

RF TEST REPORT

According to CFR 47 Part 15 Subpart C

Kind of Product	:	10G GEAPON ONU
Model Name	:	C1004W
FCC ID	:	TOUC1004W
Applicant	:	CommScope, Inc. of North Carolina
Manufacturer	:	ubiquoss Inc.
Date of receipt	:	11. 12. 2014
Date of Issue	:	11. 28. 2014
Begin of test date	:	11. 12. 2014
End of test date	:	11. 27. 2014

This report applies only to the product named in the title of this report manufactured at the location indicated.

Test results apply only to the particular equipment and functionality described in this test report.

This report shall not be reproduced except in full, without the written approval of GSTL Co., Ltd.

This is the result of test that was carried out from the submitted type-samples of a product in conformity with the specification of the respective standards.

Date : 2014.11.28

Date : 2014.11.28



Tested by Ui-hyun Ryu

Reviewed by Seung-jun Oh

Global Standard Testing Laboratory Co., Ltd.

635-3, Sugwang-ri, Sindun-myeon, Icheon-si, Gyeonggi-do, Korea(467-843)

TEL:+82-31-634-1800 FAX:+82-31-634-2985

TABLE OF CONTENTS

1.0.	Summary of test results	3
2.0.	Measurement uncertainty	3
3.0.	General Information	4
3.1.	General Description	4
3.2.	Product Type	4
3.3.	Test Frequency and Voltage	4~5
3.4.	Test Laboratory Information	5
4.0.	Test Results	6
4.1.	Maximum Peak Output Power	6~13
4.2.	6 dB Bandwidth	13~49
4.3.	Peak Power Spectral density	50~87
4.4.	Band Edge Measurement	88~108
4.5.	Field Strength of Emission	109~132
4.6.	Conducted Emission	133~138
5.0	Antenna Requirements	139~140
6.0.	Test Instruments	141~142

1.0 Summary of test results

The EUT has been tested according to the follow specification:

Description of Test	FCC Rule Parts	Results
Maximum Peak Output Power	15.247(b)(3)	Complies
Peak Power Spectral Density	15.247(e)	Complies
6 dB Channel Bandwidth	15.247(a)(2)	Complies
Spurious Emission, Band Edge, and Restricted bands	15.247(d), 15.205(a), 15.209(a)	Complies
Conducted Emissions	15.207(a)	Complies
Antenna Requirement	15.203	Complies

2.0 Measurement uncertainty.

Where relevant, the following measurement uncertainty level have been estimated for tests performed on the EUT :

PARAMETER	UNCERTAINTY
RF Power	± 1.49 dB
Conducted Emission	± 2.73 dB
Radiated Emission	± 4.00 dB

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of k=2.

3.0 General Information

3.1 General Description

Information	
Applicant	CommScope, Inc. of North Carolina
Address of Applicant	1100 CommScope Place SE Hickory NC 28602, USA
Manufacturer	ubiquoss Inc.
Address of Manufacturer	68, Pangyo-ro, 255beon-gil, bundang-gu, Seongnam-si, Gyeonggi-do, Korea
Kind of Product	10G GEAPON ONU
Model Name	C1004W
Serial no.	N/A

3.2 Product Type

EUT description	
Wireless Connections	IEEE 802.11ac as well as b/g/n(at 2.4 GHz : b/g/n, at 5 GHz ac)
10G PON Uplink	Optical port for upstream transmission
LAN1-LAN4	Gigabit Internet Ports(RJ-45)
USB	used for downloading the updated system image
Power	DC 12 V / 3A
Physical dimension and weight	255.5(W) x 190.2(D) x 52.5(H) / 730 g

*For more detail specification, please refer to User's Manual of EUT

3.3 Test Frequency and Voltage

For all test items, the low, middle and high channels of the modes were tested with below data rate.

802.11b/g/n_HT20	
Low Frequency	2412 MHz
Middle Frequency	2437 MHz
High Frequency	2462 MHz
802.11n_HT40	
Low Frequency	2422 MHz
Middle Frequency	2437 MHz
High Frequency	2452 MHz
Voltage	
Nominal voltage	DC 12 V

Data Rate

Test Mode	Data Rate
802.11b	1 Mbps
802.11g	6 Mbps
802.11n_HT20_SISO	MCS0
802.11n_HT40_SISO	MCS0
802.11n_HT20_MIMO(2x2)	MCS8
802.11n_HT40_MIMO(2x2)	MCS8
802.11n_HT20_MIMO(3x3)	MCS16
802.11n_HT40_MIMO(3x3)	MCS16

3.4 Test Laboratory Information

Address

GSTL Co., Ltd.

635-3, Sugwang-ri, Sindun-myeon, Icheon-si, Gyeonggi-do, Korea

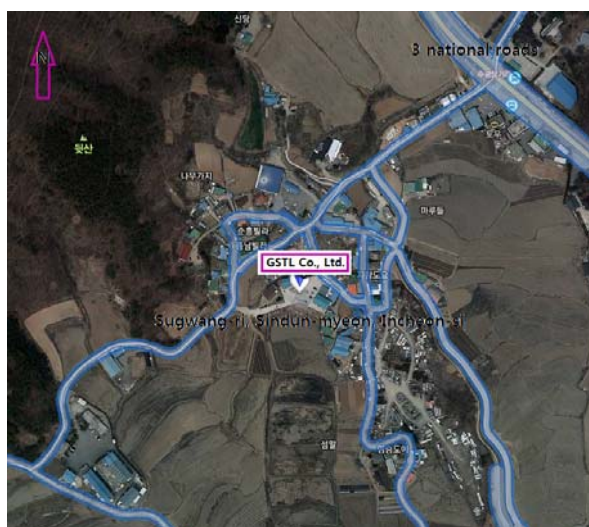
Tel : +82-31-634-1800

Fax : +31-634-2985

Certificate

- MSIP Registration No. : KR0146
- FCC MRA Registration No. : 273444
- TUV SUD Ohtama Radio Test Lab No. : H240604_K008

Location



4.0 Test results

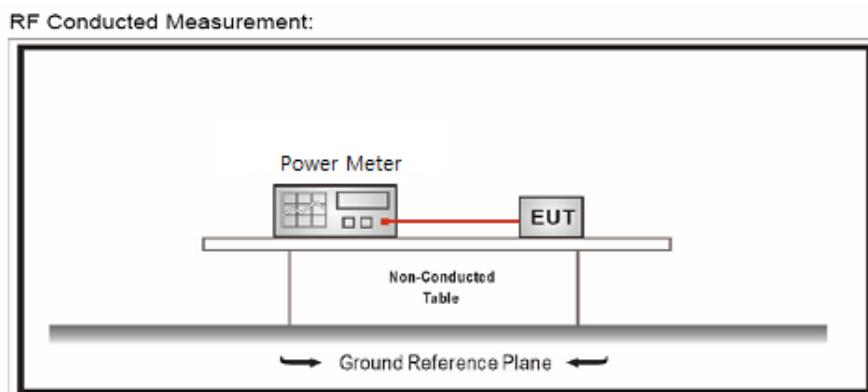
4.1 Maximum Peak Output Power

4.1.1 Test Limit

According to §15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2 400-2 483.5 MHz, and 5 725-5 850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

According to §15.247(b)(4) The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.1.2 Test Configuration



4.1.3 Test Procedure

1. The transmitter output is connected to the Power meter
2. These test measurement setting are specified in section 9.0 of 558074 D01 DTS Meas Guidance.
3. For MIMO mode, the output power is calculated according to KDB 662911 D01 Multiple Transmitter Output v02r01.

4.1.4 Test Result and Data

SISO(Single Input Single Output)

802.11b_Ant0

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	20.45	30	Pass
06	2437	20.53	30	Pass
11	2462	20.36	30	Pass

802.11b_Ant1

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	20.40	30	Pass
06	2437	20.64	30	Pass
11	2462	20.22	30	Pass

802.11b_Ant2

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	20.29	30	Pass
06	2437	20.14	30	Pass
11	2462	20.03	30	Pass

802.11g_Ant0

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	18.71	30	Pass
06	2437	18.80	30	Pass
11	2462	18.67	30	Pass

802.11g_Ant1

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	18.73	30	Pass
06	2437	18.68	30	Pass
11	2462	18.57	30	Pass

802.11g_Ant2

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	18.40	30	Pass
06	2437	18.37	30	Pass
11	2462	18.21	30	Pass

802.11n_HT20_Ant0

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	18.47	30	Pass
06	2437	18.14	30	Pass
11	2462	18.19	30	Pass

802.11n_HT20_Ant1

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	18.12	30	Pass
06	2437	18.15	30	Pass
11	2462	18.07	30	Pass

802.11n_HT20_Ant2

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	18.23	30	Pass
06	2437	18.19	30	Pass
11	2462	18.04	30	Pass

802.11n_HT40_Ant0

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
03	2422	16.70	30	Pass
06	2437	16.61	30	Pass
09	2452	16.53	30	Pass

802.11n_HT40_Ant1

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
03	2422	16.59	30	Pass
06	2437	16.69	30	Pass
09	2452	16.56	30	Pass

802.11n_HT40_Ant2

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
03	2422	16.34	30	Pass
06	2437	16.42	30	Pass
09	2452	16.27	30	Pass

MIMO(Multi Input Multi Output)

802.11n_HT20_Ant0 + Ant1

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant0	Ant1		
01	2412	17.42	17.28	Please refer to 4.1.3 Clause 3 for MIMO power calculation method.	
06	2437	17.59	17.15		
11	2462	17.18	17.03		
Measured Power Summing(Ant0+Ant1)					
01	2412	20.36		30	Pass
06	2437	20.39		30	Pass
11	2462	20.12		30	Pass

802.11n_HT20_Ant0 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant0	Ant2		
01	2412	17.62	17.15	Please refer to 4.1.3 Clause 3 for MIMO power calculation method.	
06	2437	17.56	17.12		
11	2462	17.22	17.03		
Measured Power Summing(Ant0+Ant2)					
01	2412	20.40		30	Pass
06	2437	20.36		30	Pass
11	2462	20.14		30	Pass

802.11n_HT20_Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant1	Ant2		
01	2412	17.29	17.15	Please refer to 4.1.3 Clause 3 for MIMO power calculation method.	
06	2437	17.07	17.01		
11	2462	17.02	16.98		
Measured Power Summing(Ant1+Ant2)					
01	2412	20.23		30	Pass
06	2437	20.05		30	Pass
11	2462	20.01		30	Pass

802.11n_HT40_Ant0 + Ant1

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant0	Ant1		
03	2422	15.81	15.36	Please refer to 4.1.3 Clause 3 for MIMO power calculation method.	
06	2437	15.68	15.31		
09	2452	15.39	15.38		
Measured Power Summing(Ant0+Ant1)					
03	2422	18.60		30	Pass
06	2437	18.51		30	Pass
09	2452	18.40		30	Pass

802.11n_HT40_Ant0 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant0	Ant2		
03	2422	15.75	15.47	Please refer to 4.1.3 Clause 3 for MIMO power calculation method.	
06	2437	15.71	15.37		
09	2452	15.64	15.32		
Measured Power Summing(Ant0+Ant2)					
03	2422	18.62		30	Pass
06	2437	18.55		30	Pass
09	2452	18.49		30	Pass

802.11n_HT40_Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant1	Ant2		
03	2422	15.50	15.51	Please refer to 4.1.3 Clause 3 for MIMO power calculation method.	
06	2437	15.65	15.71		
09	2452	15.75	15.49		
Measured Power Summing(Ant1+Ant2)					
03	2422	18.52		30	Pass
06	2437	18.69		30	Pass
09	2452	18.63		30	Pass

802.11n_HT20_Ant0+Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)			Limit (dBm)	Result
		Ant0	Ant1	Ant2		
01	2412	17.09	17.19	16.84	Please refer to 4.1.3 Clause 3 for MIMO power calculation method.	
06	2437	17.11	17.17	16.77		
11	2462	16.93	17.02	16.76		
Measured Power Summing(Ant0+Ant1+Ant2)						
01	2412	21.81			30	Pass
06	2437	21.79			30	Pass
11	2462	21.68			30	Pass

802.11n_HT40_Ant0+Ant1 + Ant2

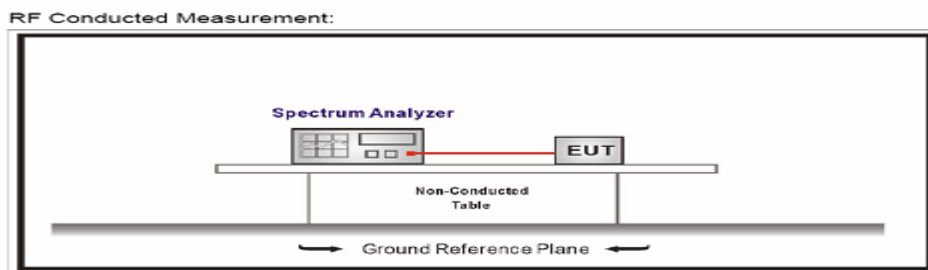
Channel	Frequency (MHz)	Measurement (dBm)			Limit (dBm)	Result
		Ant0	Ant1	Ant2		
03	2422	14.64	14.41	14.29	Please refer to 4.1.3 Clause 3 for MIMO power calculation method.	
06	2437	14.70	14.32	14.26		
09	2452	14.63	14.20	14.17		
Measured Power Summing(Ant0+Ant1+Ant2)						
03	2422	19.22			30	Pass
06	2437	19.20			30	Pass
09	2452	19.15			30	Pass

4.2 6dB Bandwidth

4.2.1 Test Limit

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

4.2.2 Test Configuration



4.2.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operation range. Set a reference level on the measuring instrument equal to the highest peak value.
3. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 100 KHz RBW and VBW of $\geq 3 \times \text{RBW}$.
4. Measure the captured power within the band and recording the plot.
5. Repeat above procedures until all frequencies required were complete.

4.2.4 Test Result and Data

SISO(Single Input Single Output)

802.11b_Ant0

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	8560	500	Pass
06	2437	8560	500	Pass
11	2462	8960	500	Pass

802.11b_Ant1

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	8640	500	Pass
06	2437	8560	500	Pass
11	2462	8560	500	Pass

802.11b_Ant2

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	8960	500	Pass
06	2437	8960	500	Pass
11	2462	9040	500	Pass

802.11g_Ant0

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	16480	500	Pass
06	2437	16480	500	Pass
11	2462	16480	500	Pass

802.11g_Ant1

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	16480	500	Pass
06	2437	16480	500	Pass
11	2462	16480	500	Pass

802.11g_Ant2

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	16480	500	Pass
06	2437	16400	500	Pass
11	2462	16480	500	Pass

802.11n_HT20_Ant0

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	17680	500	Pass
06	2437	17680	500	Pass
11	2462	17680	500	Pass

802.11n_HT20_Ant1

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	17600	500	Pass
06	2437	17600	500	Pass
11	2462	17680	500	Pass

802.11n_HT20_Ant2

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
01	2412	17600	500	Pass
06	2437	17680	500	Pass
11	2462	17680	500	Pass

802.11n_HT40_Ant0

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
03	2422	36200	500	Pass
06	2437	36000	500	Pass
09	2452	36600	500	Pass

802.11n_HT40_Ant1

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
03	2422	36000	500	Pass
06	2437	36200	500	Pass
09	2452	36400	500	Pass

802.11n_HT40_Ant2

Channel	Frequency (MHz)	Measurement (KHz)	Limit (KHz)	Result
03	2422	36200	500	Pass
06	2437	36200	500	Pass
09	2452	36600	500	Pass

MIMO(Multi Input Multi Output)

802.11n_HT20_Ant0 + Ant1

Channel	Frequency (MHz)	Measurement (KHz)		Limit (KHz)	Result
		Ant0	Ant1		
01	2412	17680	16400	500	Pass
06	2437	17600	16560	500	Pass
11	2462	17400	16560	500	Pass

802.11n_HT20_Ant0 + Ant2

Channel	Frequency (MHz)	Measurement (KHz)		Limit (KHz)	Result
		Ant0	Ant2		
01	2412	17600	16320	500	Pass
06	2437	17680	16400	500	Pass
11	2462	17680	16560	500	Pass

802.11n_HT20_Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (KHz)		Limit (KHz)	Result
		Ant1	Ant2		
01	2412	16080	16320	500	Pass
06	2437	16240	16400	500	Pass
11	2462	16560	16560	500	Pass

802.11n_HT40_Ant0 + Ant1

Channel	Frequency (MHz)	Measurement (KHz)		Limit (KHz)	Result
		Ant0	Ant1		
03	2422	36000	36000	500	Pass
06	2437	36400	36200	500	Pass
09	2452	36400	36400	500	Pass

802.11n_HT40_Ant0 + Ant2

Channel	Frequency (MHz)	Measurement (KHz)		Limit (KHz)	Result
		Ant0	Ant2		
03	2422	36000	36000	500	Pass
06	2437	36400	36400	500	Pass
09	2452	36400	36400	500	Pass

802.11n_HT40_Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (KHz)		Limit (KHz)	Result
		Ant1	Ant2		
03	2422	35800	36000	500	Pass
06	2437	36400	36400	500	Pass
09	2452	36400	36400	500	Pass

802.11n_HT20_Ant0+Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (KHz)			Limit (KHz)	Result
		Ant0	Ant1	Ant2		
01	2412	17600	17680	17600	500	Pass
06	2437	17680	17680	17680	500	Pass
11	2462	17680	17760	17680	500	Pass

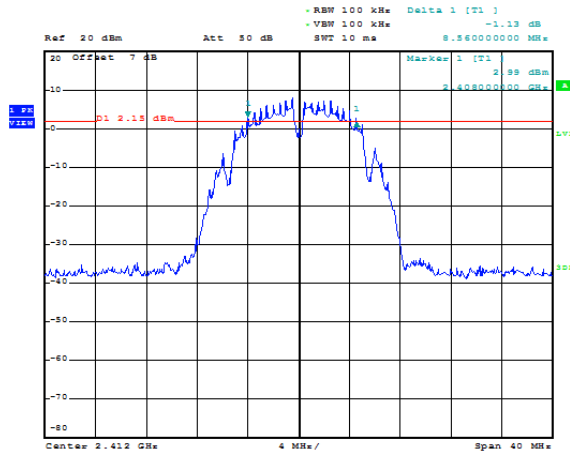
802.11n_HT40_Ant0+Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (KHz)			Limit (KHz)	Result
		Ant0	Ant1	Ant2		
03	2422	36200	36200	36000	500	Pass
06	2437	36400	36400	36000	500	Pass
09	2452	36400	36400	36400	500	Pass

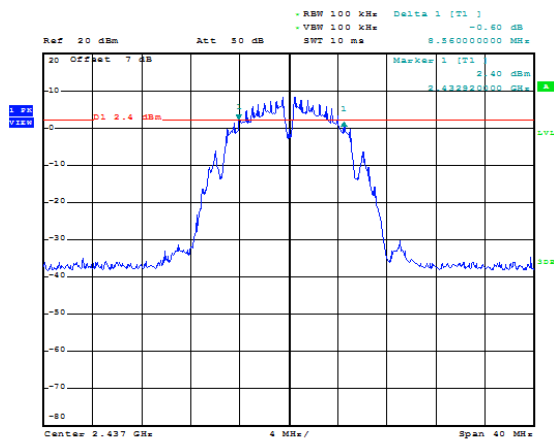
Data Plot

SISO(1T1R)

