JAPAN RADIO TEST REPORT

Product Name:	WiFi Module
Model Number:	WizFi630S
Applicant:	WIZNET CO.,LTD

KeySense Testing & Certification International Co., Ltd.

1-3F, Lab Building, No.29 District, ZhongKai Hi-Tech Industrial Development Park, Huizhou, Guangdong, China

Test Report Verification

Applicant: Address:	WIZNET CO.,LTD 5F Humax Village,216 Hwangsaeul-ro, Bundang-gu, Seongnam-si, Gyeonggi-Do, Korea
Manufacturer: Address:	Shenzhen Yunlink Technology CO., Ltd B3 Building, An'le Industiral Zone, Hangcheng Road, Gushu, Xixiang Towm, Baoan District, Shenzhen City, Guangdong, P.R.China
Factory: Address:	Shenzhen Yunlink Technology CO., Ltd B3 Building, An'le Industiral Zone, Hangcheng Road, Gushu, Xixiang Towm, Baoan District, Shenzhen City, Guangdong, P.R.China
E.U.T:	WiFi Module
Model Number:	WizFi630S
Power Supply:	DC 3.3V
Test Voltage:	DC 3.3V Normal Voltage DC 3.3V + 10% of Normal Voltage DC 3.3V - 10% of Normal Voltage
Trade Name:	Wiznet Serial No.: ------
Date of Receipt:	June 28, 2019 Date of Test: June 28, 2019- July 08, 2019
Test Rule:	MIC Notice No.88 Appendix No.43
Equipment Rule:	MIC Ordinance Regulating Radio Equipment Section 4.17 of Article 49.20
Test Result:	The device described above is tested by KeySense Testing & Certification International Co., Ltd. The measurement results were contained in this test report and KeySense Testing & Certification International Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the telec rule requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of KeySense Testing & Certification International Co., Ltd. Date: July 09, 2019

Tested by: Bing.He	**Sign:** Bing.He	**Date:** 2019.7.9	
Reviewed by: Jack.Li	**Sign:** Jack.Li	**Date:** 2019.7.9	**(Stamp)**
Approved by: Lake. Wang / Manager	**Sign:** Lake Wang	**Date:** 2019.7.9	

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

Contents

1 TEST SUMMARY

CLAUSE (ARIB STD-T66)	Test Item	Result
Transmitting equipment		
3.2 (2)	Antenna Power	PASS
3.2 (3)	Tolerances for Antenna Power	PASS
3.2 (4)	Frequency Tolerance	PASS
3.2 (5)	Transmission Rate	N/A
3.2 (7)	Occupied Frequency Bandwidth	PASS
3.2 (8)	Spread Bandwidth	PASS
3.2 (9)	Process Gain	N/A
3.2 (6)	Spurious emission intensity	PASS
Receiving equipment		
3.3 (1)	Secondary Radiated Emissions	PASS
Controlling equipment		
3.4.1 (1)	Interference prevention function	PASS
Antenna		
3.6 (2)b	Transmission Antenna Gain(EIRP Antenna Power)	N/A
3.6 (2)b	Transmission Radiation Angle Width(3dB Beamwidth)	N/A
N/A is an abbreviation for Not Applicable.		

2 GENERAL INFORMATION

2.1 Description of Device(EUT)

Product Name	:	WiFi Module
Model Number	:	WizFi630S
Modulation	:	IEEE 802.11b mode: DSSS(CCK,QPSK, BPSK) IEEE 802.11g mode: OFDM (BPSK/QPSK/16QAM/64QAM) IEEE 802.11n HT20 MHz mode: OFDM (BPSK/QPSK/16QAM/64QAM) IEEE 802.11n HT40 MHz mode: OFDM (BPSK/QPSK/16QAM/64QAM)
Operation Frequency	:	IEEE 802.11b/g: 2412 ~ 2472 MHz IEEE 802.11n HT20 : 2412 ~ 2472 MHz IEEE 802.11n HT40 : 2422 ~ 2462 MHz
Number of channel	:	IEEE 802.11b: 13 Channels IEEE 802.11g: 13 Channels IEEE 802.11n HT20: 13 Channels IEEE 802.11n HT40: 9 Channels
Power Rated	:	IEEE 802.11b: 9.5mW/MHz IEEE 802.11g: 9.5mW/MHz IEEE 802.11n HT20: 9.5mW/MHz IEEE 802.11n HT40:4.9mW/MHz
Antenna and Gain	:	External Dipole with 3.2dBi gain (Max)
Software Version	:	Ver1.0
Hardware Version	:	Rev2.0

2.2 Tested Supporting System Details

2.2.1 N/A

2.3 Test Facility

Site Description	1-3F, Lab Building, No.29 District, ZhongKai Hi-Tech Industrial Development Park, Huizhou, Guangdong, China
Name of Firm:	KeySense Testing & Certification International Co., Ltd.
EMC Lab	Certificated by CNAS, CHINA
	Registration No.: L9678
	Date of registration: Feb 07, 2017

2.4 Measurement Uncertainty (95% confidence levels, k=2)

Uncertainty for Radiated Spurious Emission test in RF chamber	1 dB (Bilog antenna 30M~1000MHz)
	0.9 dB (Horn antenna 1000M~25000MHz)
Uncertainty for Conduction Spurious emission test	2.10 dB
Uncertainty for Output power test	0.94 dB
Uncertainty for Power density test	2.10 dB
Uncertainty for Temperature and humidity test	2%
	1℃
Uncertainty for Frequency range test	1×10-6
Uncertainty for Bandwidth test	1×10-6
Uncertainty for DC power test	0.042 %
Uncertainty for test site temperature and humidity	0.6℃
	3%

2.5 Channel List

IEEE 802.11b;IEEE 802.11g;IEEE 802.11n HT20					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	6	2437	11	2462
2	2417	7	2442	12	2467
3	2422	8	2447	13	2472
4	2427	9	2452		
5	2432	10	2457		
IEEE 802.11n HT40					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2422	4	2437	7	2452
2	2427	5	2442	8	2457
3	2432	6	2447	9	2462

2.6 General condition

Ambient Condition: 19 ℃ 59 %RH

2.6.1 Power supply of test

A power supply with the rated voltage and also the rated voltage +10% shall be used. However when it was confirmed that input voltage variation at the radio unit (except power supply section) in the radio equipment to be tested is less than +1% against a variation of +10% at the input voltage from the external power supply to the radio equipment, the test may be done for the rated voltage only and when the radio equipment was designed so as to be operated in a specified voltage variation limit within +10%, and which is indicated in the installation specification with the upper and the lower limits, the test shall be done for the rated voltage and the specified upper and lower limits of voltage.

Input voltage variation for AC Mains

Test Voltage	Output voltage of voltage converter	Output voltage of Built-in power supply	Tolerances
Rated voltage-10%	DC 3.3V	N/A	0%
normal	DC 3.3V	N/A	0%
Rated voltage+10%	DC 3.3V	N/A	0%

Note: The output voltage of “Voltage converter” were DC 3.3V for WiFi Module. So the data show was the DC 3.3V only.

2.6.2 Test Mode

Test mode	Lower channel	Center channel	Upper channel
IEEE 802.11b;IEEE 802.11g;IEEE 802.11n HT20 Transmitting	2412MHz	2442MHz	2472MHz
IEEE 802.11n HT40 Transmitting	2422MHz	2442MHz	2462MHz
IEEE 802.11b;IEEE 802.11g;IEEE 802.11n HT20 Receiving	2412MHz	2442MHz	2472MHz
IEEE 802.11n HT40 Receiving	2422MHz	2442MHz	2462MHz

2.7 Special Accessories and Auxiliary Equipment

2.7.1 N/A

3 Measurements of Transmitting Equipment

3.1 Antenna Power Error Measurement

3.1.1 Test Equipment

Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Spectrum Analyzer	ROHDE&SCHWARZ	FSV30	103559	Jan.30, 2019	1 Year
Power Meter	Rohde &Schwarz	NRVS	101807	Jan.30, 2019	1 Year
RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	Jan.30, 2019	1 Year
AC Source	Ouyuandianzi	APW-1100N	992462	Mar.15, 2019	1 Year
Calibration Lab: CEPREI Calibration and Testing Center					

3.1.2 Limit

Item	Limits
Antenna Power	≤3mW/MHz (FH form 2427 - 2470.75 MHz) ≤10mW/MHz (OFDM, DS from 2400~2483.5MHz) ≤10 mW (Other from 2400~2483.5MHz)
Antenna Power Error	+20%, -80% (Base on manufacturer declare antenna power)

3.1.3 Measuring Instruments and setting

Spectrum Parameter	Setting
Attenuation	30dB
Span Frequency	0MHz
RB/VB	3MHz / 3MHz
Detector	Peak
Trace	Max hold
Sweep Time	Auto

Power Meter Parameter	Setting
Filter No.	Auto
Measurement time	0.135 s ~ 26 s
Used Average Sensor	NRV-Z55

3.1.4 Test Procedures

1 A power meter is connected on the IF output port of the spectrum analyzer.

2 Adjust the spectrum analyzer to have the center frequency the same with the measured carrier. RBW=VBW=3MHz, detector mode is positive peak. Turn off the averaging function and use zero span.

3 The calibrating signal power shall be reduced to 0 dBm and it shall be verified that the power meter reading also reduces by 10 dB.

4 Connect the equipment to be measured. Using the following settings of the spectrum analyzer in combination with "max hold" function, find the frequency of highest power output in the power envelope: center frequency equal to operating frequency; RBW & VBW: 1 MHz; detector mode: positive peak; averaging: off; span: 3 times the spectrum width;

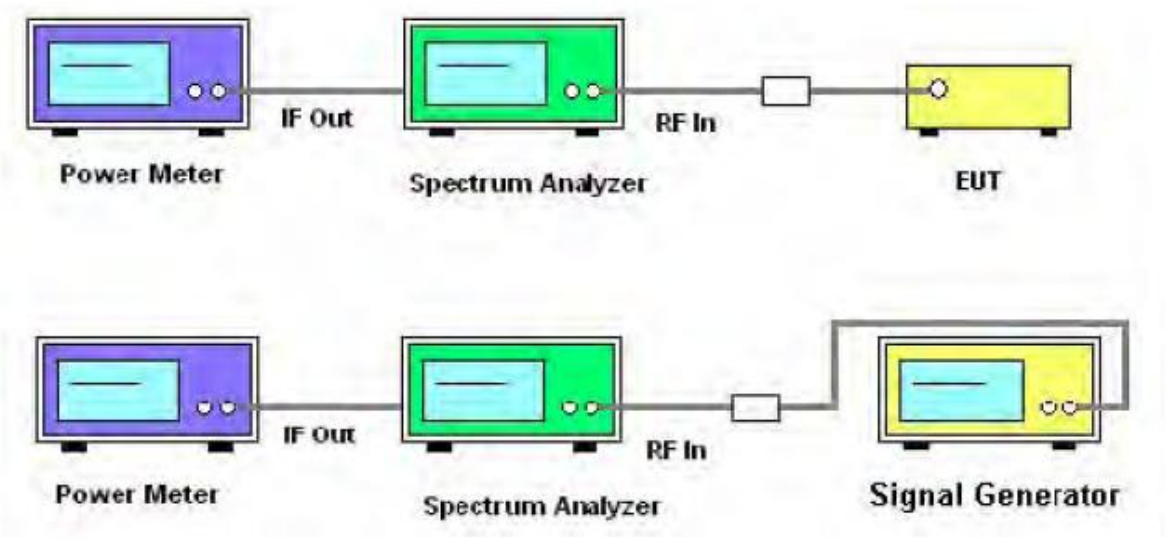
amplitude: adjust for middle of theinstrument's range. The frequency found shall be recorded.

5 Set the center frequency of the spectrum analyzer to the found frequency and switch to zero span. The power meter indicates the measured power density “Pt”.

6 Calculate antenna power density by the formula below PD = Pt +10*log(1/x). x: The duty cycle of the EUT in continuously transmitting mode.

7 Antenna Power Error is definition that actual measure antenna power tolerance between + 20% to - 80% power range that base on manufacturer declare the conducted power density.

3.1.5 Test Setup Layout



3.1.6 Test Result:

Test Mode	Test Frequency (MHz)	Voltage (Vac/Vdc)	Test Result for Antenna Power (mW/MHz)	Declared Antenna Power (mW/MHz)	Tolerance (%)	Antenna Power Limit (mW/MHz)
IEEE 802.11b	2412	DC 3.3V	7.40	9.5	-22.11	10
	2442		7.53	9.5	-20.74	10
	2472		7.79	9.5	-18.00	10
IEEE 802.11g	2412		8.63	9.5	-9.16	10
	2442		8.45	9.5	-11.05	10
	2472		8.56	9.5	-9.89	10
IEEE 802.11n HT20	2412		6.36	9.5	-33.05	10
	2442		6.52	9.5	-31.37	10
	2472		6.60	9.5	-30.53	10
IEEE 802.11n HT40	2422		3.16	4.9	-35.51	5
	2442		3.24	4.9	-33.88	5
	2462		3.22	4.9	-34.29	5

3.2 Frequency Error Measurement

3.2.1 Test Equipment

Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Spectrum Analyzer	ROHDE&SCHWARZ	FSV30	103559	Jan.30, 2019	1 Year
Power Meter	Rohde &Schwarz	NRVS	101807	Jan.30, 2019	1 Year
RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	Jan.30, 2019	1 Year
AC Source	Ouyuandianzi	APW-1100N	992462	Mar.15, 2019	1 Year
Calibration Lab: CEPREI Calibration and Testing Center					

3.2.2 Limit

Tolerance of frequency: ±50x10^{-6}

3.2.3 Measuring Instruments and setting

Spectrum Parameter	Setting
Attenuation	30 dB
Reference level	20 dBm
Span Frequency	1 MHz
RB/VB	10 kHz / 10 kHz
Detector	Peak
Trace	Max hold
Sweep Time	Auto

3.2.4 Test Procedures

1 Frequency accuracy of SA shall be less than 10% of limits tolerance (5ppm)

2 Setting of SA is following as: RB:10kHz / VB:10kHz / SPAN: 1MHz / AT: 30dB / Ref: 20dBm

3 Center Frequency: The center frequency of testing for EUT

4 Sweep time: Auto

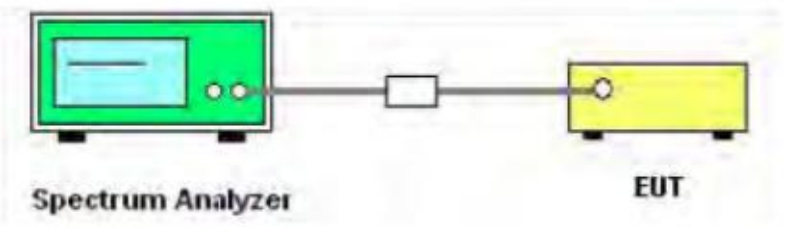
5 Sweep mode: Continuous sweep

6 Detect mode: Positive peak

7 Mark function: Frequency Counter (Resolution 100Hz)

8 EUT have transmitted absence of modulation signal and fixed channelize. f is using the mark cursor to mark the peak frequency value，fc is declaring of channel frequency. Then the frequency error formula is (fc-f)/fc×106ppm and the limit is less than ±50ppm

3.2.5 Test Setup Layout



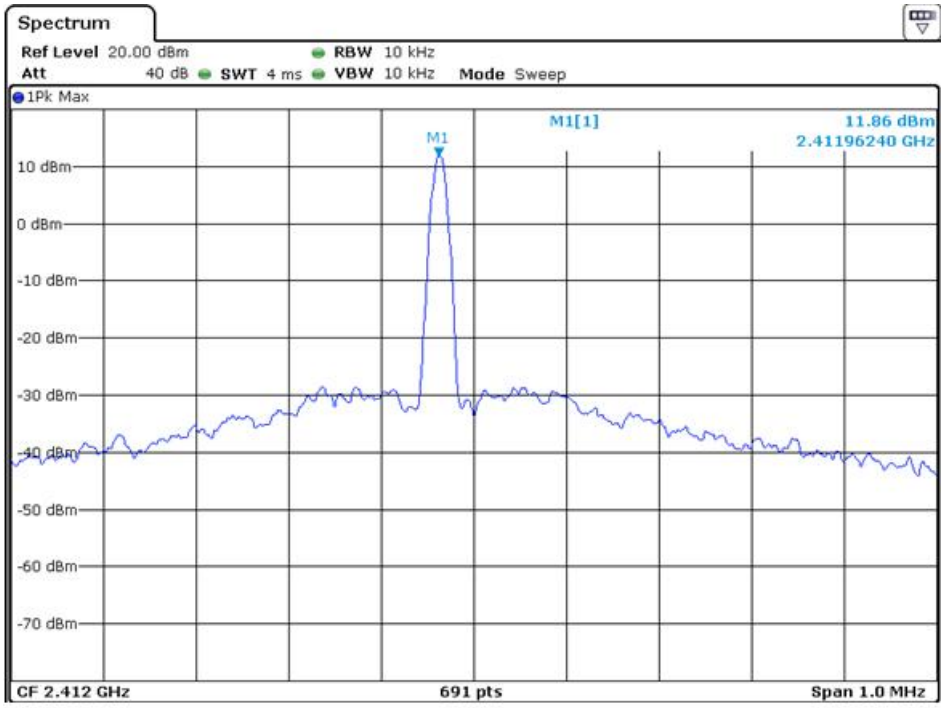
3.2.6 Test Result:

Channel	Test Frequency (MHz)	Voltage (Vac/Vdc)	Test Result (MHz)	Tolerance (kHz)	Tolerance (ppm)	Limit (ppm)
IEEE 802.11b	2412	DC 3.3V	2411.9624	-37.6	-15.59	±50
	2442		2441.9624	-37.6	-15.40	±50
	2472		2471.9609	-39.1	-15.82	±50
IEEE 802.11g	2412		2411.9638	-36.2	-15.01	±50
	2442		2441.9624	-37.6	-15.40	±50
	2472		2471.9624	-37.6	-15.21	±50
IEEE 802.11n HT20	2412		2411.9638	-36.2	-15.01	±50
	2442		2441.9624	-37.6	-15.40	±50
	2472		2471.9624	-37.6	-15.21	±50
IEEE 802.11n HT40	2422		2421.9850	-15.0	-6.19	±50
	2442		2441.9850	-15.0	-6.14	±50
	2462		2461.9850	-15.0	-6.09	±50

Test Mode: IEEE 802.11b

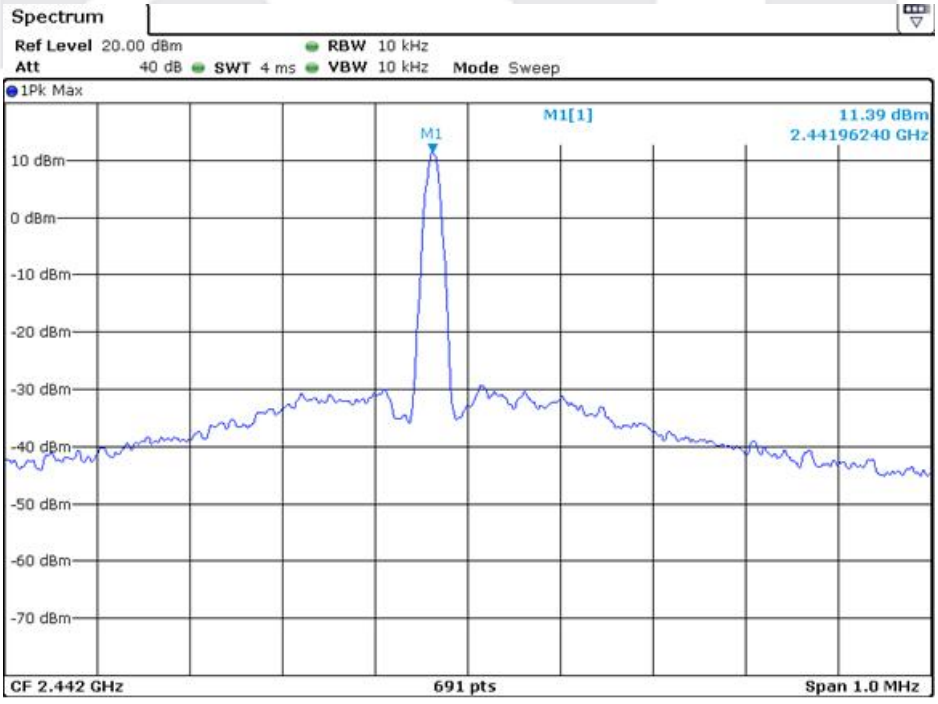
Measurement Data on Lower Channel 2412MHz:

DC 3.3V



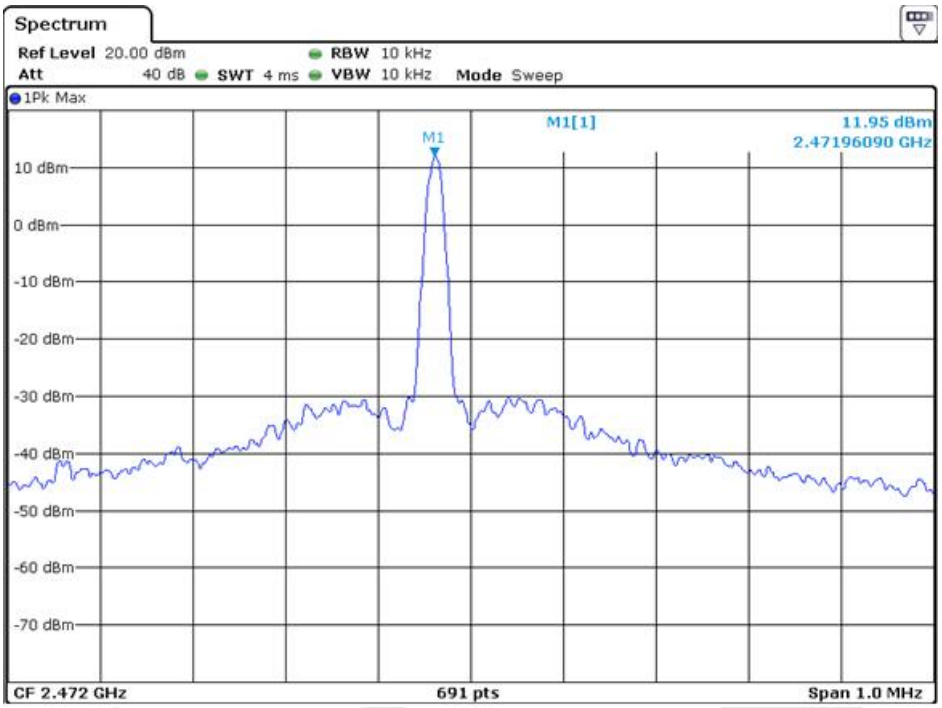
Measurement Data on Center Channel 2442MHz:

DC 3.3V



Measurement Data on Upper Channel 2472MHz:

