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Issue Date: 2025-05-06

## MEASUREMENT REPORT

**FCC ID** : 2AF82-HC1570M

**APPLICANT** : Qbic Technology Co., Ltd.

**Application Type** : Certification

**Product** : Smart touch panel tablet

**Model No.** : Lumenen 15 Pro

**Brand Name** : Qbic

**FCC Classification** : (DTS) Digital Transmission System

**FCC Rule Part(s)** : Part 15.247

**Test Procedure(s)** : ANSI C63.10-2013

**Received Date** : February 4, 2025

**Test Date** : February 25, 2025~ April 8, 2025

**Tested By** : Peter Syu

( Peter Syu )



**Reviewed By** : Paddy Chen

( Paddy Chen )



**Approved By** : Chenz Ker

( Chenz Ker )

3261

The test results only relate to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.10. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Taiwan) Co., Ltd.

## Revision History

Report No.	Version	Description	Issue Date	Note
2502TWN801-U4	1.0	Original Report	2025-05-06	

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## General Information

<b>Applicant</b>	Qbic Technology Co., Ltd.			
<b>Applicant Address</b>	26F-12, No. 99, Sec. 1, Xintai 5th Rd, Xizhi Dist, New Taipei City, 22175 Taiwan			
<b>Manufacturer</b>	Qbic Technology Co., Ltd.			
<b>Manufacturer Address</b>	26F-12, No. 99, Sec. 1, Xintai 5th Rd, Xizhi Dist, New Taipei City, 22175 Taiwan			
<b>Test Site</b>	MRT Technology (Taiwan) Co., Ltd			
<b>Test Site Address</b>	No. 38, Fuxing Second Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C)			
<b>MRT FCC Registration No.</b>	291082			
<b>Test Device Serial No.</b>	#1-1	<input type="checkbox"/> Production	<input checked="" type="checkbox"/> Pre-Production	<input type="checkbox"/> Engineering

## Test Facility / Accreditations

1. MRT facility is a FCC registered (Reg. No. 291082) test facility with the site description report on file and is designated by the FCC as an Accredited Test Firm.
2. MRT facility is an IC registered (MRT Reg. No. 21723) test laboratory with the site description on file at Industry Canada.
3. MRT Lab is accredited to ISO 17025 by the Taiwan Accreditation Foundation (TAF Cert. No. 3261) in EMC, Telecommunications and Radio testing for FCC (Designation Number: TW3261), Industry Canada, EU and TELEC Rules.

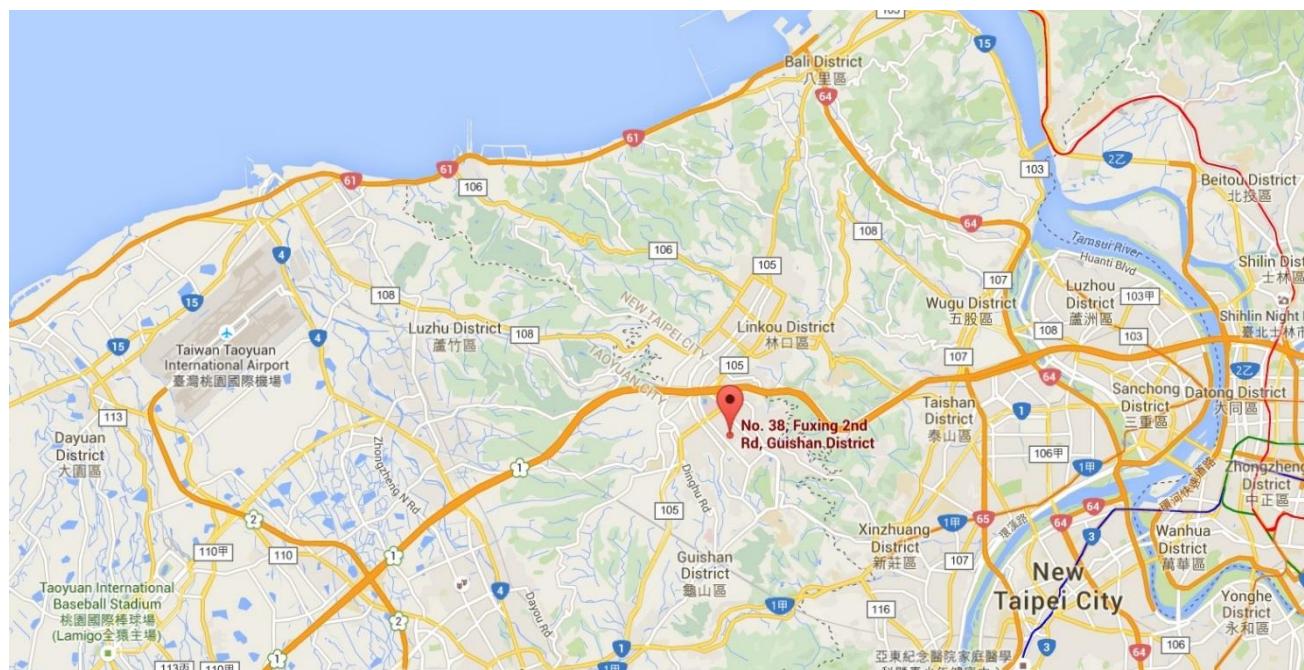
## 1. INTRODUCTION

### 1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

### 1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taoyuan City. These measurement tests were conducted at the MRT Technology (Taiwan) Co., Ltd. Facility located at No.38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 33377, Taiwan (R.O.C).



## 2. PRODUCT INFORMATION

### 2.1. Equipment Description

Product Name	Smart touch panel tablet
Model No.	Luminen 15 Pro
Brand Name	Qbic
Supports Radios Spec.	<b>WLAN:</b> 2.4G: 802.11b/g/n-20/ax-20/ax-40; 5G: 802.11a/n-20/ac-20/ax-20/n-40/ac-40/ax-40/ac-80/ax-80, Band 1~4 <b>WPAN:</b> Bluetooth Dual Mode: V5.4 NFC 13.56MHz
Frequency Range	<b>2.4GHz:</b> For 802.11b/g/n-HT20/n-HT40/ax-HE20/ax-HE40: 2412 ~ 2462 MHz
Type of Modulation:	802.11b: DSSS 802.11g/n: OFDM 802.11ax: OFDMA
Data Rate:	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ax: up to 574Mbps
Accessory	
Adapter	Brand Name: HOIOTO Model: ADS-40RJ-12 12036E Input: AC 100-240V~ 50-60Hz Output: DC 12.0V-3.0A 36.0W DC Cable Out Non-Shielding, 1.7m

## 2.2. Working Frequencies for this Report

802.11b/g/n-20M/ax-HE20

Channel	Frequency	Channel	Frequency	Channel	Frequency
01	2412 MHz	02	2417 MHz	03	2422 MHz
04	2427 MHz	05	2432 MHz	06	2437 MHz
07	2442 MHz	08	2447 MHz	09	2452 MHz
10	2457 MHz	11	2462 MHz	--	--

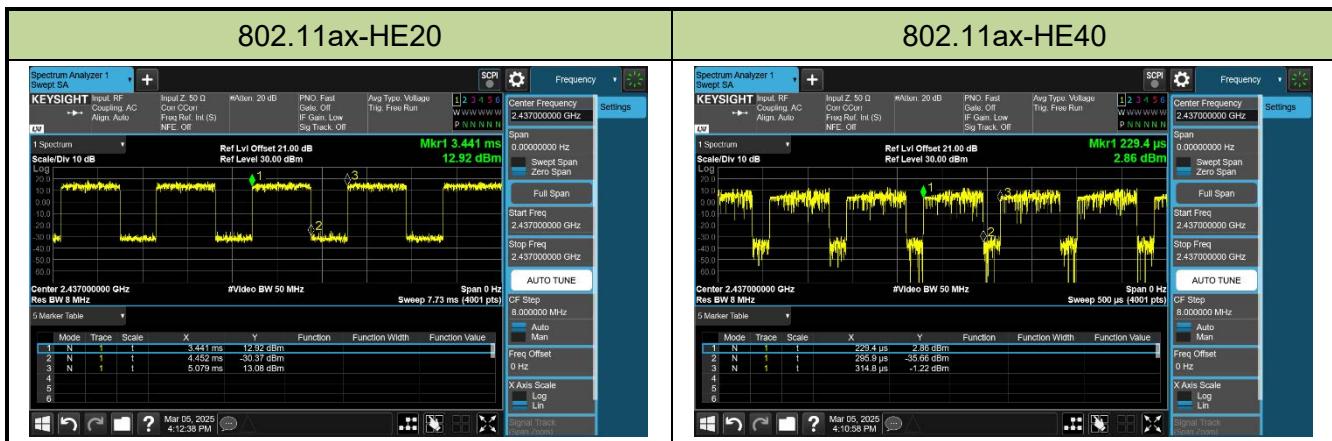
802.11n-HT40/ax-HE40

Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 MHz	--	--	--	--

## Duty Cycle

Test Mode	Duty Cycle
802.11b	58.79%
802.11g	69.44%
802.11n-HT20	67.74%
802.11n-HT40	50.43%
802.11ax-HE20	61.72%
802.11ax-HE40	77.87%





## 2.3. Test Mode

Test Mode	Mode 1: Transmit by 802.11b (1Mbps) (CDD mode)
	Mode 2: Transmit by 802.11g (6Mbps) (CDD mode)
	Mode 3: Transmit by 802.11n-20 (MCS0) (CDD mode)
	Mode 4: Transmit by 802.11n-40 (MCS0) (CDD mode)
	Mode 5: Transmit by 802.11ax-20 (MCS0) (CDD mode)
	Mode 6: Transmit by 802.11ax-40 (MCS0) (CDD mode)

Note:

1. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.

## 2.4. Test Software

The test utility software used during testing was “adb.exe”.

## 2.5. Test Configuration

This device was tested per the guidance of ANSI C63.10-2013. ANSI C63.10-2013 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

Connection Diagram	
A connection diagram showing the test setup. On the left is a box labeled 'EUT'. A horizontal line labeled '(A)' connects it to a box labeled 'Notebook PC (1)' on the right. From 'Notebook PC (1)', a vertical line labeled '(B)' connects down to a box labeled 'USB Mouse (2)'.	
Signal Cable Type	
A	USB Cable
B	USB Mouse Cable
Signal Cable Description	
A	Shielded, 1.0m
B	Shielded, 1.8m

## 2.6. Test System Details

	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	Lenovo	20SL	N/A	Non-shielded, 0.8m
2	USB Mouse	Logitech	M90	N/A	N/A

## 2.7. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

## 2.8. Labeling Requirements

Per 2.1074 & 15.19; Docket 95-19

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or

pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the FCC ID must be displayed on the device per Section 15.19(a)(5). Please see attachment for FCC ID label and label location.

### 3. DESCRIPTION of TEST

#### 3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Testing Unlicensed Wireless Devices (ANSI C63.10-2013), and the guidance provided in KDB 558074 D01v05 were used in the measurement of the device.

