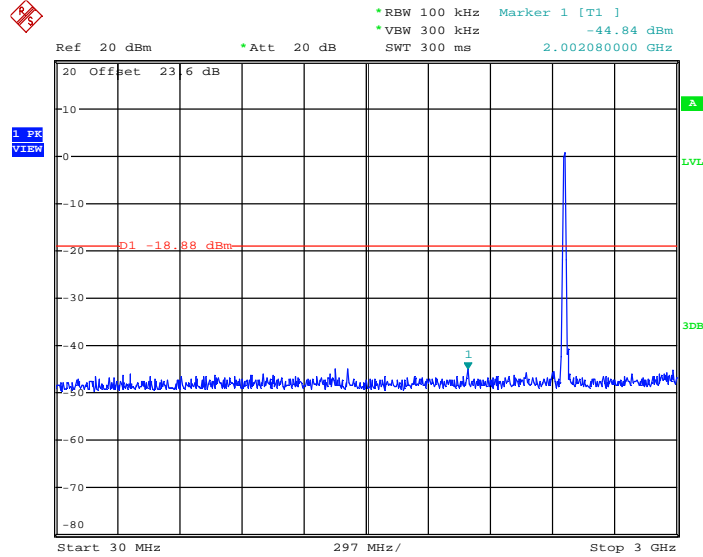


Date: 7.JUN.2012 23:09:15



802.11b 30 MHz~3 GHz

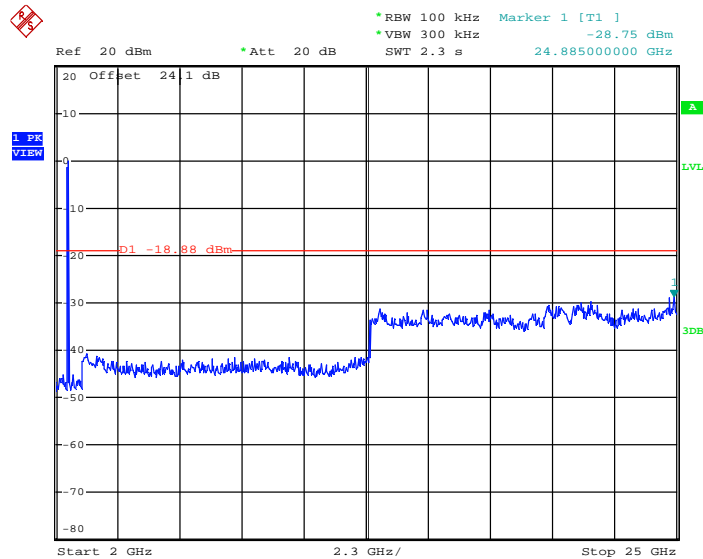
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 23:11:19

802.11b 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



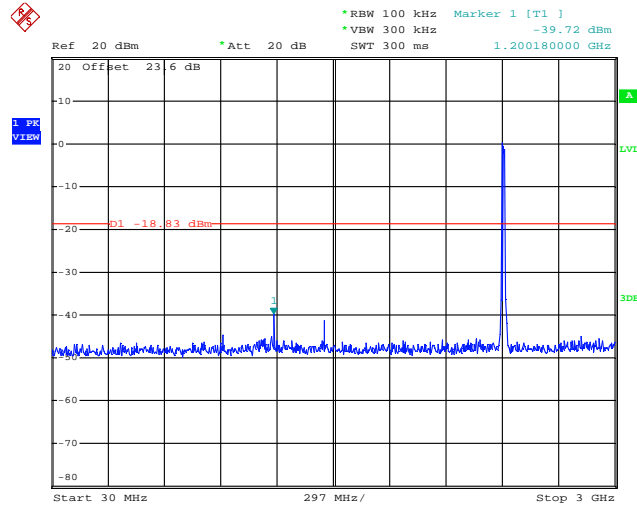
Date: 7.JUN.2012 23:11:36



Test Mode :	802.11g SISO Ant. 1	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

802.11g 30 MHz~3 GHz

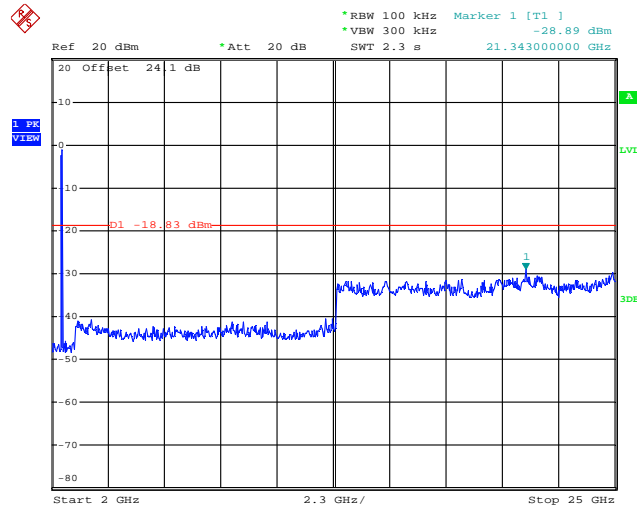
Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 22:09:27

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

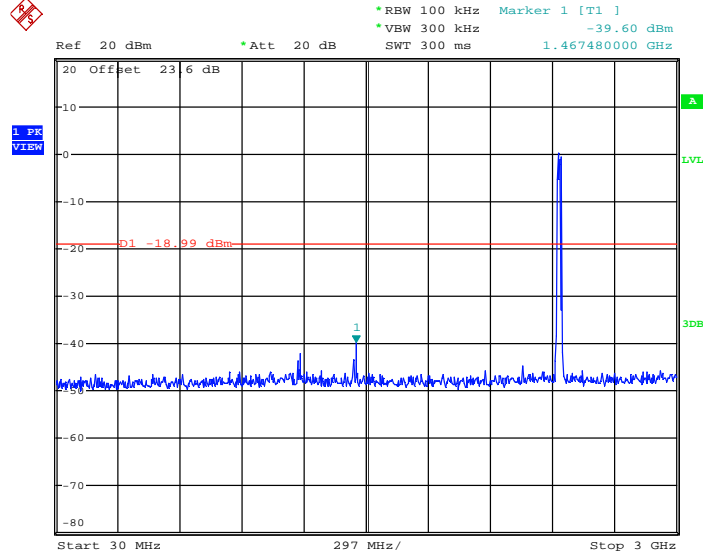


Date: 7.JUN.2012 22:09:44



802.11g 30 MHz~3 GHz

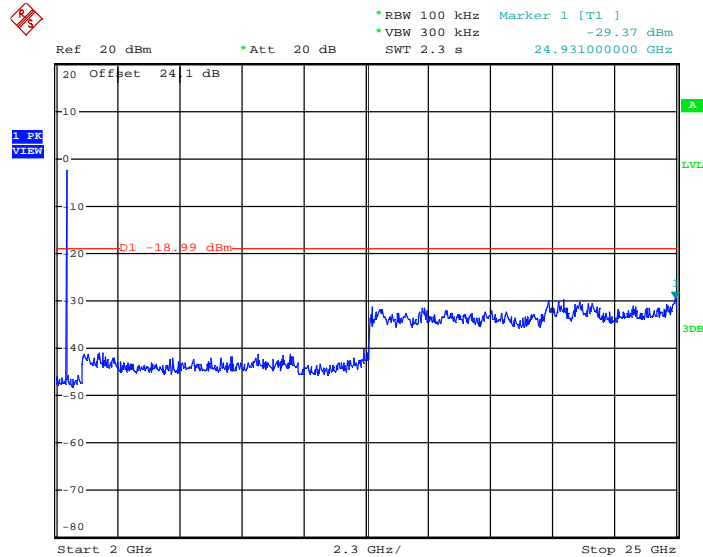
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 22:07:10

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

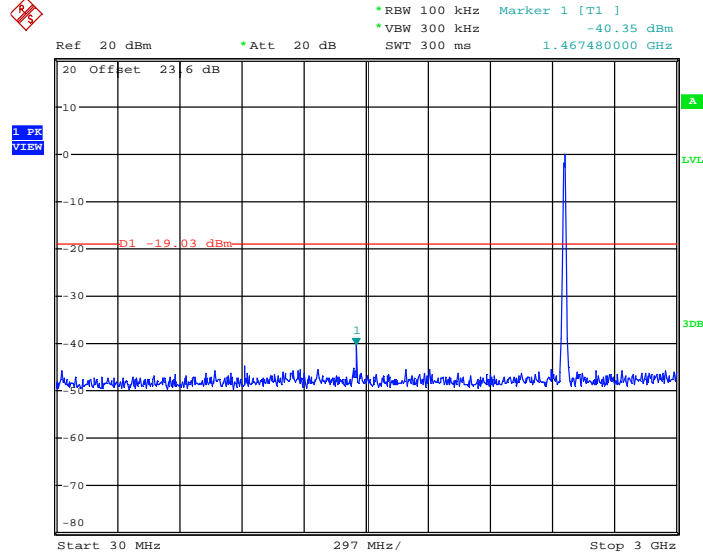


Date: 7.JUN.2012 22:07:27



802.11g 30 MHz~3 GHz

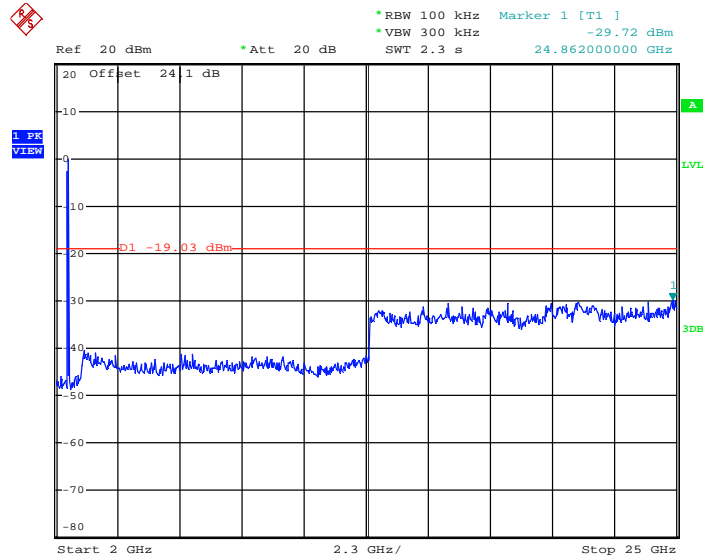
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:04:03

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



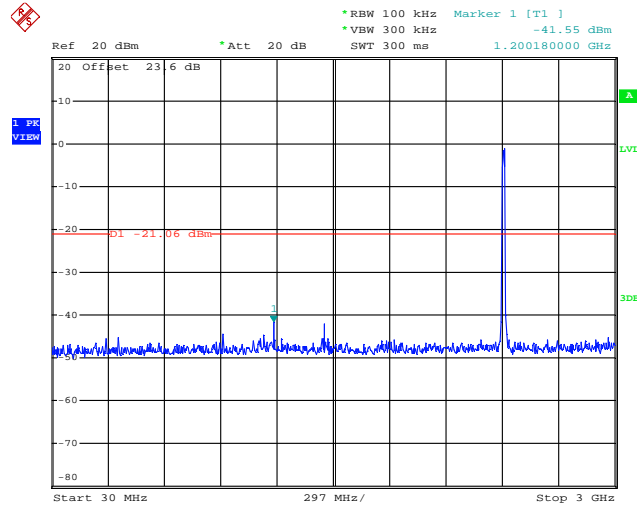
Date: 7.JUN.2012 22:04:20



Test Mode :	802.11g MIMO Ant. 1+2(1)	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

802.11g 30 MHz~3 GHz

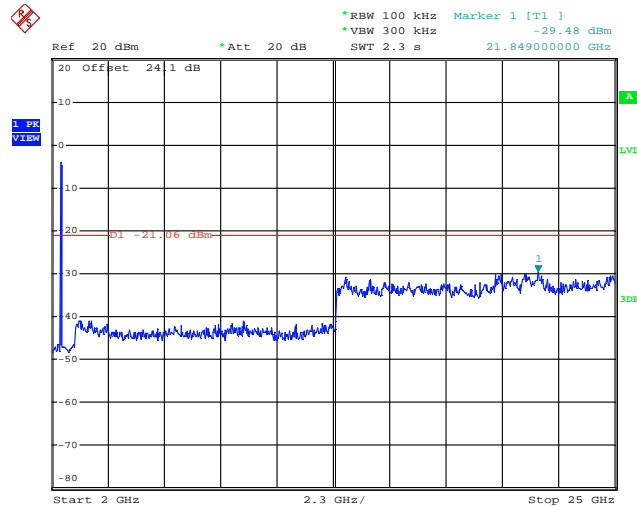
Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 22:31:39

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

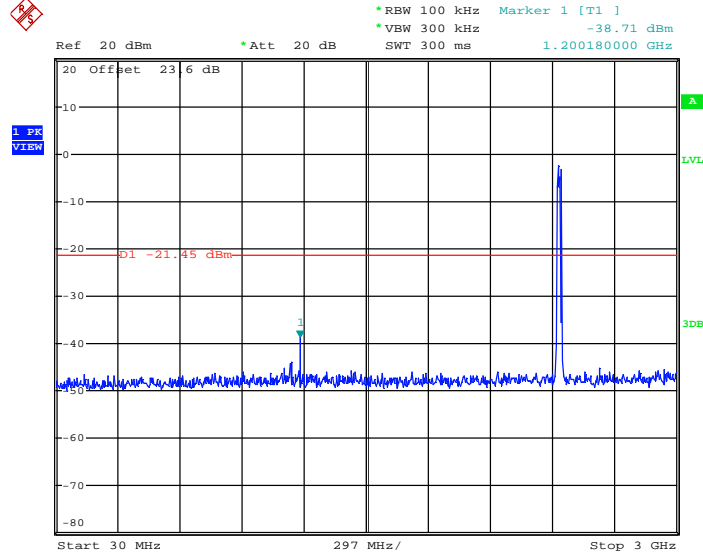


Date: 7.JUN.2012 22:31:57



802.11g 30 MHz~3 GHz

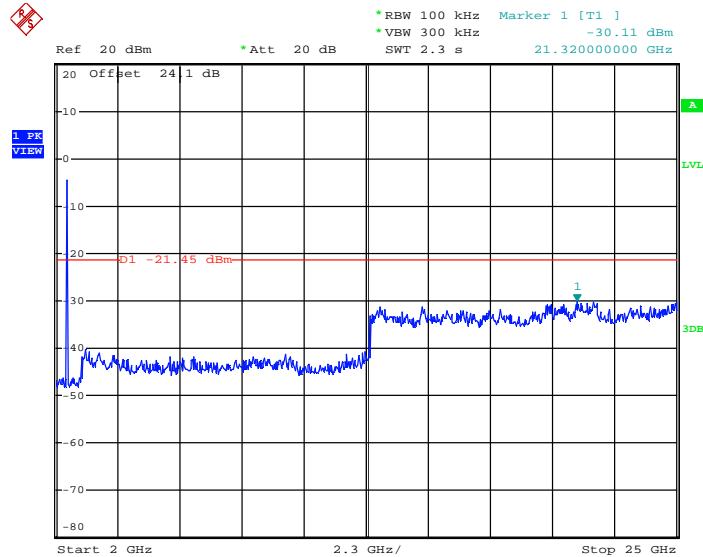
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 22:33:44

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

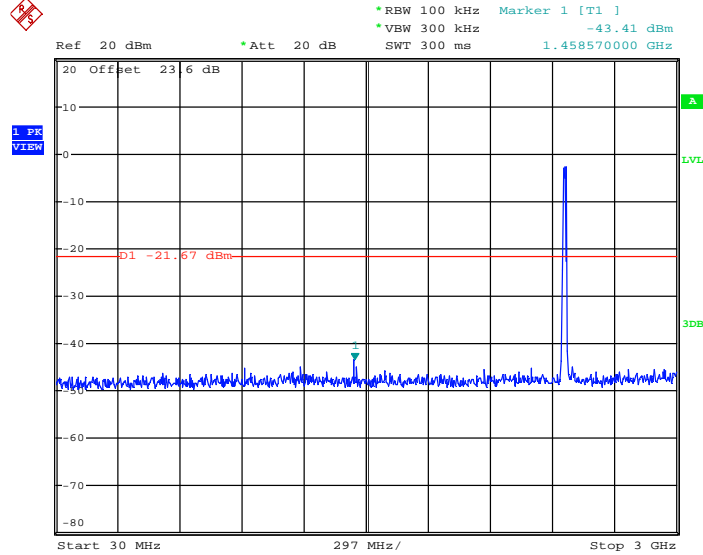


Date: 7.JUN.2012 22:34:01



802.11g 30 MHz~3 GHz

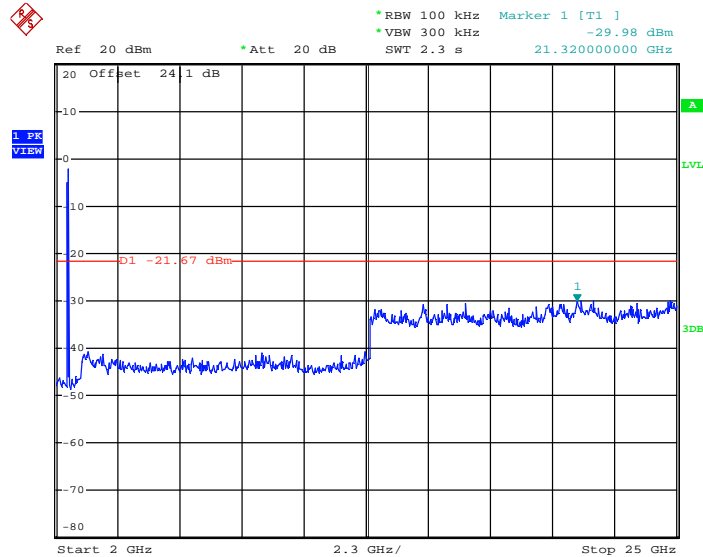
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:36:11

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:36:28

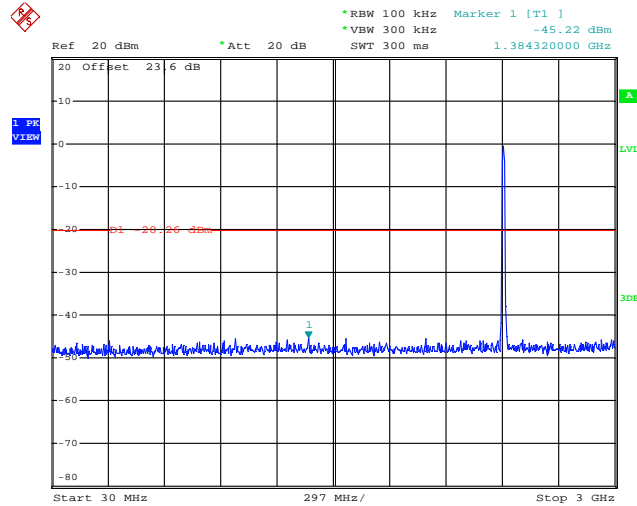




Test Mode :	802.11g MIMO Ant. 1+2(2)	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

802.11g 30 MHz~3 GHz

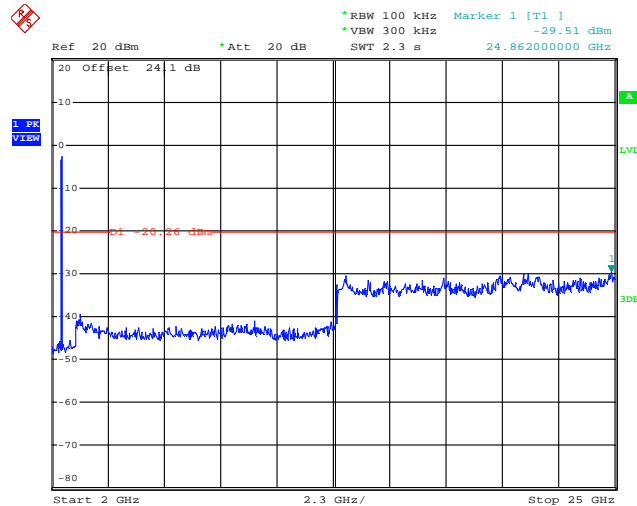
Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 23:04:25