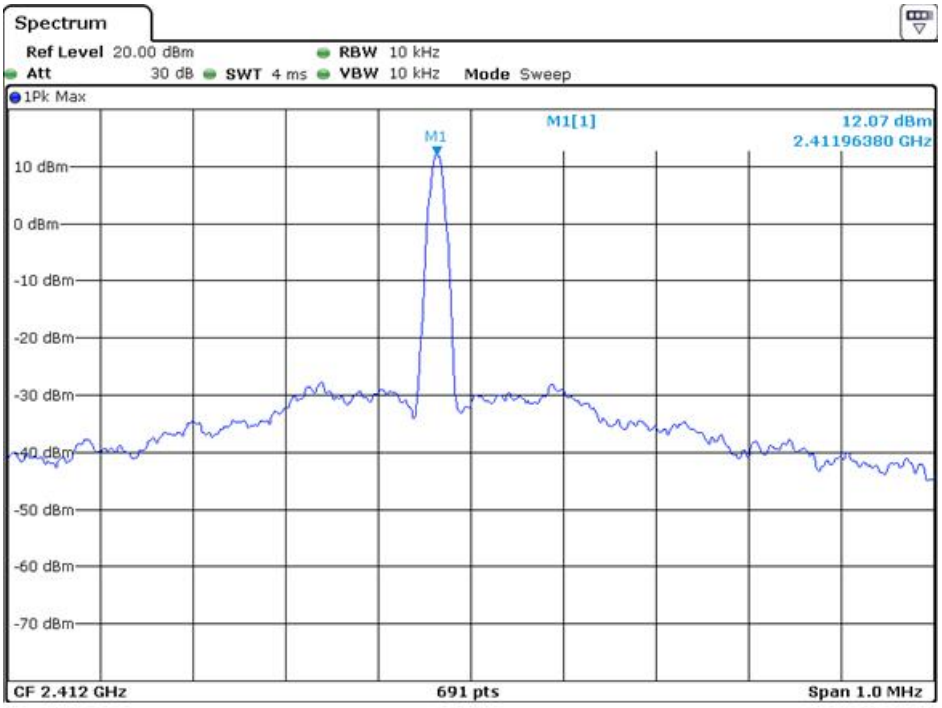
DC 3.3V



Test Mode: IEEE 802.11g

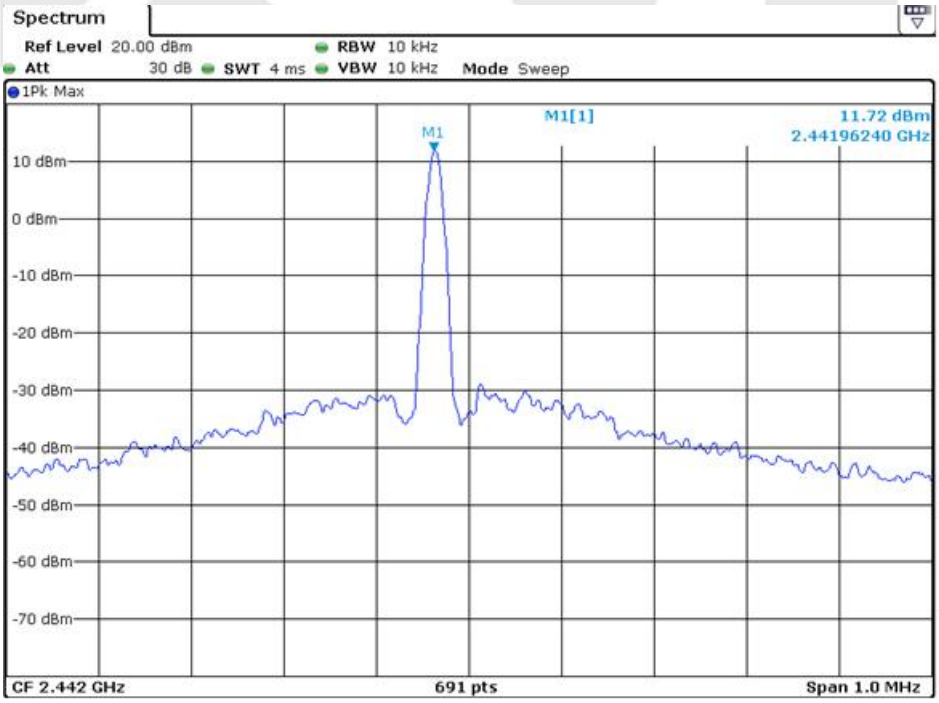
Measurement Data on Lower Channel 2412MHz:

DC 3.3V



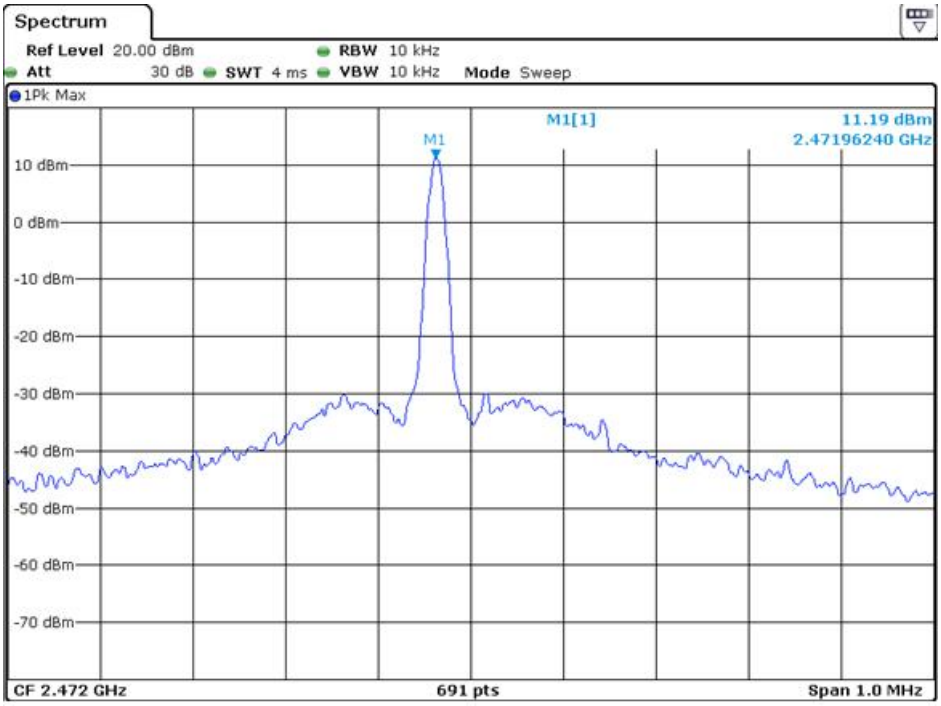
Measurement Data on Center Channel 2442MHz:

DC 3.3V



Measurement Data on Upper Channel 2472MHz:

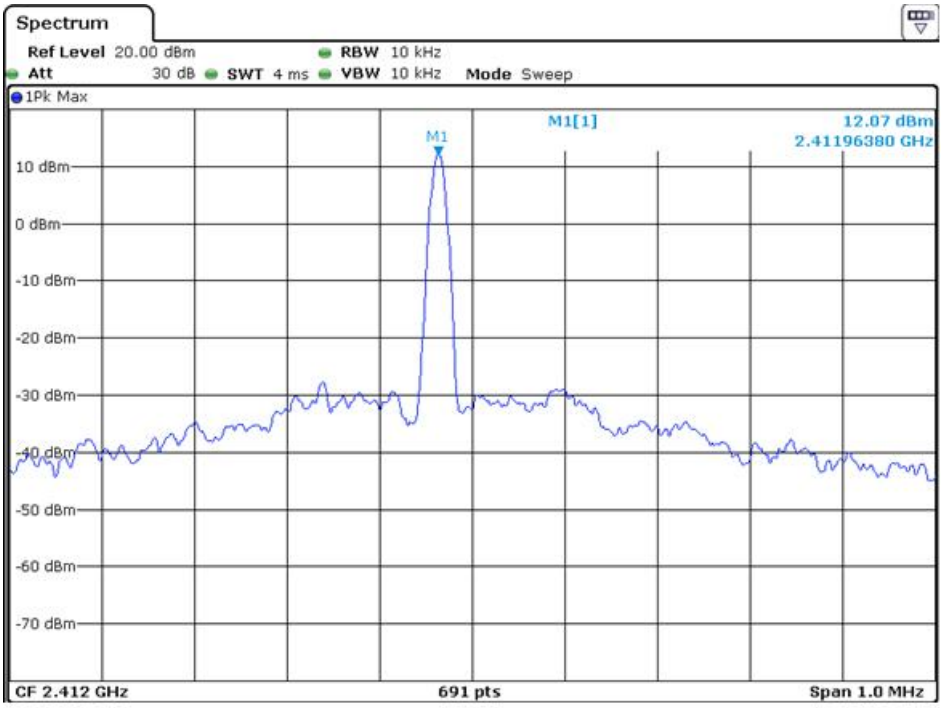
DC 3.3V



Test Mode: IEEE 802.11n HT20

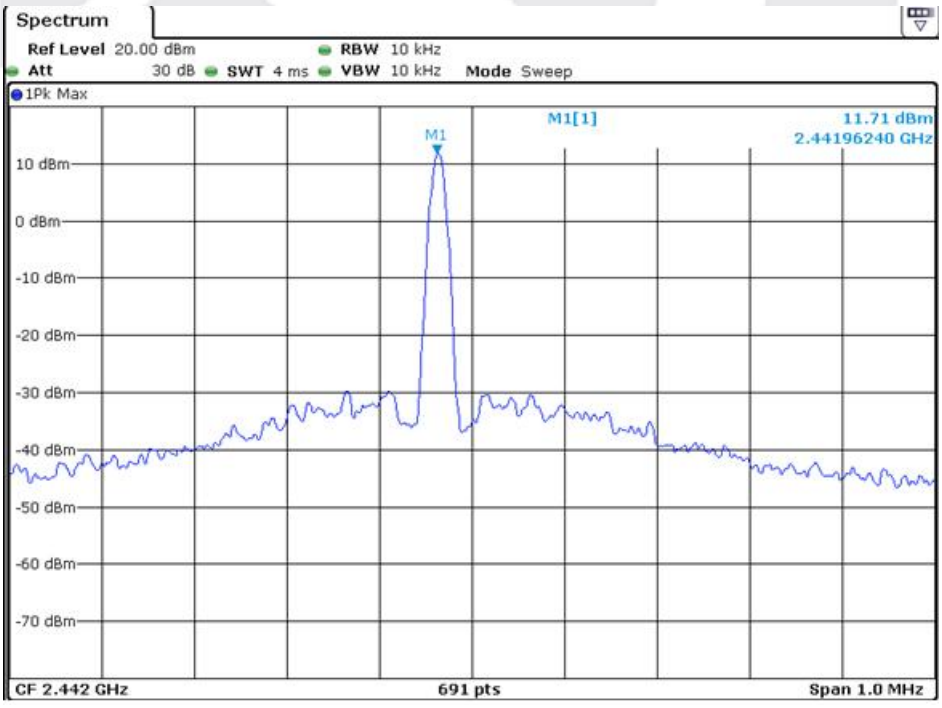
Measurement Data on Lower Channel 2412MHz:

DC 3.3V



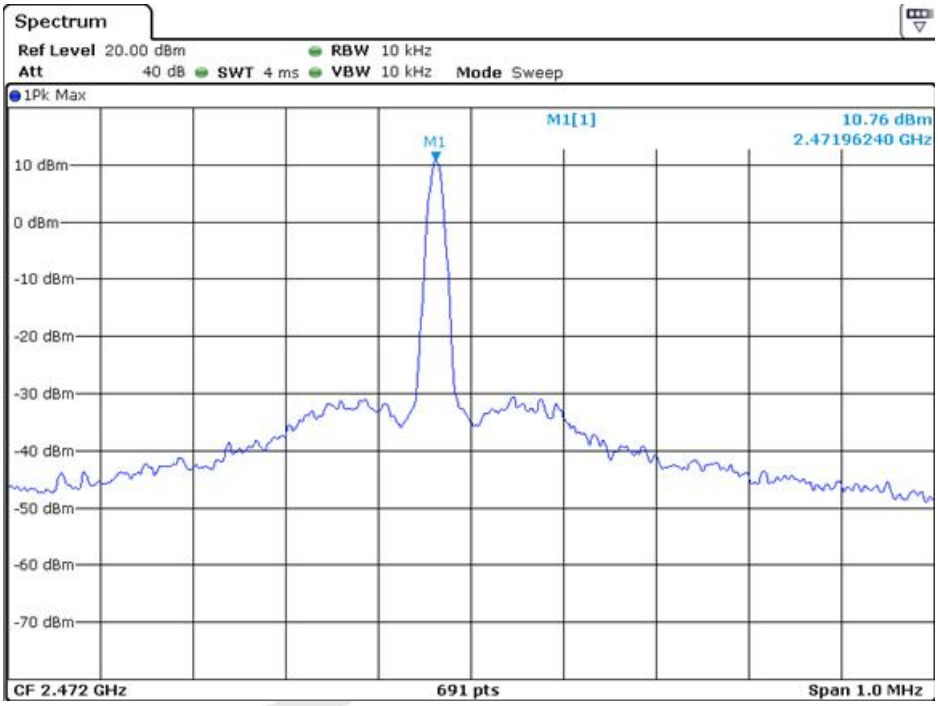
Measurement Data on Center Channel 2442MHz:

DC 3.3V



Measurement Data on Upper Channel 2472MHz:

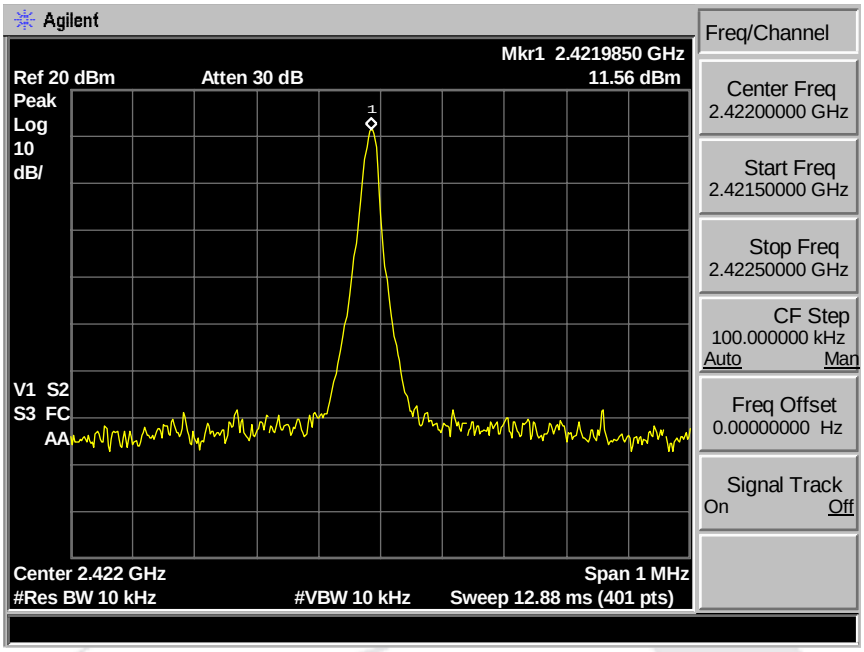
DC 3.3V



Test Mode: IEEE 802.11n HT40

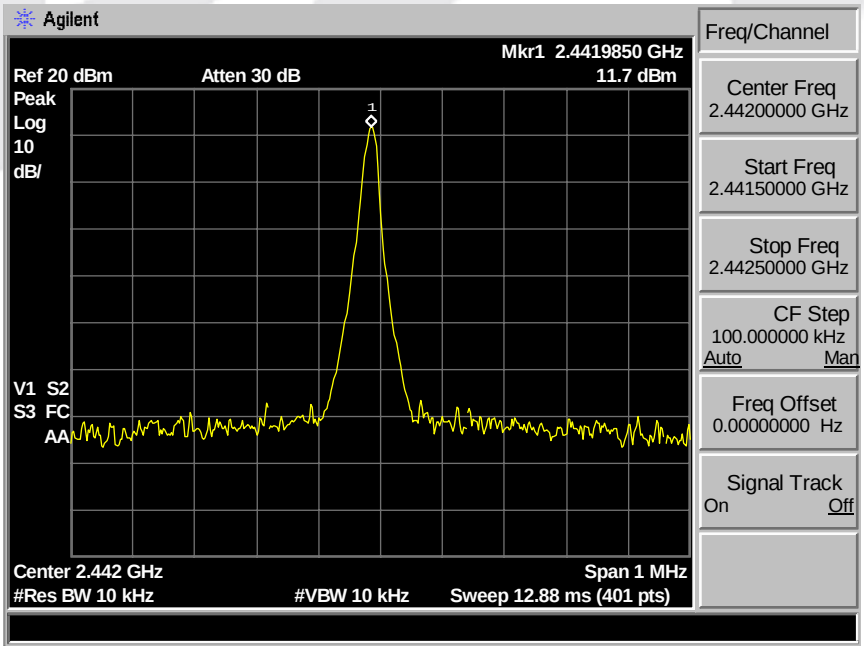
Measurement Data on Lower Channel 2422MHz:

DC 3.3V



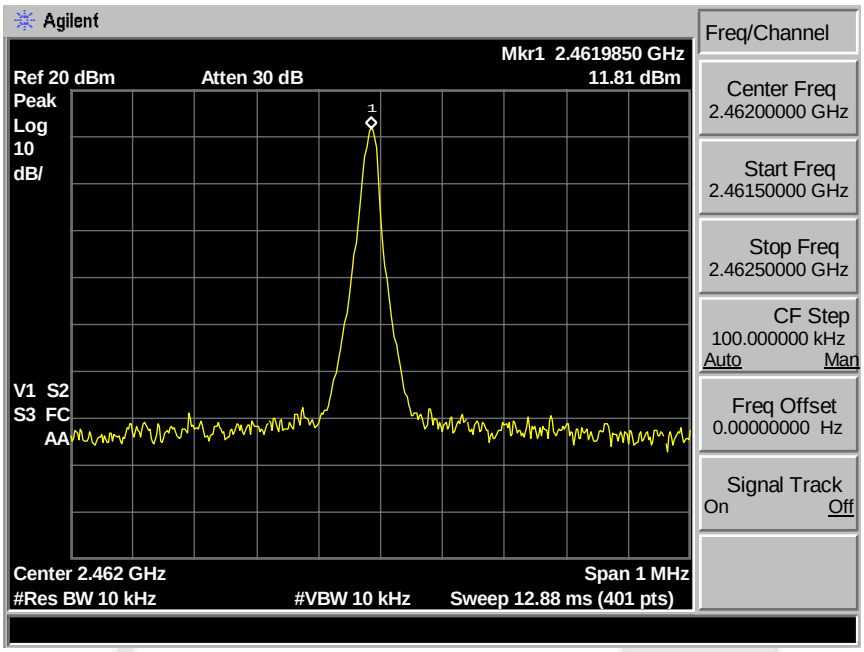
Measurement Data on Center Channel 2442MHz:

DC 3.3V



Measurement Data on Upper Channel 2462MHz:

DC 3.3V



3.3 Occupied Frequency Bandwidth & Spread Bandwidth & Spread Spectrum Factor

3.3.1 Test Equipment

Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Spectrum Analyzer	ROHDE&SCHWARZ	FSV30	103559	Jan.30, 2019	1 Year
Power Meter	Rohde &Schwarz	NRVS	101807	Jan.30, 2019	1 Year
RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	Jan.30, 2019	1 Year
AC Source	Ouyuandianzi	APW-1100N	992462	Mar.15, 2019	1 Year
Calibration Lab: CEPREI Calibration and Testing Center					

3.3.2 Limit

Item	Limits
Occupied Band Width	FH ⩽ 83.5MHz FH + DS ⩽ 83.5MHz FH + OFDM ⩽ 83.5MHz OFDM ⩽38MHz, DS ⩽ 26MHz
Spread-spectrum Bandwidth	⩾500KHz (FH, DS)
Spread spectrum factor	For DS system;(Spreading bandwidth) / (Frequency corresponding to transmission rate) ⩾5

3.3.3 Measuring Instruments and setting

Spectrum Parameter	Setting
Attenuation	20dB
Span Frequency	40 MHz
Reference level	10 dBm
RB/VB	300 KHz /300 KHz
Detector	Peak
Trace	Max hold
Sweep Time	Auto

3.3.4 Test Procedures

1. Setting of SA is following as: RB: 300 KHz/VB: 300 K Hz/SPAN: 40 MHz/ AT: 20dB/Ref: 10dBm/Sweep time: Auto/Sweep Mode: Continuous sweep/ Detect mode: Positive peak/Trace mode: Max hold

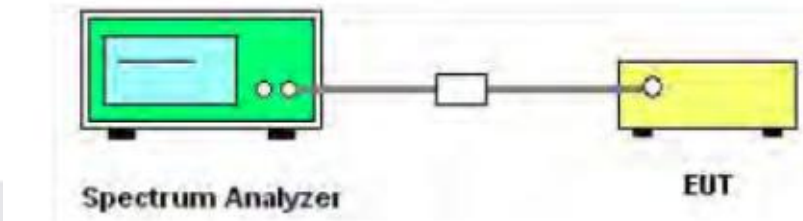
2.EUT have transmitted the maximum modulation signal and fixed channelize (For DSSS or OFDM Device) or continuous maximum power of hopping mode (For FHSS Device). SA set to 99% of occupied bandwidth to measure occupied bandwidth. The limit is less than 38MHz (For DSSS or OFDM Device) or 83.5MHz (For FHSS Device).

3.SA set to 90% of occupied bandwidth to measure Spread Spectrum Bandwidth and must greater than 500kHz.

4.Spread Spectrum Factor = Spread Spectrum Bandwidth / modulation rate of EUT.

5.Spread Spectrum Factor limit is greater than 5.

3.3.5 Test Setup Layout



3.3.6 Test Result:

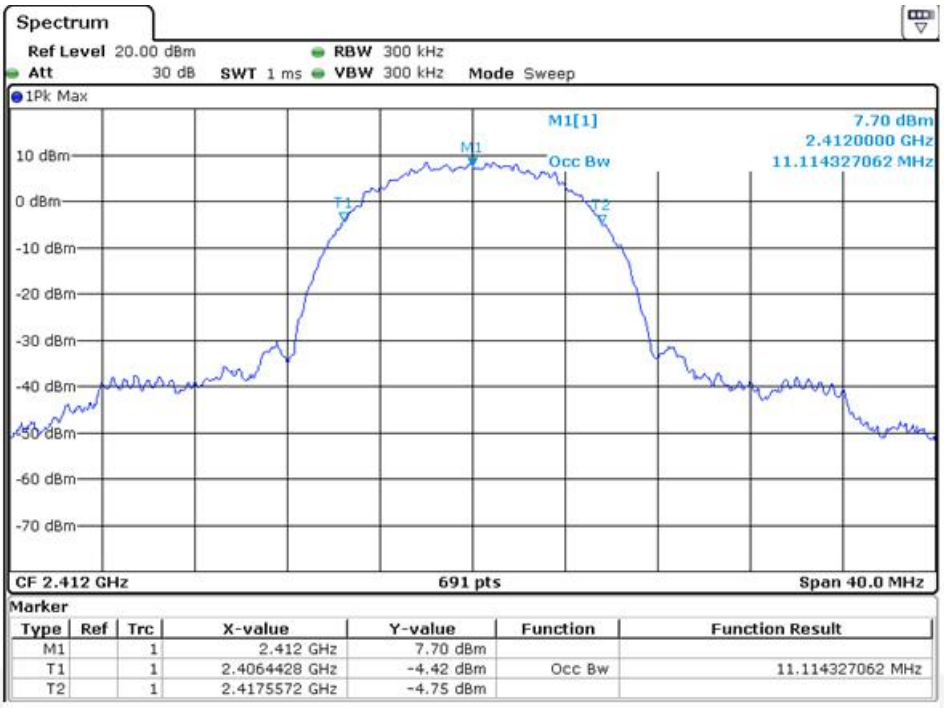
Channel	Test Frequency (MHz)	Voltage (Vac/Vdc)	Measured 99% Occupied Frequency Bandwidth (MHz)	Measured 90% Spread Bandwidth (MHz)	Spreading rate of spectrum	occupied bandwidth limit (MHz)	spread bandwidth limit (KHz)	Conclusion
IEEE 802.11b	2412	DC 3.3V	11.1143	7.9305	5.6646	26MHz	>500KHz	Pass
	2442		11.1143	7.9305	5.6646	26MHz		Pass
	2472		11.1143	7.9305	5.6646	26MHz		Pass
IEEE 802.11g	2412		17.0767	14.9928	N/A	26MHz		Pass
	2442		17.0767	14.9928	N/A	26MHz		Pass
	2472		17.1346	15.0507	N/A	26MHz		Pass
IEEE 802.11n HT20	2412		17.7135	15.3980	N/A	26MHz		Pass
	2442		17.7135	15.3401	N/A	26MHz		Pass
	2472		17.7135	15.3401	N/A	26MHz		Pass
IEEE 802.11n HT40	2422		36.0166	32.3049	N/A	38MHz		Pass
	2442		36.0222	32.3281	N/A	38MHz		Pass
	2462		36.0293	32.2951	N/A	38MHz		Pass
Note: IEEE 802.11b is DSSS mode data rate is 1.4Mbits/s;IEEE 802.11g/n is OFDM Module type, so not applicable.								

