



FCC Test Report

Report No.: AAAJ-18JY0248VTSHSB-1

FCC ID: 2APXH-26941

Product: iNite

Test Model: 26941

Received Date: Jul.13, 2018

Test Date: Jul.13 to Aug.23, 2018

Issued Date: Aug.23, 2018

Applicant: WF TASTEMAKERS TRADING LIMITED

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Manufacturer: Guangzhou panyu fantasia creation toys co.,ltd.

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Issued By: BUREAU VERITAS ADT (Shanghai) Corporation

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Table of Contents

Release Control Record	3
1 Certificate of Conformity	4
2 Summary of Test Results	5
2.1 Test Instruments	6
2.2 Measurement Uncertainty	7
2.3 Modification Record	7
3 General Information	8
3.1 General Description of EUT	8
3.2 Description of Test Modes	9
3.2.1 Test Mode Applicability:	10
3.2.2 Test Condition:	11
3.3 Duty Cycle of Test Signal	11
3.4 Description of Support Units	12
3.5 General Description of Applied Standards	12
4 Test Procedure and Results	13
4.1 6dB Bandwidth Measurement	13
4.1.1 Limit	13
4.1.2 Test Setup	13
4.1.3 Test Procedures	13
4.1.4 Deviation of Test Standard	13
4.1.5 Test Results	14
4.2 Conducted Output Power Measurement	27
4.2.1 Limit	27
4.2.2 Test Setup	27
4.2.3 Test Procedures	27
4.2.4 Deviation of Test Standard	27
4.2.5 Test Results	28
4.3 Power Spectral Density Measurement	36
4.3.1 Limit	36
4.3.2 Test Setup	36
4.3.3 Test Procedures	36
4.3.4 Deviation of Test Standard	36
4.3.5 Test Results	37
4.4 Emissions in non-restricted frequency bands	45
4.4.1 Limit	45
4.4.2 Test Setup	45
4.4.3 Test Procedures	45
4.4.4 Deviation of Test Standard	45
4.4.5 Test Results	46
4.5 Radiated Emission Measurement	67
4.5.1 Limits	67
4.5.2 Test Procedures	67
4.5.3 Deviation from Test Standard	68
4.5.4 Test Setup	69
4.5.5 EUT Operating Conditions	70
4.5.6 Test Results	70
5 Pictures of Test Arrangements	77



Release Control Record

Issue No.	Description	Date Issued
AAAJ- 18JY0248VTSHSB-1	Original release	Aug.23, 2018



1 Certificate of Conformity

Product: iNite

Brand: NA

Test Model: 26941

Series Model: 26941,6941

Applicant: WF TASTEMAKERS TRADING LIMITED

Test Date: Jul.13 to Aug.23, 2018

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)
ANSI C63.10:2013

The above equipment has been tested by **BUREAU VERITAS ADT (Shanghai) Corporation**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

Prepared by : chao jun shi , **Date:** Aug.23, 2018
Chaojun SHI
Testing Engineer

Approved by : Joy zhu , **Date:** Aug.23, 2018
Joy ZHU
Testing Manager



2 Summary of Test Results

The EUT has been tested according to the following specifications:

47 CFR FCC Part 15, Subpart C (SECTION 15.247)			
FCC Clause	Test Item	Result	Remarks
15.207	AC Power Conducted Emission	N/A	The equipment is powered by battery.
15.205 / 15.209 / 15.247(d)	Radiated Emissions Measurement	PASS	Meet the requirement of limit.
15.247(d)	Emissions in non-restricted frequency bands	PASS	Meet the requirement of limit.
15.247(a)(2)	6dB bandwidth	PASS	Meet the requirement of limit.
15.247(b)	Conducted power	PASS	Meet the requirement of limit.
15.247(e)	Power Spectral Density	PASS	Meet the requirement of limit.
15.203	Antenna Requirement	PASS	No antenna connector is used.



2.1 Test Instruments

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Next Cal.
Hybrid antenna(25MHz-1.5GHz)	Schwarzbeck	VULB9168	E1A1036	Feb.10,17	Feb.09,19
Hybrid antenna(25MHz-1.5GHz)	Schwarzbeck	VULB9168	E1A1001	Feb.28,17	Feb.27,19
Horn Antenna(1GHz -18GHz)	Schwarzbeck	BBHA9120D	E1A1017	Aug.27,17	Aug.26,18
Pre-Amplifier(100kHz-1.3GHz)	Agilent	8447D	E1A2001	Oct.19, 17	Oct.18, 18
Pre-Amplifier(1GHz-26.5GHz)	Agilent	8449B	E1A2002	Mar.27,18	Mar.26, 19
Pre-Amplifier(9kHz-1GHz)	SONOMA	11909/310	E1A2007	Oct.19, 17	Oct.18, 18
EMI test receiver	R&S	ESR7	E1R1005	Dec.05, 17	Dec.04, 18
Spectrum Analyzer	R&S	FSP30	E1S1002	Jul.24,18	Jul.23,19
Spectrum Analyzer	Keysight	N9030B	E1S1003	Jul.24,18	Jul.23, 19
Spectrum Analyzer	Keysight	N9020A	E1S1004	Mar.16,18	Mar.15,19
EMI test receiver	R&S	ESCS30	E1R1001	Mar.27, 18	Mar.26, 19
LISN	R&S	ENV216	E1L1011	Jul.24,18	Jul.23, 19
Test Software	ADT	ADT_COND_V 7.3.1	N/A	N/A	N/A
Test Software	Toscend	JS32-RE	N/A	N/A	N/A
Test Software	Toscend	JS1120-3	N/A	N/A	N/A
Test Software	Toscend	JS36-RSE V2.5.0.0	N/A	N/A	N/A



2.2 Measurement Uncertainty

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

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

Measurement	Frequency	Expanded Uncertainty ($k=2$) (\pm)
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	5.36 dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	3.47 dB
	6GHz ~ 18GHz	3.75 dB
	18GHz ~ 40GHz	3.30 dB

2.3 Modification Record

There were no modifications required for compliance.



