



FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

Planet Computers Limited

Gemini

Gemini WiFi

FCC ID: 2A07Q-X600W1

Prepared for : Planet Computers Limited
Suite #9, 56 Sloane Square, London, SW1W 8AX, United
Kingdom

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Kefeng Road, Science & Technology Park,
Nanshan District , Shenzhen, Guangdong, China

Tel: (0755) 26639496

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TEST REPORT CERTIFICATION

Applicant : Planet Computers Limited
Manufacturer : Planet Computers Limited
Product : Gemini
FCC ID : 2A07Q-X600W1
(A) Model No. : Gemini WiFi
(B) Serial No. : N/A
(C) Test Voltage : DC 5V From Adapter Input AC 120V/60Hz

Tested for comply with:
FCC CFR 47 Part 15 Subpart C

Test procedure used:
ANSI C63.10: 2013
KDB 558074 D01v04

The device described above is tested by AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC and IC requirements. This report contains data that are not covered by the NVLAP accreditation.

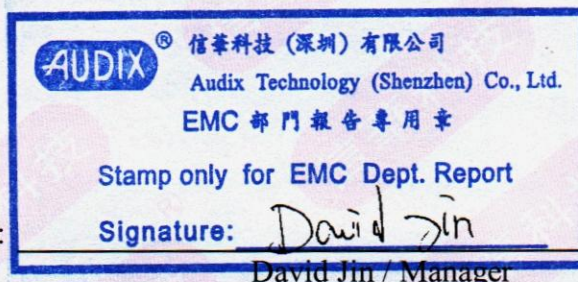
This Report is made under FCC Part 2.1075. No modifications were required during testing to bring this product into compliance.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government.

Date of Test : Jan.11~Feb.28, 2018 Report of date: Apr.12, 2018

Prepared by : Monica Liu Reviewed by : Sunny Lu
Monica Liu / Assistant Sunny Lu / Deputy Manager



Approved & Authorized Signer :

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission	FCC Part 15: 15.207	PASS
Radiated Emission	FCC Part 15: 15.209	PASS
Band Edge Compliance	FCC Part 15: 15.247	PASS
Conducted spurious emissions	FCC Part 15: 15.247	PASS
6dB Bandwidth	FCC Part 15: 15.247	PASS
Peak Output Power	FCC Part 15: 15.247	PASS
Power Spectral Density	FCC Part 15: 15.247	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

N/A is an abbreviation for Not Applicable.

2. GENERAL INFORMATION

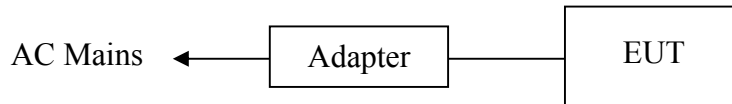
2.1. Description of Device (EUT)

Product	: Gemini
Model No.	: Gemini WiFi
FCC ID	: 2A07Q-X600W1
Radio	: IEEE802.11 a/b/g/n/ac; Bluetooth V3.0+EDR; Bluetooth V4.0
Operation Frequency	: IEEE 802.11a: 5180MHz—5240MHz; 5745MHz—5825MHz IEEE 802.11ac VHT20: 5180MHz—5240MHz; 5745MHz—5825MHz IEEE 802.11ac VHT40: 5190MHz—5230MHz; 5755MHz—5795MHz IEEE 802.11ac VHT80: 5210MHz; 5775MHz IEEE 802.11b: 2412MHz—2462MHz IEEE 802.11g: 2412MHz—2462MHz IEEE802.11n HT20: 2412MHz—2462MHz; 5180MHz—5240MHz; 5745MHz—5825MHz IEEE802.11n HT40: 2422MHz—2452MHz; 5190MHz—5230MHz; 5755MHz—5795MHz Bluetooth : 2402-2480MHz
Modulation Technology	: IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK) IEEE 802.11a/g: OFDM(64QAM, 16QAM, QPSK, BPSK) IEEE 802.11ac VHT20, VHT40, VHT80: OFDM(16QAM, 64QAM, 256QAM, QPSK, BPSK) IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM,QPSK,BPSK) Bluetooth V3.0+EDR: GFSK, $\pi/4$ DQPSK,8-DPSK Bluetooth V4.0:GFSK
Antenna Assembly Gain	: Antenna Type: PIFA Bluetooth: 2.0dBi WIFI 2.4GHz: 2.0dBi WIFI 5GHz: 0.42dBi
Applicant	: Planet Computers Limited Suite #9, 56 Sloane Square, London, SW1W 8AX, United Kingdom
Manufacturer	: Planet Computers Limited Suite #9, 56 Sloane Square, London, SW1W 8AX, United Kingdom
Factory	: SHENZHEN YIXU ELECTRONICS CO., LTD. Building B, Area E, Yuwei, Qingxiang Rd, Longhua, Shenzhen
Power Adapter	: Manufacturer: Planet, M/N: TPA-10120125UUA-MTK; Cable: Unshielded, Detachable, 1.0m
USB Cable	: Shielded, Detachable, 0.8m
Date of Test	: Jan.11~Feb.28, 2018
Date of Receipt	: Dec.26, 2017
Sample Type	: Prototype production

2.2. Tested Supporting System Details

[None]

2.3. Block diagram of connection between the EUT and simulators



(EUT: Gemini)

2.4. Test Information

A special test software was used to control EUT work in Continuous TX mode(The duty cycle of the test signal is 100%), and select test channel, wireless mode and data rate.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)(see Note)	Channel	Frequency (MHz)
IEEE 802.11b	1	Low :CH1	2412
	1	Middle: CH6	2437
	1	High: CH11	2462
IEEE 802.11g	6	Low :CH1	2412
	6	Middle: CH6	2437
	6	High: CH11	2462
IEEE 802.11n HT20	MCS0	Low :CH1	2412
	MCS0	Middle: CH6	2437
	MCS0	High: CH11	2462
IEEE 802.11n HT40	MCS0	Low :CH3	2422
	MCS0	Middle: CH6	2437
	MCS0	High: CH9	2452

Note: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

2.5. Test Facility

Site Description

Name of Firm	:	Audix Technology (Shenzhen) Co., Ltd. No. 6, Kefeng Road, Science & Technology Park, Nanshan District, Shenzhen, Guangdong, China
EMC Lab.	:	Certificated by Industry Canada Registration Number: IC 5183A-1 Valid Date: May.07, 2020
	:	Certificated by DAKkS, Germany Registration No: D-PL-12151-01-00 Valid Date: Dec.07, 2021
	:	Accredited by NVLAP, USA NVLAP Code: 200372-0 Valid Date: Mar.31, 2018
	:	Certificated by FCC, USA Designation Number: CN5022 Valid Date: Mar.31, 2018

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

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	3.6dB (150KHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	2.8dB (30~200MHz, Polarization: H)
	2.8dB (30~200MHz, Polarization: V)
	3.0dB (200M~1GHz, Polarization: H)
	3.0dB (200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 3m chamber	5.6dB (1~6GHz, Distance: 3m)
	5.8dB (6~18GHz, Distance: 3m)
	5.8dB (Above 18GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.7dB(30MHz~1000MHz)
	3.3dB(1GHz~26.5GHz)
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Bandwidth test	83 kHz
Uncertainty for DC power test	0.1 %
Uncertainty for test site temperature and humidity	0.6°C
	3%

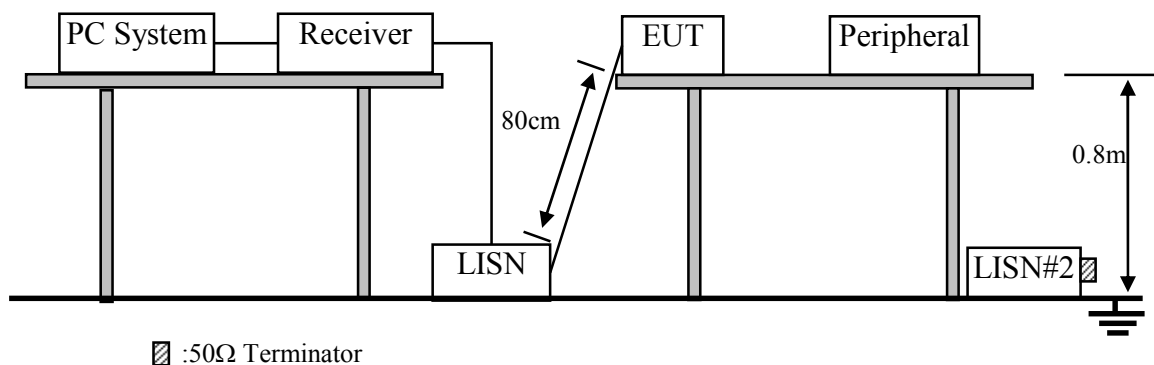
3. POWER LINE CONDUCTED EMISSION TEST

3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	Apr.17,17	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.22,17	1 Year
3.	L.I.S.N.	Rohde & Schwarz	ENV216	102160	Mar.06.17	1 Year
4.	L.I.S.N.#2	Kyoritsu	K NW-403D	8-1750-2	Apr.22,17	1 Year
5.	I.S.N.	TESEQ	S751	24559	Mar.06.17	1.year
6.	Terminator	Hubersuhner	50Ω	No.1	Apr.23,17	1 Year
7.	Terminator	Hubersuhner	50Ω	No.2	Apr.23,17	1 Year
8.	RF Cable	Fujikura	RG55/U	NO.2	Apr.22,17	1Year
9.	Coaxial Switch	Anritsu	MP59B	6201397223	Apr.22,17	1 Year
10.	Test Software	AUDIX	e3	6.100913a	N/A	N/A

Note: N/A means Not applicable.

3.2. Block Diagram of Test Setup



3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. * Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

3.4.1. Gemini (EUT)

Model No. : Gemini WiFi
Serial No. : N/A

3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

3.5. Operating Condition of EUT

3.5.1. Setup the EUT and simulator as shown as Section 3.2.

3.5.2. Turn on the power of all equipments.

3.5.3. PC run test software to control EUT work in Tx (WiFi 2.4GHz) mode.

3.6. Test Procedure

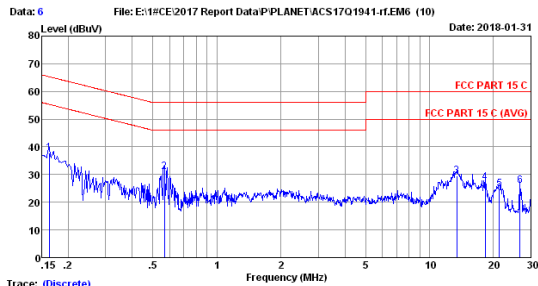
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via PC connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

3.7. Power Line Conducted Emission Test Results

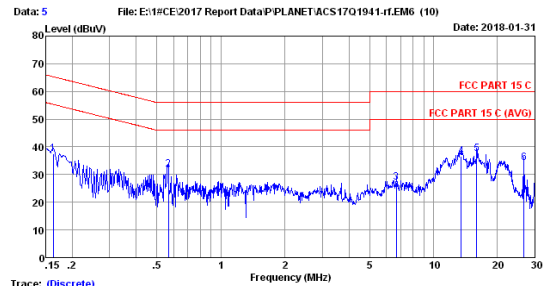
PASS. (All emissions not reported below are too low against the prescribed limits.)



Trace: (Discrete)
 Site no :1# CE
 Dis./Lisn :2017 LISN ENV216-L
 Limit :FCC PART 15 C
 Env./Ins. :21.5°C/53%
 EUT :Gemini M/N:Gemini WiFi
 Power Rating :DC 5V From Adapter Input AC 120V/60Hz
 Test Mode :WIFI 2.4G TX
 Data No :6
 LISN phase:
 Engineer :Garry
 Date: 2018-01-31

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.162	9.52	0.02	28.20	37.74	65.34	27.60	QP
2	0.567	9.50	0.03	21.55	31.08	56.00	24.92	QP
3	13.408	9.58	0.12	19.80	29.50	60.00	30.50	QP
4	18.232	9.69	0.12	17.44	27.25	60.00	32.75	QP
5	21.260	9.75	0.13	15.03	24.91	60.00	35.09	QP
6	26.699	9.80	0.13	15.92	25.85	60.00	34.15	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



Trace: (Discrete)
 Site no :1# CE
 Dis./Lisn :2017 LISN ENV216-N
 Limit :FCC PART 15 C
 Env./Ins. :21.5°C/53%
 EUT :Gemini M/N:Gemini WiFi
 Power Rating :DC 5V From Adapter Input AC 120V/60Hz
 Test Mode :WIFI 2.4G TX
 Data No :5
 LISN phase:
 Engineer :Garry
 Date: 2018-01-31

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.162	9.48	0.02	28.11	37.61	65.34	27.73	QP
2	0.567	9.31	0.03	22.51	31.85	56.00	24.15	QP
3	8.698	9.42	0.10	17.64	27.16	60.00	32.84	QP
4	15.479	9.49	0.12	27.11	36.72	60.00	23.28	QP
5	15.970	9.54	0.12	27.79	37.45	60.00	22.55	QP
6	26.699	9.79	0.13	24.37	34.29	60.00	25.71	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

4. RADIATED EMISSION TEST

4.1. Test Equipment

4.1.1. For frequency range 30MHz~1000MHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber	AUDIX	N/A	N/A	Mar.28,17	1 Year
2.	Signal Analyzer	R&S	FSV30	103669	Oct.15,17	1 Year
3.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.22,17	1 Year
4.	Amplifier	HP	8447D	2648A04738	Apr.22,17	1 Year
5.	Trilog-Broadband Antenna	SCHWARZBECK	VULB 9168	493	Jun.27.17	1 Year
6.	Loop Antenna	Chase	HLA6120	1062	Oct.15,17	1 Year
7.	RF Cable	MIYAZAKI	CFD400NL-LW	No.3	Sep.02.17	1 Year
8.	Coaxial Switch	Anritsu	MP59B	6201397222	Apr.22,17	1 Year
9.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A

Note: N/A means Not applicable.

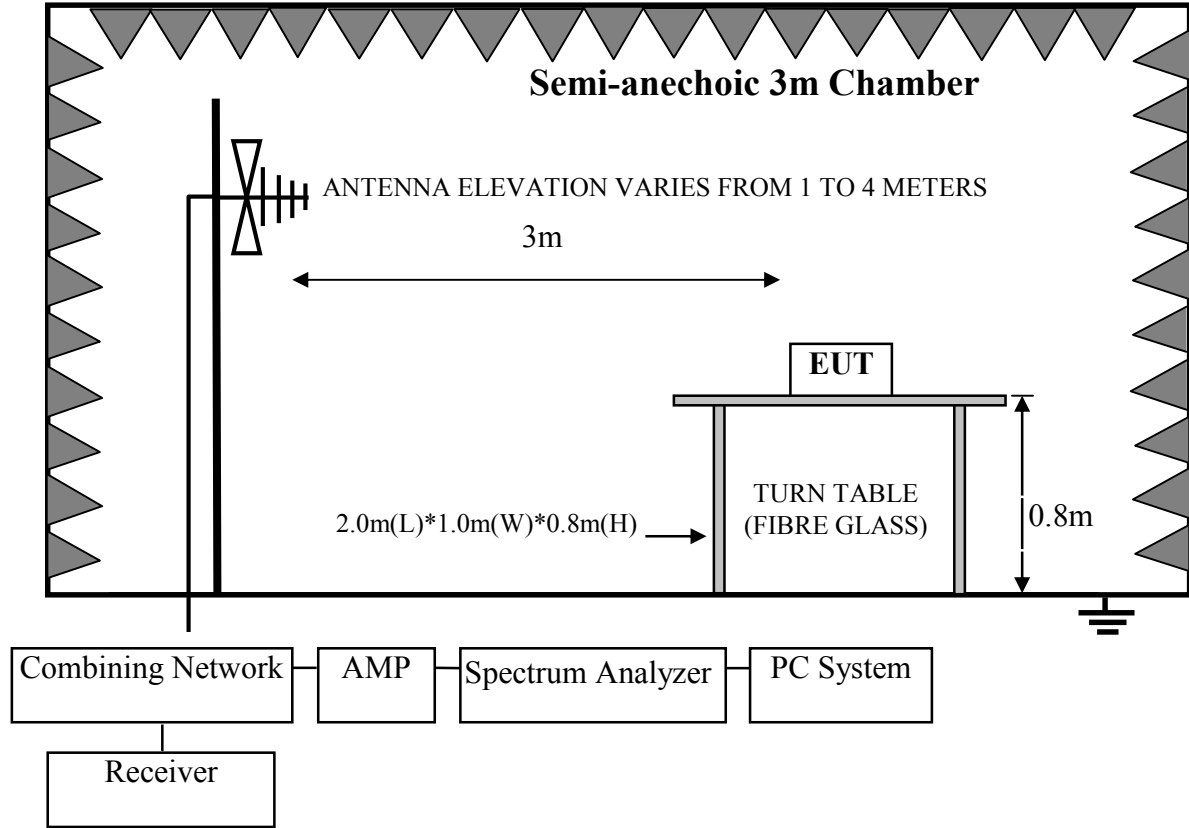
4.1.2. For frequency range 1GHz~40GHz (In 3m Anechoic Chamber)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	Apr.22,17	1 Year
2.	Horn Antenna	ETC	MCTD 1209	DRH15F03006	May.15,17	1 Year
3.	Amplifier	Agilent	8449B	3008A02495	Apr.22,17	1 Year
4.	RF Cable	Hubersuhner	SUCOFLEX104	274094/4	Apr.22,17	1 Year
5.	Horn Antenna	EMCO	3116	0062643	Oct.10,17	1 Year
6.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A

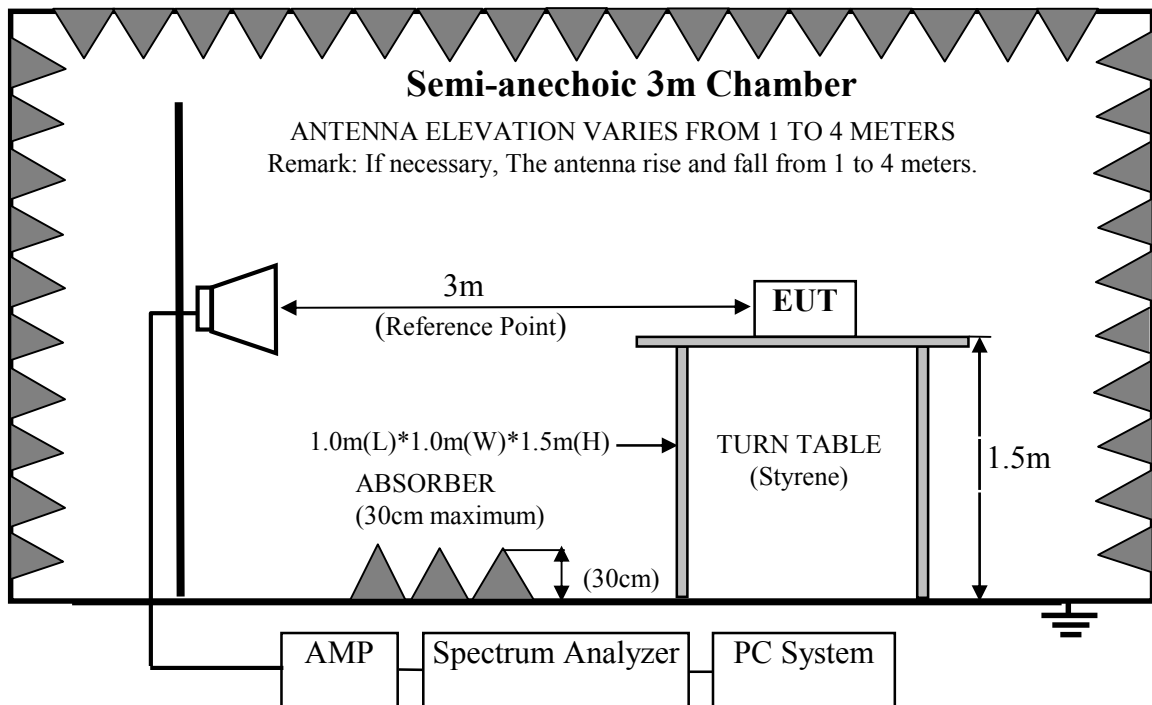
Note: N/A means Not applicable.

4.2. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range 1GHz-25GHz



4.3. Radiated Emission Limit

4.3.1. 15.247&209 limits

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/m
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark : (1) Emission level dBμV = 20 log Emission level μV/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.3.2. 15.205 Restricted bands of operation

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
¹ 0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2690 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	(²)

All the emissions appearing within 15.205 restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

4.4. EUT Configuration on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

4.4.1. Gemini (EUT)

Model No. : Gemini WiFi

Serial No. : N/A

4.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.2.

4.5. Operating Condition of EUT

- 4.5.1. Setup the EUT and simulator as shown as Section 4.2.
- 4.5.2. Turn on the power of all equipments.
- 4.5.3. Let EUT work in Tx(WiFi 2.4GHz) mode

4.6. Test Procedure

Frequency below 30MHz:

The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10-2013 regulation.

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground for frequency 30MHz~1000MHz, 1.5 meter high above ground for frequency above 1GHz and put the absorbing with 2.4m(L)*2.4m(W)*0.3m(H) on the ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it. EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna for frequency 30MHz~1000MHz, and the Horn antenna is used as receiving antenna for frequency above 1GHz. Both horizontal and vertical polarization of the antenna are set on test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as test photo indicated.

The bandwidth of the EMI test receiver (R&S ESR7) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's VBW is set at 3MHz and RBW is set at 1MHz for peak emissions measurement above 1GHz and 1MHz RBW, 10Hz VBW for average emissions measure above 1GHz

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25GHz, So the radiated emissions from 18GHz to 25GHz were not record.

4.7. Radiated Emission Test Results

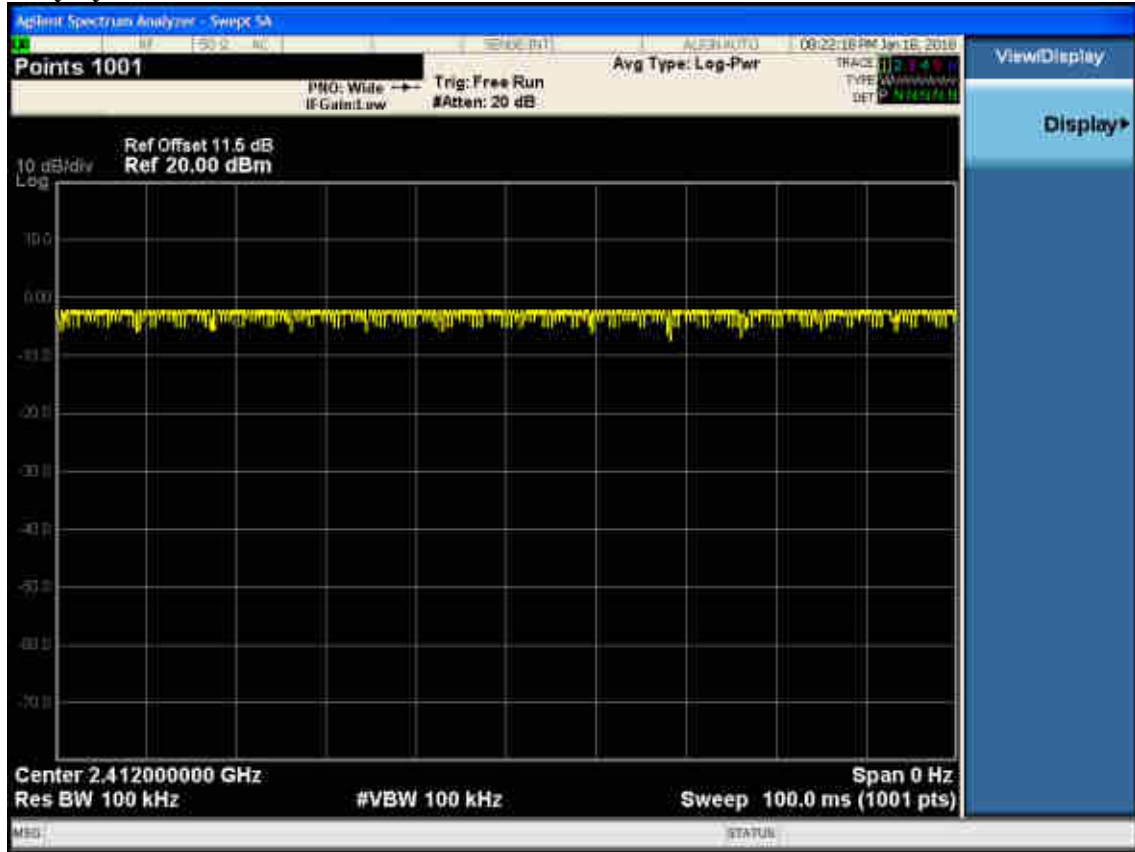
PASS.