Occupied Frequency Bandwidth

Test Mode: IEEE 802.11b

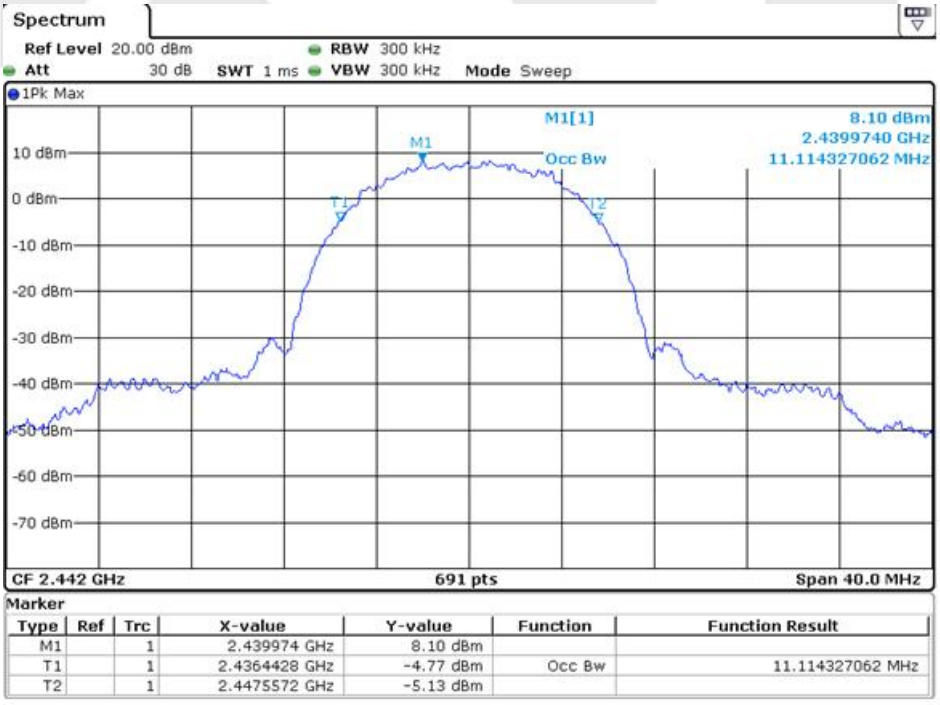
Measurement Data on Lower Channel 2412MHz:

DC 3.3V



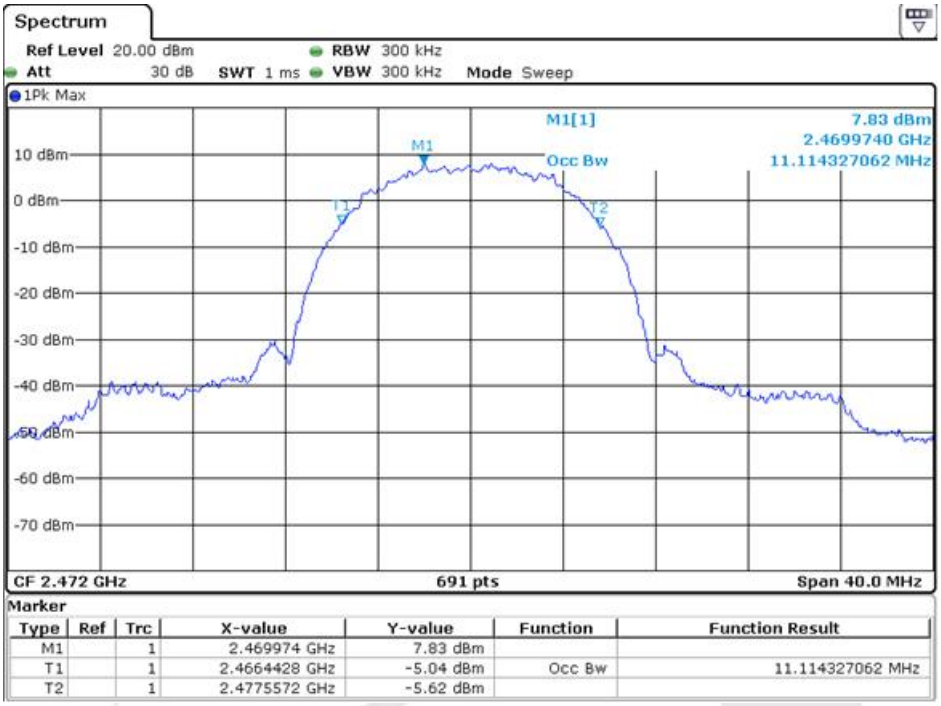
Measurement Data on Center Channel 2442MHz

DC 3.3V



Measurement Data on Upper Channel 2472MHz

DC 3.3V

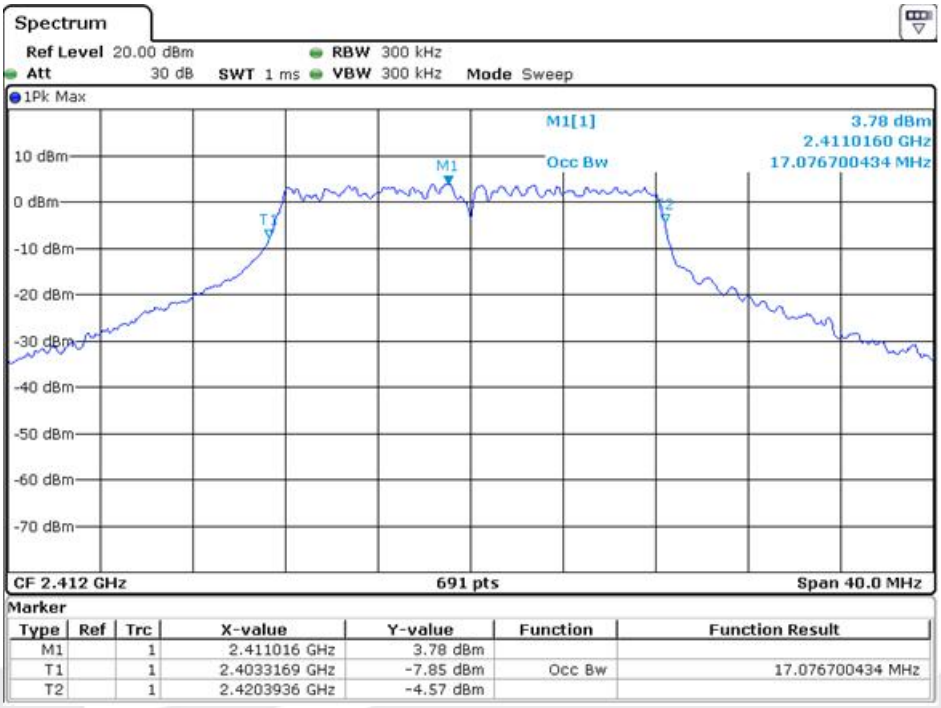


Occupied Frequency Bandwidth

Test Mode: IEEE 802.11g

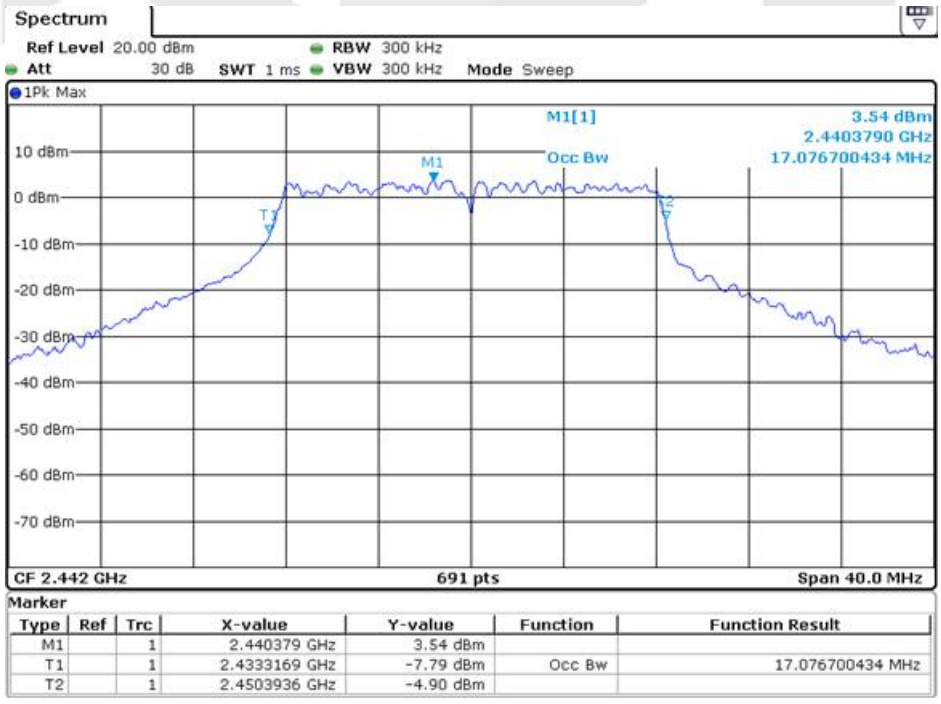
Measurement Data on Lower Channel 2412MHz:

DC 3.3V



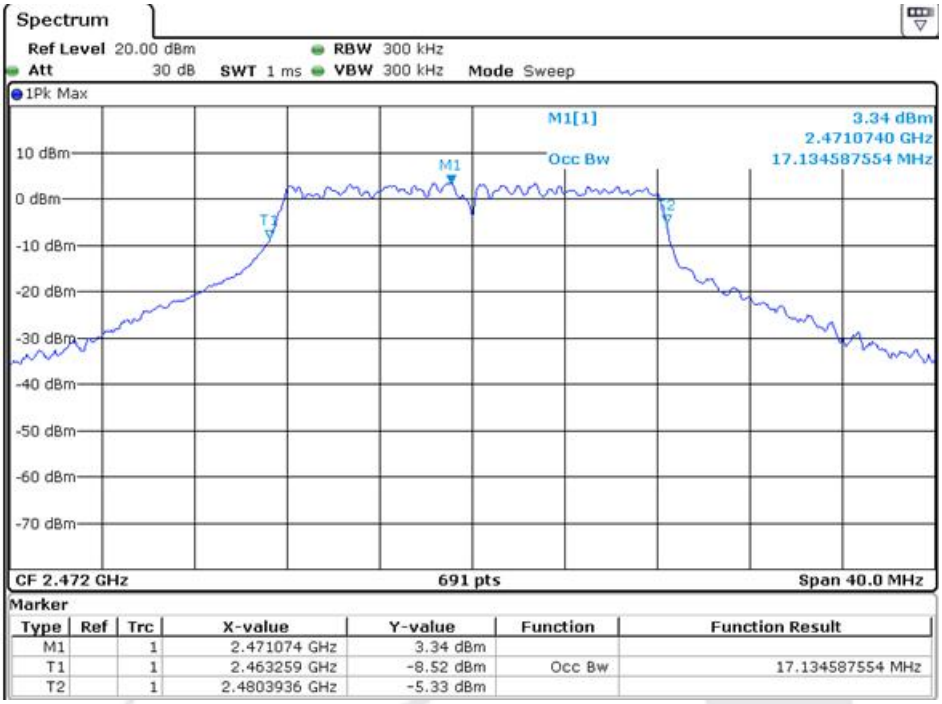
Measurement Data on Center Channel 2442MHz

DC 3.3V



Measurement Data on Upper Channel 2472MHz

DC 3.3V

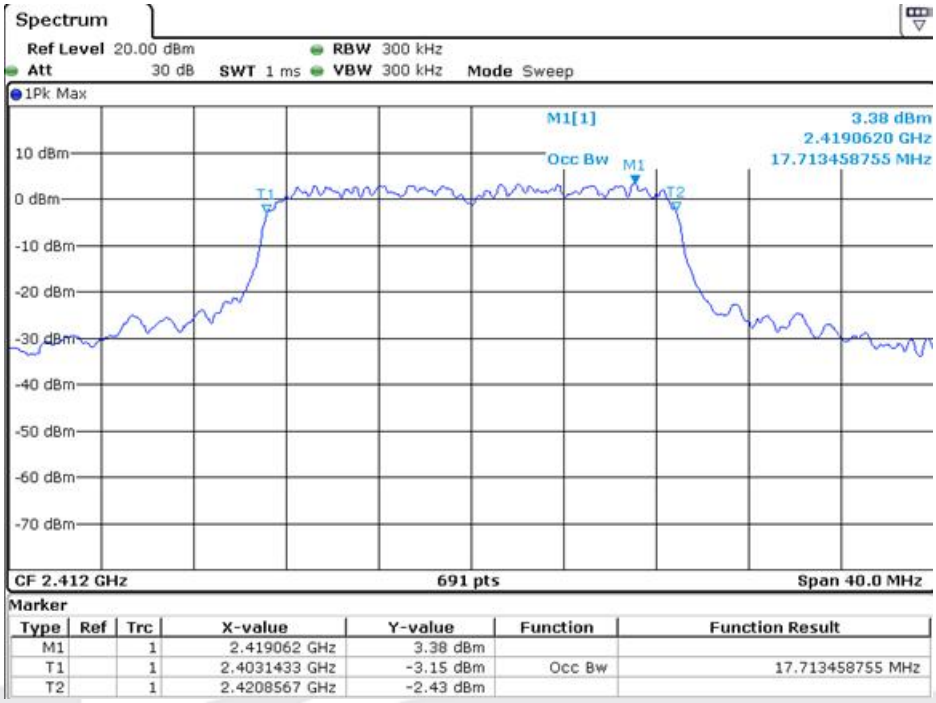


Occupied Frequency Bandwidth

Test Mode: IEEE 802.11n HT20

Measurement Data on Lower Channel 2412MHz:

DC 3.3V

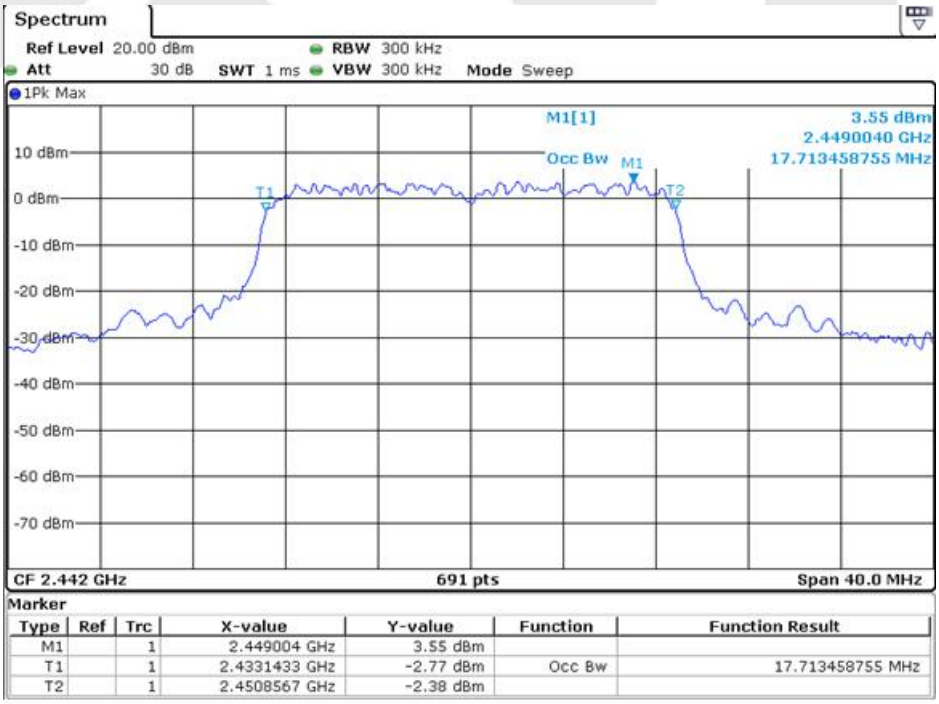


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.419062 GHz	3.38 dBm		
T1		1	2.4031433 GHz	-3.15 dBm	Occ Bw	17.713458755 MHz
T2		1	2.4208567 GHz	-2.43 dBm		

Measurement Data on Center Channel 2442MHz

DC 3.3V

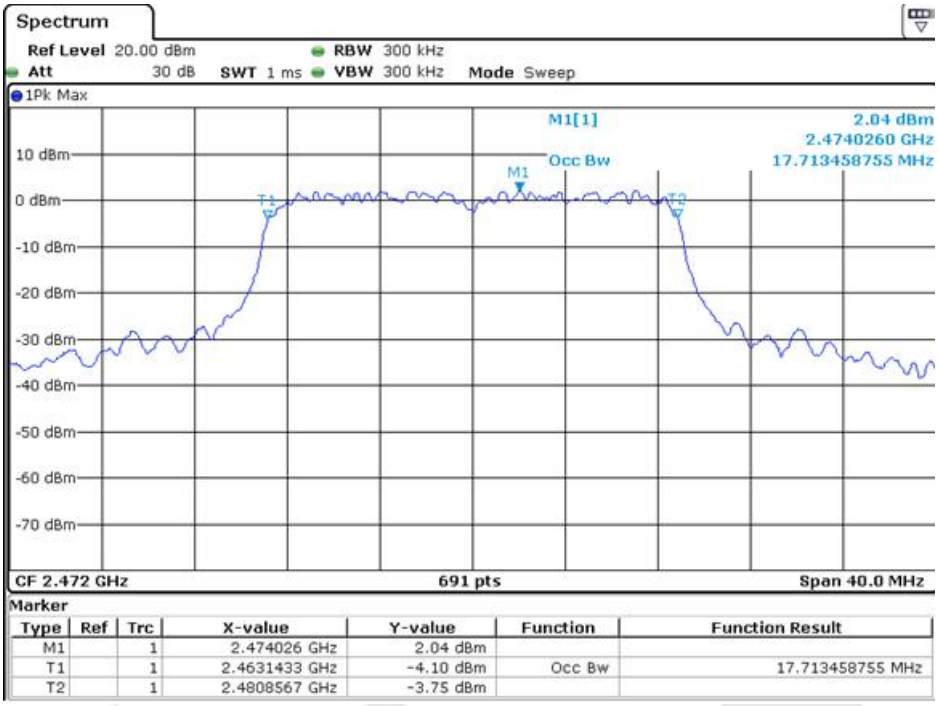


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.449004 GHz	3.55 dBm		
T1		1	2.4331433 GHz	-2.77 dBm	Occ Bw	17.713458755 MHz
T2		1	2.4508567 GHz	-2.38 dBm		

Measurement Data on Upper Channel 2472MHz

DC 3.3V

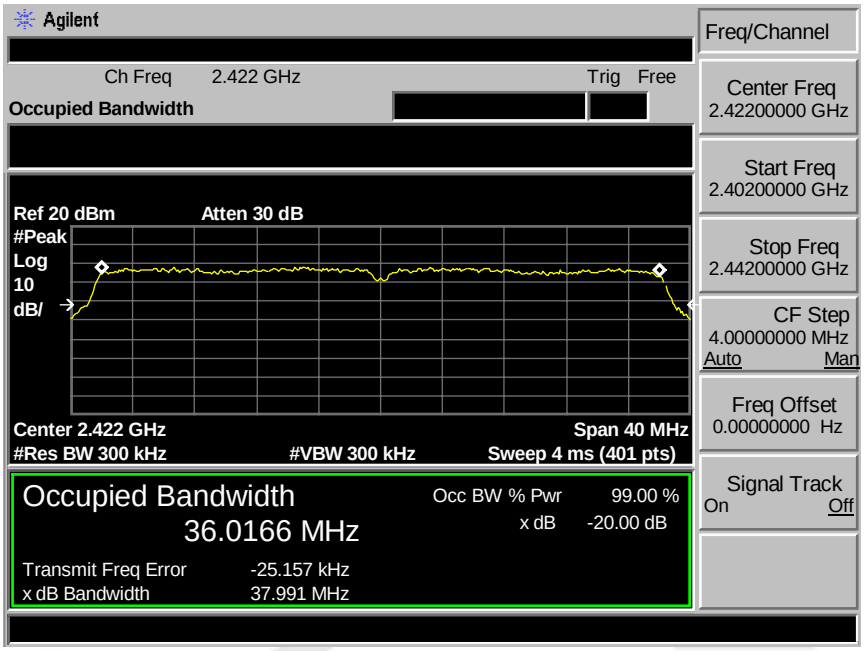


Occupied Frequency Bandwidth

Test Mode: IEEE 802.11n HT40

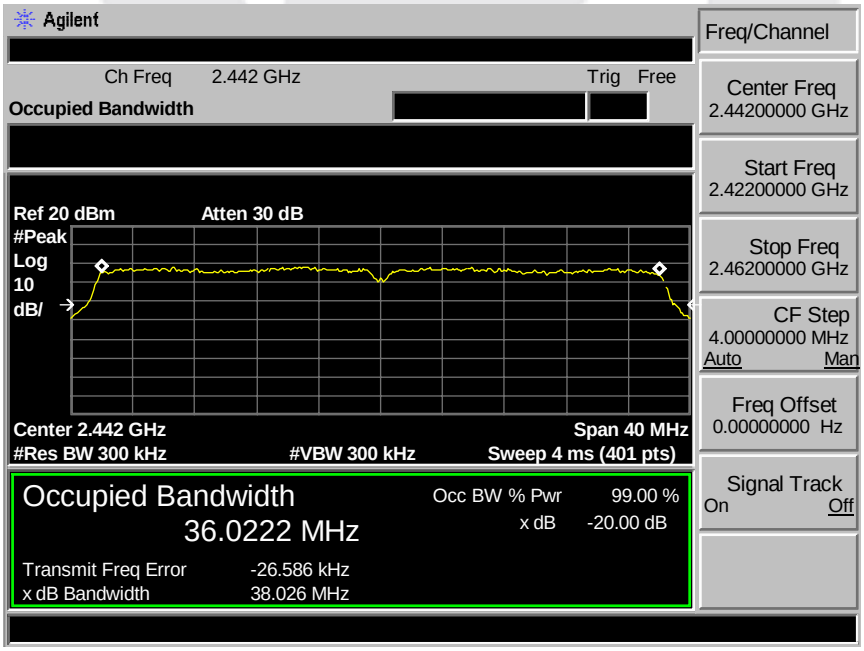
Measurement Data on Lower Channel 2422MHz:

DC 3.3V



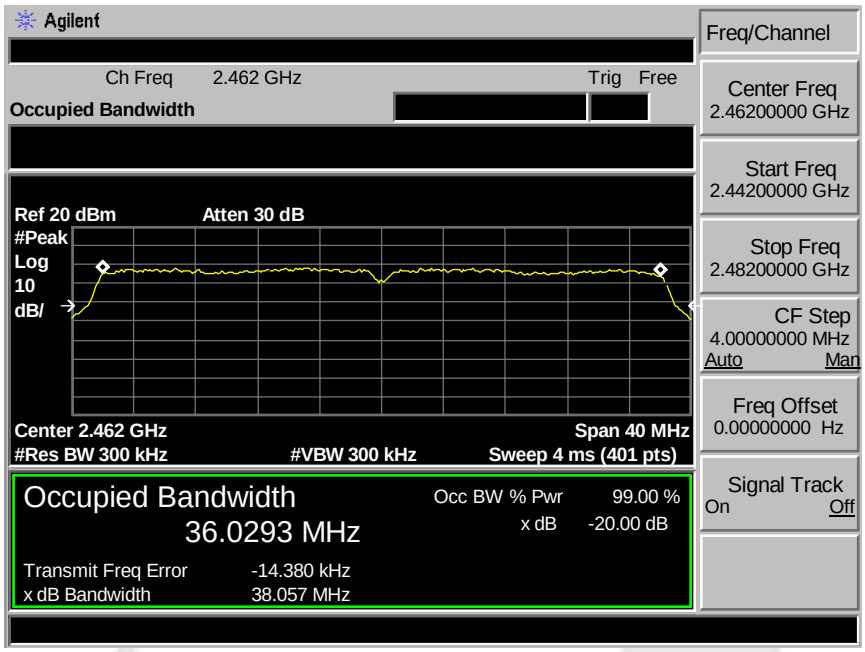
Measurement Data on Center Channel 2442MHz:

DC 3.3V



Measurement Data on Upper Channel 2462MHz:

DC 3.3V

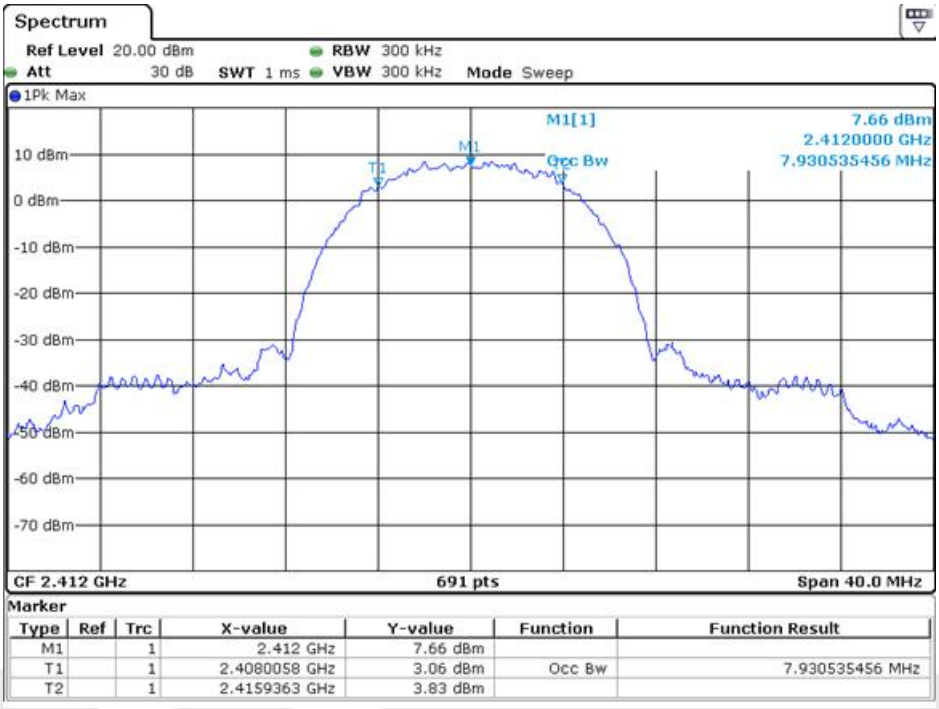


Spread Bandwidth

Test Mode: IEEE 802.11b

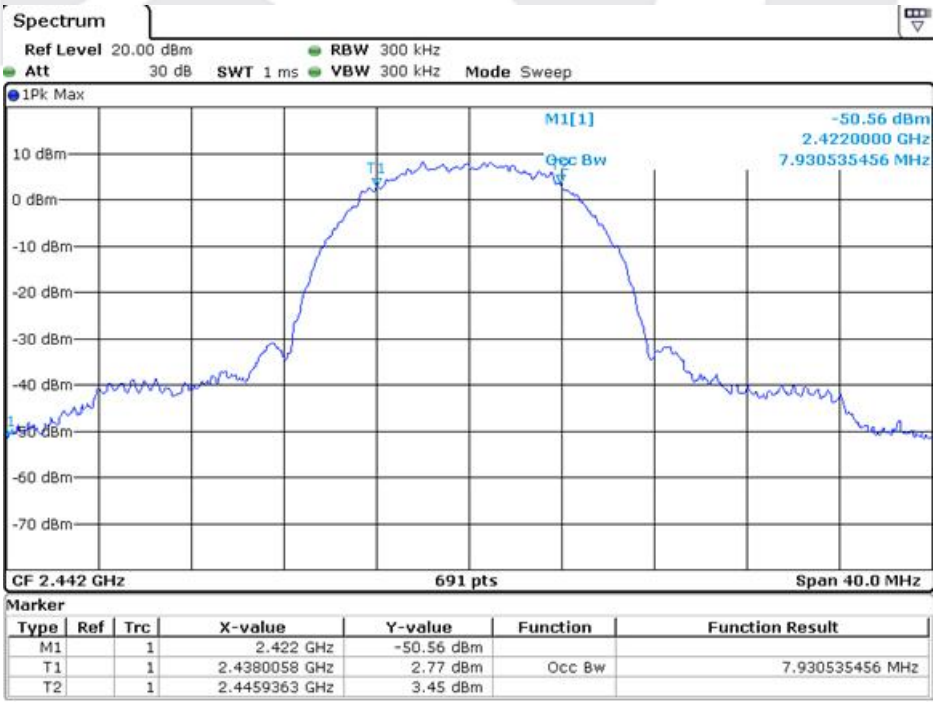
Measurement Data on Lower Channel 2412MHz

