

# TEST REPORT

**Product Name** : Vision Enhancement Imager  
**Model Number** : TB650 2.0, TB650P 2.0  
**FCC ID** : 2AKU5ZG59

**Prepared for** : Wuhan Guide Sensmart Tech Co., Ltd  
**Address** : NO.29,Gaoxin 3rd Road,Donghu New-tech Development  
Zone,Wuhan City,Hubei,P.R.China

**Prepared by** : EMTEK (SHENZHEN) CO., LTD.  
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**Report Number** : ENS2506200031W00503R  
**Date(s) of Tests** : June 30, 2025 to July 21, 2025  
**Date of issue** : July 24, 2025

扫二维码

## TEST RESULT CERTIFICATION

Applicant : Wuhan Guide Sensmart Tech Co., Ltd  
Address : NO.29, Gaoxin 3rd Road, Donghu New-tech Development Zone, Wuhan City, Hubei, P.R.China  
Manufacturer : Wuhan Guide Sensmart Tech Co., Ltd  
Address : NO.29, Gaoxin 3rd Road, Donghu New-tech Development Zone, Wuhan City, Hubei, P.R.China  
EUT : Vision Enhancement Imager  
Model Name : TB650 2.0, TB650P 2.0  
Trademark : Guide

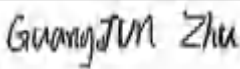
Measurement Procedure Used:


APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 2 , Subpart J FCC 47 CFR Part 15 , Subpart C	PASS

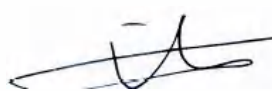
The above equipment was tested by EMTEK (SHENZHEN) CO., LTD. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10 (2013) and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 2 and Part 15.247

The test results of this report relate only to the tested sample identified in this report.

Date of Test : June 30, 2025 to July 21, 2025

Prepared by :   
Guangjun Zhu/Editor

Reviewer :   
Joe Xia/Supervisor

Approve & Authorized Signer :   
Lisa Wang/Manager



## Modified History

Version	Report No.	Revision Date	Summary
V1.0	ENS2506200031W00503R	/	Original Report



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## 1 EUT TECHNICAL DESCRIPTION

Characteristics	Description
<b>Product</b>	Vision Enhancement Imager
<b>Model Number</b>	TB650 2.0, TB650P 2.0
<b>Sample Number</b>	2#
<b>IEEE 802.11 WLAN Mode Supported</b>	<input checked="" type="checkbox"/> 802.11b <input checked="" type="checkbox"/> 802.11g <input checked="" type="checkbox"/> 802.11n(20MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11n(40MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11ax(20MHz channel bandwidth) <input checked="" type="checkbox"/> 802.11ax(40MHz channel bandwidth)
<b>Modulation</b>	<input checked="" type="checkbox"/> DSSS with DBPSK/DQPSK/CCK for 802.11b <input checked="" type="checkbox"/> OFDM with BPSK/QPSK/16QAM/64QAM for 802.11g/n <input checked="" type="checkbox"/> OFDMA with BPSK/QPSK/16QAM/64QAM/256QAM/1024QAM for 802.11ax
<b>Operating Frequency Range</b>	<input checked="" type="checkbox"/> 2412-2462MHz for 802.11b/g/n(HT20)/ax(HE20); <input checked="" type="checkbox"/> 2422-2452MHz for 802.11n(HT40)/ax(HE40);
<b>Number of Channels</b>	<input checked="" type="checkbox"/> 11 channels for 802.11b/g/n(HT20)/ax(HE20); <input checked="" type="checkbox"/> 7 Channels for 802.11n(HT40)/ax(HE40);
<b>Transmit Power Max</b>	15.18 dBm
<b>Antenna Type</b>	Internal Antenna
<b>Antenna Gain</b>	1.30 dBi Note: The antenna information provided by the manufacturer will have a certain impact on the test results.
<b>Power Supply</b>	DC 5V from Adapter DC 3.6V from internal battery
<b>Date of Received</b>	June 30, 2025

**Note:** for more details, please refer to the user's manual of the EUT.

## 2 SUMMARY OF TEST RESULT

FCC Part Clause	Test Parameter	Verdict	Remark
15.247(a)(2)	Emission Bandwidth	PASS	
15.247(b)(3)	Maximum Peak Conducted Output Power	PASS	
15.247(e)	Maximum Power Spectral Density Level	PASS	
15.247(d)	Unwanted Emission Into Non-Restricted Frequency Bands	PASS	
15.247(d) 15.209	Unwanted Emission Into Restricted Frequency Bands (conducted)	PASS	
15.247(d) 15.209	Radiated Spurious Emission	PASS	
15.207	Conducted Emission Test	PASS	
15.247(b)	Antenna Application	PASS	
	NOTE1: N/A (Not Applicable) NOTE2: According to FCC OET KDB 558074, the report use radiated measurements in the restricted frequency bands. In addition, the radiated test is also performed to ensure the emissions emanating from the device cabinet also comply with the applicable limits.		

### RELATED SUBMITTAL(S) / GRANT(S):

This submittal(s) (test report) is intended for **FCC ID: 2AKU5ZG59** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

### 3 TEST METHODOLOGY

#### 3.1 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to its specifications, the EUT must comply with the requirements of the following standards:

FCC 47 CFR Part 2, Subpart J

FCC 47 CFR Part 15, Subpart C

FCC KDB 558074 D01 15.247 Meas Guidance v05r02

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

#### 3.2 MEASUREMENT EQUIPMENT USED

##### For Conducted Emission Test Equipment

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESCI	101045	2025/5/9	1Year
PULSE LIMITER	Rohde & Schwarz	ESH3-Z2	100107	2025/5/9	1Year
AMN	Rohde & Schwarz	ESH3-Z5	100191	2025/5/9	1Year
AMN	Schwarzbeck	NNLK 8129	8129203	2025/5/9	1Year
V-Network	Rohde & Schwarz	ESH3-Z6	100011	2025/5/9	1Year
V-Network	Rohde & Schwarz	ESH3-Z6	100253	2025/5/9	1Year

##### For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Pre-Amplifier	HP	8447F	2944A07999	2025/5/9	1Year
EMI Test Receiver	Rohde & Schwarz	ESCI	101414	2025/5/9	1Year
Bilog Antenna	Schwarzbeck	VULB9163	712	2024/6/15	2 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1178	2025/5/17	2 Year
Pre-Amplifier	Bonn	BLMA 0118-5G	2213967B-01	2024/10/18	1Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	100967	2025/5/9	1Year
Horn antenna	Schwarzbeck	BBHA9170	9170-399	2025/5/13	2 Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	2025/5/13	2 Year

##### Cable:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Coaxial Cable	TIMES	NmNm-7-C1570 2	N/A	2025/5/22	1Year
Coaxial Cable	TIMES	HF290-NMSM-6. 5M	N/A	2025/5/22	1Year
Coaxial Cable	TIMES	LMR-240 N-N	N/A	2025/5/22	1Year

##### For other test items:

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Signal Analyzer	Agilent	N9010A	MY53470879	2025/5/10	1Year
Vector Signal Generator	Agilent	N5182B	MY53050878	2025/5/10	1Year
Analog Signal Generator	Agilent	N5171B	MY53050553	2025/5/10	1Year
RF Control Unit(Power Meter)	Tonscend	JS0806-2	\	2025/5/10	1Year
Temperature&Hum idity Chamber	ESPEC	EL-02KA	12107166	2025/5/10	1Year

### 3.3 DESCRIPTION OF TEST MODES

The EUT has been tested under its typical operating condition.

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

Test of channel included the lowest and middle and highest frequency to perform the test, then record on this report.

Those data rates (802.11b: 1 Mbps; 802.11g: 6 Mbps; 802.11n : MCS0) were used for all test.

Pre-defined engineering program for regulatory testing used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Frequency and Channel list for 802.11 b/g/n(HT20)/ ax(HE20):

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

Frequency and Channel list for 802.11 n(HT40)/ax(HE40):

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

Test Frequency and Channel for 802.11 b/g/n(HT20)/ ax(HE20):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	6	2437	11	2462

Test Frequency and Channel for 802.11 b/g/n(HT40) /ax(HE40):

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	6	2437	9	2452



## 4 FACILITIES AND ACCREDITATIONS

### 4.1 FACILITIES

All measurement facilities used to collect the measurement data are located at:

EMTEK (Shenzhen) Co., Ltd.

Building 69, Majialong Industry Zone District, Nanshan District, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22.

### 4.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with preselectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 4.3 LABORATORY ACCREDITATIONS AND LISTINGS

Site Description

EMC Lab.

