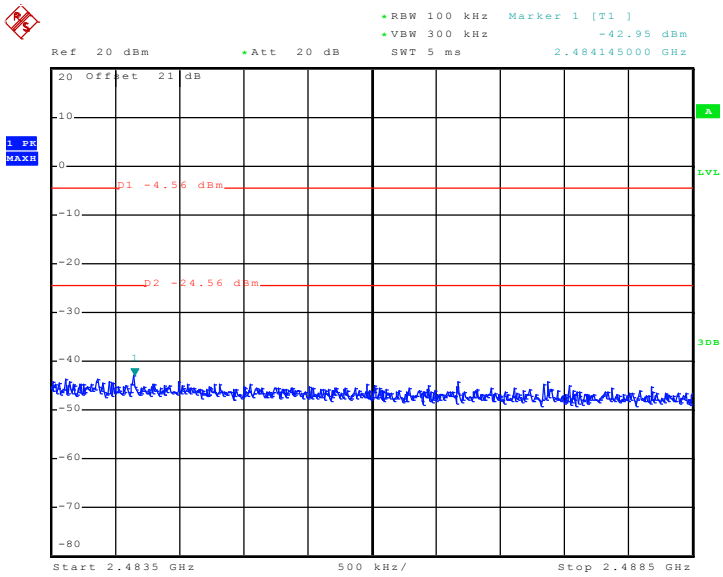
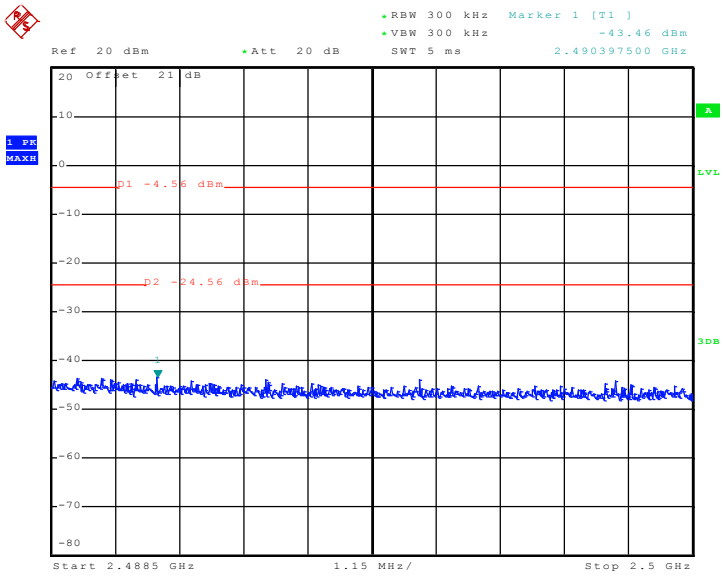
**High Band Edge Plot on 802.11n (BW 40MHz) Channel 09 - Chain B**

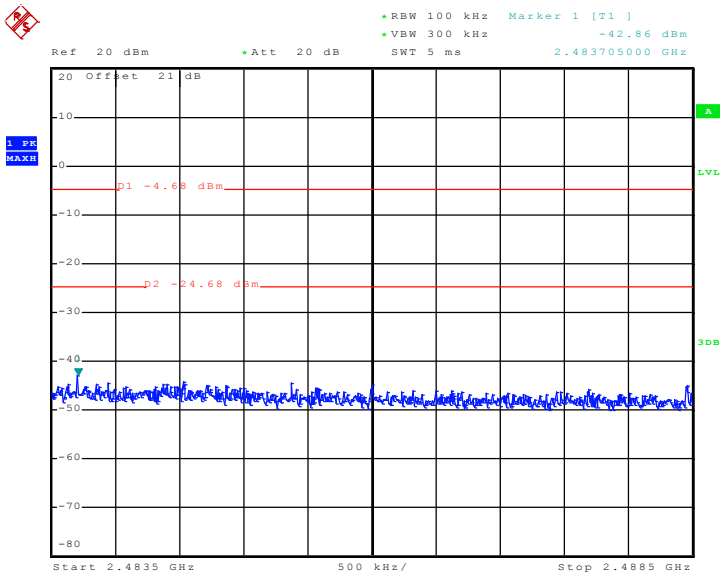



Date: 22.APR.2011 23:07:58

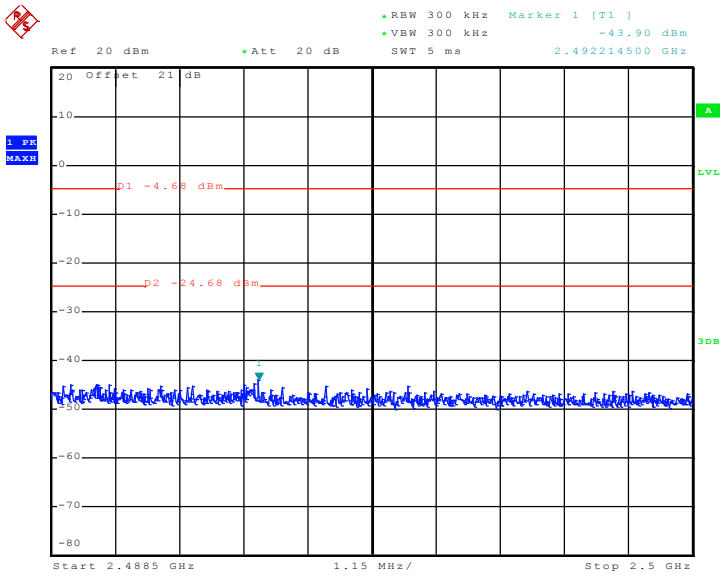



Date: 22.APR.2011 23:08:20

## High Band Edge Plot on 802.11n (BW 40MHz) Channel 09 - Chain C



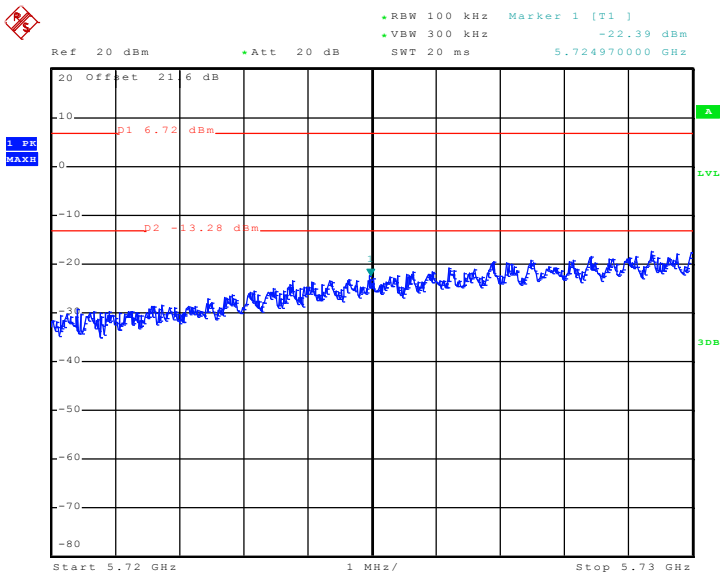

Date: 22.APR.2011 21:47:12




Date: 22.APR.2011 21:47:34

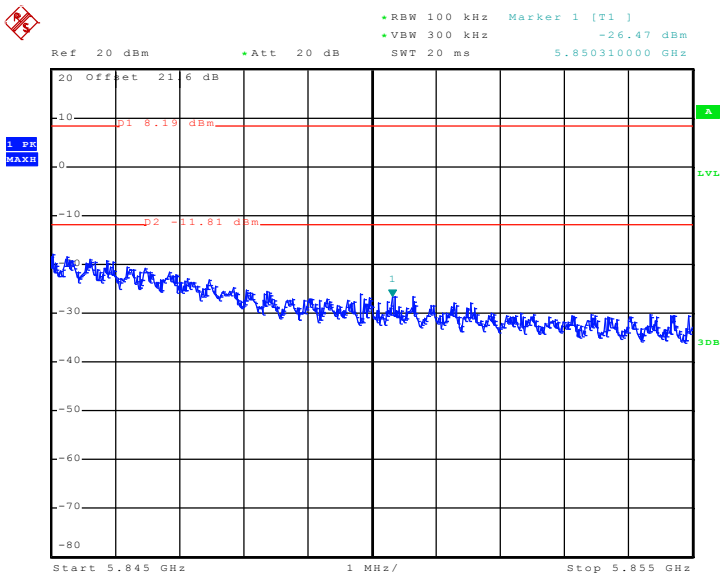
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 13 and 15 | **Temperature :** | 24~26℃ |
| **Test Band :** | 802.11a | **Relative Humidity :** | 40~44% |
| **Test Channel :** | 149 and 165 | **Test Engineer :** | Alan Liu |

**Low Band Edge Plot on 802.11a Channel 149 - Chain A**




Date: 23.APR.2011 13:16:00

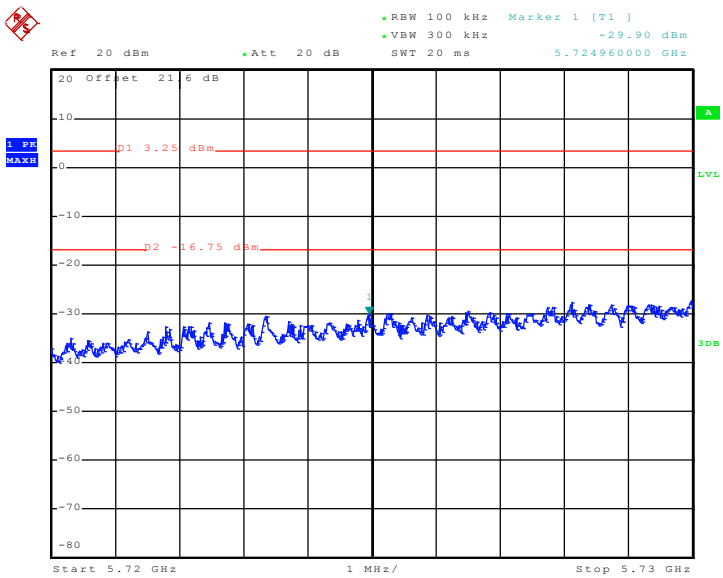
**High Band Edge Plot on 802.11a Channel 165 - Chain A**




Date: 23.APR.2011 13:53:44

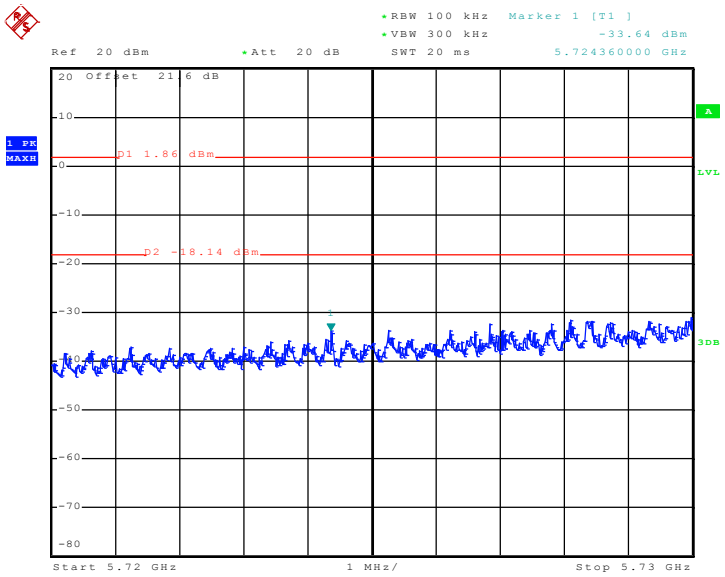
| Test Mode : | Mode 16 and 18 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Band : | 802.11n (BW 20MHz) | Relative Humidity : | 40~44% |
| Test Channel : | 149 and 165 | Test Engineer : | Alan Liu |

**Low Band Edge Plot on 802.11n (BW 20MHz) Channel 149 - Chain A**



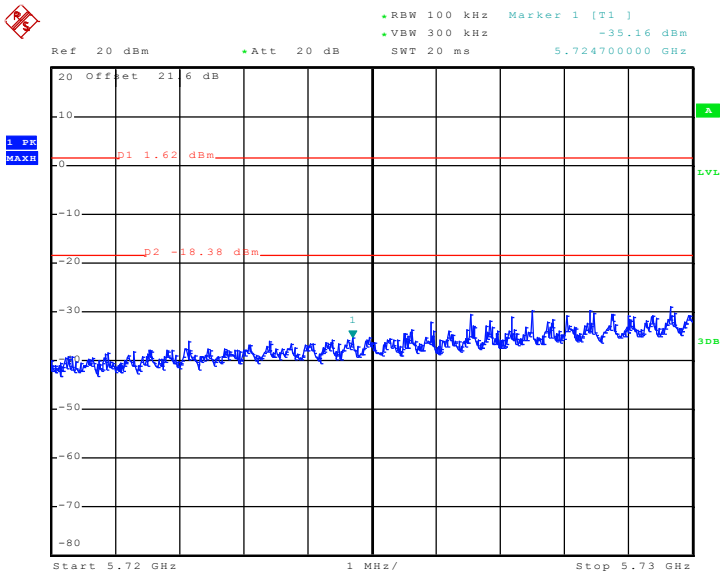

Date: 23.APR.2011 15:05:01

**Low Band Edge Plot on 802.11n (BW 20MHz) Channel 149 - Chain B**



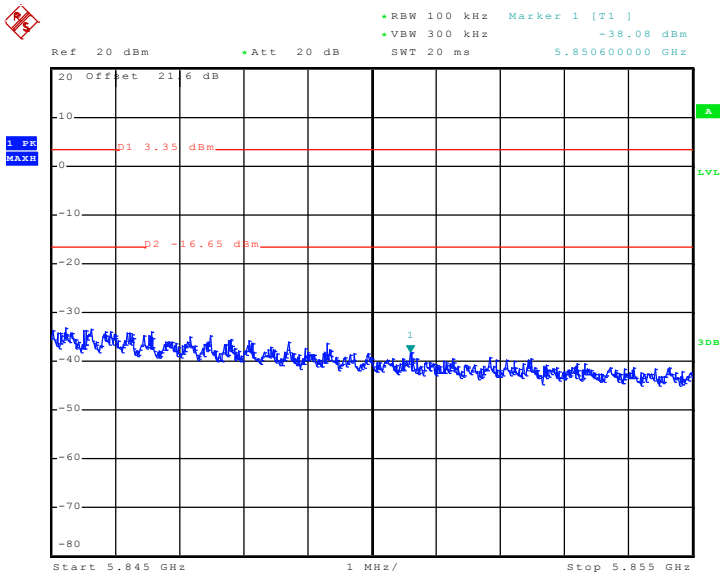

Date: 23.APR.2011 15:20:49

**Low Band Edge Plot on 802.11n (BW 20MHz) Channel 149 - Chain C**



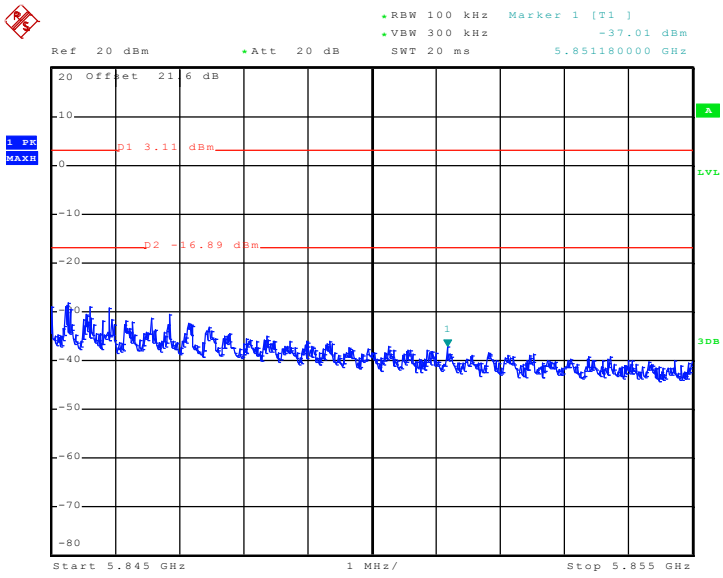

Date: 23.APR.2011 15:38:36

**High Band Edge Plot on 802.11n (BW 20MHz) Channel 165 - Chain A**



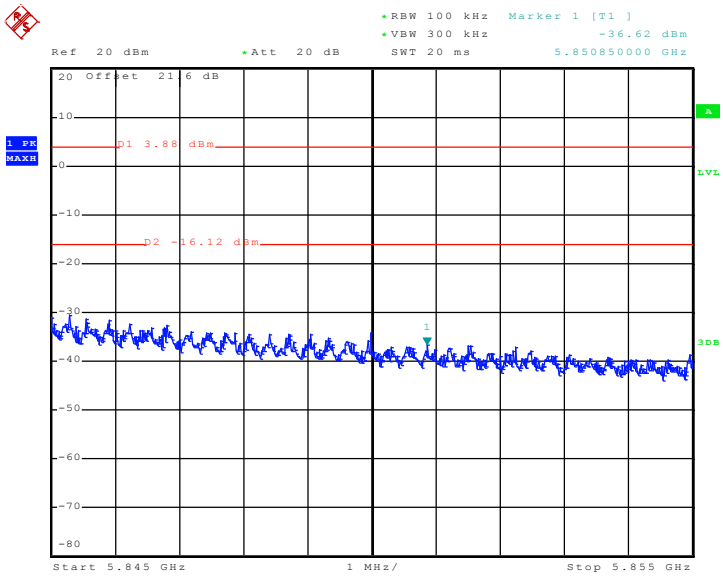

Date: 23.APR.2011 17:11:38

**High Band Edge Plot on 802.11n (BW 20MHz) Channel 165 - Chain B**




Date: 23.APR.2011 17:35:14

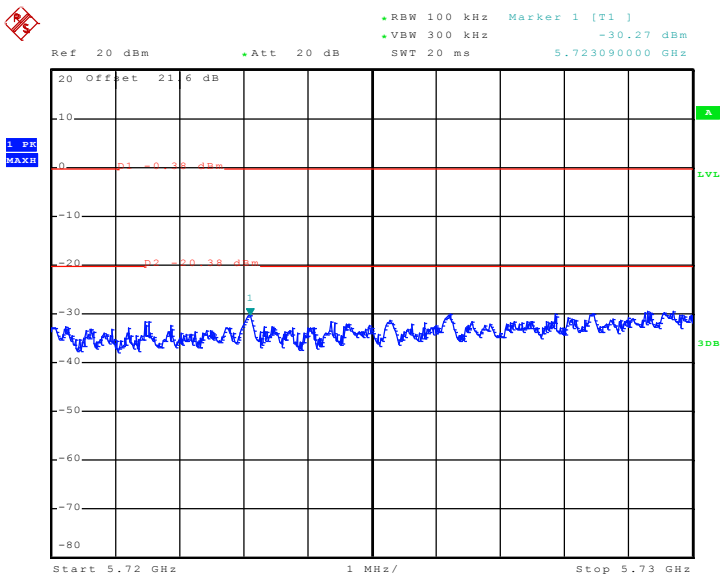
**High Band Edge Plot on 802.11n (BW 20MHz) Channel 165 - Chain C**




Date: 23.APR.2011 21:09:34

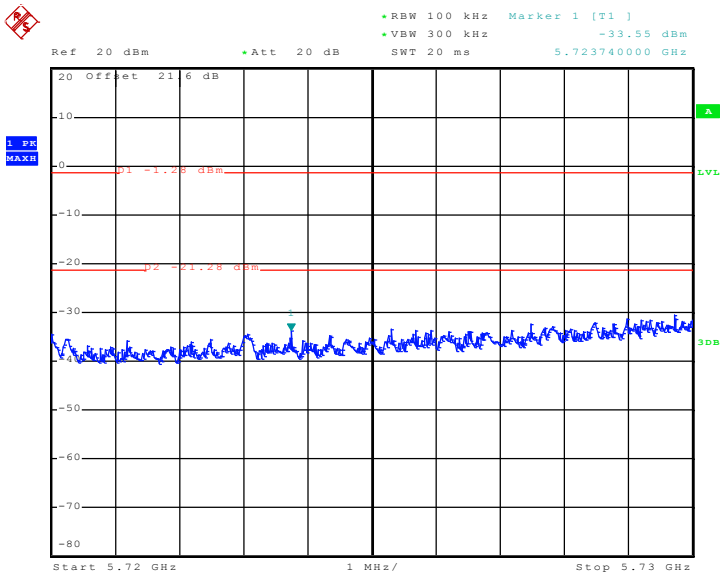
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 19 and 20 | **Temperature :** | 24~26℃ |
| **Test Band :** | 802.11n (BW 40MHz) | **Relative Humidity :** | 40~44% |
| **Test Channel :** | 151 and 159 | **Test Engineer :** | Alan Liu |

**Low Band Edge Plot on 802.11n (BW 40MHz) Channel 151 - Chain A**



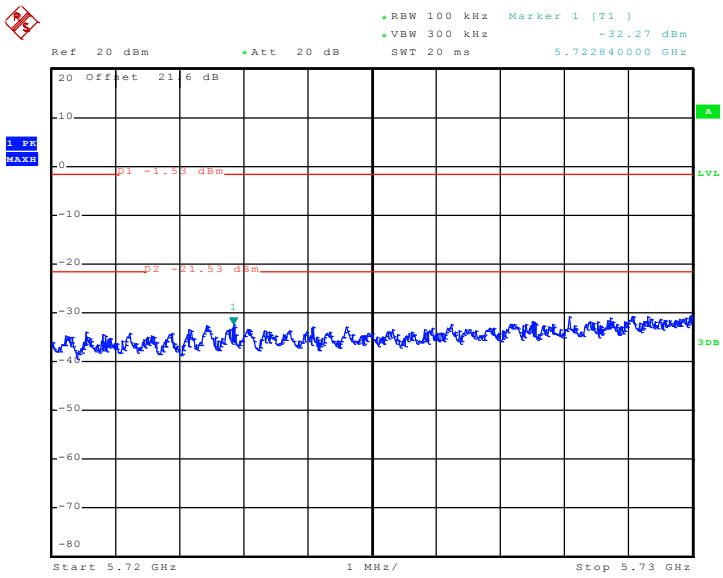

Date: 23.APR.2011 19:41:00

**Low Band Edge Plot on 802.11n (BW 40MHz) Channel 151 - Chain B**



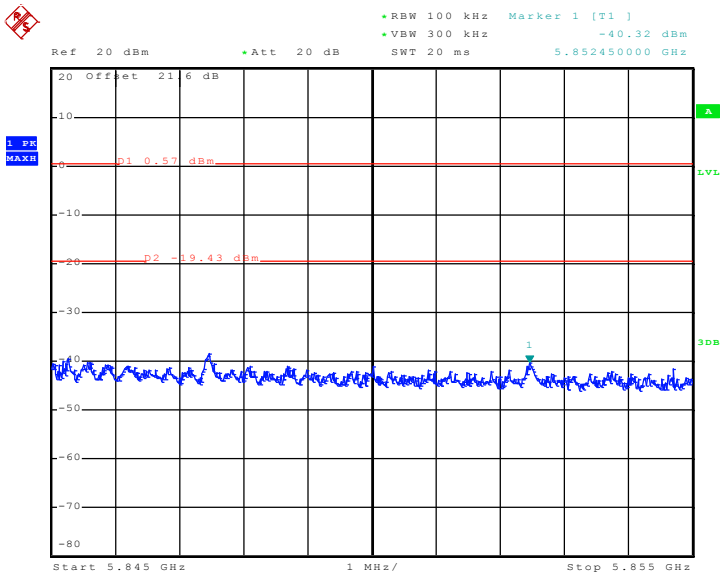

Date: 23.APR.2011 19:15:10

**Low Band Edge Plot on 802.11n (BW 40MHz) Channel 151 - Chain C**



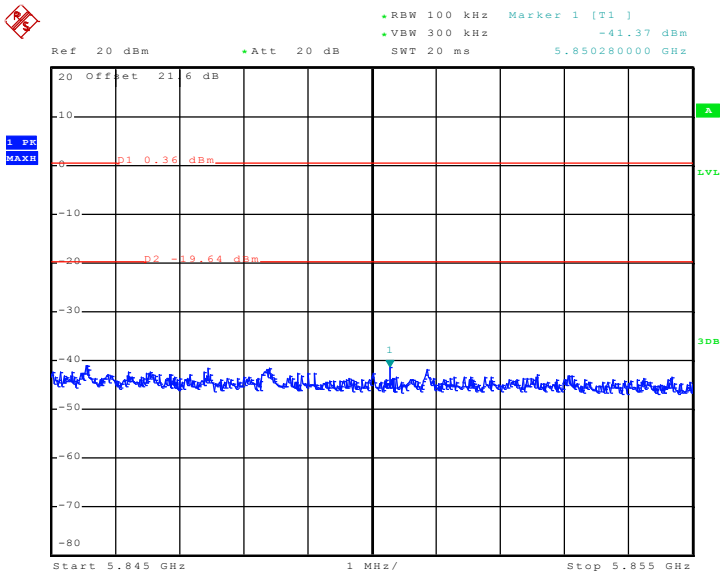

Date: 23.APR.2011 18:54:02

**High Band Edge Plot on 802.11n (BW 40MHz) Channel 159 - Chain A**



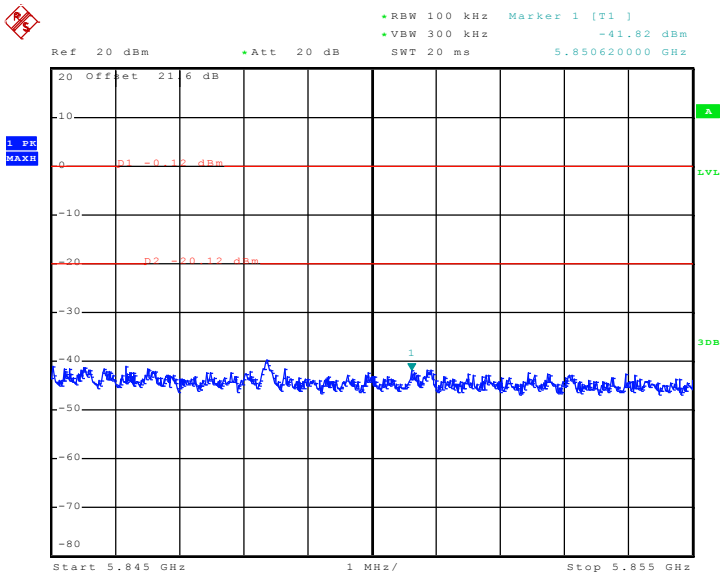

Date: 23.APR.2011 20:06:13

**High Band Edge Plot on 802.11n (BW 40MHz) Channel 159 - Chain B**




Date: 23.APR.2011 20:27:13

**High Band Edge Plot on 802.11n (BW 40MHz) Channel 159 – Chain C**




Date: 23.APR.2011 20:50:44

# 3.4 Spurious Emission Measurement

## 3.4.1 Limit of Spurious Emission Measurement

All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band.

## 3.4.2 Measuring Instruments

See list of measuring instruments of this test report.

## 3.4.3 Test Procedure

1. The transmitter output was connected to the spectrum analyzer via a low lose cable.
2. Set RBW = 100 kHz, Video bandwidth (VBW) > RBW, scan up through 10th harmonic. All harmonics/spurs must be at least 20 dB down from the highest emission level within the authorized band as measured with a 100 kHz RBW.