3 General Information

3.1 General Description of EUT

Product	iNite
Brand	None
Test Model	26941
Series models	26941,6941
Model Discrepancy	All models have same internal structure, just different appearance and model name.We choose 26941 to do the test
Nominal Voltage	6VDC 1.5A
Temperature Operating Range	0deg.c to 60deg.c
Modulation Type	CCK,OFDM,MCS0
Operating Frequency	2412 ~ 2462MHz
Number of Channel	11
Max power	23.26 dBm
Antenna Type	PCB antenna
Antenna Connector	--
Antenna Gain	2dB

Note:

1. The EUT incorporated a SISO function. Physically, the EUT provides one completed transmitter and one receivers.

Modulation Mode	TX /RX Function
802.11b	1TX / 1RX
802.11g	1TX / 1RX
802.11n (HT20)	1TX / 1RX
802.11n (HT40)	1TX / 1RX



3.2 Description of Test Modes

11 channels are provided for 802.11b, 802.11g , 802.11n (HT20).

Channel	Frequency	Channel	Frequency
1	2412MHz	7	2442MHz
2	2417MHz	8	2447MHz
3	2422MHz	9	2452MHz
4	2427MHz	10	2457MHz
5	2432MHz	11	2462MHz
6	2437MHz	-	-

7 channels are provided for 802.11n (HT40).

Channel	Frequency	Channel	Frequency
3	2422MHz	9	2452MHz
4	2427MHz	-	-
5	2432MHz	-	-
6	2437MHz	-	-
7	2442MHz	-	-
8	2447MHz	-	-



3.2.1 Test Mode Applicability:

EUT Configure Mode	Applicable to				Description
	RE ≥ 1G	RE < 1G	PLC	APCM	
-	√	√	√	√	-

Where **RE≥1G**: Radiated Emission above 1GHz **RE<1G**: Radiated Emission below 1GHz
PLC: Power Line Conducted Emission **APCM**: Antenna Port Conducted Measurement

Radiated Emission Test (Above 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	MCS0	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	MCS0	BPSK	13.5

Radiated Emission Test (Below 1 GHz):

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).

Power Line Conducted Emission Test:

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1	DSSS	DBPSK	1.0

Antenna Port Conducted Measurement

- Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- Following channel(s) was (were) selected for the final test as listed below.

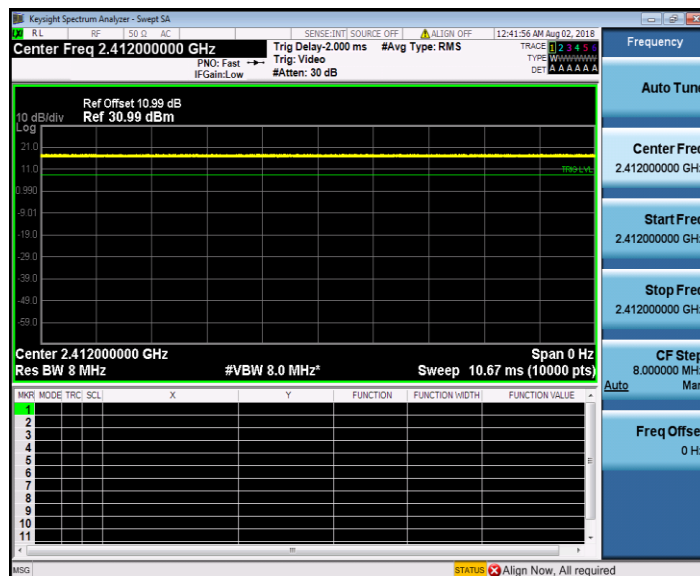
EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11b	1 to 11	1, 6, 11	CCK	DBPSK	1.0
-	802.11g	1 to 11	1, 6, 11	OFDM	BPSK	6.0
-	802.11n (HT20)	1 to 11	1, 6, 11	MCS0	BPSK	6.5
-	802.11n (HT40)	3 to 9	3, 6, 9	MCS0	BPSK	13.5

3.2.2 Test Condition:

Applicable to	Normal Environmental Conditions	Normal Input Power
RE ≥ 1G	25deg. C, 60%RH	DC6V
RE < 1G	25deg. C, 60%RH	DC6V
PLC	25deg. C, 60%RH	DC6V
APCM	25deg. C, 60%RH	DC6V

3.3 Duty Cycle of Test Signal

The Duty Cycle of the EUT is 100%.





3.4 Description of Support Units

The EUT has been tested as an independent unit together with other necessary accessories or support units.

3.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standard:

FCC Part 15, Subpart C (15.247)

KDB 558074 D01 DTS Meas Guidance v04

ANSI C63.10:2013

All relaxed test items have been performed and recorded as per the above standard.

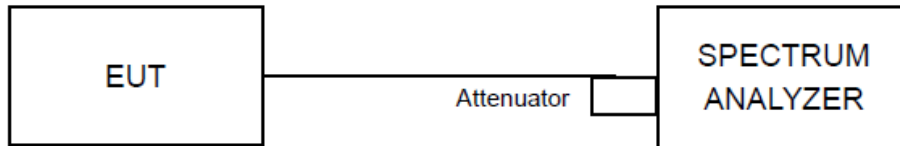
4 Test Procedure and Results

4.1 6dB Bandwidth Measurement

4.1.1 Limit

For digital modulation systems, the minimum 6dB bandwidth shall be at least 500 kHz

4.1.2 Test Setup



4.1.3 Test Procedures

The EUT was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” for compliance to FCC 47CFR 15.247 requirements (clause 8.2).