: **Accredited by CNAS**

The Certificate Registration Number is L2291

The Laboratory has been assessed and proved to be in compliance with CNAS-CL01 (identical to ISO/IEC 17025:2017)

**Accredited by FCC**

Designation Number: CN1204

Test Firm Registration Number: 882943

**Accredited by A2LA**

The Certificate Number is 4321.01

**Accredited by Industry Canada**

The Conformity Assessment Body Identifier is CN0008

Name of Firm

: EMTEK (SHENZHEN) CO., LTD.

Site Location

: Building 69, Majialong Industry Zone, Nanshan District, Shenzhen, Guangdong, China

## 5 TEST SYSTEM UNCERTAINTY

The following measurement uncertainty levels have been estimated for tests performed on the apparatus:

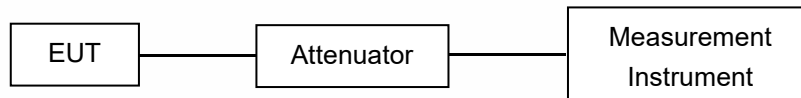
Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-5}$
Maximum Peak Output Power Test	$\pm 1.0\text{dB}$
Conducted Emissions Test	$\pm 2.0\text{dB}$
Radiated Emission Test	$\pm 2.0\text{dB}$
Power Density	$\pm 2.0\text{dB}$
Occupied Bandwidth Test	$\pm 1.0\text{dB}$
Band Edge Test	$\pm 3\text{dB}$
All emission, radiated	$\pm 3\text{dB}$
Antenna Port Emission	$\pm 3\text{dB}$
Temperature	$\pm 0.5^{\circ}\text{C}$
Humidity	$\pm 3\%$

Measurement Uncertainty for a level of Confidence of 95%

## 6 SETUP OF EQUIPMENT UNDER TEST

### 6.1 RADIO FREQUENCY TEST SETUP 1

The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.



### 6.2 RADIO FREQUENCY TEST SETUP 2

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10. The test distance is 3m. The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.

The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Below 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna (loop antenna). The Antenna should be positioned with its plane vertical at the specified distance from the EUT and rotated about its vertical axis for maximum response at each azimuth about the EUT. The center of the loop shall be 1 m above the ground. For certain applications, the loop antenna plane may also need to be positioned horizontally at the specified distance from the EUT.

Above 30MHz:

The EUT is placed on a turntable 0.8 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Above 1GHz:

The EUT is placed on a turntable 1.5 meters above the ground in the chamber, 3 meter away from the antenna. The maximal emission value is acquired by adjusting the antenna height, polarisation and turntable azimuth. Normally, the height range of antenna is 1 m to 4 m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

Measurements shall be taken, using the following steps, at a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment (see RSS-Gen for applicable versions of ANSI and CISPR standards).

- (1) Line the ground plane with absorbers between the transmitter and the receive antenna to minimize reflections. The absorbers used should have a minimum-rated attenuation of 20 dB through the measurement frequency range of interest. The absorbers shall be positioned to replicate the layout used when compliance with the applicable acceptability criterion was achieved, as set forth in the aforementioned standards on site validation.
- (2) Set the height of the receive antenna to 1.5 m. The receive antenna must be one that was designed and fabricated to operate over the entire frequency range of interest, for example, an appropriate standard gain horn.
- (3) The distance between the receive antenna and the radiating source shall be sufficient in order to ensure far-field conditions.
- (4) Mount the transmitter at a height of 1.5 m.
- (5) Configure the device under test (DUT) to produce the maximum power spectral density as measured while assessing compliance with Section 6.2.2 (i.e. channel frequency, modulation type and data rate). If the DUT is equipped with a detachable antenna and the antenna is intended for remote installation (i.e.

tower-mounted), the DUT may be substituted with a suitable signal generator. The level and frequency settings on the generator shall be set so as to reproduce the maximum power spectral density, measured within a 1 MHz bandwidth, obtained while assessing compliance to Section 6.2.2.

(6) Position the transmitter or the radiating antenna so that elevation pattern measurements can be taken.

(7) Find the 0° reference point in the horizontal plane.

(8) Care should be taken when positioning the receive antenna to avoid cross-polarization. Antennas of known mounting polarization should be assessed with the receive antenna oriented in the same polarity. If the polarization of the transmit antenna is unknown or the transmit antenna can be mounted in either polarization, e.i.r.p. measurements should be performed to find which mounting polarity provides the highest e.i.r.p. value. Testing shall be carried out with the receive antenna and the DUT mounted in each polarity.

(9) The emission shall be centred on the display of the spectrum analyzer with the following settings:

i. If the power spectral density of the DUT was assessed with a peak detector and the antenna cannot be detached from the DUT, the spectrum analyzer shall be set to a peak detector with a resolution bandwidth and video bandwidth of 1 MHz.

ii. If the power spectral density of the DUT was assessed using a sample detector with power averaging and the antenna cannot be detached from the DUT, the spectrum analyzer shall be set to a sample detector, configured to produce 100 power averages and set with a resolution bandwidth, as well as a video bandwidth of 1 MHz.

iii. If the antenna can be detached from the DUT, a continuous wave (CW) signal equal to that of the power spectral density measurement may be used, the spectrum analyzer shall be set to peak detector with a resolution bandwidth and video bandwidth of 1 MHz.

(10) Rotate the turntable 360° recording the field strength at each step. Throughout the main beam of the antenna, the step size shall be kept to a maximum of 1°.

Once outside the main beam of the antenna, the maximum step size shall be as follows, when compared to the requirements of Section 6.2.2:

i. Between 0° and 8°, maximum step size of 2°;

ii. Between 8° and 40°, maximum step size of 4°;

iii. Between 40° and 45°, maximum step size of 1°;

iv. Between 45° and 90°, maximum step size of 5°.

Once the mask reaches 90°, the mask will be inverted and the step size will follow in the same manner as above.

For the purpose of this procedure, the main beam of the antenna is defined as the 3 dB beamwidth.

(11) Convert the measured field strength values in terms of e.i.r.p. density (dBW/1 MHz) using the following equation:

$$\text{e.i.r.p. density (dBW/MHz)} = 10 \log((E \cdot r)^2 / 30)$$

E = field strength in V/m

r = measurement distance in metres

(12) Plot the results against the emission mask with reference to the horizontal plane.

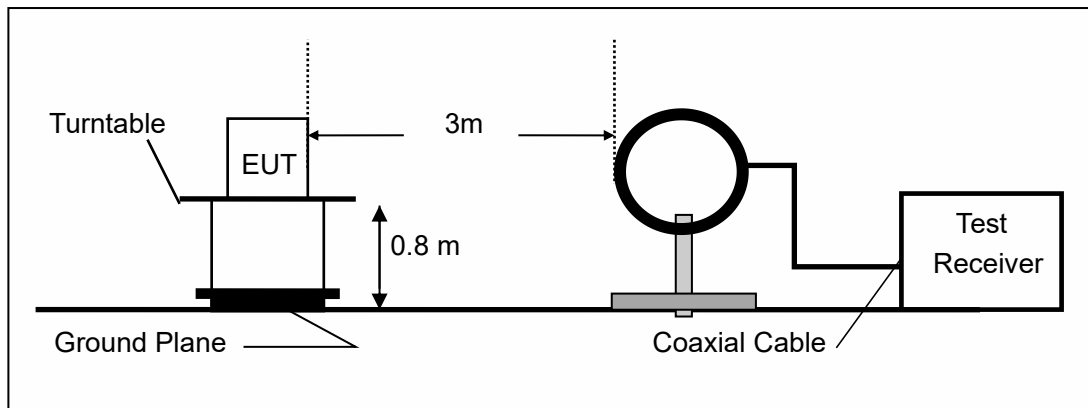
(13) Using the plot, the 0° can be rotated to determine the worst-case installation tilt angle.

(14) Testing shall be performed using the highest gain antenna for every antenna type, if applicable.