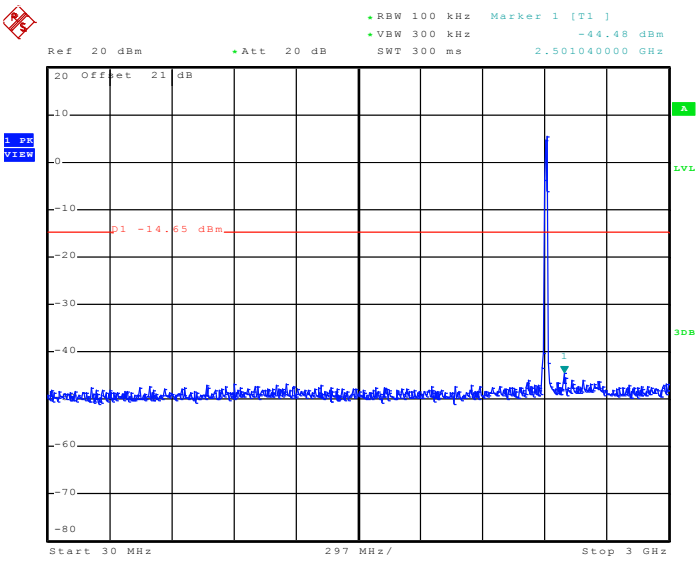
## 3.4.4 Test Setup

### 3.4.5 Test Result

| Test Mode : | Mode 1~3 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Band : | 802.11b | Relative Humidity : | 40~44% |
| Test Channel : | 01, 06, 11 | Test Engineer : | Alan Liu |

**Conducted Spurious Emission Plot on 802.11b Channel 01**

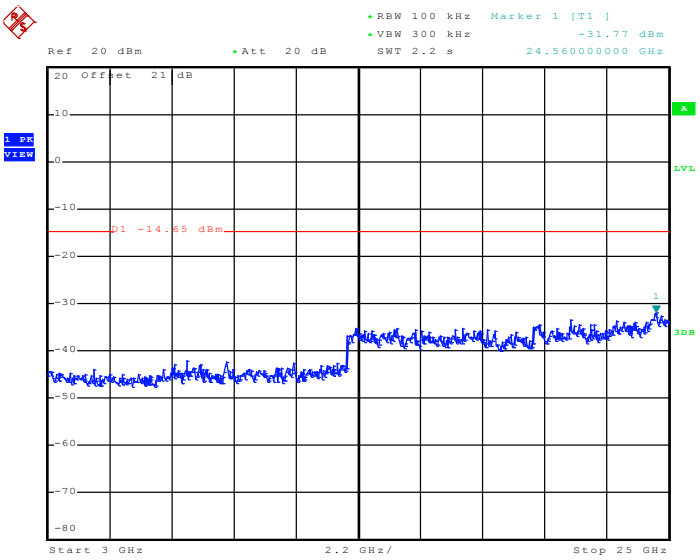
**between 30 MHz~3 GHz - Chain A**




Date: 16.APR.2011 19:08:43

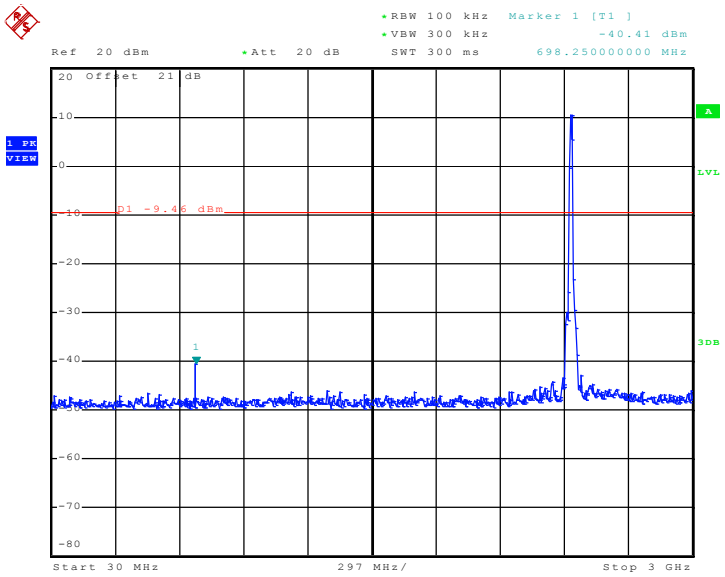
**Conducted Spurious Emission Plot on 802.11b Channel 01**

**between 3 GHz~25 GHz - Chain A**



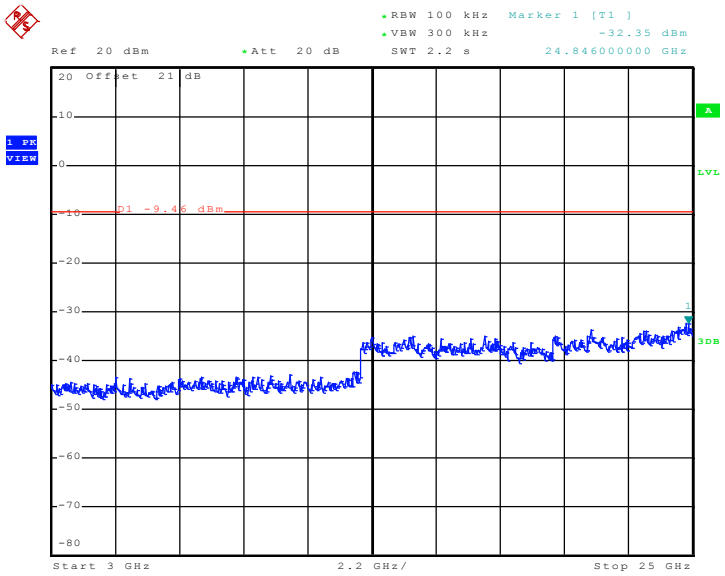

Date: 16.APR.2011 19:09:01

**Conducted Spurious Emission Plot on 802.11b Channel 06 between 30 MHz~3 GHz - Chain A**



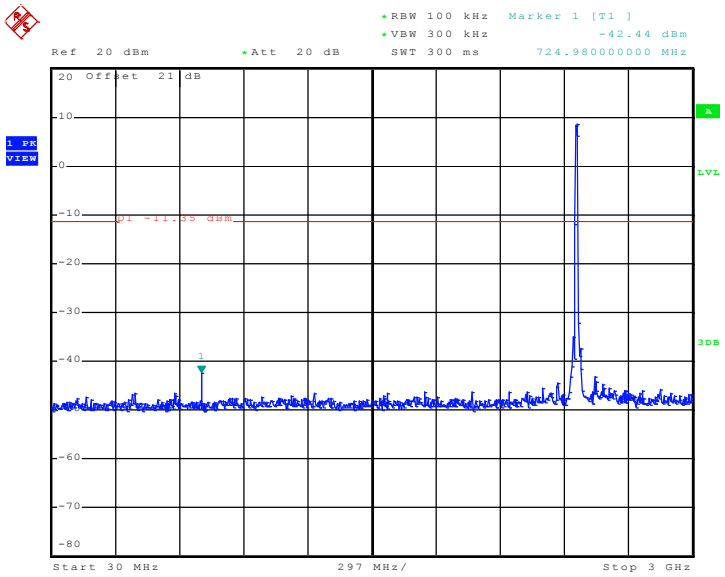

Date: 16.APR.2011 19:39:48

**Conducted Spurious Emission Plot on 802.11b Channel 06 between 3 GHz~25 GHz - Chain A**



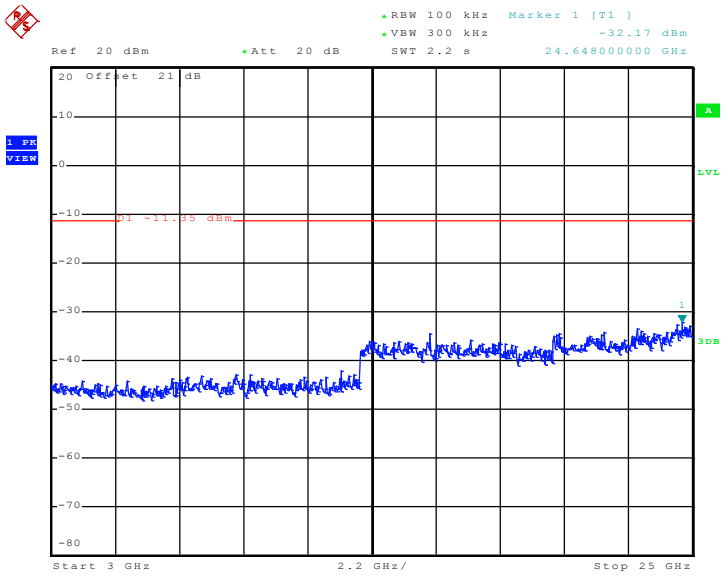

Date: 16.APR.2011 19:40:18

**Conducted Spurious Emission Plot on 802.11b Channel 11 between 30 MHz~3 GHz - Chain A**




Date: 16.APR.2011 19:55:04

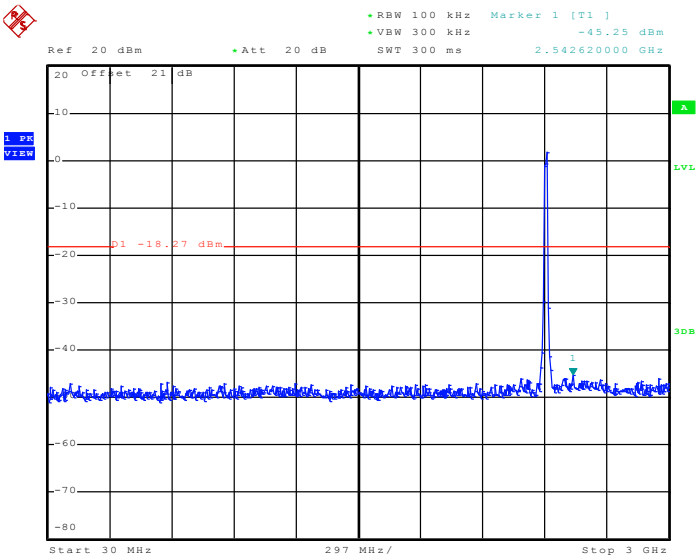
**Conducted Spurious Emission Plot on 802.11b Channel 11 between 3 GHz~25 GHz - Chain A**




Date: 16.APR.2011 19:55:33

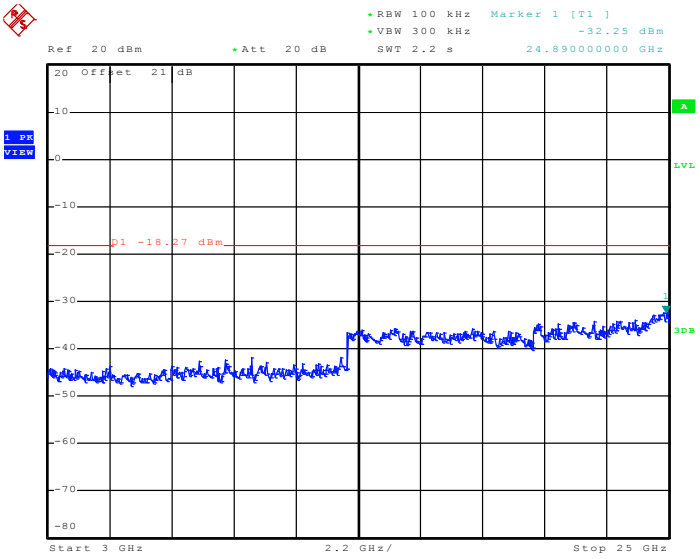
| Test Mode : | Mode 4~6 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Band : | 802.11g | Relative Humidity : | 40~44% |
| Test Channel : | 01, 06, 11 | Test Engineer : | Alan Liu |

**Conducted Spurious Emission Plot on 802.11g Channel 01 between 30 MHz~3 GHz - Chain A**



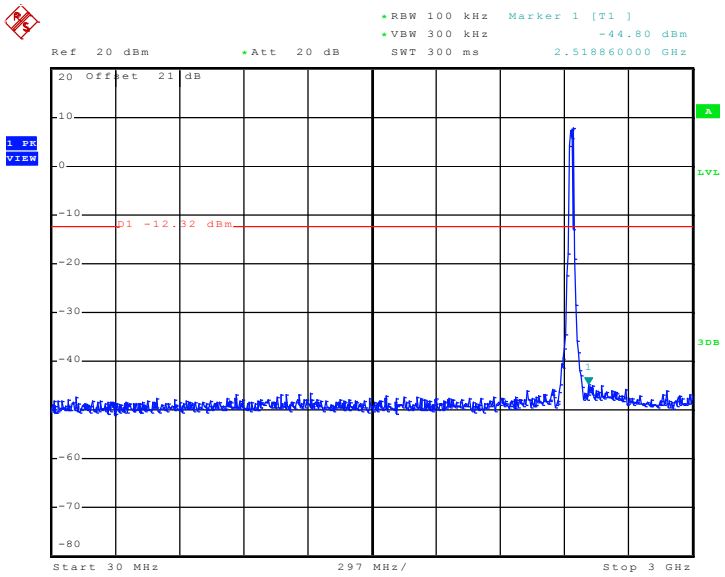

Date: 16.APR.2011 20:52:54

**Conducted Spurious Emission Plot on 802.11g Channel 01 between 3 GHz~25 GHz - Chain A**



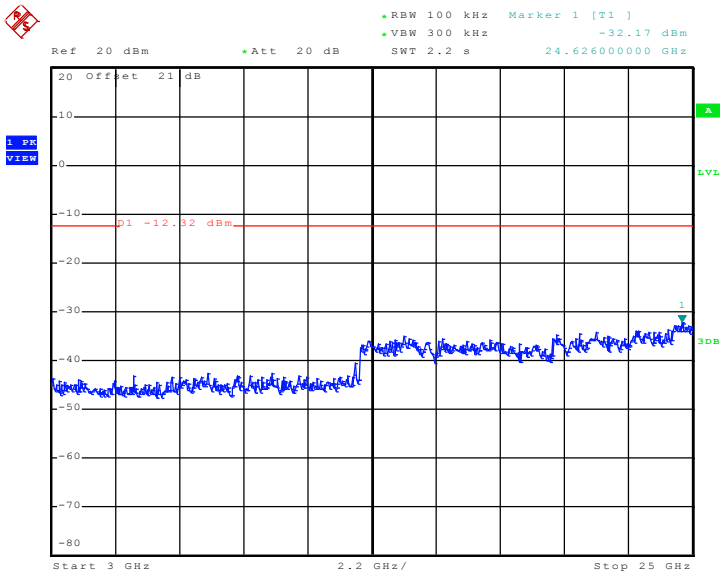

Date: 16.APR.2011 20:53:12

**Conducted Spurious Emission Plot on 802.11g Channel 06 between 30 MHz~3 GHz - Chain A**



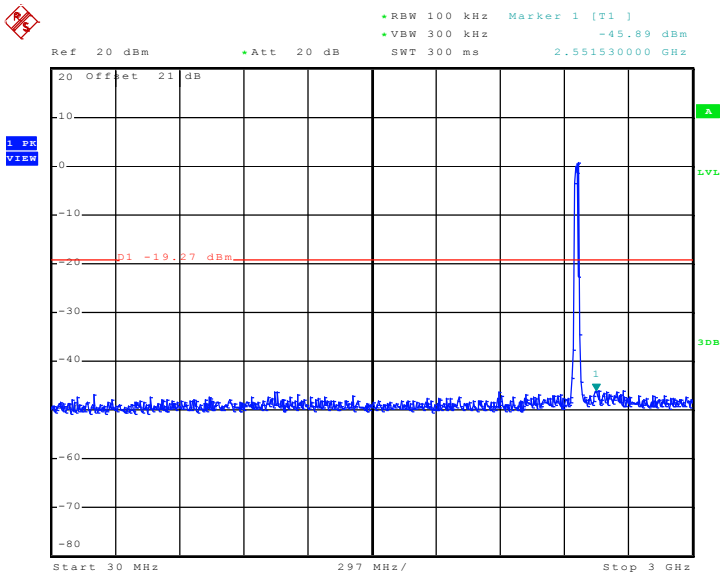

Date: 16.APR.2011 20:33:45

**Conducted Spurious Emission Plot on 802.11g Channel 06 between 3 GHz~25 GHz - Chain A**



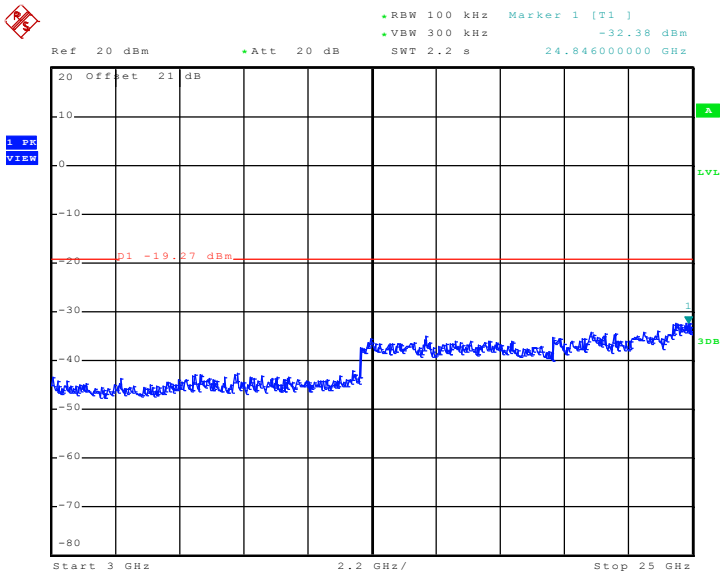

Date: 16.APR.2011 20:34:03

**Conducted Spurious Emission Plot on 802.11g Channel 11 between 30 MHz~3 GHz - Chain A**




Date: 16.APR.2011 20:12:39

**Conducted Spurious Emission Plot on 802.11g Channel 11 between 3 GHz~25 GHz - Chain A**

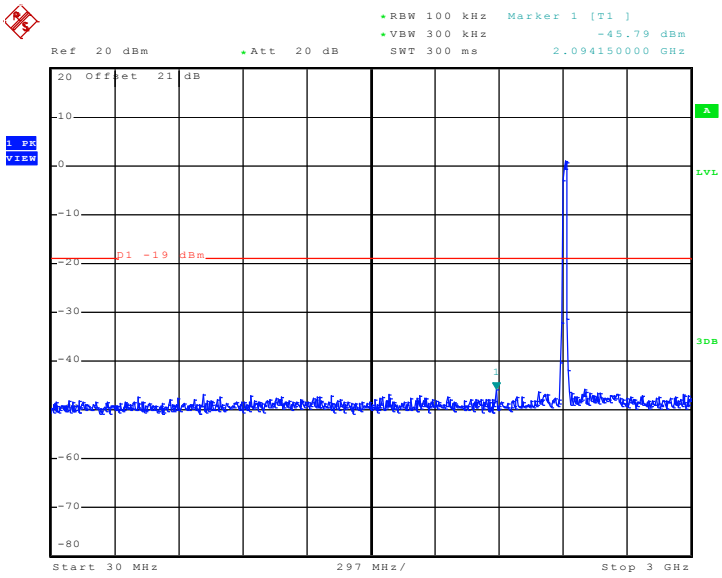



Date: 16.APR.2011 20:12:57

| Test Mode : | Mode 7~9 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Band : | 802.11n (BW 20MHz) | Relative Humidity : | 40~44% |
| Test Channel : | 01, 06, 11 | Test Engineer : | Alan Liu |

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

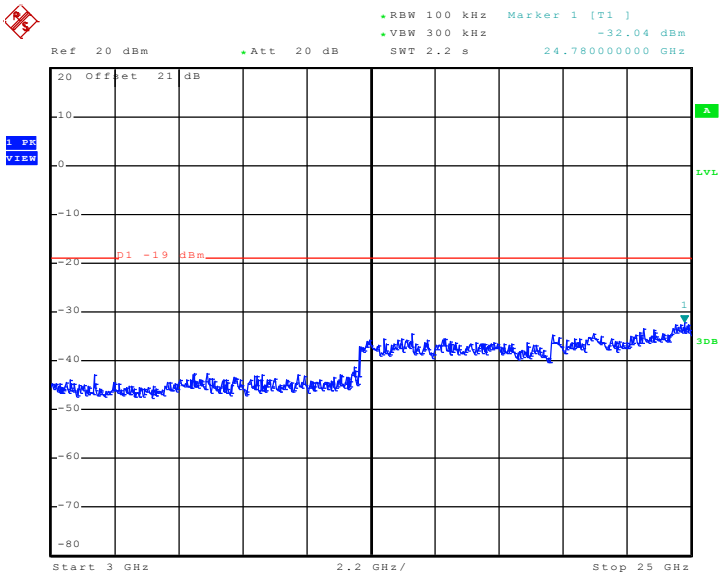
**Channel 01 between 30 MHz~3 GHz - Chain A**




Date: 16.APR.2011 21:10:36

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

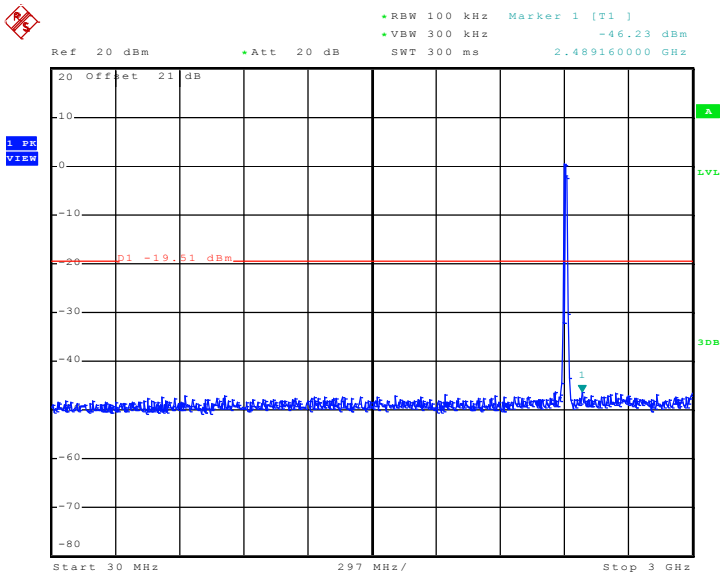
**Channel 01 between 3 GHz~25 GHz - Chain A**




Date: 16.APR.2011 21:10:54

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

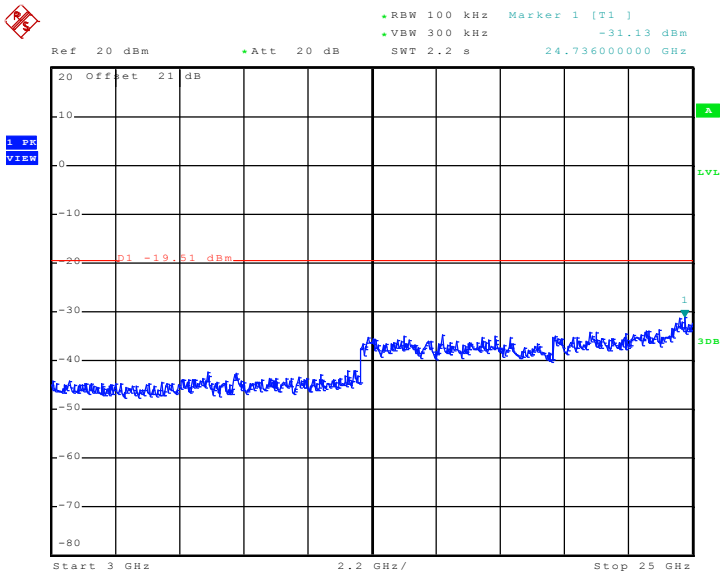
**Channel 01 between 30 MHz~3 GHz - Chain B**




Date: 16.APR.2011 21:26:09

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

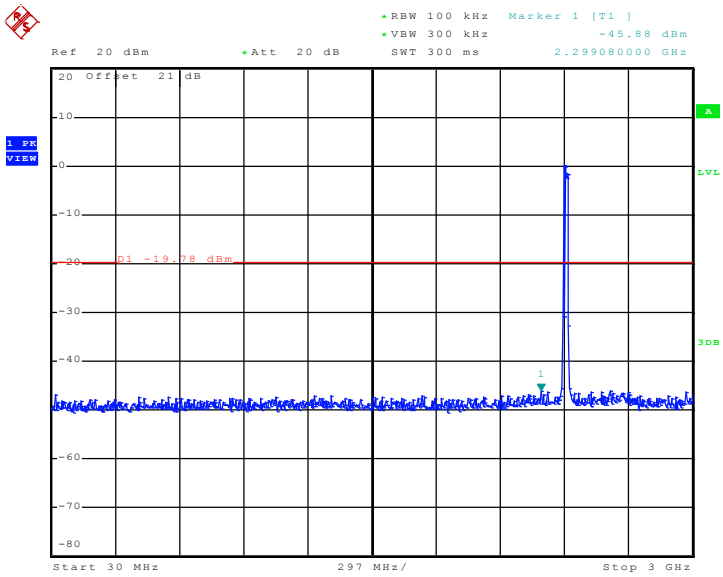
**Channel 01 between 3 GHz~25 GHz - Chain B**




Date: 16.APR.2011 21:26:27

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

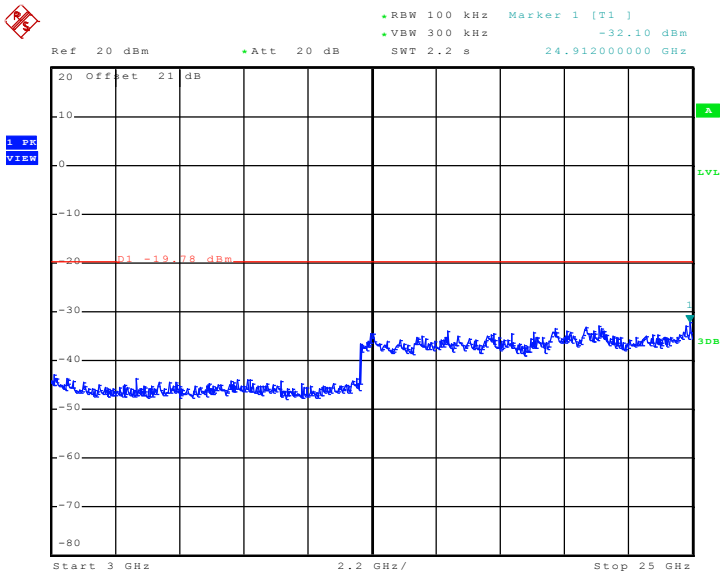
**Channel 01 between 30 MHz~3 GHz – Chain C**




Date: 21.APR.2011 22:33:35

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

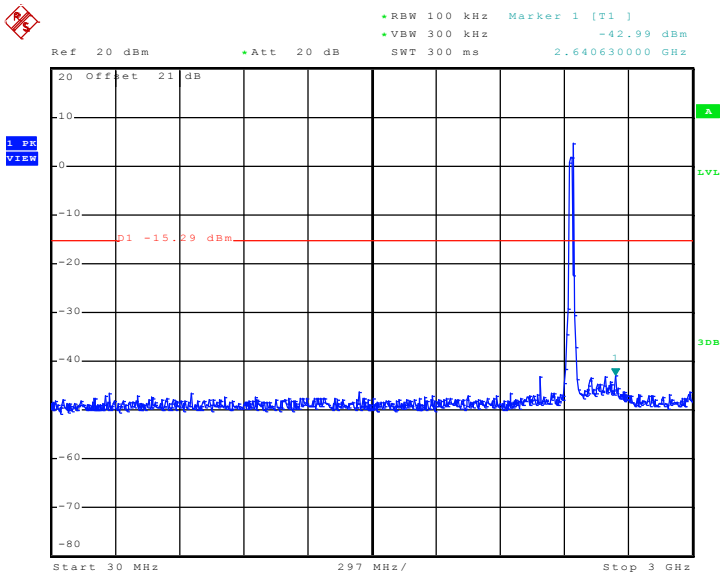
**Channel 01 between 3 GHz~25 GHz - Chain C**




Date: 21.APR.2011 22:33:52

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

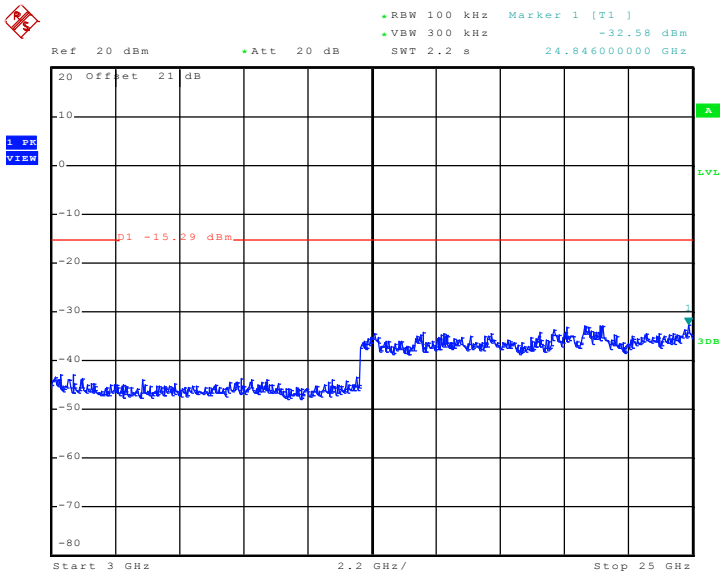
**Channel 06 between 30 MHz~3 GHz - Chain A**




Date: 21.APR.2011 23:23:06

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

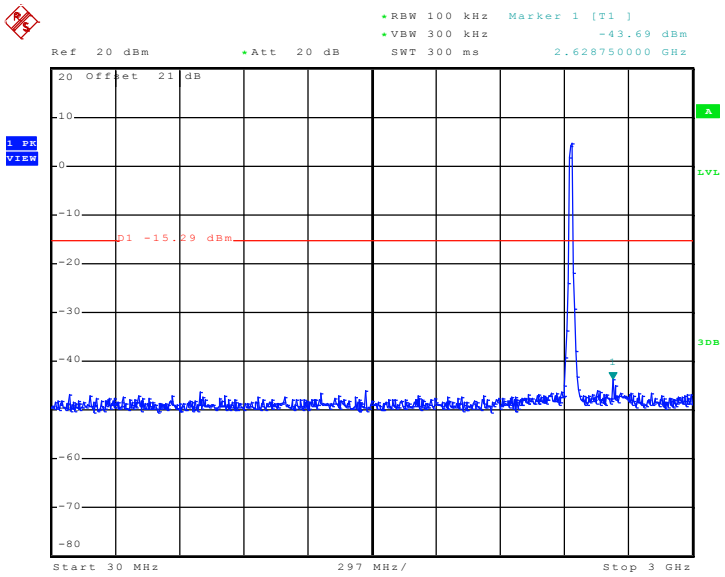
**Channel 06 between 3 GHz~25 GHz - Chain A**




Date: 21.APR.2011 23:23:23

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

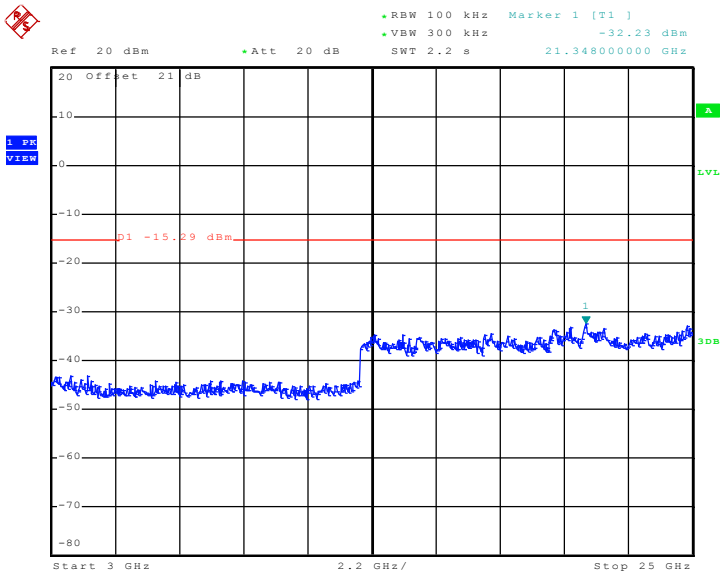
**Channel 06 between 30 MHz~3 GHz - Chain B**




