FCC Test Report
No. 170400580SHA-001

Applicant	:	HANGZHOU KAITE ELECTRICAL APPLIANCE CO., LTD Sandu Town ,Industrial Zone,Jiande City, Hangzhou, Zhejiang
Manufacturer	:	HANGZHOU KAITE ELECTRICAL APPLIANCE CO., LTD Sandu Town ,Industrial Zone,Jiande City, Hangzhou, Zhejiang
Product Name	:	Smart Socket WiFi
Type/Model	:	70011
TEST RESULT	**:**	**PASS**

SUMMARY

The equipment complies with the requirements according to the following standard(s) or specification:

47CFR Part 15 (2015): Radio Frequency Devices (Subpart C)

ANSI C63.10 (2013): American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices

Date of issue: May 08, 2017

Prepared by: Reviewed by:

Jesse Xu (*Project Engineer*) Daniel Zhao (*Reviewer*)

Description of Test Facility

Name: Intertek Testing Service Limited Shanghai
Address: Building No.86, 1198 Qinzhou Road(North), Shanghai 200233, P.R. China

FCC Registration Number: 236597
IC Assigned Code: 2402B-1

Name of contact: Jonny Jing
Tel: 86 21 61278271
Fax: 86 21 54262353

Content

1 GENERAL INFORMATION

1.1 Description of Client

Applicant	:	HANGZHOU KAITE ELECTRICAL APPLIANCE CO., LTD Sandu Town ,Industrial Zone,Jiande City, Hangzhou, Zhejiang
Name of contact	:	Baofeng Fang
Tel	:	0571-58317205
Fax	:	0571-64184187
Email	:	gma@powerkaite.com
Manufacturer	:	HANGZHOU KAITE ELECTRICAL APPLIANCE CO., LTD Sandu Town ,Industrial Zone,Jiande City, Hangzhou, Zhejiang

1.2 Identification of the EUT

Product Name	:	Smart Socket Wifi
Type/model	:	70011
FCC ID	:	2ACXG70011-1
IC	:	-

1.3 Technical Specification

Operation Frequency Band	:	2412~2462 MHz;
Type of Modulation	:	CCK/OFDM/DBPSK/DAPSK
EUT Modes of Modulation	:	IEEE 802.11b/g/n
Channel Number	:	11 channels
Description of EUT	:	The EUT is a wireless device with WIFI
Antenna	:	PCB antenna，1.0dBi
Rating	:	120V 60Hz
Declared Temperature range	:	-20°C ~ 60°C
Category of EUT	:	Class B
EUT type	:	☒ Table top ☐ Floor standing

Sample received date	:	April 08, 2017
Date of test	:	April 10, 2017 ~May 02, 2017

2 TEST SPECIFICATIONS

2.1 Standards or specification

47CFR Part 15 (2015)
ANSI C63.10 (2013)
KDB 558074 (v04)

2.2 Mode of operation during the test

While testing transmitting mode of EUT, the internal modulation and continuously transmission was applied.

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

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test as representatives, and the selected channel see below:

Modulation	Lowest(MHz)	Middle(MHz)	Highest(MHz)
802.11b	2412	2437	2462
802.11g	2412	2437	2462
802.11n(HT20)	2412	2437	2462

While testing transmitting mode of EUT, the internal modulation and continuously transmission was applied.

The test setting software and command is offered by the manufactory.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, the pre-scan for all data rates in each modulation and bands was tested, and the worst case was found and used in all test cases.

After this pre-scan, we choose the following table of the data rata as the final test mode.

Modulation	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n HT20	6.5Mbps
Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.	

2.3 Test software list

Test Items	Software	Manufacturer	Version
Conducted emission	ESxS-K1	R&S	V2.1.0
Radiated emission	ES-K1	R&S	V1.71

2.4 Test peripherals list

Item No.	Name	Band and Model	Description
PC	HP ProBook 6450b	HP	-

2.5 Instrument list

Equipment	Type	Manu.	Internal no.	Cal. Date	Due date
Test Receiver	ESCS 30	R&S	EC 2107	2016-10-21	2017-10-20
Test Receiver	ESIB 26	R&S	EC 3045	2016-10-20	2017-10-19
Test Receiver	ESCI 7	R&S	EC4501	2016-12-29	2017-12-28
Spectrum Analyzer	N9010	Agilent	EC4890	2016-10-21	2017-10-20
Spectrum Analyzer	E4446	Agilent	/	2016-10-21	2017-10-20
Power meter	ML 2495A	Anritsu	EC 4895	2016-10-21	2017-10-20
A.M.N.	ESH2-Z5	R&S	EC 3119	2017-1-9	2018-1-8
Bilog Antenna	CBL 6112D	TESEQ	EC 4206	2016-5-15	2017-5-14
Horn antenna	HF 906	R&S	EC 3049	2016-5-12	2017-5-11
Pre-amplifier	Pre-amp 18	R&S	EC 3222	2017-4-11	2018-4-10
Pre-amplifier	Tpa0118-40	R&S	EC 4792-2	2017-4-11	2018-4-10
Log-period antenna	AT 1080	AR	EC 3044-7	2016-5-21	2017-5-20
Biconical antenna	3109PX	ETS	EC3564	2016-8-25	2017-8-24
Semi-anechoic chamber	-	Albatross project	EC 3048	2016-5-20	2017-5-19
Shielded room	-	Zhongyu	EC 2838	2017-1-12	2018-1-11
Shielded room	-	Zhongyu	EC 2839	2017-1-12	2018-1-11
High Pass Filter	WHKX 1.0/15G-10SS	Wainwright	EC4297-1	2017-2-1	2018-1-31
High Pass Filter	WHKX 2.8/18G-12SS	Wainwright	EC4297-2	2017-2-1	2018-1-31
High Pass Filter	WHKX 7.0/1.8G-8SS	Wainwright	EC4297-3	2017-2-1	2018-1-31
Band Reject Filter	WRCGV 2400/2483-2390/2493-35/10SS	Wainwright	EC4297-4	2017-2-1	2018-1-31
MXG Analog Signal Generator	N5181A	KEYSIGHT	EC5338-2	2016-11-7	2017-11-6
MXG Vector Signal Generator	N51812B	KEYSIGHT	EC5175	2016-12-30	2017-12-29
Power sensor	U2021XA	KEYSIGHT	EC5338-1	2016-10-2	2017-10-1
PXA Signal Analyzer	N9030A	KEYSIGHT	EC5338	2016-11-18	2017-11-17

2.6 Test Summary

This report applies to tested sample only. The test results have been compared directly with the limits, and the measurement uncertainty is recorded. This report shall not be reproduced in part without written approval of Intertek Testing Service Shanghai Limited.

TEST ITEM	FCC REFERANCE	IC REFERANCE	RESULT
Minimum 6dB Bandwidth & Occupied bandwidth	15.247(a)(2)	-	Pass
Maximum peak output power	15.247(b)	-	Pass
Power spectrum density	15.247(e)	-	Pass
Radiated emission	15.205 & 15.209	-	Pass
Emission outside the frequency band	15.247(d)	-	Pass
Power line conducted emission	15.207	-	Pass
Occupied bandwidth	-	-	Tested

Notes: 1: NA =Not Applicable

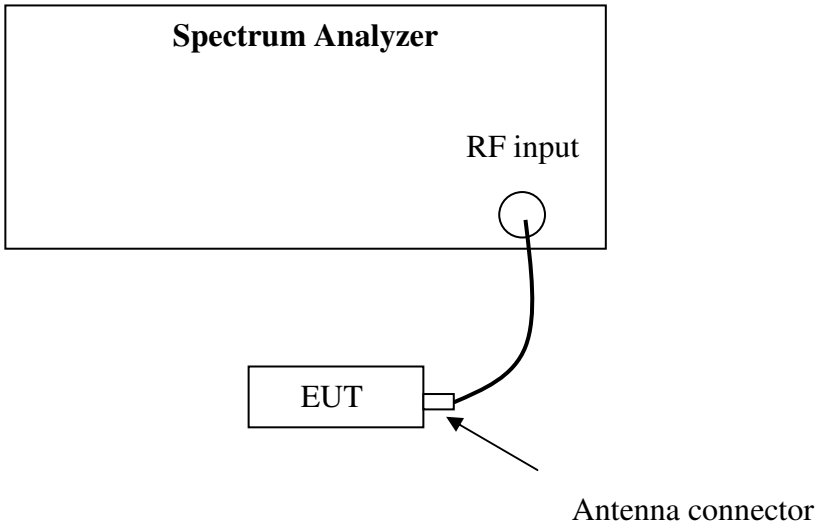
3 Minimum 6dB Bandwidth

Test result: Pass

3.1 Limit

For systems using digital modulation techniques that may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz and 5725 - 5850 MHz bands, the minimum 6 dB bandwidth shall be at least 500 kHz.

3.2 Test Configuration



3.3 Test Procedure and test setup

The minimum 6dB bandwidth per FCC §15.247(a)(2) is measured using the Spectrum Analyzer according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v04" for compliance to FCC 47CFR 15.247 requirements(clause 8.2).

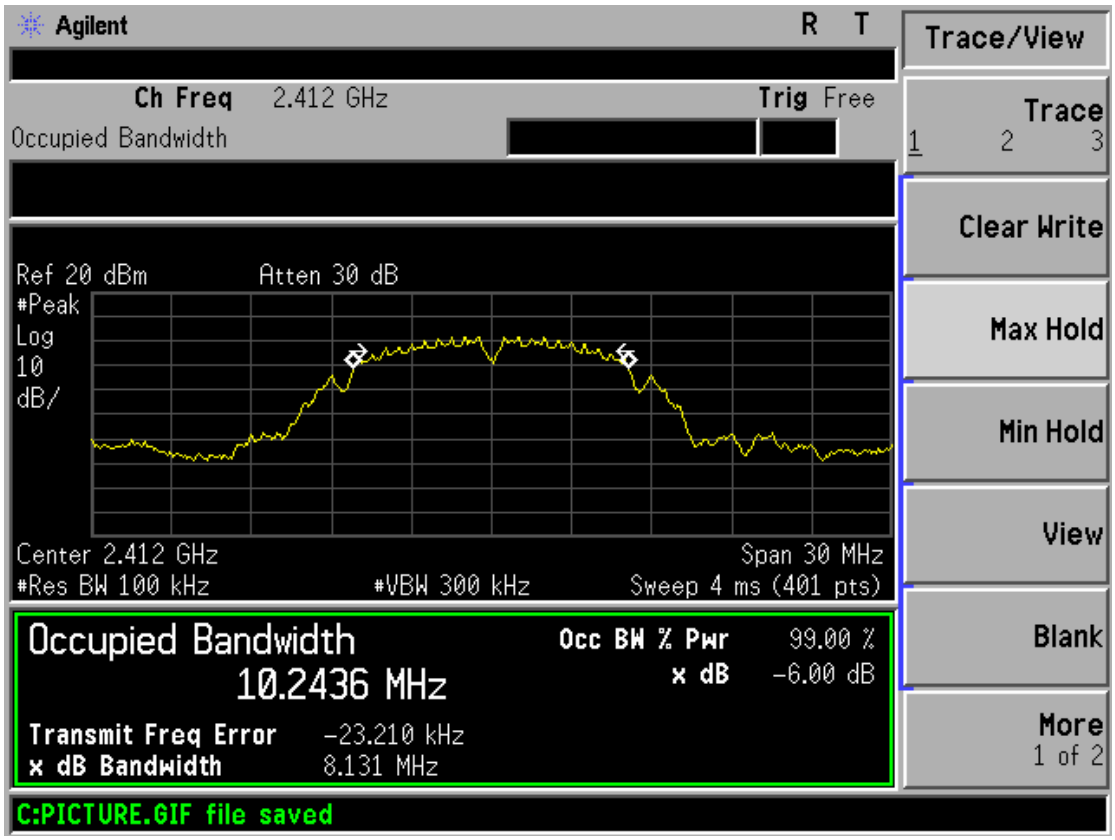
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3.4 Test Protocol

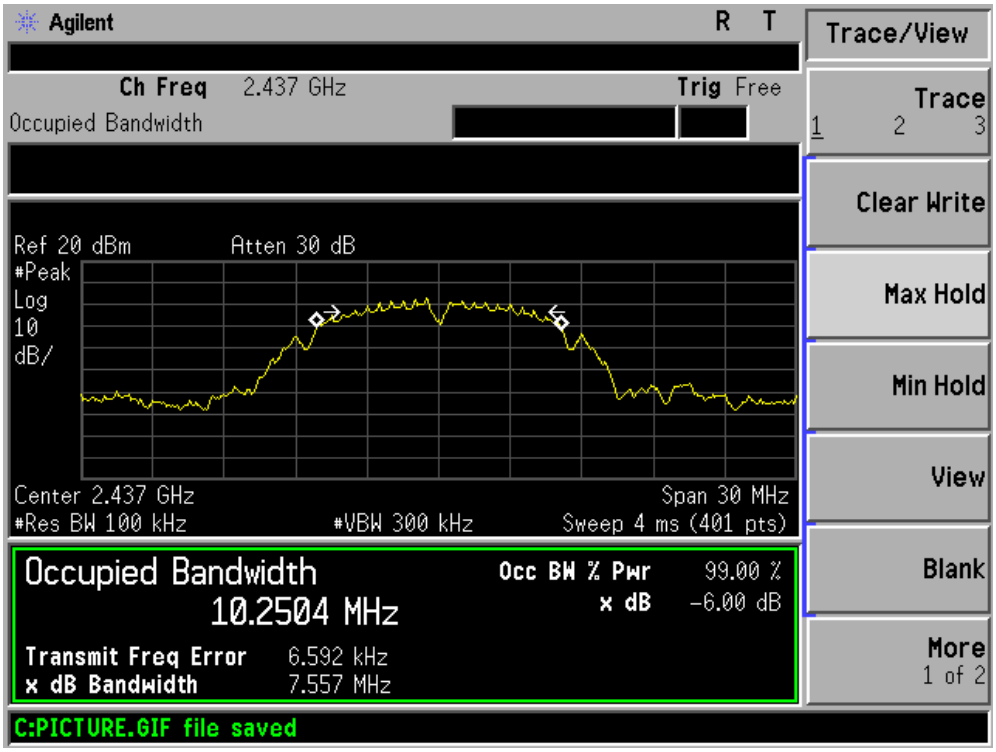
Temperature: 24 °C
Relative Humidity: 52 %