DC 3.3V



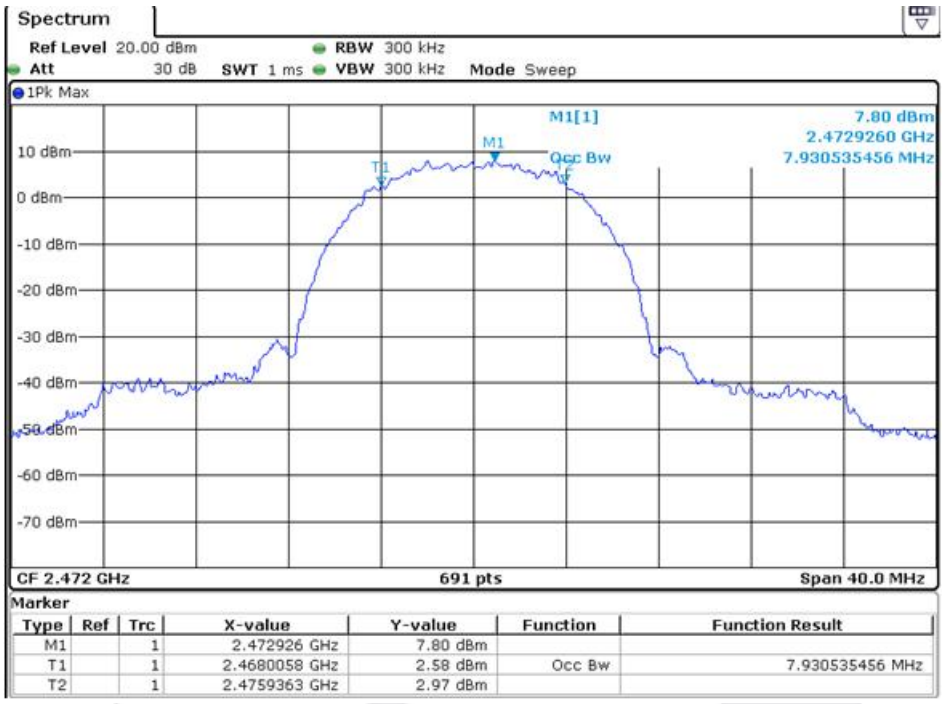
Measurement Data on Center Channel 2442MHz

DC 3.3V



Measurement Data on Upper Channel 2472MHz

DC 3.3V

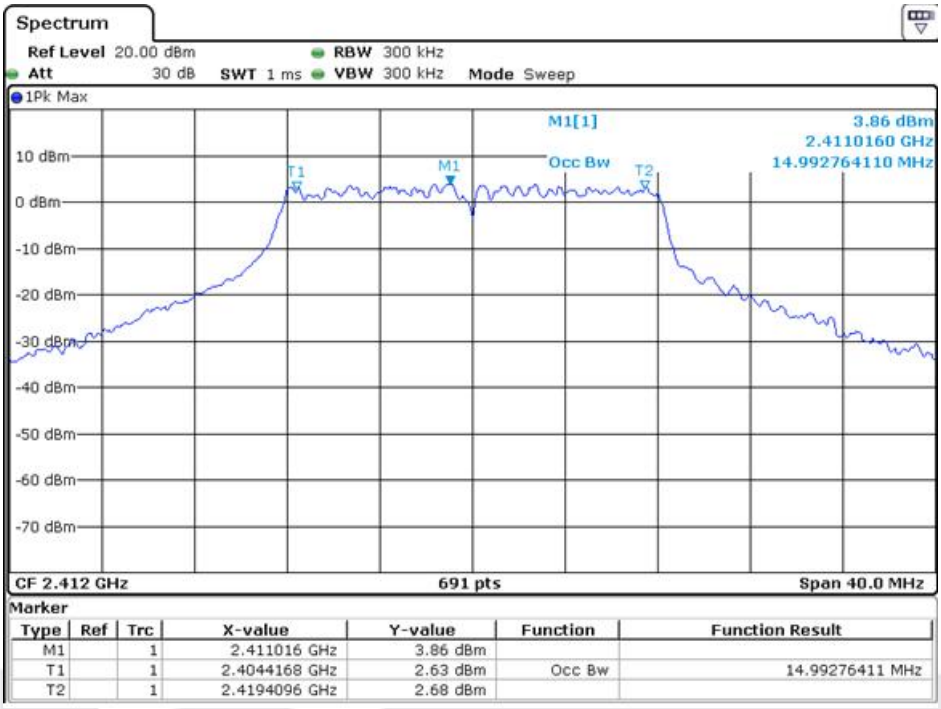


Spread Bandwidth

Test Mode: IEEE 802.11g

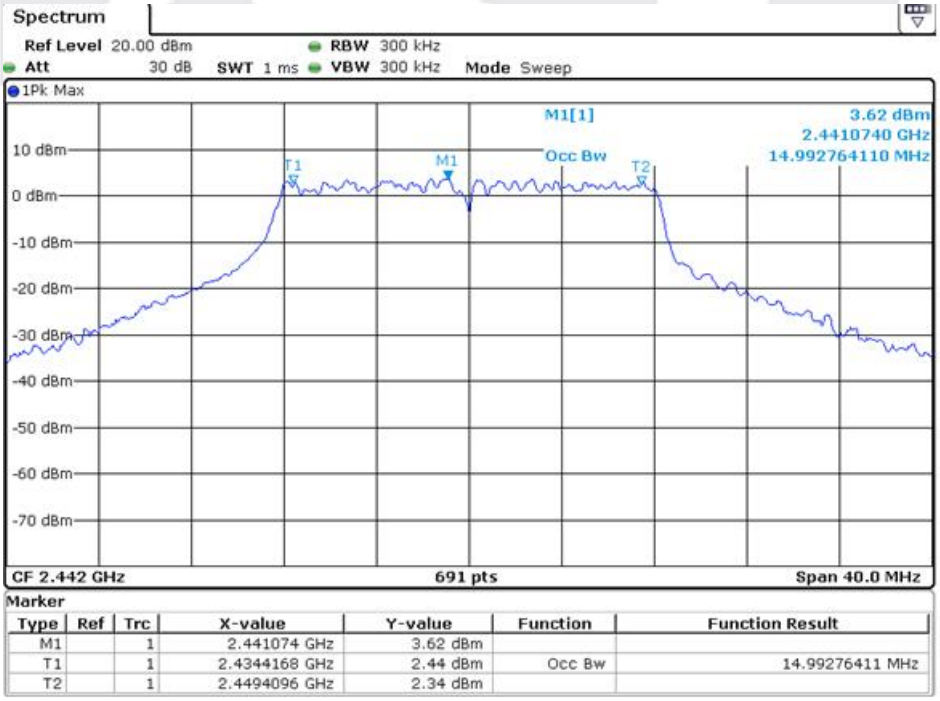
Measurement Data on Lower Channel 2412MHz

DC 3.3V



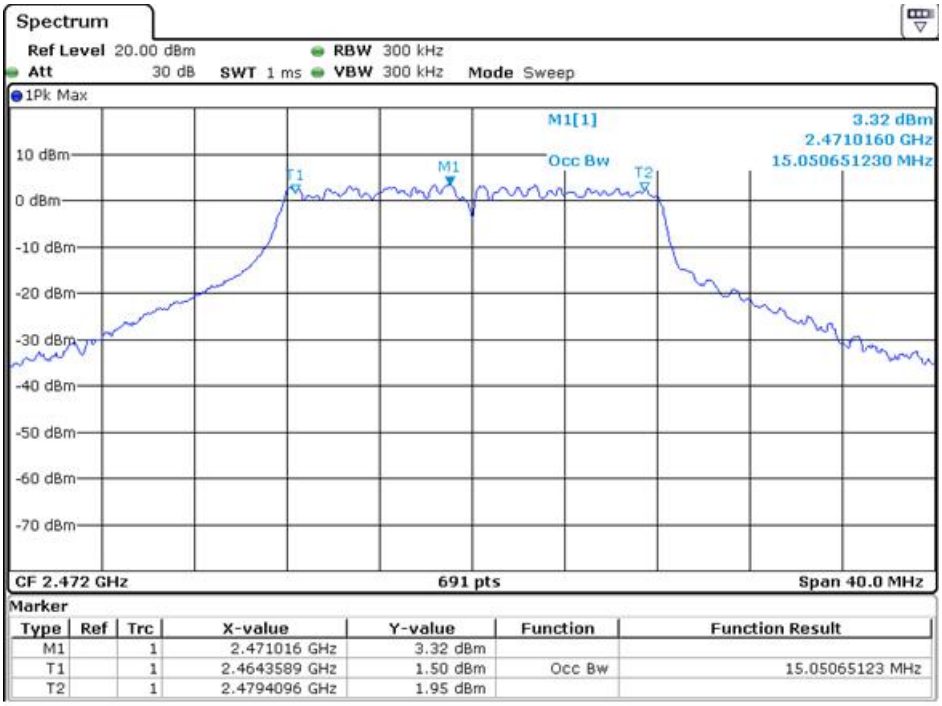
Measurement Data on Center Channel 2442MHz

DC 3.3V



Measurement Data on Upper Channel 2472MHz

DC 3.3V

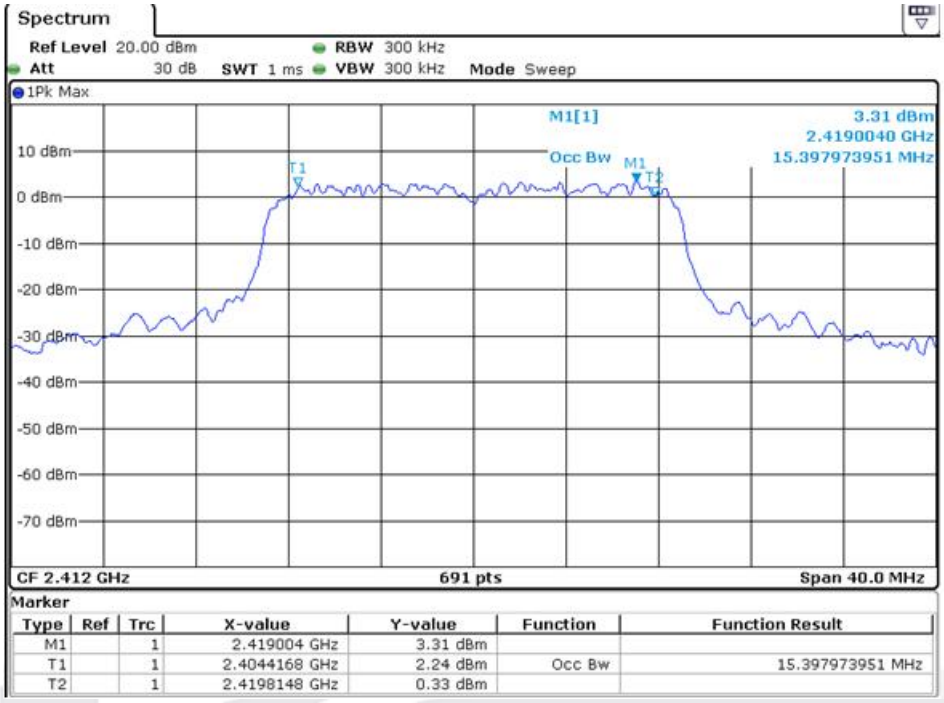


Spread Bandwidth

Test Mode: IEEE 802.11n HT20

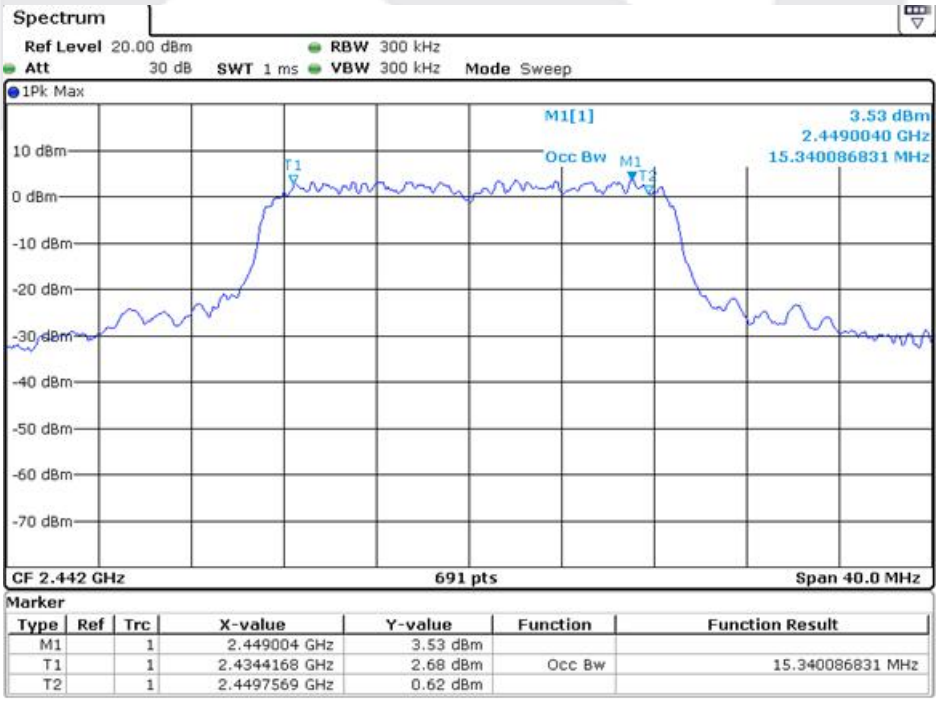
Measurement Data on Lower Channel 2412MHz

DC 3.3V



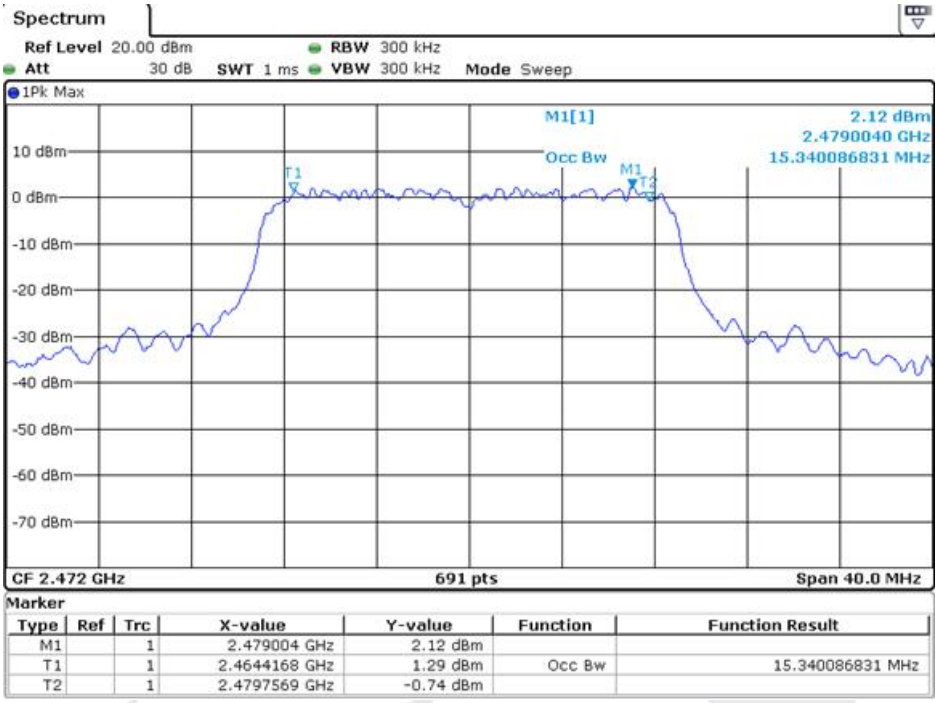
Measurement Data on Center Channel 2442MHz

DC 3.3V



Measurement Data on Upper Channel 2472MHz

DC 3.3V

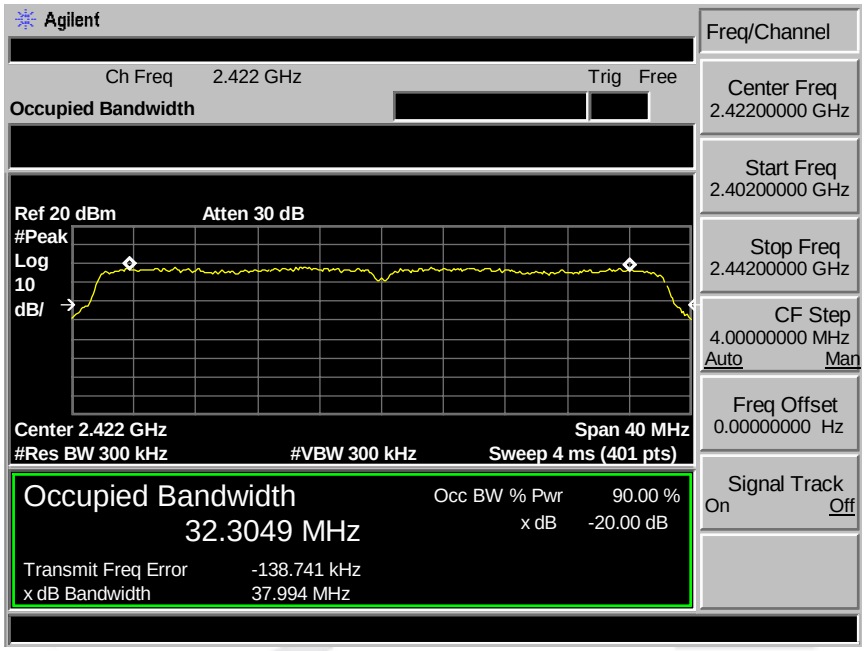


Spread Bandwidth

Test Mode: IEEE 802.11n HT40

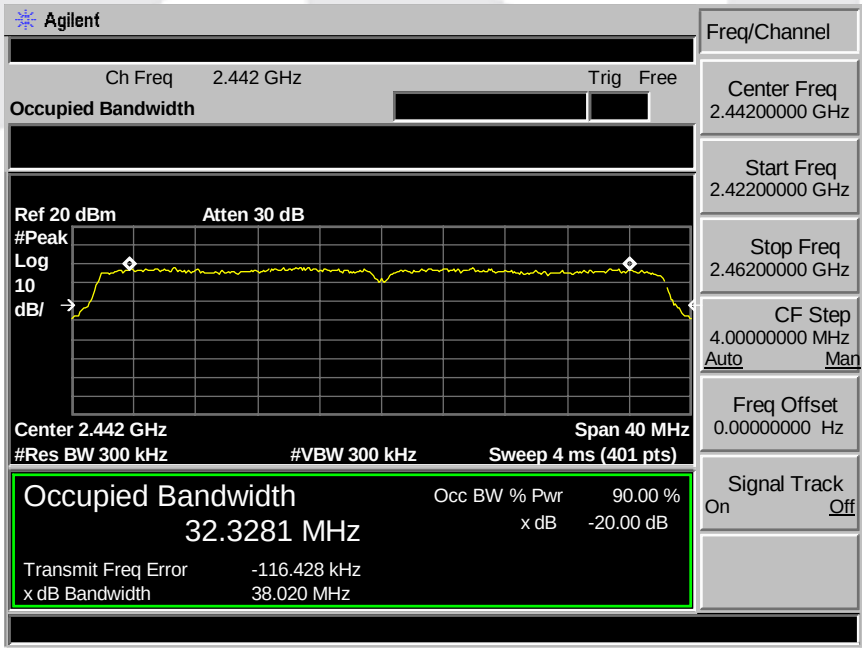
Measurement Data on Lower Channel 2422MHz

DC 3.3V



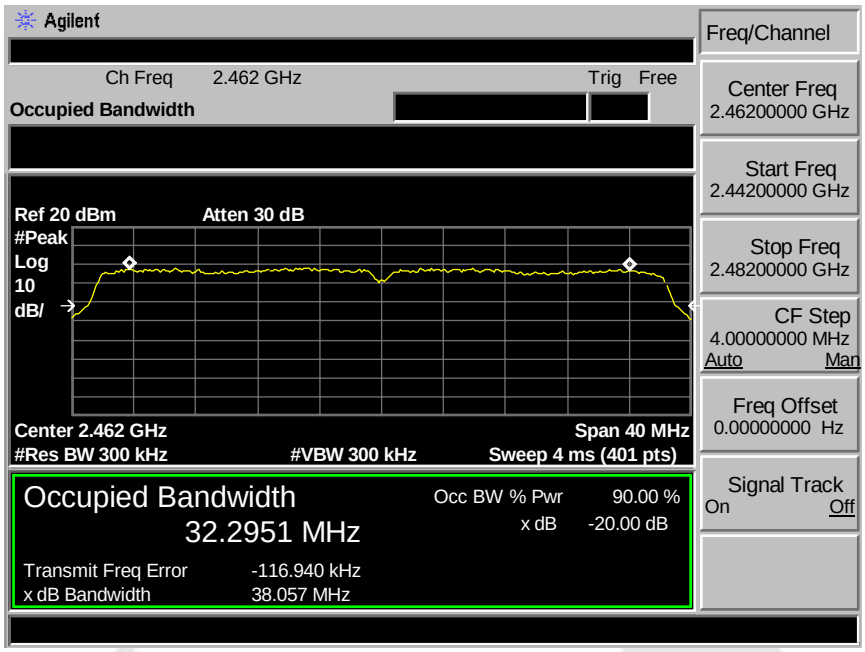
Measurement Data on Center Channel 2442MHz

DC 3.3V



Measurement Data on Upper Channel 2462MHz

DC 3.3V



3.4 Unwanted Emission Intensity Measurement

3.4.1 Test Equipment

Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Spectrum Analyzer	ROHDE&SCHWARZ	FSV30	103559	Jan.30, 2019	1 Year
Spectrum Analyzer	Agilent	E4408B	MY44211120	Jan.30, 2019	1 Year
Power Meter	Rohde &Schwarz	NRVS	101807	Jan.30, 2019	1 Year
RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	Jan.30, 2019	1 Year
AC Source	Ouyuandianzi	APW-1100N	992462	Mar.15, 2019	1 Year
Calibration Lab: CEPREI Calibration and Testing Center					

3.4.2 Limit

Item	Limits
TX Spurious Emission	≤2.5 μW (2387MHz>f ; 2496.5MHz<f)
	≤ 25 μW (2387MHz ≤ f<2400MHz) and (2483.5MHz<f ≤ 2496.5MHz)

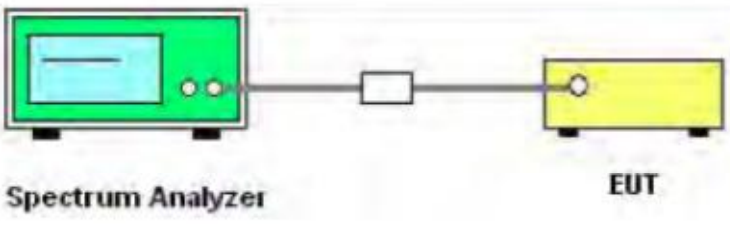
3.4.3 Measuring Instruments and setting

Spectrum Parameter	Setting
Attenuation	Auto
RB/VB	100 kHz / 100 kHz (Below 1GHz)
	1 MHz / 1 MHz (1 GHz or higher)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

3.4.4 Test Procedures

1. EUT have transmitted the maximum modulation signal and fixed channelize.
2. Setting of SA is following as: RB:1MHz / VB:1MHz / AT: 10dB / Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold
3. Setting of SA is following as 30MHz and stop frequency 2387MHz Then to mark peak reading value + cable loss shall be less than 2.5μW.
4. SA adjusted to start frequency 2387MHz and stop frequency 2400MHz. Then to mark peak reading value + cable loss shall be less than 25μW.
5. SA adjusted to start frequency 2483.5MHz and stop frequency 2496.5MHz Then to mark peak reading value + cable loss shall be less than 25μW
6. SA adjusted to start frequency 2496.5MHz and stop frequency 12500MHz Then to mark peak reading value + cable loss shall be less than 2.5μW
7. Measure side band spurious as follows: For 2.4GHz band: 2374MHz~2400MHz and 2483.5MHz~2509.5MHz RBW = VBW = 30kHz, Result_Value = Meaured_Value + 15.2 [dBm]
8. If the Result_Value is over the requirement, take total sum of 1MHz band centered at the spur frequency like ACLP measurement as Result_Value.

