

<b>Prüfbericht-Nr.:</b> <i>Test Report No.:</i>	<b>50278814 001</b>	<b>Auftrags-Nr.:</b> <i>Order No.:</i>	238108123	<b>Seite 1 von 55</b> <i>Page 1 of 55</i>
<b>Kunden-Referenz-Nr.:</b> <i>Client Reference No.:</i>	N/A	<b>Auftragsdatum:</b> <i>Order date:</i>	25-Jul-2019	
<b>Auftraggeber:</b> <i>Client:</i>	Siemens Healthcare Diagnostics Inc. 2 Edgewater Drive Norwood, MA 02062 USA			
<b>Prüfgegenstand:</b> <i>Test item:</i>	Mobile Computing Device			
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type No.:</i>	PD470SH-B, PD470SH-N			
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	FCC Part 15C / Test report (WiFi 2.4GHz)			
<b>Prüfgrundlage:</b> <i>Test specification:</i>	FCC 47CFR Part 15: Subpart C Section 15.247(DTS)			
<b>Wareneingangsdatum:</b> <i>Date of receipt:</i>	30-Jul-2019	Refer to EUT photos.		
<b>Prüfmuster-Nr.:</b> <i>Test sample No.:</i>	A000966214-002 A000966214-003			
<b>Prüfzeitraum:</b> <i>Testing period:</i>	01-Aug-2019 - 28-Aug-2019			
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	EMC/RF Laboratory Taipei			
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	TUV Rheinland Taiwan Ltd.			
<b>Prüfergebnis*:</b> <i>Test result*:</i>	Pass			
<b>geprüft von / tested by:</b>		<b>kontrolliert von / reviewed by:</b>		
28-Aug-2019 Mars Y. J. Lin / Project Engineer		29-Aug-2019 Arvin Ho/Vice General Manager		
<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>	<b>Unterschrift</b> <i>Signature</i>	<b>Datum</b> <i>Date</i>	<b>Name / Stellung</b> <i>Name / Position</i>
				<b>Unterschrift</b> <i>Signature</i>
<b>Sonstiges / Other:</b> PD470SH-B and PD470SH-N use the same motherboard and RF Chip, the difference between PD470SH-B and PD470SH-N is that PD470SH-B more than PD470SH-N a barcode scanner function, both models have been considered, only the worst mode is listed.				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged</i>		
* Legende: 1 = sehr gut      2 = gut      3 = befriedigend      4 = ausreichend      5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n)      F(ail) = entspricht nicht o.g. Prüfgrundlage(n)      N/A = nicht anwendbar      N/T = nicht getestet				
Legend: 1 = very good      2 = good      3 = satisfactory      4 = sufficient      5 = poor P(ass) = passed a.m. test specification(s)      F(ail) = failed a.m. test specification(s)      N/A = not applicable      N/T = not tested				
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>				

## TEST SUMMARY

### 5.1.1 ANTENNA REQUIREMENT

RESULT: *Passed*

### 5.1.2 PEAK OUTPUT POWER

RESULT: *Passed*

### 5.1.3 6dB BANDWIDTH AND 99% BANDWIDTH

RESULT: *Passed*

### 5.1.4 POWER DENSITY

RESULT: *Passed*

### 5.1.5 CONDUCTED SPURIOUS EMISSIONS AND FREQUENCY BAND EDGE MEASURED IN 100KHZ BANDWIDTH

RESULT: *Passed*

### 5.1.6 SPURIOUS EMISSION

RESULT: *Passed*

### 5.2.1 MAINS CONDUCTED EMISSIONS

RESULT: *Passed*

## Contents

<b>1.</b>	<b>GENERAL REMARKS .....</b>	<b>5</b>
<b>1.1</b>	<b>COMPLEMENTARY MATERIALS.....</b>	<b>5</b>
<b>2.</b>	<b>TEST SITES .....</b>	<b>6</b>
<b>2.1</b>	<b>TEST LABORATORY .....</b>	<b>6</b>
<b>2.2</b>	<b>TEST FACILITY.....</b>	<b>6</b>
<b>2.3</b>	<b>LIST OF TEST AND MEASUREMENT INSTRUMENTS.....</b>	<b>7</b>
<b>2.4</b>	<b>TRACEABILITY .....</b>	<b>8</b>
<b>2.5</b>	<b>CALIBRATION .....</b>	<b>8</b>
<b>2.6</b>	<b>MEASUREMENT UNCERTAINTY .....</b>	<b>8</b>
<b>3.</b>	<b>GENERAL PRODUCT INFORMATION.....</b>	<b>9</b>
<b>3.1</b>	<b>PRODUCT FUNCTION AND INTENDED USE .....</b>	<b>9</b>
<b>3.2</b>	<b>SYSTEM DETAILS AND RATINGS.....</b>	<b>9</b>
<b>3.3</b>	<b>INDEPENDENT OPERATION MODES.....</b>	<b>10</b>
<b>3.4</b>	<b>NOISE GENERATING AND NOISE SUPPRESSING PARTS .....</b>	<b>10</b>
<b>3.5</b>	<b>SUBMITTED DOCUMENTS.....</b>	<b>10</b>
<b>4.</b>	<b>TEST SET-UP AND OPERATION MODES.....</b>	<b>11</b>
<b>4.1</b>	<b>PRINCIPLE OF CONFIGURATION SELECTION .....</b>	<b>11</b>
<b>4.2</b>	<b>TEST OPERATION AND TEST SOFTWARE.....</b>	<b>11</b>
<b>4.3</b>	<b>SPECIAL ACCESSORIES AND AUXILIARY EQUIPMENT .....</b>	<b>11</b>
<b>4.4</b>	<b>COUNTERMEASURES TO ACHIEVE EMC COMPLIANCE.....</b>	<b>12</b>
<b>4.5</b>	<b>TEST SETUP DIAGRAM .....</b>	<b>12</b>
<b>5.</b>	<b>TEST RESULTS .....</b>	<b>14</b>
<b>5.1</b>	<b>TRANSMITTER REQUIREMENT &amp; TEST SUITES.....</b>	<b>14</b>
<b>5.1.1</b>	<i>Antenna Requirement .....</i>	<i>14</i>
<b>5.1.2</b>	<i>Peak Output Power .....</i>	<i>15</i>
<b>5.1.3</b>	<i>6dB Bandwidth and 99% Bandwidth.....</i>	<i>17</i>
<b>5.1.4</b>	<i>Power Density .....</i>	<i>31</i>
<b>5.1.5</b>	<i>Conducted spurious emissions and Frequency Band Edge measured in 100kHz Bandwidth.....</i>	<i>39</i>
<b>5.1.6</b>	<i>Spurious Emission .....</i>	<i>50</i>
<b>5.2</b>	<b>MAINS EMISSIONS.....</b>	<b>51</b>
<b>5.2.1</b>	<i>Mains Conducted Emissions.....</i>	<i>51</i>
<b>6.</b>	<b>PHOTOGRAPHS OF THE TEST SET-UP.....</b>	<b>52</b>
<b>7.</b>	<b>LIST OF TABLES .....</b>	<b>55</b>

**8. LIST OF PHOTOGRAPHS..... 55**

## 1. General Remarks

### 1.1 Complementary Materials

The following attachments are integral parts of this test report:

**Appendix P: Photo Documentation internal view**  
(File Name: 50278814, 50278816, 50278817, 50278818, 50278819 001 Appendix P)

**Appendix D: Test Result of Radiated Emissions**  
(File Name: 50278814 001 Appendix D)

Test Specifications

The following standards were applied.

The decision rule of conformity of this test report is following the requirements of the requested standard in the quotation, and agreed among testing laboratory and manufacturer (applicant) to exclude the consideration of Measurement Uncertainty, unless it is required by the specific standard.

**Table 1: Applied Standard and Test Levels**

<b>Radio</b>
FCC CFR47 Part 15: Subpart C Section 15.247
ANSI C63.10:2013
KDB558074 D01 DTS Meas Guidance v05

## 2. Test Sites

### 2.1 Test Laboratory

TUV Rheinland Taiwan Ltd.  
Taipei Testing Laboratories

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

### 2.2 Test Facility

TUV Rheinland Taiwan Ltd.

11F. No.758, Sec. 4, Bade Rd., Songshan Dist.  
Taipei City 105  
Taiwan (R.O.C.)

FCC Registration No.: 180491  
IC Canada Registration No.: 9465A  
TAF Accredited NCC Test Lab. No.:3567  
TAF ISO17025 Certification effective period: 6<sup>th</sup>-May-2019 to 05<sup>th</sup>-May-2022



**Testing Laboratory**  
**3567**

## 2.3 List of Test and Measurement Instruments

**Table 2: List of Test and Measurement Equipment**

<b>Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Cal. Date</b>	<b>Cal. Due Date</b>
EMI Test Receiver	Rohde & Schwarz	ESR 7	101062	2018/10/01	2019/10/01
Spectrum Analyzer	Rohde & Schwarz	FSV-40	101514	2019/02/07	2020/02/07
Pre-Amplifier	Hewlett Packard	8447F	2805A03335	2019/08/22	2020/08/22
Pre-Amplifier	EM Electronics	EM01G18G	060558	2018/11/30	2019/11/30
Pre-Amplifier	EMC Instruments	EMC184045S E	980652	2019/02/25	2020/02/25
Bilog Antenna	TESEQ	CBL 6111D	29802	2019/08/22	2020/08/22
Horn Antenna	ETS-Lindgren	3117	00218931	2018/12/27	2019/12/27
Horn Antenna	Com-Power	AH-840	101029	2018/12/22	2019/12/22
Loop Antenna	Schwarzbeck	FMZB 1513	1513-076	2019/07/11	2020/07/11
Test Software	Audix	e3	Ver. 9	N/A	N/A
Spectrum Analyzer	Agilent	N9010A	MY53470241	2019/06/17	2020/06/17
Power Meter	Anritu	ML2495A	1901008	2019/04/29	2020/04/29
EMI Test Receiver	Rohde & Schwarz	ESCI 7	100797	2019/01/16	2020/01/16
Two-Line V-Network	Rohde & Schwarz	ENV216	101243	2019/06/23	2020/06/23
Telecom ISN 2 Line	Fischer Custom Communications	FCC-TLISN-T2-02-09	101169	2019/08/24	2020/08/24
Telecom ISN 4 Line	Fischer Custom Communications	FFCC-TLISN-T4-02-09	101168	2019/01/02	2020/01/02
Impedance Stabilization Network	TESEQ	ISN T800	51949	2019/02/20	2020/02/20

## 2.4 Traceability

All measurement equipment calibrations are traceable to NML(Taiwan)/NIST(USA) or where calibration is performed outside Taiwan, to equivalent nationally recognized standards organizations.

## 2.5 Calibration

Equipment requiring calibration is calibrated periodically in a suitably accredited Calibration Lab. Additionally all equipment is verified for proper performance on a regular schedule using in house standards or comparisons.

## 2.6 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements .

**Table 3: Emission Measurement Uncertainty**

Parameter	Uncertainty
Radio Frequency	± 0.1 ppm
RF power/RF Exposure(MPE), conducted	± 1.5 dB
RF power density, conducted	± 3 dB
spurious emissions, conducted	± 3 dB
all emissions, radiated	± 6 dB
Temperature	± 1 °C
Humidity	± 5 %
DC and low frequency voltages	±3 %



### 3. General Product Information

#### 3.1 Product Function and Intended Use

The EUT is a Mobile Computing Device. It contains a 2.4GHz compatible chip enabling the user to communicate data through a Wireless interface.  
 For details refer to the User Guide, Data Sheet and Circuit Diagram.

#### 3.2 System Details and Ratings

**Table 4: Basic Information of EUT**

Item	EUT information
Kind of Equipment/Test Item	Mobile Computing Device
Type Identification	PD470SH-B, PD470SH-N
Brand Name	Siemens Healthcare Diagnostics
FCC ID	2AUAM-PD470SH

**Table 5: Technical Specification of EUT**

Technical Specification	Value
Operating Frequencies	802.11b/g/n20 : 2412MHz ~ 2462MHz 802.11n40 : 2422MHz ~ 2452MHz
Channel Spacing	5 MHz
Channel number	11 for BW 20MHz 7 for BW 40MHz
Operation Voltage	5Vdc
Modulation	802.11b : DSSS(BPSK, QPSK, CCK) 802.11g/n : OFDM(BPSK, QPSK, 16QAM, 64QAM)
Antenna gain	2.21dBi

### **3.3 Independent Operation Modes**

Basic operation modes are:

- A. Transmitting
  - 1. Low channel
  - 2. Middle channel
  - 3. High channel
- B. Receiving
  - 1. Low channel
  - 2. Middle channel
  - 3. High channel
- C. Normal
- D. Off

### **3.4 Noise Generating and Noise Suppressing Parts**

Refer to the Circuit Diagram.

### **3.5 Submitted Documents**

- Circuit Diagram
- Instruction Manual
- Rating Label
- Technical Description

## 4. Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

The test modes were adapted accordingly in reference to the instructions for use.

During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

**Table 6: Table for Parameters of Test Software Setting**

Mode	Channel Frequency		
	2412 MHz	2437 MHz	2462 MHz
802.11b	18	18	18
802.11g	14	14	14
802.11n20	14	14	14
Mode	2422 MHz	2437 MHz	2452 MHz
802.11n40	13	13	13

### 4.2 Test Operation and Test Software

Setup for testing: The test sample itself is equipped with a touch screen, It was used to enable the operation modes listed in section 3.3 as appropriate by the screen.

The samples were used as follows:

Conducted: A000966214-003

Radiation: A000966214-002

Full test was applied on all test modes, but only worst case was shown

### 4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

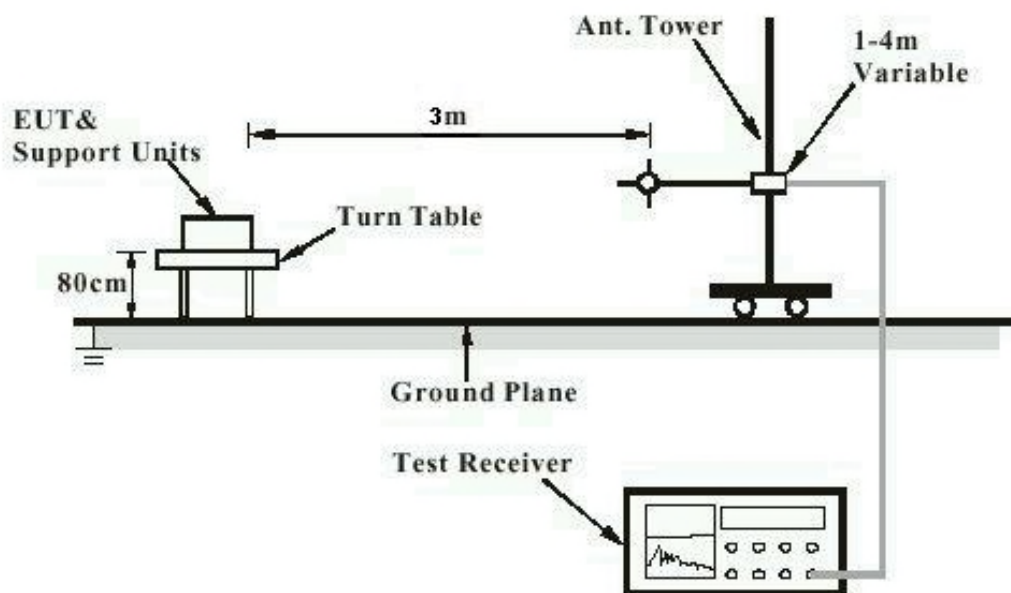
Kind of Equipment	Manufacturer	Model Name	S/N
Adapter	Topcom	TC-S300Q	T0119

## 4.4 Countermeasures to achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Constructional Data Form or the Technical Construction File. No additional measures were employed to achieve compliance.

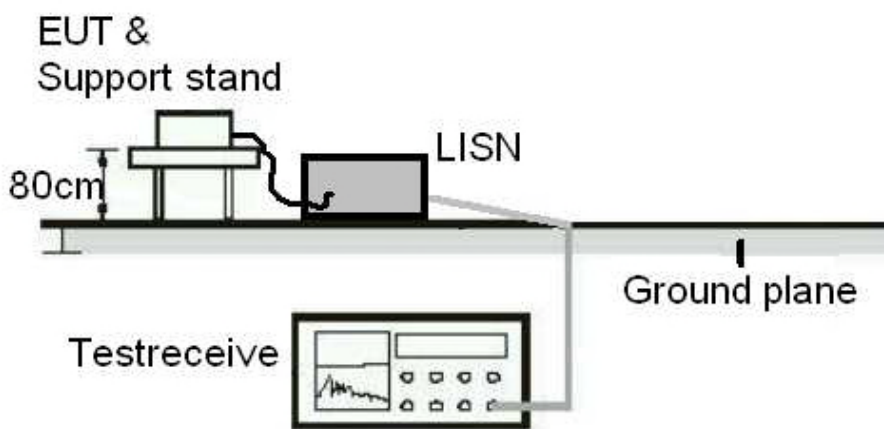
## 4.5 Test Setup Diagram

**Diagram of Measurement Configuration for Radiation Test**

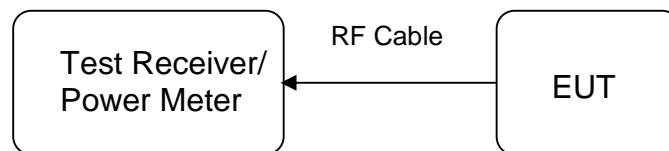


Note: Measurements above 1 GHz are done with a table height of 1.5m

**Diagram of Measurement Equipment Configuration for Mains Conduction Measurement (if applicable)**



**Diagram of Measurement Equipment Configuration for Conducted Transmitter Measurement**



## 5. Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

**RESULT:** **Passed**

Test standard : FCC Part 15.247(b)(4), Part 15.203

Requirement : use of approved antennas only with directional gains that do not exceed 6 dBi

According to the manufacturer declaration, the EUT has an antenna with a directional gain of 2.21dBi. The antenna is a printed trace with no possibility of replacement with a non-approved antenna by the end-user. Therefore, the EUT is considered to comply with this provision.