Date: 21.APR.2011 23:05:26

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

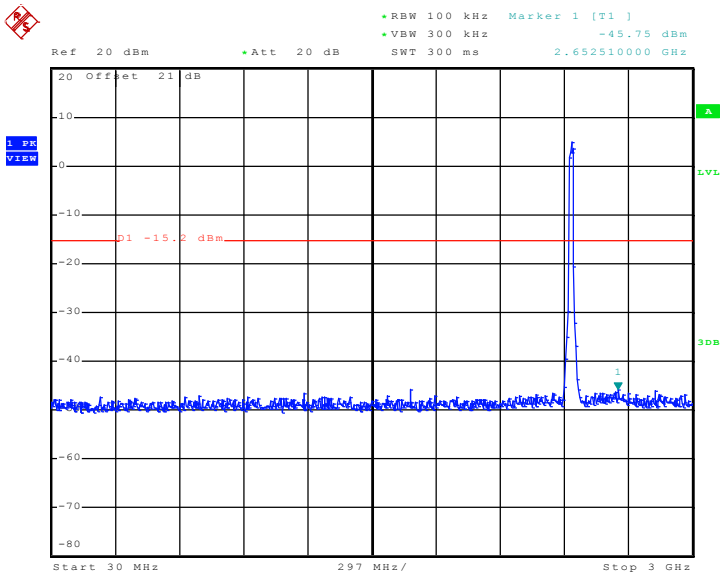
**Channel 06 between 3 GHz~25 GHz - Chain B**




Date: 21.APR.2011 23:05:43

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

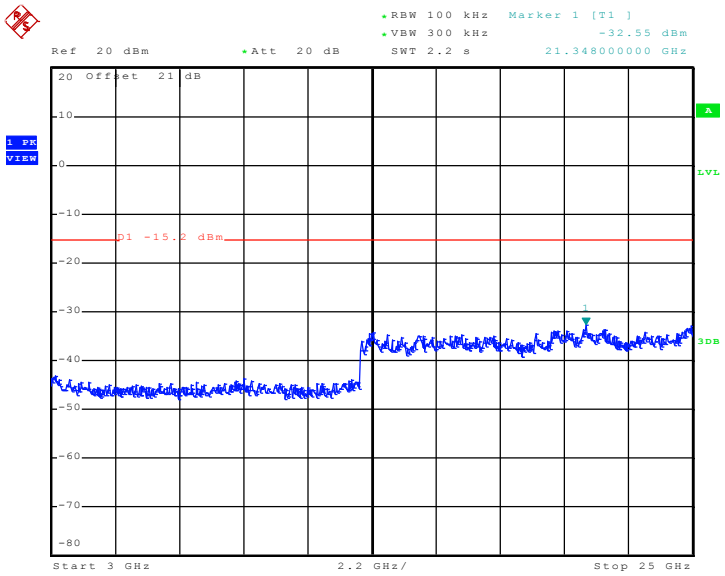
**Channel 06 between 30 MHz~3 GHz - Chain C**




Date: 21.APR.2011 22:53:19

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

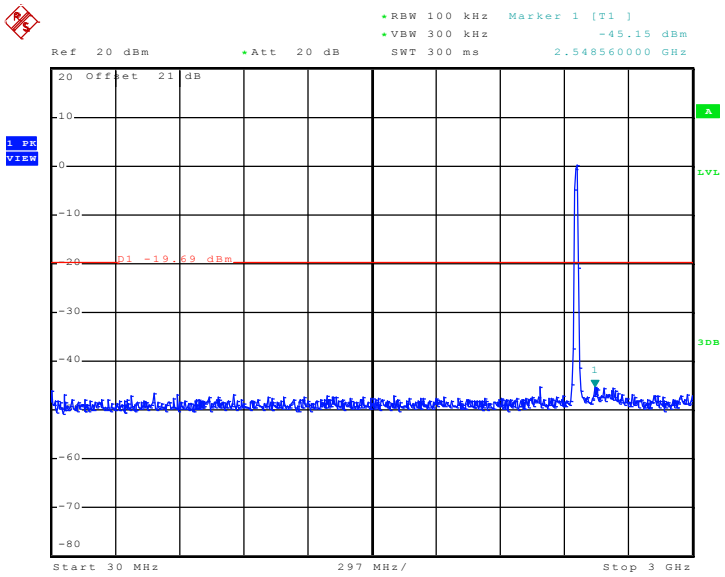
**Channel 06 between 3 GHz~25 GHz – Chain C**




Date: 21.APR.2011 22:53:35

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

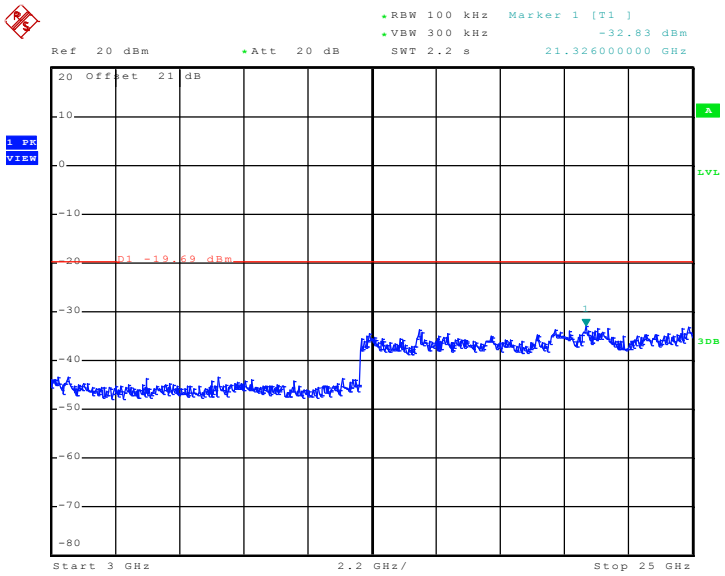
**Channel 11 between 30 MHz~3 GHz - Chain A**




Date: 21.APR.2011 23:35:19

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

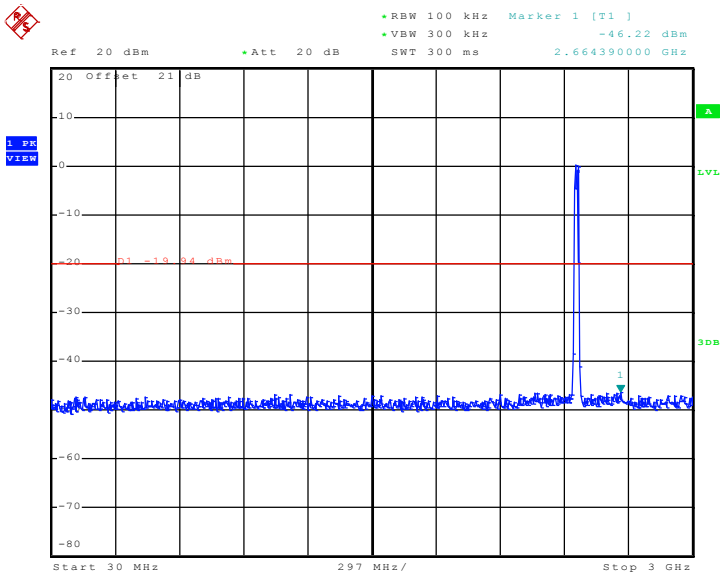
**Channel 11 between 3 GHz~25 GHz - Chain A**




Date: 21.APR.2011 23:35:36

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

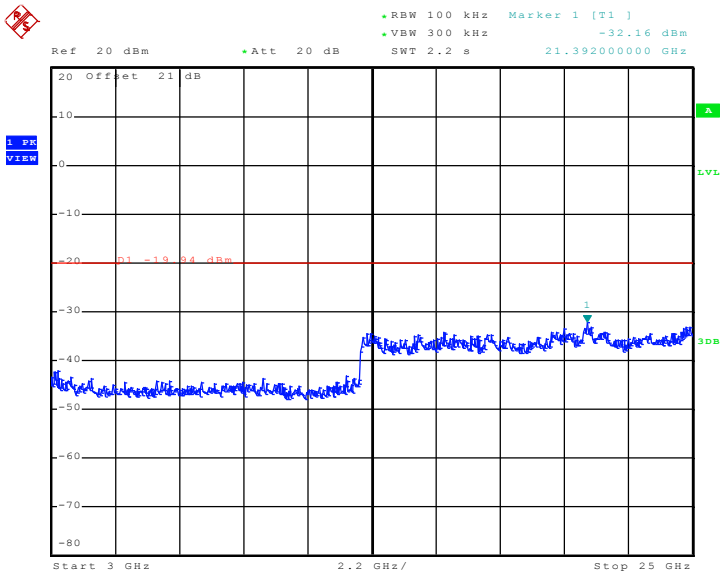
**Channel 11 between 30 MHz~3 GHz - Chain B**




Date: 21.APR.2011 23:47:47

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

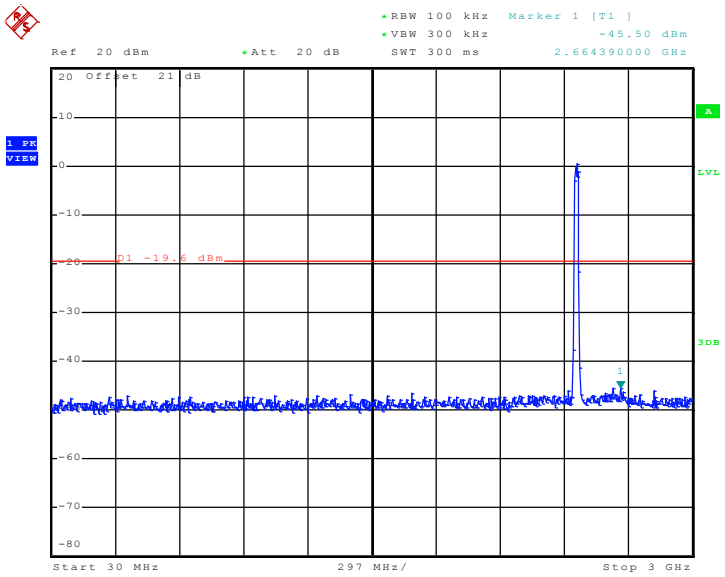
**Channel 11 between 3 GHz~25 GHz - Chain B**




Date: 21.APR.2011 23:48:04

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

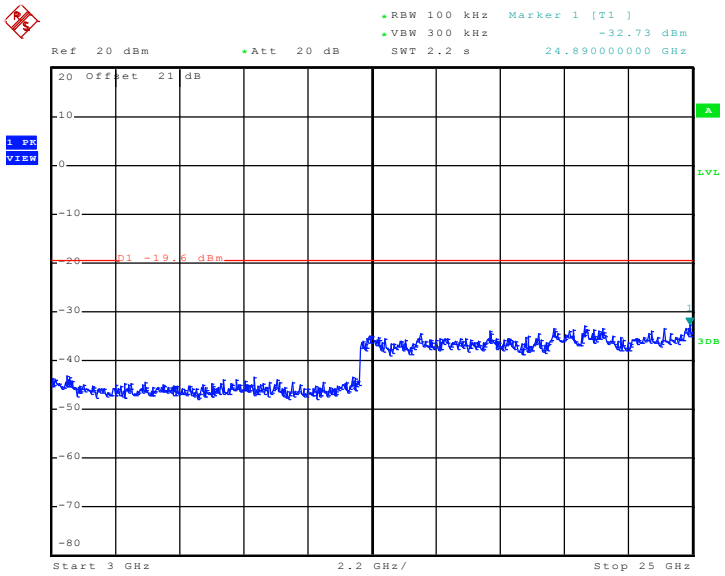
**Channel 11 between 30 MHz~3 GHz - Chain C**




Date: 22.APR.2011 00:02:41

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

**Channel 11 between 3 GHz~25 GHz - Chain C**

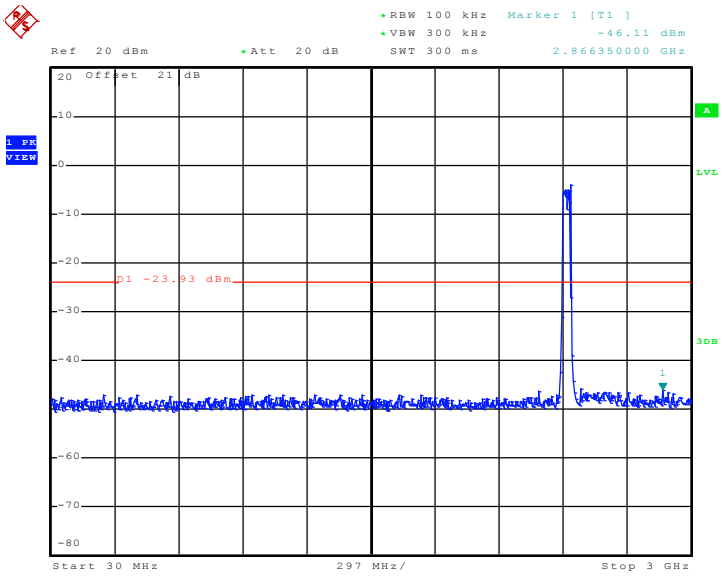



Date: 22.APR.2011 00:02:58

| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 10~12 | **Temperature :** | 24~26℃ |
| **Test Band :** | 802.11n (BW 40MHz) | **Relative Humidity :** | 40~44% |
| **Test Channel :** | 03, 06, 09 | **Test Engineer :** | Alan Liu |

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

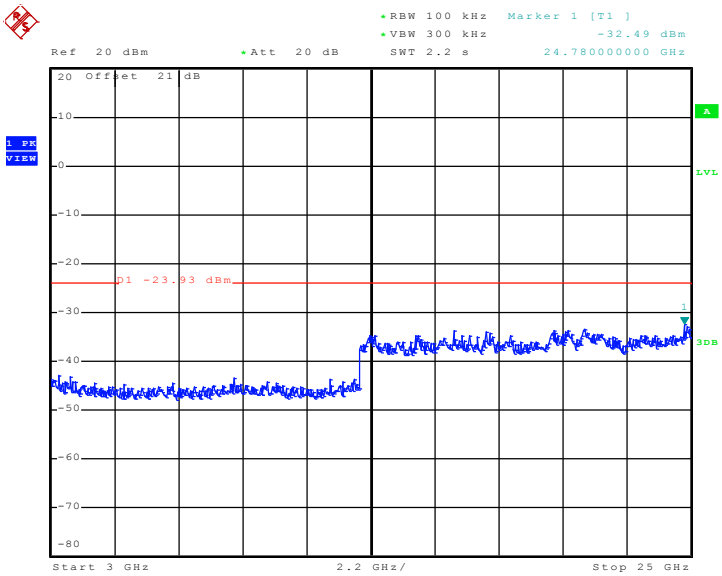
**Channel 03 between 30 MHz~3 GHz - Chain A**




Date: 22.APR.2011 20:18:36

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

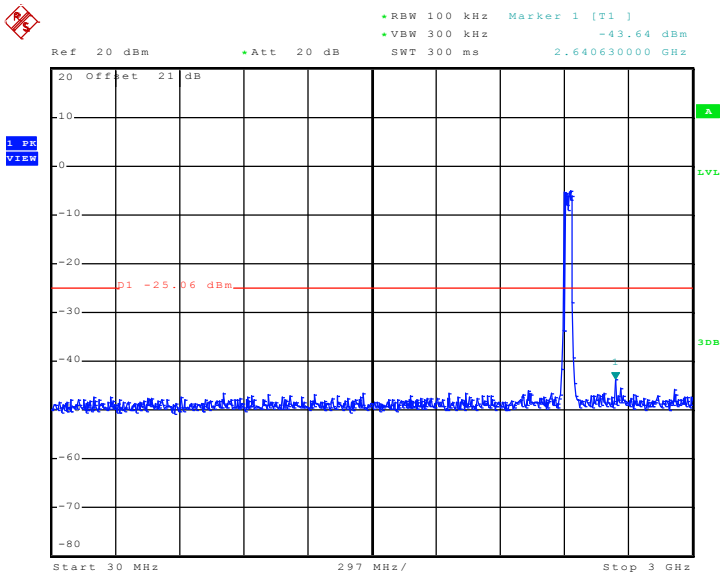
**Channel 03 between 3 GHz~25 GHz - Chain A**




Date: 22.APR.2011 20:18:53

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

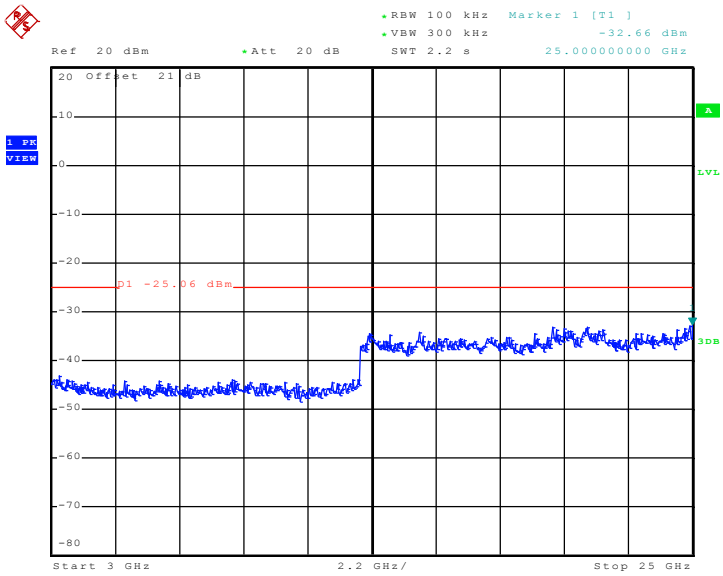
**Channel 03 between 30 MHz~3 GHz - Chain B**




Date: 22.APR.2011 19:42:01

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

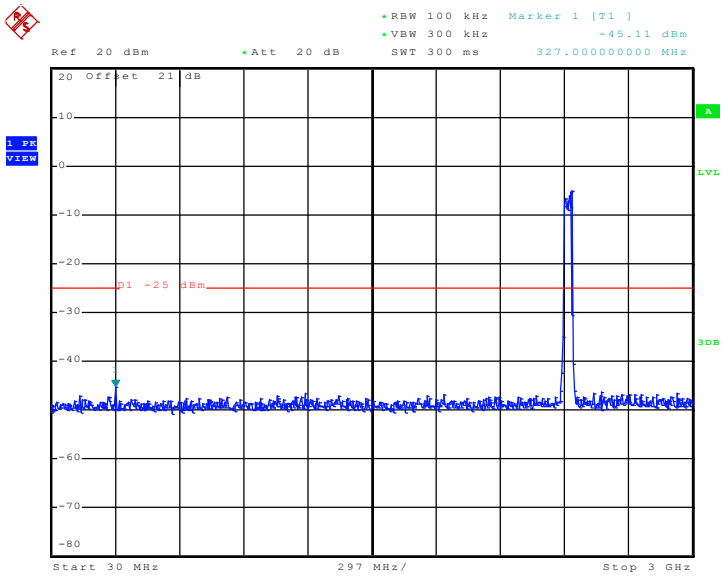
**Channel 03 between 3 GHz~25 GHz - Chain B**




Date: 22.APR.2011 19:42:18

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

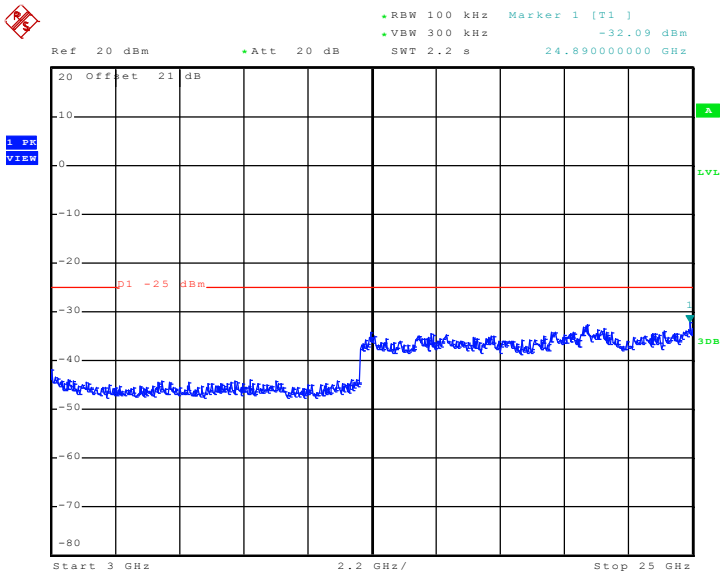
**Channel 03 between 30 MHz~3 GHz - Chain C**




Date: 22.APR.2011 00:16:24

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

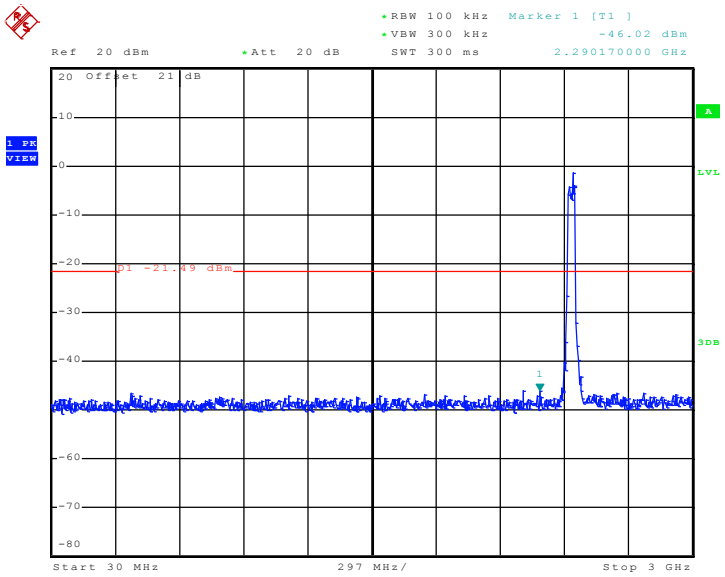
**Channel 03 between 3 GHz~25 GHz - Chain C**




Date: 22.APR.2011 00:16:41

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

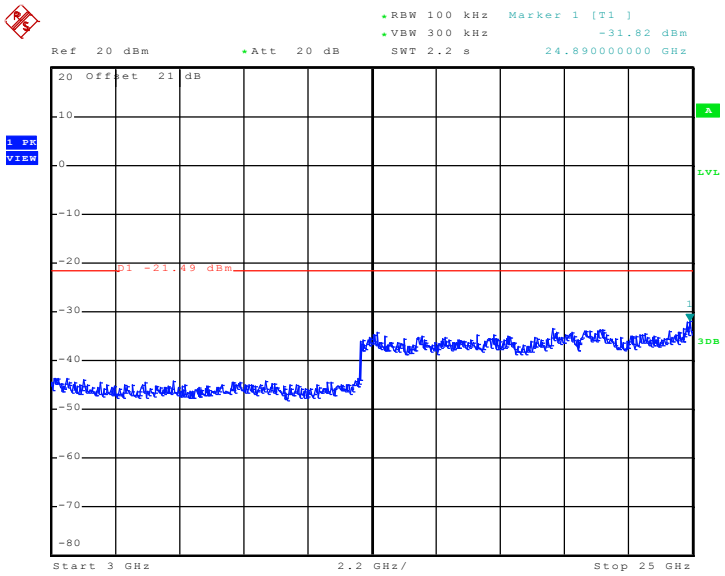
**Channel 06 between 30 MHz~3 GHz - Chain A**




Date: 22.APR.2011 20:52:31

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

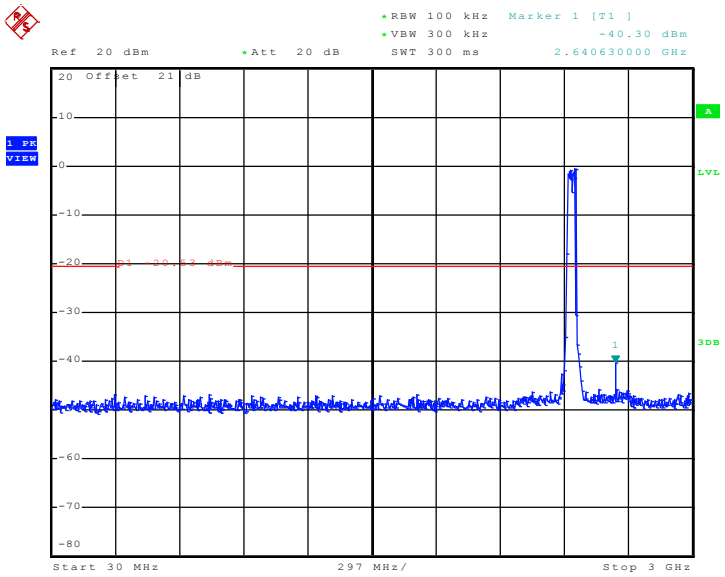
**Channel 06 between 3 GHz~25 GHz - Chain A**




Date: 22.APR.2011 20:52:48

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

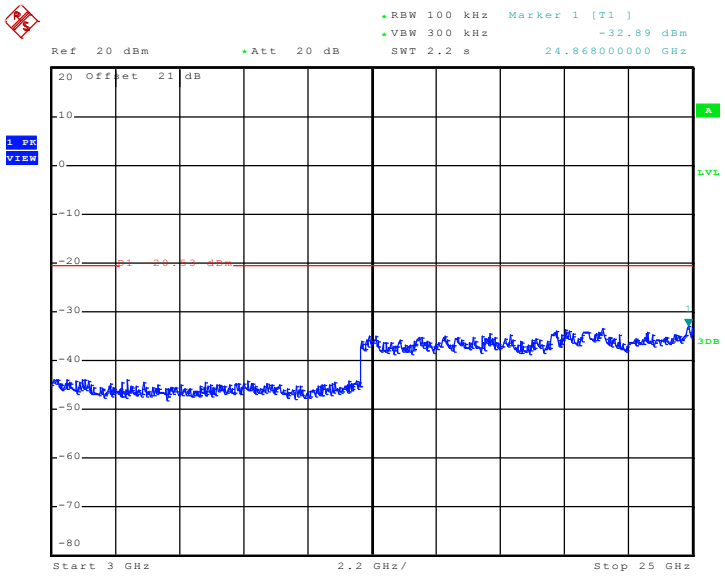
**Channel 06 between 30 MHz~3 GHz - Chain B**




Date: 22.APR.2011 21:05:49

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

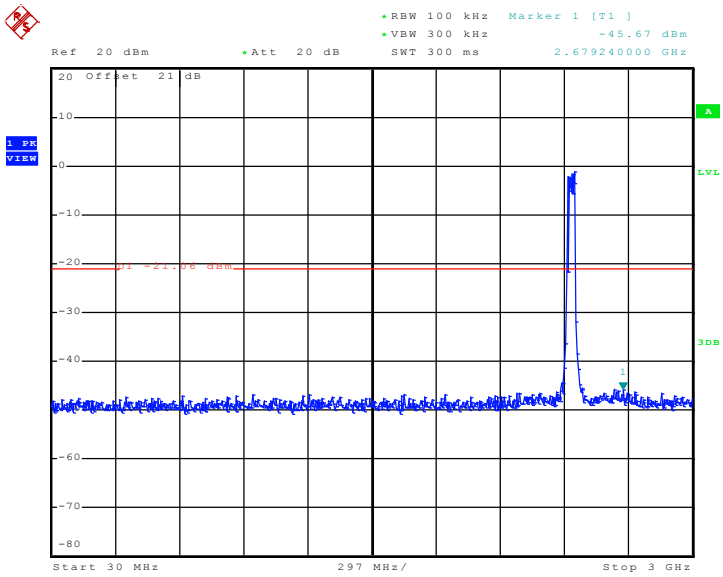
**Channel 06 between 3 GHz~25 GHz - Chain B**




Date: 22.APR.2011 21:06:06

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

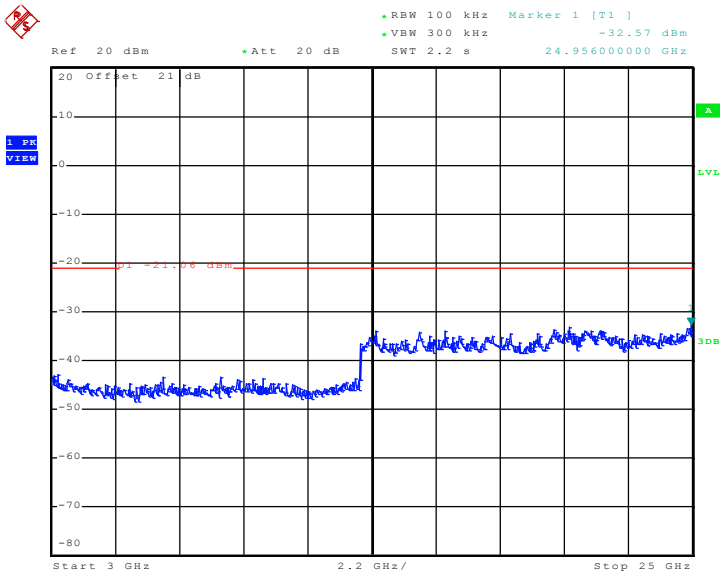
**Channel 06 between 30 MHz~3 GHz - Chain C**




Date: 22.APR.2011 21:26:09

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

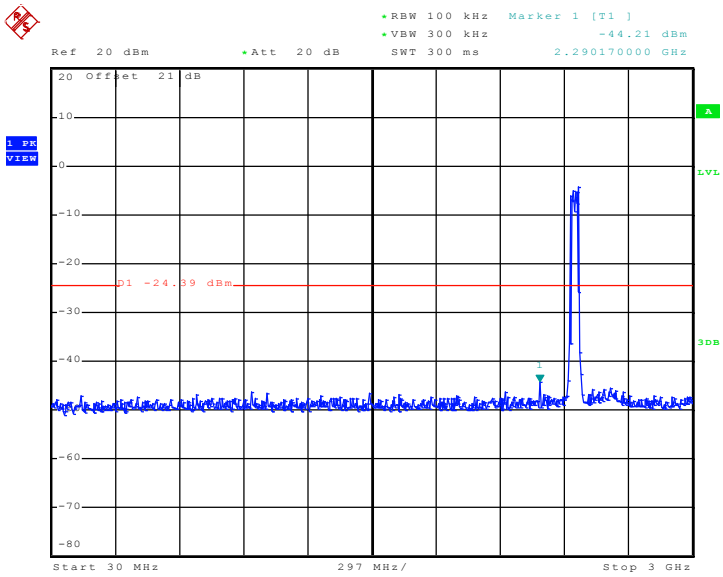
**Channel 06 between 3 GHz~25 GHz - Chain C**