All the emissions from 30MHz to 25 GHz were comply with 15.209 limits.

Note 1: For emissions above 1GHz, if peak level comply with average limit, then the average level is deemed to comply with average limit.

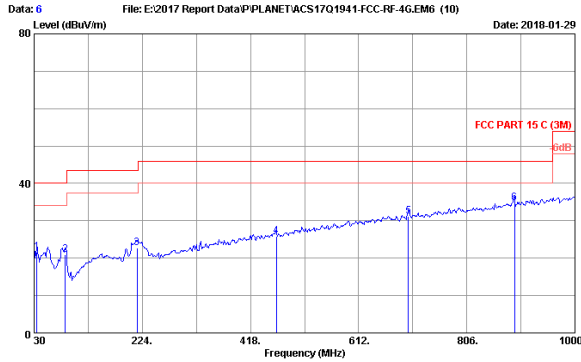
Note 2: The emissions (9kHz~30MHz) not reported for there is no emission be found.

Duty cycle



Note: The duty cycle of the test signal is 100%.

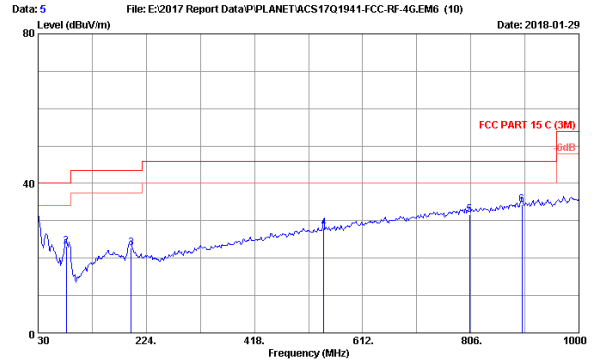
Frequency: 30MHz~1GHz



Site no. : 3m Chamber Data no. : 6
 Dis. / Ant. : 3m 2017 9168-493 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 23.7°C/52% Engineer : Kayle
 EUT : Gemini M/N:Gemini WiFi
 Power rating : DCSV From Adapter input AC 120V/60Hz
 Test Mode : WIFI2.4G TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	34.850	19.70	0.66	1.31	21.67	40.00	18.33	QP
2	86.280	14.36	1.02	5.46	20.84	40.00	19.16	QP
3	214.300	16.90	1.73	4.10	22.73	43.50	20.77	QP
4	464.560	23.42	3.08	-0.76	25.74	46.00	20.26	QP
5	701.240	27.21	4.13	-0.08	31.26	46.00	14.74	QP
6	891.360	29.40	5.04	0.23	34.67	46.00	11.33	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

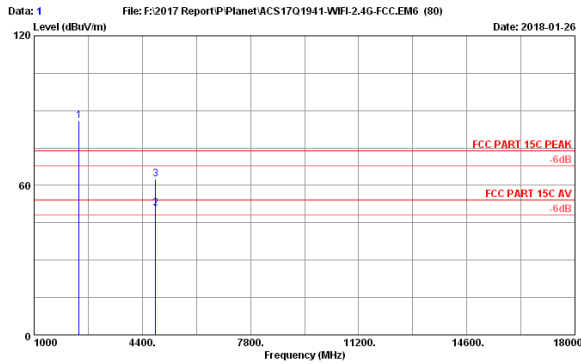


Site no. : 3m Chamber Data no. : 5
 Dis. / Ant. : 3m 2017 9168-493 Ant. pol. : VERTICAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 23.7°C/52% Engineer : Kayle
 EUT : Gemini M/N:Gemini WiFi
 Power rating : DCSV From Adapter input AC 120V/60Hz
 Test Mode : WIFI2.4G TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	30.000	19.40	0.63	9.57	29.60	40.00	10.40	QP
2	80.440	15.20	0.98	6.94	23.12	40.00	16.88	QP
3	196.840	17.08	1.62	4.08	22.78	43.50	20.72	QP
4	542.160	24.85	3.39	-0.24	28.00	46.00	18.00	QP
5	804.060	28.44	4.53	-1.40	31.57	46.00	14.43	QP
6	898.150	29.48	5.08	-0.15	34.41	46.00	11.59	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

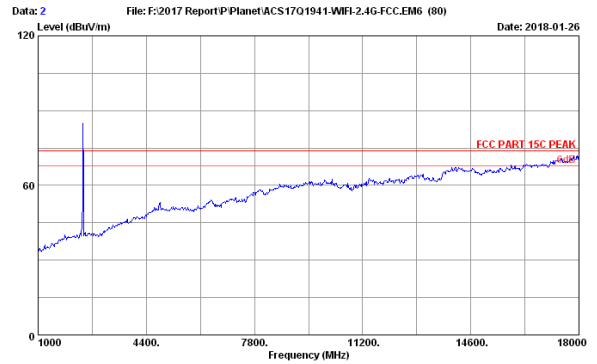
Frequency: 1GHz~18GHz



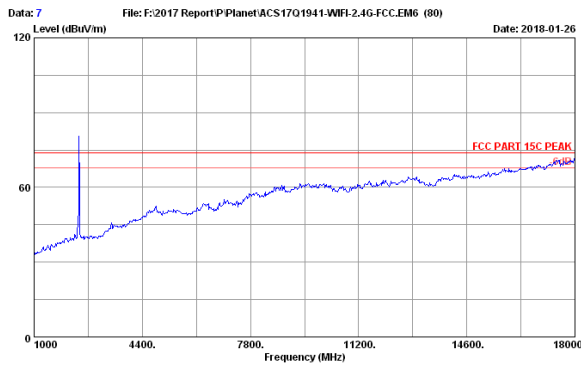
Site no. : 3m Chamber Data no. : 1
 Dis. / Ant. : 3m 2017 ANT 3006 HF Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.1°C/52.5% Engineer : Kayle
 EUT : Gemini M/N:Gemini WiFi
 Power rating : DC 5V From Adapter Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412 Tx Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.98	10.34	83.14	35.61	85.85	74.00	-11.85	Peak
2	4824.00	33.46	14.55	36.43	33.80	50.64	54.00	3.36	Average
3	4824.00	33.46	14.55	48.21	33.80	62.42	74.00	11.58	Peak

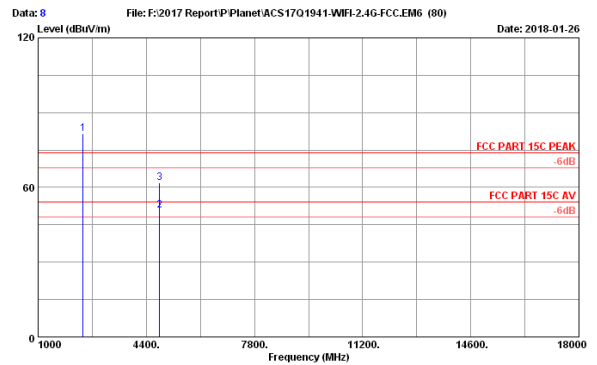
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber Data no. : 2
 Dis. / Ant. : 3m 2017 ANT 3006 HF Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.1°C/52.5% Engineer : Kayle
 EUT : Gemini M/N:Gemini WiFi
 Power rating : DC 5V From Adapter Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412 Tx Mode



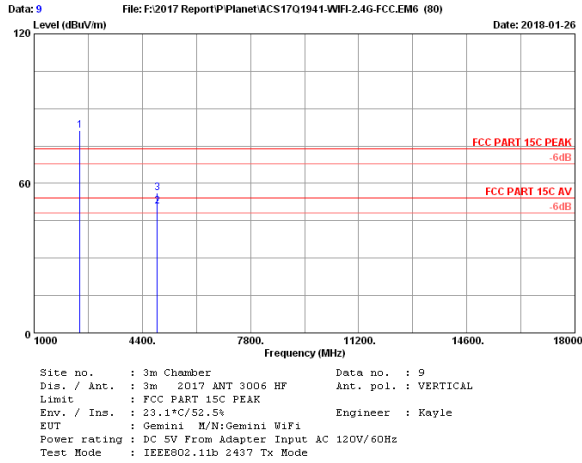
Site no. : 3m Chamber Data no. : 7
 Dis. / Ant. : 3m 2017 ANT 3006 HF Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.1°C/52.5% Engineer : Kayle
 EUT : Gemini M/N:Gemini WiFi
 Power rating : DC 5V From Adapter Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412 Tx Mode



Site no. : 3m Chamber Data no. : 8
 Dis. / Ant. : 3m 2017 ANT 3006 HF Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.1°C/52.5% Engineer : Kayle
 EUT : Gemini M/N:Gemini WiFi
 Power rating : DC 5V From Adapter Input AC 120V/60Hz
 Test Mode : IEEE802.11b 2412 Tx Mode

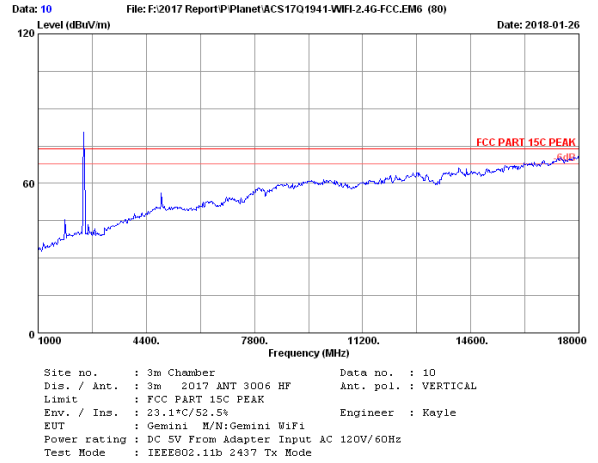
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.98	10.34	78.81	35.61	81.52	74.00	-7.52	Peak
2	4824.00	33.46	14.55	36.75	33.80	50.96	54.00	3.04	Average
3	4824.00	33.46	14.55	47.74	33.80	61.95	74.00	12.05	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



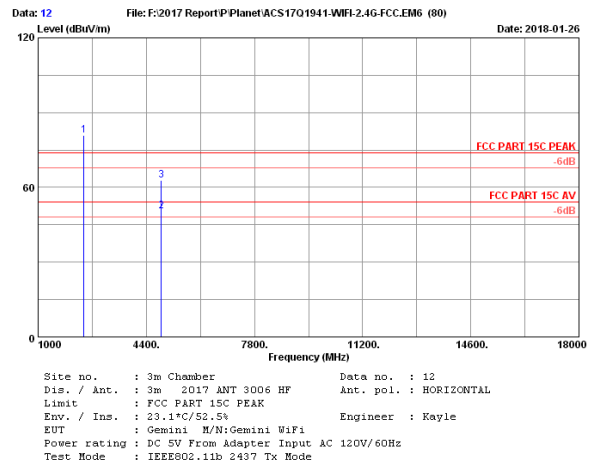
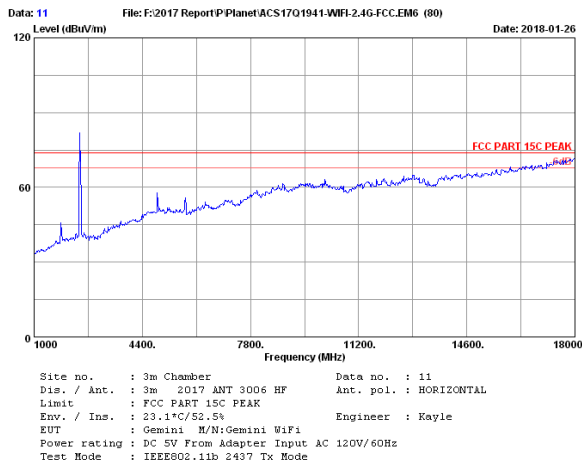
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	78.41	35.64	81.17	74.00	-7.17	Peak
2	4874.00	33.56	14.62	36.54	33.75	50.97	54.00	3.03	Average
3	4874.00	33.56	14.62	41.68	33.75	56.11	74.00	17.89	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



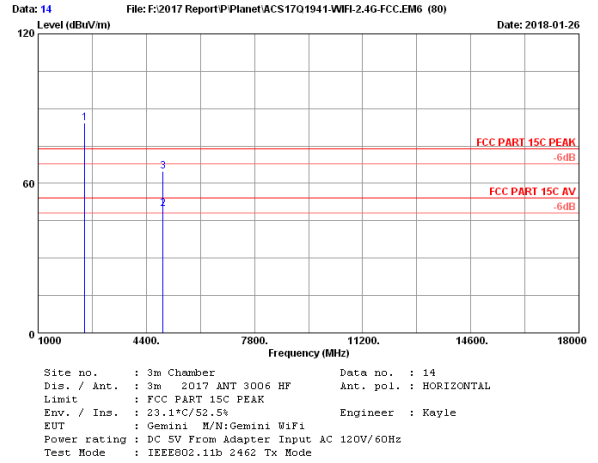
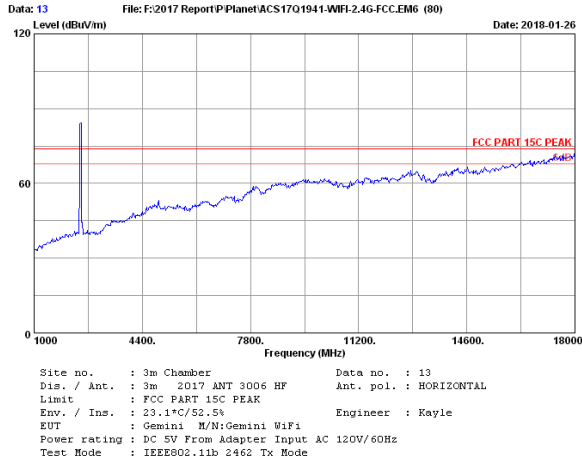
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	78.16	35.64	80.92	74.00	-6.92	Peak
2	4874.00	33.56	14.62	36.21	33.75	50.64	54.00	3.36	Average
3	4874.00	33.56	14.62	48.45	33.75	62.88	74.00	11.12	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



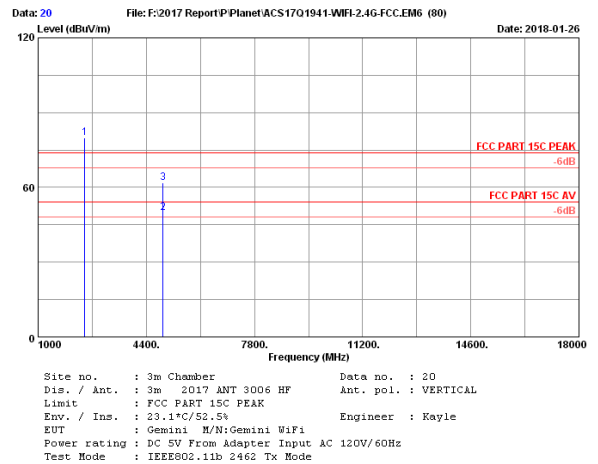
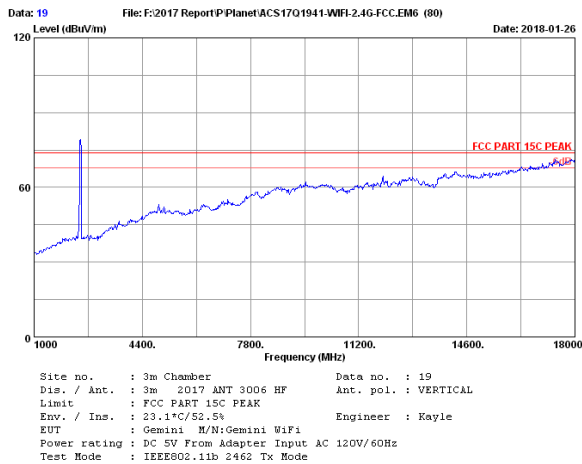
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	78.16	35.64	80.92	74.00	-6.92	Peak
2	4874.00	33.56	14.62	36.21	33.75	50.64	54.00	3.36	Average
3	4874.00	33.56	14.62	48.45	33.75	62.88	74.00	11.12	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



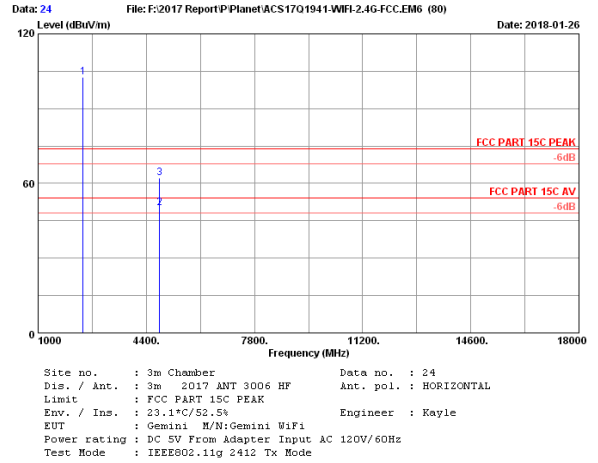
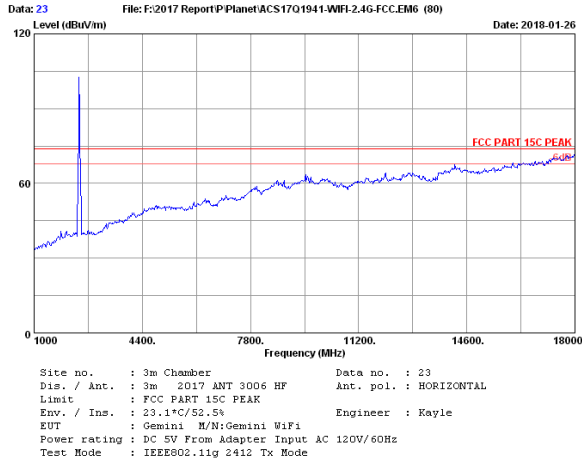
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.05	10.41	81.44	35.68	84.22	74.00	-10.22	Peak
2	4924.00	33.66	14.68	35.31	33.71	45.94	54.00	4.06	Average
3	4924.00	33.66	14.68	50.22	33.71	64.85	74.00	9.15	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



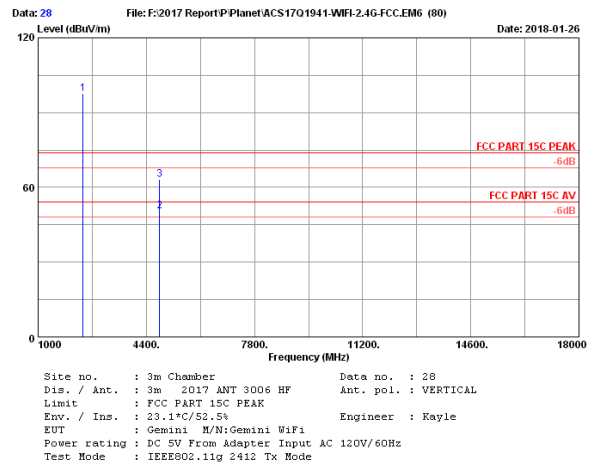
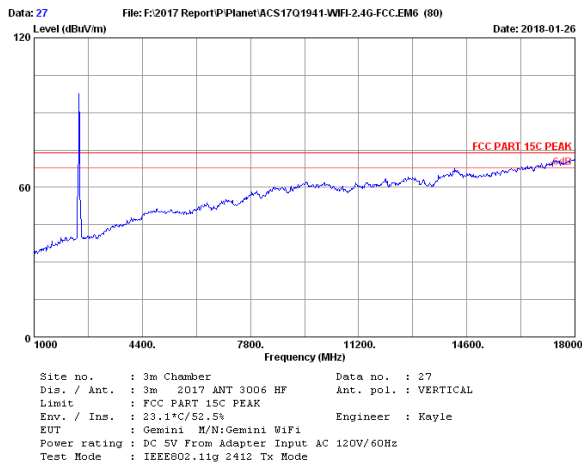
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.05	10.41	76.95	35.68	79.73	74.00	-5.73	Peak
2	4924.00	33.66	14.68	35.15	33.71	45.78	54.00	4.22	Average
3	4924.00	33.66	14.68	47.20	33.71	61.83	74.00	12.17	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



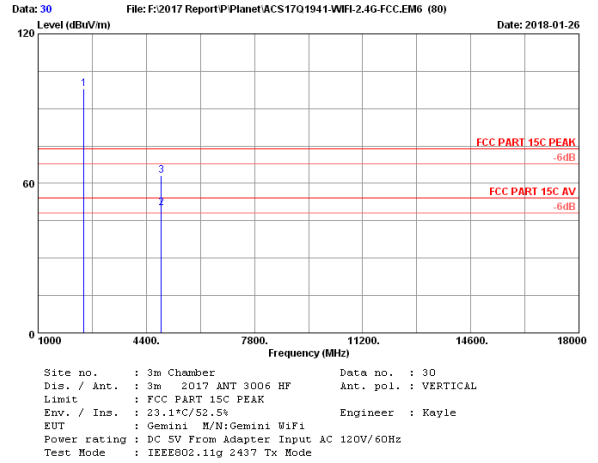
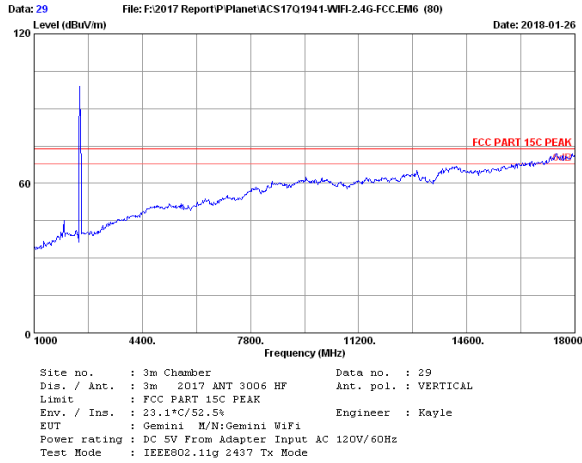
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.98	10.34	99.76	35.61	102.47	74.00	-28.47	Peak
2	4824.00	33.46	14.55	36.03	33.80	50.24	54.00	3.76	Average
3	4824.00	33.46	14.55	48.09	33.80	62.30	74.00	11.70	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