Refer to EUT photo for details.

### 5.1.2 Peak Output Power

**RESULT:**
**Passed**

Test standard : FCC Part 15.247(b)(3)  
 Basic standard : ANSI C63.10:2013, KDB558074  
 Limit : 1 Watt  
 Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
 Operation Mode : A  
  
 Ambient temperature : 20-24 °C  
 Relative humidity : 50-65 %  
 Atmospheric pressure : 100-103 kPa

**Table 7: Test result of Output Power, 802.11b**

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	19.89	0.09750	1
Middle Channel	2437	19.91	0.09795	1
High Channel	2462	20.04	0.10093	1

Channel	Channel Frequency (MHz)	Average Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	16.97	0.04977	1
Middle Channel	2437	16.99	0.05000	1
High Channel	2462	17.10	0.05129	1

**Table 8: Test result of Output Power, 802.11g**

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	21.41	0.13836	1
Middle Channel	2437	21.39	0.13772	1
High Channel	2462	21.24	0.13305	1

Channel	Channel Frequency (MHz)	Average Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	12.94	0.01968	1
Middle Channel	2437	12.71	0.01866	1
High Channel	2462	12.57	0.01807	1

**Table 9: Test result of Output Power, 802.11n HT20**

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	21.83	0.15241	1
Middle Channel	2437	21.65	0.14622	1
High Channel	2462	21.83	0.15241	1

Channel	Channel Frequency (MHz)	Average Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	12.72	0.01871	1
Middle Channel	2437	12.37	0.01726	1
High Channel	2462	12.72	0.01871	1

**Table 10: Test result of Output Power, 802.11n HT40**

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2422	21.12	0.12942	1
Middle Channel	2437	21.11	0.12912	1
High Channel	2452	21.08	0.12823	1

Channel	Channel Frequency (MHz)	Average Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2422	12.12	0.01629	1
Middle Channel	2437	12.04	0.01600	1
High Channel	2452	11.95	0.01567	1



### 5.1.3 6dB Bandwidth and 99% Bandwidth

**RESULT:**
**Passed**

Test standard : FCC Part 15.247(a)(2)  
 Basic standard : ANSI C63.10:2013, KDB558074  
 Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
 Operation Mode : A  
  
 Ambient temperature : 20-24°C  
 Relative humidity : 50-65%  
 Atmospheric pressure : 100-103 kPa

**Table 11: Test result of 6dB Bandwidth, 802.11b**

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low Channel	2412	8.097	>500	Pass
Mid Channel	2437	8.086	>500	Pass
High Channel	2462	8.098	>500	Pass

**Table 12: Test result of 6dB Bandwidth, 802.11g**

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low Channel	2412	16.36	>500	Pass
Mid Channel	2437	16.40	>500	Pass
High Channel	2462	16.38	>500	Pass

**Table 13: Test result of 6dB Bandwidth, 802.11n HT20**

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low Channel	2412	17.64	>500	Pass
Mid Channel	2437	17.63	>500	Pass
High Channel	2462	17.62	>500	Pass

**Table 14: Test result of 6dB Bandwidth, 802.11n HT40**

Channel	Channel Frequency (MHz)	6dB Bandwidth (MHz)	Limit (kHz)	Result
Low Channel	2422	35.99	>500	Pass
Mid Channel	2437	36.11	>500	Pass
High Channel	2452	36.06	>500	Pass

**Table 15: Test result of 99% Bandwidth, 802.11b**

Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
Low Channel	2412	12.921
Mid Channel	2437	12.919
High Channel	2462	12.934

**Table 16: Test result of 99% Bandwidth, 802.11g**

Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
Low Channel	2412	16.768
Mid Channel	2437	16.816
High Channel	2462	16.755

**Table 17: Test result of 99% Bandwidth, 802.11n HT20**

Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
Low Channel	2412	17.803
Mid Channel	2437	17.816
High Channel	2462	17.745

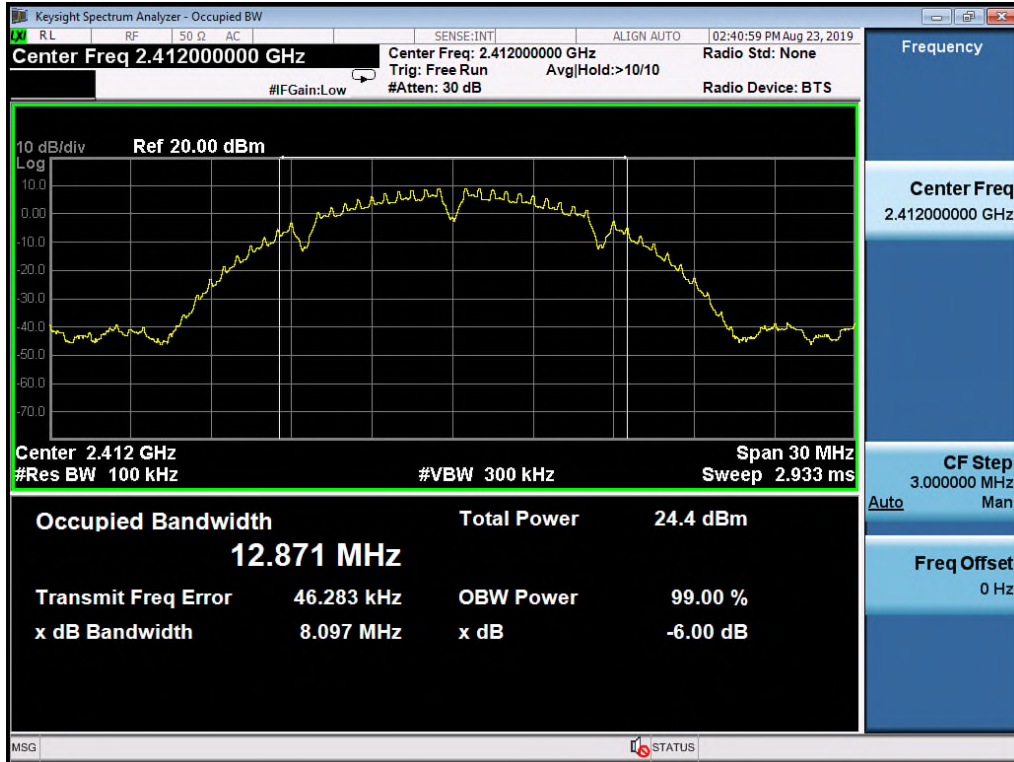
**Table 18: Test result of 99% Bandwidth, 802.11n HT40**

Channel	Channel Frequency (MHz)	99% Bandwidth (MHz)
Low Channel	2422	36.679
Mid Channel	2437	36.591
High Channel	2452	36.571

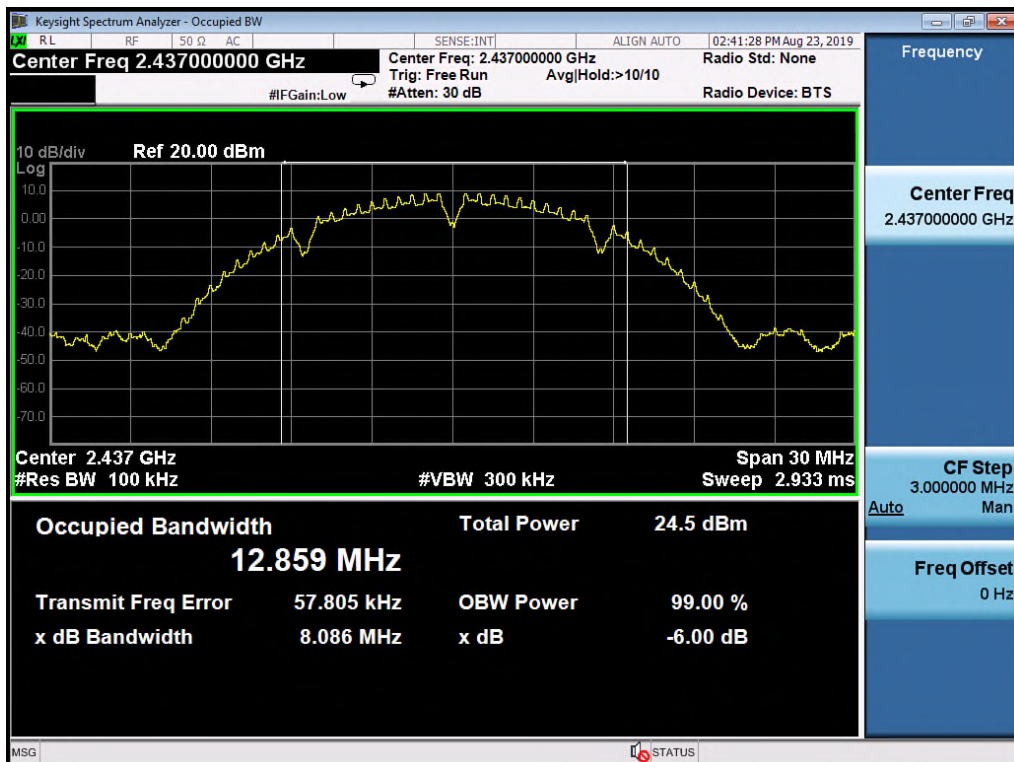
## Test Plot of 6dB Bandwidth

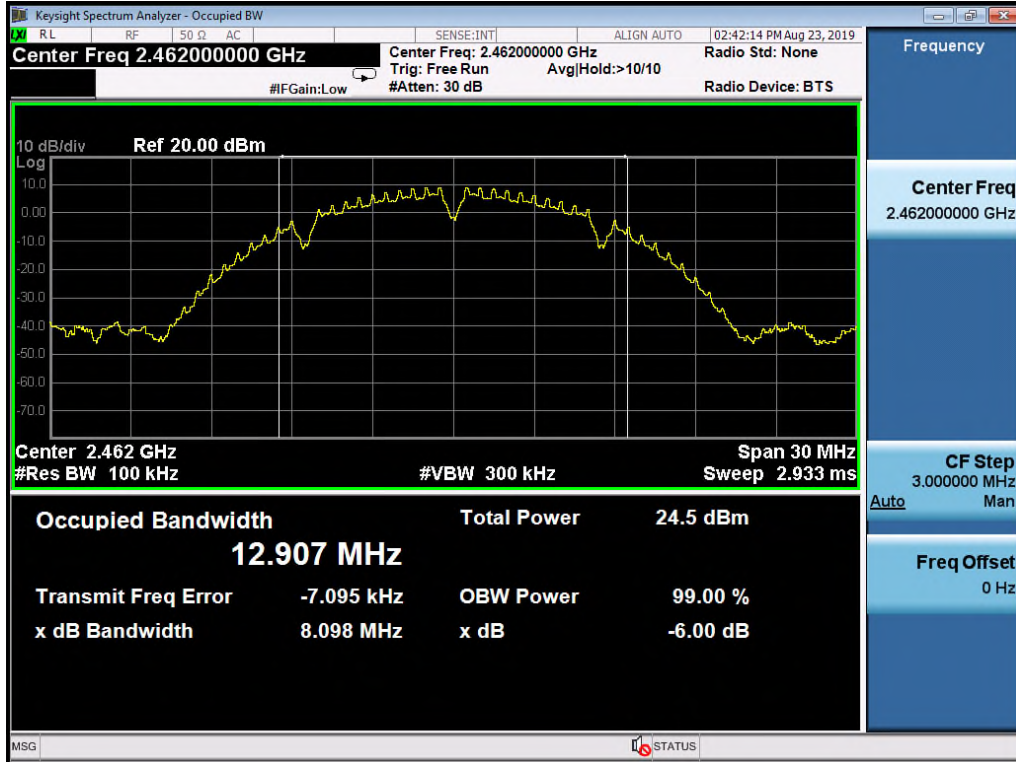
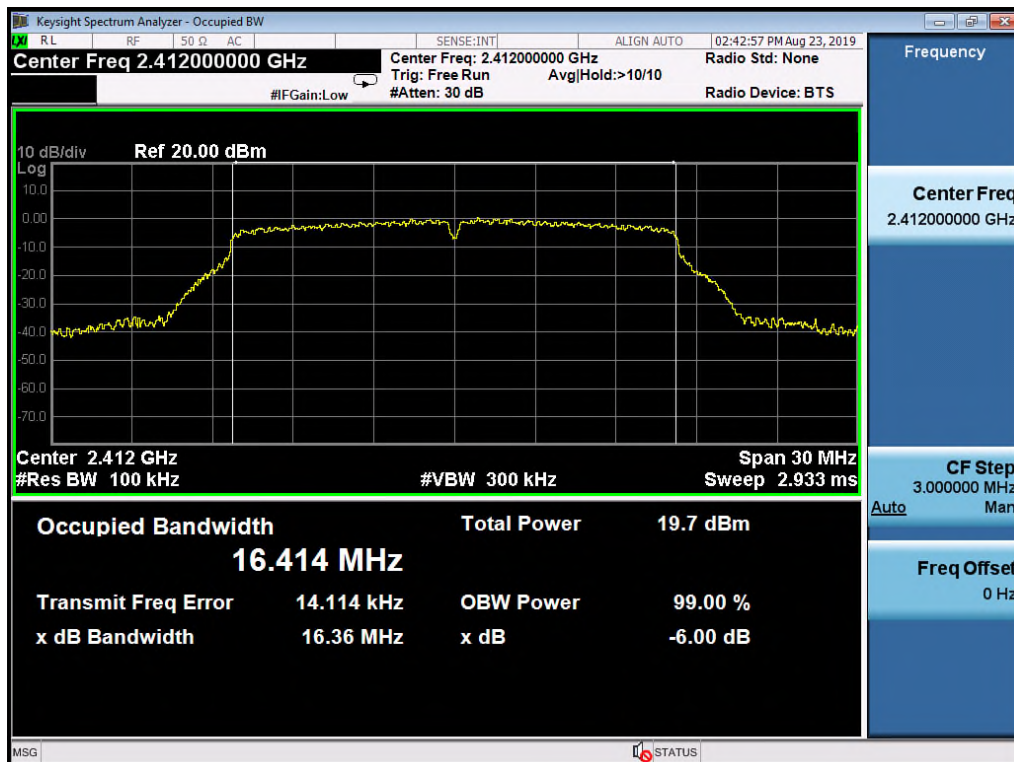
### 802.11b