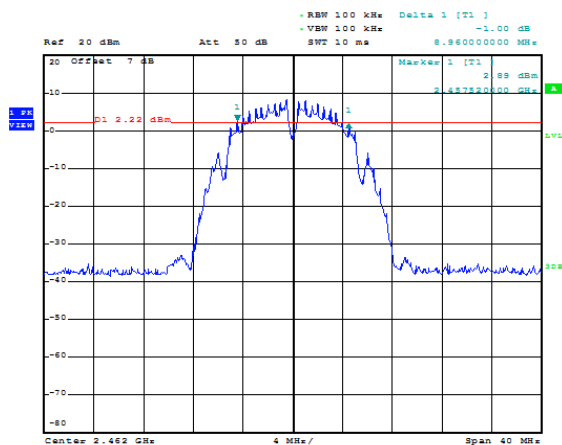
802.11b_Ant0_Low



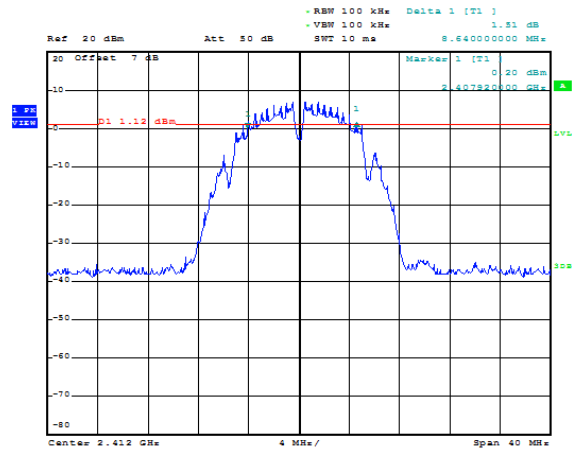
802.11b_Ant0_Middel



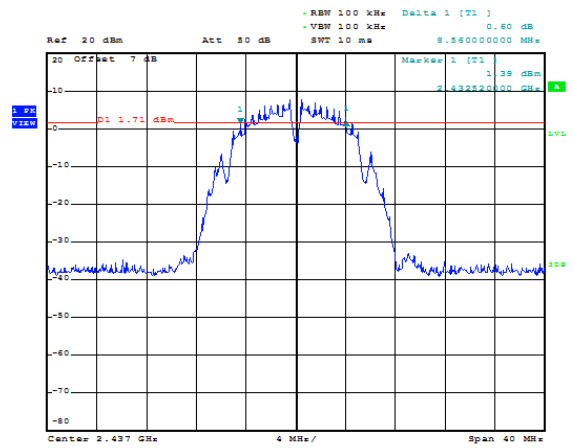
802.11b_Ant0_High



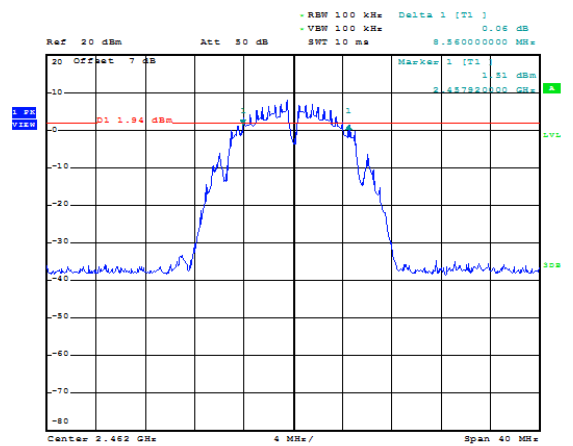
802.11b_Ant1_Low



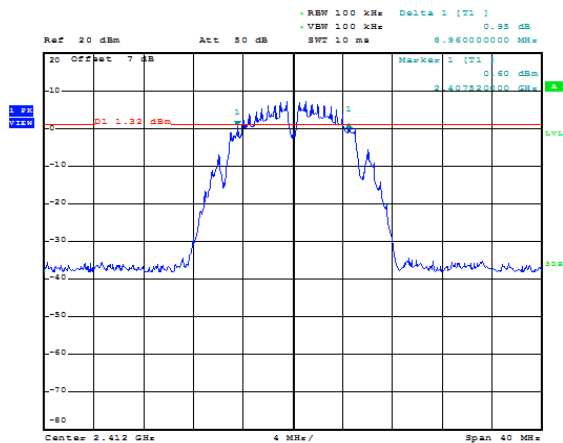
802.11b_Ant1_Middel



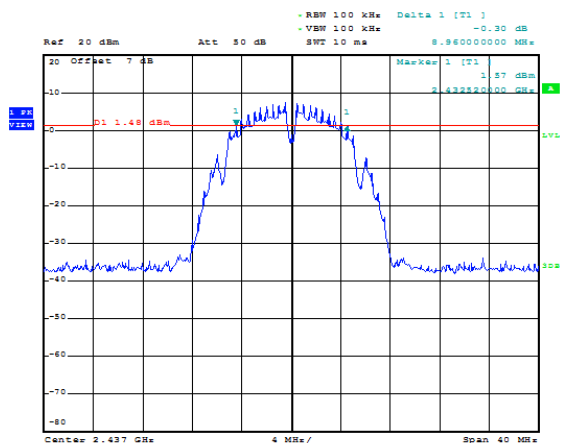
802.11b_Ant1_High



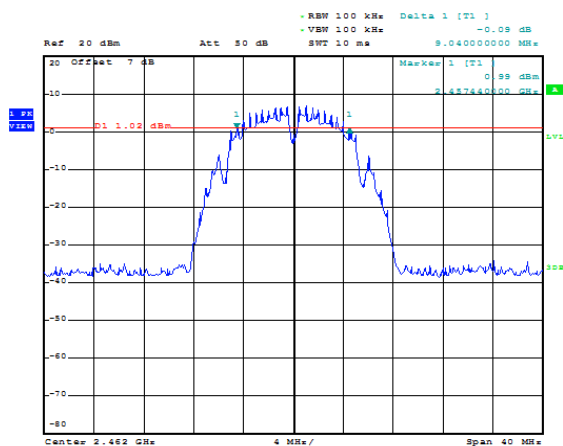
802.11b_Ant2_Low



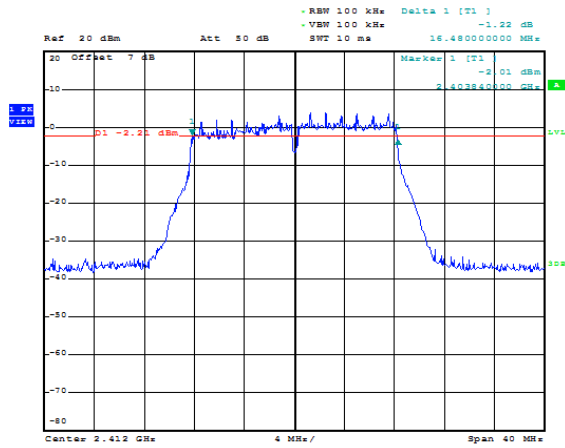
802.11b_Ant2_Middel



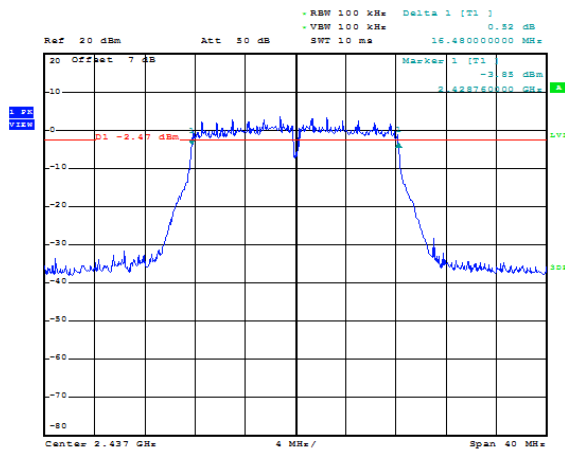
802.11b_Ant2_High



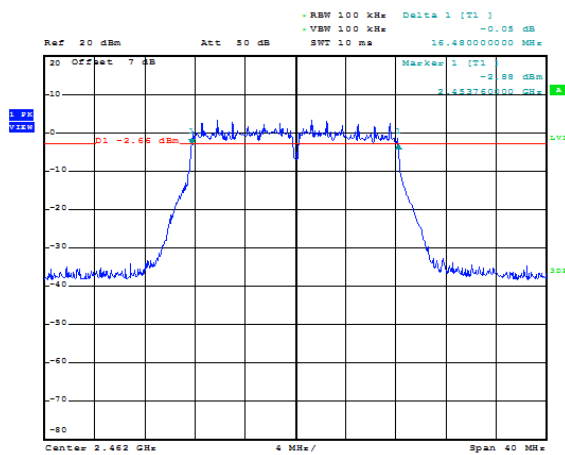
802.11g_Ant0_Low



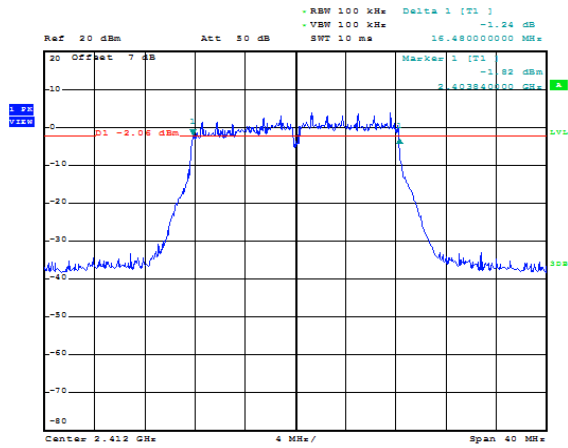
802.11g_Ant0_Middel



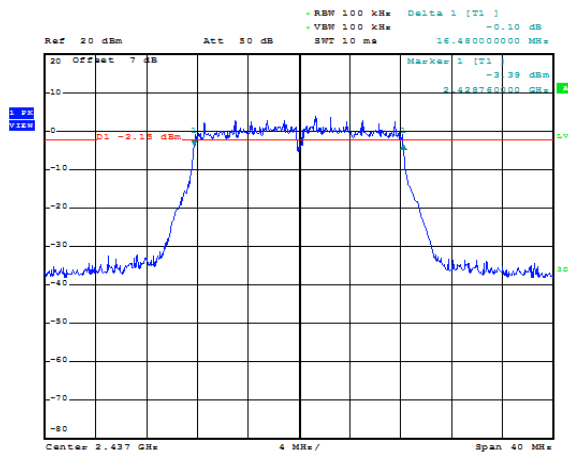
802.11g_Ant0_High



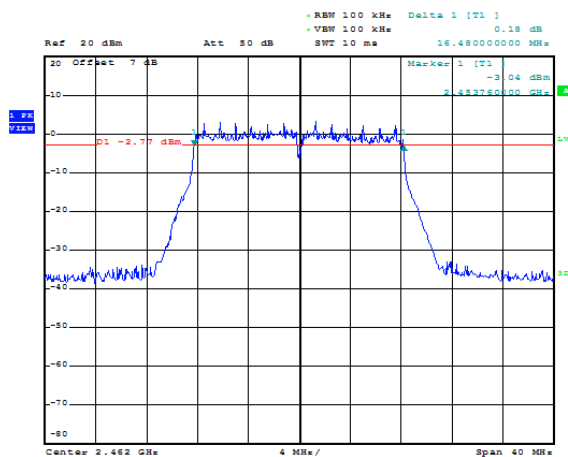
802.11g_Ant1_Low



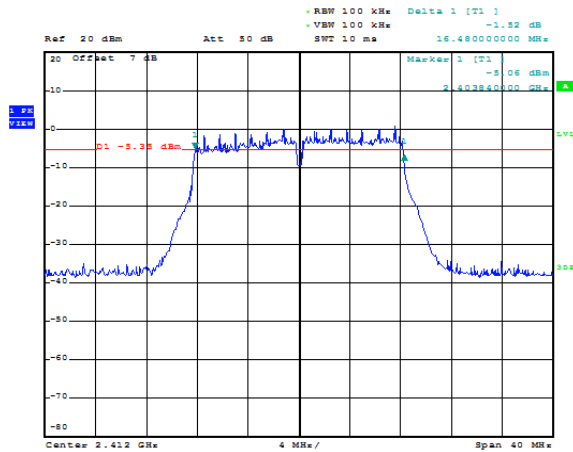
802.11g_Ant1_Middel



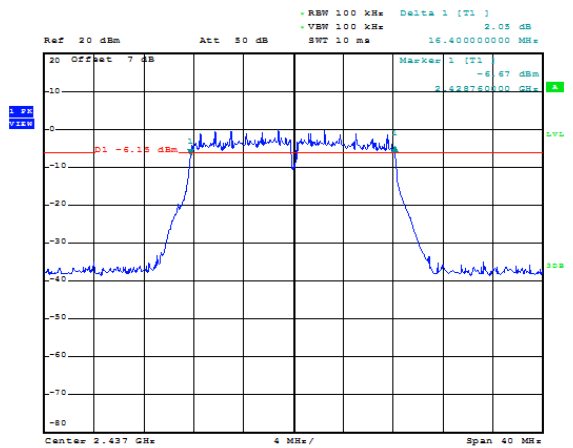
802.11g_Ant1_High



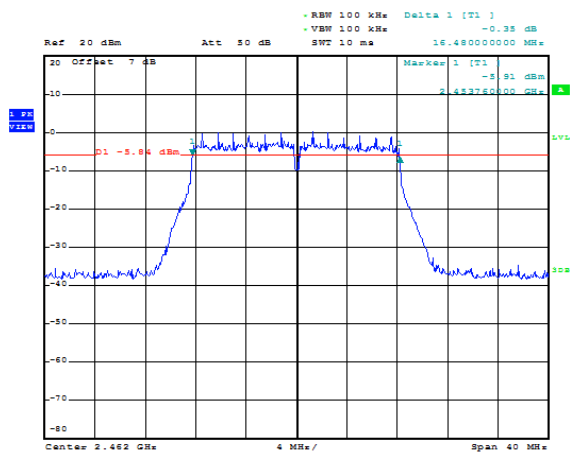
802.11g_Ant2_Low



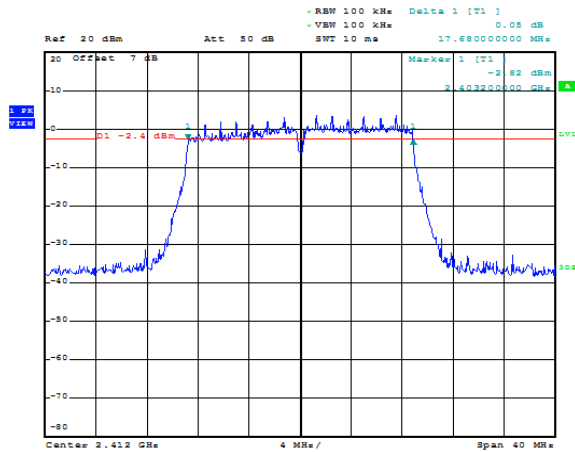
802.11g_Ant2_Middel



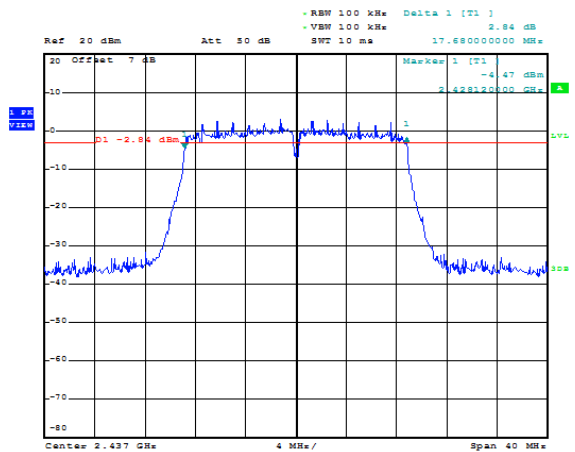
802.11g_Ant2_High



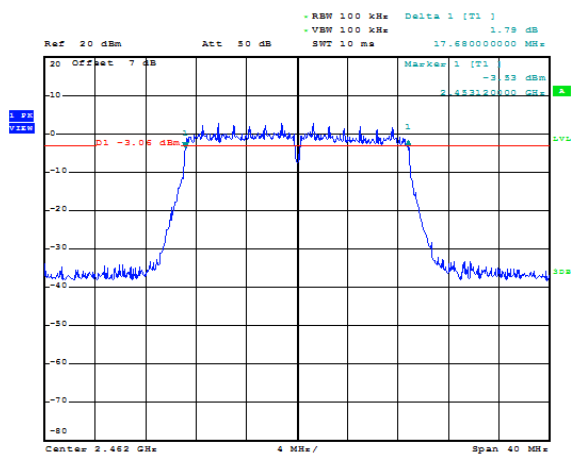
802.11n_HT20_Ant0_Low



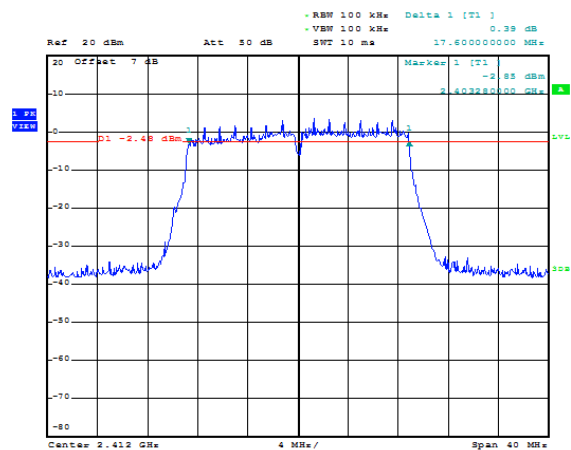
802.11n_HT20_Ant0_Middel



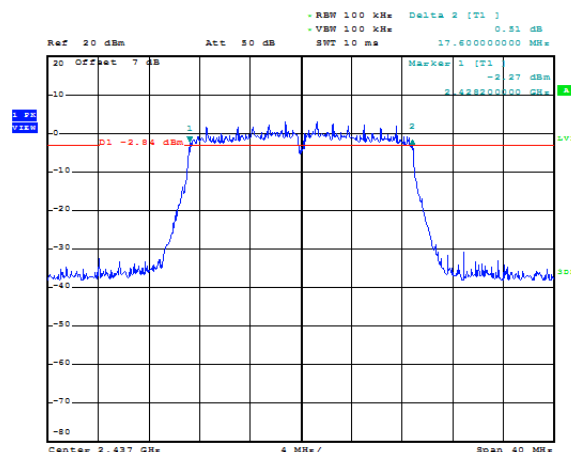
802.11n_HT20_Ant0_High



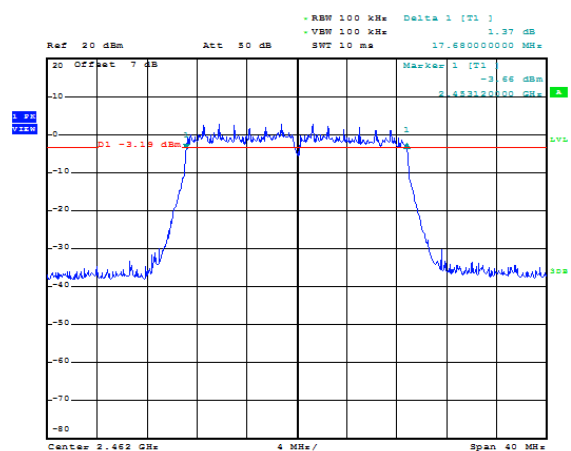
802.11n_HT20_Ant1_Low



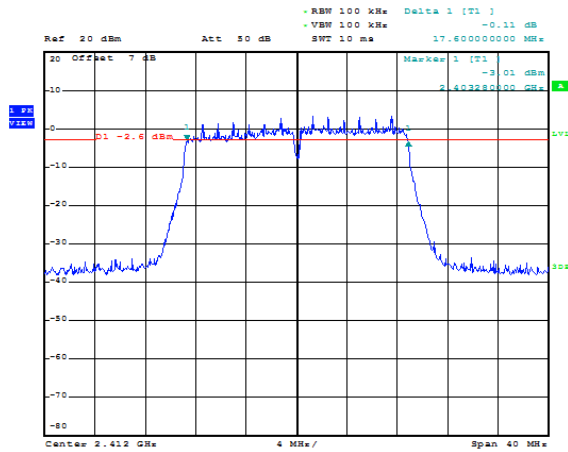
802.11n_HT20_Ant1_Middel



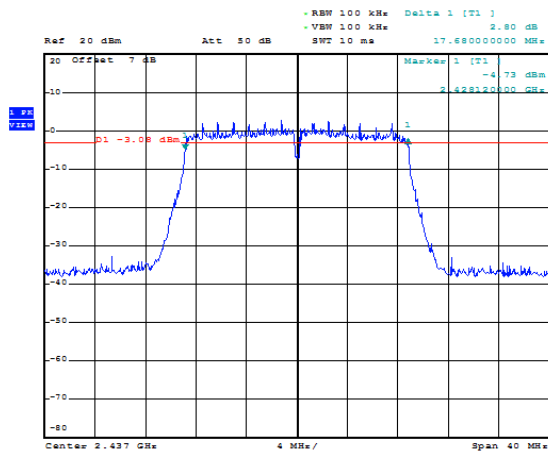
802.11n_HT20_Ant1_High



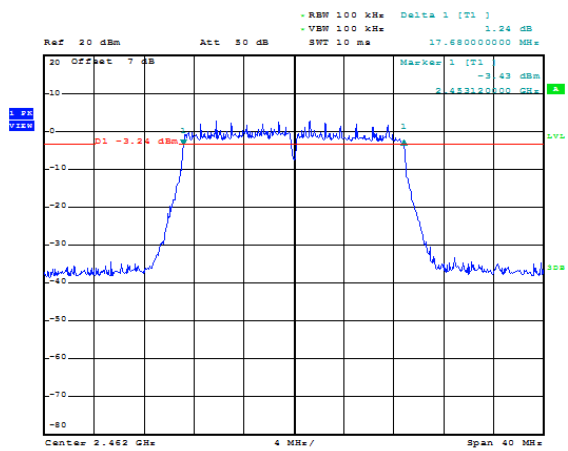
802.11n_HT20_Ant2_Low



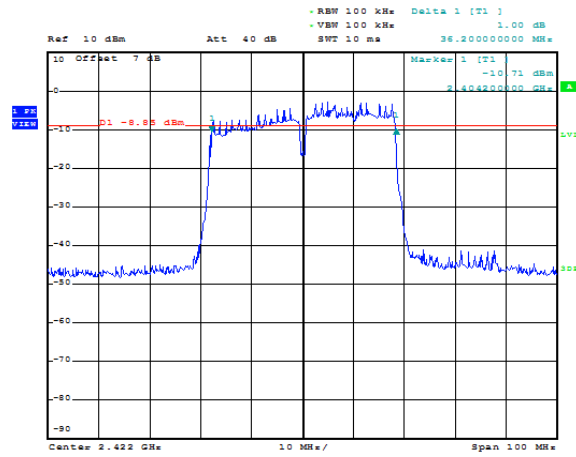
802.11n_HT20_Ant2_Middel



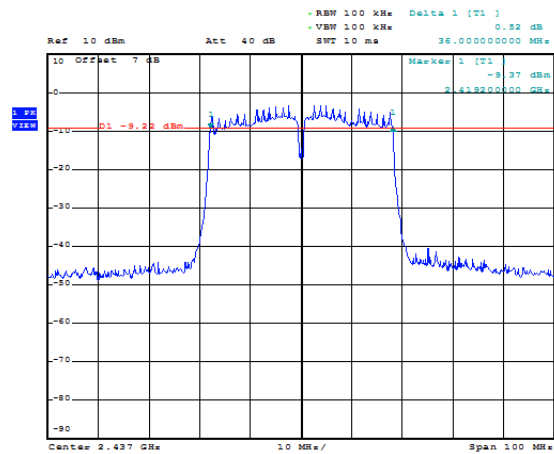
802.11n_HT20_Ant2_High



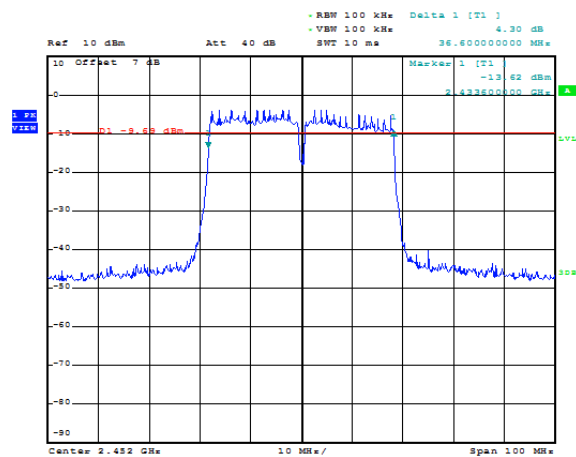
802.11n_HT40_Ant0_Low



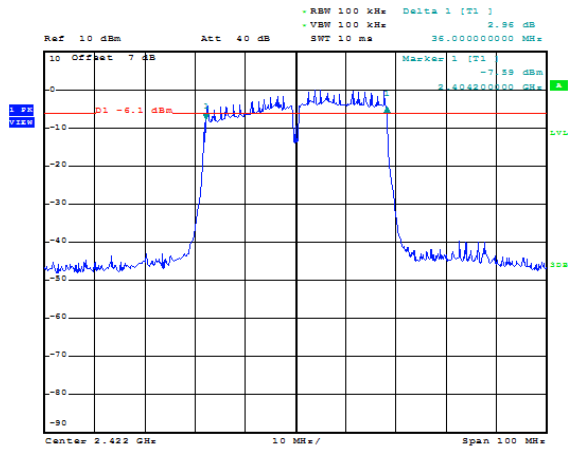
802.11n_HT40_Ant0_Middel



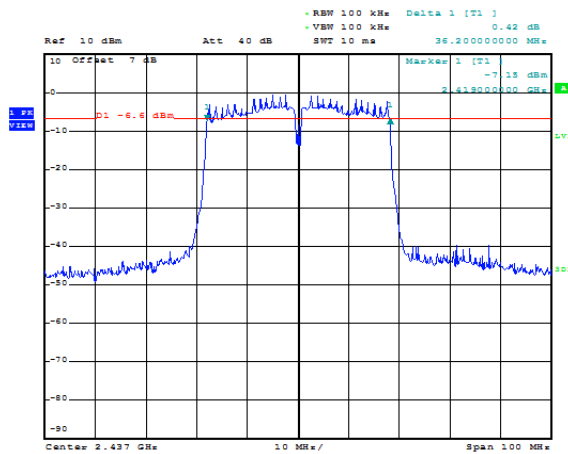
802.11n_HT40_Ant0_High



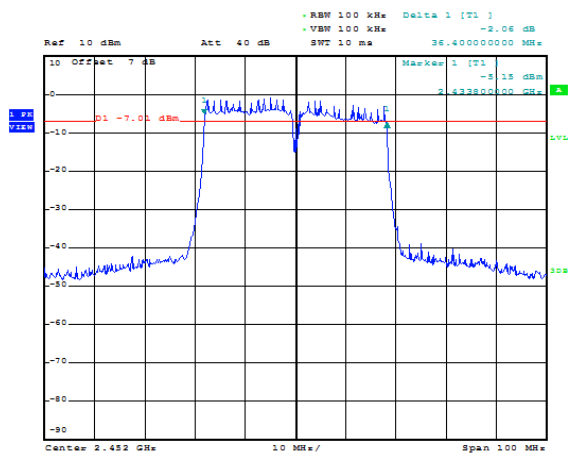
802.11n_HT40_Ant1_Low



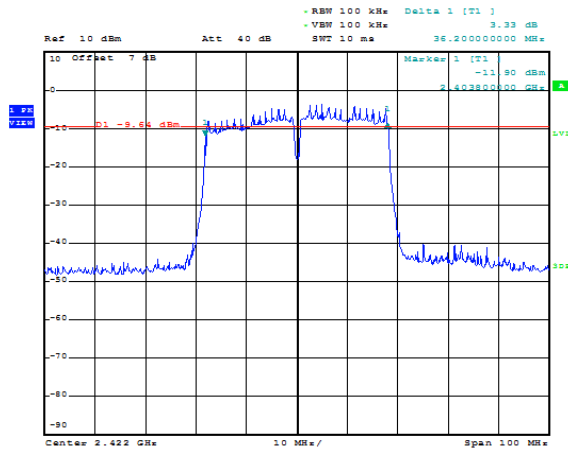
802.11n_HT40_Ant1_Middel



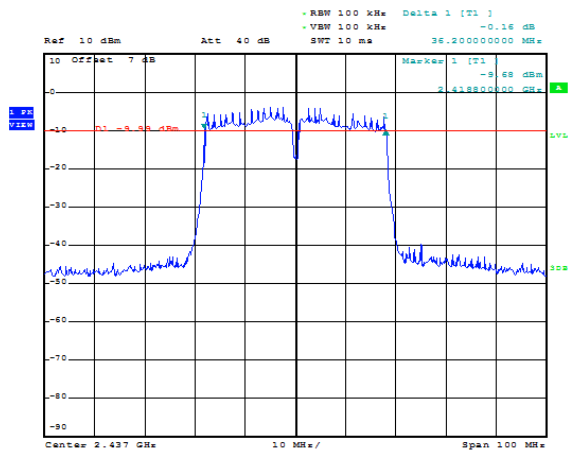
802.11n_HT40_Ant1_High



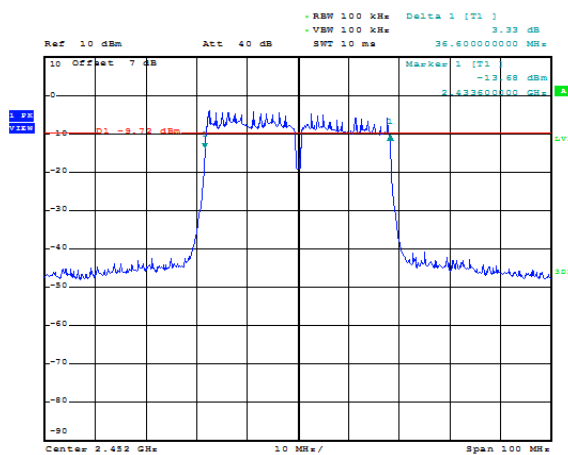
802.11n_HT40_Ant2_Low



802.11n_HT40_Ant2_Middel



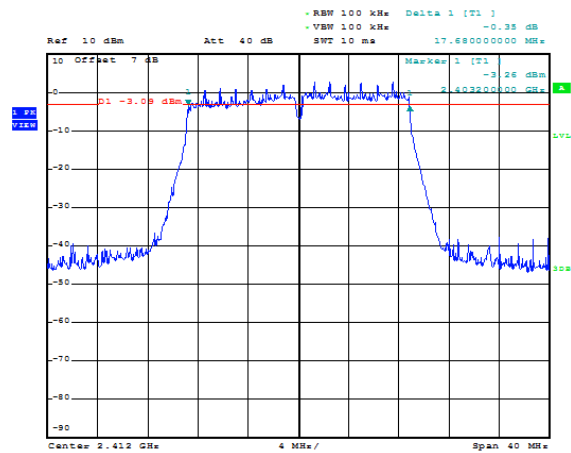
802.11n_HT40_Ant2_High



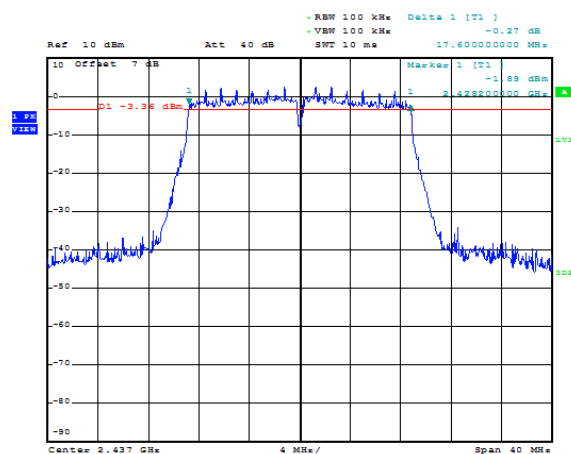
MIMO(2T2R)_HT20

Ant0+Ant1

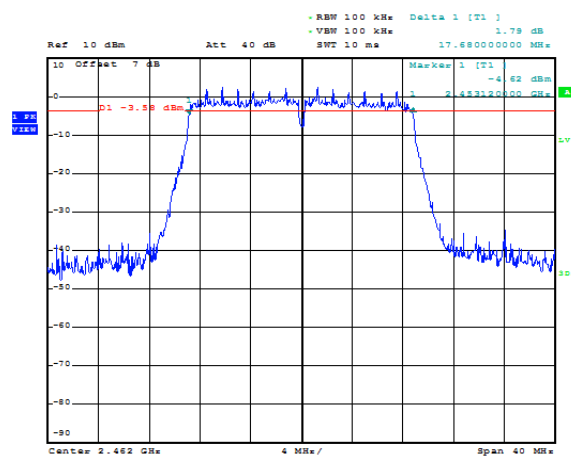
802.11n_Ant0_Low



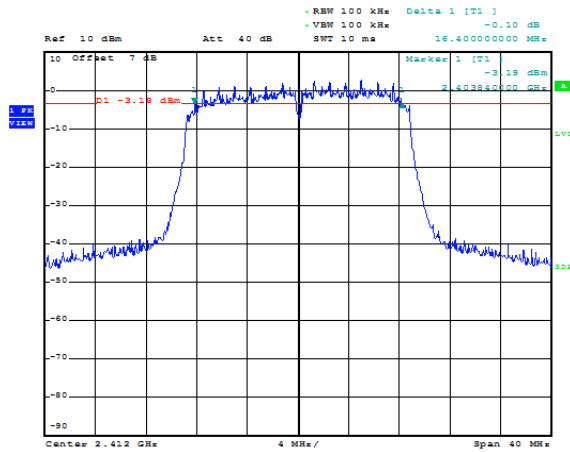
802.11n_Ant0_Middel



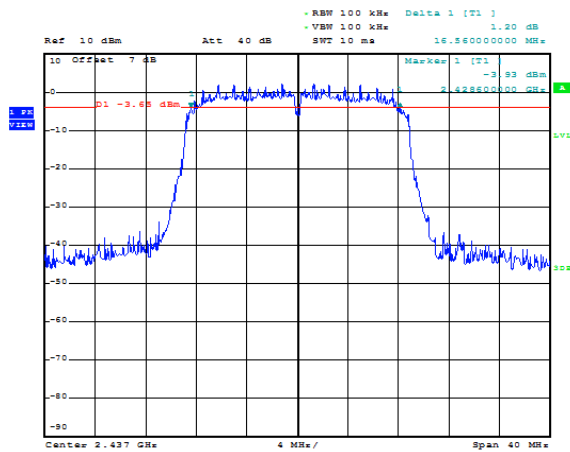
802.11n_Ant0_High



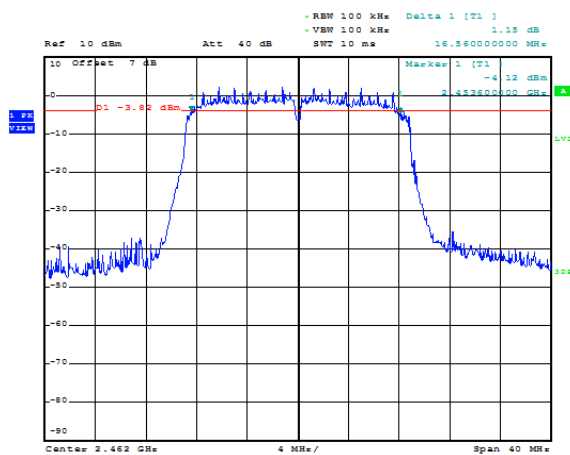
802.11n_Ant1_Low



802.11n_Ant1_Middel

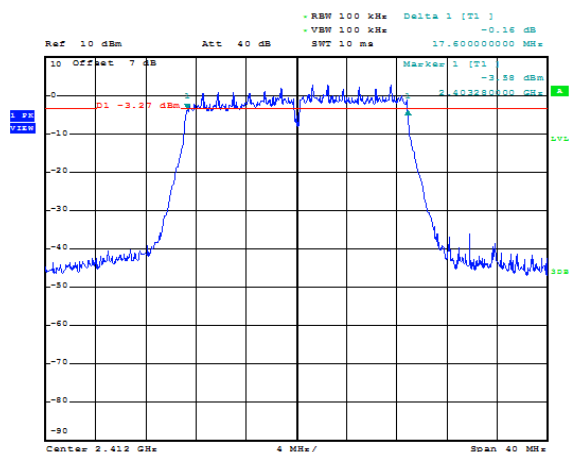


802.11n_Ant1_High

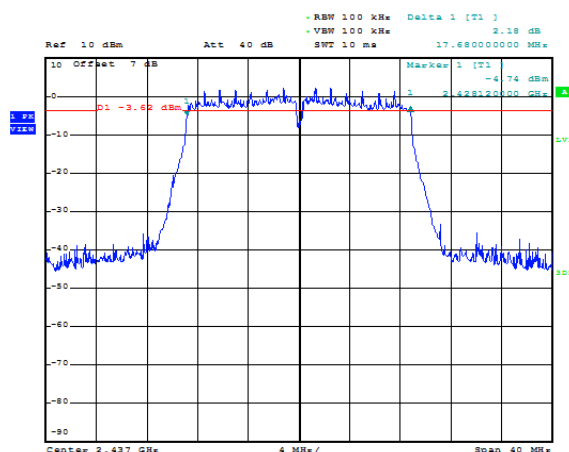


Ant0+Ant2

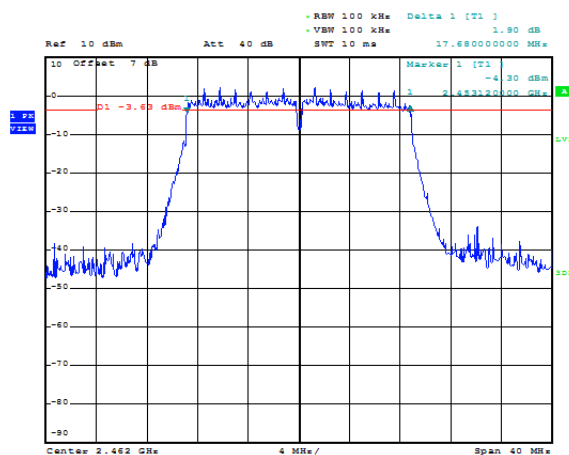
802.11n_Ant0_Low



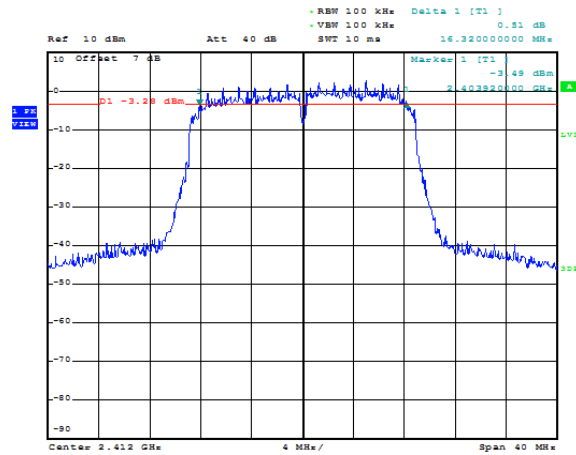
802.11n_Ant0_Middel



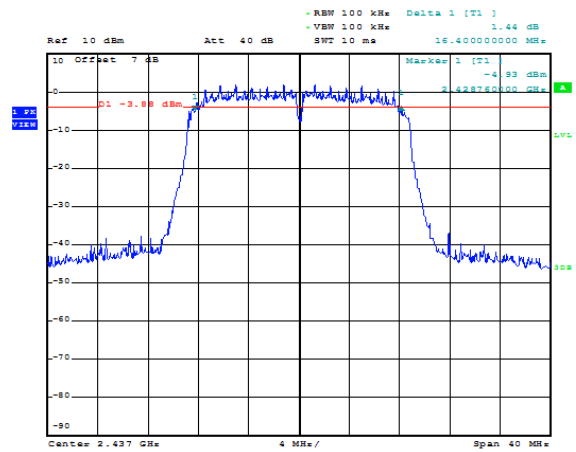
802.11n_Ant0_High



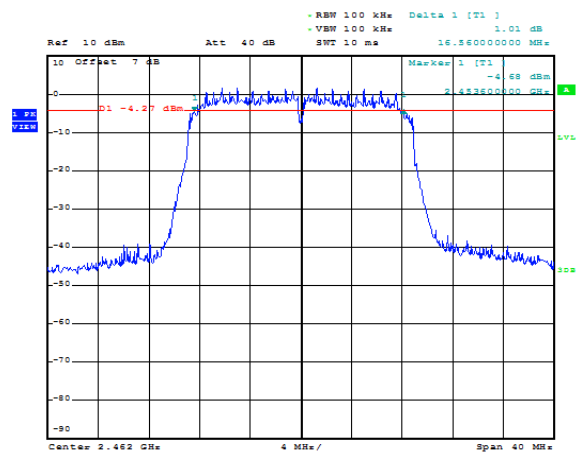
802.11n_Ant2_Low



802.11n_Ant2_Middel

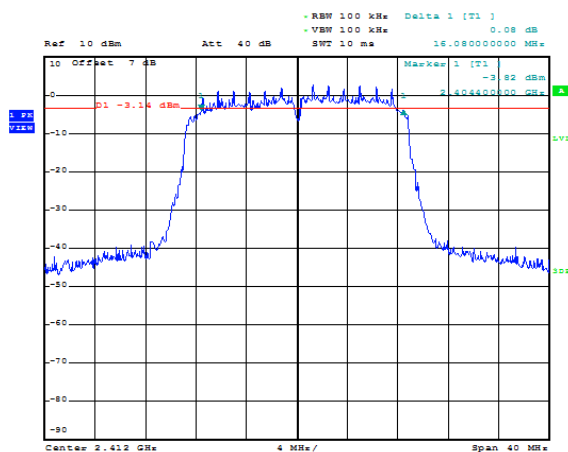


802.11n_Ant2_High

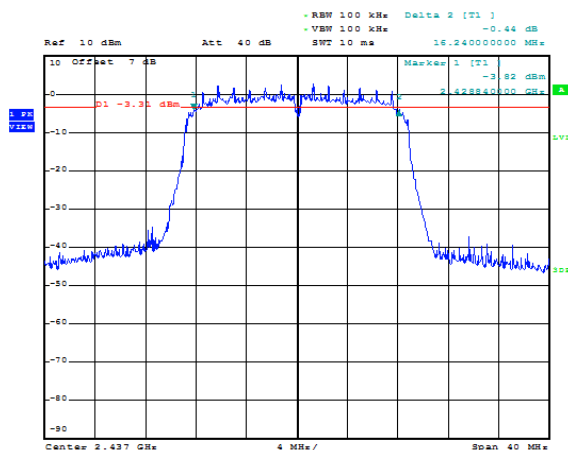


Ant1+Ant2

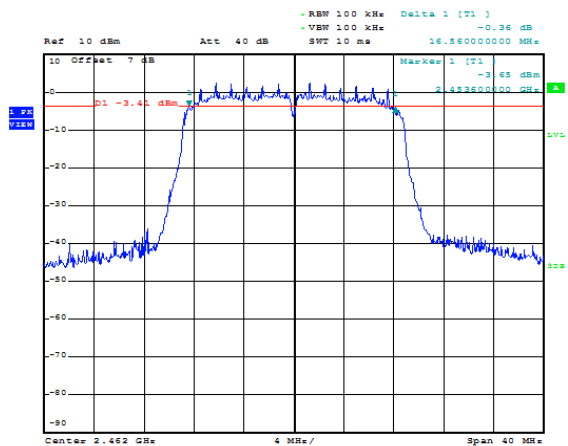
802.11n_Ant1_Low



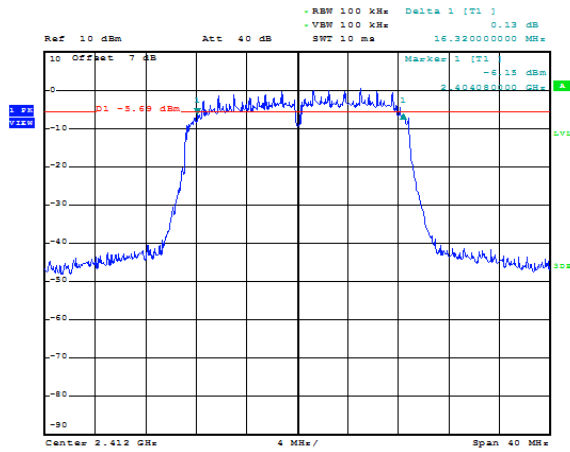
802.11n_Ant1_Middel



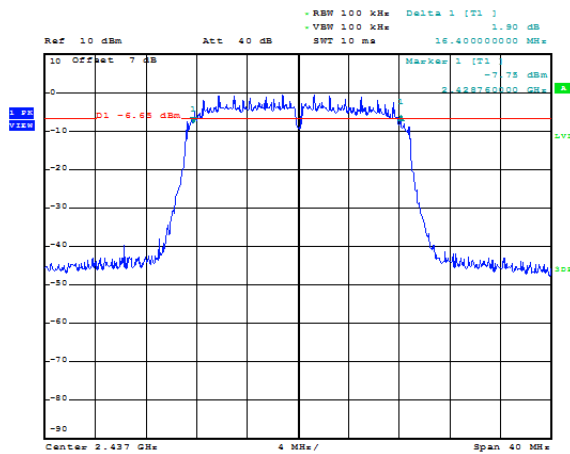
802.11n_Ant1_High



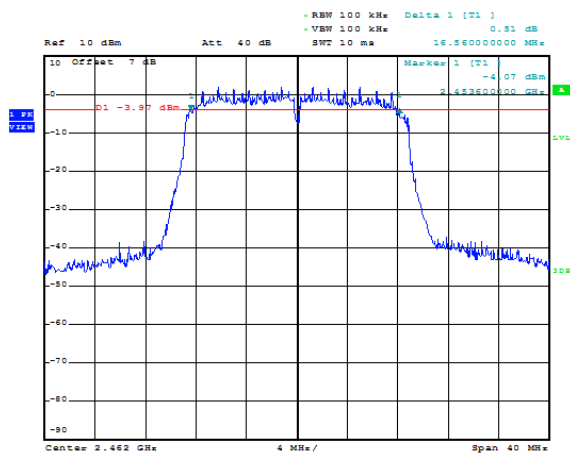
802.11n_Ant2_Low



802.11n_Ant2_Middel



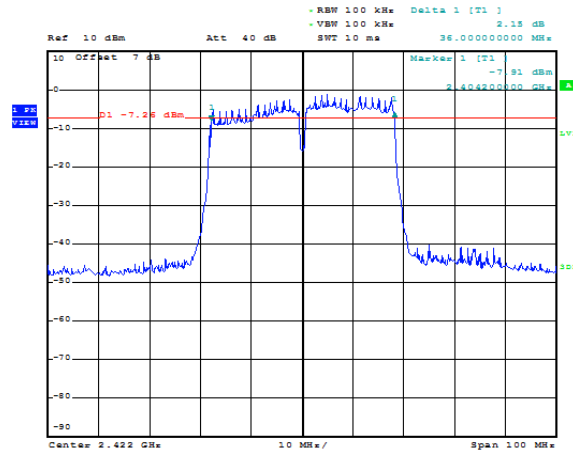
802.11n_Ant2_High



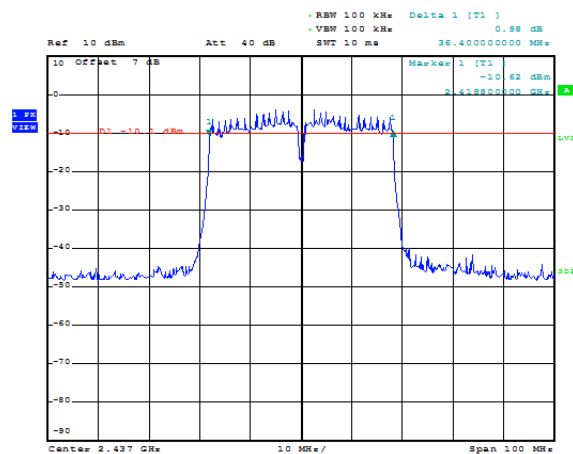
MIMO(2T2R)_HT40

Ant0+Ant1

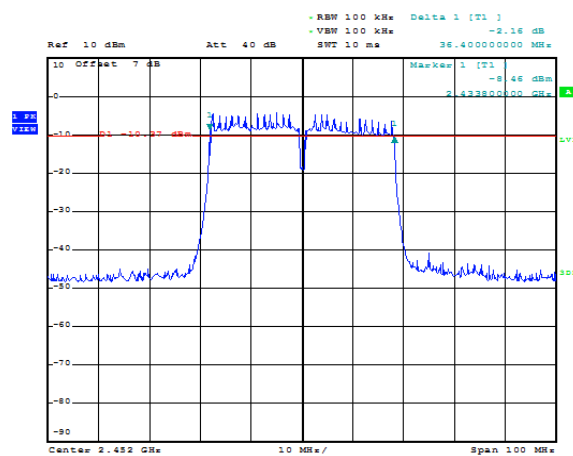
802.11n_Ant0_Low



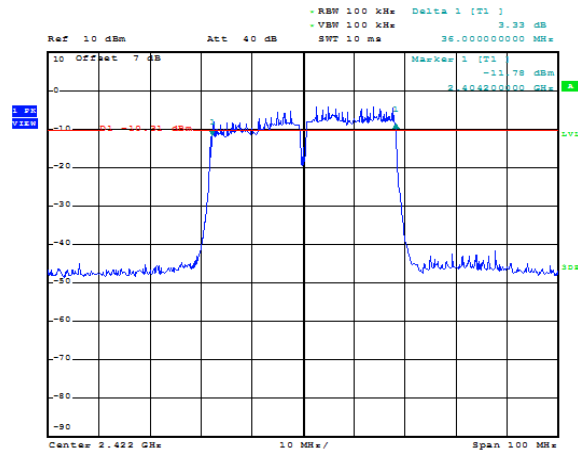
802.11n_Ant0_Middel



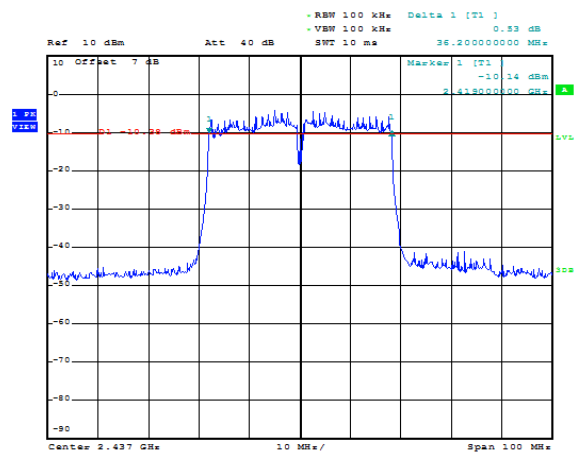
802.11n_Ant0_High



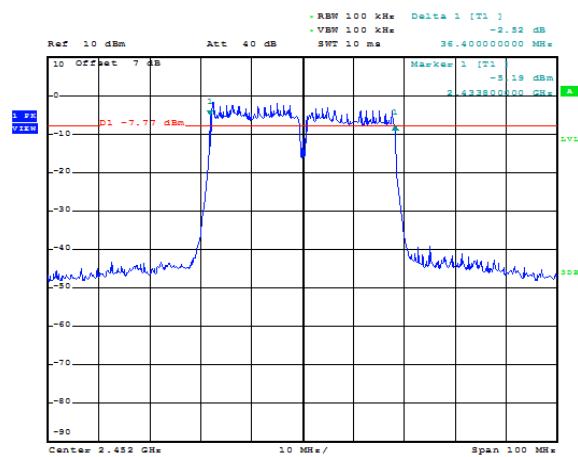
802.11n_Ant1_Low



802.11n_Ant1_Middel

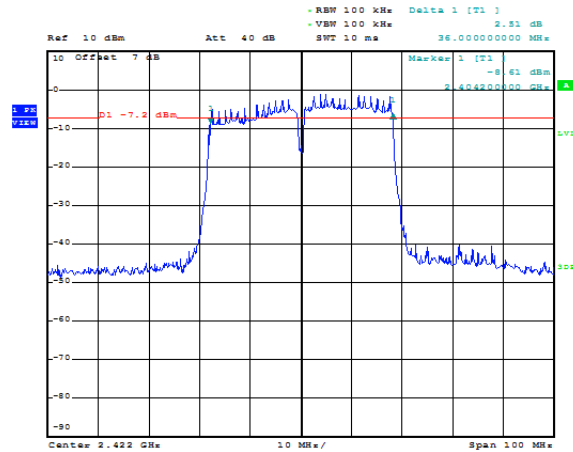


802.11n_Ant1_High

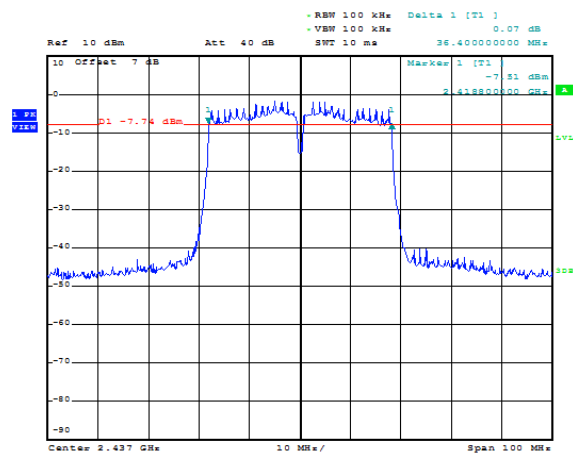


Ant0+Ant2

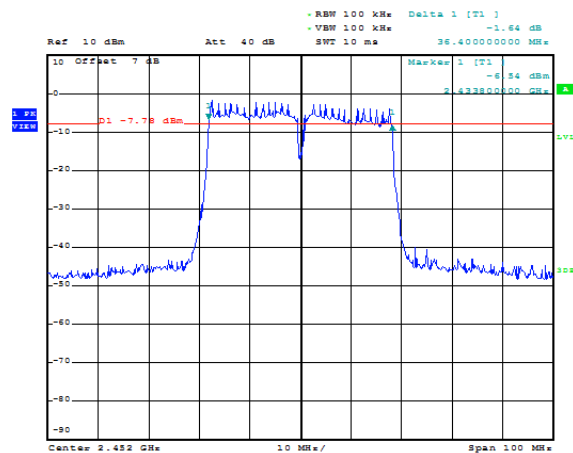
802.11n_Ant0_Low



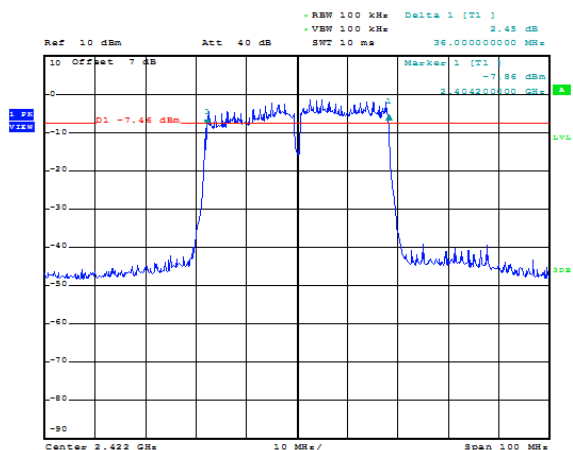
802.11n_Ant0_Middel



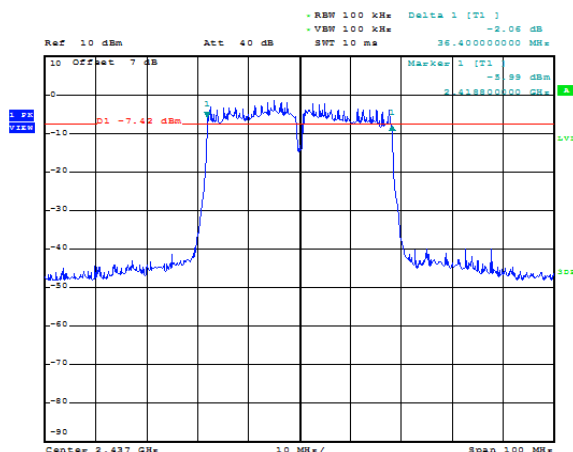
802.11n_Ant0_High



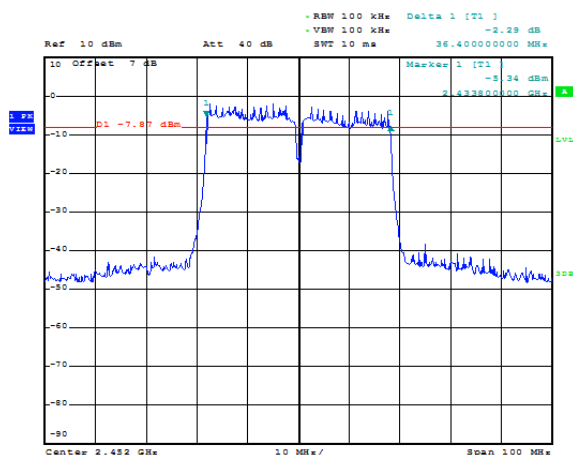
802.11n_Ant2_Low



802.11n_Ant2_Middel

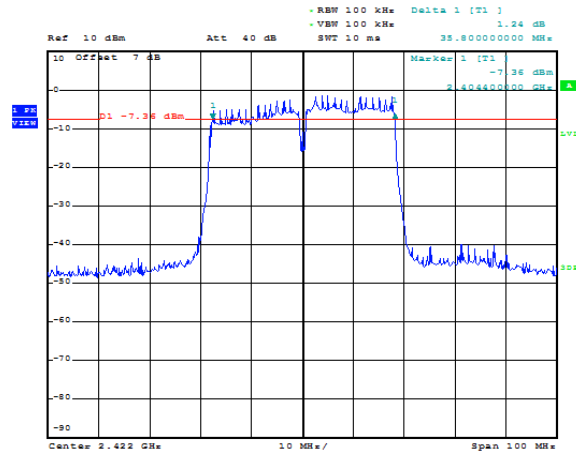


802.11n_Ant2_High

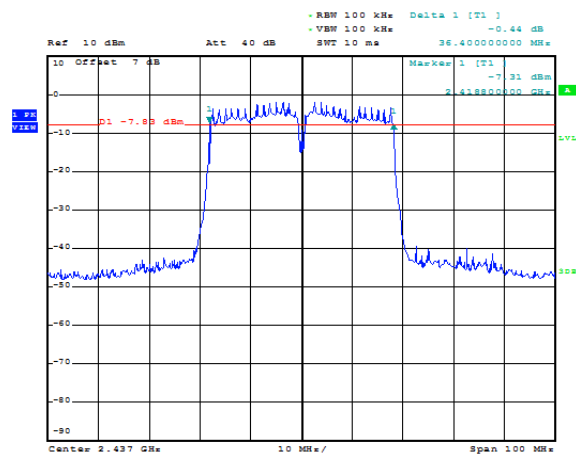


Ant1+Ant2

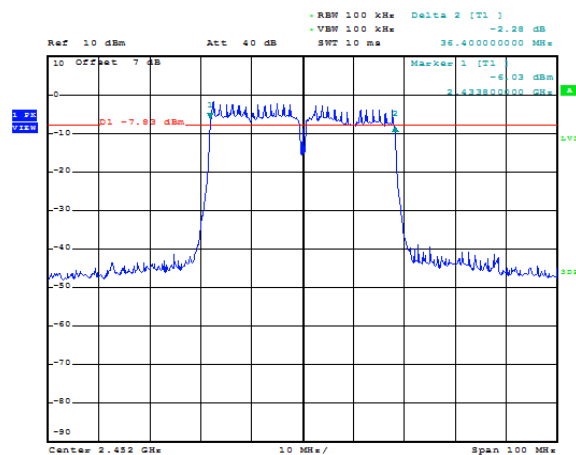
802.11n_Ant1_Low



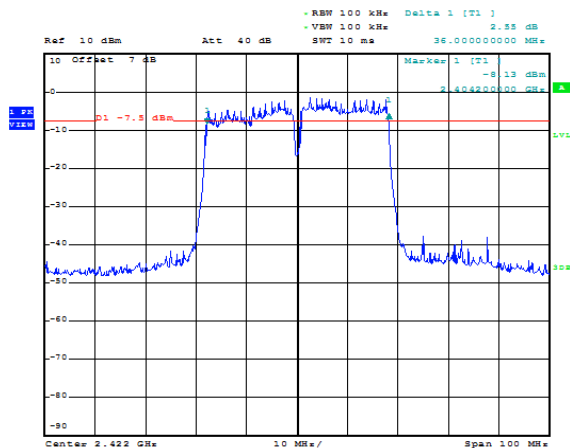
802.11n_Ant1_Middel



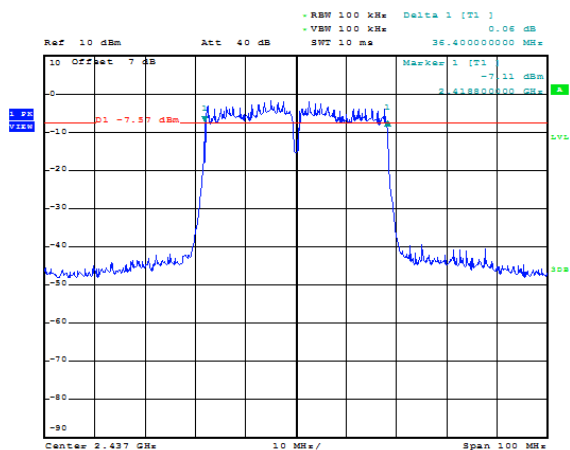
802.11n_Ant1_High



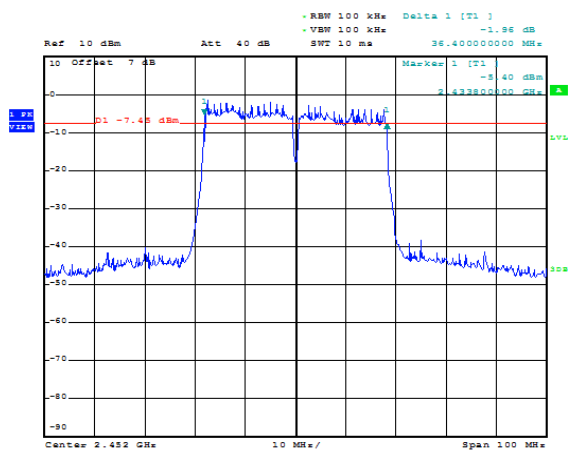
802.11n_Ant2_Low



802.11n_Ant2_Middel



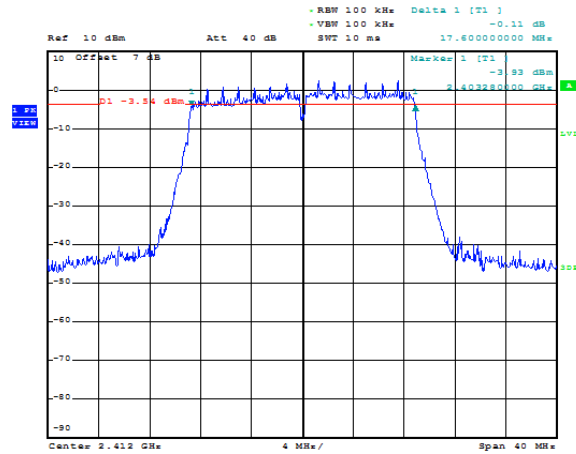
802.11n_Ant2_High



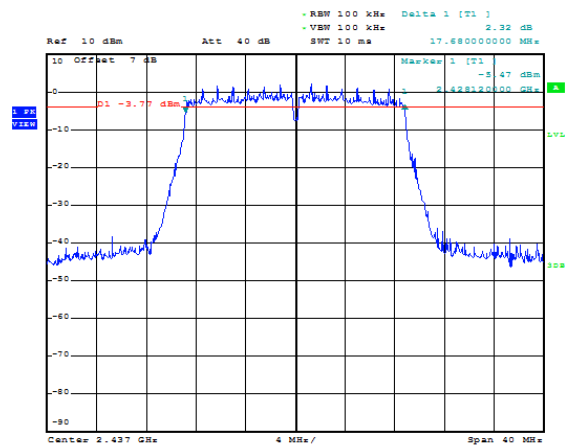
MIMO(3T3R)_HT20

Ant0+Ant1+Ant2

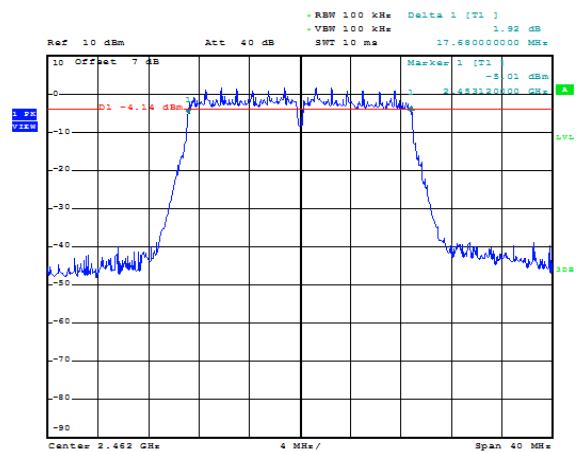
802.11n_Ant0_Low



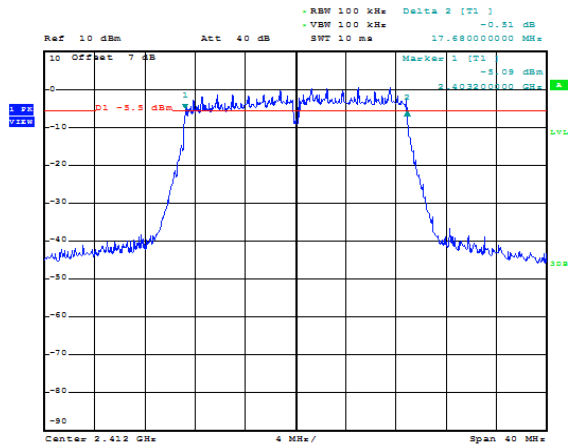
802.11n_Ant0_Middel



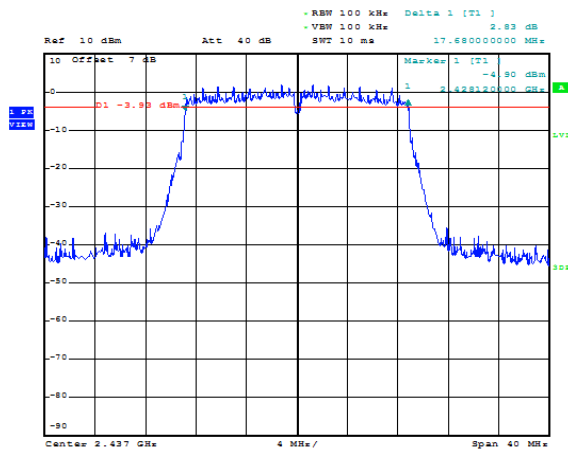
802.11n_Ant0_High



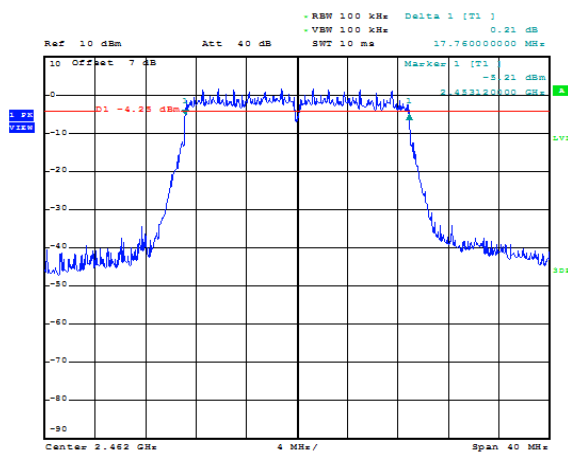
802.11n_Ant1_Low



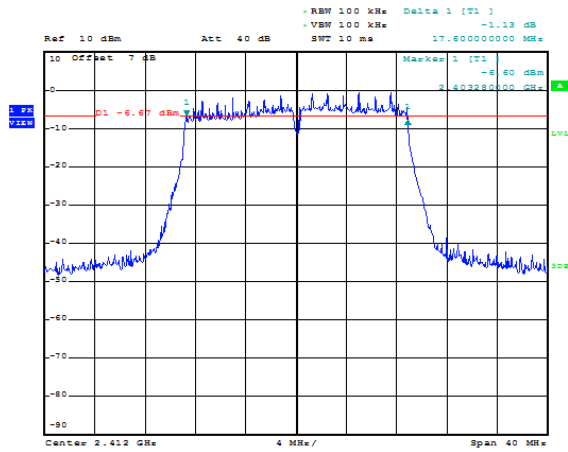
802.11n_Ant1_Middel



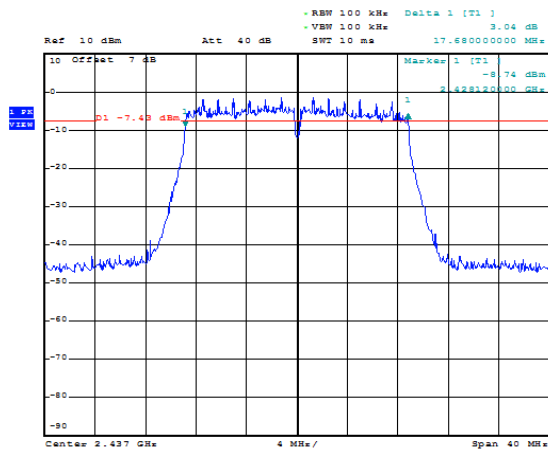
802.11n_Ant1_High



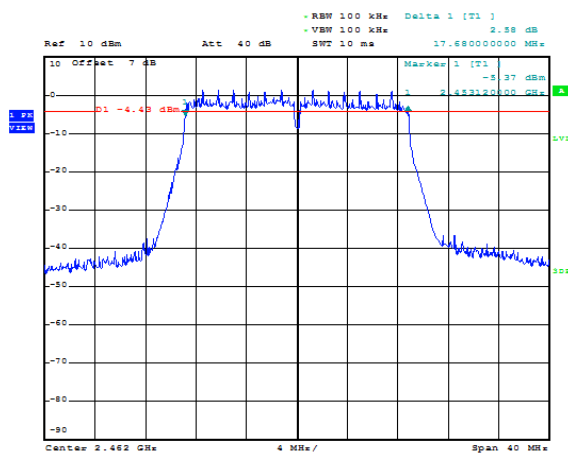
802.11n_Ant2_Low



802.11n_Ant2_Middel



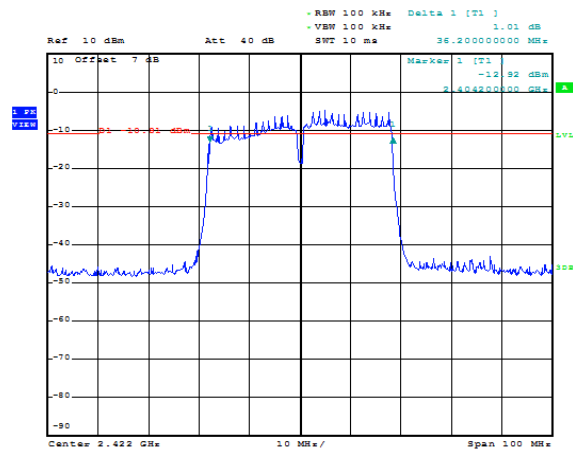
802.11n_Ant2_High



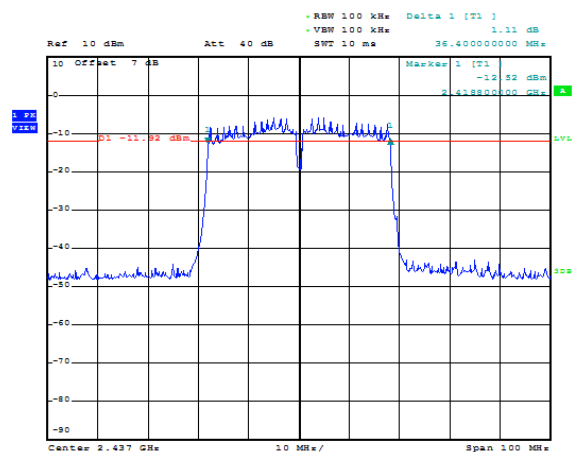
MIMO(3T3R)_HT40

Ant0+Ant1+Ant2

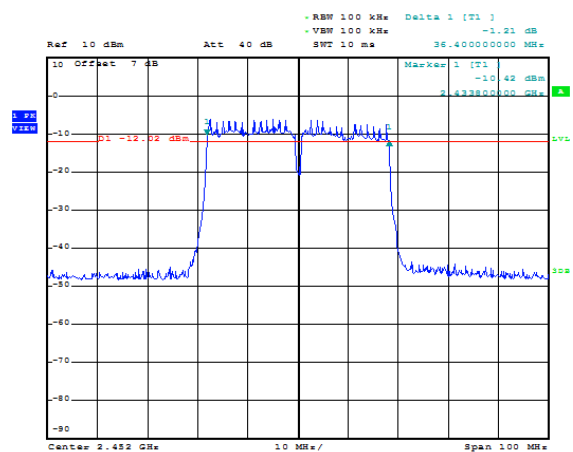
802.11n_Ant0_Low



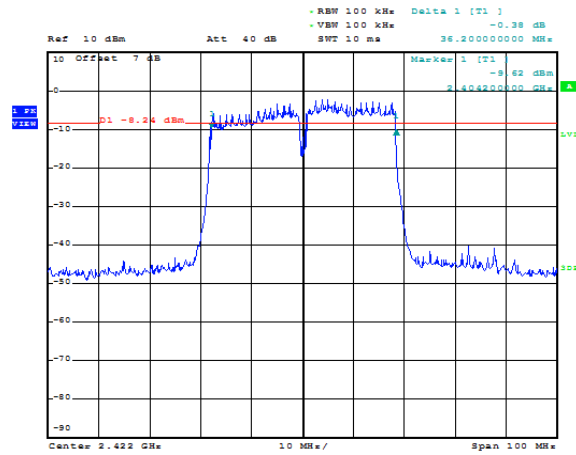
802.11n_Ant0_Middel



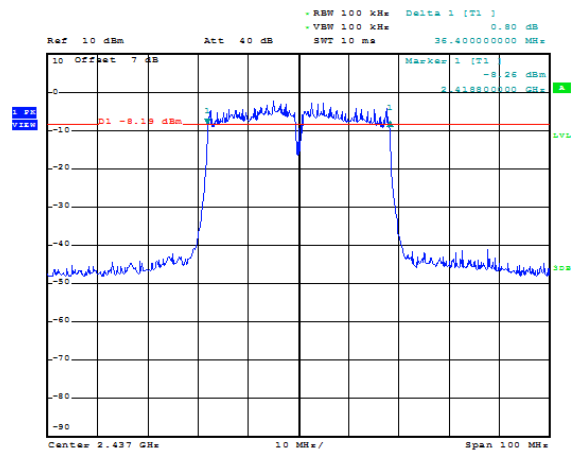
802.11n_Ant0_High



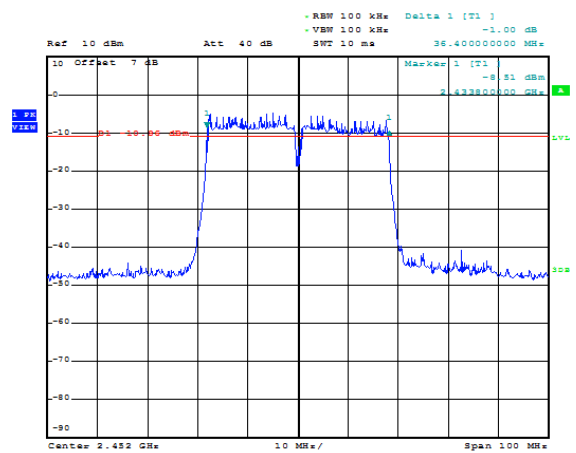
802.11n_Ant1_Low



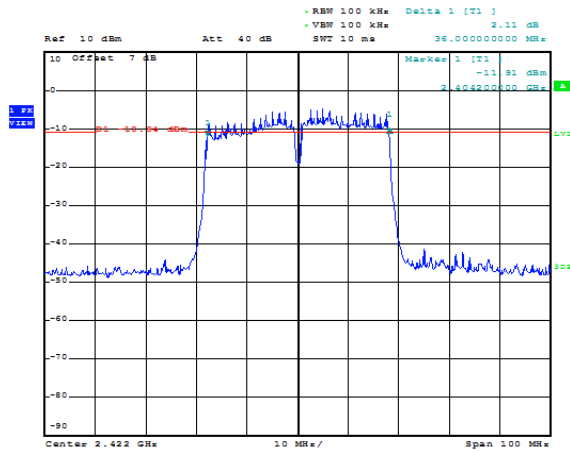
802.11n_Ant1_Middel



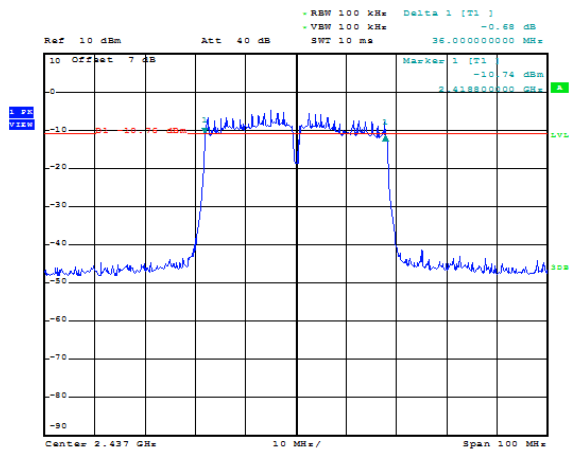
802.11n_Ant1_High



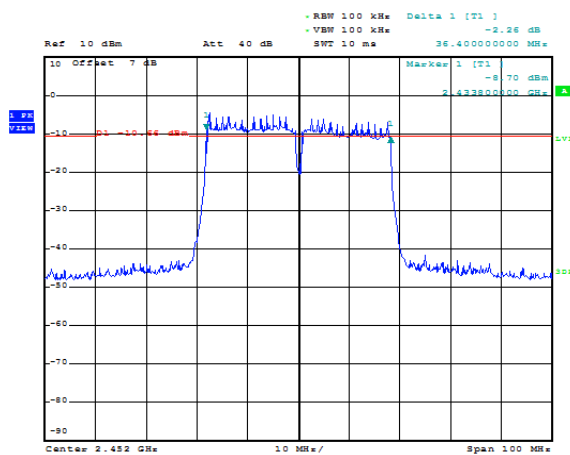
802.11n_Ant2_Low



802.11n_Ant2_Middel



802.11n_Ant2_High



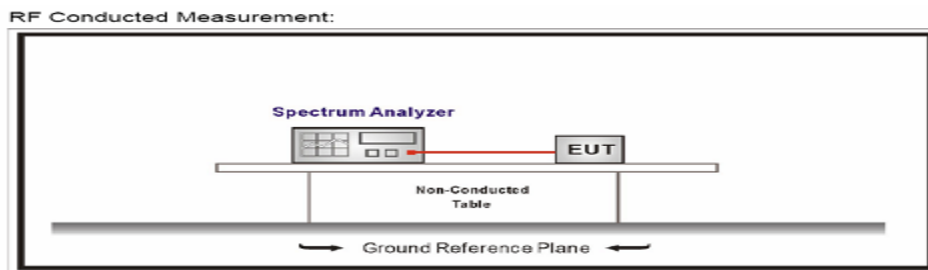
4.3 Peak power Spectral Density

4.3.1 Test Limit

The power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 KHz band.

< 8 dBm @ 3 KHz BW