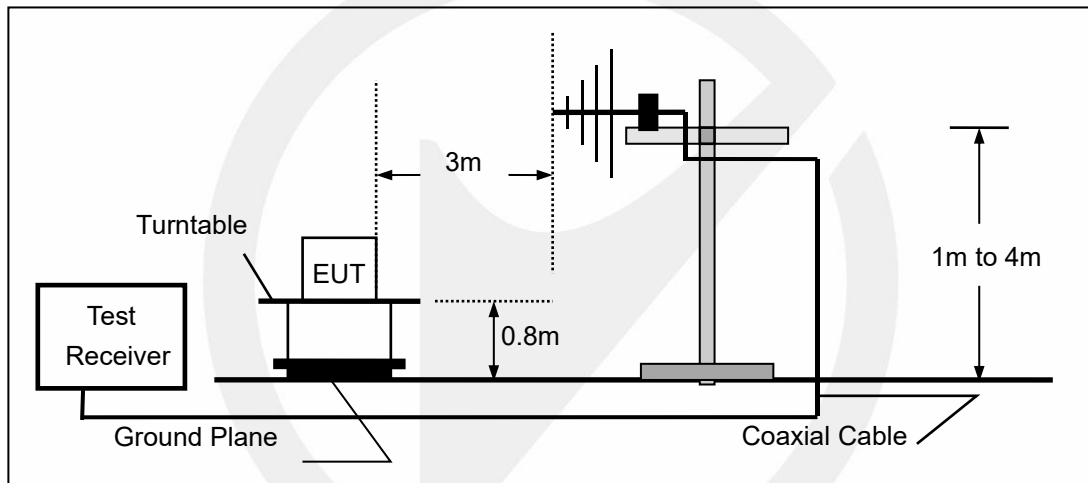
(15) Antenna type(s), antenna model number(s), and worst-case tilt angle(s) necessary to remain compliant with the elevation mask requirement set forth in Section 6.2.2(3) of RSS-247 shall be clearly indicated in the user manual.

The following figure is an example of a polar elevation mask measured using the Method 1 reference to dBμV/m at 3 m.

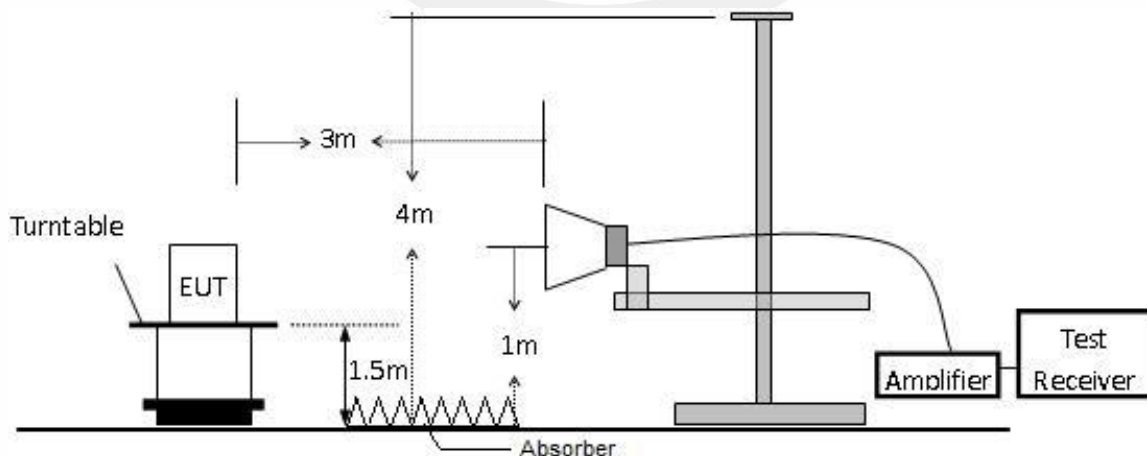
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



(b) Radiated Emission Test Set-Up, Frequency Below 1000MHz



(c) Radiated Emission Test Set-Up, Frequency above 1000MHz

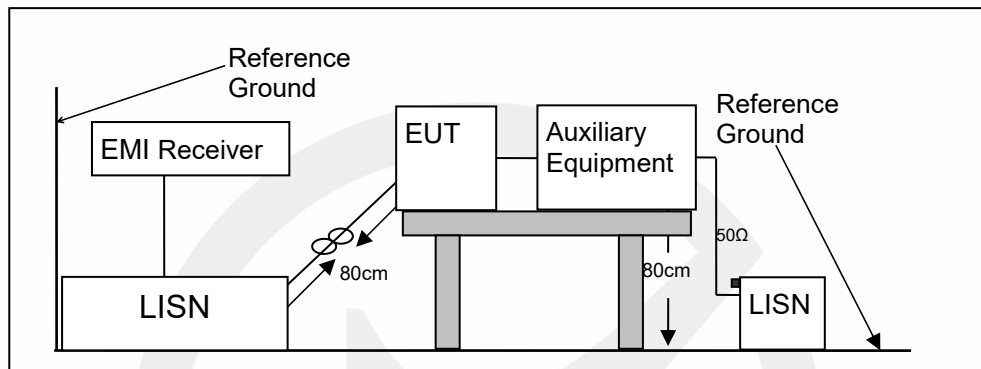


### 6.3 CONDUCTED EMISSION TEST SETUP

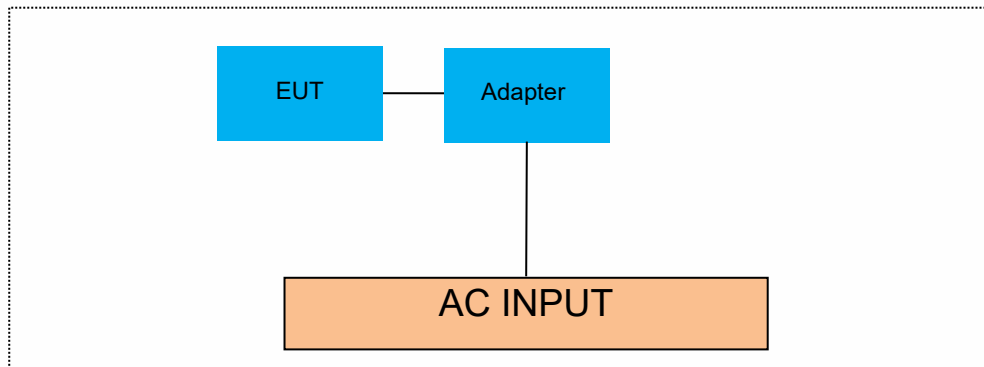
The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be at least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.8 m.

According to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-Peak and average detector mode.



#### 6.4 BLOCK DIAGRAM CONFIGURATION OF TEST SYSTEM



#### 6.5 SUPPORT EQUIPMENT

EUT Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
/	/	/	/

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
/	/	/	/

##### Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



## 7 TEST REQUIREMENTS

### 7.1 MINIMUM (6DB) OCCUPIED BANDWIDTH

#### 7.1.1 Applicable Standard

According to FCC Part15.247 (a)(2) and KDB 558074 D01 15.247 Meas Guidance v05r02

#### 7.1.2 Conformance Limit

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

#### 7.1.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

#### 7.1.4 Test Procedure

The EUT was operating in WIFI mode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 100 kHz.

Set the video bandwidth (VBW) =300 kHz.

Set Span=2 times OBW

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

Allow the trace to stabilize.

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.

Measure and record the results in the test report.