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

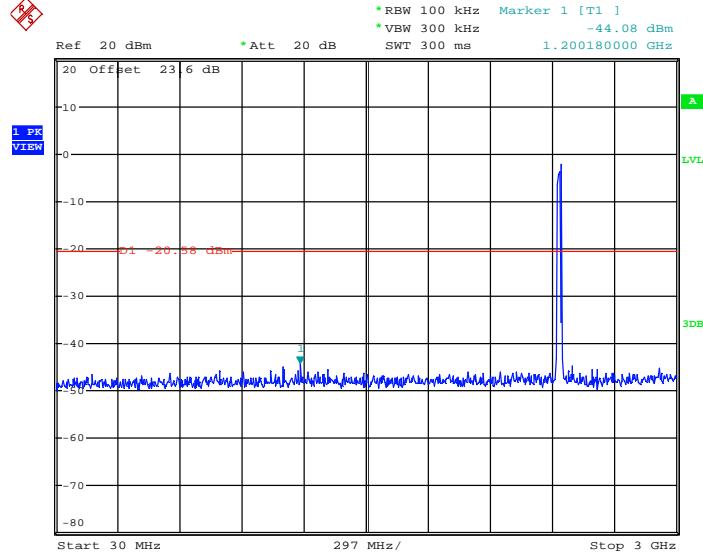


Date: 7.JUN.2012 23:04:43



802.11g 30 MHz~3 GHz

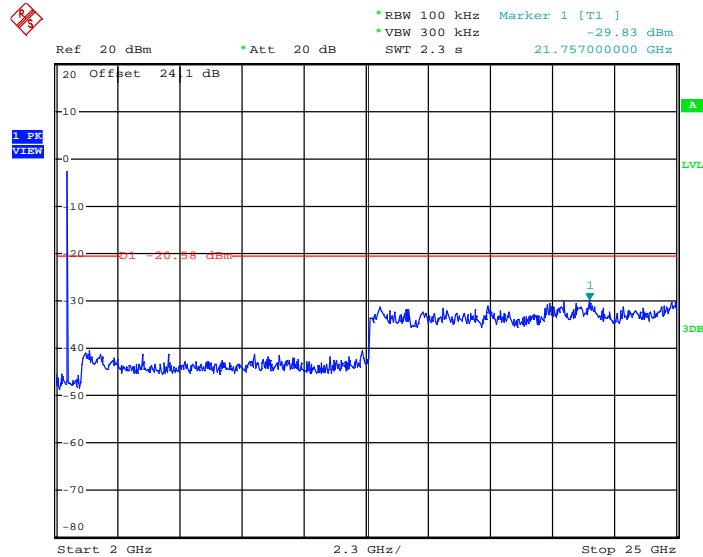
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 23:01:09

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

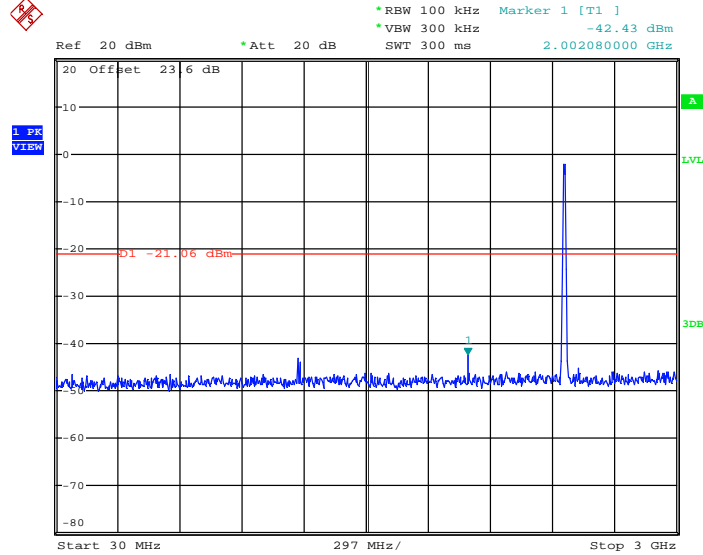


Date: 7.JUN.2012 23:01:27



802.11g 30 MHz~3 GHz

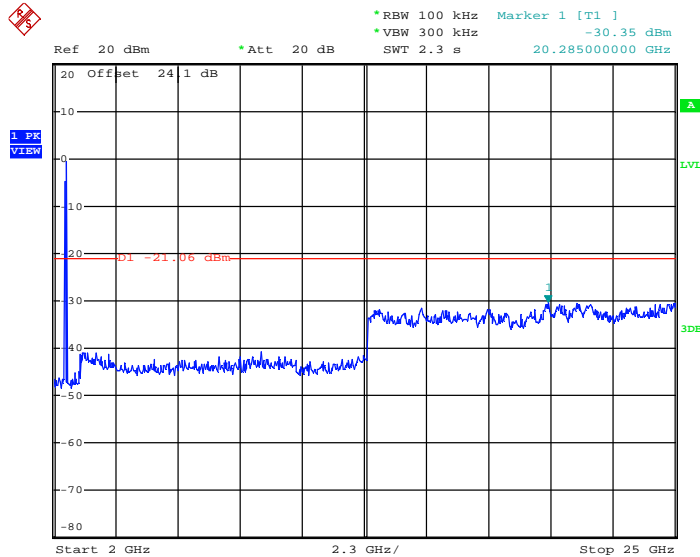
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:58:22

802.11g 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



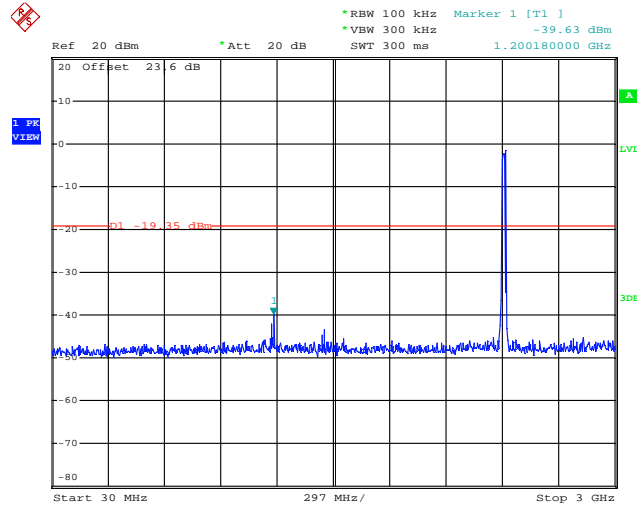
Date: 7.JUN.2012 22:58:40



Test Mode :	802.11n HT-20 SISO Ant. 1	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

802.11n HT-20 30 MHz~3 GHz

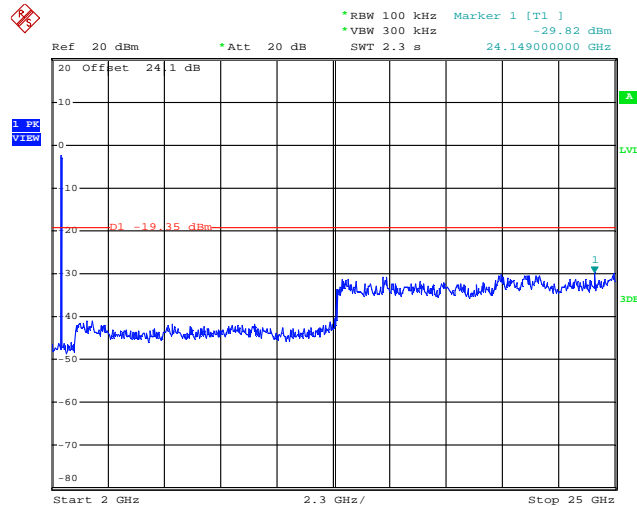
Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 21:51:18

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

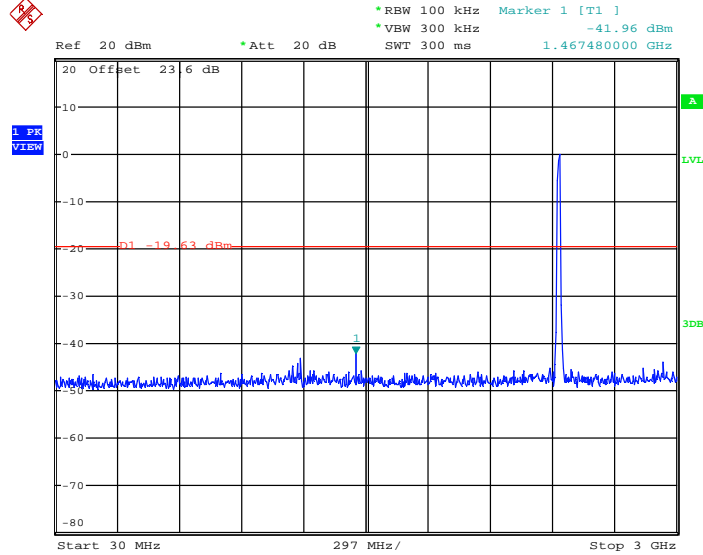


Date: 7.JUN.2012 21:51:36



802.11n HT-20 30 MHz~3 GHz

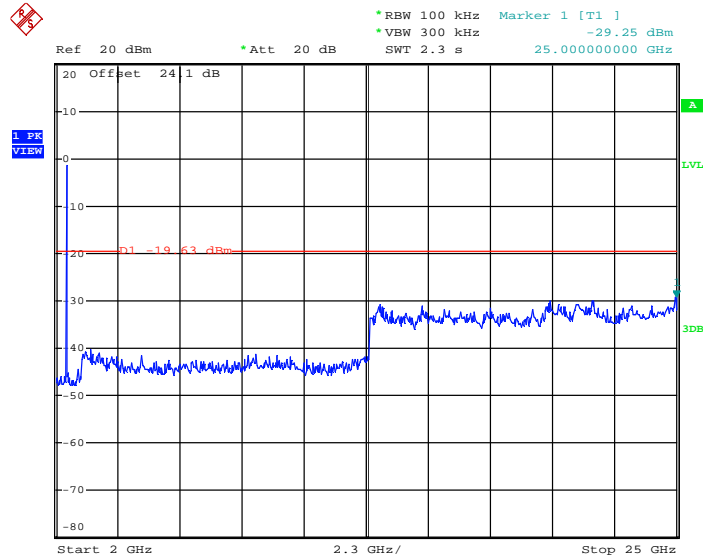
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 21:54:54

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

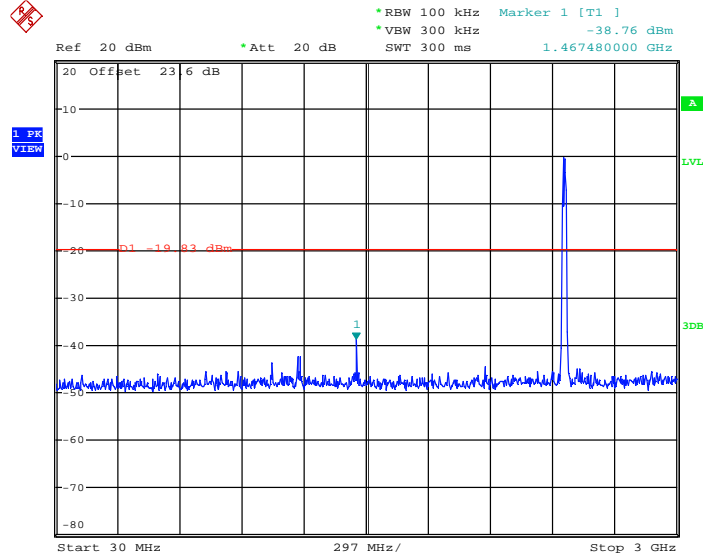


Date: 7.JUN.2012 21:55:11



802.11n HT-20 30 MHz~3 GHz

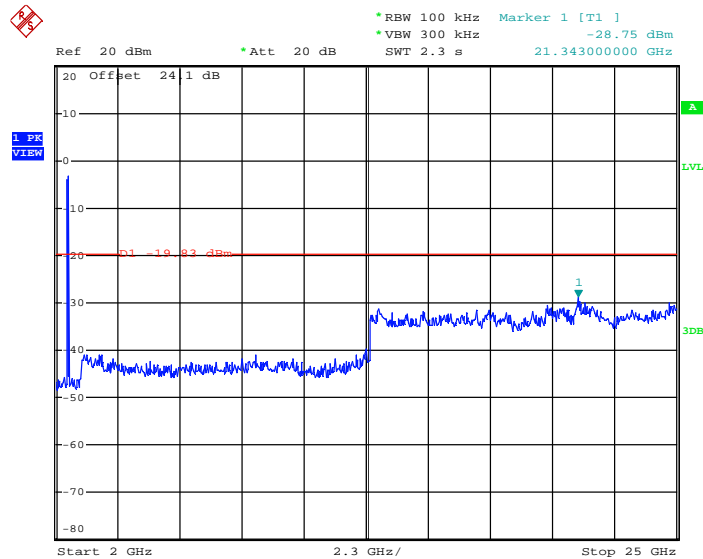
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:00:19

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



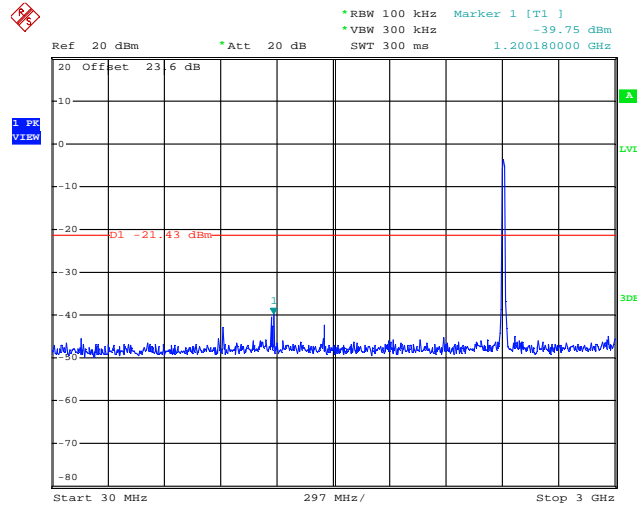
Date: 7.JUN.2012 22:00:36



Test Mode :	802.11n HT-20 MIMO Ant. 1+2(1)	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

802.11n HT-20 30 MHz~3 GHz

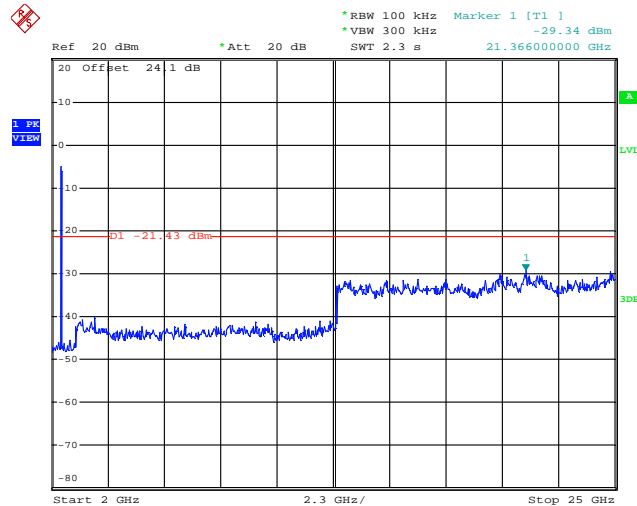
Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 22:44:44

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

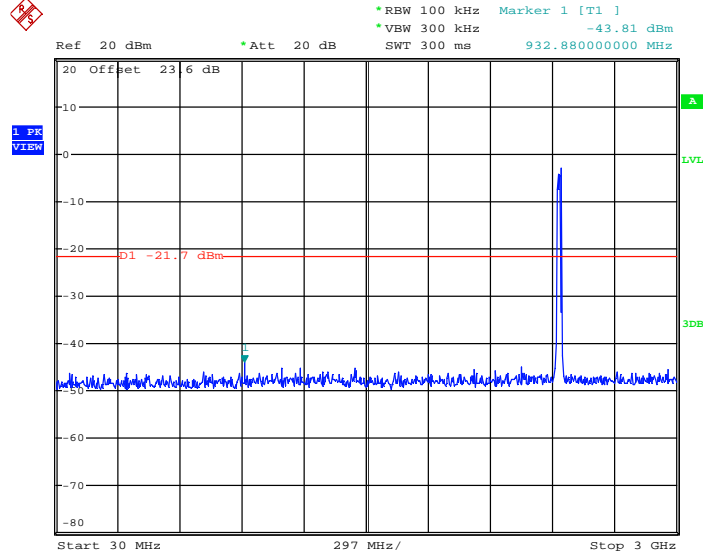


Date: 7.JUN.2012 22:45:01



802.11n HT-20 30 MHz~3 GHz

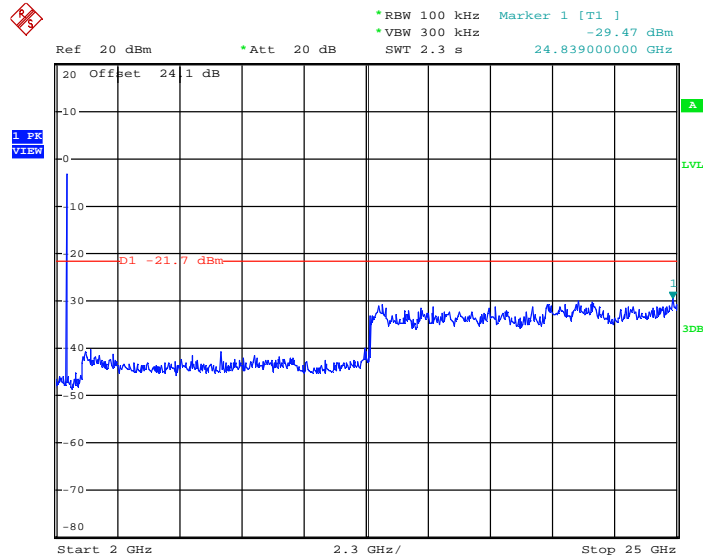
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 22:42:15

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06



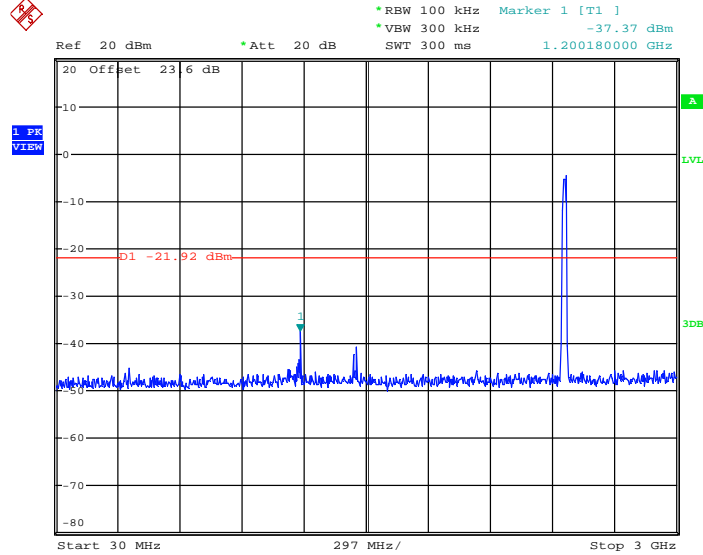
Date: 7.JUN.2012 22:42:32





802.11n HT-20 30 MHz~3 GHz

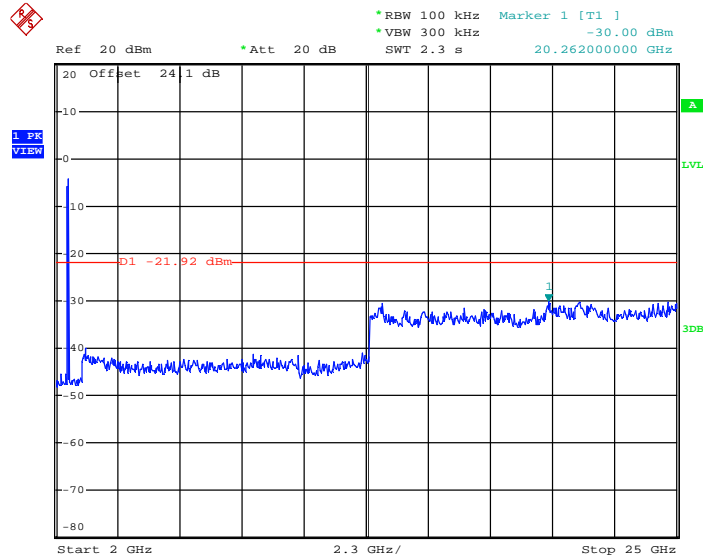
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:39:26