Mode	Frequency (MHz)	Minimum 6dB Bandwidth (MHz)			Limits (MHz)
		Port0	Port 1	Port 2	
b	2412	8.131	-	-	> 0.5
	2437	7.557	-	-	> 0.5
	2462	7.675	-	-	> 0.5

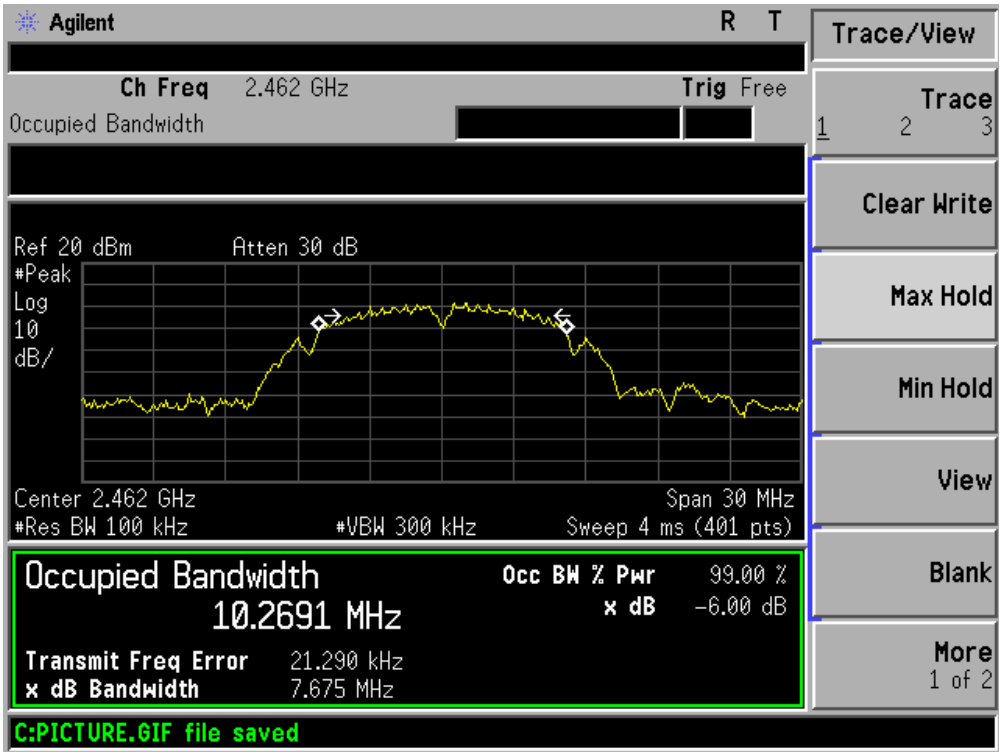
Channel L



Channel M

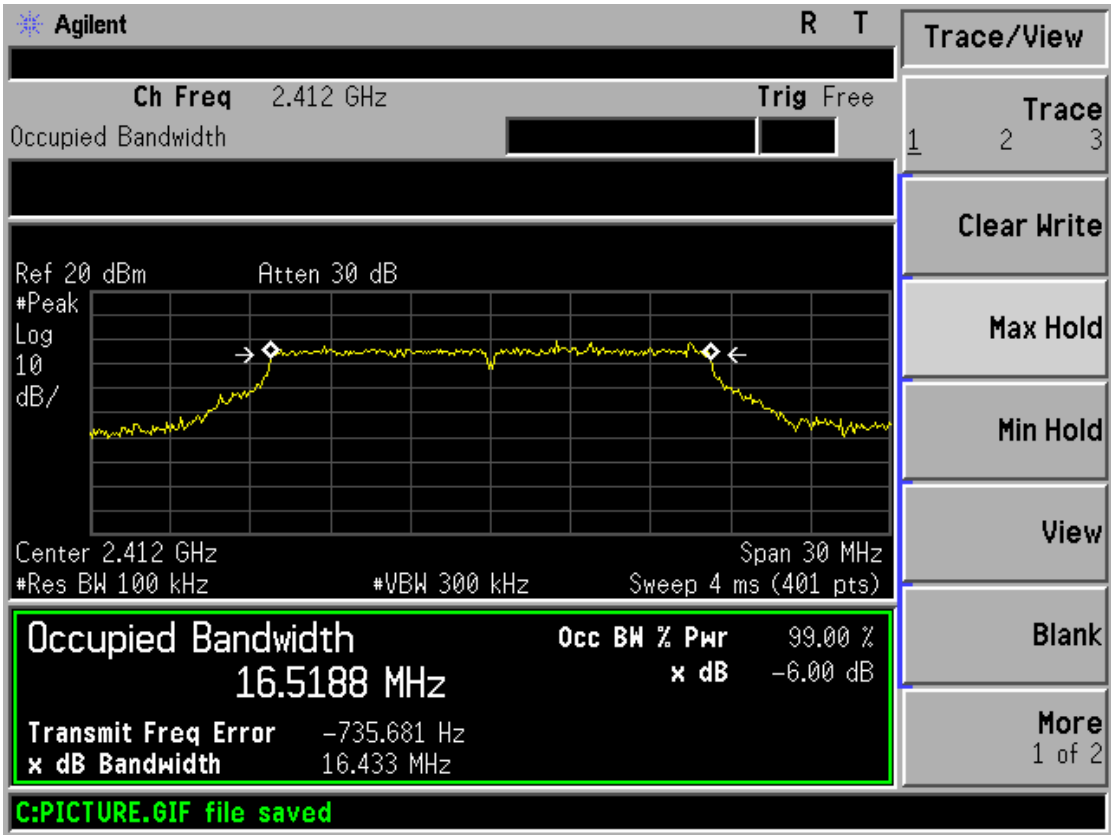


Channel H

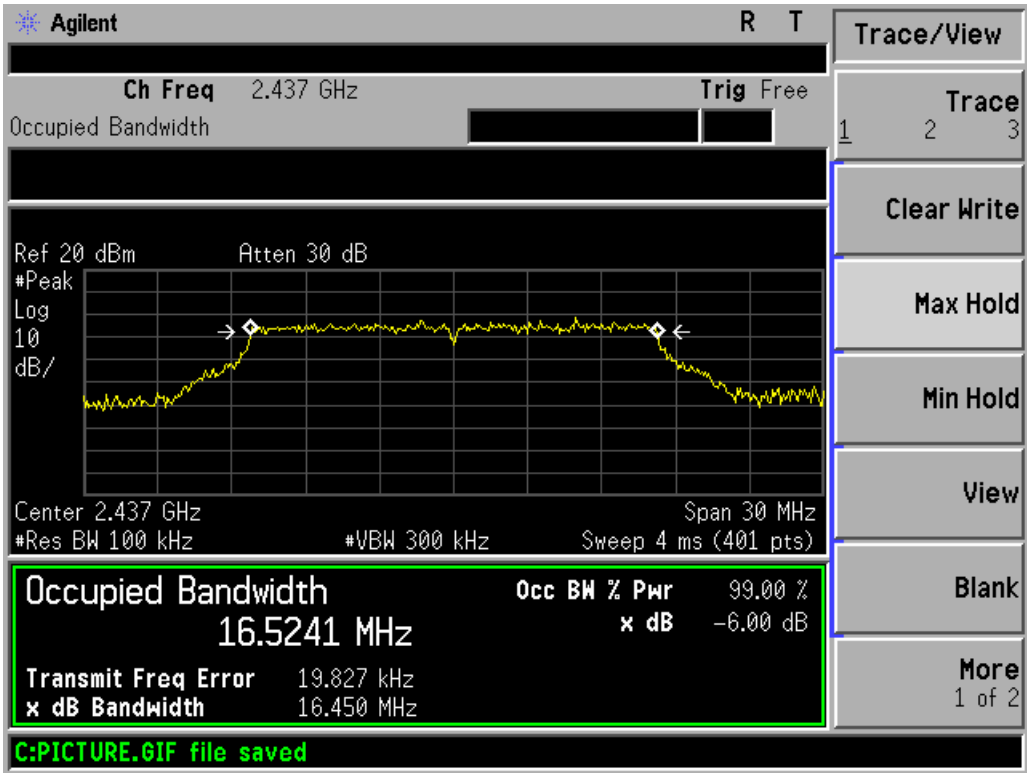


Mode	Frequency (MHz)	Minimum 6dB Bandwidth (MHz)			Limits (MHz)
		Port0	Port 1	Port 2	
g	2412	16.433	-	-	> 0.5
	2437	16.450	-	-	> 0.5
	2462	16.424	-	-	> 0.5

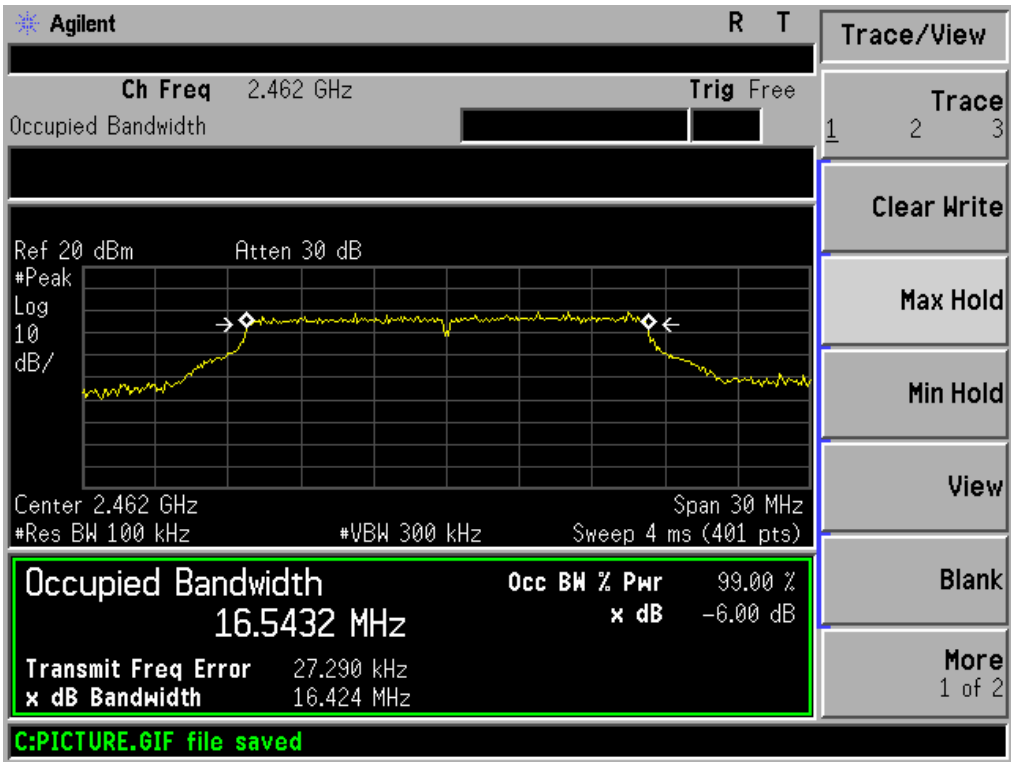
L



M

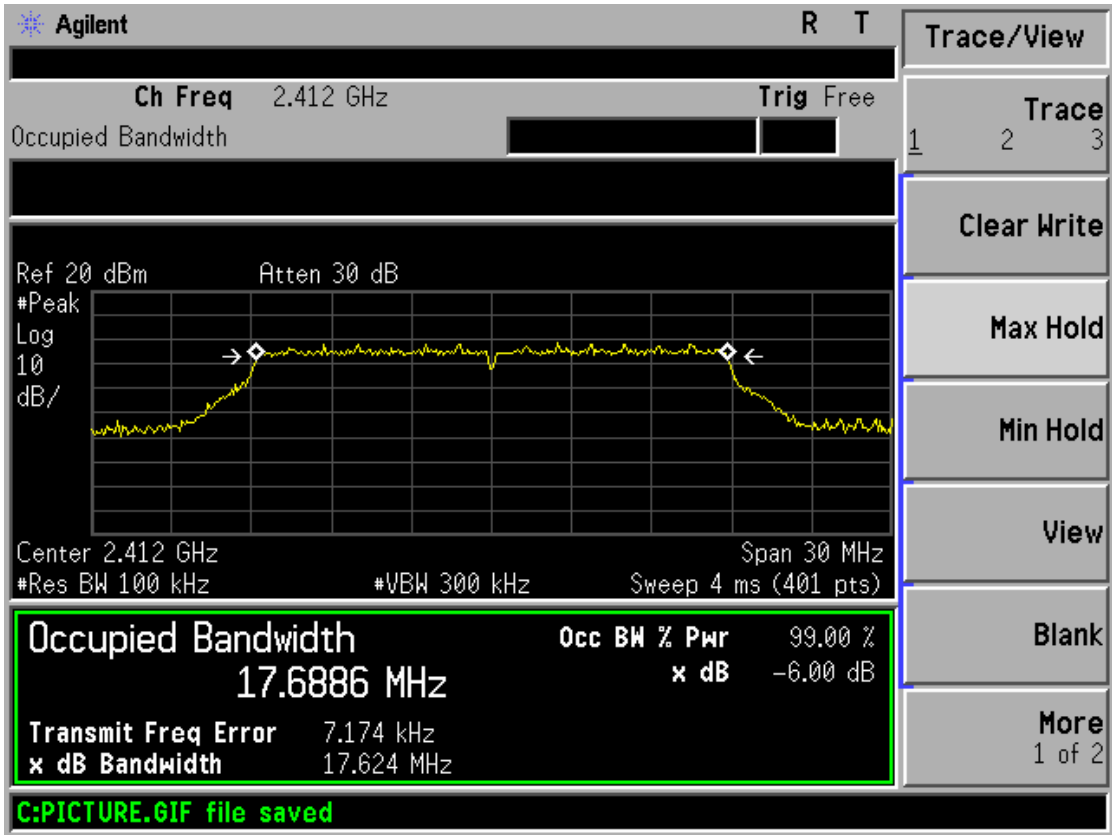

Agilent
R T
Trace/View
Ch Freq 2.437 GHz
Trig Free
Occupied Bandwidth
Trace
1 2 3
Clear Write
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Max Hold
Min Hold
View
Center 2.437 GHz
Span 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4 ms (401 pts)
Blank
Occupied Bandwidth
16.5241 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
More
1 of 2
Transmit Freq Error 19.827 kHz
x dB Bandwidth 16.450 MHz
C:PICTURE.GIF file saved

