

FCC RF Test Report

APPLICANT : Ubiquiti Networks, Inc.
EQUIPMENT : rocket PRISM AC
BRAND NAME : UBIQUITI
MODEL NAME : R2AC
FCC ID : SWX-R2ACN
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

This is a variant report which is only valid together with the original test report. The product was received on Jul. 11, 2017 and testing was completed on Aug. 26, 2017. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the test procedures and has been in compliance with the applicable technical standards.

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



Reviewed by: Joseph Lin / Supervisor



Approved by: Jones Tsai / Manager



SPORTON INTERNATIONAL INC.

No. 52, Hwa Ya 1st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C.



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REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR581010-05	Rev. 01	Initial issue of report	Sep. 04, 2017

SUMMARY OF TEST RESULT

Report Section	FCC Rule	Description	Limit	Result	Remark
3.1	15.247(a)(2)	6dB Bandwidth	$\geq 0.5\text{MHz}$	Pass	-
3.1	-	99% Bandwidth	-	Pass	-
3.2	15.247(b)	Power Output Measurement	$\leq 30\text{dBm}$	Pass	-
3.3	15.247(e)	Power Spectral Density	$\leq 8\text{dBm}/3\text{kHz}$	Pass	-
3.4	15.247(d)	Conducted Band Edges	$\leq 30\text{dBc}$	Pass	-
		Conducted Spurious Emission		Pass	-
3.5	15.247(d)	Radiated Band Edges and Radiated Spurious Emission	15.209(a) & 15.247(d)	Pass	Under limit 0.06 dB at 2389.940 MHz
3.6	15.207	AC Conducted Emission	15.207(a)	Pass	Under limit 12.30 dB at 0.502 MHz
3.7	15.203 & 15.247(b)	Antenna Requirement	N/A	Pass	-
Remark: This is a variant report by adding antenna. This Except effective conducted items and radiated emission are carrying out, FR581010-05 report reuses test data from the FR581010-04A report.					



1 General Description

1.1 Applicant

Ubiquiti Networks, Inc.

685 Third Avenue, 27th Floor New York, New York 10017 USA

1.2 Manufacturer

Ubiquiti Networks, Inc.

685 Third Avenue, 27th Floor New York, New York 10017 USA

1.3 Product Feature of Equipment Under Test

Wi-Fi 2.4GHz 802.11n/ac, Wi-Fi 5GHz 802.11a/n, and GPS

Product Specification subjective to this standard	
Antenna Type	WLAN 2.4GHz: Ant. 1: Omni Antenna Ant. 2: Dish Antenna Ant. 4: Omni Antenna Ant. 5: Sector Antenna Ant. 6: Sector Antenna Ant. 7: Sector Antenna WLAN 5GHz: Ant. 3: Internal Antenna GPS : Patch Antenna

1.4 Modification of EUT

No modifications are made to the EUT during all test items.

1.5 Testing Location

Sporton Lab is accredited to ISO 17025 by Taiwan Accreditation Foundation (TAF code : 1190) and the FCC designation No. TW0007 under the FCC 2.948(e) by Mutual Recognition Agreement (MRA) in FCC Test.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan District, Tao Yuan City, Taiwan, R.O.C. TEL: +886-3-327-3456 FAX: +886-3-328-4978	
Test Site No.	Sporton Site No.	
	TH05-HY	CO05-HY

Note: The test site complies with ANSI C63.4 2014 requirement.

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No.58, Aly. 75, Ln. 564, Wenhua 3rd Rd. Guishan Dist, Taoyuan City, Taiwan (R.O.C.) TEL: +886-3-327-0868 FAX: +886-3-327-0855	
Test Site No.	Sporton Site No.	
	03CH12-HY	

Note: The test site complies with ANSI C63.4 2014 requirement.



1.6 Applicable Standards

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

- ♦ FCC Part 15 Subpart C §15.247
- ♦ FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04
- ♦ FCC KDB 662911 D01 Multiple Transmitter Output v02r01.
- ♦ FCC KDB 644545 D03 Guidance for IEEE 802.11ac New Rules v01
- ♦ ANSI C63.10-2013

Remark:

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

2 Test Configuration of Equipment Under Test

- a. The EUT has been associated with peripherals and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction emission (150 kHz to 30 MHz), radiation emission (9 kHz to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower).
- b. AC power line Conducted Emission was tested under maximum output power.

2.1 Carrier Frequency

Frequency Band	Freq. (MHz)	Freq. (MHz)	Freq. (MHz)	Freq. (MHz)
2400-2483.5 MHz	2412	2427	2442	2457
	2414	2429	2444	2459
	2417	2432	2447	2462
	2419	2434	2449	
	2422	2437	2452	
	2424	2439	2454	

2.2 Test Mode

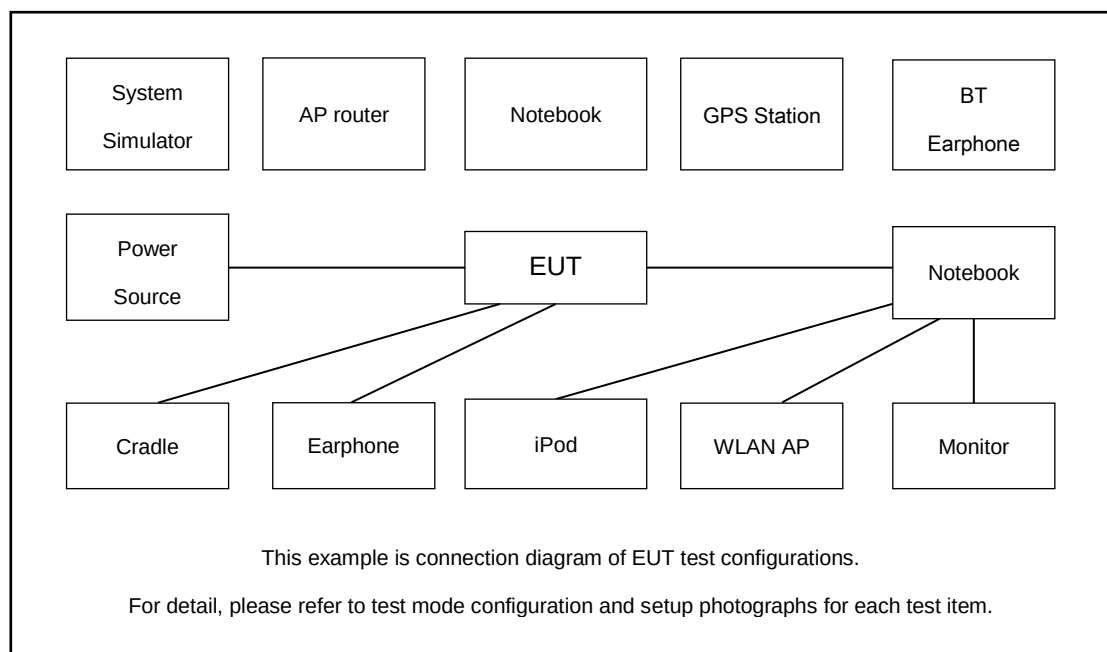
Final test mode of conducted test items and radiated spurious emissions are considering the modulation and worse data rates as below table.

MIMO Antenna

Modulation	Data Rate
802.11ac VHT10	MCS0
802.11ac VHT20	MCS0
802.11ac VHT40	MCS0

Test Cases	
AC Conducted Emission	Mode 1 :WLAN (2.4GHz) Link + WLAN (5GHz) Link + GPS Rx + PoE + LAN Link

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

Item	Equipment	Trade Name	Model Name	FCC ID	Data Cable	Power Cord
1.	GPS Station	Pendulum	GSG-54	N/A	N/A	Unshielded, 1.8 m
2.	Notebook	DELL	P20G	FCC DoC/ Contains FCC ID: QDS-BRCM1051	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
3.	Notebook	DELL	Latitude E6320	FCC DoC/ Contains FCC ID: QDS-BRCM1054	N/A	AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m
4.	WLAN AP	UBIQUITI	R2AC-Gen2(5G)	N/A	N/A	Shielded, 1.0 m

2.5 EUT Operation Test Setup

The RF test items, programmed RF utility, "CMD" installed in the notebook make the EUT provide functions like channel selection and power level for continuous transmitting and receiving signals.

2.6 Measurement Results Explanation Example

For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuator factor between EUT conducted output port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly the EUT RF output level.

Example:

The spectrum analyzer offset is derived from RF cable loss and attenuator factor.

Offset = RF cable loss + attenuator factor.

Following shows an offset computation example with cable loss 4.2 dB and 10dB attenuator.

Offset(dB) = RF cable loss(dB) + attenuator factor(dB).

= 4.2 + 10 = 14.2 (dB)

3 Test Result

3.1 6dB and 99% Bandwidth Measurement

3.1.1 Limit of 6dB and 99% Bandwidth

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

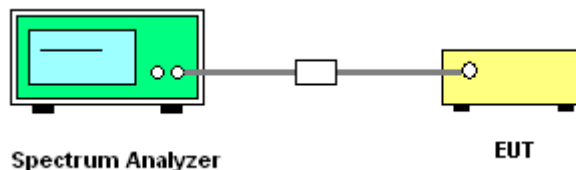
3.1.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.1.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 DTS D01 Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. Set the Video bandwidth (VBW) = 300 kHz. In order to make an accurate measurement. The 6 dB bandwidth must be greater than 500 kHz.
5. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) = 1MHz and set the Video bandwidth (VBW) = 3MHz.
6. Measure and record the results in the test report.

3.1.4 Test Setup

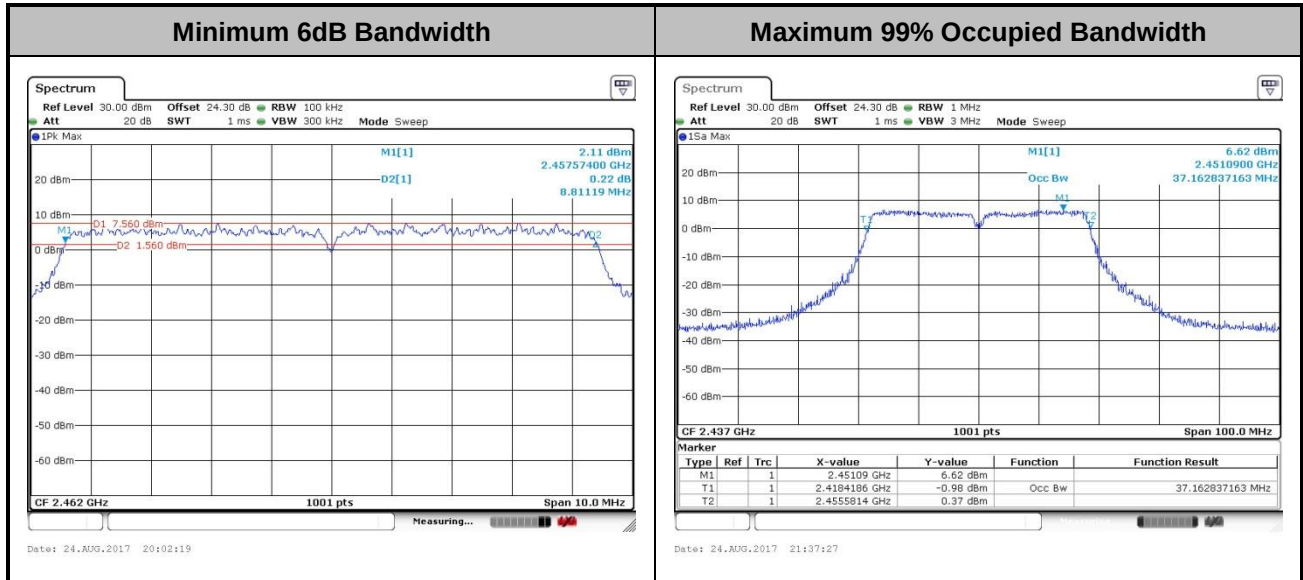




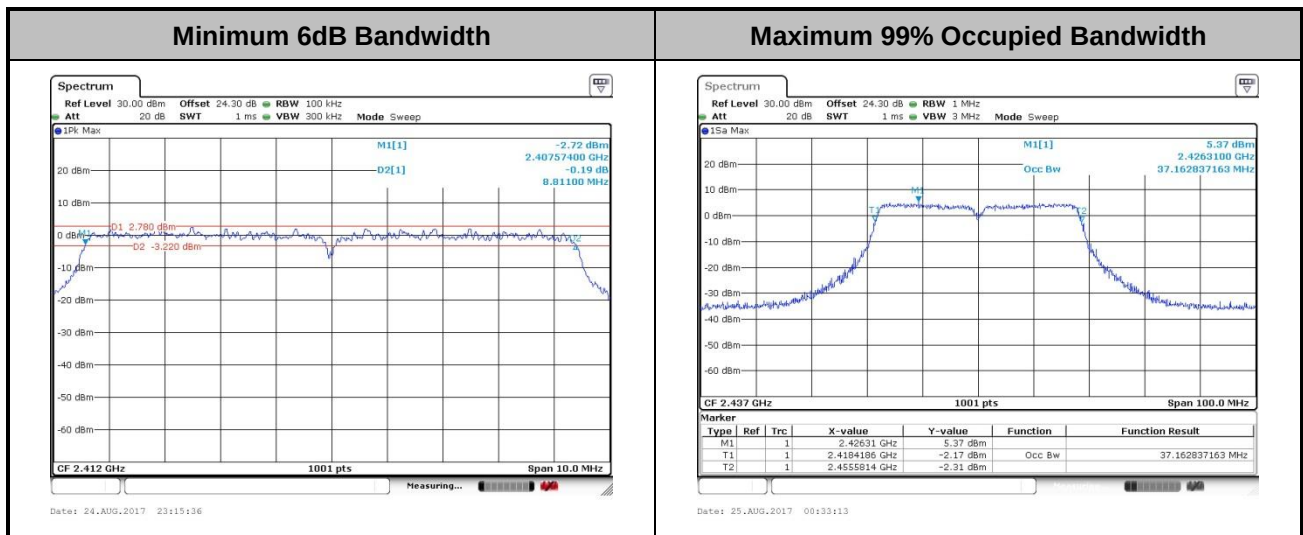
3.1.5 Test Result of 6dB and 99% Occupied Bandwidth

Please refer to Appendix A.

<Ant. Type 4>

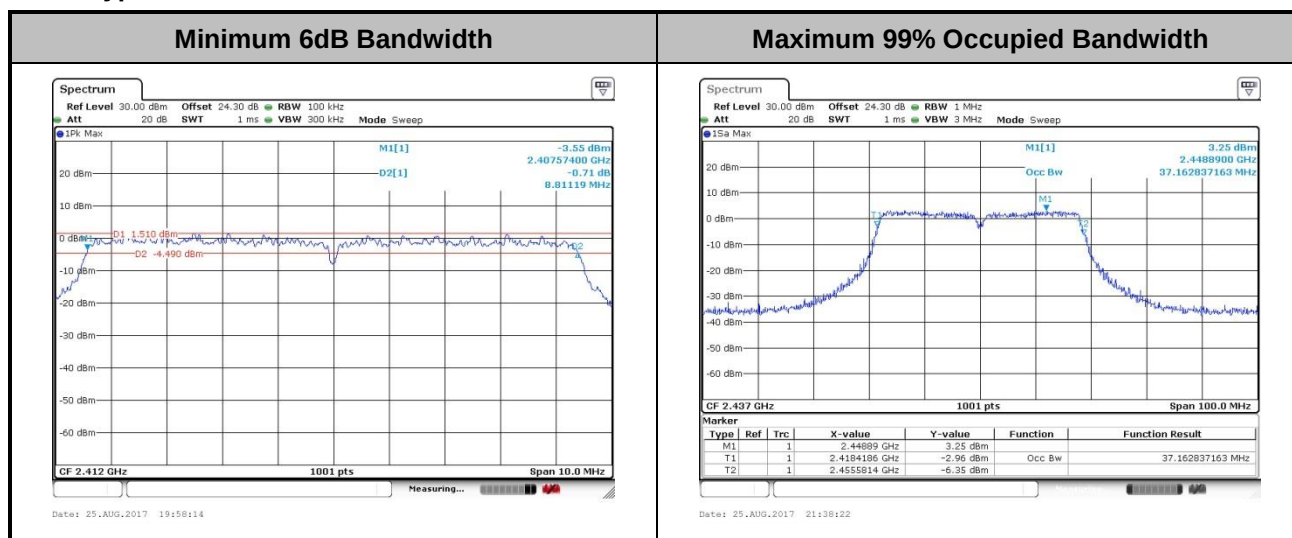


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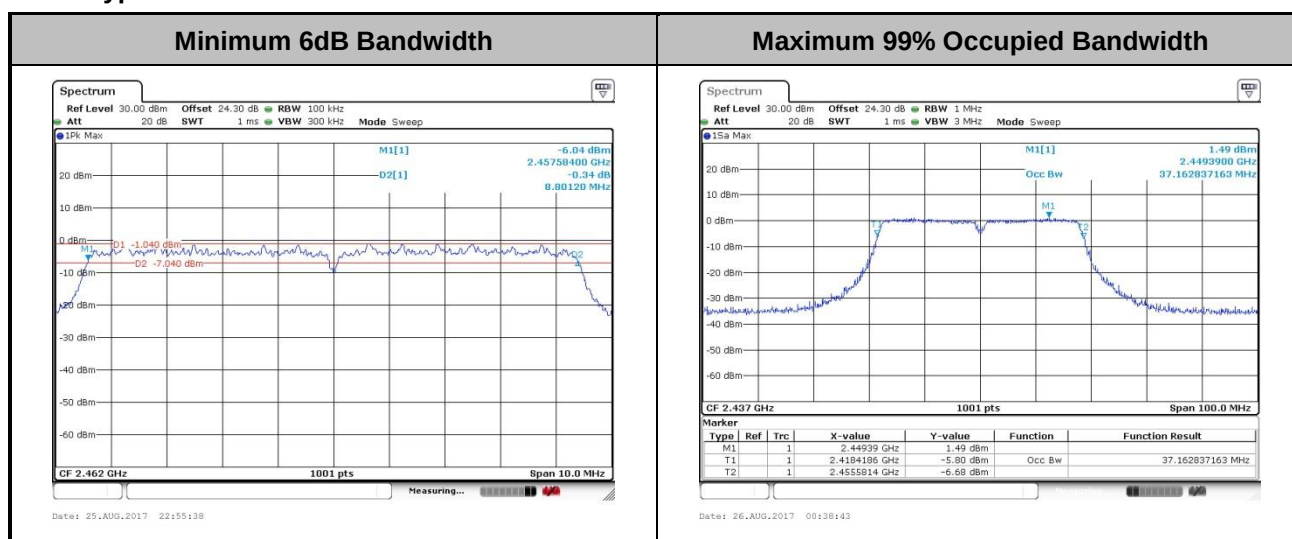


<Ant. Type 6>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

<Ant. Type 7>



Note: The occupied channel bandwidth is maintained within the band of operation for all of the modulations.