#### 7.1.5 Test Results

Temperature : 25.5°C

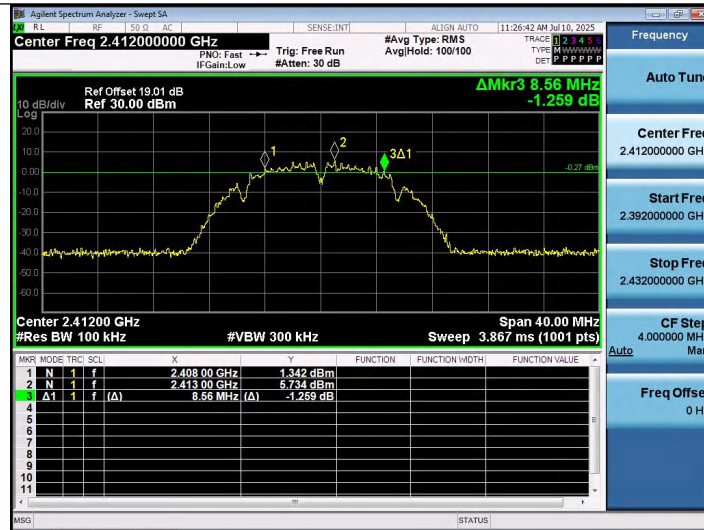
Humidity : 53 %

ATM Pressure:: 1011 mbar

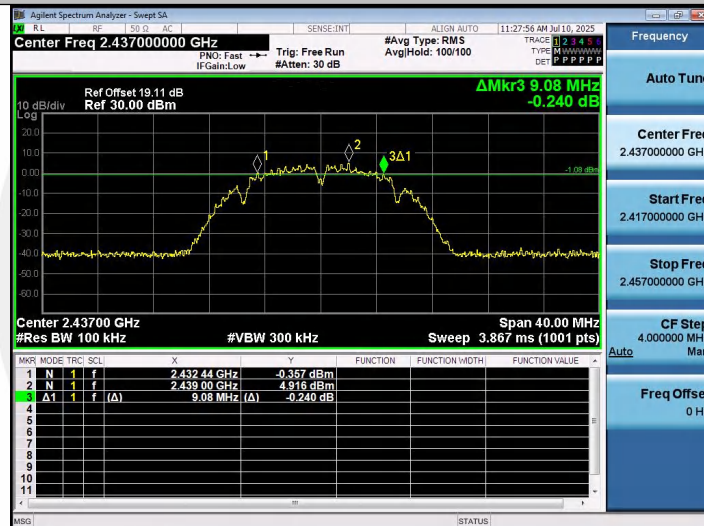
Test By: LJM

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	8.560	2408.000	2416.560	0.5	PASS
11B	Ant1	2437	9.080	2432.440	2441.520	0.5	PASS
11B	Ant1	2462	9.560	2457.000	2466.560	0.5	PASS
11G	Ant1	2412	16.400	2403.800	2420.200	0.5	PASS
11G	Ant1	2437	16.560	2428.720	2445.280	0.5	PASS
11G	Ant1	2462	16.600	2453.680	2470.280	0.5	PASS
11N20SISO	Ant1	2412	17.760	2403.080	2420.840	0.5	PASS
11N20SISO	Ant1	2437	17.760	2428.120	2445.880	0.5	PASS
11N20SISO	Ant1	2462	17.600	2453.200	2470.800	0.5	PASS
11N40SISO	Ant1	2422	36.560	2403.680	2440.240	0.5	PASS
11N40SISO	Ant1	2437	36.400	2418.760	2455.160	0.5	PASS
11N40SISO	Ant1	2452	36.320	2433.840	2470.160	0.5	PASS
11AX20SISO	Ant1	2412	19.120	2402.440	2421.560	0.5	PASS
11AX20SISO	Ant1	2437	18.920	2427.520	2446.440	0.5	PASS
11AX20SISO	Ant1	2462	19.160	2452.400	2471.560	0.5	PASS
11AX40SISO	Ant1	2422	37.200	2403.120	2440.320	0.5	PASS
11AX40SISO	Ant1	2437	38.080	2417.960	2456.040	0.5	PASS
11AX40SISO	Ant1	2452	38.000	2433.040	2471.040	0.5	PASS