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



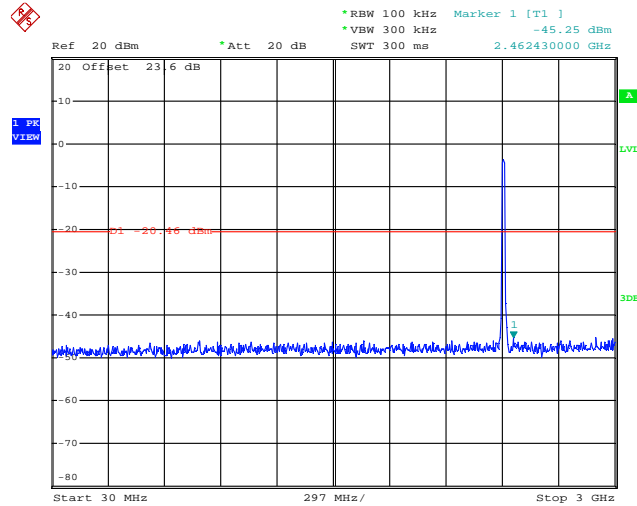
Date: 7.JUN.2012 22:39:44



Test Mode :	802.11n HT-20 MIMO Ant. 1+2(2)	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	01, 06, 11	Test Engineer :	Bill Kuo

802.11n HT-20 30 MHz~3 GHz

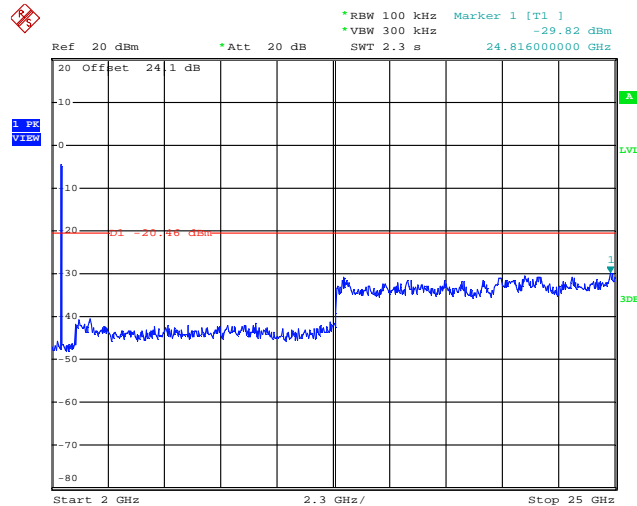
Conducted Spurious Emission Plot on Channel 01



Date: 7.JUN.2012 22:49:38

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 01

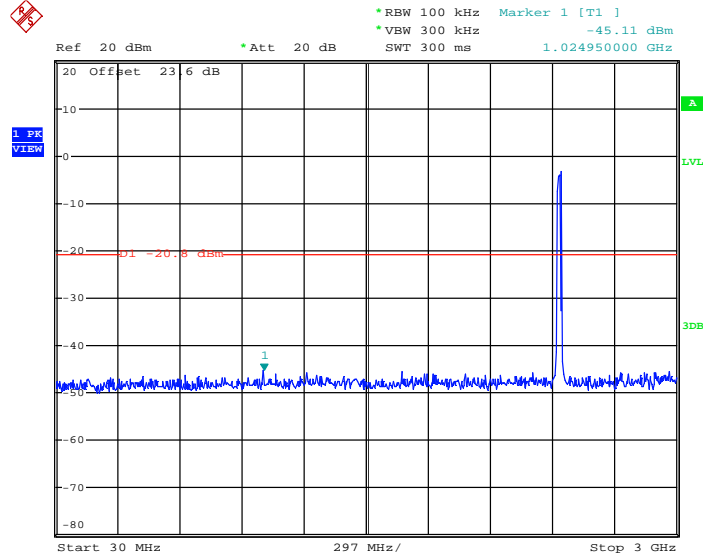


Date: 7.JUN.2012 22:49:55



802.11n HT-20 30 MHz~3 GHz

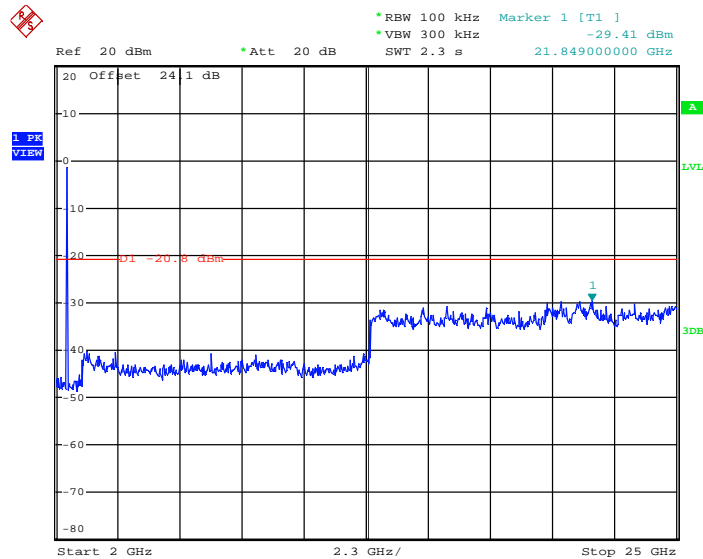
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 22:52:00

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

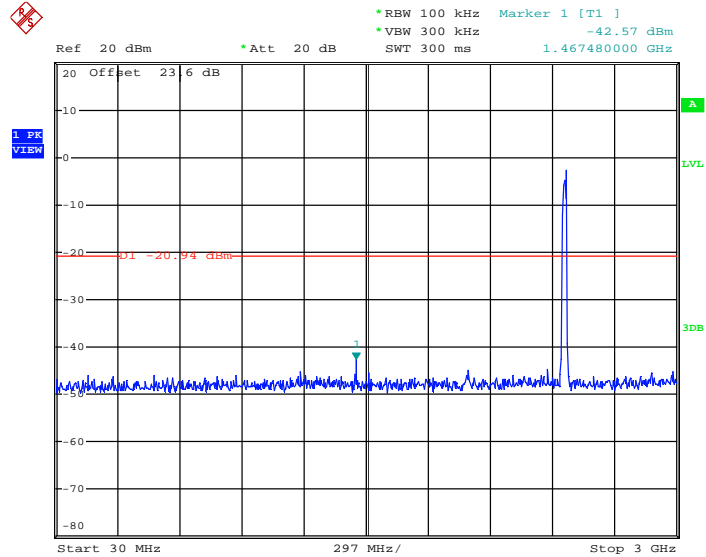


Date: 7.JUN.2012 22:52:17



802.11n HT-20 30 MHz~3 GHz

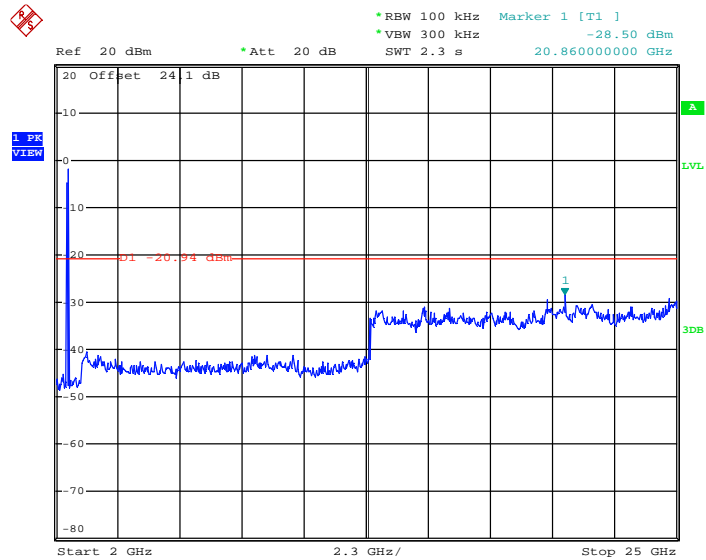
Conducted Spurious Emission Plot on Channel 11



Date: 7.JUN.2012 22:54:55

802.11n HT-20 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 11



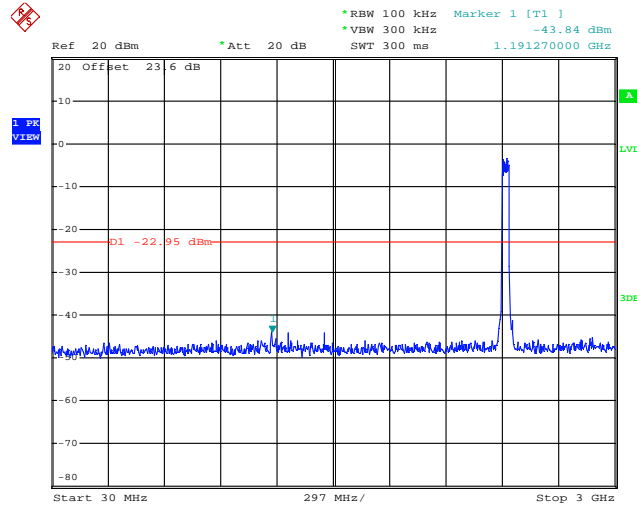
Date: 7.JUN.2012 22:55:13



Test Mode :	802.11n HT-40 SISO Ant. 1	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	03, 06, 09	Test Engineer :	Bill Kuo

802.11n HT-40 30 MHz~3 GHz

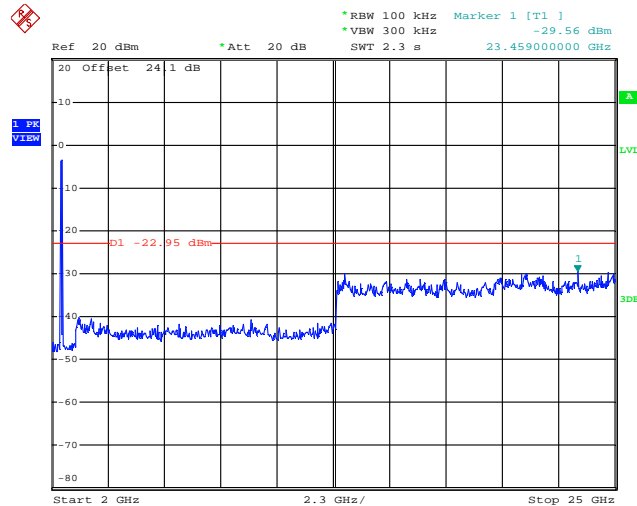
Conducted Spurious Emission Plot on Channel 03



Date: 7.JUN.2012 21:47:12

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 03

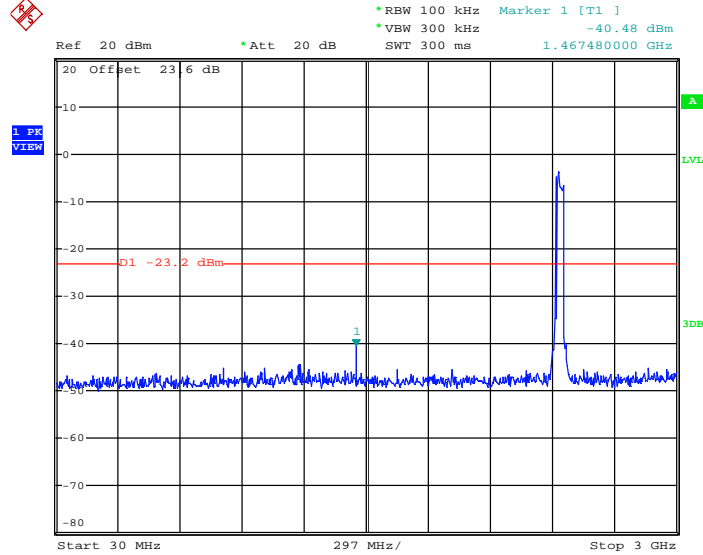


Date: 7.JUN.2012 21:47:29



802.11n HT-40 30 MHz~3 GHz

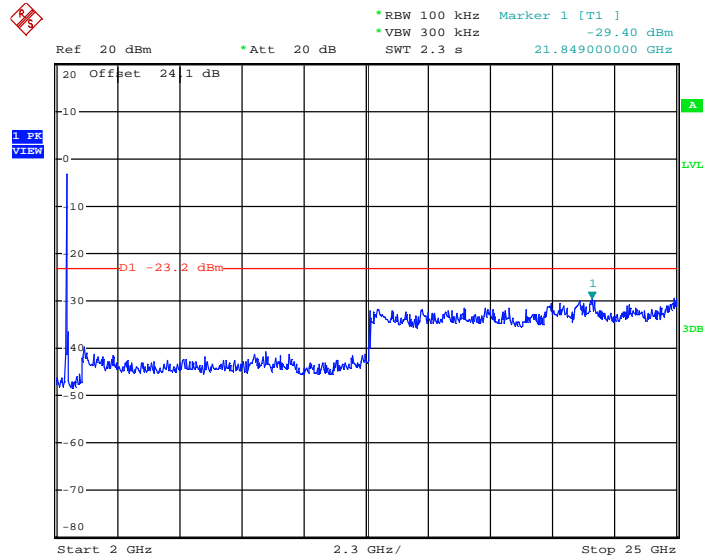
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 21:37:05

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

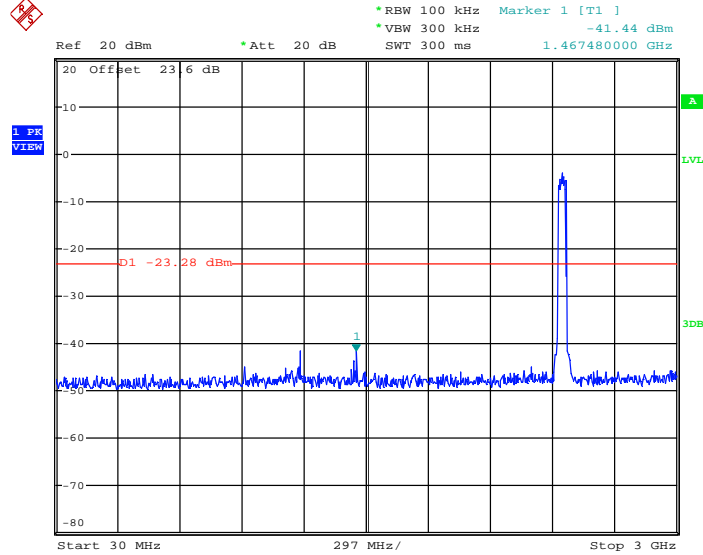


Date: 7.JUN.2012 21:37:23



802.11n HT-40 30 MHz~3 GHz

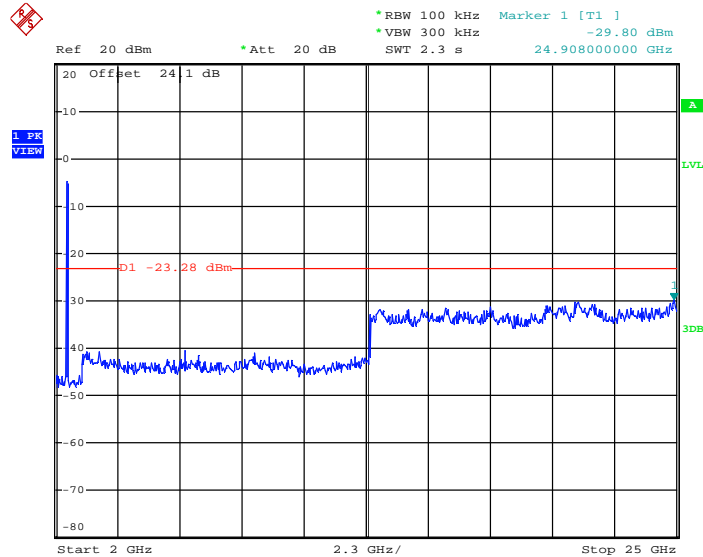
Conducted Spurious Emission Plot on Channel 09



Date: 7.JUN.2012 21:42:01

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09



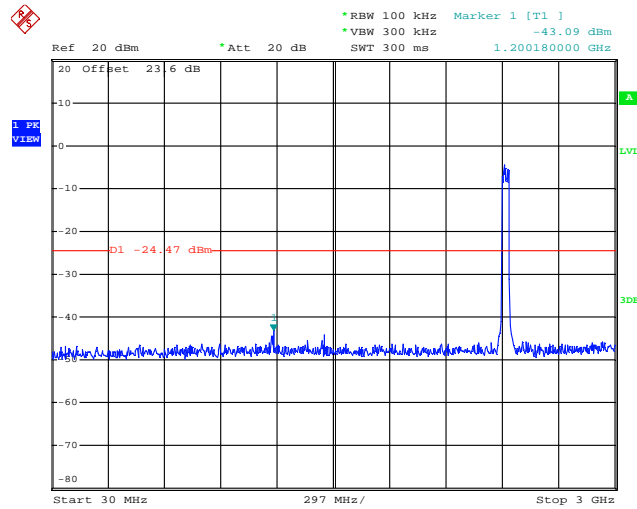
Date: 7.JUN.2012 21:42:18



Test Mode :	802.11n HT-40 MIMO Ant. 1+2(1)	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	03, 06, 09	Test Engineer :	Bill Kuo

802.11n HT-40 30 MHz~3 GHz

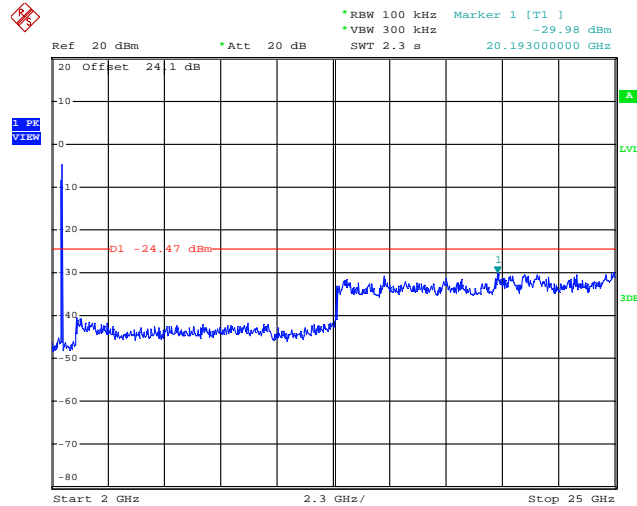
Conducted Spurious Emission Plot on Channel 03