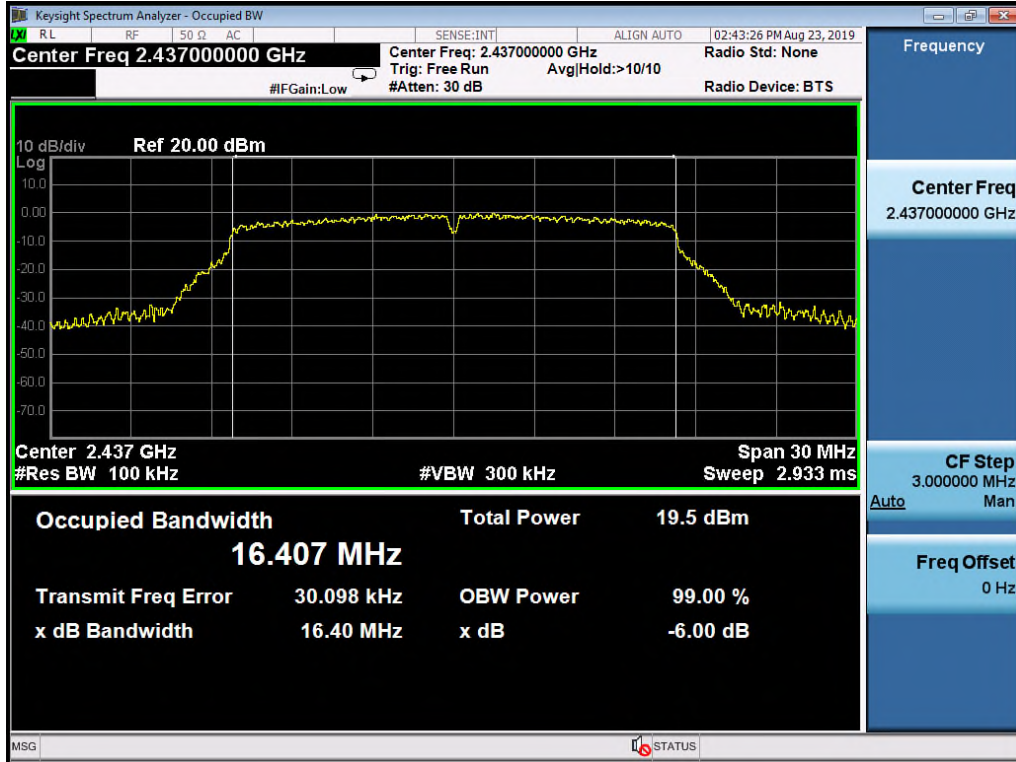
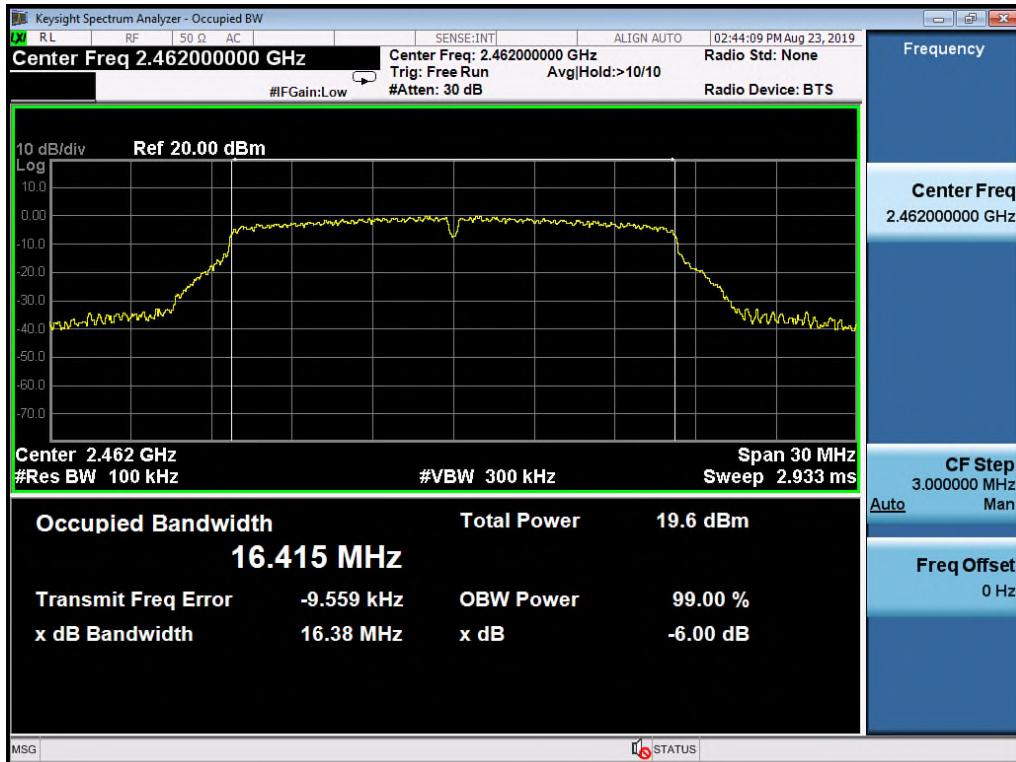
Low Channel



Middle Channel

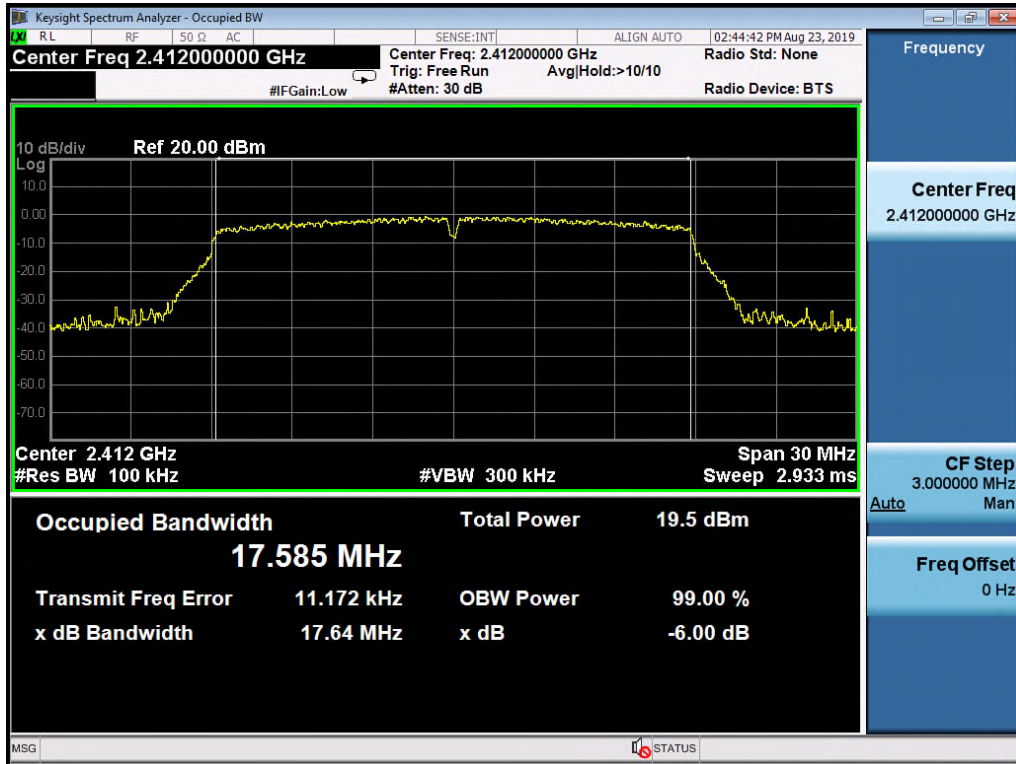


**High Channel**

**802.11g**
**Low Channel**


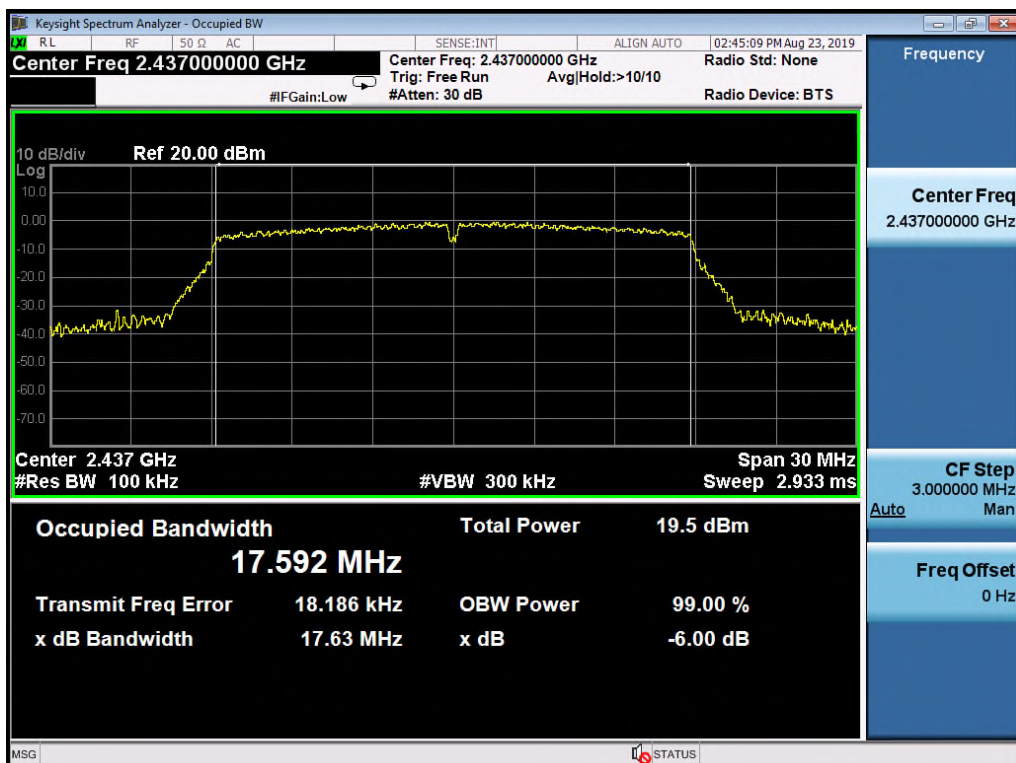
**Middle Channel**

**High Channel**


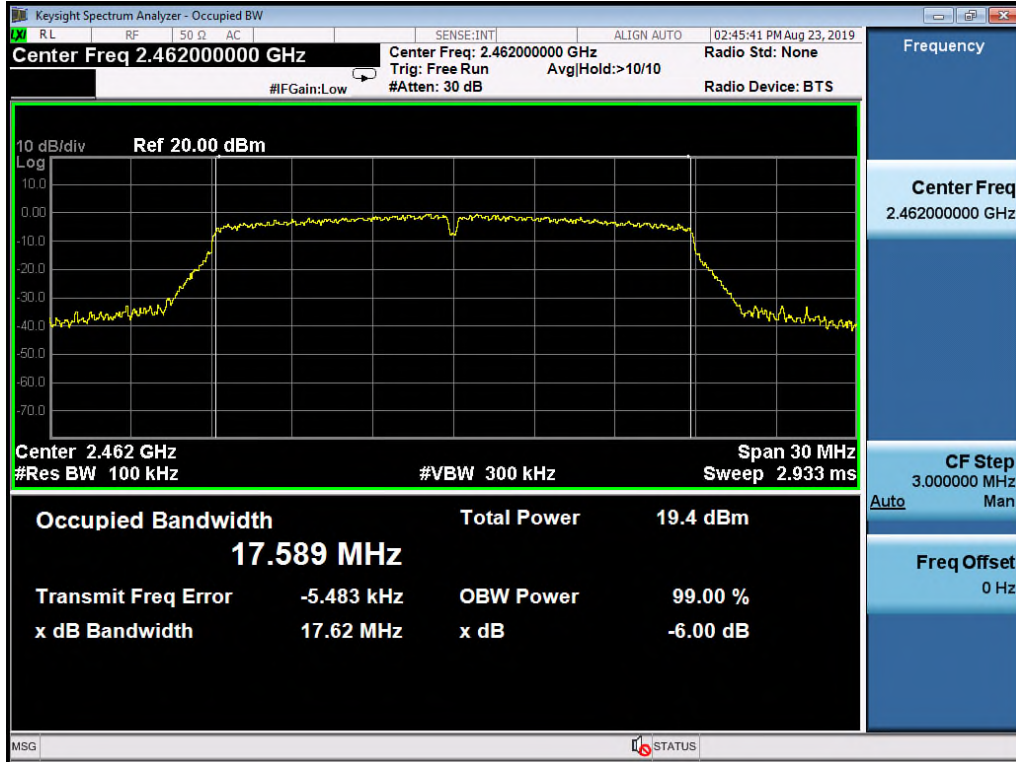
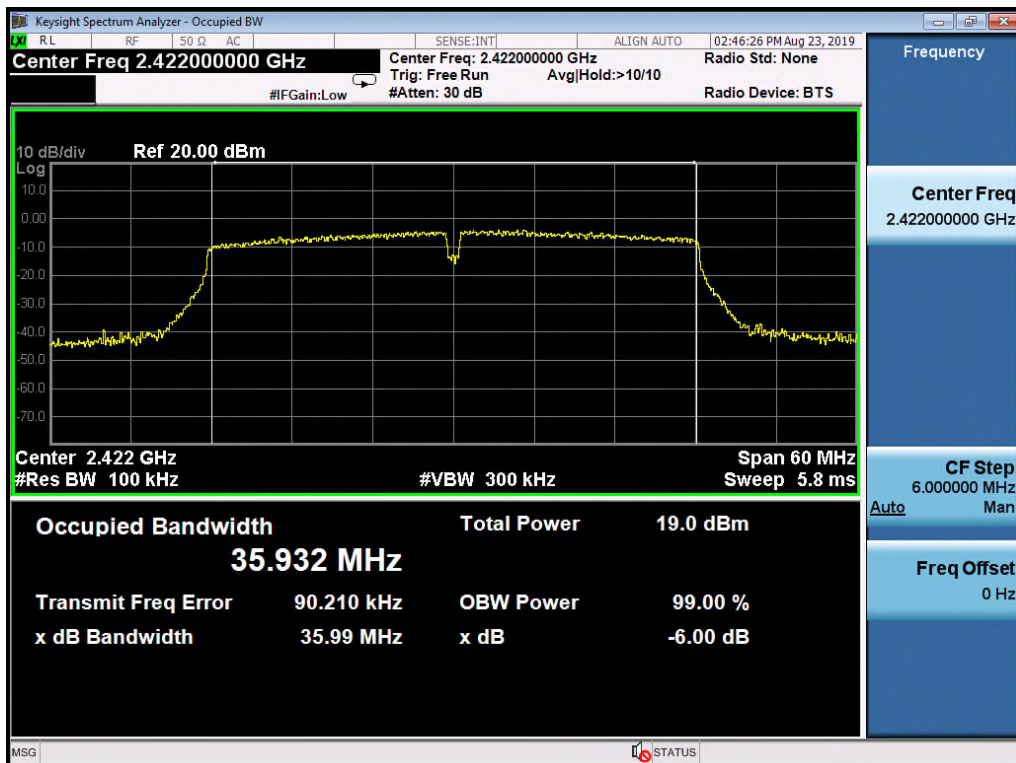
**802.11n HT20**

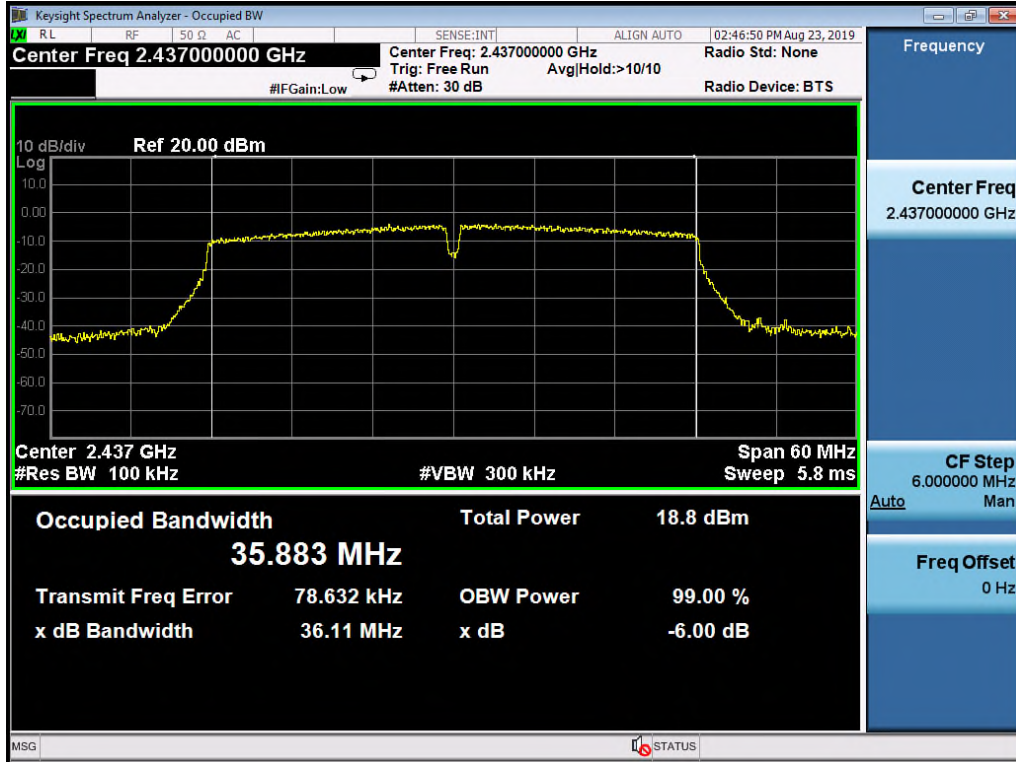
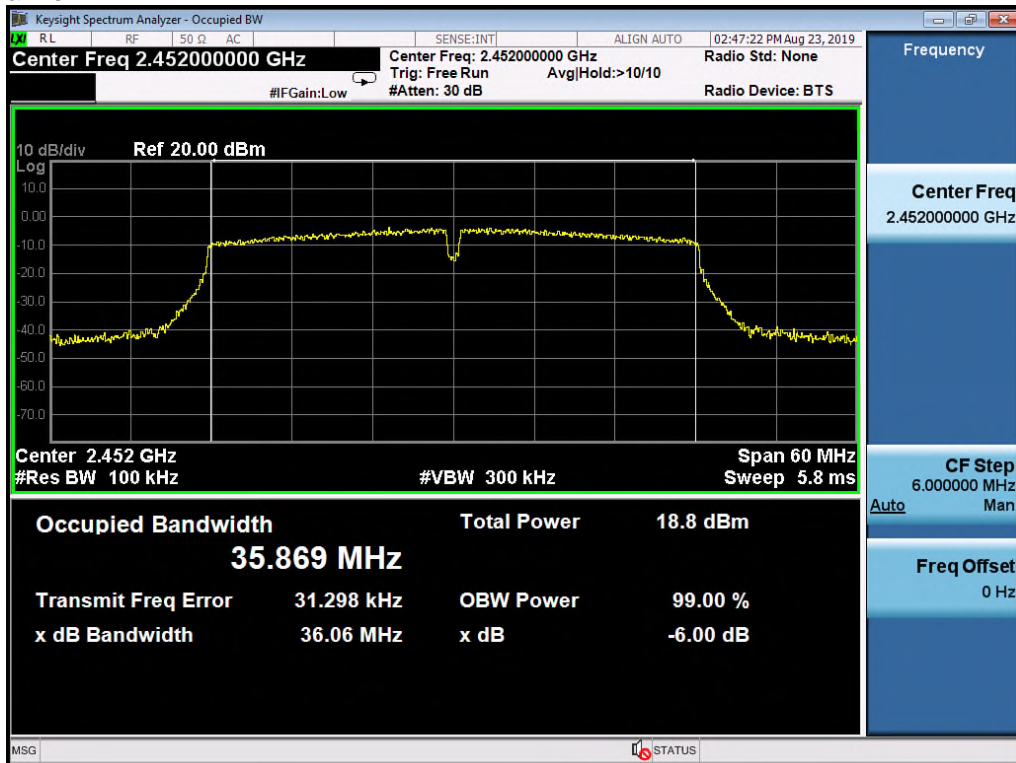
## Low Channel