3.2 Output Power Measurement

3.2.1 Limit of Output Power

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

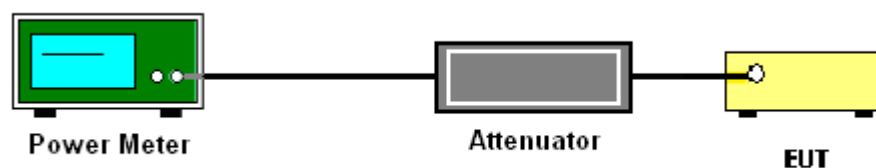
3.2.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.2.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v04 section 9.2.3.1 Method AVGPM.
2. The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

3.2.4 Test Setup



3.2.5 Test Result of Peak Output Power (Reporting Only)

Please refer to Appendix A.

3.2.6 Test Result of Average output Power

Please refer to Appendix A.

3.3 Power Spectral Density Measurement

3.3.1 Limit of Power Spectral Density

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

3.3.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.3.3 Test Procedures

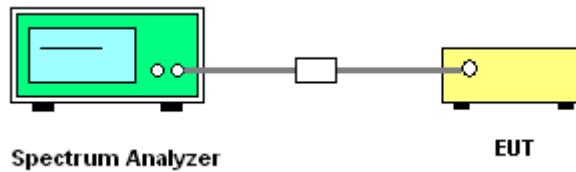
Method AVGPSD-2

1. The testing follows Measurement Procedure 10.5 Method AVGPSD-2 of FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 10 kHz. Video bandwidth VBW = 30 kHz In order to make an accurate measurement, set the span to 1.5 times DTS Channel Bandwidth. (6dB BW).
5. Number of points in sweep ≥ 2 Span / RBW. (This ensures that bin-to-bin spacing is $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins).
6. Detector = RMS, Sweep time = auto couple.
7. Trace average at least 100 traces in power averaging mode.
8. Add $10 \log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times. For example, add $10 \log(1/0.25) = 6$ dB if the duty cycle is 25 percent.
9. Measure and record the results in the test report. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v02r01.

Method (c): Measure and add $10 \log(N_{ANT})$ dB.

With this technique, spectrum measurements are performed at each output of the device, but rather than summing the spectra or the spectral peaks across the outputs, the quantity $10 \log(N_{ANT})$ dB is added to each spectrum value before comparing to the emission limit. The addition of $10 \log(N_{ANT})$ dB serves to apportion the emission limit among the N_{ANT} outputs so that each output is permitted to contribute no more than $1/N_{ANT}^{th}$ of the PSD limit.

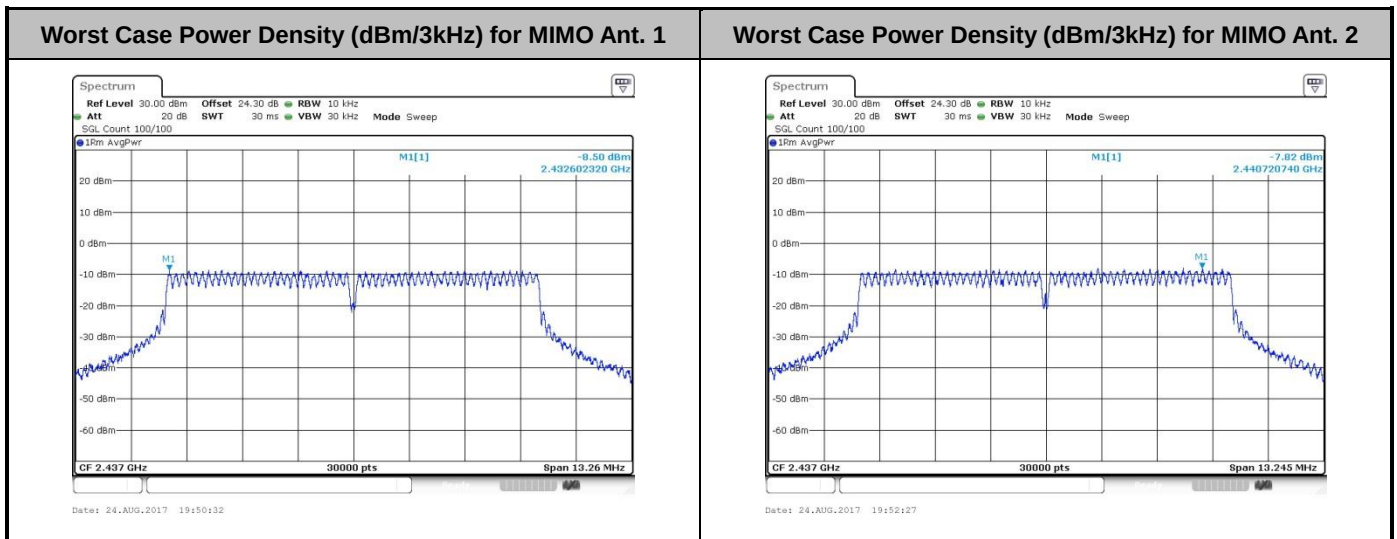
3.3.4 Test Setup



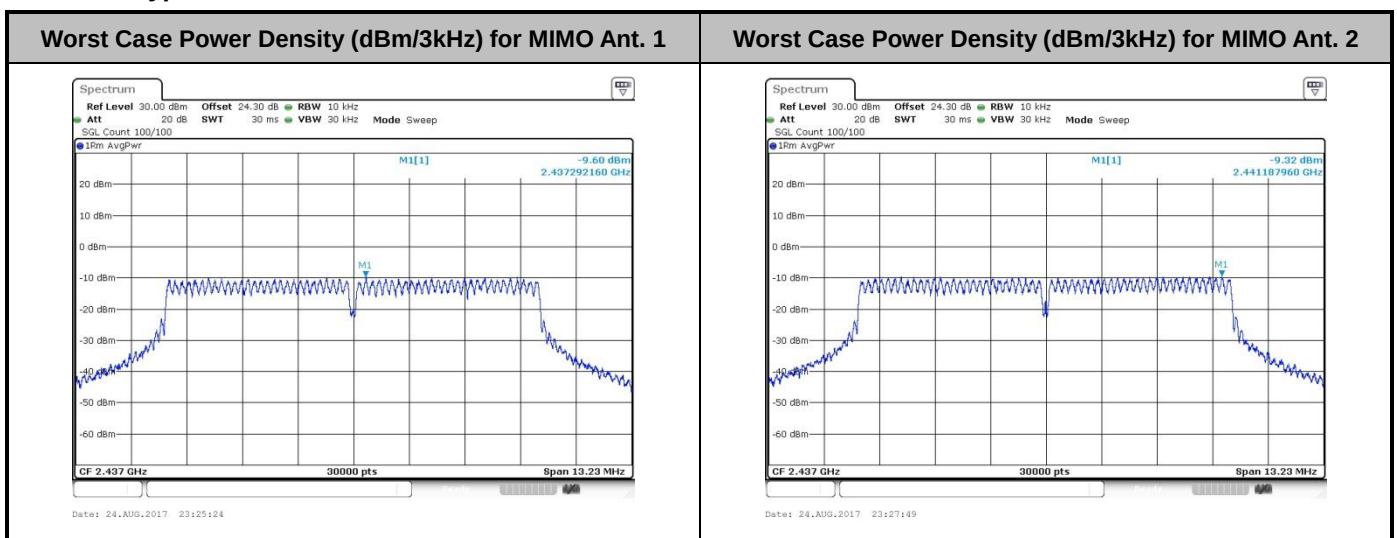
3.3.5 Test Result of Power Spectral Density

Please refer to Appendix A.

<Ant. Type 4>



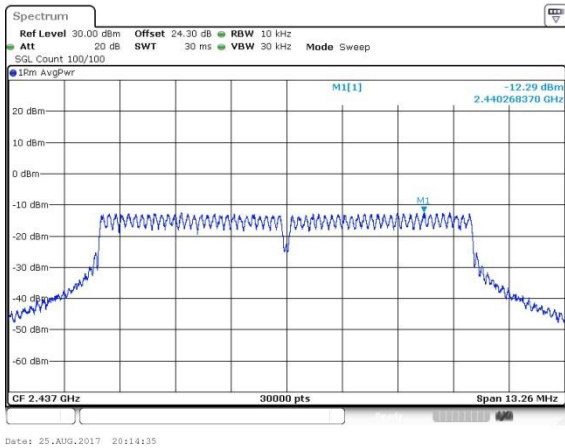
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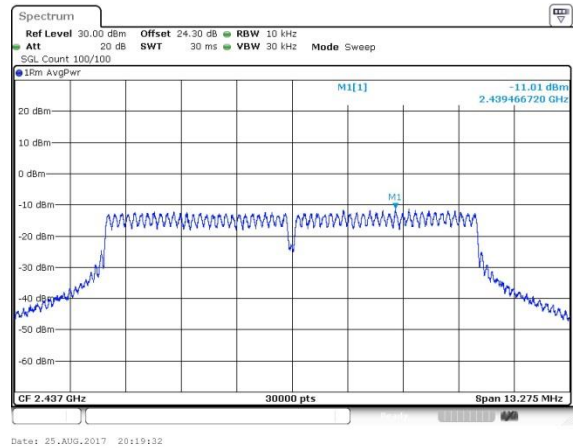


<Ant. Type 6>

Worst Case Power Density (dBm/3kHz) for MIMO Ant. 1

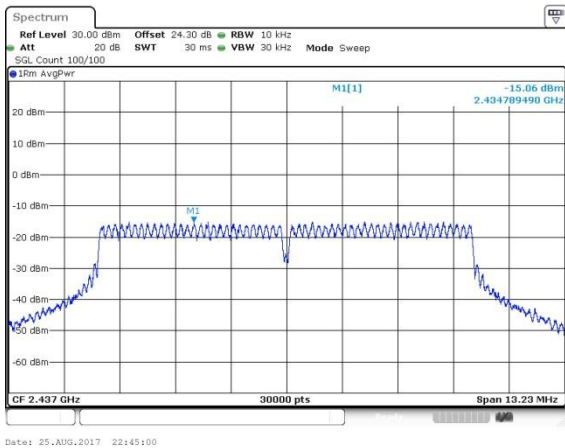


Worst Case Power Density (dBm/3kHz) for MIMO Ant. 2

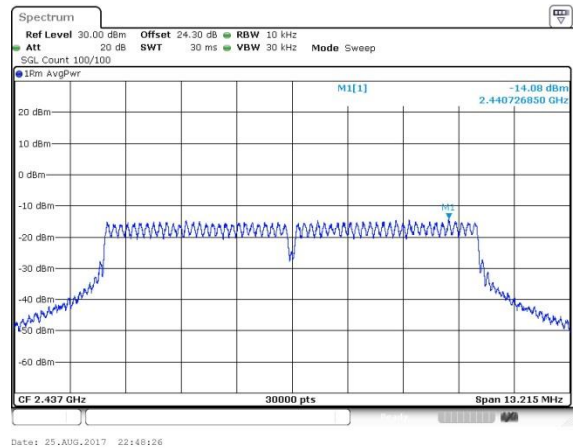


<Ant. Type 7>

Worst Case Power Density (dBm/3kHz) for MIMO Ant. 1



Worst Case Power Density (dBm/3kHz) for MIMO Ant. 2



3.4 Conducted Band Edges and Spurious Emission Measurement

3.4.1 Limit of Conducted Band Edges and Spurious Emission Measurement

In any 100 kHz bandwidth outside of the authorized frequency band, the emissions which fall in the non-restricted bands shall be attenuated at least 20 dB / 30dB relative to the maximum PSD level in 100 kHz by RF conducted measurement.

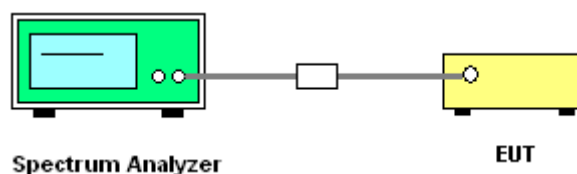
3.4.2 Measuring Instruments

The measuring equipment is listed in the section 4 of this test report.

3.4.3 Test Procedures

1. The testing follows FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v04.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Set RBW = 100 kHz, VBW=300 kHz, Peak Detector. Unwanted Emissions measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz when maximum peak conducted output power procedure is used. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB per 15.247(d).
5. Measure and record the results in the test report.
6. The RF fundamental frequency should be excluded against the limit line in the operating frequency band.