Date: 7.JUN.2012 21:29:10

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 03



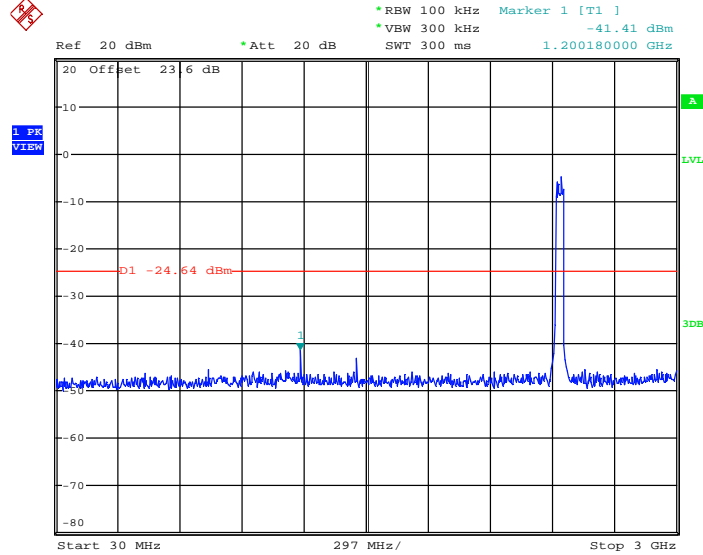
Date: 7.JUN.2012 21:29:28





802.11n HT-40 30 MHz~3 GHz

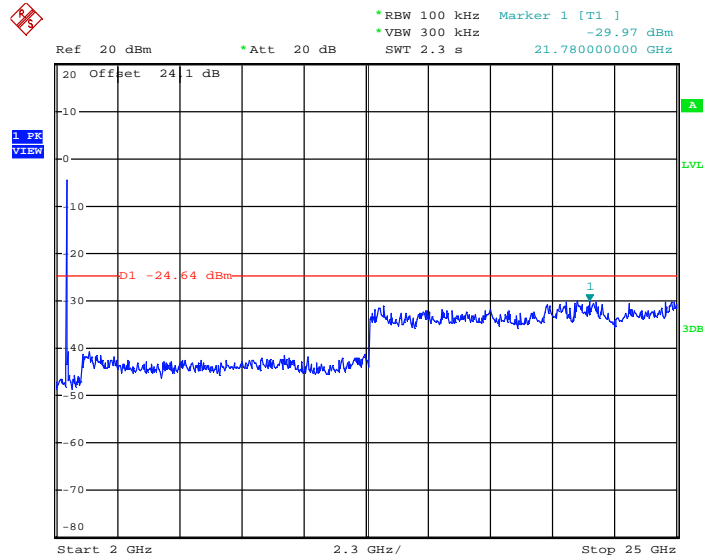
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 21:24:50

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

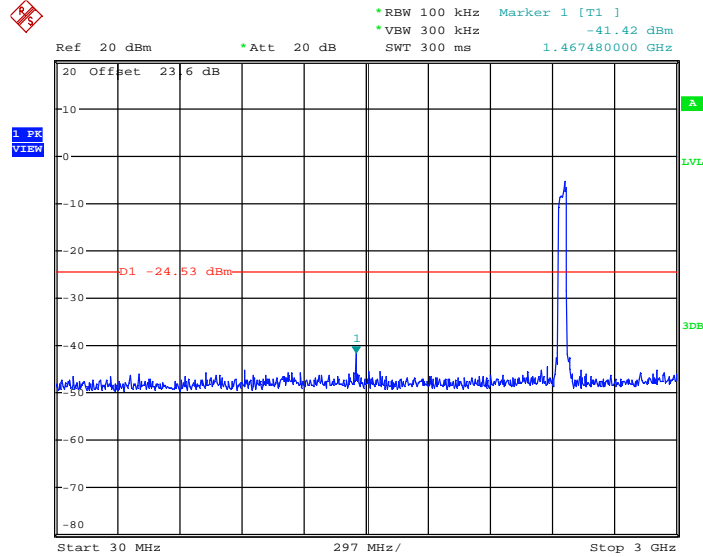


Date: 7.JUN.2012 21:25:07



802.11n HT-40 30 MHz~3 GHz

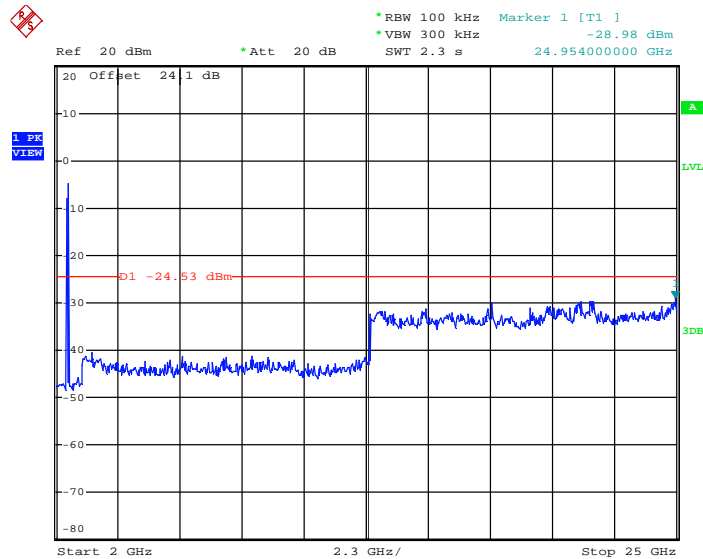
Conducted Spurious Emission Plot on Channel 09



Date: 7.JUN.2012 21:21:32

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09



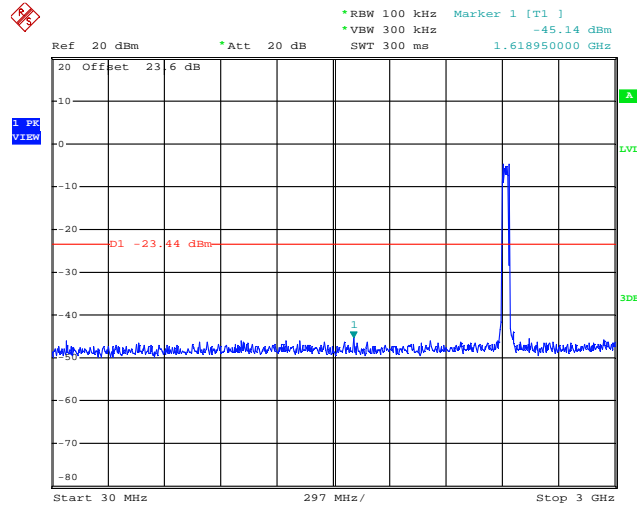
Date: 7.JUN.2012 21:21:50



Test Mode :	802.11n HT-40 MIMO Ant. 1+2(2)	Temperature :	24~26°C
Test Band :	30MHz-3GHz and 2G-25GHz	Relative Humidity :	50~53%
Test Channel :	03, 06, 09	Test Engineer :	Bill Kuo

802.11n HT-40 30 MHz~3 GHz

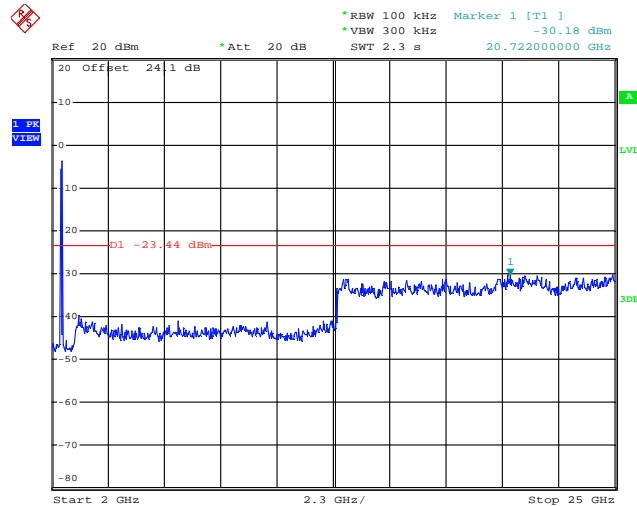
Conducted Spurious Emission Plot on Channel 03



Date: 7.JUN.2012 21:01:03

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 03

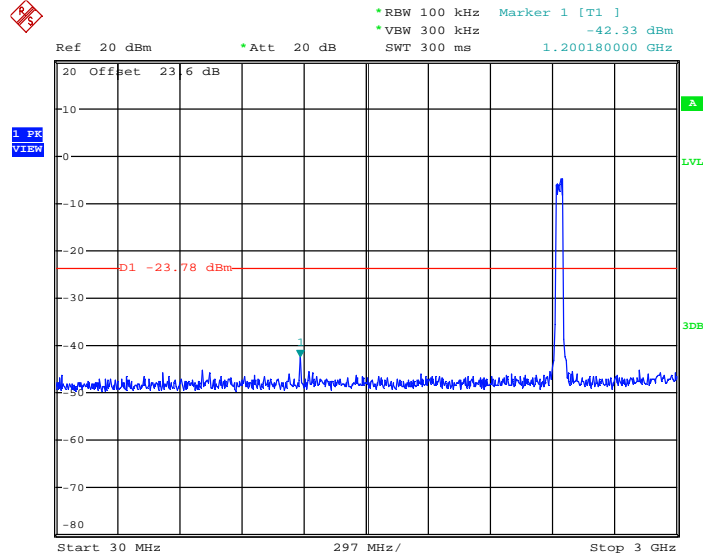


Date: 7.JUN.2012 21:01:20



802.11n HT-40 30 MHz~3 GHz

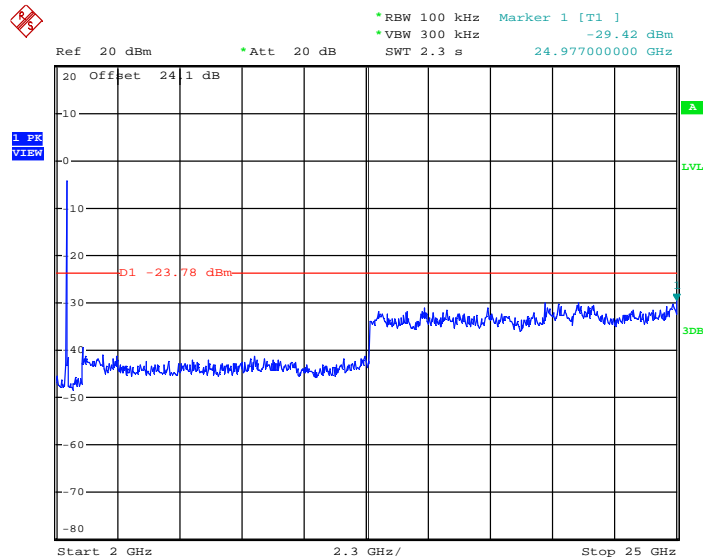
Conducted Spurious Emission Plot on Channel 06



Date: 7.JUN.2012 21:10:02

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 06

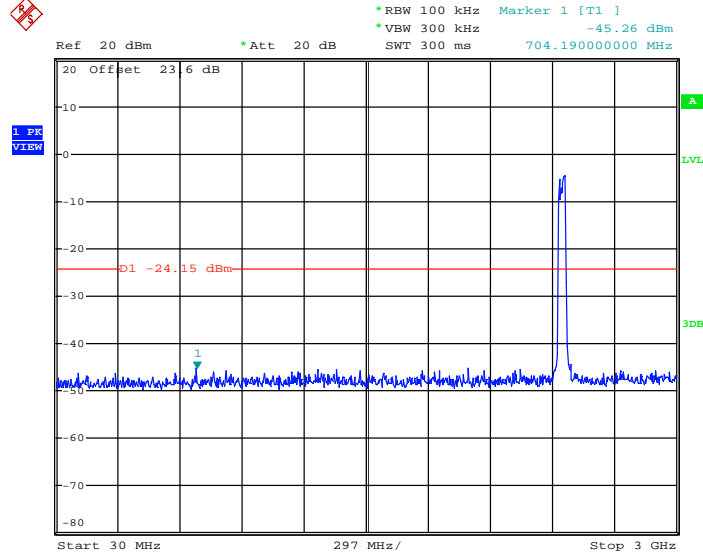


Date: 7.JUN.2012 21:10:19



802.11n HT-40 30 MHz~3 GHz

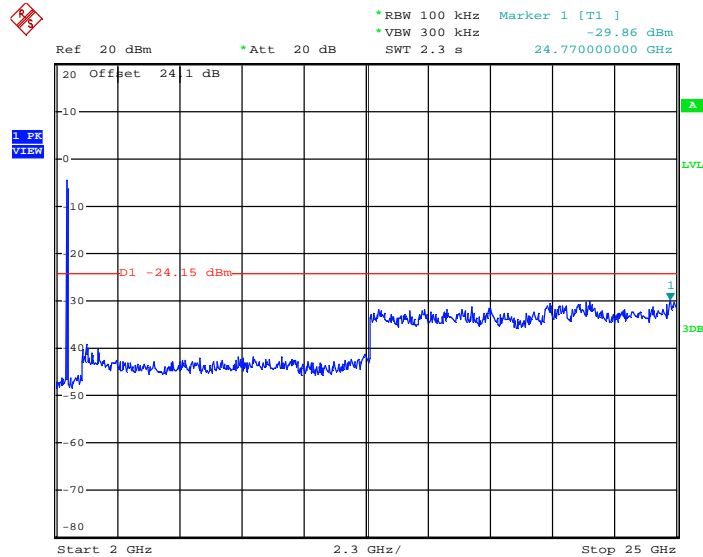
Conducted Spurious Emission Plot on Channel 09



Date: 7.JUN.2012 21:13:06

802.11n HT-40 2 GHz~25 GHz

Conducted Spurious Emission Plot on Channel 09



Date: 7.JUN.2012 21:13:24



### 3.5 Radiated Band Edges and Spurious Emission Measurement

#### 3.5.1 Limit of Radiated band edge and Spurious Emission Measurement

In any 100 KHz bandwidth outside the intentional radiator frequency band, all harmonics/spurious must be at least 20 dB below the highest emission level within the authorized band. If the output power of this device was measured by spectrum analyzer, the attenuation under this paragraph shall be 30 dB instead of 20 dB. In addition, radiated emissions which fall in the restricted bands must also comply with the FCC section 15.209 limits as below.

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 – 0.490	2400/F(KHz)	300
0.490 – 1.705	24000/F(KHz)	30
1.705 – 30.0	30	30
30 – 88	100	3
88 – 216	150	3
216 - 960	200	3
Above 960	500	3

#### 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.



### **3.5.3 Test Procedure**

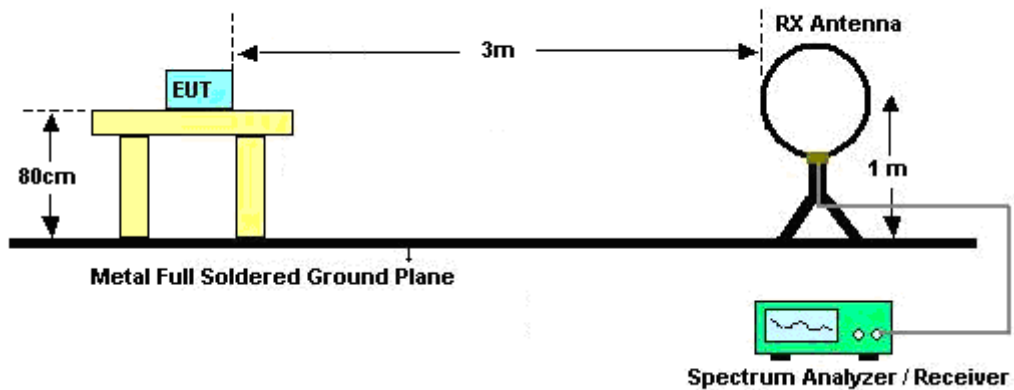
1. The testing follows the guidelines in ANSI C63. 10-2009
2. The EUT was arranged to its worst case and then tune the antenna tower (from 1 m to 4 m) and turntable (from 0 degree to 360 degrees) to find the maximum reading. A pre-amp and a high pass filter are used for the test in order to get better signal level.
3. The EUT was placed on a turntable with 0.8 meter above ground.
4. The EUT was set 3 meters from the interference receiving antenna, which was mounted on the top of a variable height antenna tower.
5. Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level
6. For measurement below 1GHz, If the emission level of the EUT measured by the peak detector is 3 dB lower than the applicable limit, the peak emission level will be reported. Otherwise, the emission measurement will be repeated using the quasi-peak detector and reported.
7. Use the following spectrum analyzer settings:
  - (1) Span shall wide enough to fully capture the emission being measured;
  - (2) Set RBW=100 KHz for  $f < 1$  GHz;  $VBW \geq RBW$ ; Sweep = auto; Detector function = peak; Trace = max hold;
  - (3) Set RBW = 1 MHz, VBW= 3MHz for  $f \geq 1$  GHz for peak measurement.  
For average measurement:
    - $VBW = 10$  Hz, when duty cycle is no less than 98 percent.
    - $VBW \geq 1/T$ , when duty cycle is less than 98 percent where T is the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.

Antenna	Band	Duty Cycle(%)	T(us)	1/T(KHz)	VBW Setting
1	802.11b	97.80	8416.67	0.119	300Hz
1+2	802.11b for Ant1 for Ant1	97.80	8437.18	0.119	300Hz
1+2	802.11b for Ant2 for Ant1	97.82	8413.78	0.119	300Hz
1	802.11g	87.24	1402.24	0.713	1KHz
1+2	802.11g for Ant1 for Ant1	87.12	1400.64	0.714	1KHz
1+2	802.11g for Ant2 for Ant1	87.39	1399.68	0.714	1KHz
1	802.11n (BW 20MHz)	86.72	1318.27	0.759	1KHz
1+2	802.11n (BW 20MHz) for Ant1	86.58	1315.39	0.760	1KHz
1+2	802.11n (BW 20MHz) for Ant2	87.04	1316.99	0.759	1KHz
1	802.11n (BW 40MHz)	75.92	650.64	1.537	3KHz
1+2	802.11n (BW 40MHz) for Ant1	76.03	652.56	1.532	3KHz
1+2	802.11n (BW 40MHz) for Ant2	76.01	651.92	1.534	3KHz

**Note:** For average measurement with duty cycle < 98%, use reduced VBW measurement method 4.2.3.2.3 in ANSI C63.10.

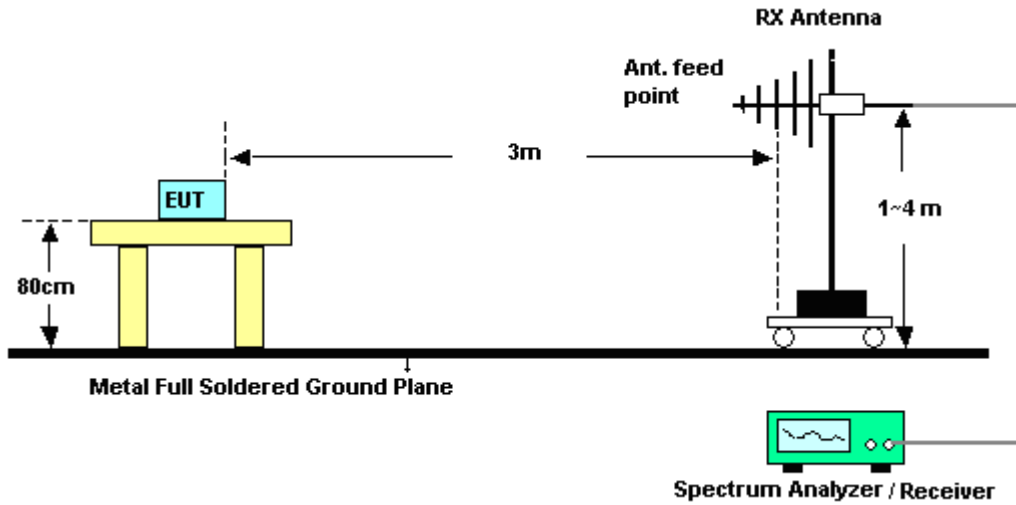
### 3.5.4 Test Setup

For radiated emissions below 30MHz

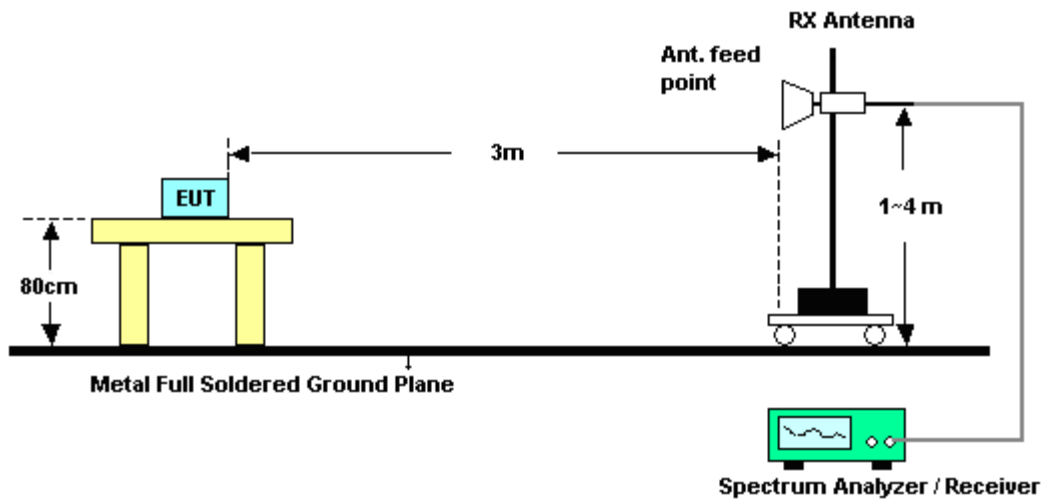




For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



### 3.5.5 Test Results of Radiated Emissions (9KHz ~ 30MHz)

The low frequency, which started from 9 KHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.