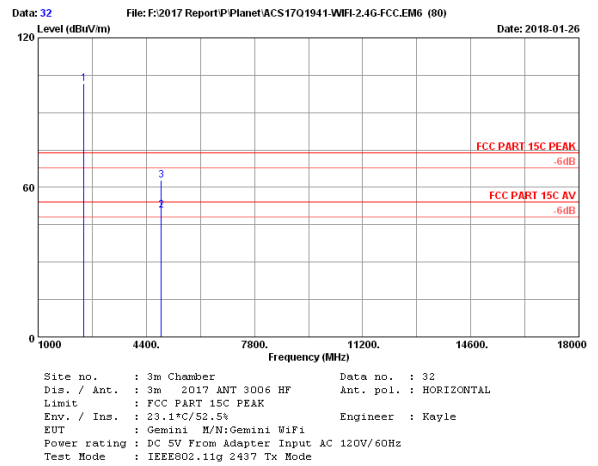
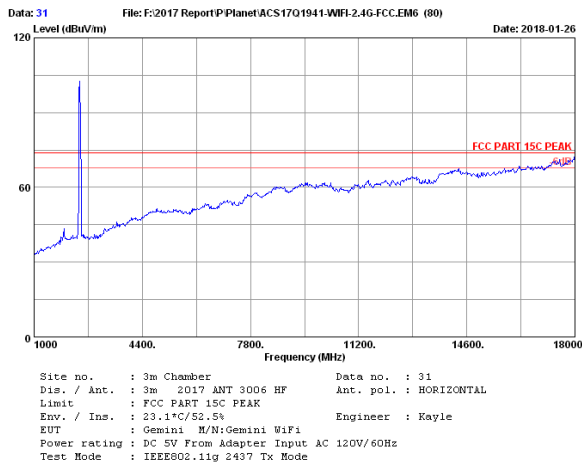
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.98	10.34	94.82	35.61	97.53	74.00	-23.53	Peak
2	4824.00	33.46	14.55	36.20	33.80	50.41	54.00	3.59	Average
3	4824.00	33.46	14.55	48.93	33.80	63.14	74.00	10.86	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



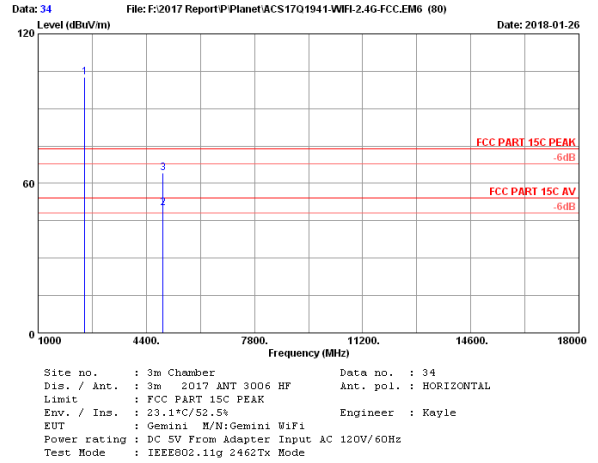
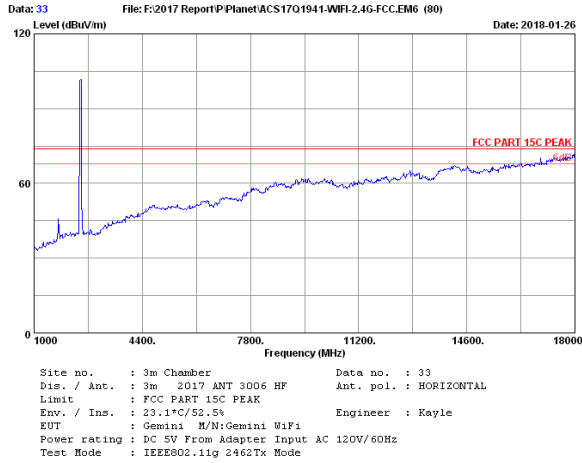
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	95.02	35.64	97.78	74.00	-23.78	Peak
2	4874.00	33.56	14.62	35.61	33.75	50.24	54.00	3.76	Average
3	4874.00	33.56	14.62	48.67	33.75	63.10	74.00	10.90	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



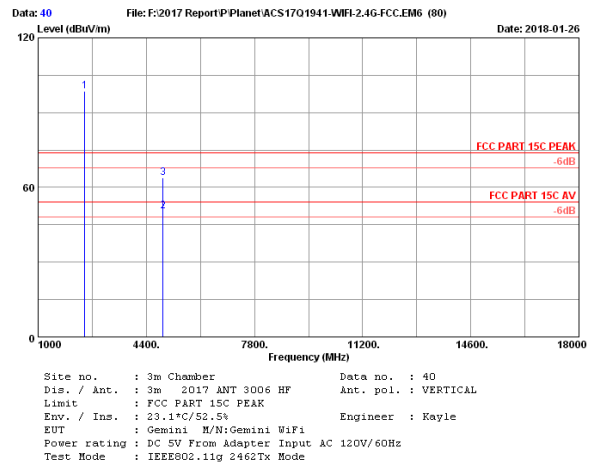
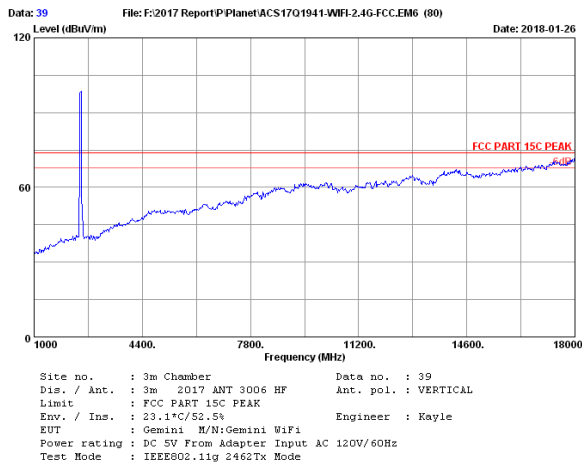
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	98.94	35.64	101.70	74.00	-27.70	Peak
2	4874.00	33.56	14.62	36.24	33.75	50.67	54.00	3.33	Average
3	4874.00	33.56	14.62	48.51	33.75	62.94	74.00	11.06	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



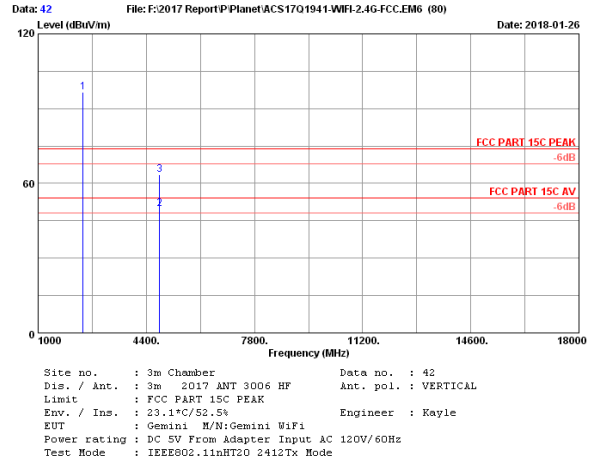
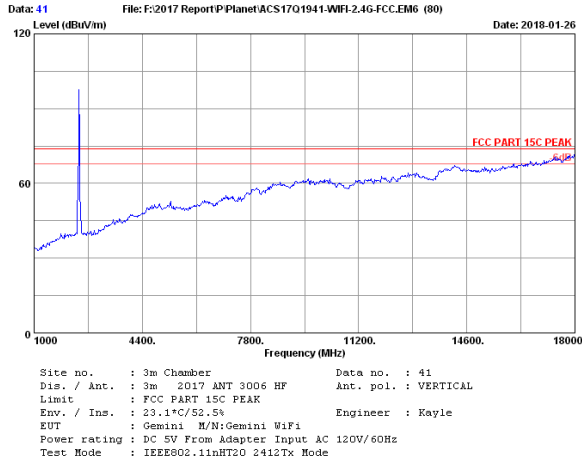
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.05	10.41	99.92	35.68	102.70	74.00	-28.70	Peak
2	4924.00	33.66	14.68	35.47	33.71	50.10	54.00	3.90	Average
3	4924.00	33.66	14.68	49.61	33.71	64.24	74.00	9.76	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



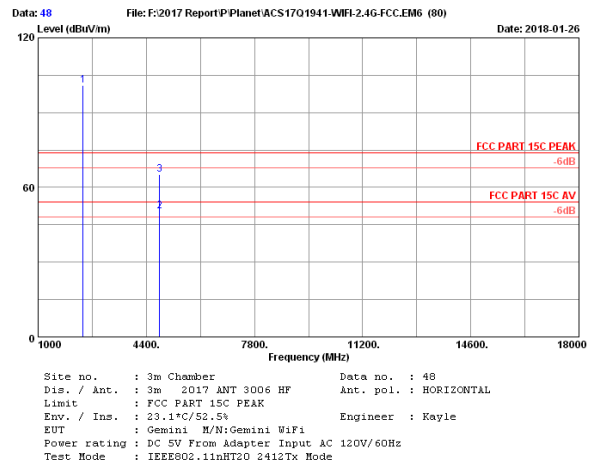
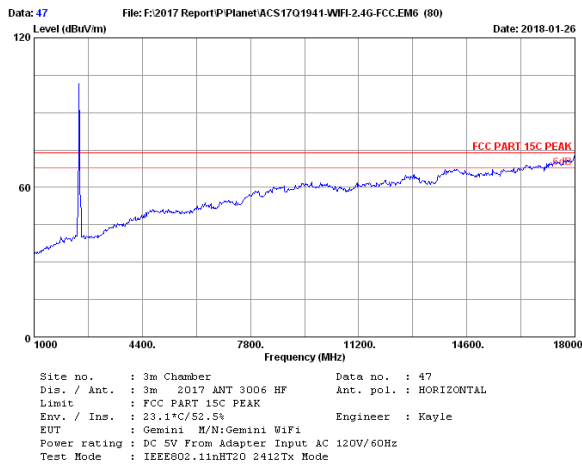
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.05	10.41	95.85	35.68	98.63	74.00	-24.63	Peak
2	4924.00	33.66	14.68	35.94	33.71	50.57	54.00	3.43	Average
3	4924.00	33.66	14.68	49.21	33.71	63.84	74.00	10.16	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



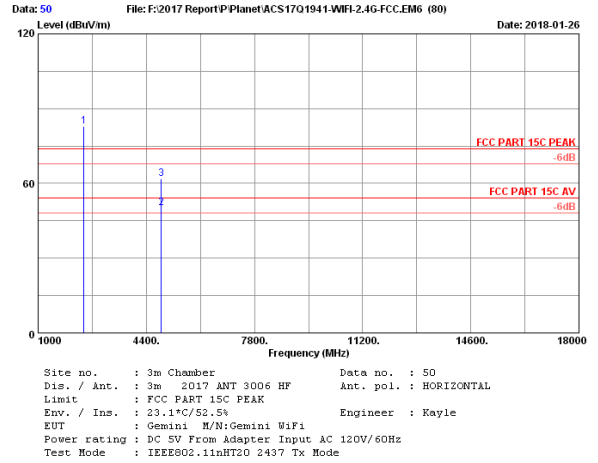
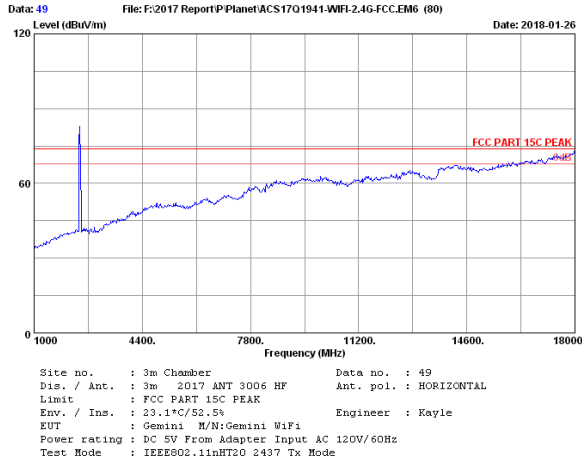
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.98	10.34	95.99	35.61	96.70	74.00	-22.70	Peak
2	4824.00	33.46	14.55	35.68	33.80	49.89	54.00	4.11	Average
3	4824.00	33.46	14.55	49.16	33.80	63.37	74.00	10.63	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



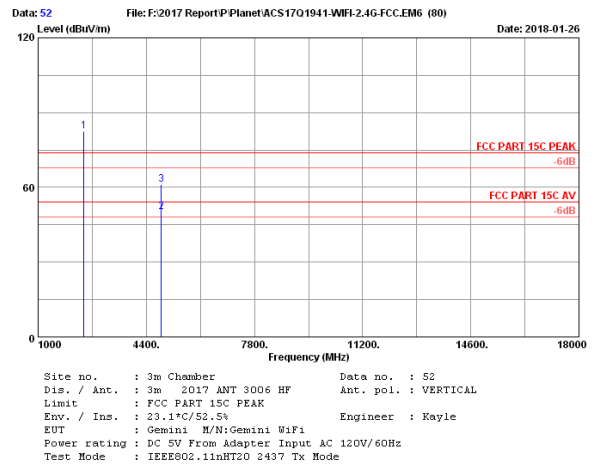
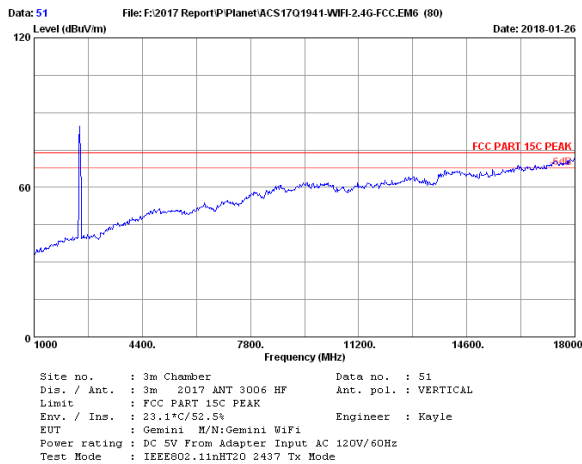
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2412.00	27.98	10.34	98.34	35.61	101.05	74.00	-27.05	Peak
2	4824.00	33.46	14.55	36.16	33.80	50.37	54.00	3.63	Average
3	4824.00	33.46	14.55	50.83	33.80	65.04	74.00	8.96	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



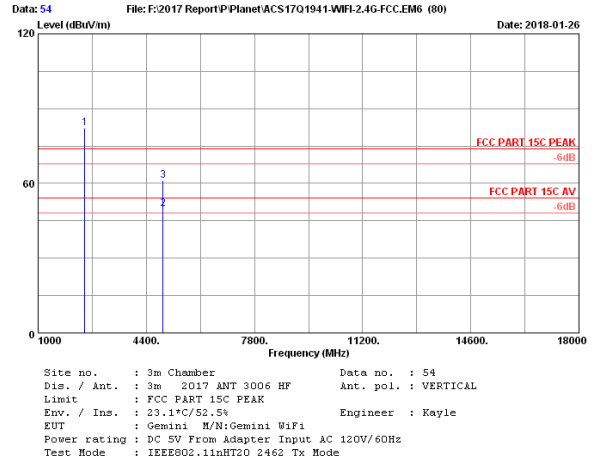
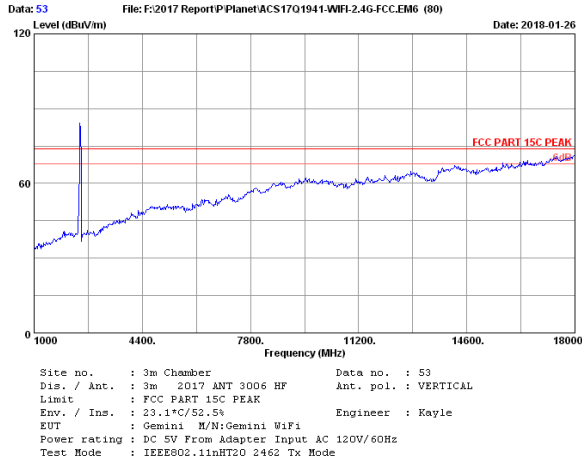
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	80.23	35.64	82.99	74.00	-8.99	Peak
2	4874.00	33.56	14.62	35.87	33.75	50.30	54.00	3.70	Average
3	4874.00	33.56	14.62	47.31	33.75	61.74	74.00	12.26	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



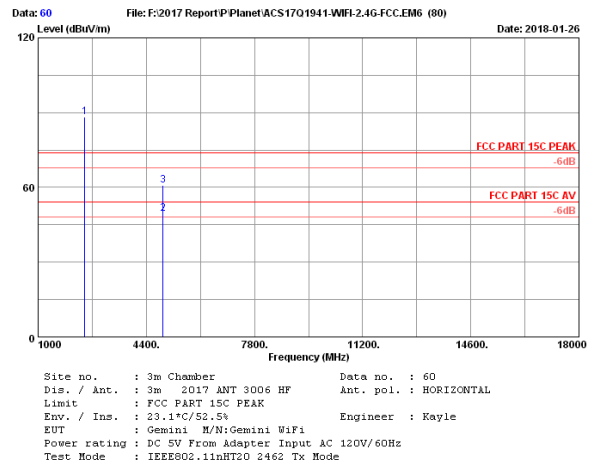
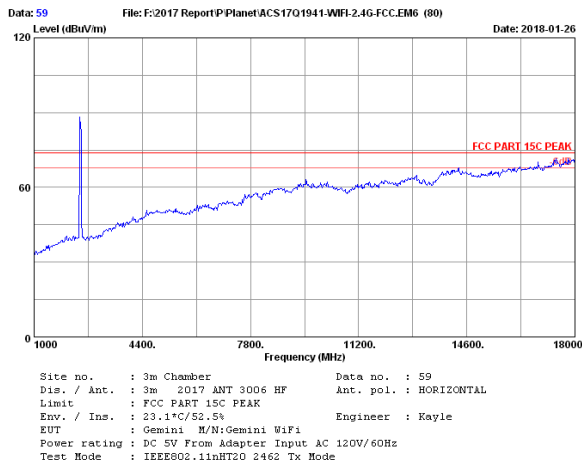
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	79.84	35.64	82.60	74.00	-8.60	Peak
2	4874.00	33.56	14.62	35.58	33.75	50.01	54.00	3.99	Average
3	4874.00	33.56	14.62	46.74	33.75	61.17	74.00	12.83	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



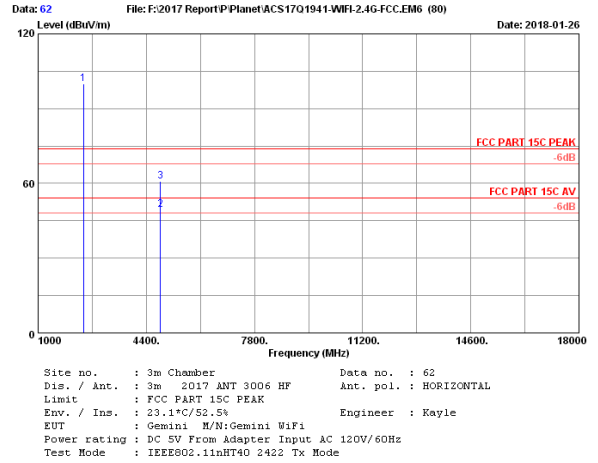
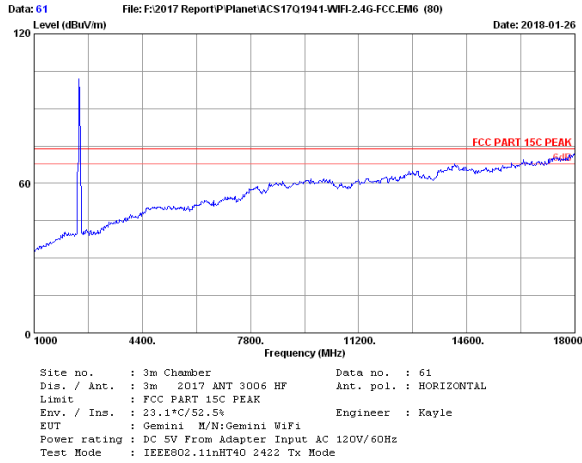
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.05	10.41	79.54	35.68	82.32	74.00	-8.32	Peak
2	4924.00	33.66	14.68	35.02	33.71	49.65	54.00	4.35	Average
3	4924.00	33.66	14.68	46.57	33.71	61.20	74.00	12.80	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



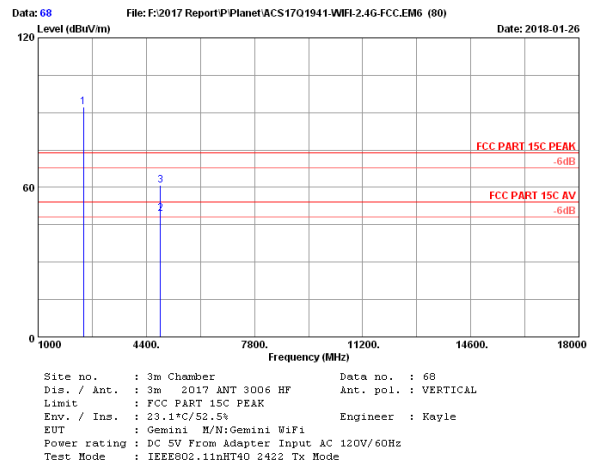
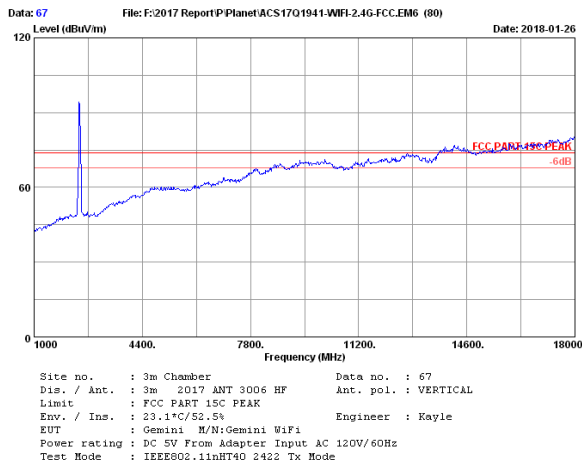
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.05	10.41	85.34	35.68	88.12	74.00	-14.12	Peak
2	4924.00	33.66	14.68	34.85	33.71	49.48	54.00	4.52	Average
3	4924.00	33.66	14.68	46.18	33.71	60.81	74.00	13.19	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



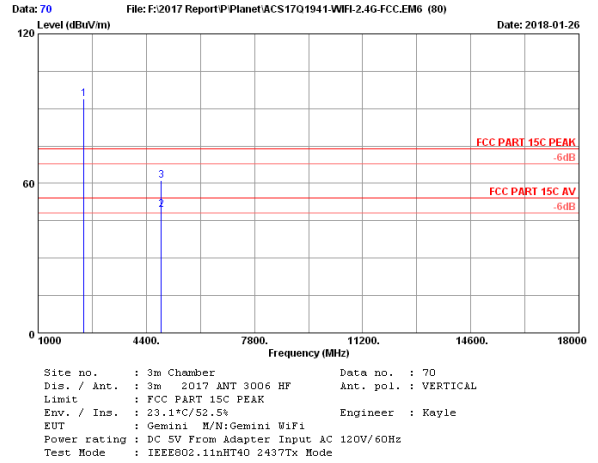
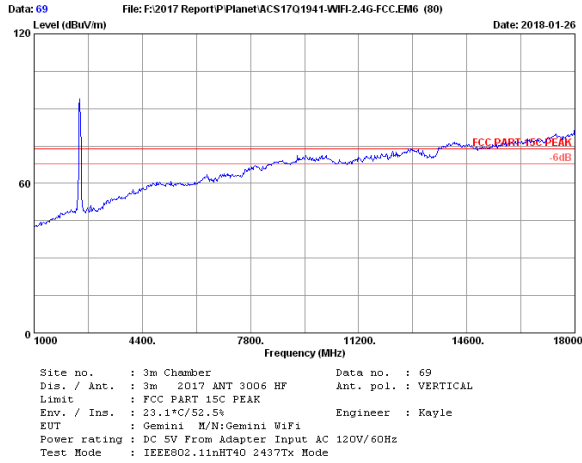
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2422.00	28.00	10.34	97.11	35.64	95.81	74.00	-25.81	Peak
2	4844.00	33.49	14.57	35.13	33.78	49.41	54.00	4.59	Average
3	4844.00	33.49	14.57	46.56	33.78	60.84	74.00	13.16	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