3.4.4 Test Setup



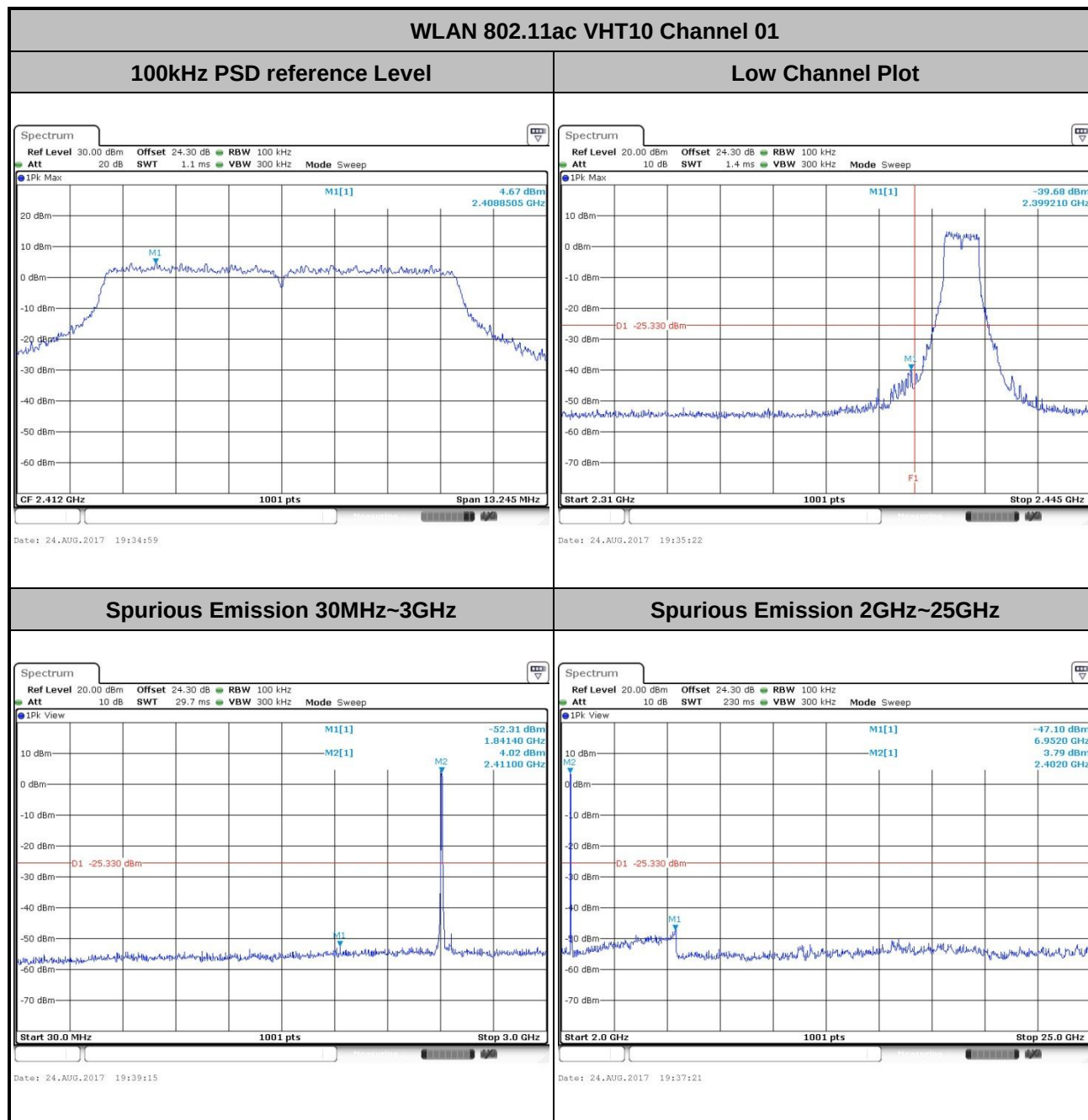


3.4.5 Test Result of Conducted Band Edges and Spurious Emission

<Ant. Type 4 for PTP>

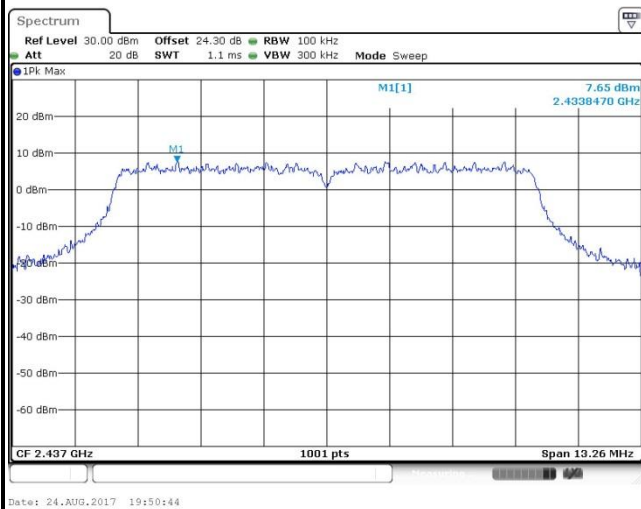
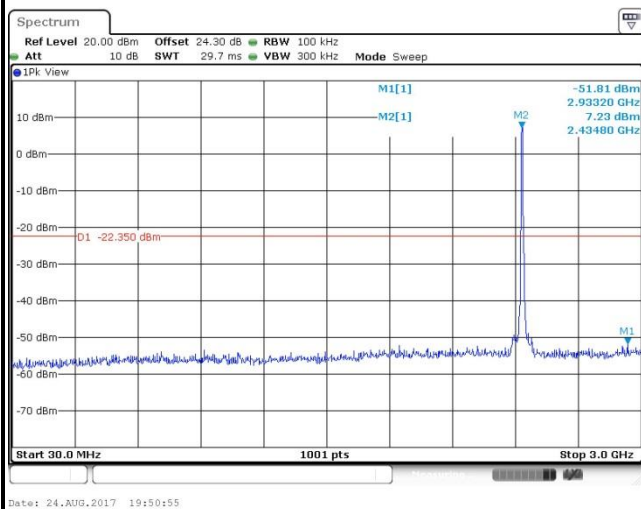
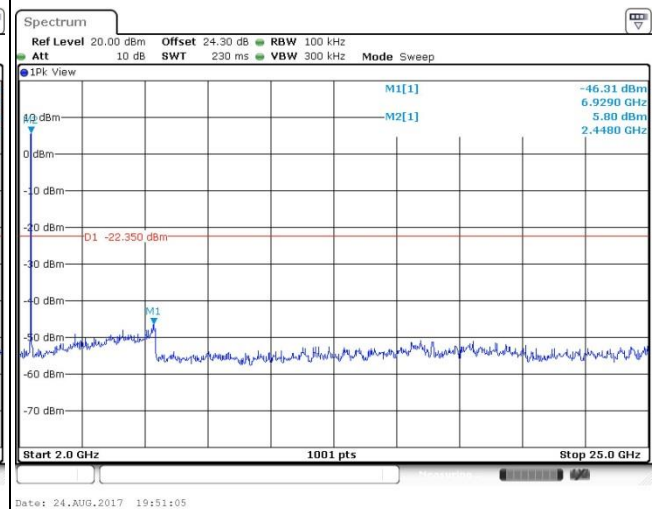
Number of TX = 2, Ant. 1 (Measured)

Number of TX	2	Ant. :	1
Test Mode :	802.11ac VHT10	Temperature :	21~25℃
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu





Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT10	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

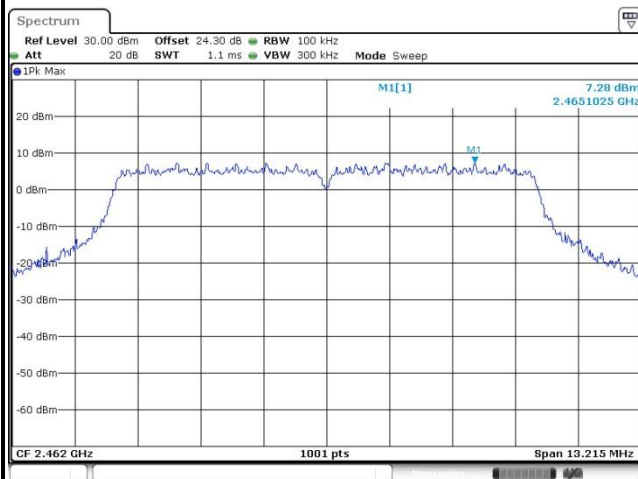
WLAN 802.11ac VHT10 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT10	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

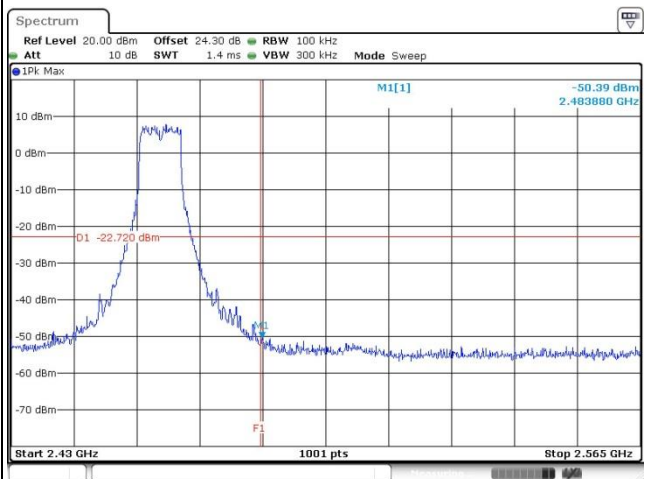
WLAN 802.11ac VHT10 Channel 11

100kHz PSD reference Level



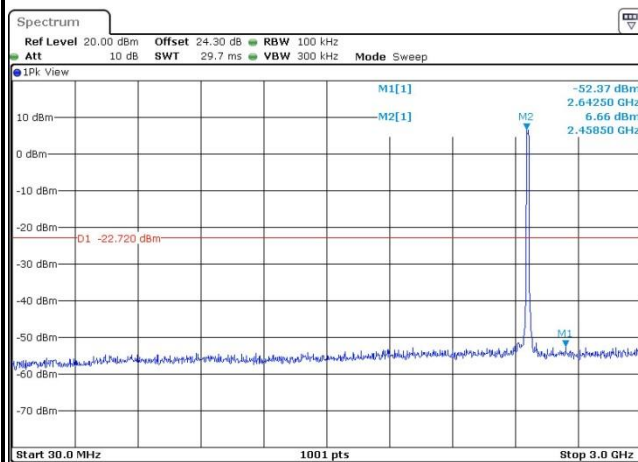
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High Channel Plot



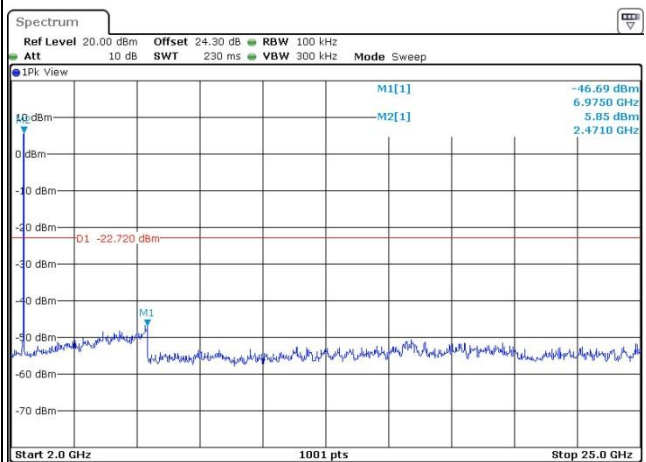
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Spurious Emission 30MHz~3GHz



Date: 24.AUG.2017 20:03:33

Spurious Emission 2GHz~25GHz



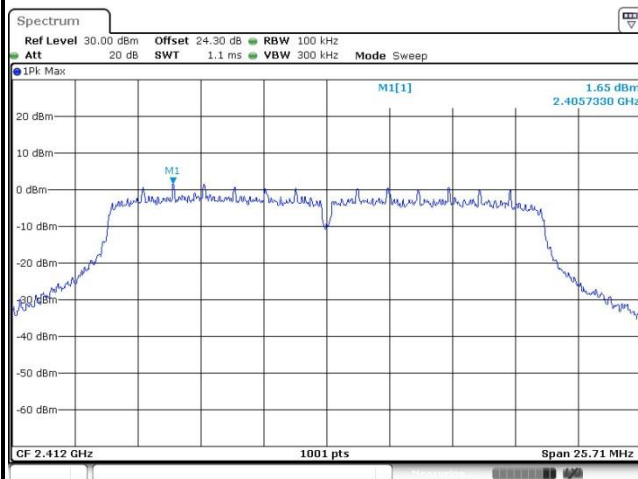
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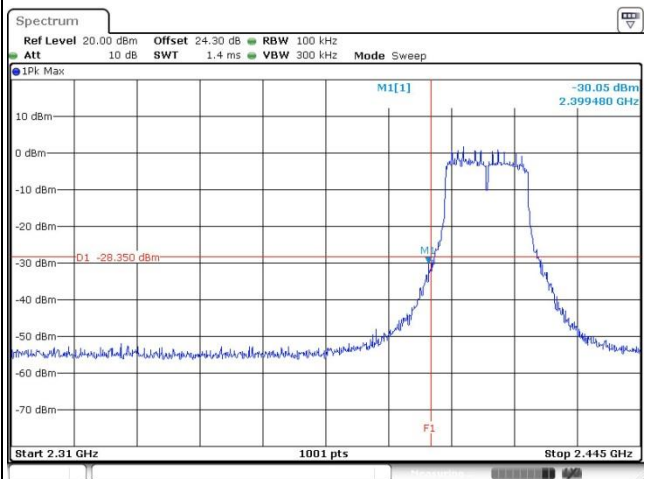
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT20 Channel 01

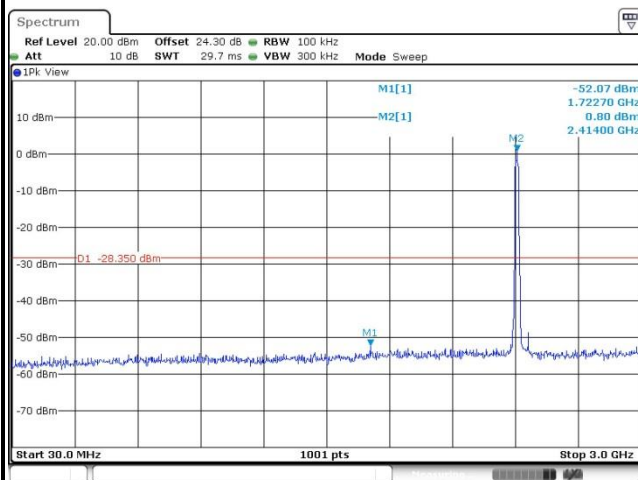
100kHz PSD reference Level



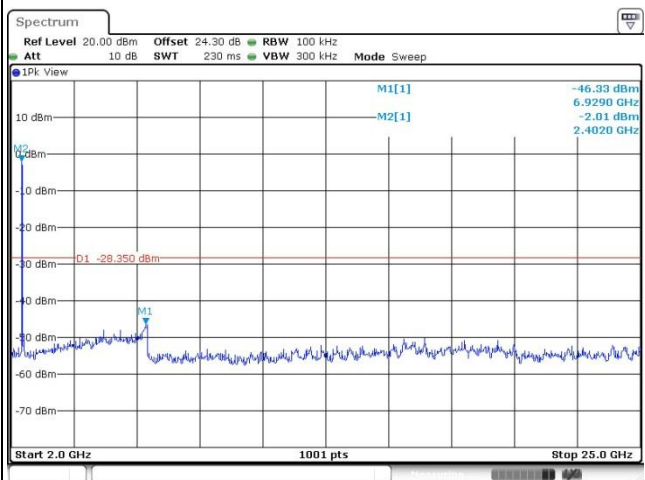
Low Channel Plot



Spurious Emission 30MHz~3GHz

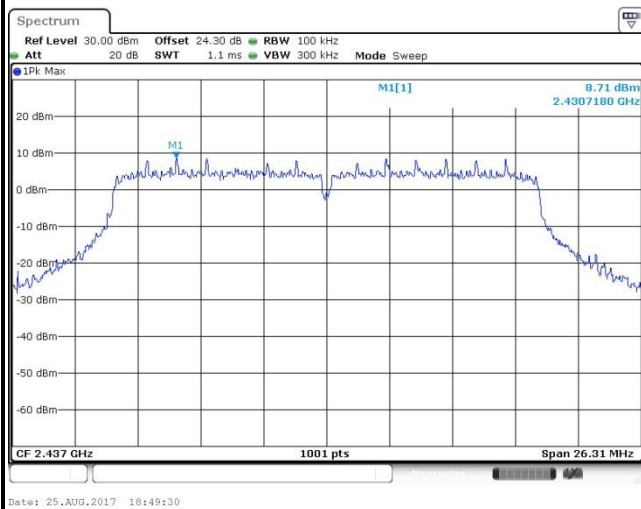
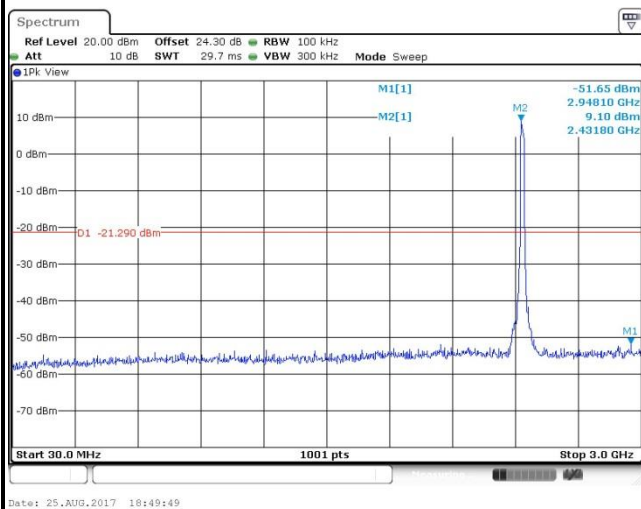
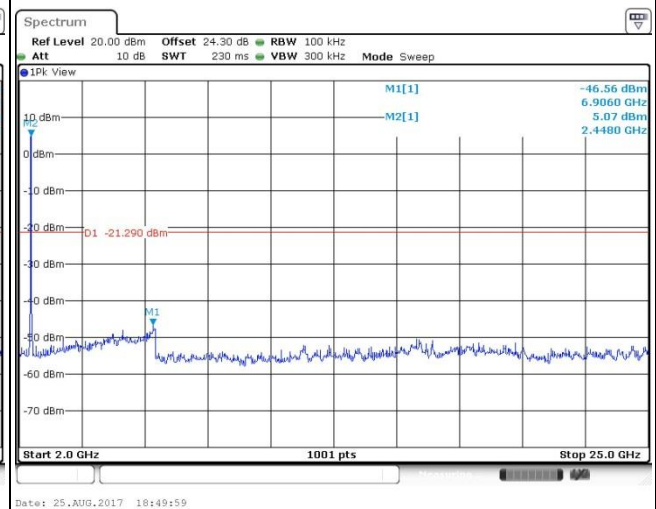


Spurious Emission 2GHz~25GHz





Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

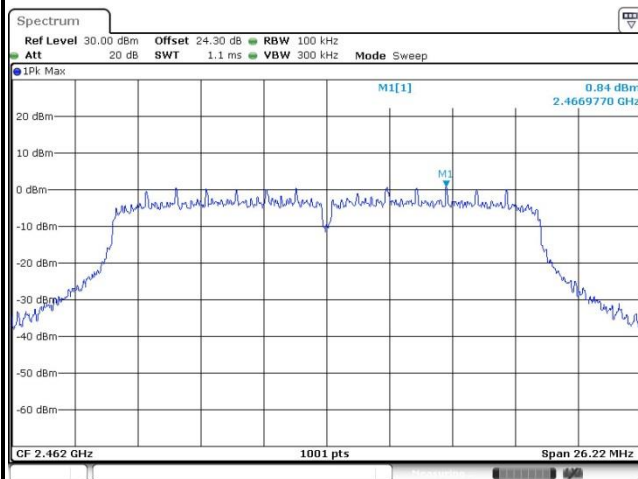
WLAN 802.11ac VHT20 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