## Middle Channel



**High Channel**

**802.11n HT40**
**Low Channel**


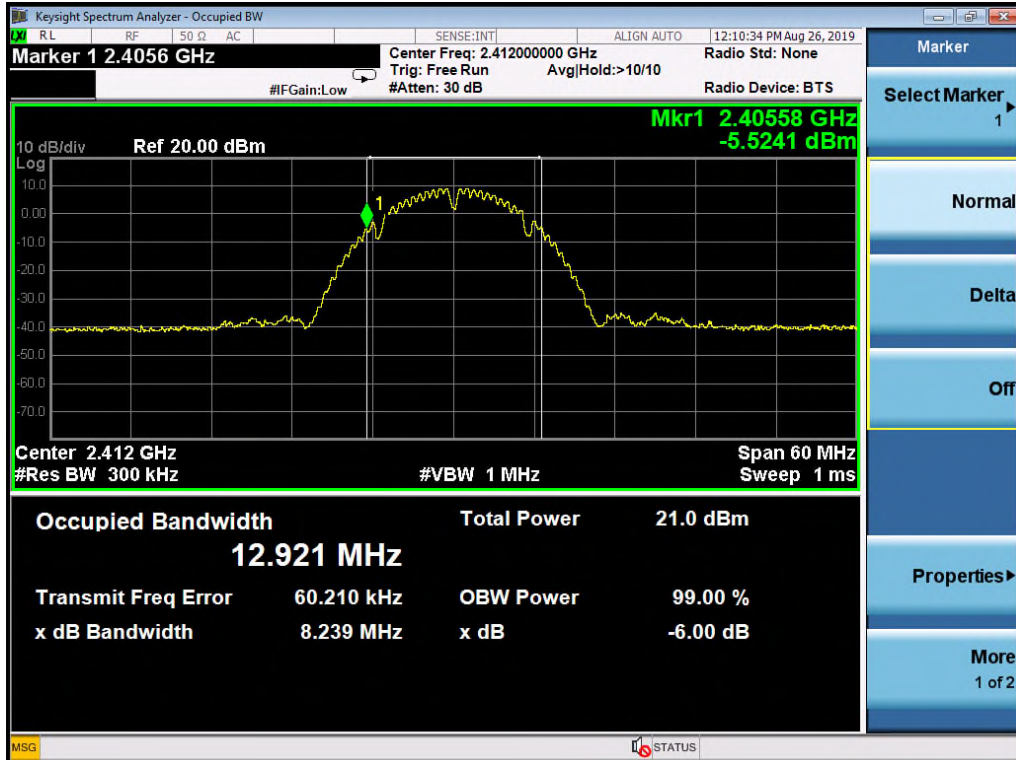
**Middle Channel**

**High Channel**




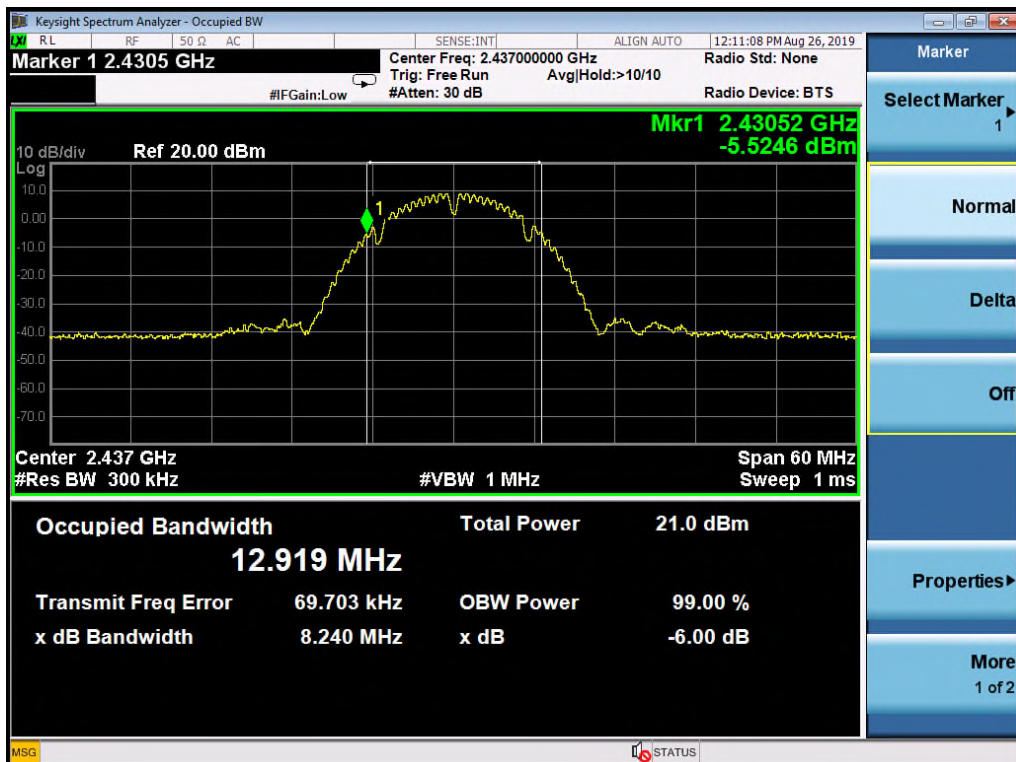
## Test Plot of 99% Bandwidth

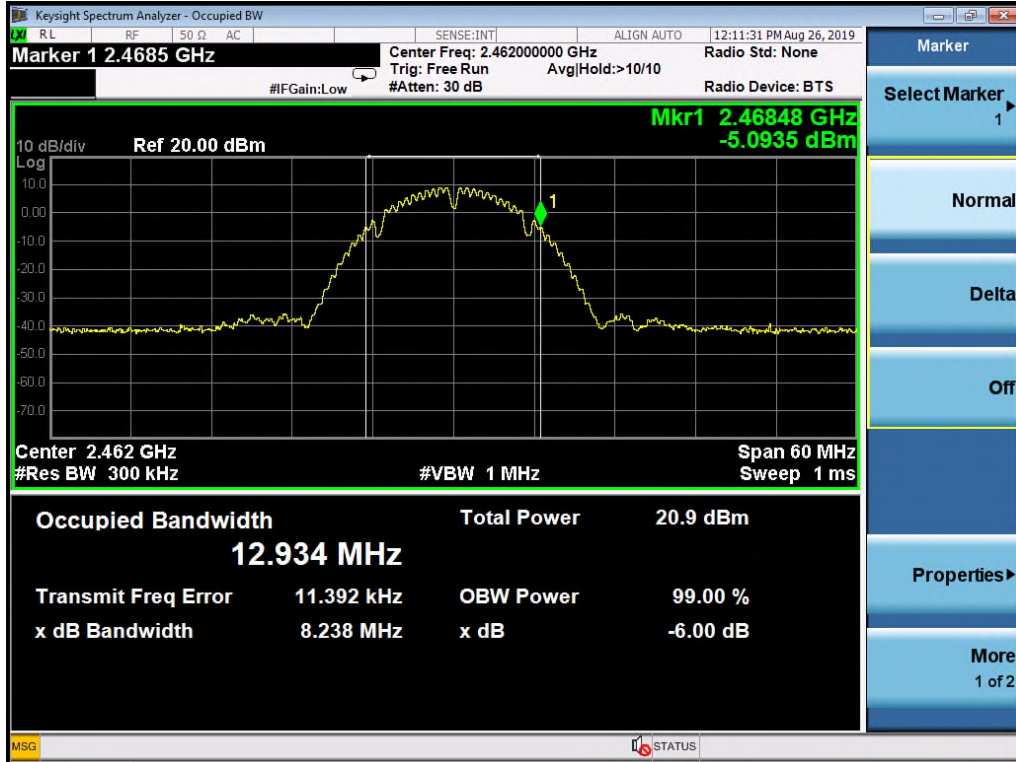
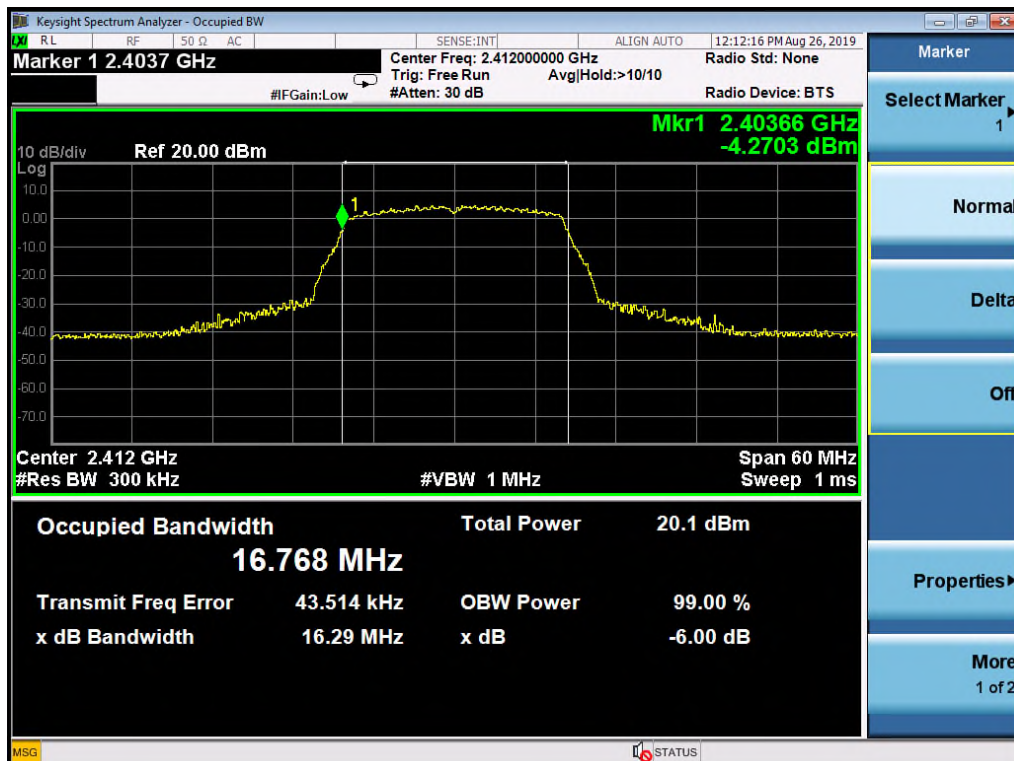
### 802.11b

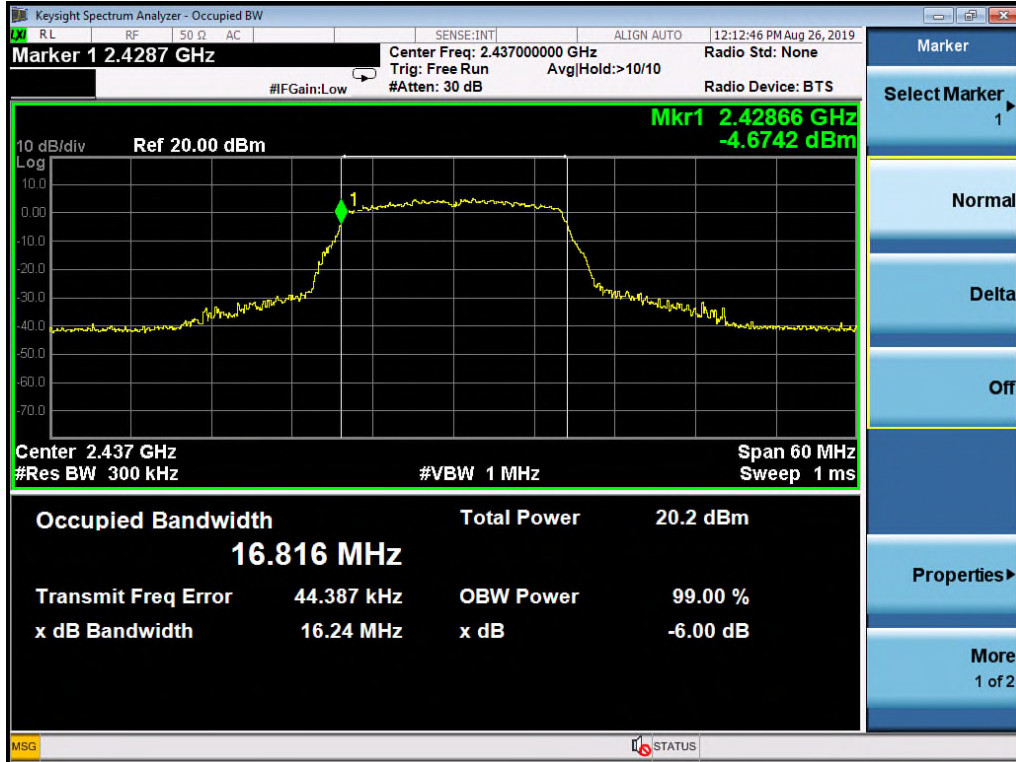
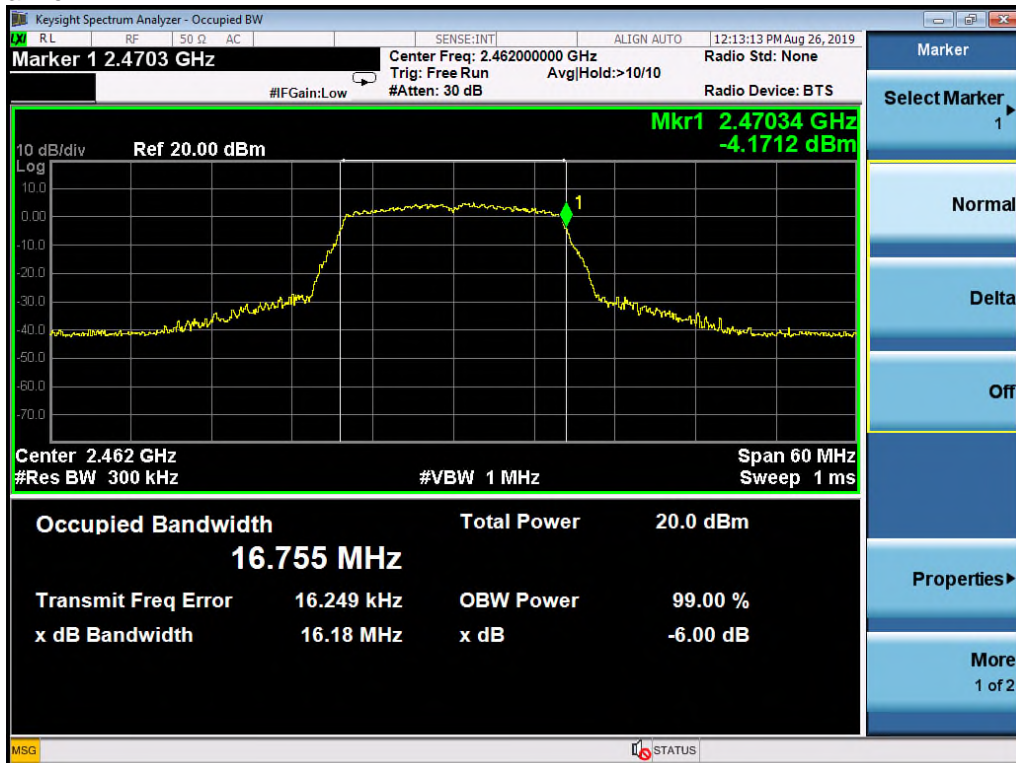
Low Channel