H

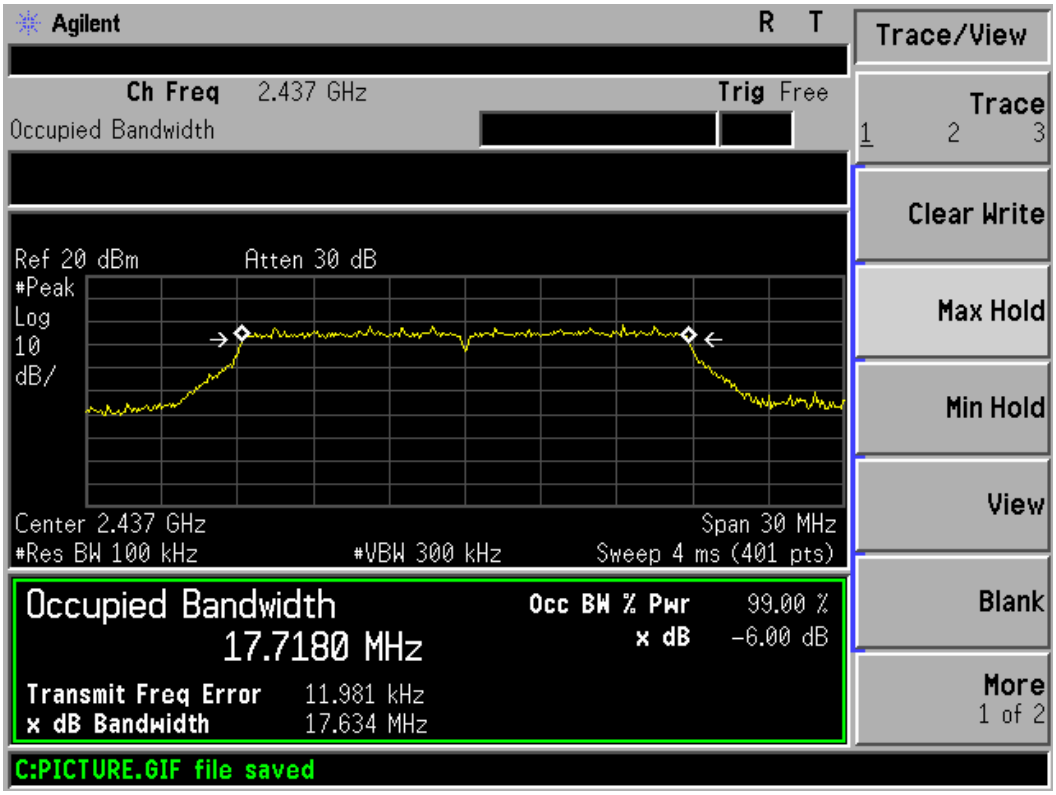

Agilent
R T
Trace/View
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Trace
1 2 3
Clear Write
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Max Hold
Min Hold
View
Center 2.462 GHz
Span 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4 ms (401 pts)
Blank
Occupied Bandwidth
16.5432 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
More
1 of 2
Transmit Freq Error 27.290 kHz
x dB Bandwidth 16.424 MHz
C:PICTURE.GIF file saved

Mode	Frequency (MHz)	Minimum 6dB Bandwidth (MHz)			Limits (MHz)
		Port0	Port 1	Port 2	
n	2412	17.642	-	-	> 0.5
	2437	17.634	-	-	> 0.5
	2462	17.613	-	-	> 0.5

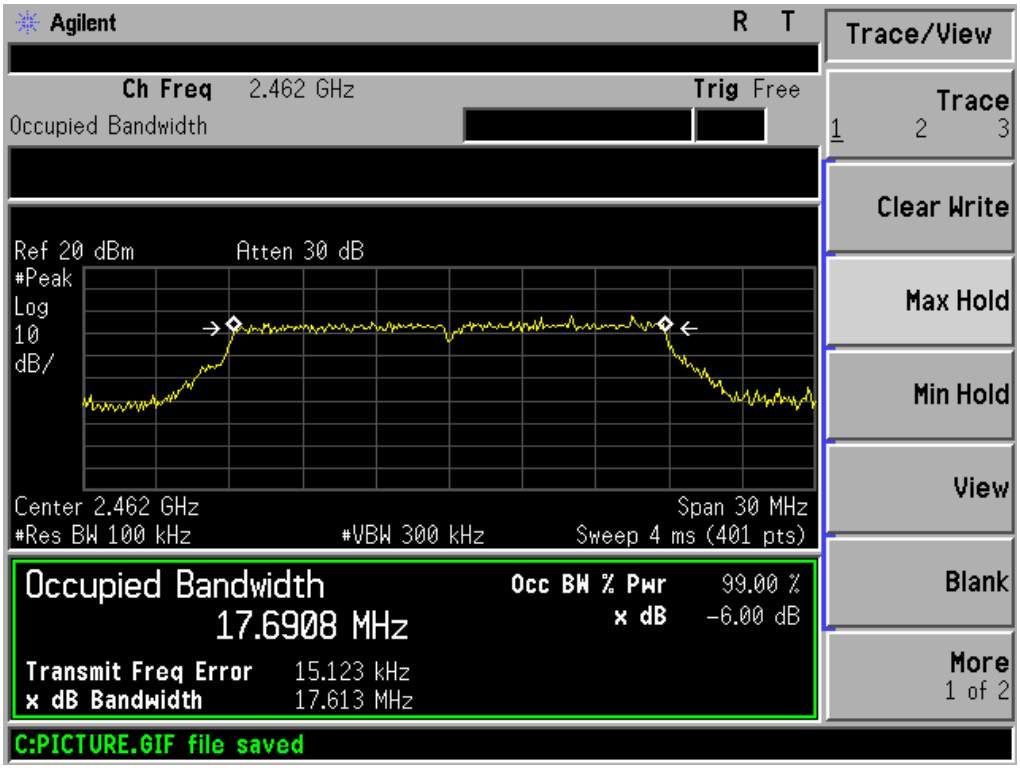
L



M


Agilent
R T
Trace/View
Ch Freq 2.437 GHz
Trig Free
Occupied Bandwidth
Trace
1 2 3
Clear Write
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Max Hold
Min Hold
View
Center 2.437 GHz
Span 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4 ms (401 pts)
Blank
Occupied Bandwidth
17.7180 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error 11.981 kHz
x dB Bandwidth 17.634 MHz
More
1 of 2
C:PICTURE.GIF file saved

H


Agilent
R T
Trace/View
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Trace
1 2 3
Clear Write
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Max Hold
Min Hold
View
Center 2.462 GHz
Span 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4 ms (401 pts)
Blank
Occupied Bandwidth
17.6908 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error 15.123 kHz
x dB Bandwidth 17.613 MHz
More
1 of 2
C:PICTURE.GIF file saved

4 Maximum Conducted Output power

Test result: Pass

4.1 Test limit

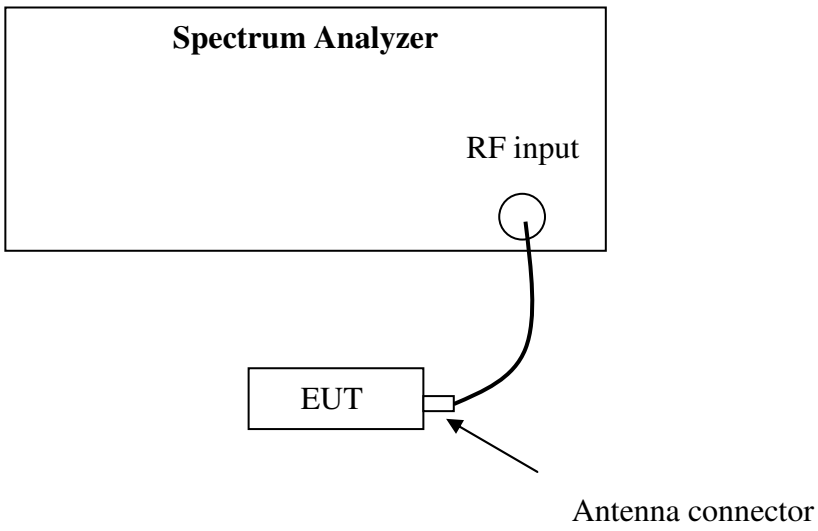
☐ For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt

☐ For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts

☒ For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt (EIRP: 4 watt).

If the transmitting antenna of directional gain greater than 6dBi is used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. If there have a beam forming type, the limit should be the minimum of 30dBm and 30+ (6 –antenna gain-beam forming gain).

4.2 Test Configuration



4.3 Test procedure and test setup

The EUT was tested according to DTS test procedure of “KDB558074 D01 DTS Meas Guidance v04” for compliance to FCC 47CFR 15.247 requirements (clause 9.2.3.2).

4.4 Test protocol

Temperature: 24 °C
Relative Humidity: 52 %

Mode	Frequency (MHz)	Reading (dBm)			Total Power (dBm)	Limit (dBm)
		Port0	Port 1	Port 2		
-	2412	15.58	-	-	15.58	30
	2437	15.23	-	-	15.23	30
	2462	15.06	-	-	15.06	30

Mode	Frequency (MHz)	Reading (dBm)			Total Power (dBm)	Limit (dBm)
		Port0	Port 1	Port 2		
-	2412	13.72	-	-	13.72	30
	2437	13.36	-	-	13.36	30
	2462	13.16	-	-	13.16	30

Mode	Frequency (MHz)	Reading (dBm)			Total Power (dBm)	Limit (dBm)
		Port0	Port 1	Port 2		
-	2412	12.32	-	-	12.32	30
	2437	12.53	-	-	12.53	30
	2462	12.21	-	-	12.21	30

Note:

Reading port x (mW) = 10 ^ (reading port x (dBm)/10
x = 0, 1, 2.
Total Power (mW) = reading port 0 (mW) + reading port 1 (mW) + reading port 2 (mW)
Total power (dBm) = 10 * log (Total power (mW))

5 Power spectrum density

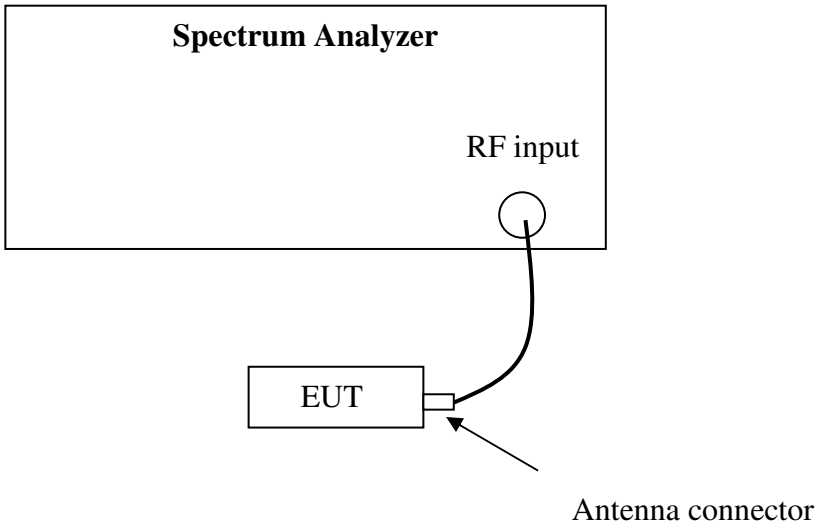
Test result: **Pass**

5.1 Test 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 3 kHz band during any time interval of continuous transmission.

If the transmitting antenna of directional gain greater than 6dBi is used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. If there have a beam forming type, the limit should be the minimum of 8dBm/MHz and 8+ (6 –antenna gain-beam forming gain).