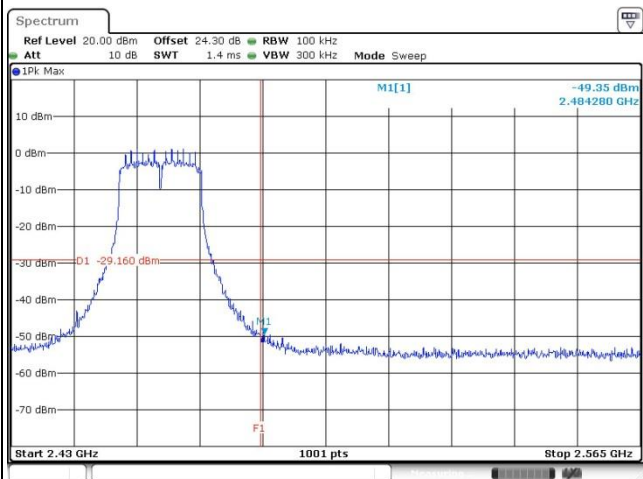
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT20 Channel 11

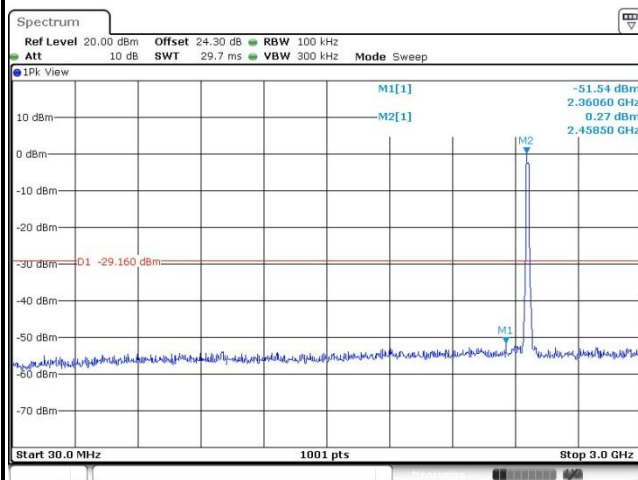
100kHz PSD reference Level



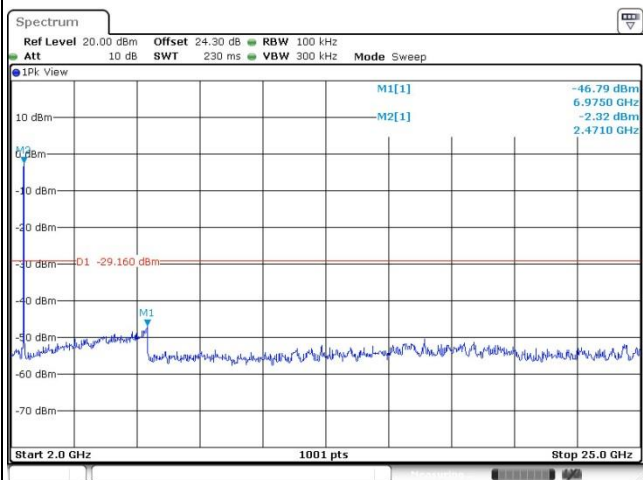
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

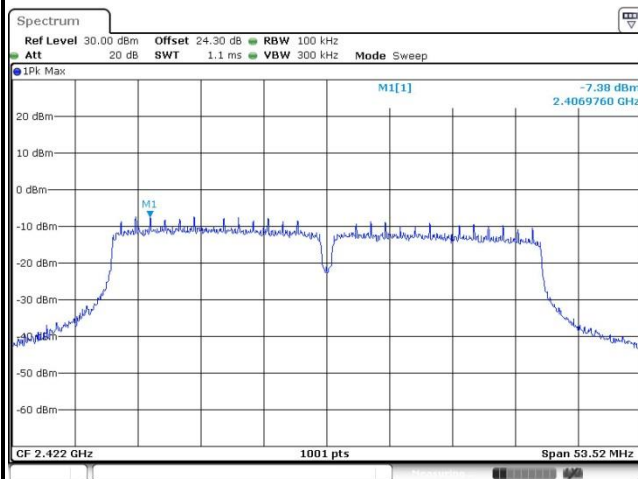




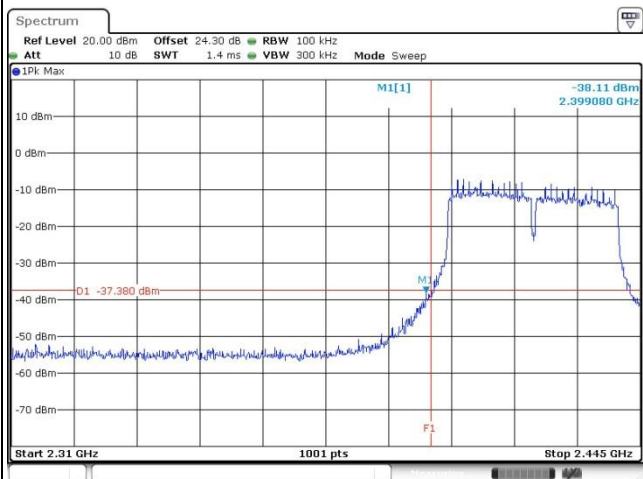
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	03	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT40 Channel 03

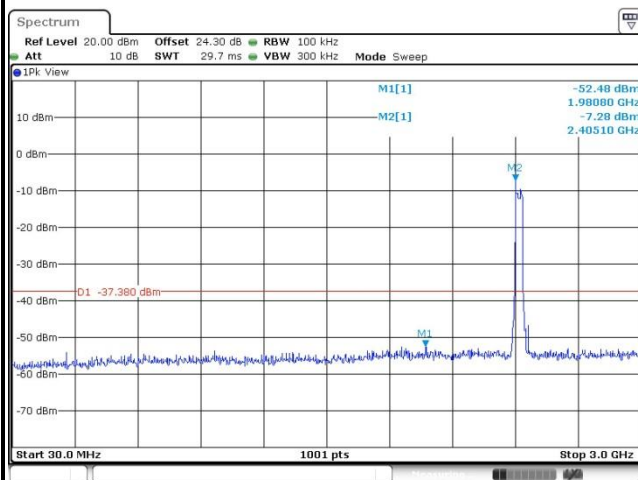
100kHz PSD reference Level



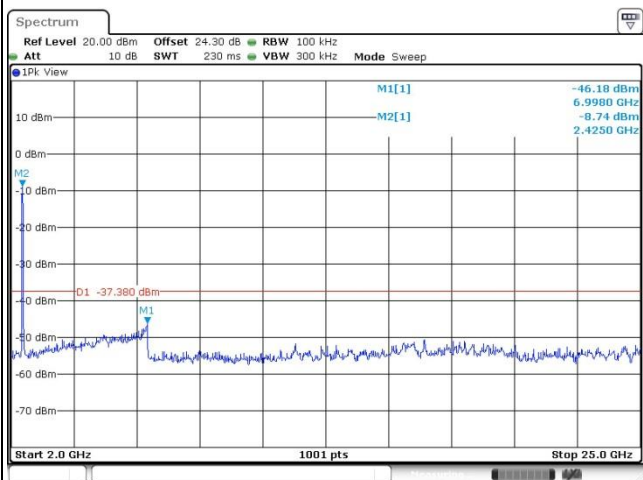
Low Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

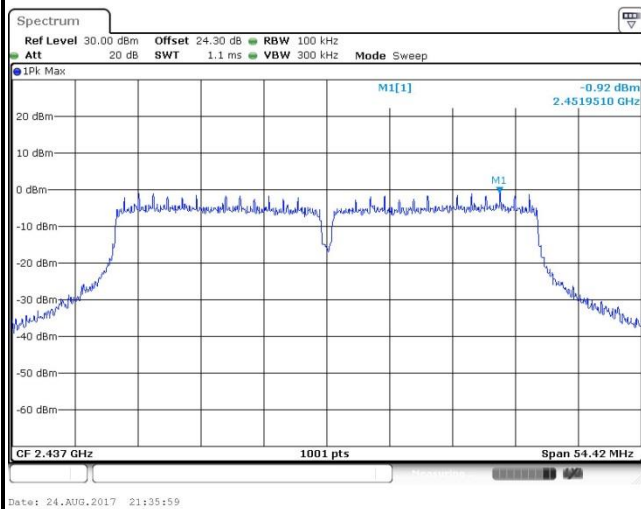




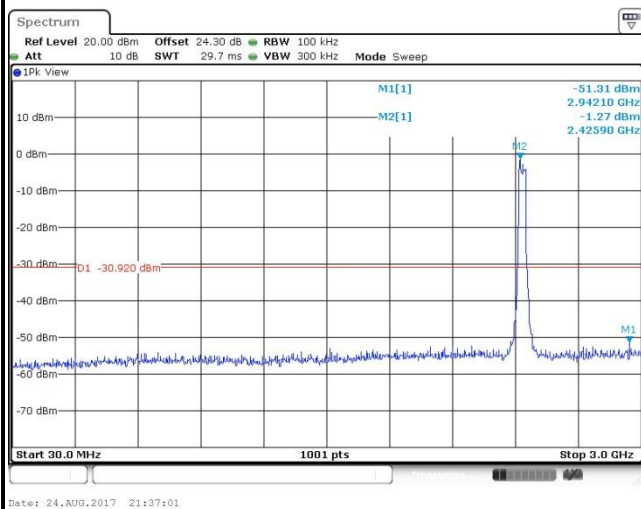
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT40 Channel 06

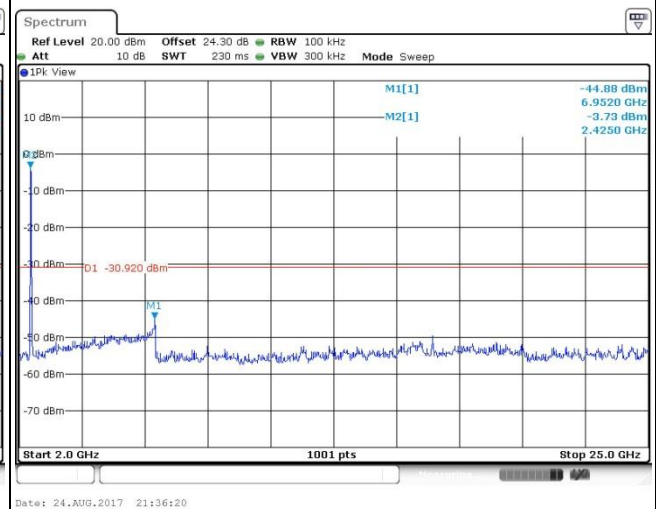
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

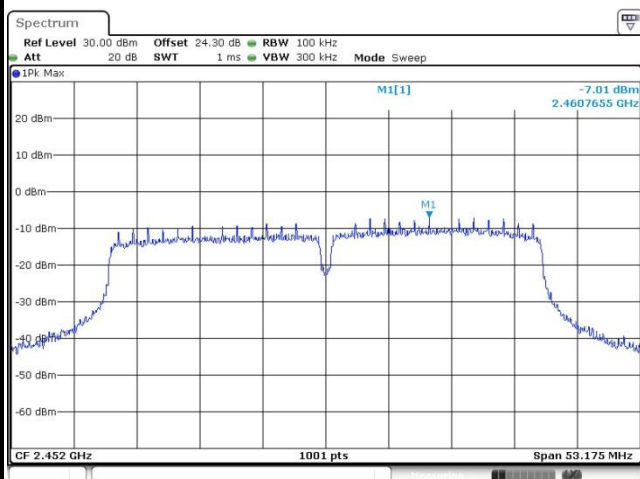




Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	09	Test Engineer :	Derek Hsu

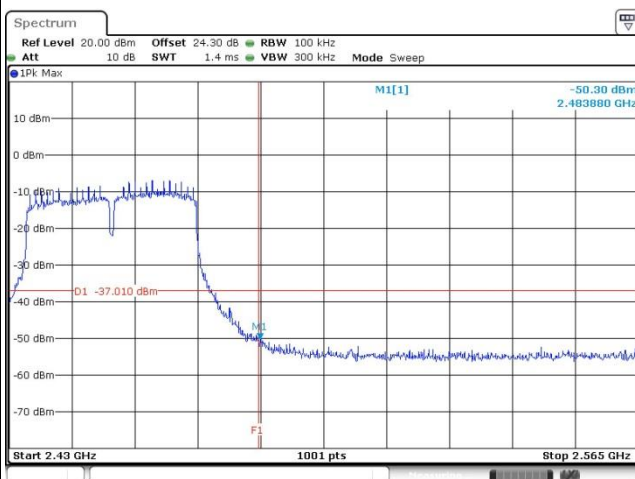
WLAN 802.11ac VHT40 Channel 09

100kHz PSD reference Level



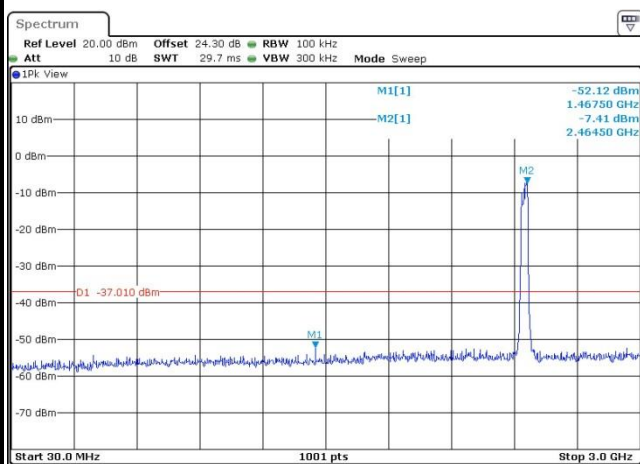
Date: 24.AUG.2017 21:44:48

High Channel Plot



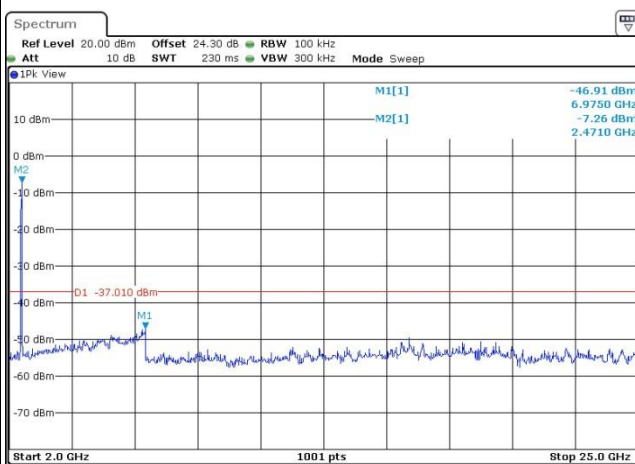
Date: 24.AUG.2017 21:44:58

Spurious Emission 30MHz~3GHz



Date: 24.AUG.2017 21:45:55

Spurious Emission 2GHz~25GHz



Date: 24.AUG.2017 21:45:19

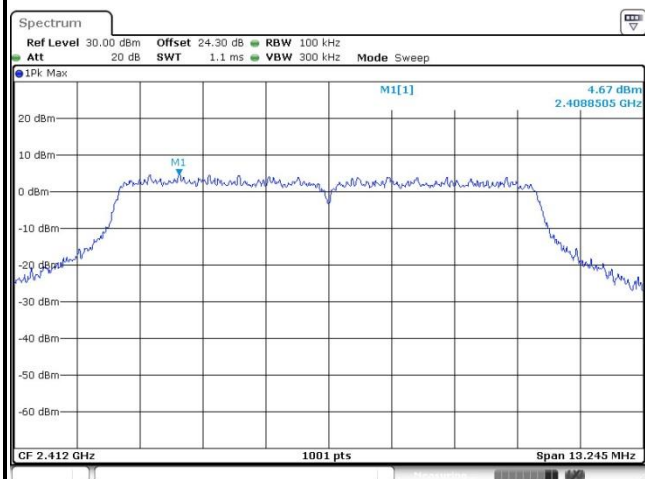


<Ant. Type 4 for PTMP>

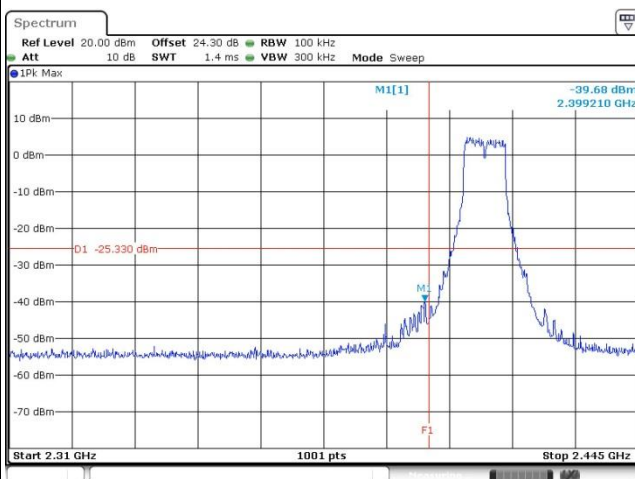
Number of TX	2	Ant. :	1
Test Mode :	802.11ac VHT10	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT10 Channel 01