Date: 22.APR.2011 21:26:26

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

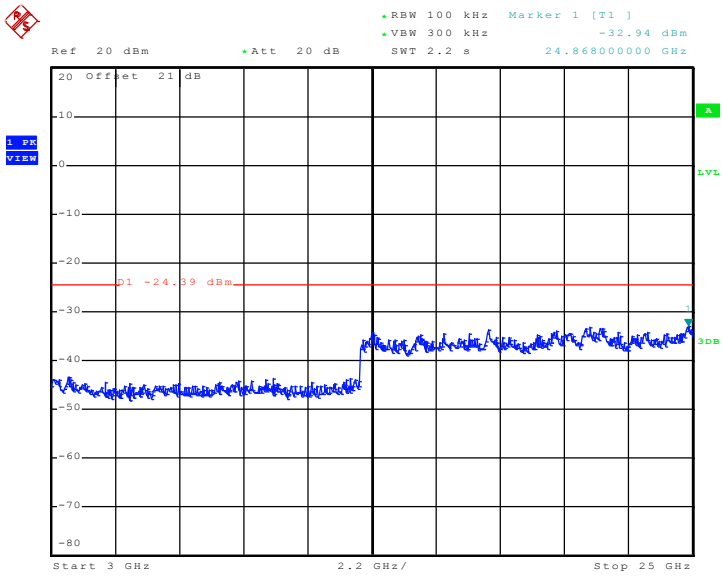
**Channel 09 between 30 MHz~3 GHz - Chain A**




Date: 23.APR.2011 01:12:36

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

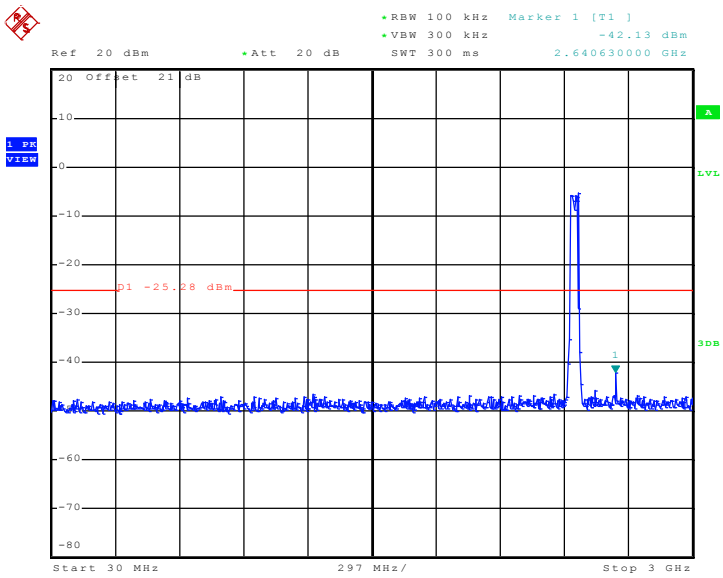
**Channel 09 between 3 GHz~25 GHz - Chain A**




Date: 23.APR.2011 01:12:53

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

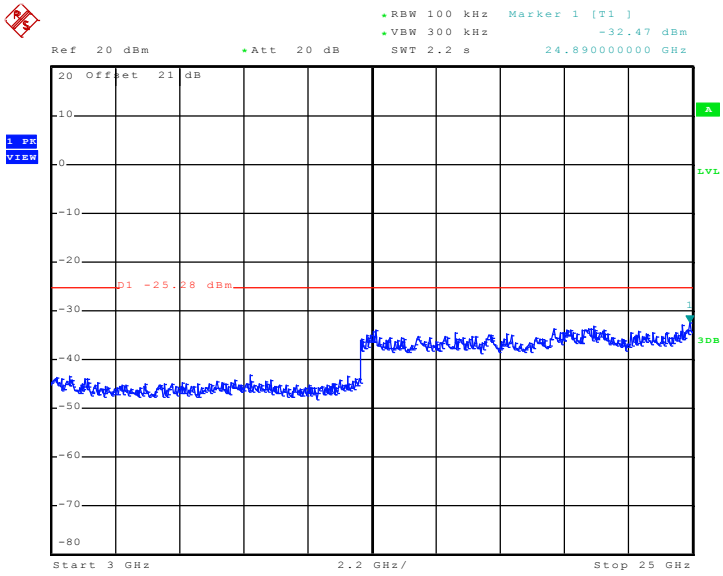
**Channel 09 between 30 MHz~3 GHz - Chain B**




Date: 22.APR.2011 23:09:05

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

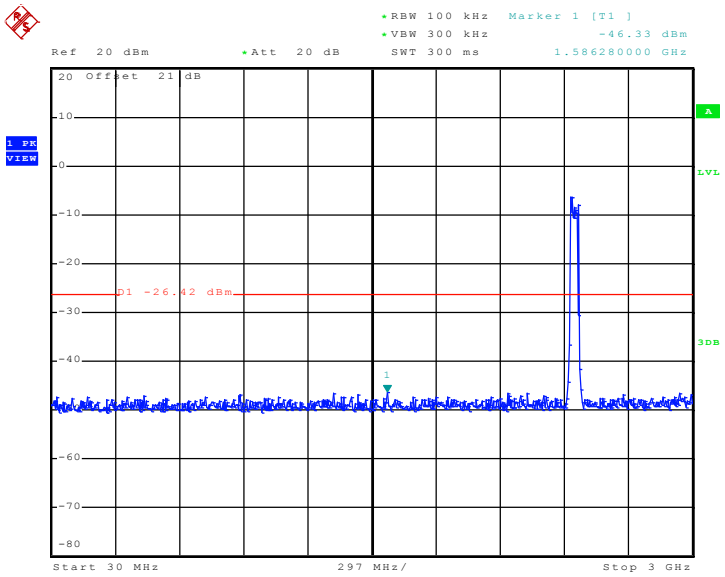
**Channel 09 between 3 GHz~25 GHz - Chain B**




Date: 22.APR.2011 23:09:22

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

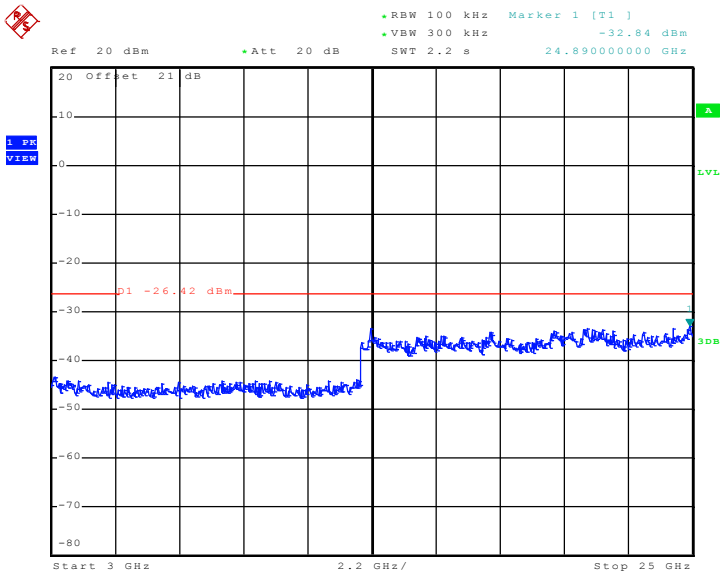
**Channel 09 between 30 MHz~3 GHz - Chain C**




Date: 22.APR.2011 21:48:53

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

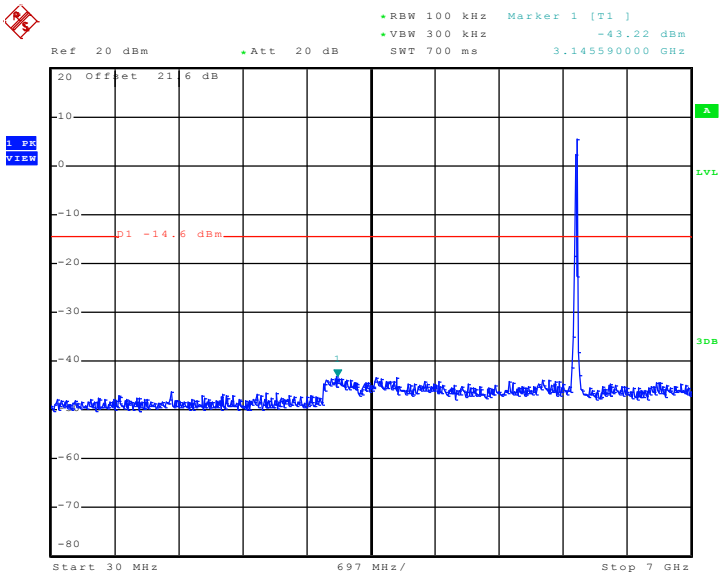
**Channel 09 between 3 GHz~25 GHz - Chain C**




Date: 22.APR.2011 21:49:09

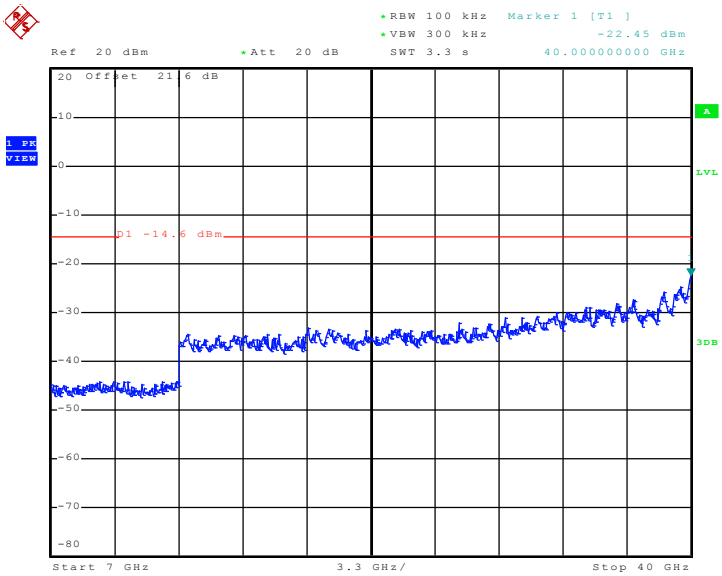
| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 13~15 | **Temperature :** | 24~26℃ |
| **Test Band :** | 802.11a | **Relative Humidity :** | 40~44% |
| **Test Channel :** | 149, 157, 165 | **Test Engineer :** | Alan Liu |

**Conducted Spurious Emission Plot on 802.11a Channel 149 between 30 MHz~7 GHz - Chain A**



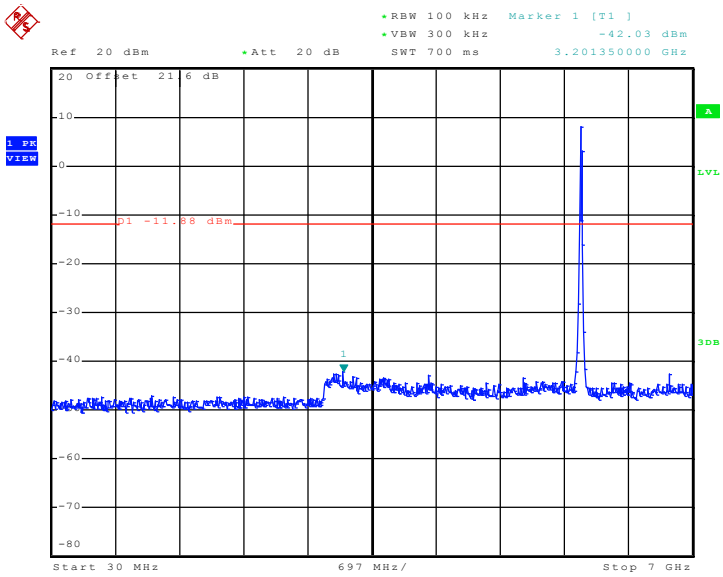

Date: 23.APR.2011 13:16:59

**Conducted Spurious Emission Plot on 802.11a Channel 149 between 7 GHz~40 GHz - Chain A**



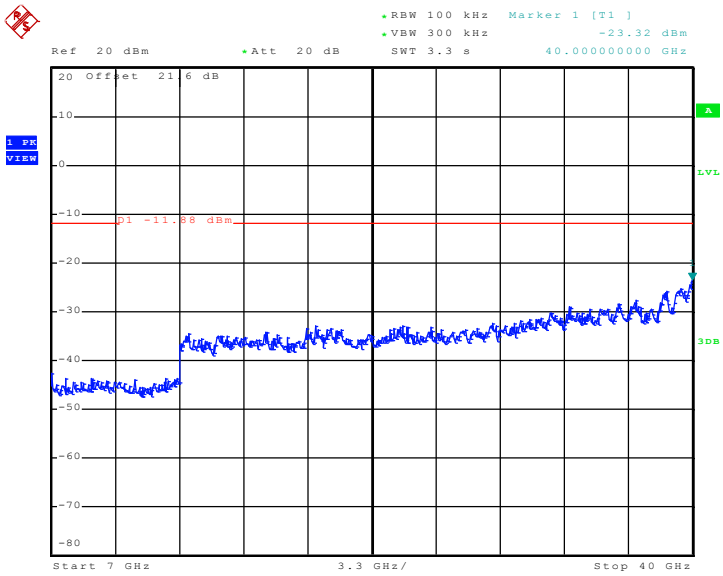

Date: 23.APR.2011 13:17:16

**Conducted Spurious Emission Plot on 802.11a Channel 157 between 30 MHz~7 GHz - Chain A**



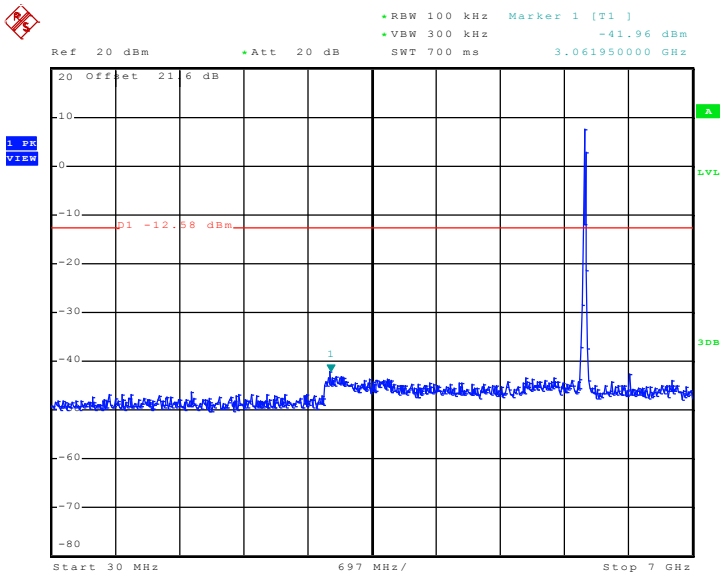

Date: 23.APR.2011 13:29:02

**Conducted Spurious Emission Plot on 802.11a Channel 157 between 7 GHz~40 GHz - Chain A**



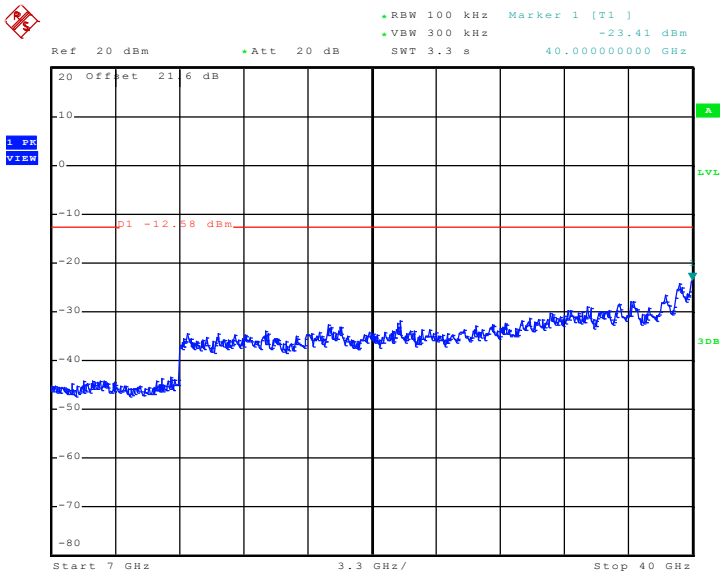

Date: 23.APR.2011 13:29:19

**Conducted Spurious Emission Plot on 802.11a Channel 165 between 30 MHz~7 GHz - Chain A**




Date: 23.APR.2011 13:54:29

**Conducted Spurious Emission Plot on 802.11a Channel 165 between 7 GHz~40 GHz - Chain A**

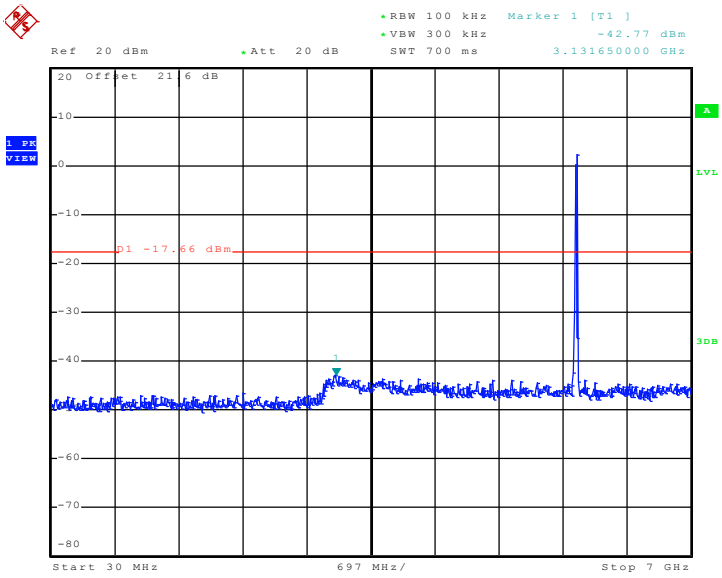



Date: 23.APR.2011 13:54:46

| Test Mode : | Mode 16~18 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Band : | 802.11n (BW 20MHz) | Relative Humidity : | 40~44% |
| Test Channel : | 149, 157, 165 | Test Engineer : | Alan Liu |

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

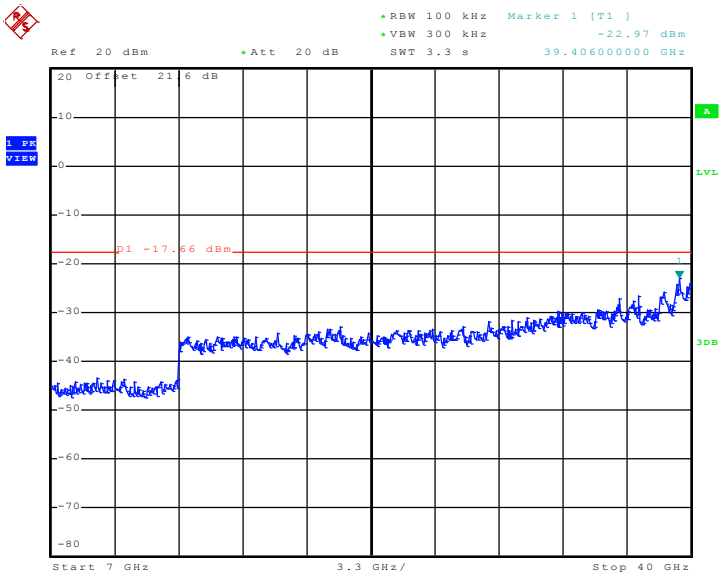
**Channel 149 between 30 MHz~7 GHz - Chain A**




Date: 23.APR.2011 14:41:06

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

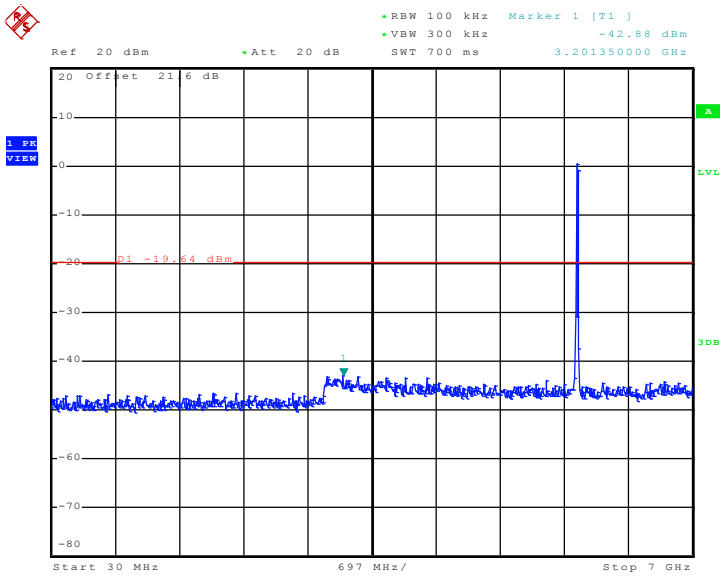
**Channel 149 between 7 GHz~40 GHz - Chain A**




Date: 23.APR.2011 14:41:23

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

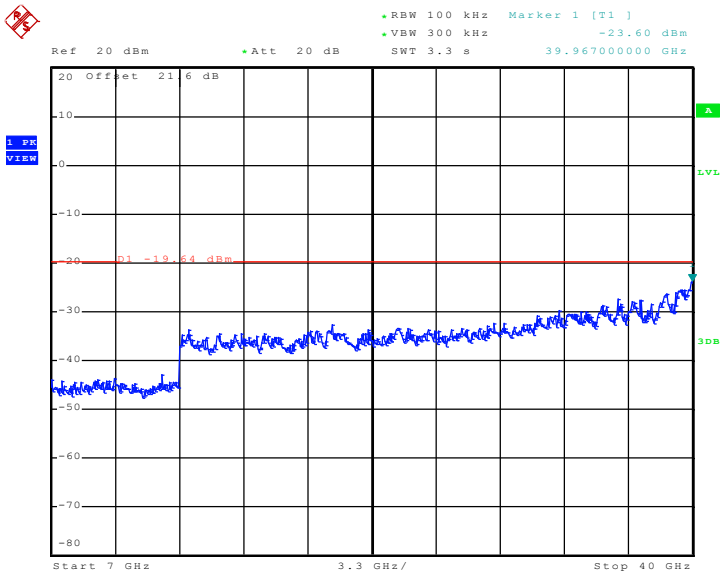
**Channel 149 between 30 MHz~7 GHz - Chain B**




Date: 23.APR.2011 15:21:53

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

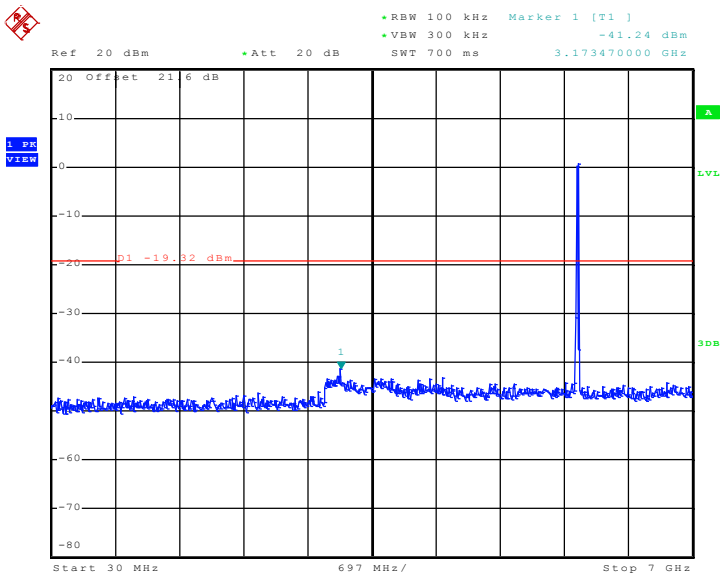
**Channel 149 between 7 GHz~40 GHz - Chain B**




Date: 23.APR.2011 15:22:10

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

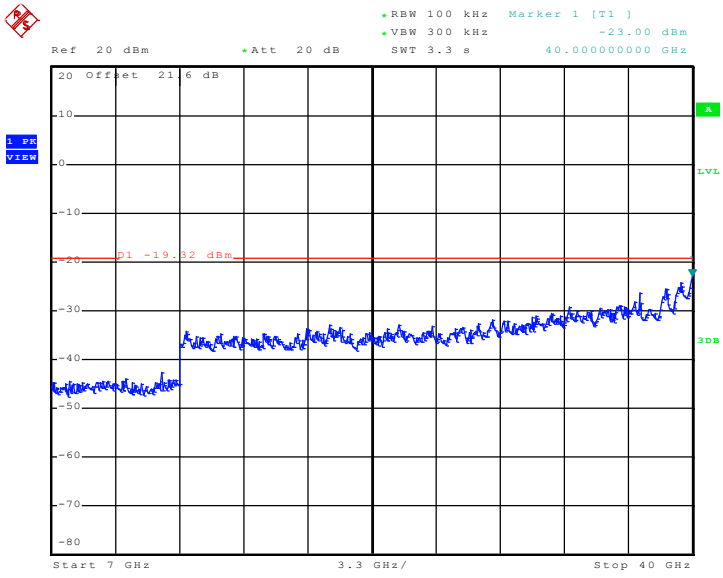
**Channel 149 between 30 MHz~7 GHz - Chain C**




Date: 23.APR.2011 15:40:00

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

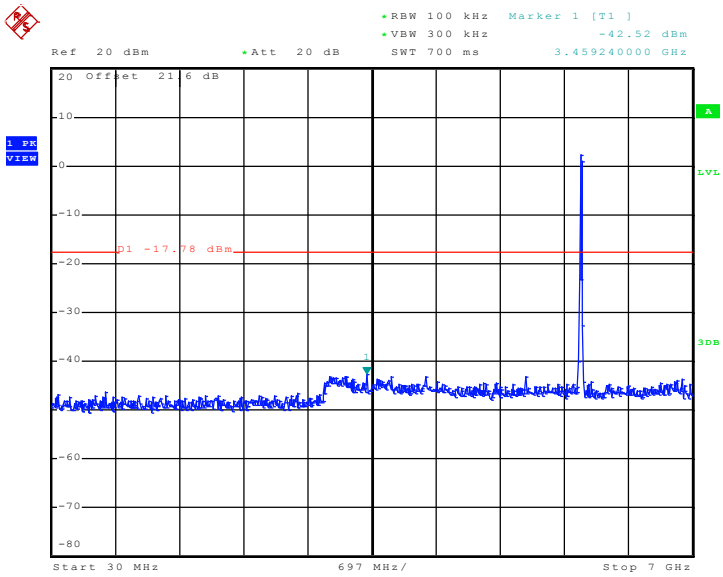
**Channel 149 between 7 GHz~40 GHz - Chain C**




Date: 23.APR.2011 15:40:17

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

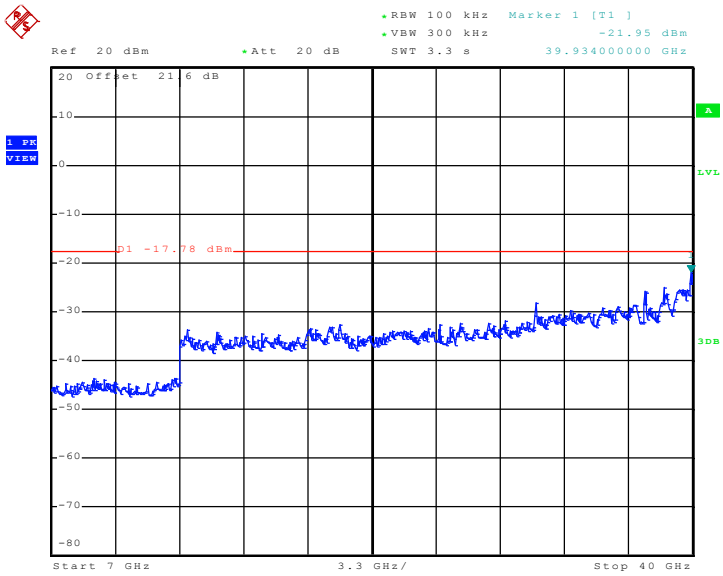
**Channel 157 between 30 MHz~7 GHz - Chain A**




Date: 23.APR.2011 16:52:14

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

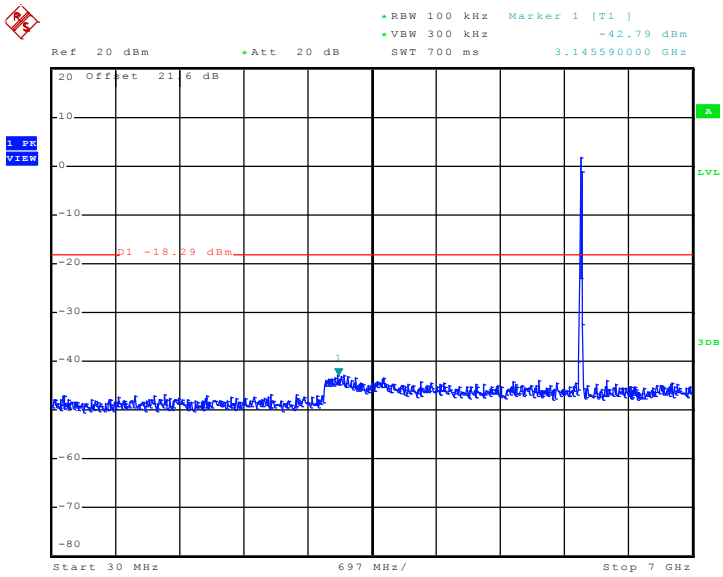
**Channel 157 between 7 GHz~40 GHz - Chain A**