3.5.6 Test Result of Radiated Spurious at Band Edges

Test Mode :	802.11b Ant. 1	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	49.99	-24.01	74	49.25	32.02	4.58	35.86	121	28	Peak
2390	37.82	-16.18	54	37.08	32.02	4.58	35.86	121	28	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.56	54.36	-19.64	74	53.64	32.02	4.58	35.88	100	37	Peak
2389.56	42.73	-11.27	54	42.01	32.02	4.58	35.88	100	37	Average

Test Mode :	802.11b Ant. 1	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2493.06	55.86	-18.14	74	54.92	32.1	4.64	35.8	114	229	Peak
2493.06	43.07	-10.93	54	42.13	32.1	4.64	35.8	114	229	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.66	57.39	-16.61	74	56.47	32.09	4.64	35.81	100	42	Peak
2483.66	44.65	-9.35	54	43.73	32.09	4.64	35.81	100	42	Average



Test Mode :	802.11b Ant. 2	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	51.12	-22.88	74	50.38	32.02	4.58	35.86	114	322	Peak
2390	39.35	-14.65	54	38.61	32.02	4.58	35.86	114	322	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.47	56.04	-17.96	74	55.32	32.02	4.58	35.88	122	47	Peak
2389.47	44.12	-9.88	54	43.4	32.02	4.58	35.88	122	47	Average

Test Mode :	802.11b Ant. 2	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.82	52.97	-21.03	74	52.05	32.09	4.64	35.81	111	316	Peak
2484.82	40.82	-13.18	54	39.9	32.09	4.64	35.81	111	316	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2485.66	55.48	-18.52	74	54.56	32.09	4.64	35.81	122	324	Peak
2485.66	44.04	-9.96	54	43.12	32.09	4.64	35.81	122	324	Average



Test Mode :	802.11b MIMO Ant. 1+2	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2348.52	49.57	-24.43	74	48.92	31.99	4.55	35.89	116	34	Peak
2348.52	37.37	-16.63	54	36.73	31.98	4.55	35.89	116	34	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	57.27	-16.73	74	56.53	32.02	4.58	35.86	121	214	Peak
2390	44.7	-9.3	54	43.96	32.02	4.58	35.86	121	214	Average

Test Mode :	802.11b MIMO Ant. 1+2	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.74	50.89	-23.11	74	49.97	32.09	4.64	35.81	113	129	Peak
2484.74	37.4	-16.6	54	36.48	32.09	4.64	35.81	113	129	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.56	54.33	-19.67	74	53.41	32.09	4.64	35.81	100	329	Peak
2484.56	43.13	-10.87	54	42.21	32.09	4.64	35.81	100	329	Average



Test Mode :	802.11g Ant. 1	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	59.45	-14.55	74	58.71	32.02	4.58	35.86	118	239	Peak
2390	40.16	-13.84	54	39.42	32.02	4.58	35.86	118	239	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	65.59	-8.41	74	64.85	32.02	4.58	35.86	100	33	Peak
2390	43.69	-10.31	54	42.95	32.02	4.58	35.86	100	33	Average

Test Mode :	802.11g Ant. 1	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.54	61.71	-12.29	74	60.79	32.09	4.64	35.81	115	228	Peak
2483.54	41.06	-12.94	54	40.14	32.09	4.64	35.81	115	228	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2484.56	67.96	-6.04	74	67.04	32.09	4.64	35.81	122	36	Peak
2484.56	45.41	-8.59	54	44.49	32.09	4.64	35.81	122	36	Average



Test Mode :	802.11g Ant. 2	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.83	51.65	-22.35	74	50.91	32.02	4.58	35.86	147	32	Peak
2389.83	37.2	-16.8	54	36.46	32.02	4.58	35.86	147	32	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	65.01	-8.99	74	64.27	32.02	4.58	35.86	122	49	Peak
2390	46.2	-7.8	54	45.46	32.02	4.58	35.86	122	49	Average

Test Mode :	802.11g Ant. 2	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.56	62.15	-11.85	74	61.23	32.09	4.64	35.81	110	319	Peak
2483.56	40.8	-13.2	54	39.88	32.09	4.64	35.81	110	319	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.58	68.22	-5.78	74	67.3	32.09	4.64	35.81	121	321	Peak
2483.58	45.8	-8.2	54	44.88	32.09	4.64	35.81	121	321	Average



Test Mode :	802.11g MIMO Ant. 1+2	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.65	49.72	-24.28	74	48.98	32.02	4.58	35.86	107	164	Peak
2389.65	36.73	-17.27	54	36.01	32.02	4.58	35.88	107	164	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	60.09	-13.91	74	59.35	32.02	4.58	35.86	100	323	Peak
2390	41.82	-12.18	54	41.08	32.02	4.58	35.86	100	323	Average

Test Mode :	802.11g MIMO Ant. 1+2	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.56	52.85	-21.15	74	51.93	32.09	4.64	35.81	110	130	Peak
2483.56	36.59	-17.41	54	35.67	32.09	4.64	35.81	110	130	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.72	63.96	-10.04	74	63.04	32.09	4.64	35.81	100	321	Peak
2483.72	41.44	-12.56	54	40.52	32.09	4.64	35.81	100	321	Average



Test Mode :	802.11n HT-20 Ant. 1	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	64.33	-9.67	74	63.59	32.02	4.58	35.86	119	238	Peak
2390	41.26	-12.74	54	40.52	32.02	4.58	35.86	119	238	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	66.71	-7.29	74	65.97	32.02	4.58	35.86	121	240	Peak
2390	42.41	-11.59	54	41.67	32.02	4.58	35.86	121	240	Average

Test Mode :	802.11n HT-20 Ant. 1	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	67.84	-6.16	74	66.92	32.09	4.64	35.81	114	240	Peak
2483.5	43.5	-10.5	54	42.58	32.09	4.64	35.81	114	240	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.54	68.81	-5.19	74	67.89	32.09	4.64	35.81	100	35	Peak
2483.54	44.67	-9.33	54	43.75	32.09	4.64	35.81	100	35	Average





Test Mode :	802.11n HT-20 Ant. 2	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.92	61.47	-12.53	74	60.73	32.02	4.58	35.86	113	319	Peak
2389.92	39.68	-14.32	54	38.94	32.02	4.58	35.86	113	319	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	69.13	-4.87	74	68.39	32.02	4.58	35.86	124	139	Peak
2390	44.86	-9.14	54	44.12	32.02	4.58	35.86	124	139	Average

Test Mode :	802.11n HT-20 Ant. 2	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.52	64.86	-9.14	74	63.94	32.09	4.64	35.81	111	317	Peak
2483.52	41.48	-12.52	54	40.56	32.09	4.64	35.81	111	317	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.56	70.23	-3.77	74	69.31	32.09	4.64	35.81	123	322	Peak
2483.56	45.83	-8.17	54	44.91	32.09	4.64	35.81	123	322	Average



Test Mode :	802.11n HT-20 MIMO Ant. 1+2	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	01	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.74	56.4	-17.6	74	55.66	32.02	4.58	35.86	109	165	Peak
2389.74	36.99	-17.01	54	36.27	32.02	4.58	35.88	109	165	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.56	69.72	-4.28	74	68.98	32.02	4.58	35.86	100	210	Peak
2389.56	44.34	-9.66	54	43.62	32.02	4.58	35.88	100	210	Average

Test Mode :	802.11n HT-20 MIMO Ant. 1+2	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	11	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.74	56.59	-17.41	74	55.67	32.09	4.64	35.81	145	129	Peak
2483.74	36.52	-17.48	54	35.6	32.09	4.64	35.81	145	129	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	67.79	-6.21	74	66.87	32.09	4.64	35.81	100	322	Peak
2483.5	42.95	-11.05	54	42.03	32.09	4.64	35.81	100	322	Average



Test Mode :	802.11n HT-40 Ant. 1	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	03	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.02	64.6	-9.4	74	63.88	32.02	4.58	35.88	118	239	Peak
2389.02	45.25	-8.75	54	44.53	32.02	4.58	35.88	118	239	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2387.85	70.92	-3.08	74	70.2	32.02	4.58	35.88	100	34	Peak
2387.85	49.73	-4.27	54	49.01	32.02	4.58	35.88	100	34	Average

Test Mode :	802.11n HT-40 Ant. 1	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	09	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.64	67.38	-6.62	74	66.46	32.09	4.64	35.81	115	241	Peak
2483.64	45.9	-8.1	54	44.98	32.09	4.64	35.81	115	241	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.6	68.26	-5.74	74	67.34	32.09	4.64	35.81	100	32	Peak
2483.6	46.72	-7.28	54	45.8	32.09	4.64	35.81	100	32	Average



Test Mode :	802.11n HT-40 Ant. 2	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	03	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	62.03	-11.97	74	61.29	32.02	4.58	35.86	106	138	Peak
2390	41.37	-12.63	54	40.63	32.02	4.58	35.86	106	138	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	70.79	-3.21	74	70.05	32.02	4.58	35.86	100	324	Peak
2390	49.14	-4.86	54	48.4	32.02	4.58	35.86	100	324	Average

Test Mode :	802.11n HT-40 Ant. 2	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	09	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2485.34	62.27	-11.73	74	61.34	32.1	4.64	35.81	104	159	Peak
2485.34	39.34	-14.66	54	38.42	32.09	4.64	35.81	104	159	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.5	69.14	-4.86	74	68.22	32.09	4.64	35.81	100	326	Peak
2483.5	45.68	-8.32	54	44.76	32.09	4.64	35.81	100	326	Average



Test Mode :	802.11n HT-40 MIMO Ant. 1+2	Temperature :	20~22°C
Test Band :	Low	Relative Humidity :	40~42%
Test Channel :	03	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	62.04	-11.96	74	61.3	32.02	4.58	35.86	105	161	Peak
2390	40.51	-13.49	54	39.77	32.02	4.58	35.86	105	161	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.2	70.74	-3.26	74	70	32.02	4.58	35.86	100	320	Peak
2389.2	47.46	-6.54	54	46.74	32.02	4.58	35.88	100	320	Average

Test Mode :	802.11n HT-40 MIMO Ant. 1+2	Temperature :	20~22°C
Test Band :	High	Relative Humidity :	40~42%
Test Channel :	09	Test Engineer :	David Ke

ANTENNA POLARITY : HORIZONTAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.66	65.86	-8.14	74	64.94	32.09	4.64	35.81	110	135	Peak
2483.66	41.64	-12.36	54	40.72	32.09	4.64	35.81	110	135	Average

ANTENNA POLARITY : VERTICAL										
Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2483.7	70.14	-3.86	74	69.22	32.09	4.64	35.81	100	329	Peak
2483.7	46.32	-7.68	54	45.4	32.09	4.64	35.81	100	329	Average



3.5.7 Test Result of Radiated Spurious Emission (30MHz ~ 10<sup>th</sup> Harmonic)

Test Mode :	802.11b Ant. 1	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal
Remark :	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	37.82	-16.18	54	37.08	32.02	4.58	35.86	121	28	Average
2390	49.99	-24.01	74	49.25	32.02	4.58	35.86	121	28	Peak
2412	97.04	-	-	96.28	32.03	4.59	35.86	121	28	Average
2412	103.03	-	-	102.27	32.03	4.59	35.86	121	28	Peak
2498	37.17	-16.83	54	36.23	32.1	4.64	35.8	121	28	Average
2498	50.46	-23.54	74	49.52	32.1	4.64	35.8	121	28	Peak

Test Mode :	802.11b Ant. 1	Temperature :	20~22°C
Test Channel :	01	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical
Remark :	2412 MHz is Fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.56	42.73	-11.27	54	42.01	32.02	4.58	35.88	100	37	Average
2389.56	54.36	-19.64	74	53.64	32.02	4.58	35.88	100	37	Peak
2412	101.07	-	-	100.31	32.03	4.59	35.86	100	37	Average
2412	107.27	-	-	106.51	32.03	4.59	35.86	100	37	Peak
2496	39.43	-14.57	54	38.49	32.1	4.64	35.8	100	37	Average
2496	52.46	-21.54	74	51.52	32.1	4.64	35.8	100	37	Peak
4824	46.23	-27.77	74	64.91	33.83	6.51	59.02	100	0	Peak



<b>Test Mode :</b>	802.11b Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is Fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
106.68	36.79	-6.71	43.5	56.29	10.9	1.12	31.52	-	-	Peak
250.05	37.35	-8.65	46	53.99	12.6	1.66	30.9	-	-	Peak
266.79	41.74	-4.26	46	57.83	13.27	1.7	31.06	100	102	Peak
400.1	37.27	-8.73	46	50.44	16.03	2.01	31.21	-	-	Peak
750.1	36.36	-9.64	46	41.4	22.4	2.75	30.19	-	-	Peak
933.5	38.63	-7.37	46	41.34	24.32	3.04	30.07	-	-	Peak
2384	39.55	-14.45	54	38.85	32	4.58	35.88	120	20	Average
2384	51.54	-22.46	74	50.84	32	4.58	35.88	120	20	Peak
2437	96.83	-	-	96	32.06	4.61	35.84	120	20	Average
2437	103.22	-	-	102.39	32.06	4.61	35.84	120	20	Peak
2494	42.44	-11.56	54	41.5	32.1	4.64	35.8	120	20	Average
2494	53.69	-20.31	74	52.75	32.1	4.64	35.8	120	20	Peak



<b>Test Mode :</b>	802.11b Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is Fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
58.62	40.1	0.1	40	64.71	6.1	0.86	31.57	136	223	Peak
58.62	38.41	-1.59	40	63.02	6.1	0.86	31.57	136	223	QP
106.68	38.34	-5.16	43.5	57.84	10.9	1.12	31.52	-	-	Peak
250.86	39.37	-6.63	46	55.89	12.73	1.66	30.91	-	-	Peak
400.1	38.05	-7.95	46	51.22	16.03	2.01	31.21	-	-	Peak
750.1	33.69	-12.31	46	38.73	22.4	2.75	30.19	-	-	Peak
933.5	42.72	-3.28	46	45.43	24.32	3.04	30.07	-	-	Peak
2386	42.52	-11.48	54	41.8	32.02	4.58	35.88	100	27	Average
2386	53.13	-20.87	74	52.41	32.02	4.58	35.88	100	27	Peak
2437	99.62	-	-	98.79	32.06	4.61	35.84	100	27	Average
2437	106.13	-	-	105.3	32.06	4.61	35.84	100	27	Peak
2494	43.71	-10.29	54	42.77	32.1	4.64	35.8	100	27	Average
2494	54.6	-19.4	74	53.66	32.1	4.64	35.8	100	27	Peak
4874	43.65	-30.35	74	62.17	33.82	6.54	58.88	100	0	Peak





<b>Test Mode :</b>	802.11b Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2376	38.13	-15.87	54	37.44	32	4.57	35.88	114	229	Average
2376	51.08	-22.92	74	50.39	32	4.57	35.88	114	229	Peak
2462	97.85	-	-	96.99	32.07	4.62	35.83	114	229	Average
2462	104.11	-	-	103.25	32.07	4.62	35.83	114	229	Peak
2493.06	43.07	-10.93	54	42.13	32.1	4.64	35.8	114	229	Average
2493.06	55.86	-18.14	74	54.92	32.1	4.64	35.8	114	229	Peak

<b>Test Mode :</b>	802.11b Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2382	42.46	-11.54	54	41.76	32	4.58	35.88	100	42	Average
2382	55.62	-18.38	74	54.92	32	4.58	35.88	100	42	Peak
2462	101.46	-	-	100.6	32.07	4.62	35.83	100	42	Average
2462	107.79	-	-	106.93	32.07	4.62	35.83	100	42	Peak
2483.66	44.65	-9.35	54	43.73	32.09	4.64	35.81	100	42	Average
2483.66	57.39	-16.61	74	56.47	32.09	4.64	35.81	100	42	Peak
4924	43.24	-30.76	74	61.61	33.81	6.56	58.74	100	0	Peak



<b>Test Mode :</b>	802.11b Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	39.35	-14.65	54	38.61	32.02	4.58	35.86	114	322	Average
2390	51.12	-22.88	74	50.38	32.02	4.58	35.86	114	322	Peak
2412	95.8	-	-	95.04	32.03	4.59	35.86	114	322	Average
2412	101.46	-	-	100.7	32.03	4.59	35.86	114	322	Peak
2496	36.17	-17.83	54	35.23	32.1	4.64	35.8	114	322	Average
2496	49.05	-24.95	74	48.11	32.1	4.64	35.8	114	322	Peak

<b>Test Mode :</b>	802.11b Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.47	44.12	-9.88	54	43.4	32.02	4.58	35.88	122	47	Average
2389.47	56.04	-17.96	74	55.32	32.02	4.58	35.88	122	47	Peak
2412	101.95	-	-	101.19	32.03	4.59	35.86	122	47	Average
2412	108.07	-	-	107.31	32.03	4.59	35.86	122	47	Peak
2490	39.19	-14.81	54	38.26	32.1	4.64	35.81	122	47	Average
2490	51.69	-22.31	74	50.76	32.1	4.64	35.81	122	47	Peak



<b>Test Mode :</b>	802.11b Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
4874	41.21	-32.79	74	59.74	33.82	6.53	58.88	100	0	Peak

<b>Test Mode :</b>	802.11b Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
4874	43.37	-30.63	74	61.89	33.82	6.54	58.88	100	0	Peak



<b>Test Mode :</b>	802.11b Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2340	36.14	-17.86	54	35.5	31.98	4.55	35.89	111	316	Average
2340	49.29	-24.71	74	48.65	31.98	4.55	35.89	111	316	Peak
2462	95.09	-	-	94.23	32.07	4.62	35.83	111	316	Average
2462	101.07	-	-	100.21	32.07	4.62	35.83	111	316	Peak
2484.82	40.82	-13.18	54	39.9	32.09	4.64	35.81	111	316	Average
2484.82	52.97	-21.03	74	52.05	32.09	4.64	35.81	111	316	Peak