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW \geq 3 RBW, peak detector with maximum hold) is implemented by the instrumentation function.

4.1.4 Deviation of Test Standard

No deviation.

4.1.5 Test Results

802.11b

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	15.049	10.120	0.5	Pass
6	2437	15.050	9.600	0.5	Pass
11	2462	15.110	10.160	0.5	Pass

Spectrum Plot

802.11b(2412MHz)



802.11b(2437MHz)



802.11b(2462MHz)



11B_Ant1_2412





11B_Ant1_2437



11B_Ant1_2462



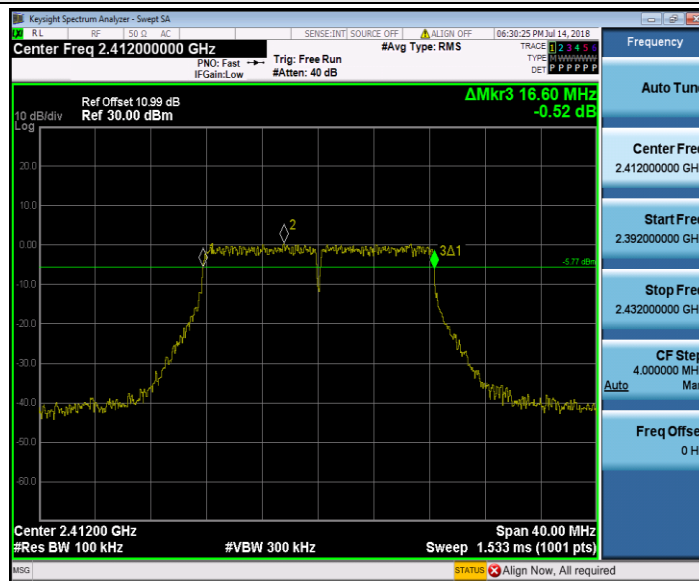


802.11g

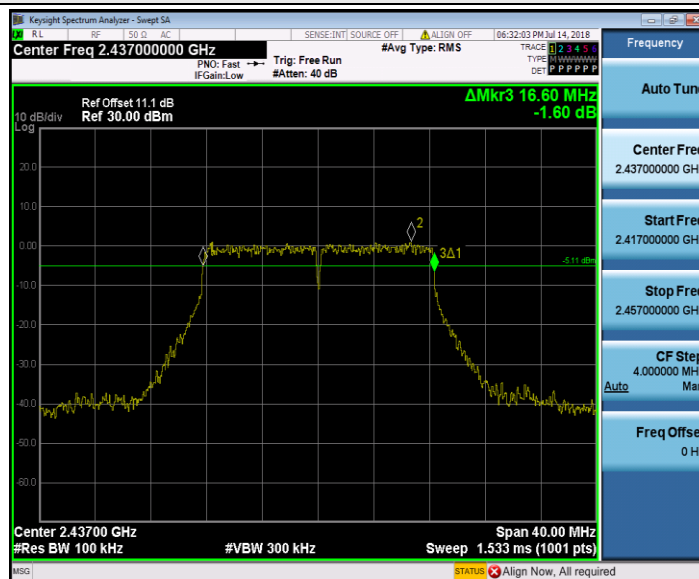
Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	17.031	16.600	0.5	Pass
6	2437	17.086	16.600	0.5	Pass
11	2462	17.083	16.600	0.5	Pass

Spectrum Plot

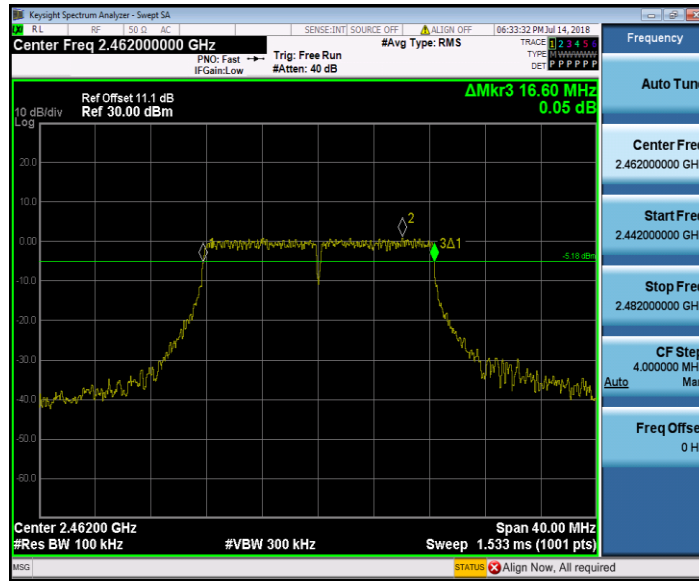
802.11g(2412MHz)



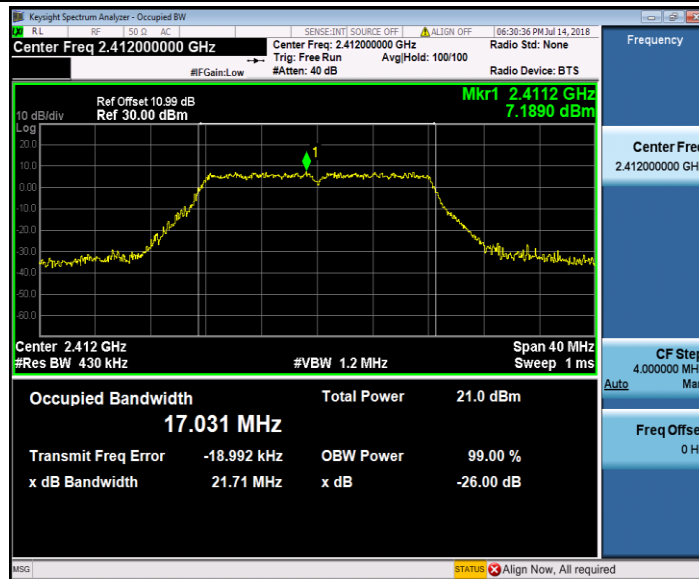
802.11g(2437MHz)