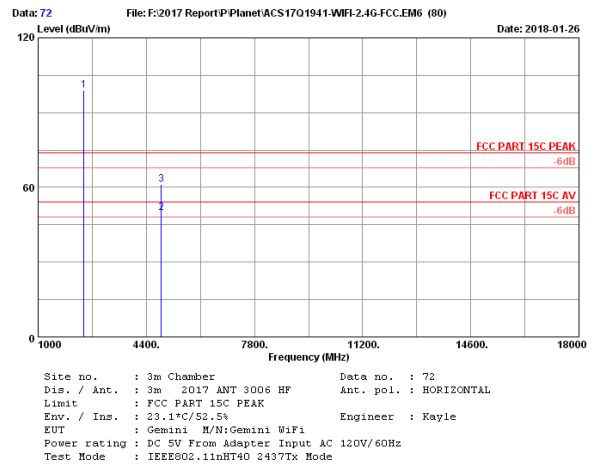
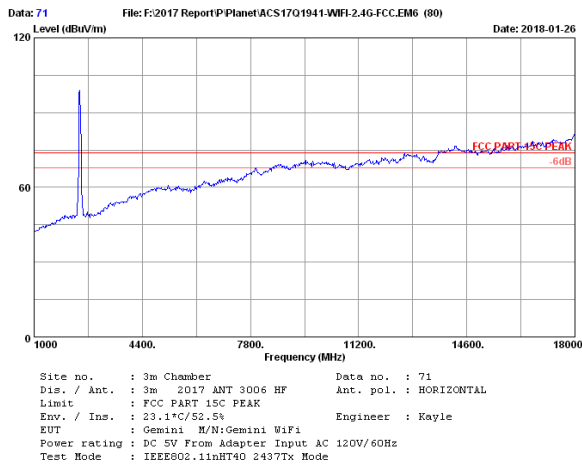
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2422.00	28.00	10.34	89.70	35.64	82.40	74.00	-18.40	Peak
2	4844.00	33.49	14.57	35.05	33.78	49.33	54.00	4.67	Average
3	4844.00	33.49	14.57	46.63	33.78	60.91	74.00	13.09	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



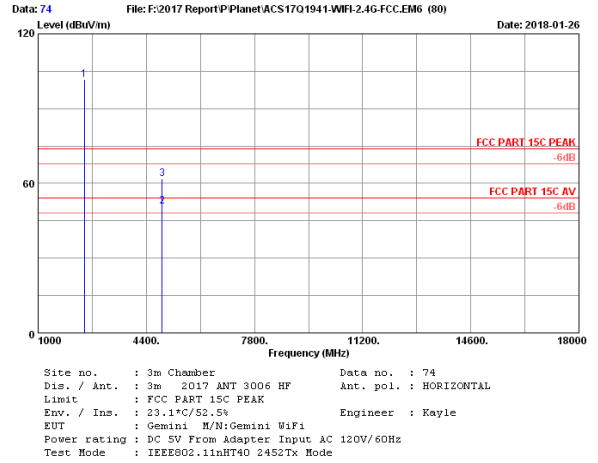
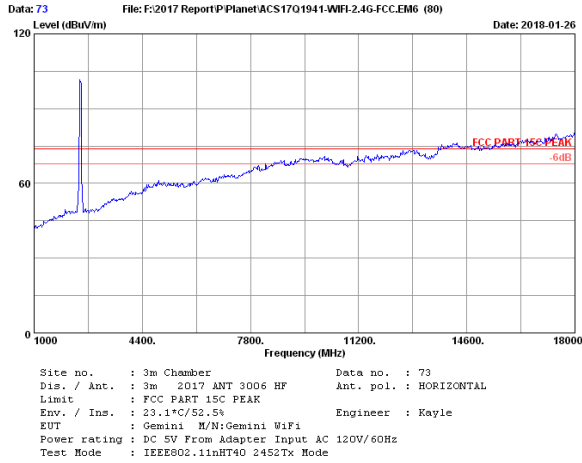
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	91.25	35.64	94.01	74.00	-20.01	Peak
2	4874.00	33.56	14.62	35.02	33.75	49.45	54.00	4.55	Average
3	4874.00	33.56	14.62	46.60	33.75	61.03	74.00	12.97	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



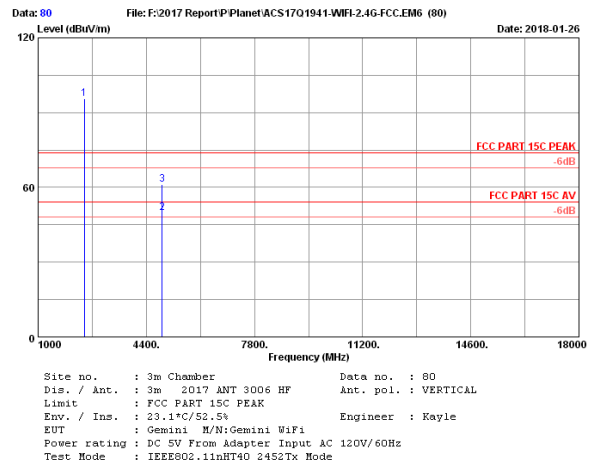
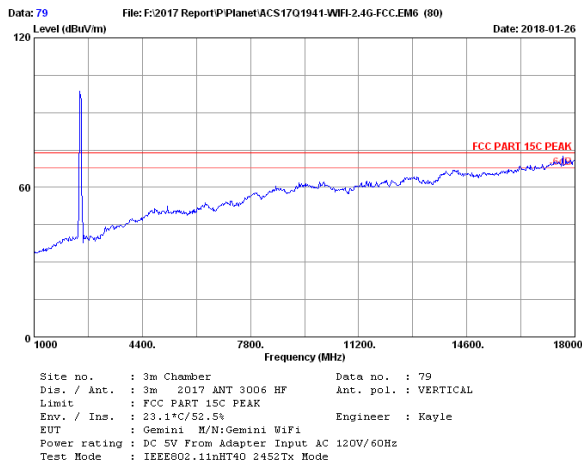
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2437.00	28.03	10.37	96.11	35.64	98.87	74.00	-24.87	Peak
2	4874.00	33.56	14.62	35.41	33.75	49.84	54.00	4.16	Average
3	4874.00	33.56	14.62	46.58	33.75	61.01	74.00	12.99	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2452.00	28.03	10.41	98.79	35.68	101.55	74.00	-27.55	Peak
2	4904.00	33.63	14.65	36.21	33.73	50.76	54.00	3.24	Average
3	4904.00	33.63	14.65	47.13	33.73	61.68	74.00	12.32	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2452.00	28.03	10.41	92.81	35.68	95.57	74.00	-21.57	Peak
2	4904.00	33.63	14.65	35.14	33.73	49.69	54.00	4.31	Average
3	4904.00	33.63	14.65	46.75	33.73	61.30	74.00	12.70	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.

5. CONDUCTED SPURIOUS EMISSIONS

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY53311015	Oct.15,17	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	Apr.27,17	1 Year
3.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.15,17	1 Year

5.2. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power.

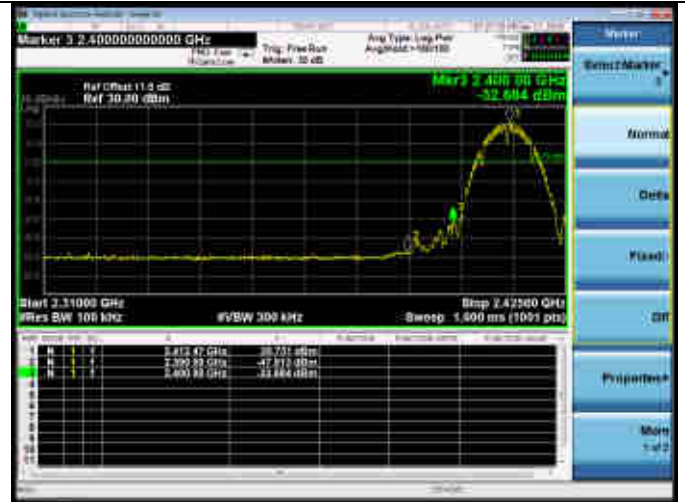
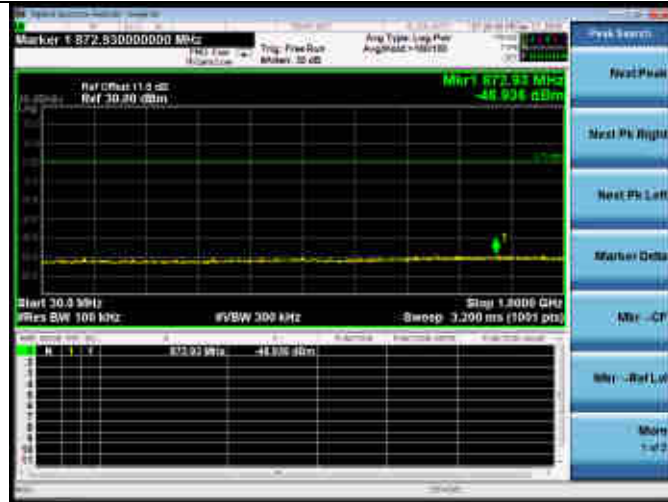
5.3. Test Procedure

The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions with peak detector.

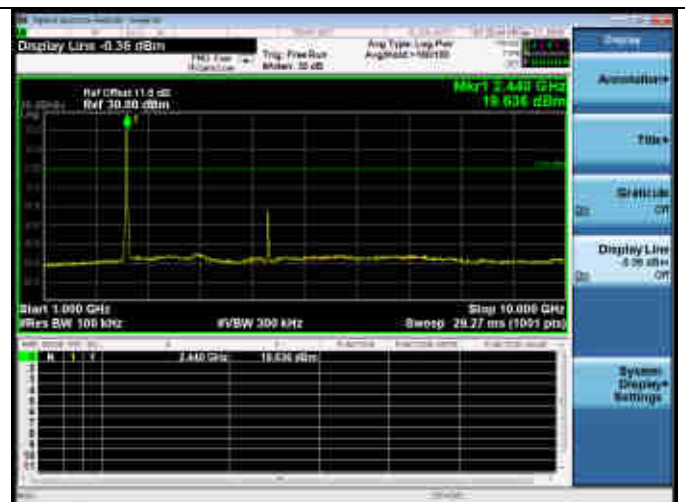
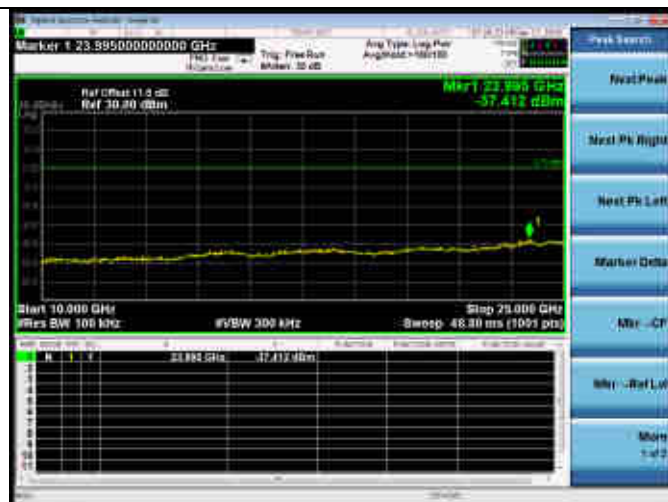
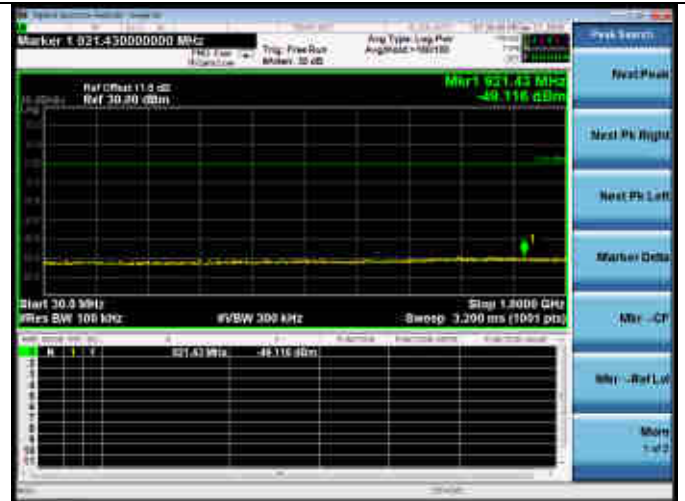
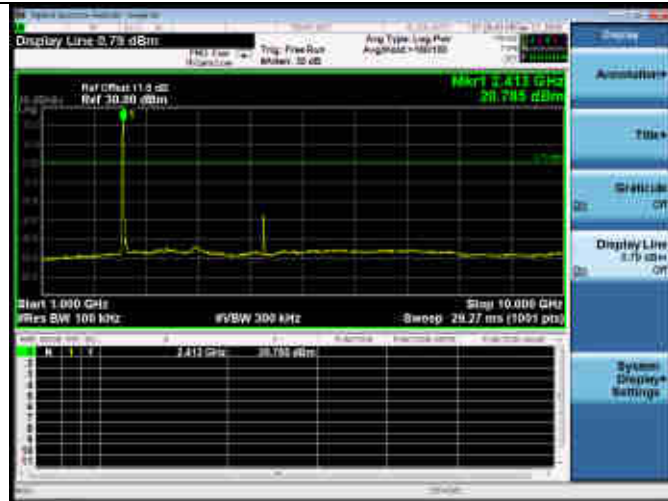
5.4. Test result

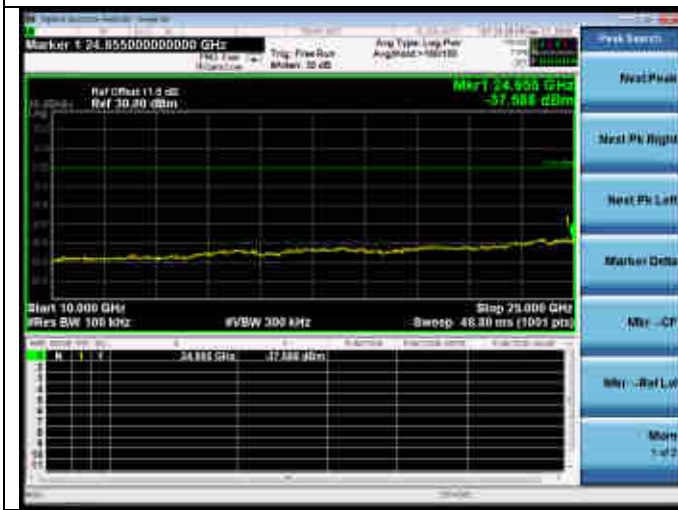
PASS (The testing data was attached in the next pages.)

Test Mode: IEEE 802.11b
 Test CH1: 2412MHz

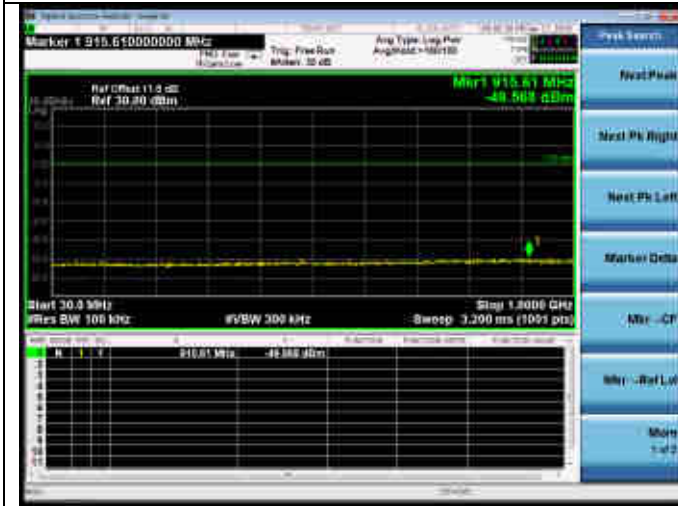


Test CH6: 2437MHz

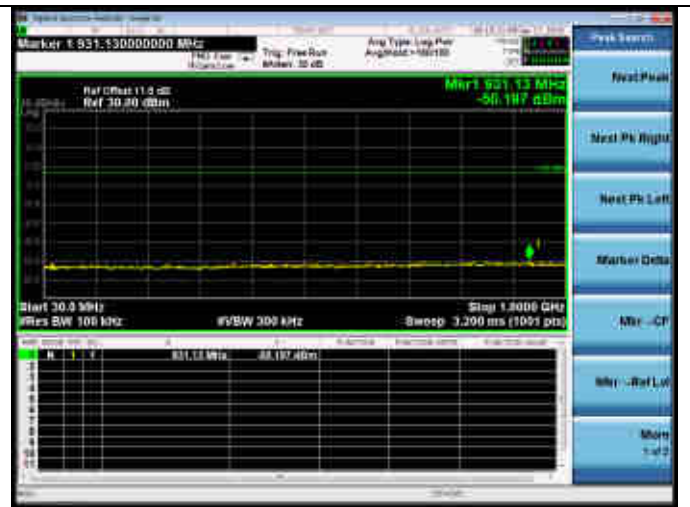
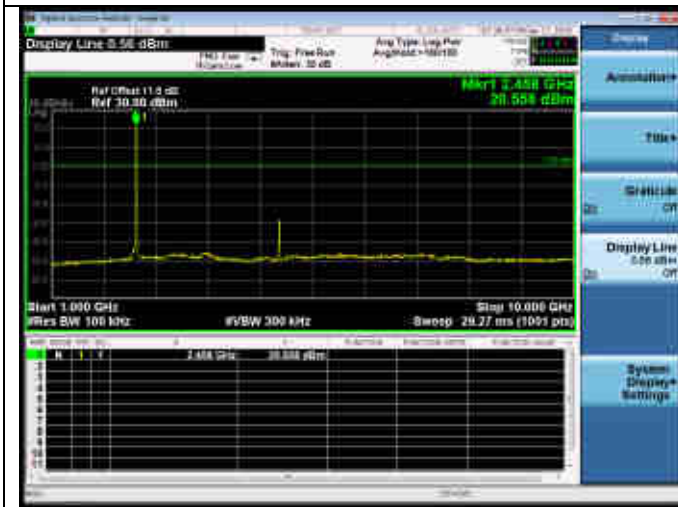




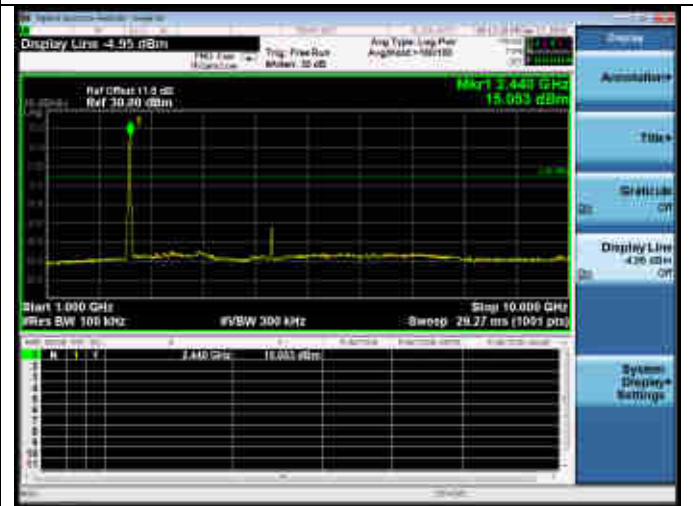
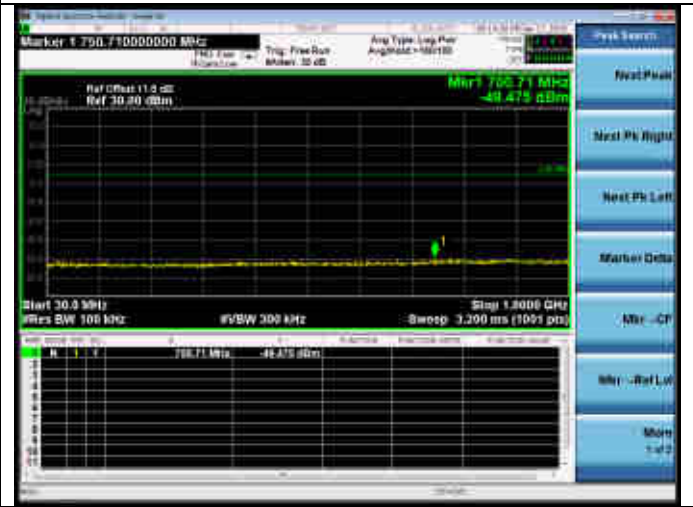
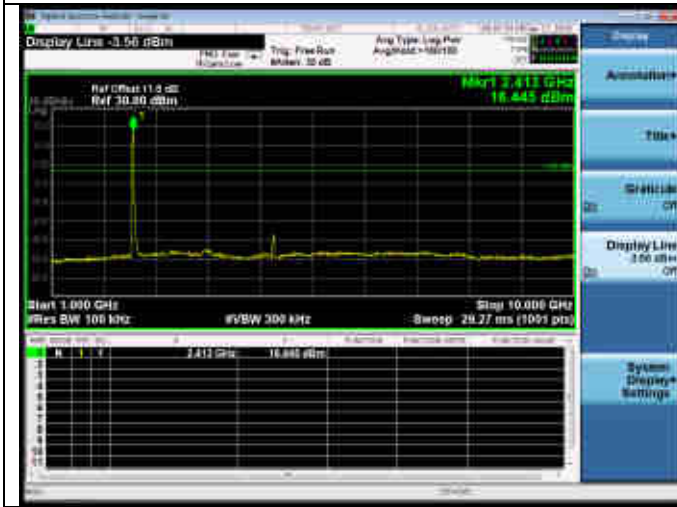
Test CH11: 2462MHz



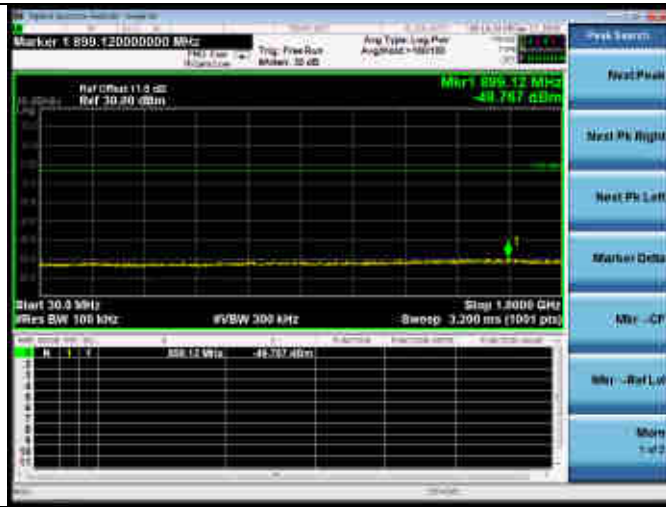
Test Mode: IEEE 802.11g
 Test CH: 2412MHz