Date: 23.APR.2011 16:52:30

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

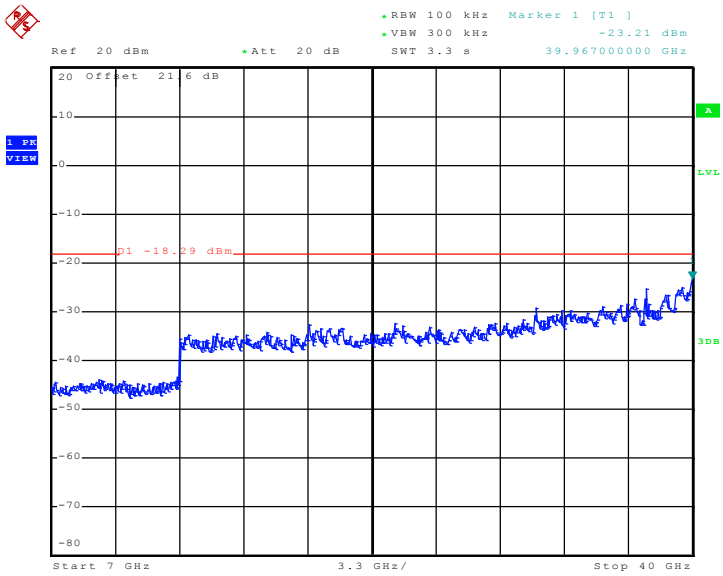
**Channel 157 between 30 MHz~7 GHz - Chain B**




Date: 23.APR.2011 16:30:29

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

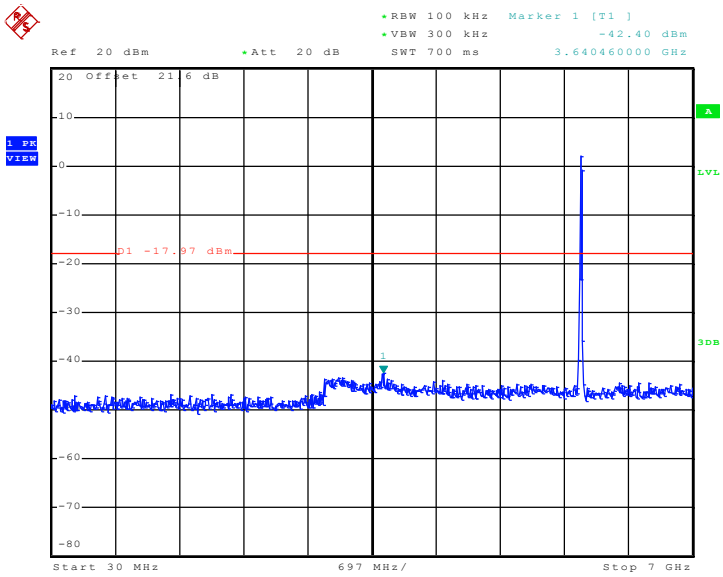
**Channel 157 between 7 GHz~40 GHz - Chain B**




Date: 23.APR.2011 16:30:46

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

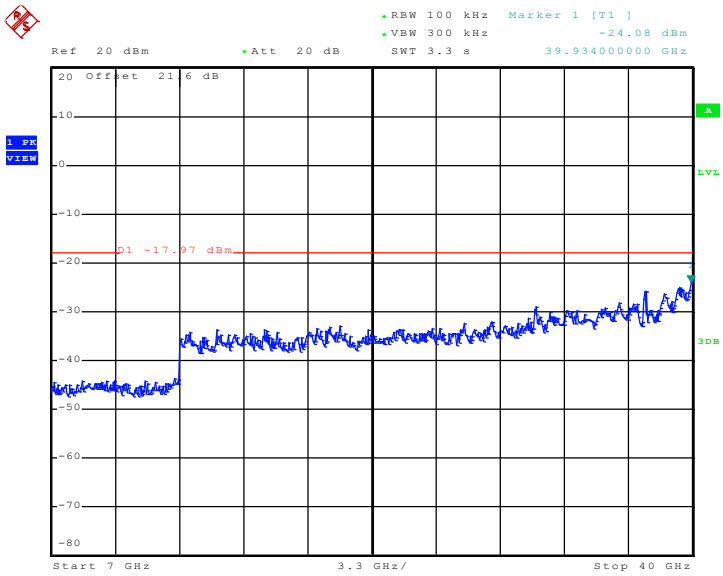
**Channel 157 between 30 MHz~7 GHz - Chain C**




Date: 23.APR.2011 16:08:51

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

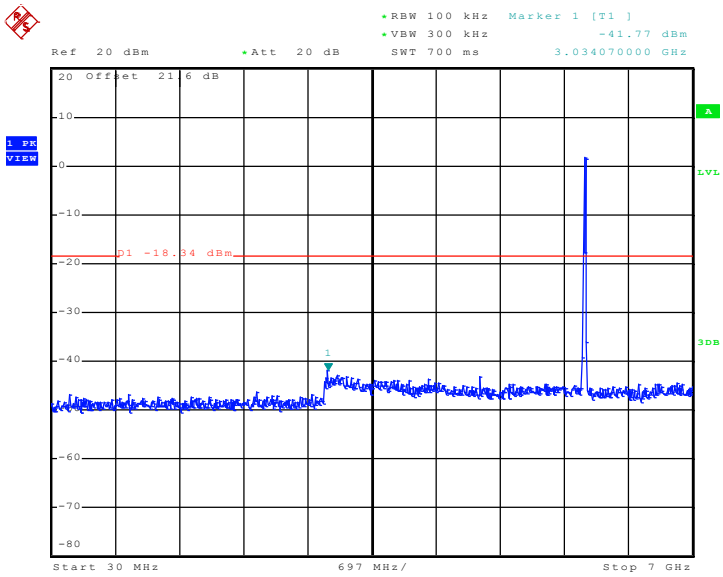
**Channel 157 between 7 GHz~40 GHz - Chain C**




Date: 23.APR.2011 16:09:07

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

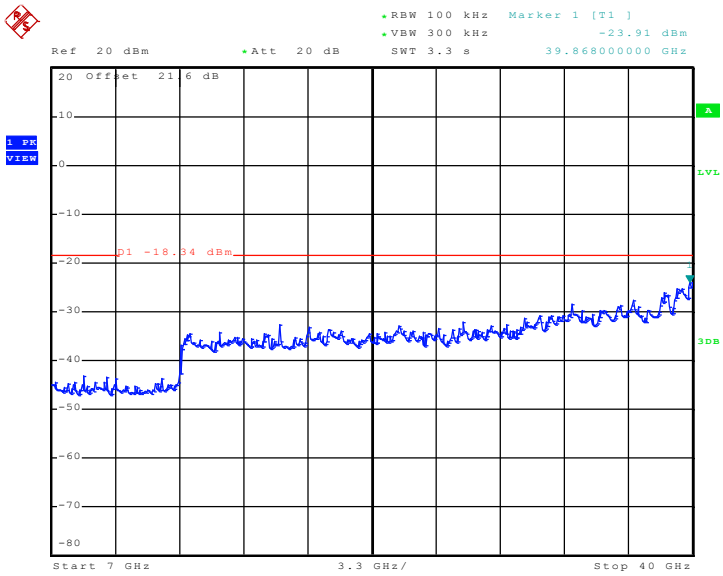
**Channel 165 between 30 MHz~7 GHz - Chain A**




Date: 23.APR.2011 17:17:49

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

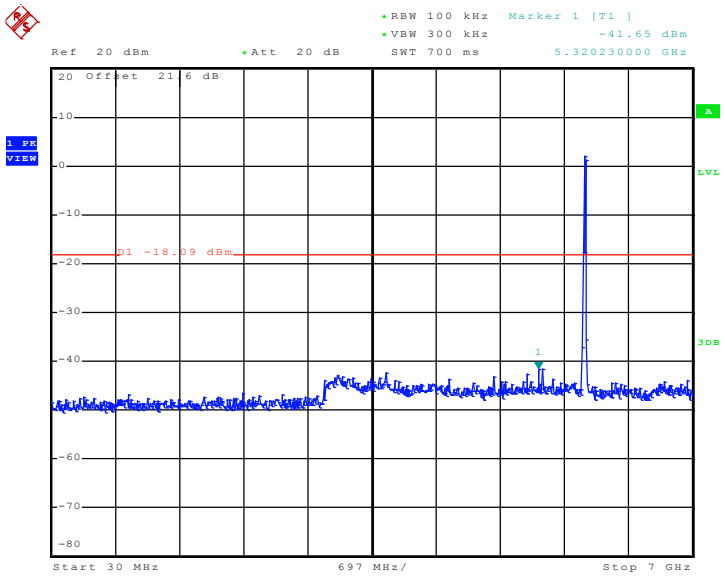
**Channel 165 between 7 GHz~40 GHz - Chain A**




Date: 9.MAY.2011 09:31:33

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

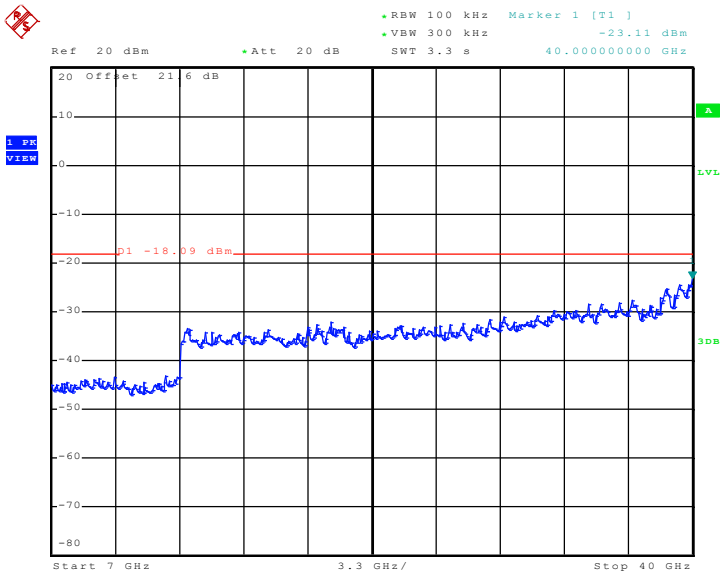
**Channel 165 between 30 MHz~7 GHz - Chain B**




Date: 23.APR.2011 17:42:40

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

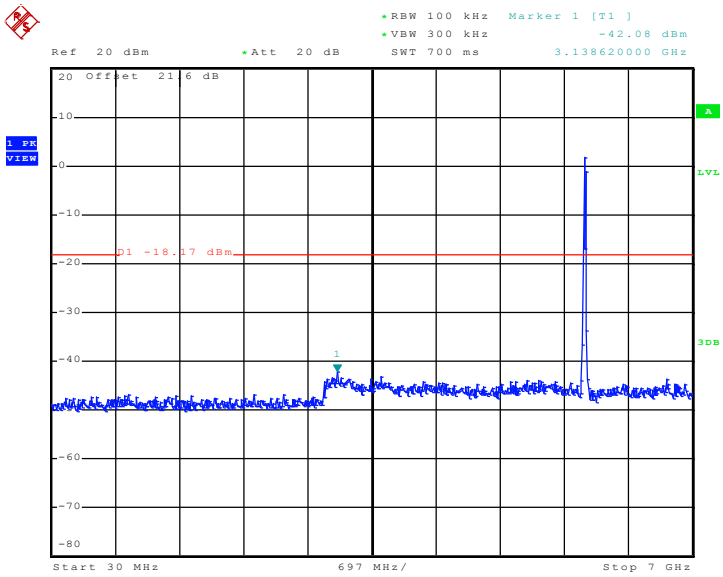
**Channel 165 between 7 GHz~40 GHz - Chain B**




Date: 9.MAY.2011 09:24:23

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

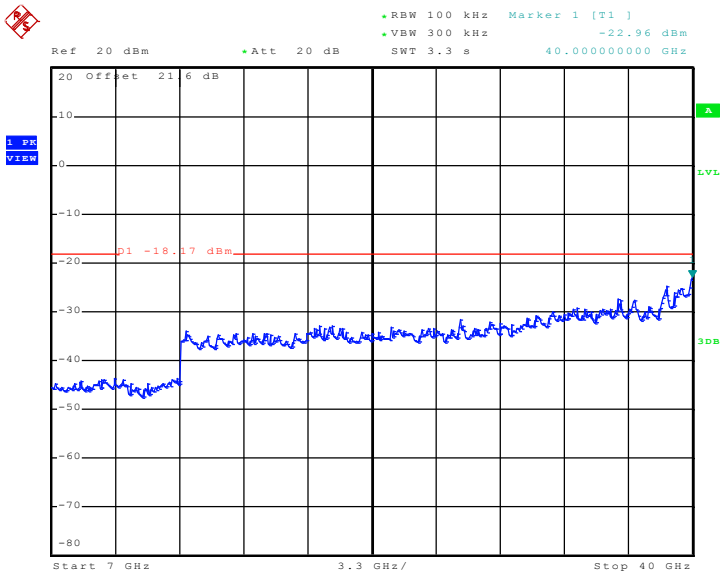
**Channel 165 between 30 MHz~7 GHz - Chain C**




Date: 23.APR.2011 18:01:05

**Conducted Spurious Emission Plot on 802.11n (BW 20MHz)**

**Channel 165 between 7 GHz~40 GHz - Chain C**

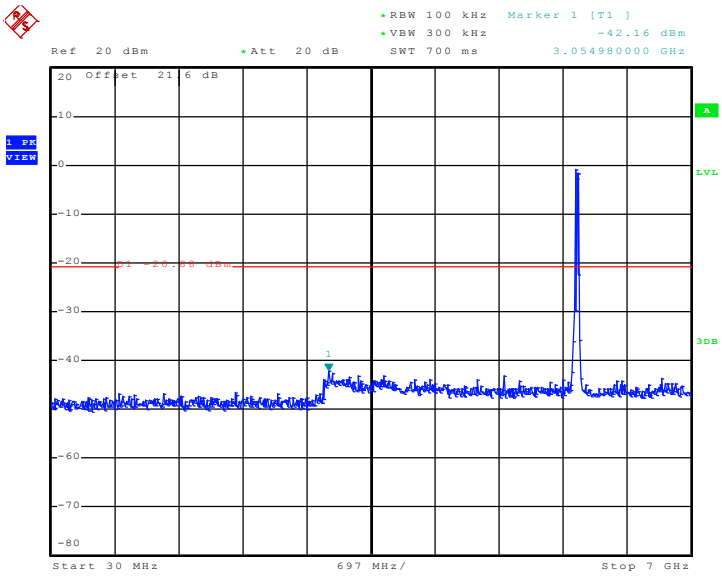



Date: 9.MAY.2011 09:25:34

| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 19~20 | **Temperature :** | 24~26℃ |
| **Test Band :** | 802.11n (BW 40MHz) | **Relative Humidity :** | 40~44% |
| **Test Channel :** | 151 and 159 | **Test Engineer :** | Alan Liu |

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

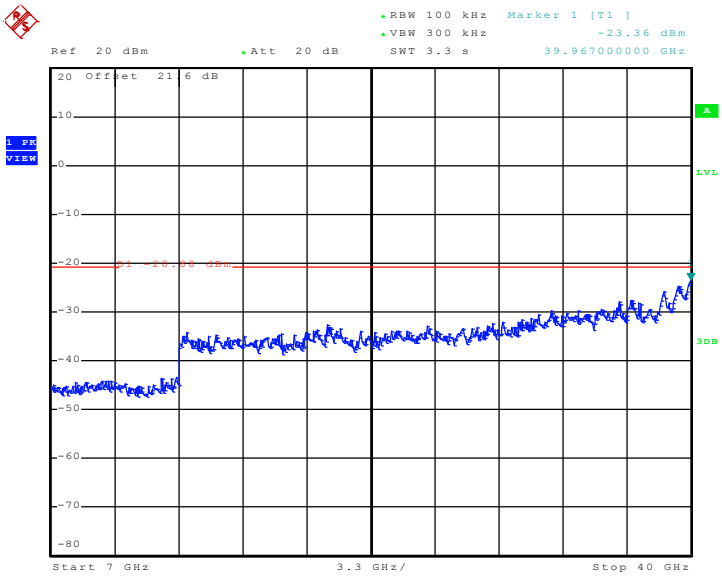
**Channel 151 between 30 MHz~7 GHz - Chain A**




Date: 23.APR.2011 19:41:46

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

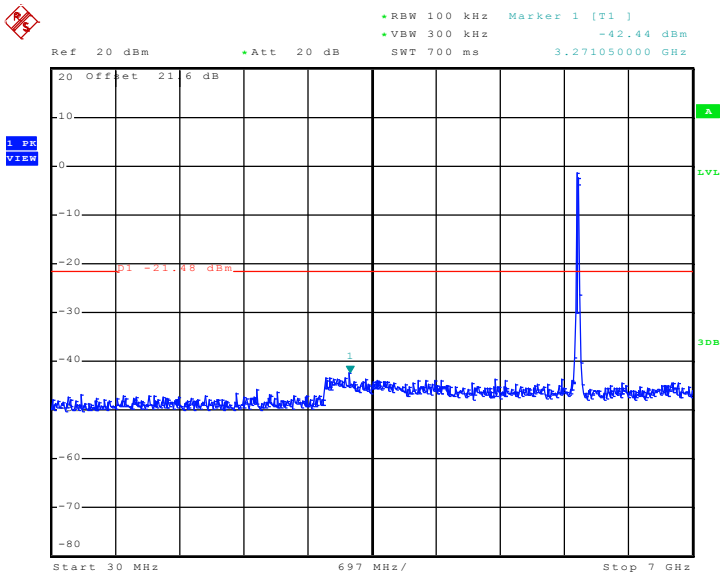
**Channel 151 between 7 GHz~40 GHz - Chain A**




Date: 23.APR.2011 19:42:02

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

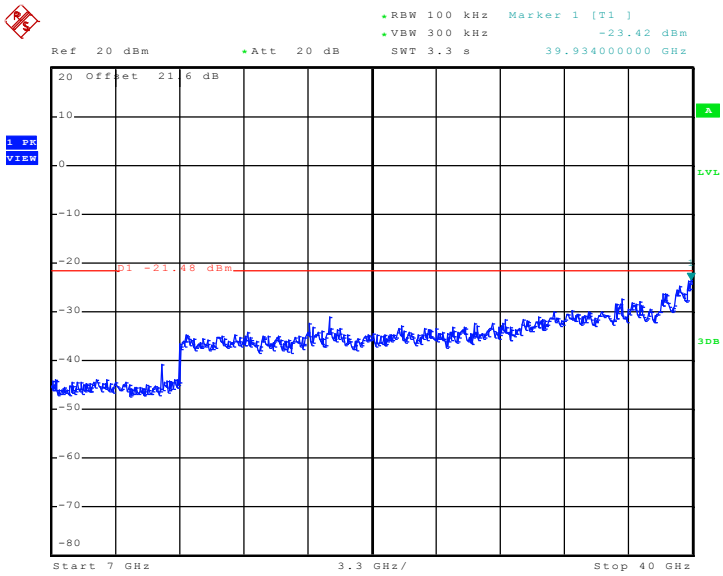
**Channel 151 between 30 MHz~7 GHz - Chain B**




Date: 23.APR.2011 19:16:03

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

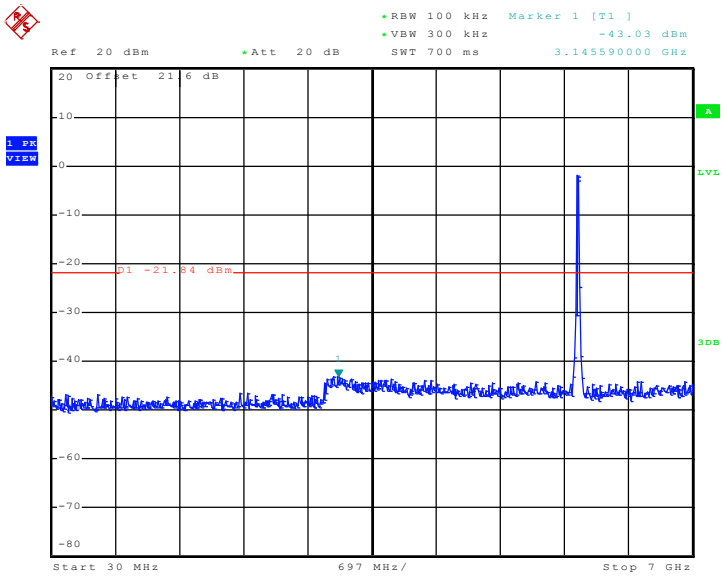
**Channel 151 between 7 GHz~40 GHz - Chain B**




Date: 23.APR.2011 19:16:20

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

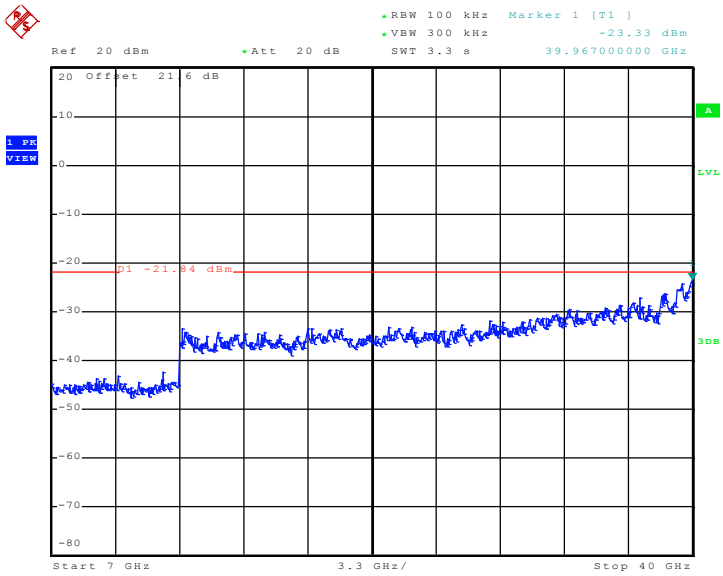
**Channel 151 between 30 MHz~7 GHz - Chain C**




Date: 23.APR.2011 18:56:20

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

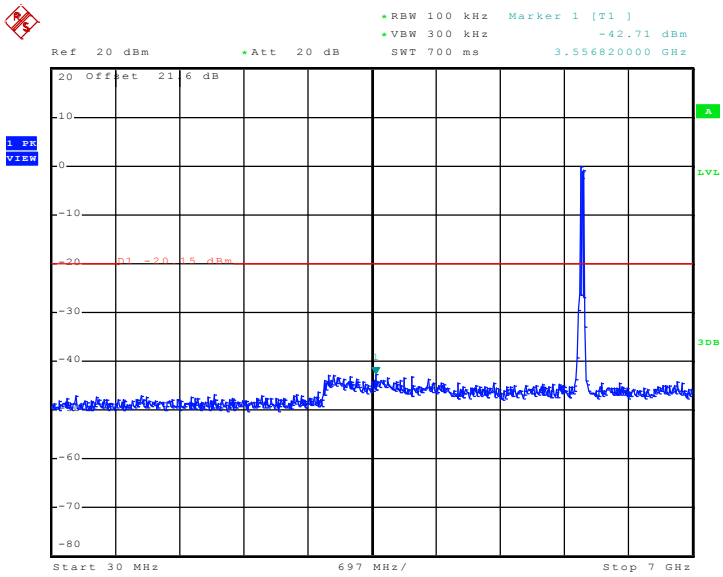
**Channel 151 between 7 GHz~40 GHz - Chain C**




Date: 23.APR.2011 18:56:37

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

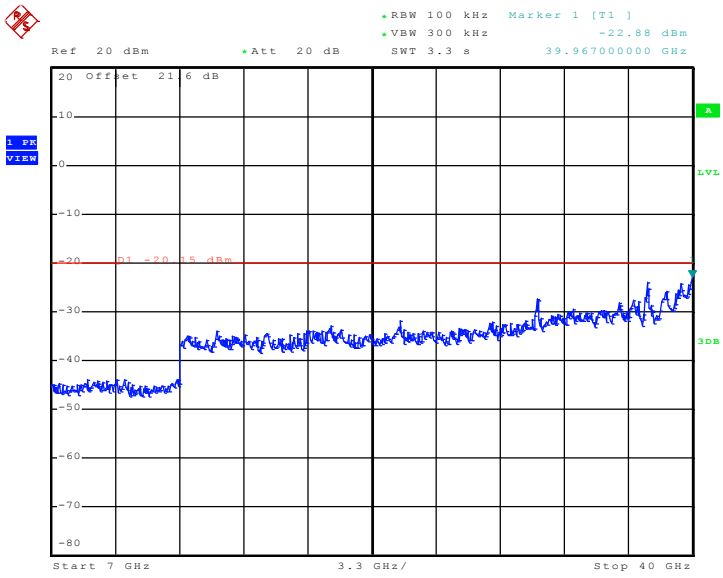
**Channel 159 between 30 MHz~7 GHz - Chain A**




Date: 23.APR.2011 20:06:57

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

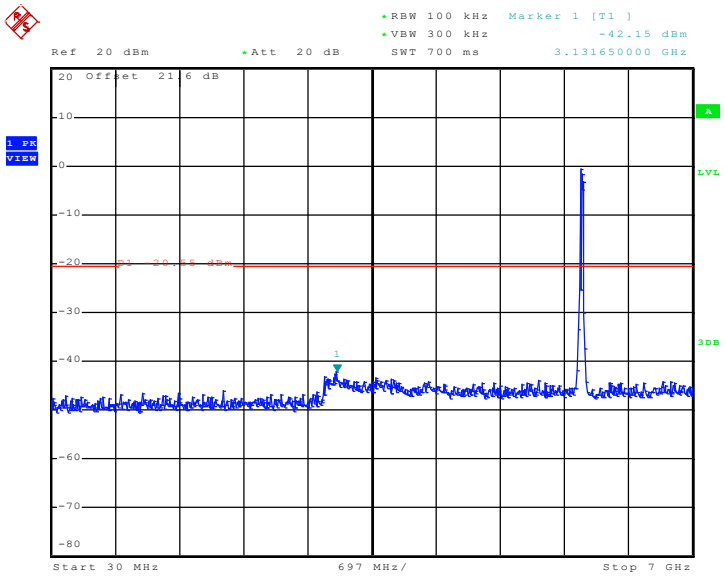
**Channel 159 between 7 GHz~40 GHz - Chain A**




Date: 23.APR.2011 20:07:14

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

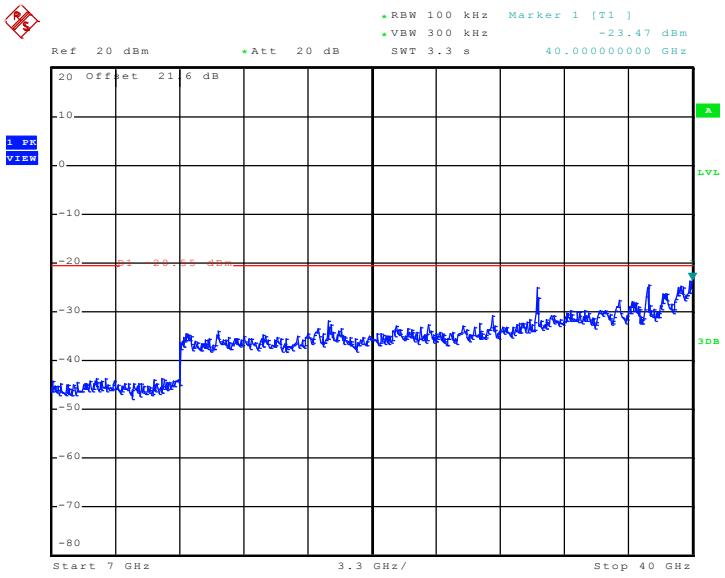
**Channel 159 between 30 MHz~7 GHz - Chain B**




Date: 23.APR.2011 20:28:39

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

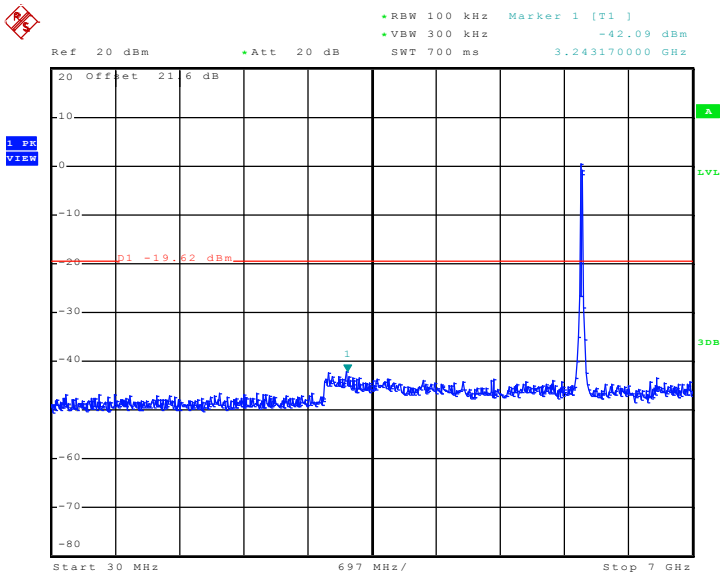
**Channel 159 between 7 GHz~40 GHz - Chain B**




Date: 23.APR.2011 20:28:56

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

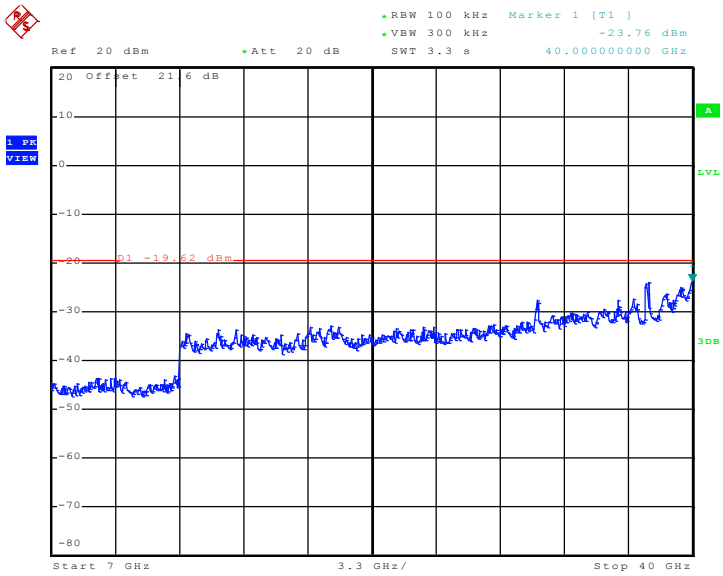
**Channel 159 between 30 MHz~7 GHz - Chain C**




Date: 23.APR.2011 20:52:00

**Conducted Spurious Emission Plot on 802.11n (BW 40MHz)**

**Channel 159 between 7 GHz~40 GHz - Chain C**




Date: 23.APR.2011 20:52:17

# 3.5 Power Spectral Density Measurement

## 3.5.1 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.

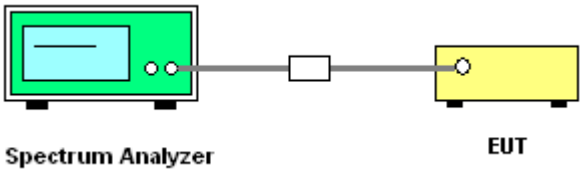
## 3.5.2 Measuring Instruments

See list of measuring instruments of this test report.