5.2 Test Configuration



5.3 Test procedure and test setup

The power output per FCC §15.247(e) was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v04" (clause 10.2) for compliance to FCC 47CFR 15.247 requirements.

a) Set analyzer center frequency to DTS channel center frequency.
b) Set the span to 1.5 times the *DTS bandwidth*.
c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
d) Set the VBW ≥ 3 × RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.
h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum amplitude level within the RBW.
j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

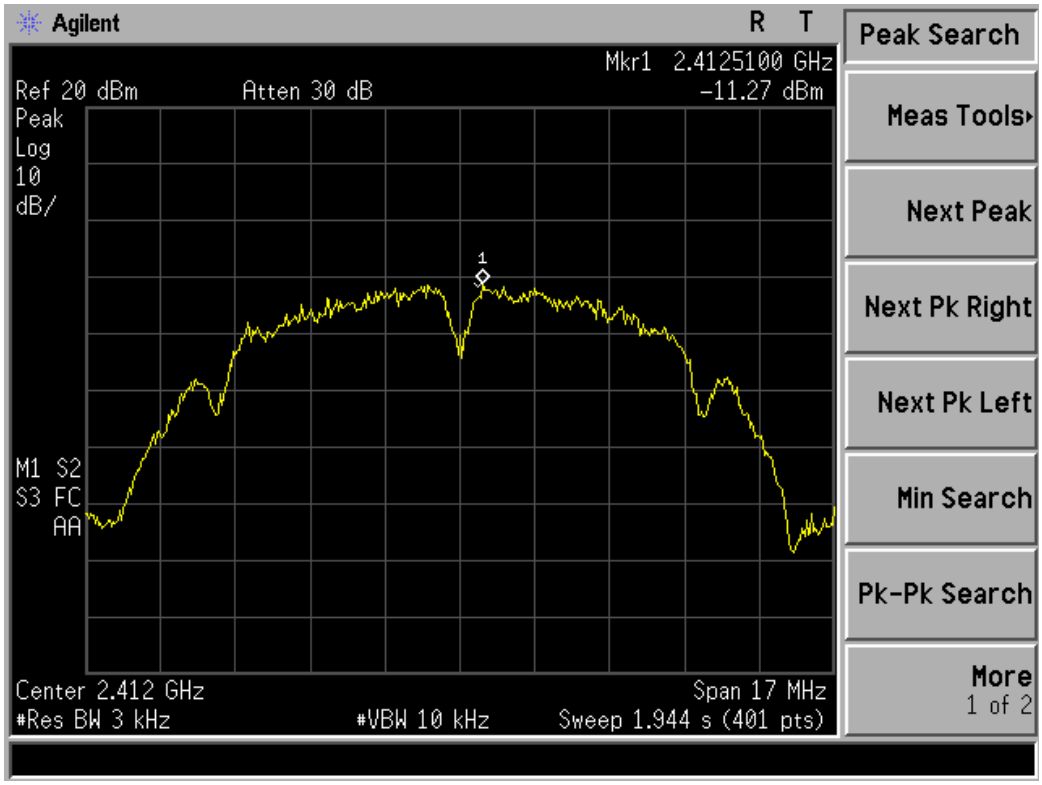
5.4 Test Protocol

Temperature: 24 °C
Relative Humidity: 52 %

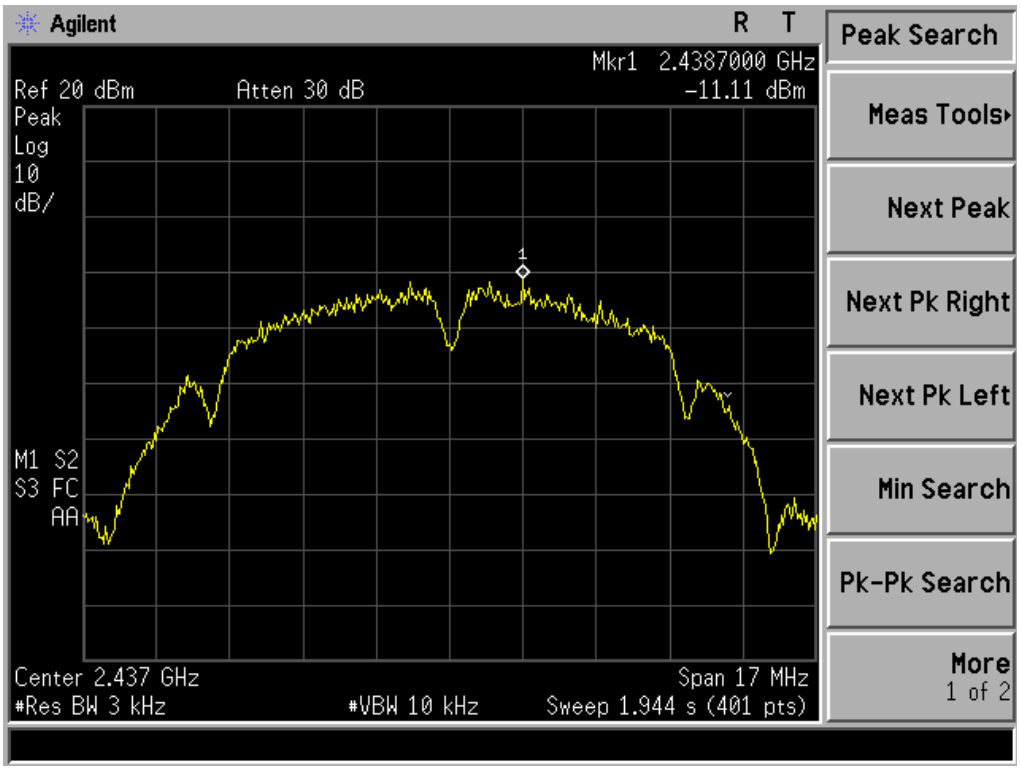
Mode	Frequency (MHz)	PSD (dBm)			Total PSD (dBm)	Limit (dBm)
		Port 0	Port 1	Port 2		
b	2412	-11.27	-	-	-11.27	8
	2437	-11.11	-	-	-11.11	8
	2462	-11.57	-	-	-11.57	8

Note 1:
PSD port x (mW) = 10 ^ (PSD port x (dBm)/10; x = 0, 1, 2.
Total PSD (mW) = PSD port 0 (mW) + PSD port 1 (mW) + PSD port 2 (mW)
Total PSD (dBm) = 10 * log (Total PSD (mW))

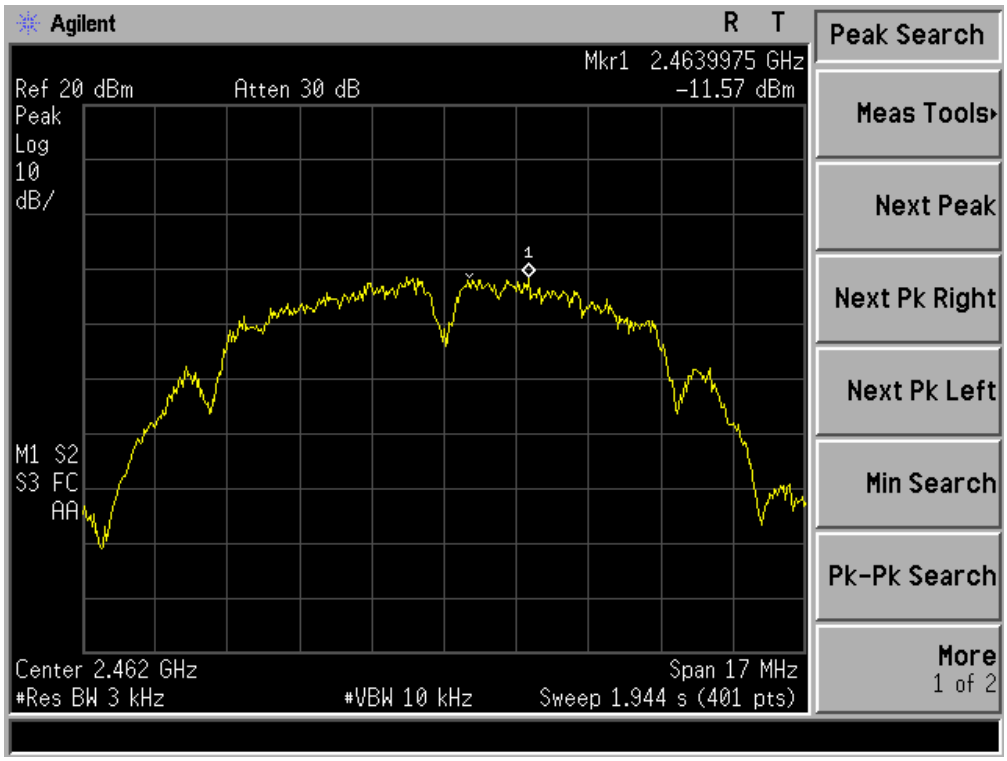
Channel L



Channel M



Channel H

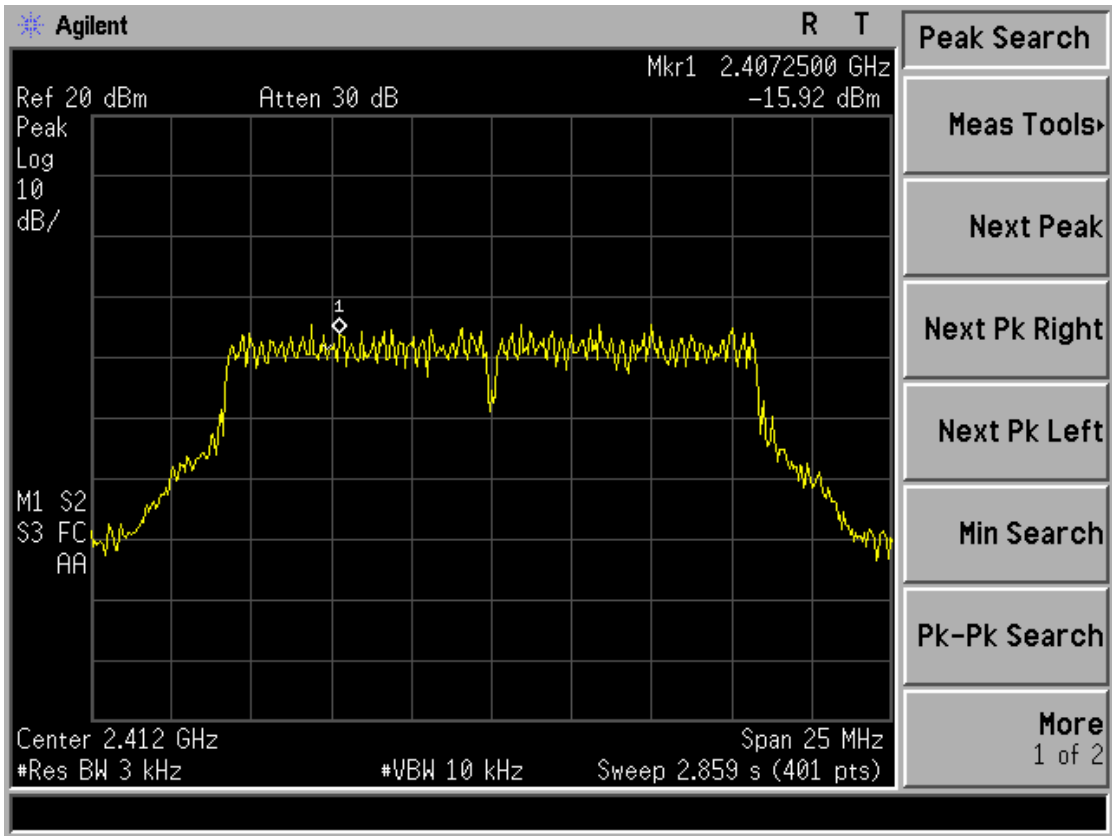


Mode	Frequency (MHz)	PSD (dBm)			Total PSD (dBm)	Limit (dBm)
		Port 0	Port 1	Port 2		
g	2412	-15.92	-	-	-15.92	8
	2437	-16.15	-	-	-16.15	8
	2462	-16.96	-	-	-16.96	8

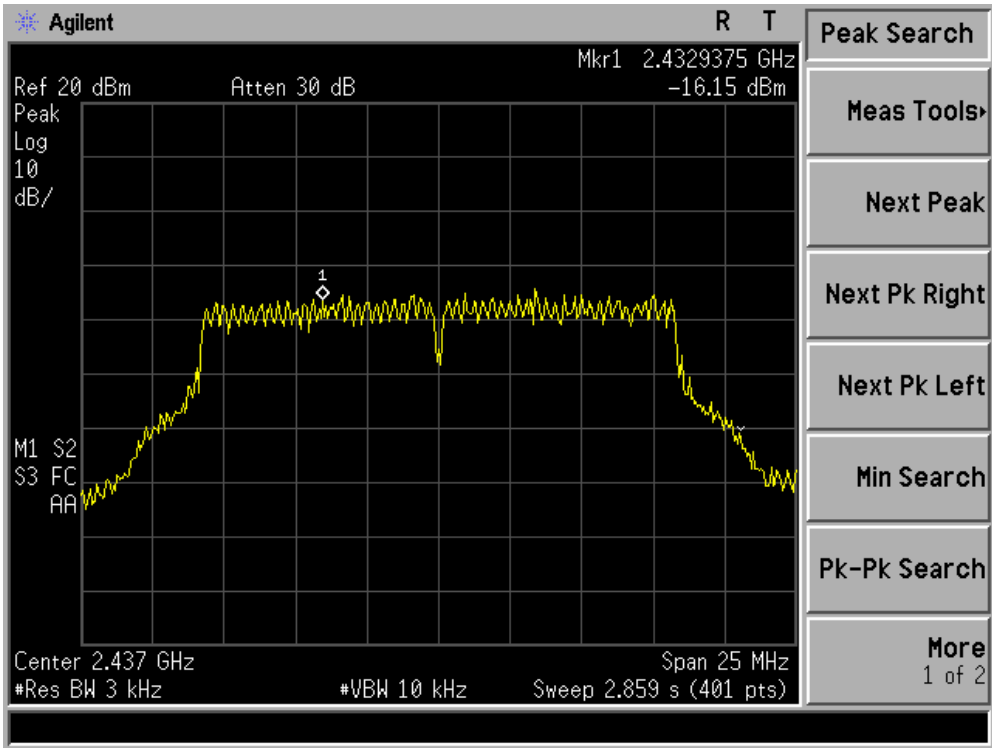
Note 1:

PSD port x (mW) = 10 ^ (PSD port x (dBm)/10; x = 0, 1, 2.
Total PSD (mW) = PSD port 0 (mW) + PSD port 1 (mW) + PSD port 2 (mW)
Total PSD (dBm) = 10 * log (Total PSD (mW)