4.3.2 Test Configuration



4.3.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operation range. Set a reference level on the measuring instrument equal to the highest peak value.
3. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 3 KHz RBW and 10 KHz VBW.
4. Measure the captured power within the band and recording the plot.
5. Repeat above procedures until all frequencies required were complete.
6. For MIMO mode, the output power is calculated according to KDB 662911 D01 Multiple Transmitter Output v02r01.
7. For MIMO mode Limit conversion is below;

$$\text{Directional Gain} = 10 \cdot \text{LOG}(10^{(G1/10)} + 10^{(G2/10)} + \dots + 10^{(Gn/10)})$$

2Tx Ant0+Ant1 mode

7.301 dBi > 6 dBi, so the power density limit shall be reduced to $8-(7.301-6) = 6.70$ dBm.

2Tx Ant0+Ant2 mode

6.807 dBi > 6 dBi, so the power density limit shall be reduced to $8-(6.807-6) = 7.19$ dBm.

2Tx Ant1+Ant2 mode

6.838 dBi > 6 dBi, so the power density limit shall be reduced to $8-(6.838-6) = 7.16$ dBm.

3Tx Ant0+Ant1+Ant2 mode

8.749 dBi > 6 dBi, so the power density limit shall be reduced to $8-(8.749-6) = 5.25$ dBm.

Note : regarding each of antenna gain, refer to 5.7 Antenna Requirements in this report

4.3.4 Test Result and Data

SISO(Single Input Single Output)

802.11b_Ant0

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-3.11	8	Pass
06	2437	-2.30	8	Pass
11	2462	-3.38	8	Pass

802.11b_Ant1

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-5.94	8	Pass
06	2437	-6.23	8	Pass
11	2462	-6.57	8	Pass

802.11b_Ant2

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-6.12	8	Pass
06	2437	-7.29	8	Pass
11	2462	-7.70	8	Pass

802.11g_Ant0

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-9.96	8	Pass
06	2437	-9.68	8	Pass
11	2462	-10.59	8	Pass

802.11g_Ant1

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-12.17	8	Pass
06	2437	-11.22	8	Pass
11	2462	-11.67	8	Pass

802.11g_Ant2

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-13.33	8	Pass
06	2437	-13.04	8	Pass
11	2462	-12.61	8	Pass

802.11n_HT20_Ant0

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-10.31	8	Pass
06	2437	-11.11	8	Pass
11	2462	-11.64	8	Pass

802.11n_HT20_Ant1

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-13.48	8	Pass
06	2437	-12.80	8	Pass
11	2462	-12.93	8	Pass

802.11n_HT20_Ant2

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
01	2412	-13.54	8	Pass
06	2437	-13.66	8	Pass
11	2462	-14.59	8	Pass

802.11n_HT40_Ant0

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
03	2422	-14.37	8	Pass
06	2437	-13.64	8	Pass
09	2452	-15.25	8	Pass

802.11n_HT40_Ant1

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
03	2422	-14.14	8	Pass
06	2437	-10.87	8	Pass
09	2452	-12.57	8	Pass

802.11n_HT40_Ant2

Channel	Frequency (MHz)	Measurement (dBm)	Limit (dBm)	Result
03	2422	-18.08	8	Pass
06	2437	-18.35	8	Pass
09	2452	-18.08	8	Pass

MIMO(Multi Input Multi Output)

802.11n_HT20_Ant0 + Ant1

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant0	Ant1		
01	2412	-14.85	-11.19	Please refer to 4.3.3 Clause 6 and 7 for MIMO power calculation and limit method.	
06	2437	-10.91	-10.74		
11	2462	-11.99	-13.87		
Measured Power Summing(Ant0+Ant1)					
01	2412	-9.64		6.70	Pass
06	2437	-7.83		6.70	Pass
11	2462	-9.83		6.70	Pass

802.11n_HT20_Ant0 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant0	Ant2		
01	2412	-11.27	-14.28	Please refer to 4.3.3 Clause 6 and 7 for MIMO power calculation and limit method.	
06	2437	-12.10	-14.31		
11	2462	-12.46	-14.36		
Measured Power Summing(Ant0+Ant2)					
01	2412	-9.51		7.19	Pass
06	2437	-10.04		7.19	Pass
11	2462	-10.27		7.19	Pass

802.11n_HT20_Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant1	Ant2		
01	2412	-14.47	-14.37	Please refer to 4.3.3 Clause 6 and 7 for MIMO power calculation and limit method.	
06	2437	-10.21	-14.53		
11	2462	-11.70	-14.52		
Measured Power Summing(Ant1+Ant2)					
01	2412	-11.37		7.16	Pass
06	2437	-8.86		7.16	Pass
11	2462	-9.87		7.16	Pass

802.11n_HT40_Ant0 + Ant1

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant0	Ant1		
03	2422	-15.79	-15.95	Please refer to 4.3.3 Clause 6 and 7 for MIMO power calculation and limit method.	
06	2437	-15.85	-12.02		
09	2452	-15.49	-14.53		
Measured Power Summing(Ant0+Ant1)					
03	2422	-12.92		6.70	Pass
06	2437	-10.51		6.70	Pass
09	2452	-12.01		6.70	Pass

802.11n_HT40_Ant0 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant0	Ant2		
03	2422	-15.40	-18.22	Please refer to 4.3.3 Clause 6 and 7 for MIMO power calculation and limit method.	
06	2437	-15.75	-15.74		
09	2452	-16.66	-15.67		
Measured Power Summing(Ant0+Ant2)					
03	2422	-13.57		7.19	Pass
06	2437	-12.68		7.19	Pass
09	2452	-13.10		7.19	Pass

802.11n_HT40_Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)		Limit (dBm)	Result
		Ant1	Ant2		
03	2422	-18.47	-18.45	Please refer to 4.3.3 Clause 6 and 7 for MIMO power calculation and limit method.	
06	2437	-14.94	-19.77		
09	2452	-16.30	-18.17		
Measured Power Summing(Ant1+Ant2)					
03	2422	-15.53		7.16	Pass
06	2437	-13.67		7.16	Pass
09	2452	-14.20		7.16	Pass

802.11n_HT20_Ant0+Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)			Limit (dBm)	Result
		Ant0	Ant1	Ant2		
01	2412	-11.52	-11.94	-14.82	Please refer to 4.3.3 Clause 6 and 7 for MIMO power calculation and limit method.	
06	2437	-11.42	-11.79	-12.17		
11	2462	-10.79	-11.32	-12.29		
Measured Power Summing(Ant0+Ant1+Ant2)						
01	2412	-7.77			5.25	Pass
06	2437	-6.84			5.25	Pass
11	2462	-6.66			5.25	Pass

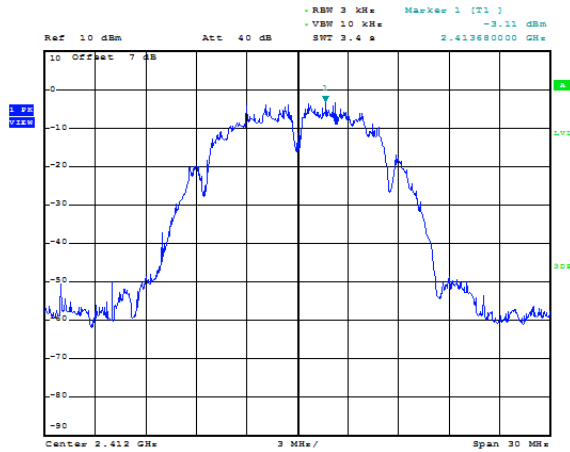
802.11n_HT40_Ant0+Ant1 + Ant2

Channel	Frequency (MHz)	Measurement (dBm)			Limit (dBm)	Result
		Ant0	Ant1	Ant2		
03	2422	-16.97	-18.76	-19.02	Please refer to 4.3.3 Clause 6 and 7 for MIMO power calculation and limit method.	
06	2437	-16.85	-12.87	-19.33		
09	2452	-17.98	-17.53	-20.87		
Measured Power Summing(Ant0+Ant1+Ant2)						
03	2422	-13.37			5.25	Pass
06	2437	-10.76			5.25	Pass
09	2452	-13.77			5.25	Pass

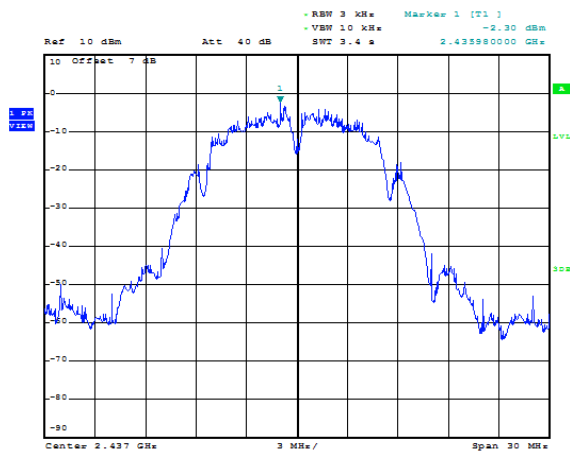
Data Plot

SISO(1T1R)