Middle Channel

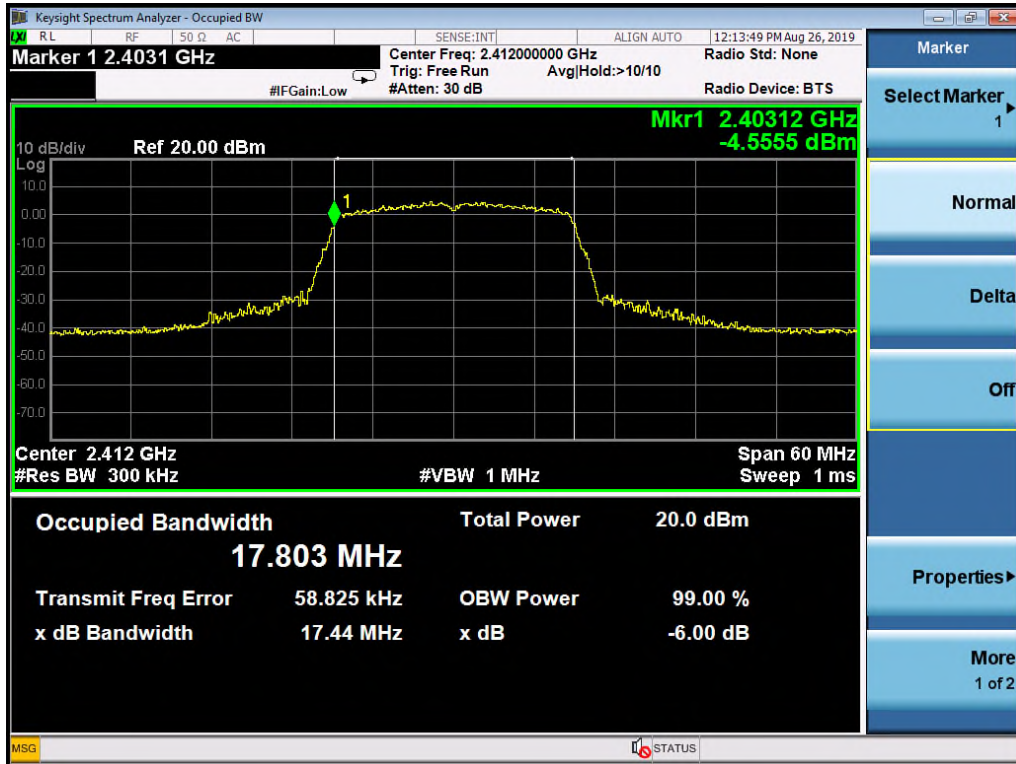


**High Channel**

**802.11g**
**Low Channel**


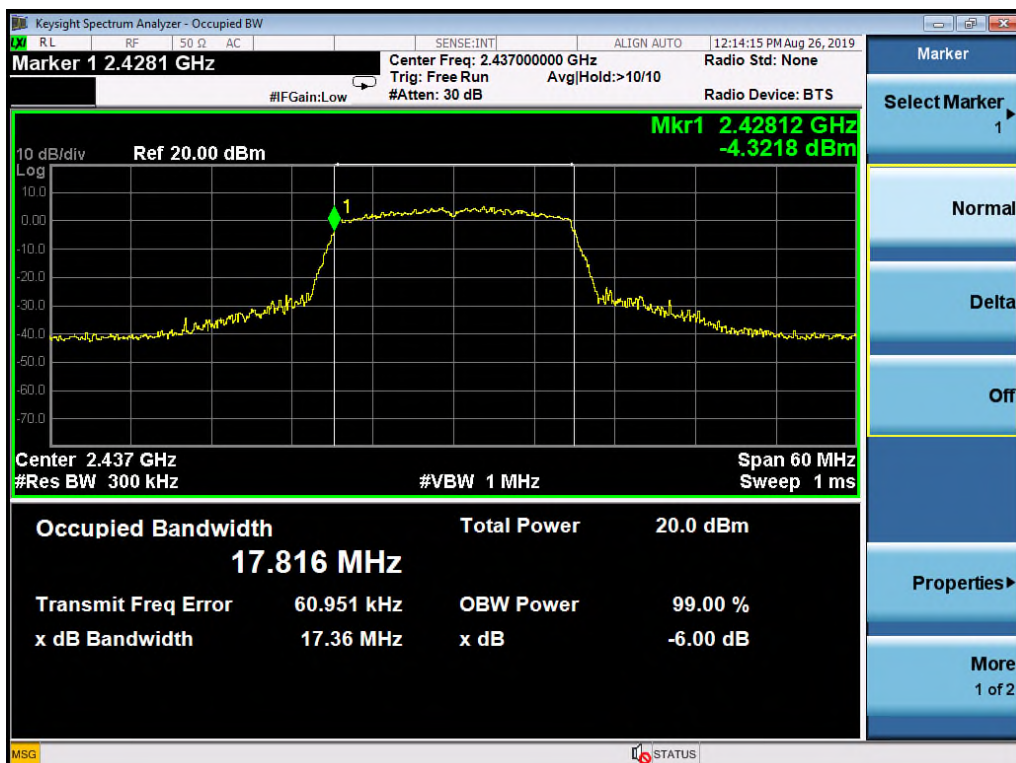
**Middle Channel**

**High Channel**


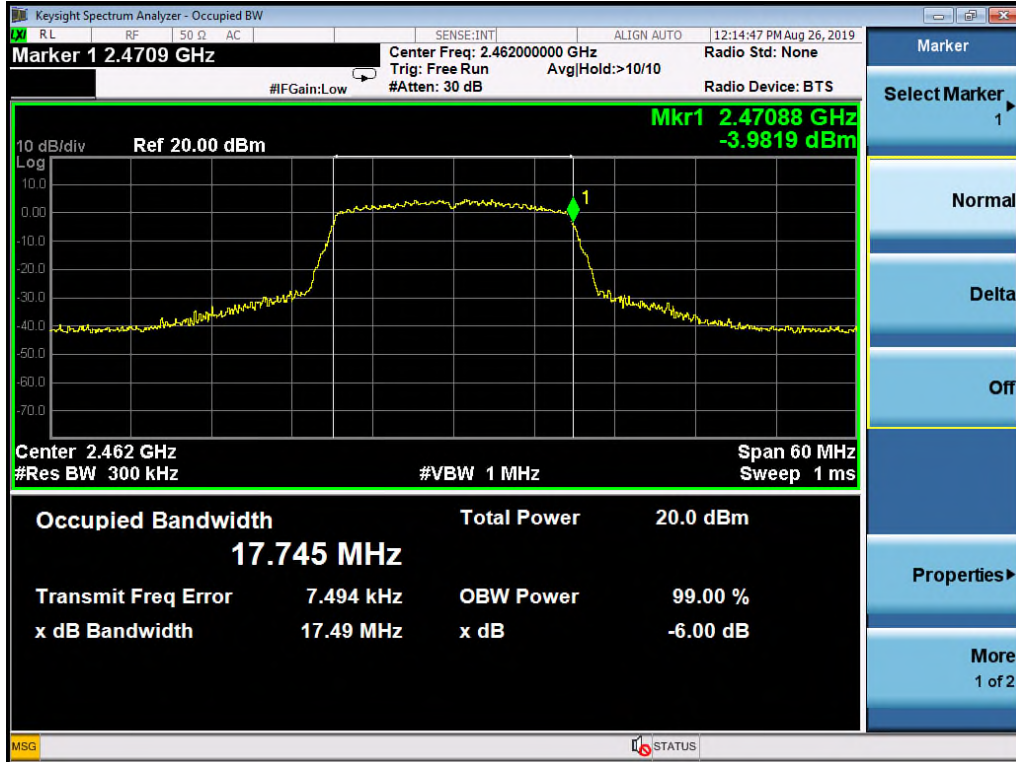
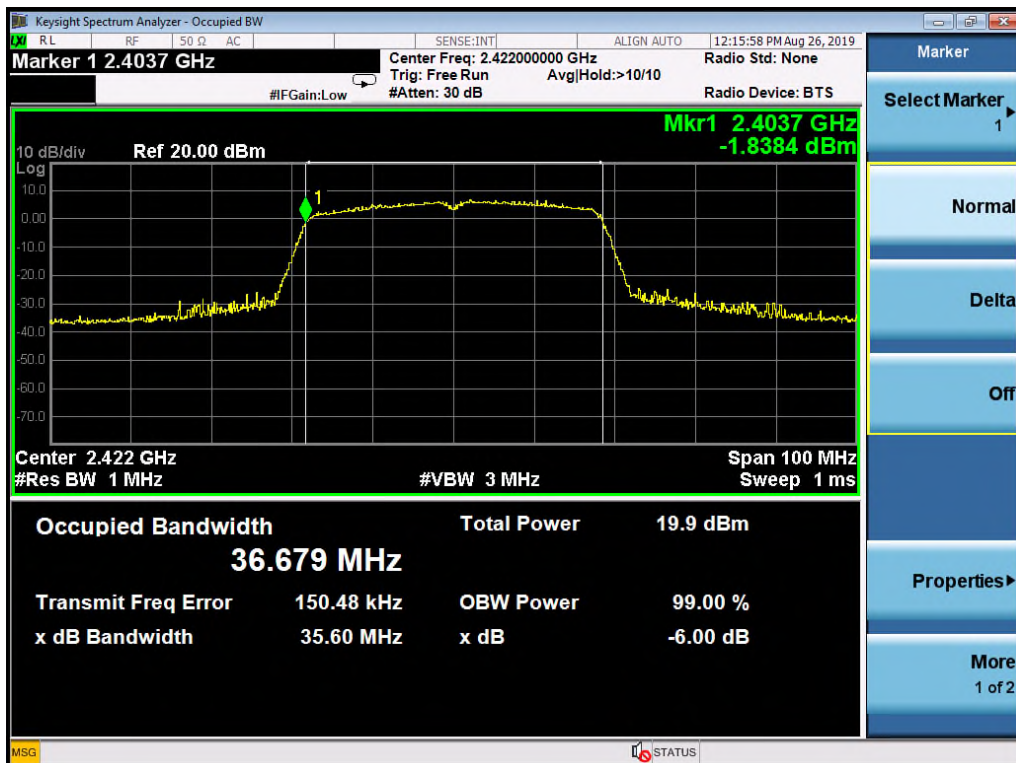
**802.11n HT20**

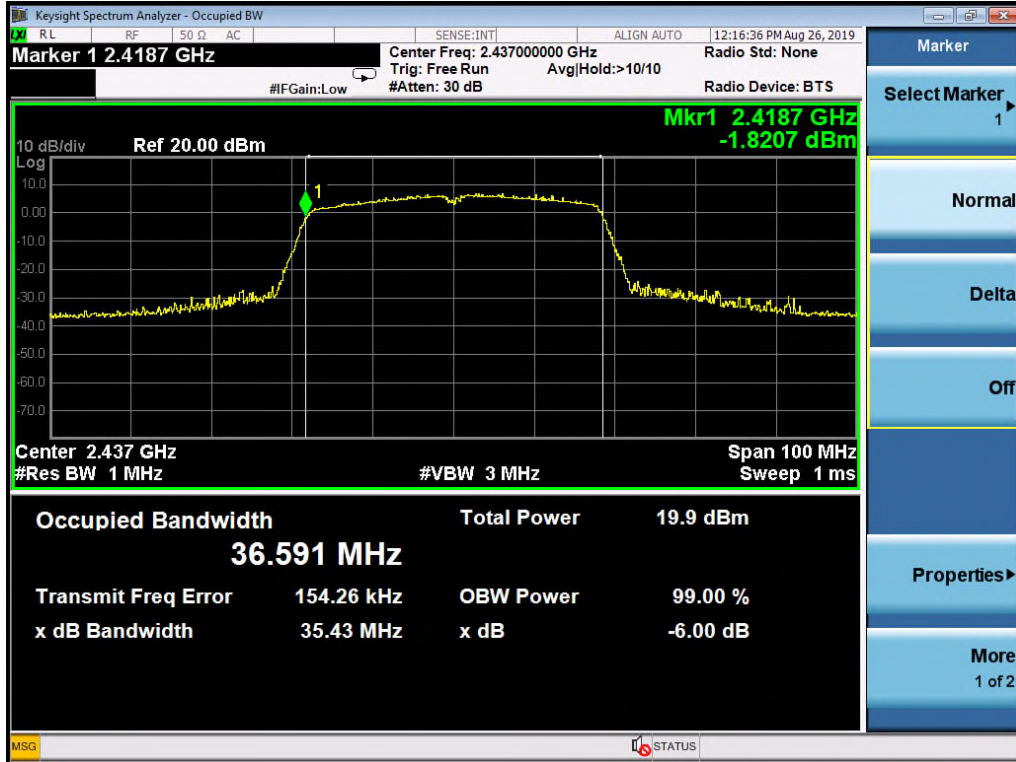
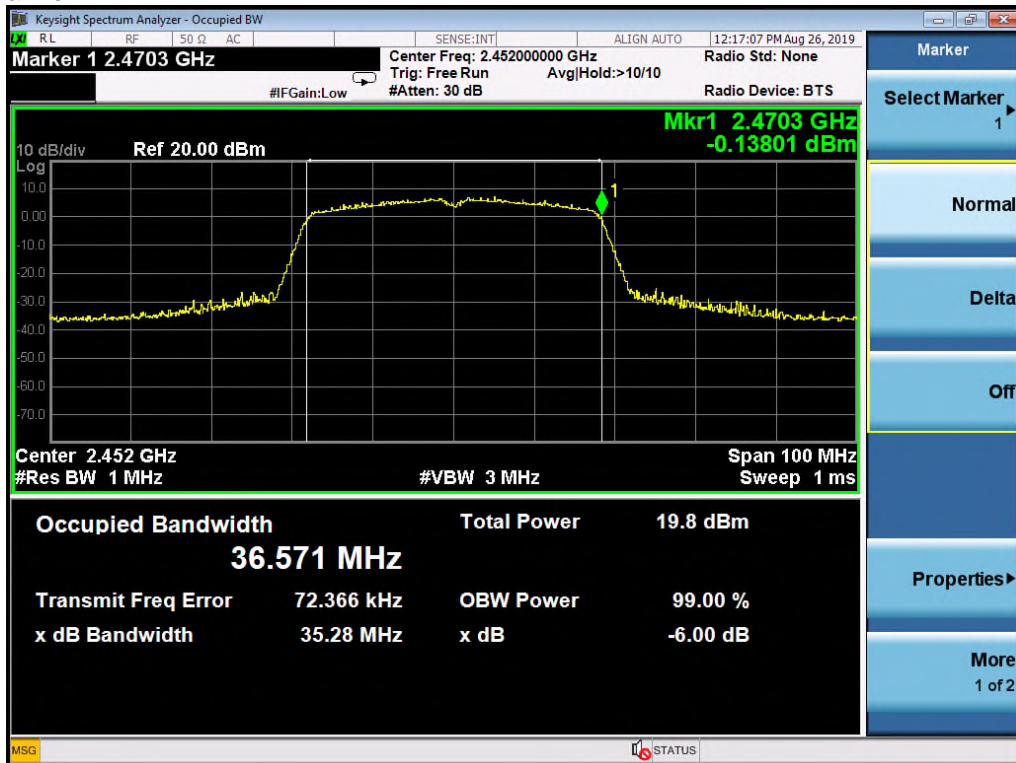
## Low Channel



## Middle Channel



**High Channel**

**802.11n HT40**
**Low Channel**


**Middle Channel**

**High Channel**


### 5.1.4 Power Density

**RESULT:**
**Passed**

Test standard : FCC Part 15.247(e)  
 Basic standard : ANSI C63.10:2013, KDB558074  
 Kind of test site : Shielded room

**Test setup**

Test Channel : Low/ Middle/ High  
 Operation Mode : A  
 Ambient temperature : 20-24°C  
 Relative humidity : 50-65%  
 Atmospheric pressure : 100-103 kPa

**Table 19: Test result of Power Density, 802.11b**

Channel	Channel Frequency (MHz)	Power Density	Limit
		(dBm)	(dBm)
Low Channel	2412	-5.42	8
Middle Channel	2437	-4.49	8
High Channel	2462	-4.29	8

**Table 20: Test result of Power Density, 802.11g**

Channel	Channel Frequency (MHz)	Power Density	Limit
		(dBm)	(dBm)
Low Channel	2412	-11.46	8
Middle Channel	2437	-11.74	8
High Channel	2462	-12.09	8

**Table 21: Test result of Power Density, 802.11n HT20**

Channel	Channel Frequency (MHz)	Power Density	Limit
		(dBm)	(dBm)
Low Channel	2412	-12.08	8
Middle Channel	2437	-12.40	8
High Channel	2462	-12.07	8

**Table 22: Test result of Power Density, 802.11n HT40**

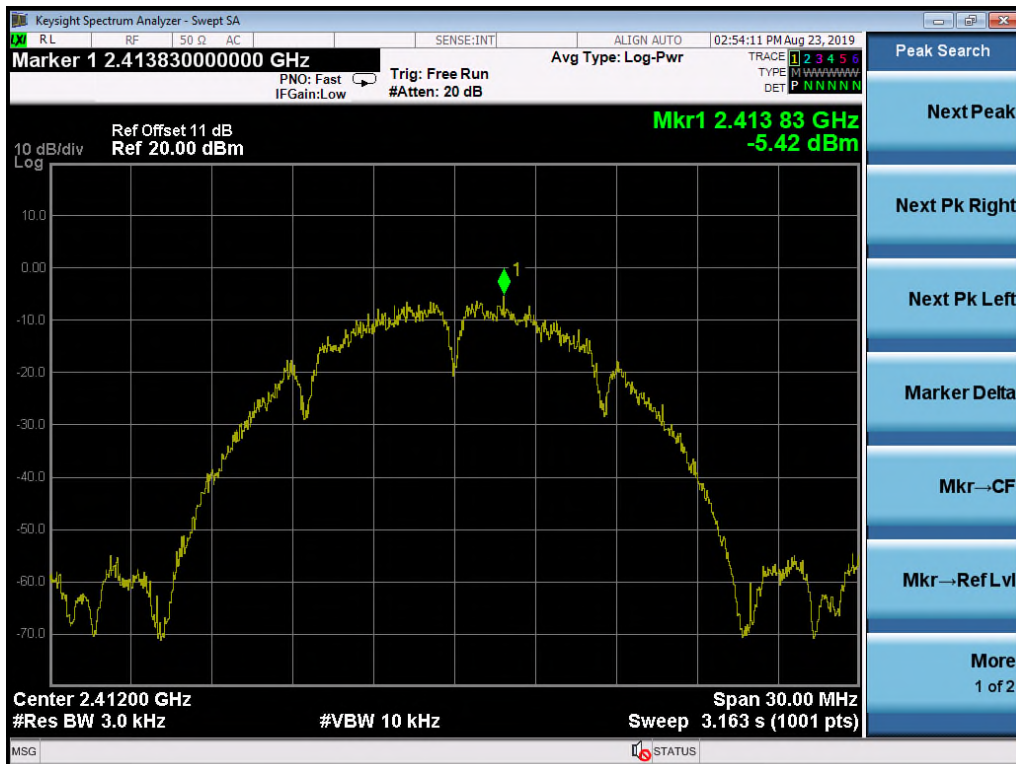
Channel	Channel Frequency (MHz)	Power Density	Limit
		(dBm)	(dBm)
Low Channel	2422	-14.96	8
Middle Channel	2437	-15.54	8
High Channel	2452	-15.79	8