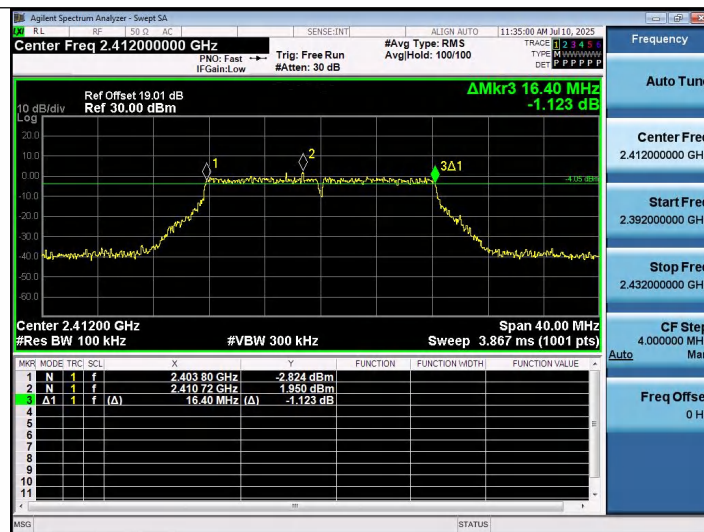
11B-Ant1-2412-PASS



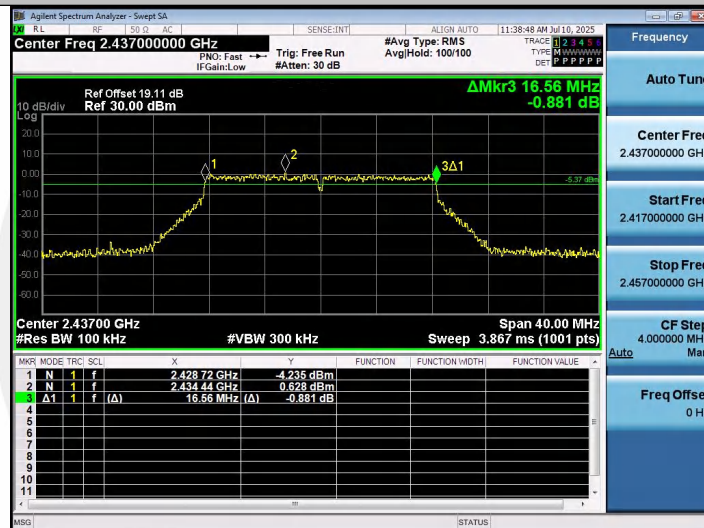
11B-Ant1-2437-PASS



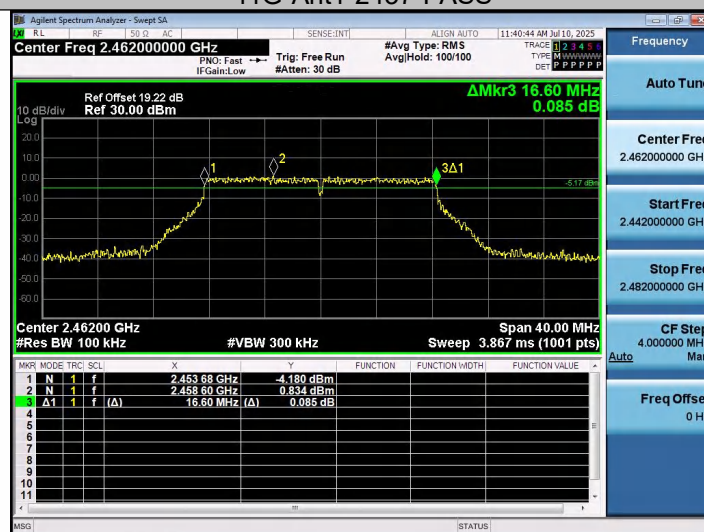
11B-Ant1-2462-PASS



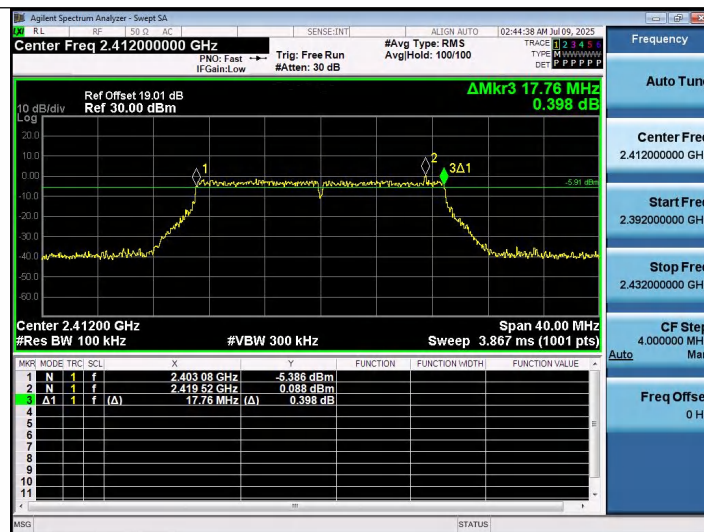
11G-Ant1-2412-PASS



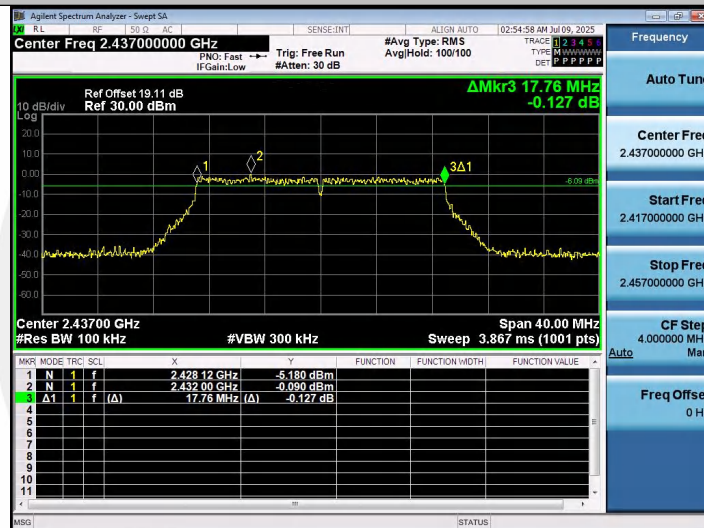
11G-Ant1-2437-PASS



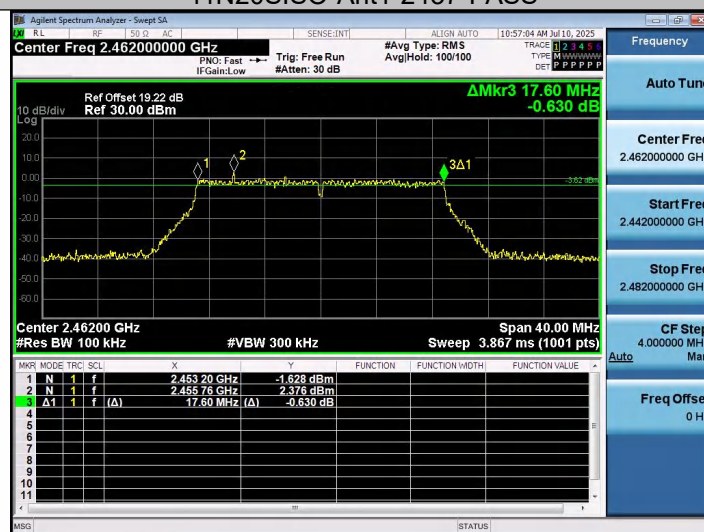
11G-Ant1-2462-PASS



11N20SISO-Ant1-2412-PASS

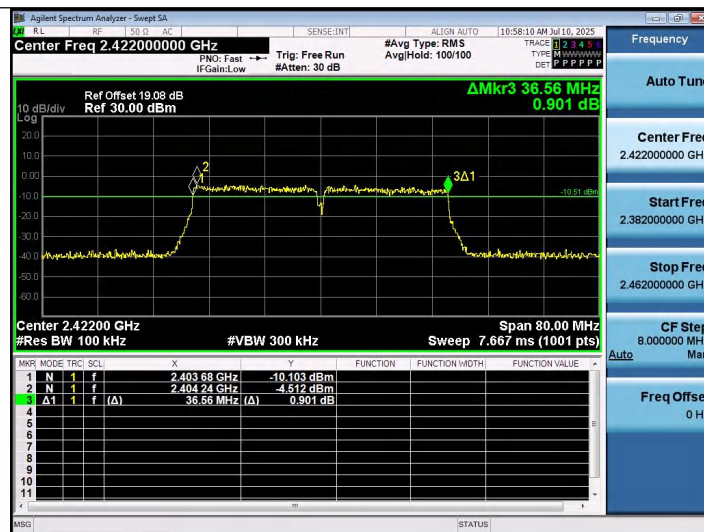


11N20SISO-Ant1-2437-PASS

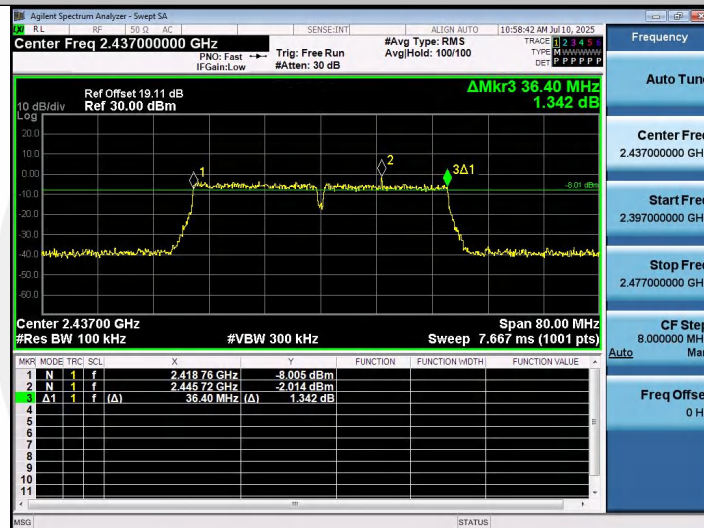


11N20SISO-Ant1-2462-PASS

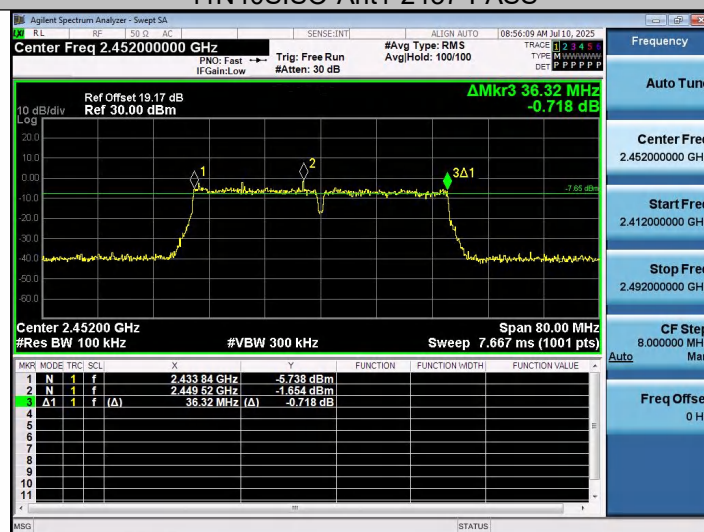




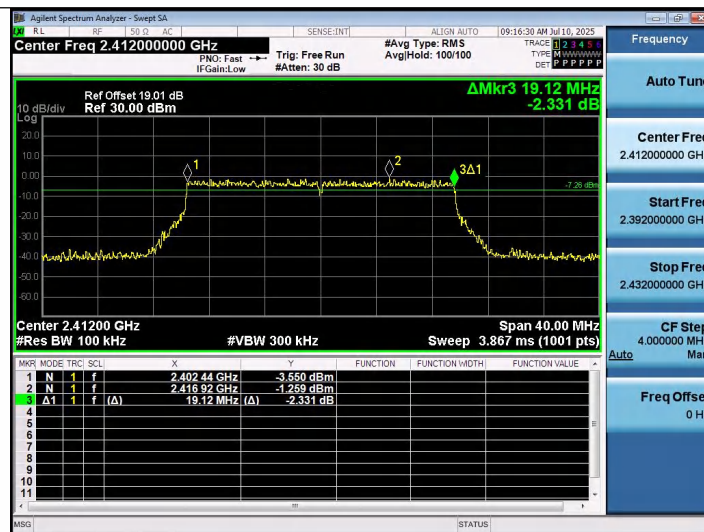
11N40SISO-Ant1-2422-PASS



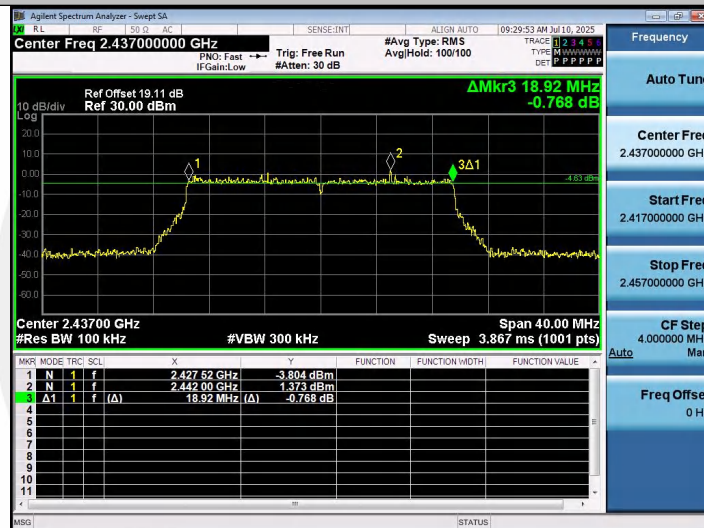
11N40SISO-Ant1-2437-PASS



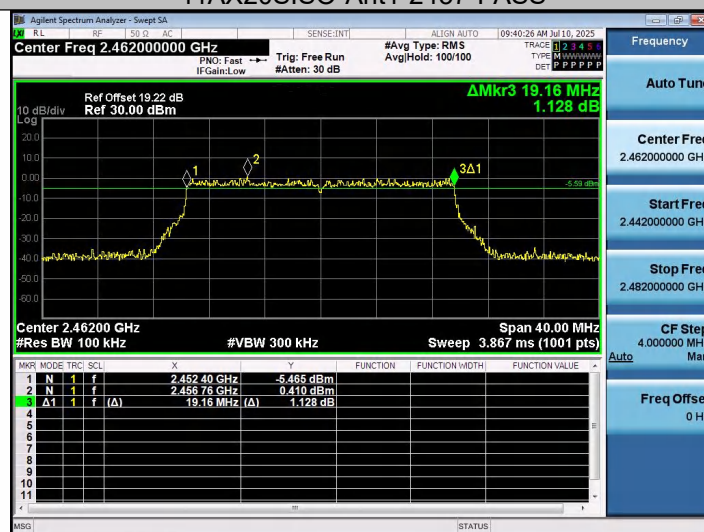
11N40SISO-Ant1-2452-PASS



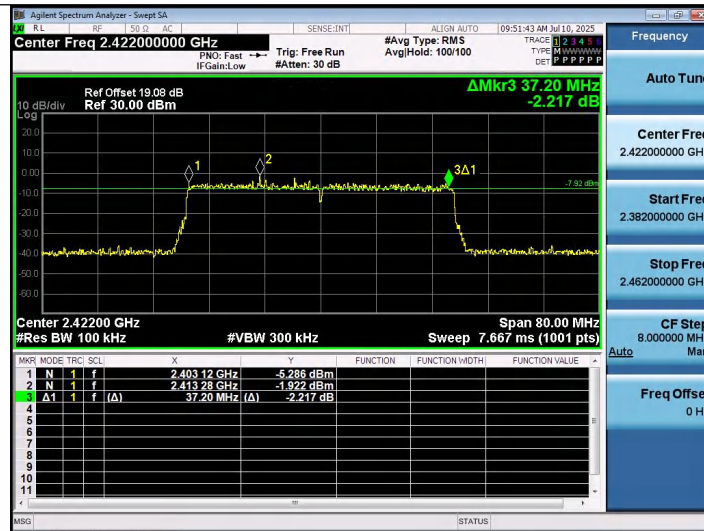
11AX20SISO-Ant1-2412-PASS



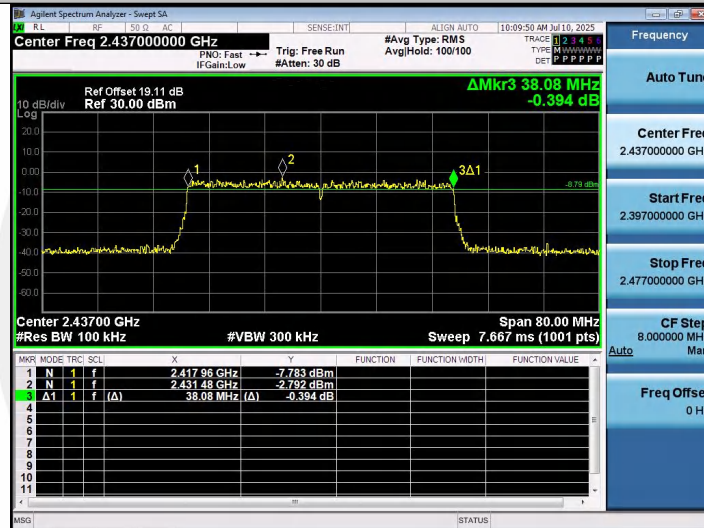
11AX20SISO-Ant1-2437-PASS



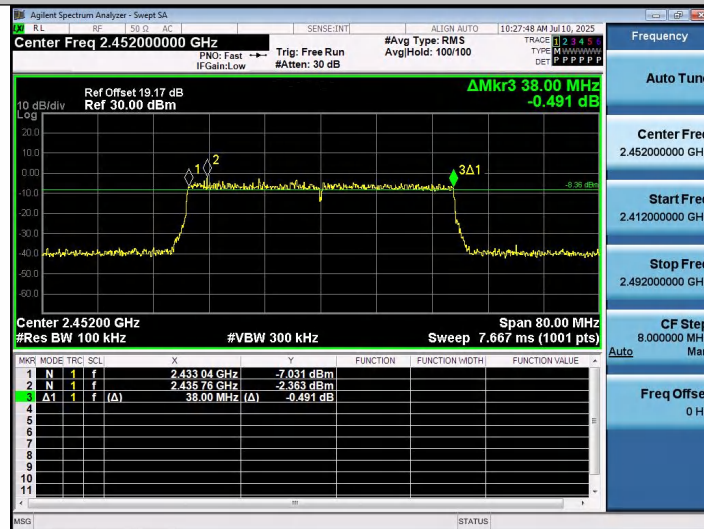
11AX20SISO-Ant1-2462-PASS



11AX40SISO-Ant1-2422-PASS



11AX40SISO-Ant1-2437-PASS



11AX40SISO-Ant1-2452-PASS

## 7.2 DTS 99% BANDWIDTH

### 7.2.1 Applicable Standard

According to FCC Part15.247 (a)(2) and KDB 558074 D01 15.247 Meas Guidance v05r02

### 7.2.2 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

### 7.2.3 Test Procedure

The EUT was operating in Bluetooth mode and controlled its channel. Printed out the test result from the spectrum by hard copy function.

The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum power setting and enable the EUT transmit continuously

Set RBW = 1%-5% OBW.

Set the video bandwidth (VBW)  $\geq 3 \times \text{RBW}$ .