## 3.5.3 Test Procedures

1. The test follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. The transmitter output is connected to the spectrum analyzer. According to the PSD Option 1 of FCC KDB Publication No. 558074, the resolution bandwidth is set to 3 KHz, video bandwidth is 10 KHz, Span is 1.5MHz, Sweet time is Span/3KHz = 500s, and Peak detection is used, and the analyzer is set for Max hold.
4. The cable loss (0.5 dB) and attenuator loss (19 dB) are normalized / entered in to the Spectrum Analyzer as an offset as below examples,
   (1) For SISO mode,
   For 802.11b Channel 11 Chain A, the final power in test report is -2.60 dBm which is the reading of spectrum analyzer with offseted cable loss (0.5 dB), and attenuator loss (19 dB).
   (2) For MIMO mode, each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10)).
   For 802.11b Channel 01 Chain A+B: the total final power is 1.82 dBm from the formula of 10*LOG (10^ (-1.47 dBm/10) + 10^ (-0.92 dBm/10)).
   (a) Plot: PSD Plot on 802.11b Channel 01 - Chain A+B (A): -1.47 dBm
   (b) Plot: PSD Plot on 802.11b Channel 01 - Chain A+B (B): -0.92 dBm.
5. Each plots has already offseted with cable loss (0.5 dB), and attenuator loss (19 dB).When the radio transmitter enables both transmit chains, the power on each chain is reduced below when only chain A or chain B is enabled.
6. Measure the power and record it.

### 3.5.4 Test Setup



### 3.5.5 Test Result of Power Spectral Density

| Test Mode : | Mode 1~3 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Engineer : | Alan Liu | Relative Humidity : | 40~44% |

| Channel | Frequency (MHz) | 802.11b Measured PSD (dBm) | Max. Limits (dBm) | Pass/Fail |
|---|---|---|---|---|
| | | Chain A | | |
| 01 | 2412 | -8.32 | 8 | Pass |
| 06 | 2437 | -0.02 | 8 | Pass |
| 11 | 2462 | -5.00 | 8 | Pass |

**Note:** Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10)).

| Test Mode : | Mode 4~6 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Engineer : | Alan Liu | Relative Humidity : | 40~44% |

| Channel | Frequency (MHz) | 802.11g Measured PSD (dBm) | Max. Limits (dBm) | Pass/Fail |
|---|---|---|---|---|
| | | Chain A | | |
| 01 | 2412 | -10.72 | 8 | Pass |
| 06 | 2437 | -0.18 | 8 | Pass |
| 11 | 2462 | -11.29 | 8 | Pass |

**Note:** Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10)).

| Test Mode : | Mode 7~9 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Engineer : | Alan Liu | Relative Humidity : | 40~44% |

| Channel | Frequency (MHz) | 802.11n (BW 20MHz, Chain A+B+C) Measured PSD (dBm) | | | | Max. Limits (dBm) | Pass/Fail |
|---|---|---|---|---|---|---|---|
| | | Chain A | Chain B | Chain C | Total (dBm) | | |
| 01 | 2412 | -12.56 | -12.98 | -11.38 | -7.48 | 8 | Pass |
| 06 | 2437 | -9.18 | -9.07 | -7.76 | -3.85 | 8 | Pass |
| 11 | 2462 | -11.08 | -13.43 | -11.82 | -7.23 | 8 | Pass |

**Note:** Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10) + 10^ (chain C/10)).

| Test Mode : | Mode 10~12 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Engineer : | Alan Liu | Relative Humidity : | 40~44% |

| Channel | Frequency (MHz) | 802.11n (BW 40MHz, Chain A+B+C) Measured PSD (dBm) | | | | Max. Limits (dBm) | Pass/Fail |
|---|---|---|---|---|---|---|---|
| | | Chain A | Chain B | Chain C | Total (dBm) | | |
| 03 | 2422 | -16.62 | -19.68 | -19.22 | -13.52 | 8 | Pass |
| 06 | 2437 | -14.17 | -15.64 | -12.81 | -9.28 | 8 | Pass |
| 09 | 2452 | -13.07 | -20.25 | -20.23 | -11.66 | 8 | Pass |

**Note:** Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10) + 10^ (chain C/10)).

| Test Mode : | Mode 13~15 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Engineer : | Alan Liu | Relative Humidity : | 40~44% |

| Channel | Frequency (MHz) | 802.11a Measured PSD (dBm) | Max. Limits (dBm) | Pass/Fail |
|---|---|---|---|---|
| | | Chain A | | |
| 149 | 5745 | -7.94 | 8 | Pass |
| 157 | 5785 | -6.34 | 8 | Pass |
| 165 | 5825 | -6.82 | 8 | Pass |

**Note:** Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10) + 10^ (chain C/10)).

| Test Mode : | Mode 26~28 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Engineer : | Alan Liu | Relative Humidity : | 40~44% |

| Channel | Frequency (MHz) | 802.11n (BW 20MHz, Chain A+B+C) Measured PSD (dBm) | | | | Max. Limits (dBm) | Pass/Fail |
|---|---|---|---|---|---|---|---|
| | | Chain A | Chain B | Chain C | Total (dBm) | | |
| 149 | 5745 | -11.90 | -12.76 | -11.65 | -7.3 | 8 | Pass |
| 157 | 5785 | -11.06 | -12.24 | -10.54 | -6.45 | 8 | Pass |
| 165 | 5825 | -11.75 | -11.45 | -9.98 | -6.22 | 8 | Pass |

**Note:** Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10) + 10^ (chain C/10)).

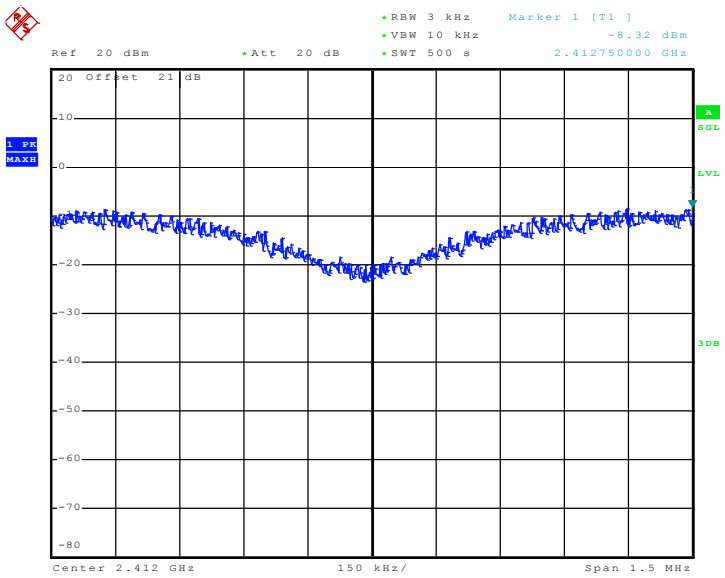
| Test Mode : | Mode 29~30 | Temperature : | 24~26℃ |
|---|---|---|---|
| Test Engineer : | Alan Liu | Relative Humidity : | 40~44% |

| Channel | Frequency (MHz) | 802.11n (BW 40MHz, Chain A+B+C) Measured PSD (dBm) | | | | Max. Limits (dBm) | Pass/Fail |
|---|---|---|---|---|---|---|---|
| | | Chain A | Chain B | Chain C | Total (dBm) | | |
| 151 | 5755 | -16.32 | -17.84 | -17.70 | -12.46 | 8 | Pass |
| 159 | 5795 | -15.30 | -15.89 | -16.31 | -11.04 | 8 | Pass |

**Note:** Each chain was measured individually and calculated with the formula of 10*LOG (10^ (chain A/10) + 10^ (chain B/10) + 10^ (chain C/10)).

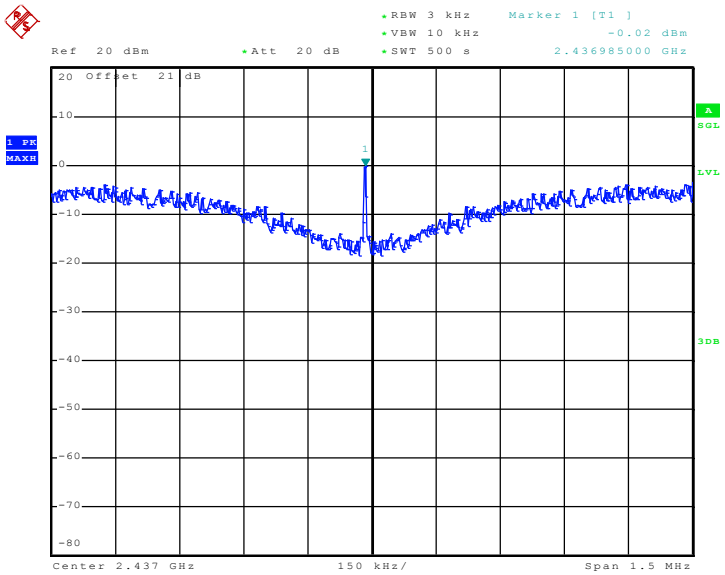
## 3.5.6 Test Result of Power Spectral Density Plots