**Deviation from measurement procedure.....**.....**None**

#### 3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 9'x4'x3' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150kHz to 30MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or data exchange speed, or support equipment which determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site. The analyzer is set to CISPR quasi-peak and average detectors with a 9kHz resolution bandwidth for final measurements.

An extension cord was used to connect to a single LISN which powered by EUT. The extension cord was calibrated with LISN, the impedance and insertion loss are compliance with the requirements as stated in ANSI C63.10-2013.

Line conducted emissions test results are shown in Section 7.8.

### 3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. A MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.

For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up for frequencies below 1GHz was placed on top of the 0.8 meter high, 1 x 1.5 meter table; and test set-up for frequencies 1-40GHz was placed on top of the 1.5 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, clock speed, mode of operation or video resolution, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.

Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, which produced the worst-case emissions. According to 3dB Beam-Width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

Radiated emissions test results are shown in Section 7.6 & 7.7 .

## 4. ANTENNA REQUIREMENTS

### Excerpt from §15.203 of the FCC Rules/Regulations:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- The antenna of the **Smart touch panel tablet**, is permanently attached.
- There are no provisions for connection to an external antenna.

### **Conclusion:**

The EUT unit complies with the requirement of §15.203.

Antenna Type	Frequency Band (MHz)	Tx Paths	Number of spatial streams	Max Antenna Gain (dBi)	Directional Gain (dBi)	CDD Directional Gain (dBi)	
						For Power	For PSD
BT/BLE Antenna							
PCB	2402 ~ 2480	1	--	1.42	--	1.42	--
Wi-Fi Antenna							
Dipole	2412 ~ 2462	2	1	4.56	7.57	4.56	7.57
	5150 ~ 5250	2	1	4.96	7.97	4.96	7.97
	5250 ~ 5350	2	1	4.96	7.97	4.96	7.97
	5470 ~ 5725	2	1	5.92	8.93	5.92	8.93
	5725 ~ 5850	2	1	5.71	8.72	5.71	8.72

Remark:

1. The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain,  $G_{ANT}$ , Directional gain =  $G_{ANT} + \text{Array Gain}$ , where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

$$\text{Array Gain} = 10 \log (N_{ANT}/ N_{ss}) \text{ dB};$$

- For power measurements on IEEE 802.11 devices,

$$\text{Array Gain} = 0 \text{ dB for } N_{ANT} \leq 2;$$

2. All messages of antenna were declared by manufacturer.

## 5. TEST EQUIPMENT CALIBRATION DATE

### Conducted Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Two-Line V-Network	R&S	ENV216	MRTTWA00020	1 year	2025/4/21
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2026/3/4
Cable	Rosnol	N1C50-RG400-B 1C50-500CM	MRTTWE00013	1 year	2025/6/14

### Radiated Emissions

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Active Loop Antenna	SCHWARZBECK	FMZB 1519B	MRTTWA00002	1 year	2025/5/7
Broadband TRILOG Antenna	SCHWARZBECK	VULB 9162	MRTTWA00086	1 year	2025/11/5
Broadband Hornantenna	SCHWARZBECK	BBHA 9120D	MRTTWA00003	1 year	2026/2/11
Broadband Preamplifier	SCHWARZBECK	BBV 9718	MRTTWA00005	1 year	2026/2/11
Breitband Hornantenna	SCHWARZBECK	BBHA 9170	MRTTWA00004	1 year	2026/3/27
Broadband Amplifier	SCHWARZBECK	BBV 9721	MRTTWA00006	1 year	2026/3/21
EMI Test Receiver	R&S	ESR3	MRTTWA00009	1 year	2026/3/4
Signal Analyzer	R&S	FSV40	MRTTWA00007	1 year	2025/4/14
Antenna Cable	HUBERSUHNER	SF106	MRTTWE00010	1 year	2025/6/14
Cable	Rosnol	K1K50-UP0264- K1K50-4M	MRTTWE00012	1 year	2025/6/14
Temperature/Humidity Meter	TFA	35.1083	MRTTWA00050	1 year	2025/6/2

### Conducted Test Equipment

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	KEYSIGHT	N9010A	MRTTWA00012	1 year	2025/9/24
EXA Signal Analyzer	KEYSIGHT	N9010B	MRTTWA00074	1 year	2025/8/12
USB Wideband Power Sensor	KEYSIGHT	U2021XA	MRTTWA00015	1 year	2026/3/12

### Test Software

Software	Version	Function
e3	9.160520a	EMI Test Software

## 6. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

Conducted Emission- Power Line
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_{c(y)}$ ): 0.15MHz~30MHz: $\pm 2.53$ dB
Radiated Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_{c(y)}$ ): 9kHz~30MHz: $\pm 3.92$ dB 30MHz~1GHz: $\pm 4.25$ dB 1GHz~18GHz: $\pm 4.40$ dB 18GHz~40GHz: $\pm 4.45$ dB
Frequency Error
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_{c(y)}$ ): $\pm 78.4$ Hz
Conducted Power
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_{c(y)}$ ): $\pm 0.84$ dB
Conducted Spurious Emission
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_{c(y)}$ ): $\pm 2.65$ dB
Occupied Bandwidth
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_{c(y)}$ ): $\pm 3.3\%$
Temp. / Humidity
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_{c(y)}$ ): $\pm 0.82^\circ\text{C}$ / $\pm 3\%$
DC Voltage
Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_{c(y)}$ ): $\pm 0.3\%$

## 7. TEST RESULT

### 7.1. Summary

**Product Name:** Smart touch panel tablet  
**FCC Classification:** (DTS) Digital Transmission System

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
15.247(a)(2)	6dB Bandwidth	$\geq 500\text{kHz}$	Conducted	Pass	Section 7.2
15.247(b)(3)	Output Power	$\leq 30.00\text{dBm}$		Pass	Section 7.3
15.247(e)	Power Spectral Density	$\leq 8.00\text{dBm}/3\text{kHz}$		Pass	Section 7.4
15.247(d)	Out-of-Band Emissions	Conducted $\geq 30\text{dBc}$		Pass	Section 7.5
15.205 15.209	Spurious Emission	$< \text{FCC 15.209 limits}$	Radiated	Pass	Section 7.6
15.205 15.209	Band Edge Measurement	$\leq 74\text{dBuV/m(Peak)}$ $\leq 54\text{dBuV/m(Average)}$		Pass	Section 7.7
15.207	AC Conducted Emissions 150kHz - 30MHz	$< \text{FCC 15.207 limits}$	Line Conducted	Pass	Section 7.8

**Notes:**

- 1) Determining compliance is based on the test results met the regulation limits or requirements declared by clients, and the test results don't take into account the value of measurement uncertainty.
- 2) For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
- 3) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 4) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables and attenuators.

## 7.2. 6dB Bandwidth Measurement

### 7.2.1. Test Limit

The minimum 6dB bandwidth shall be at least 500 kHz.

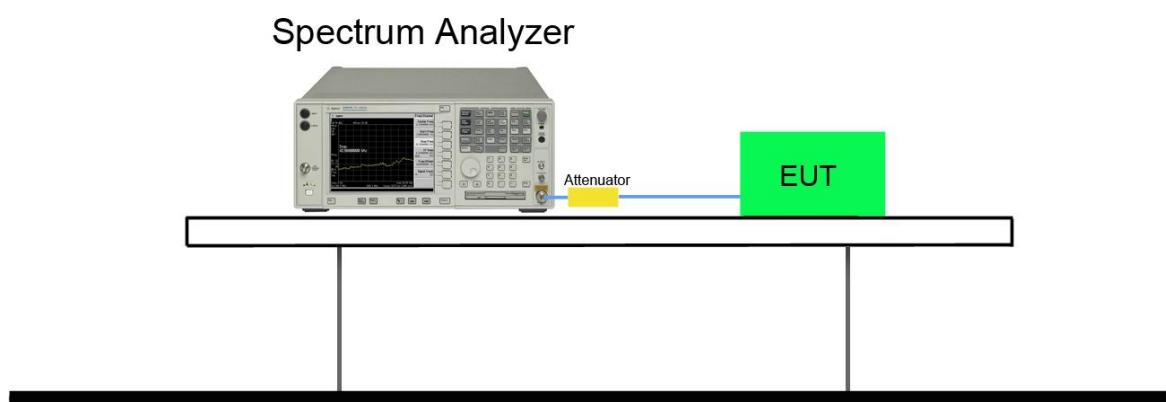
### 7.2.2. Test Procedure used

ANSI C63.10 - 2013 - Section 6.9.3, 11.8 / RSS-Gen 6.7

### 7.2.3. Test Setting

1. The Spectrum's automatic bandwidth measurement capability was used to perform the 6dB bandwidth measurement. The "X" dB bandwidth parameter was set to  $X = 6$ . The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
2. Set RBW = 100 kHz
3. VBW  $\geq 3 \times$  RBW
4. Detector = Peak
5. Trace mode = max hold
6. Sweep = auto couple
7. Allow the trace was allowed to stabilize

### 7.2.4. Test Setup



### 7.2.5. Test Result

Product	Smart touch panel tablet	Temperature	21°C
Test Engineer	Peter	Relative Humidity	56%
Test Site	SR7	Test Date	2025/4/8

#### 6dB Bandwidth

Test Mode	Data Rate / MCS	Channel No.	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)	Result
<b>Ant 1</b>						
802.11b	1Mbps	01	2412	5.747	≥ 0.5	Pass
802.11b	1Mbps	06	2437	8.332	≥ 0.5	Pass
802.11b	1Mbps	11	2462	5.811	≥ 0.5	Pass
802.11g	6Mbps	01	2412	15.11	≥ 0.5	Pass
802.11g	6Mbps	06	2437	16.05	≥ 0.5	Pass
802.11g	6Mbps	11	2462	15.49	≥ 0.5	Pass
802.11n-HT20	MCS0	01	2412	15.12	≥ 0.5	Pass
802.11n-HT20	MCS0	06	2437	15.1	≥ 0.5	Pass
802.11n-HT20	MCS0	11	2462	15.14	≥ 0.5	Pass
802.11n-HT40	MCS0	03	2422	35.07	≥ 0.5	Pass
802.11n-HT40	MCS0	06	2437	35.02	≥ 0.5	Pass
802.11n-HT40	MCS0	09	2452	33.85	≥ 0.5	Pass
802.11ax-HE20	MCS0	01	2412	16.56	≥ 0.5	Pass
802.11ax-HE20	MCS0	06	2437	17.73	≥ 0.5	Pass
802.11ax-HE20	MCS0	11	2462	17.44	≥ 0.5	Pass
802.11ax-HE40	MCS0	03	2422	37.54	≥ 0.5	Pass
802.11ax-HE40	MCS0	06	2437	36.26	≥ 0.5	Pass
802.11ax-HE40	MCS0	09	2452	36.25	≥ 0.5	Pass

### 802.11b 6dB Bandwidth

#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)