<b>Test Mode :</b>	802.11b Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2372	37.61	-16.39	54	36.92	32	4.57	35.88	122	324	Average
2372	50.5	-23.5	74	49.81	32	4.57	35.88	122	324	Peak
2462	100.77	-	-	99.91	32.07	4.62	35.83	122	324	Average
2462	106.81	-	-	105.95	32.07	4.62	35.83	122	324	Peak
2485.66	44.04	-9.96	54	43.12	32.09	4.64	35.81	122	324	Average
2485.66	55.48	-18.52	74	54.56	32.09	4.64	35.81	122	324	Peak



<b>Test Mode :</b>	802.11b MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2348.52	37.37	-16.63	54	36.73	31.98	4.55	35.89	116	34	Average
2348.52	49.57	-24.43	74	48.92	31.99	4.55	35.89	116	34	Peak
2412	96.91	-	-	96.15	32.03	4.59	35.86	116	34	Average
2412	102.85	-	-	102.09	32.03	4.59	35.86	116	34	Peak
2488	36.67	-17.33	54	35.74	32.1	4.64	35.81	116	34	Average
2488	48.09	-25.91	74	47.16	32.1	4.64	35.81	116	34	Peak

<b>Test Mode :</b>	802.11b MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	44.7	-9.3	54	43.96	32.02	4.58	35.86	121	214	Average
2390	57.27	-16.73	74	56.53	32.02	4.58	35.86	121	214	Peak
2412	102.77	-	-	102.01	32.03	4.59	35.86	121	214	Average
2412	108.6	-	-	107.84	32.03	4.59	35.86	121	214	Peak
2498	40.57	-13.43	54	39.63	32.1	4.64	35.8	121	214	Average
2498	52.21	-21.79	74	51.27	32.1	4.64	35.8	121	214	Peak
4824	44.97	-29.03	74	63.65	33.83	6.51	59.02	100	0	Peak



<b>Test Mode :</b>	802.11b MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
32.97	35.11	-4.89	40	48.26	17.76	0.72	31.63	-	-	Peak
106.68	35.78	-7.72	43.5	55.28	10.9	1.12	31.52	-	-	Peak
250.05	37.51	-8.49	46	54.15	12.6	1.66	30.9	-	-	Peak
400.1	42.18	-3.82	46	55.35	16.03	2.01	31.21	-	-	Peak
750.1	36.3	-9.7	46	41.34	22.4	2.75	30.19	-	-	Peak
933.5	42.78	-3.22	46	45.49	24.32	3.04	30.07	100	29	Peak
2384	38.81	-15.19	54	38.11	32	4.58	35.88	117	22	Average
2384	49.14	-24.86	74	48.44	32	4.58	35.88	117	22	Peak
2437	96.2	-	-	95.37	32.06	4.61	35.84	117	22	Average
2437	103.14	-	-	102.31	32.06	4.61	35.84	117	22	Peak
2494	43.52	-10.48	54	42.58	32.1	4.64	35.8	117	22	Average
2494	53.24	-20.76	74	52.3	32.1	4.64	35.8	117	22	Peak



<b>Test Mode :</b>	802.11b MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
31.35	36.04	-3.96	40	47.85	19.12	0.71	31.64	-	-	Peak
58.62	40.06	0.06	40	64.67	6.1	0.86	31.57	100	136	Peak
58.62	38.58	-1.42	40	63.19	6.1	0.86	31.57	100	136	QP
266.79	33.48	-12.52	46	49.57	13.27	1.7	31.06	-	-	Peak
400.1	37.99	-8.01	46	51.16	16.03	2.01	31.21	-	-	Peak
750.1	33.86	-12.14	46	38.9	22.4	2.75	30.19	-	-	Peak
933.5	35.25	-10.75	46	37.96	24.32	3.04	30.07	-	-	Peak
2384	44.68	-9.32	54	43.98	32	4.58	35.88	100	316	Average
2384	54.82	-19.18	74	54.12	32	4.58	35.88	100	316	Peak
2437	99.63	-	-	98.8	32.06	4.61	35.84	100	316	Average
2437	107.53	-	-	106.7	32.06	4.61	35.84	100	316	Peak
2494	44.73	-9.27	54	43.79	32.1	4.64	35.8	100	316	Average
2494	54.22	-19.78	74	53.28	32.1	4.64	35.8	100	316	Peak



<b>Test Mode :</b>	802.11b MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	35.38	-18.62	54	34.64	32.02	4.58	35.86	113	129	Average
2390	46.81	-27.19	74	46.07	32.02	4.58	35.86	113	129	Peak
2462	95.17	-	-	94.31	32.07	4.62	35.83	113	129	Average
2462	101.01	-	-	100.15	32.07	4.62	35.83	113	129	Peak
2484.74	37.4	-16.6	54	36.48	32.09	4.64	35.81	113	129	Average
2484.74	50.89	-23.11	74	49.97	32.09	4.64	35.81	113	129	Peak

<b>Test Mode :</b>	802.11b MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2356	39.06	-14.94	54	38.41	31.99	4.55	35.89	100	329	Average
2356	51.34	-22.66	74	50.69	31.99	4.55	35.89	100	329	Peak
2462	101.18	-	-	100.32	32.07	4.62	35.83	100	329	Average
2462	108.57	-	-	107.71	32.07	4.62	35.83	100	329	Peak
2484.56	43.13	-10.87	54	42.21	32.09	4.64	35.81	100	329	Average
2484.56	54.33	-19.67	74	53.41	32.09	4.64	35.81	100	329	Peak
4924	42.42	-31.58	74	60.79	33.81	6.56	58.74	100	0	Peak





<b>Test Mode :</b>	802.11g Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	40.16	-13.84	54	39.42	32.02	4.58	35.86	118	239	Average
2390	59.45	-14.55	74	58.71	32.02	4.58	35.86	118	239	Peak
2412	86.83	-	-	86.07	32.03	4.59	35.86	118	239	Average
2412	105.28	-	-	104.49	32.04	4.59	35.84	118	239	Peak
2496	38	-16	54	37.06	32.1	4.64	35.8	118	239	Average
2496	51.44	-22.56	74	50.5	32.1	4.64	35.8	118	239	Peak

<b>Test Mode :</b>	802.11g Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	43.69	-10.31	54	42.95	32.02	4.58	35.86	100	33	Average
2390	65.59	-8.41	74	64.85	32.02	4.58	35.86	100	33	Peak
2412	91.11	-	-	90.35	32.03	4.59	35.86	100	33	Average
2412	109.92	-	-	109.16	32.03	4.59	35.86	100	33	Peak
2494	37.55	-16.45	54	36.61	32.1	4.64	35.8	100	33	Average
2494	51.46	-22.54	74	50.52	32.1	4.64	35.8	100	33	Peak
4824	43.8	-30.2	74	62.48	33.83	6.51	59.02	100	0	Peak



<b>Test Mode :</b>	802.11g Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
106.68	36.98	-6.52	43.5	56.48	10.9	1.12	31.52	-	-	Peak
250.05	37.54	-8.46	46	54.18	12.6	1.66	30.9	-	-	Peak
266.79	35.6	-10.4	46	51.69	13.27	1.7	31.06	-	-	Peak
400.1	39.42	-6.58	46	52.59	16.03	2.01	31.21	-	-	Peak
750.1	37.03	-8.97	46	42.07	22.4	2.75	30.19	-	-	Peak
933.5	41.11	-4.89	46	43.82	24.32	3.04	30.07	111	327	Peak
2380	39.27	-14.73	54	38.57	32	4.58	35.88	121	19	Average
2380	52.07	-21.93	74	51.37	32	4.58	35.88	121	19	Peak
2437	86.44	-	-	85.61	32.06	4.61	35.84	121	19	Average
2437	104.68	-	-	103.85	32.06	4.61	35.84	121	19	Peak
2498	41.46	-12.54	54	40.52	32.1	4.64	35.8	121	19	Average
2498	55.38	-18.62	74	54.44	32.1	4.64	35.8	121	19	Peak



<b>Test Mode :</b>	802.11g Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
58.62	40.47	0.47	40	65.08	6.1	0.86	31.57	132	218	Peak
58.62	37.72	-2.28	40	62.33	6.1	0.86	31.57	132	218	QP
98.31	38.43	-5.07	43.5	59.16	9.62	1.09	31.44	-	-	Peak
145.29	37.13	-6.37	43.5	56.02	11.1	1.27	31.26	-	-	Peak
400.1	37.01	-8.99	46	50.18	16.03	2.01	31.21	-	-	Peak
750.1	32.96	-13.04	46	38	22.4	2.75	30.19	-	-	Peak
933.5	41.08	-4.92	46	43.79	24.32	3.04	30.07	-	-	Peak
2378	43.05	-10.95	54	42.36	32	4.57	35.88	100	25	Average
2378	55.45	-18.55	74	54.76	32	4.57	35.88	100	25	Peak
2437	89.79	-	-	88.96	32.06	4.61	35.84	100	25	Average
2437	108.86	-	-	108.03	32.06	4.61	35.84	100	25	Peak
2496	43.08	-10.92	54	42.14	32.1	4.64	35.8	100	25	Average
2496	56.12	-17.88	74	55.18	32.1	4.64	35.8	100	25	Peak
4874	43.41	-30.59	74	61.94	33.82	6.53	58.88	100	0	Peak



<b>Test Mode :</b>	802.11g Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2382	35.91	-18.09	54	35.21	32	4.58	35.88	115	228	Average
2382	48.49	-25.51	74	47.79	32	4.58	35.88	115	228	Peak
2462	86.03	-	-	85.17	32.07	4.62	35.83	115	228	Average
2462	104.19	-	-	103.33	32.07	4.62	35.83	115	228	Peak
2483.54	41.06	-12.94	54	40.14	32.09	4.64	35.81	115	228	Average
2483.54	61.71	-12.29	74	60.79	32.09	4.64	35.81	115	228	Peak

<b>Test Mode :</b>	802.11g Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	37.58	-16.42	54	36.84	32.02	4.58	35.86	122	36	Average
2390	50.55	-23.45	74	49.81	32.02	4.58	35.86	122	36	Peak
2462	89.96	-	-	89.1	32.07	4.62	35.83	122	36	Average
2462	108.61	-	-	107.75	32.07	4.62	35.83	122	36	Peak
2484.56	45.41	-8.59	54	44.49	32.09	4.64	35.81	122	36	Average
2484.56	67.96	-6.04	74	67.04	32.09	4.64	35.81	122	36	Peak
4924	41.23	-32.77	74	59.61	33.81	6.55	58.74	100	0	Peak



<b>Test Mode :</b>	802.11g Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.83	37.2	-16.8	54	36.46	32.02	4.58	35.86	147	32	Average
2389.83	51.65	-22.35	74	50.91	32.02	4.58	35.86	147	32	Peak
2412	84.47	-	-	83.71	32.03	4.59	35.86	147	32	Average
2412	102.57	-	-	101.81	32.03	4.59	35.86	147	32	Peak
2484	35.21	-18.79	54	34.29	32.09	4.64	35.81	147	32	Average
2484	47.9	-26.1	74	46.98	32.09	4.64	35.81	147	32	Peak

<b>Test Mode :</b>	802.11g Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	46.2	-7.8	54	45.46	32.02	4.58	35.86	122	49	Average
2390	65.01	-8.99	74	64.27	32.02	4.58	35.86	122	49	Peak
2412	91.29	-	-	90.53	32.03	4.59	35.86	122	49	Average
2412	110.26	-	-	109.5	32.03	4.59	35.86	122	49	Peak
2490	37.9	-16.1	54	36.97	32.1	4.64	35.81	122	49	Average
2490	51.12	-22.88	74	50.19	32.1	4.64	35.81	122	49	Peak



Test Mode :	802.11g Ant. 2	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Horizontal

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
4874	41.57	-32.43	74	60.1	33.82	6.53	58.88	100	0	Peak

Test Mode :	802.11g Ant. 2	Temperature :	20~22°C
Test Channel :	06	Relative Humidity :	40~42%
Test Engineer :	David Ke	Polarization :	Vertical

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
4874	41.02	-32.98	74	59.55	33.82	6.53	58.88	100	0	Peak



<b>Test Mode :</b>	802.11g Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	35.8	-18.2	54	35.06	32.02	4.58	35.86	110	319	Average
2390	48.05	-25.95	74	47.31	32.02	4.58	35.86	110	319	Peak
2462	84.83	-	-	83.97	32.07	4.62	35.83	110	319	Average
2462	102.88	-	-	102.02	32.07	4.62	35.83	110	319	Peak
2483.56	40.8	-13.2	54	39.88	32.09	4.64	35.81	110	319	Average
2483.56	62.15	-11.85	74	61.23	32.09	4.64	35.81	110	319	Peak

<b>Test Mode :</b>	802.11g Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2374	36.52	-17.48	54	35.83	32	4.57	35.88	121	321	Average
2374	49.46	-24.54	74	48.77	32	4.57	35.88	121	321	Peak
2462	90.09	-	-	89.23	32.07	4.62	35.83	121	321	Average
2462	108.85	-	-	107.99	32.07	4.62	35.83	121	321	Peak
2483.58	45.8	-8.2	54	44.88	32.09	4.64	35.81	121	321	Average
2483.58	68.22	-5.78	74	67.3	32.09	4.64	35.81	121	321	Peak



<b>Test Mode :</b>	802.11g MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.65	36.73	-17.27	54	36.01	32.02	4.58	35.88	107	164	Average
2389.65	49.72	-24.28	74	48.98	32.02	4.58	35.86	107	164	Peak
2412	83.81	-	-	83.05	32.03	4.59	35.86	107	164	Average
2412	101.01	-	-	100.25	32.03	4.59	35.86	107	164	Peak
2484	35.54	-18.46	54	34.62	32.09	4.64	35.81	107	164	Average
2484	47.25	-26.75	74	46.33	32.09	4.64	35.81	107	164	Peak

<b>Test Mode :</b>	802.11g MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	41.82	-12.18	54	41.08	32.02	4.58	35.86	100	323	Average
2390	60.09	-13.91	74	59.35	32.02	4.58	35.86	100	323	Peak
2412	90.2	-	-	89.44	32.03	4.59	35.86	100	323	Average
2412	110.93	-	-	110.14	32.04	4.59	35.84	100	323	Peak
2500	38.49	-15.51	54	37.55	32.1	4.64	35.8	100	323	Average
2500	52.14	-21.86	74	51.2	32.1	4.64	35.8	100	323	Peak
4824	41.6	-32.4	74	60.28	33.83	6.51	59.02	100	0	Peak





<b>Test Mode :</b>	802.11g MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
37.02	35.79	-4.21	40	51.5	15.16	0.74	31.61	-	-	Peak
106.68	36.14	-7.36	43.5	55.64	10.9	1.12	31.52	-	-	Peak
250.05	37.27	-8.73	46	53.91	12.6	1.66	30.9	-	-	Peak
403.6	42.74	-3.26	46	55.8	16.11	2.02	31.19	100	123	Peak
800.5	36.96	-9.04	46	41.84	22.1	2.83	29.81	-	-	Peak
925.8	41.23	-4.77	46	44.17	24.08	3.04	30.06	-	-	Peak
2386	37.78	-16.22	54	37.06	32.02	4.58	35.88	118	17	Average
2386	49.99	-24.01	74	49.27	32.02	4.58	35.88	118	17	Peak
2437	84.86	-	-	84.03	32.06	4.61	35.84	118	17	Average
2437	104.84	-	-	104.01	32.06	4.61	35.84	118	17	Peak
2490	39.4	-14.6	54	38.47	32.1	4.64	35.81	118	17	Average
2490	53.95	-20.05	74	53.02	32.1	4.64	35.81	118	17	Peak



<b>Test Mode :</b>	802.11g MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
32.97	36.34	-3.66	40	49.49	17.76	0.72	31.63	-	-	Peak
58.62	39.98	-0.02	40	64.59	6.1	0.86	31.57	100	141	Peak
58.62	38.68	-1.32	40	63.29	6.1	0.86	31.57	100	141	QP
106.68	38.44	-5.06	43.5	57.94	10.9	1.12	31.52	-	-	Peak
400.1	37.44	-8.56	46	50.61	16.03	2.01	31.21	-	-	Peak
533.1	34.47	-11.53	46	44.56	18.51	2.3	30.9	-	-	Peak
933.5	41.79	-4.21	46	44.5	24.32	3.04	30.07	-	-	Peak
2386	41.36	-12.64	54	40.64	32.02	4.58	35.88	100	53	Average
2386	54.39	-19.61	74	53.67	32.02	4.58	35.88	100	53	Peak
2437	88.18	-	-	87.35	32.06	4.61	35.84	100	53	Average
2437	108.49	-	-	107.66	32.06	4.61	35.84	100	53	Peak
2492	41.33	-12.67	54	40.39	32.1	4.64	35.8	100	53	Average
2492	53.1	-20.9	74	52.16	32.1	4.64	35.8	100	53	Peak



<b>Test Mode :</b>	802.11g MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2368	35.23	-18.77	54	34.55	31.99	4.57	35.88	110	130	Average
2368	47.13	-26.87	74	46.45	31.99	4.57	35.88	110	130	Peak
2462	82.57	-	-	81.71	32.07	4.62	35.83	110	130	Average
2462	101.59	-	-	100.73	32.07	4.62	35.83	110	130	Peak
2483.56	36.59	-17.41	54	35.67	32.09	4.64	35.81	110	130	Average
2483.56	52.85	-21.15	74	51.93	32.09	4.64	35.81	110	130	Peak

<b>Test Mode :</b>	802.11g MIMO Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2386	38.74	-15.26	54	38.02	32.02	4.58	35.88	100	321	Average
2386	51.32	-22.68	74	50.6	32.02	4.58	35.88	100	321	Peak
2462	89.16	-	-	88.3	32.07	4.62	35.83	100	321	Average
2462	109.69	-	-	108.83	32.07	4.62	35.83	100	321	Peak
2483.72	41.44	-12.56	54	40.52	32.09	4.64	35.81	100	321	Average
2483.72	63.96	-10.04	74	63.04	32.09	4.64	35.81	100	321	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	41.26	-12.74	54	40.52	32.02	4.58	35.86	119	238	Average
2390	64.33	-9.67	74	63.59	32.02	4.58	35.86	119	238	Peak
2412	86	-	-	85.24	32.03	4.59	35.86	119	238	Average
2412	105.07	-	-	104.29	32.03	4.59	35.84	119	238	Peak
2486	36.49	-17.51	54	35.57	32.09	4.64	35.81	119	238	Average
2486	50.57	-23.43	74	49.65	32.09	4.64	35.81	119	238	Peak