802.11g(2462MHz)

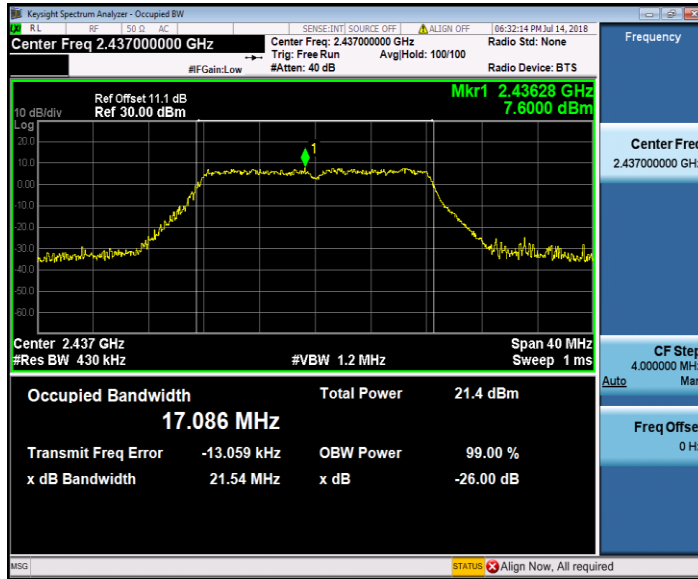


11G_Ant1_2412





11G_Ant1_2437



11G_Ant1_2462



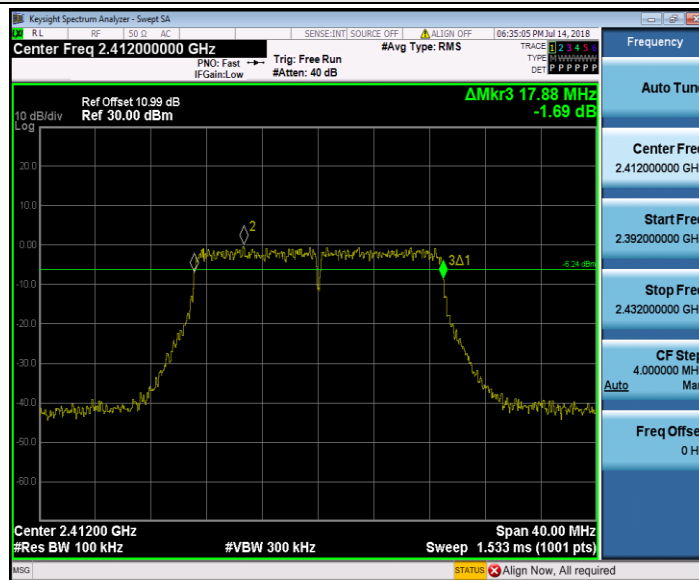


802.11n(HT20)

Channel	Frequency (MHz)	Occpuied Bandwidth (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
1	2412	18.023	17.880	0.5	Pass
6	2437	18.020	17.880	0.5	Pass
11	2462	18.051	17.800	0.5	Pass

Spectrum Plot

802.11n(HT20)(2412MHz)

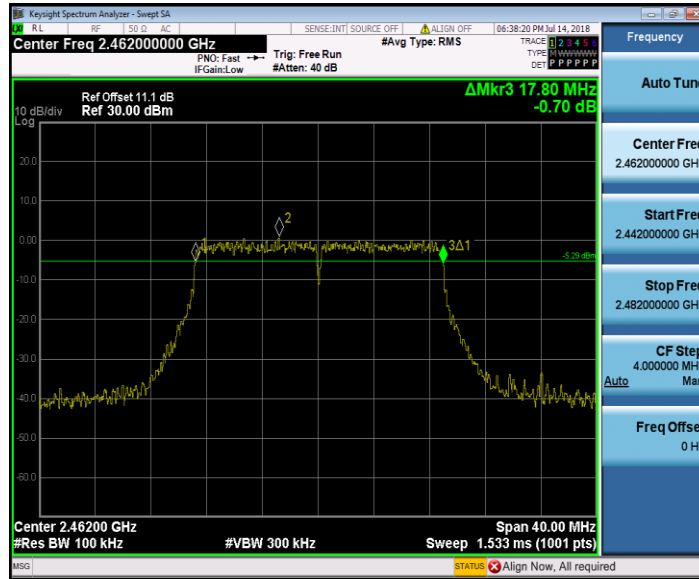




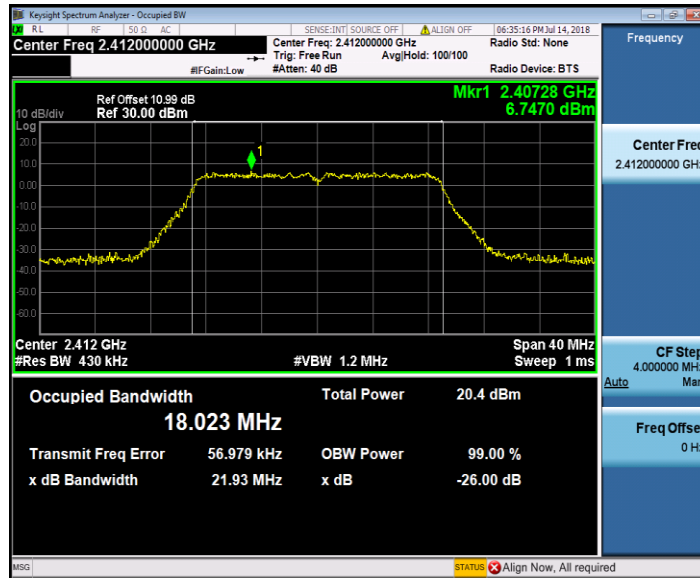
802.11n(HT20)(2437MHz)