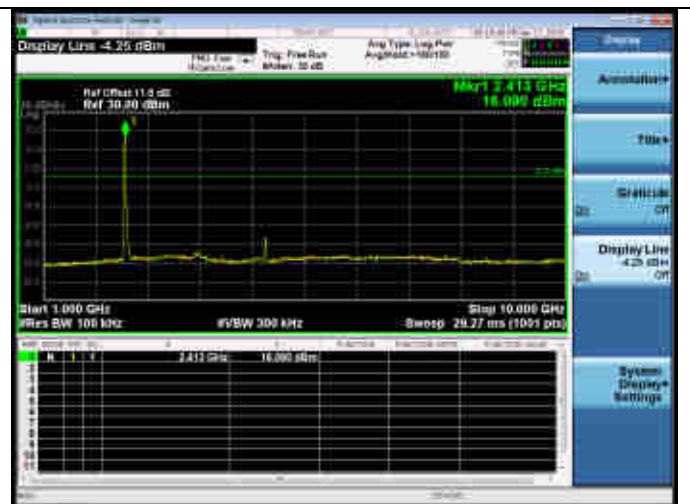
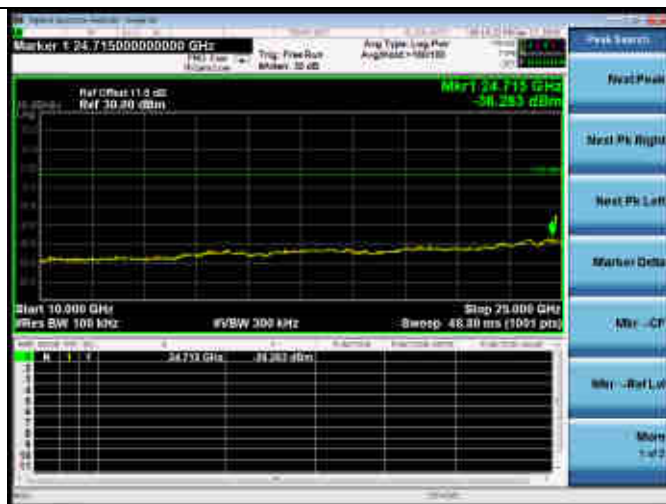
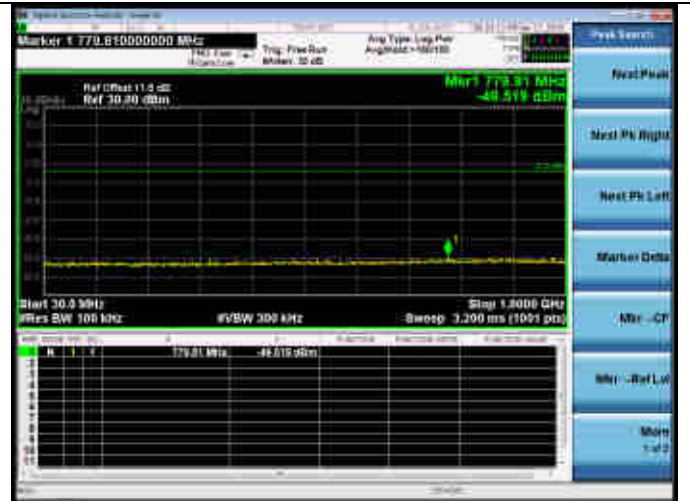
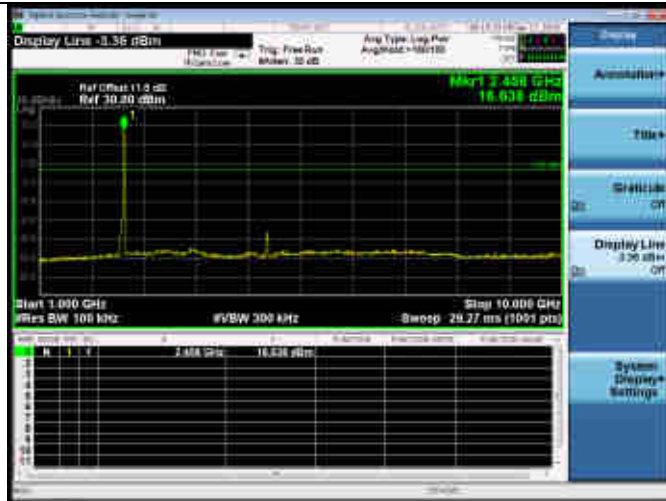
Test CH6: 2437MHz

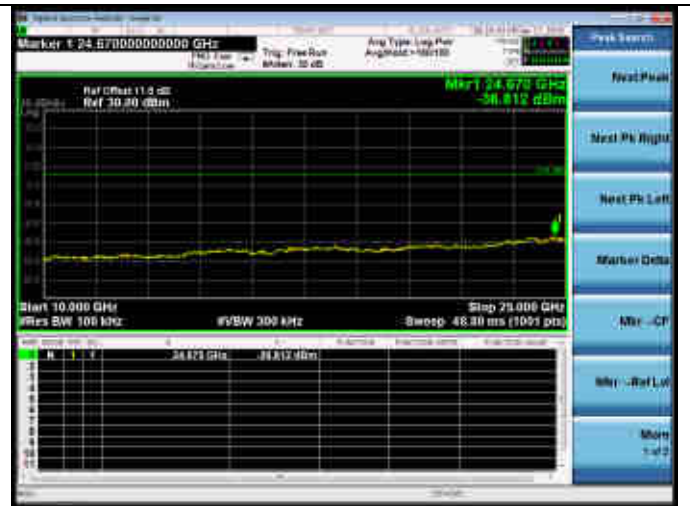
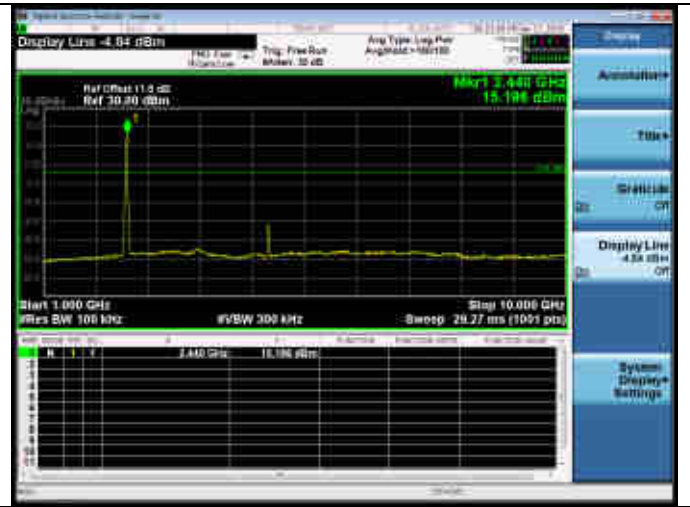
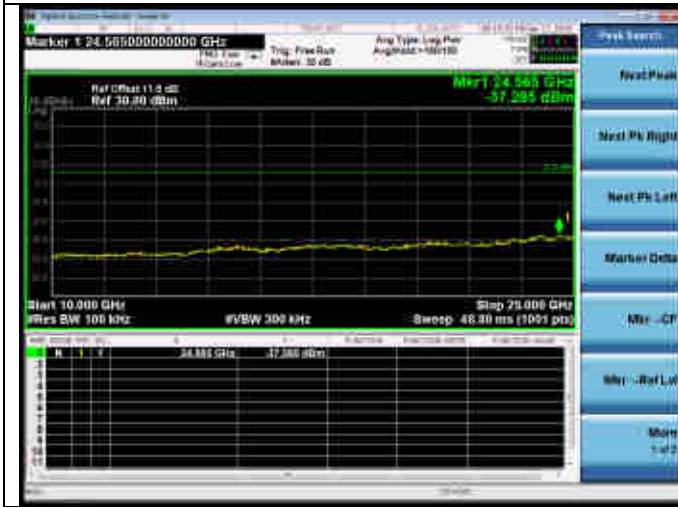


Test CH11: 2462MHz



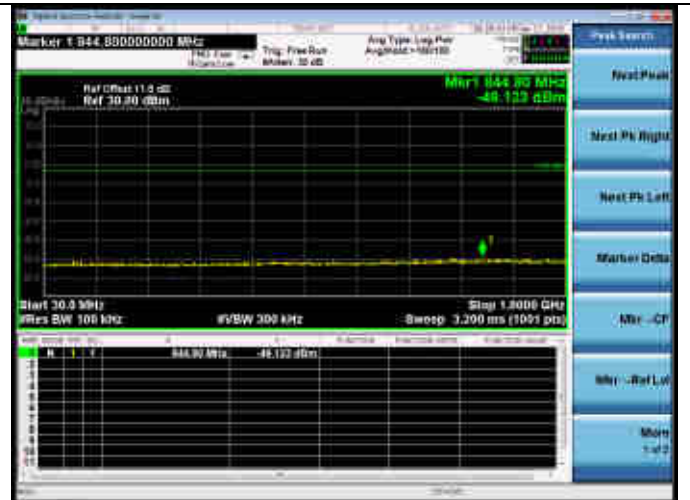
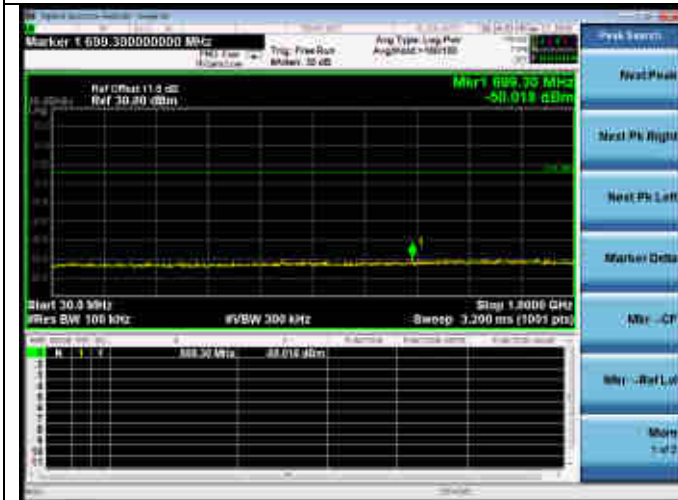
Test Mode: IEEE 802.11n HT20
Test CH1: 2412MHz



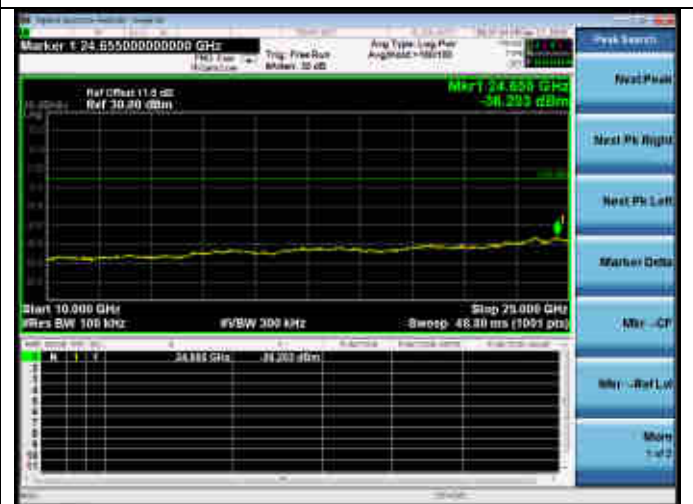
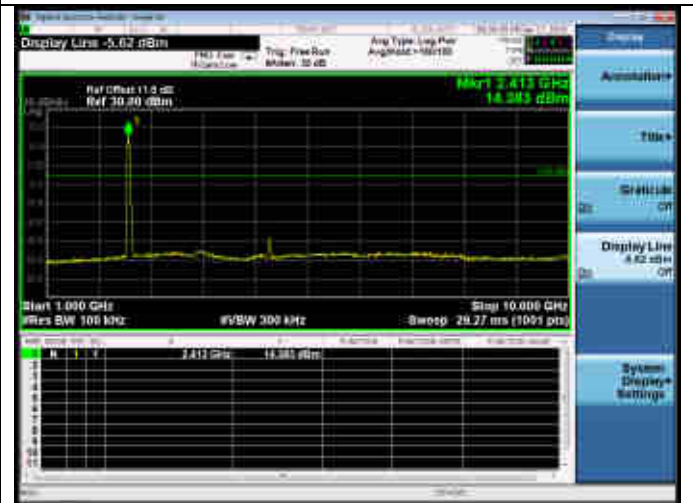
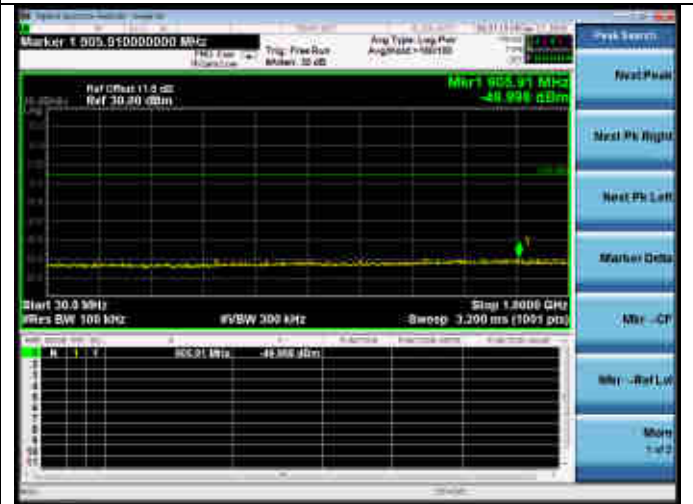
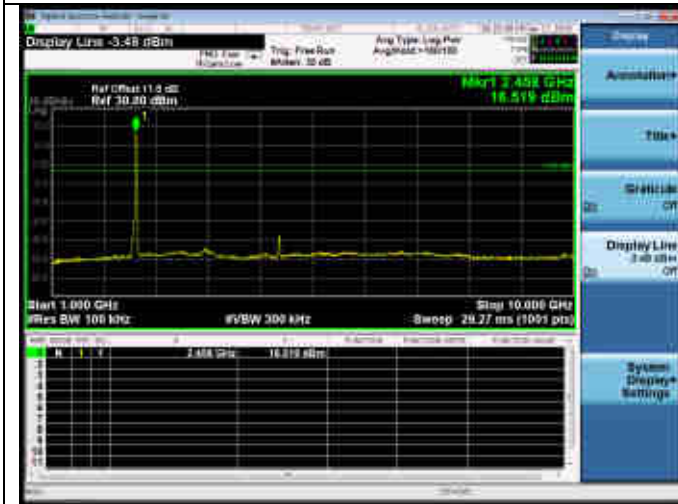


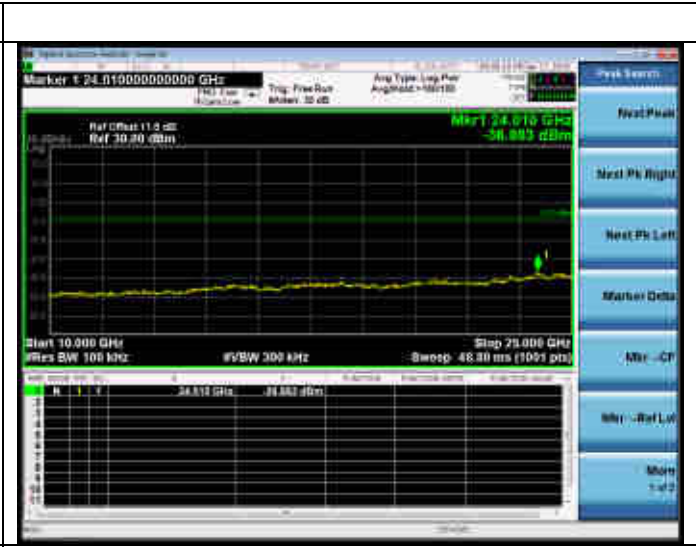
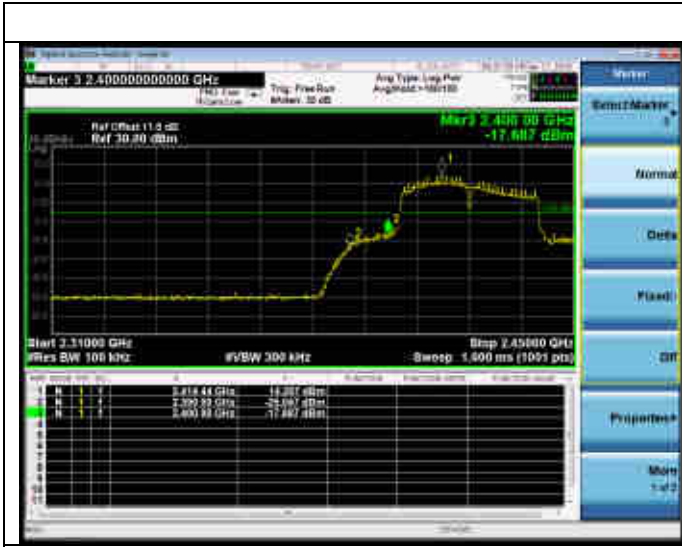
Test CH6: 2437MHz

Test CH11: 2462MHz



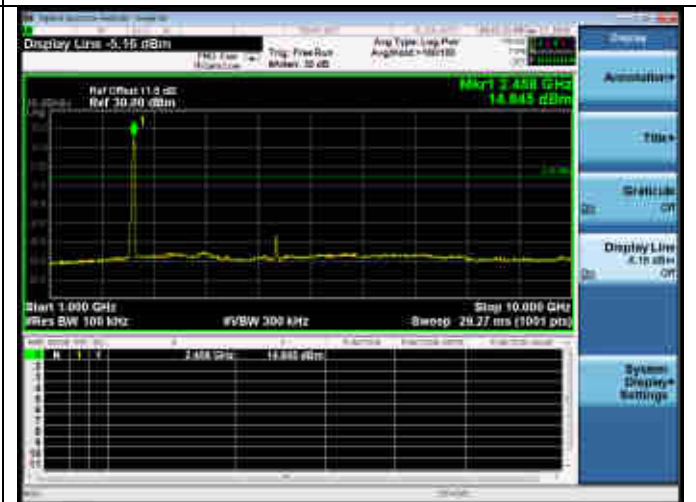
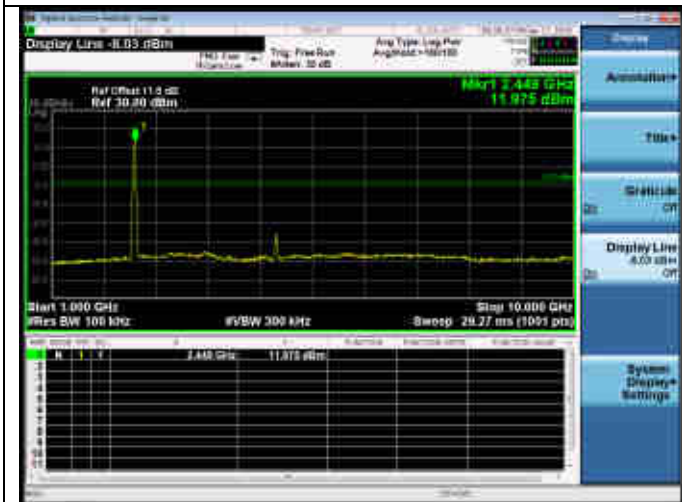
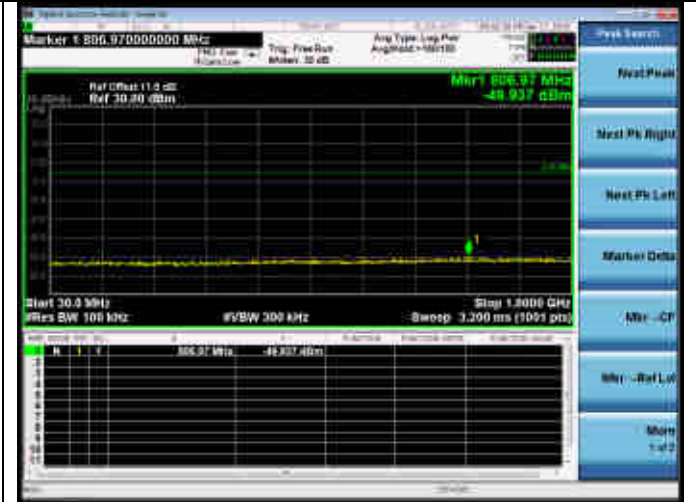
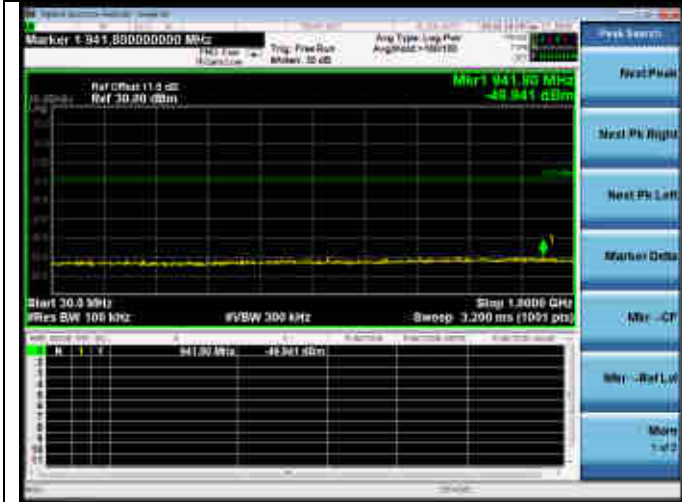
Test Mode: IEEE 802.11n HT40
 Test CH3: 2422MHz





Test CH6: 2437MHz

Test CH9: 2452MHz





6. BAND EDGE COMPLIANCE TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4446A	US44300459	Apr.22,17	1 Year
2.	Amp	HP	8449B	3008A02495	Apr.22.17	1 Year
3.	Horn Antenna	ETC	MCTD 1209	DRH15F03006	May.15,17	1 Year
4.	HF Cable	Hubersuhner	Sucoflex104	274094/4	Apr.22,17	1 Year

6.2. Limit

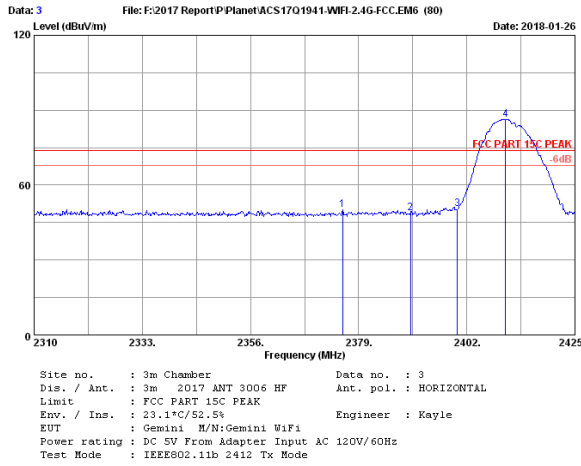
All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

6.3. Test Procedure

1. The EUT is placed on a turntable, which is 1.5m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 - (a) PEAK: RBW=1MHz; VBW=3MHz; Sweep=AUTO
 - (b) AVERAGE: RBW=1MHz; VBW=10Hz; Sweep=AUTO

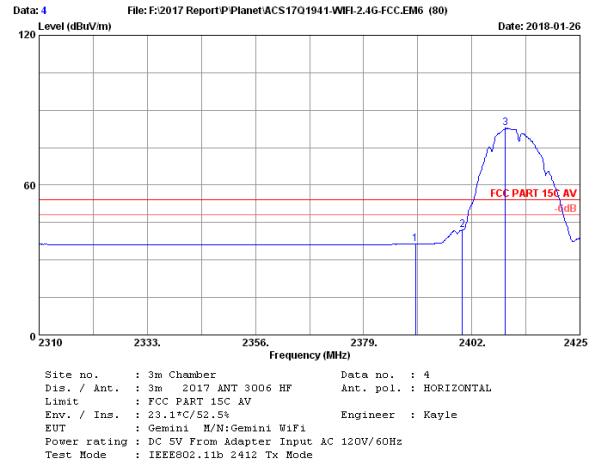
6.4. Test Results

Pass (The testing data was attached in the next pages.)