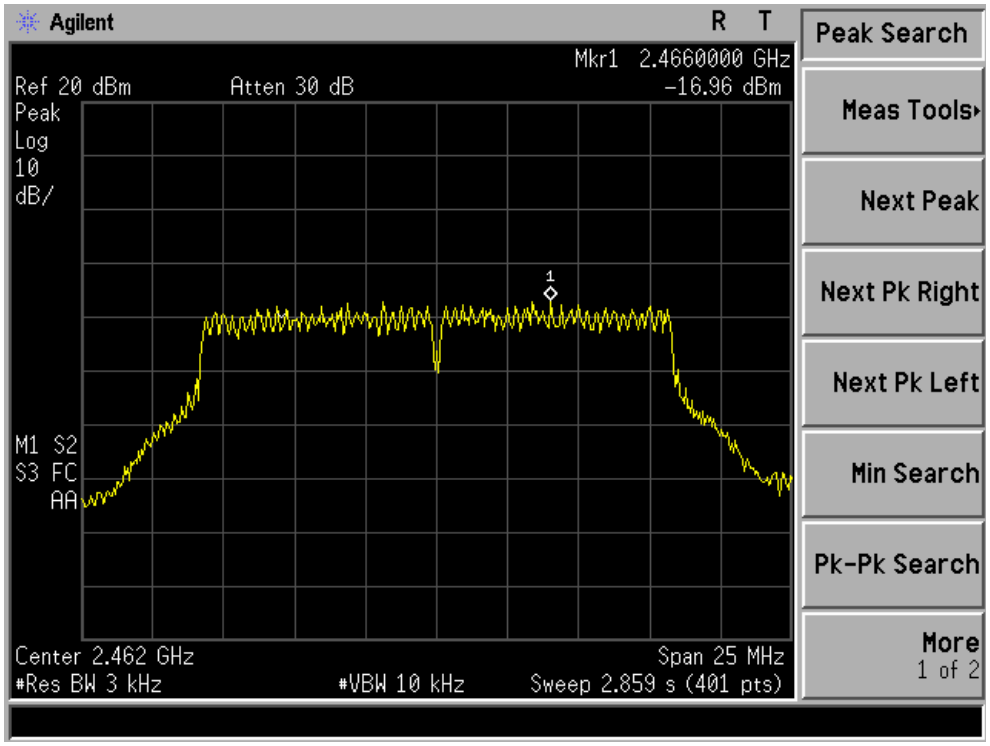
L



M


Agilent
R T
Mkr1 2.4329375 GHz
-16.15 dBm
Ref 20 dBm
Atten 30 dB
Peak
Log
10
dB/
M1 S2
S3 FC
AA
Center 2.437 GHz
#Res BW 3 kHz
#VBW 10 kHz
Span 25 MHz
Sweep 2.859 s (401 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

H

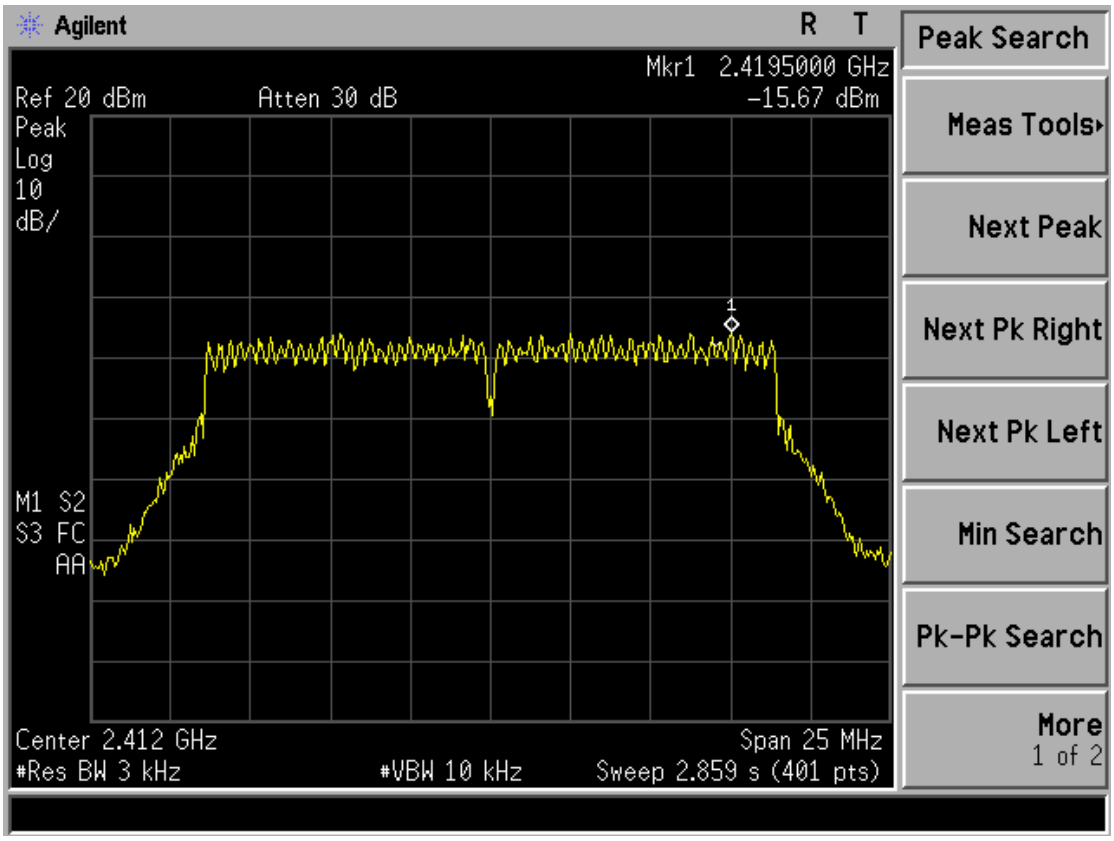

Agilent
R T
Mkr1 2.4660000 GHz
-16.96 dBm
Ref 20 dBm
Atten 30 dB
Peak
Log
10
dB/
M1 S2
S3 FC
AA
Center 2.462 GHz
#Res BW 3 kHz
#VBW 10 kHz
Span 25 MHz
Sweep 2.859 s (401 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

Mode	Frequency (MHz)	PSD (dBm)			Total PSD (dBm)	Limit (dBm)
		Port 0	Port 1	Port 2		
n	2412	-15.67	-	-	-15.67	8
	2437	-15.14	-	-	-15.14	8
	2462	-17.58	-	-	-17.58	8

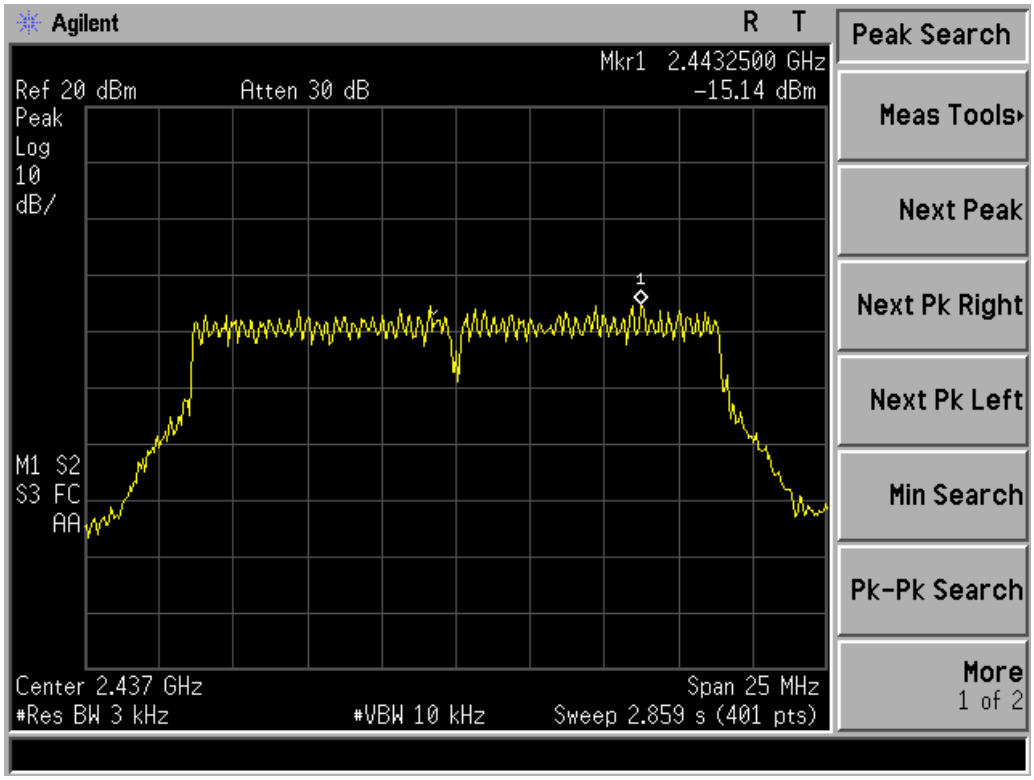
Note 1:

PSD port x (mW) = 10 ^ (PSD port x (dBm)/10; x = 0, 1, 2.
Total PSD (mW) = PSD port 0 (mW) + PSD port 1 (mW) + PSD port 2 (mW)
Total PSD (dBm) = 10 * log (Total PSD (mW)

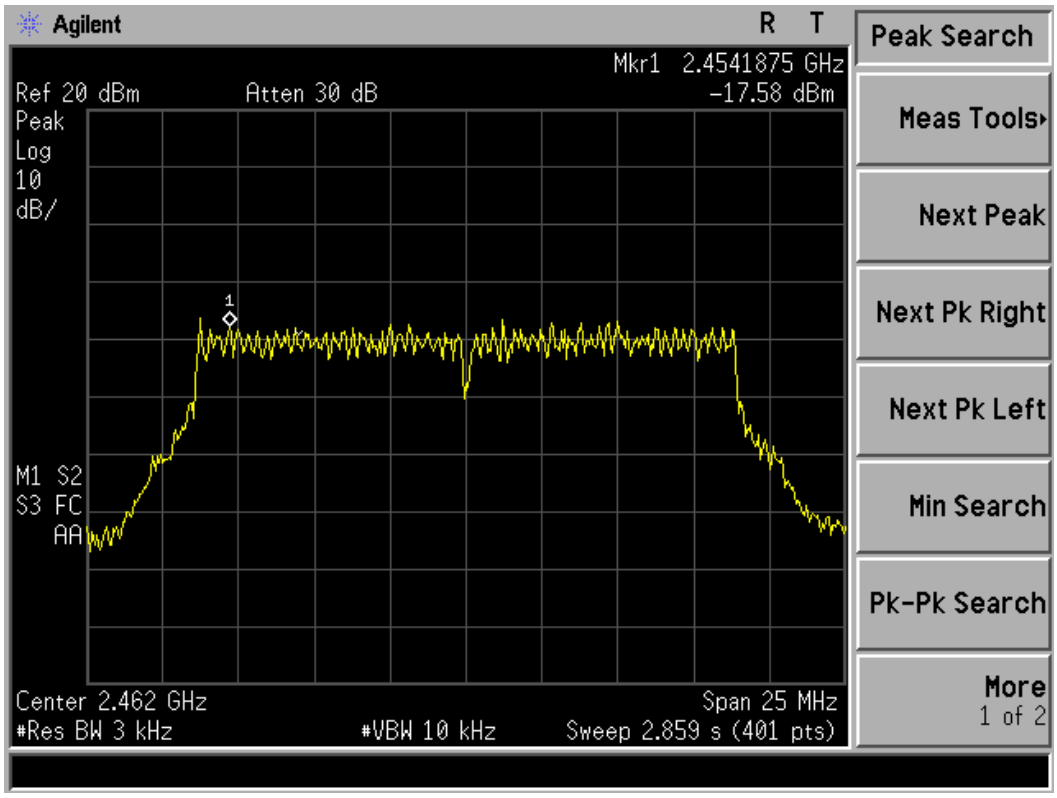
L



M


Agilent
R T
Mkr1 2.4432500 GHz
-15.14 dBm
Ref 20 dBm
Atten 30 dB
Peak
Log
10
dB/
M1 S2
S3 FC
AA
Center 2.437 GHz
#Res BW 3 kHz
#VBW 10 kHz
Span 25 MHz
Sweep 2.859 s (401 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

H


Agilent
R T
Mkr1 2.4541875 GHz
-17.58 dBm
Ref 20 dBm
Atten 30 dB
Peak
Log
10
dB/
M1 S2
S3 FC
AA
Center 2.462 GHz
#Res BW 3 kHz
#VBW 10 kHz
Span 25 MHz
Sweep 2.859 s (401 pts)
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

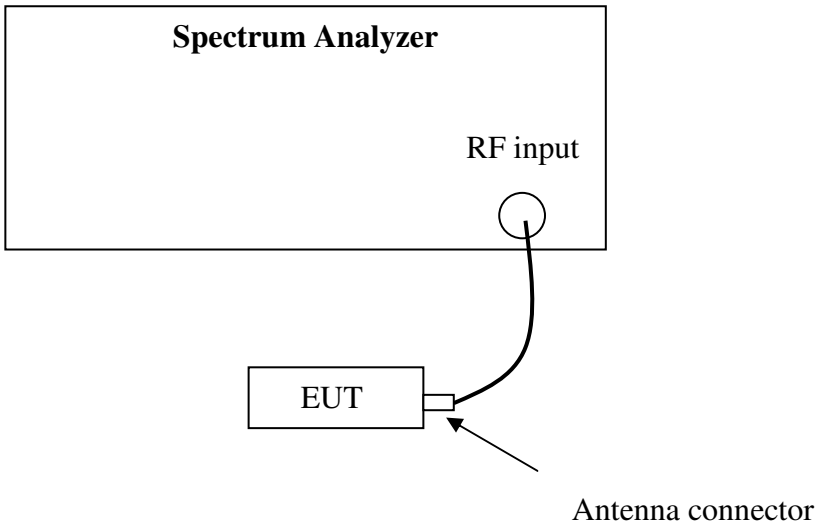
6 Emission outside the frequency band

Test result: **Pass**

6.1 Test limit

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

6.2 Test Configuration



6.3 Test procedure and test setup

The EUT was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v04" (clause 11.0) for compliance to FCC 47CFR 15.247 requirements.

Reference level measurement

Establish a reference level by using the following procedure:
a) Set instrument center frequency to DTS channel center frequency.
b) Set the span to ≥ 1.5 times the *DTS bandwidth*.
c) Set the RBW = 100 kHz.
d) Set the VBW ≥ 3 x RBW.
e) Detector = peak.
f) Sweep time = auto couple.
g) Trace mode = max hold.

h) Allow trace to fully stabilize.
i) Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

Emission level measurement
a) Set the center frequency and span to encompass frequency range to be measured.
b) Set the RBW = 100 kHz.
c) Set the VBW ≥ 3 x RBW.
d) Detector = peak.
e) Sweep time = auto couple.
f) Trace mode = max hold.
g) Allow trace to fully stabilize.
h) Use the peak marker function to determine the maximum amplitude level.