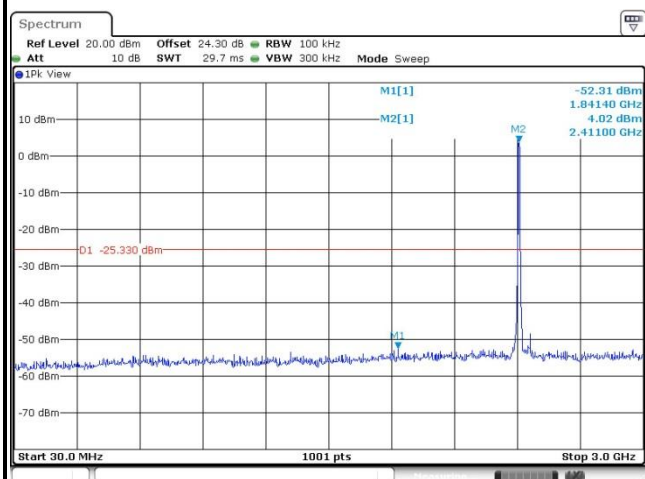
100kHz PSD reference Level



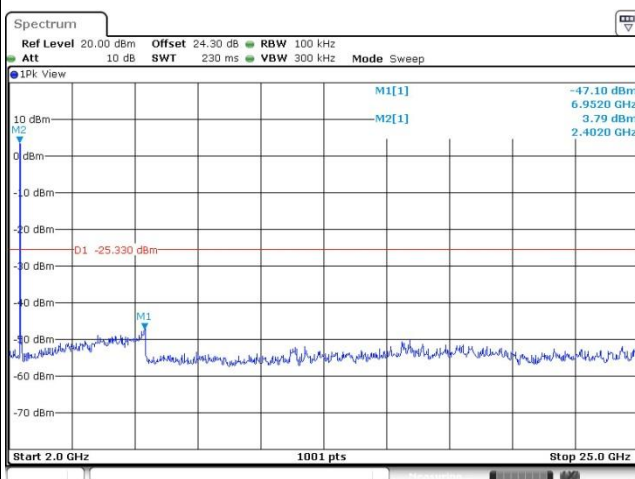
Low Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

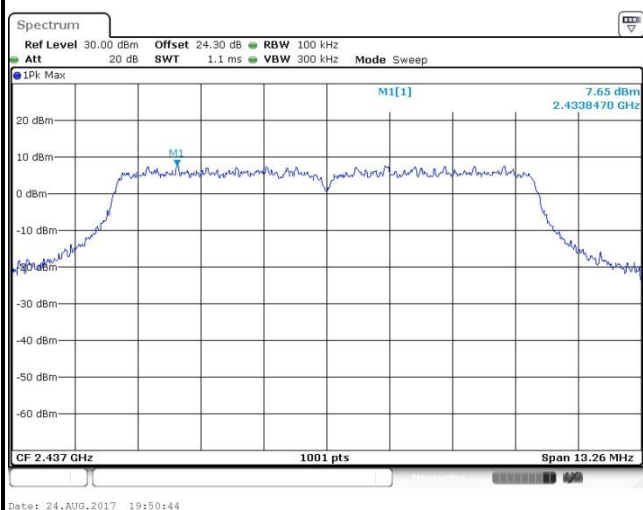




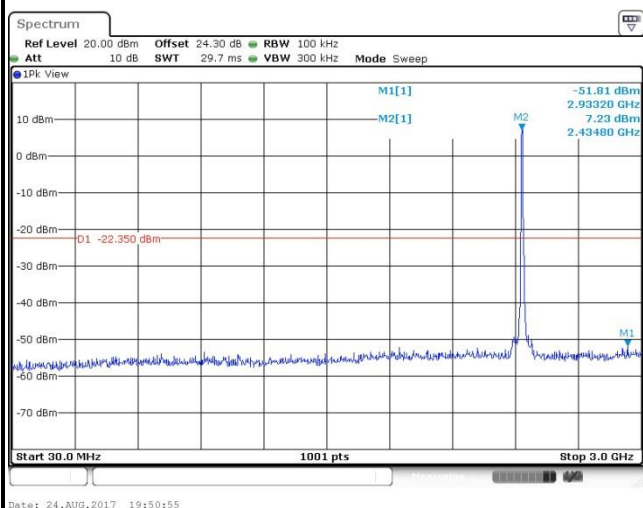
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT10	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT10 Channel 06

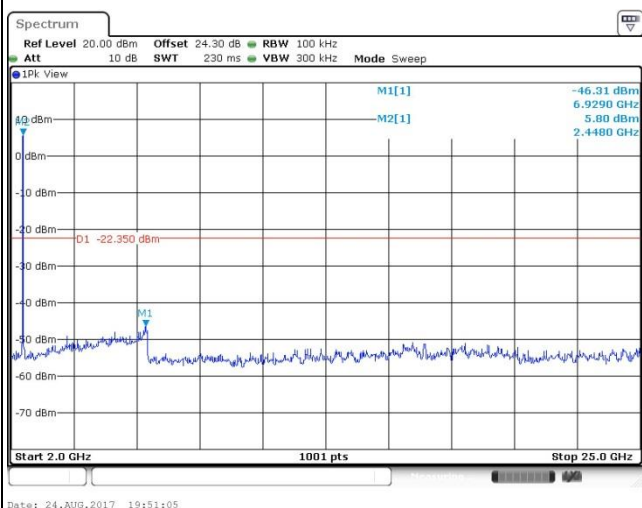
100kHz PSD reference Level



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

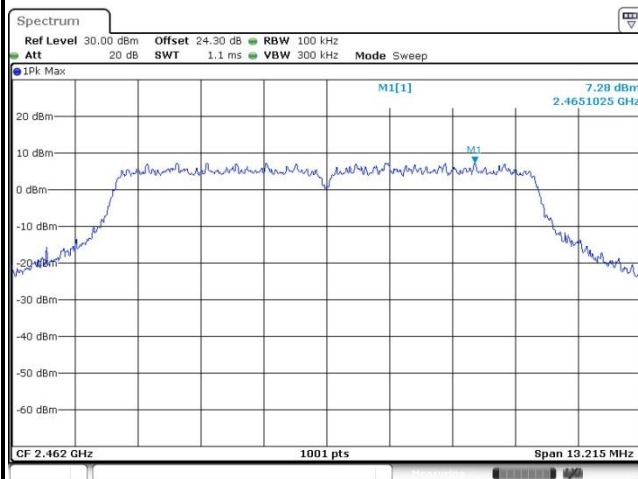




Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT10	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

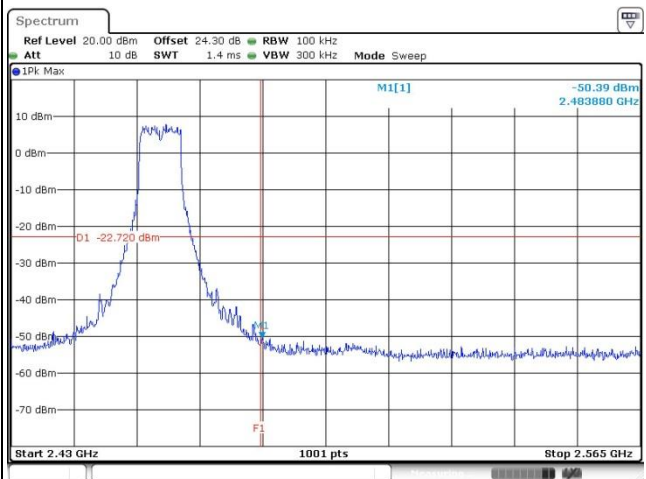
WLAN 802.11ac VHT10 Channel 11

100kHz PSD reference Level



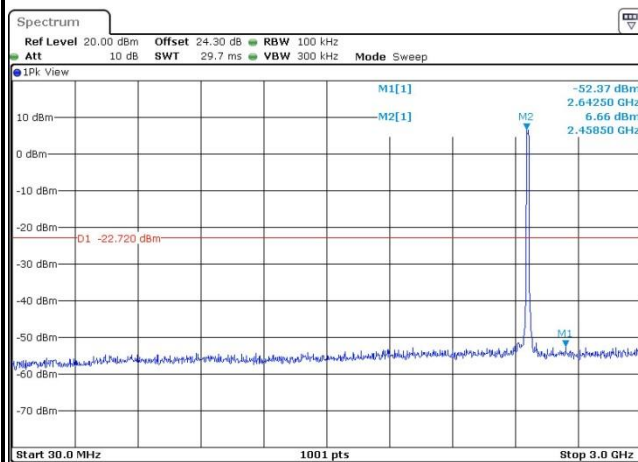
Date: 24.AUG.2017 20:02:59

High Channel Plot



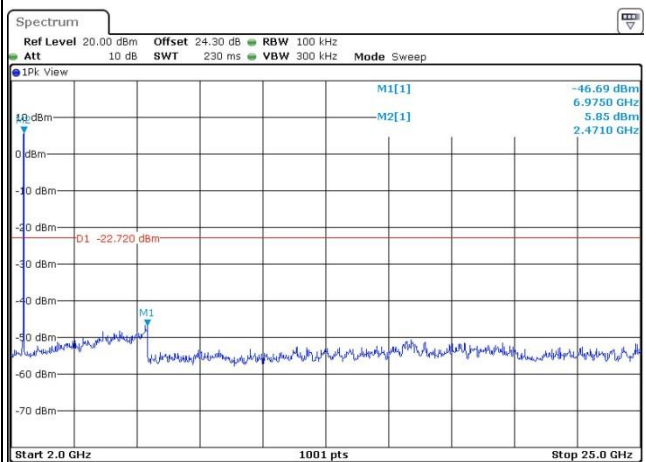
Date: 24.AUG.2017 20:03:16

Spurious Emission 30MHz~3GHz



Date: 24.AUG.2017 20:03:33

Spurious Emission 2GHz~25GHz



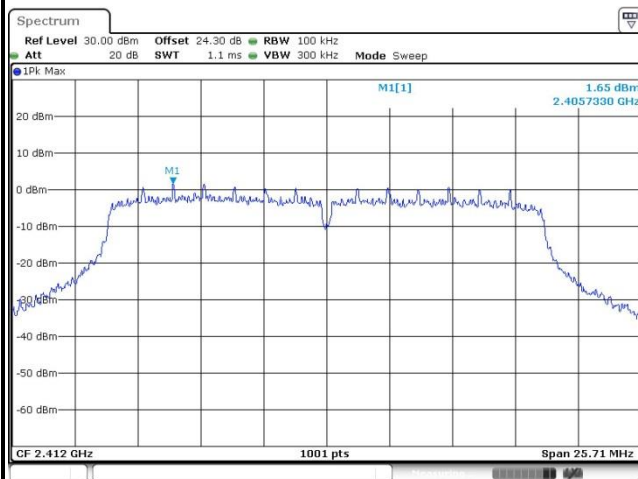
Date: 24.AUG.2017 20:03:42



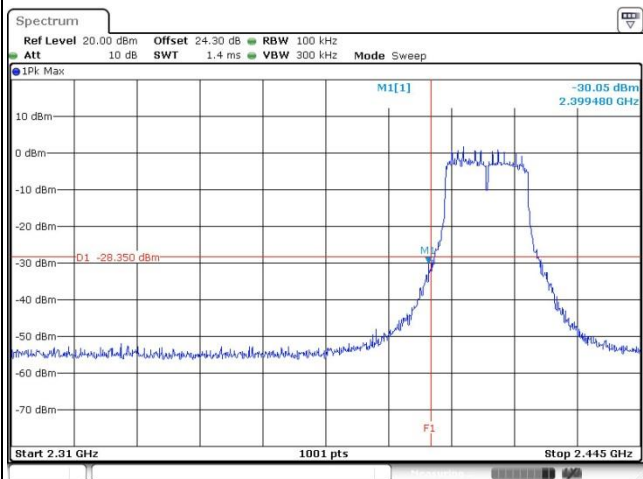
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT20 Channel 01

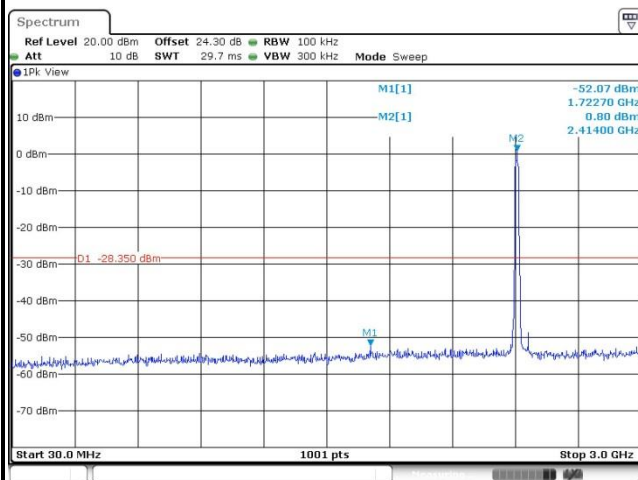
100kHz PSD reference Level



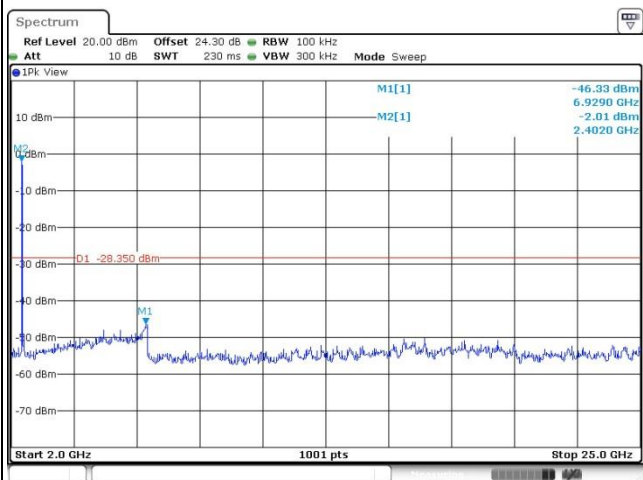
Low Channel Plot



Spurious Emission 30MHz~3GHz

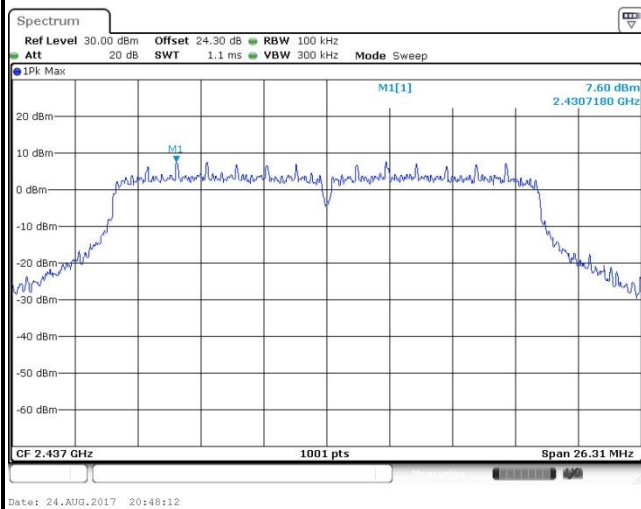
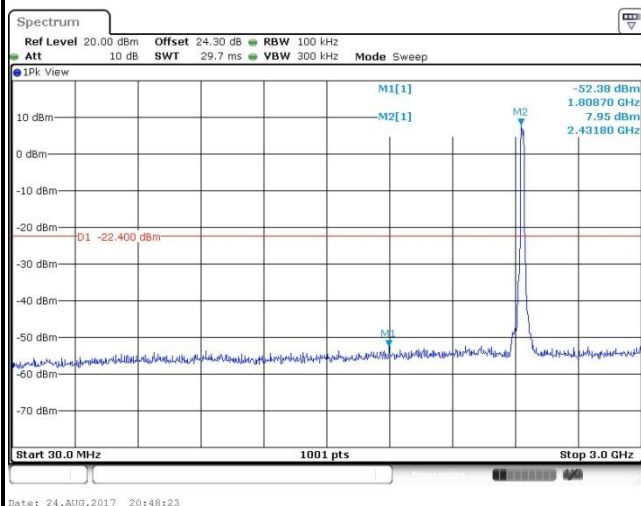
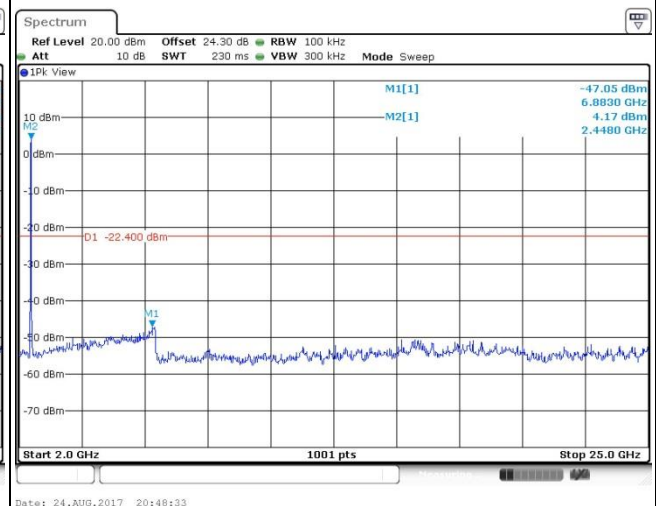