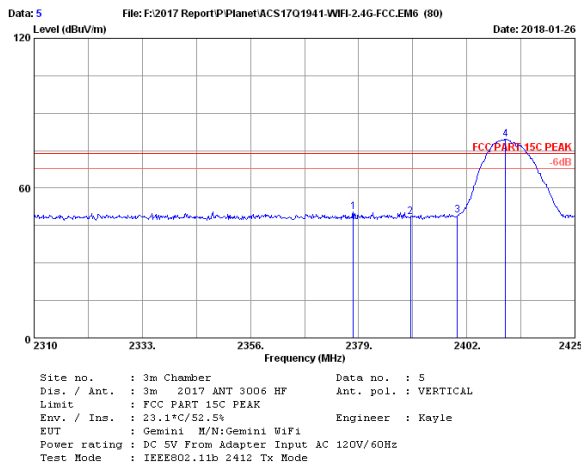
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2375.55	27.93	10.26	47.65	35.58	50.26	74.00	23.74	Peak
2	2390.00	27.96	10.26	46.28	35.61	48.89	74.00	25.11	Peak
3	2400.00	27.96	10.30	47.70	35.61	50.35	74.00	23.65	Peak
4	2410.28	27.98	10.30	83.67	35.61	86.34	74.00	-12.34	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



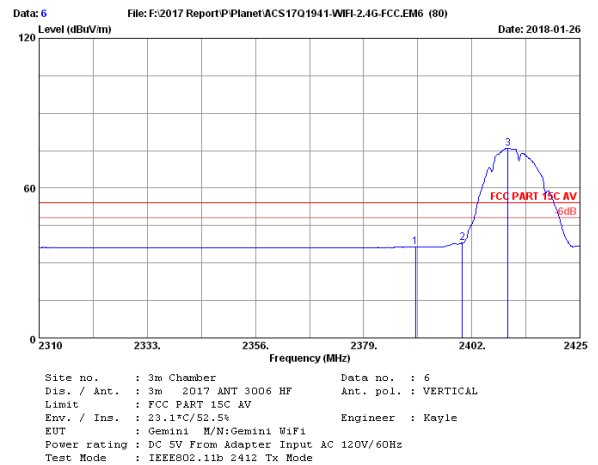
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	33.77	35.61	36.38	54.00	17.62	Average
2	2400.00	27.96	10.30	39.31	35.61	41.96	54.00	12.04	Average
3	2409.13	27.98	10.30	80.17	35.61	82.84	54.00	-28.84	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



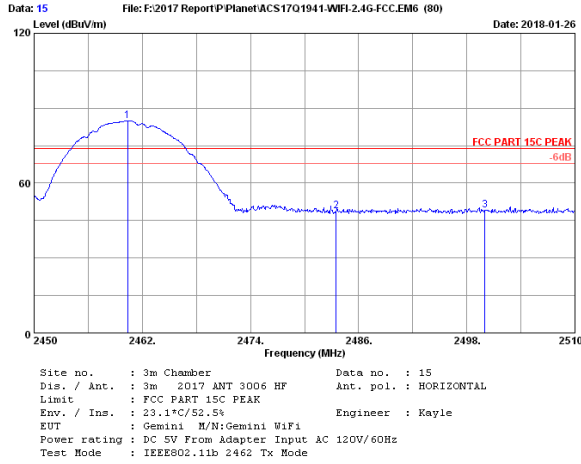
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2377.85	27.93	10.26	47.74	35.58	50.35	74.00	23.65	Peak
2	2390.00	27.96	10.26	45.88	35.61	48.49	74.00	25.51	Peak
3	2400.00	27.96	10.30	46.40	35.61	49.05	74.00	24.95	Peak
4	2410.28	27.98	10.30	76.89	35.61	79.56	74.00	-5.56	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



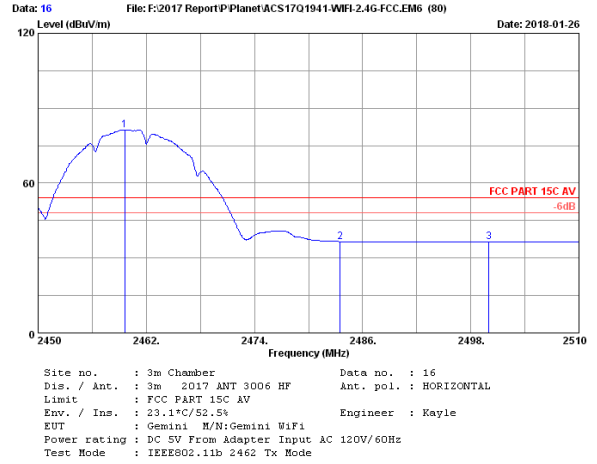
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	33.70	35.61	36.31	54.00	17.69	Average
2	2400.00	27.96	10.30	35.40	35.61	38.05	54.00	15.95	Average
3	2409.71	27.98	10.30	73.28	35.61	75.95	54.00	-21.95	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



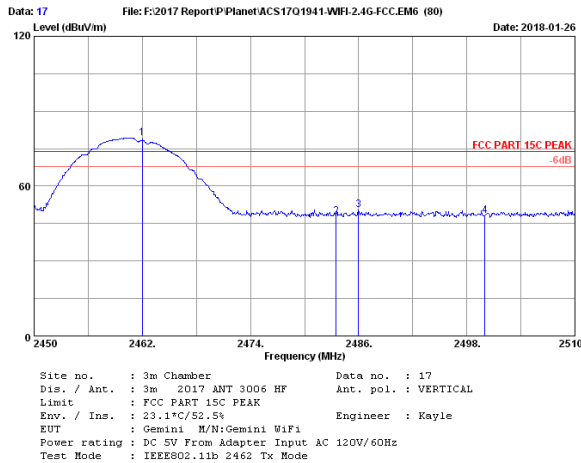
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.38	28.05	10.41	82.12	35.68	84.90	74.00	-10.90	Peak
2	2483.50	28.08	10.48	45.94	35.71	48.79	74.00	25.21	Peak
3	2500.00	28.10	10.48	46.35	35.74	49.19	74.00	24.81	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



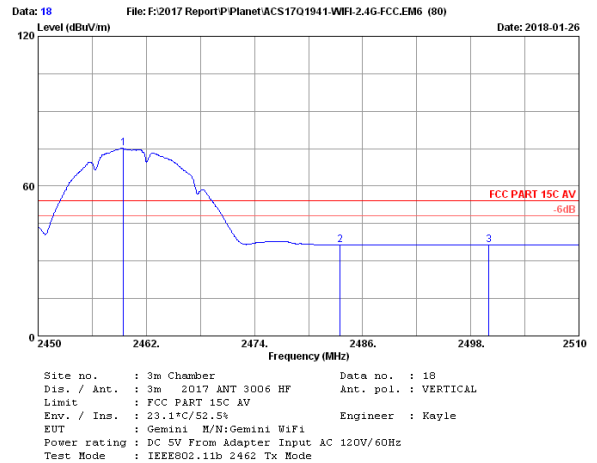
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2459.60	28.05	10.41	78.56	35.68	81.34	54.00	-27.34	Average
2	2483.50	28.08	10.48	33.72	35.71	36.57	54.00	17.43	Average
3	2500.00	28.10	10.48	33.70	35.74	36.54	54.00	17.46	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



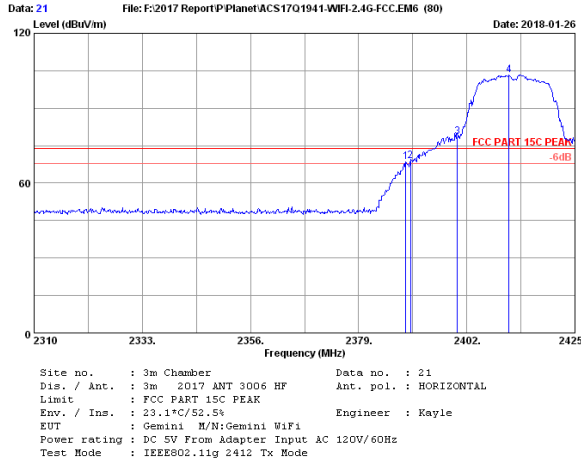
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.05	10.41	76.55	35.68	79.33	74.00	-5.33	Peak
2	2483.50	28.08	10.48	45.07	35.71	47.92	74.00	26.08	Peak
3	2486.00	28.08	10.48	47.51	35.71	50.36	74.00	23.64	Peak
4	2500.00	28.10	10.48	45.46	35.74	48.30	74.00	25.70	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



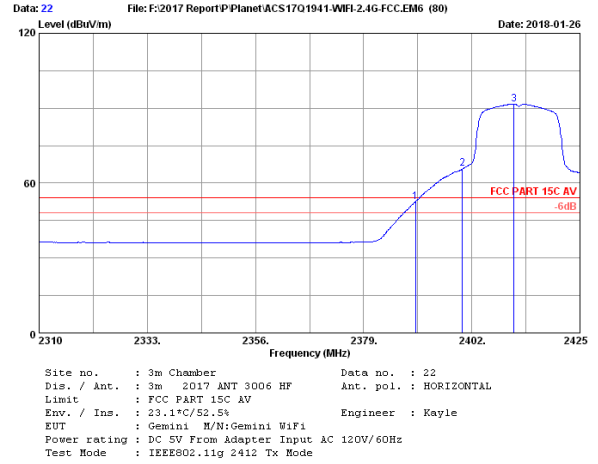
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2459.48	28.05	10.41	72.41	35.68	75.19	54.00	-21.19	Average
2	2483.50	28.08	10.48	33.57	35.71	36.42	54.00	17.58	Average
3	2500.00	28.10	10.48	33.62	35.74	36.46	54.00	17.54	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



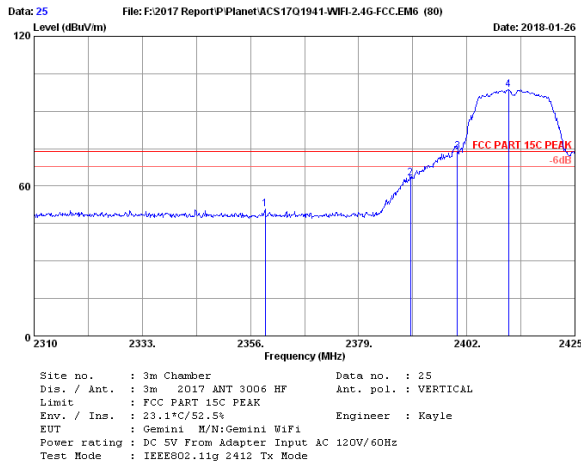
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2389.01	27.96	10.26	65.83	35.58	68.47	74.00	5.53	Peak
2	2390.00	27.96	10.26	66.14	35.61	68.75	74.00	5.25	Peak
3	2400.00	27.96	10.30	75.77	35.61	78.42	74.00	-4.42	Peak
4	2410.97	27.98	10.30	100.65	35.61	103.32	74.00	-29.32	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



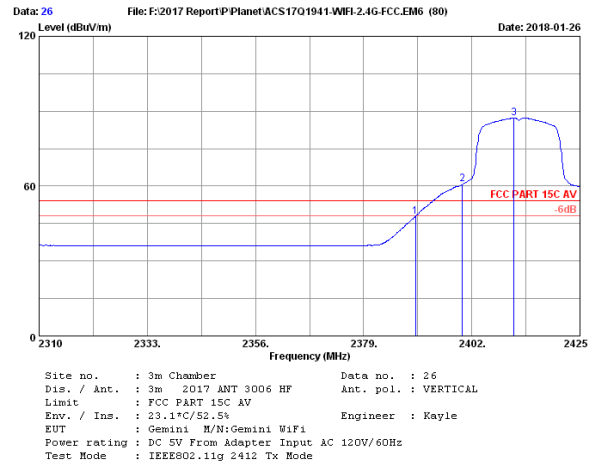
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	49.97	35.61	52.58	54.00	1.42	Average
2	2400.00	27.96	10.30	63.09	35.61	65.74	54.00	-11.74	Average
3	2410.97	27.98	10.30	89.05	35.61	91.72	54.00	-37.72	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



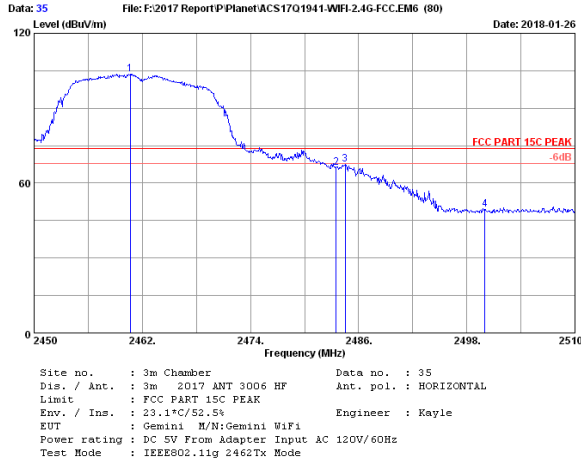
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2359.11	27.91	10.23	48.09	35.55	50.68	74.00	23.32	Peak
2	2390.00	27.96	10.26	60.66	35.61	63.27	74.00	10.73	Peak
3	2400.00	27.96	10.30	71.28	35.61	73.93	74.00	0.07	Peak
4	2410.86	27.98	10.30	95.99	35.61	98.66	74.00	-24.66	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



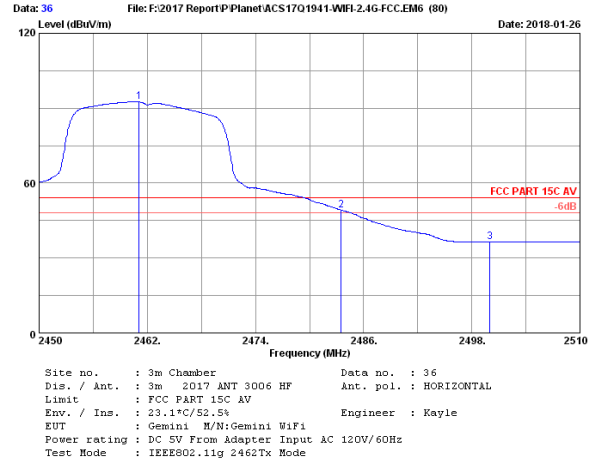
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	45.26	35.61	47.87	54.00	6.13	Average
2	2400.00	27.96	10.30	58.17	35.61	60.82	54.00	-6.82	Average
3	2410.97	27.98	10.30	84.60	35.61	87.27	54.00	-33.27	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



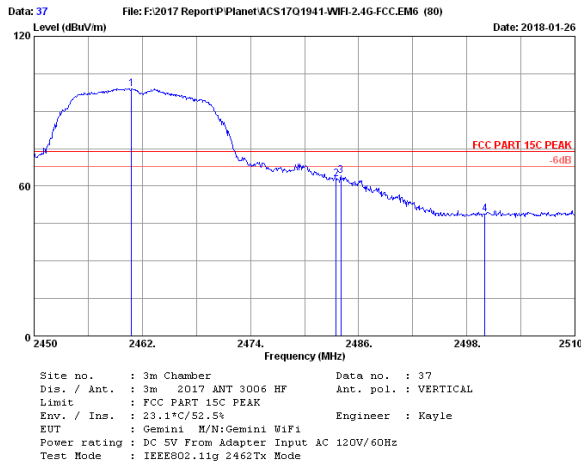
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.68	28.05	10.41	100.76	35.68	103.54	74.00	-29.54	Peak
2	2483.50	28.08	10.48	63.38	35.71	66.23	74.00	7.77	Peak
3	2484.50	28.08	10.48	64.65	35.71	67.50	74.00	6.50	Peak
4	2500.00	28.10	10.48	46.73	35.74	49.57	74.00	24.43	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



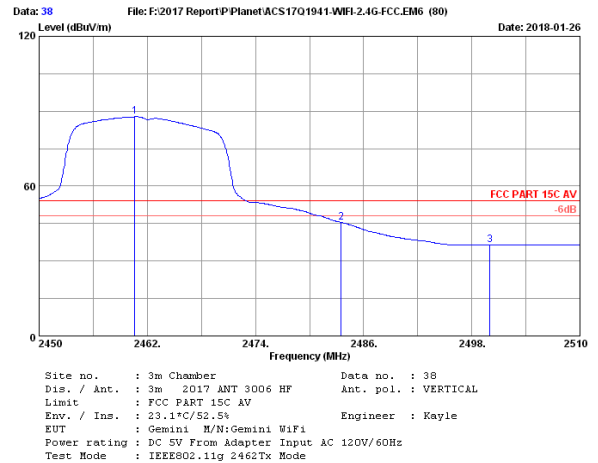
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.10	28.05	10.41	89.85	35.68	92.63	54.00	-38.63	Average
2	2483.50	28.08	10.48	46.41	35.71	49.26	54.00	4.74	Average
3	2500.00	28.10	10.48	33.61	35.74	36.45	54.00	17.55	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



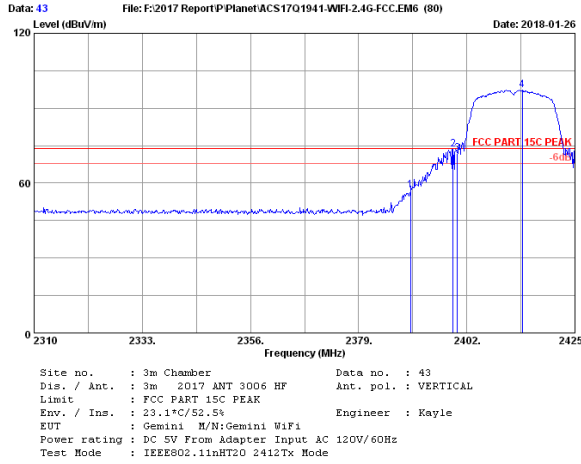
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.80	28.05	10.41	96.29	35.68	99.07	74.00	-25.07	Peak
2	2483.50	28.08	10.48	60.14	35.71	62.99	74.00	11.01	Peak
3	2484.02	28.08	10.48	61.32	35.71	64.17	74.00	9.83	Peak
4	2500.00	28.10	10.48	46.08	35.74	48.92	74.00	25.08	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



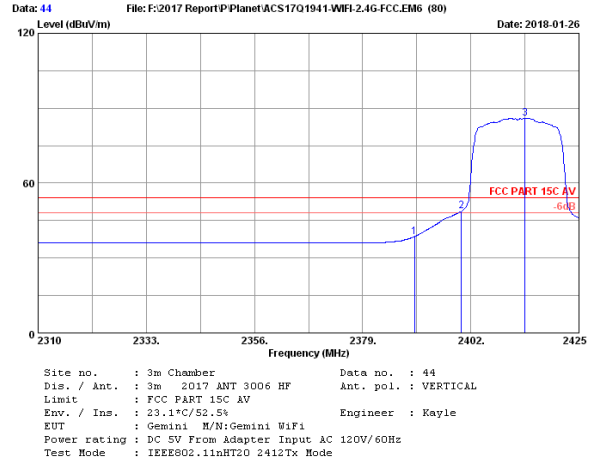
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2460.62	28.05	10.41	84.99	35.68	87.77	54.00	-33.77	Average
2	2483.50	28.08	10.48	42.70	35.71	45.55	54.00	8.45	Average
3	2500.00	28.10	10.48	33.58	35.74	36.42	54.00	17.58	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



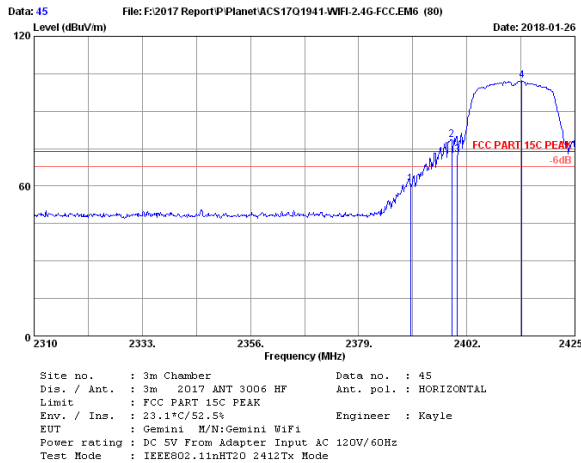
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	54.45	35.61	57.06	74.00	16.94	Peak
2	2399.13	27.96	10.30	71.04	35.61	73.69	74.00	0.31	Peak
3	2400.00	27.96	10.30	69.17	35.61	71.82	74.00	2.18	Peak
4	2413.85	27.98	10.34	94.56	35.61	97.27	74.00	-23.27	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



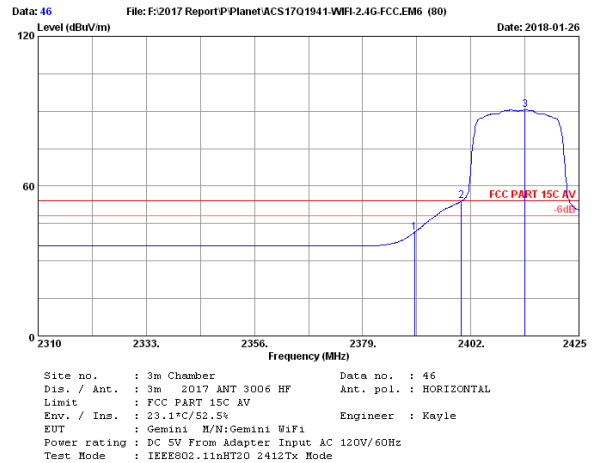
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	35.96	35.61	38.57	54.00	15.43	Average
2	2400.00	27.96	10.30	46.14	35.61	45.79	54.00	5.21	Average
3	2413.50	27.98	10.34	83.32	35.61	86.03	54.00	-32.03	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



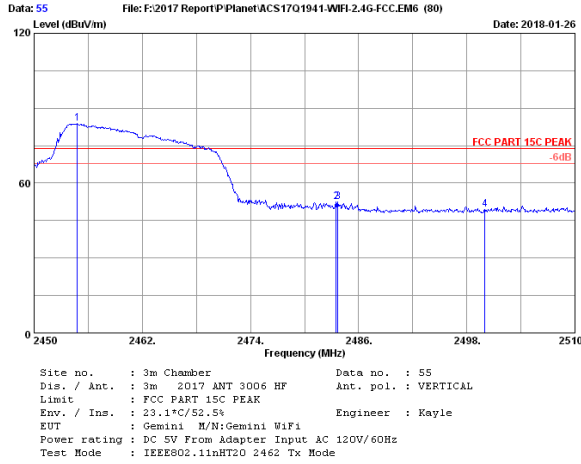
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	58.08	35.61	60.69	74.00	13.31	Peak
2	2398.78	27.96	10.30	75.98	35.61	78.63	74.00	-4.63	Peak
3	2400.00	27.96	10.30	70.03	35.61	72.68	74.00	1.32	Peak
4	2413.73	27.98	10.34	99.41	35.61	102.12	74.00	-28.12	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