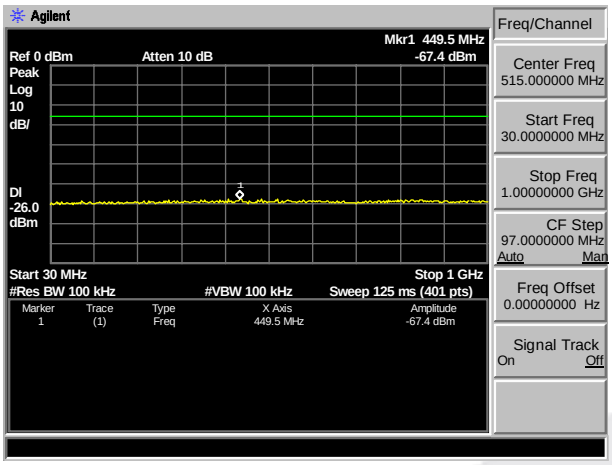
3.4.5 Test Setup Layout

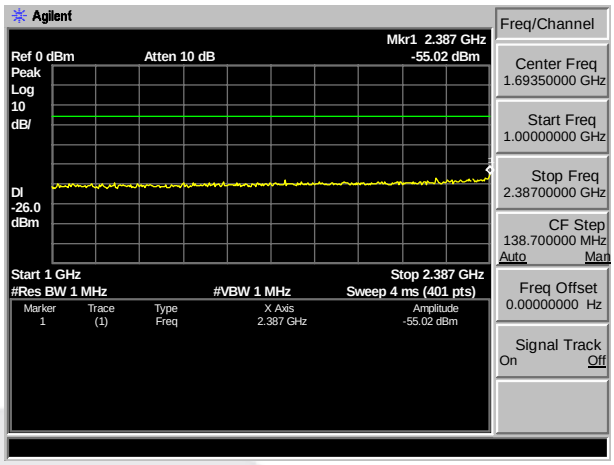


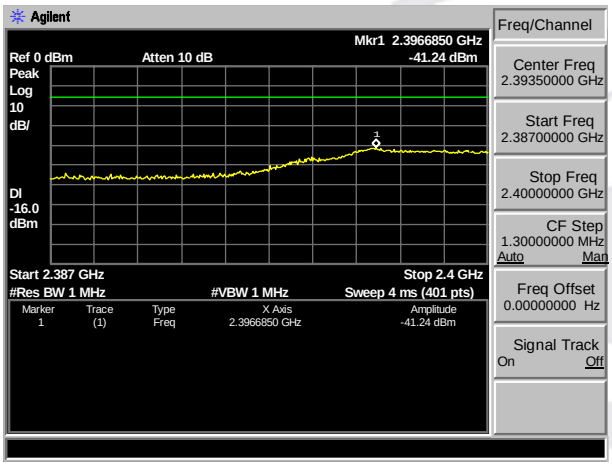
3.4.6 Test Results

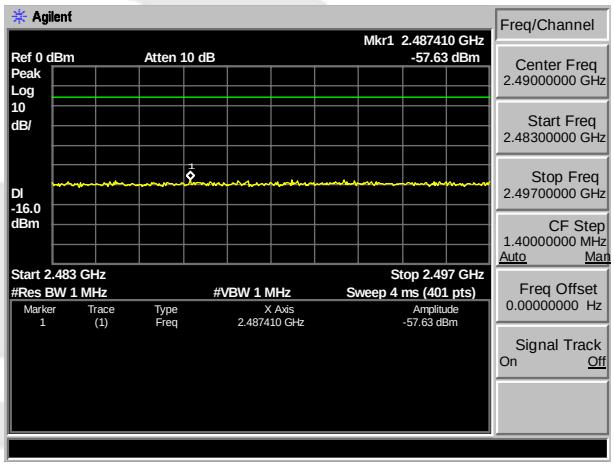
Test mode: IEEE 802.11b 2412MHz Test Plots

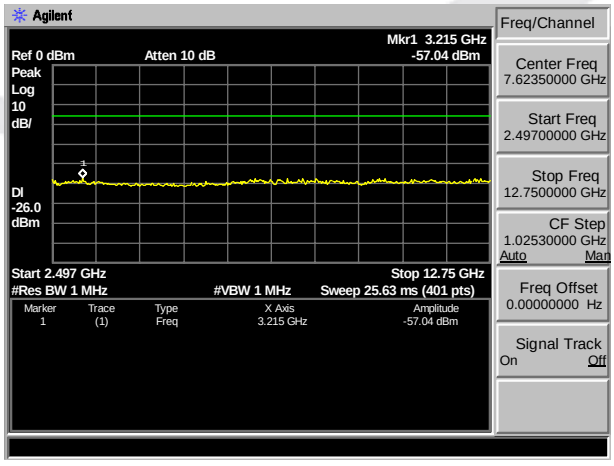
(1).DC 3.3V





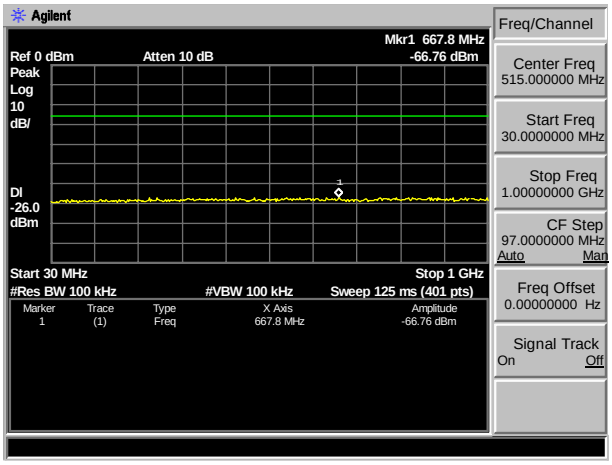


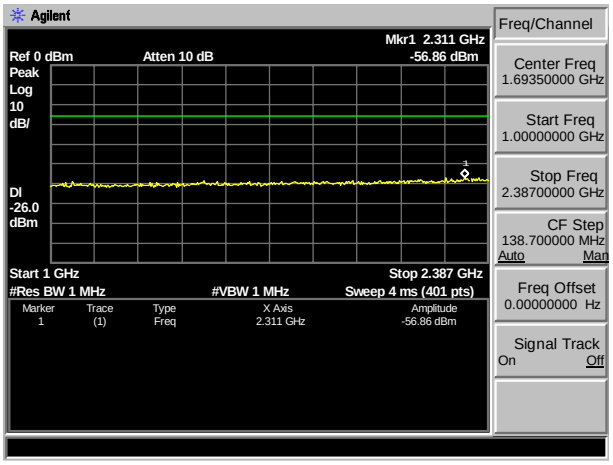


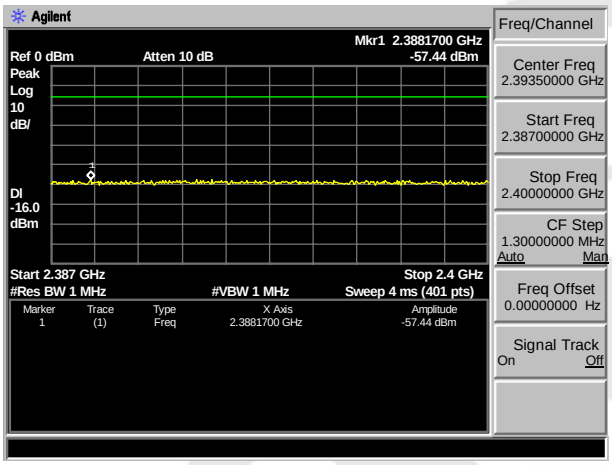


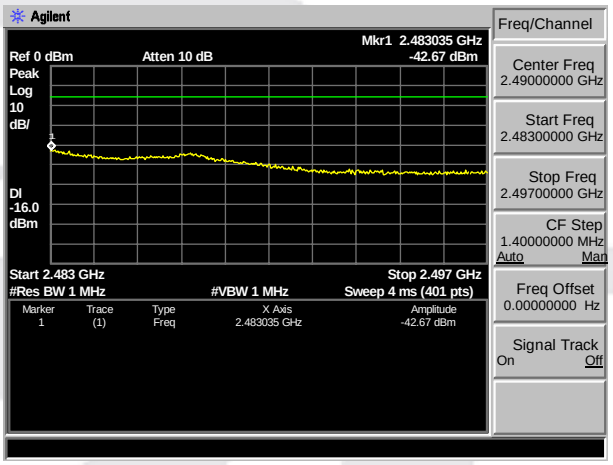
Test mode: IEEE 802.11b 2442MHz Test Plots

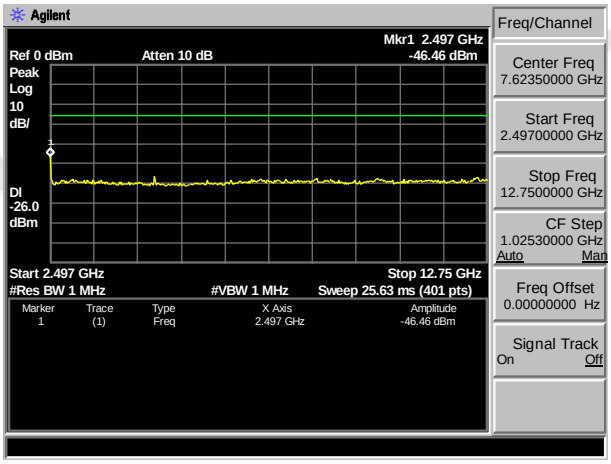
(1). DC 3.3V





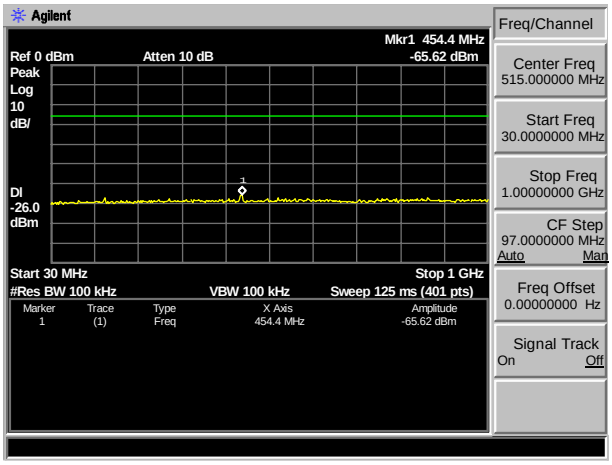


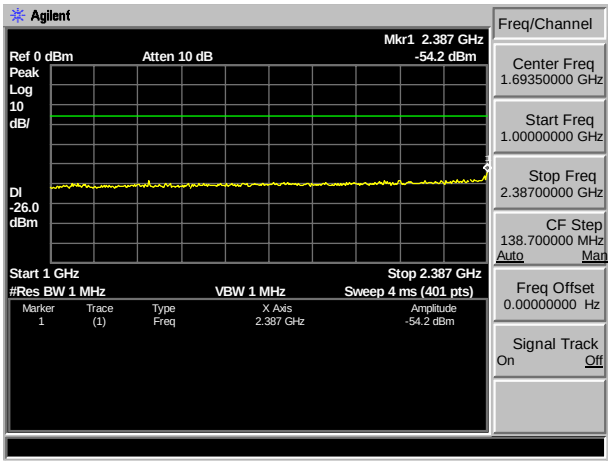


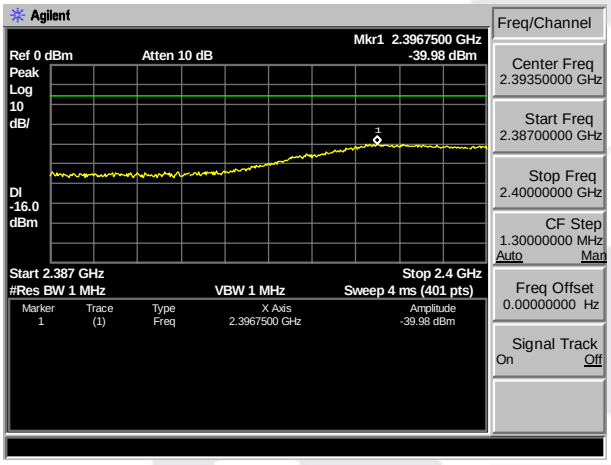


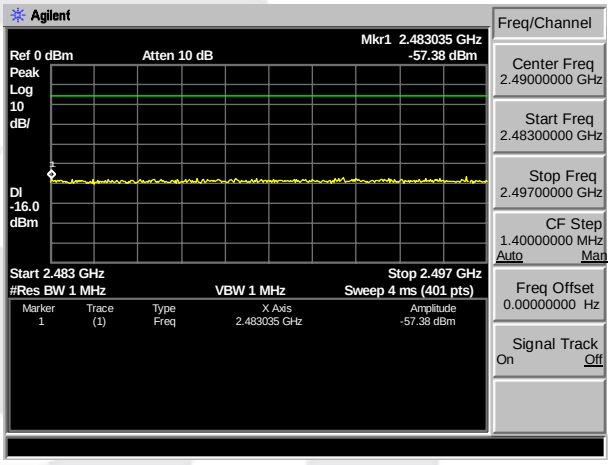
Test mode: IEEE 802.11b 2472MHz Test Plots

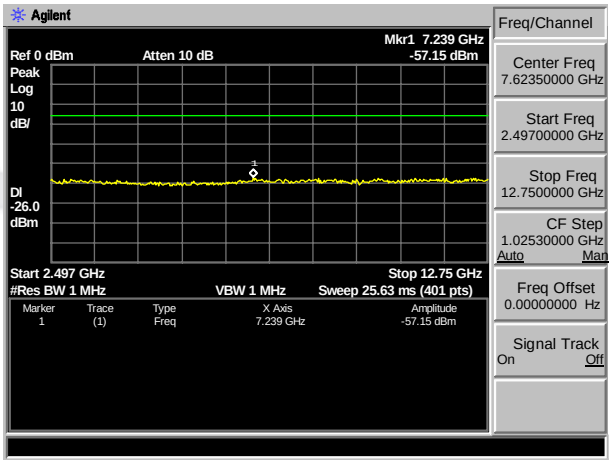
(1). DC 3.3V





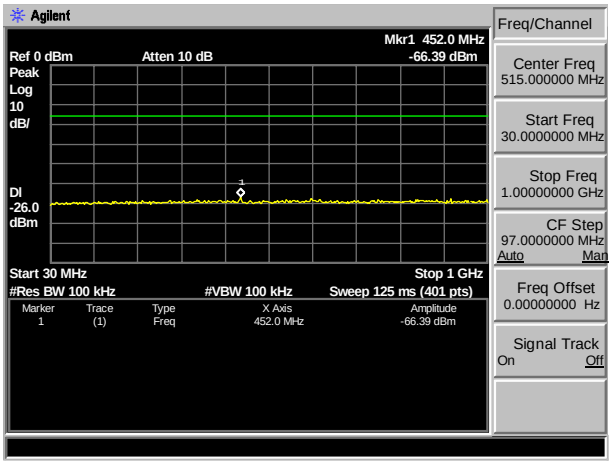


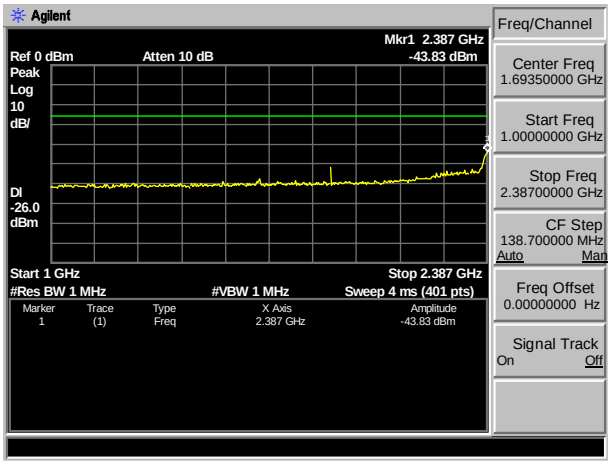


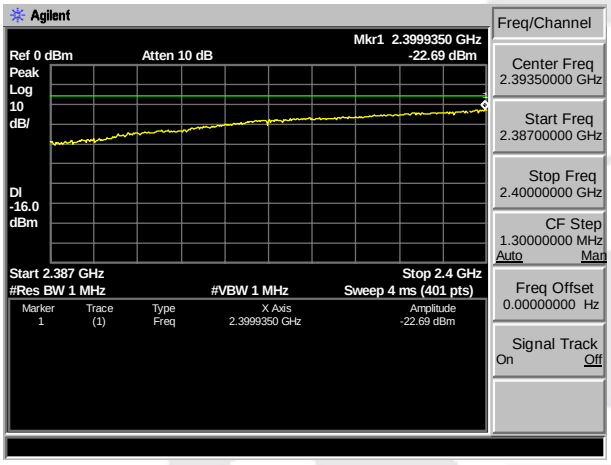


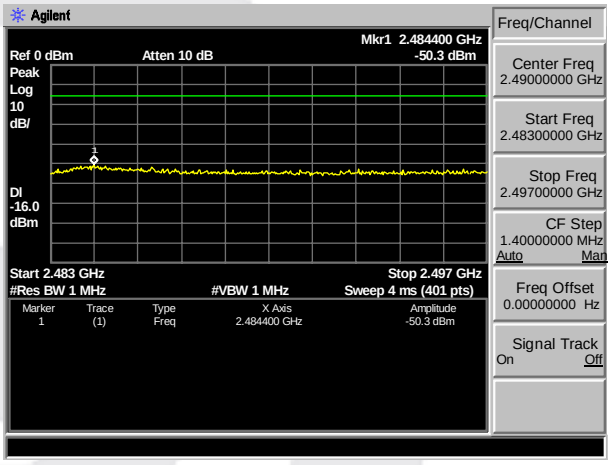
Test mode: IEEE 802.11g 2412MHz Test Plots

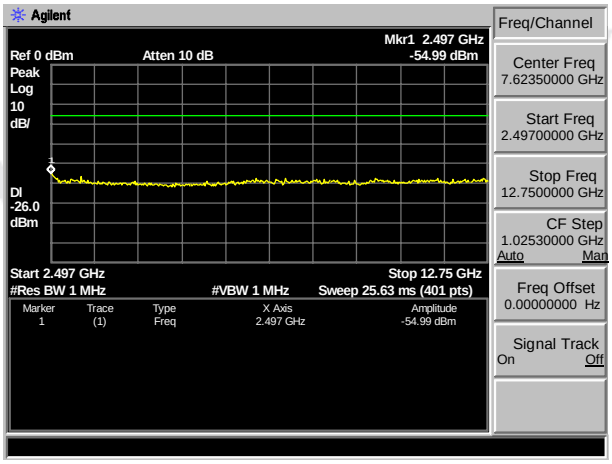
(1).DC 3.3V





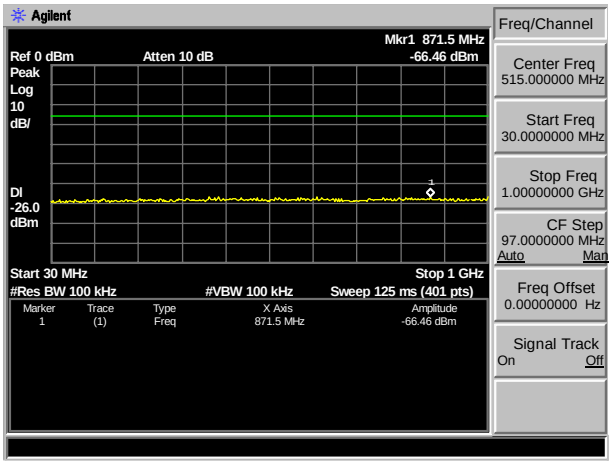


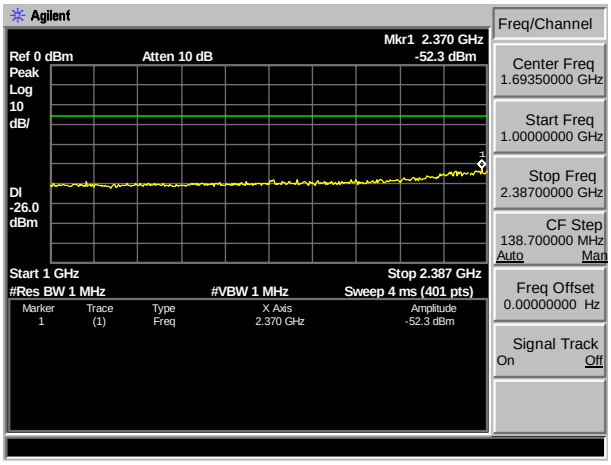


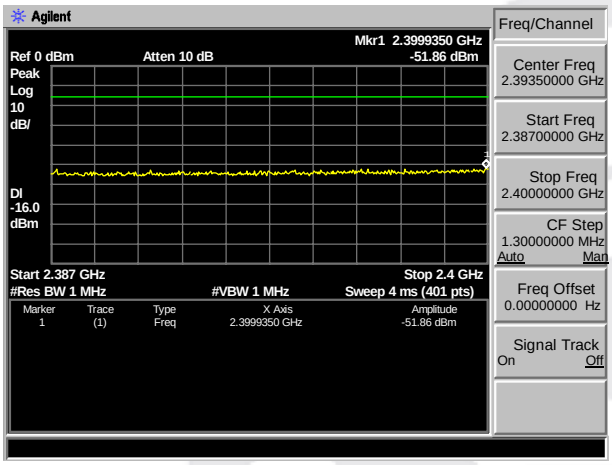


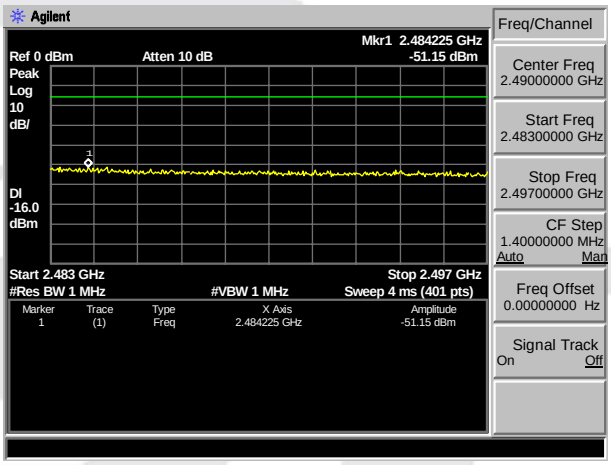
Test mode: IEEE 802.11g 2442MHz Test Plots