Spurious Emission 2GHz~25GHz





Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

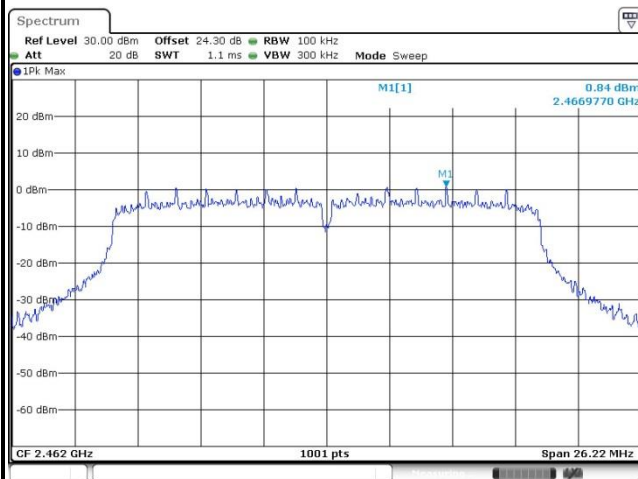
WLAN 802.11ac VHT20 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



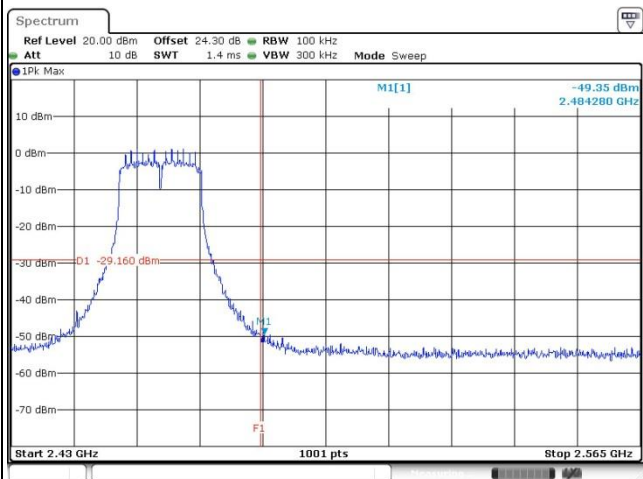
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT20 Channel 11

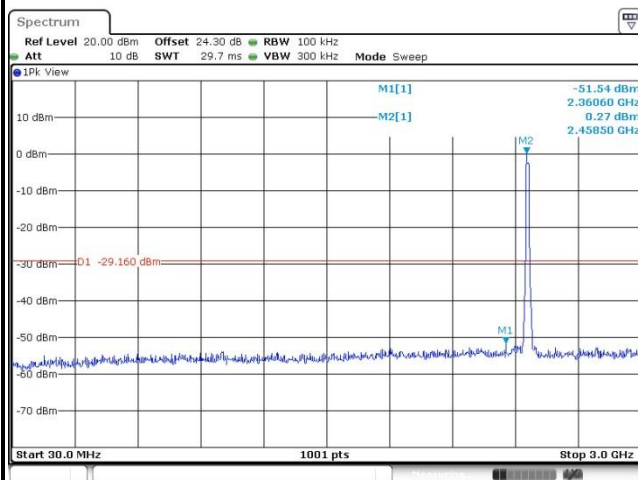
100kHz PSD reference Level



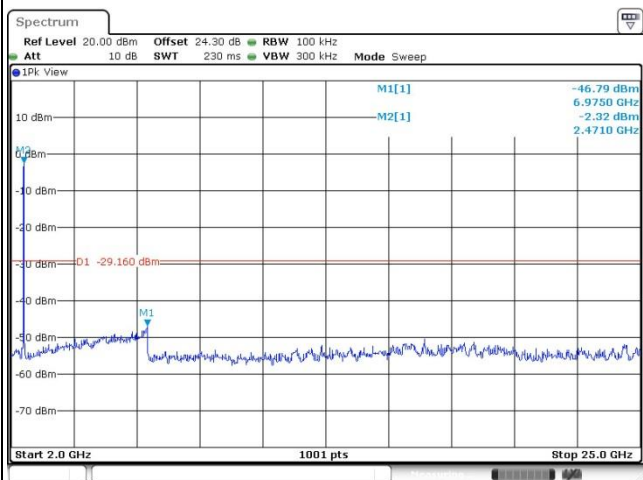
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

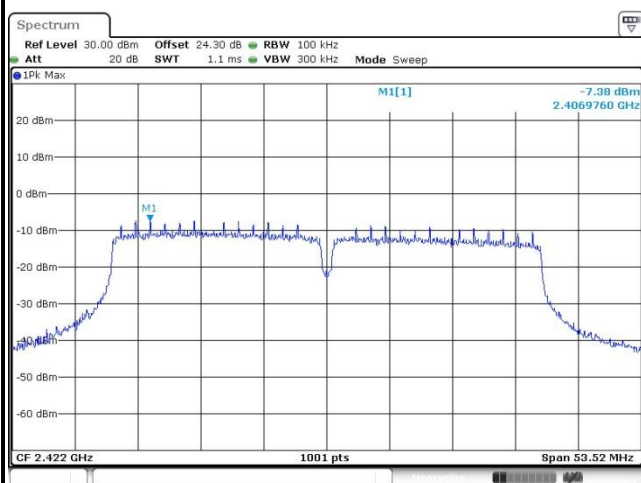




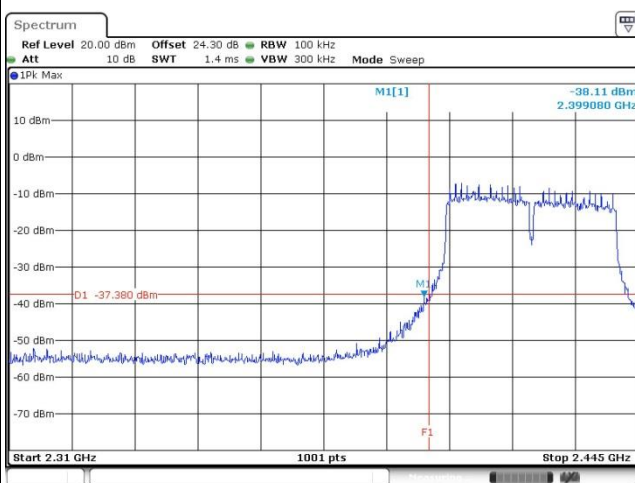
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	03	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT40 Channel 03

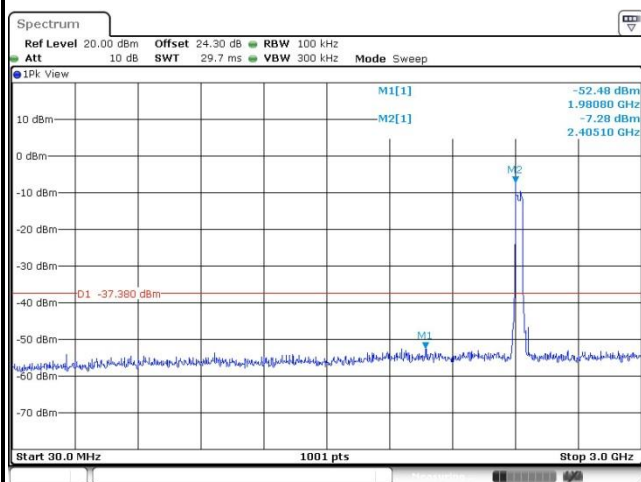
100kHz PSD reference Level



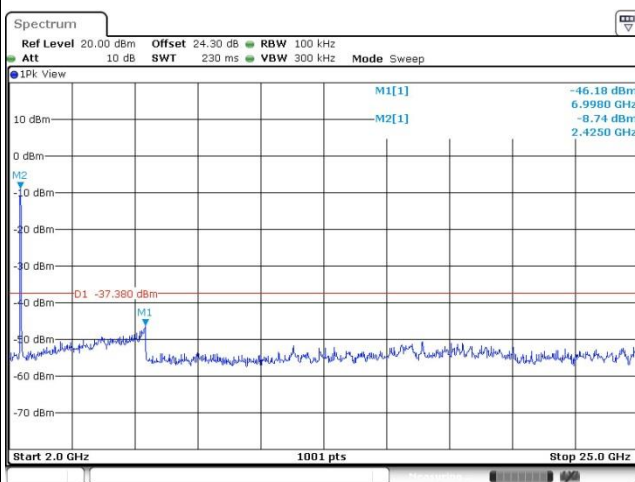
Low Channel Plot



Spurious Emission 30MHz~3GHz

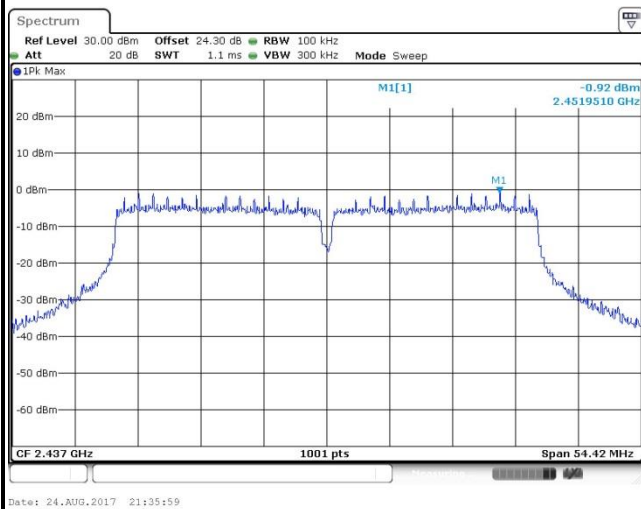
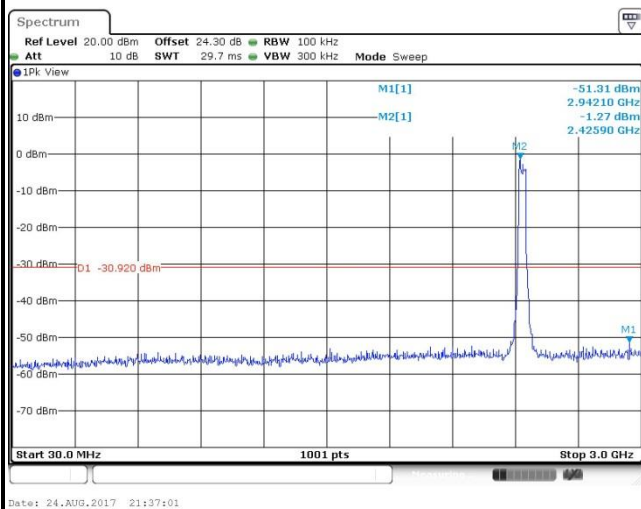
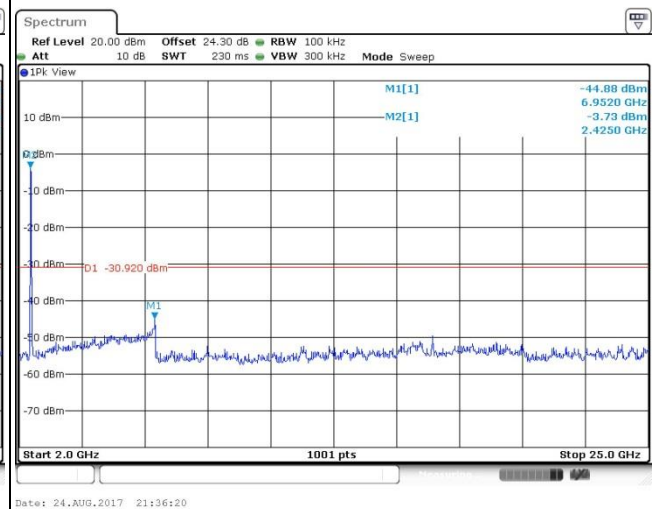


Spurious Emission 2GHz~25GHz





Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

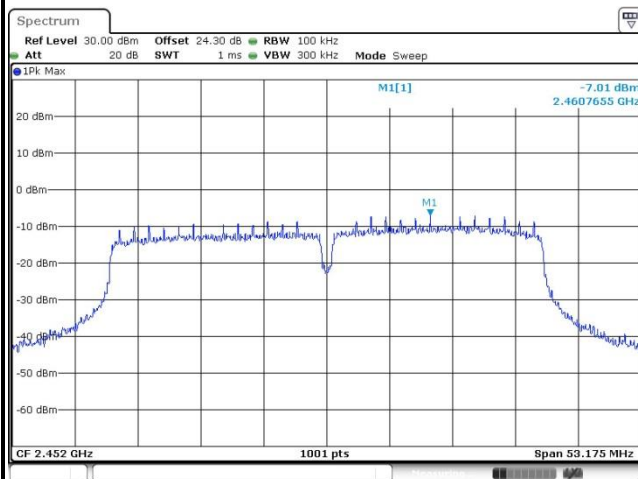
WLAN 802.11ac VHT40 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



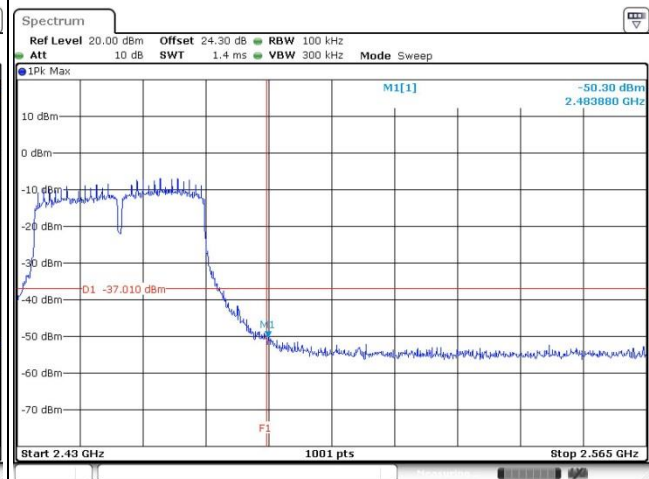
Number of TX :	2	Ant. :	1
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	09	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT40 Channel 09

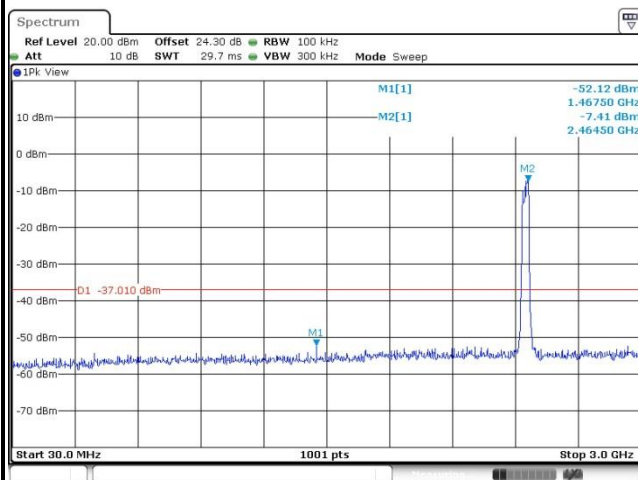
100kHz PSD reference Level



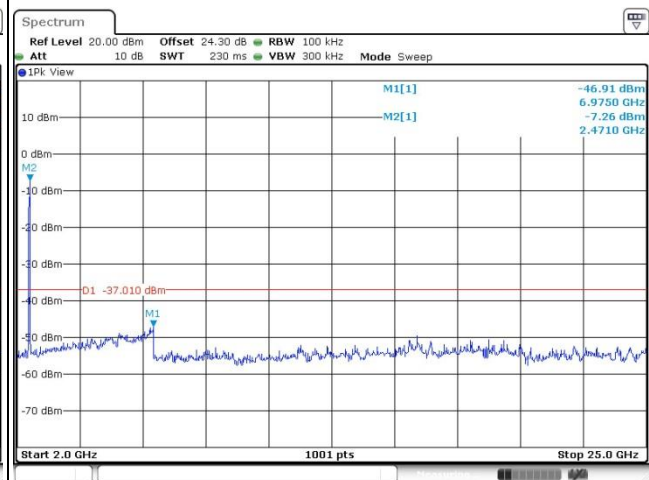
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz





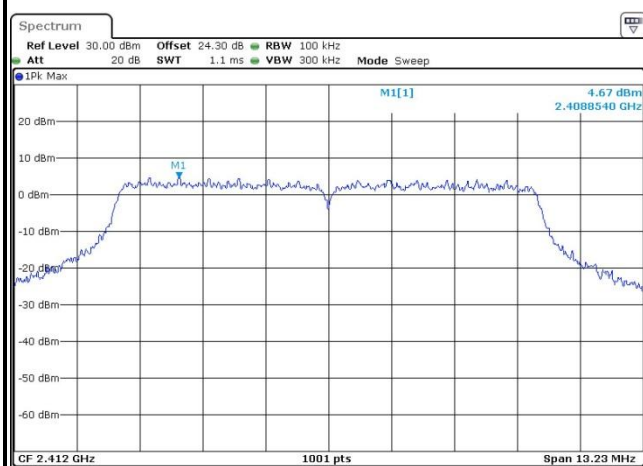
<Ant. Type 4 for PTP>

Number of TX = 2, Ant. 2 (Measured)

Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT10	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