Set Span=approximately 2 to 3 times the 20 dB bandwidth.

Set Detector = Peak.

Set Trace mode = max hold.

Set Sweep = auto couple.

Allow the trace to stabilize.

Use the 99 % power bandwidth function of the instrument

Measure the maximum width of the emission.

If this value varies with different modes of operation (e.g., data rate, modulation format, etc.), repeat this test for each variation.

Measure and record the results in the test report.

### 7.2.4 Test Results

Temperature : 25.5°C

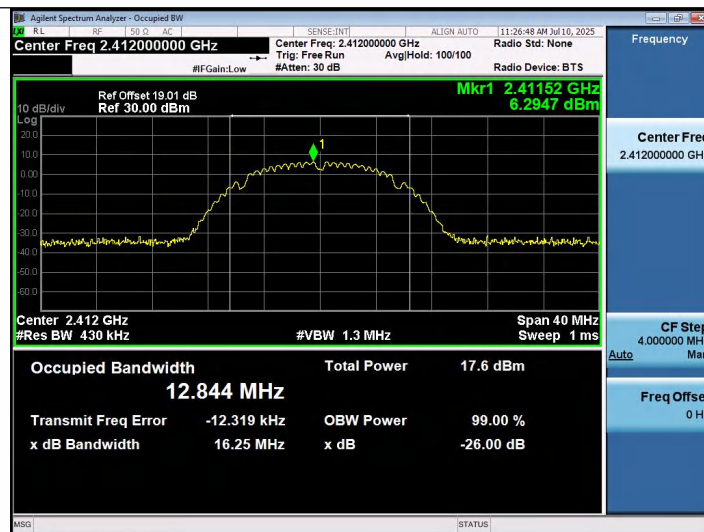
Humidity : 53 %

ATM Pressure:: 1011 mbar

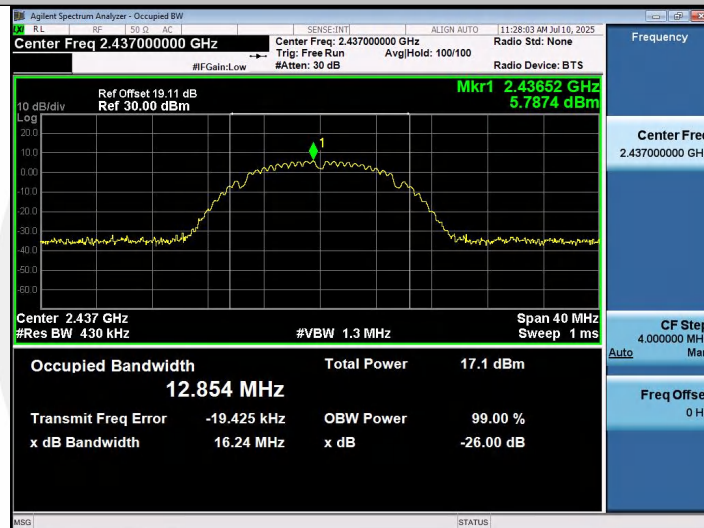
Test By: LJM

TestMode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	12.844	2405.5657	2418.4097	---	---
11B	Ant1	2437	12.854	2430.5536	2443.4076	---	---
11B	Ant1	2462	12.833	2455.5638	2468.3968	---	---
11G	Ant1	2412	17.348	2403.3092	2420.6572	---	---
11G	Ant1	2437	17.432	2428.2655	2445.6975	---	---
11G	Ant1	2462	17.430	2453.2710	2470.7010	---	---
11N20SISO	Ant1	2412	18.313	2402.8281	2421.1411	---	---
11N20SISO	Ant1	2437	18.412	2427.8148	2446.2268	---	---
11N20SISO	Ant1	2462	18.280	2452.8542	2471.1342	---	---
11N40SISO	Ant1	2422	36.695	2403.6057	2440.3007	---	---
11N40SISO	Ant1	2437	36.716	2418.6119	2455.3279	---	---
11N40SISO	Ant1	2452	36.743	2433.5775	2470.3205	---	---
11AX20SISO	Ant1	2412	19.228	2402.3513	2421.5793	---	---
11AX20SISO	Ant1	2437	19.236	2427.3388	2446.5748	---	---
11AX20SISO	Ant1	2462	19.253	2452.4325	2471.6855	---	---
11AX40SISO	Ant1	2422	38.056	2402.9250	2440.9810	---	---
11AX40SISO	Ant1	2437	38.129	2417.8146	2455.9436	---	---
11AX40SISO	Ant1	2452	38.055	2432.9283	2470.9833	---	---