### PSD Plot on 802.11b Channel 01 - Chain A



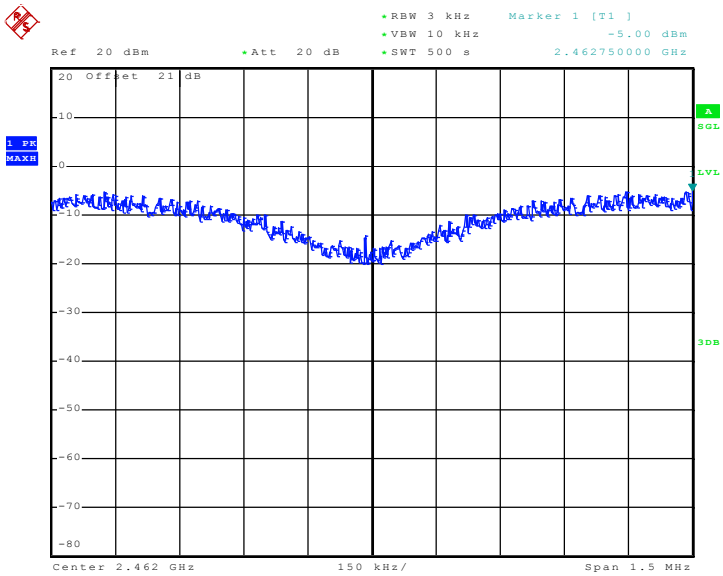

Date: 16.APR.2011 19:07:38

### PSD Plot on 802.11b Channel 06 - Chain A



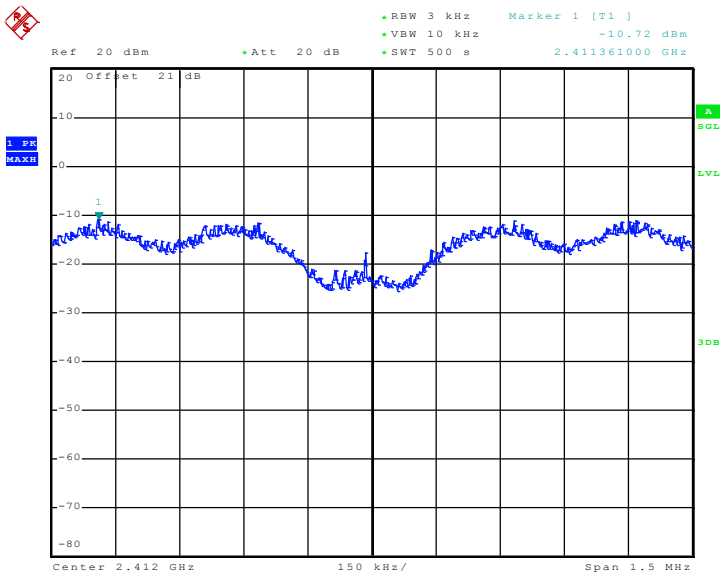

Date: 16.APR.2011 19:49:29

## PSD Plot on 802.11b Channel 11 - Chain A



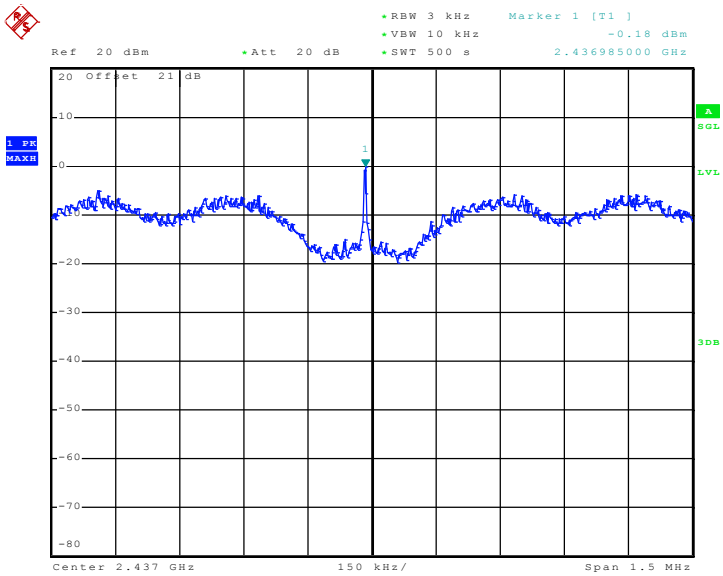

Date: 16.APR.2011 20:04:53

## PSD Plot on 802.11g Channel 01 - Chain A



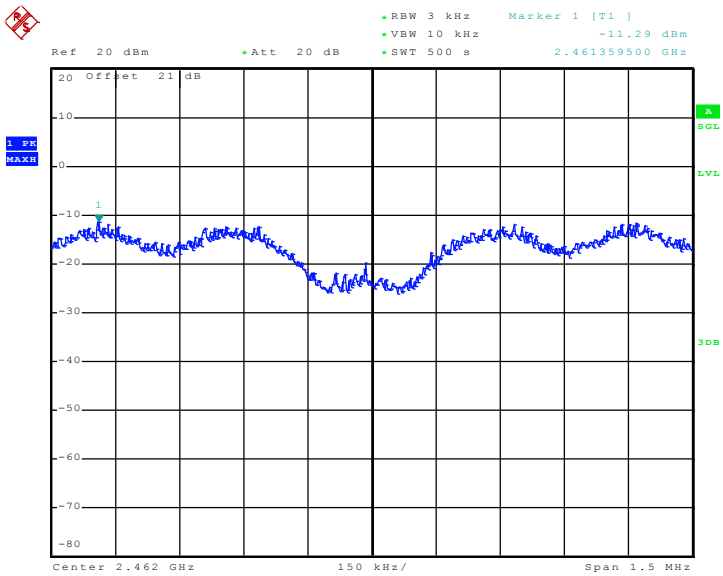

Date: 16.APR.2011 21:03:05

## PSD Plot on 802.11g Channel 06 - Chain A



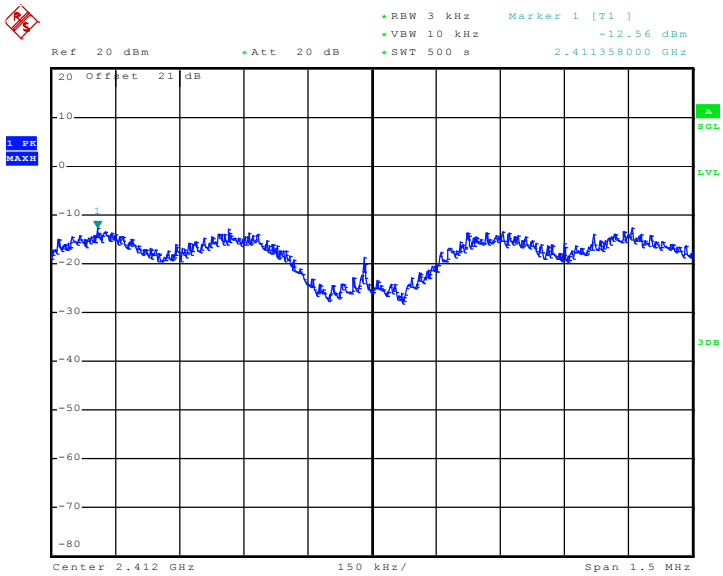

Date: 16.APR.2011 20:42:50

## PSD Plot on 802.11g Channel 11 - Chain A



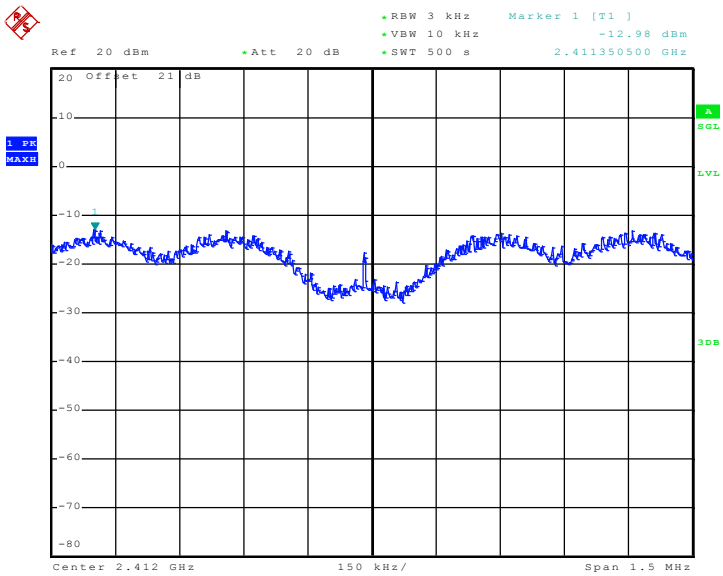

Date: 16.APR.2011 20:29:12

## PSD Plot on 802.11n (BW 20MHz) Channel 01 - Chain A



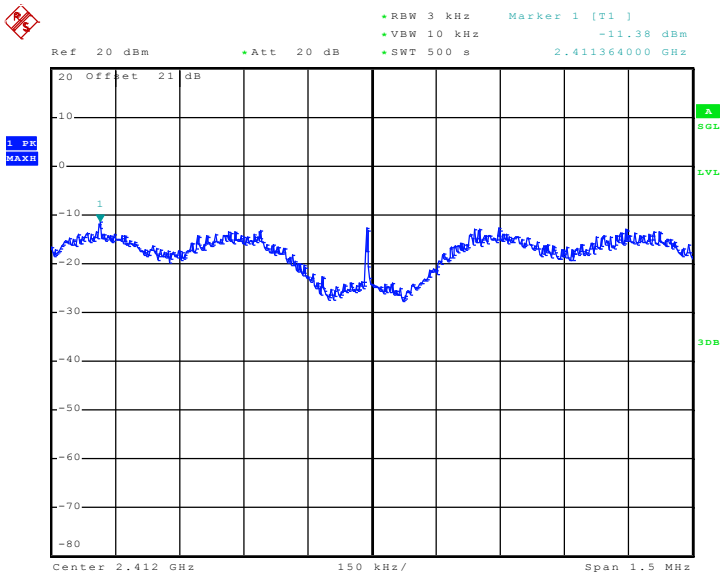

Date: 16.APR.2011 21:20:25

## PSD Plot on 802.11n (BW 20MHz) Channel 01 - Chain B



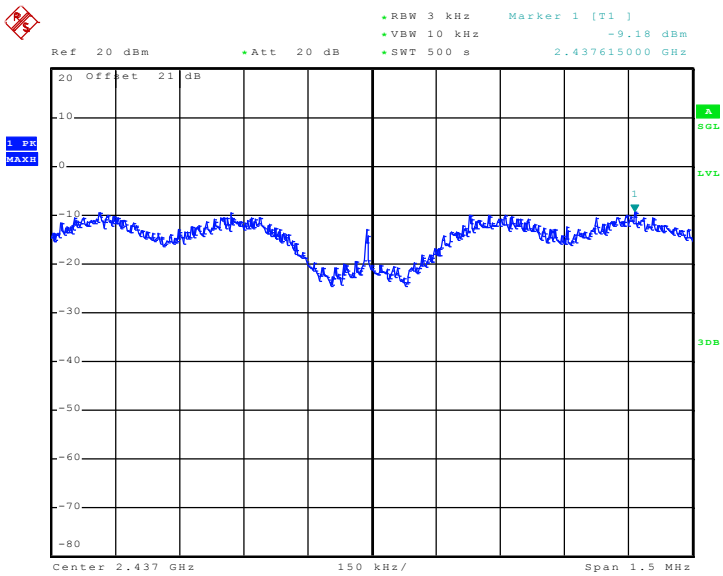

Date: 16.APR.2011 21:35:44

## PSD Plot on 802.11n (BW 20MHz) Channel 01 - Chain C



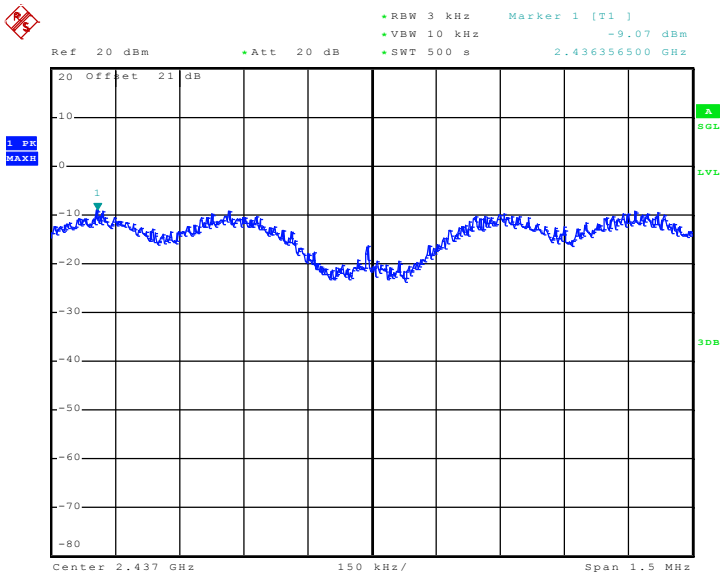

Date: 21.APR.2011 22:50:01

## PSD Plot on 802.11n (BW 20MHz) Channel 06 - Chain A



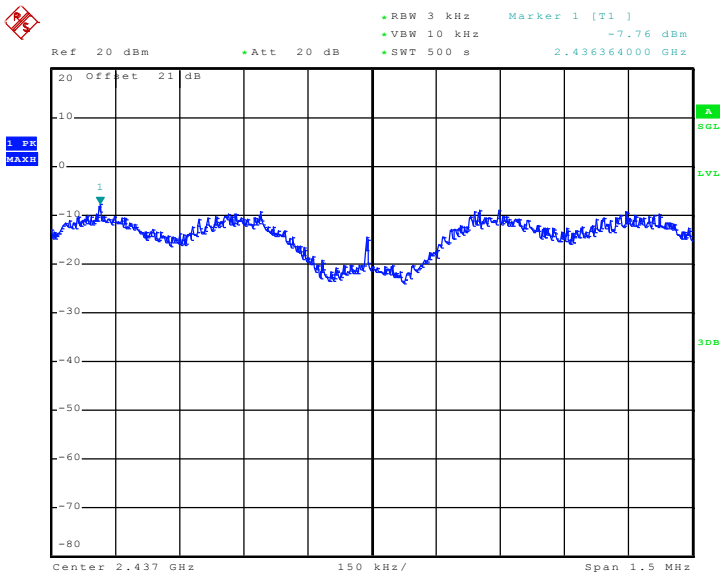

Date: 21.APR.2011 23:32:05

## PSD Plot on 802.11n (BW 20MHz) Channel 06 - Chain B



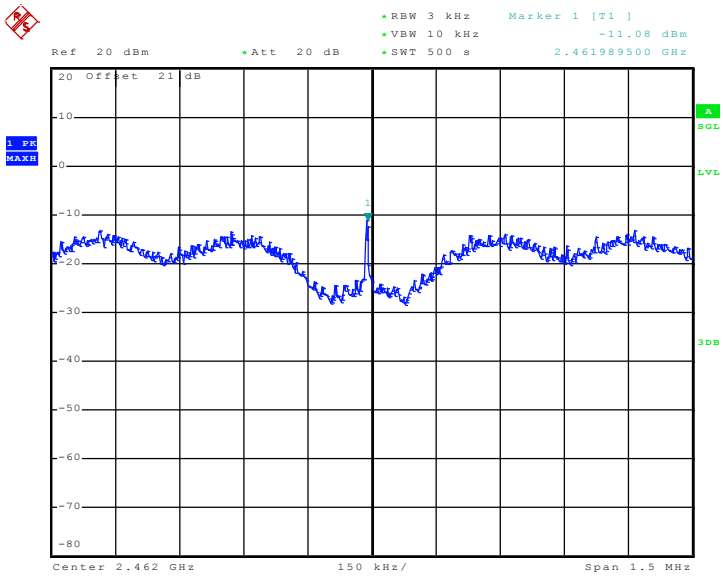

Date: 21.APR.2011 23:14:23

## PSD Plot on 802.11n (BW 20MHz) Channel 06 - Chain C



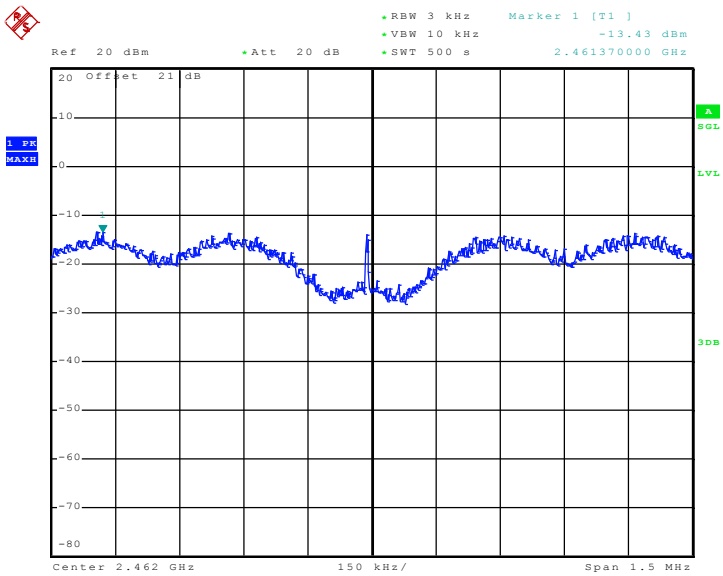

Date: 21.APR.2011 23:02:18

## PSD Plot on 802.11n (BW 20MHz) Channel 11 - Chain A



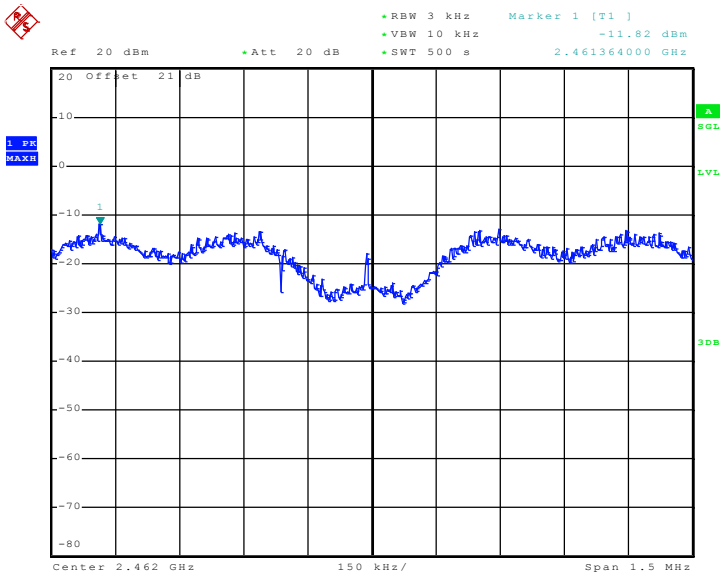

Date: 21.APR.2011 23:44:16

## PSD Plot on 802.11n (BW 20MHz) Channel 11 - Chain B



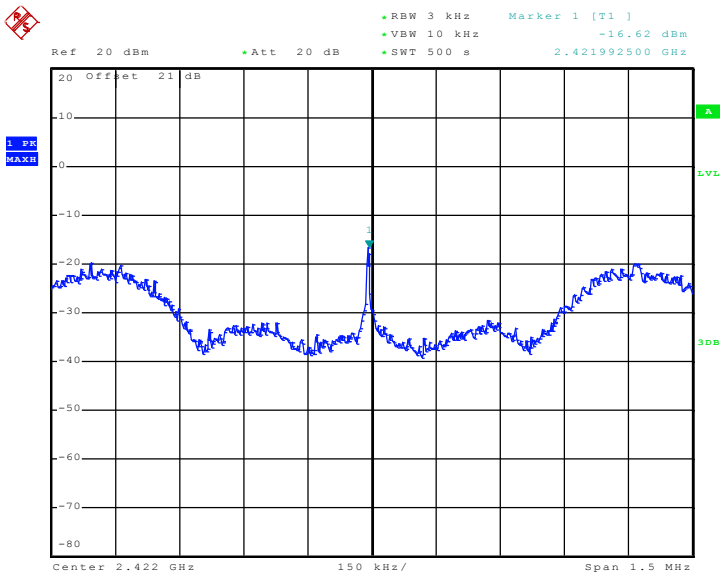

Date: 21.APR.2011 23:57:05

## PSD Plot on 802.11n (BW 20MHz) Channel 11 - Chain C



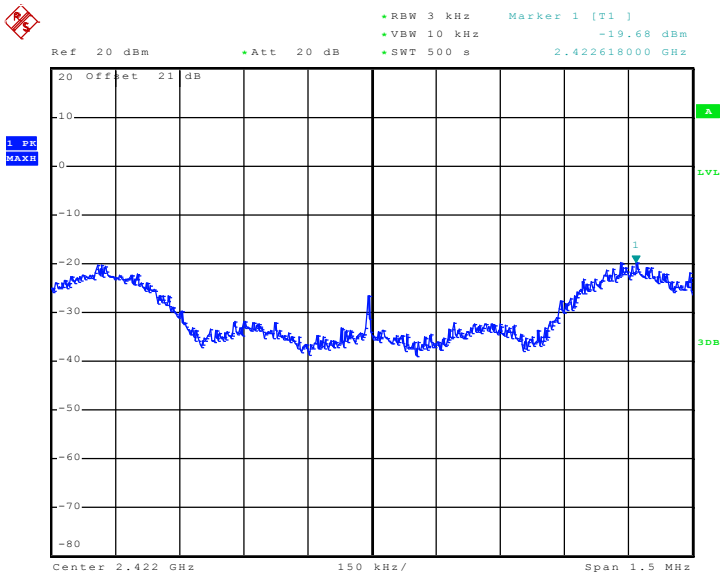

Date: 22.APR.2011 00:11:44

## PSD Plot on 802.11n (BW 40MHz) Channel 03 - Chain A



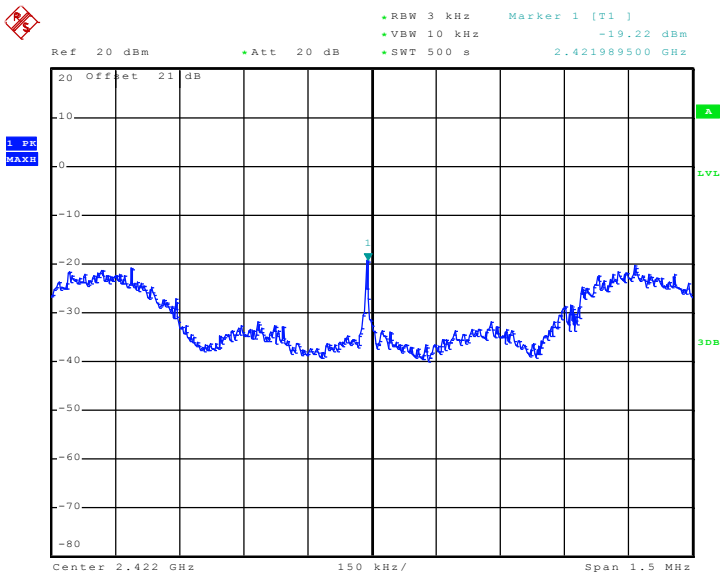

Date: 22.APR.2011 20:46:27

## PSD Plot on 802.11n (BW 40MHz) Channel 03 - Chain B



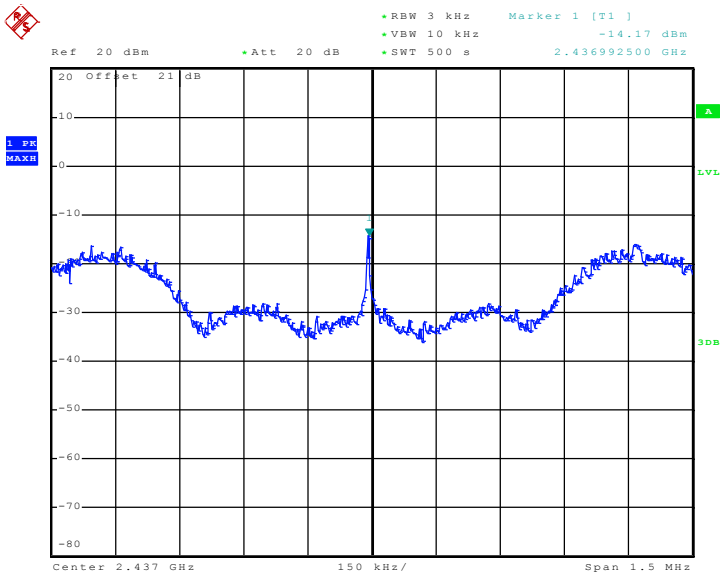

Date: 22.APR.2011 19:57:36

## PSD Plot on 802.11n (BW 40MHz) Channel 03 - Chain C



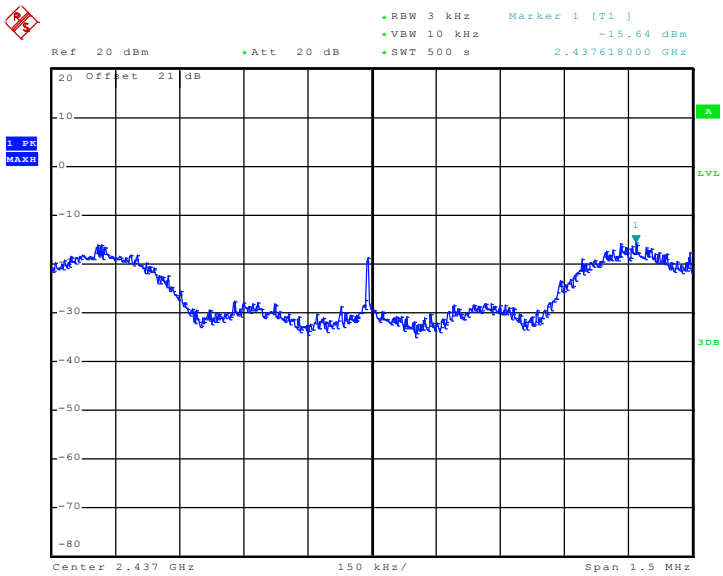

Date: 22.APR.2011 18:27:28

## PSD Plot on 802.11n (BW 40MHz) Channel 06 - Chain A



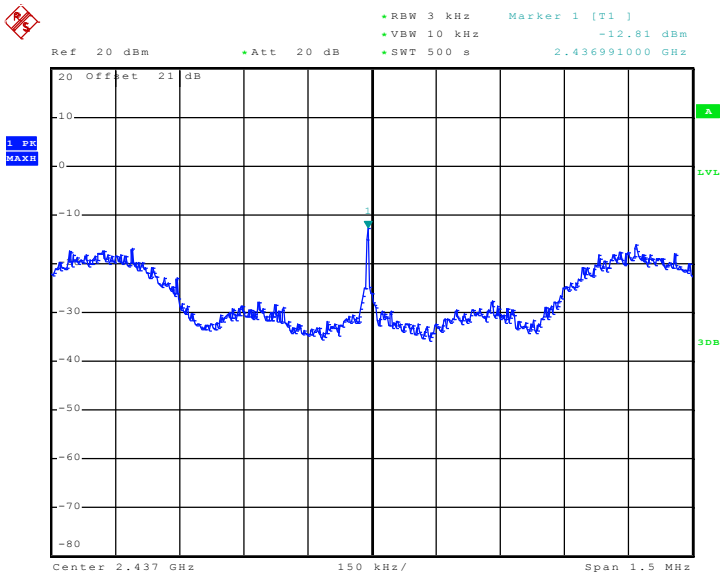

Date: 22.APR.2011 21:01:56

## PSD Plot on 802.11n (BW 40MHz) Channel 06 - Chain B



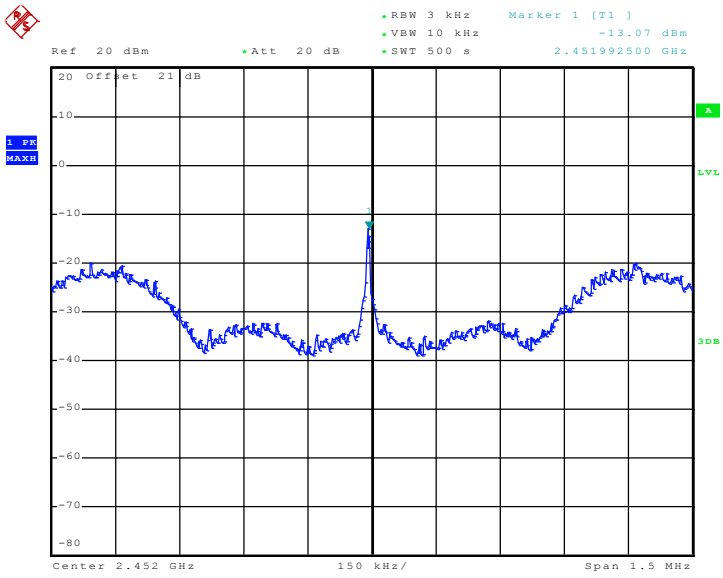

Date: 22.APR.2011 21:22:02

## PSD Plot on 802.11n (BW 40MHz) Channel 06 - Chain C



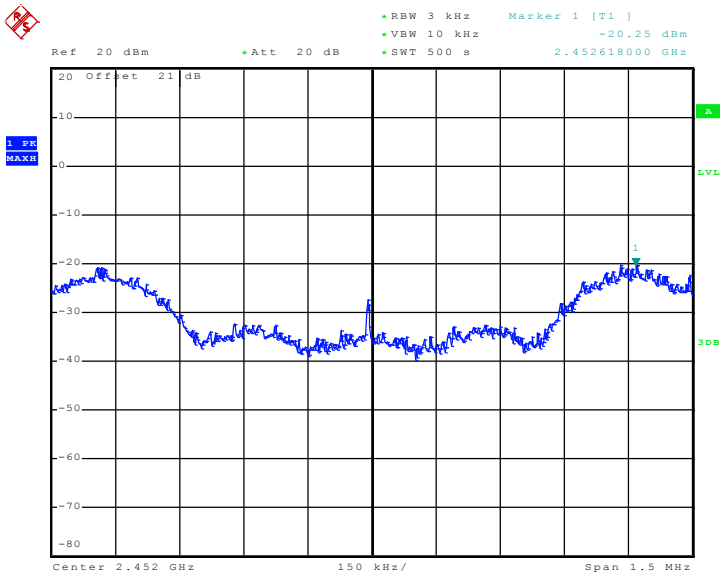

Date: 22.APR.2011 21:44:05

## PSD Plot on 802.11n (BW 40MHz) Channel 09 - Chain A



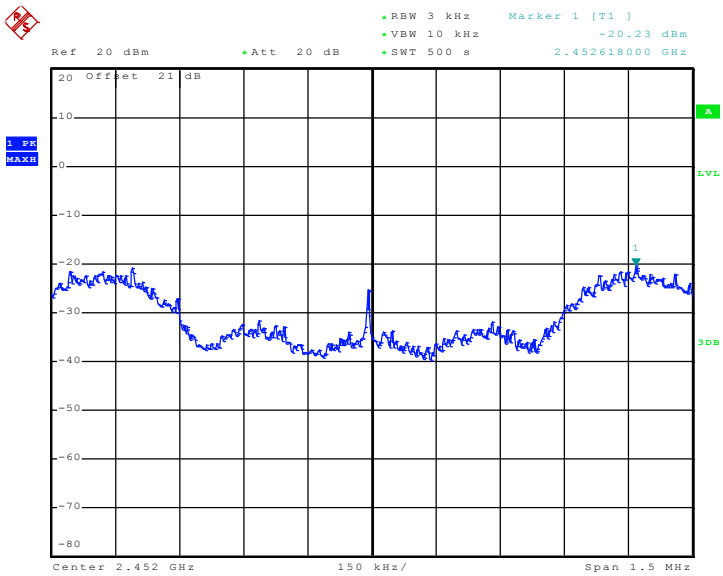

Date: 23.APR.2011 01:06:17

## PSD Plot on 802.11n (BW 40MHz) Channel 09 - Chain B



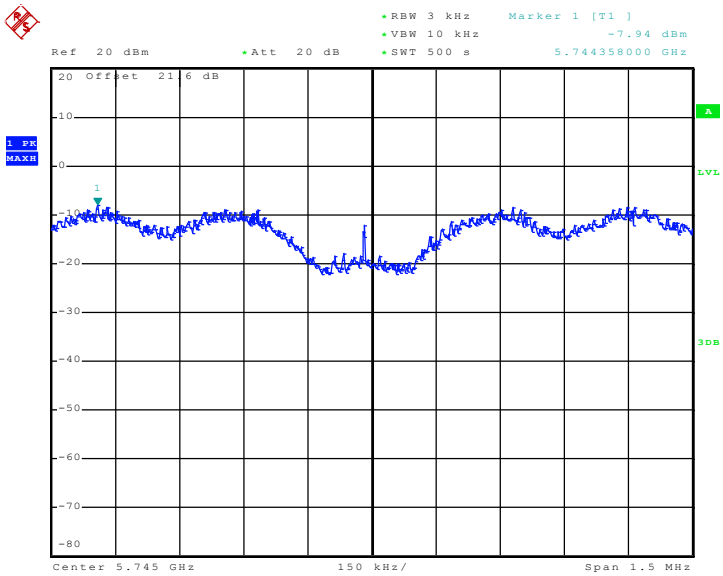

Date: 22.APR.2011 23:32:26

## PSD Plot on 802.11n (BW 40MHz) Channel 09 - Chain C



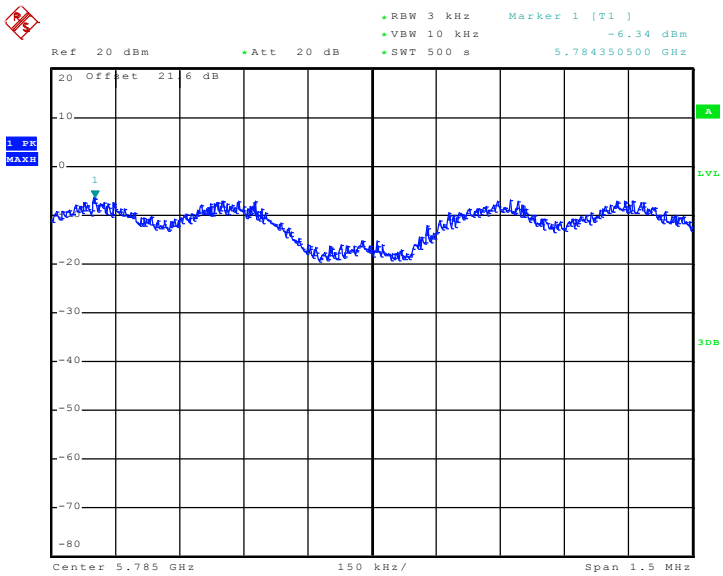

Date: 22.APR.2011 23:04:29

## PSD Plot on 802.11a Channel 149 - Chain A



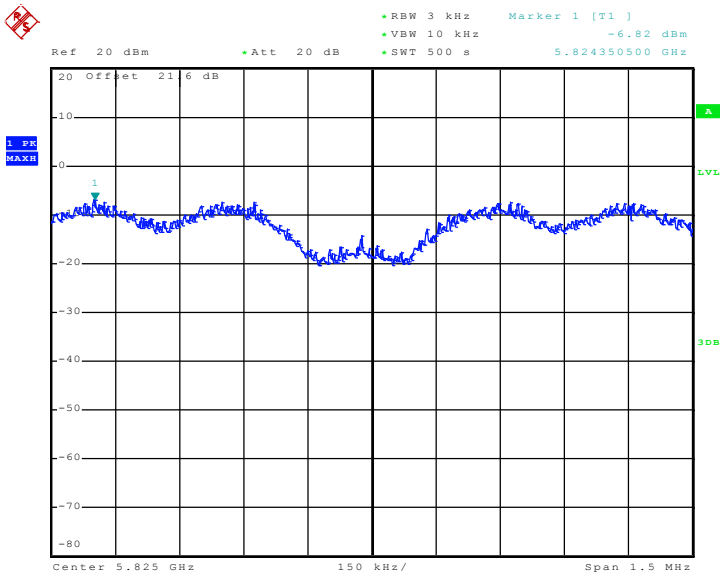

Date: 23.APR.2011 13:26:05

## PSD Plot on 802.11a Channel 157 - Chain A



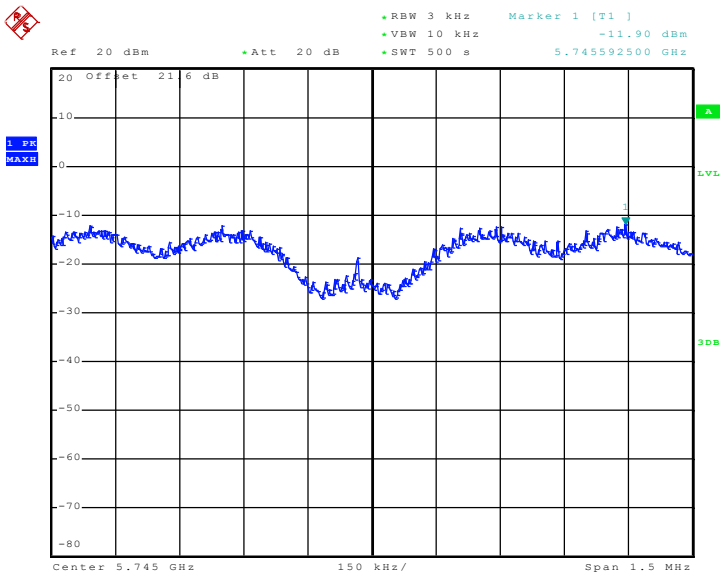

Date: 23.APR.2011 13:49:30

## PSD Plot on 802.11a Channel 165 - Chain A



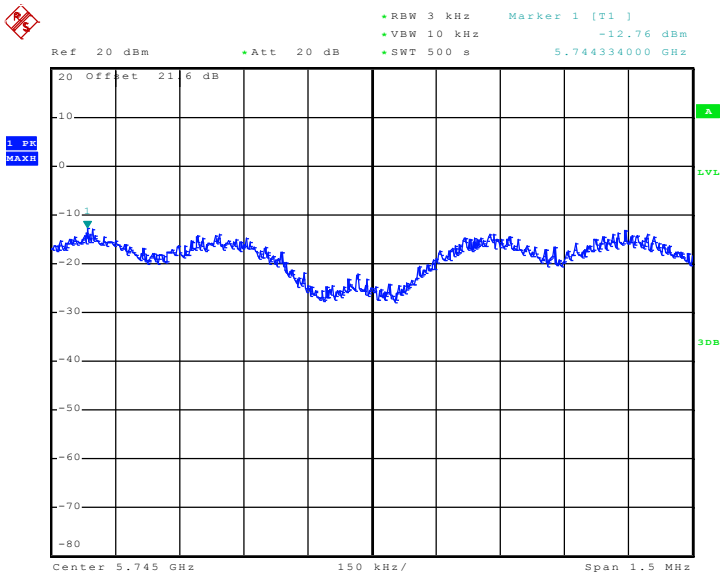

Date: 23.APR.2011 14:03:34

## PSD Plot on 802.11n (BW 20MHz) Channel 149 - Chain A



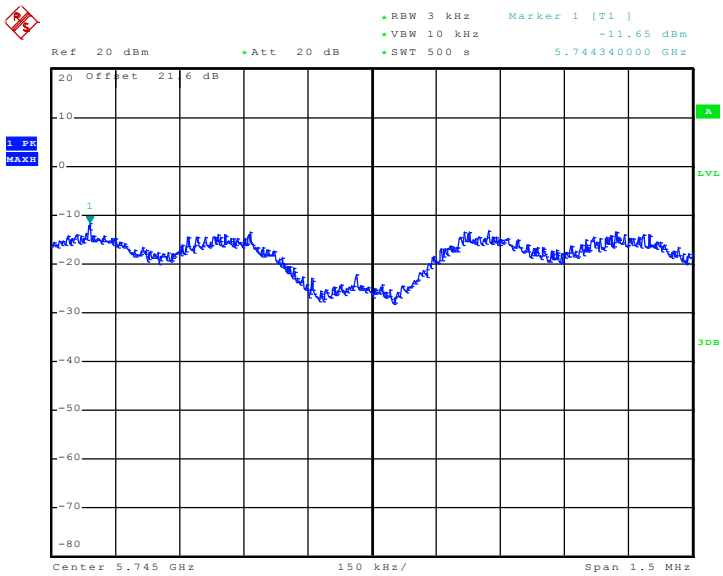

Date: 23.APR.2011 14:58:42

## PSD Plot on 802.11n (BW 20MHz) Channel 149 - Chain B



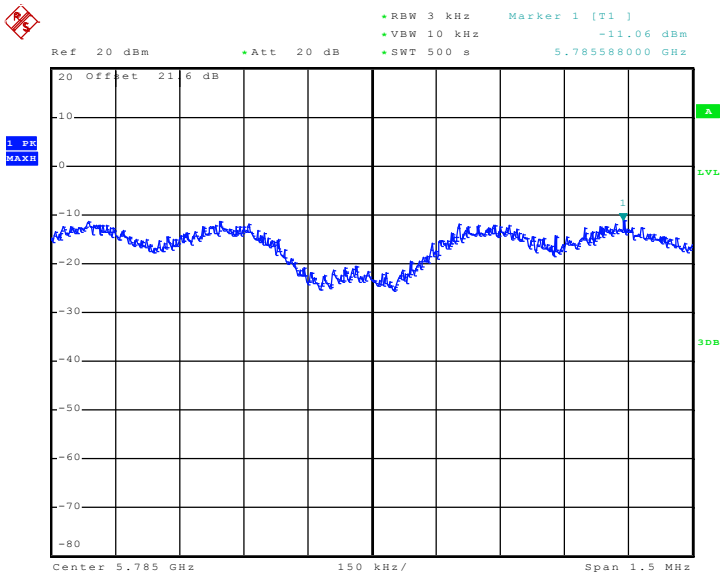

Date: 23.APR.2011 15:32:38

## PSD Plot on 802.11n (BW 20MHz) Channel 149 - Chain C



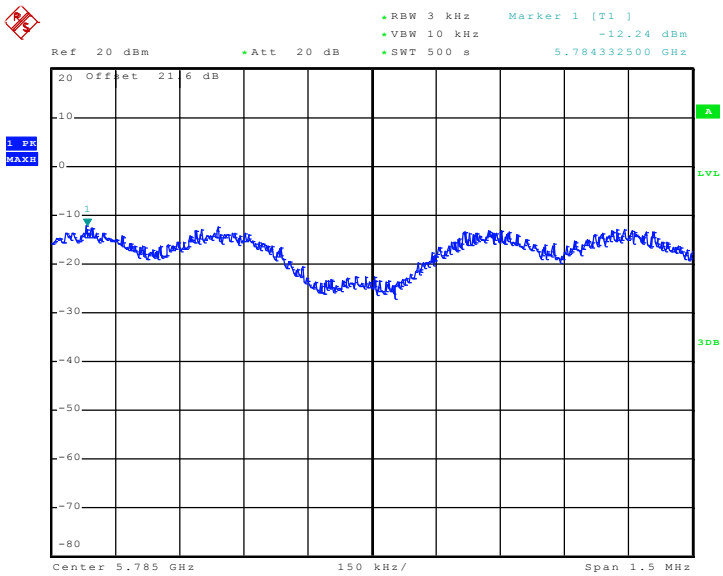

Date: 23.APR.2011 16:03:10

## PSD Plot on 802.11n (BW 20MHz) Channel 157 - Chain A



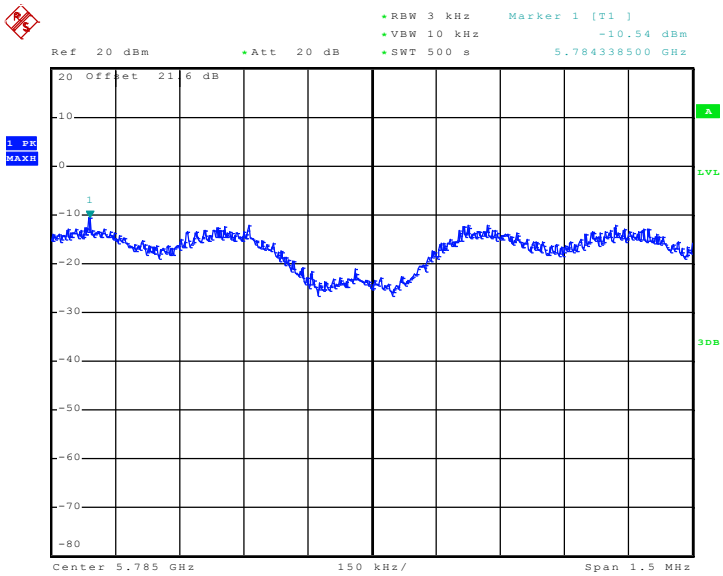

Date: 23.APR.2011 17:05:03

## PSD Plot on 802.11n (BW 20MHz) Channel 157 - Chain B



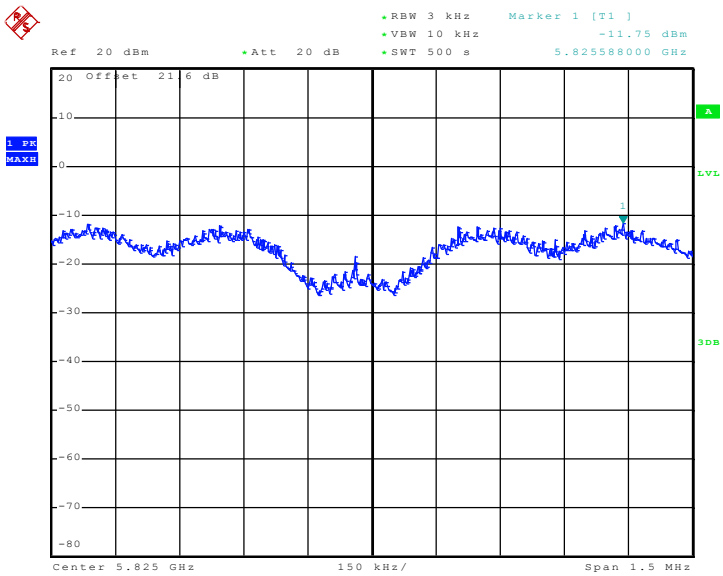

Date: 23.APR.2011 16:48:09

## PSD Plot on 802.11n (BW 20MHz) Channel 157 - Chain C



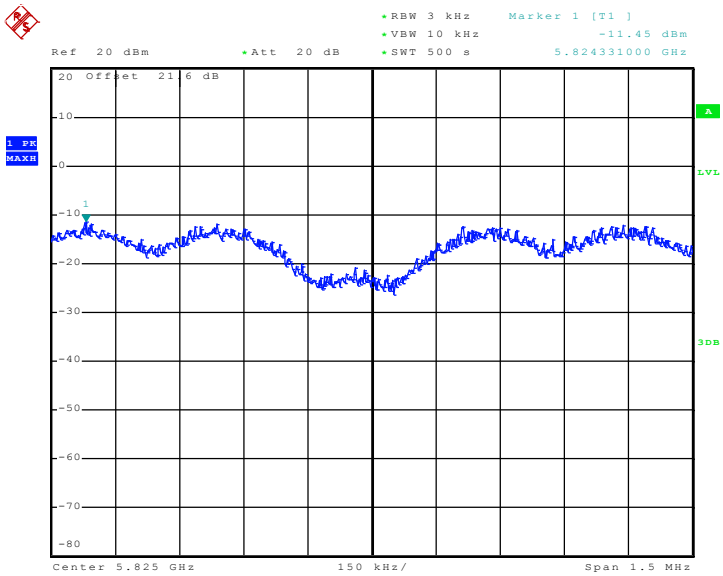

Date: 23.APR.2011 16:26:28

## PSD Plot on 802.11n (BW 20MHz) Channel 165 - Chain A



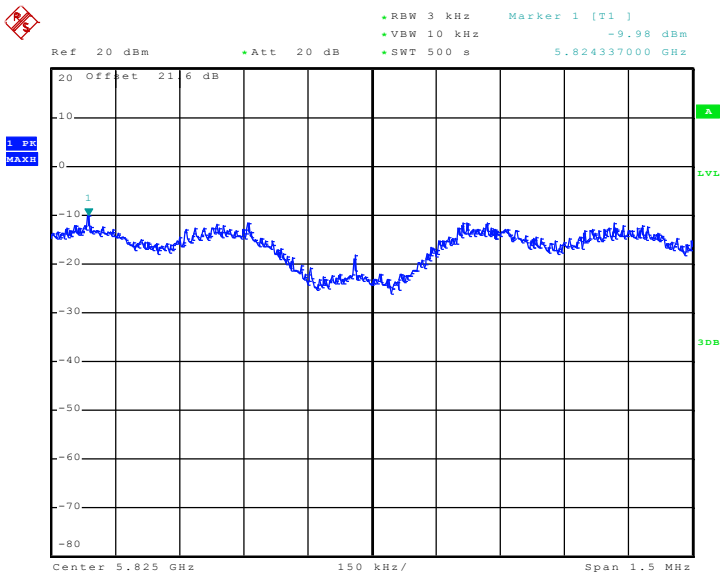

Date: 23.APR.2011 17:29:28

## PSD Plot on 802.11n (BW 20MHz) Channel 165 - Chain B



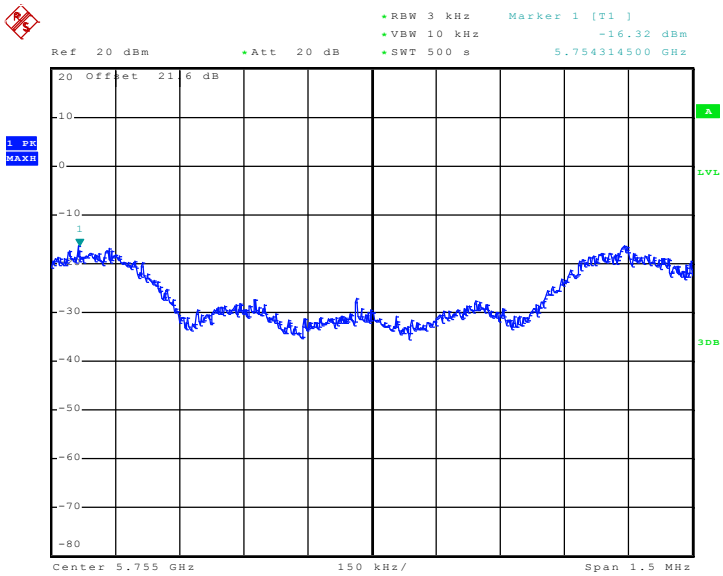

Date: 23.APR.2011 17:55:21

## PSD Plot on 802.11n (BW 20MHz) Channel 165 – Chain C



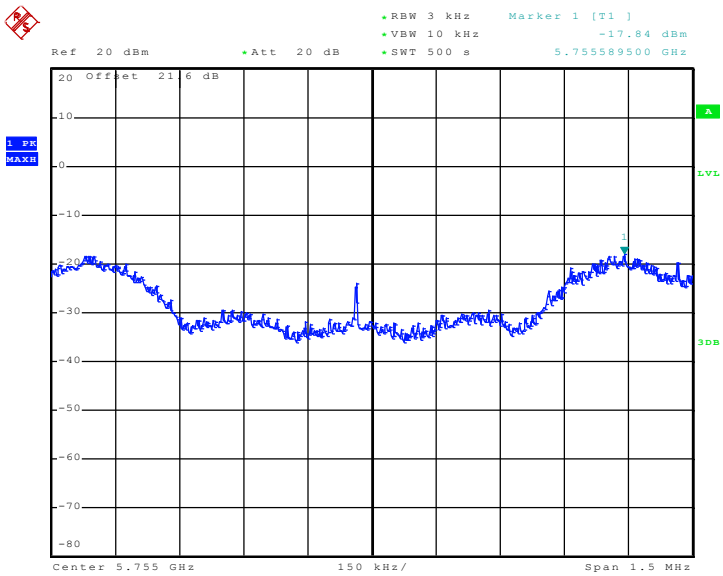

Date: 23.APR.2011 18:39:22

## PSD Plot on 802.11n (BW 40MHz) Channel 151 - Chain A



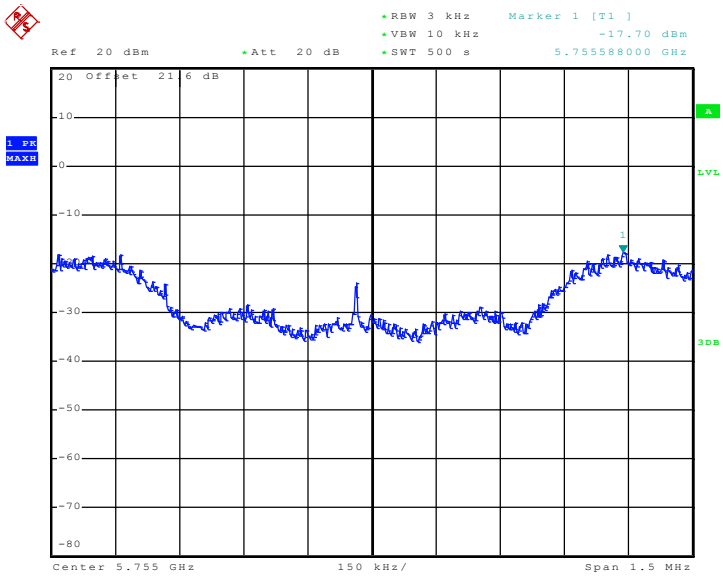

Date: 23.APR.2011 20:01:43

## PSD Plot on 802.11n (BW 40MHz) Channel 151 - Chain B



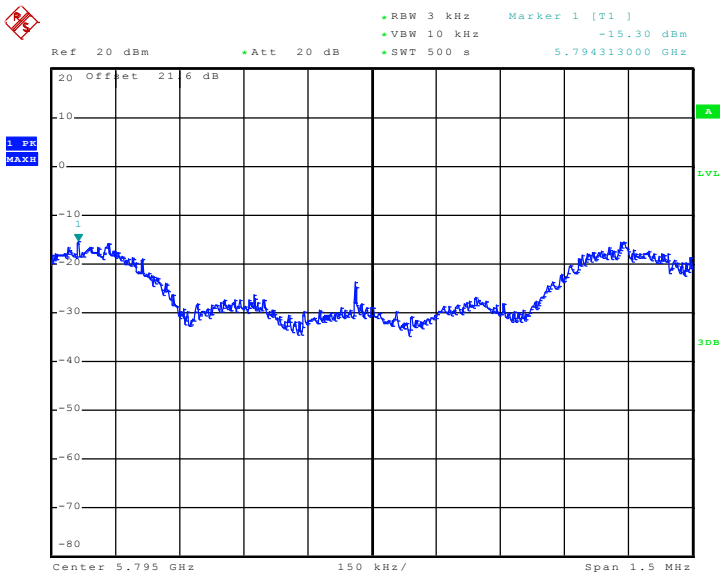

Date: 23.APR.2011 19:34:15

## PSD Plot on 802.11n (BW 40MHz) Channel 151 - Chain C



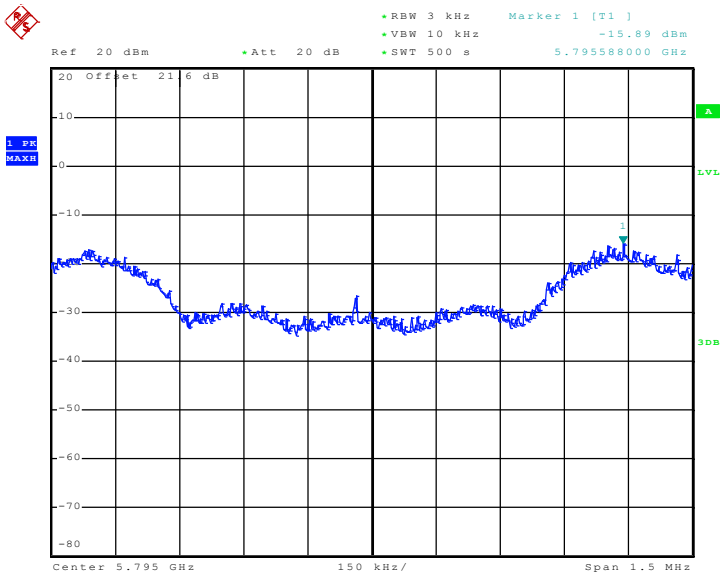

Date: 23.APR.2011 19:12:07

## PSD Plot on 802.11n (BW 40MHz) Channel 159 - Chain A



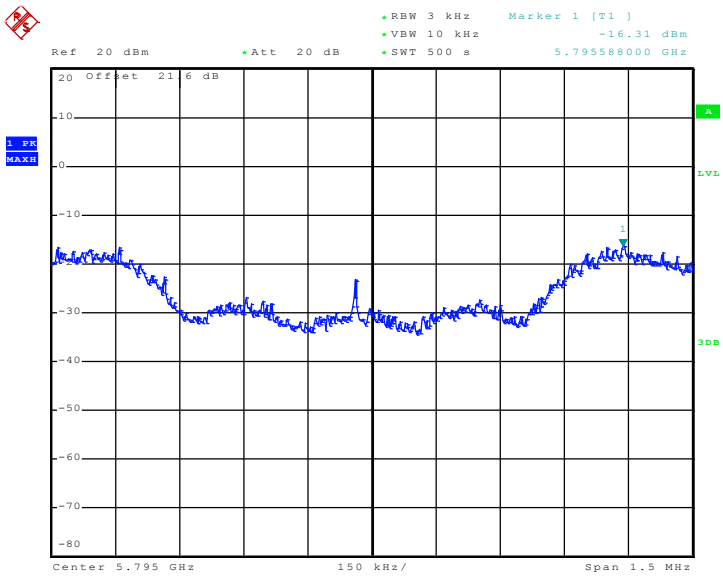

Date: 23.APR.2011 20:22:25

## PSD Plot on 802.11n (BW 40MHz) Channel 159 - Chain B




Date: 23.APR.2011 20:46:27

## PSD Plot on 802.11n (BW 40MHz) Channel 159 - Chain C




Date: 23.APR.2011 21:06:19

# 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.

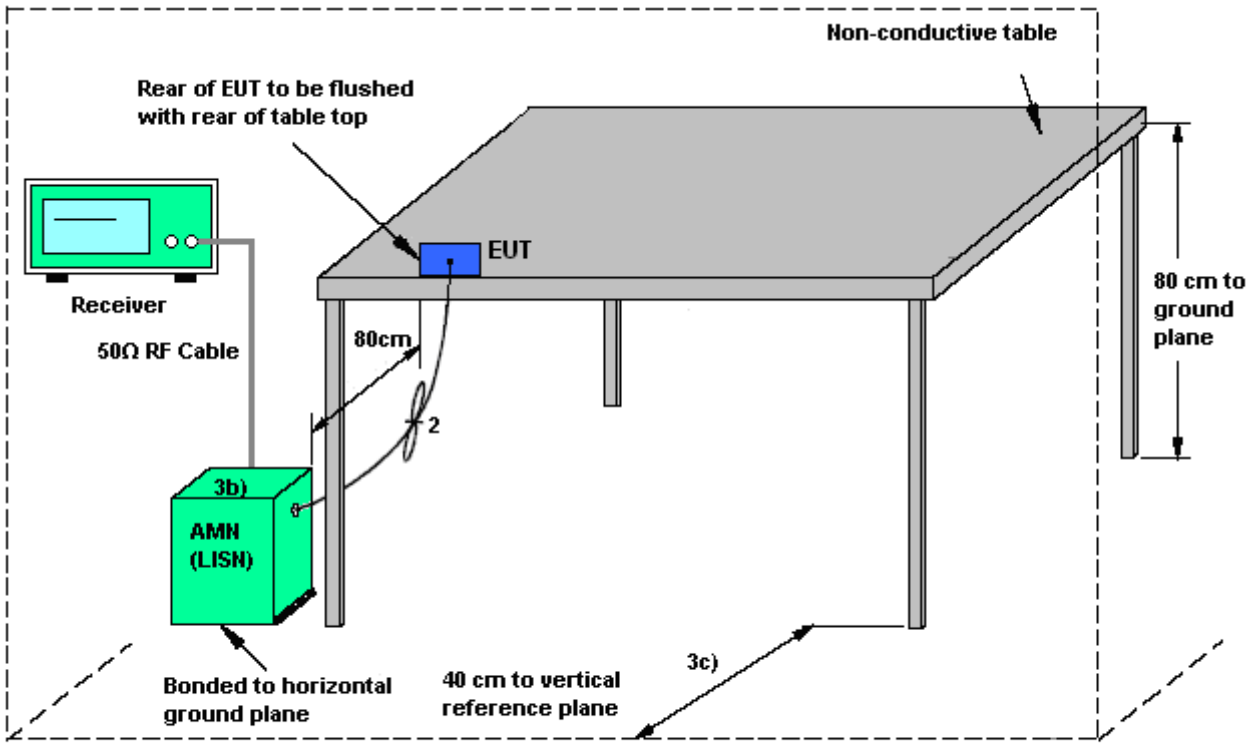
## 3.6.2 Measuring Instruments

See list of measuring instruments of this test report.

## 3.6.3 Test Procedures

7. The testing follows the guidelines in FCC KDB Publication No. 558074.
8. 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.
9. Connect EUT to the power mains through a line impedance stabilization network (LISN).
10. All the support units are connecting to the other LISN.
11. The LISN provides 50 ohm coupling impedance for the measuring instrument.
12. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
13. Both sides of AC line were checked for maximum conducted interference.
14. The frequency range from 150 kHz to 30 MHz was searched.
15. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

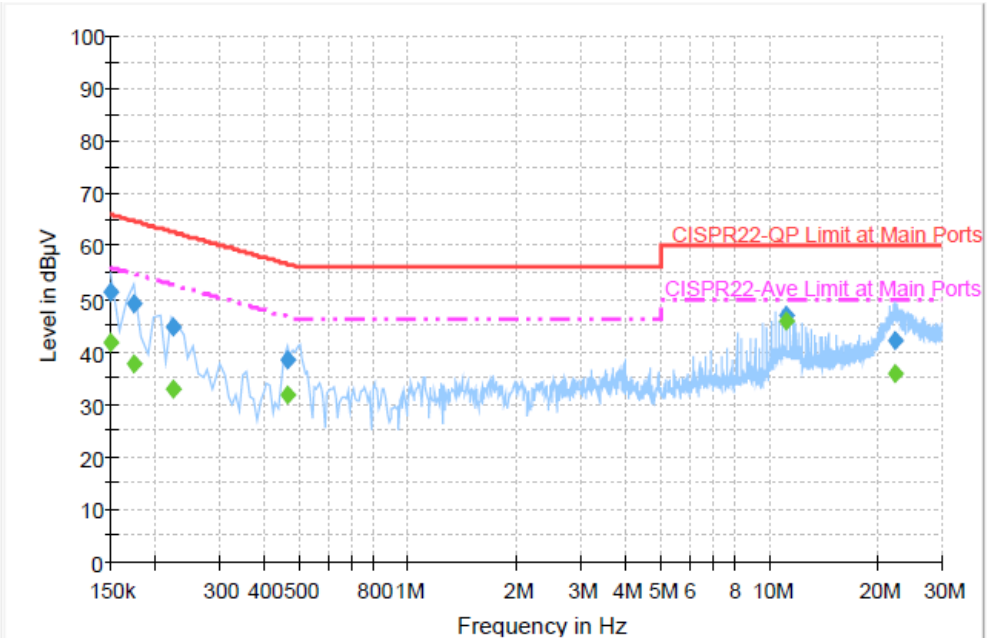
### 3.6.4 Test Setup




AMN = Artificial mains network (LISN)
AE = Associated equipment
EUT = Equipment under test
ISN = Impedance stabilization network

### 3.6.5 Test Result of AC Conducted Emission

| | | | |
|---|---|---|---|
| **Test Mode :** | Mode 1 | **Temperature :** | 20~22℃ |
| **Test Engineer :** | Novic Chiang | **Relative Humidity :** | 40~42% |
| **Test Voltage :** | 120Vac / 60Hz | **Phase :** | Line |
| **Function Type :** | WLAN (2.4G) Link + USB Cable with iPod + PoE for Antenna 3 | | |
| **Remark :** | All emissions not reported here are more than 10 dB below the prescribed limit. | | |



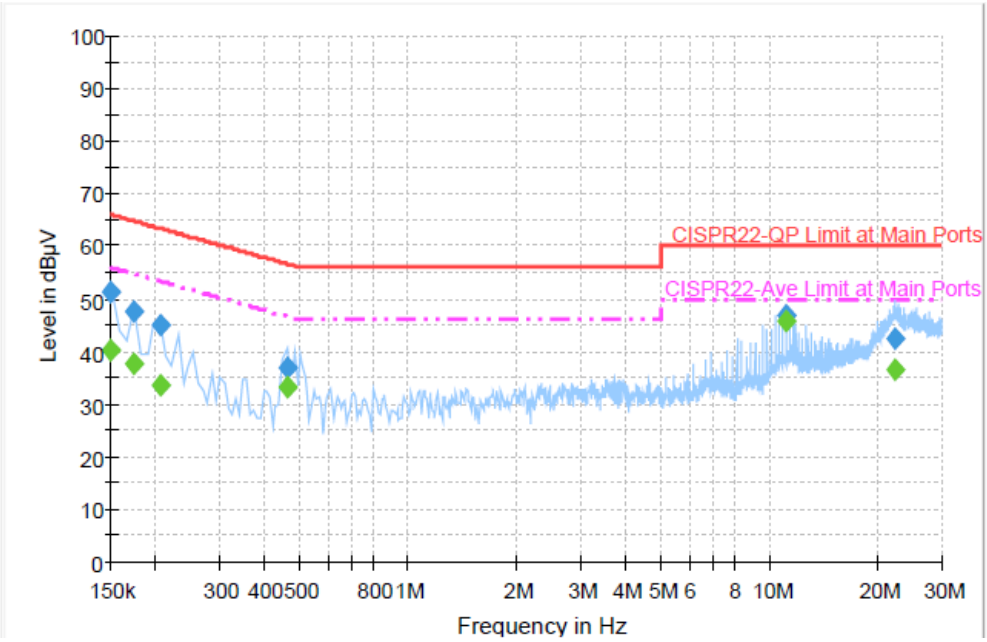

**Final Result 1**

| Frequency (MHz) | QuasiPeak (dBµV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|---|
| 0.150000 | 51.4 | Off | L1 | 19.4 | 14.6 | 66.0 |
| 0.174000 | 48.9 | Off | L1 | 19.4 | 15.9 | 64.8 |
| 0.224000 | 44.7 | Off | L1 | 19.4 | 18.0 | 62.7 |
| 0.462000 | 38.2 | Off | L1 | 19.4 | 17.8 | 56.0 |
| 11.102000 | 46.7 | Off | L1 | 19.6 | 13.3 | 60.0 |
| 22.326000 | 42.2 | Off | L1 | 19.8 | 17.8 | 60.0 |

**Final Result 2**

| Frequency (MHz) | Average (dBµV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|---|
| 0.150000 | 41.8 | Off | L1 | 19.4 | 14.2 | 56.0 |
| 0.174000 | 37.6 | Off | L1 | 19.4 | 17.2 | 54.8 |
| 0.224000 | 33.0 | Off | L1 | 19.4 | 19.7 | 52.7 |
| 0.462000 | 31.8 | Off | L1 | 19.4 | 14.2 | 46.0 |