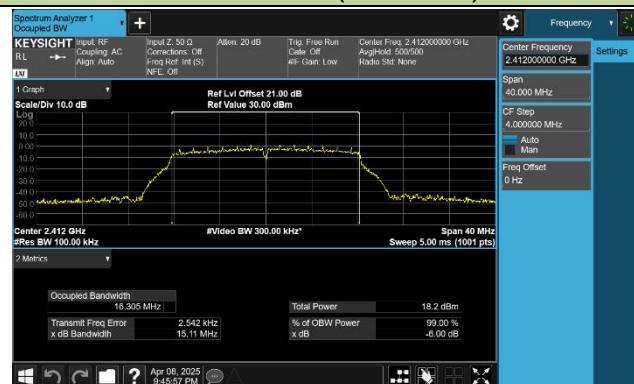


#### Channel 11 (2462MHz)



### 802.11g 6dB Bandwidth

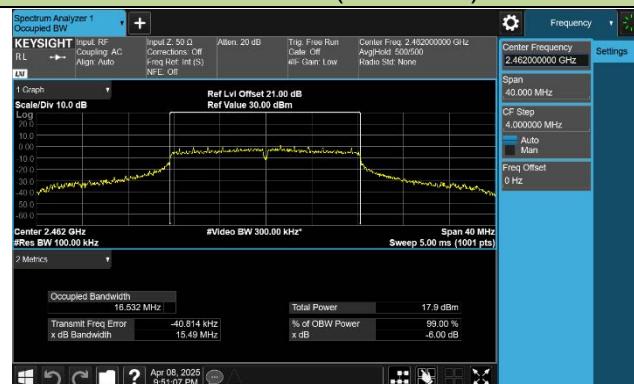
#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)



#### Channel 11 (2462MHz)



### 802.11n-HT20 6dB Bandwidth

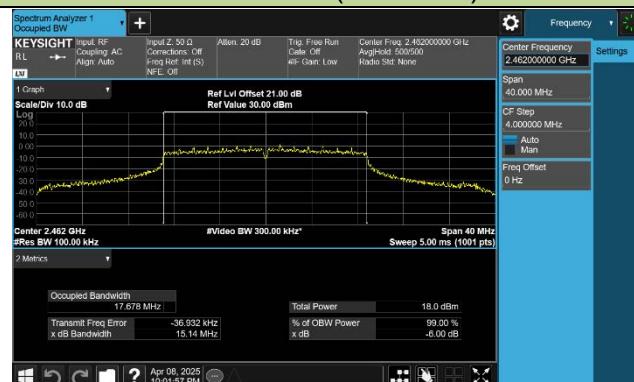
#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)

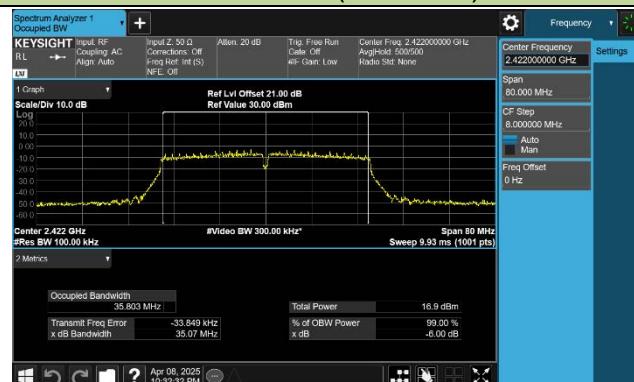


#### Channel 11 (2462MHz)

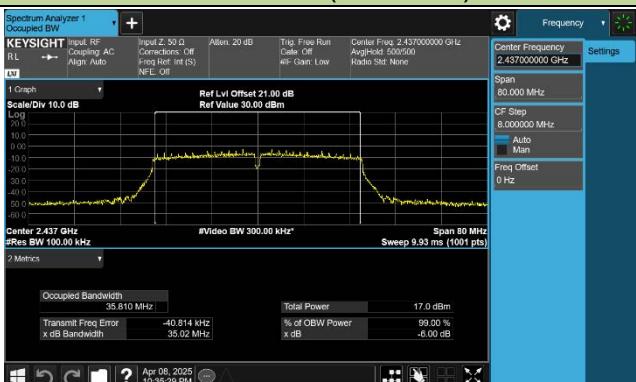


### 802.11n-HT40 6dB Bandwidth

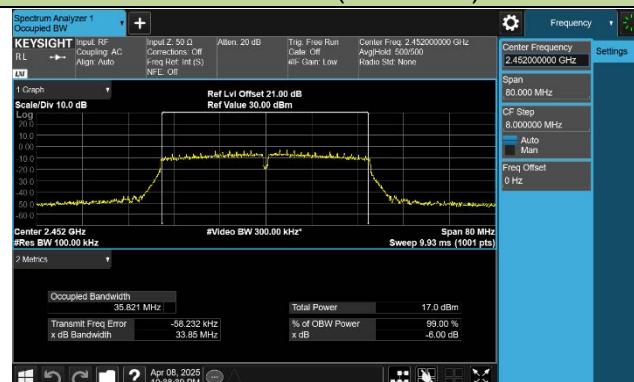
#### Channel 03 (2422MHz)



#### Channel 06 (2437MHz)

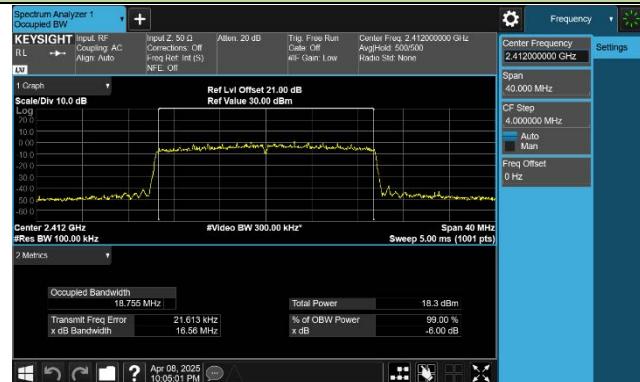


#### Channel 09 (2452MHz)

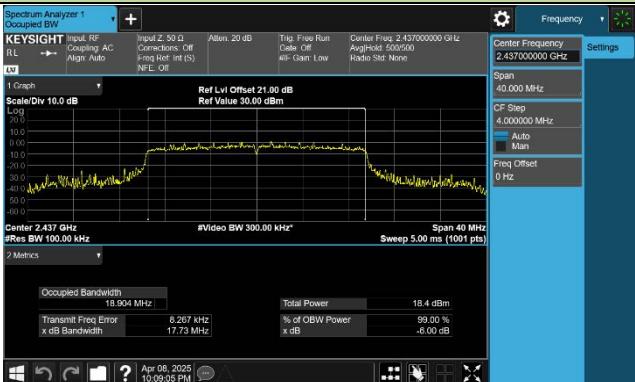


### 802.11ax-HE20 6dB Bandwidth

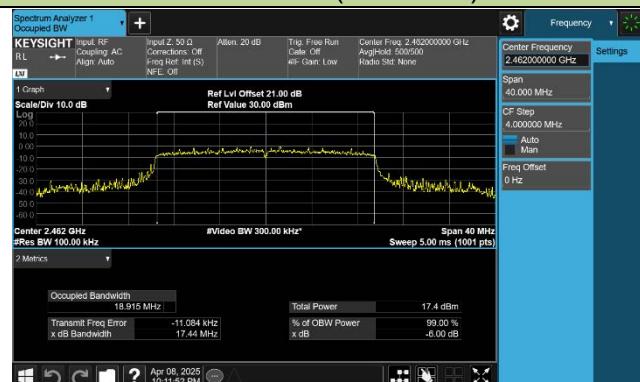
#### Channel 01 (2412MHz)



#### Channel 06 (2437MHz)

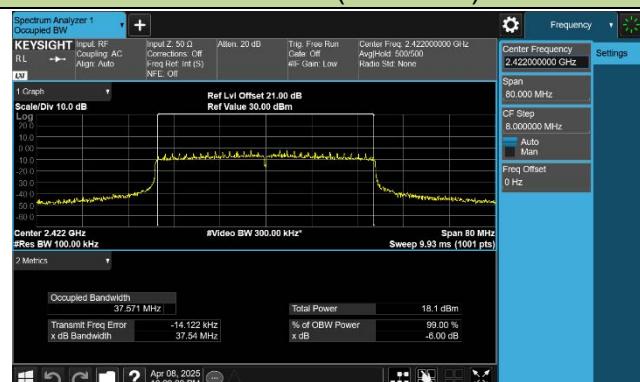


#### Channel 11 (2462MHz)

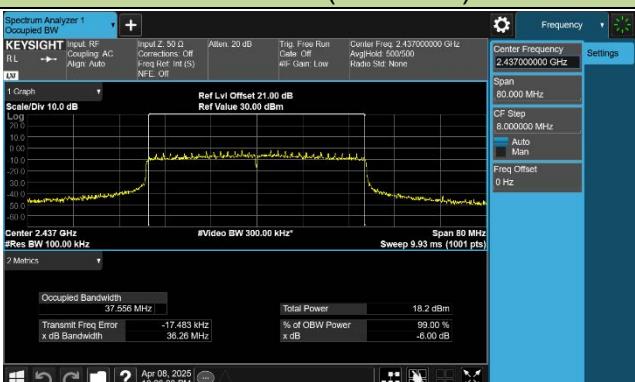


### 802.11ax-HE40 6dB Bandwidth

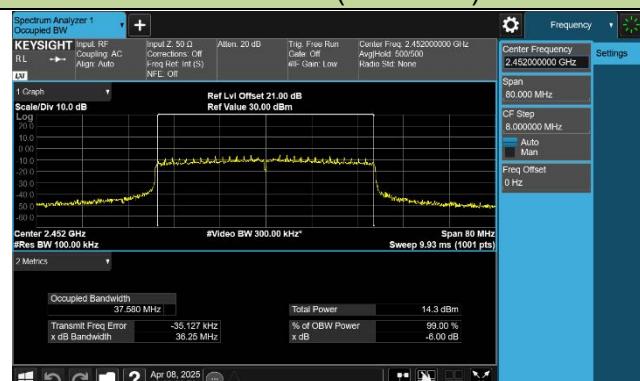
#### Channel 03 (2422MHz)



#### Channel 06 (2437MHz)



#### Channel 09 (2452MHz)



## 7.3. Output Power Measurement

### 7.3.1. Test Limit

The maximum out power shall be less 1 Watt (30dBm).