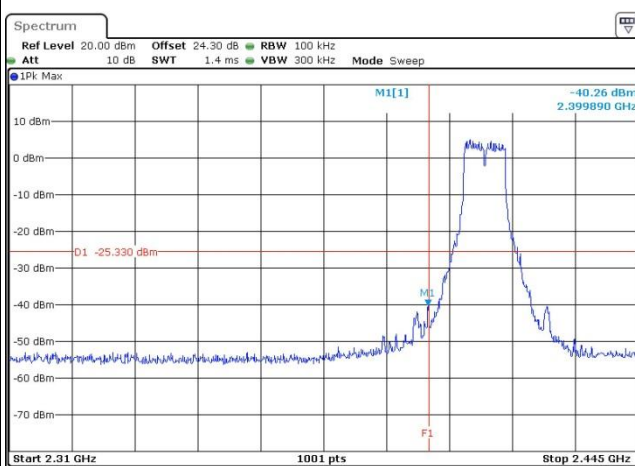
WLAN 802.11ac VHT10 Channel 01

100kHz PSD reference Level



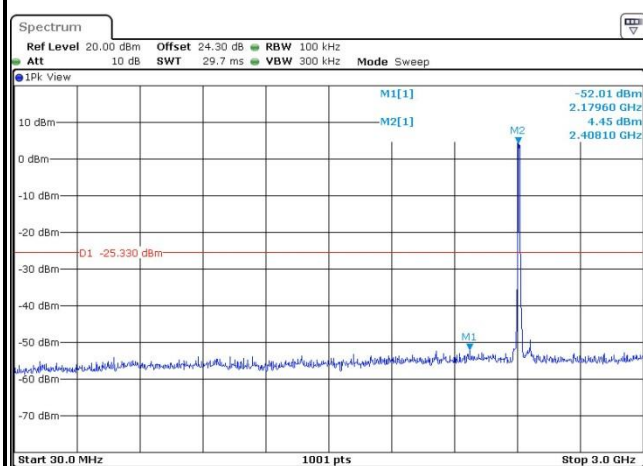
Date: 24.AUG.2017 19:43:36

Low Channel Plot



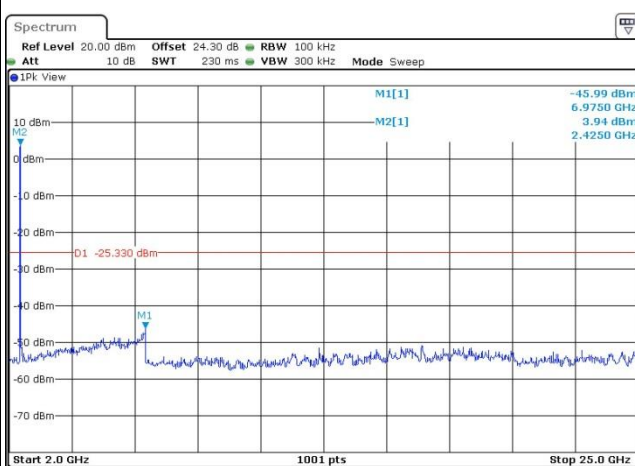
Date: 24.AUG.2017 19:43:48

Spurious Emission 30MHz~3GHz



Date: 24.AUG.2017 19:45:12

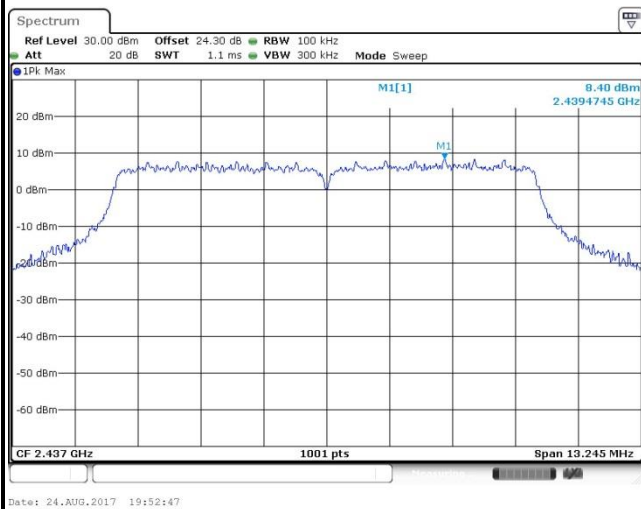
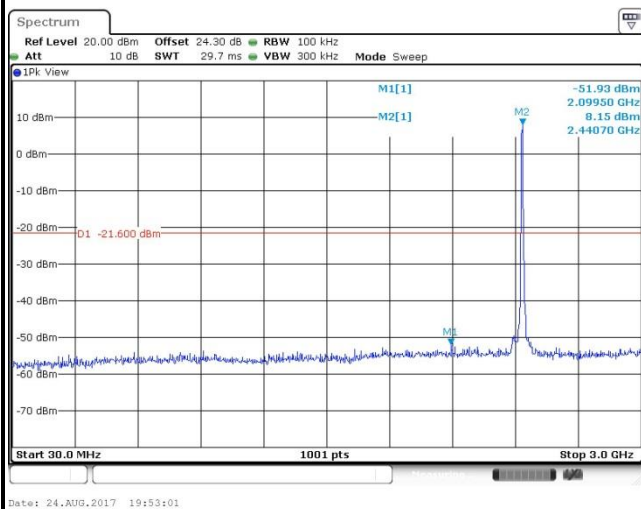
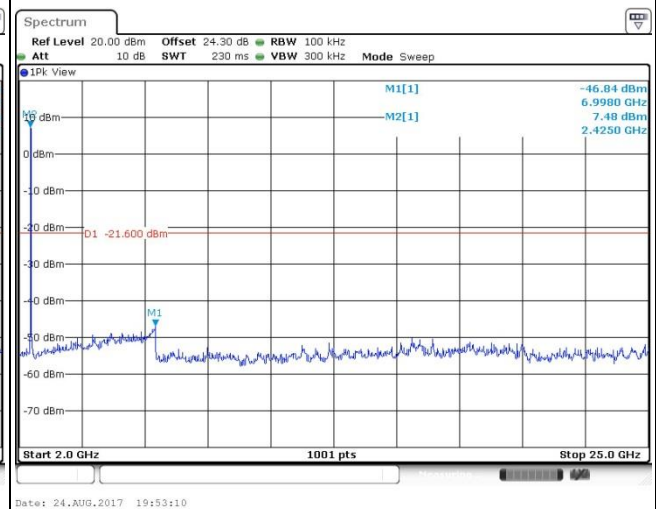
Spurious Emission 2GHz~25GHz



Date: 24.AUG.2017 19:44:12



Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT10	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

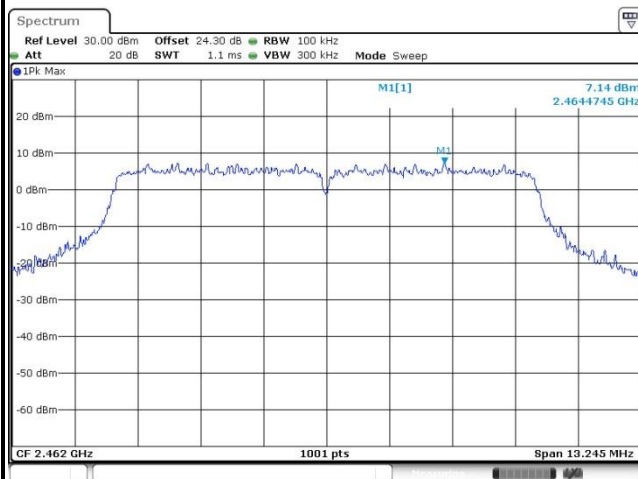
WLAN 802.11ac VHT10 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT10	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

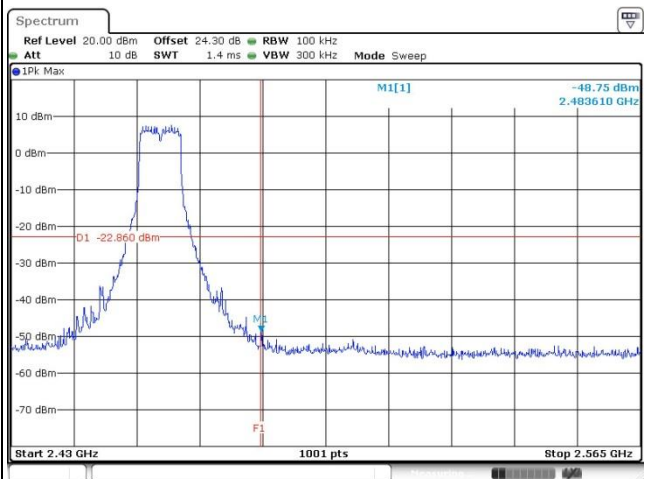
WLAN 802.11ac VHT10 Channel 11

100kHz PSD reference Level



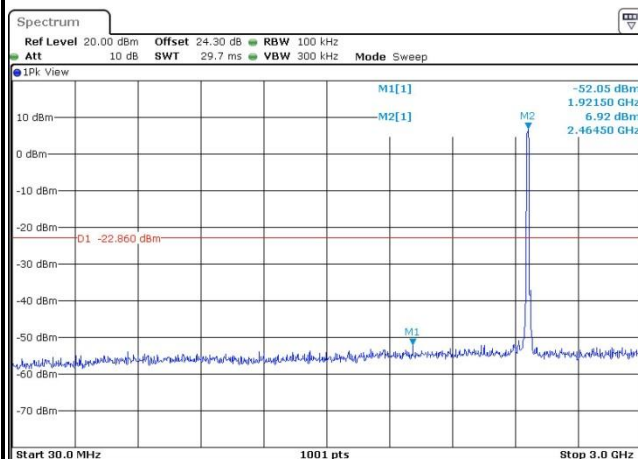
Date: 24.AUG.2017 20:05:35

High Channel Plot



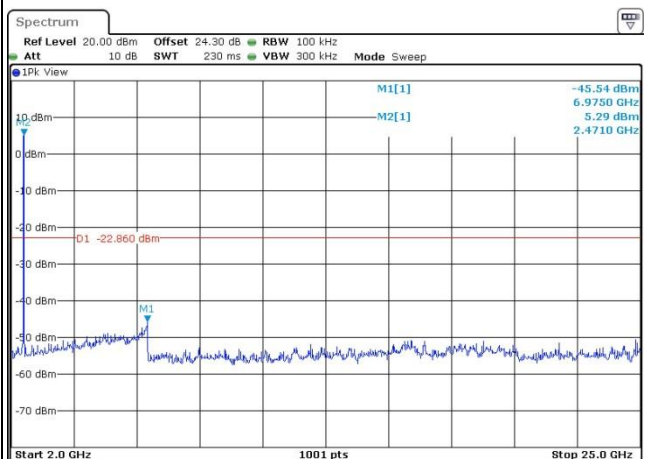
Date: 24.AUG.2017 20:05:46

Spurious Emission 30MHz~3GHz



Date: 24.AUG.2017 20:06:20

Spurious Emission 2GHz~25GHz



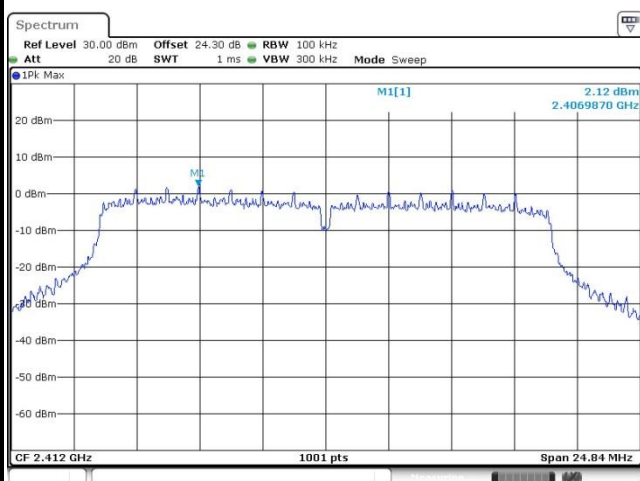
Date: 24.AUG.2017 20:06:29



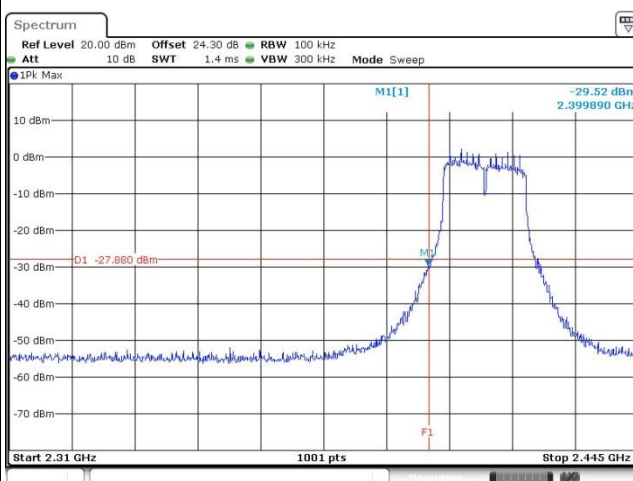
Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	01	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT20 Channel 01

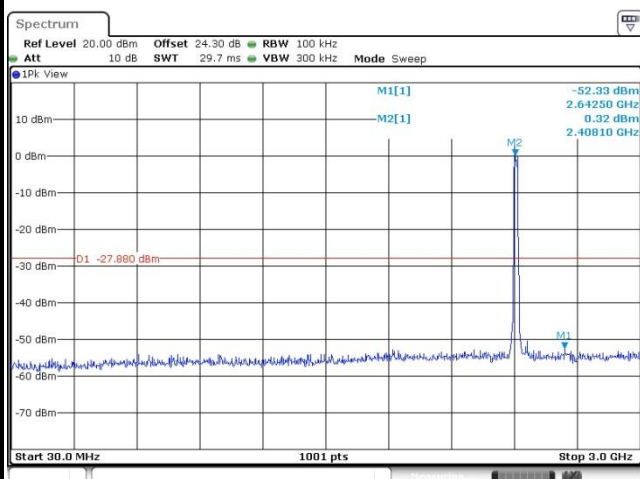
100kHz PSD reference Level



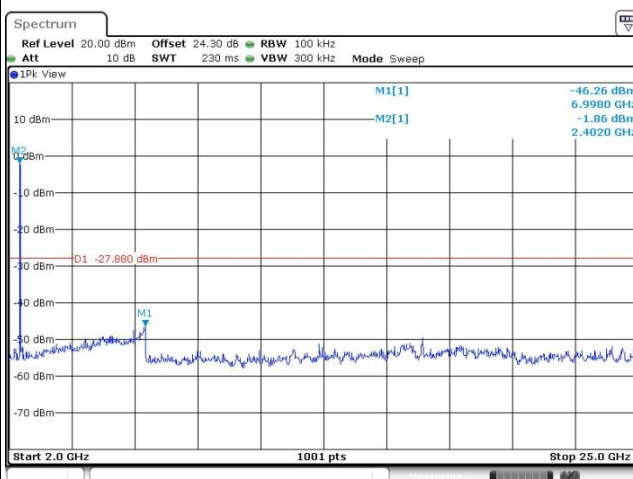
Low Channel Plot



Spurious Emission 30MHz~3GHz

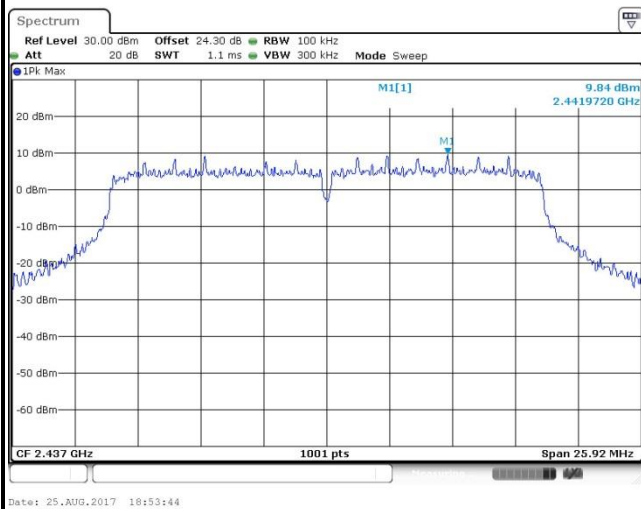
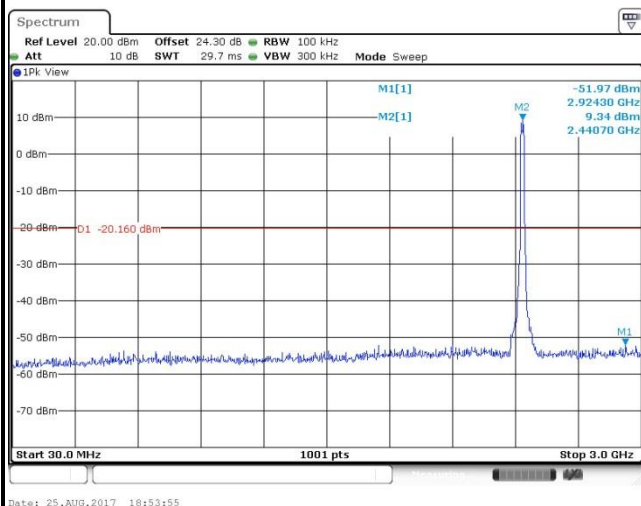
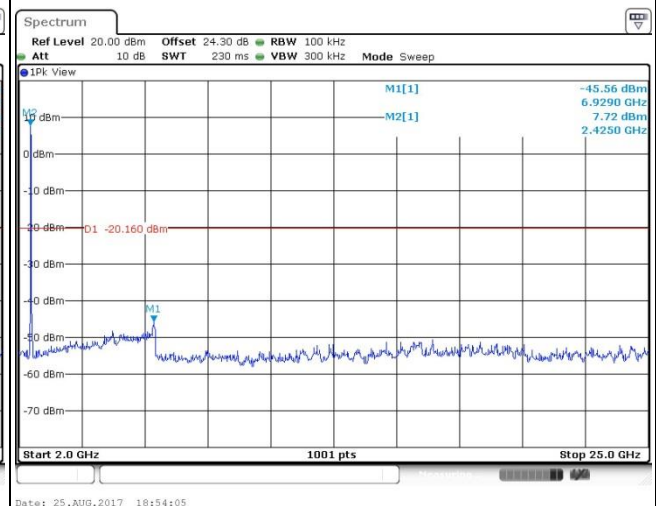