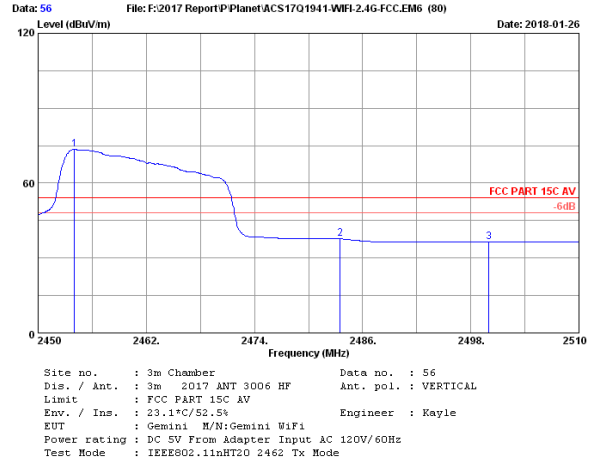
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	38.89	35.61	41.50	54.00	12.50	Average
2	2400.00	27.96	10.30	51.44	35.61	54.09	54.00	-0.09	Average
3	2413.50	27.98	10.34	87.86	35.61	90.57	54.00	-36.57	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



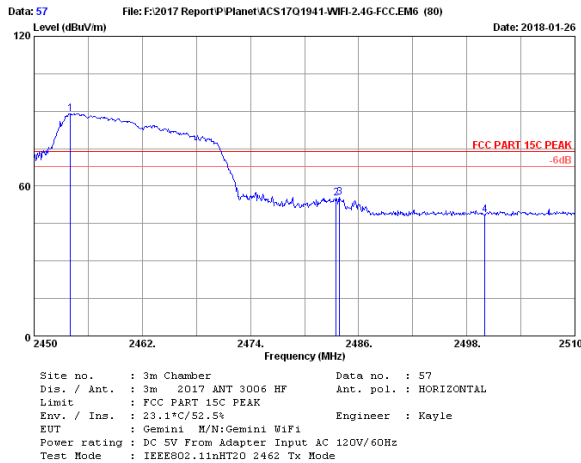
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2454.80	28.05	10.41	81.02	35.68	83.80	74.00	-9.80	Peak
2	2483.50	28.08	10.48	49.60	35.71	52.45	74.00	21.55	Peak
3	2483.72	28.08	10.48	49.66	35.71	52.51	74.00	21.49	Peak
4	2500.00	28.10	10.48	46.56	35.74	49.40	74.00	24.60	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



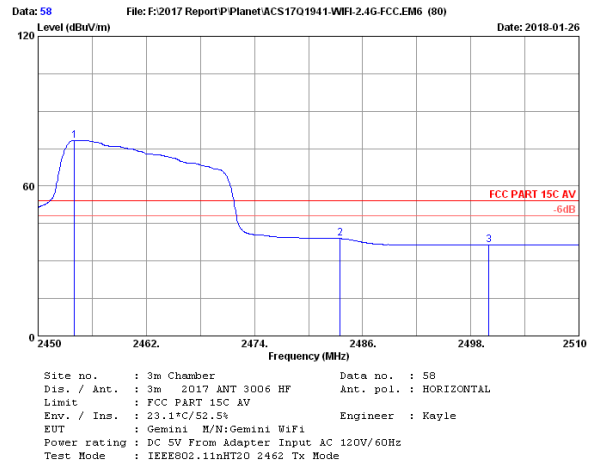
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2454.02	28.05	10.41	70.74	35.68	73.52	54.00	-19.52	Average
2	2483.50	28.08	10.48	34.87	35.71	37.72	54.00	16.28	Average
3	2500.00	28.10	10.48	33.57	35.74	36.41	54.00	17.59	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



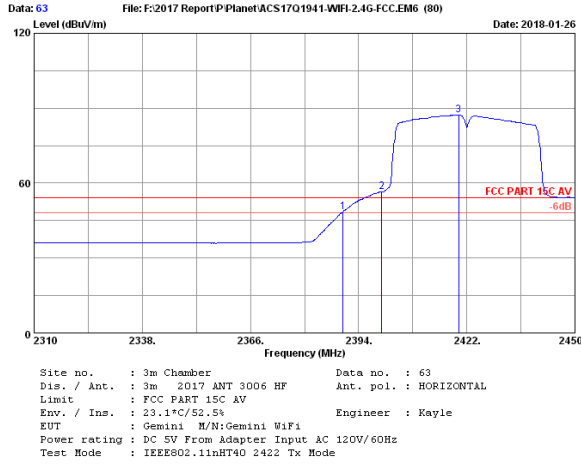
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2454.02	28.05	10.41	86.30	35.68	89.08	74.00	-15.08	Peak
2	2483.50	28.08	10.48	52.25	35.71	55.10	74.00	18.90	Peak
3	2483.90	28.08	10.48	52.71	35.71	55.56	74.00	18.44	Peak
4	2500.00	28.10	10.48	45.56	35.74	48.40	74.00	25.60	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



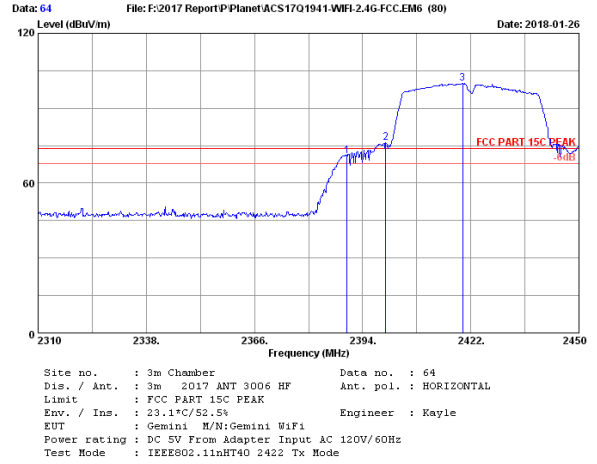
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2454.02	28.05	10.41	75.60	35.68	78.38	54.00	-24.38	Average
2	2483.50	28.08	10.48	36.16	35.71	39.01	54.00	14.99	Average
3	2500.00	28.10	10.48	33.49	35.74	36.33	54.00	17.67	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



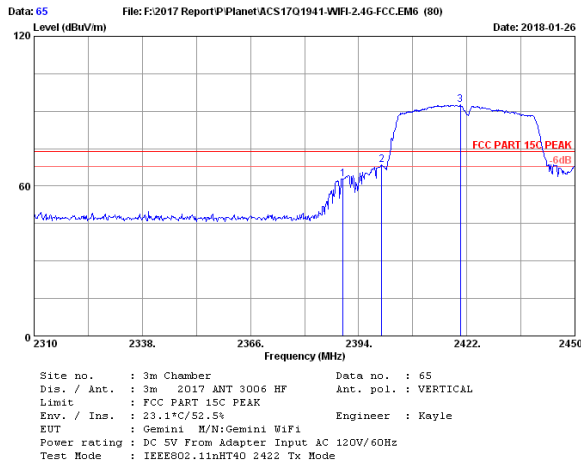
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	45.91	35.61	48.52	54.00	5.48	Average
2	2400.00	27.96	10.30	53.80	35.61	56.45	54.00	-2.45	Average
3	2419.90	28.00	10.34	84.56	35.64	87.26	54.00	-33.26	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



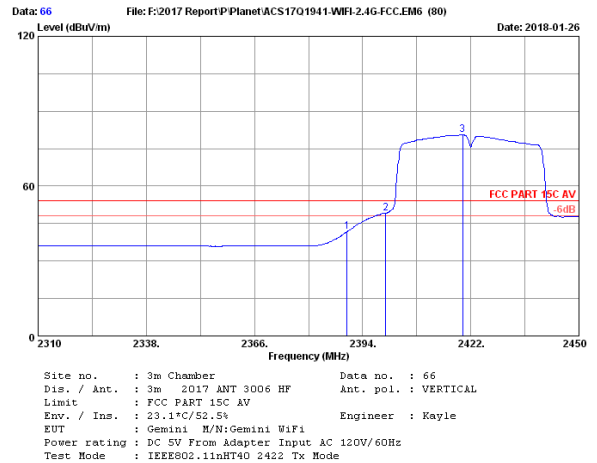
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	68.33	35.61	70.94	74.00	3.06	Peak
2	2400.00	27.96	10.30	75.41	35.61	76.06	74.00	-2.06	Peak
3	2419.90	28.00	10.34	97.22	35.64	99.92	74.00	-25.92	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



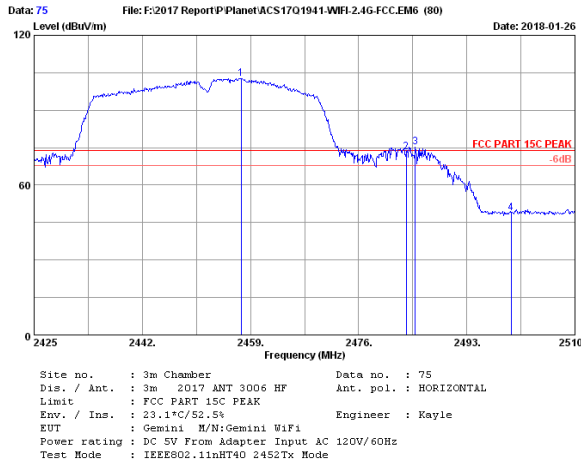
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	60.25	35.61	62.86	74.00	11.14	Peak
2	2400.00	27.96	10.30	65.80	35.61	68.45	74.00	5.55	Peak
3	2420.32	28.00	10.34	89.74	35.64	92.44	74.00	-18.44	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



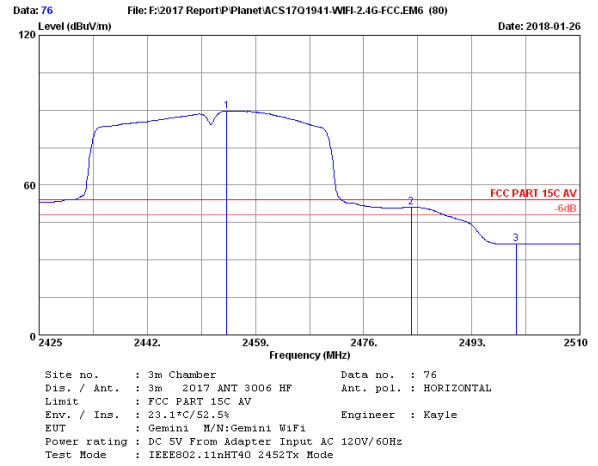
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	27.96	10.26	39.09	35.61	41.70	54.00	12.30	Average
2	2400.00	27.96	10.30	46.55	35.61	49.20	54.00	4.80	Average
3	2419.90	28.00	10.34	77.79	35.64	80.49	54.00	-26.49	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading - Amp Factor.
 2. The emission levels that are 20dB below the official limit are not reported.



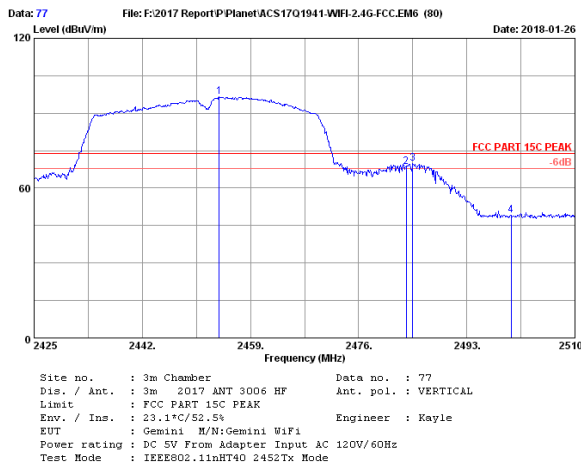
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2457.56	28.05	10.41	99.91	35.68	102.69	74.00	-28.69	Peak
2	2483.50	28.08	10.48	70.25	35.71	73.10	74.00	0.90	Peak
3	2484.93	28.08	10.48	72.40	35.71	75.25	74.00	-1.25	Peak
4	2500.00	28.10	10.48	45.90	35.74	48.74	74.00	25.26	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



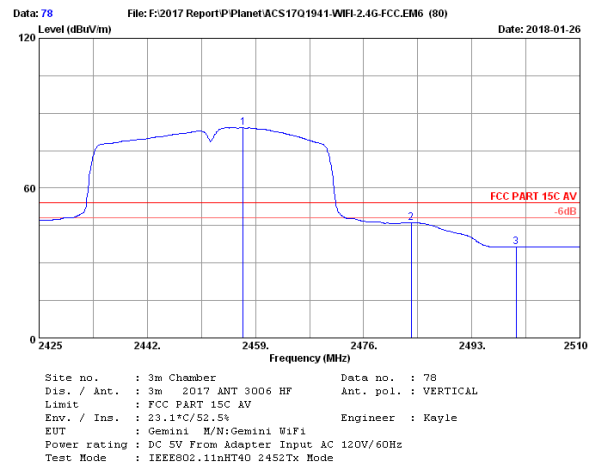
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2454.50	28.05	10.41	86.83	35.68	89.61	54.00	-35.61	Average
2	2483.50	28.08	10.48	48.32	35.71	51.17	54.00	2.83	Average
3	2500.00	28.10	10.48	33.53	35.74	36.37	54.00	17.63	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2454.07	28.05	10.41	93.69	35.68	96.47	74.00	-22.47	Peak
2	2483.50	28.08	10.48	65.82	35.71	68.67	74.00	5.33	Peak
3	2484.50	28.08	10.48	66.97	35.71	69.82	74.00	4.18	Peak
4	2500.00	28.10	10.48	46.41	35.74	49.25	74.00	24.75	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.



No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2457.05	28.05	10.41	81.34	35.68	84.12	54.00	-30.12	Average
2	2483.50	28.08	10.48	43.35	35.71	46.20	54.00	7.80	Average
3	2500.00	28.10	10.48	33.53	35.74	36.37	54.00	17.63	Average

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
 2. The emission levels that are 20dB below the official limit are not reported.

7. 6dB Bandwidth Test

7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY53311015	Oct.15,17	1 Year
2.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.27,17	1 Year
3.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.15,17	1 Year

7.2. Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz

7.3. Test Procedure

The transmitter output was connected to a spectrum analyzer, The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

7.4. Test Results

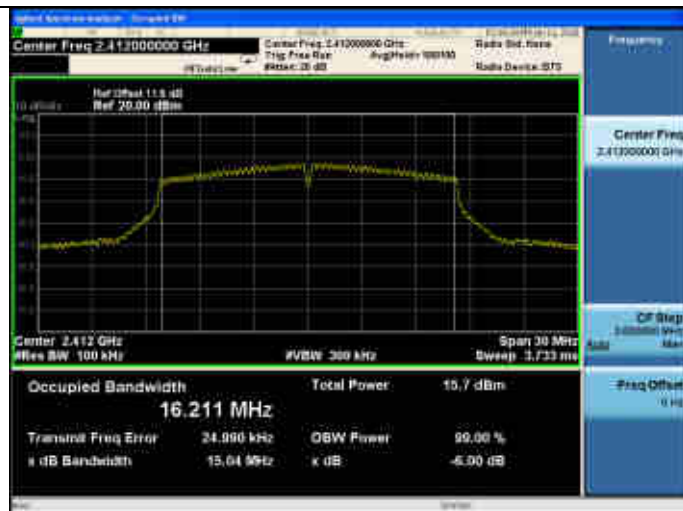
EUT: Gemini		
M/N: Gemini WiFi		
Test date: 2018-01-11	Pressure: 102.6±1.0 kpa	Humidity: 51.3±3.0%
Tested by: Kayle	Test site: RF site	Temperature: 22.5±0.6 °C

Test Mode	CH	-6dB bandwidth (MHz)	Limit (KHz)
11b	CH1	7.652	≥ 500
	CH6	8.918	≥ 500
	CH11	7.243	≥ 500
11g	CH1	15.04	≥ 500
	CH6	16.50	≥ 500
	CH11	14.09	≥ 500
11n HT20	CH1	14.13	≥ 500
	CH6	17.74	≥ 500
	CH11	14.11	≥ 500
11n HT40	CH3	25.32	≥ 500
	CH6	36.56	≥ 500
	CH9	22.59	≥ 500

Conclusion : PASS

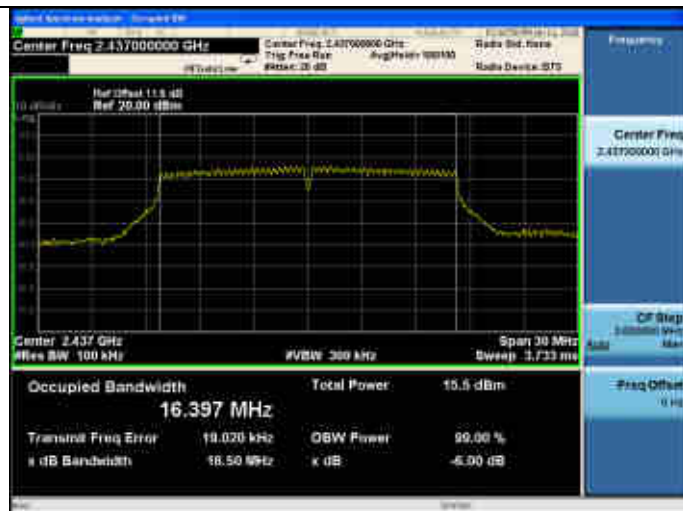
Test Mode: IEEE 802.11b
Test CH1: 2412MHz

Test Mode: IEEE 802.11g
Test CH1: 2412MHz



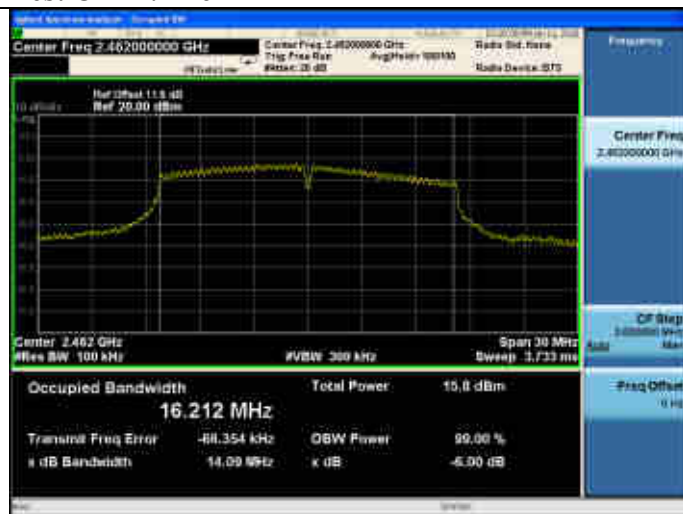
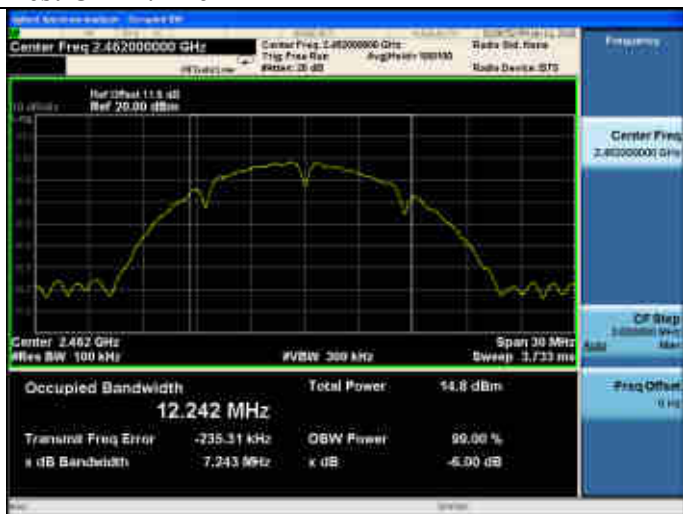
Test CH6: 2437MHz

Test CH6: 2437MHz



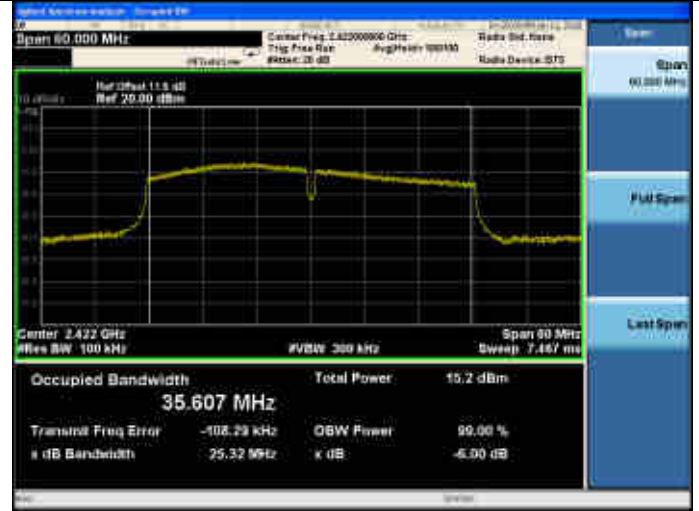
Test CH11: 2462MHz

Test CH11: 2462MHz



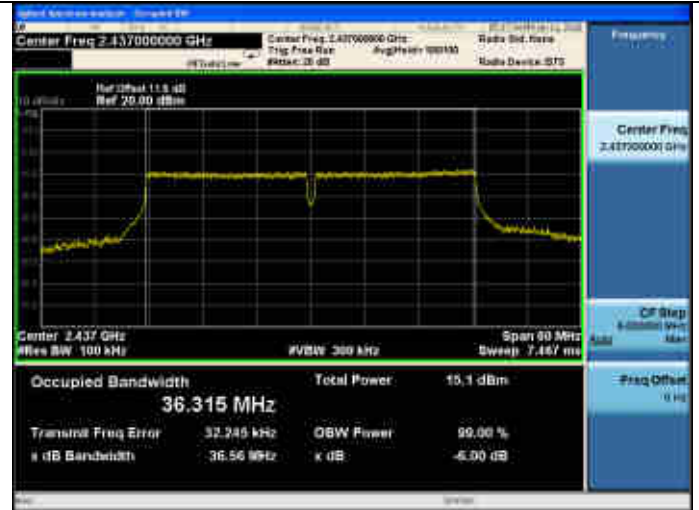
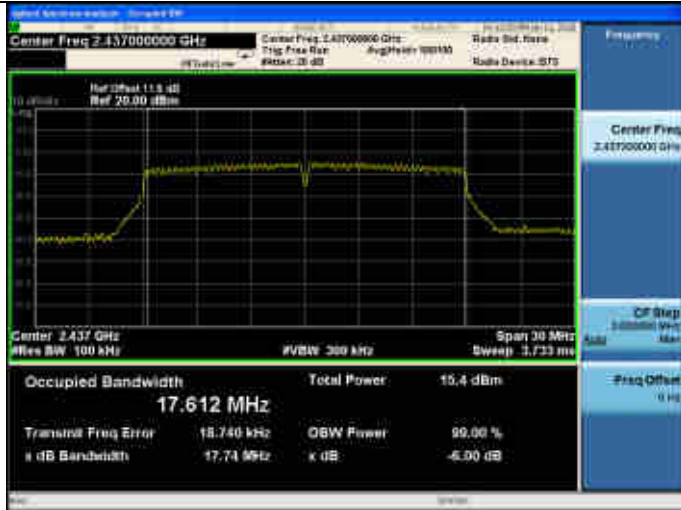
Test Mode: IEEE 802.11n HT20
Test CH1: 2412MHz

Test Mode: IEEE 802.11n HT40
Test CH3: 2422MHz



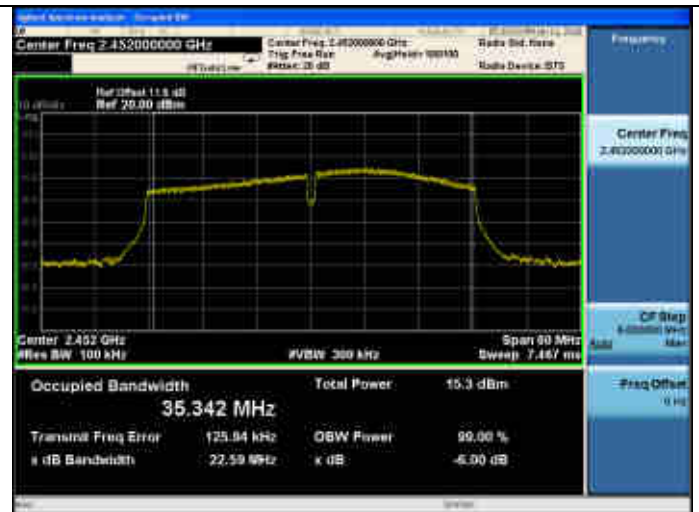
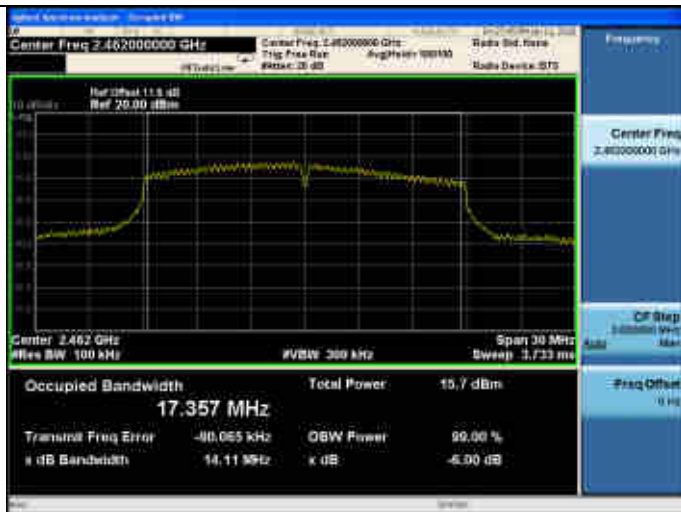
Test CH6: 2437MHz

Test CH6: 2437MHz



Test CH11: 2462MHz

Test CH9: 2452MHz



8. OUTPUT POWER TEST

8.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY53311015	Oct.15,17	1 Year
2.	Power meter	Anritsu	ML2487A	6K00002472	Apr.22,17	1 Year
3.	Power sensor	Anritsu	MA2491A	0033005	Apr.22,17	1 Year
4.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.22,17	1 Year
5.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.15,17	1 Year

8.2. Limit (FCC Part 15C 15.247 b(3))

For systems using digital modulation in the 2400—2483.5MHz, The Peak output Power shall not exceed 1W(30dBm), As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level.