### 7.3.2. Test Procedure Used

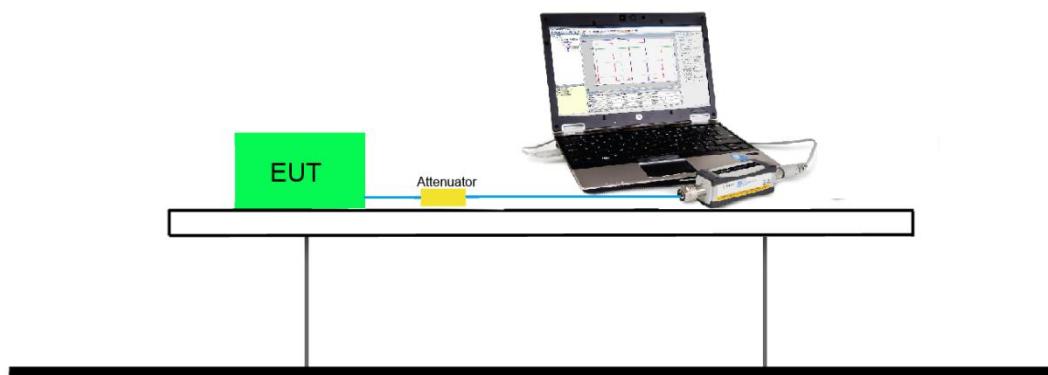
ANSI C63.10 - 2013 - Section 11.9.2.3.2

### 7.3.3. Test Setting

#### Average Power Measurement

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter. The trace was averaged over 100 traces to obtain the final measured average power.

### 7.3.4. Test Setup



### 7.3.5. Test Result of Output Power

Product	Smart touch panel tablet			Temperature	21°C		
Test Engineer	Peter			Relative Humidity	56%		
Test Site	SR7			Test Date	2025/4/8		

Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 Average Power (dBm)	Ant 1 Average Power (dBm)	Total Average Power (dBm)	Limit (dBm)	Result
<b>CDD Mode</b>								
802.11b	1Mbps	01	2412	13.75	13.64	16.71	≤ 30.00	Pass
802.11b	1Mbps	06	2437	13.71	13.47	16.60	≤ 30.00	Pass
802.11b	1Mbps	11	2462	13.67	14.32	17.02	≤ 30.00	Pass
802.11g	6Mbps	01	2412	12.65	13.53	16.12	≤ 30.00	Pass
802.11g	6Mbps	06	2437	13.00	13.62	16.33	≤ 30.00	Pass
802.11g	6Mbps	11	2462	13.11	13.87	16.52	≤ 30.00	Pass
802.11n-HT20	MCS0	01	2412	12.37	13.57	16.02	≤ 30.00	Pass
802.11n-HT20	MCS0	06	2437	12.77	13.75	16.30	≤ 30.00	Pass
802.11n-HT20	MCS0	11	2462	12.42	13.53	16.02	≤ 30.00	Pass
802.11n-HT40	MCS0	03	2422	11.47	12.36	14.95	≤ 30.00	Pass
802.11n-HT40	MCS0	06	2437	11.76	12.12	14.95	≤ 30.00	Pass
802.11n-HT40	MCS0	09	2452	11.46	12.58	15.07	≤ 30.00	Pass
802.11ax-HE20	MCS0	01	2412	12.51	13.68	16.14	≤ 30.00	Pass
802.11ax-HE20	MCS0	06	2437	13.10	13.32	16.22	≤ 30.00	Pass
802.11ax-HE20	MCS0	11	2462	12.13	12.71	15.44	≤ 30.00	Pass
802.11ax-HE40	MCS0	03	2422	12.03	12.99	15.55	≤ 30.00	Pass
802.11ax-HE40	MCS0	06	2437	12.32	12.57	15.46	≤ 30.00	Pass
802.11ax-HE40	MCS0	08	2447	10.50	10.39	13.46	≤ 30.00	Pass
802.11ax-HE40	MCS0	09	2452	8.82	8.35	11.60	≤ 30.00	Pass

Note: Output power =Reading value on power meter + cable loss °

## 7.4. Power Spectral Density Measurement

### 7.4.1. Test Limit

The maximum permissible power spectral density is 8dBm in any 3 kHz band.

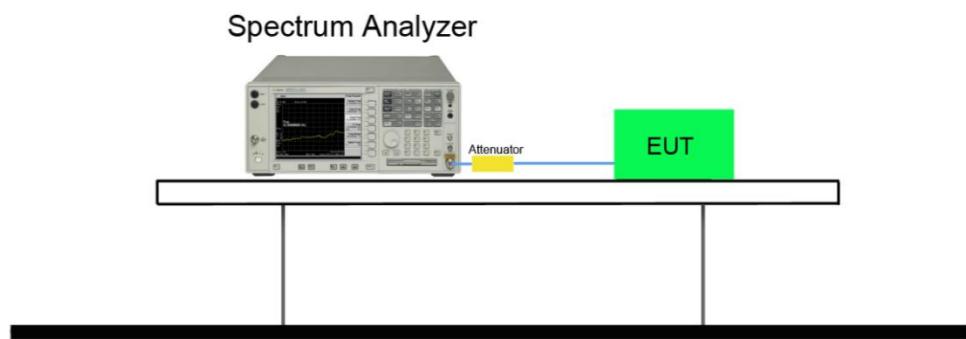
### 7.4.2. Test Procedure Used

ANSI C63.10 - 2013 - Section 11.10.5

### 7.4.3. Test Setting

1. Measure the duty cycle (x) of the transmitter output signal.
2. Set instrument center frequency to DTS channel center frequency.
3. Set span to at least 1.5 times the OBW.
4. RBW = 10 kHz.
5. VBW = 30 kHz.
6. Detector = RMS.
7. Ensure that the number of measurement points in the sweep  $\geq 2 \times \text{span}/\text{RBW}$ .
8. Sweep time = auto couple.
9. Don't use sweep triggering. Allow sweep to "free run".
10. Employ trace averaging (RMS) mode over a minimum of 100 traces.
11. Use the peak marker function to determine the maximum amplitude level.
12. Add  $10 \log (1/x)$ , where x is the duty cycle measured in step (a, to the measured PSD to compute the average PSD during the actual transmission time. If measured value exceeds requirement specified by regulatory agency, then reduce RBW (but no less than 3 kHz) and repeat (note that this may require zooming in on the emission of interest and reducing the span to meet the minimum measurement point requirement as the RBW is reduced.