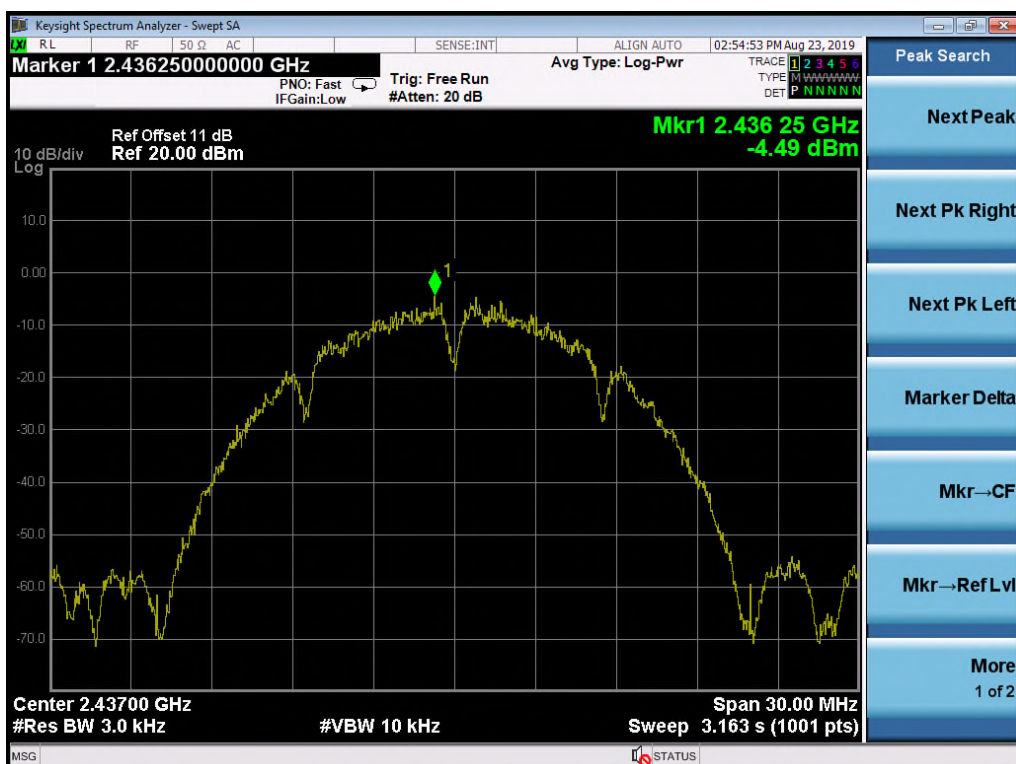
## Test Plot of Power Density

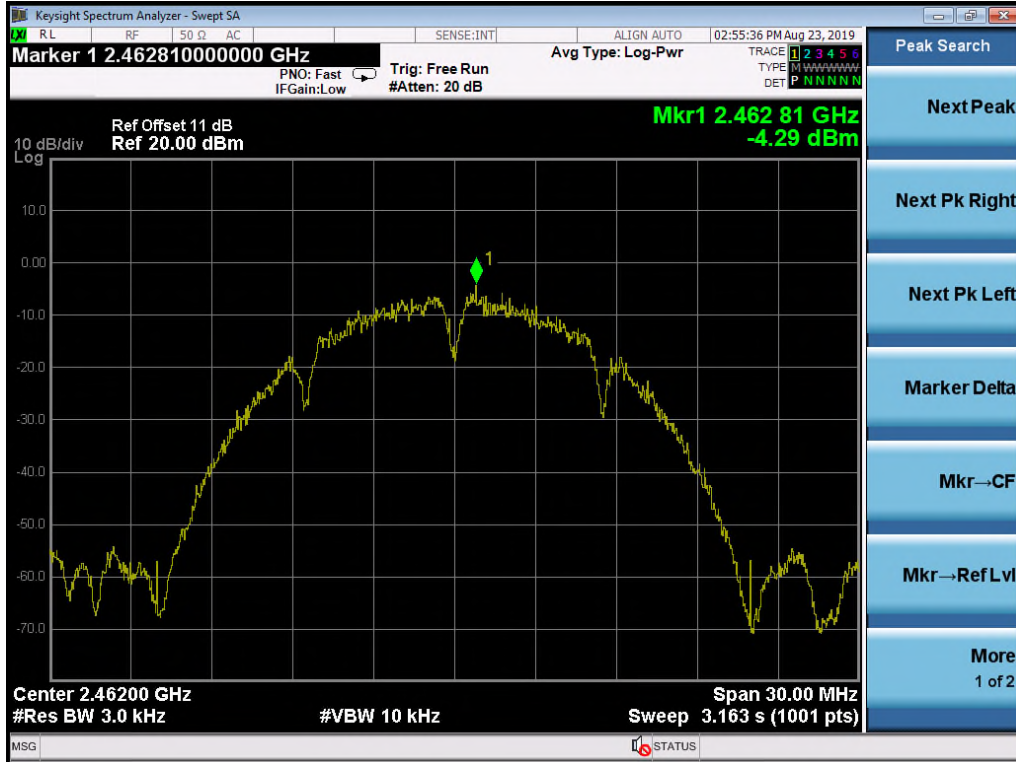
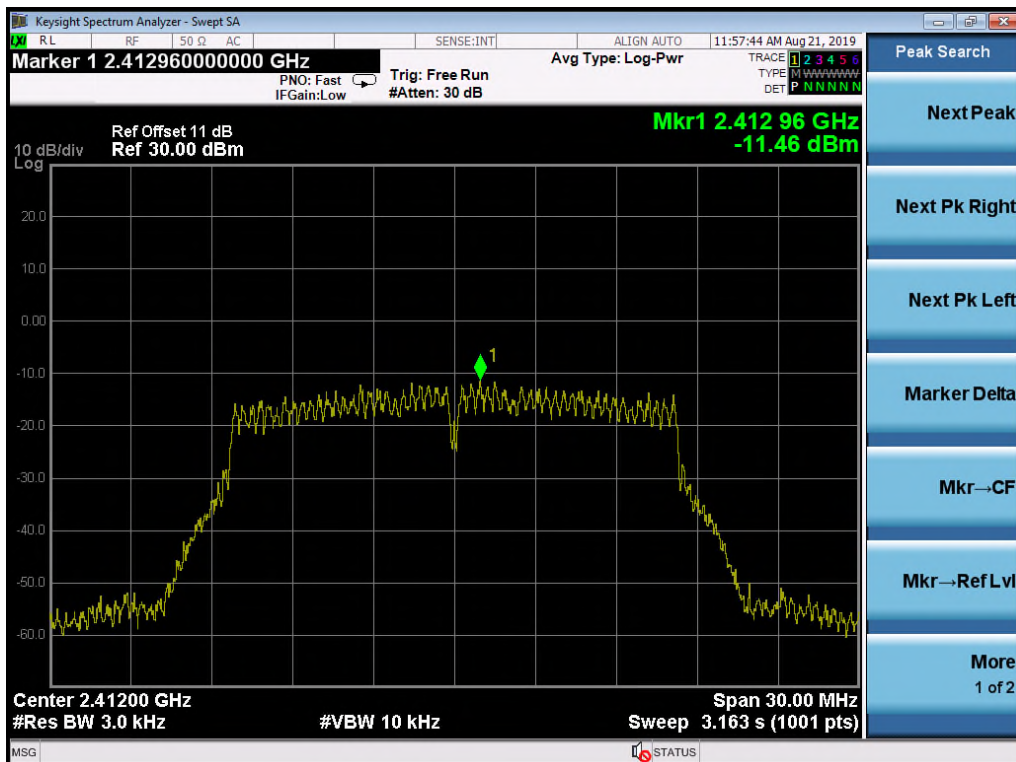
### 802.11b

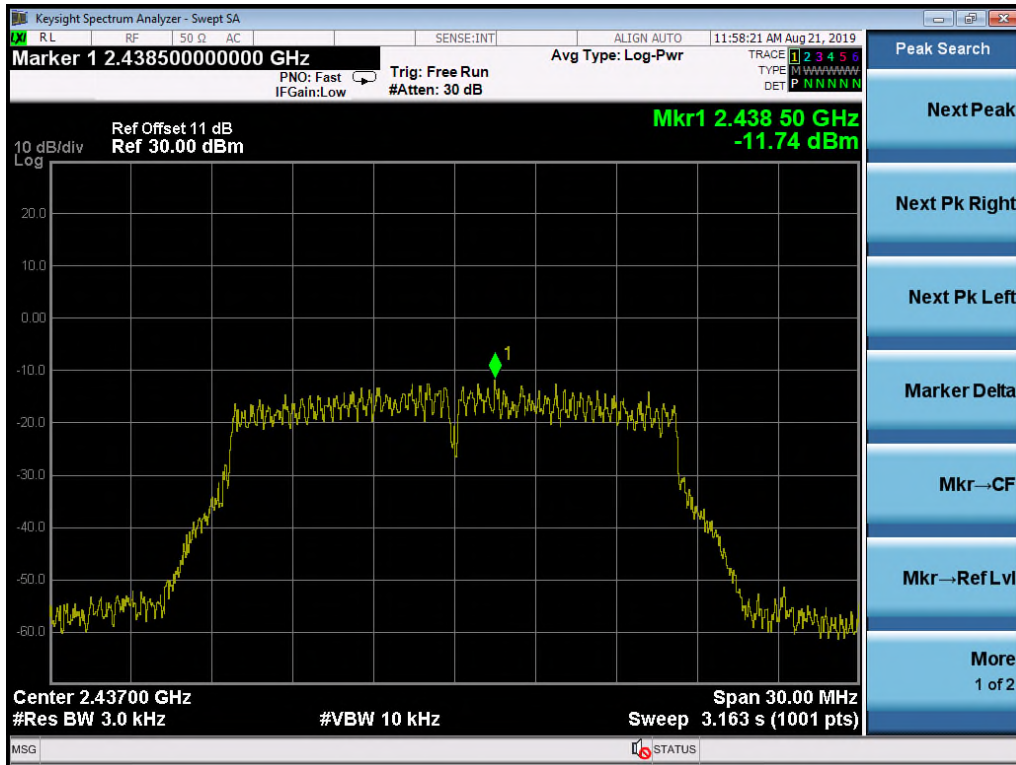
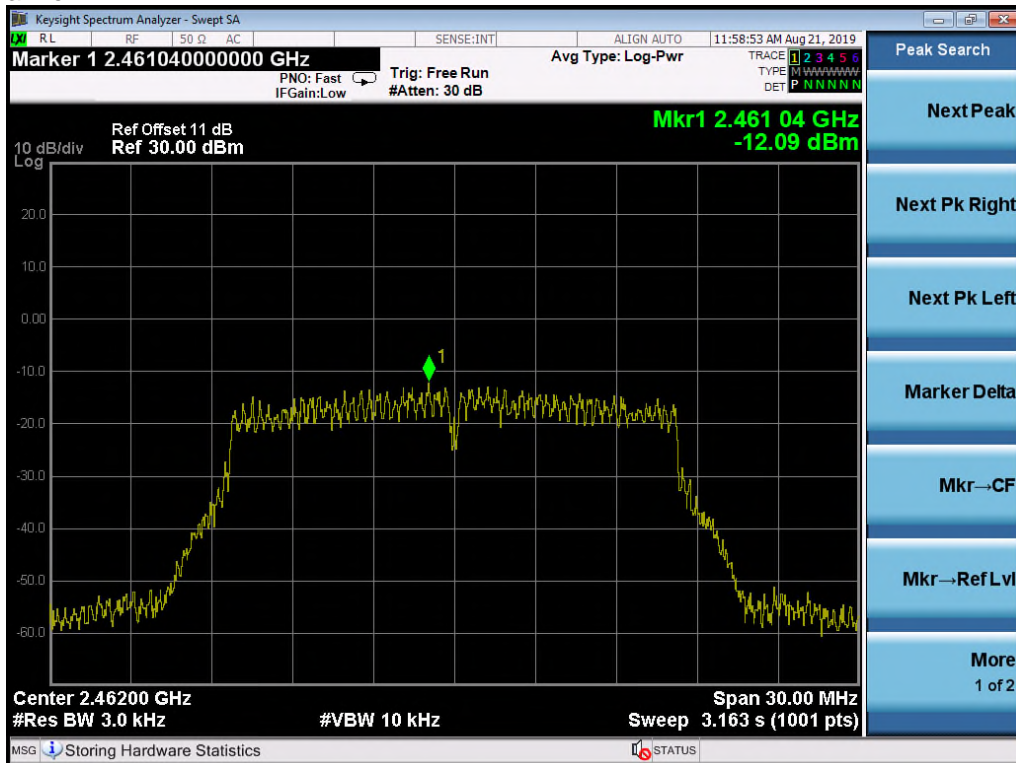
Low Channel