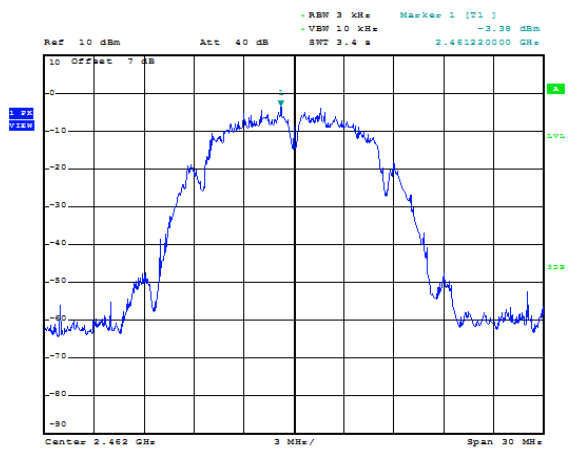
802.11b_Ant0_Low



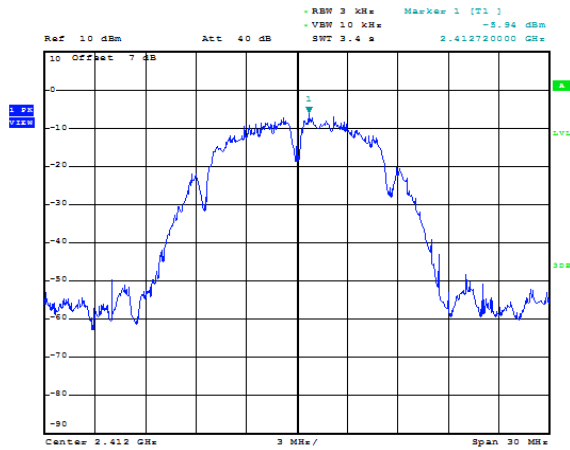
802.11b_Ant0_Middel



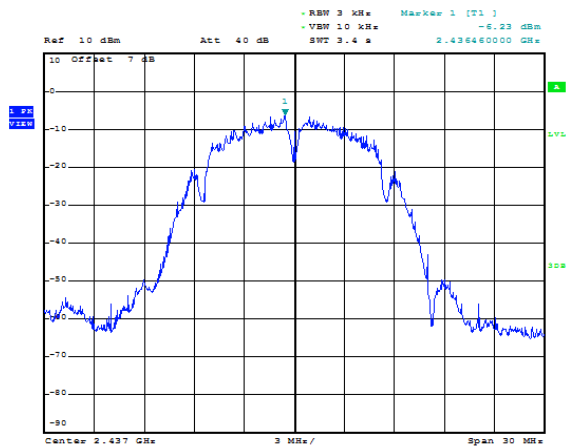
802.11b_Ant0_High



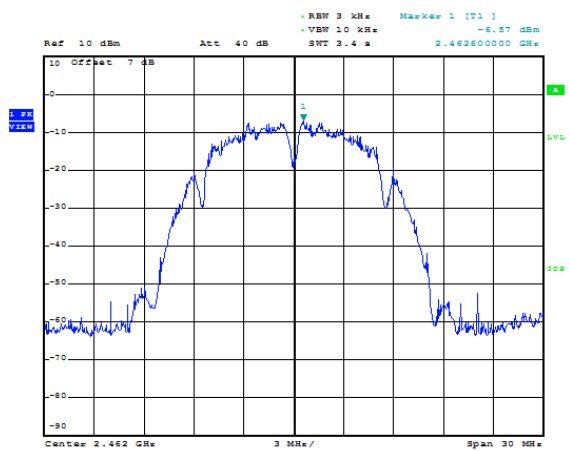
802.11b_Ant1_Low



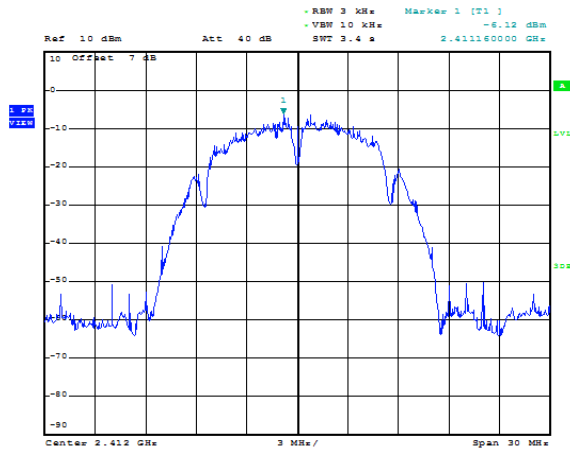
802.11b_Ant1_Middel



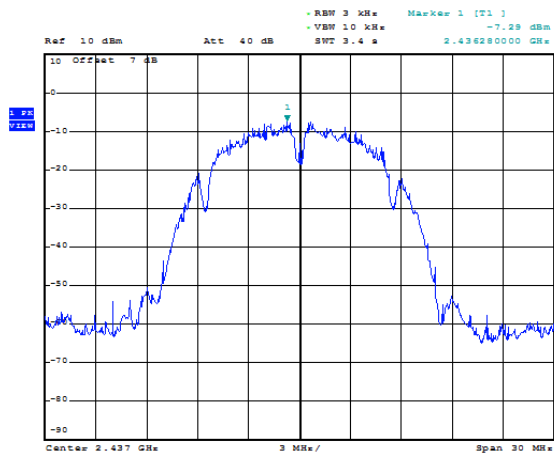
802.11b_Ant1_High



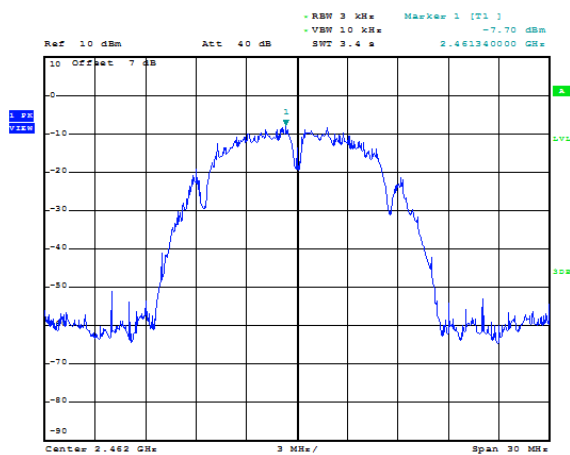
802.11b_Ant2_Low



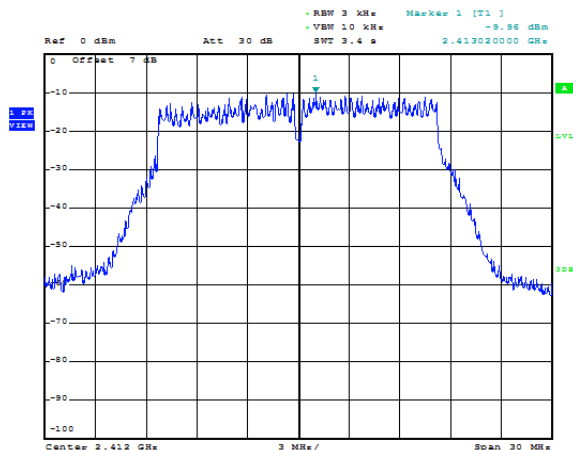
802.11b_Ant2_Middel



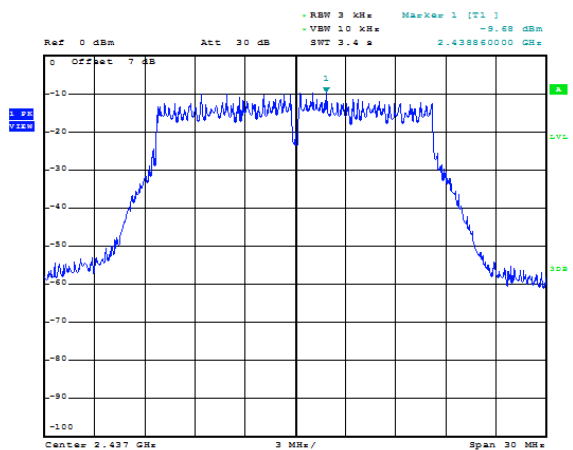
802.11b_Ant2_High



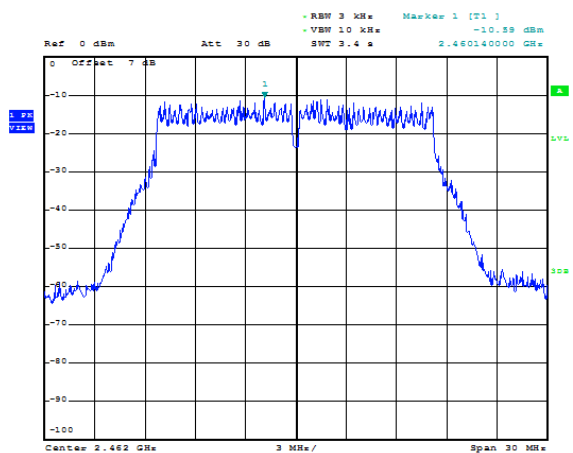
802.11g_Ant0_Low



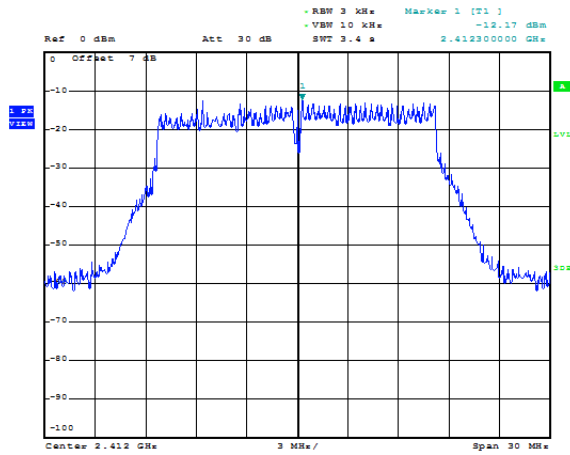
802.11g_Ant0_Middel



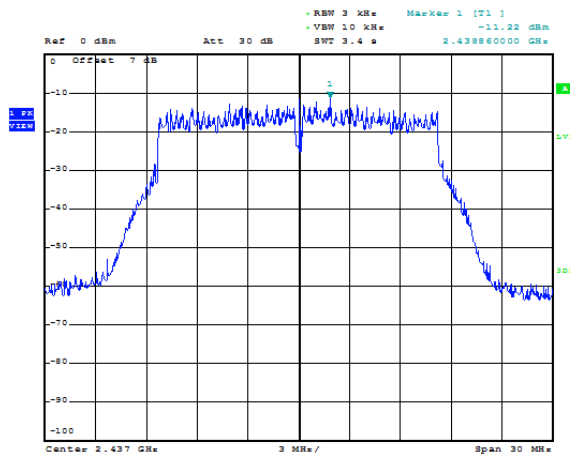
802.11g_Ant0_High



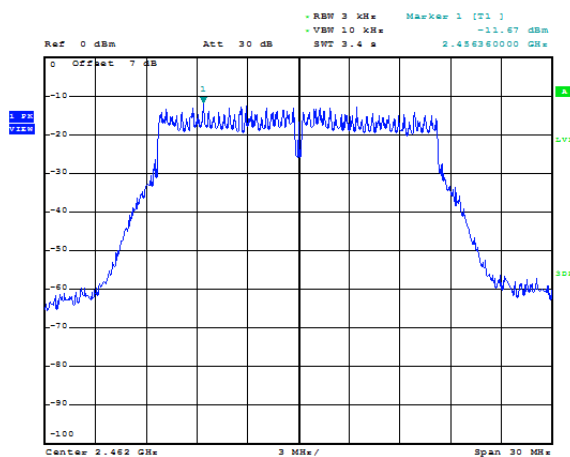
802.11g_Ant1_Low



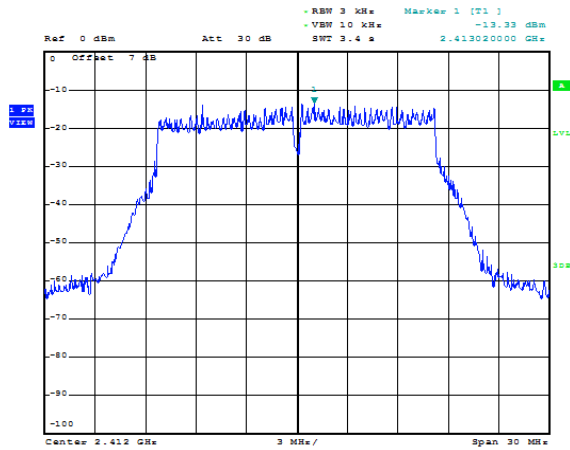
802.11g_Ant1_Middel



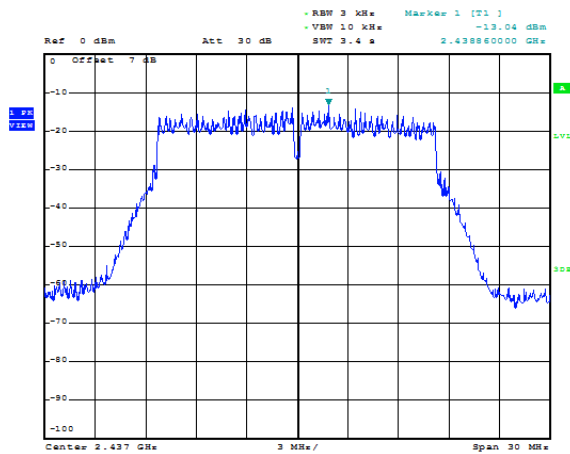
802.11g_Ant1_High



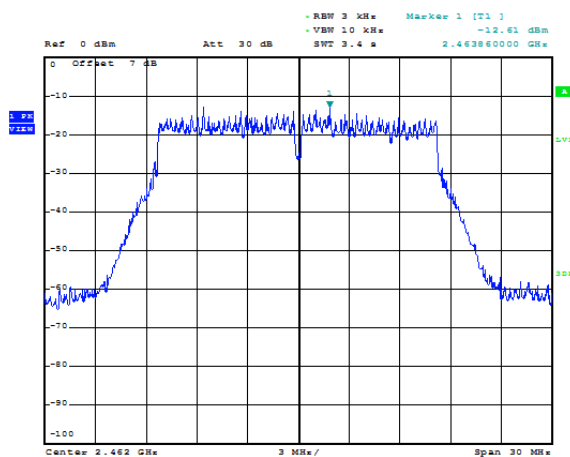
802.11g_Ant2_Low



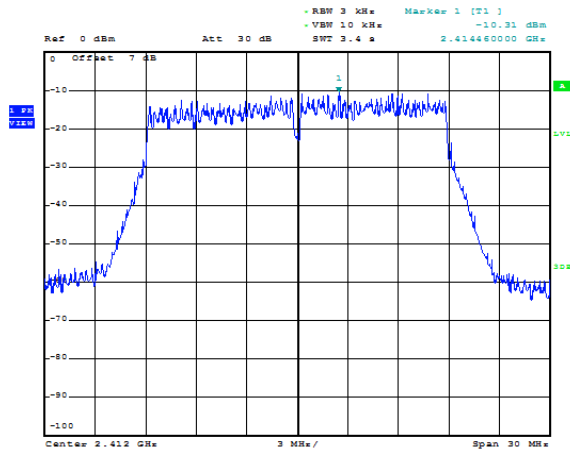
802.11g_Ant2_Middel



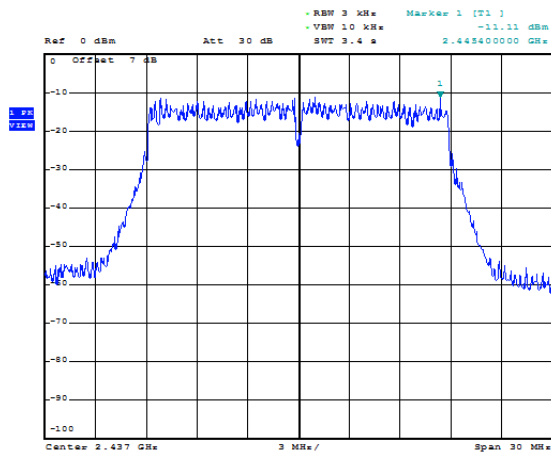
802.11g_Ant2_High



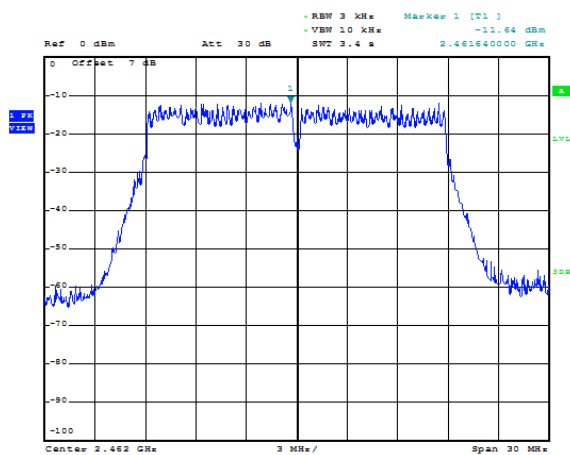
802.11n_HT20_Ant0_Low



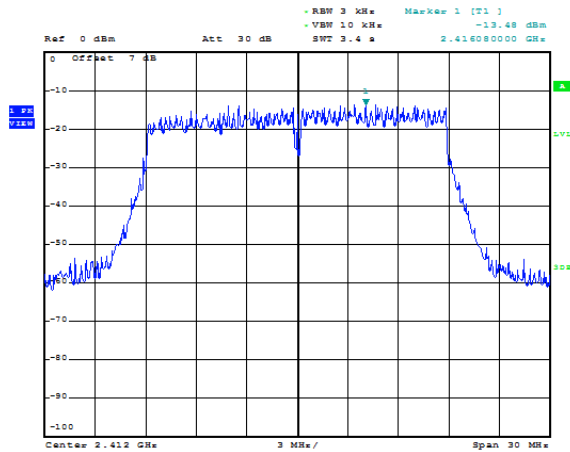
802.11n_HT20_Ant0_Middel



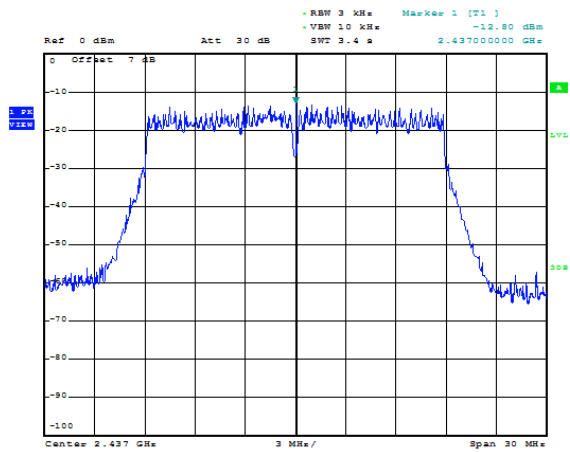
802.11n_HT20_Ant0_High



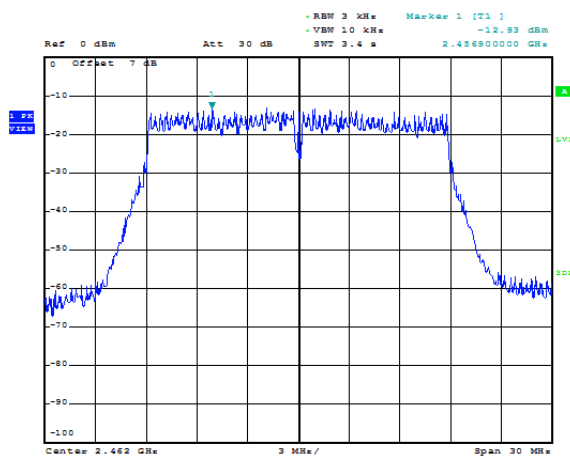
802.11n_HT20_Ant1_Low



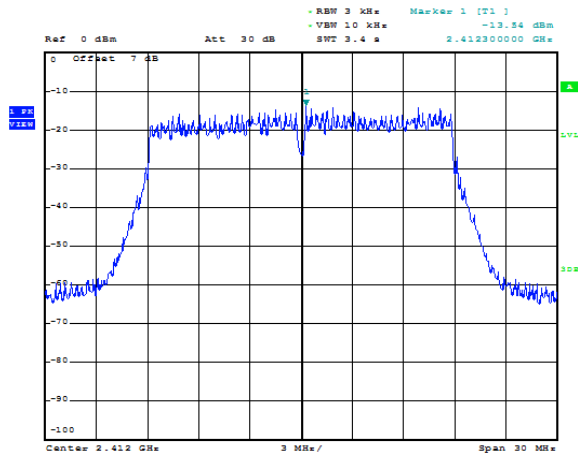
802.11n_HT20_Ant1_Middel



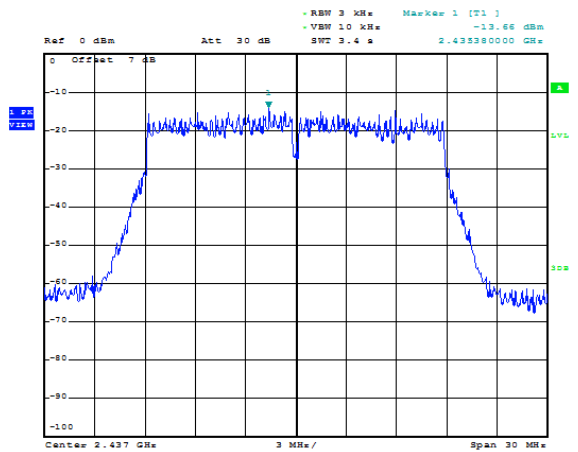
802.11n_HT20_Ant1_High



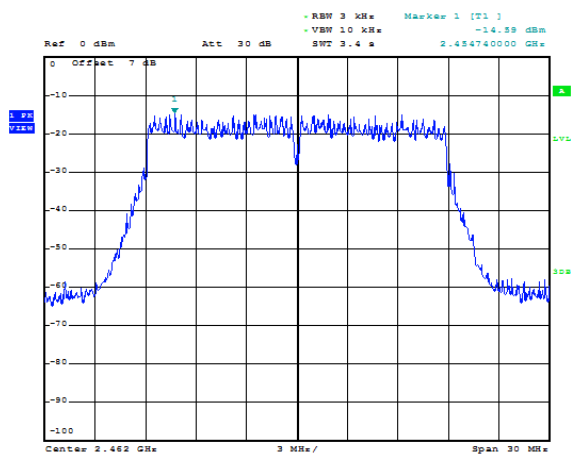
802.11n_HT20_Ant2_Low



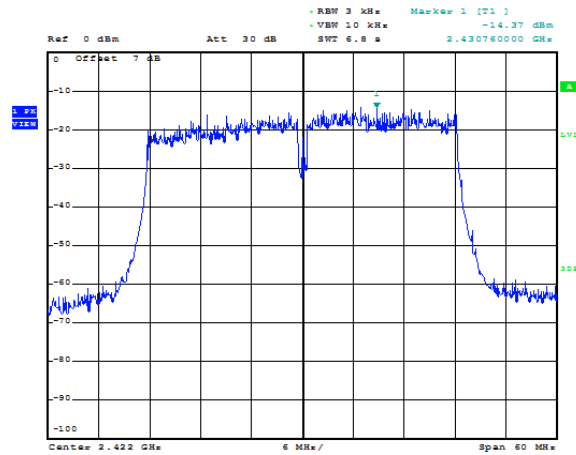
802.11n_HT20_Ant2_Middel



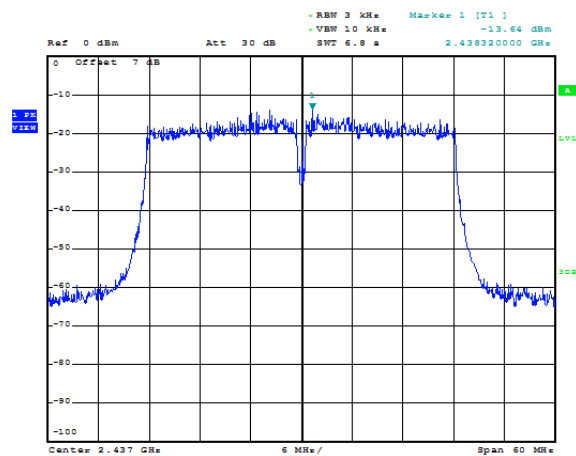
802.11n_HT20_Ant2_High



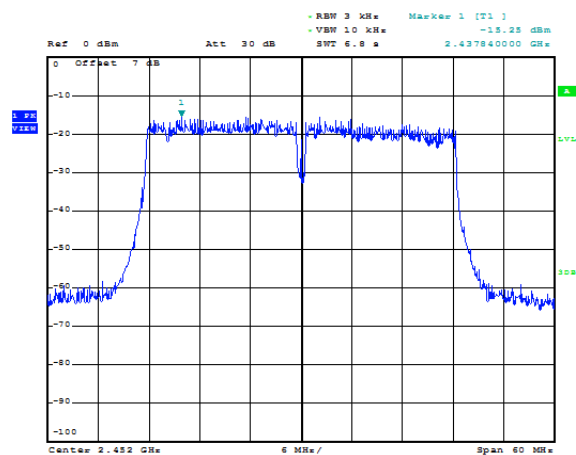
802.11n_HT40_Ant0_Low



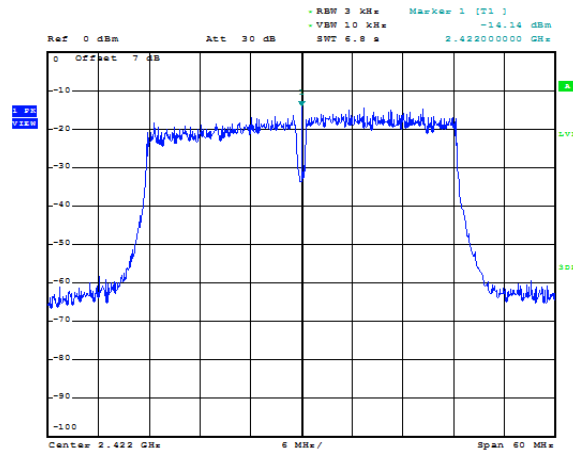
802.11n_HT40_Ant0_Middel



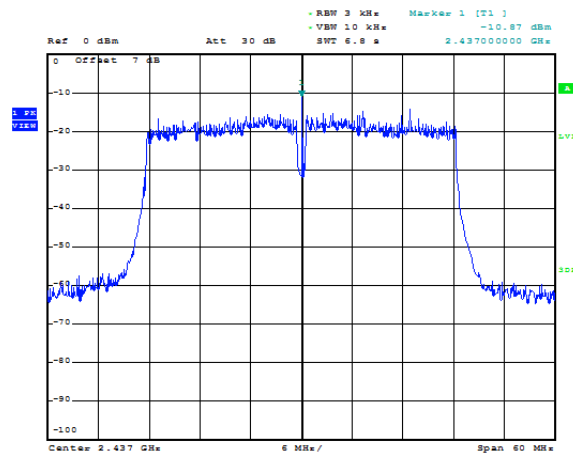
802.11n_HT40_Ant0_High



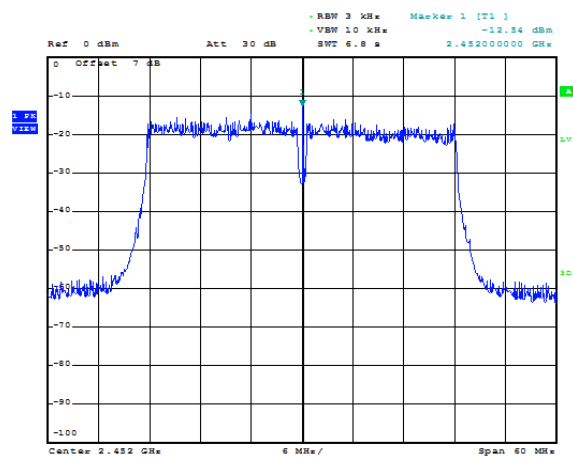
802.11n_HT40_Ant1_Low



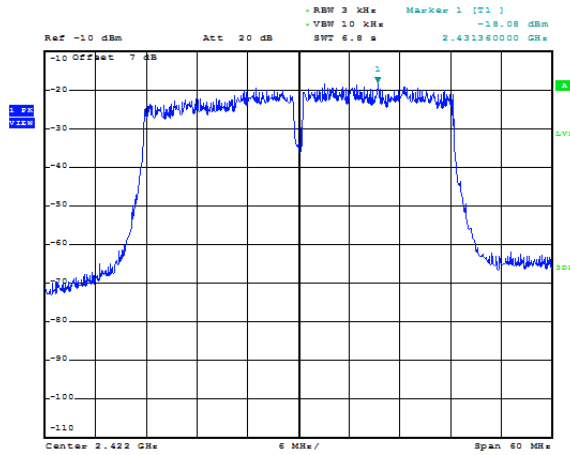
802.11n_HT40_Ant1_Middel



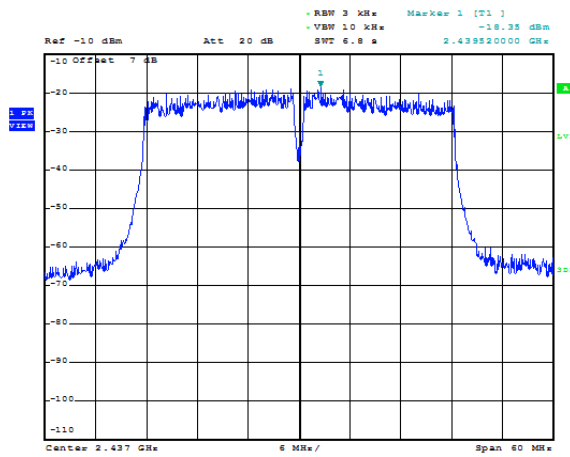
802.11n_HT40_Ant1_High



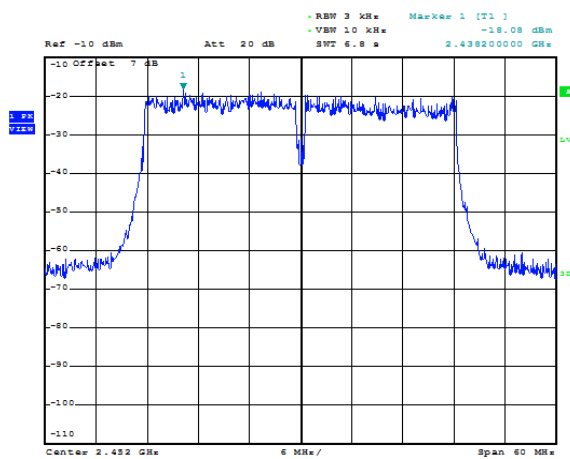
802.11n_HT40_Ant2_Low



802.11n_HT40_Ant2_Middel



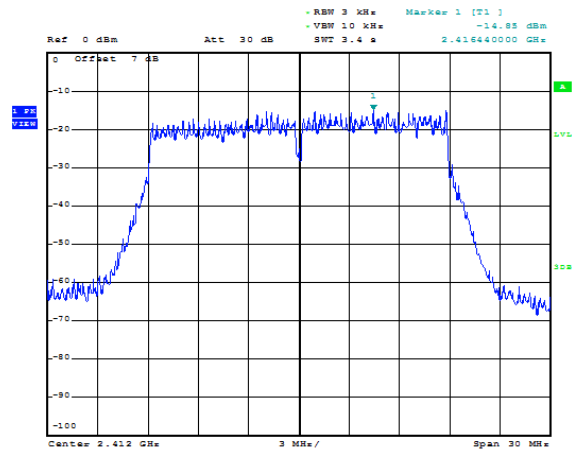
802.11n_HT40_Ant2_High



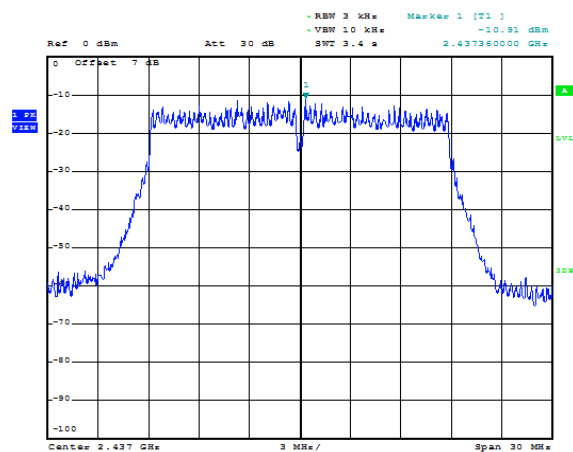
MIMO(2T2R)_HT20

Ant0+Ant1

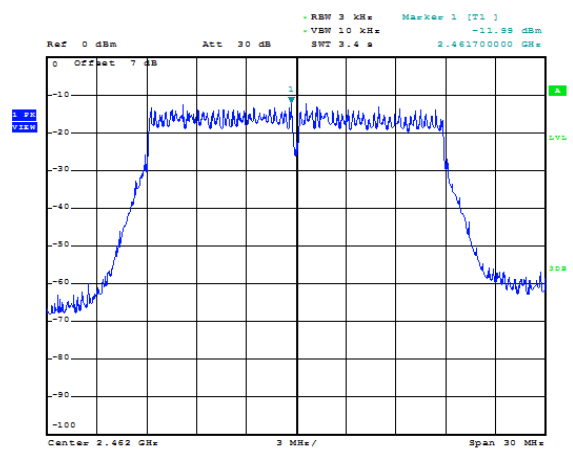
802.11n_Ant0_Low



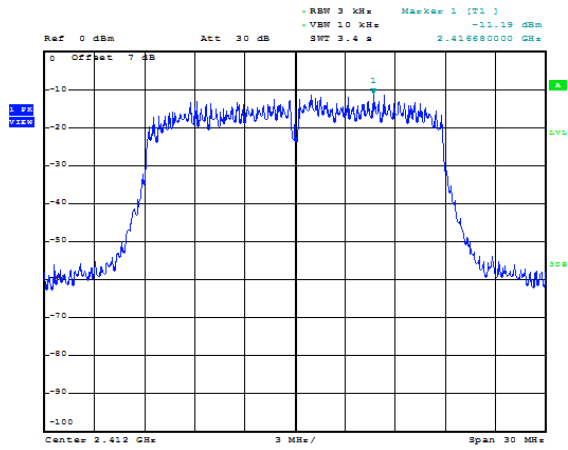
802.11n_Ant0_Middel



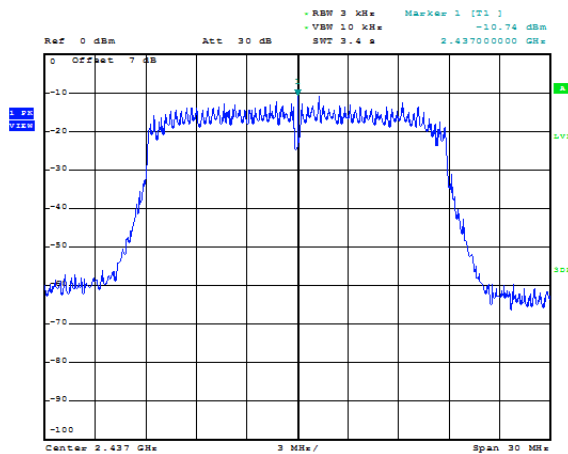
802.11n_Ant0_High



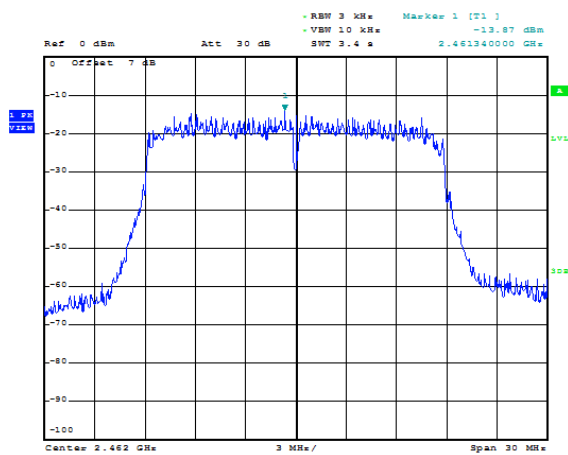
802.11n_Ant1_Low



802.11n_Ant1_Middel

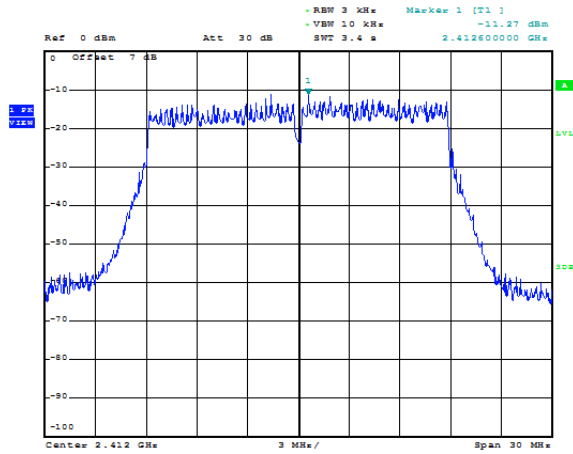


802.11n_Ant1_High

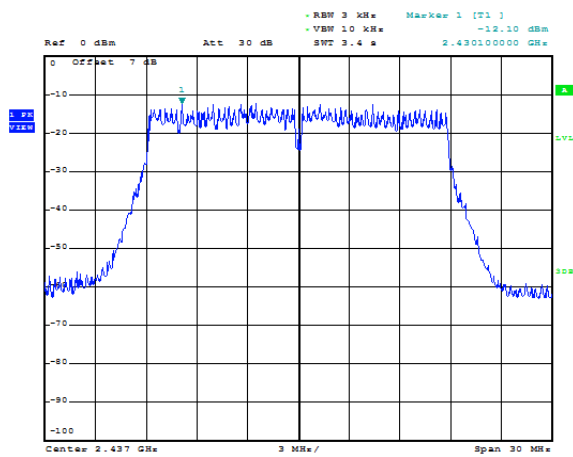


Ant0+Ant2

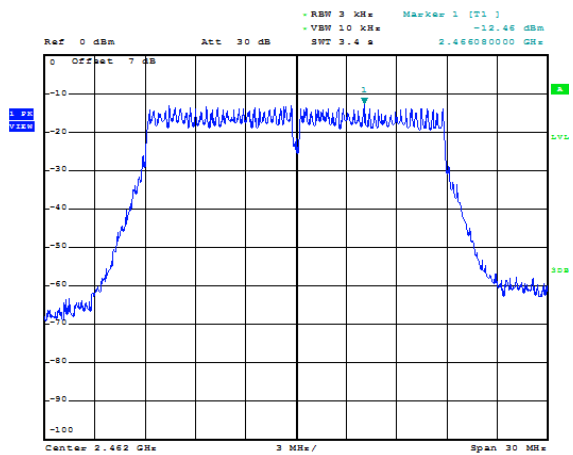
802.11n_Ant0_Low



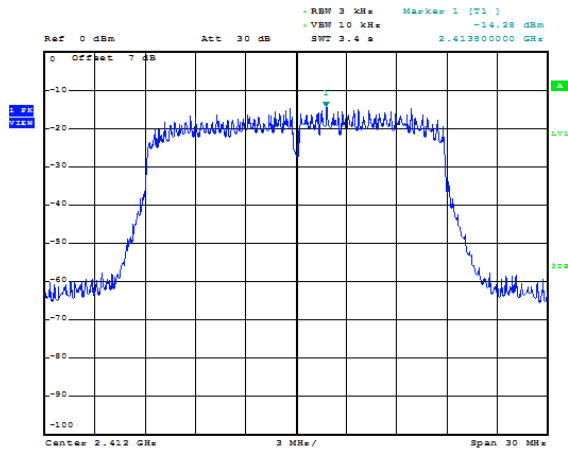
802.11n_Ant0_Middel



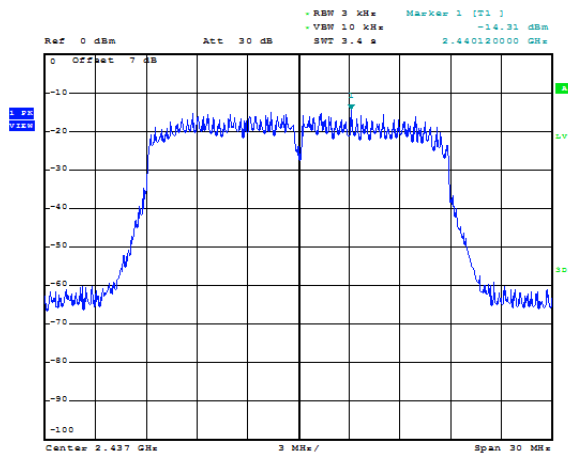
802.11n_Ant0_High



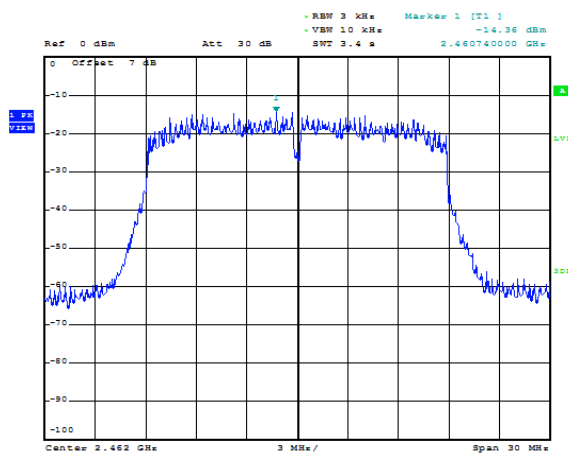
802.11n_Ant2_Low



802.11n_Ant2_Middel

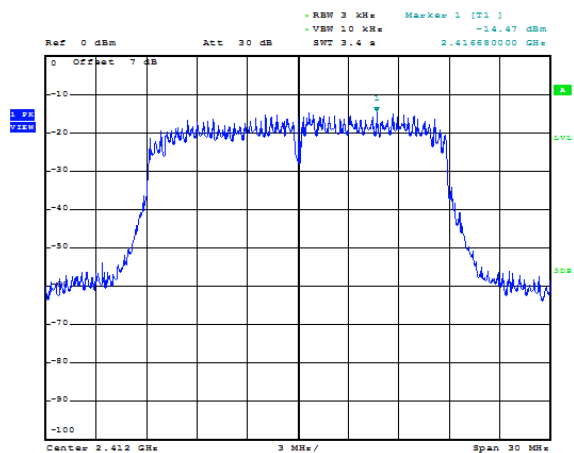


802.11n_Ant2_High

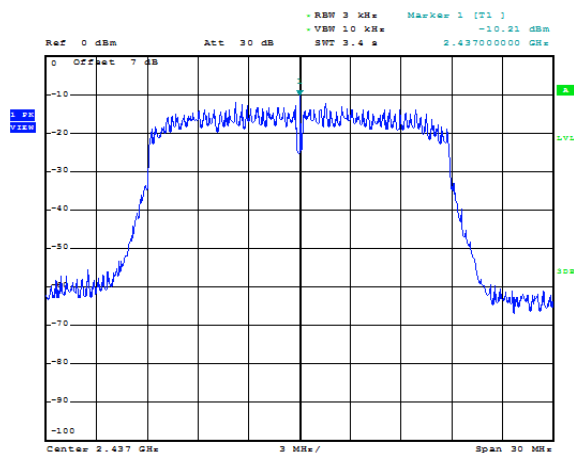


Ant1+Ant2

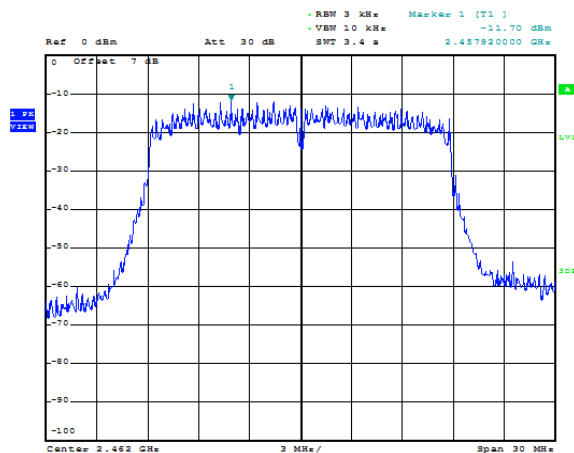
802.11n_Ant1_Low



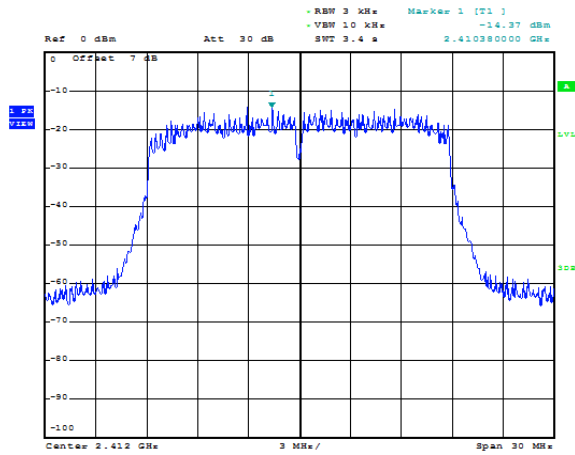
802.11n_Ant1_Middel



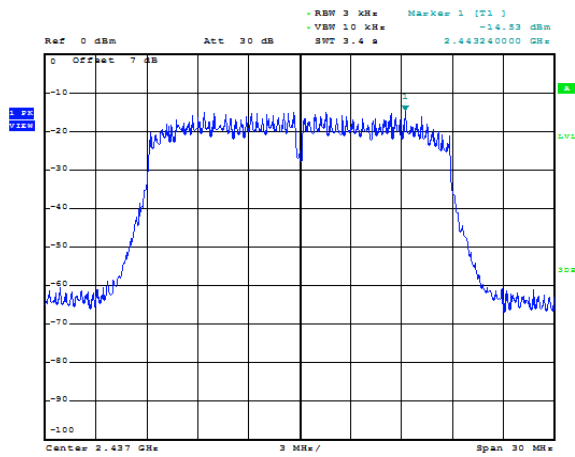