#### 7.4.4. Test Setup

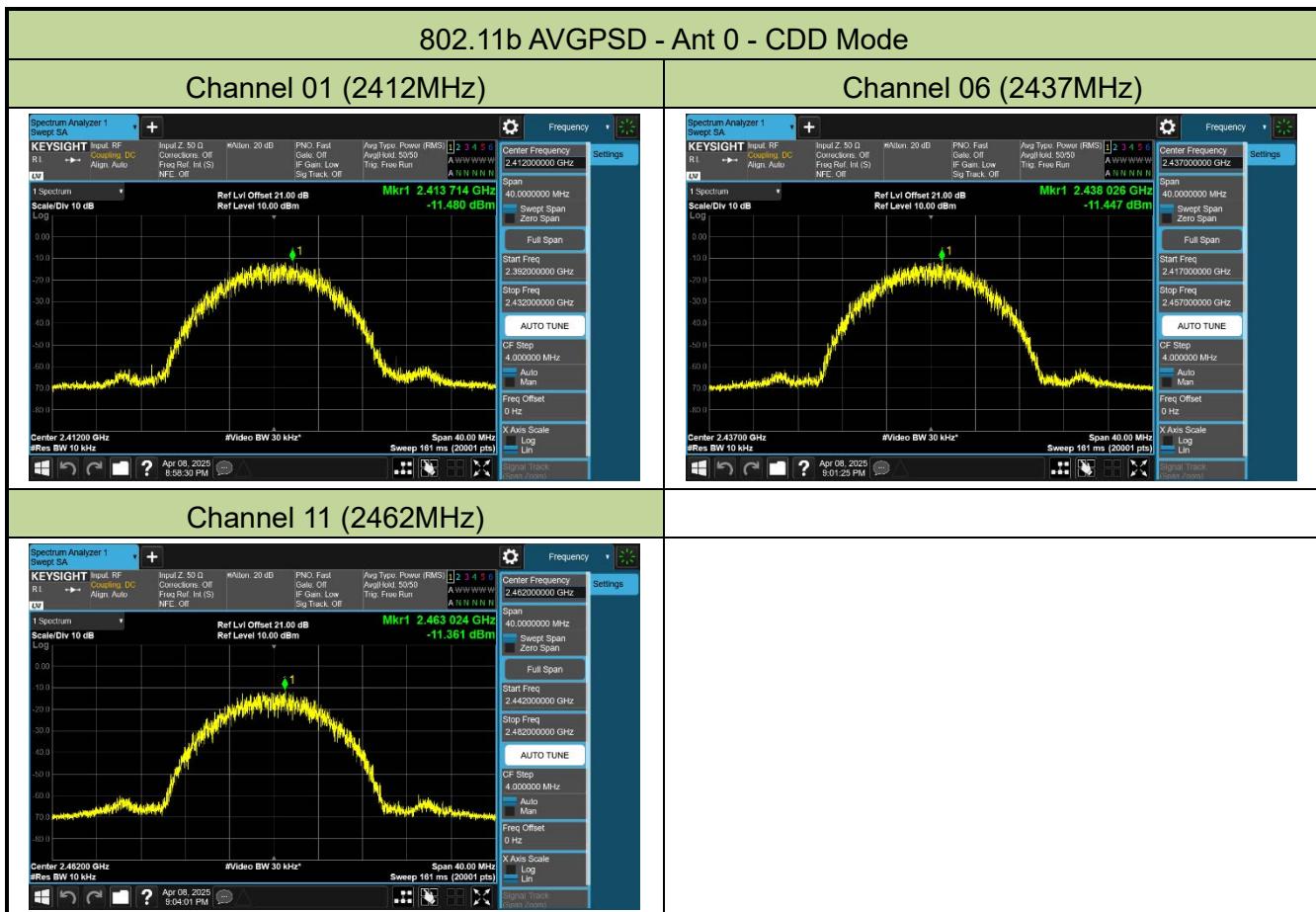


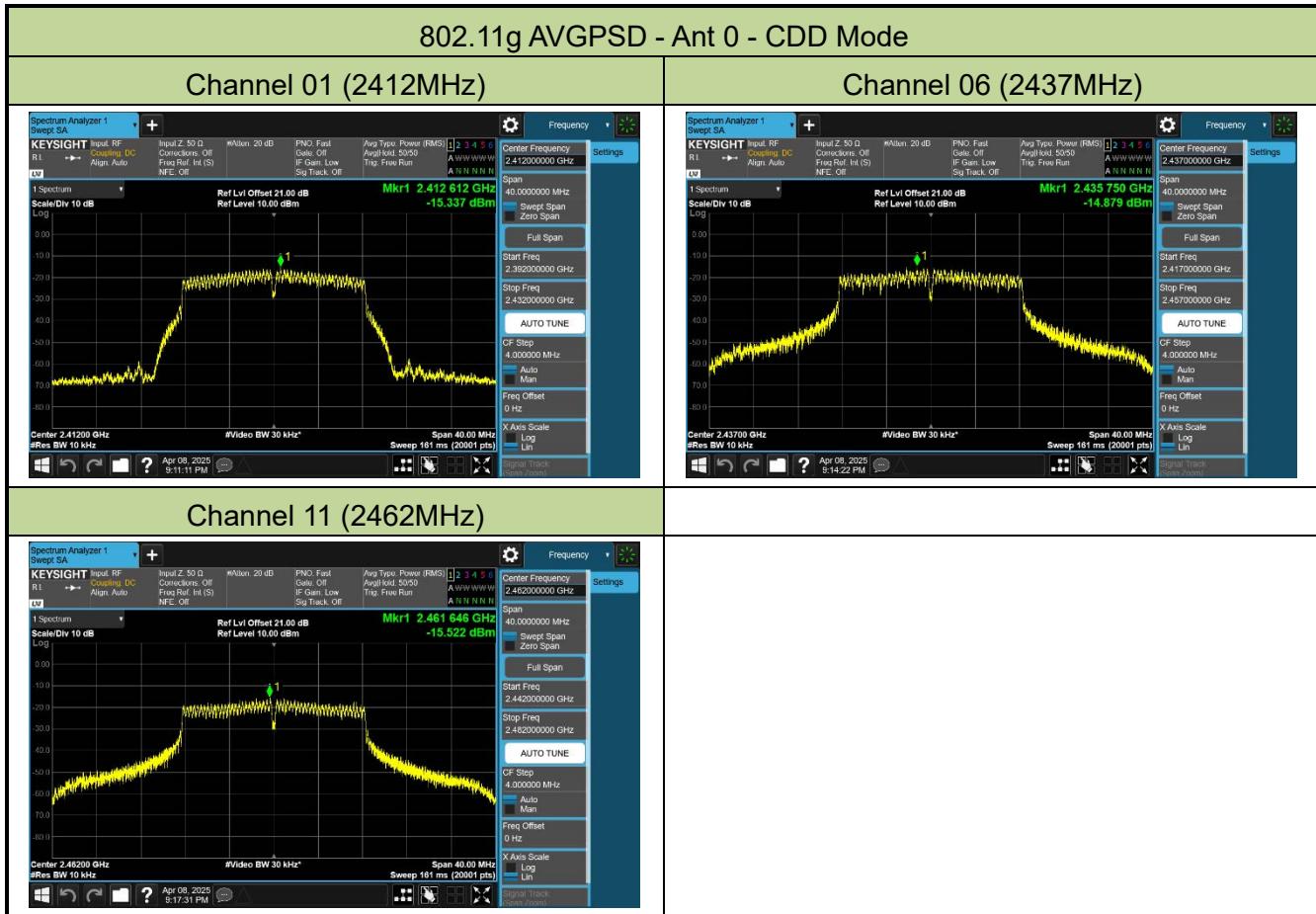
#### 7.4.5. Test Result

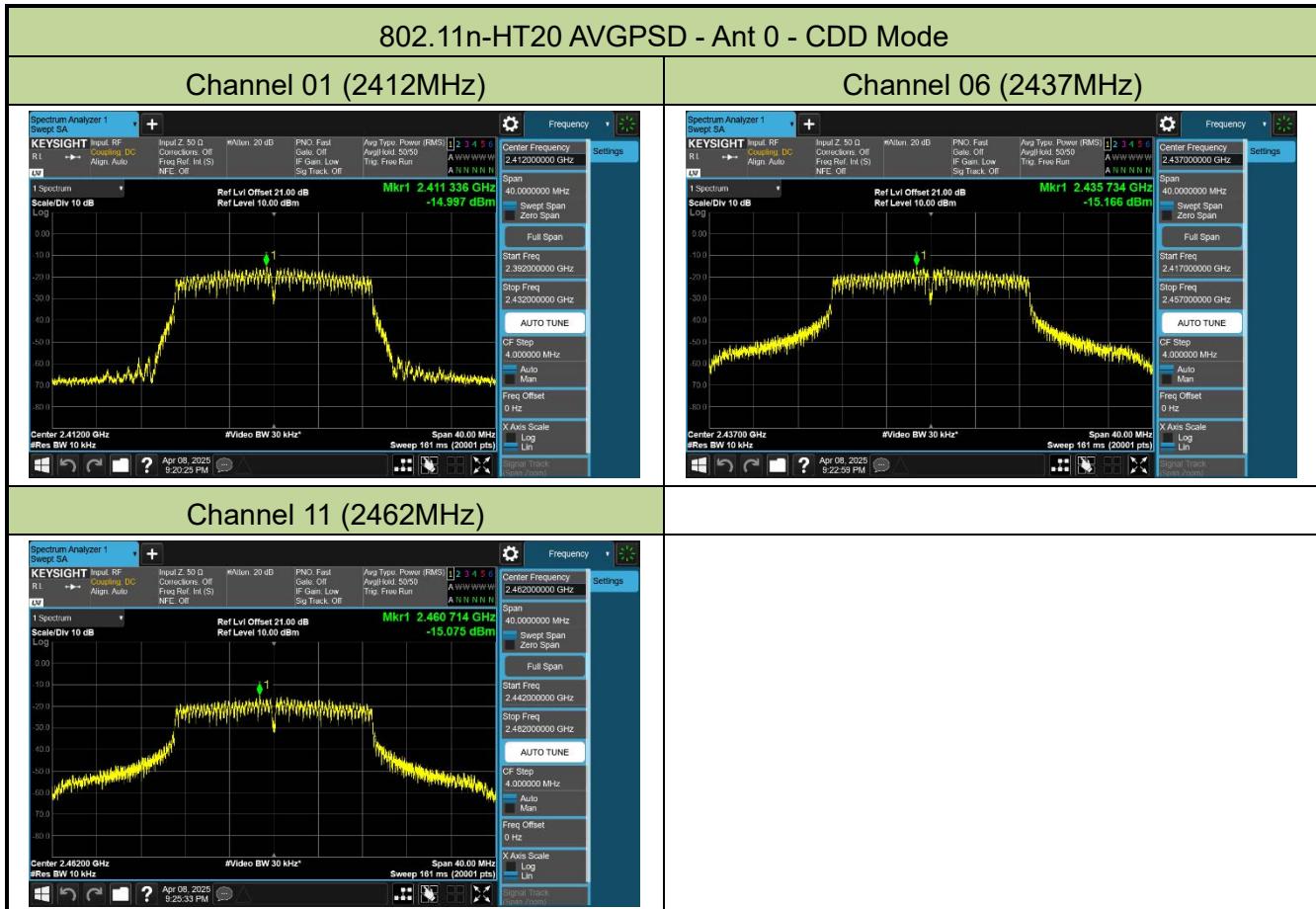
Product	Smart touch panel tablet			Temperature		21°C		
Test Engineer	Peter			Relative Humidity		56%		
Test Site	SR7			Test Date		2025/4/8		

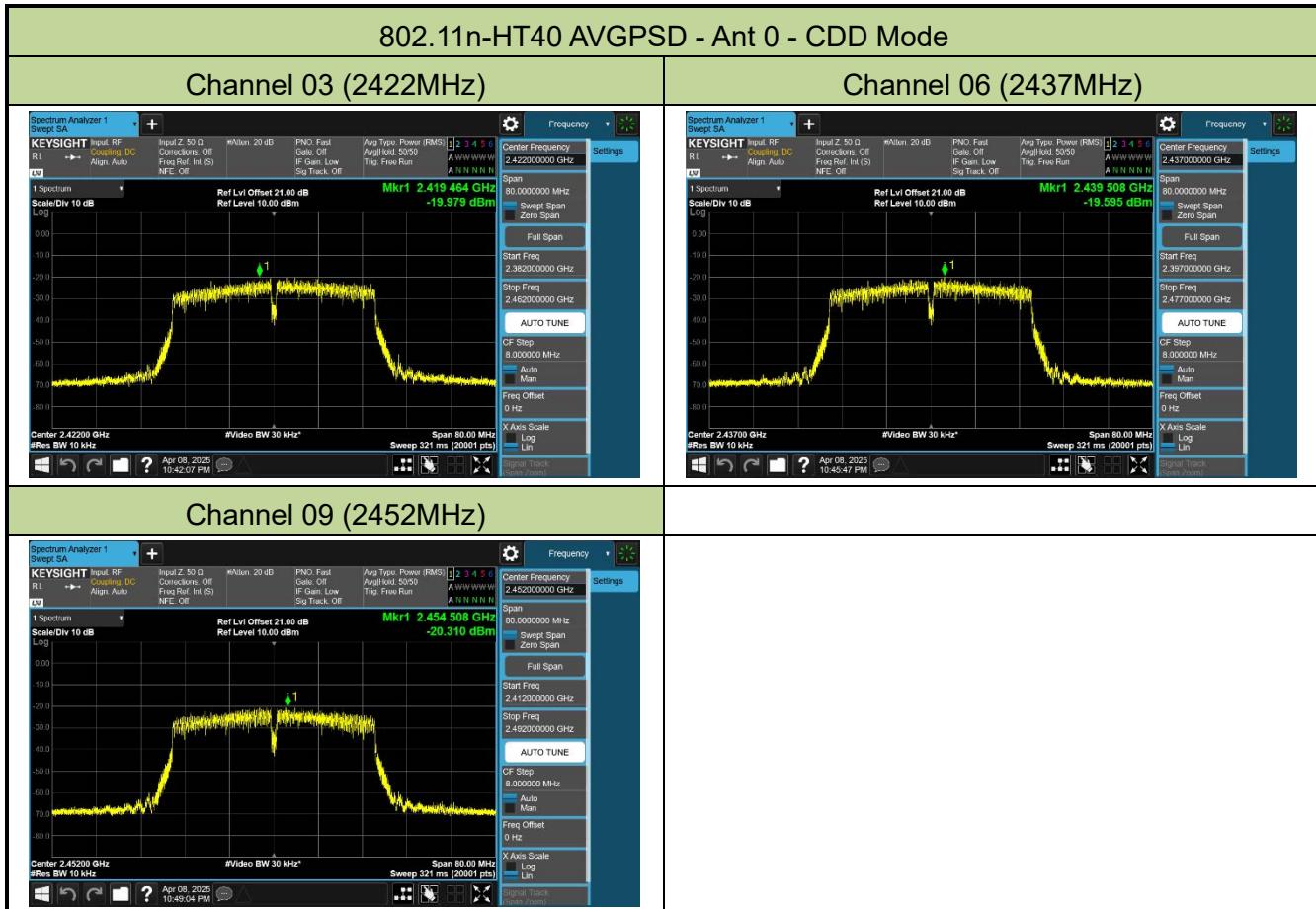
Test Mode	Data Rate/ MCS	Channel No.	Freq. (MHz)	Ant 0 PSD (dBm/ 10kHz)	Ant 1 PSD (dBm/ 10kHz)	Duty Cycle (%)	Total PSD (dBm/ 10kHz)	Limit (dBm/ 3kHz)	Result
<b>CDD Mode</b>									
802.11b	1Mbps	01	2412	-11.480	-9.170	58.79%	-4.856	≤ 6.43	Pass
802.11b	1Mbps	06	2437	-11.447	-8.753	58.79%	-4.577	≤ 6.43	Pass
802.11b	1Mbps	11	2462	-11.361	-10.548	58.79%	-5.618	≤ 6.43	Pass
802.11g	6Mbps	01	2412	-15.337	-14.866	69.44%	-10.501	≤ 6.43	Pass
802.11g	6Mbps	06	2437	-14.879	-15.748	69.44%	-10.698	≤ 6.43	Pass
802.11g	6Mbps	11	2462	-15.522	-16.058	69.44%	-11.188	≤ 6.43	Pass
802.11n-HT20	MCS0	01	2412	-14.997	-15.893	67.74%	-10.720	≤ 6.43	Pass
802.11n-HT20	MCS0	06	2437	-15.166	-16.557	67.74%	-11.104	≤ 6.43	Pass
802.11n-HT20	MCS0	11	2462	-15.075	-15.805	67.74%	-10.723	≤ 6.43	Pass
802.11n-HT40	MCS0	03	2422	-19.979	-20.794	50.43%	-14.384	≤ 6.43	Pass
802.11n-HT40	MCS0	06	2437	-19.595	-20.681	50.43%	-14.121	≤ 6.43	Pass
802.11n-HT40	MCS0	09	2452	-20.310	-20.559	50.43%	-14.449	≤ 6.43	Pass
802.11ax-HE20	MCS0	01	2412	-17.493	-17.302	61.72%	-12.290	≤ 6.43	Pass
802.11ax-HE20	MCS0	06	2437	-17.589	-17.144	61.72%	-12.255	≤ 6.43	Pass
802.11ax-HE20	MCS0	11	2462	-16.294	-17.931	61.72%	-11.930	≤ 6.43	Pass
802.11ax-HE40	MCS0	03	2422	-11.409	-12.281	77.87%	-7.727	≤ 6.43	Pass
802.11ax-HE40	MCS0	06	2437	-11.456	-12.239	77.87%	-7.733	≤ 6.43	Pass
802.11ax-HE40	MCS0	09	2452	-15.517	-15.650	77.87%	-11.486	≤ 6.43	Pass