<b>Test Mode :</b>	802.11n-HT20 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	42.41	-11.59	54	41.67	32.02	4.58	35.86	121	240	Average
2390	66.71	-7.29	74	65.97	32.02	4.58	35.86	121	240	Peak
2412	88.89	-	-	88.13	32.03	4.59	35.86	121	240	Average
2412	107.6	-	-	106.82	32.03	4.59	35.84	121	240	Peak
2488	37.53	-16.47	54	36.6	32.1	4.64	35.81	121	240	Average
2488	51.37	-22.63	74	50.44	32.1	4.64	35.81	121	240	Peak
4824	44.71	-29.29	74	63.39	33.83	6.51	59.02	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
33.24	35.68	-4.32	40	48.83	17.76	0.72	31.63	100	79	Peak
106.68	36.07	-7.43	43.5	55.57	10.9	1.12	31.52	-	-	Peak
250.05	37.01	-8.99	46	53.65	12.6	1.66	30.9	-	-	Peak
400.1	39.62	-6.38	46	52.79	16.03	2.01	31.21	-	-	Peak
750.1	36.61	-9.39	46	41.65	22.4	2.75	30.19	-	-	Peak
933.5	41.39	-4.61	46	44.1	24.32	3.04	30.07	-	-	Peak
2378	38.71	-15.29	54	38.02	32	4.57	35.88	120	52	Average
2378	52.11	-21.89	74	51.42	32	4.57	35.88	120	52	Peak
2437	85.52	-	-	84.69	32.06	4.61	35.84	120	52	Average
2437	104.47	-	-	103.64	32.06	4.61	35.84	120	52	Peak
2490	39.74	-14.26	54	38.81	32.1	4.64	35.81	120	52	Average
2490	53.14	-20.86	74	52.21	32.1	4.64	35.81	120	52	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
58.62	40.03	0.03	40	64.64	6.1	0.86	31.57	125	205	Peak
58.62	38.28	-1.72	40	62.89	6.1	0.86	31.57	125	205	QP
106.68	37.7	-5.8	43.5	57.2	10.9	1.12	31.52	-	-	Peak
145.29	36.43	-7.07	43.5	55.32	11.1	1.27	31.26	-	-	Peak
400.1	38.31	-7.69	46	51.48	16.03	2.01	31.21	-	-	Peak
750.1	32.72	-13.28	46	37.76	22.4	2.75	30.19	-	-	Peak
933.5	42.01	-3.99	46	44.72	24.32	3.04	30.07	-	-	Peak
2386	42.01	-11.99	54	41.29	32.02	4.58	35.88	100	25	Average
2386	55.35	-18.65	74	54.63	32.02	4.58	35.88	100	25	Peak
2437	88.36	-	-	87.53	32.06	4.61	35.84	100	25	Average
2437	107.43	-	-	106.6	32.06	4.61	35.84	100	25	Peak
2492	42.03	-11.97	54	41.09	32.1	4.64	35.8	100	25	Average
2492	55.47	-18.53	74	54.53	32.1	4.64	35.8	100	25	Peak
4874	43.64	-30.36	74	62.16	33.82	6.54	58.88	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2378	36.1	-17.9	54	35.41	32	4.57	35.88	114	240	Average
2378	48.98	-25.02	74	48.29	32	4.57	35.88	114	240	Peak
2462	86.63	-	-	85.77	32.07	4.62	35.83	114	240	Average
2462	105.65	-	-	104.79	32.07	4.62	35.83	114	240	Peak
2483.5	43.5	-10.5	54	42.58	32.09	4.64	35.81	114	240	Average
2483.5	67.84	-6.16	74	66.92	32.09	4.64	35.81	114	240	Peak

<b>Test Mode :</b>	802.11n-HT20 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	38.47	-15.53	54	37.73	32.02	4.58	35.86	100	35	Average
2390	52.23	-21.77	74	51.49	32.02	4.58	35.86	100	35	Peak
2462	88.73	-	-	87.87	32.07	4.62	35.83	100	35	Average
2462	107.98	-	-	107.12	32.07	4.62	35.83	100	35	Peak
2483.54	44.67	-9.33	54	43.75	32.09	4.64	35.81	100	35	Average
2483.54	68.81	-5.19	74	67.89	32.09	4.64	35.81	100	35	Peak
4924	42.76	-31.24	74	61.14	33.81	6.55	58.74	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.92	39.68	-14.32	54	38.94	32.02	4.58	35.86	113	319	Average
2389.92	61.47	-12.53	74	60.73	32.02	4.58	35.86	113	319	Peak
2412	84.97	-	-	84.21	32.03	4.59	35.86	113	319	Average
2412	103.22	-	-	102.44	32.03	4.59	35.84	113	319	Peak
2484	36.19	-17.81	54	35.27	32.09	4.64	35.81	113	319	Average
2484	49.51	-24.49	74	48.59	32.09	4.64	35.81	113	319	Peak

<b>Test Mode :</b>	802.11n-HT20 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	44.86	-9.14	54	44.12	32.02	4.58	35.86	124	139	Average
2390	69.13	-4.87	74	68.39	32.02	4.58	35.86	124	139	Peak
2412	90.01	-	-	89.25	32.03	4.59	35.86	124	139	Average
2412	109.26	-	-	108.48	32.03	4.59	35.84	124	139	Peak
2490	37.24	-16.76	54	36.31	32.1	4.64	35.81	124	139	Average
2490	50.86	-23.14	74	49.93	32.1	4.64	35.81	124	139	Peak





<b>Test Mode :</b>	802.11n-HT20 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
4874	40.87	-33.13	74	59.39	33.82	6.54	58.88	100	0	Peak

<b>Test Mode :</b>	802.11n-HT20 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
4874	40.75	-33.25	74	59.27	33.82	6.54	58.88	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2372	35.76	-18.24	54	35.07	32	4.57	35.88	111	317	Average
2372	48.38	-25.62	74	47.69	32	4.57	35.88	111	317	Peak
2462	84.02	-	-	83.16	32.07	4.62	35.83	111	317	Average
2462	102.63	-	-	101.77	32.07	4.62	35.83	111	317	Peak
2483.52	41.48	-12.52	54	40.56	32.09	4.64	35.81	111	317	Average
2483.52	64.86	-9.14	74	63.94	32.09	4.64	35.81	111	317	Peak

<b>Test Mode :</b>	802.11n-HT20 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2346	36.82	-17.18	54	36.18	31.98	4.55	35.89	123	322	Average
2346	49.69	-24.31	74	49.05	31.98	4.55	35.89	123	322	Peak
2462	88.91	-	-	88.05	32.07	4.62	35.83	123	322	Average
2462	108.17	-	-	107.31	32.07	4.62	35.83	123	322	Peak
2483.56	45.83	-8.17	54	44.91	32.09	4.64	35.81	123	322	Average
2483.56	70.23	-3.77	74	69.31	32.09	4.64	35.81	123	322	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.74	36.99	-17.01	54	36.27	32.02	4.58	35.88	109	165	Average
2389.74	56.4	-17.6	74	55.66	32.02	4.58	35.86	109	165	Peak
2412	82.95	-	-	82.19	32.03	4.59	35.86	109	165	Average
2412	101.23	-	-	100.45	32.03	4.59	35.84	109	165	Peak
2496	35.31	-18.69	54	34.37	32.1	4.64	35.8	109	165	Average
2496	48.68	-25.32	74	47.74	32.1	4.64	35.8	109	165	Peak

<b>Test Mode :</b>	802.11n-HT20 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	01	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2412 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.56	44.34	-9.66	54	43.62	32.02	4.58	35.88	100	210	Average
2389.56	69.72	-4.28	74	68.98	32.02	4.58	35.86	100	210	Peak
2412	89	-	-	88.24	32.03	4.59	35.86	100	210	Average
2412	109.85	-	-	109.07	32.03	4.59	35.84	100	210	Peak
2492	37.17	-16.83	54	36.23	32.1	4.64	35.8	100	210	Average
2492	49.59	-24.41	74	48.65	32.1	4.64	35.8	100	210	Peak
4824	43.11	-30.89	74	61.79	33.83	6.51	59.02	100	0	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
36.75	34.49	-5.51	40	50.2	15.16	0.74	31.61	-	-	Peak
106.68	36.3	-7.2	43.5	55.8	10.9	1.12	31.52	-	-	Peak
266.79	40.92	-5.08	46	57.01	13.27	1.7	31.06	100	96	Peak
400.1	39.92	-6.08	46	53.09	16.03	2.01	31.21	-	-	Peak
750.1	36.48	-9.52	46	41.52	22.4	2.75	30.19	-	-	Peak
927.9	38.78	-7.22	46	41.66	24.14	3.04	30.06	-	-	Peak
2378	37.97	-16.03	54	37.28	32	4.57	35.88	116	18	Average
2378	49.96	-24.04	74	49.27	32	4.57	35.88	116	18	Peak
2437	83.42	-	-	82.59	32.06	4.61	35.84	116	18	Average
2437	104.13	-	-	103.3	32.06	4.61	35.84	116	18	Peak
2498	40.47	-13.53	54	39.53	32.1	4.64	35.8	116	18	Average
2498	53.7	-20.3	74	52.76	32.1	4.64	35.8	116	18	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
34.86	36.16	-3.84	40	50.65	16.4	0.74	31.63	-	-	Peak
58.62	40.72	0.72	40	65.33	6.1	0.86	31.57	100	139	Peak
58.62	38.6	-1.4	40	63.21	6.1	0.86	31.57	100	139	QP
106.68	38.3	-5.2	43.5	57.8	10.9	1.12	31.52	-	-	Peak
400.1	38.72	-7.28	46	51.89	16.03	2.01	31.21	-	-	Peak
533.1	36.69	-9.31	46	46.78	18.51	2.3	30.9	-	-	Peak
933.5	40.93	-5.07	46	43.64	24.32	3.04	30.07	-	-	Peak
2376	41.37	-12.63	54	40.68	32	4.57	35.88	100	51	Average
2376	55.27	-18.73	74	54.58	32	4.57	35.88	100	51	Peak
2437	87	-	-	86.17	32.06	4.61	35.84	100	51	Average
2437	108.33	-	-	107.5	32.06	4.61	35.84	100	51	Peak
2500	40.78	-13.22	54	39.84	32.1	4.64	35.8	100	51	Average
2500	54.37	-19.63	74	53.43	32.1	4.64	35.8	100	51	Peak



<b>Test Mode :</b>	802.11n-HT20 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2384	35.63	-18.37	54	34.93	32	4.58	35.88	145	129	Average
2384	46.95	-27.05	74	46.25	32	4.58	35.88	145	129	Peak
2462	82.83	-	-	81.97	32.07	4.62	35.83	145	129	Average
2462	101.14	-	-	100.28	32.07	4.62	35.83	145	129	Peak
2483.74	36.52	-17.48	54	35.6	32.09	4.64	35.81	145	129	Average
2483.74	56.59	-17.41	74	55.67	32.09	4.64	35.81	145	129	Peak

<b>Test Mode :</b>	802.11n-HT20 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	11	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2462 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2364	38.34	-15.66	54	37.67	31.99	4.57	35.89	100	322	Average
2364	50.69	-23.31	74	50.02	31.99	4.57	35.89	100	322	Peak
2462	89.27	-	-	88.41	32.07	4.62	35.83	100	322	Average
2462	108.86	-	-	108	32.07	4.62	35.83	100	322	Peak
2483.5	42.95	-11.05	54	42.03	32.09	4.64	35.81	100	322	Average
2483.5	67.79	-6.21	74	66.87	32.09	4.64	35.81	100	322	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2422 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
106.68	36.68	-6.82	43.5	56.18	10.9	1.12	31.52	-	-	Peak
250.05	36.98	-9.02	46	53.62	12.6	1.66	30.9	-	-	Peak
266.79	35.29	-10.71	46	51.38	13.27	1.7	31.06	-	-	Peak
400.1	39.41	-6.59	46	52.58	16.03	2.01	31.21	-	-	Peak
908.3	41.92	-4.08	46	45.38	23.54	3.02	30.02	-	-	Peak
933.5	42.03	-3.97	46	44.74	24.32	3.04	30.07	100	291	Peak
2389.02	45.25	-8.75	54	44.53	32.02	4.58	35.88	118	239	Average
2389.02	64.6	-9.4	74	63.88	32.02	4.58	35.88	118	239	Peak
2422	77.87	-	-	77.08	32.04	4.59	35.84	118	239	Average
2422	102.24	-	-	101.43	32.04	4.61	35.84	118	239	Peak
2484	36.8	-17.2	54	35.88	32.09	4.64	35.81	118	239	Average
2484	58.41	-15.59	74	57.49	32.09	4.64	35.81	118	239	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2422 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
58.62	40.25	0.25	40	64.86	6.1	0.86	31.57	135	218	Peak
58.62	38.78	-1.22	40	63.39	6.1	0.86	31.57	135	218	QP
98.31	38.12	-5.38	43.5	58.85	9.62	1.09	31.44	-	-	Peak
183.09	36.73	-6.77	43.5	57.49	8.84	1.41	31.01	-	-	Peak
400.1	37.76	-8.24	46	50.93	16.03	2.01	31.21	-	-	Peak
603.8	34.35	-11.65	46	42.28	20.02	2.43	30.38	-	-	Peak
933.5	39.24	-6.76	46	41.95	24.32	3.04	30.07	-	-	Peak
2387.85	49.73	-4.27	54	49.01	32.02	4.58	35.88	100	34	Average
2387.85	70.92	-3.08	74	70.2	32.02	4.58	35.88	100	34	Peak
2422	80.9	-	-	80.11	32.04	4.59	35.84	100	34	Average
2422	106.31	-	-	105.53	32.03	4.59	35.84	100	34	Peak
2484	36.91	-17.09	54	35.99	32.09	4.64	35.81	100	34	Average
2484	58.91	-15.09	74	57.99	32.09	4.64	35.81	100	34	Peak





<b>Test Mode :</b>	802.11n-HT40 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
33.24	36.9	-3.1	40	50.05	17.76	0.72	31.63	100	71	Peak
106.68	35.95	-7.55	43.5	55.45	10.9	1.12	31.52	-	-	Peak
275.16	39.54	-6.46	46	56.01	12.95	1.72	31.14	-	-	Peak
400.1	39.39	-6.61	46	52.56	16.03	2.01	31.21	-	-	Peak
666.8	37.62	-8.38	46	44.89	20.26	2.61	30.14	-	-	Peak
933.5	42.76	-3.24	46	45.47	24.32	3.04	30.07	-	-	Peak
2390	38.2	-15.8	54	37.46	32.02	4.58	35.86	115	240	Average
2390	57.65	-16.35	74	56.91	32.02	4.58	35.86	115	240	Peak
2437	78.02	-	-	77.19	32.06	4.61	35.84	115	240	Average
2437	102.74	-	-	101.88	32.07	4.62	35.83	115	240	Peak
2484	39.11	-14.89	54	38.19	32.09	4.64	35.81	115	240	Average
2484	62.02	-11.98	74	61.1	32.09	4.64	35.81	115	240	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
58.62	41.69	1.69	40	66.3	6.1	0.86	31.57	100	132	Peak
58.62	38.8	-1.2	40	63.41	6.1	0.86	31.57	100	132	QP
99.12	40.05	-3.45	43.5	60.64	9.76	1.09	31.44	-	-	Peak
250.86	33.88	-12.12	46	50.4	12.73	1.66	30.91	-	-	Peak
400.1	38.3	-7.7	46	51.47	16.03	2.01	31.21	-	-	Peak
608.7	39.82	-6.18	46	47.55	20.17	2.45	30.35	-	-	Peak
754.3	41.64	-4.36	46	46.69	22.35	2.76	30.16	-	-	Peak
2390	40.79	-13.21	54	40.05	32.02	4.58	35.86	100	37	Average
2390	61.85	-12.15	74	61.11	32.02	4.58	35.86	100	37	Peak
2437	80.36	-	-	79.53	32.06	4.61	35.84	100	37	Average
2437	105.64	-	-	104.83	32.04	4.61	35.84	100	37	Peak
2484	39.92	-14.08	54	39	32.09	4.64	35.81	100	37	Average
2484	62.06	-11.94	74	61.14	32.09	4.64	35.81	100	37	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2452 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	37.65	-16.35	54	36.91	32.02	4.58	35.86	115	241	Average
2390	54.48	-19.52	74	53.74	32.02	4.58	35.86	115	241	Peak
2452	78.28	-	-	77.44	32.06	4.61	35.83	115	241	Average
2452	103.35	-	-	102.49	32.07	4.62	35.83	115	241	Peak
2483.64	45.9	-8.1	54	44.98	32.09	4.64	35.81	115	241	Average
2483.64	67.38	-6.62	74	66.46	32.09	4.64	35.81	115	241	Peak

<b>Test Mode :</b>	802.11n-HT40 Ant. 1	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2452 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	40.98	-13.02	54	40.24	32.02	4.58	35.86	100	32	Average
2390	58.26	-15.74	74	57.52	32.02	4.58	35.86	100	32	Peak
2452	79.87	-	-	79.03	32.06	4.61	35.83	100	32	Average
2452	105.47	-	-	104.61	32.07	4.62	35.83	100	32	Peak
2483.6	46.72	-7.28	54	45.8	32.09	4.64	35.81	100	32	Average
2483.6	68.26	-5.74	74	67.34	32.09	4.64	35.81	100	32	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2422 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	41.37	-12.63	54	40.63	32.02	4.58	35.86	106	138	Average
2390	62.03	-11.97	74	61.29	32.02	4.58	35.86	106	138	Peak
2422	78.08	-	-	77.29	32.04	4.59	35.84	106	138	Average
2422	102.91	-	-	102.1	32.04	4.61	35.84	106	138	Peak
2486	36.41	-17.59	54	35.49	32.09	4.64	35.81	106	138	Average
2486	58.16	-15.84	74	57.24	32.09	4.64	35.81	106	138	Peak

<b>Test Mode :</b>	802.11n-HT40 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2422 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	49.14	-4.86	54	48.4	32.02	4.58	35.86	100	324	Average
2390	70.79	-3.21	74	70.05	32.02	4.58	35.86	100	324	Peak
2422	80.92	-	-	80.13	32.04	4.59	35.84	100	324	Average
2422	106.38	-	-	105.6	32.03	4.59	35.84	100	324	Peak
2484	36.98	-17.02	54	36.06	32.09	4.64	35.81	100	324	Average
2484	59.97	-14.03	74	59.05	32.09	4.64	35.81	100	324	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	35.86	-18.14	54	35.12	32.02	4.58	35.86	110	135	Average
2390	56.1	-17.9	74	55.36	32.02	4.58	35.86	110	135	Peak
2437	77.05	-	-	76.22	32.06	4.61	35.84	110	135	Average
2437	101.65	-	-	100.84	32.04	4.61	35.84	110	135	Peak
2484	37.34	-16.66	54	36.42	32.09	4.64	35.81	110	135	Average
2484	61.55	-12.45	74	60.63	32.09	4.64	35.81	110	135	Peak

<b>Test Mode :</b>	802.11n-HT40 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	40.52	-13.48	54	39.78	32.02	4.58	35.86	100	329	Average
2390	65.76	-8.24	74	65.02	32.02	4.58	35.86	100	329	Peak
2437	79.84	-	-	79.01	32.06	4.61	35.84	100	329	Average
2437	104.15	-	-	103.36	32.04	4.59	35.84	100	329	Peak
2488	39.2	-14.8	54	38.27	32.1	4.64	35.81	100	329	Average
2488	63.04	-10.96	74	62.11	32.1	4.64	35.81	100	329	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2452 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2388	35.63	-18.37	54	34.91	32.02	4.58	35.88	104	159	Average
2388	52.7	-21.3	74	51.98	32.02	4.58	35.88	104	159	Peak
2452	76.05	-	-	75.21	32.06	4.61	35.83	104	159	Average
2452	100.86	-	-	100.02	32.06	4.61	35.83	104	159	Peak
2485.34	39.34	-14.66	54	38.42	32.09	4.64	35.81	104	159	Average
2485.34	62.27	-11.73	74	61.34	32.1	4.64	35.81	104	159	Peak

<b>Test Mode :</b>	802.11n-HT40 Ant. 2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2452 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	41.36	-12.64	54	40.62	32.02	4.58	35.86	100	326	Average
2390	62.62	-11.38	74	61.88	32.02	4.58	35.86	100	326	Peak
2452	79.53	-	-	78.69	32.06	4.61	35.83	100	326	Average
2452	105.2	-	-	104.36	32.06	4.61	35.83	100	326	Peak
2483.5	45.68	-8.32	54	44.76	32.09	4.64	35.81	100	326	Average
2483.5	69.14	-4.86	74	68.22	32.09	4.64	35.81	100	326	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2422 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	40.51	-13.49	54	39.77	32.02	4.58	35.86	105	161	Average
2390	62.04	-11.96	74	61.3	32.02	4.58	35.86	105	161	Peak
2422	76.38	-	-	75.59	32.04	4.59	35.84	105	161	Average
2422	101.11	-	-	100.32	32.04	4.59	35.84	105	161	Peak
2488	35.22	-18.78	54	34.29	32.1	4.64	35.81	105	161	Average
2488	53	-21	74	52.07	32.1	4.64	35.81	105	161	Peak