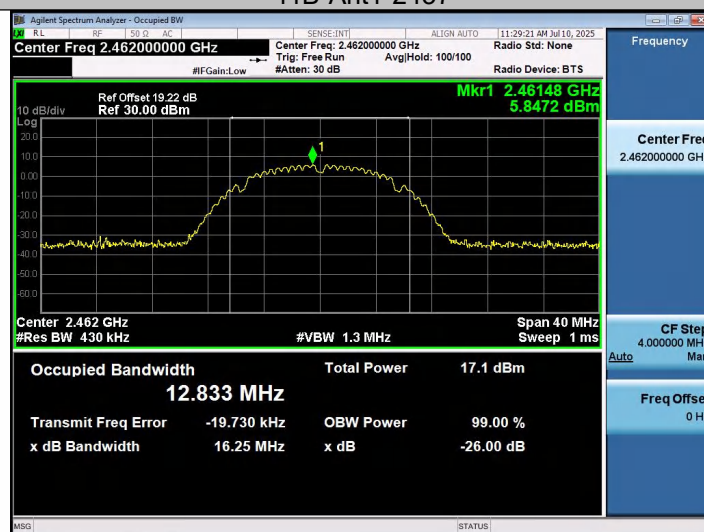




11B-Ant1-2412

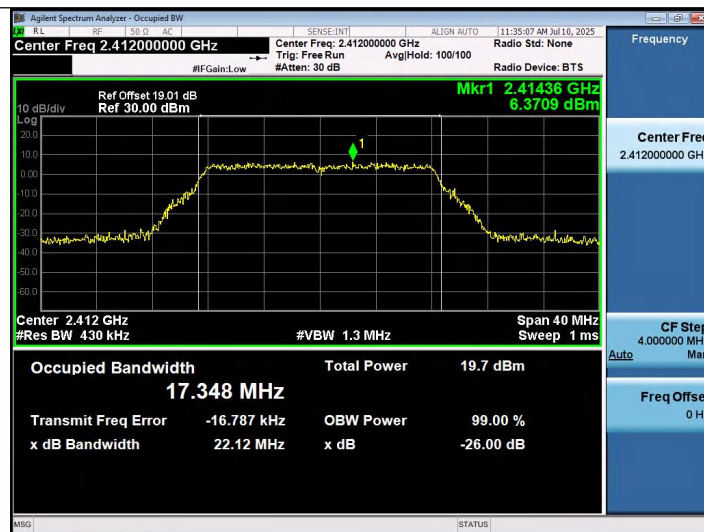


11B-Ant1-2437

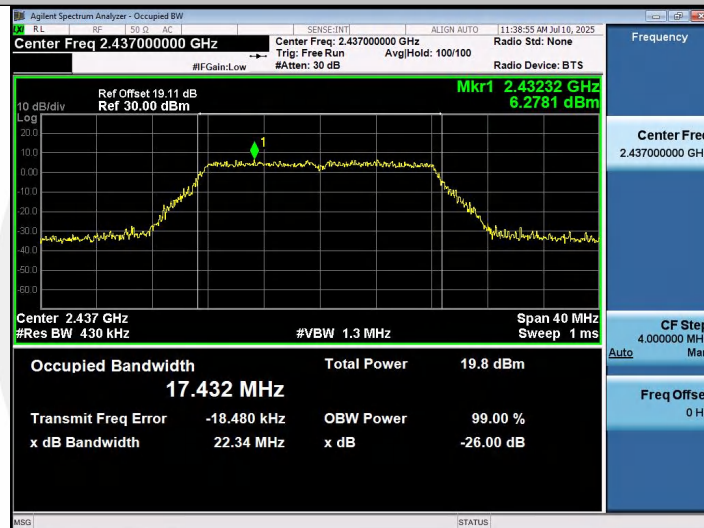


11B-Ant1-2462





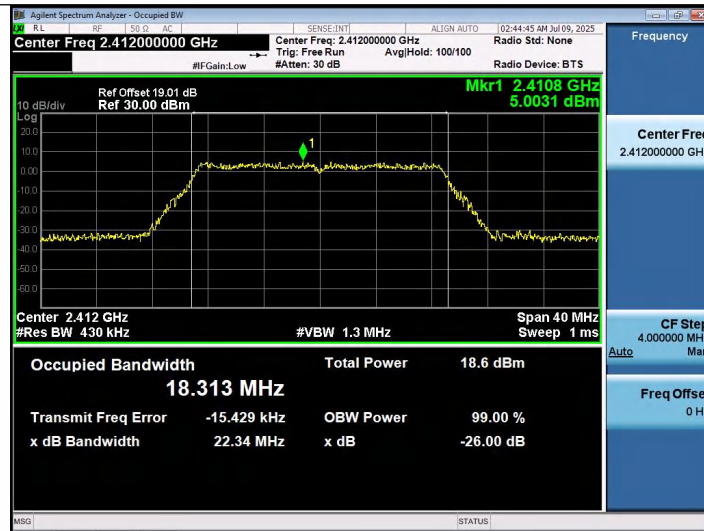
11G-Ant1-2412



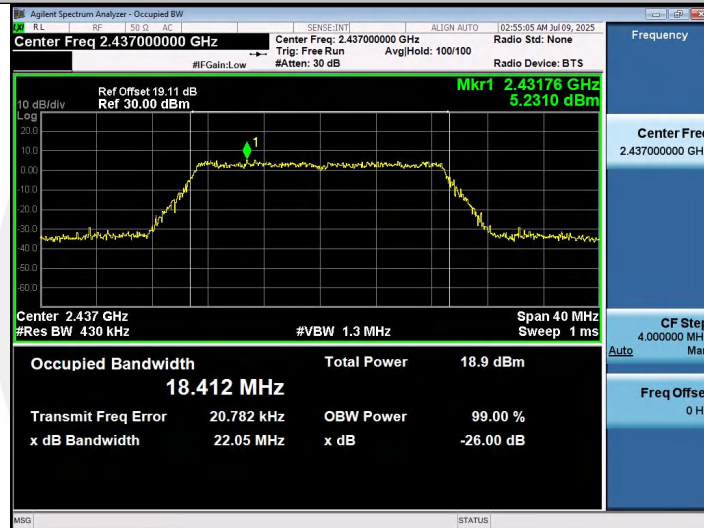
11G-Ant1-2437



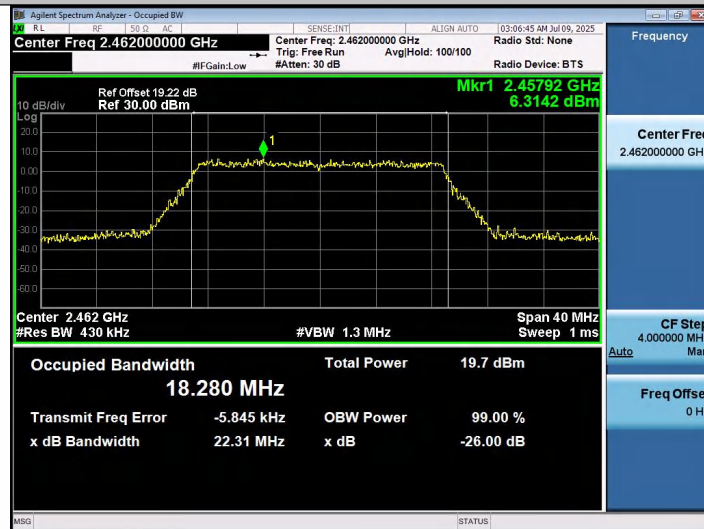
11G-Ant1-2462



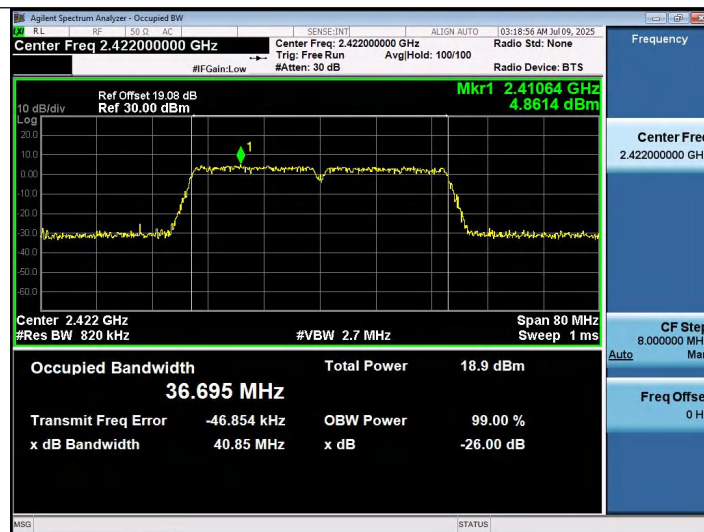
11N20SISO-Ant1-2412