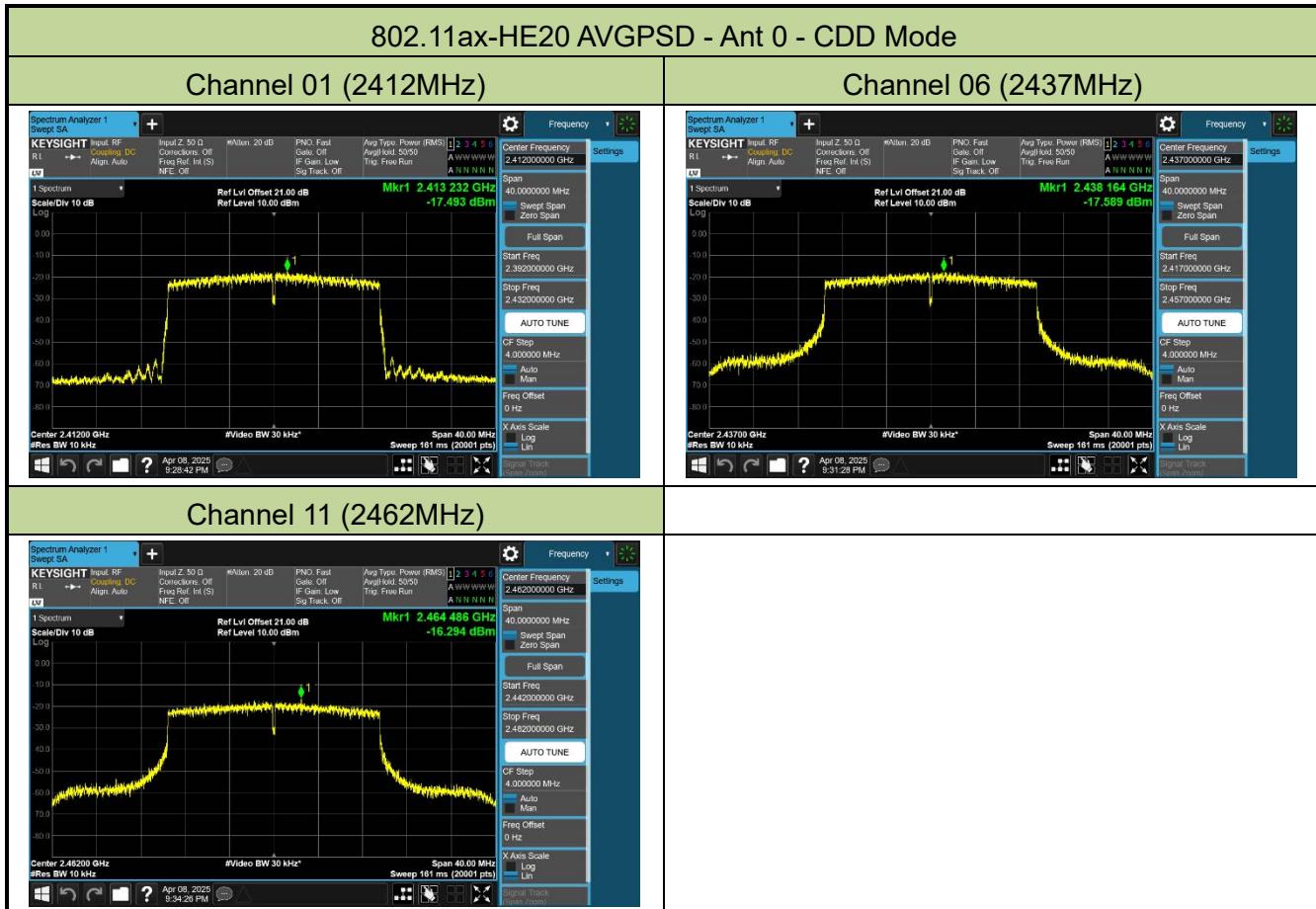
Note 1: Total AVGPSD =  $10 \times \log \{10(\text{Ant 0 AVGPSD}/10) + 10(\text{Ant 1 AVGPSD}/10)\} + 10 \times \log (1/\text{Duty Cycle})$ .