Middle Channel

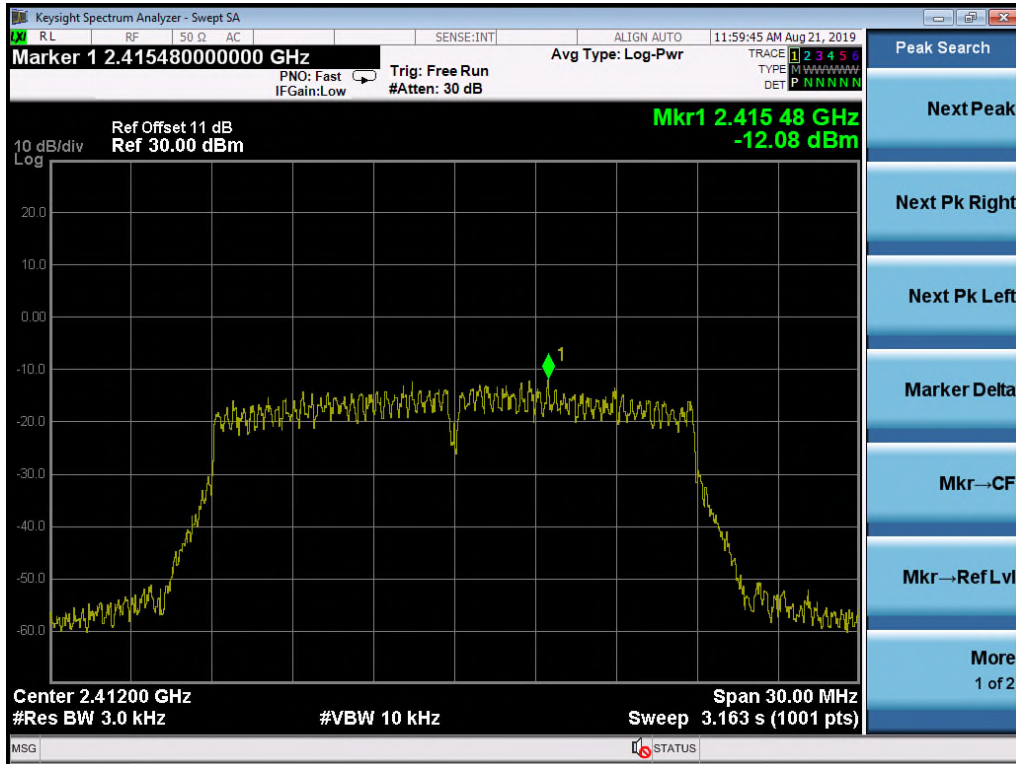


**High Channel**

**802.11g**
**Low Channel**


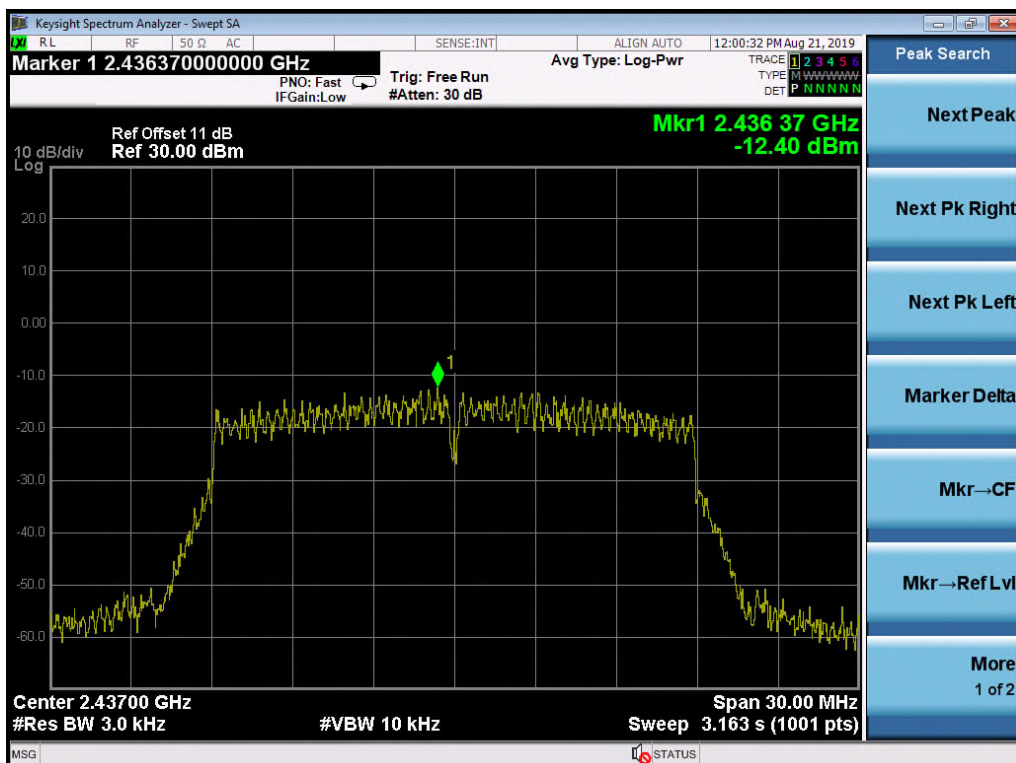
**Middle Channel**

**High Channel**


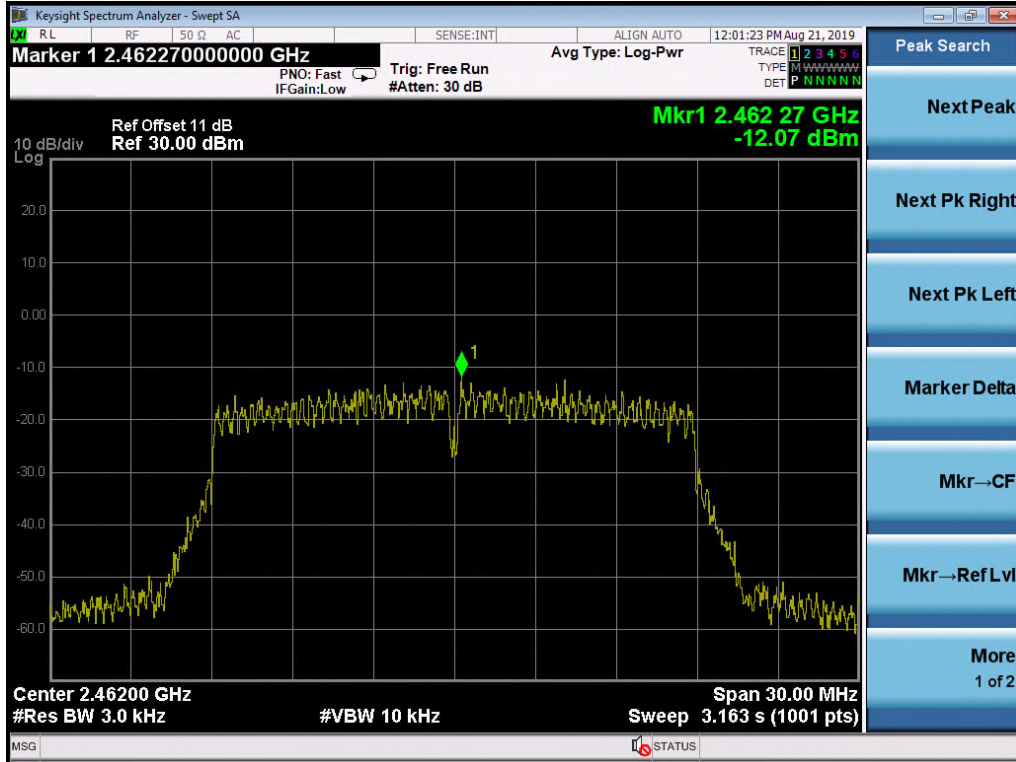
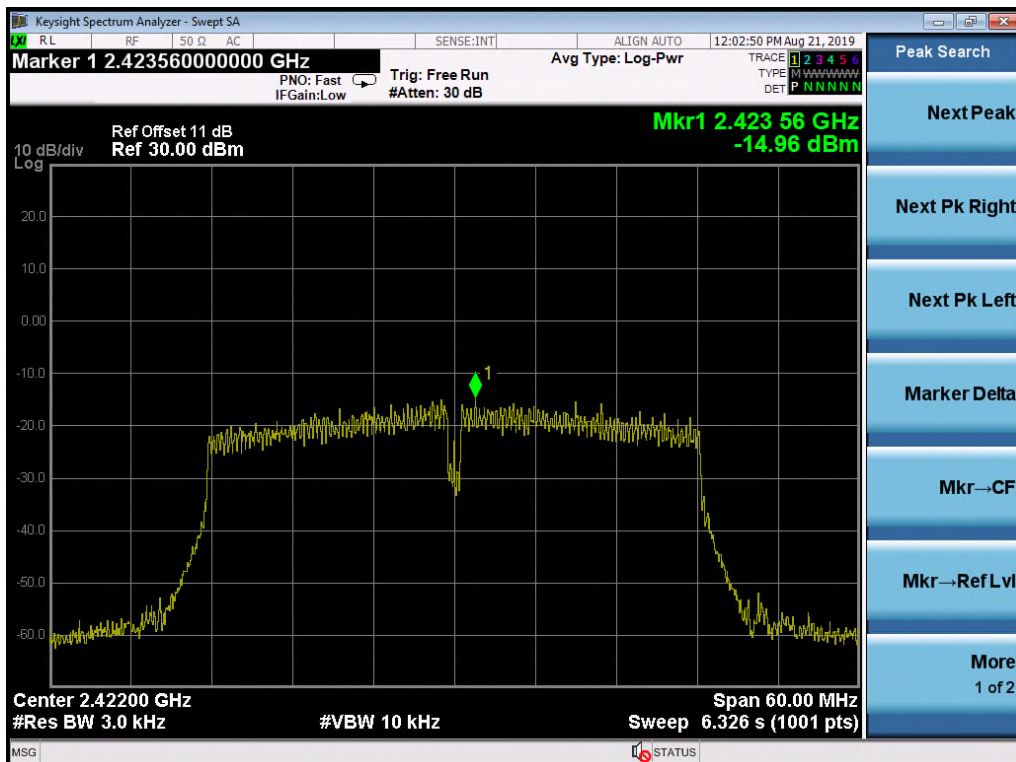
**802.11n HT20**

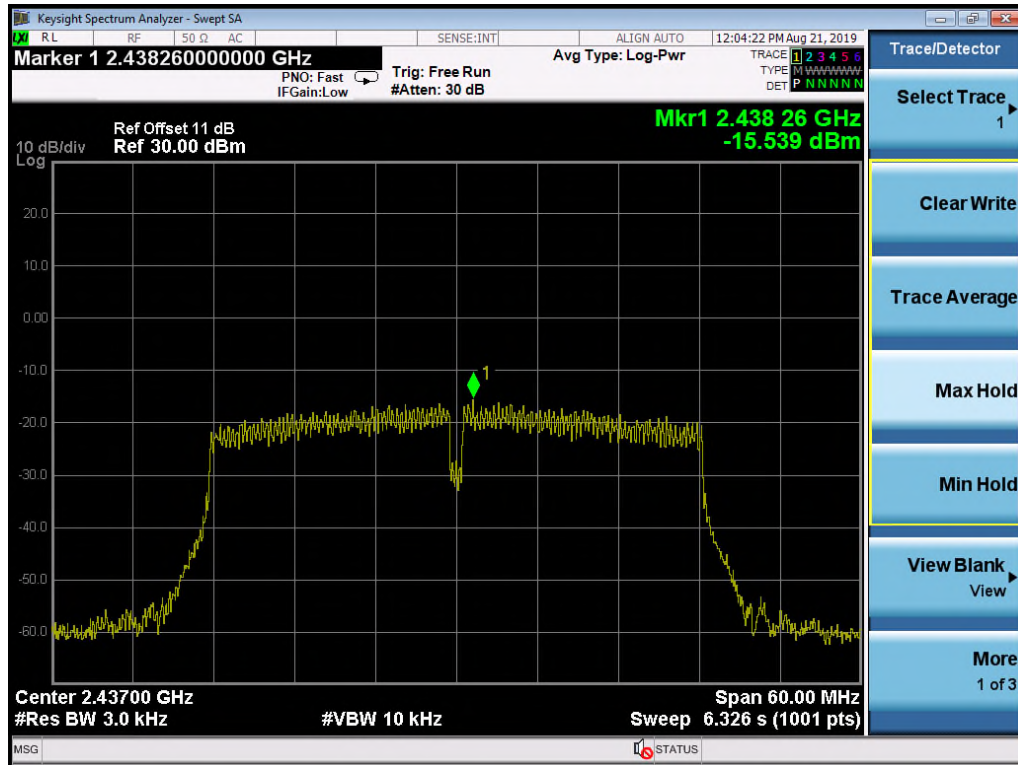
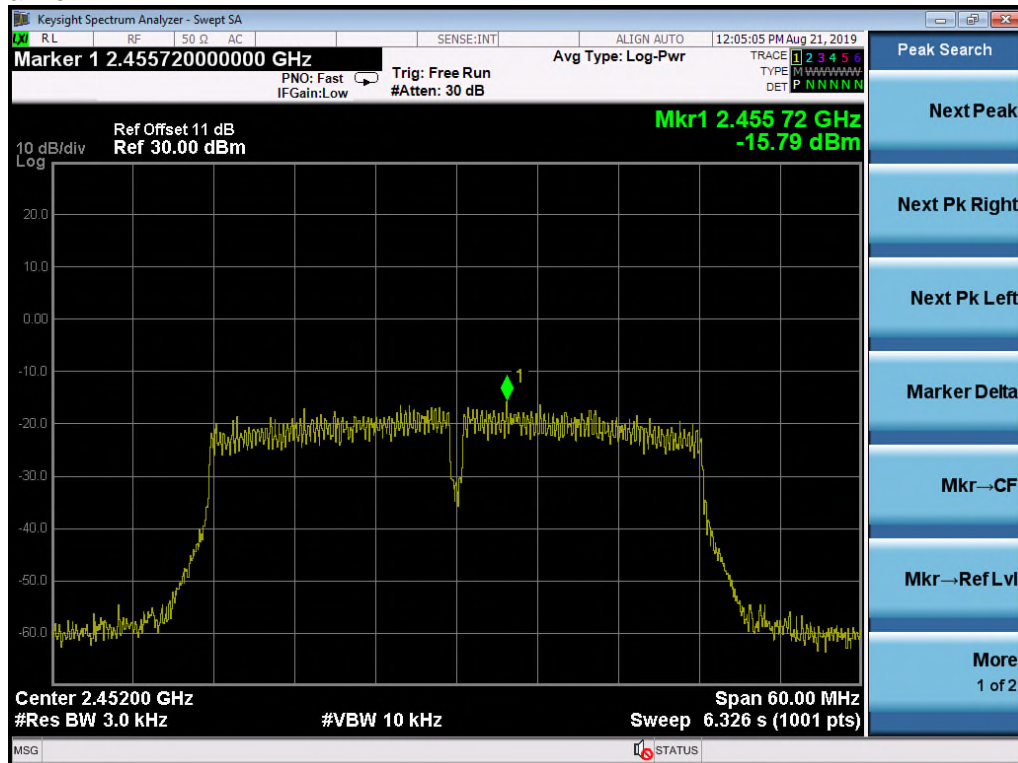
## Low Channel



## Middle Channel



**High Channel**

**802.11n HT40**
**Low Channel**


**Middle Channel**

**High Channel**


### 5.1.5 Conducted spurious emissions and Frequency Band Edge measured in 100kHz Bandwidth

**RESULT:****Passed**

Test standard	:	FCC part 15.247(d)
Basic standard	:	ANSI C63.10:2013, KDB558074
Limit	:	20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power)
Kind of test site	:	Shielded room

**Test setup**

Test Channel	:	Low/ Middle/ High for Conducted Spurious Emissions Low/ High for Frequency Band Edge
Operation Mode	:	A
Ambient temperature	:	20-24°C
Relative humidity	:	50-65%
Atmospheric pressure	:	100-103 kPa

All emissions are more than 20dB below fundamental, details refer to following test plot, and compliance is achieved as well.

Due to the small size of the RF circuit and that there are no inductive components of significant size connected to the antenna port, 9kHz to 30MHz frequency range is not tested based on technical judgment.