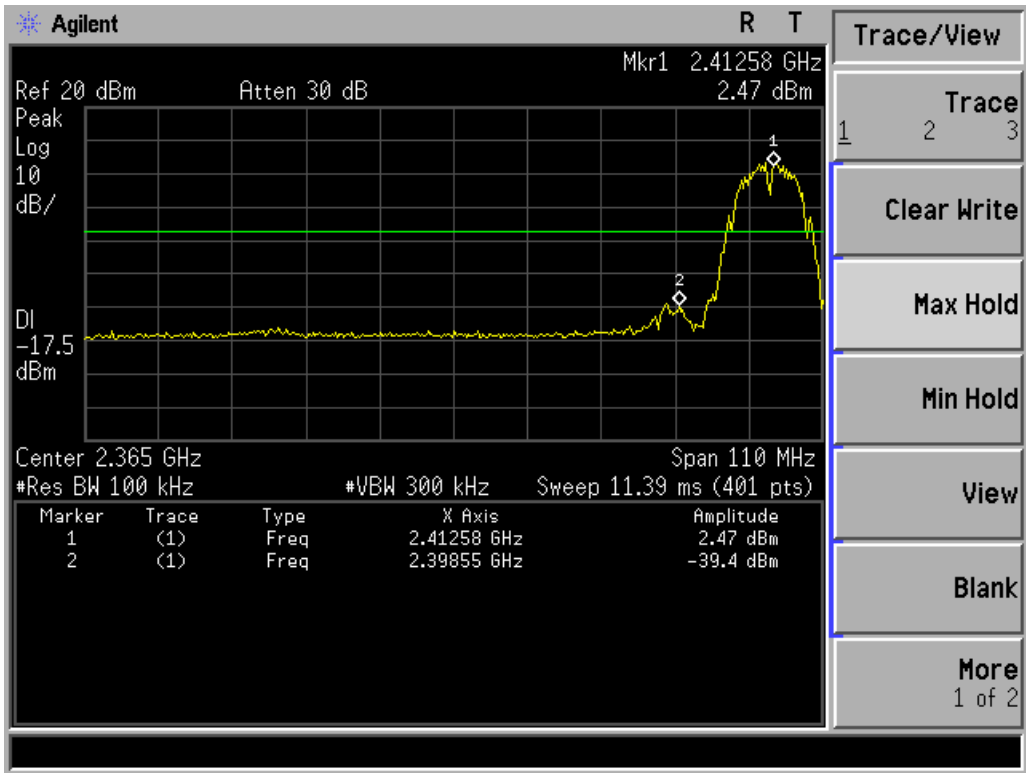
Ensure that the amplitude of all unwanted emissions outside of the authorized frequency band (excluding restricted frequency bands) are attenuated by at least the minimum requirements specified in 11.1 a) or 11.1 b). Report the three highest emissions relative to the limit.

6.4 Test Protocol

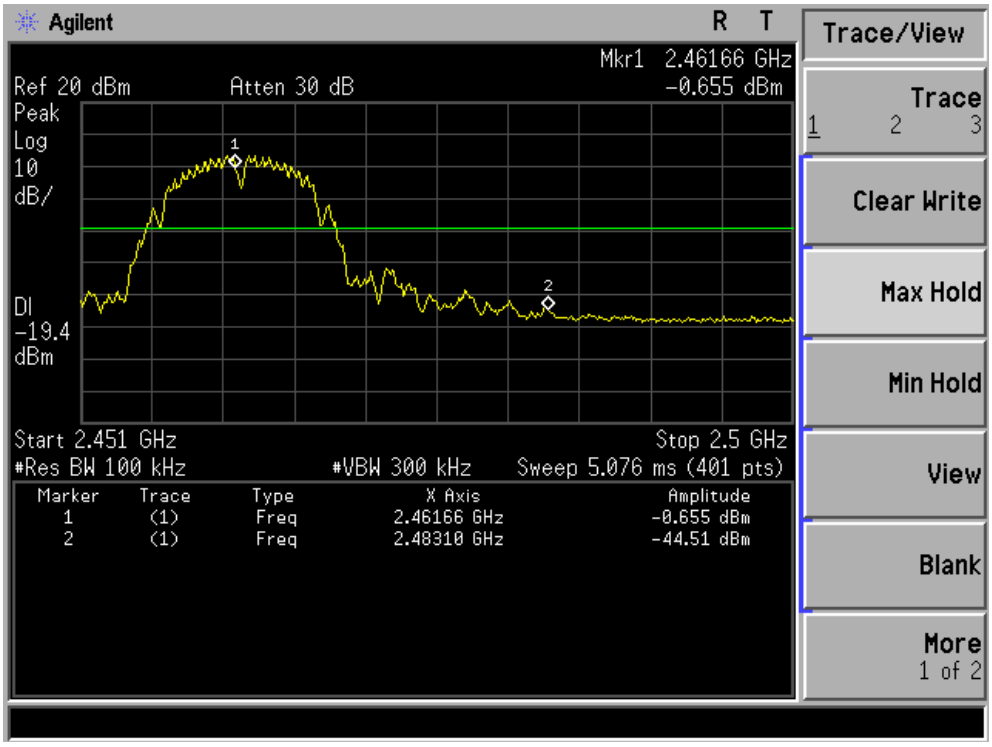
Temperature: 24 °C
Relative Humidity: 52 %

Frequency Band	Delta Peak to band emission (dBc)	>Limit (dBc)	Result
802.11b mode			
Left-band	41.87	20	Pass
Right-band	43.855	20	Pass
802.11g mode			
Left-band	32.46	20	Pass
Right-band	33.132	20	Pass
802.11n-HT20 mode			
Left-band	33.126	20	Pass
Right-band	36.834	20	Pass