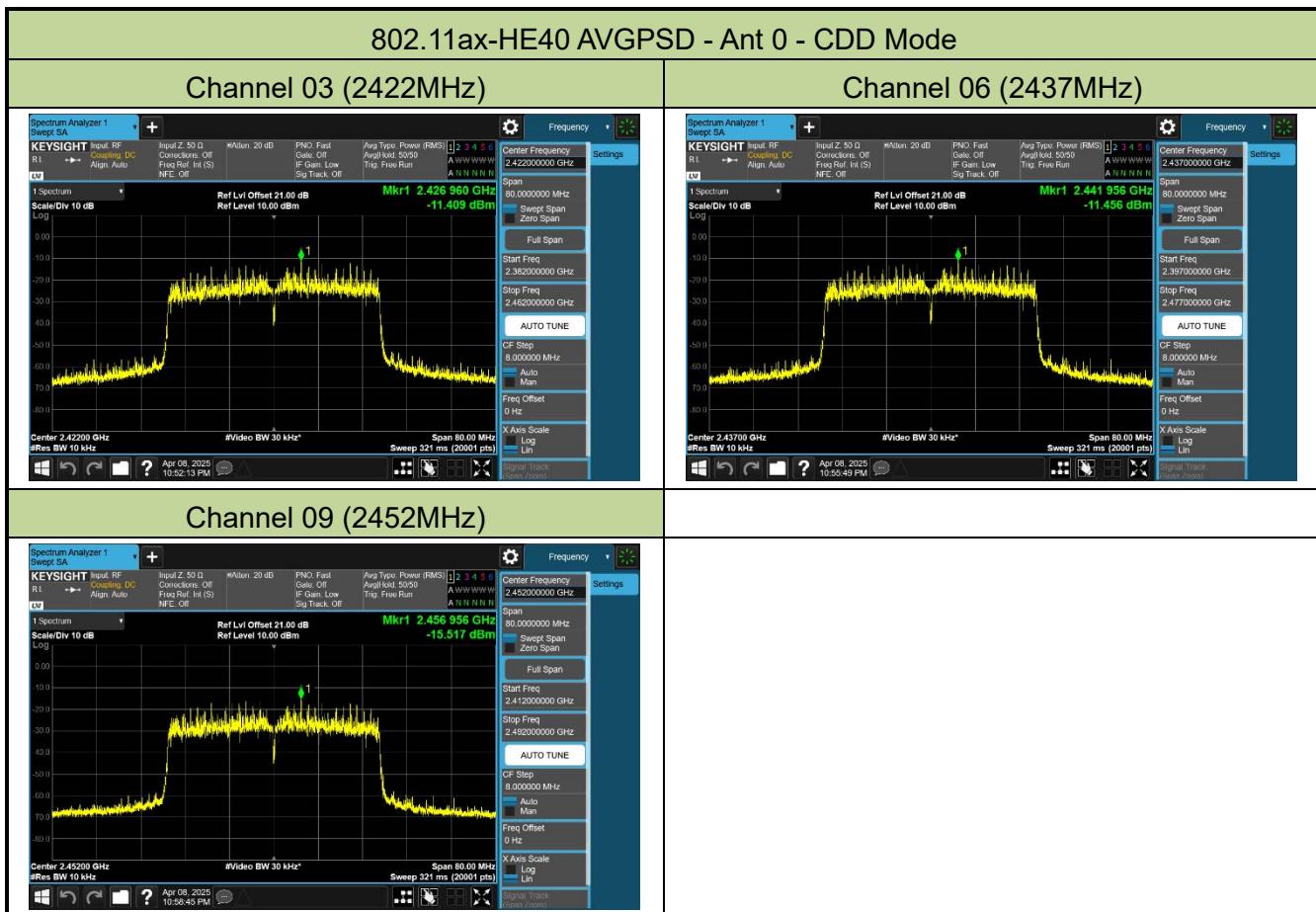


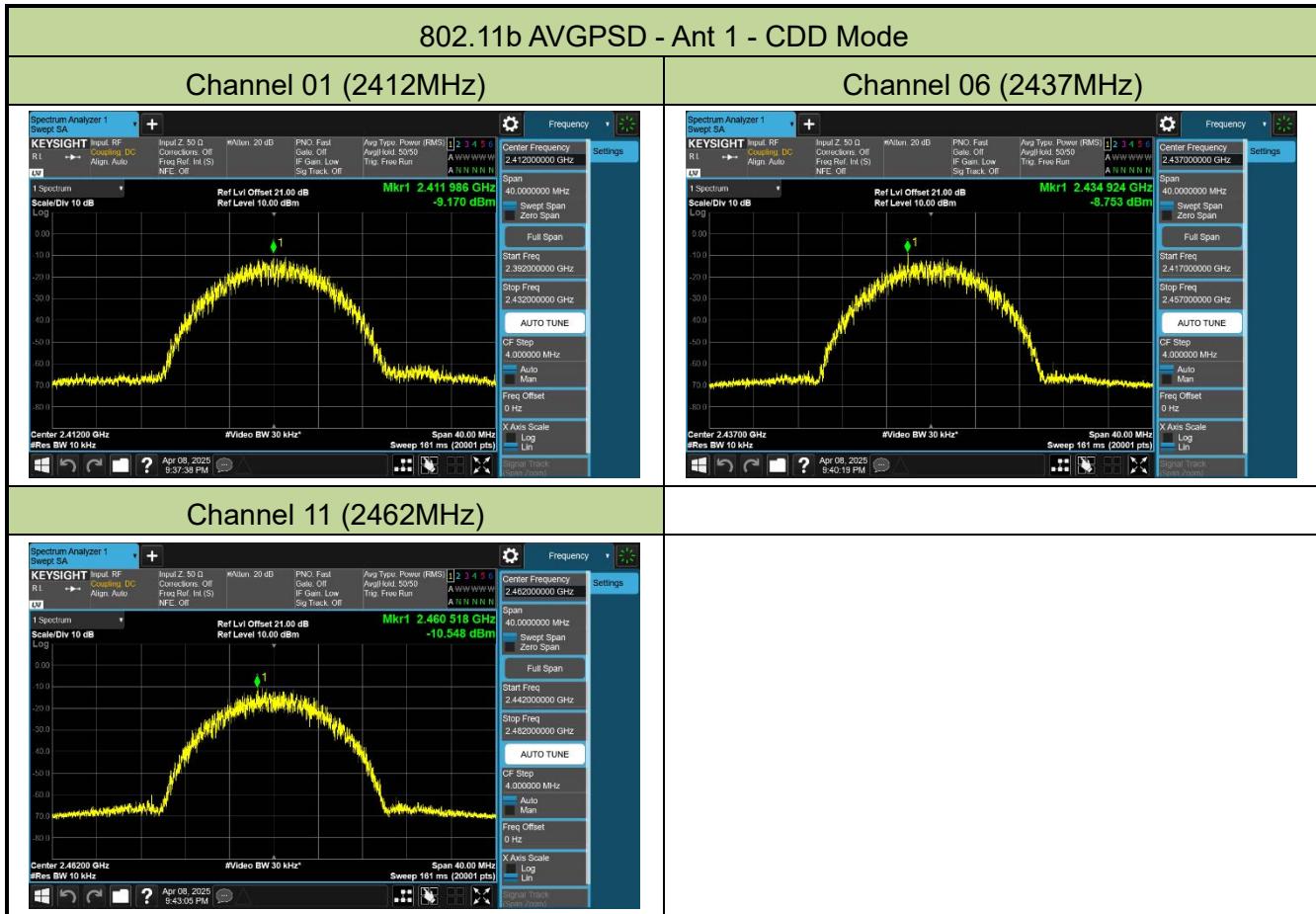




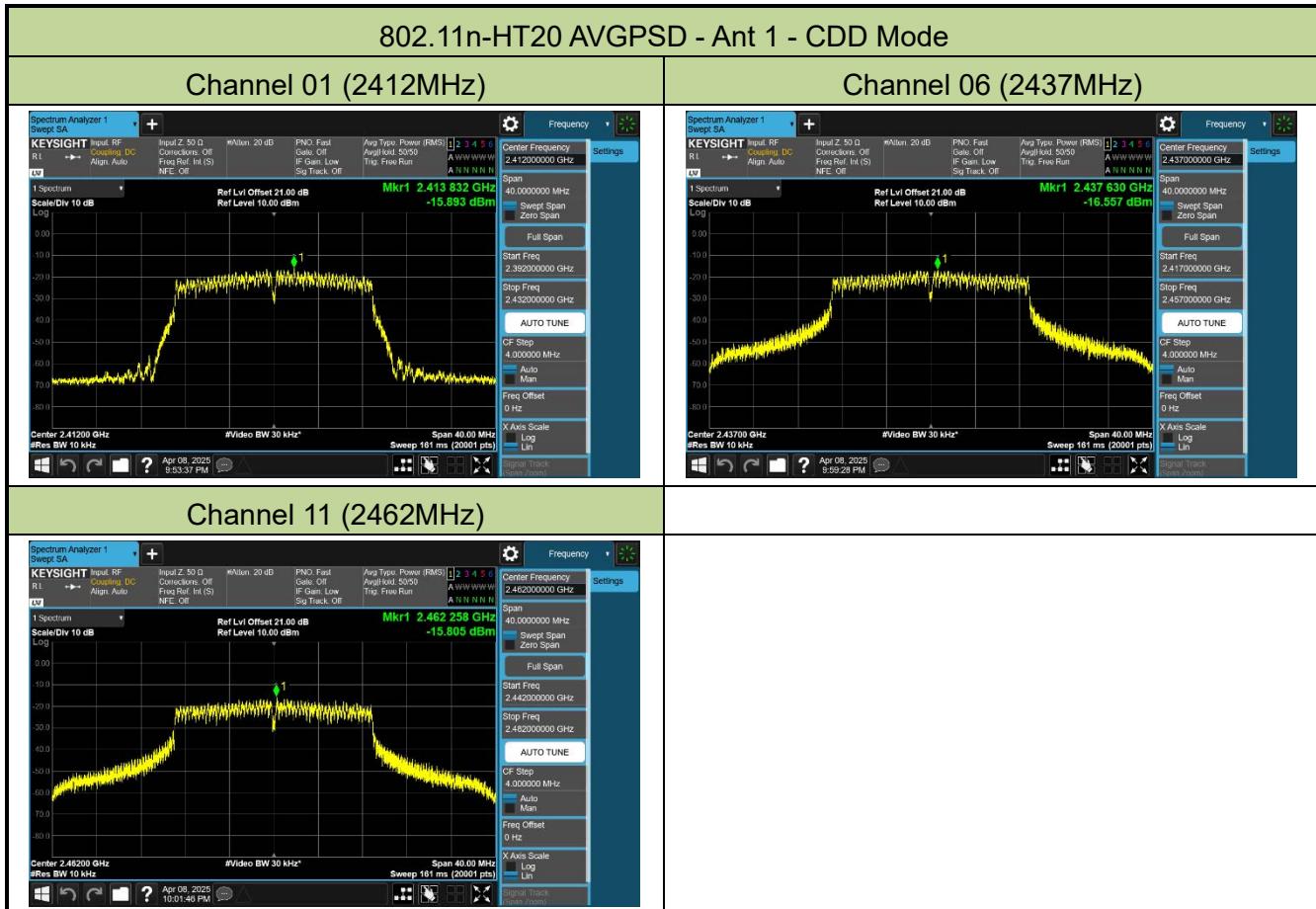


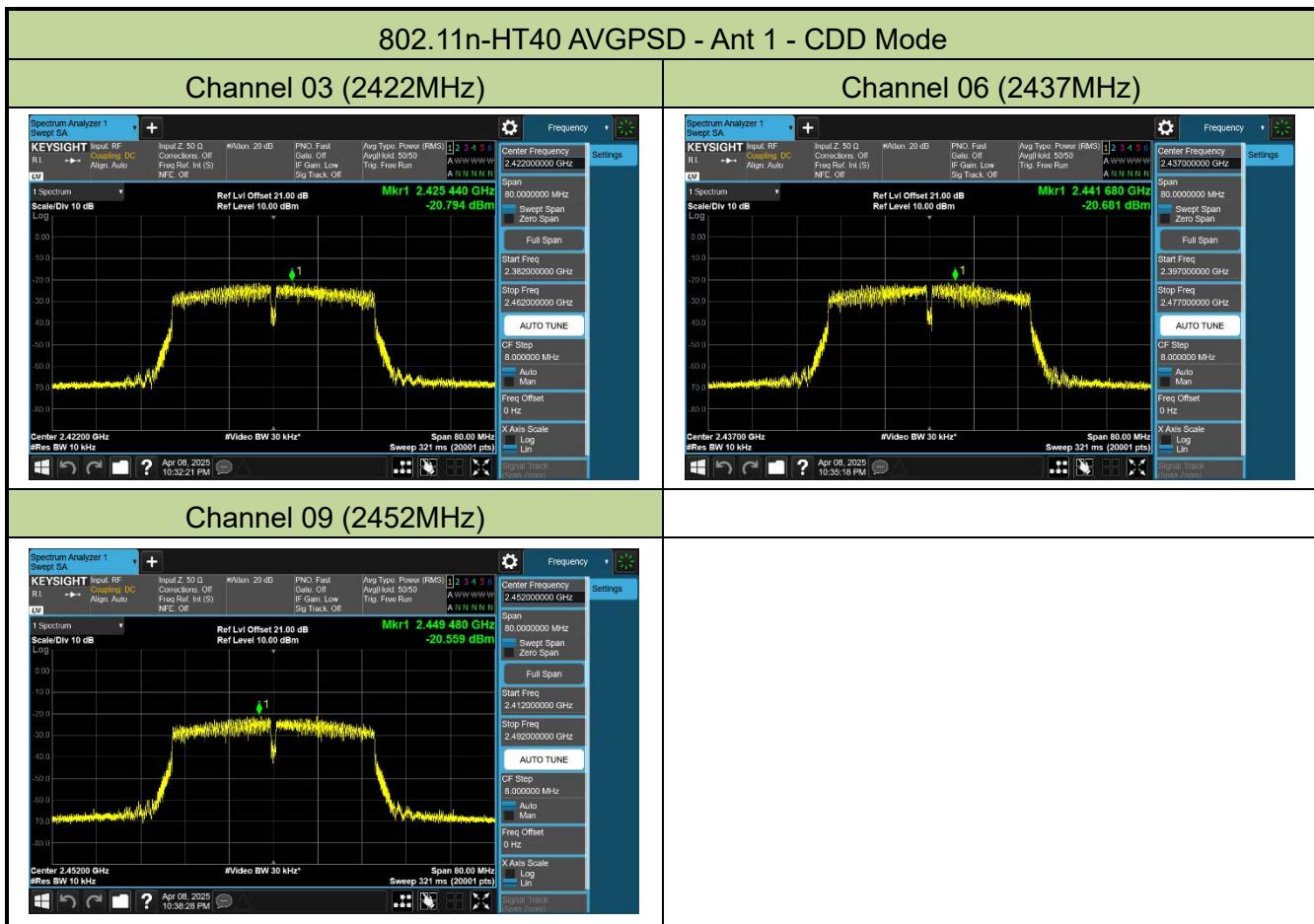


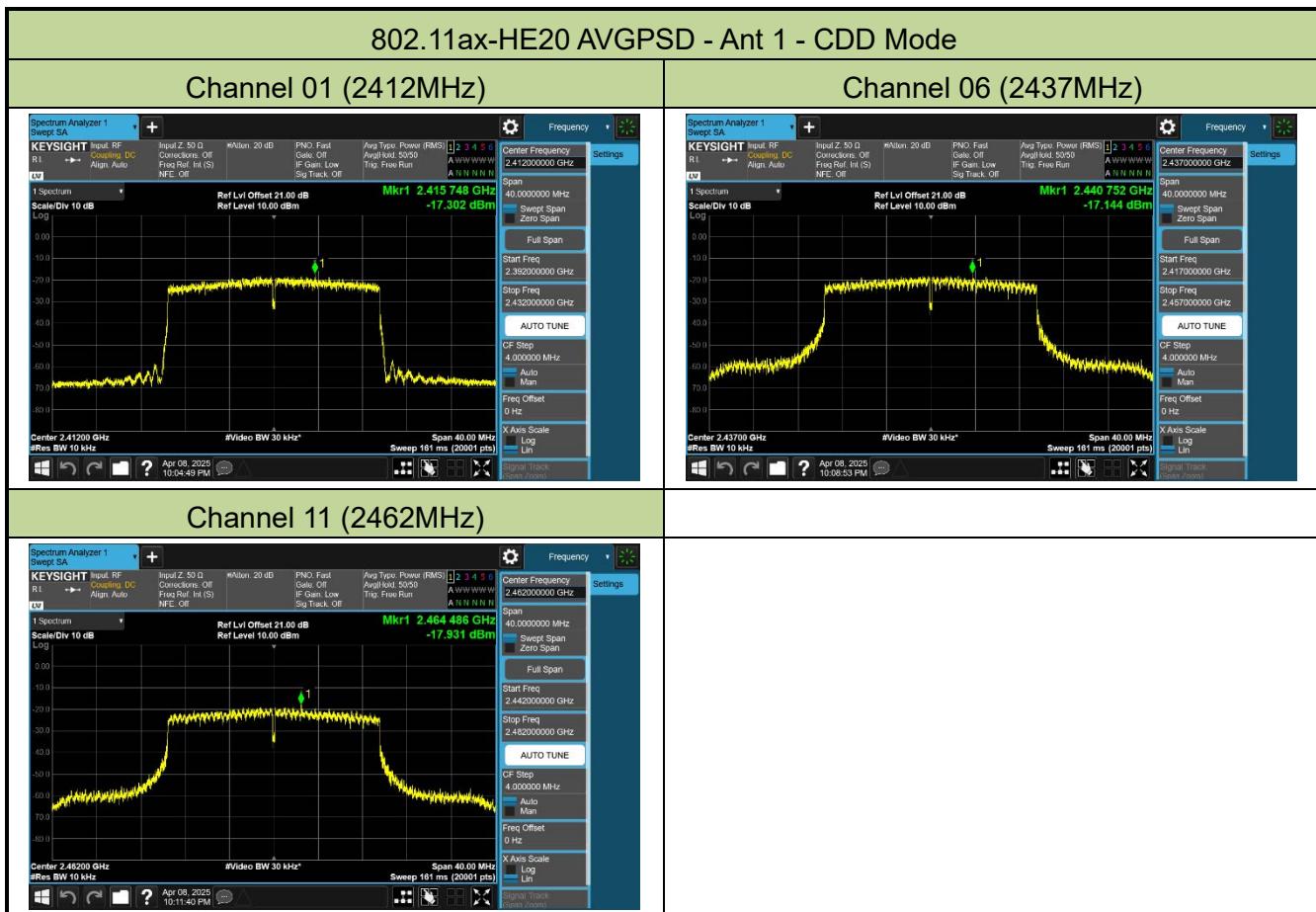


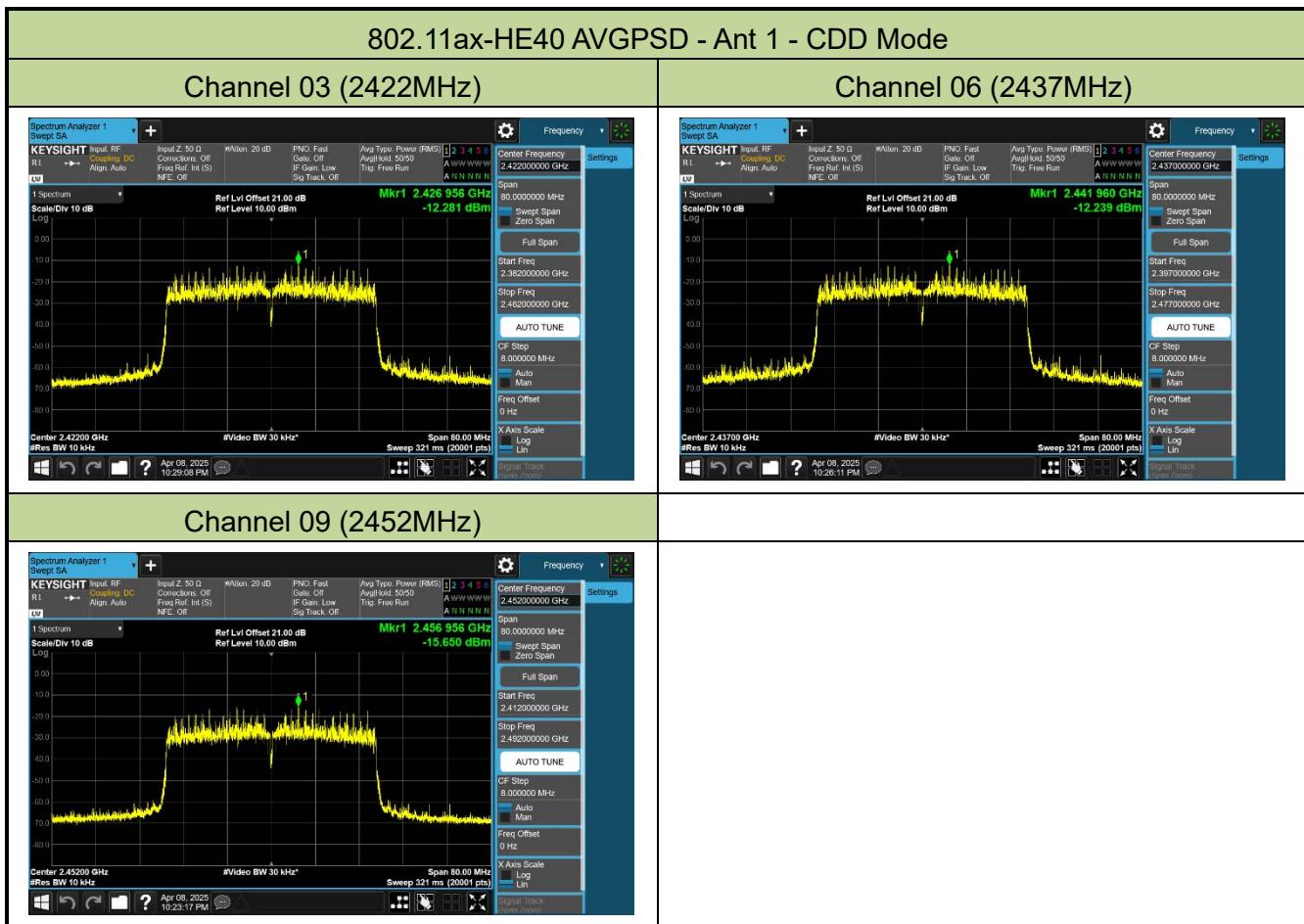












## 7.5. Out-of-Band Spurious Emissions Emissions Measurement

### 7.5.1. Test Limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated 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, based on RF conducted measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

### 7.5.2. Test Procedure Used

ANSI C63.10-2013 - Section 11.11

### 7.5.3. Test Setting

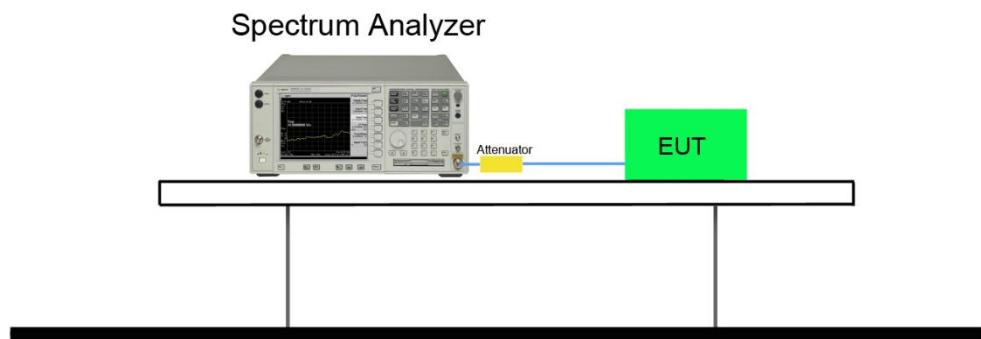
#### Reference level measurement

1. Set instrument center frequency to DTS channel center frequency
2. Set the span to  $\geq$  1.5 times the DTS bandwidth
3. Set the RBW = 100 kHz
4. Set the VBW  $\geq$  3 x RBW
5. Detector = peak
6. Sweep time = auto couple
7. Trace mode = max hold
8. Allow trace to fully stabilize