Spurious Emission 2GHz~25GHz





Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

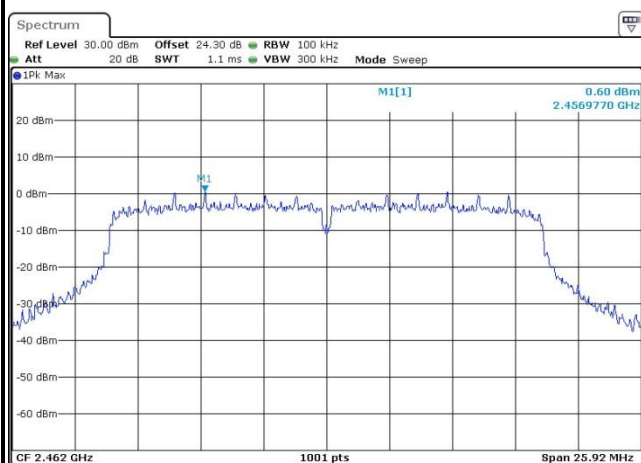
WLAN 802.11ac VHT20 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



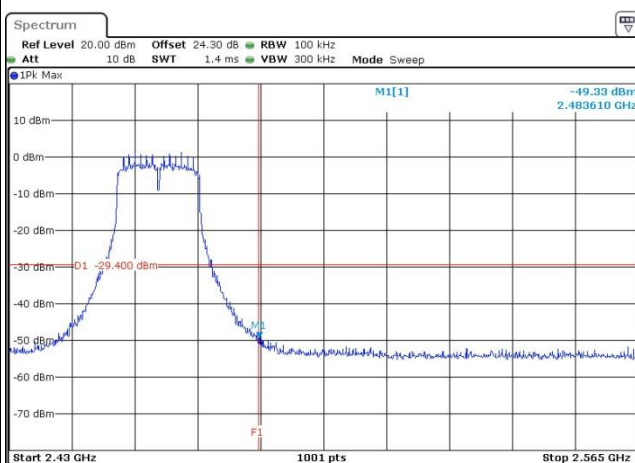
Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT20	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	11	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT20 Channel 11

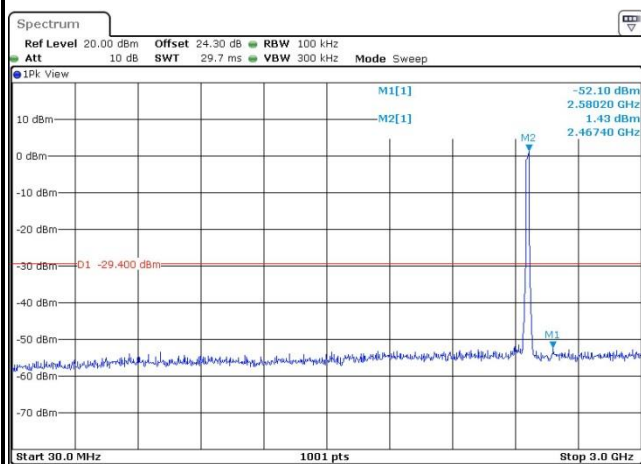
100kHz PSD reference Level



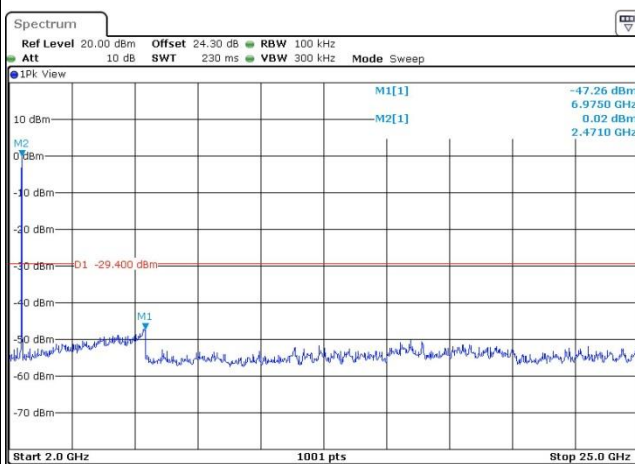
High Channel Plot



Spurious Emission 30MHz~3GHz



Spurious Emission 2GHz~25GHz

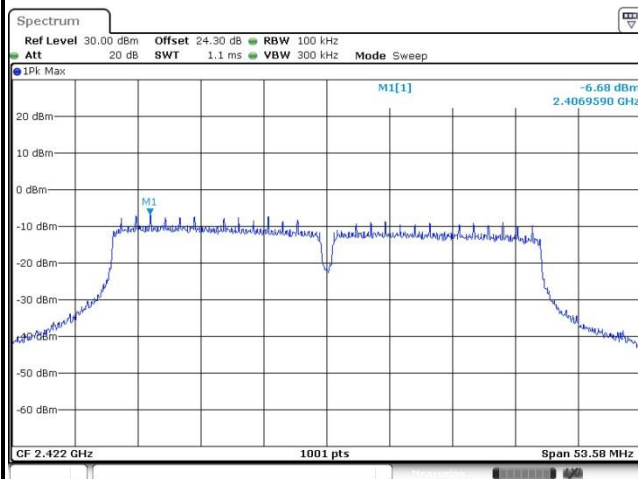




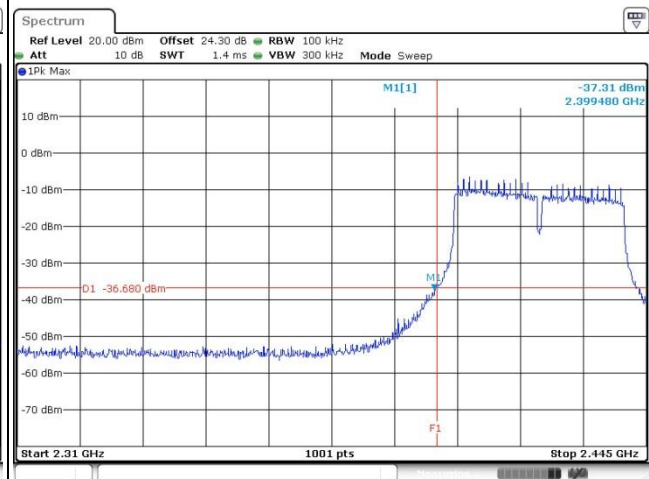
Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz Low	Relative Humidity :	51~54%
Test Channel :	03	Test Engineer :	Derek Hsu

WLAN 802.11ac VHT40 Channel 03

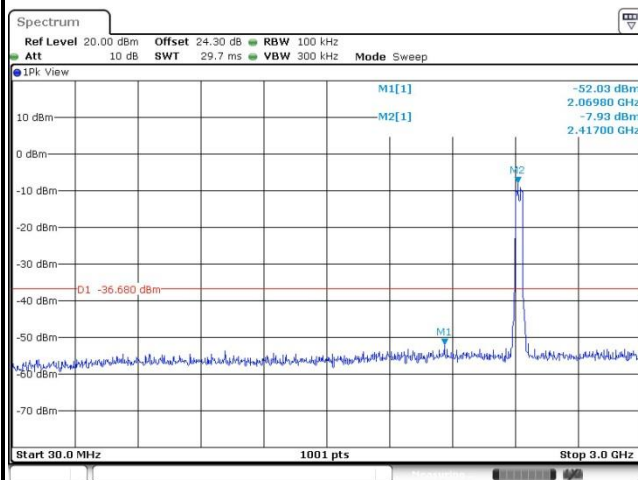
100kHz PSD reference Level



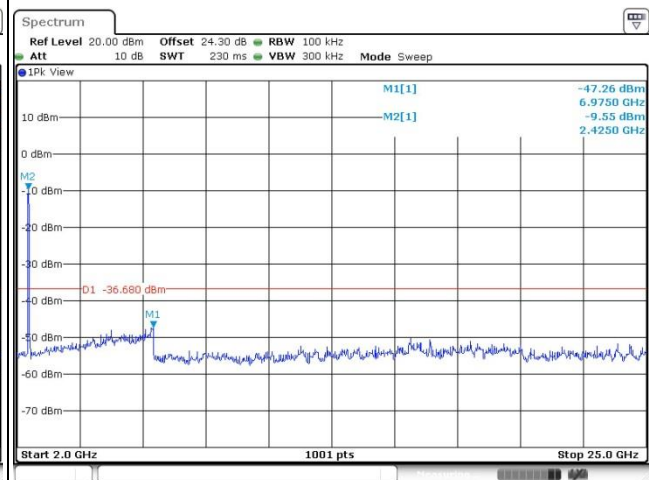
Low Channel Plot



Spurious Emission 30MHz~3GHz

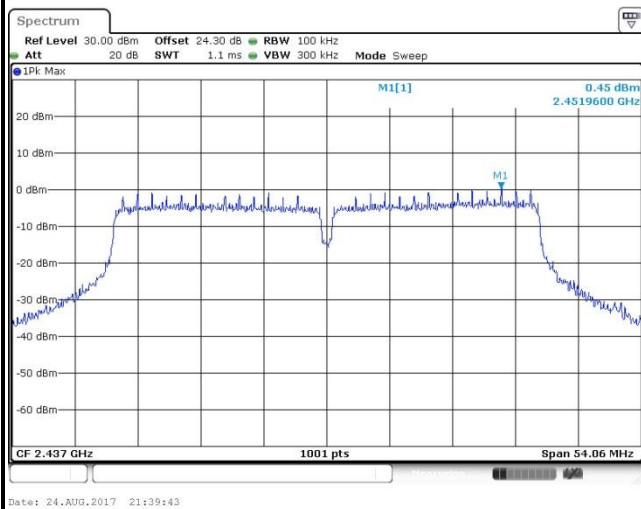
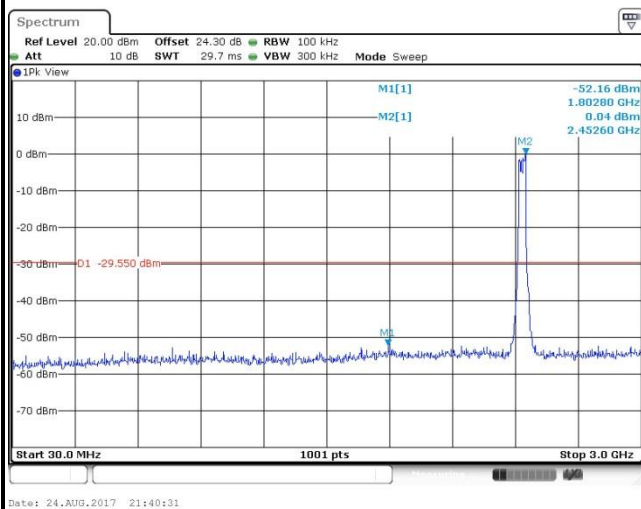
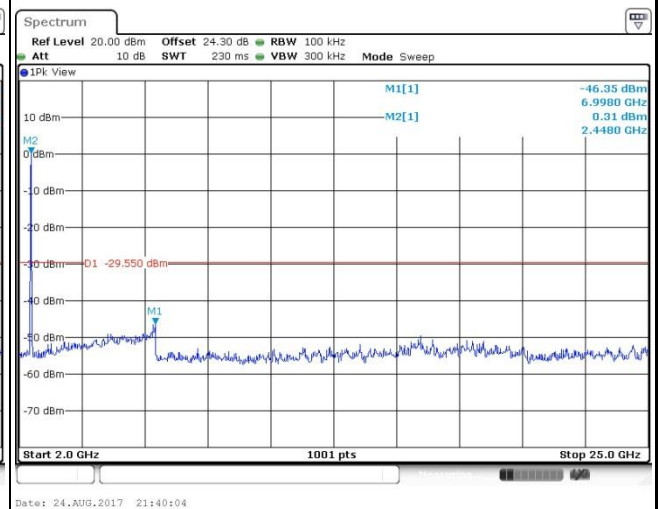


Spurious Emission 2GHz~25GHz





Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz Mid	Relative Humidity :	51~54%
Test Channel :	06	Test Engineer :	Derek Hsu

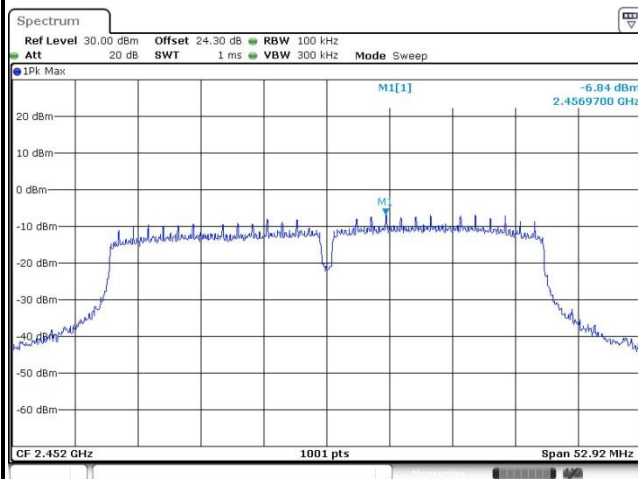
WLAN 802.11ac VHT40 Channel 06**100kHz PSD reference Level****Spurious Emission 30MHz~3GHz****Spurious Emission 2GHz~25GHz**



Number of TX :	2	Ant. :	2
Test Mode :	802.11ac VHT40	Temperature :	21~25°C
Test Band :	2.4GHz High	Relative Humidity :	51~54%
Test Channel :	09	Test Engineer :	Derek Hsu

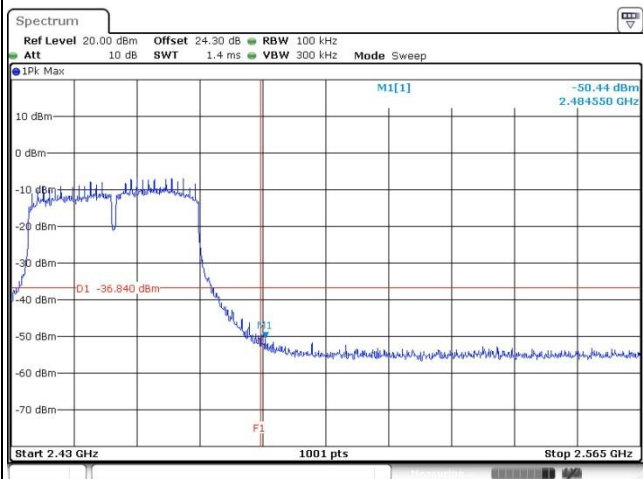
WLAN 802.11ac VHT40 Channel 09

100kHz PSD reference Level



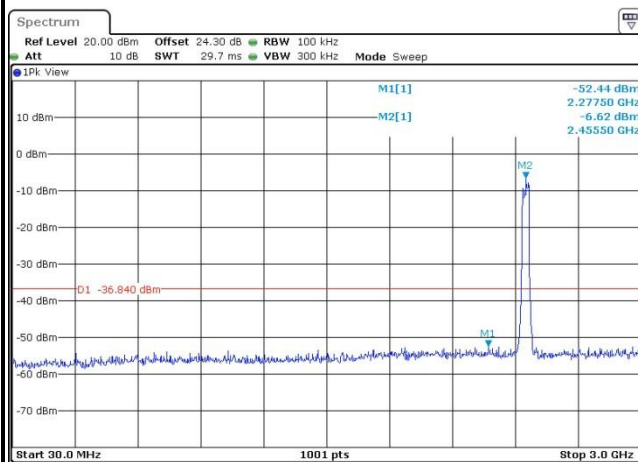
Date: 24.AUG.2017 21:49:07

High Channel Plot



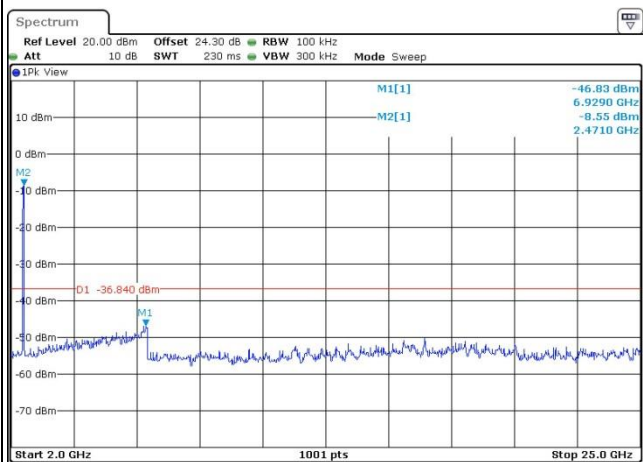
Date: 24.AUG.2017 21:49:15

Spurious Emission 30MHz~3GHz



Date: 24.AUG.2017 21:49:27

Spurious Emission 2GHz~25GHz



Date: 24.AUG.2017 21:49:37