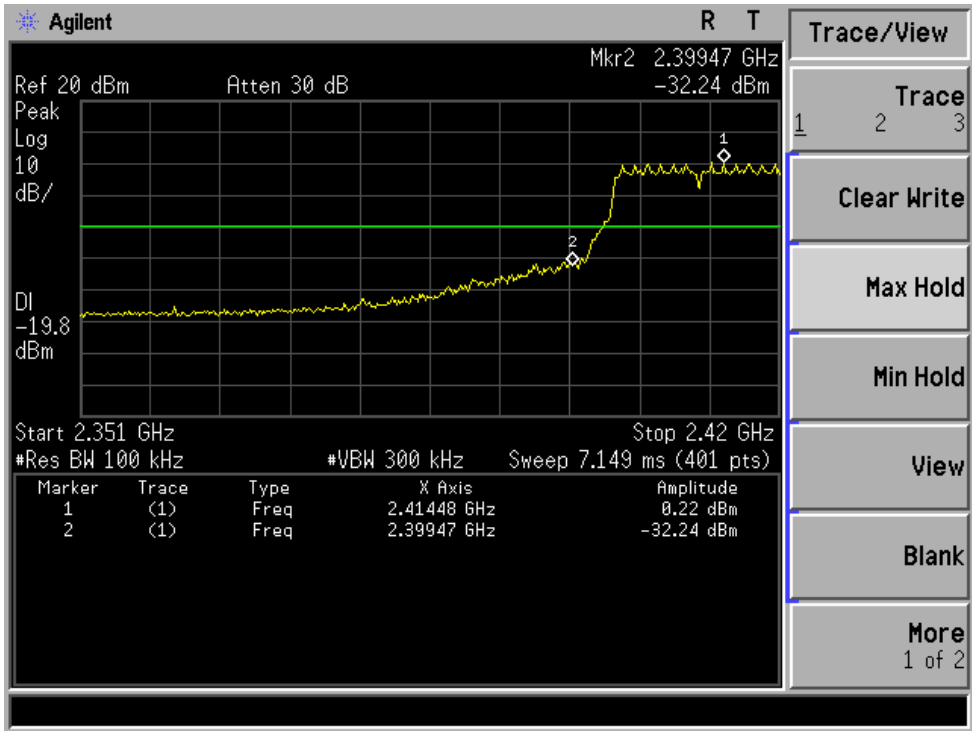
802.11b: Band Edge, Left Side



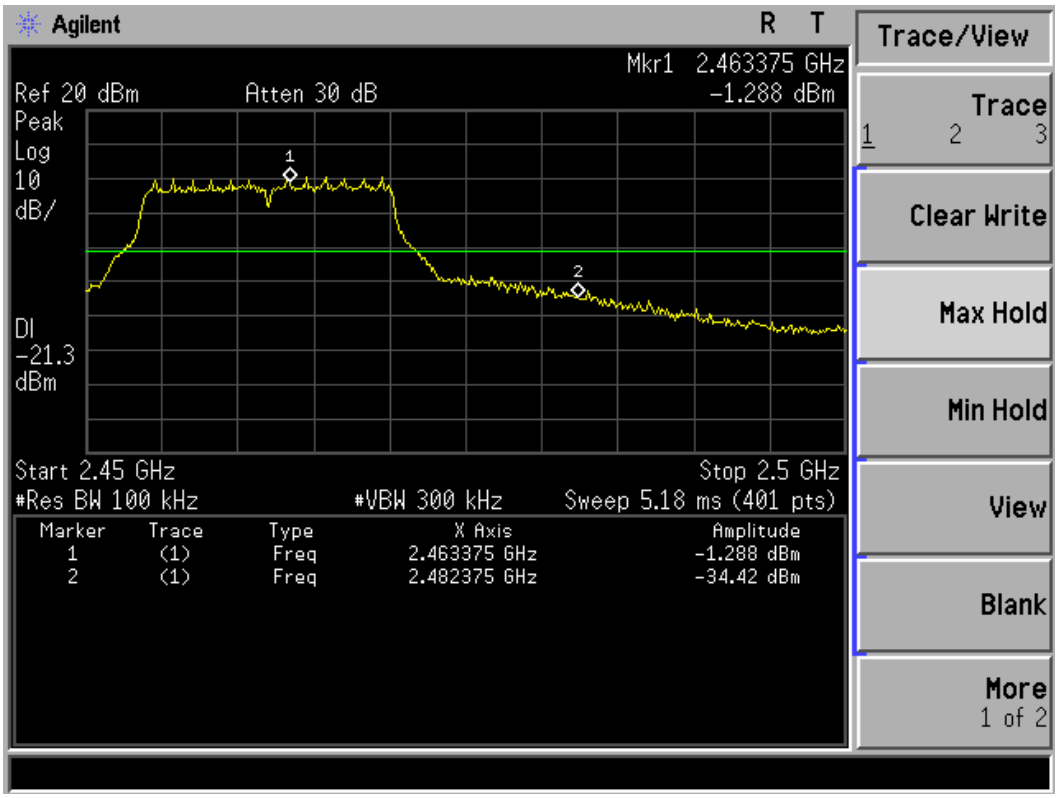
802.11b: Band Edge, Right Side



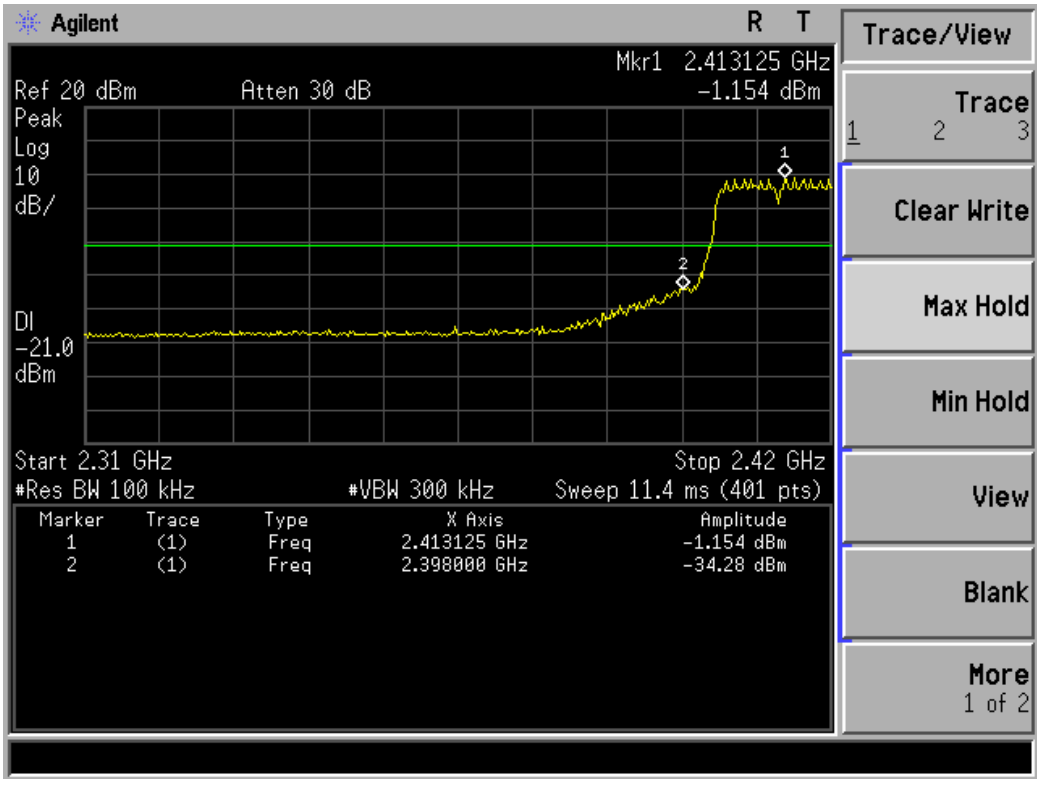
802.11g: Band Edge, Left Side



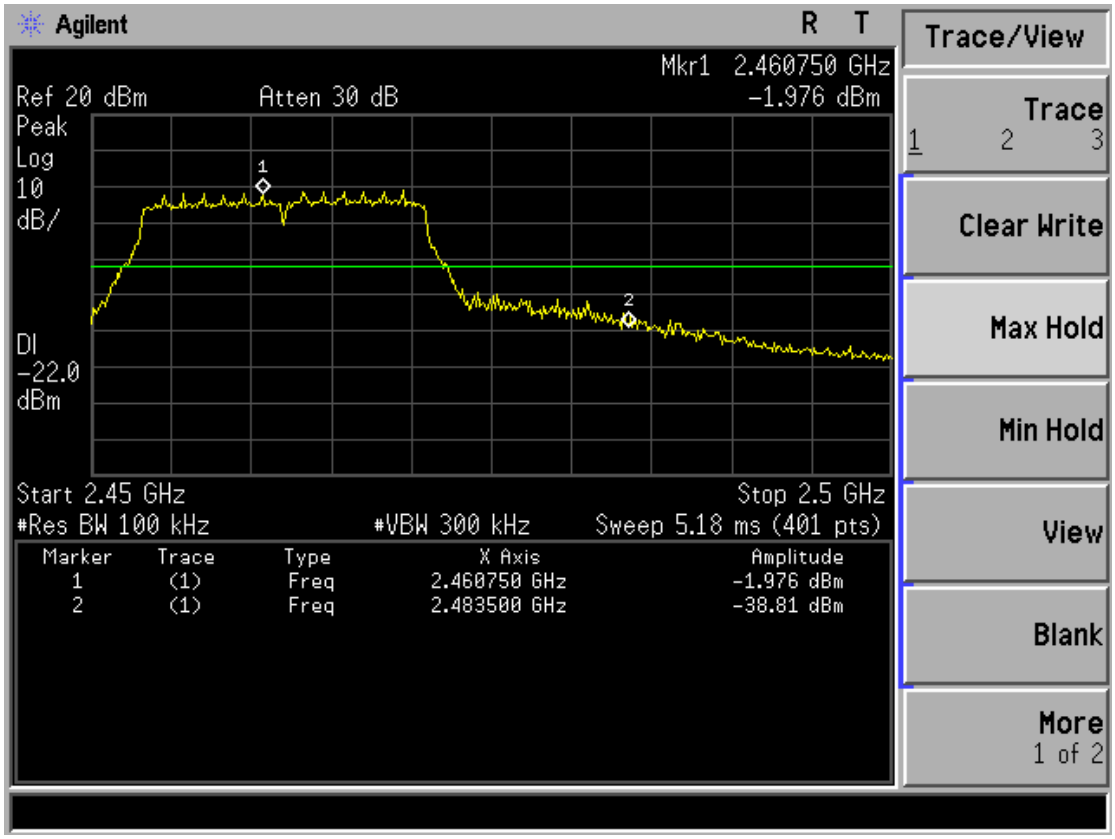
802.11g: Band Edge, Right Side



802.11n-HT20: Band Edge, Left Side



802.11n-HT20: Band Edge, Right Side



7 Radiated Emissions in restricted frequency bands

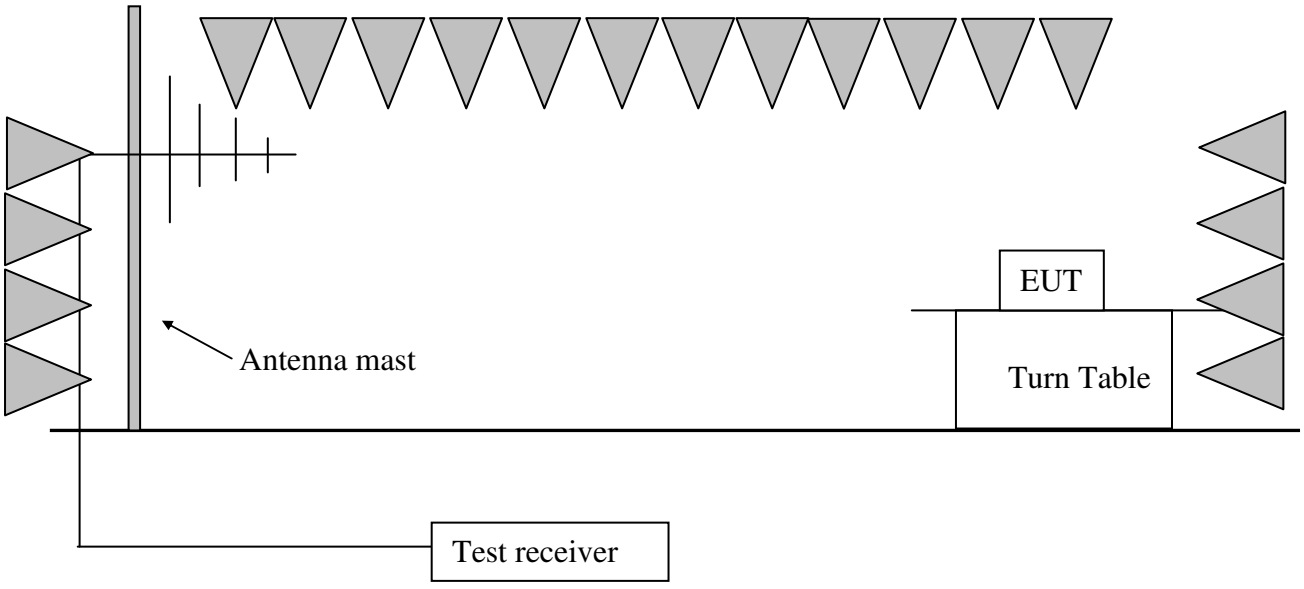
Test result: **Pass**

7.1 Test limit

The radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) showed as below:

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

7.2 Test Configuration



7.3 Test procedure and test setup

The measurement was applied in a semi-anechoic chamber. While testing for spurious emission higher than 1GHz, if applied, the pre-amplifier would be equipped just at the output terminal of the antenna.

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m.

The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mast. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.

The EUT was tested according to DTS test procedure of KDB558074 D01 DTS "Meas Guidance v04" for compliance to FCC 47CFR 15.247 requirements.

The radiated emission was measured using the Spectrum Analyzer with the resolutions bandwidth set as:

RBW = 300 Hz, VBW = 1 kHz (9 kHz~150 kHz);
RBW = 10 kHz, VBW = 30 kHz (150 kHz~30MHz);
RBW = 100 kHz, VBW = 300 kHz (30MHz~1GHz for PK)
RBW = 1MHz, VBW = 3MHz (>1GHz for PK);
RBW = 1MHz, VBW = 10Hz (>1GHz for AV);

Remark:
1. Factor= Antenna Factor + Cable Loss (-Amplifier, is employed)
2. Measured level= Original Receiver Reading + Factor
3. Margin = Limit – Measured level
4. If the PK measured level is lower than AV limit, the AV test can be elided.

Example:

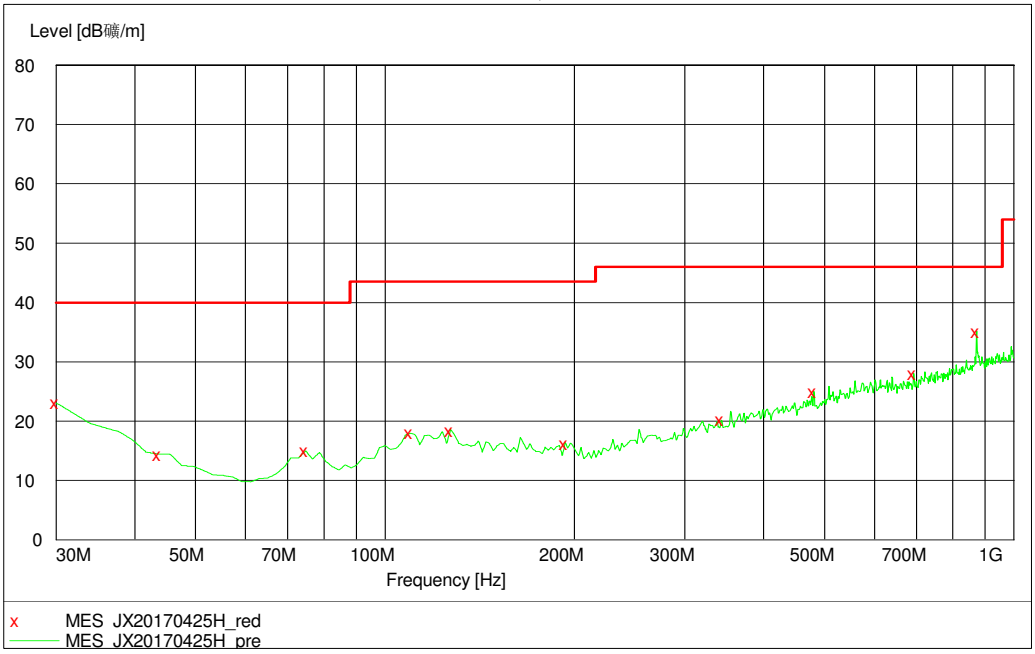
Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10dBuV.
Then Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m;
Measured level = 10dBuV + 0.20dB/m = 10.20dBuV/m
Assuming limit = 54dBuV/m,
Measured level = 10.20dBuV/m, then Margin = 54 - 10.20 = 43.80dBuV/m.

7.4 Test Protocol

Temperature: 24 °C
Relative Humidity: 52 %

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

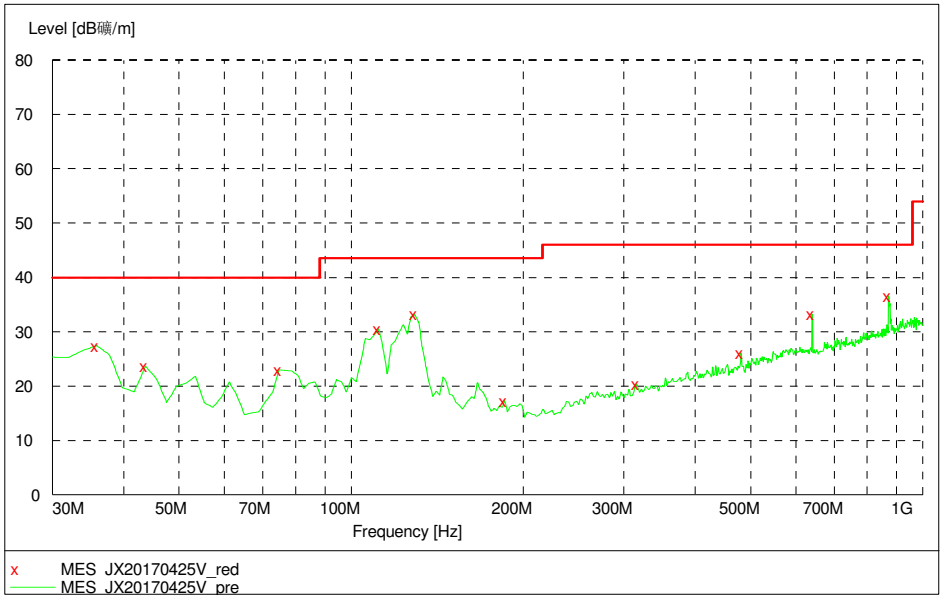
30MHz~1GHz, Horizontal



Test data:

Frequency (MHz)	Emission level (dBµV/m)	Limits (dBµV/m)	Margin (dBµV/m)	Azimuth (Degrees)	Height (cm)	Polarization (H/V)
30.00	*	40.00	*	180	100	H
80.54	*	40.00	*	180	100	H
285.53	*	46.00	*	270	200	H
317.69	*	46.00	*	270	400	H
422.64	*	46.00	*	270	200	H
665.65	*	46.00	*	270	400	H
Note: * means the emission level 10dB lower than the relevant limit.						

30MHz~1GHz, Vertical



Test data:

Frequency (MHz)	Emission level (dBµV/m)	Limits (dBµV/m)	Margin (dBµV/m)	Azimuth (Degrees)	Height (cm)	Polarization (H/V)
32.00	*	40.00	*	180	100	V
49.08	*	40.00	*	180	100	V
111.64	30.50	43.50	13.00	270	200	V
129.13	33.20	43.50	10.30	270	400	V
492.64	*	46.00	*	270	200	V
665.65	*	46.00	*	270	400	V
Note: * means the emission level 15dB lower than the relevant limit.						

Test data above 1GHz:

1：2.4G band 802.11b

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	51.15	74	-7.80	100	190	22.85	PK
		41.25	54	-7.80	100	190	12.75	AV
	2412	110.21	-	-7.80	100	190	-	PK
		99.33	-	-7.80	100	190	-	AV
	4824	51.11	74	-2.10	100	190	22.89	PK
		40.44	54	-2.10	100	190	13.56	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	107.51	-	-7.80	100	190	-	PK
		99.83	-	-7.80	100	190	-	AV
	4874	51.33	74	-2.10	100	190	22.82	PK
		40.37	54	-2.10	100	190	13.63	AV
	7311	48.48	74	6.50	100	190	25.52	PK
		38.45	54	6.50	100	190	15.55	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	107.80	-	-7.80	100	190	-	PK
		98.23	-	-7.80	100	190	-	AV
	2483.5	50.33	74	-7.50	100	190	23.67	PK
		41.17	54	-7.50	100	190	12.83	AV
	4924	51.51	74	-2.10	100	190	22.49	PK
		41.81	54	-2.10	100	190	12.19	AV
	7386	48.12	74	6.50	100	190	25.88	PK
		38.54	54	6.50	100	190	15.46	AV
Note:	2462MHz is fundamental signal.							

2：2.4G band 802.11g

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	50.62	74	-7.80	100	190	23.38	PK
		41.47	54	-7.80	100	190	12.53	AV
	2412	105.66	-	-7.80	100	190	-	PK
		96.25	-	-7.80	100	190	-	AV
	4824	49.55	74	-2.10	100	190	24.45	PK
		36.44	54	-2.10	100	190	17.56	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	105.46	-	-7.80	100	190	-	PK
		95.36	-	-7.80	100	190	-	AV
	4874	51.15	74	-2.10	100	190	22.85	PK
		41.24	54	-2.10	100	190	12.76	AV
	7311	46.85	74	6.50	100	190	25.15	PK
		39.52	54	6.50	100	190	14.48	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	106.88	-	-7.80	100	190	-	PK
		94.52	-	-7.80	100	190	-	AV
	2483.5	50.08	74	-7.50	100	190	23.92	PK
		40.12	54	-7.50	100	190	13.88	AV
	4924	52.08	74	-2.10	100	190	21.92	PK
		42.58	54	-2.10	100	190	11.42	AV
	7386	45.15	74	6.50	100	190	28.85	PK
		36.25	54	6.50	100	190	17.75	AV
Note:	2462MHz is fundamental signal.							