802.11n_Ant1_High



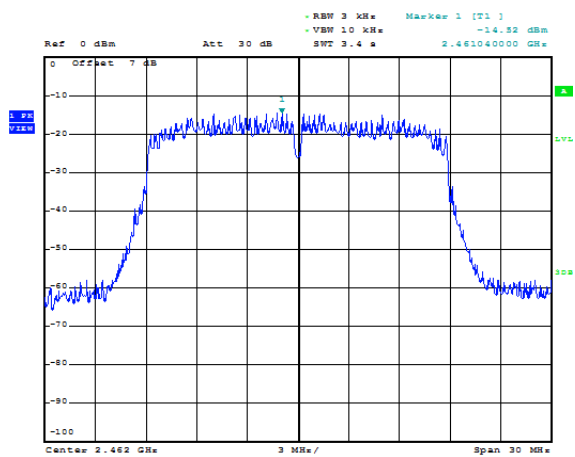
802.11n_Ant2_Low



802.11n_Ant2_Middel



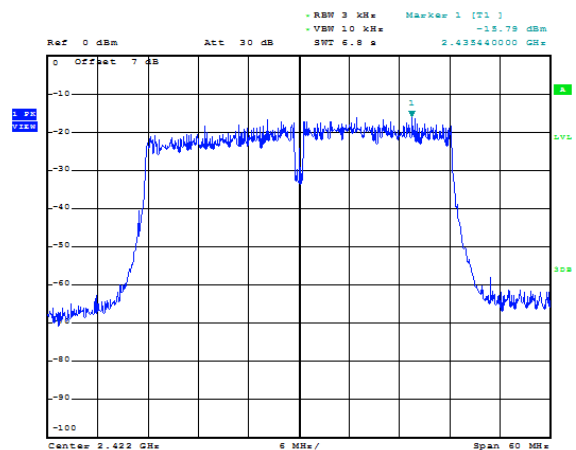
802.11n_Ant2_High



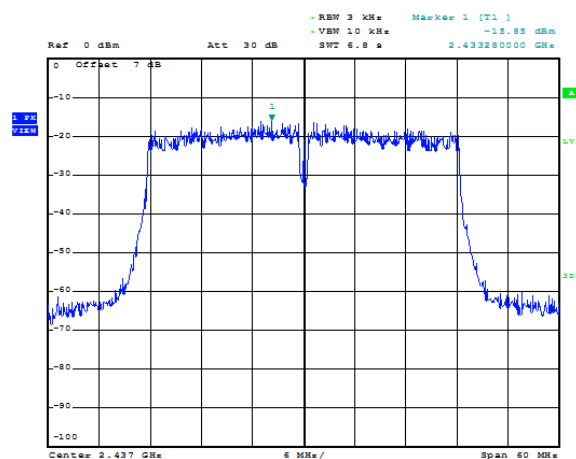
MIMO(2T2R)_HT40

Ant0+Ant1

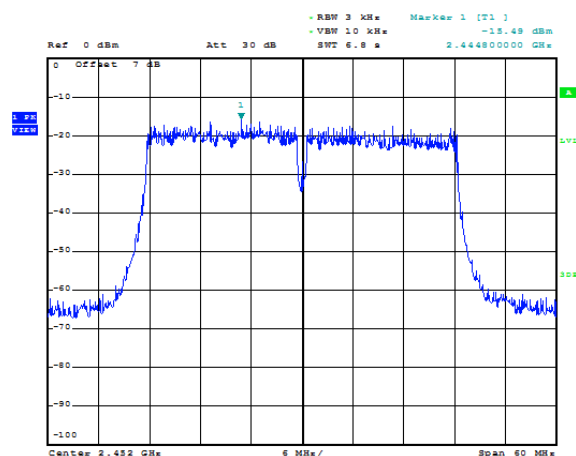
802.11n_Ant0_Low



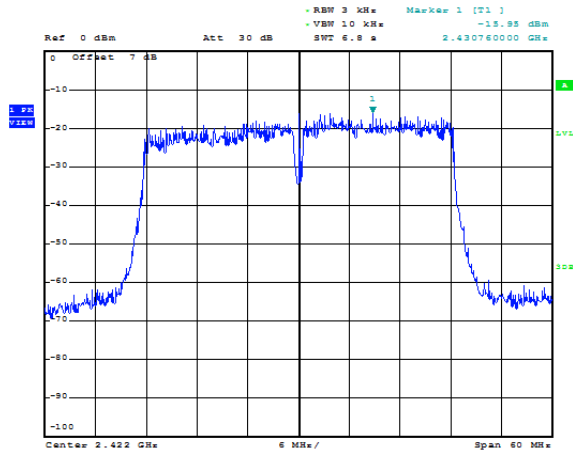
802.11n_Ant0_Middel



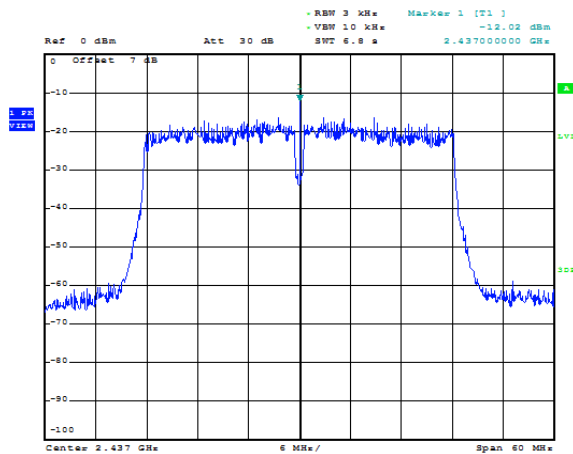
802.11n_Ant0_High



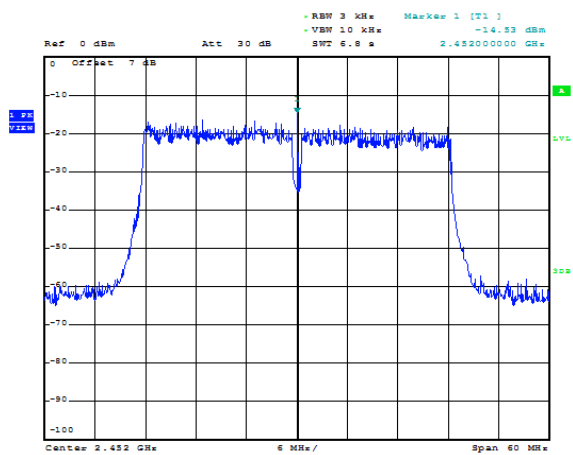
802.11n_Ant1_Low



802.11n_Ant1_Middel

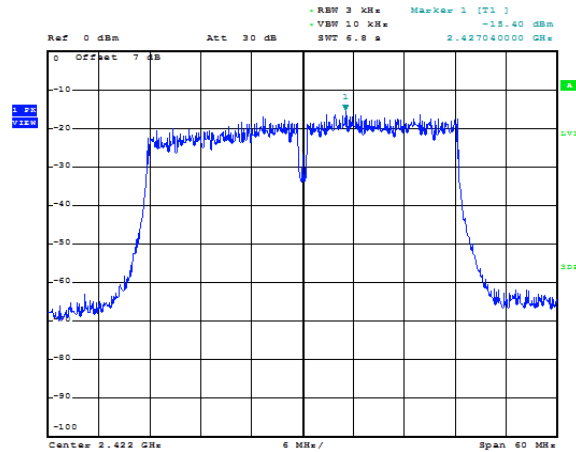


802.11n_Ant1_High

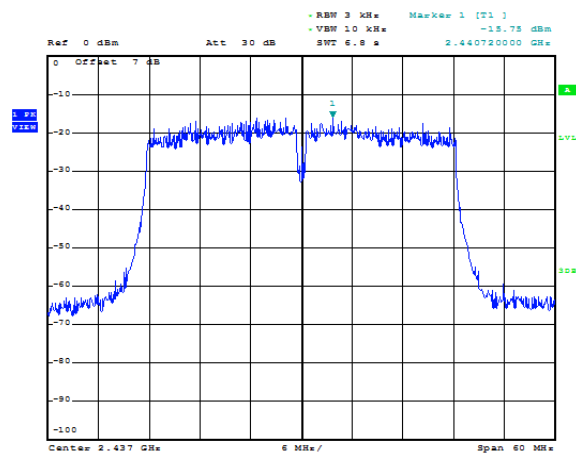


Ant0+Ant2

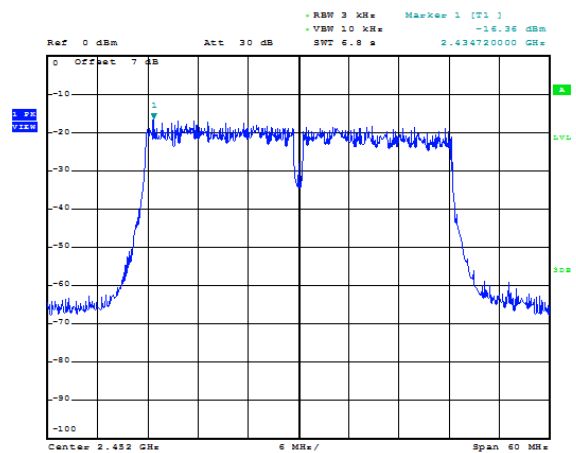
802.11n_Ant0_Low



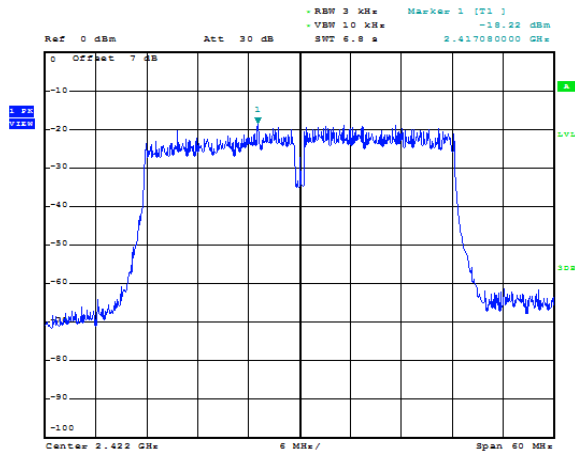
802.11n_Ant0_Middel



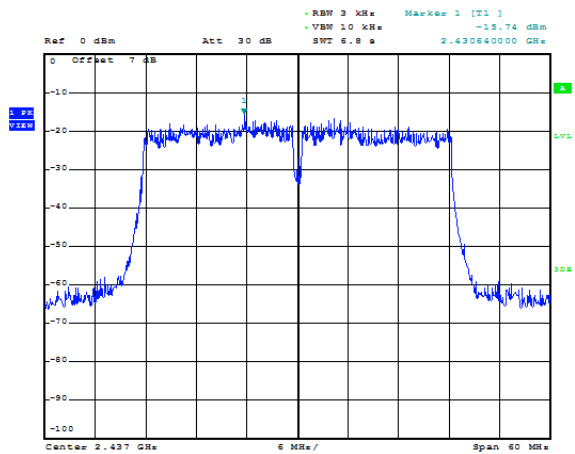
802.11n_Ant0_High



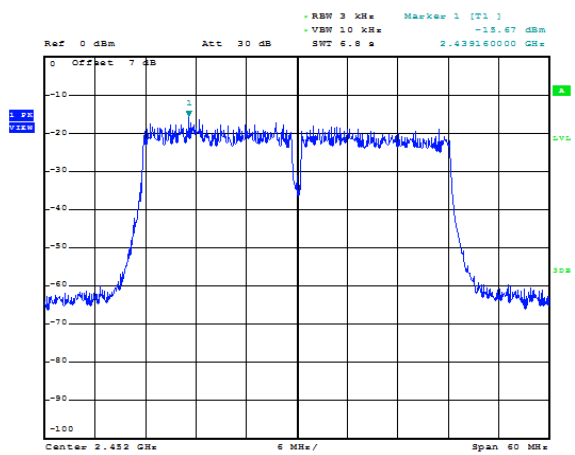
802.11n_Ant2_Low



802.11n_Ant2_Middel

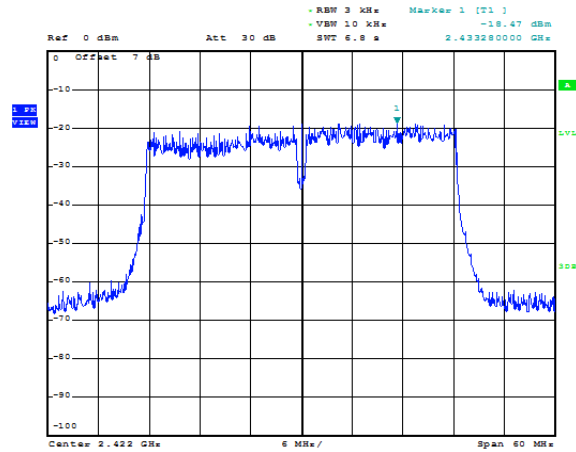


802.11n_Ant2_High

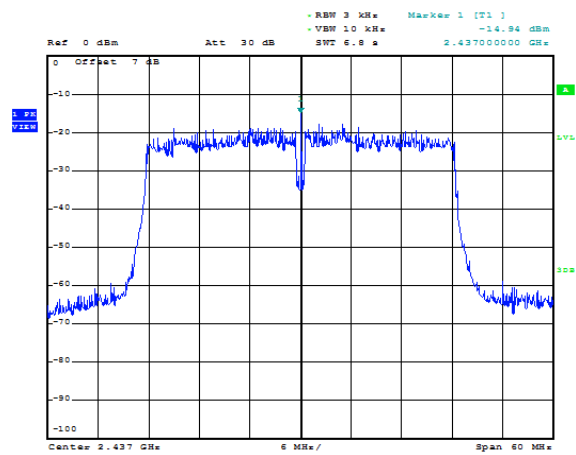


Ant1+Ant2

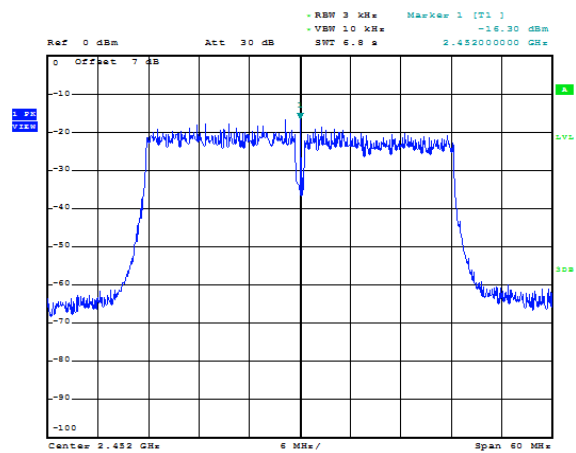
802.11n_Ant1_Low



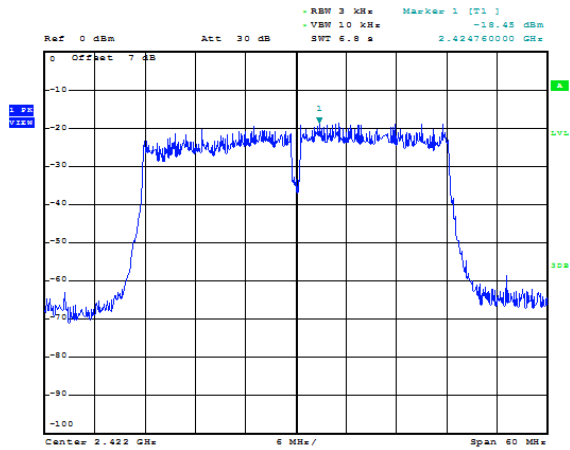
802.11n_Ant1_Middel



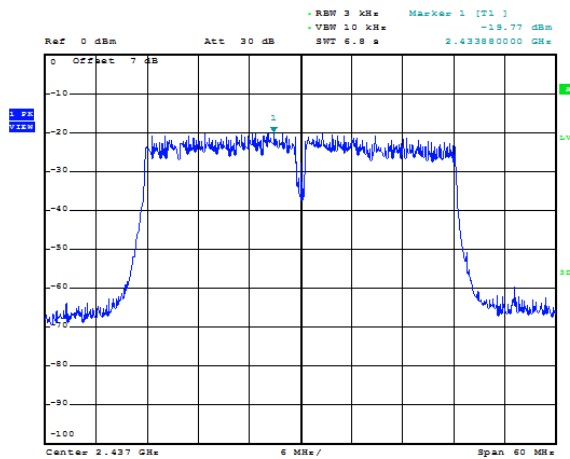
802.11n_Ant1_High



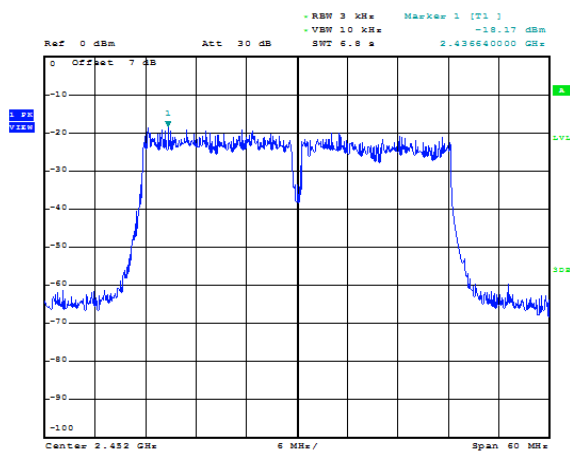
802.11n_Ant2_Low



802.11n_Ant2_Middel



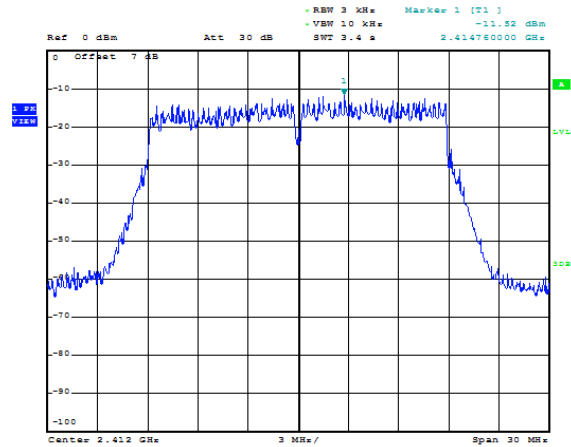
802.11n_Ant2_High



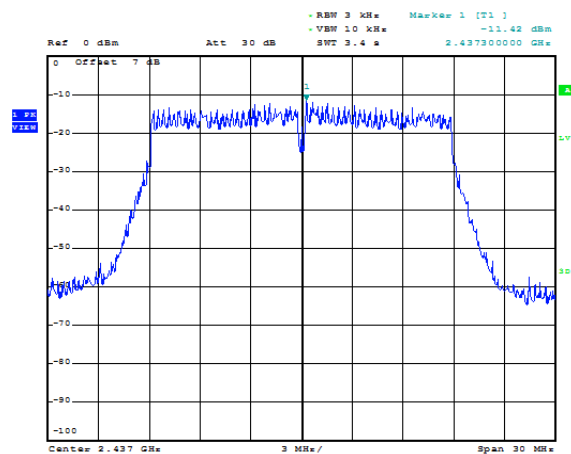
MIMO(3T3R)_HT20

Ant0+Ant1+Ant2

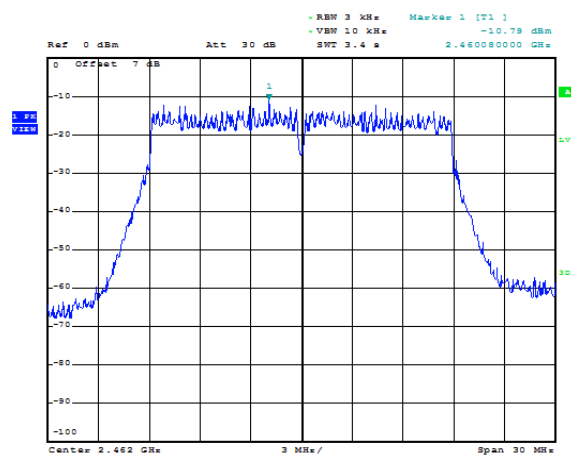
802.11n_Ant0_Low



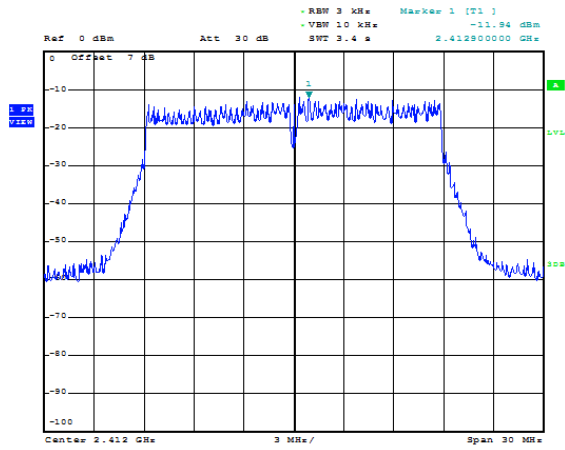
802.11n_Ant0_Middel



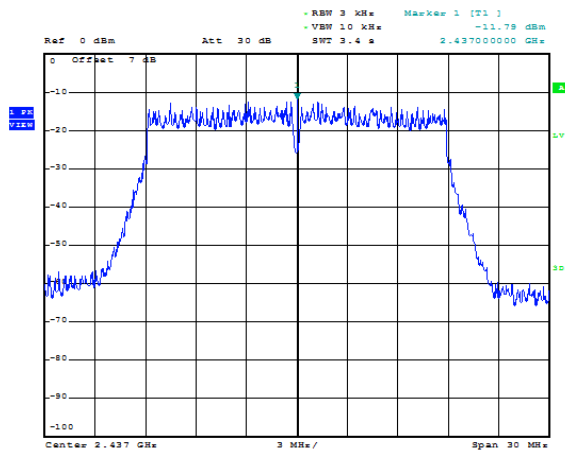
802.11n_Ant0_High



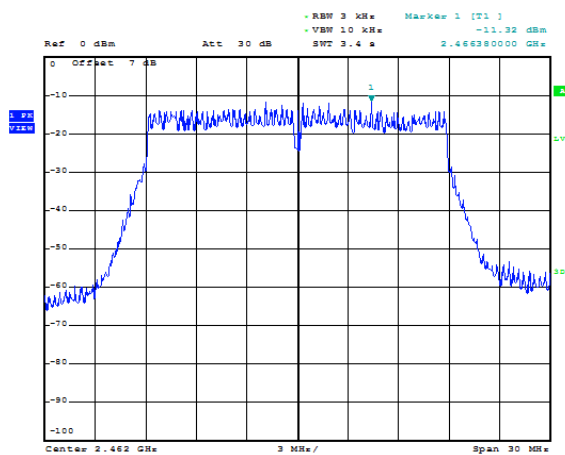
802.11n_Ant1_Low



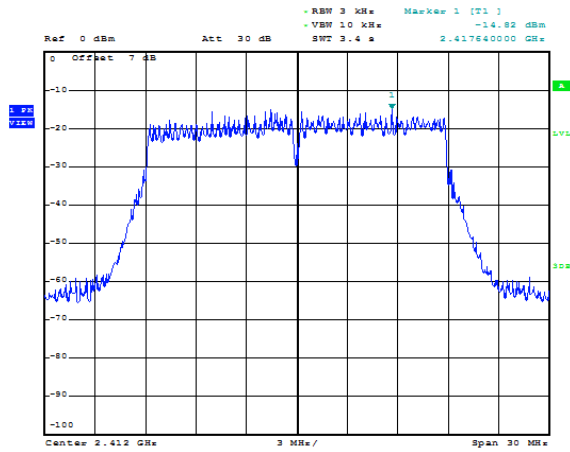
802.11n_Ant1_Middel



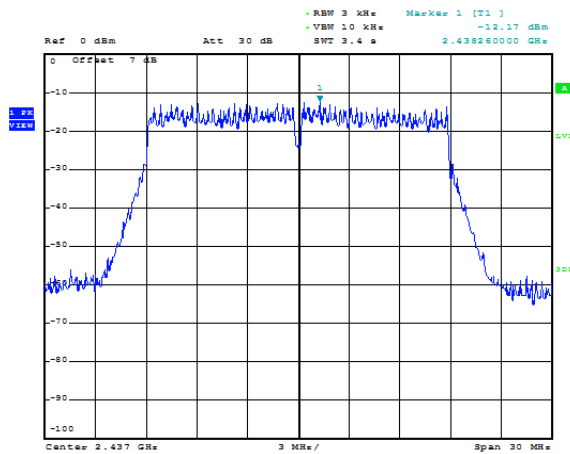
802.11n_Ant1_High



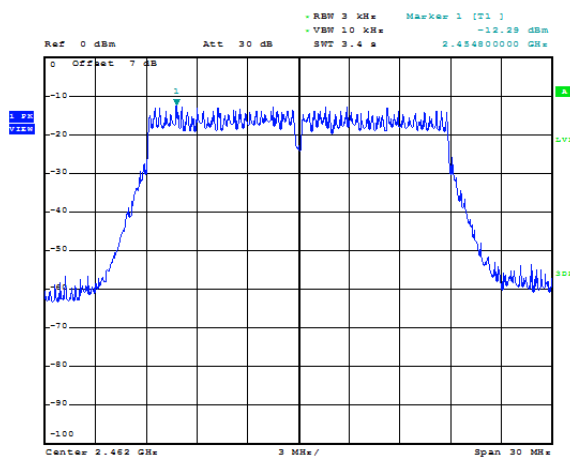
802.11n_Ant2_Low



802.11n_Ant2_Middel



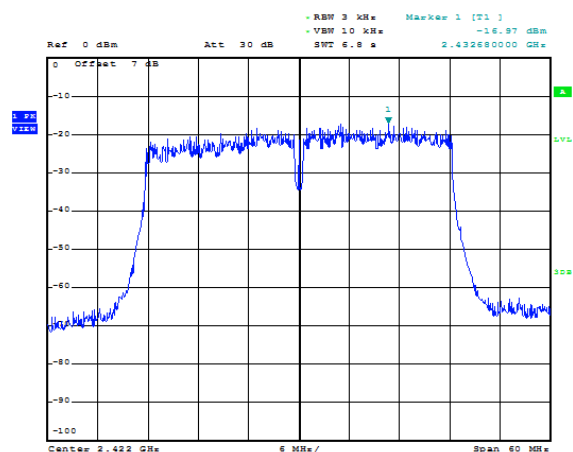
802.11n_Ant2_High



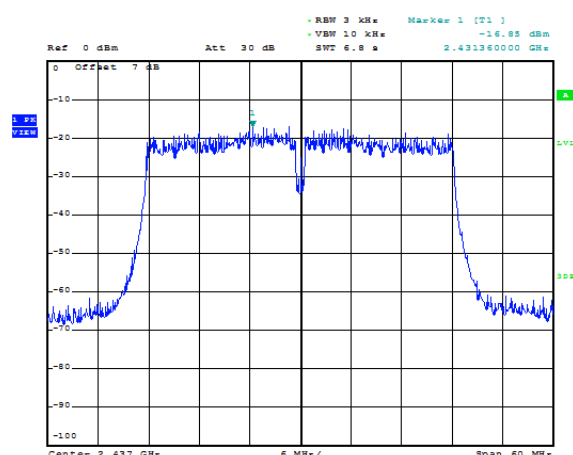
MIMO(3T3R)_HT40

Ant0+Ant1+Ant2

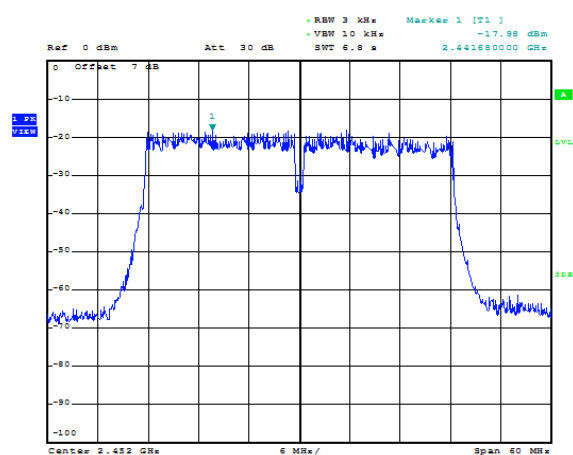
802.11n_Ant0_Low



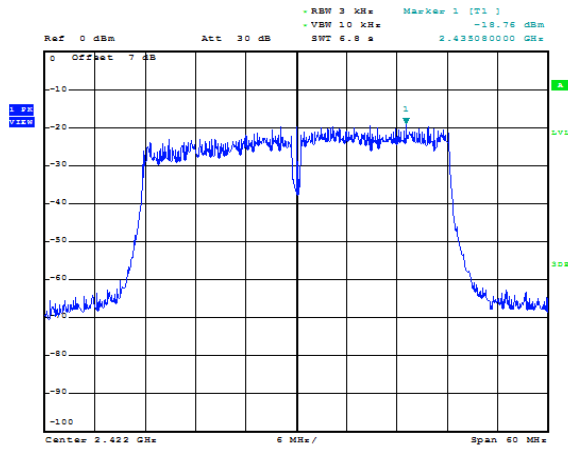
802.11n_Ant0_Middel



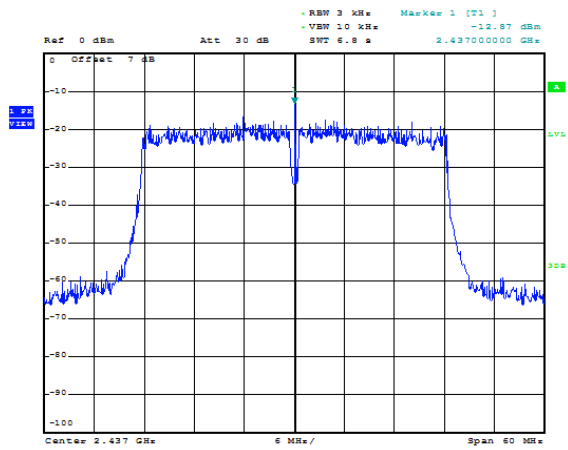
802.11n_Ant0_High



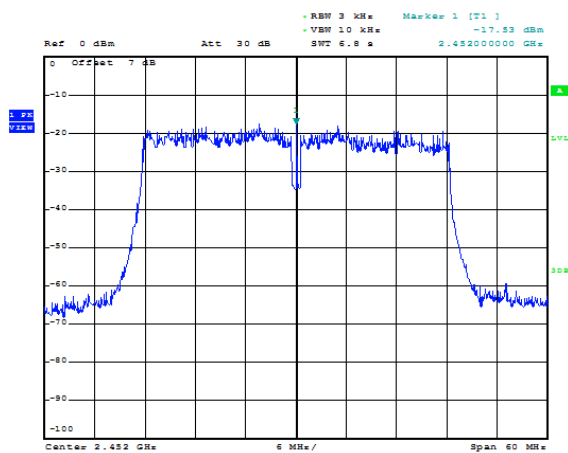
802.11n_Ant1_Low



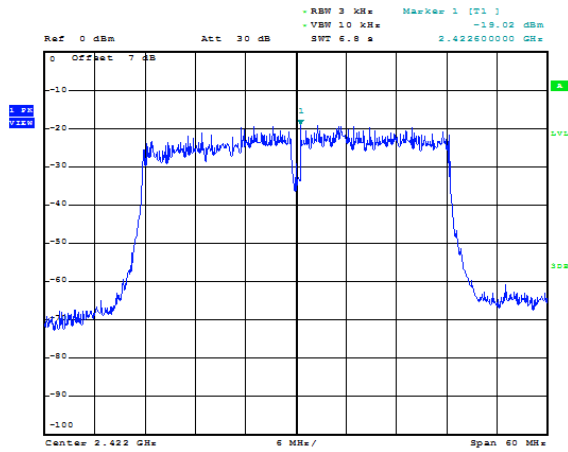
802.11n_Ant1_Middel



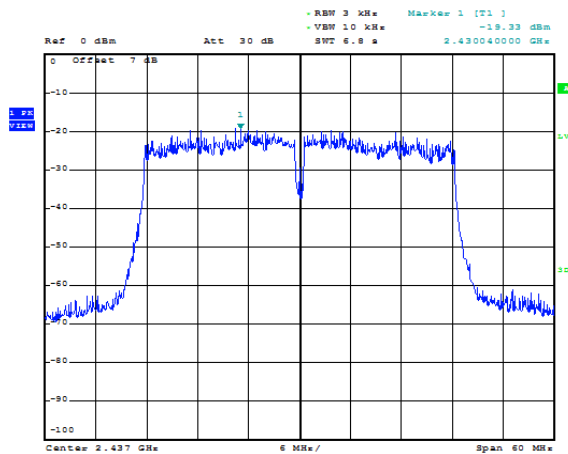
802.11n_Ant1_High



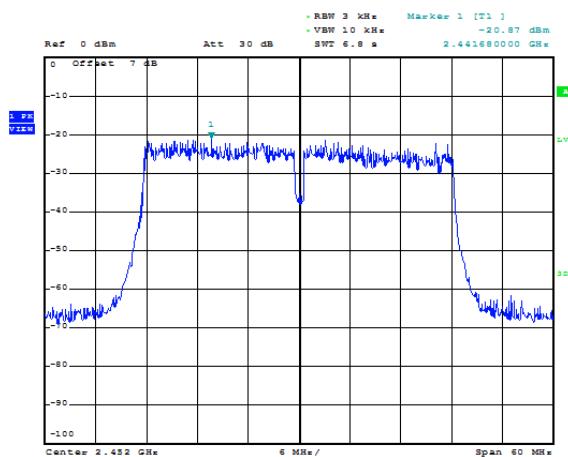
802.11n_Ant2_Low



802.11n_Ant2_Middel



802.11n_Ant2_High

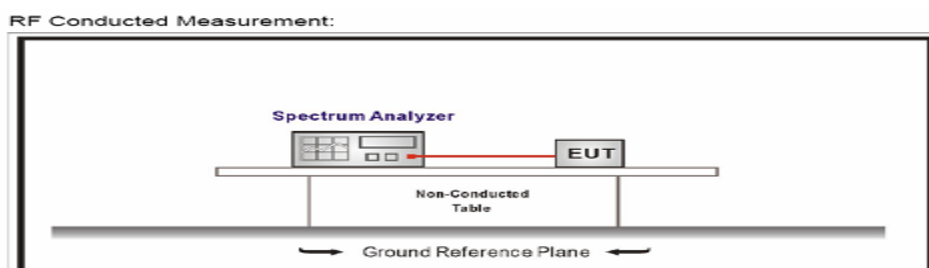


4.4 Band Edges Measurement

4.4.1 Test Limit

Below -20 dB of the highest emission level of operating band(in 100 KHz RBW).

4.4.2 Test Configuration



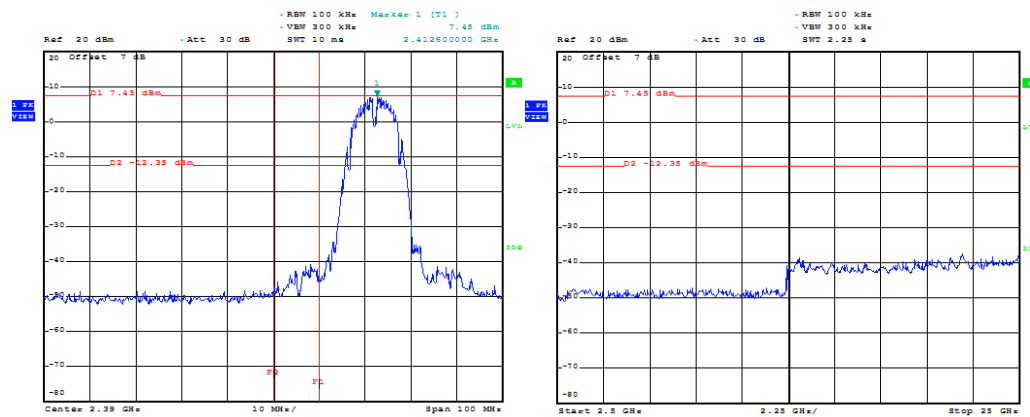
4.4.3 Test Procedure

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operation range. Set a reference level on the measuring instrument equal to the highest peak value.
3. The center frequency of the spectrum analyzer is set to the fundamental frequency and using 100 KHz RBW and VBW of $\geq 3 \times \text{RBW}$.
4. Measure the captured power within the band and recording the plot.
5. Repeat above procedures until all frequencies required were complete.

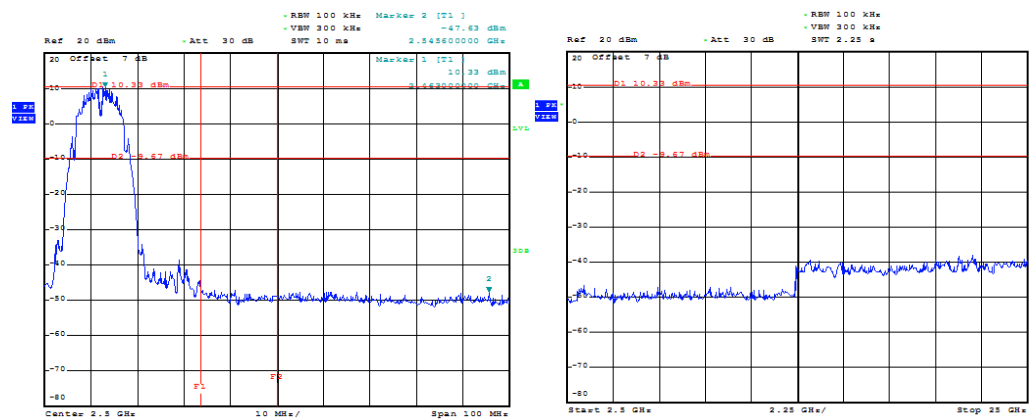
4.4.4 Test Data Plot

SISO(1T1R)