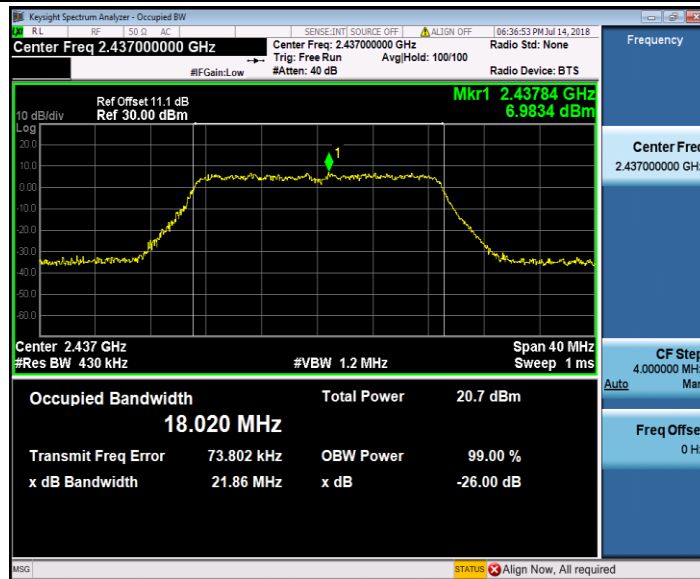
802.11n(HT20)(2462MHz)



11N20SISO_Ant1_2412

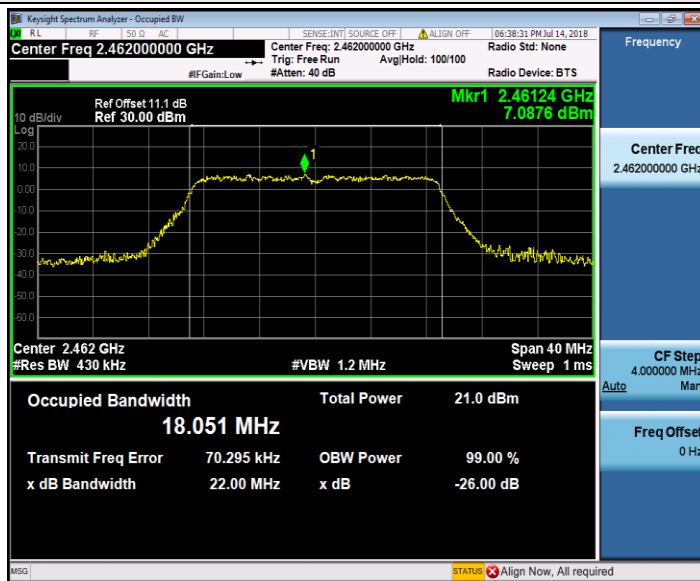


11N20SISO_Ant1_2437





11N20SISO_Ant1_2462



802.11n(HT40)

Channel	Frequency (MHz)	Occupied Bandwidth (MHz)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass / Fail
3	2422	36.097	36.480	0.5	Pass
6	2437	36.097	36.480	0.5	Pass
9	2452	36.029	36.480	0.5	Pass

Spectrum Plot

802.11n(HT40)(2422MHz)



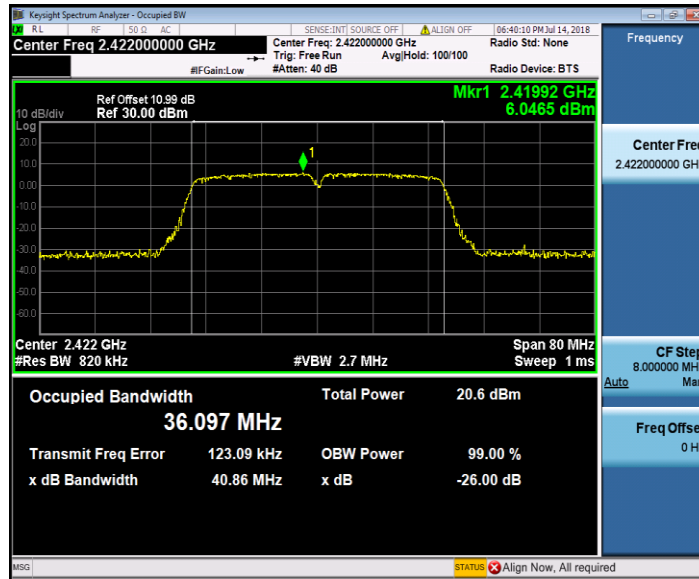
802.11n(HT40)(2437MHz)



802.11n(HT40)(2452MHz)