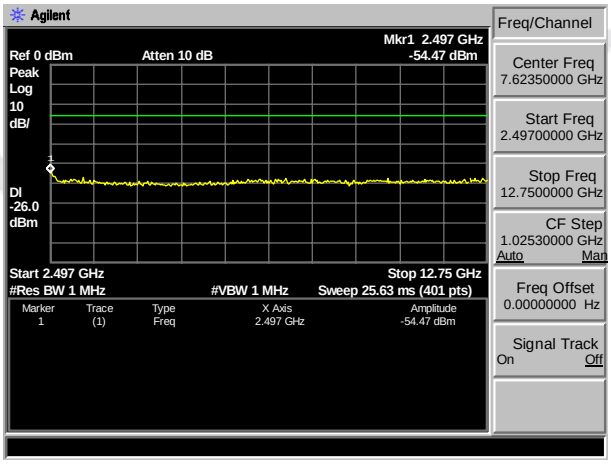
(1). DC 3.3V





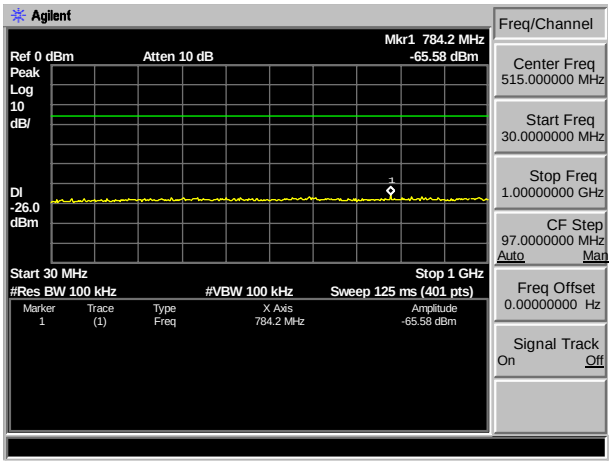


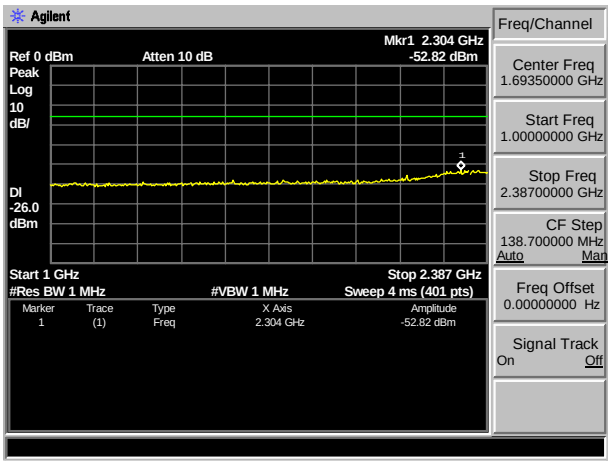


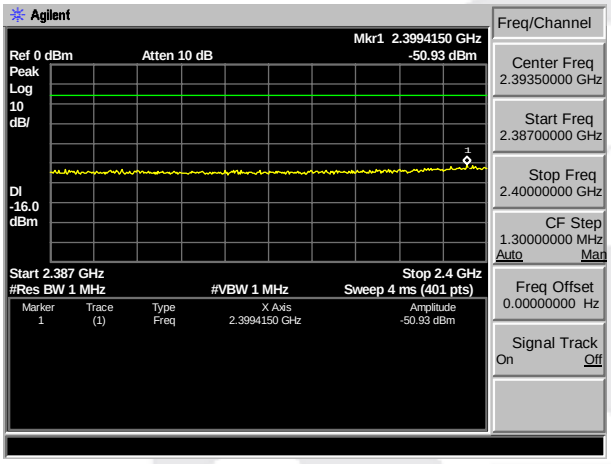


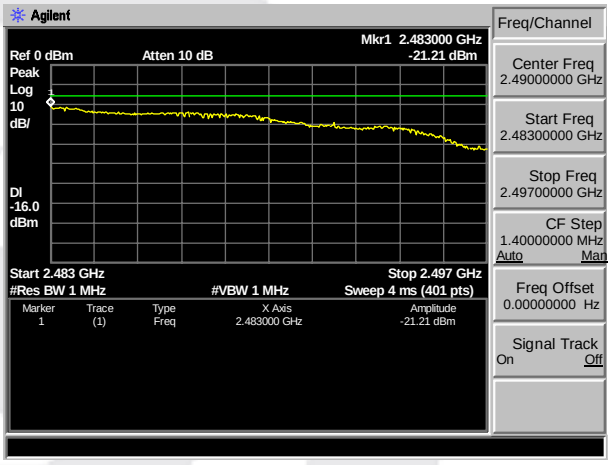
Test mode: IEEE 802.11g 2472MHz Test Plots

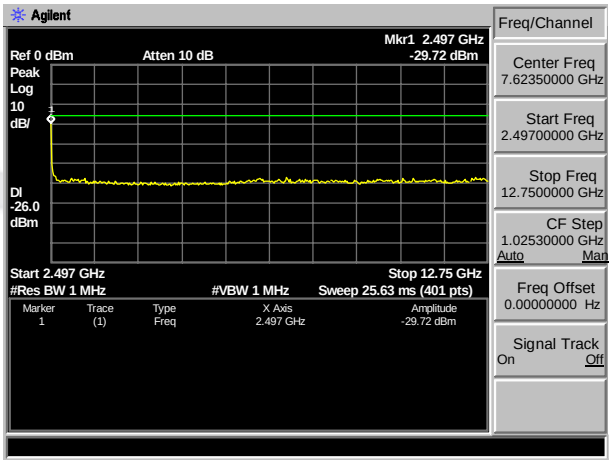
(1). DC 3.3V





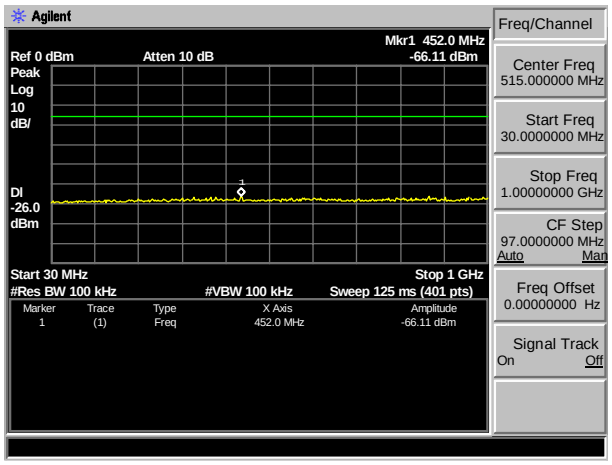


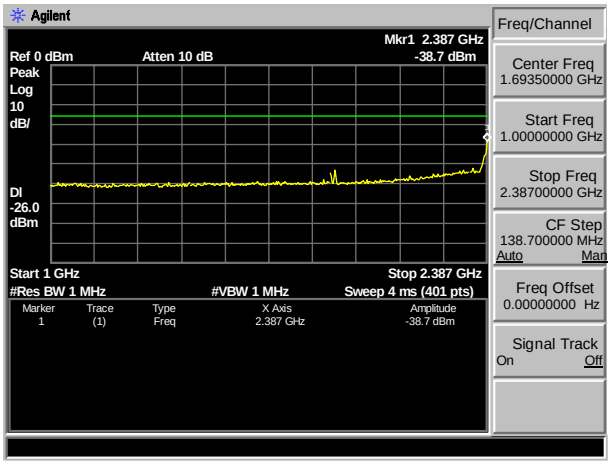


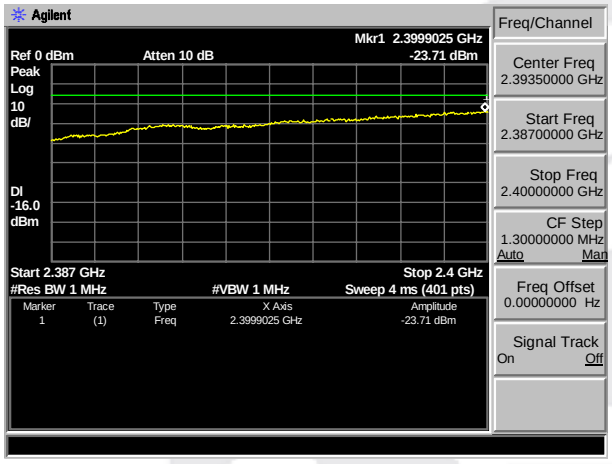


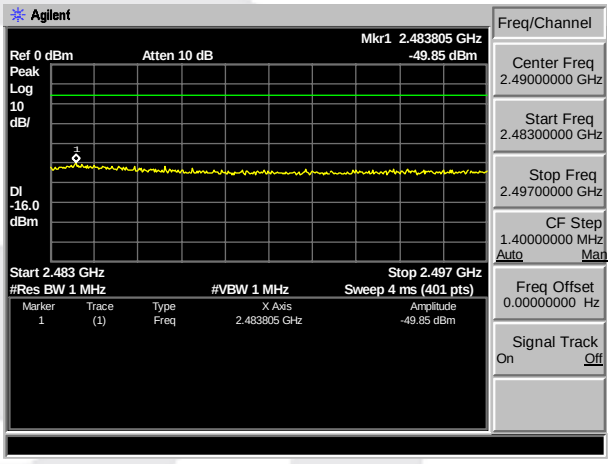
Test mode: IEEE 802.11n HT20 2412MHz Test Plots

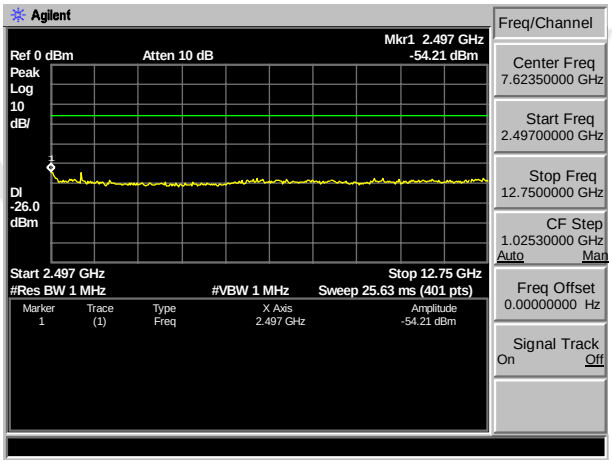
(1).DC 3.3V





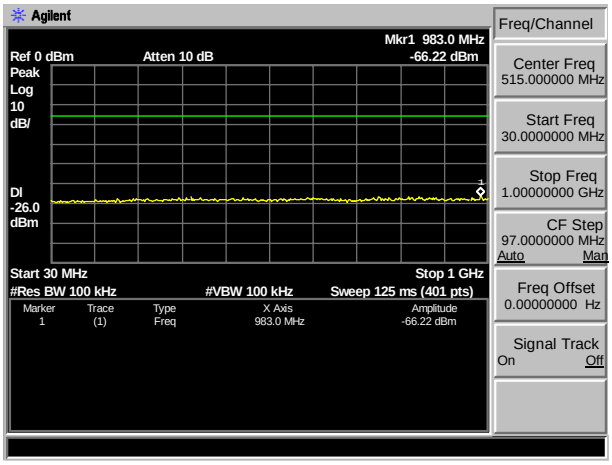


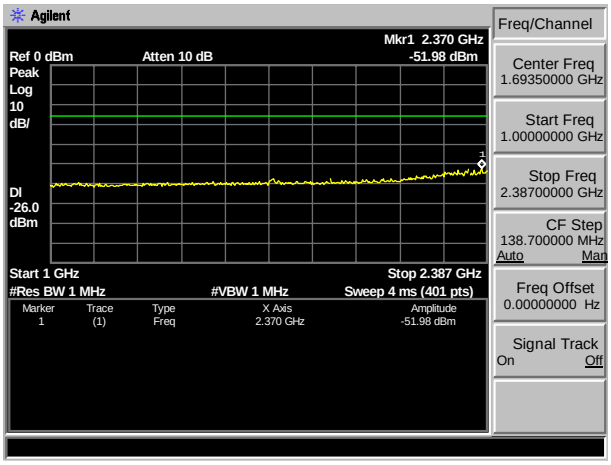


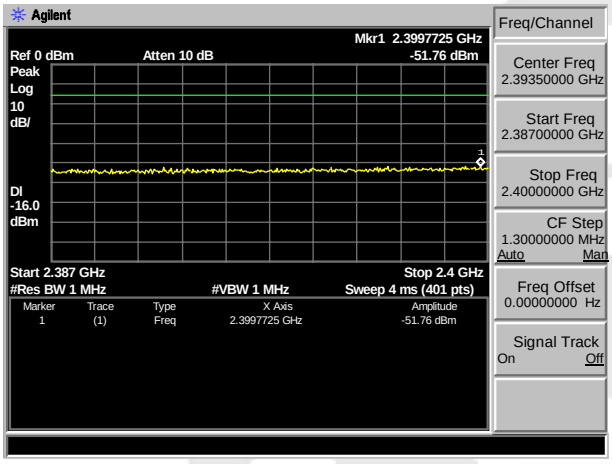


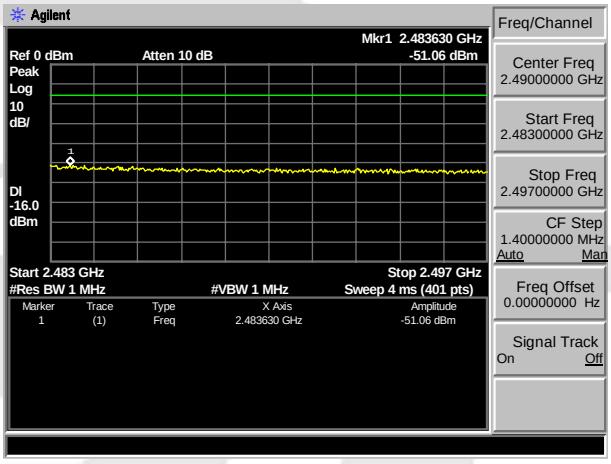
Test mode: IEEE 802.11n HT20 2442MHz Test Plots

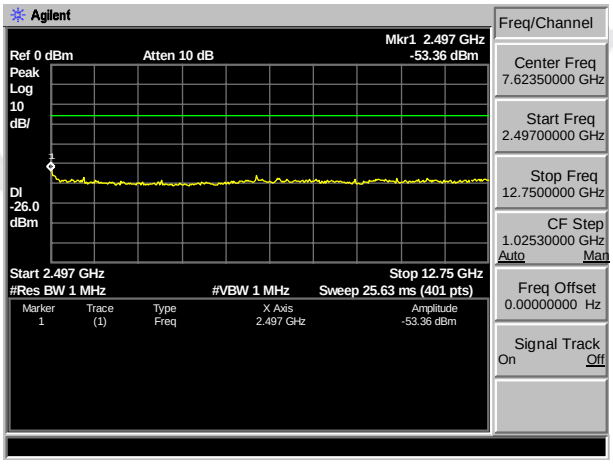
(1). DC 3.3V





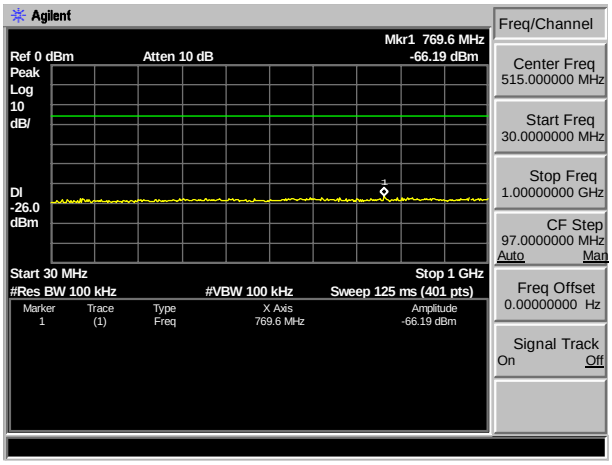


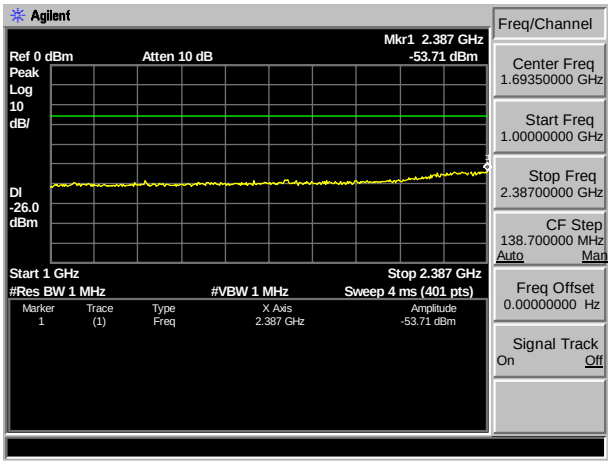


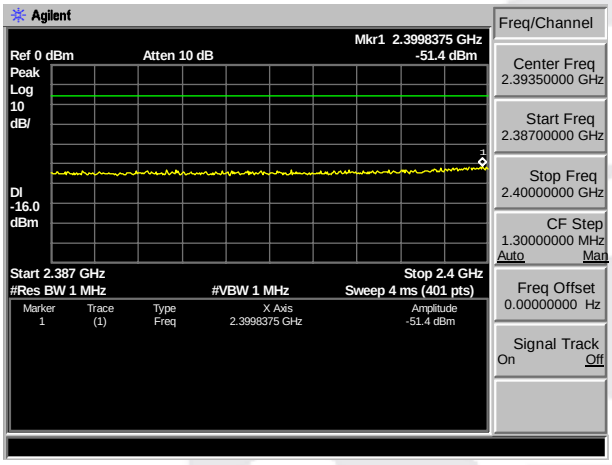


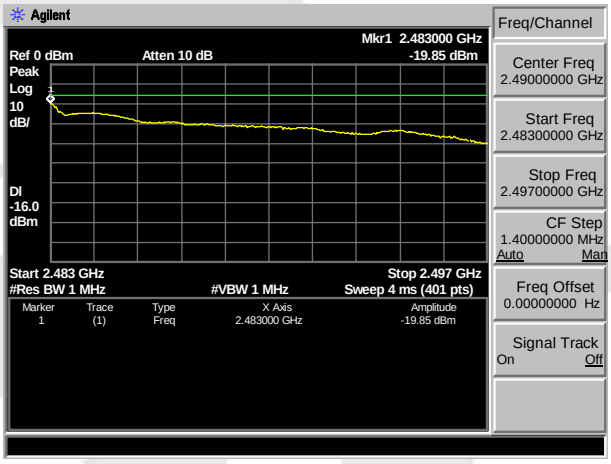
Test mode: IEEE 802.11n HT20 2472MHz Test Plots

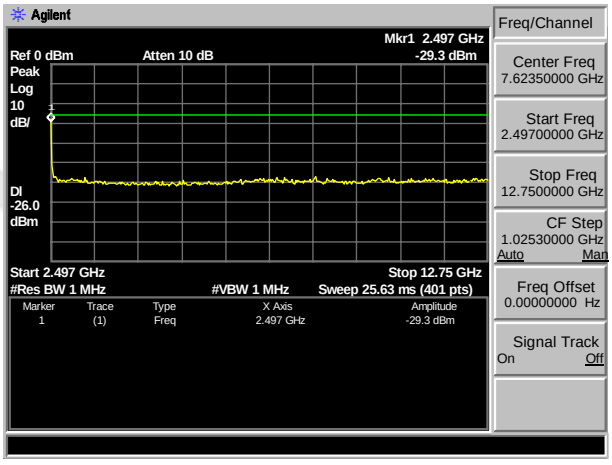
(1). DC 3.3V





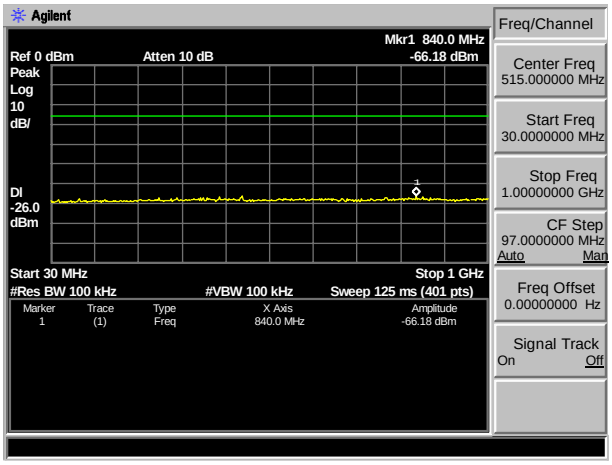


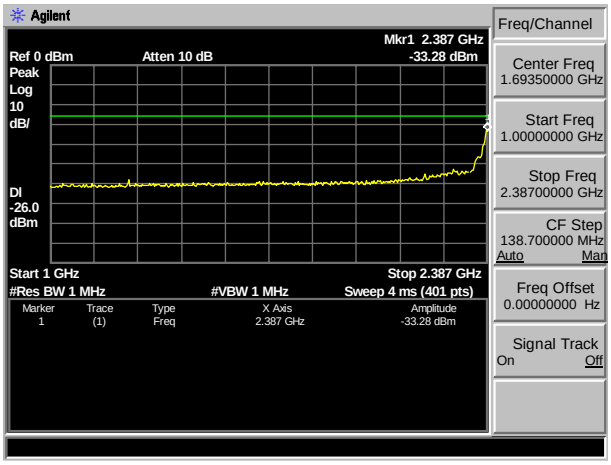


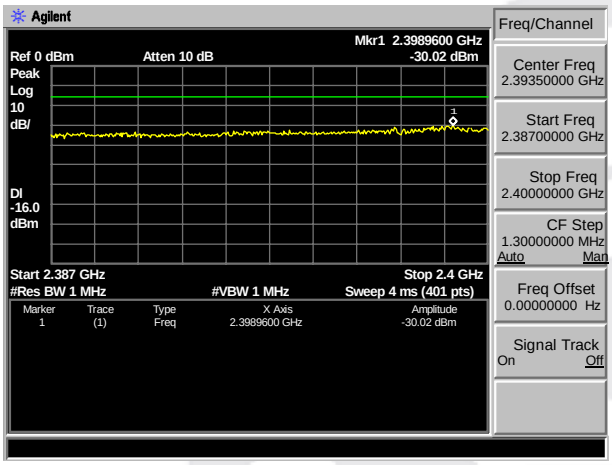


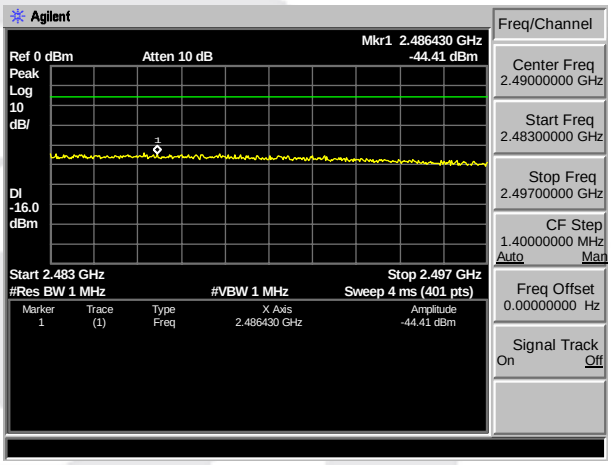
Test mode: IEEE 802.11n HT40 2422MHz Test Plots

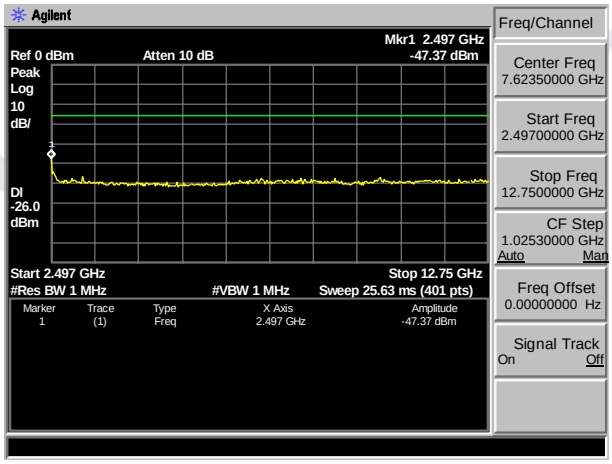
(1).DC 3.3V





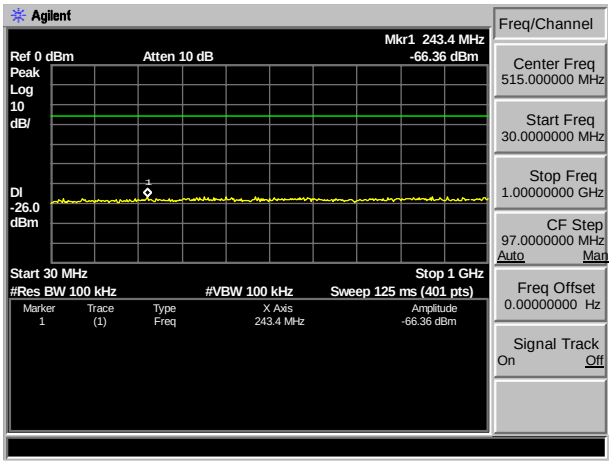


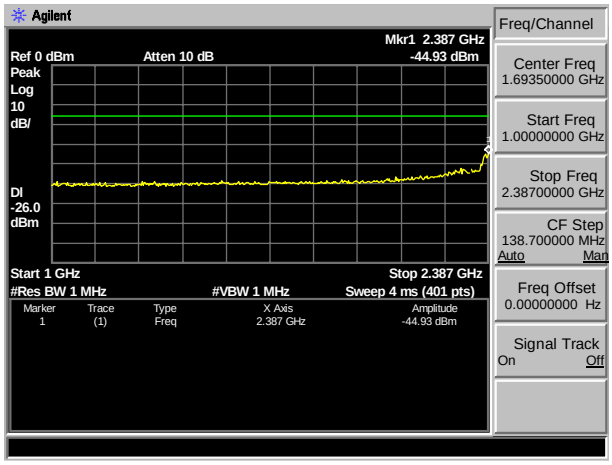


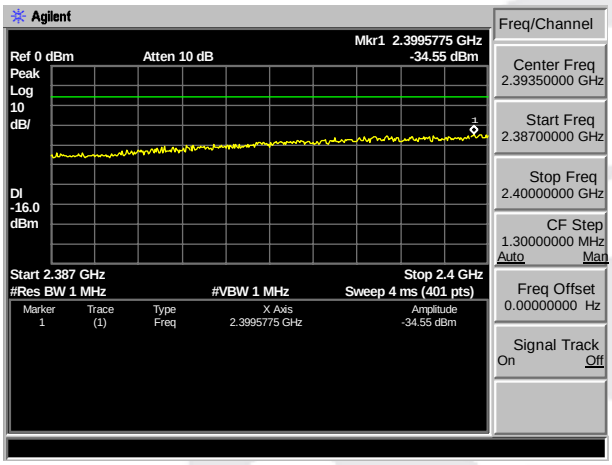


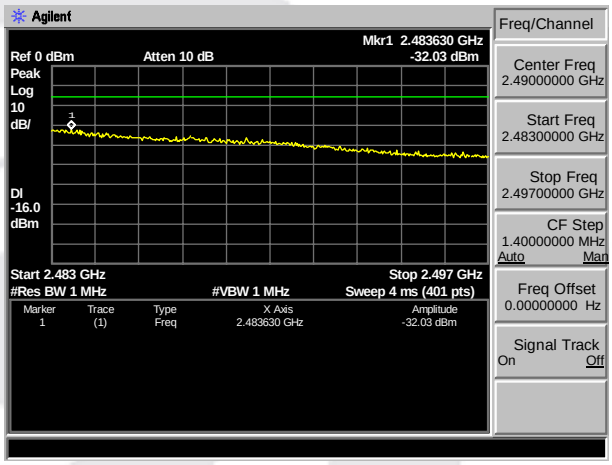
Test mode: IEEE 802.11n HT40 2442MHz Test Plots