| 11.102000 | 45.6 | Off | L1 | 19.6 | 4.4 | 50.0 |
| 22.326000 | 35.9 | Off | L1 | 19.8 | 14.1 | 50.0 |

| Test Mode : | Mode 1 | Temperature : | 20~22℃ |
|---|---|---|---|
| Test Engineer : | Novic Chiang | Relative Humidity : | 40~42% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Neutral |
| Function Type : | WLAN (2.4G) Link + USB Cable with iPod + PoE for Antenna 3 | | |
| Remark : | All emissions not reported here are more than 10 dB below the prescribed limit. | | |




**Final Result 1**

| Frequency (MHz) | QuasiPeak (dBµV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|---|
| 0.150000 | 51.4 | Off | N | 19.4 | 14.6 | 66.0 |
| 0.174000 | 47.5 | Off | N | 19.4 | 17.3 | 64.8 |
| 0.206000 | 45.0 | Off | N | 19.4 | 18.4 | 63.4 |
| 0.462000 | 37.0 | Off | N | 19.4 | 19.7 | 56.7 |
| 11.102000 | 47.0 | Off | N | 19.6 | 13.0 | 60.0 |
| 22.342000 | 42.4 | Off | N | 19.8 | 17.6 | 60.0 |

**Final Result 2**

| Frequency (MHz) | Average (dBµV) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dBµV) |
|---|---|---|---|---|---|---|
| 0.150000 | 40.2 | Off | N | 19.4 | 15.8 | 56.0 |
| 0.174000 | 37.5 | Off | N | 19.4 | 17.3 | 54.8 |
| 0.206000 | 33.7 | Off | N | 19.4 | 19.7 | 53.4 |
| 0.462000 | 33.2 | Off | N | 19.4 | 13.5 | 46.7 |
| 11.102000 | 45.8 | Off | N | 19.6 | 4.2 | 50.0 |
| 22.342000 | 36.6 | Off | N | 19.8 | 13.4 | 50.0 |

# 3.7 Radiated Emission Measurement

## 3.7.1 Limit of Radiated Emission

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 |

## 3.7.2 Measuring Instruments

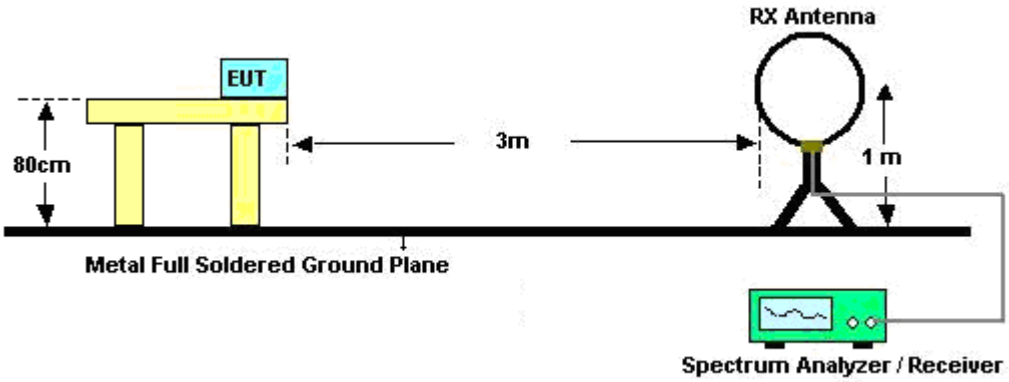
See list of measuring instruments of this test report.

## 3.7.3 Test Procedures

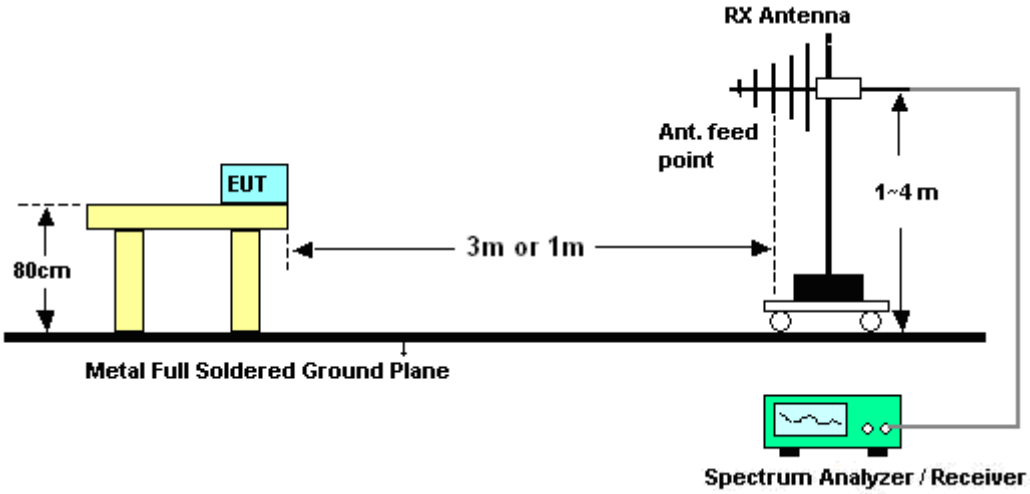
1. The testing follows the guidelines in FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. Use the following spectrum analyzer settings:
   (1) Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for f ≥ 1 GHz, 100 kHz for f < 1 GHz; VBW ≥ RBW; Sweep = auto; Detector function = peak; Trace = max hold.
   (2) Above 18 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
   Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB)
3. Follow the guidelines in FCC KDB Publication No. 558074 with respect to maximizing the emission by rotating the EUT, measuring the emission for three EUT orthogonal planes, and adjusting the measurement antenna height and polarization. A pre-amp and a high pass filter are used for this test in order to get the good signal level.

### 3.7.4 Test Setup

**For radiated emissions below 30MHz**




**For radiated emissions above 30MHz**



### 3.7.5 Test Results of Radiated Emissions (9kHz ~ 30MHz)

| Test Engineer : | Ivan Jiang | Temperature : | 24~25°C |
|---|---|---|---|
| | | Relative Humidity : | 49~50% |

| Frequency (MHz) | Level (dBuV) | Over Limit (dB) | Limit Line (dBuV) | Remark |
|---|---|---|---|---|
| - | - | - | - | See Note |

**Note:**

The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

### 3.7.6 Test Result of Radiated Emission (30MHz ~ 10$^{th}$ Harmonic)

Please refer to Appendix A to C.

## 3.8 Antenna Requirements

### 3.8.1 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.

### 3.8.2 Antenna Connected Construction

The antennas type used in this product are Dipole Antenna, Panel Antenna, Patch Antenna, and PIFA Antenna without connector and it is considered to meet antenna requirement.

### 3.8.3 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.

# 4 List of Measuring Equipment

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Due Date | Remark |
|---|---|---|---|---|---|---|---|
| Spectrum Analyzer | R&S | FSP40 | 100055 | 9kHz~40GHz | Jun. 11, 2010 | Jun. 10, 2011 | Conducted (TH02-HY) |
| Power Meter | Anritsu | ML2495A | 0932001 | N/A | Sep. 13, 2010 | Sep. 12, 2011 | Conducted (TH02-HY) |
| Power Sensor | Anritsu | MA2411B | 0846202 | N/A | Sep. 14, 2010 | Sep. 13, 2011 | Conducted (TH02-HY) |
| EMI Test Receive | R&S | ESCS 30 | 100356 | 9KHz – 2.75GHz | Aug. 16, 2010 | Aug. 15, 2011 | Conduction (CO05-HY) |
| Two-LISN | R&S | ENV216 | 11-100081 | 9KHz – 30MHz | Dec. 03, 2010 | Dec. 02, 2011 | Conduction (CO05-HY) |
| Two-LISN | R&S | ENV216 | 11-100080 | 9KHz – 30MHz | Dec. 01, 2010 | Nov. 30, 2011 | Conduction (CO05-HY) |
| AC Power Source | APC | APC-1000W | N/A | N/A | N/A | N/A | Conduction (CO05-HY) |
| Bilog Antenna | SCHAFFNER | CBL6111C | 2726 | 30MHz ~ 1GHz | Oct. 31, 2010 | Oct. 30, 2011 | Radiation (03CH07-HY) |
| Spectrum Analyzer | R&S | FSP | 101067 | 9KHz ~ 30GHz | Dec. 03, 2010 | Dec. 02, 2011 | Radiation (03CH07-HY) |
| Double Ridge Horn Antenna | ESCO | 3117 | 00075962 | 1GHz ~ 18GHz | Aug. 19, 2010 | Aug. 18, 2011 | Radiation (03CH07-HY) |
| SHF-EHF Horn Antenna | SCHWARZBECK | BBHA 9170 | BBHA9170251 | 15GHz- 40GHz | Oct. 18, 2010 | Oct. 17, 2011 | Radiation (03CH07-HY) |
| Pre Amplifier | Agilent | 8449B | 3008A02362 | 1GHz~ 26.5GHz | Dec. 06, 2010 | Dec. 05, 2011 | Radiation (03CH07-HY) |
| Pre Amplifier | COM-POWER | PA-103A | 161241 | 10-1000MHz.32 dB.GAIN | Mar. 29, 2011 | Mar. 28, 2012 | Radiation (03CH07-HY) |
| Loop Antenna | R&S | HFH2-Z2 | 860004/001 | 9 kHz~30 MHz | Jul. 29, 2010 | Jul. 28, 2011 | Radiation (03CH07-HY) |

# 5 Uncertainty of Evaluation

**Uncertainty of Conducted Emission Measurement (150kHz ~ 30MHz)**

| Contribution | Uncertainty of $X_i$ | | $u(X_i)$ |
|---|---|---|---|
| | dB | Probability Distribution | |
| Receiver Reading | 0.10 | Normal (k=2) | 0.05 |
| Cable Loss | 0.10 | Normal (k=2) | 0.05 |
| AMN Insertion Loss | 2.50 | Rectangular | 0.63 |
| Receiver Specification | 1.50 | Rectangular | 0.43 |
| Site Imperfection | 1.39 | Rectangular | 0.80 |
| Mismatch | +0.34 / -0.35 | U-Shape | 0.24 |
| **Combined Standard Uncertainty Uc(y)** | **1.13** | | |
| **Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))** | **2.26** | | |

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

| Contribution | Uncertainty of $X_i$ | | $u(X_i)$ |
|---|---|---|---|
| | dB | Probability Distribution | |
| Receiver Reading | 0.41 | Normal (k=2) | 0.21 |
| Antenna Factor Calibration | 0.83 | Normal (k=2) | 0.42 |
| Cable Loss Calibration | 0.25 | Normal (k=2) | 0.13 |
| Pre-Amplifier Gain Calibration | 0.27 | Normal (k=2) | 0.14 |
| RCV/SPA Specification | 2.50 | Rectangular | 0.72 |
| Antenna Factor Interpolation for Frequency | 1.00 | Rectangular | 0.29 |
| Site Imperfection | 1.43 | Rectangular | 0.83 |
| Mismatch | +0.39 / -0.41 | U-Shape | 0.28 |
| **Combined Standard Uncertainty Uc(y)** | **1.27** | | |
| **Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))** | **2.54** | | |

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

| Contribution | Uncertainty of $X_i$ | | $u(X_i)$ | $C_i$ | $C_i * u(X_i)$ |
|---|---|---|---|---|---|
| | dB | Probability Distribution | | | |
| Receiver Reading | ±0.10 | Normal (k=2) | 0.10 | 1 | 0.10 |
| Antenna Factor Calibration | ±1.70 | Normal (k=2) | 0.85 | 1 | 0.85 |
| Cable Loss Calibration | ±0.50 | Normal (k=2) | 0.25 | 1 | 0.25 |
| Receiver Correction | ±2.00 | Rectangular | 1.15 | 1 | 1.15 |
| Antenna Factor Directional | ±1.50 | Rectangular | 0.87 | 1 | 0.87 |
| Site Imperfection | ±2.80 | Triangular | 1.14 | 1 | 1.14 |
| Mismatch<br>Receiver VSWR Γ1 = 0.197<br>Antenna VSWR Γ2 = 0.194<br>Uncertainty = 20Log(1-Γ1*Γ2) | +0.34 / -0.35 | U-Shape | 0.244 | 1 | 0.244 |
| **Combined Standard Uncertainty Uc(y)** | **2.36** | | | | |
| **Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y))** | **4.72** | | | | |