3：2.4G band 802.11n HT20

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	51.40	74	-7.80	100	190	22.60	PK
		42.33	54	-7.80	100	190	11.67	AV
	2412	106.45	-	-7.80	100	190	-	PK
		93.66	-	-7.80	100	190	-	AV
	4824	49.86	74	-2.10	100	190	24.14	PK
		38.94	54	-2.10	100	190	15.06	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	105.45	-	-7.80	100	190	-	PK
		94.52	-	-7.80	100	190	-	AV
	4874	47.87	74	-2.10	100	190	26.13	PK
		39.67	54	-2.10	100	190	14.33	AV
	7311	45.77	74	6.50	100	190	28.23	PK
		38.97	54	6.50	100	190	14.03	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	103.93	-	-7.80	100	190	-	PK
		92.16	-	-7.80	100	190	-	AV
	2483.5	50.77	74	-7.50	100	190	23.23	PK
		40.45	54	-7.50	100	190	13.55	AV
	4924	48.48	74	-2.10	100	190	25.52	PK
		37.98	54	-2.10	100	190	16.02	AV
	7386	44.08	74	6.50	100	190	29.92	PK
		38.07	54	6.50	100	190	15.93	AV
Note:	2462MHz is fundamental signal.							

Remark: 1. For fundamental emission, no amplifier is employed.
2. Correct Factor = Antenna Factor + Cable Loss (-Amplifier, is employed)
3. Corrected Reading = Original Receiver Reading + Correct Factor
4. Margin = limit – Corrected Reading
5. If the PK reading is lower than AV limit, the AV test can be elided.
6. The emission was conducted from 30MHz to 25GHz.

Example: Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10dBuV.
Then Correct Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m; Corrected Reading = 10dBuV + 0.20dB/m = 10.20dBuV/m
Assuming limit = 54dBuV/m, Corrected Reading = 10.20dBuV/m, then Margin = 54 - 10.20 = 43.80dBuV/m

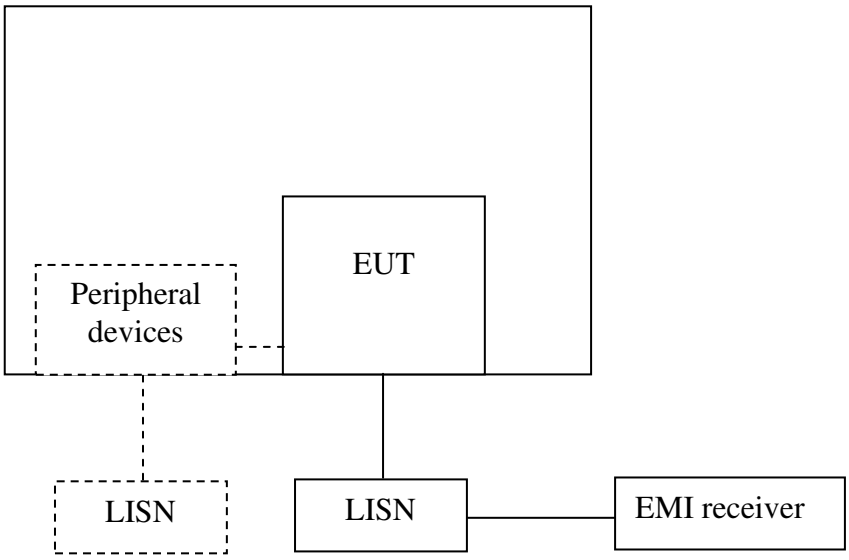
8 Power line conducted emission

Test result: **Pass**

8.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	QP	AV
0.15-0.5	66 to 56*	56 to 46 *
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

8.2 Test configuration



☒ For table top equipment, wooden support is 0.8m height table

☐ For floor standing equipment, wooden support is 0.1m height rack.

8.3 Test procedure and test set up

Measured levels of ac power-line conducted emission shall be the emission voltages from the voltage probe, where permitted, or across the 50 Ω LISN port (to which the EUT is connected), where permitted, terminated into a 50 Ω measuring instrument. All emission voltage and current measurements shall be made on each current-carrying conductor at the plug end of the EUT power cord by the use of mating plugs and receptacles on the LISN, if used. Equipment shall be tested with power cords that are normally supplied or recommended by the manufacturer and that have electrical and shielding characteristics that are the same as those cords normally supplied or recommended by the manufacturer. For those measurements using a LISN, the 50 Ω measuring port is terminated by a measuring instrument having 50 Ω input impedance. All other ports are terminated in 50 Ω loads.

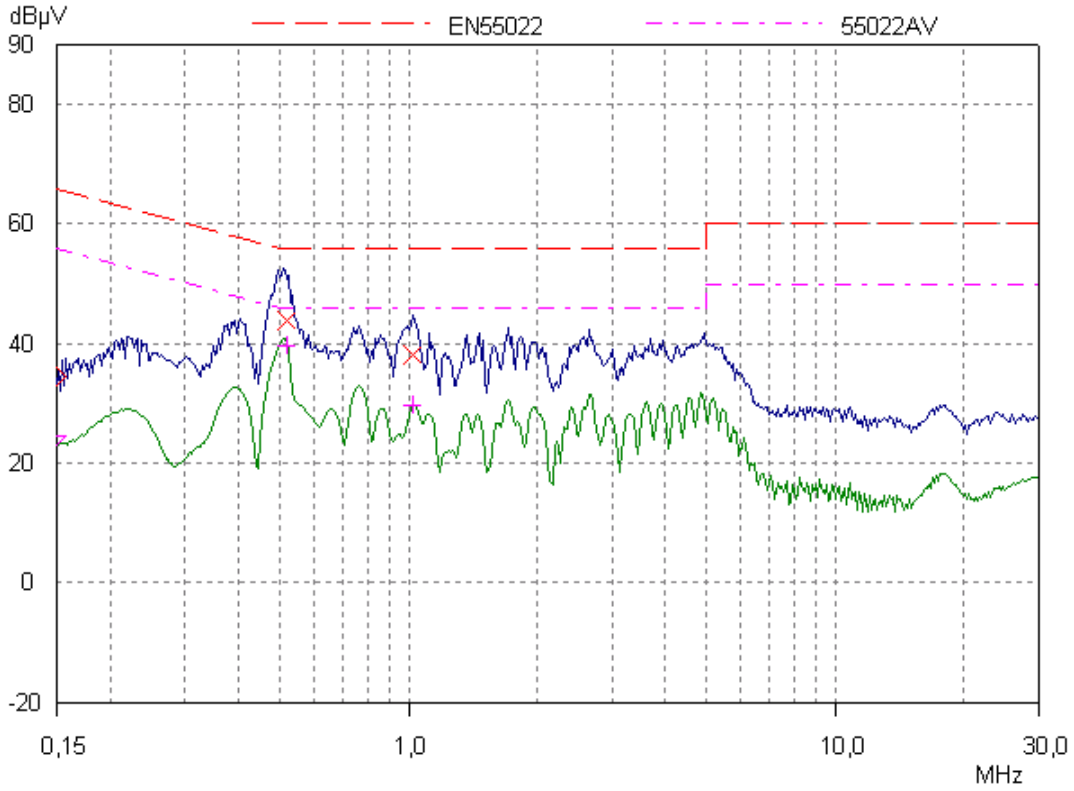
Tabletop devices shall be placed on a platform of nominal size 1 m by 1.5 m, raised 80 cm above the reference ground plane. The vertical conducting plane or wall of an RF-shielded (screened) room shall be located 40 cm to the rear of the EUT. Floor-standing devices shall be placed either directly on the reference ground-plane or on insulating material as described in ANSI C63.4. All other surfaces of tabletop or floor-standing EUTs shall be at least 80 cm from any other grounded conducting surface, including the case or cases of one or more LISNs.

The bandwidth of the test receiver is set at 9 kHz.

8.4 Test protocol

Temperature: 24 °C
Relative Humidity: 52 %

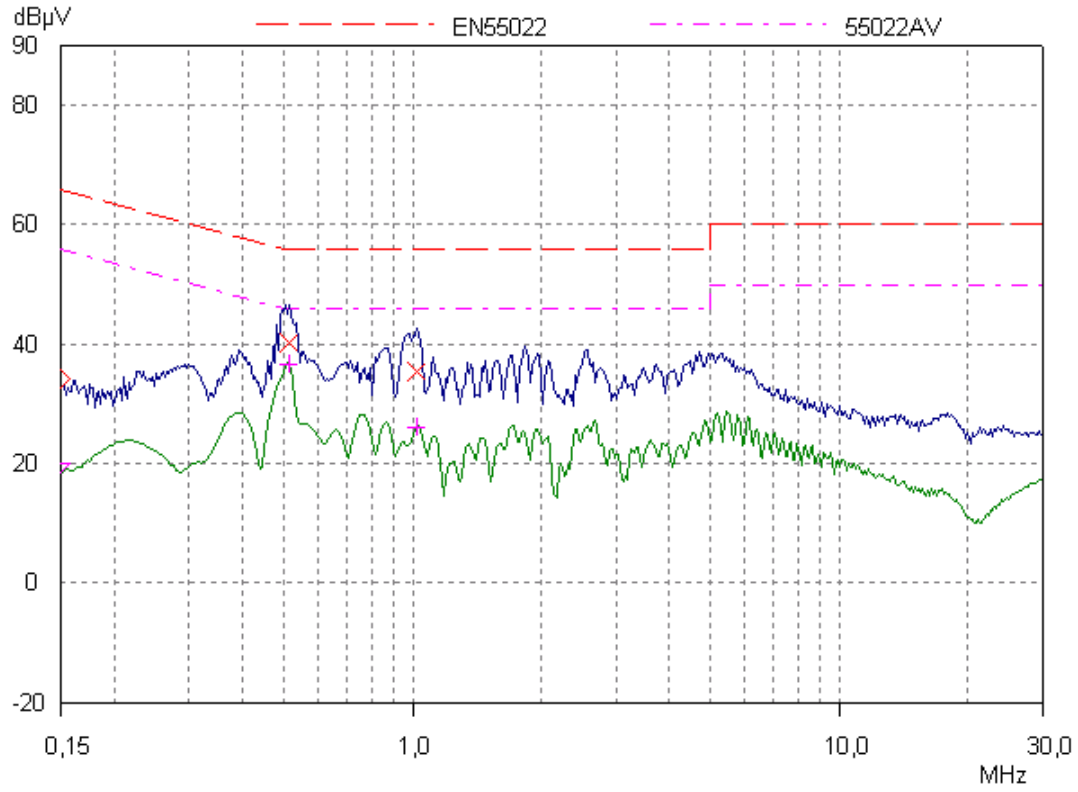
L line



Test Data:

Frequency (MHz)	Quasi-peak			Average			Line
	level dB(µV)	Limit dB(µV)	Margin (dB)	level dB(µV)	limit dB(µV)	Margin (dB)	
0.51	43.77	56.00	12.33	39.53	46.00	6.47	L
0.20							L
0.39							L
1.02	38.23	56.00	17.77	29.52	46.00	16.48	L
1.67							L
6.92							L
Note: * means the emission level 20dB lower than the relevant limit.							

N line



Test Data:

Frequency (MHz)	Quasi-peak			Average			Line
	level dB(µV)	Limit dB(µV)	Margin (dB)	level dB(µV)	limit dB(µV)	Margin (dB)	
0.51	40.32	56.00	15.68	36.70	46.00	9.30	L
0.20							L
0.39							L
1.02	35.41	56.00	20.59	25.95	46.00	20.05	L
1.67							L
6.92							L
Note: * means the emission level 20dB lower than the relevant limit.							

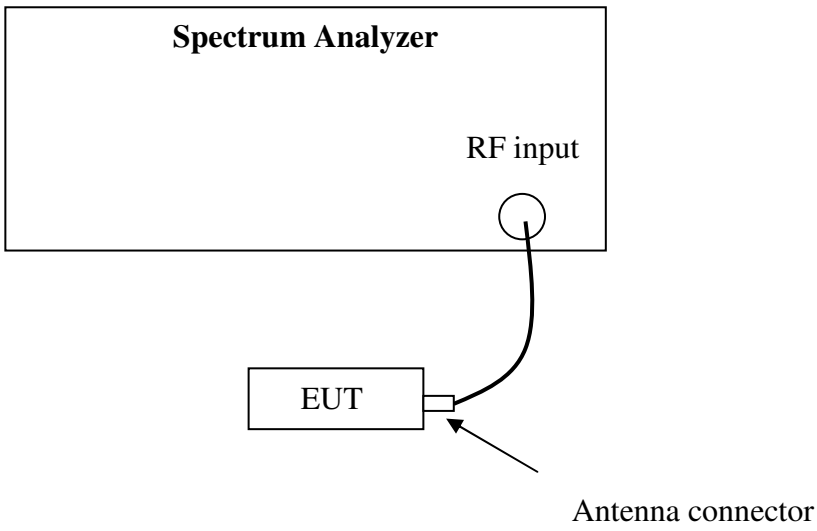
9 Occupied Bandwidth

Test Status: NA

9.1 Test limit

None

9.2 Test Configuration



9.3 Test procedure and test setup

The occupied bandwidth per RSS-Gen Issue 4 Clause 6.6 was measured using the Spectrum Analyzer.

9.4 Test protocol

Temperature : ℃
Relative Humidity : %

Mode	Frequency (MHz)	99% Bandwidth (MHz)		
		Port0	Port 1	Port 2
-	2412		-	-
	2437		-	-
	2462		-	-