11N40SISO_Ant1_2422

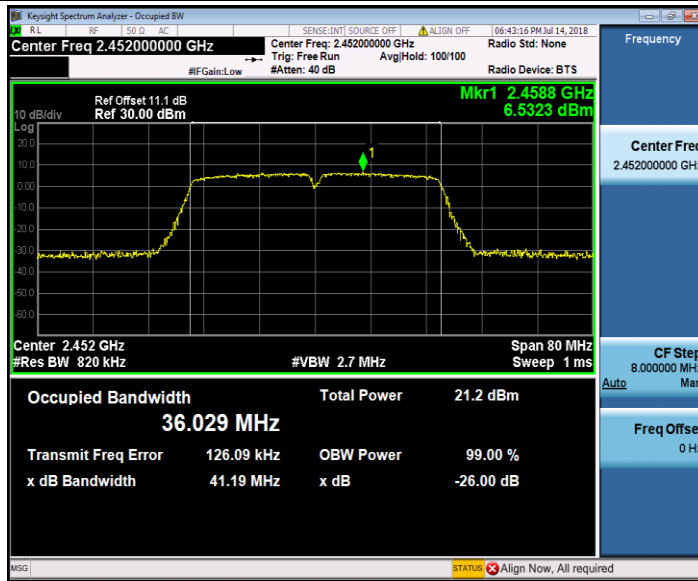




11N40SISO_Ant1_2437



11N40SISO_Ant1_2452

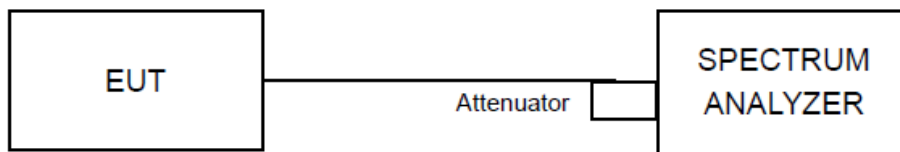


4.2 Conducted Output Power Measurement

4.2.1 Limit

For systems using digital modulation in the 2400 – 2483.5 MHz bands: 1 Watt (30 dBm)

4.2.2 Test Setup



4.2.3 Test Procedures

The EUT was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance” for compliance to FCC 47CFR 15.247 requirements (clause 9.2.2.4).

- a) Measure the duty cycle, x , of the transmitter output signal as described in Section 6.0.
- b) Set span to at least 1.5 OBW.
- c) Set RBW = 1 % to 5 % of the OBW, not to exceed 1 MHz.
- d) Set VBW \geq 3 RBW.
- e) Number of points in sweep \geq 2 span / RBW. (This gives bin-to-bin spacing \leq RBW/2, so that narrowband signals are not lost between frequency bins.)
- f) Sweep time = auto.
- g) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
- h) Do not use sweep triggering. Allow the sweep to “free run”.
- i) Trace average at least 100 traces in power averaging (i.e., RMS) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the on and off periods of the transmitter.
- j) 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.
- k) Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on- and off-times of the transmission). For example, add $10 \log (1/0.25) = 6 \text{ dB}$ if the duty cycle is 25 %.

4.2.4 Deviation of Test Standard

No deviation.



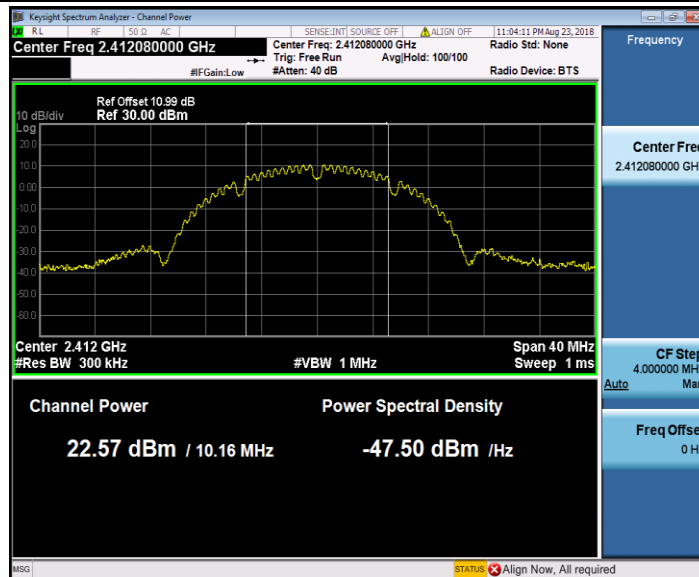
4.2.5 Test Results

802.11b

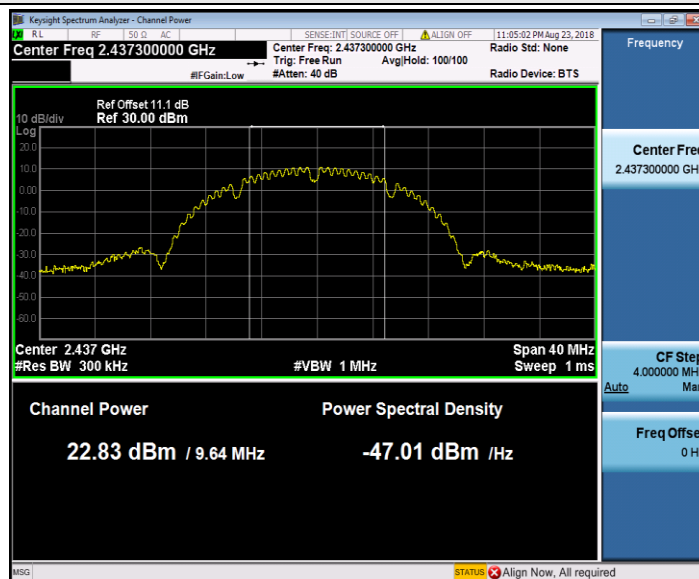
Channel	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	22.57	30	Pass
6	2437	22.83	30	Pass
11	2462	23.26	30	Pass