<b>Test Mode :</b>	802.11n-HT40 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	03	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2422 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2389.2	47.46	-6.54	54	46.74	32.02	4.58	35.88	100	320	Average
2389.2	70.74	-3.26	74	70	32.02	4.58	35.86	100	320	Peak
2422	80.45	-	-	79.66	32.04	4.59	35.84	100	320	Average
2422	107.77	-	-	107.01	32.03	4.59	35.86	100	320	Peak
2484	37.85	-16.15	54	36.93	32.09	4.64	35.81	100	320	Average
2484	61.6	-12.4	74	60.68	32.09	4.64	35.81	100	320	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level ( dBμV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
32.97	36.58	-3.42	40	49.73	17.76	0.72	31.63	100	62	Peak
106.68	35.64	-7.86	43.5	55.14	10.9	1.12	31.52	-	-	Peak
266.79	35.88	-10.12	46	51.97	13.27	1.7	31.06	-	-	Peak
400.1	39.9	-6.1	46	53.07	16.03	2.01	31.21	-	-	Peak
666.8	38.53	-7.47	46	45.8	20.26	2.61	30.14	-	-	Peak
933.5	42.17	-3.83	46	44.88	24.32	3.04	30.07	-	-	Peak
2390	36.22	-17.78	54	35.48	32.02	4.58	35.86	106	159	Average
2390	54.68	-19.32	74	53.94	32.02	4.58	35.86	106	159	Peak
2437	76.27	-	-	75.44	32.06	4.61	35.84	106	159	Average
2437	101.68	-	-	100.89	32.04	4.59	35.84	106	159	Peak
2500	35.56	-18.44	54	34.62	32.1	4.64	35.8	106	159	Average
2500	56.02	-17.98	74	55.08	32.1	4.64	35.8	106	159	Peak





<b>Test Mode :</b>	802.11n-HT40 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	06	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2437 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBμV/m )	Over Limit ( dB )	Limit Line ( dBμV/m )	Read Level (dBμV)	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
32.97	36.91	-3.09	40	50.06	17.76	0.72	31.63	-	-	Peak
58.62	41.15	1.15	40	65.76	6.1	0.86	31.57	100	134	Peak
58.62	38.67	-1.33	40	63.28	6.1	0.86	31.57	100	134	QP
266.79	28.72	-17.28	46	44.81	13.27	1.7	31.06	-	-	Peak
400.1	38.09	-7.91	46	51.26	16.03	2.01	31.21	-	-	Peak
750.1	33.42	-12.58	46	38.46	22.4	2.75	30.19	-	-	Peak
933.5	42.31	-3.69	46	45.02	24.32	3.04	30.07	-	-	Peak
2390	40.76	-13.24	54	40.02	32.02	4.58	35.86	100	323	Average
2390	64.25	-9.75	74	63.51	32.02	4.58	35.86	100	323	Peak
2437	80	-	-	79.17	32.06	4.61	35.84	100	323	Average
2437	107.26	-	-	106.45	32.04	4.61	35.84	100	323	Peak
2484	38.82	-15.18	54	37.9	32.09	4.64	35.81	100	323	Average
2484	65.15	-8.85	74	64.23	32.09	4.64	35.81	100	323	Peak



<b>Test Mode :</b>	802.11n-HT40 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Horizontal
<b>Remark :</b>	2452 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2384	36	-18	54	35.26	32.02	4.58	35.86	110	135	Average
2384	51.02	-22.98	74	50.32	32	4.58	35.88	110	135	Peak
2452	77.3	-	-	76.46	32.06	4.61	35.83	110	135	Average
2452	101.72	-	-	100.88	32.06	4.61	35.83	110	135	Peak
2483.66	41.64	-12.36	54	40.72	32.09	4.64	35.81	110	135	Average
2483.66	65.86	-8.14	74	64.94	32.09	4.64	35.81	110	135	Peak

<b>Test Mode :</b>	802.11n-HT40 Ant. 1+2	<b>Temperature :</b>	20~22°C
<b>Test Channel :</b>	09	<b>Relative Humidity :</b>	40~42%
<b>Test Engineer :</b>	David Ke	<b>Polarization :</b>	Vertical
<b>Remark :</b>	2452 MHz is fundamental signal which can be ignored.		

Frequency ( MHz )	Level ( dBµV/m )	Over Limit ( dB )	Limit Line ( dBµV/m )	Read Level ( dBµV )	Antenna Factor ( dB )	Cable Loss ( dB )	Preamp Factor ( dB )	Ant Pos ( cm )	Table Pos ( deg )	Remark
2390	39.79	-14.21	54	39.05	32.02	4.58	35.86	100	329	Average
2390	59.9	-14.1	74	59.16	32.02	4.58	35.86	100	329	Peak
2452	79.68	-	-	78.84	32.06	4.61	35.83	100	329	Average
2452	106.48	-	-	105.64	32.06	4.61	35.83	100	329	Peak
2483.7	46.32	-7.68	54	45.4	32.09	4.64	35.81	100	329	Average
2483.7	70.14	-3.86	74	69.22	32.09	4.64	35.81	100	329	Peak

### 3.6 AC Conducted Emission Measurement

#### 3.6.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 KHz to 30 MHz shall not exceed the limits in the following table.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-Peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

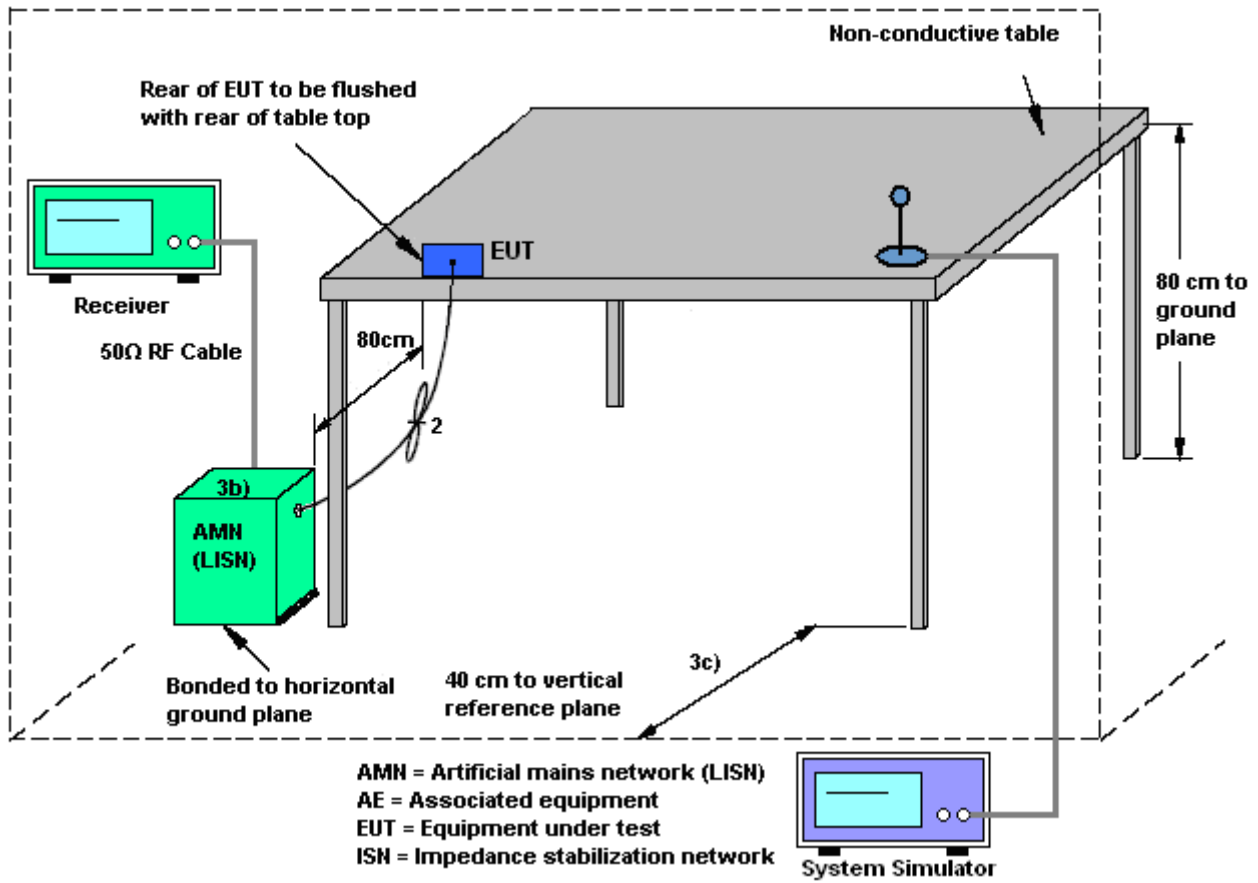
#### 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

#### 3.6.3 Test Procedures

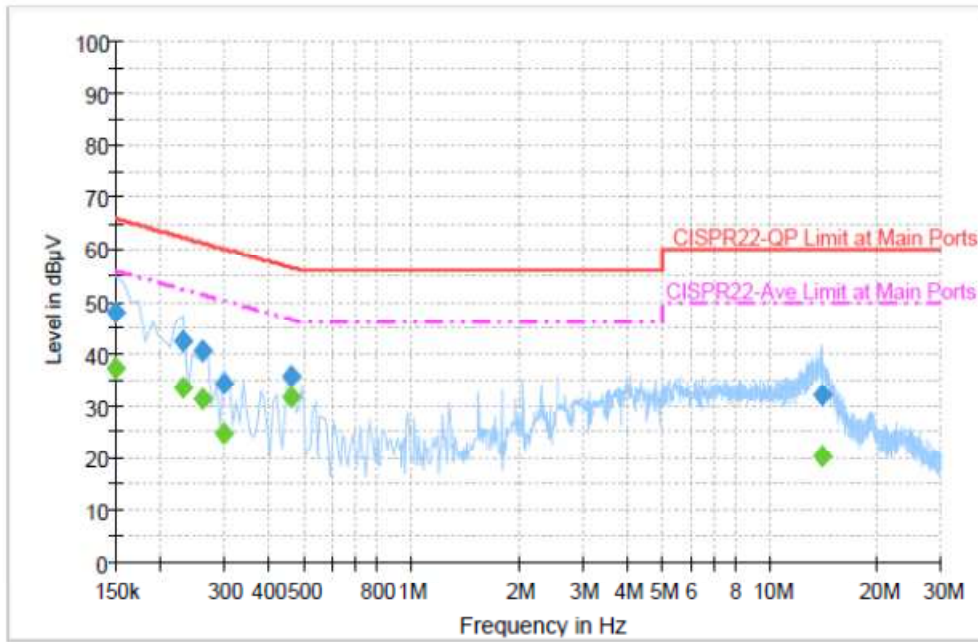
1. The testing follows the guidelines in ANSI C63.10-2009 and fulfills ANSI C63.4-2003 test site requirement.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room, and it was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 KHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

### 3.6.4 Test Setup



3.6.5 Test Result of AC Conducted Emission

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	46~47%
Test Voltage :	120Vac / 60Hz	Phase :	Line
Function Type :	GSM850 Idle + WLAN (2.4G) Link + RJ-45 + RJ-11		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



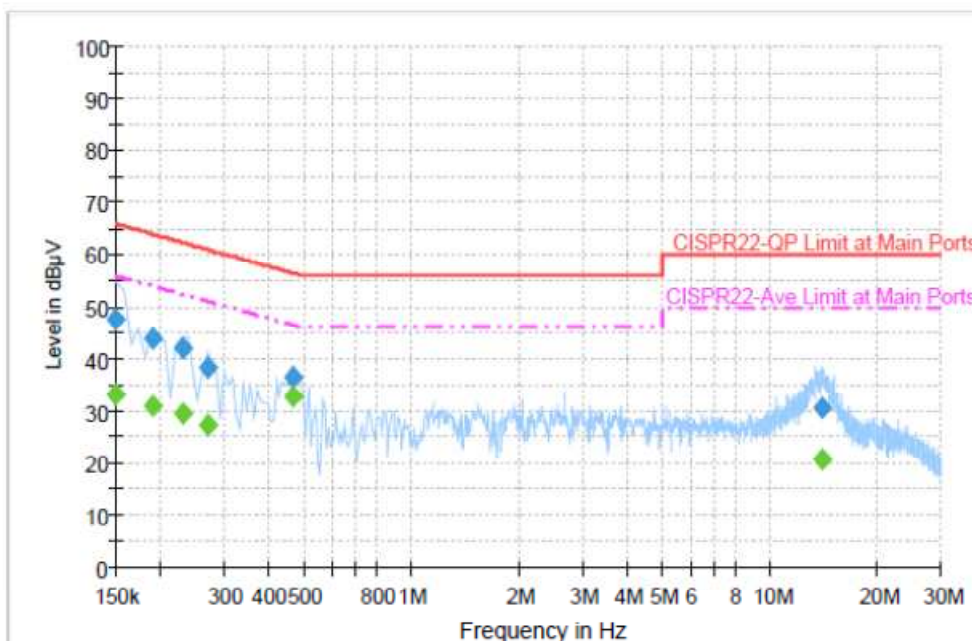
Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	47.9	Off	L1	19.4	18.1	66.0
0.230000	42.3	Off	L1	19.4	20.1	62.4
0.262000	40.6	Off	L1	19.4	20.8	61.4
0.302000	34.4	Off	L1	19.4	25.8	60.2
0.462000	35.8	Off	L1	19.4	20.9	56.7
13.982000	31.9	Off	L1	19.6	28.1	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	37.4	Off	L1	19.4	18.6	56.0
0.230000	33.4	Off	L1	19.4	19.0	52.4
0.262000	31.4	Off	L1	19.4	20.0	51.4
0.302000	24.7	Off	L1	19.4	25.5	50.2
0.462000	31.6	Off	L1	19.4	15.1	46.7
13.982000	20.2	Off	L1	19.6	29.8	50.0

Test Mode :	Mode 1	Temperature :	21~22°C
Test Engineer :	Kai-Chun Chu	Relative Humidity :	46~47%
Test Voltage :	120Vac / 60Hz	Phase :	Neutral
Function Type :	GSM850 Idle + WLAN (2.4G) Link + RJ-45 + RJ-11		
Remark :	All emissions not reported here are more than 10 dB below the prescribed limit.		



Final Result : QuasiPeak

Frequency (MHz)	QuasiPeak (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	47.5	Off	N	19.4	18.5	66.0
0.190000	44.0	Off	N	19.4	20.0	64.0
0.230000	42.1	Off	N	19.5	20.3	62.4
0.270000	38.4	Off	N	19.4	22.7	61.1
0.470000	36.6	Off	N	19.4	19.9	56.5
13.974000	30.6	Off	N	19.7	29.4	60.0

Final Result : Average

Frequency (MHz)	Average (dBµV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	33.2	Off	N	19.4	22.8	56.0
0.190000	30.9	Off	N	19.4	23.1	54.0
0.230000	29.6	Off	N	19.5	22.8	52.4
0.270000	27.4	Off	N	19.4	23.7	51.1
0.470000	32.8	Off	N	19.4	13.7	46.5
13.974000	20.5	Off	N	19.7	29.5	50.0

### 3.7 Antenna Requirements

#### 3.7.1 Standard Applicable

If directional gain of transmitting Antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. For the fixed point-to-point operation, the power shall be reduced by one dB for every 3 dB that the directional gain of the Antenna exceeds 6 dBi. The use of a permanently attached Antenna or of an Antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

#### 3.7.2 Antenna Connected Construction

Non-standard connector used.

#### 3.7.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit. The EUT supports completely correlated MIMO mode for MCS 0~7. The composite antenna gain for 2.4GHz is 5.01 dBi as following table.

	2.4GHz
ANT. 1 GAIN (dBi)	2
ANT. 2 GAIN (dBi)	2
COMPOSITE GAIN (dBi)	5.01

FCC KDB 662911 D01 Multiple Transmitter Output v01r01

Unequal antenna gains, with equal transmit powers.

For antenna gains given by  $G_1, G_2, \dots, G_N$  dBi.

If transmit signals are *correlated*, then

Directional gain =  $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})/N]$  dBi



## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Test Date	Due Date	Remark
Spectrum Analyzer	R&S	FSP40	100055	9kHz~40GHz	Jun. 13, 2011	May 15, 2012 ~ Jun. 07, 2012	Jun. 12, 2012	Conducted (TH02-HY)
Power Meter	Anritsu	ML2495A	0932001	N/A	Sep. 18, 2011	May 15, 2012 ~ Jun. 07, 2012	Sep. 17, 2012	Conducted (TH02-HY)
Power Sensor	Anritsu	MA2411B	0846202	N/A	Sep. 18, 2011	May 15, 2012 ~ Jun. 07, 2012	Sep. 17, 2012	Conducted (TH02-HY)
EMI Test Receiver	R&S	ESCS 30	100356	9KHz ~ 2.75GHz	Oct. 27, 2011	May 17, 2012	Oct. 26, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9KHz ~ 30MHz	Dec. 09, 2011	May 17, 2012	Dec. 08, 2012	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9KHz ~ 30MHz	Dec. 06, 2011	May 17, 2012	Dec. 05, 2012	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	May 17, 2012	N/A	Conduction (CO05-HY)
System Simulator	R&S	CMU200	117995	N/A	Jul. 28, 2011	May 17, 2012	Jul. 27, 2013	Conduction (CO05-HY)
Spectrum Analyzer	R&S	ESU26	100390	20Hz ~ 26.5GHz	Dec. 22, 2011	Jun. 09, 2012 ~ Jul. 24, 2012	Dec. 21, 2012	Radiation (03CH05-HY)
Bilog Antenna	SCHAFFNER	CBL6111C	2725	30MHz ~ 2GHz	Oct. 22, 2011	Jun. 09, 2012 ~ Jul. 24, 2012	Oct. 21, 2012	Radiation (03CH05-HY)
Turn Table	HD	Deis HD 2000	420/611	0 ~ 360 degree	N/A	Jun. 09, 2012 ~ Jul. 24, 2012	N/A	Radiation (03CH05-HY)
Antenna Mast	HD	MA 240	240/666	1 m ~ 4 m	N/A	Jun. 09, 2012 ~ Jul. 24, 2012	N/A	Radiation (03CH05-HY)
Horn Antenna	ESCO	3117	66584	1GHz ~ 18GHz	Aug. 04, 2011	Jun. 09, 2012 ~ Jul. 24, 2012	Aug. 03, 2012	Radiation (03CH05-HY)
Pre Amplifier	COM-POWER	PA-103A	161075	10Hz ~ 1000MHz Gain:32dB	Feb. 27, 2012	Jun. 09, 2012 ~ Jul. 24, 2012	Feb. 26, 2013	Radiation (03CH05-HY)
Pre Amplifier	MITEQ	AMF-7D-0010 1800-30-10P	159087	1GHz~18GHz	Feb. 27, 2012	Jun. 09, 2012 ~ Jul. 24, 2012	Feb. 26, 2013	Radiation (03CH05-HY)
Pre Amplifier	Agilent	8449B	3008A019 17	1GHz~26.5GHz	Aug. 30, 2011	Jun. 09, 2012 ~ Jul. 24, 2012	Aug. 29, 2012	Radiation (03CH05-HY)
SHF-EHF Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA9170 251	15GHz ~ 40GHz	Oct. 21, 2011	Jun. 09, 2012 ~ Jul. 24, 2012	Oct. 20, 2012	Radiation (03CH05-HY)
Loop Antenna	R&S	HFH2-Z2	860004/00 1	9 kHz~30 MHz	Jul. 29, 2010	Jun. 09, 2012 ~ Jul. 24, 2012	Jul. 28, 2012	Radiation (03CH05-HY)





## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150KHz ~ 30MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.26
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### Uncertainty of Radiated Emission Measurement (30MHz ~ 1000MHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	2.54
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### Uncertainty of Radiated Emission Measurement (1GHz ~ 40GHz)

Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))	4.72
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## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP250708 as below.