#### Emission level measurement

1. Set the center frequency and span to encompass frequency range to be measured
2. RBW = 100kHz
3. VBW = 300kHz
4. Detector = Peak
5. Trace mode = max hold
6. Sweep time = auto couple
7. The trace was allowed to stabilize

#### 7.5.4. Test Setup



### 7.5.5. Test Result

Product	Smart touch panel tablet	Temperature	21°C
Test Engineer	Peter	Relative Humidity	56%
Test Site	SR7	Test Date	2025/4/8

Test Mode	Data Rate / MCS	Channel No.	Frequency (MHz)	Limit (dBc)	Result
802.11b	1Mbps	01	2412	30	Pass
802.11b	1Mbps	06	2437	30	Pass
802.11b	1Mbps	11	2462	30	Pass
802.11g	6Mbps	01	2412	30	Pass
802.11g	6Mbps	06	2437	30	Pass
802.11g	6Mbps	11	2462	30	Pass
802.11n-HT20	MCS0	01	2412	30	Pass
802.11n-HT20	MCS0	06	2437	30	Pass
802.11n-HT20	MCS0	11	2462	30	Pass
802.11n-HT40	MCS0	03	2422	30	Pass
802.11n-HT40	MCS0	06	2437	30	Pass
802.11n-HT40	MCS0	09	2452	30	Pass
802.11ax-HE20	MCS0	01	2412	30	Pass
802.11ax-HE20	MCS0	06	2437	30	Pass
802.11ax-HE20	MCS0	11	2462	30	Pass
802.11ax-HE40	MCS0	03	2422	30	Pass
802.11ax-HE40	MCS0	06	2437	30	Pass
802.11ax-HE40	MCS0	09	2452	30	Pass