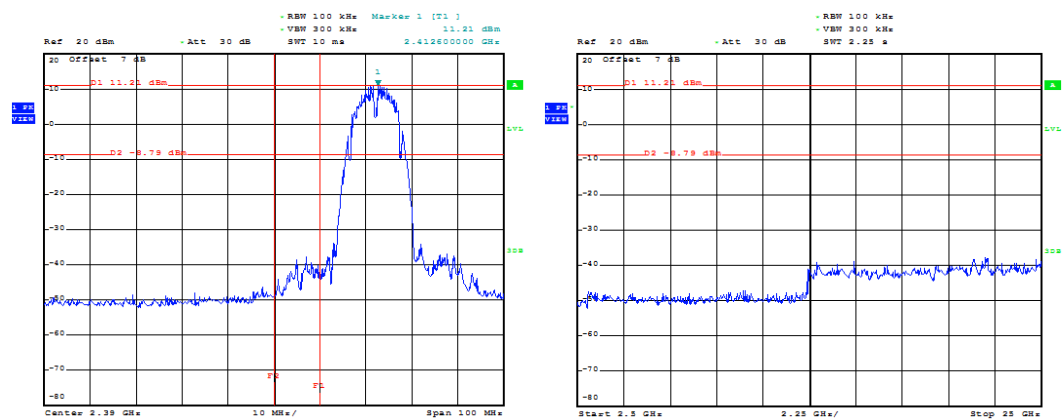
802.11b_Ant0_Low



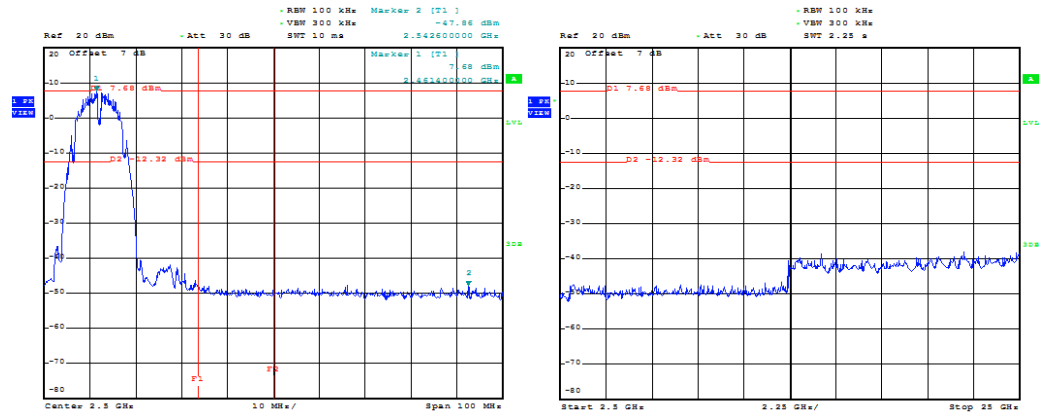
802.11b_Ant0_High



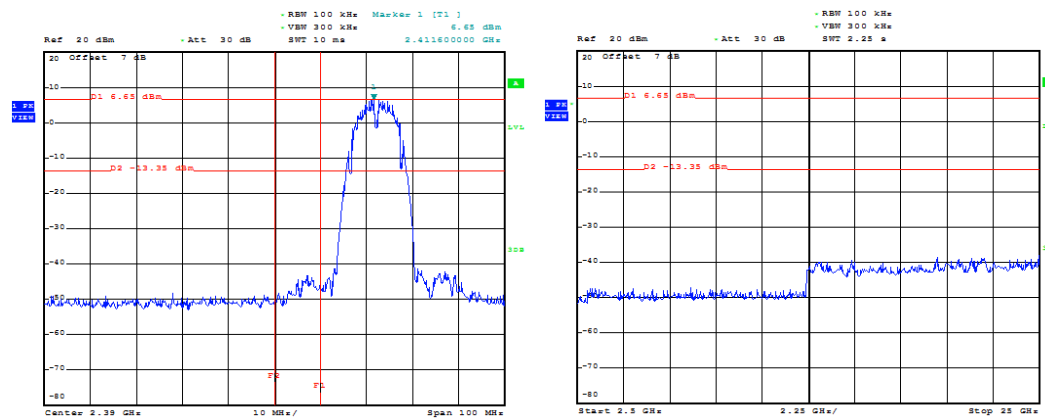
802.11b_Ant1_Low



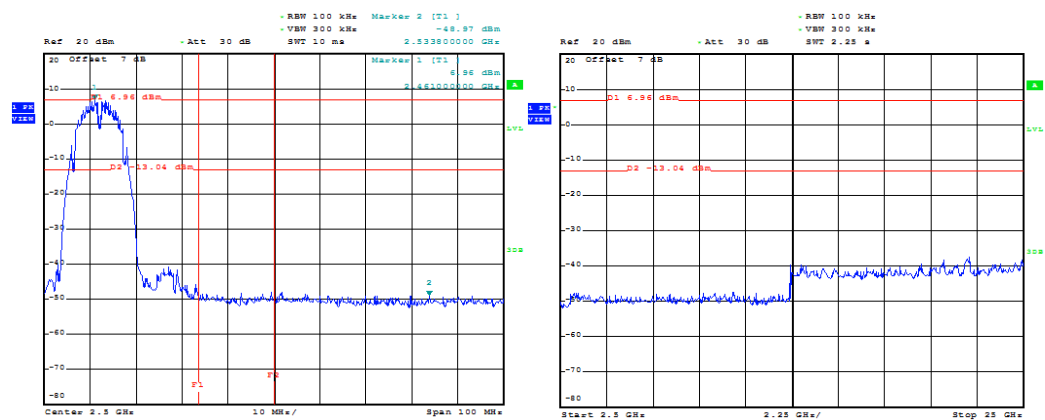
802.11b_Ant1_High



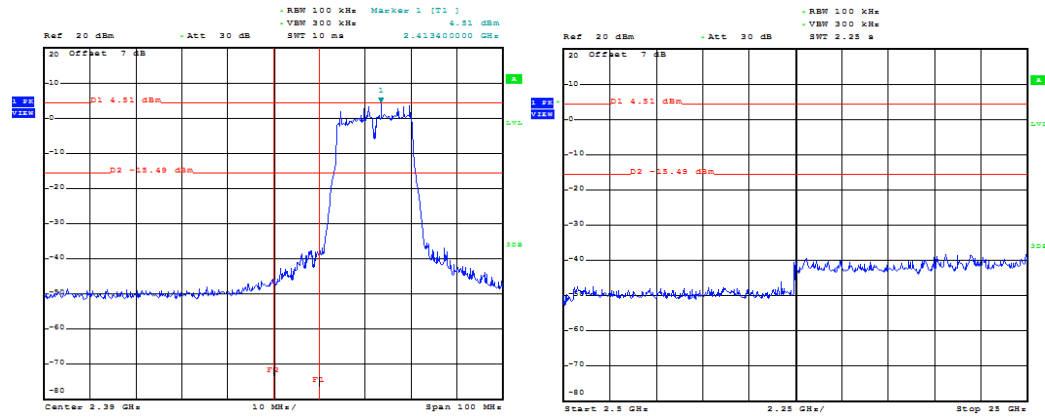
802.11b_Ant2_Low



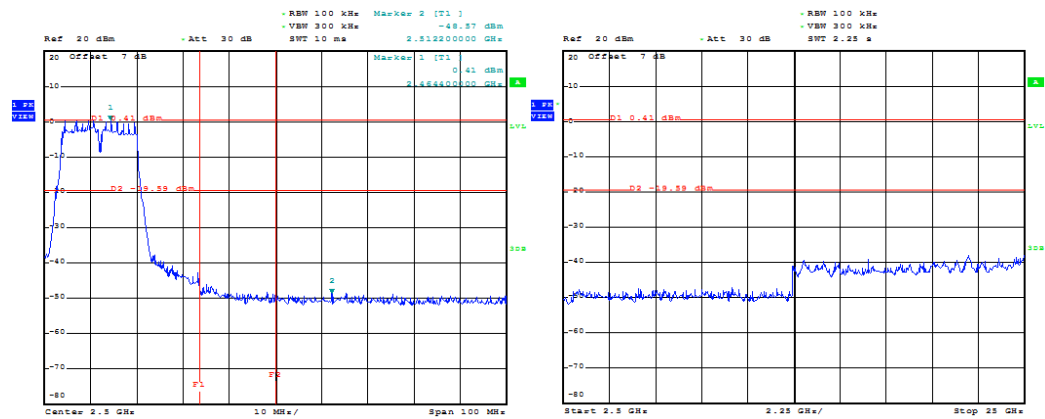
802.11b_Ant2_High



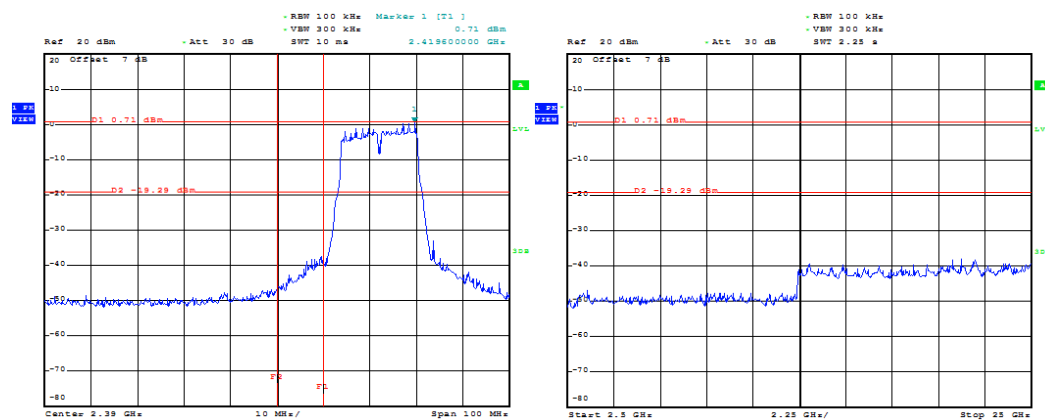
802.11g_Ant0_Low



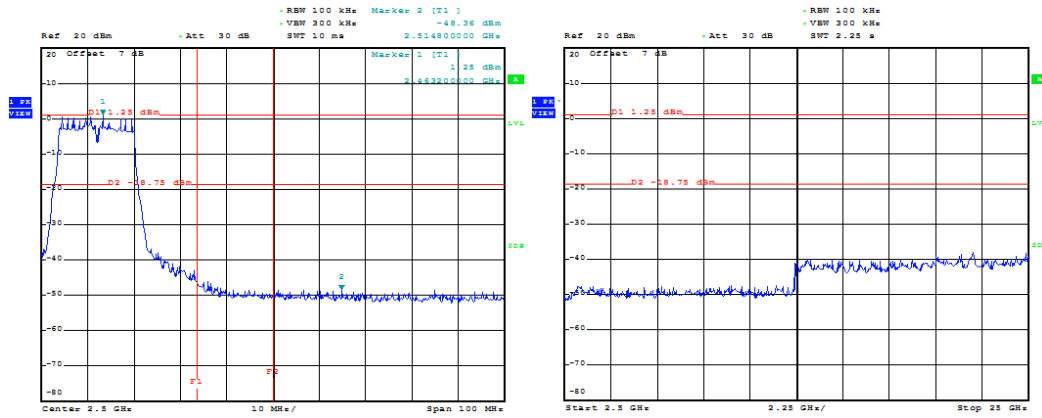
802.11g_Ant0_High



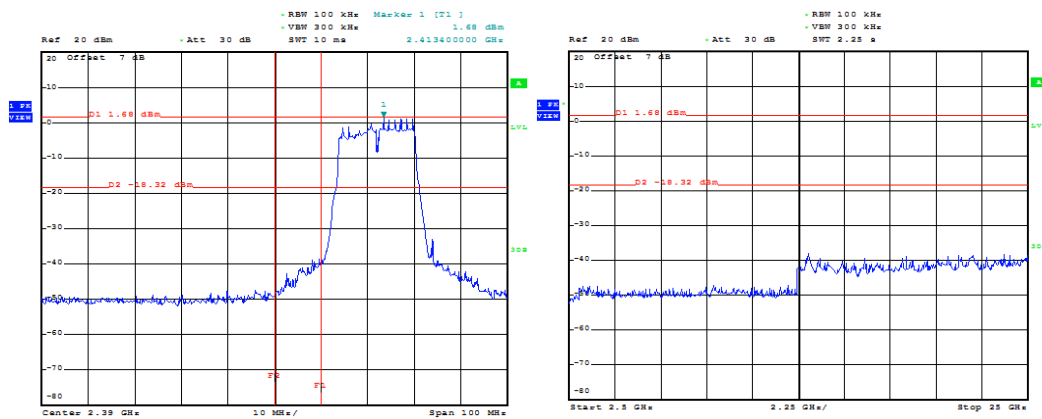
802.11g_Ant1_Low



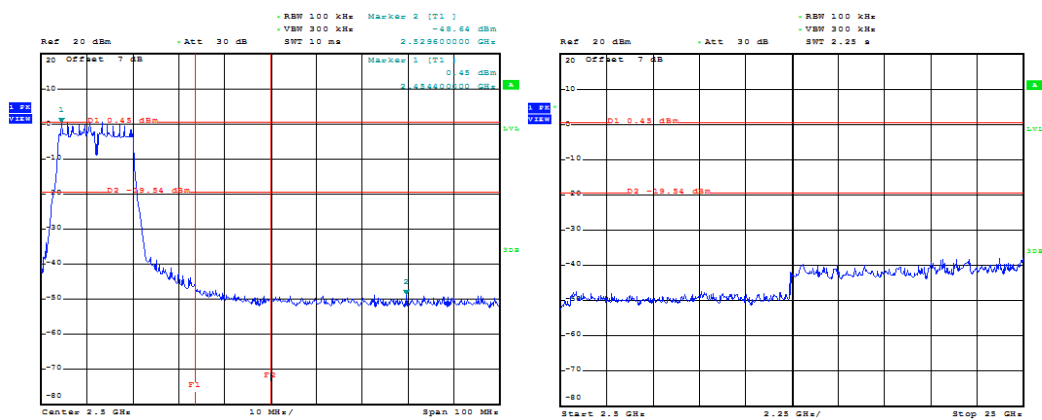
802.11g_Ant1_High



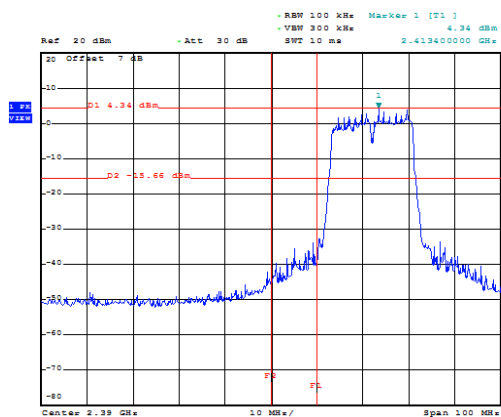
802.11g_Ant2_Low



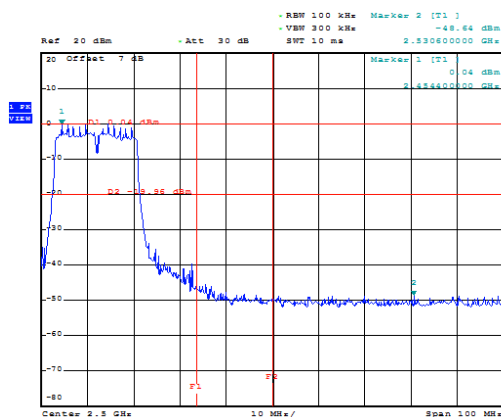
802.11g_Ant2_High



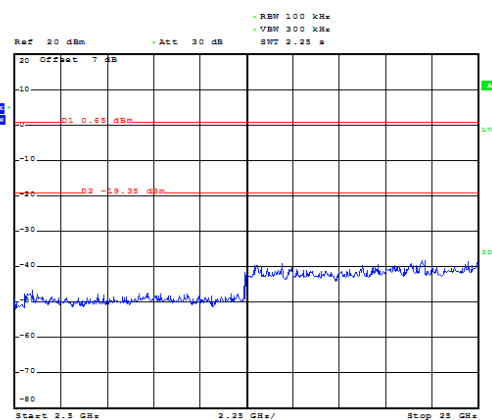
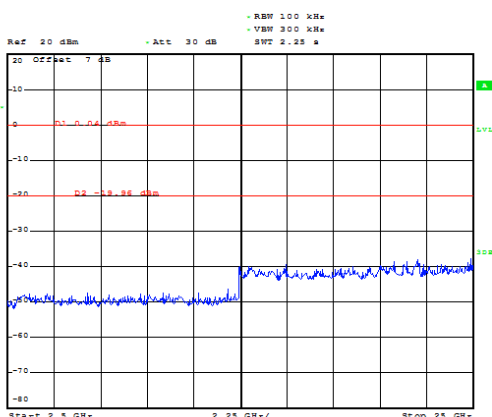
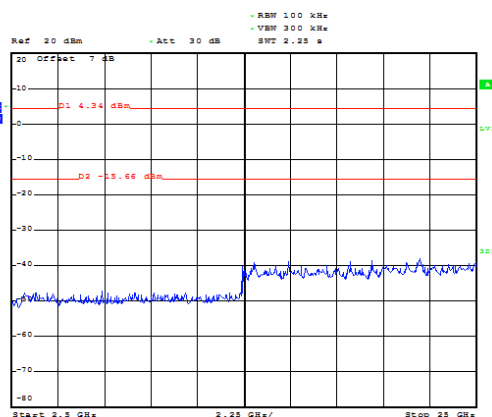
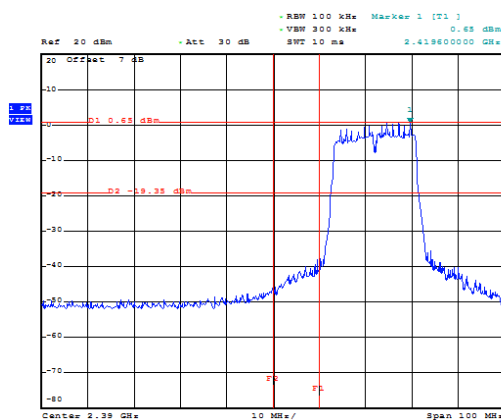
802.11n_HT20_Ant0_Low



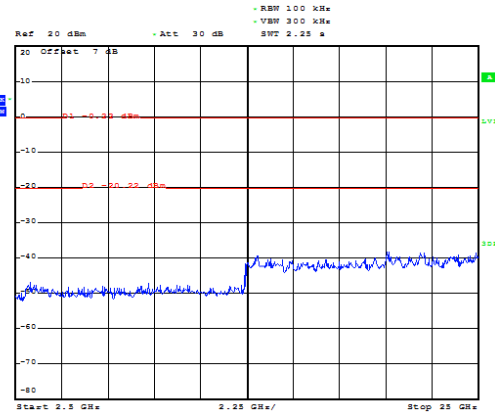
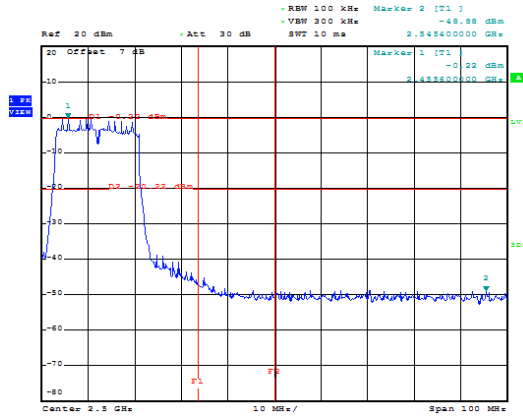
802.11n_HT20_Ant0_High



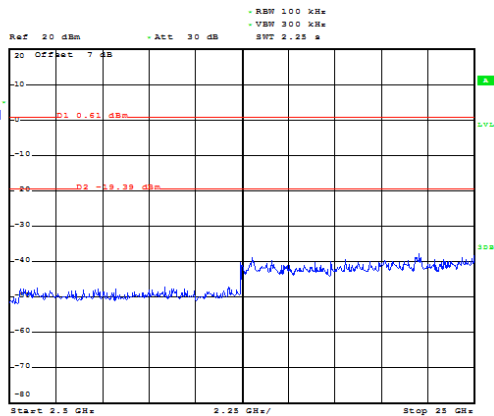
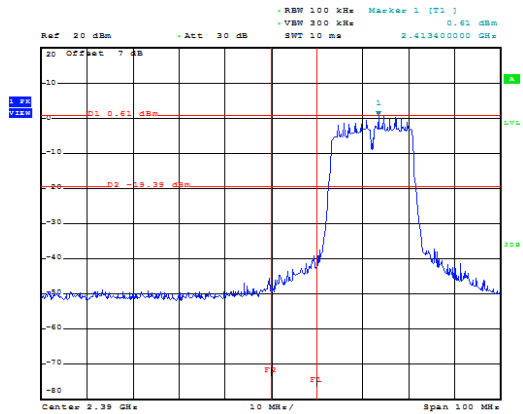
802.11n_HT20_Ant1_Low



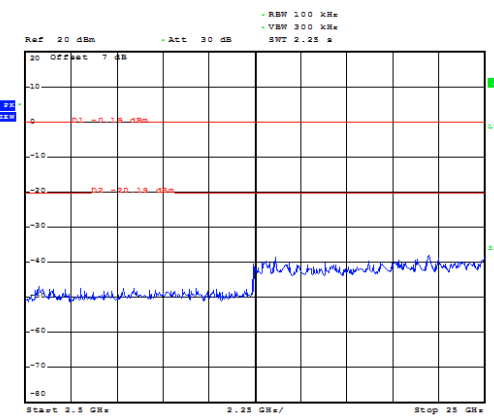
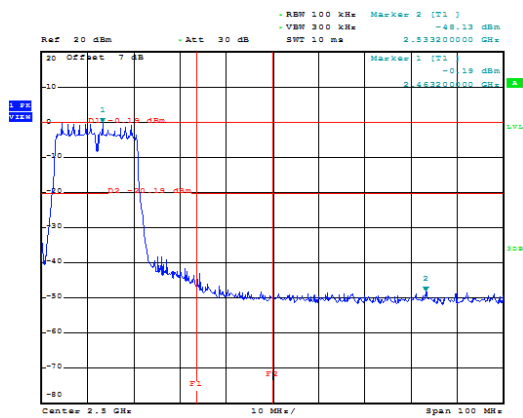
802.11n_HT20_Ant1_High