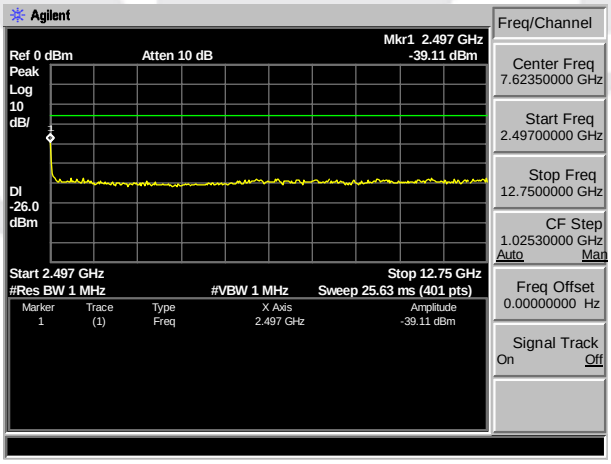
(1).DC 3.3V





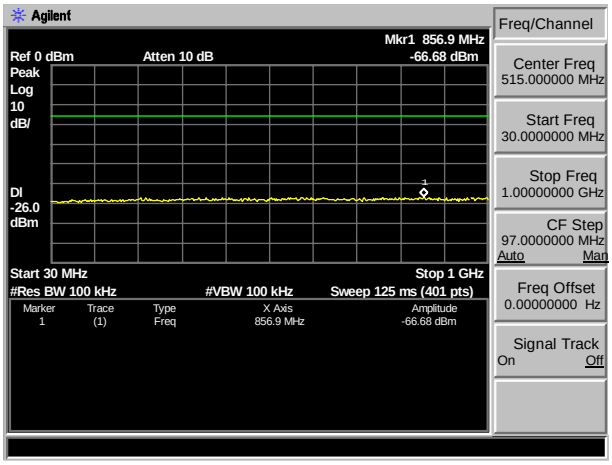


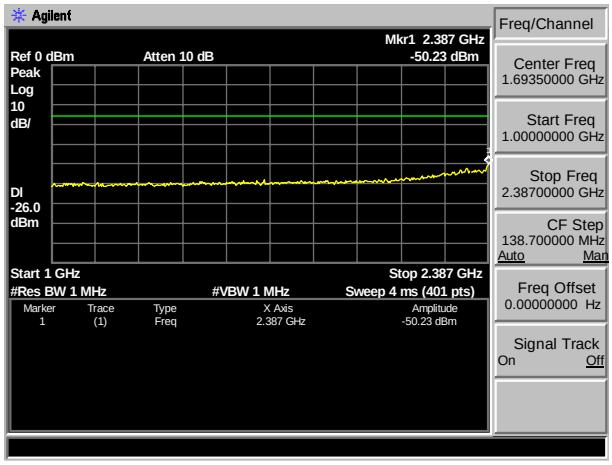


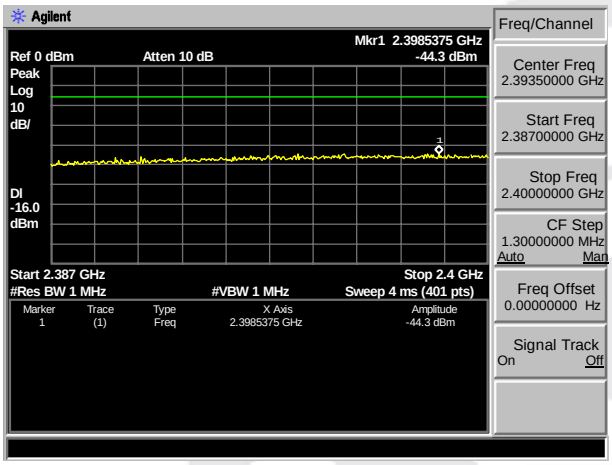


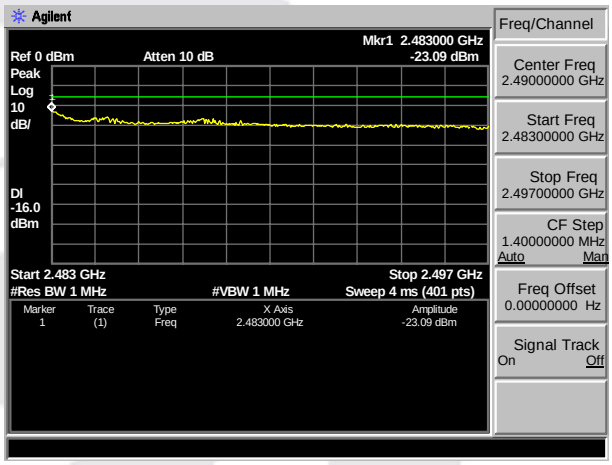
Test mode: IEEE 802.11n HT40 2462MHz Test Plots

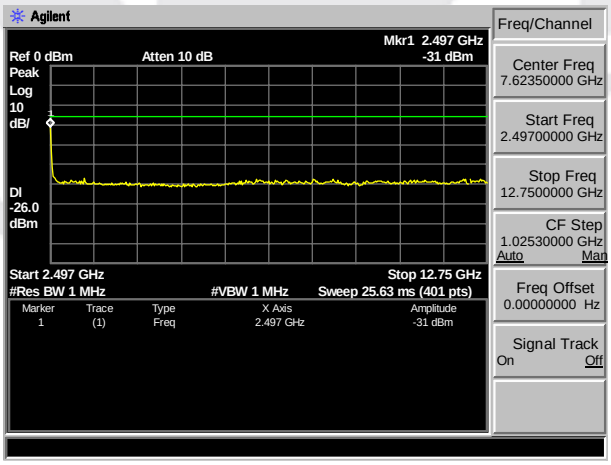
(1).DC 3.3V











4 Measurements of Receiving Equipment

4.1 Unwanted Emission Intensity Measurement

4.1.1 Test Equipment

Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Spectrum Analyzer	ROHDE&SCHWARZ	FSV30	103559	Jan.30, 2019	1 Year
Spectrum Analyzer	Agilent	E4408B	MY44211120	Jan.30, 2019	1 Year
Power Meter	Rohde &Schwarz	NRVS	101807	Jan.30, 2019	1 Year
RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	Jan.30, 2019	1 Year
AC Source	Ouyuandianzi	APW-1100N	992462	Mar.15, 2019	1 Year
Calibration Lab: CEPREI Calibration and Testing Center					

4.1.2 Limit

Item	Limits
RX Spurious Emission	≤ 4nW (Below 1GHz)
	≤20 nW (1 GHz or higher)

4.1.3 Measuring Instruments and setting

Spectrum Parameter	Setting
Attenuation	Auto
RB/VB	100 kHz / 100 kHz (Below 1GHz)
	1 MHz / 1 MHz (1 GHz or higher)
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

4.1.4 Test Procedures

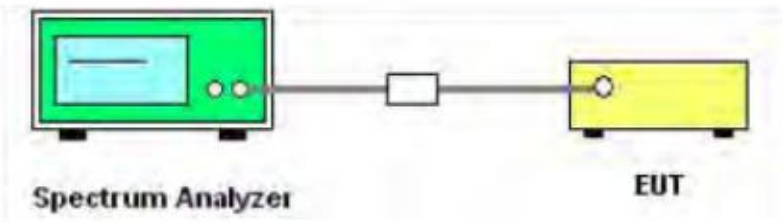
1.EUT have transmitted the maximum modulation signal and fixed channelize.

2.Setting of SA is following as: RB:1MHz / VB:1MHz / AT: 5dB / Ref: -20dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak / Trace mode: Max hold

3.Setting of SA is following as 30MHz and stop frequency 1000MHz Then to mark peak reading value + cable loss shall be less than 4nW.

4.SA adjusted to start frequency 1000MHz and stop frequency 12750MHz. Then to mark peak reading value + cable loss shall be less than 20nW.

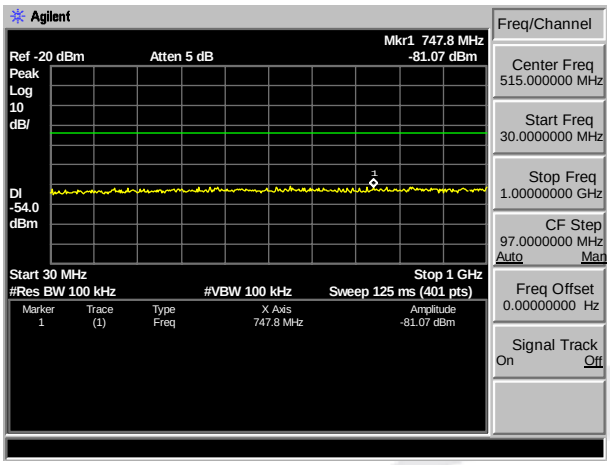
4.1.5 Test Setup Layout

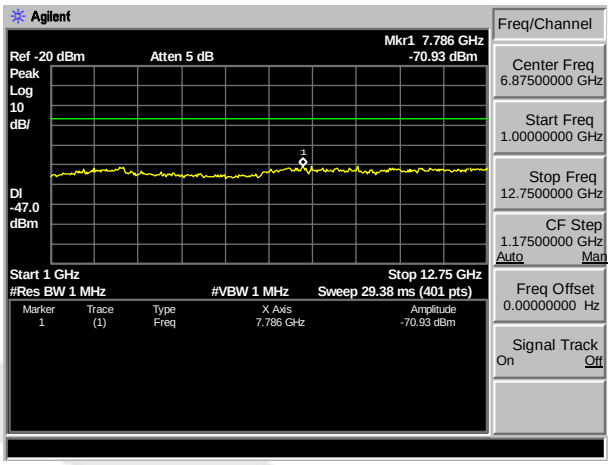


4.1.6 Test Result:

Test mode: IEEE 802.11b RX 2412MHz Test Plots

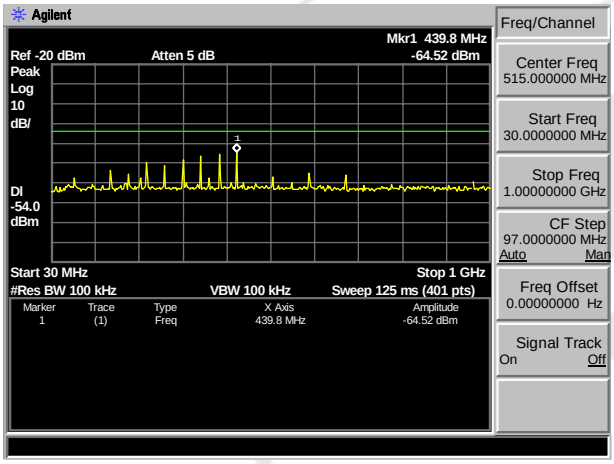
（1）DC 3.3V

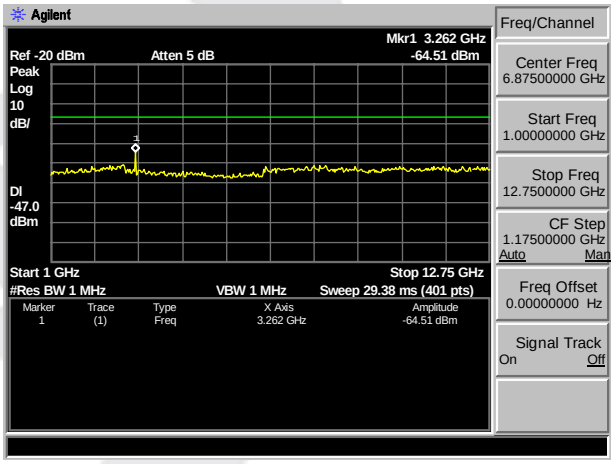




Test mode: IEEE 802.11b RX 2442MHz Test Plots

（1）DC 3.3V





Test mode: IEEE 802.11b RX 2472MHz Test Plots

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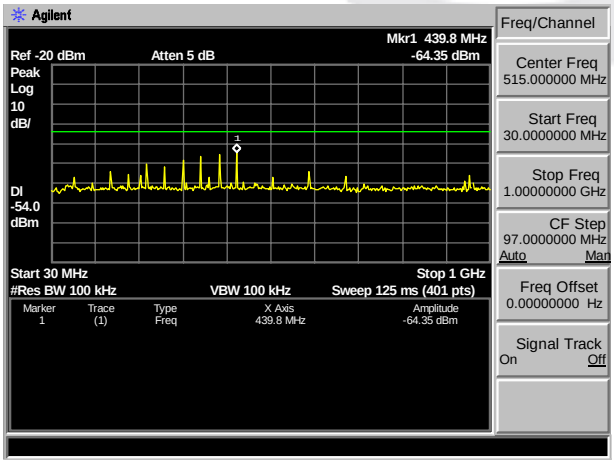
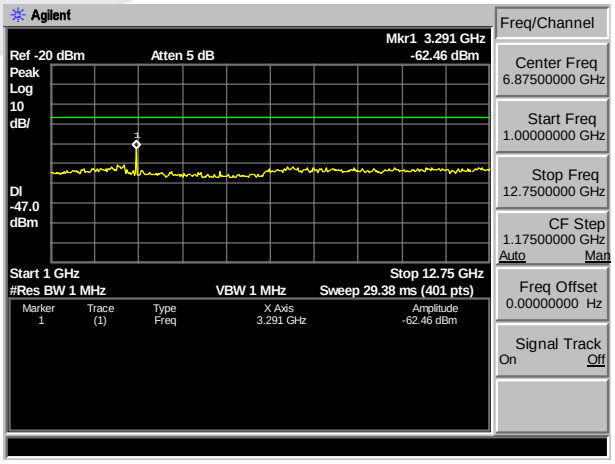
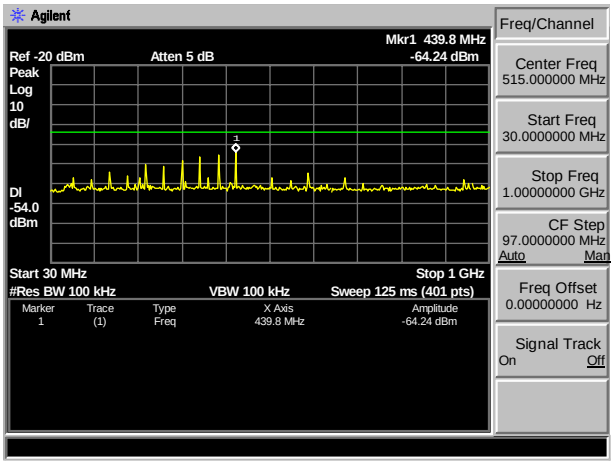
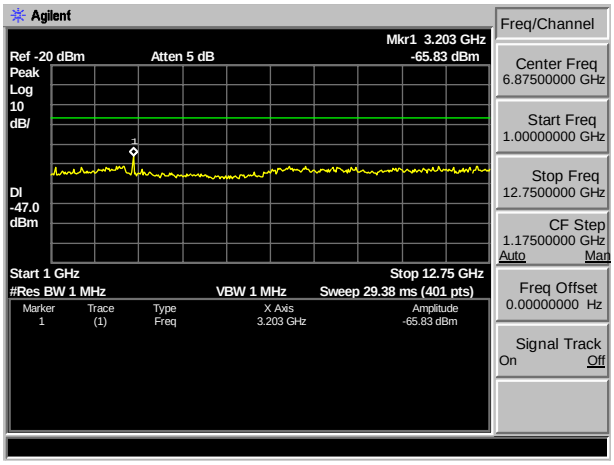




Test mode: IEEE 802.11g RX 2412MHz Test Plots

（1）DC 3.3V





Test mode: IEEE 802.11g RX 2442MHz Test Plots

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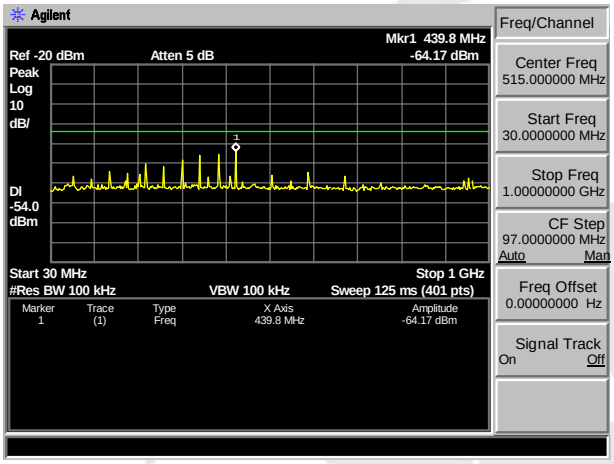
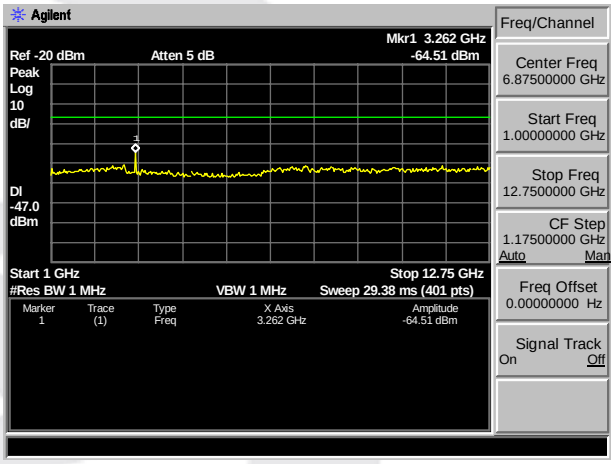
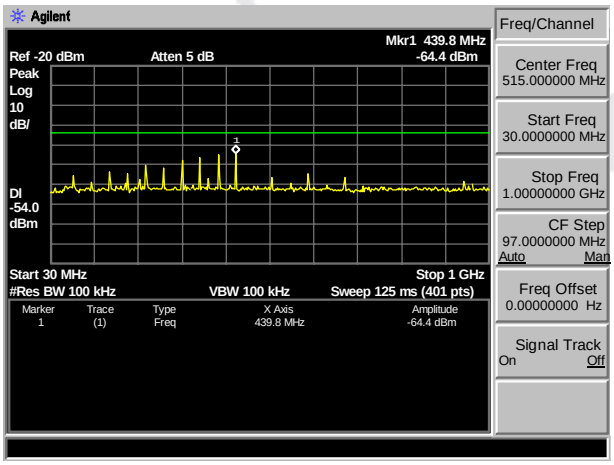
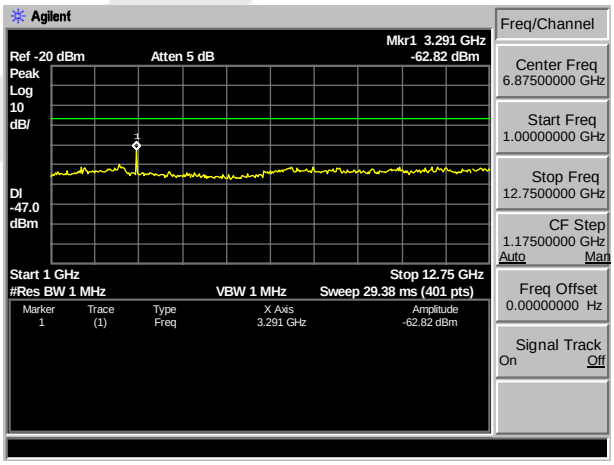