Spectrum Plot

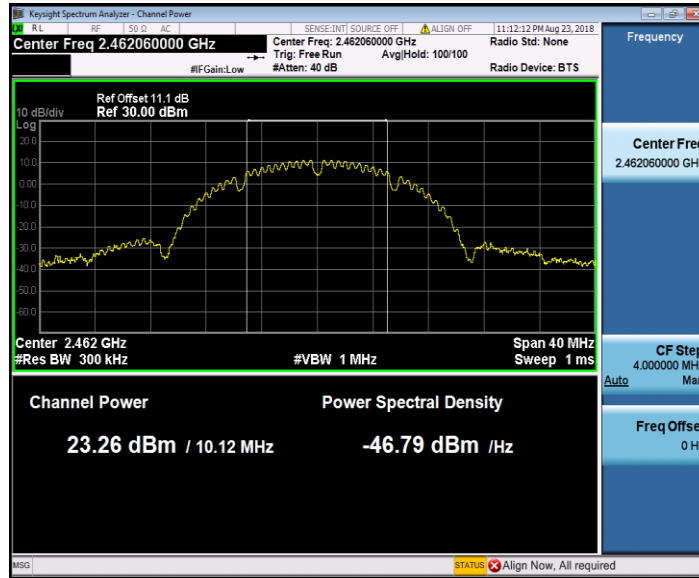
802.11b(2412MHz)



802.11b(2437MHz)



802.11b(2462MHz)



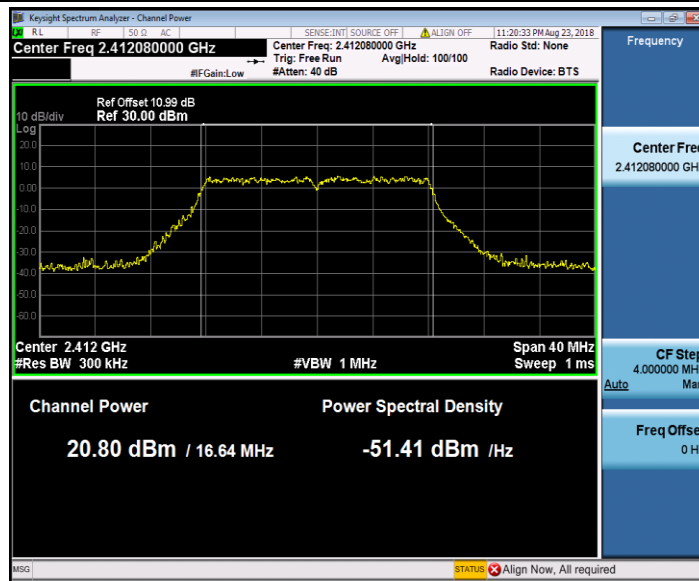


802.11g

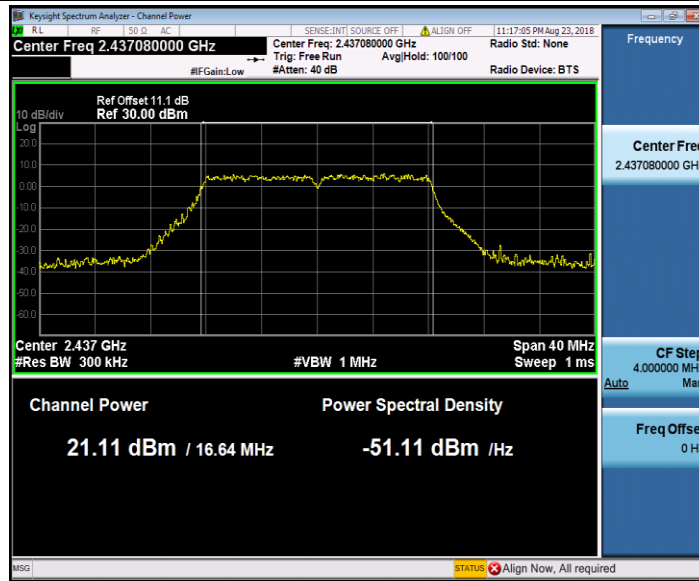
Channel	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	20.80	30	Pass
6	2437	21.11	30	Pass
11	2462	21.49	30	Pass

Spectrum Plot

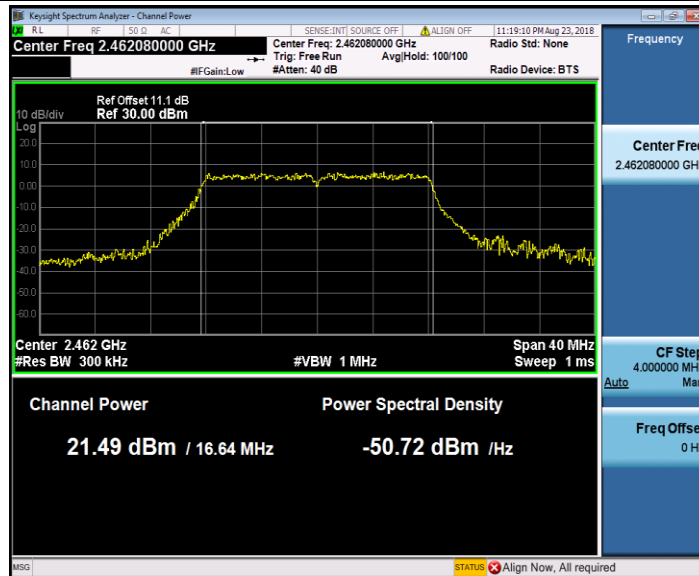
802.11g(2412MHz)



802.11g(2437MHz)



802.11g(2462MHz)