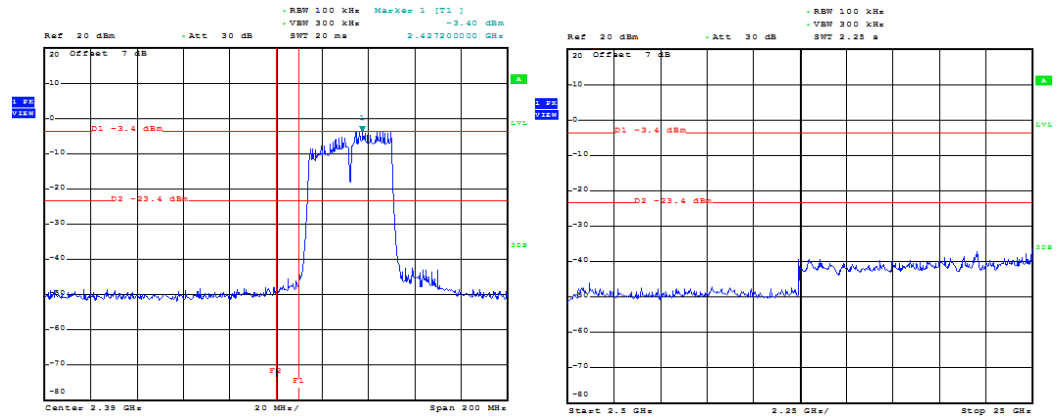
802.11n_HT20_Ant2_Low



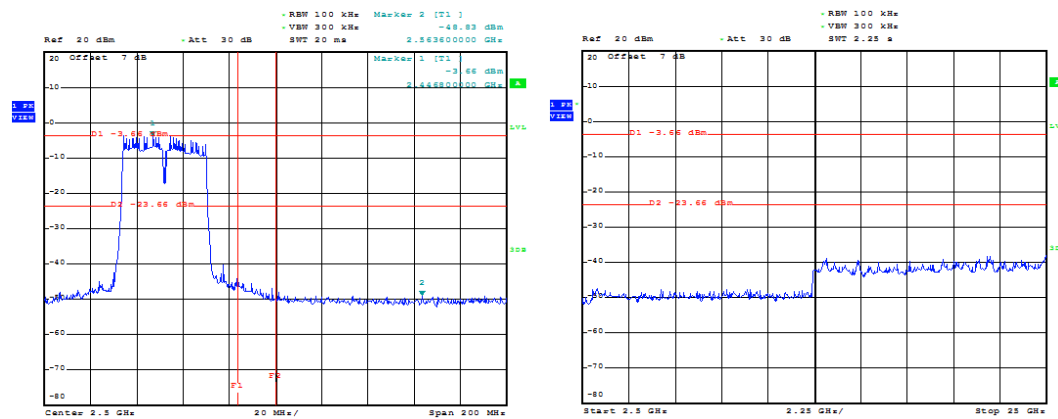
802.11n_HT20_Ant2_High



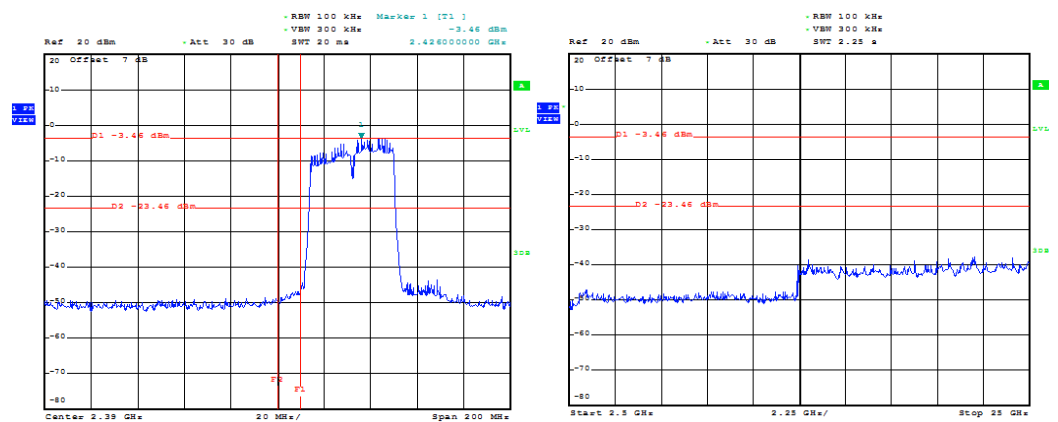
802.11n_HT40_Ant0_Low



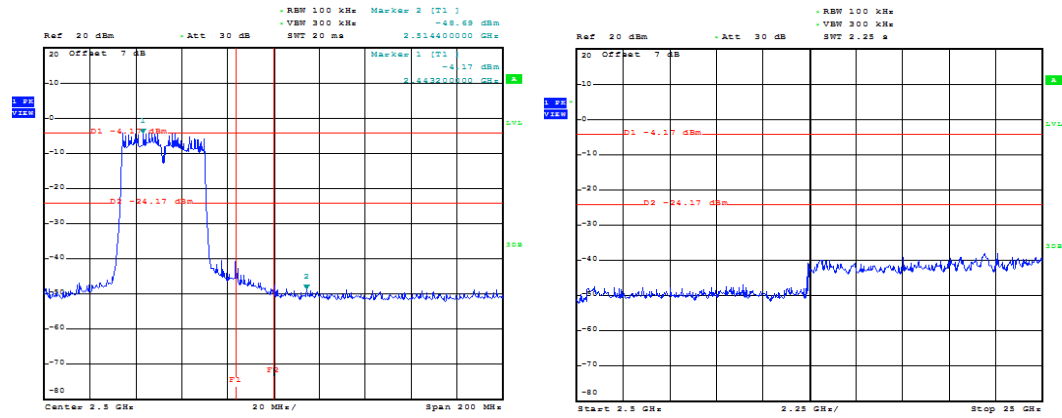
802.11n_HT40_Ant0_High



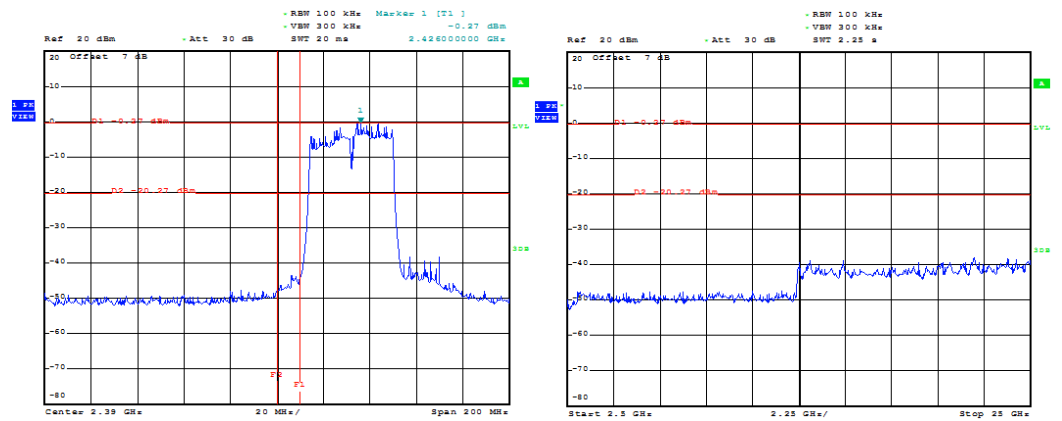
802.11n_HT40_Ant1_Low



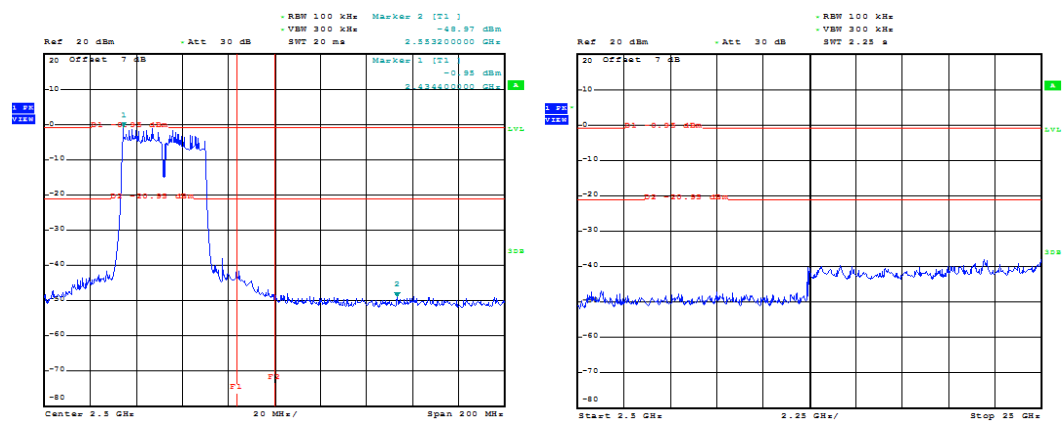
802.11n_HT40_Ant1_High



802.11n_HT40_Ant2_Low



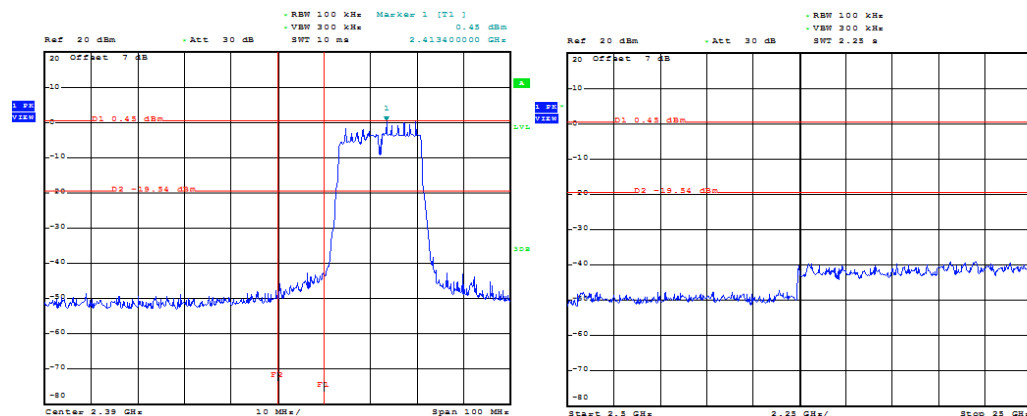
802.11n_HT40_Ant2_High



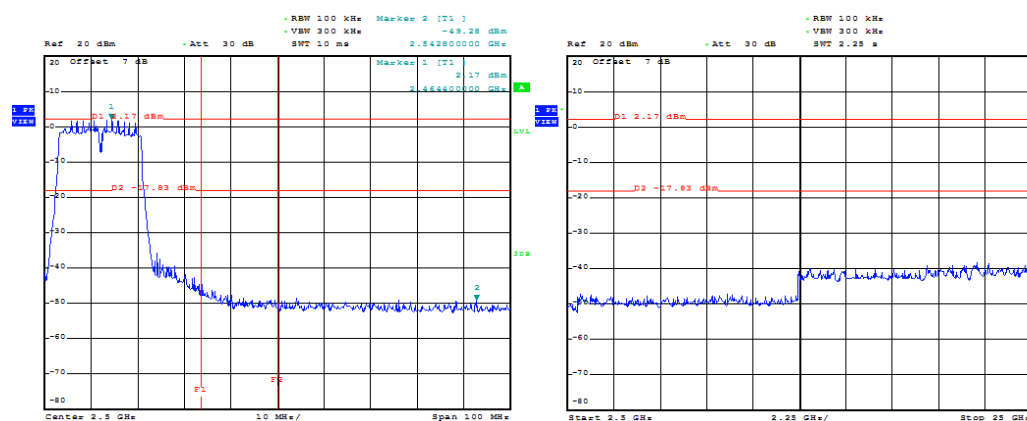
MIMO(2T2R)_HT20

Ant0+Ant1

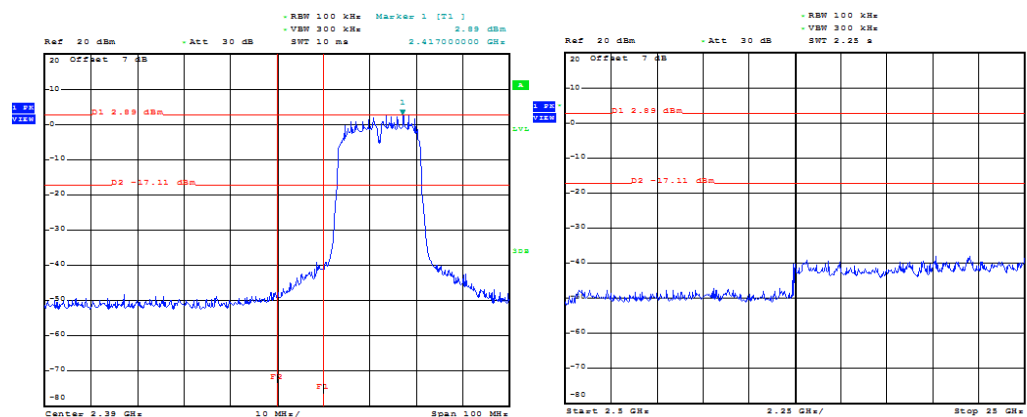
802.11n_Ant0_Low



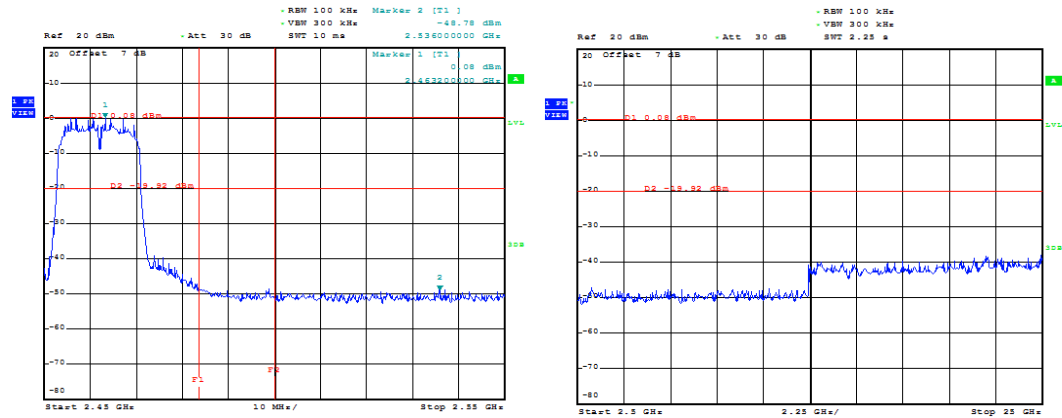
802.11n_Ant0_High



802.11n_Ant1_Low

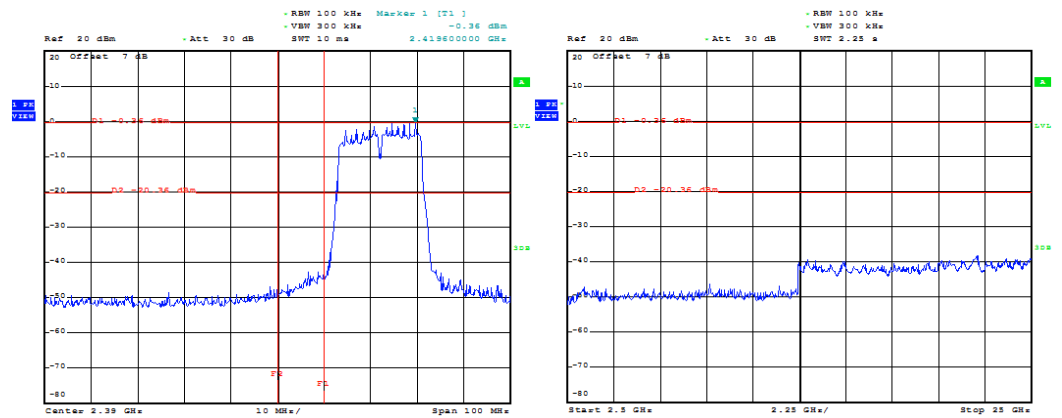


802.11n_Ant1_High

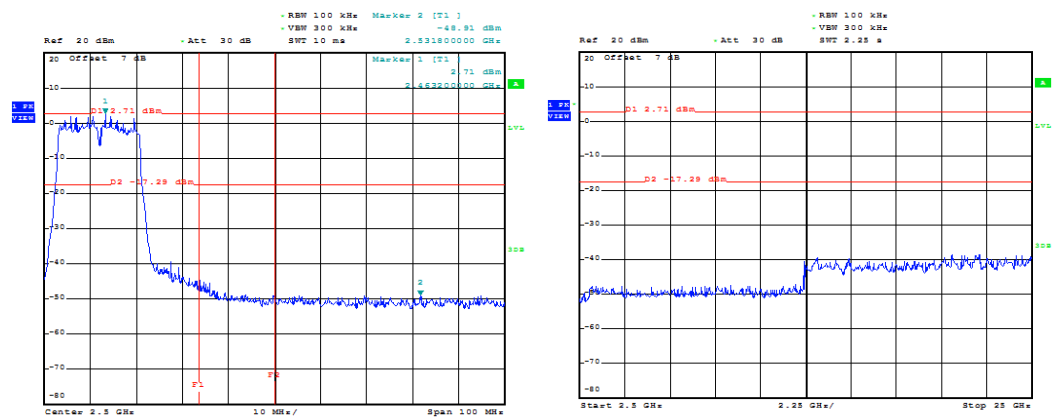


Ant0+Ant2

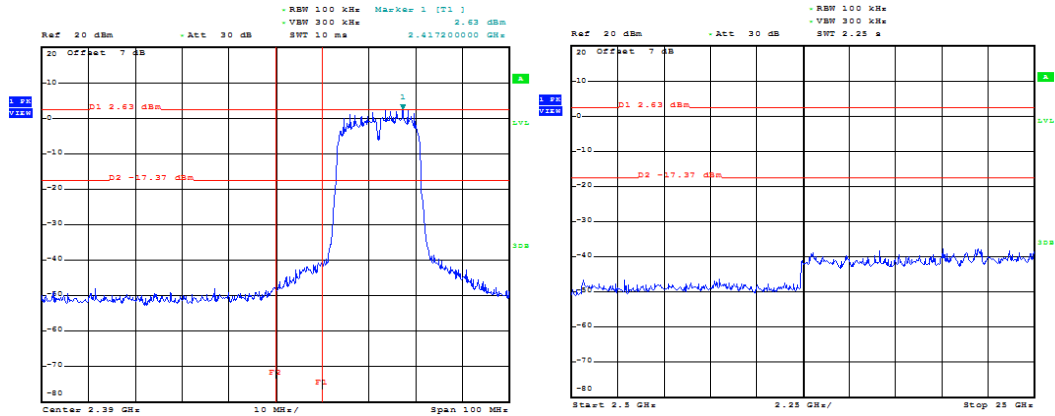
802.11n_Ant0_Low



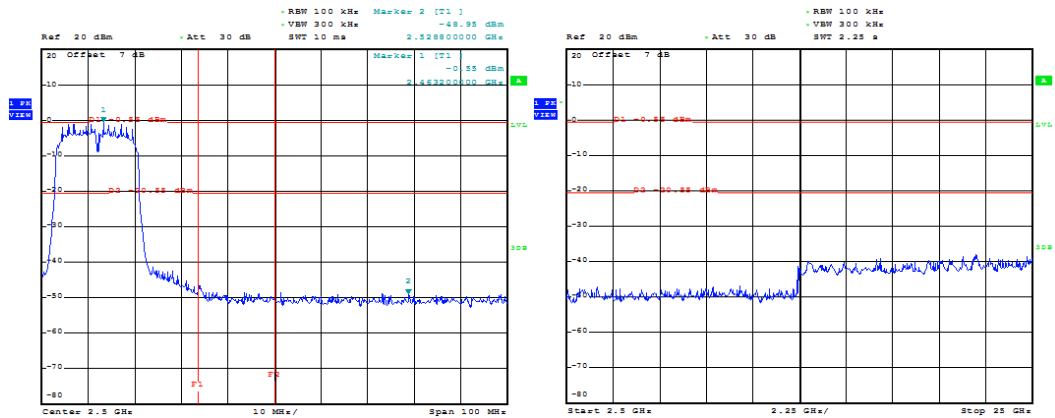
802.11n_Ant0_High



802.11n_Ant2_Low

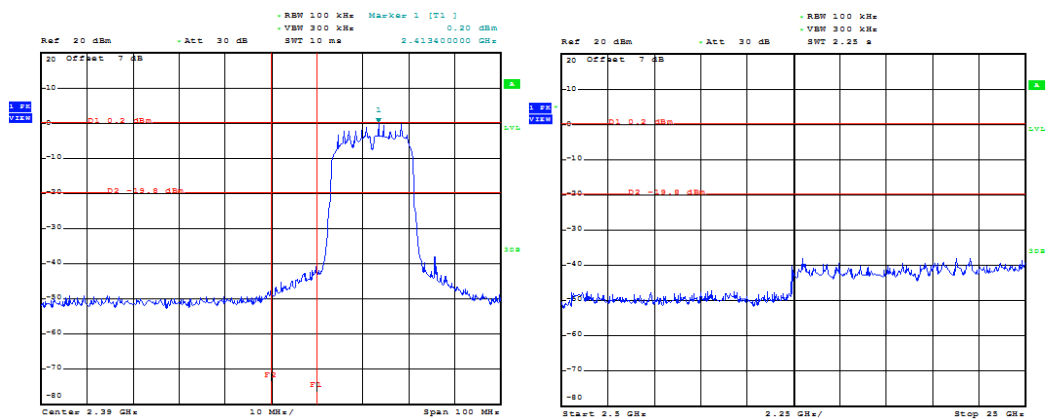


802.11n_Ant2_High

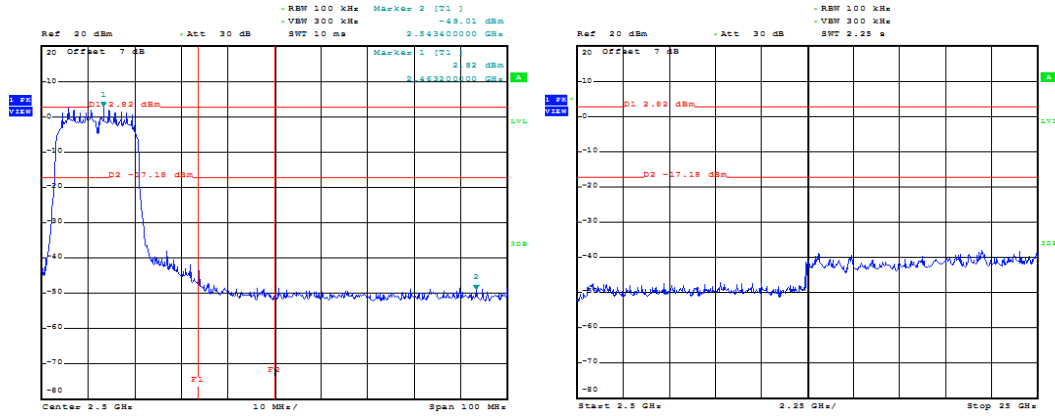


Ant1+Ant2

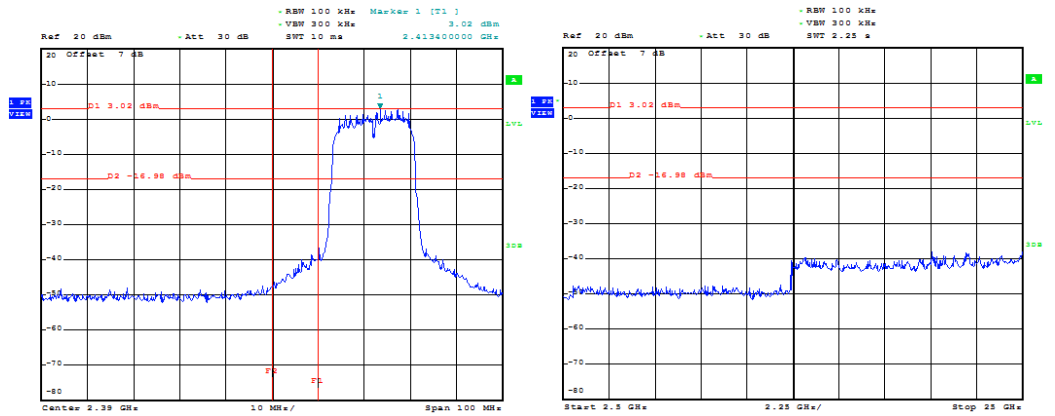
802.11n_Ant1_Low



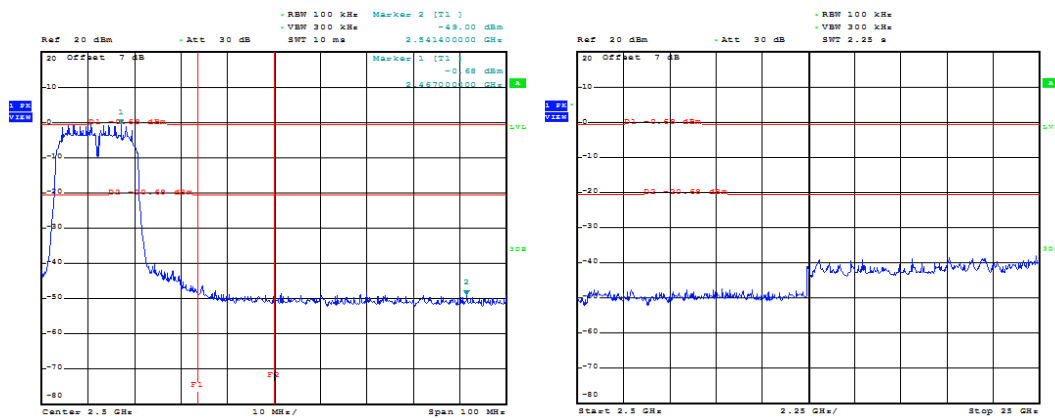
802.11n_Ant1_High



802.11n_Ant2_Low



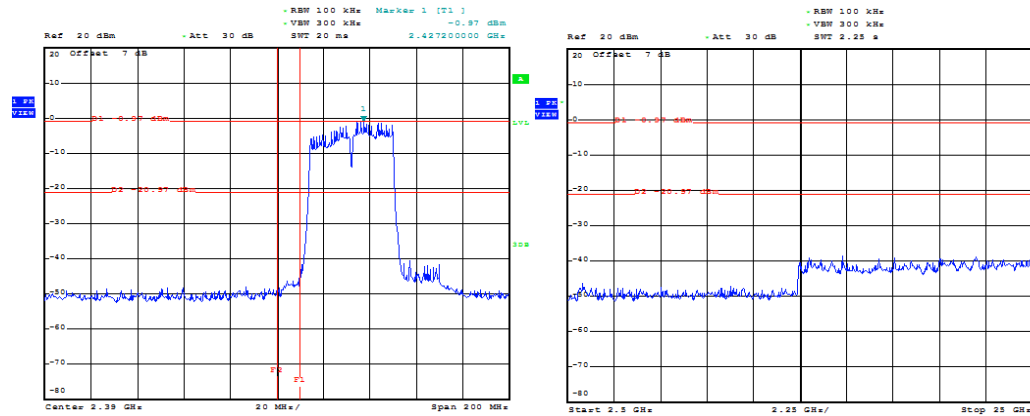
802.11n_Ant2_High



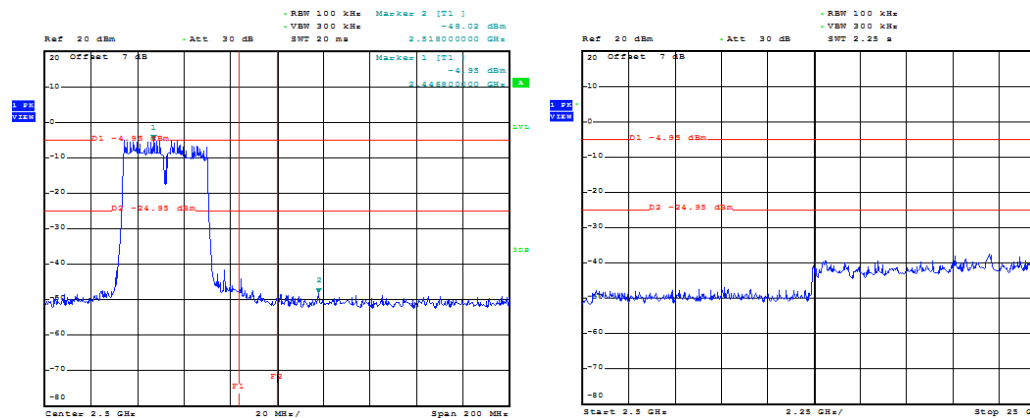
MIMO(2T2R)_HT40

Ant0+Ant1

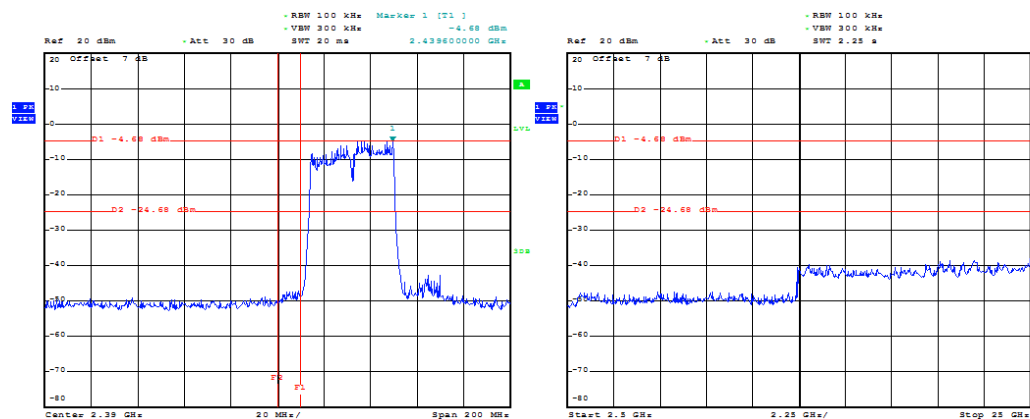
802.11n_Ant0_Low



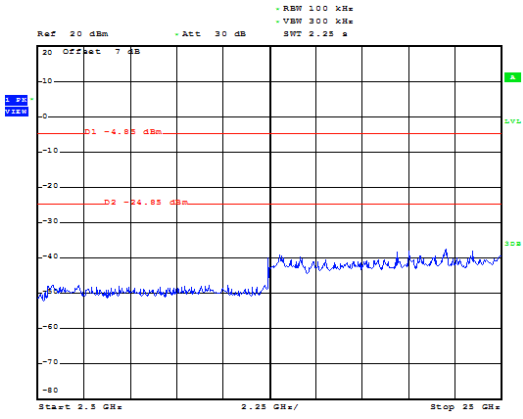
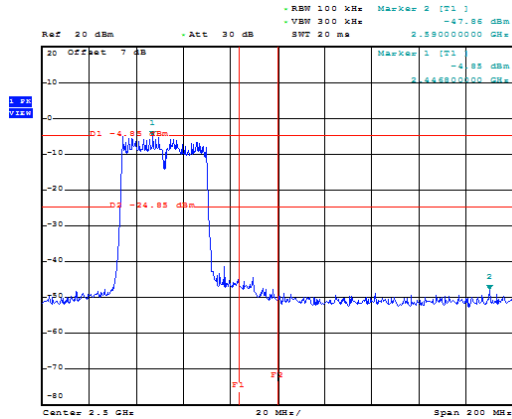
802.11n_Ant0_High



802.11n_Ant1_Low

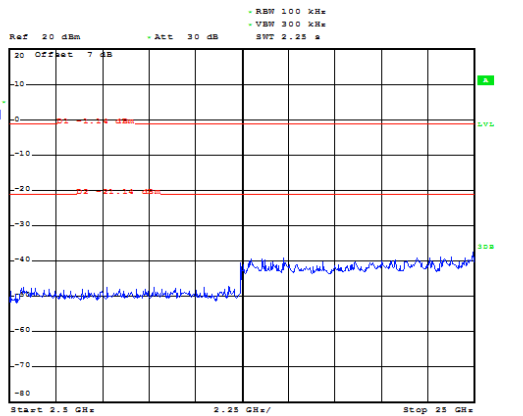
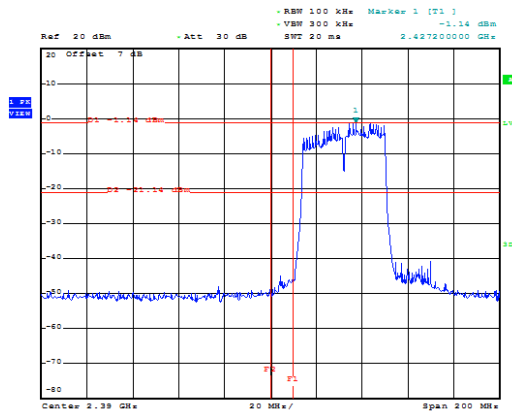


802.11n_Ant1_High

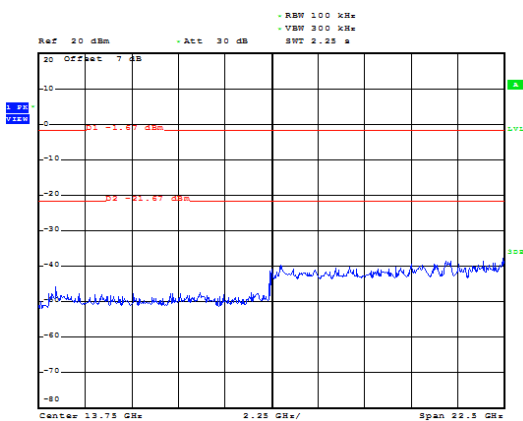
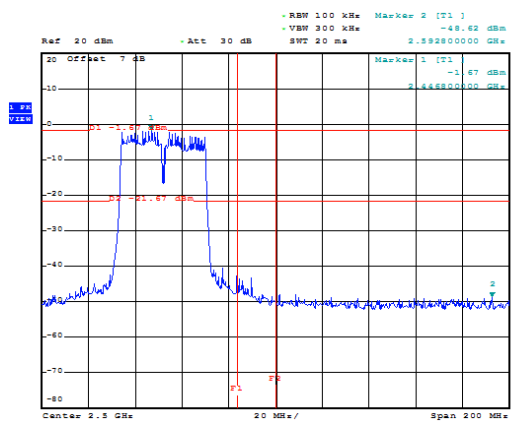


Ant0+Ant2

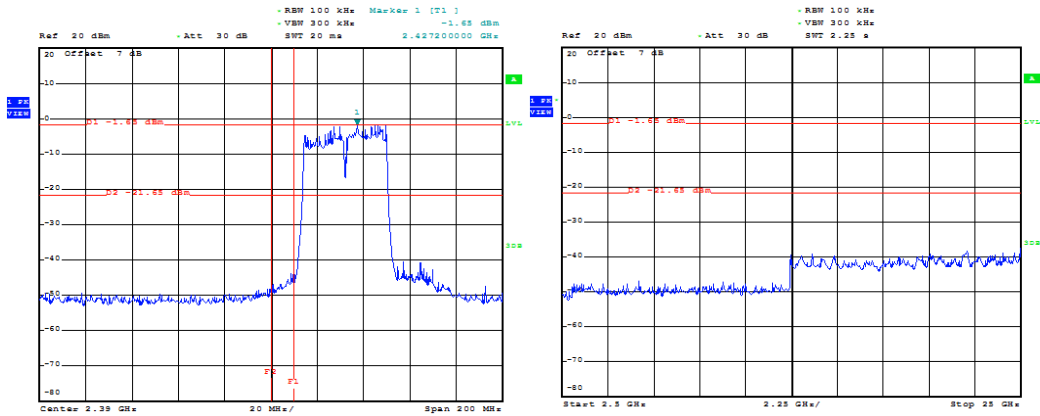
802.11n_Ant0_Low



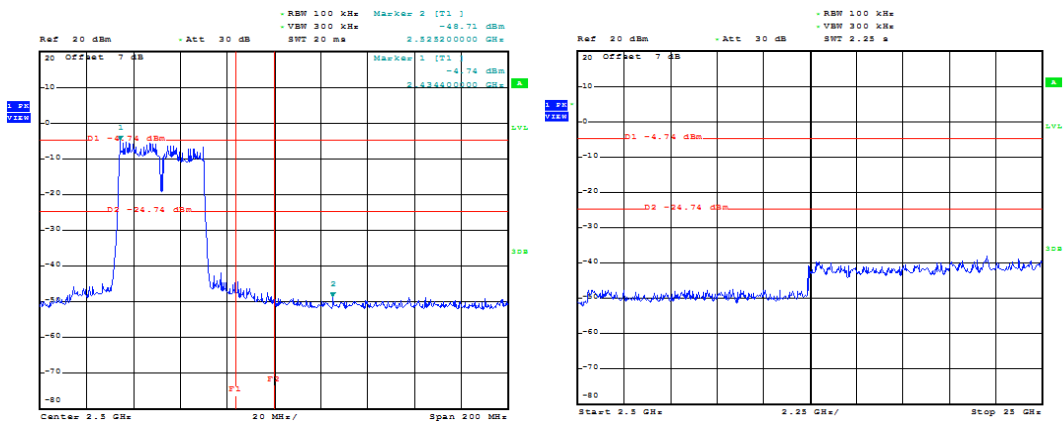
802.11n_Ant0_High



802.11n_Ant2_Low

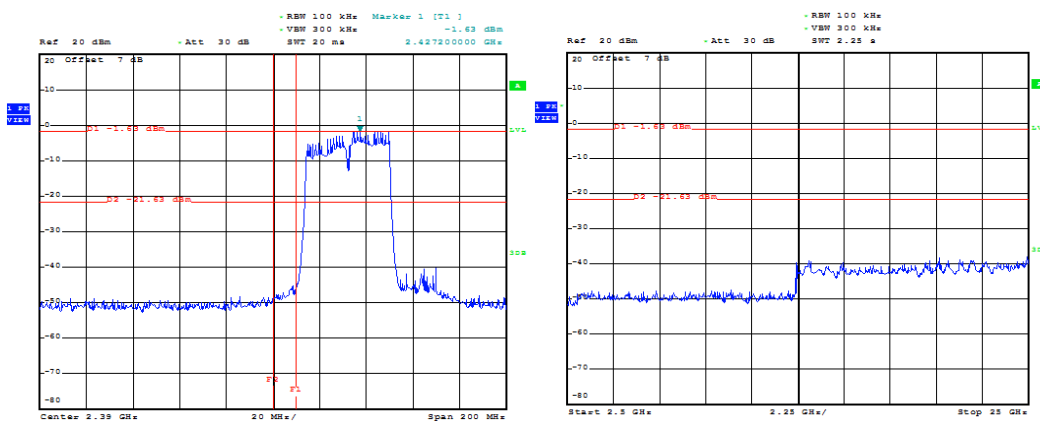


802.11n_Ant2_High

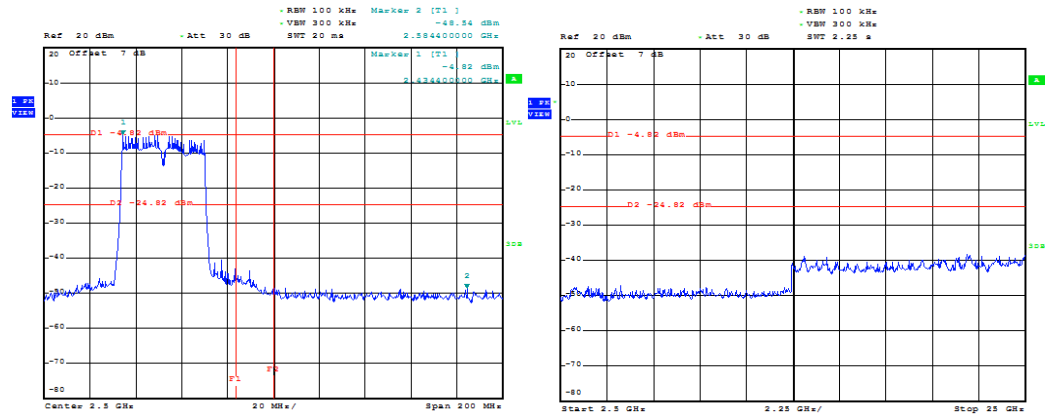


Ant1+Ant2

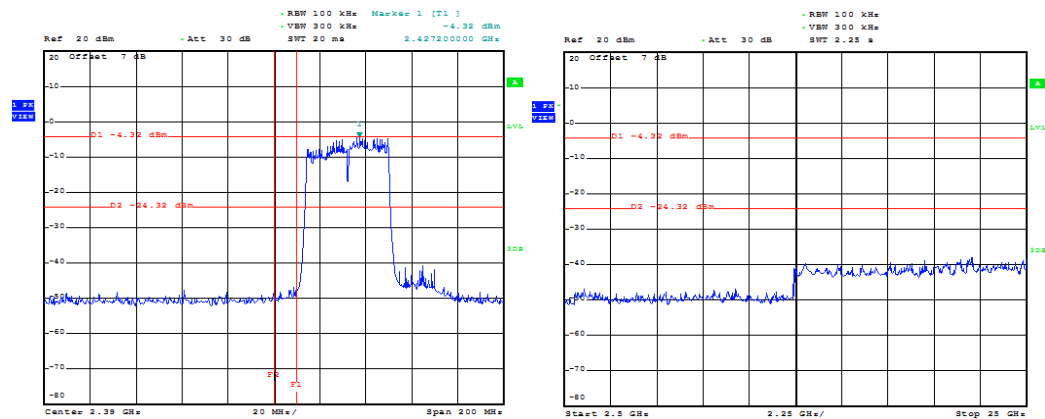
802.11n_Ant1_Low



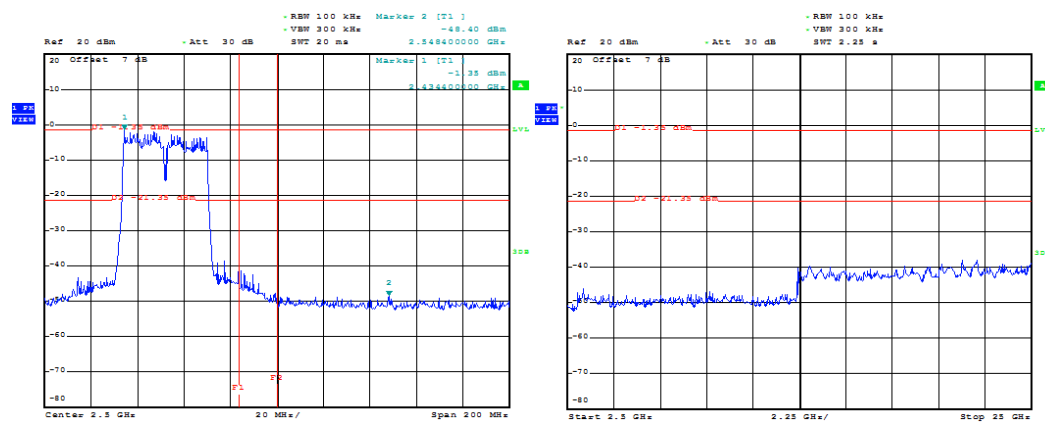
802.11n_Ant1_High



802.11n_Ant2_Low



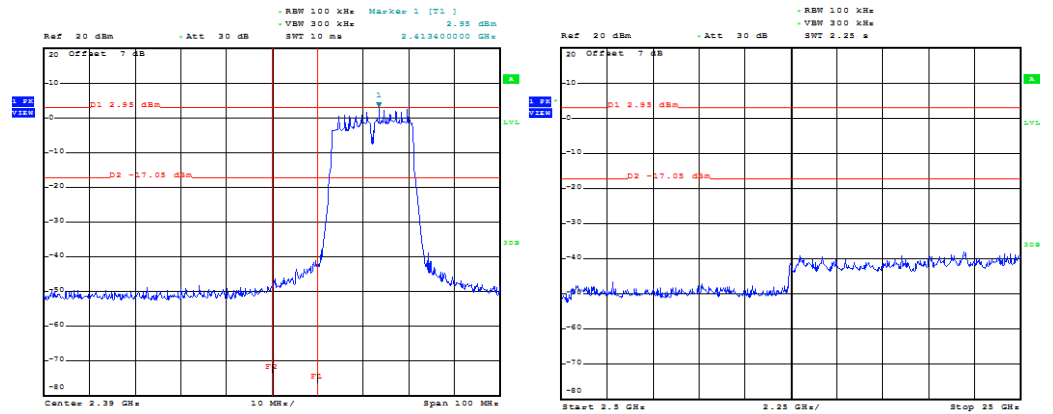
802.11n_Ant2_High



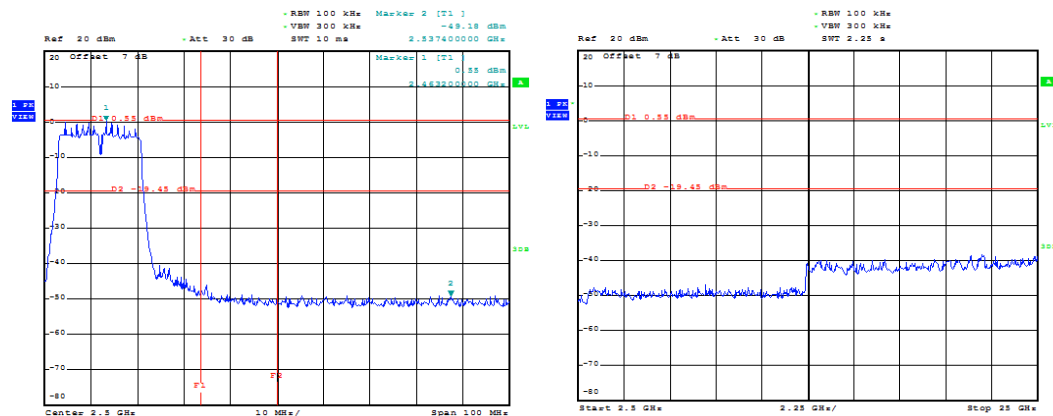
MIMO(3T3R)_HT20

Ant0+Ant1+Ant2

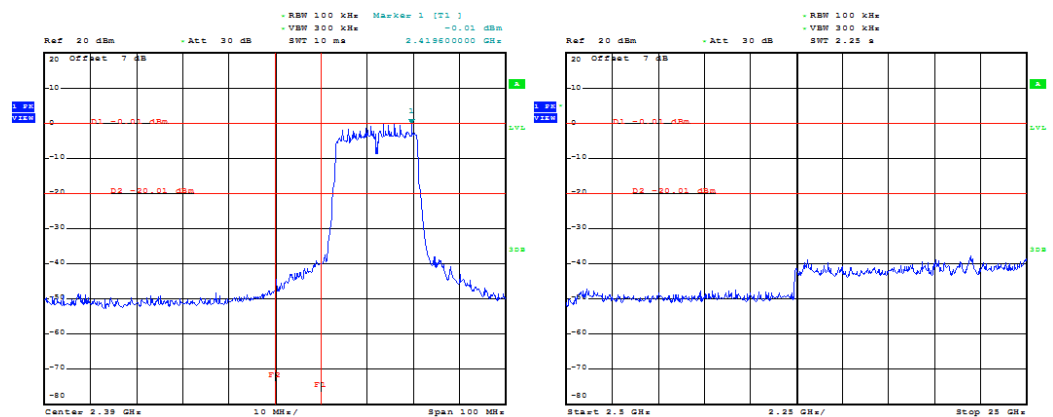
802.11n_Ant0_Low



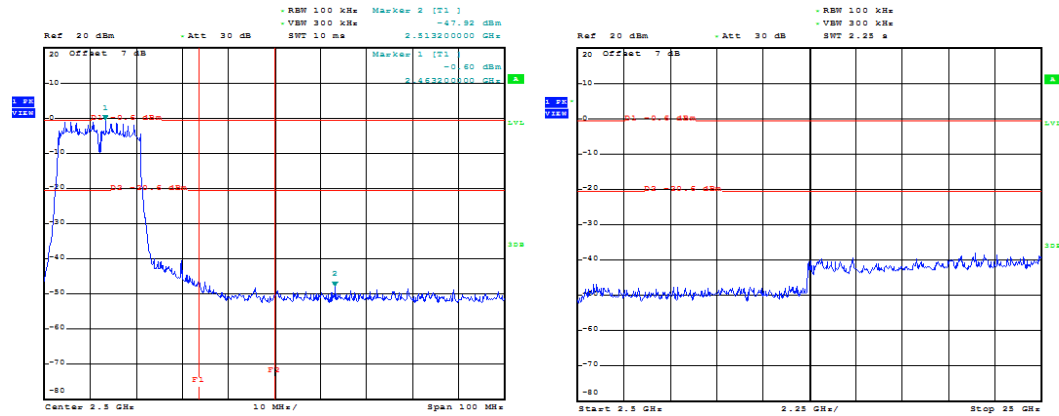
802.11n_Ant0_High



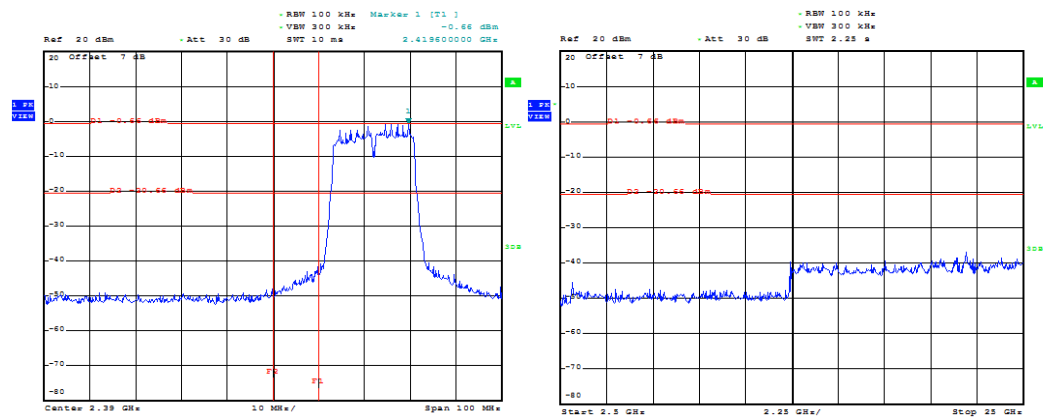
802.11n_Ant1_Low



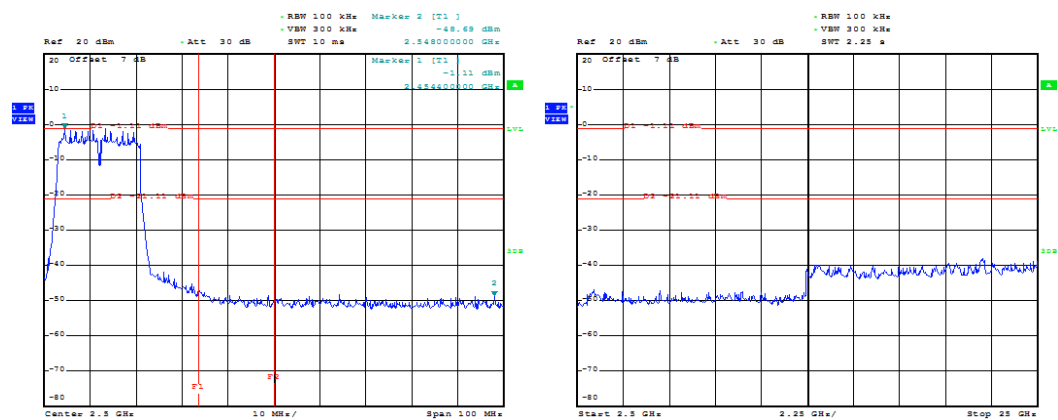
802.11n_Ant1_High



802.11n_Ant2_Low



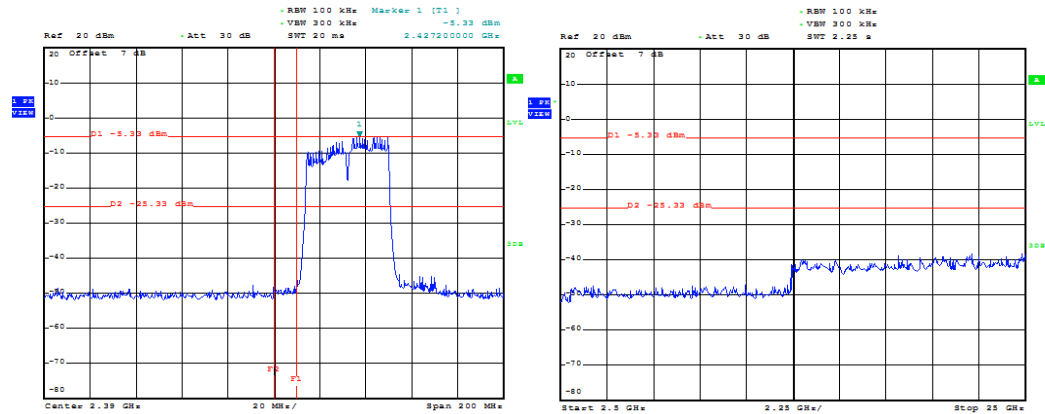
802.11n_Ant2_High



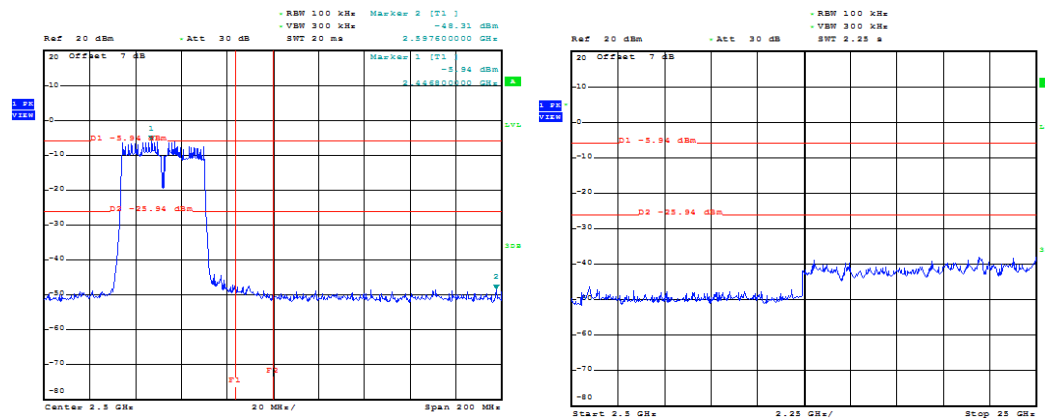
MIMO(3T3R)_HT40

Ant0+Ant1+Ant2

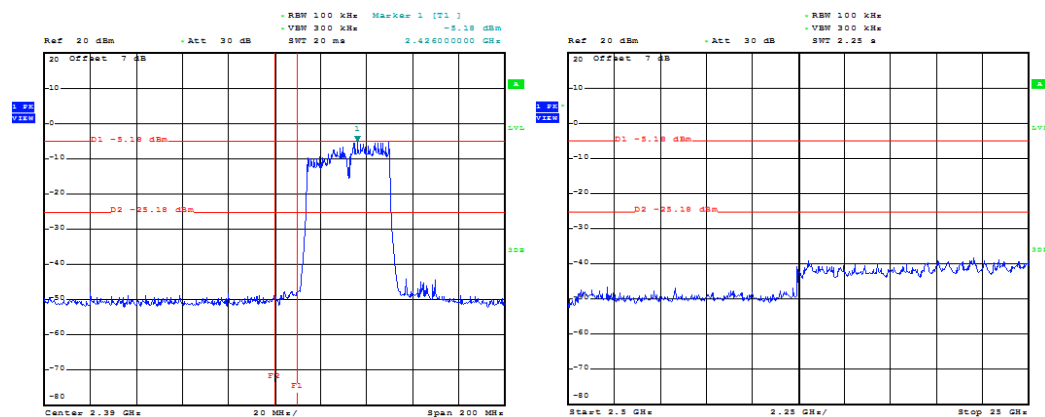
802.11n_Ant0_Low



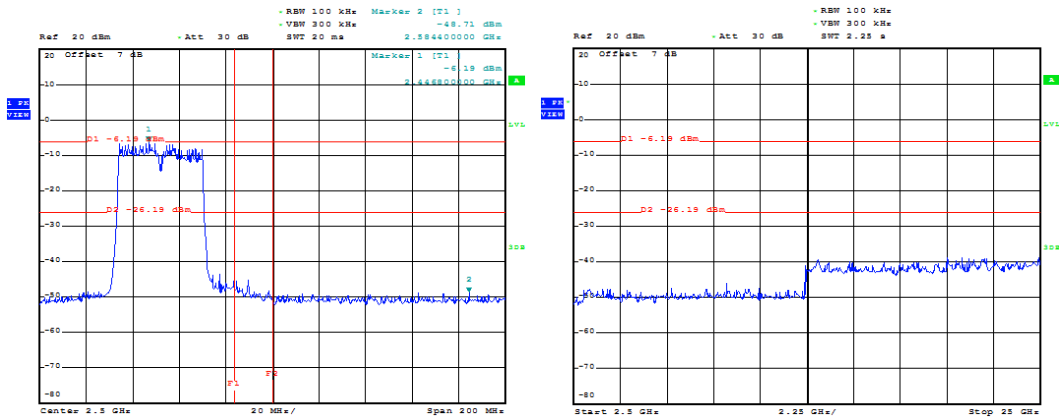
802.11n_Ant0_High



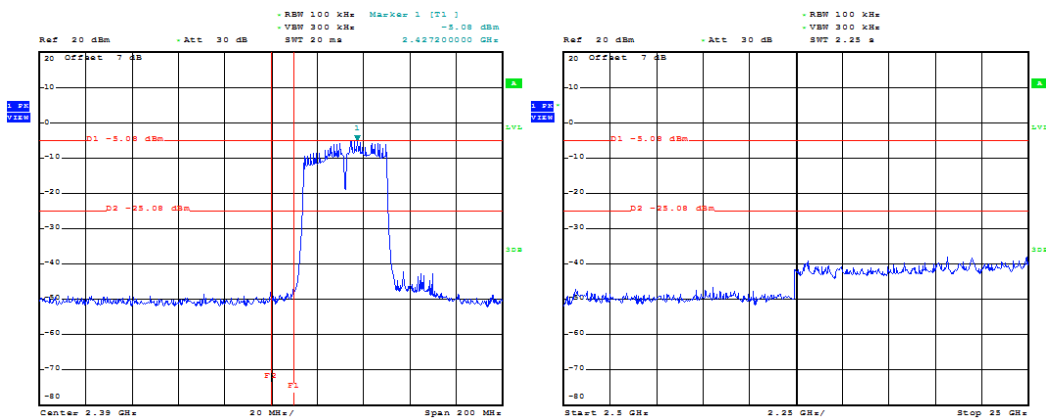
802.11n_Ant1_Low



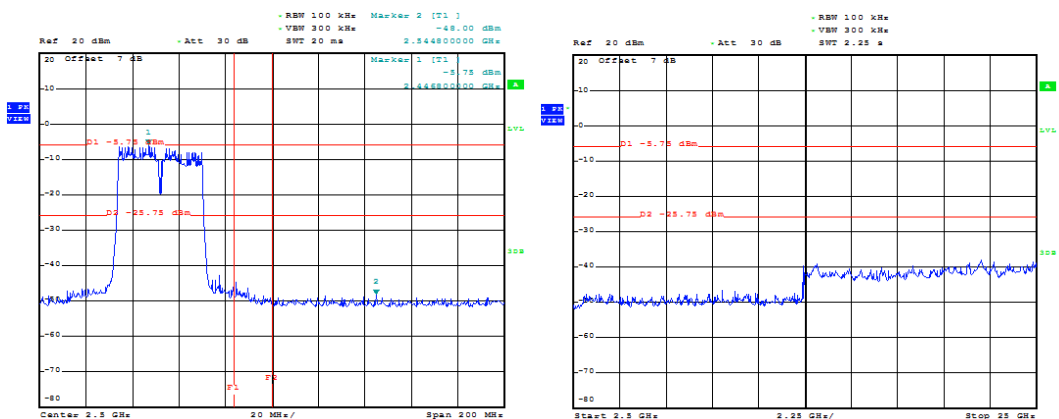
802.11n_Ant1_High



802.11n_Ant2_Low



802.11n_Ant2_High



4.5 Field Strength of Emission

4.5.1 Test Limit

According to §15.247(d), in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, 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) (see Section 15.205(c)).

According to §15.209(a), Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

- 15.209(a)

Frequency(MHz)	Field Strength uV/m@3m	Field Strength dBuV/m@3m	Deasurement Distance (meters)
0.009-0.490	2400/F(kHz)	-	300
0.490-1.705	24000/F(kHz)	-	30
1.705-30	30	-	30
30-88	100**	40	3
88-216	150**	43.5	3
216-960	200**	46	3
Above 960	500	54	3

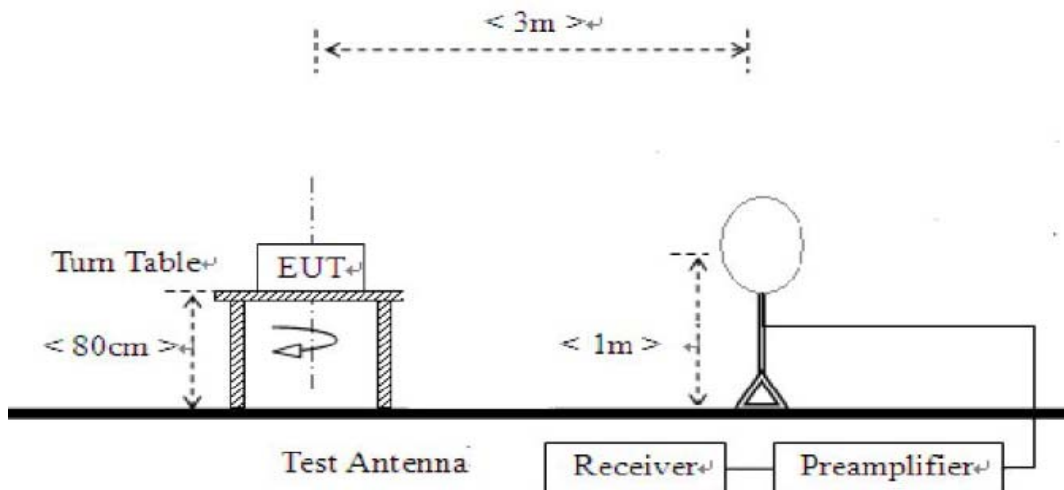
**Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54–72 MHz, 76–88 MHz, 174–216 MHz or 470–806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§15.231 and 15.241.

Note :

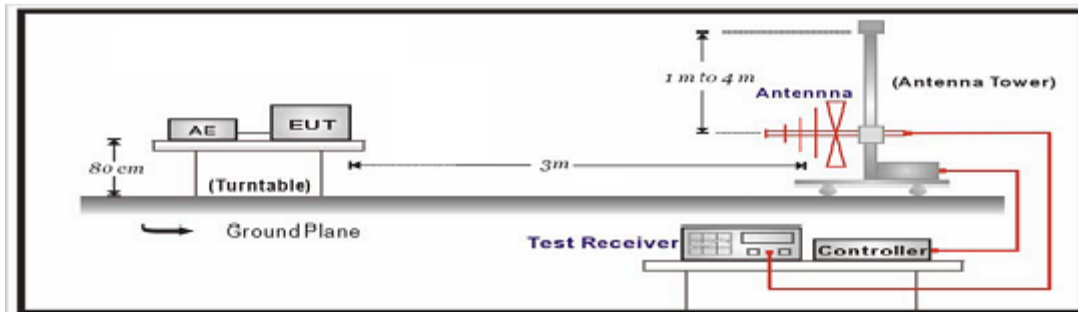
- For above 1 GHz, the emission limit in this paragraph is based on measurement instrumentation employing an average detector, measurement using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit. The limit : 54 dBuV/m@3m(AV) and 74 dBuV/m@3m(PK).