Test mode: IEEE 802.11g RX 2472MHz Test Plots

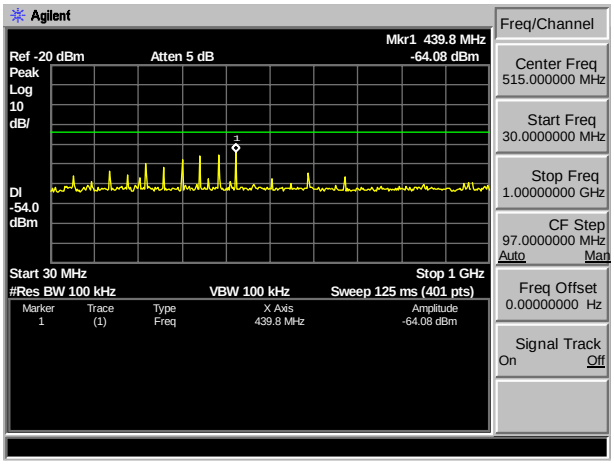
（1）DC 3.3V

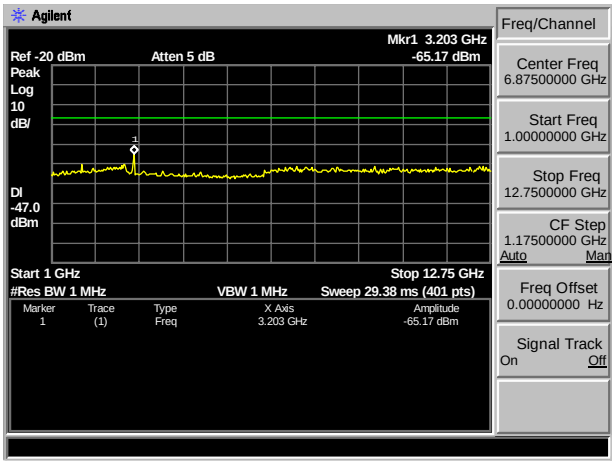




Test mode: IEEE 802.11n HT20 RX 2412MHz Test Plots

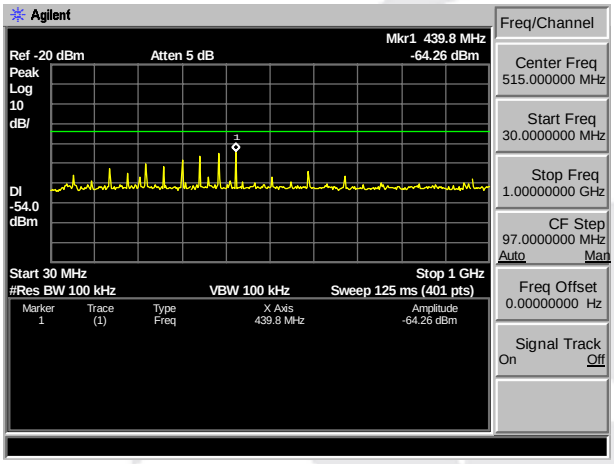
（1）DC 3.3V

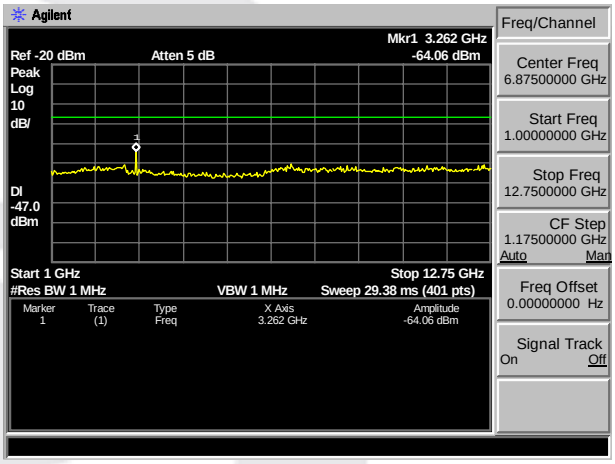




Test mode: IEEE 802.11n HT20 RX 2442MHz Test Plots

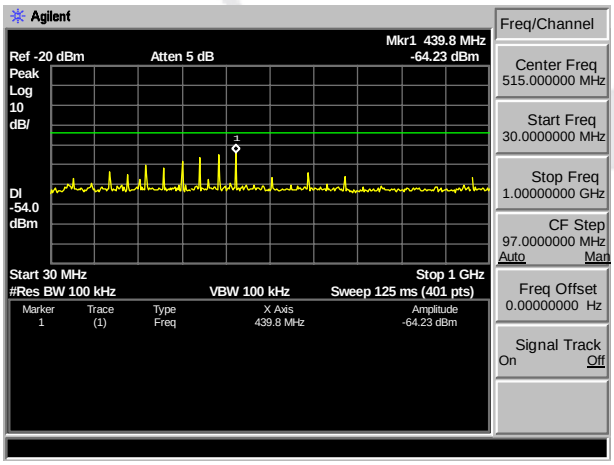
（1）DC 3.3V

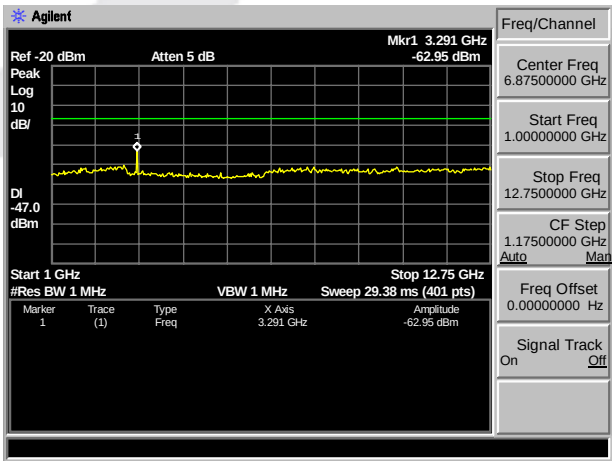




Test mode: IEEE 802.11n HT20 RX 2472MHz Test Plots

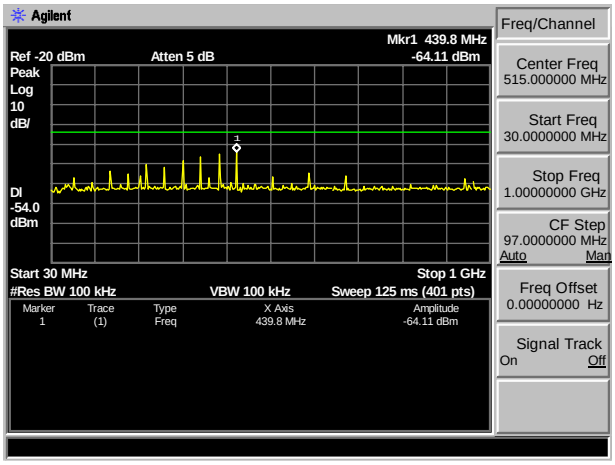
（1）DC 3.3V

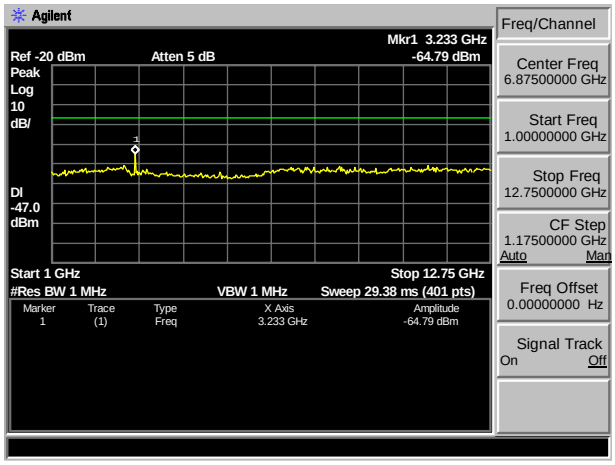




Test mode: IEEE 802.11n HT40 RX 2422MHz Test Plots

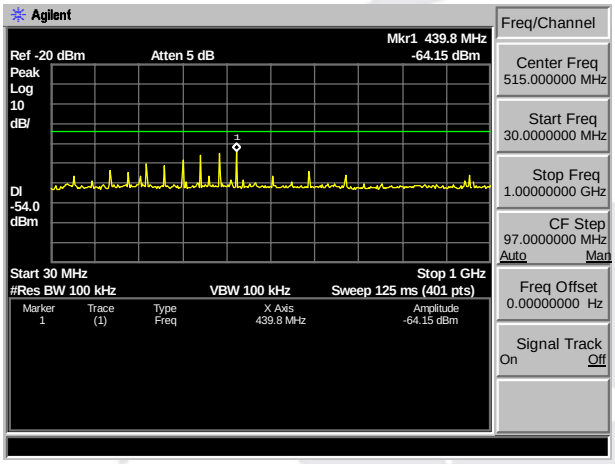
（1）DC 3.3V

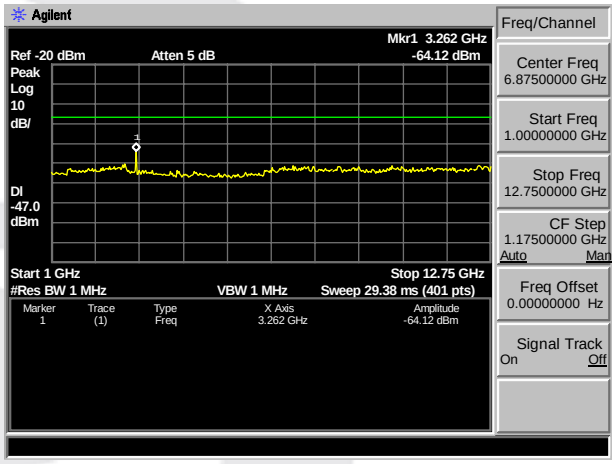




Test mode: IEEE 802.11n HT40 RX 2442MHz Test Plots

（1）DC 3.3V





Test mode: IEEE 802.11n HT40 RX 2462MHz Test Plots

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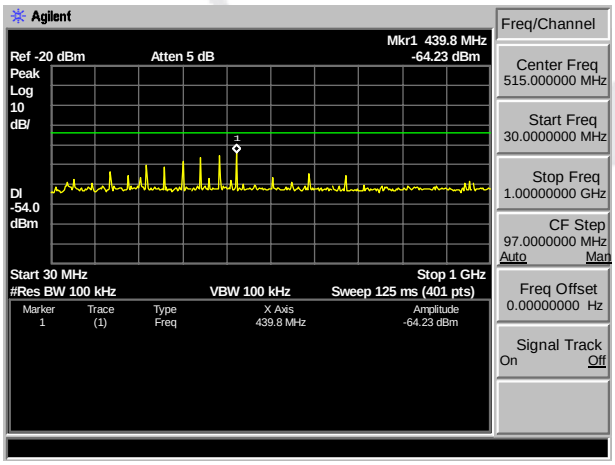
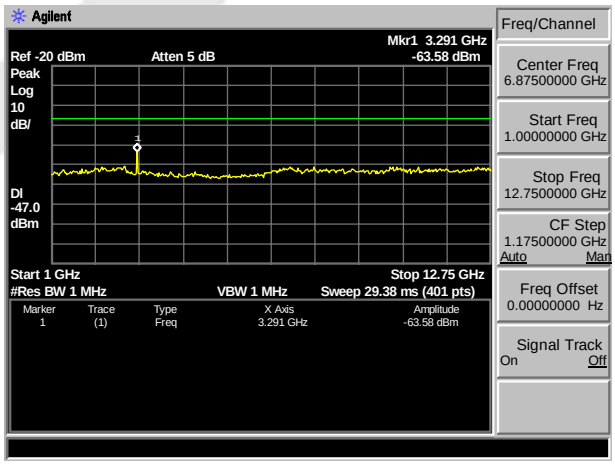




5 Measurements of Controlling Equipment

5.1 Interference prevention function

5.1.1 Test Equipment

Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Spectrum Analyzer	ROHDE&SCHWARZ	FSV30	103559	Jan.30, 2019	1 Year
Power Meter	Rohde &Schwarz	NRVS	101807	Jan.30, 2019	1 Year
RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	Jan.30, 2019	1 Year
AC Source	Ouyuandianzi	APW-1100N	992462	Mar.15, 2019	1 Year
Calibration Lab: CEPREI Calibration and Testing Center					

5.1.2 Limit

Item	Limits
Carrier Sense	Good – EUT stop RF transmission signal after carrier inject to EUT. (On 22.79 +Gr-20*log(f)dBm) (Gr: dBi; f:MHz) or 100mV/m)

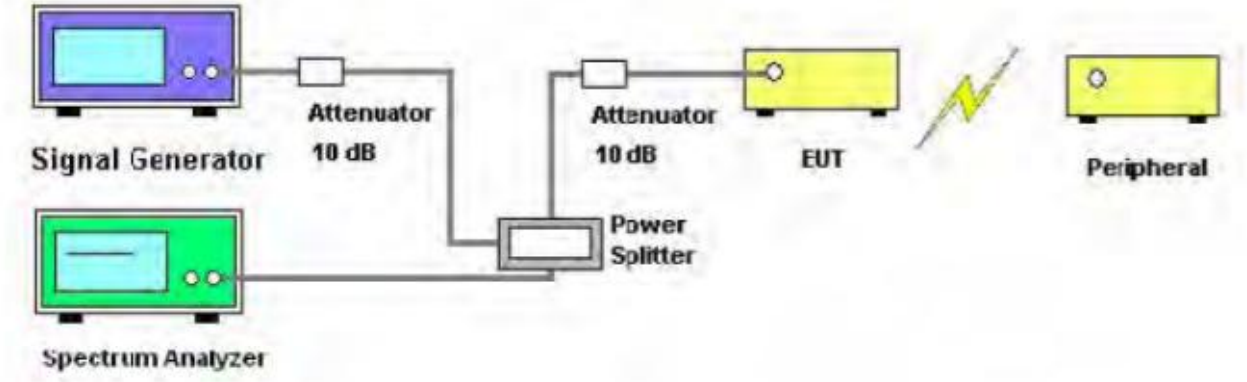
5.1.3 Measuring Instruments and setting

Spectrum Parameter	Setting
Attenuation	Auto
RB/VB	1 MHz / 1 MHz
Span	0MHz
Sweep	Continuous
Detector	Peak
Trigger mode	Video

5.1.4 Test Procedures

1. SSG adjusted the frequency as same as the EUT transmitted signal and emitted the absence of modulation from SSG and power level is (On 22.79+Gr-20*log(f)[dBm] (Gr: dBi; f: MHz). Then turn off the RF signal of SSG.
2. EUT have transmitted the maximum modulation signal and fixed channelize.
3 Setting of SA is following as: RB:1MHz / VB:1MHz / SPAN: 50MHz / AT: 10dB /Ref: 0dBm / Sweep time: Auto / Sweep Mode: Continuous sweep / Detect mode: Positive peak.
4 SSG RF Signal On.
5. EUT shall be stop the transmitted any signal and SSG RF Signal Off. Then EUT will be continuous transmitted signal.

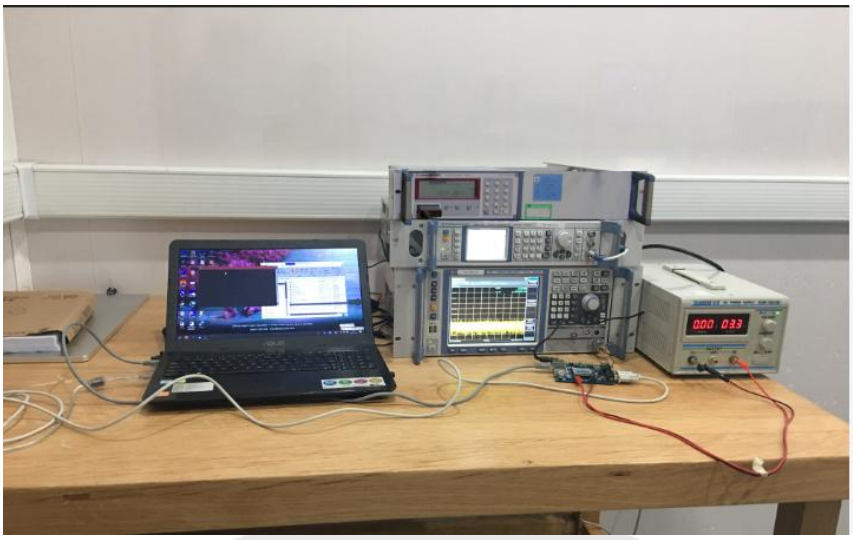
5.1.5 Test Setup Layout



5.1.6 Test Results:

Test Mode	Test Frequency (MHz)	Voltage (Vac/Vdc)	Verdict
IEEE 802.11b	2412	DC 3.3V	GOOD
	2442		GOOD
	2472		GOOD
IEEE 802.11g	2412		GOOD
	2442		GOOD
	2472		GOOD
IEEE 802.11n HT20	2412		GOOD
	2442		GOOD
	2472		GOOD
IEEE 802.11n HT40	2422		GOOD
	2442		GOOD
	2462		GOOD

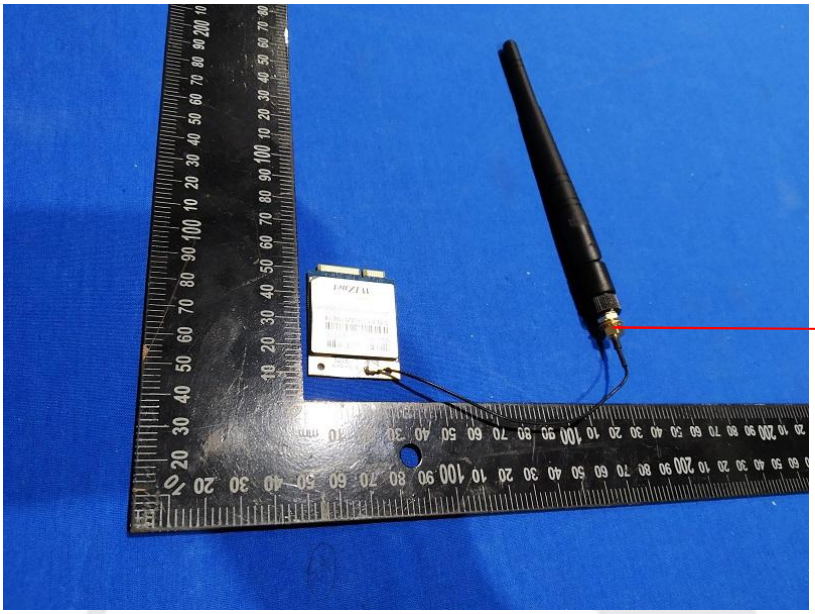
6 PHOTOGRAPHS OF TEST

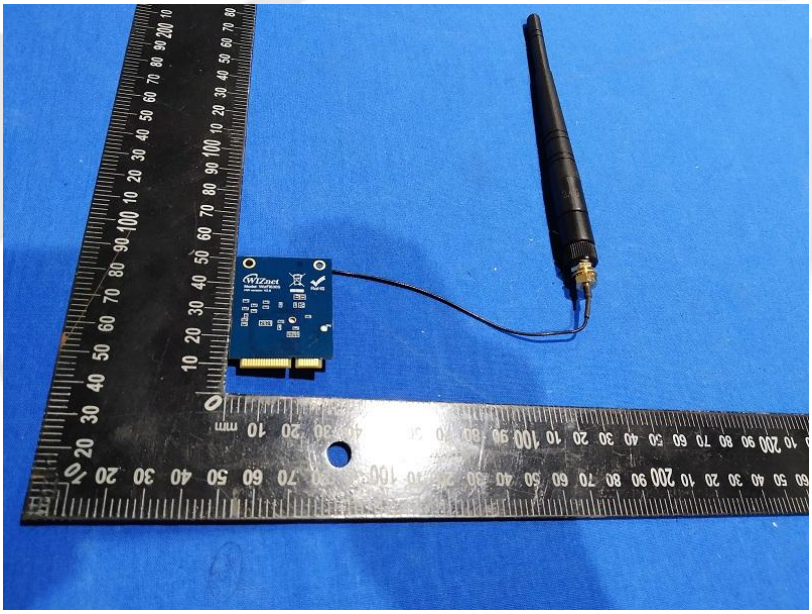


7 PHOTOGRAPHS OF EUT

External Photos

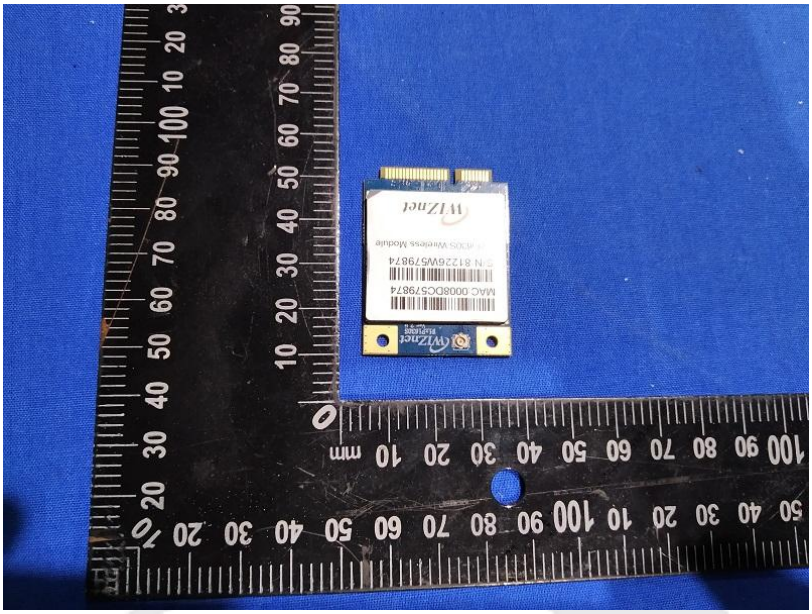
M/N: WizFi630S

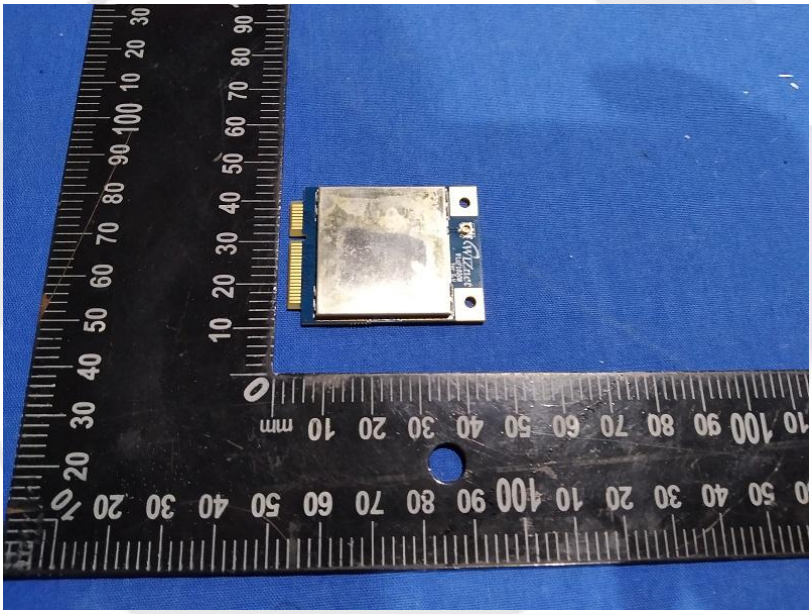




Internal Photos

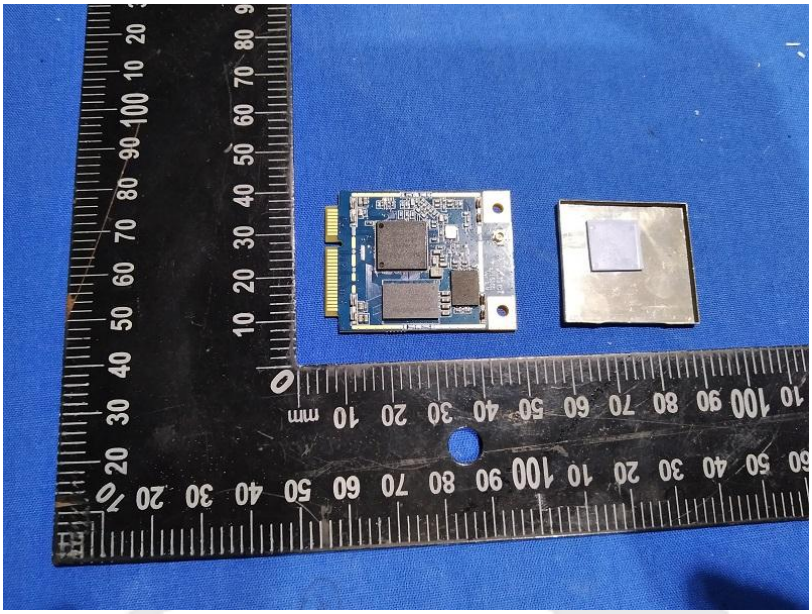
M/N: WizFi630S

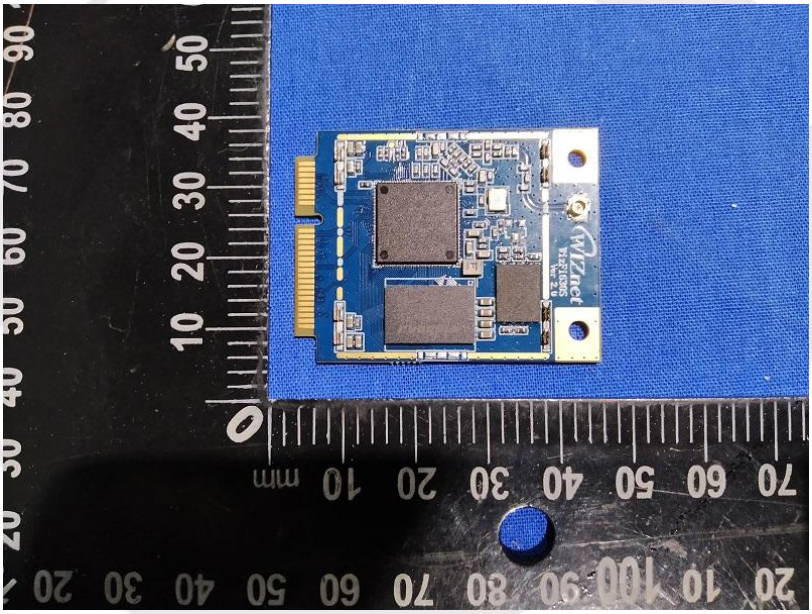




Internal Photos

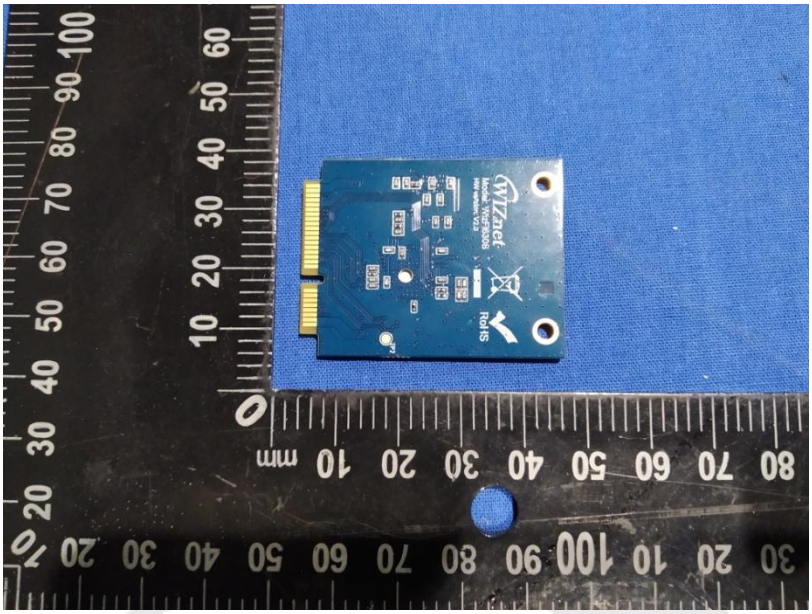
M/N: WizFi630S





Internal Photos

M/N: WizFi630S



End of Report

Statement

1. The calibration and measurement of test equipments used in our laboratory are traceable to National primary standard of measurement and BIPM.
2. The report is invalid without the special test seal of the company.
3. The test report is invalid without the signature of main tester,examiner and approver.
4. The report is invalid if altered and added or deleted.
5. The test results in this report only apply to the tested samples.
6. This test report shall not be reproduced except in full, without the written approval of our laboratory.
7. “☆”item cannot be Accredited by CNAS.
8. Any objections must be raised to KeySense within 15days since the date when report is received.

Test Laboratory: KeySense Testing & Certification International Co., Ltd.

Address: 1-3F,Lab Building,No.29 District,ZhongKai Hi-Tech Industrial Development Park,Huizhou,Guangdong,China

Postcode: 516006 Fax: 0752-3219929

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