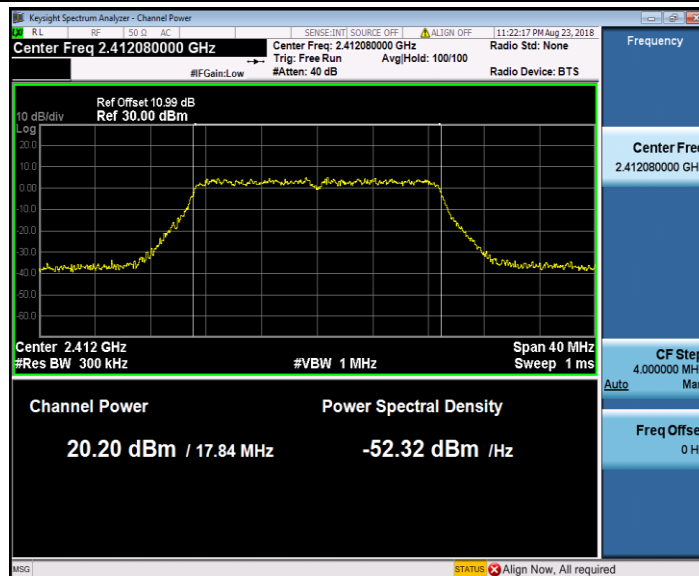


802.11n(HT20)

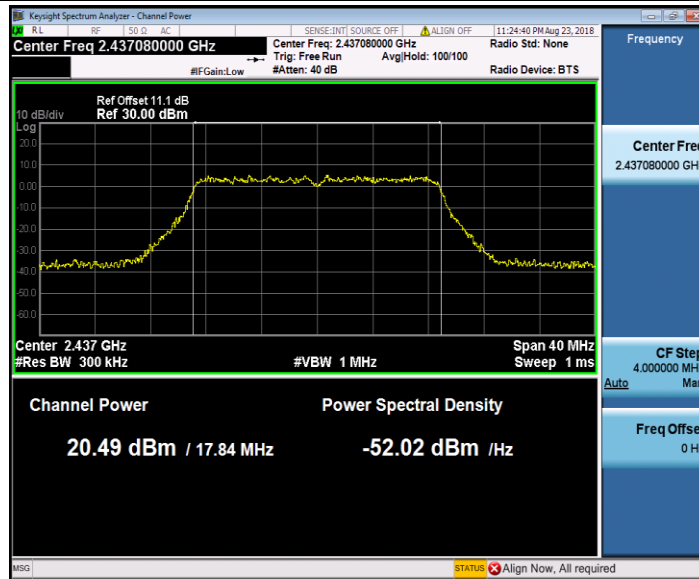
Channel	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Pass / Fail
1	2412	20.20	30	Pass
6	2437	20.49	30	Pass
11	2462	20.84	30	Pass

Spectrum Plot

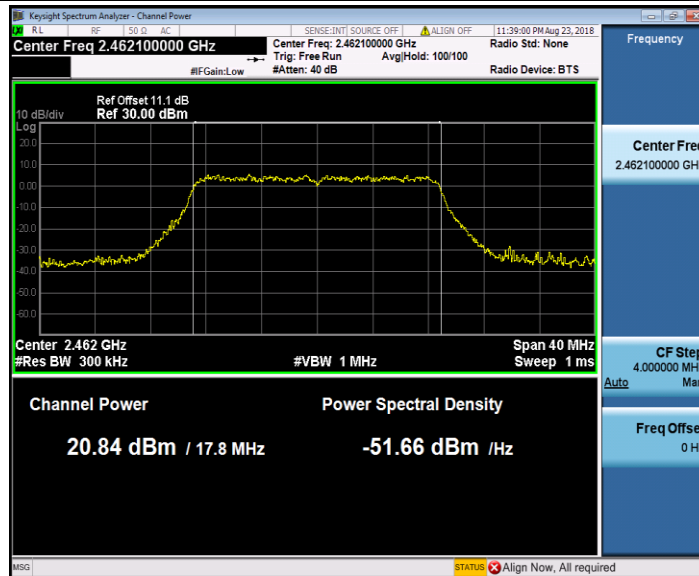
802.11n(HT20)(2412MHz)



802.11n(HT20)(2437MHz)



802.11n(HT20)(2462MHz)



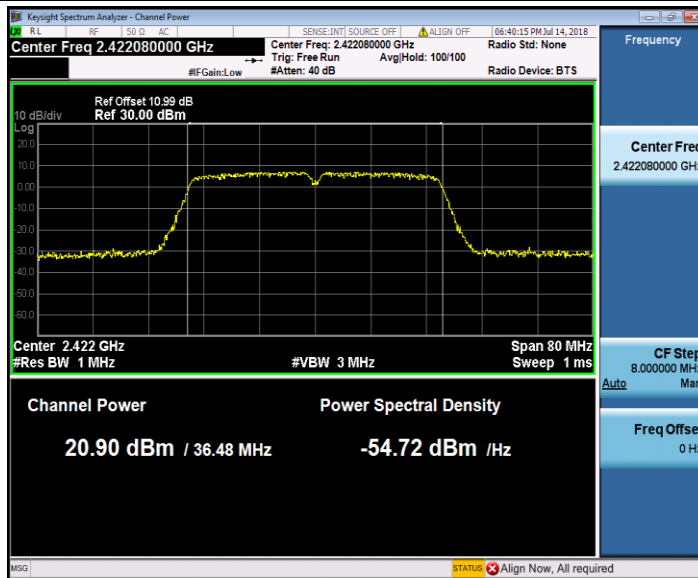


802.11n(HT40)

Channel	Frequency (MHz)	Average Power (dBm)	Limit (dBm)	Pass / Fail
3	2422	20.90	30	Pass
6	2437	21.14	30	Pass
9	2452	21.42	30	Pass

Spectrum Plot

802.11n(HT40)(2422MHz)



802.11n(HT40)(2437MHz)