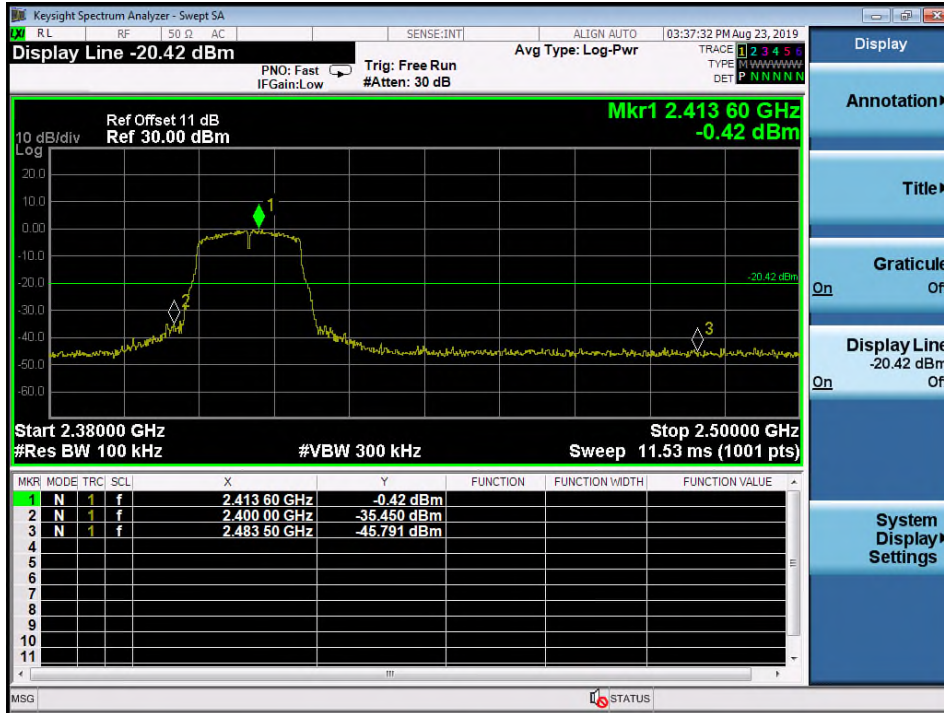




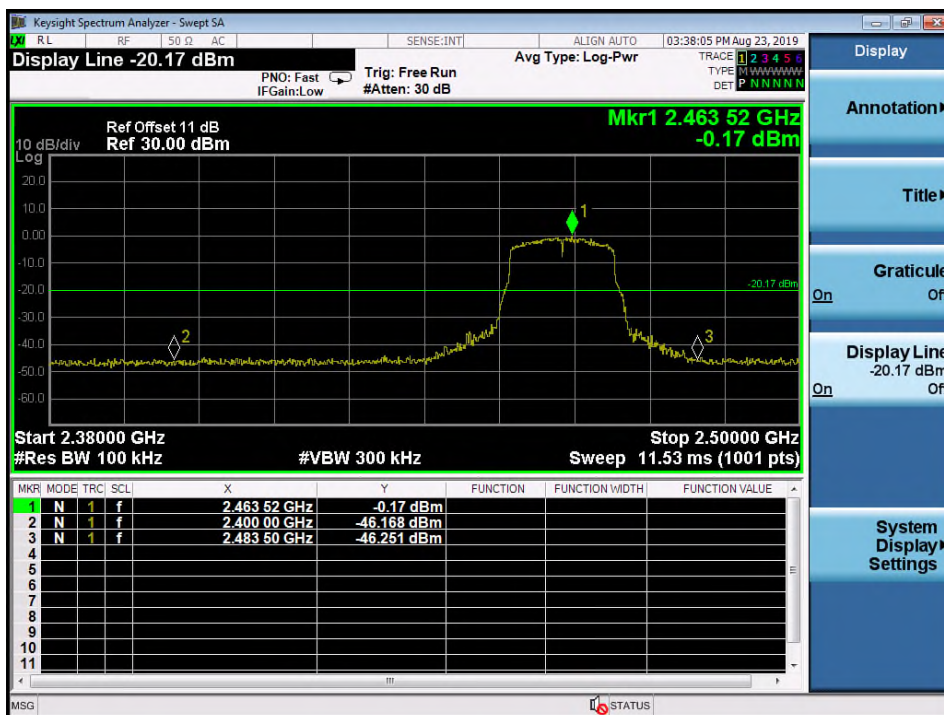


**802.11g**

## Low Channel

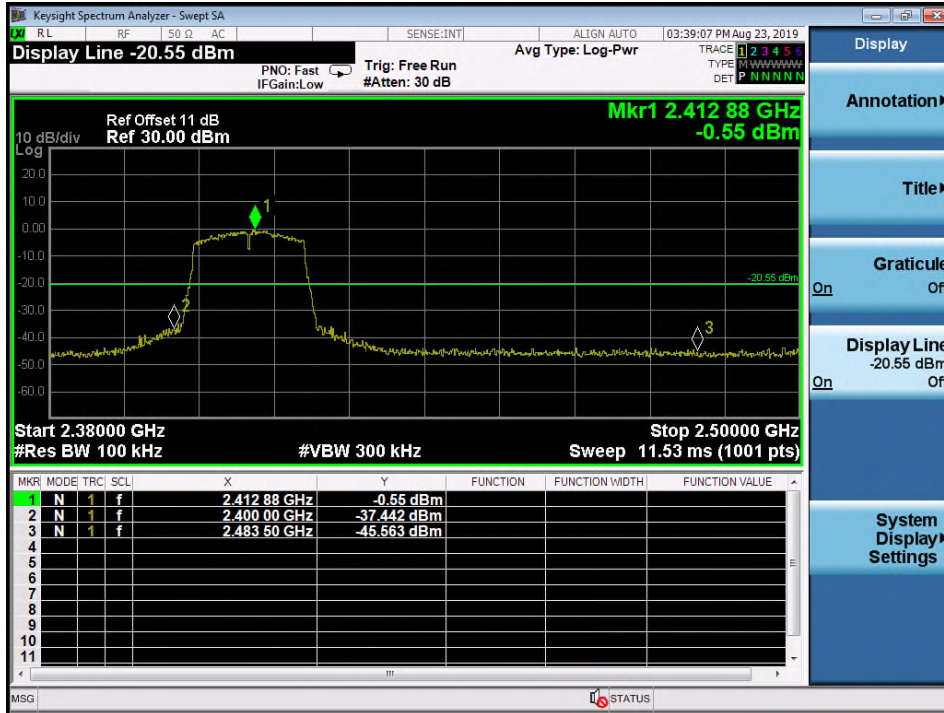


## High Channel

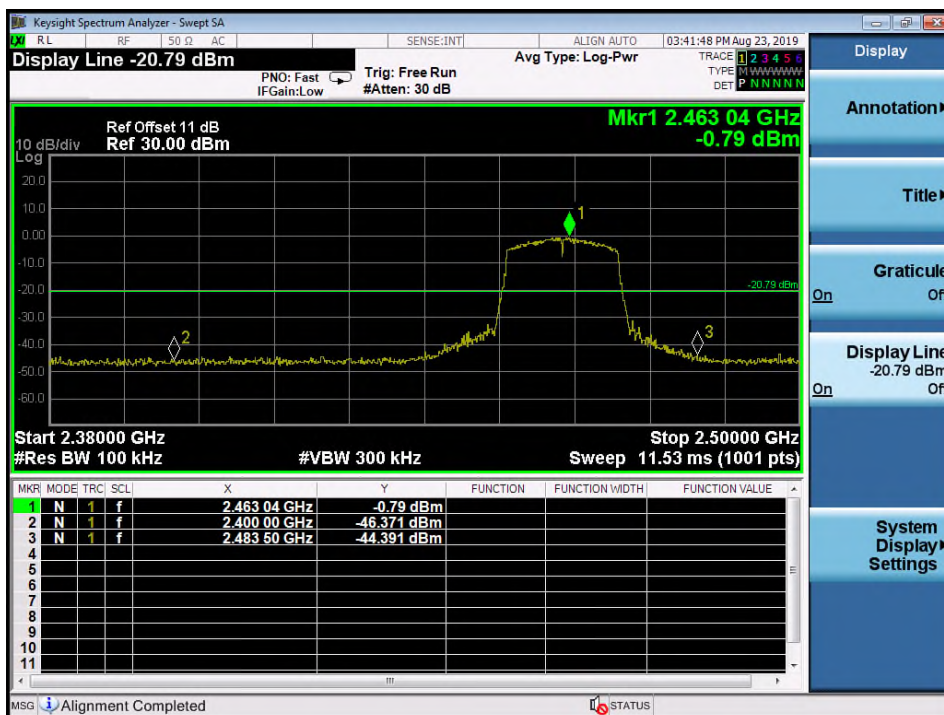


**802.11n HT20**

## Low Channel



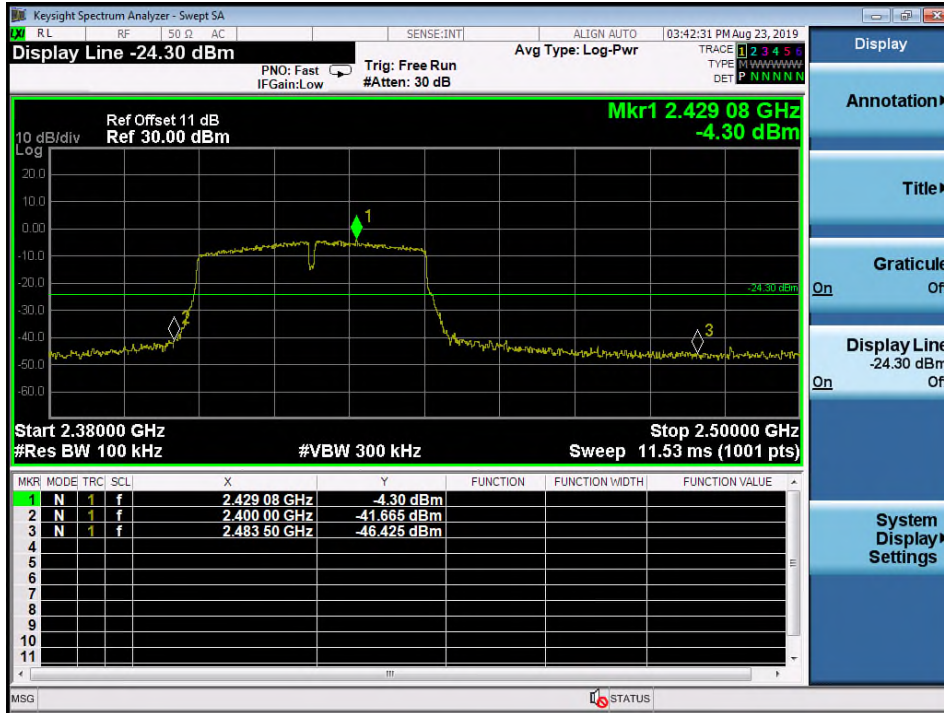
## High Channel



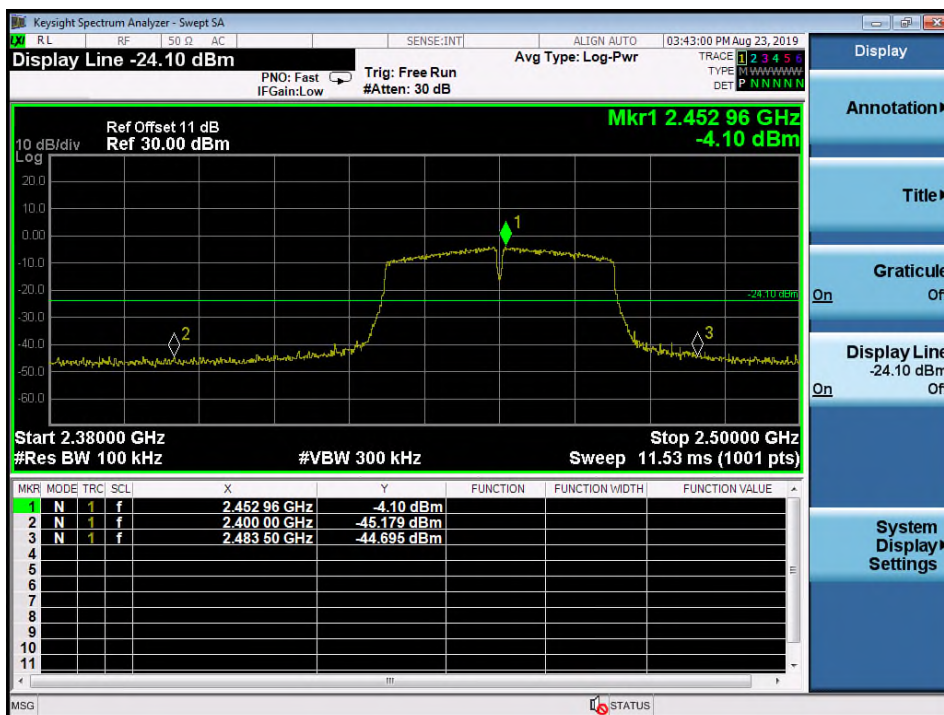


**802.11n HT40**

## Low Channel



## High Channel



## 5.1.6 Spurious Emission

**RESULT:****Passed**

Test standard : FCC part 15.247(d), FCC 15.205, FCC 15.209  
Basic standard : ANSI C63.10: 2013  
Limits : Radiated emissions which fall in the restricted bands, as defined in FCC 15.205(a) and RSS-Gen i5, 8.10 (Table 7), must comply with the radiated emission limits specified in FCC 15.209(a) and RSS-Gen 5, 8.9 (Table 5 and 6).

Emission radiated outside the restricted and authorized frequency bands must either comply with the radiated emission limits specified for the restricted bands or in FCC15.247(d) and RSS-247 i2, 5.5

Kind of test site : 3m Semi-Anechoic Chamber

**Test setup**

Test Channel : Refer to Appendix D  
Operation mode : A

Ambient temperature : 20-24 °C  
Relative humidity : 50-65 %  
Atmospheric pressure : 100-103 kPa

Factor (dB/m)=Antenna Factor(dB/m)+Cable loss (dB)

Level(dBuV/m)=Reading(dBuV)+ Factor(dB/m)

Testing was carried out within frequency range 9kHz to the tenth harmonic. For details refer to Appendix D. The Radiated Emissions testing was performed in the X, Y and Z axis orientation. The worst-case Axis orientation is recorded in this test report.

## 5.2 Mains Emissions

### 5.2.1 Mains Conducted Emissions

**RESULT:****Passed**Test standard : FCC Part 15.207  
FCC Part 15.107Limits : Mains Conducted emissions as defined in  
above test standards must comply with the  
mains conducted emission limits specified

Kind of test site : Shielded Room

**Test setup**

Operation mode : C

Ambient temperature : 20-24 °C

Relative humidity : 50-65 %

Atmospheric pressure : 100-103 kPa

Factor (dB/m)=Antenna Factor(dB/m)+Cable loss (dB)

Level(dBuV/m)=Reading(dBuV)+ Factor(dB/m)

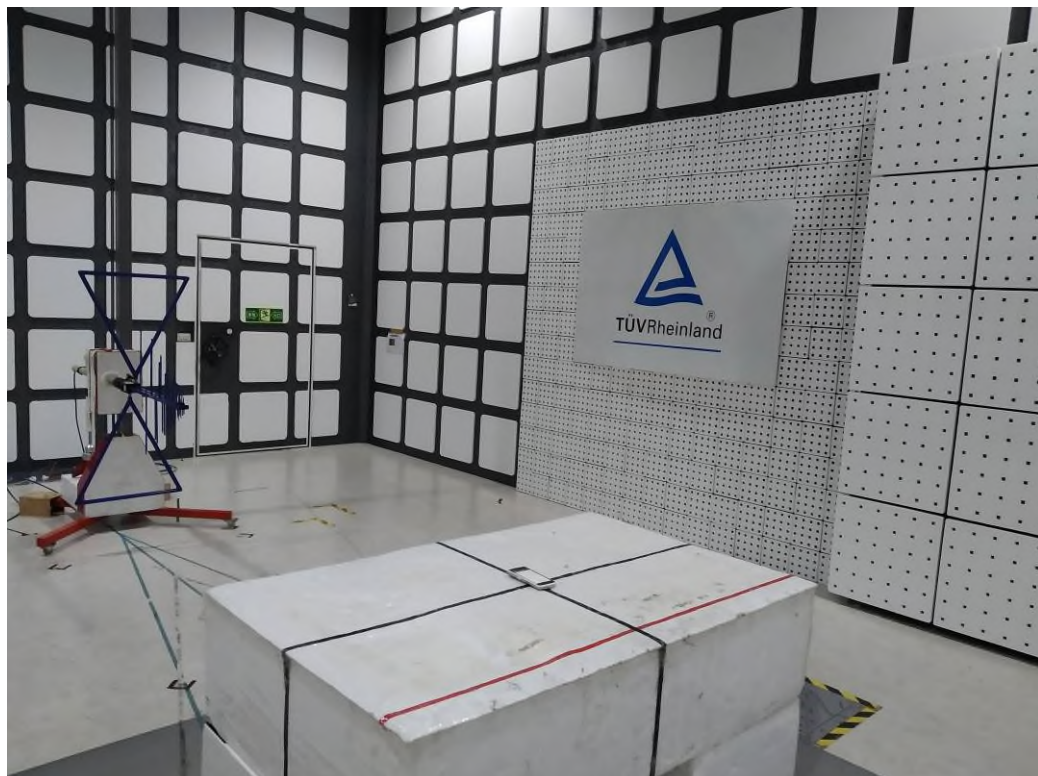
Remark: For details refer to Appendix D.

## 6. Photographs of the Test Set-Up

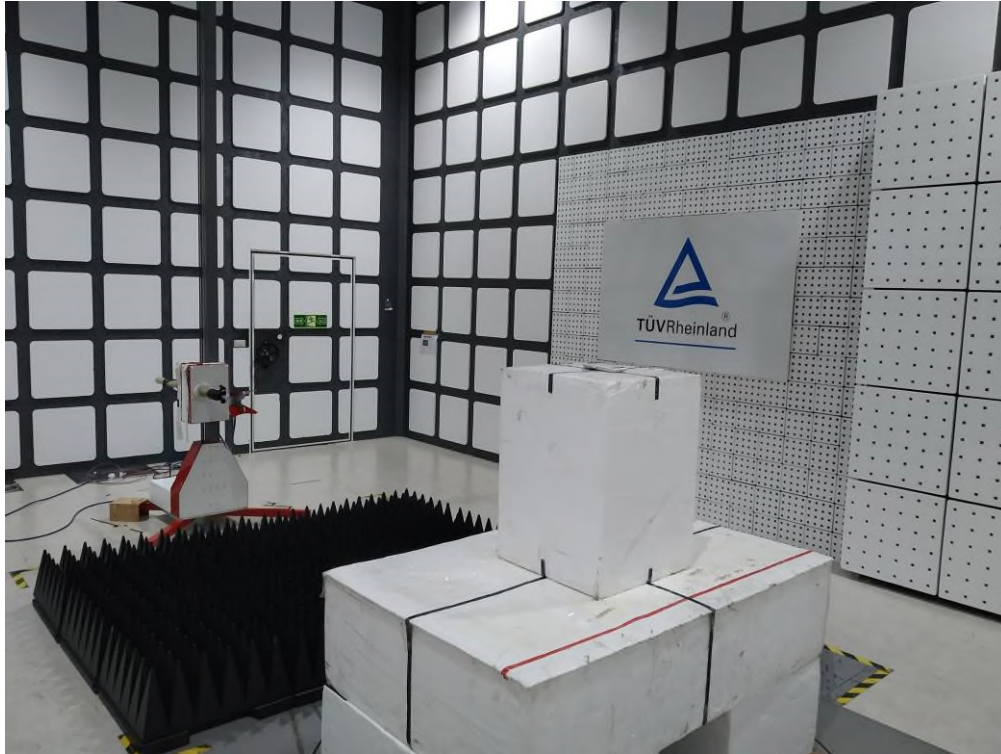
**Photograph 1: Set-up for Spurious Emissions (Front View)**



**Photograph 2: Set-up for Spurious Emissions (Back View 1)**



**Photograph 3: Set-up for Spurious Emissions (Back View 2)**



**Photograph 4: Set-up for Conducted testing**



**Photograph 5: Set-up for for AC Mains (Back)**



**Photograph 6: Set-up for for AC Mains (Front)**



## 7. List of Tables

Table 1: Applied Standard and Test Levels .....	5
Table 2: List of Test and Measurement Equipment .....	7
Table 3: Emission Measurement Uncertainty.....	8
Table 4: Basic Information of EUT .....	9
Table 5: Technical Specification of EUT .....	9
Table 5: Table for Parameters of Test Software Setting .....	11
Table 6: Test result of Output Power, 802.11b.....	15
Table 7: Test result of Output Power, 802.11g.....	15
Table 6: Test result of Output Power, 802.11n HT20.....	16
Table 6: Test result of Output Power, 802.11n HT40.....	16
Table 8: Test result of 6dB Bandwidth, 802.11b .....	17
Table 8: Test result of 6dB Bandwidth, 802.11g .....	17
Table 8: Test result of 6dB Bandwidth, 802.11n HT20 .....	17
Table 8: Test result of 6dB Bandwidth, 802.11n HT40 .....	18
Table 9: Test result of 99% Bandwidth, 802.11b .....	18
Table 9: Test result of 99% Bandwidth, 802.11g .....	18
Table 9: Test result of 99% Bandwidth, 802.11n HT20.....	18
Table 9: Test result of 99% Bandwidth, 802.11n HT40.....	18
Table 10: Test result of Power Density, 802.11b .....	31
Table 10: Test result of Power Density, 802.11g .....	31
Table 10: Test result of Power Density, 802.11n HT20 .....	31
Table 10: Test result of Power Density, 802.11n HT40 .....	32

## 8. List of Photographs

Photograph 1: Set-up for Spurious Emissions (Front View).....	52
Photograph 2: Set-up for Spurious Emissions (Back View 1) .....	52
Photograph 3: Set-up for Spurious Emissions (Back View 2) .....	53
Photograph 4: Set-up for Conducted testing .....	53
Photograph 5: Set-up for for AC Mains (Back).....	54
Photograph 6: Set-up for for AC Mains (Front) .....	54