8.3. Test Procedure

- 1, Connected the EUT’s antenna port to measure device by 20dB attenuator.
- 2, Use the test method described in KDB 558074 clause 9.2.2.
 - 1) Set span to at least 1.5 OBW.
 - 2) Set RBW = 1 % to 5 % of the OBW, not to exceed 1 MHz.
 - 3) Set VBW \geq 3 RBW.
 - 4) Number of points in sweep \geq 2 span / RBW.
 - 5) Sweep time = auto.
 - 6) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
 - 7) If transmit duty cycle < 98 %, use a sweep trigger with the level set to enable triggering only on full power pulses. The transmitter shall operate at maximum power control level for the entire 558074 D01 DTS Meas Guidance v04 Page 8 duration of every sweep. If the EUT transmits continuously or at duty cycle \geq 98 %, and if each transmission is entirely at the maximum power control level, then the trigger shall be set to “free run”.
 - 8) Trace average at least 100 traces in power averaging mode.
 - 9) Compute power by integrating the spectrum across the OBW of the signal using the instrument’s band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

8.4. Test Results

EUT: Gemini		
M/N: Gemini WiFi		
Test date: 2018-02-28	Pressure: 102.3±1.0 kpa	Humidity: 51.5±3.0%
Tested by: Kayle	Test site: RF site	Temperature: 22.1±0.6 °C

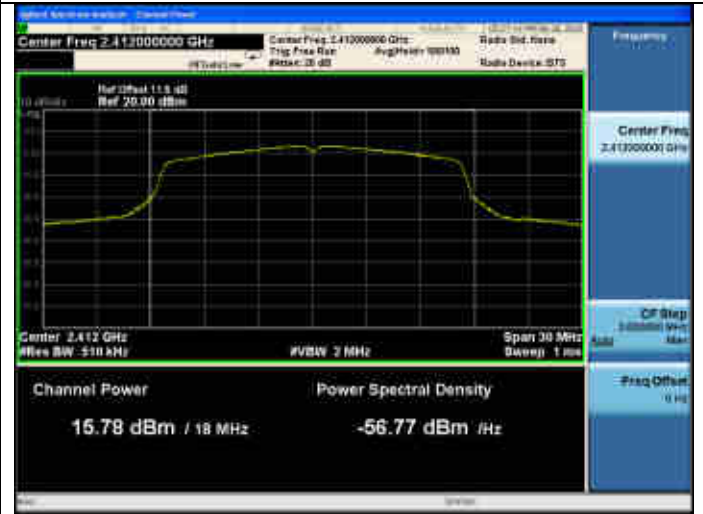
Test Mode	CH	output Power (dBm)	Limit (dBm)
11b	CH1	17.69	30
	CH6	17.67	30
	CH11	17.88	30
11g	CH1	15.78	30
	CH6	15.69	30
	CH11	16.06	30
11n HT20	CH1	15.54	30
	CH6	15.58	30
	CH11	15.89	30
11n HT40	CH3	15.22	30
	CH6	15.10	30
	CH9	15.27	30

Conclusion: PASS

Test Mode: IEEE 802.11b
Test CH1: 2412MHz



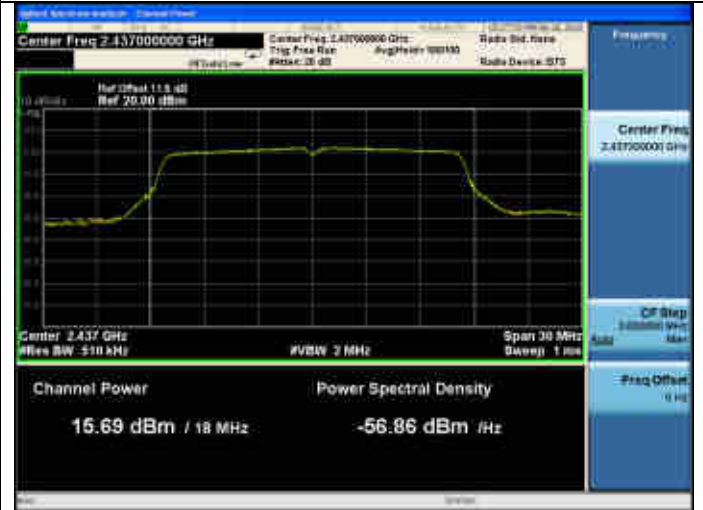
Test Mode: IEEE 802.11g
Test CH1: 2412MHz



Test CH6: 2437MHz



Test CH6: 2437MHz



Test CH11: 2462MHz



Test CH11: 2462MHz



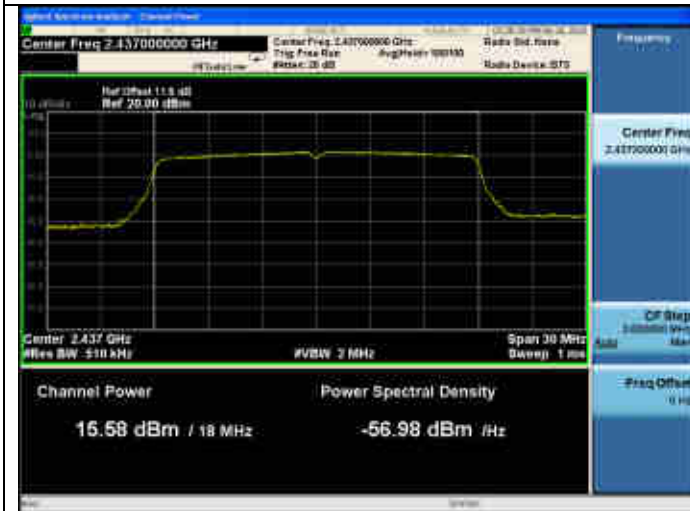
Test Mode: IEEE 802.11n HT20
Test CH1: 2412MHz



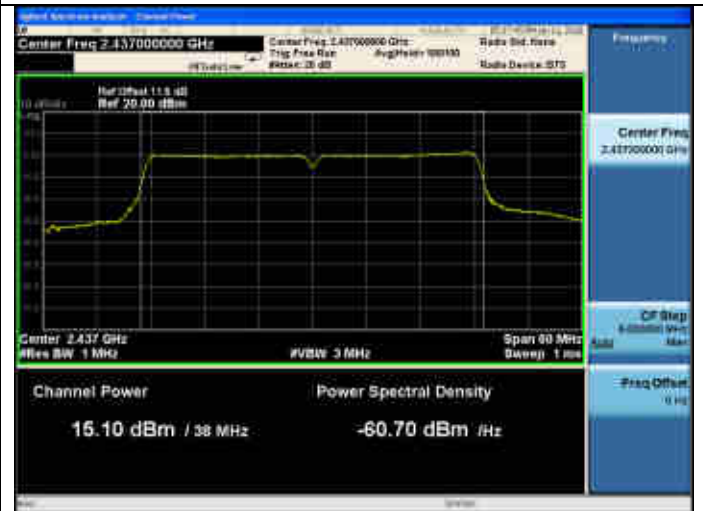
Test Mode: IEEE 802.11n HT40
Test CH3: 2422MHz



Test CH6: 2437MHz



Test CH6: 2437MHz



Test CH11: 2462MHz



Test CH9: 2452MHz



9. POWER SPECTRAL DENSITY TEST

9.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY53311015	Oct.15,17	1 Year
2.	Attenuator (20dB)	Agilent	8491B	MY39262165	Apr.22,17	1 Year
3.	RF Cable	Marvelous Microwave Inc	SFL402105FLEX	NO.1	Oct.15,17	1 Year

9.2. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

9.3. Test Procedure

1. Connected the EUT's antenna port to spectrum analyzer device by 20dB attenuator.
2. Set span to 1.5 times the DTS Bandwidth.
3. Set the RBW=3KHz, VBW=10KHz.
4. Detector=peak, Sweep time=Auto, Trace mode=max Hold
5. All the trace to fully stabilize.
6. Use the peak marker function to determine the maximum amplitude level with in the RBW.

Note: The cable loss and attenuator loss were offset into measure device as an amplitude

9.4. Test Results

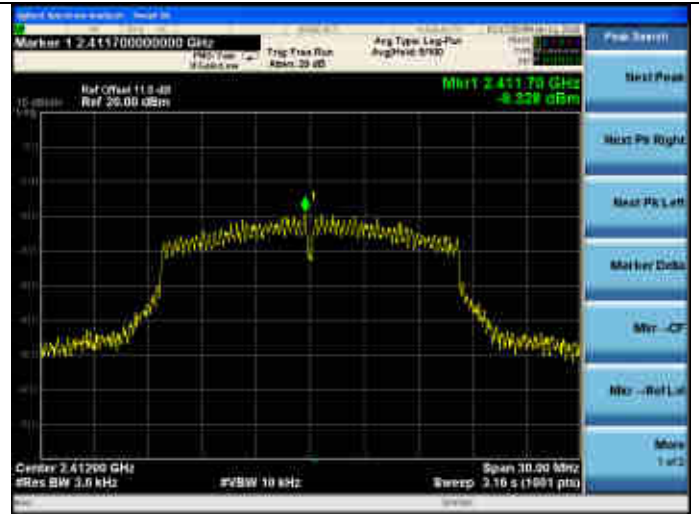
EUT: Gemini		
M/N: Gemini WiFi		
Test date: 2018-01-11	Pressure: 102.6±1.0 kpa	Humidity: 51.3±3.0%
Tested by: Kayle	Test site: RF site	Temperature: 22.5±0.6 °C

Test Mode	CH	Power Density (dBm/3KHz)	Limit (dBm/3KHz)
11b	CH1	3.166	8
	CH6	-8.639	8
	CH11	7.267	8
11g	CH1	-9.328	8
	CH6	-10.887	8
	CH11	-8.119	8
11n HT20	CH1	-8.802	8
	CH6	-9.648	8
	CH11	-9.657	8
11n HT40	CH3	-10.660	8
	CH6	-12.244	8
	CH9	-10.914	8
Conclusion: PASS			

Test Mode: IEEE 802.11b
Test CH1: 2412MHz



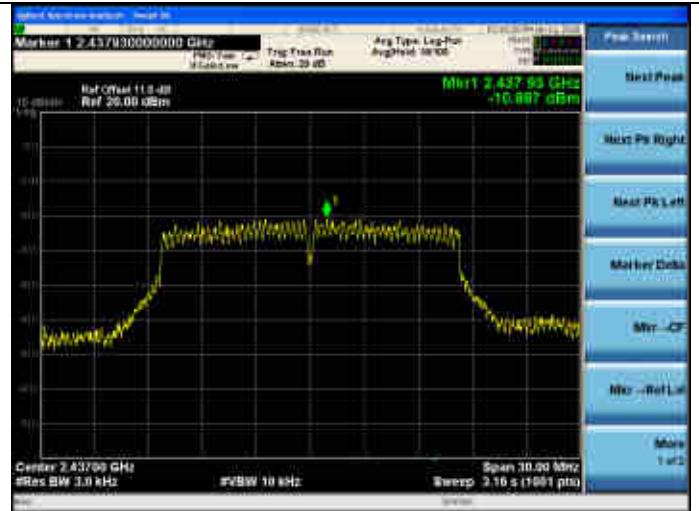
Test Mode: IEEE 802.11g
Test CH1: 2412MHz



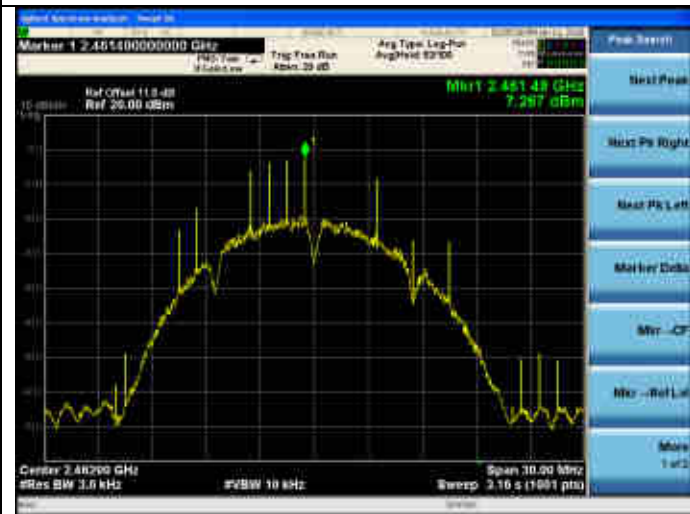
Test CH6: 2437MHz



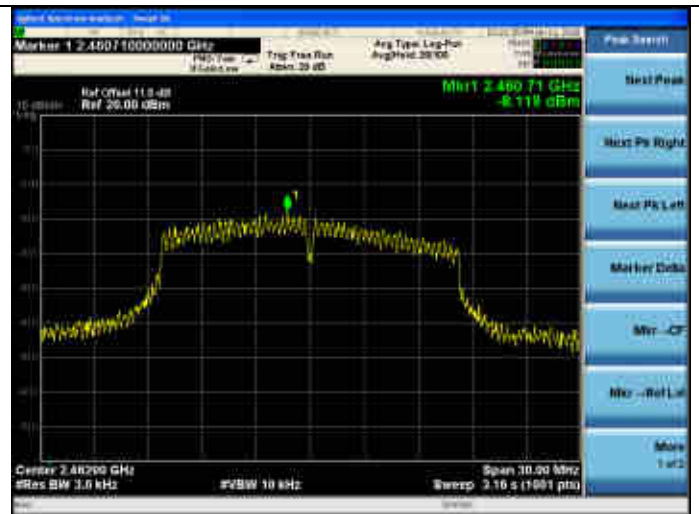
Test CH6: 2437MHz



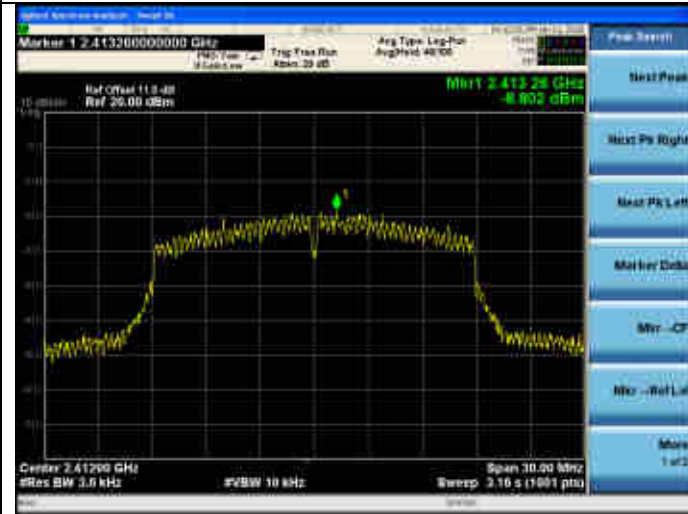
Test CH11: 2462MHz



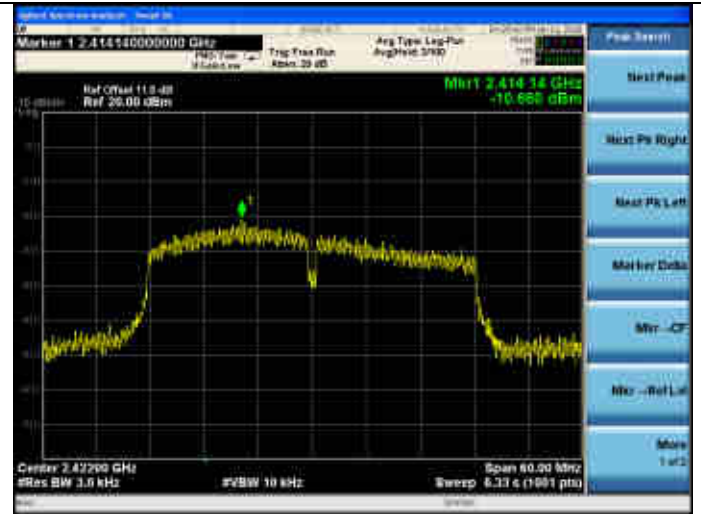
Test CH11: 2462MHz



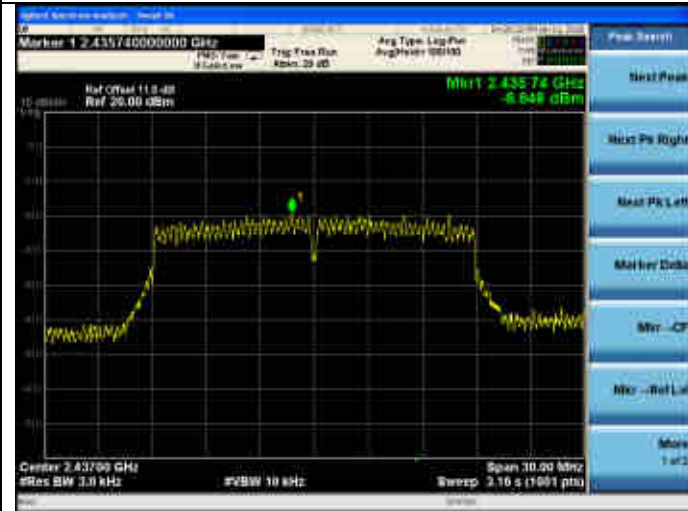
Test Mode: IEEE 802.11n HT20
Test CH1: 2412MHz



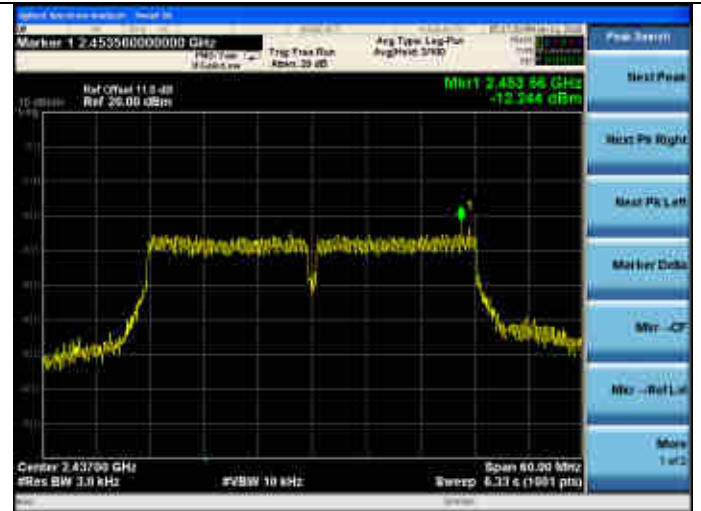
Test Mode: IEEE 802.11n HT40
Test CH3: 2422MHz



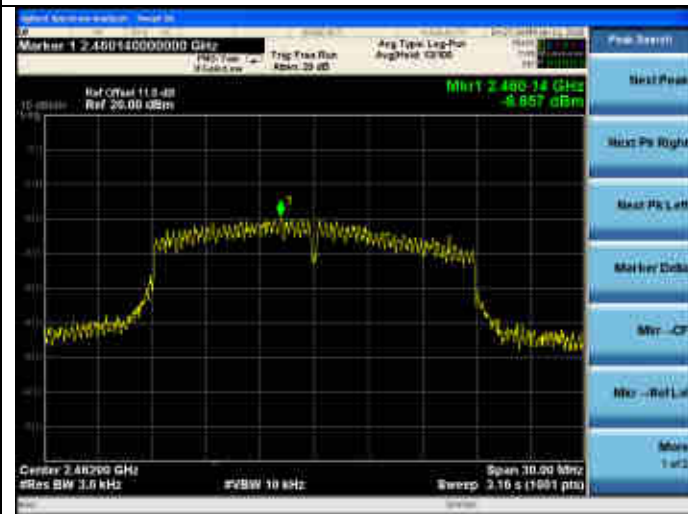
Test CH6: 2437MHz



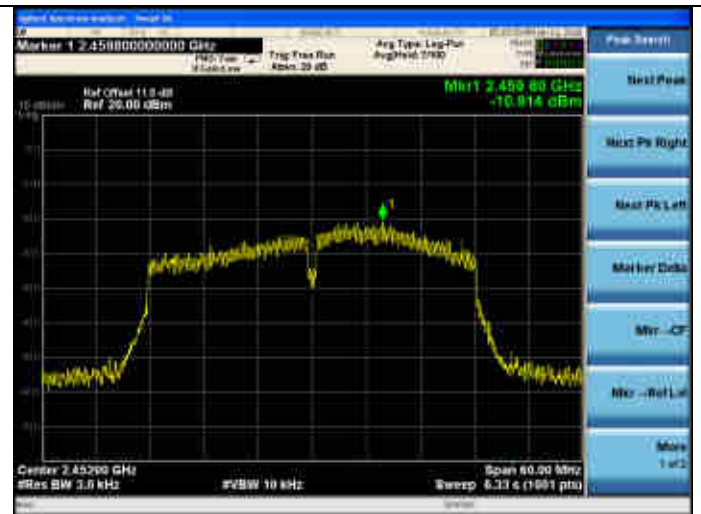
Test CH6: 2437MHz



Test CH11: 2462MHz



Test CH9: 2452MHz



10. ANTENNA REQUIREMENT

10.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

10.2. Antenna Connected Construction

The antennas used for this product are PIFA antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is 2.0dBi.

11.DEVIATION TO TEST SPECIFICATIONS

[NONE]