4.5.2 Test Configuration

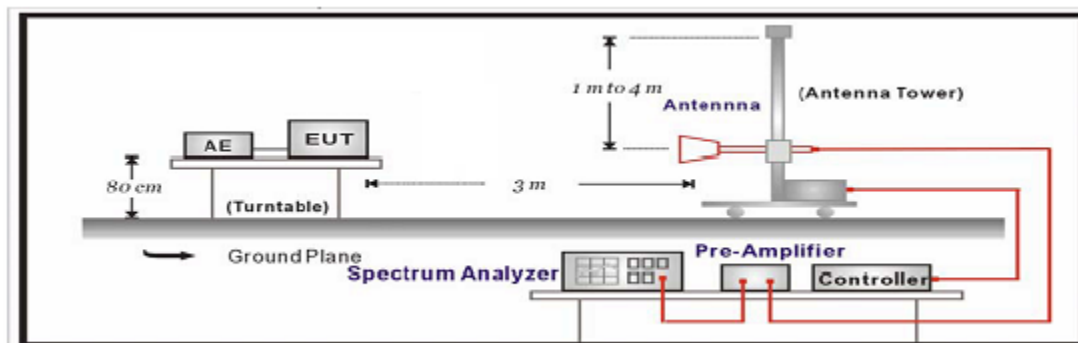
- from 9 KHz to 30 MHz



- 30 MHz to 1 GHz



- above 1 GHz



4.5.3 Test Procedure

- 9 KHz to 30 MHz

1. The preliminary radiated measurements were performed to determine the frequency producing the maximum emissions at a distance of 3 meters according to Section 15.31(f)(2).
2. The EUT was placed on the top of the 0.8-meter height, 1 x 1.5 meter non-metallic table.
3. Emissions from the EUT are maximized by adjusting the orientation of the Loop antenna and rotating the EUT on the turntable. Manipulating the system cables also maximizes EUT emissions if applicable.
4. To obtain the final measurement data, each frequency found during preliminary measurements was re-examined and investigated. The test-receiver system was set up to average, peak, and quasi-peak detector with specified bandwidth.

- above 30 MHz

1. The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters. The antenna can move up and down between 1 meter and 4 meters to fine out the maximum emission level.
2. Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.
3. The bandwidth below 1 GHz setting on the field strength meter is 100 kHz, above 1GHz are 1MHz.

4.5.4 Test Results

Model	C1004W	Frequency Range	9 KHz ~ 30 MHz
Test Mode	802.11n_HT20_2x2 (Worst Case)	Detector Function	Quasi-Peak

Frequency (MHz)	Measured Data (dBuV/m)	Margin (dB)	Remark
-	-	-	See Note

Note :

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

Distance extrapolation factor = $40 \log(\text{specific distance} / \text{test distance})$ (dB)

Model	C1004W	Frequency Range	30 MHz ~ 1 GHz
Test Mode	802.11n_HT20_2x2 (Worst Case)	Detector Function	Quasi-Peak

Frequency (MHz)	Reading (dBuV)	P (H, V)	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit (dBuV)	Total (dBuV)	Margin dB
130.20	22.10	H	11.28	2.49	0.0	43.50	35.87	7.63
223.98	15.20	V	10.50	3.39	0.0	46.00	29.09	16.91
323.91	18.90	V	14.09	4.23	0.0	46.00	37.22	8.78
499.39*	15.20	V	18.08	5.50	0.0	46.00	38.78	7.22

Note :

1. Remark “*” means that the data is the worst emission level.
2. All reading levels are Quasi-peak value.
3. Measurement level = reading level + correct factor

Test Mode	802.11b_Ant0_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4824.00	58.10	40.29	H	32.25	7.25	44.65	74.0	54.0	52.65	40.29	21.05	13.71		
Restricted Band Edge Test Data														
2390.00	68.44	55.86	H	27.97	7.25	45.19	74.0	54.0	55.83	43.25	18.17	10.75		

Test Mode	802.11b_Ant0_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4882.00	56.19	44.84	H	23.33	7.24	44.74	74.0	54.0	51.02	39.67	22.98	14.33		

Test Mode	802.11b_Ant0_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4925.00	55.89	46.43	H	32.38	7.24	44.79	74.0	54.0	50.71	41.25	23.29	12.75		
Restricted Band Edge Test Data														
2483.50	62.84	50.82	H	27.83	4.72	45.11	74.0	54.0	50.29	28.27	23.71	15.73		

Test Mode	802.11b_Ant1_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4824.00	56.66	46.43	H	32.25	7.25	44.65	74.0	54.0	51.51	41.28	22.49	12.72		
Restricted Band Edge Test Data														
2390.00	65.90	55.00	H	27.97	4.61	45.19	74.0	54.0	53.29	42.39	20.71	11.61		

Test Mode	802.11b_Ant1_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4883.00	55.02	45.75	H	32.33	72.4	44.81	74.0	54.0	49.85	40.55	24.15	13.45		

Test Mode	802.11b_Ant1_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4934.00	54.17	48.05	H	32.39	7.24	44.81	74.0	54.0	48.99	42.87	25.01	11.13		
Restricted Band Edge Test Data														
2483.50	64.72	52.82	H	27.83	4.72	45.11	74.0	54.0	52.17	40.27	21.83	13.73		

Test Mode	802.11b_Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV				
4824.00	56.97	46.26	H	32.25	7.25	44.65	74.0	54.0	51.82	41.11	22.18	12.89		
Restricted Band Edge Test Data														
2390.00	65.57	53.13	H	27.97	4.61	45.19	74.0	54.0	52.96	40.52	21.04	13.48		

Test Mode	802.11b_Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4883.00	55.39	44.09	H	32.33	7.24	44.74	74.0	54.0	50.22	38.92	23.78	15.08		

Test Mode	802.11b_Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4934.00	53.43	43.14	H	32.39	7.24	44.81	74.0	54.0	48.25	37.96	25.75	16.04		
Restricted Band Edge Test Data														
2483.50	62.13	49.79	H	27.83	4.72	45.11	74.0	54.0	49.58	37.24	24.42	16.76		

Test Mode	802.11g_Ant0_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4824.00	59.78	48.41	H	32.25	7.24	44.65	74.0	54.0	54.63	43.26	19.37	10.74		
Restricted Band Edge Test Data														
2390.0	70.90	58.19	H	27.97	4.61	45.19	74.0	54.0	58.29	45.58	15.71	8.42		

Test Mode	802.11g_Ant0_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4884.00	59.18	46.81	H	32.33	7.24	44.74	74.0	54.0	54.01	41.64	19.99	12.36		

Test Mode	802.11g_Ant0_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4934.00	60.05	49.06	H	32.39	7.24	44.81	74.0	54.0	54.87	43.88	19.13	10.12		
Restricted Band Edge Test Data														
2483.50	64.79	56.03	H	27.83	4.72	45.11	74.0	54.0	52.24	43.48	21.76	10.52		

Test Mode	802.11g_Ant1_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV				
4824.00	59.37	47.84	H	32.25	7.25	44.65	74.0	54.0	54.22	42.96	19.78	11.31		
Restricted Band Edge Test Data														
2390.00	69.70	58.58	H	27.97	4.61	45.19	74.0	54.0	57.09	45.97	16.91	8.03		

Test Mode	802.11g_Ant1_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4883.00	59.40	50.13	H	32.33	7.24	44.74	74.0	54.0	54.23	44.96	19.77	9.04		

Test Mode	802.11g_Ant1_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
2934.00	58.03	47.48	H	32.39	7.24	44.81	74.0	54.0	52.85	42.30	21.15	11.70		
Restricted Band Edge Test Data														
2483.50	64.50	54.66	H	27.83	4.72	45.11	74.0	54.0	51.95	42.11	22.05	11.89		

Test Mode	802.11g_Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4824.00	59.14	47.33	H	32.25	7.25	44.65	74.0	54.0	53.99	42.18	20.01	11.82		
Restricted Band Edge Test Data														
2390.00	71.08	56.25	H	27.97	4.61	45.19	74.0	54.0	58.47	43.64	15.53	10.36		

Test Mode	802.11g_Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4883.00	57.64	48.45	H	32.33	7.24	44.74	74.0	54.0	52.47	43.28	21.53	10.72		

Test Mode	802.11g_Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4934.00	55.57	47.05	H	32.39	7.24	44.81	74.0	54.0	50.39	41.87	23.53	12.13		
Restricted Band Edge Test Data														
2483.500	63.02	53.37	H	27.83	4.72	45.11	74.0	54.0	50.47	40.82	23.53	13.18		

Test Mode	802.11n_HT20 Ant0_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4824.00	58.35	47.97	H	32.25	7.25	44.65	74.0	54.0	53.20	42.82	20.80	11.18		
Restricted Band Edge Test Data														
2390.0	71.43	60.20	H	27.97	4.61	45.19	74.0	54.0	58.28	47.59	15.18	6.41		

Test Mode	802.11n_HT20 Ant0_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4884.00	57.28	48.04	H	32.33	7.24	44.74	74.0	54.0	52.11	42.87	21.89	11.13		

Test Mode	802.11n_HT20 Ant0_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4934.00	55.43	46.56	H	32.39	7.24	44.81	74.0	54.0	50.25	41.38	23.75	12.62		
Restricted Band Edge Test Data														
2483.50	71.38	60.65	H	27.83	4.72	45.11	74.0	54.0	58.83	48.10	15.17	5.90		

Test Mode	802.11n_HT20 Ant1_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4824.00	56.69	56.26	H	32.25	7.25	44.65	74.0	54.0	51.54	41.11	22.46	12.89		
Restricted Band Edge Test Data														
2390.00	66.86	56.91	H	27.97	4.61	45.19	74.0	54.0	54.25	53.29	19.75	9.70		

Test Mode	802.11n_HT20 Ant1_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4884.00	54.97	45.45	H	32.33	7.24	44.74	74.0	54.0	49.80	40.28	24.20	13.72		

Test Mode	802.11n_HT20 Ant1_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4934.00	55.92	44.52	H	32.39	7.24	44.81	74.0	54.0	50.74	39.34	23.26	14.66		
Restricted Band Edge Test Data														
2483.50	68.96	58.78	H	27.83	4.72	45.11	74.0	54.0	56.41	46.23	17.59	7.77		

Test Mode	802.11n_HT20 Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV				
4824.00	57.50	48.67	H	32.25	7.25	44.65	74.0	54.0	52.35	43.52	21.65	10.48		
Restricted Band Edge Test Data														
2390.00	66.73	57.58	H	27.97	4.61	45.19	74.0	54.0	54.12	44.97	19.88	9.03		

Test Mode	802.11n_HT20 Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4883.00	55.55	46.81	H	32.33	7.24	44.74	74.0	54.0	50.38	41.64	23.62	12.36		

Test Mode	802.11n_HT20 Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4934.00	54.75	45.51	H	32.39	7.24	44.81	74.0	54.0	49.57	40.33	24.43	13.67		
Restricted Band Edge Test Data														
2483.50	66.54	56.92	H	27.83	4.72	45.11	74.0	54.0	53.99	44.37	20.01	9.63		

Test Mode	802.11n_HT40 Ant0_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV				
4844.00	61.03	48.41	H	32.28	7.25	44.68	74.0	54.0	55.88	43.26	18.12	10.74		
Restricted Band Edge Test Data														
2390.00	71.88	61.00	H	27.97	4.61	45.19	74.0	54.0	59.27	48.39	14.73	5.61		

Test Mode	802.11n_HT40 Ant0_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4874.00	59.39	47.39	H	32.32	7.24	44.72	74.0	54.0	54.23	42.22	19.77	11.78		

Test Mode	802.11n_HT40 Ant0_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4902.00	58.04	47.35	H	32.39	7.24	44.81	74.0	54.0	52.87	42.18	21.13	11.82		
Restricted Band Edge Test Data														
2483.50	69.80	59.75	H	27.83	4.72	45.11	74.0	54.0	57.25	47.20	16.75	6.80		

Test Mode	802.11n_HT40 Ant1_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4854.00	59.43	50.15	H	32.29	7.24	44.69	74.0	54.0	54.27	44.99	19.73	9.01		
Restricted Band Edge Test Data														
2390.00	69.44	59.86	H	27.97	4.61	45.19	74.0	54.0	56.83	47.25	17.17	6.75		

Test Mode	802.11n_HT40 Ant1_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4874.00	55.44	45.85	H	32.32	7.24	44.72	74.0	54.0	50.28	40.69	23.72	13.31		

Test Mode	802.11n_HT40 Ant1_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4902.00	56.88	46.28	H	32.35	7.24	44.76	74.0	54.0	51.71	41.11	22.29	12.89		
Restricted Band Edge Test Data														
2483.50	68.43	58.83	H	27.83	4.72	45.11	74.0	54.0	55.88	46.28	18.12	7.72		

Test Mode	802.11n_HT40 Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4844.00	59.16	48.89	H	32.28	7.25	44.68	74.0	54.0	54.01	43.74	19.99	10.26		
Restricted Band Edge Test Data														
2390.00	67.89	55.86	H	27.97	4.61	45.19	74.0	54.0	55.28	43.25	18.72	10.75		

Test Mode	802.11n_HT40 Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4884.00	56.41	45.29	H	32.33	7.24	44.74	74.0	54.0	51.24	40.12	22.76	13.88		

Test Mode	802.11n_HT40 Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4902.00	55.06	44.83	H	32.35	7.24	44.76	74.0	54.0	49.89	39.66	24.11	14.34		
Restricted Band Edge Test Data														
2483.50	68.57	58.37	H	27.83	4.72	45.11	74.0	54.0	56.02	45.82	17.98	8.18		

Test Mode	802.11n_HT20 Ant0+Ant1_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4824.00	60.40	47.54	H	32.25	7.25	44.65	74.0	54.0	55.25	42.39	18.75	11.61		
Restricted Band Edge Test Data														
2390.00	65.79	55.89	H	27.97	4.61	45.19	74.0	54.0	53.18	43.28	20.82	10.72		

Test Mode	802.11n_HT20 Ant0+Ant1_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4874.00	52.52	43.41	H	32.32	7.24	44.72	74.0	54.0	47.36	38.25	26.64	15.75		

Test Mode	802.11n_HT20 Ant0+Ant1_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4933.00	57.42	46.26	H	32.39	7.24	44.81	74.0	54.0	52.24	41.08	21.76	12.92		
Restricted Band Edge Test Data														
2483.50	67.94	57.12	H	27.38	4.72	45.11	74.0	54.0	55.39	44.57	18.61	9.43		

Test Mode	802.11n_HT20 Ant0+Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV				
4824.00	59.54	48.43	H	32.25	7.25	44.65	74.0	54.0	54.39	43.28	19.61	10.72		
Restricted Band Edge Test Data														
3900.00	64.61	53.90	H	27.97	4.61	45.19	74.0	54.0	52.00	41.29	22.00	12.71		

Test Mode	802.11n_HT20 Ant0+Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4884	59.01	48.27	H	32.33	7.24	44.74	74.0	54.0	48.29	37.55	25.71	16.45		

Test Mode	802.11n_HT20 Ant0+Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4933.00	55.57	47.32	H	32.39	7.24	44.74	74.0	54.0	50.39	42.14	23.61	11.86		
Restricted Band Edge Test Data														
2483.50	68.92	58.53	H	27.83	4.72	45.11	74.0	54.0	56.37	45.98	17.63	8.02		

Test Mode	802.11n_HT20 Ant1+Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data												
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin	
							(dBuV)		(dBuV)		(dB)	
	Peak	AV					Peak	AV	Peak	AV		
4824.00	58.40	49.12	H	32.25	7.25	44.65	74.0	54.0	53.25	43.97	20.75	10.03
Restricted Band Edge Test Data												
2390.00	64.70	56.88	H	27.97	4.61	45.19	74.0	54.0	52.09	44.27	21.91	9.73

Test Mode	802.11n_HT20 Ant1+Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4884.00	55.12	46.09	H	32.33	7.24	44.74	74.0	54.0	49.95	40.92	24.05	13.08		

Test Mode	802.11n_HT20 Ant1+Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4933.00	56.55	47.51	H	32.39	7.24	44.81	74.0	54.0	51.37	42.33	22.63	11.67		
Restricted Band Edge Test Data														
2483.50	70.10	59.02	H	27.83	4.72	45.11	74.0	54.0	57.55	46.47	16.45	7.53		

Test Mode	802.11n_HT40 Ant0+Ant1_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV				
4860.00	60.27	48.63	H	32.30	7.24	44.71	74.0	54.0	55.11	43.47	18.89	10.53		
Restricted Band Edge Test Data														
2390.00	71.50	58.00	H	27.97	4.61	45.19	74.0	54.0	58.89	45.39	15.11	8.61		

Test Mode	802.11n_HT40 Ant0+Ant1_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4885.00	58.37	47.45	H	32.33	7.24	44.74	74.0	54.0	53.20	42.28	20.80	11.72		

Test Mode	802.11n_HT40 Ant0+Ant1_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4910.00	54.75	45.80	H	32.37	7.24	44.78	74.0	54.0	49.58	40.63	24.42	13.37		
Restricted Band Edge Test Data														
2483.50	70.51	59.37	H	27.83	4.72	45.11	74.0	54.0	57.96	46.82	16.04	7.18		

Test Mode	802.11n_HT40 Ant0+Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data												
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin	
							(dBuV)		(dBuV)		(dB)	
	Peak	AV					Peak	AV	Peak	AV		
4860.00	69.14	47.85	H	32.30	7.24	44.71	74.0	54.0	53.98	4269	20.02	11.31
Restricted Band Edge Test Data												
2390.00	68.50	57.46	H	27.97	4.61	45.19	74.0	54.0	55.89	44.85	18.11	9.15

Test Mode	802.11n_HT40 Ant0+Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4885.00	60.14	47.17	H	32.33	7.24	44.74	74.0	54.0	56.97	42.00	19.03	12.00		

Test Mode	802.11n_HT40 Ant0+Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4910.00	58.83	49.14	H	32.37	7.24	44.78	74.0	54.0	53.66	43.97	20.34	10.03		
Restricted Band Edge Test Data														
2483.50	70.66	58.80	H	27.83	4.72	45.11	74.0	54.0	58.11	46.25	18.89	7.75		

Test Mode	802.11n_HT40 Ant1+Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4860.00	58.15	47.19	H	32.30	7.24	44.71	74.0	54.0	52.99	42.01	21.01	11.97		
Restricted Band Edge Test Data														
2390.00	67.00	58.54	H	27.97	4.61	45.19	74.0	54.0	54.39	45.93	19.61	8.07		

Test Mode	802.11n_HT40 Ant1+Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4885.00	61.01	46.45	H	32.33	7.24	44.74	74.0	54.0	55.84	41.28	18.16	12.72		

Test Mode	802.11n_HT40 Ant1+Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4910.00	61.09	43.38	H	32.37	7.24	44.78	74.0	54.0	55.92	43.21	18.08	10.79		
Restricted Band Edge Test Data														
2483.50	70.53	58.00	H	27.83	4.72	45.11	74.0	54.0	57.98	45.45	16.02	8.55		

Test Mode	802.11n_HT20 Ant0+Ant1+Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4824.00	56.43	47.83	H	32.25	7.25	44.65	74.0	54.0	51.28	42.68	22.72	11.32		
Restricted Band Edge Test Data														
2390.00	63.43	55.81	H	27.97	4.61	45.19	74.0	54.0	50.82	43.20	23.18	10.80		

Test Mode	802.11n_HT20 Ant0+Ant1+Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4885.00	58.42	50.09	H	32.33	7.24	44.74	74.0	54.0	53.25	44.92	20.75	9.08		

Test Mode	802.11n_HT20 Ant0+Ant1+Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4934.00	57.34	46.52	H	32.39	7.24	44.81	74.0	54.0	52.16	41.34	21.84	12.66		
Restricted Band Edge Test Data														
2483.50	70.79	59.72	H	27.83	4.72	45.11	74.0	54.0	58.24	47.17	15.76	6.83		

Test Mode	802.11n_HT40 Ant0+Ant1+Ant2_Low Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4860.00	59.43	48.24	H	32.30	7.24	44.71	74.0	54.0	54.27	43.08	19.73	10.92		
Restricted Band Edge Test Data														
2390.00	68.00	58.54	H	27.97	4.61	45.19	74.0	54.0	55.39	45.93	18.61	8.07		

Test Mode	802.11n_HT40 Ant0+Ant1+Ant2_Middle Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4886.00	59.45	48.37	H	32.33	7.24	44.74	74.0	54.0	54.28	43.20	19.72	10.80		

Test Mode	802.11n_HT40 Ant0+Ant1+Ant2_High Ch.	Frequency Range	1 GHz ~ 25 GHz
		Detector Function	Peak / Average

Test Data														
Frequency (MHz)	Reading (dBuV)		P	Ant. Factor (dB)	Cable Loss (dB)	AMP GAIN (dB)	Limit		Total		Margin			
	(dBuV)						(dBuV)		(dB)					
	Peak	AV					Peak	AV	Peak	AV	Peak	AV		
4905.00	70.85	60.26	H	32.35	7.24	44.76	74.0	54.0	56.34	44.07	17.66	9.93		
Restricted Band Edge Test Data														
2483.50	70.85	60.26	H	27.83	4.72	45.11	74.0	54.0	58.30	47.71	15.70	6.29		

5.6 Conducted Emission

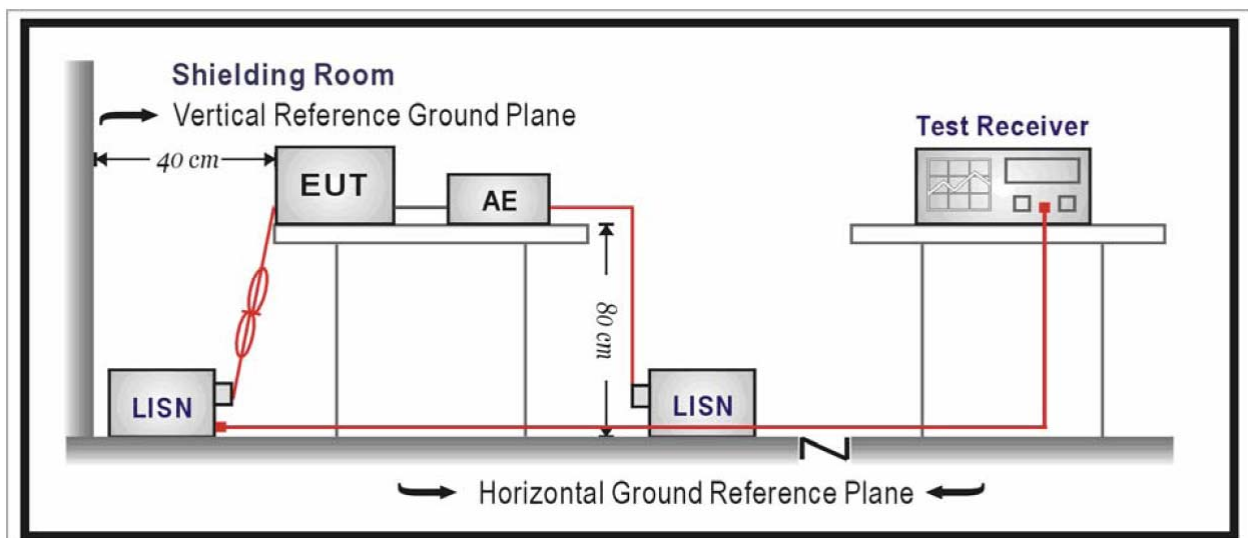
5.6.1 Test Limit

According to §15.207(a), for an intentional radiator 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, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

Frequency of emission (MHz)	Conducted limit (dB μ V)	
	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.

5.6.2 Test configuration



5.6.3 Measurement Procedure

- 1) The EUT was placed on a wooden table of size, 1 m by 1.5 m, raised 80 cm in which is located 40 cm away from the vertical wall and 1.5m away from the side wall of the shielded room.
- 2) Each current-carrying conductor of the EUT power cord was individually connected through a 50Ω/50μH LISN, which is an input transducer to a Spectrum Analyzer or an EMI/Field Intensity Meter, to the input power source.
- 3) Exploratory measurements were made to identify the frequency of the emission that had the highest amplitude relative to the limit by operating the EUT in a range of typical modes of operation, cable position, and with a typical system equipment configuration and arrangement. Based on the exploratory tests of the EUT, the one EUT cable configuration and arrangement and mode of operation that had produced the emission with the highest amplitude relative to the limit was selected for the final measurement.
- 4) The final test on all current-carrying conductors of all of the power cords to the equipment that comprises the EUT (but not the cords associated with other non-EUT equipment is the system) was then performed over the frequency range of 0.15 MHz to 30 MHz.
- 5) The measurements were made with the detector set to PEAK amplitude within a bandwidth of 10 kHz or to QUASI-PEAK and AVERAGE within a bandwidth of 9 kHz. The EUT was in transmitting mode during the measurements.

5.6.4 Test result

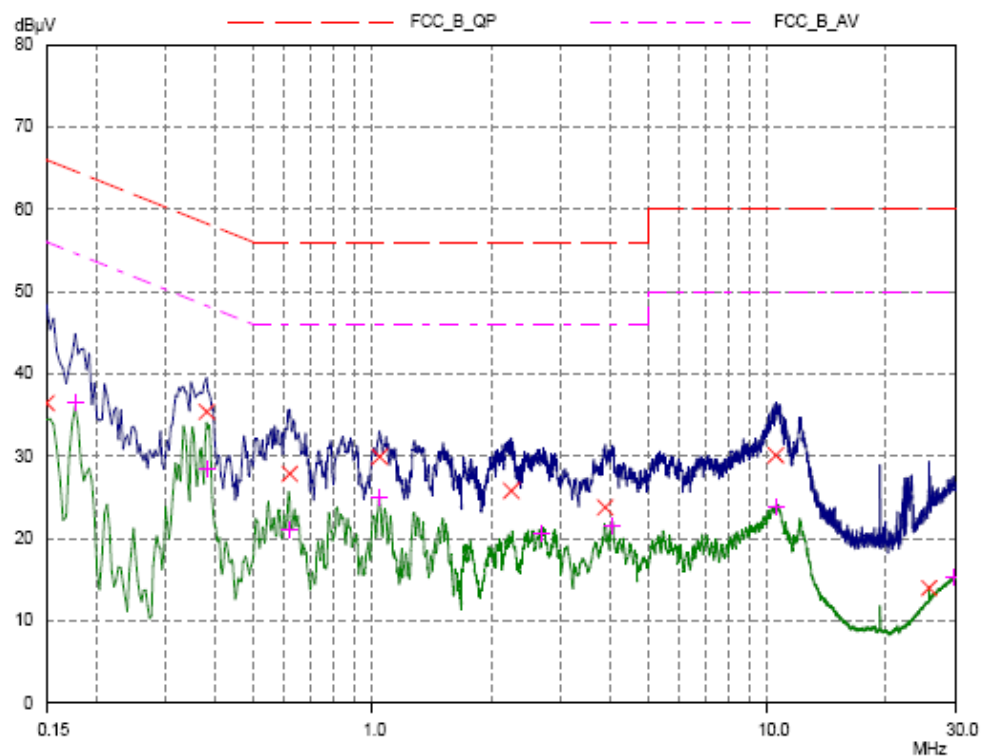
[Live]

Conducted Emission

GE-PON ONT

EUT: C1004W
Manuf: CommScope, Inc. of North Carolina
Op Condi: L
Operator: GSTL
Test Spec: FCC, Class B
Comment: TA-1411039

Scan Settings		(2 Ranges)		Receiver Settings				
Frequencies		Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge
Start	Stop							
150kHz	3MHz	3kHz	9kHz	PK+AV	100msec	Auto	OFF	60dB
3MHz	30MHz	9kHz	9kHz	PK+AV	100msec	Auto	OFF	60dB
Transducer	No.	Start	Stop	Name				
1	11	150kHz	30MHz	ENV216_L_Filter				
	21	9kHz	30MHz	CableLoss				
Final Measurement:		Detectors:	X QP / + AV					
		Meas Time:	1sec					
		Subranges:	8					
		Acc Margin:	50 dB					



Conducted Emission

GE-PON ONT

EUT: C1004W
Manuf: CommScope, Inc. of North Carolina
Op Cond: L
Operator: GSTL
Test Spec: FCC, Class B
Comment: TA-1411039

Scan Settings		(2 Ranges)		Receiver Settings					
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	3MHz	3kHz	9kHz	PK+AV	100msec	Auto	OFF	60dB	
3MHz	30MHz	9kHz	9kHz	PK+AV	100msec	Auto	OFF	60dB	

Transducer	No.	Start	Stop	Name
1	11	150kHz	30MHz	ENV216_L_Filter
	21	9kHz	30MHz	CableLoss

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Subranges: 8
Acc Margin: 50 dB

Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB
0.15	36.45	66.00	29.55
0.381	35.38	58.26	22.88
0.618	27.83	56.00	28.17
1.044	29.93	56.00	26.07
2.25	25.77	56.00	30.23
3.891	23.76	56.00	32.24
10.524	30.10	60.00	29.90
25.689	13.95	60.00	46.05

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB
0.177	36.45	54.63	18.18
0.381	28.41	48.26	19.85
0.615	21.01	46.00	24.99
1.044	25.04	46.00	20.96
2.694	20.56	46.00	25.44
4.07089	21.46	46.00	24.54
10.542	23.86	50.00	26.14
29.829	15.30	50.00	34.70

[Neutral]

Conducted Emission

GE-PON ONT

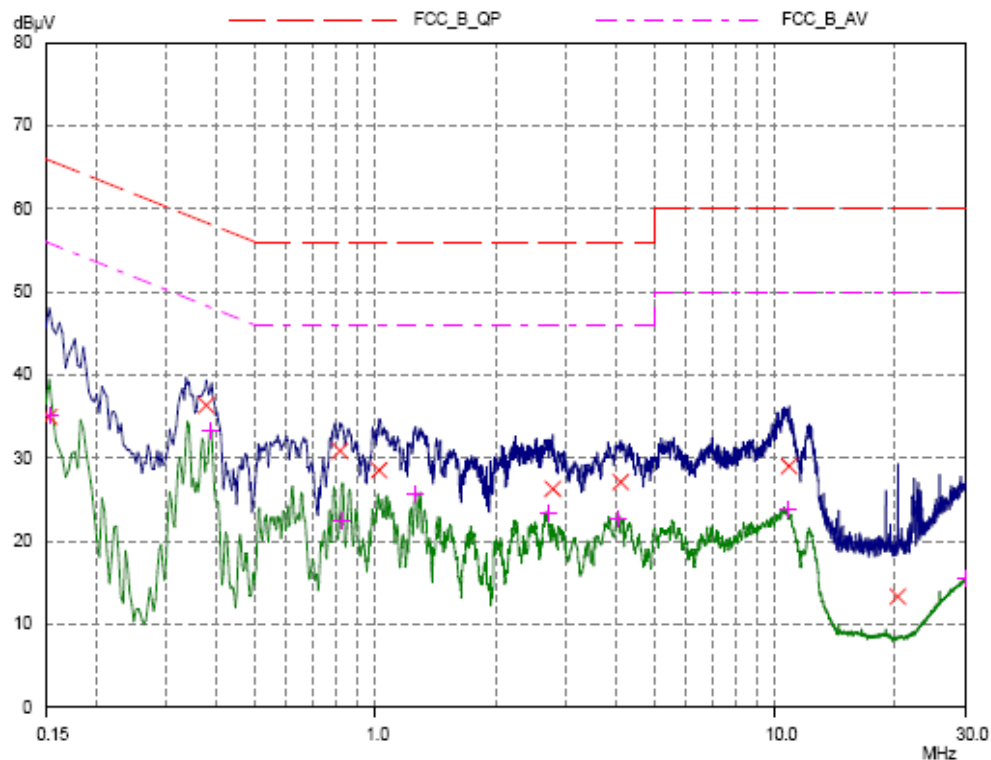
EUT: C1004W
Manuf: CommScope, Inc. of North Carolina
Op Cond: N
Operator: GSTL
Test Spec: FCC, Class B
Comment: TA-1411039

Scan Settings (2 Ranges)

Frequencies			Receiver Settings						
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp	OpRge	
150kHz	3MHz	3kHz	9kHz	PK+AV	100msec	Auto	OFF	60dB	
3MHz	30MHz	9kHz	9kHz	PK+AV	100msec	Auto	OFF	60dB	

Transducer	No.	Start	Stop	Name
1	12	150kHz	30MHz	ENV216_N_Filter
	21	9kHz	30MHz	CableLoss

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Subranges: 8
Acc Margin: 50 dB



Conducted Emission

GE-PON ONT

EUT: C1004W
Manuf: CommScope, Inc. of North Carolina
Op Cond: N
Operator: GSTL
Test Spec: FCC, Class B
Comment: TA-1411039

Scan Settings		(2 Ranges)		Receiver Settings			
Start	Stop	Step	IF BW	Detector	M-Time	Atten	OpRge
150kHz	3MHz	3kHz	9kHz	PK+AV	100msec	Auto	60dB
3MHz	30MHz	9kHz	9kHz	PK+AV	100msec	Auto	60dB

Transducer	No.	Start	Stop	Name
1	12	150kHz	30MHz	ENV216_N_Filter
	21	9kHz	30MHz	CableLoss

Final Measurement: Detectors: X QP / + AV
Meas Time: 1sec
Subranges: 8
Acc Margin: 50 dB

Final Measurement Results

Frequency MHz	QP Level dBμV	QP Limit dBμV	QP Delta dB
0.153	34.93	65.84	30.91
0.378	36.33	58.32	21.99
0.816	30.85	56.00	25.15
1.02299	28.52	56.00	27.48
2.784	28.29	56.00	29.71
4.11599	27.10	56.00	28.90
10.866	29.00	60.00	31.00
20.307	13.33	60.00	46.67

Frequency MHz	AV Level dBμV	AV Limit dBμV	AV Delta dB
0.153	35.11	55.84	20.73
0.387	33.26	48.13	14.87
0.828	22.51	46.00	23.49
1.26	25.66	46.00	20.34
2.7	23.32	46.00	22.68
4.062	22.63	46.00	23.37
10.749	23.87	50.00	26.13
29.964	15.44	50.00	34.56

5.7 Antenna Requirements

According to FCC 47 CFR 15.203

“an intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached or an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section”

And according to §15.407(a)(1)(2)(3)

If transmitting antennas of directional gain greater than 6 dBi are used, the peak power spectral density shall be reduced by the amount in 1.30 dB for 2Tx(Ant0+Ant1), 0.81 dB for 2Tx(Ant0+Ant2), 0.84 dB for 2Tx(Ant1+Ant2) and 2.75 dB for 3Tx that the directional gain of the antenna exceeds 6 dBi

1. The antenna connector is U.FL.
2. The antenna of this EUT is permanently attached.
3. The total directional peak gain of the antenna exceeds 6.0 dBi except 1Tx mode.

According to KDB 662911 D01 Multiple Transmitter Output v02r01

- Directional gain = G_{ANT} + Array Gain, where Array Gain is as follows.

For power spectral density (PSD) measurements on all devices,

Array Gain = $10 \log(N_{ANT}/N_{SS})$ dB.

1Tx Total Gain

	2 400 ~ 2 483.5 MHz
ANT0 Gain	4.263 dBi
ANT1 Gain	4.319 dBi
ANT2 Gain	3.174 dBi

2Tx Total Gain

	2 400 ~ 2 483.5 MHz
ANT0 + ANT1 Gain	7.301 dBi
ANT0 + ANT2 Gain	6.807 dBi
ANT1 + ANT2 Gain	6.838 dBi

3Tx Total Gain

	2 400 ~ 2 483.5 MHz
ANT0 + ANT1 + ANT2 Gain	8.749 dBi

The EUT complies with the antenna requirements

6.0 Test Instruments

Description	Model	Manufacturer	S/N	Calibration Due Date
ESA-E Spectrum Analyzer	E4407B	Agilent	US39010161	2015.03.28
Spectrum Analyzer	R3273	ADVANTEST	12100578	2015.03.28
Spectrum Analyzer	FSP40	R&S	100208	2014.12.26
Spectrum Analyzer	ESU26	ROHDE&SCHWARZ	100304	2015.02.26
6GHZ SIGNAL GENERATOR	E4438C	AGILENT	MY44270255	2015.03.28
SYNTHESIZED SWEEPER	83752A	AGILENT	3610AA01480	2015.03.28
MODULATION ANALYZER	8901B	AGILENT	3438A05222	2015.03.28
AUDIO ANALYZER	8903B	AGILENT	3514A15367	2015.03.28
FREQUENCY COUNTER	5351B	H.P	3049A01558	2015.03.28
POWER METER	E4416A	AGILENT	GB41050492	2015.03.28
POWER SENSOR	E9327A	AGILENT	US40441493	2015.03.28
WIDEBAND POWER SENSOR	NRP-Z81	R&S	102398	15.11.27
FUNCTION/ARBITRARY WAVEFORM GENRATOR	33250A	AGILENT	US40000357	2015.03.28
DC POWER SUPPLY	E3632A	H.P	KR75305602	2015.03.28
DC POWER SUPPLY	NONE	JiTech	NONE	2015.03.28
DUAL DIRECTIONAL COUPLER	778D-012	H.P	15438	2015.03.28
DUAL DIRECTIONAL COUPLER	11692D	H.P	1212A02230	2015.03.28
POWER DIVIDER	11636B	AGILENT	54379	2015.03.28
ATTENUATOR	8494B	AGILENT	MY41110957	2015.03.28
ATTENUATOR	8496B	AGILENT	US00340476	2015.03.28
ATTENUATOR	PE7019-30	PASTERNAK	NONE	2015.03.28
TERMINATION	2001-6005-00	OMNISPECTRA	NONE	2015.03.28
Amplifier	8447D	H.P	2944A10704	2015.10.01
Pre-Amplifier	TS-PA8	TESTEK	1020007	2015.10.02
Pre-Amplifier	3117-PA	ETS-Lindgren	00151748	2015.04.09
Temperature and Humidity Chamber	EN-TH-150	Enex	EN-090402	2015.03.28
Vibration Tester	EN-VT-400	Enex	EN-90330-02	2014.04.01
Shield Box	ETC-150F	Elena	88647	-

Description	Model	Manufacturer	S/N	Calibration Due Date
Test Receiver	PMM 9010	Narda	595WX20210	2015.03.03
Test Receiver	ESVD	R&S	836108/101	2015.03.03
Test Receiver	ESCS30	R&S	834115/019	2015.03.03
Test Receiver	ESCI	R&S	101396	2015.03.03
Log-Broadband Antenna	VULB 9168	SCHWARZBECK	9168-570	2016.04.17
Loop Antenna	HLA6120	Schaffner	1076	2015.09.27
Horn Antenna	3115	ETS-Lindgren	102292	2016.04.25
Horn Antenna	EM-AH-0818	emec	AH09012	2015.10.29
TWO-LINE V-NETWORK	ENV216	R&S	101408	2015.10.01
TWO-LINE V-NETWORK	ENV216	R&S	101742	2015.02.18
TWO-LINE V-NETWORK	ENV216	R&S	101743	2015.02.18
LISN	3825/2	EMCO	9010	2015.04.23
LISN	LN2-20-25	EMCIS	LN13001	2015.10.01

NOTE:

1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to RRA, KRISS, Hankook Cal-Lab and HCT.
2. The calibration interval of horn , trilog and loop antenna are 24 months