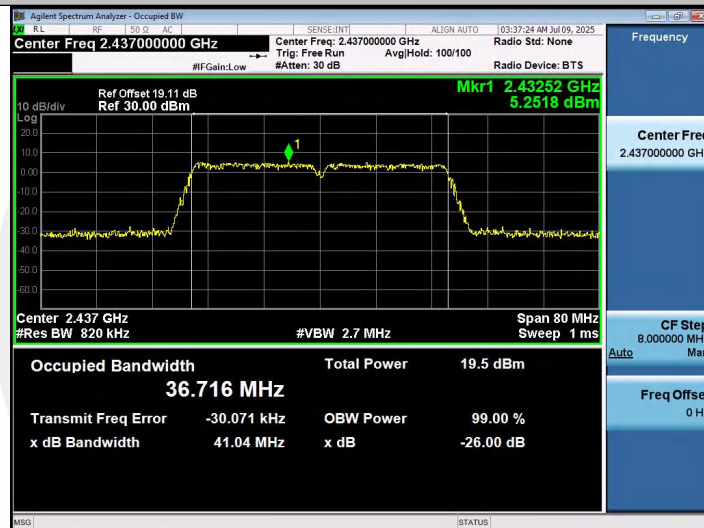
11N20SISO-Ant1-2437



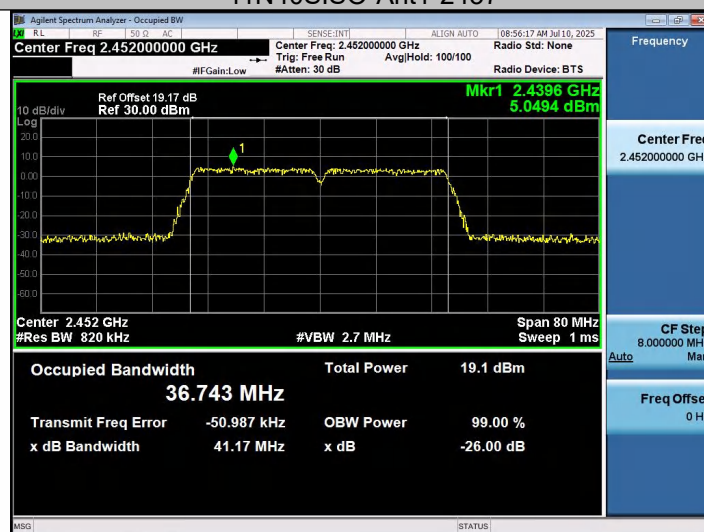
11N20SISO-Ant1-2462



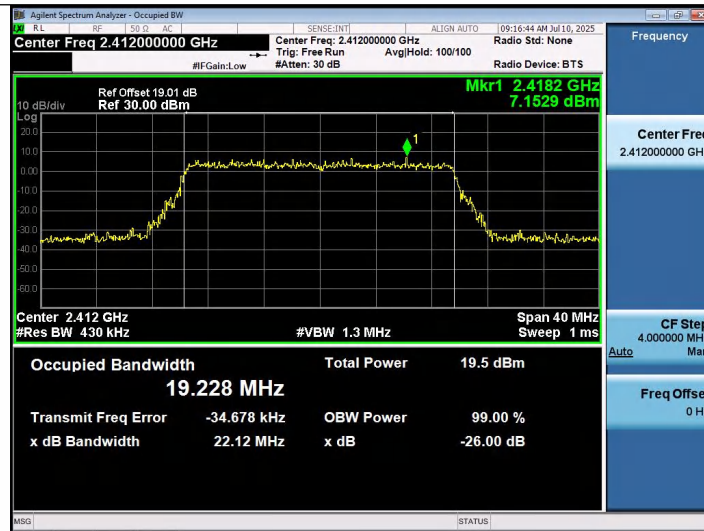
11N40SISO-Ant1-2422



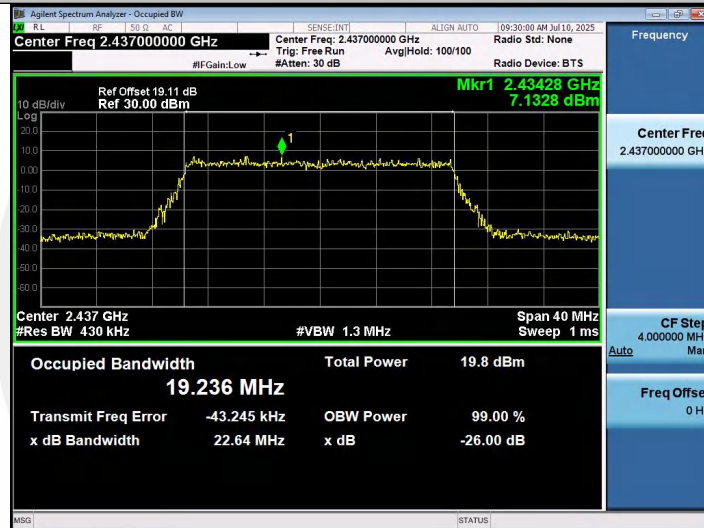
11N40SISO-Ant1-2437



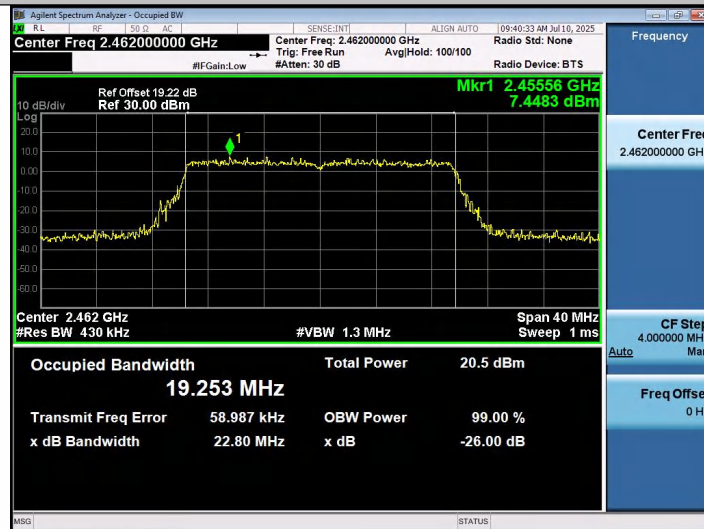
11N40SISO-Ant1-2452



11AX20SISO-Ant1-2412

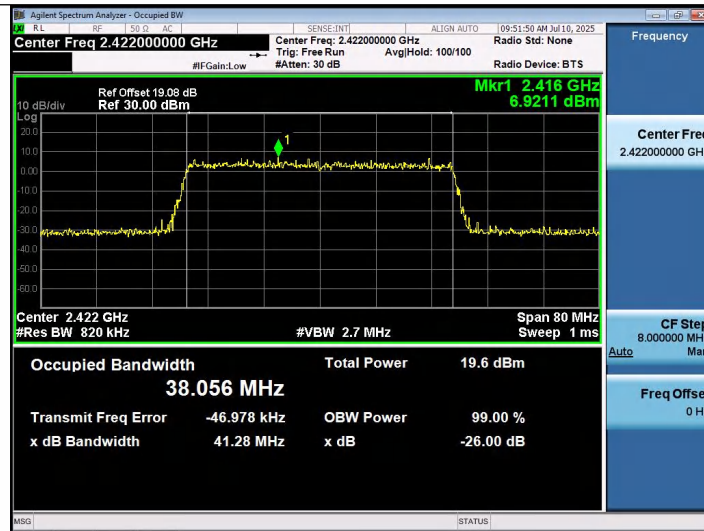


11AX20SISO-Ant1-2437

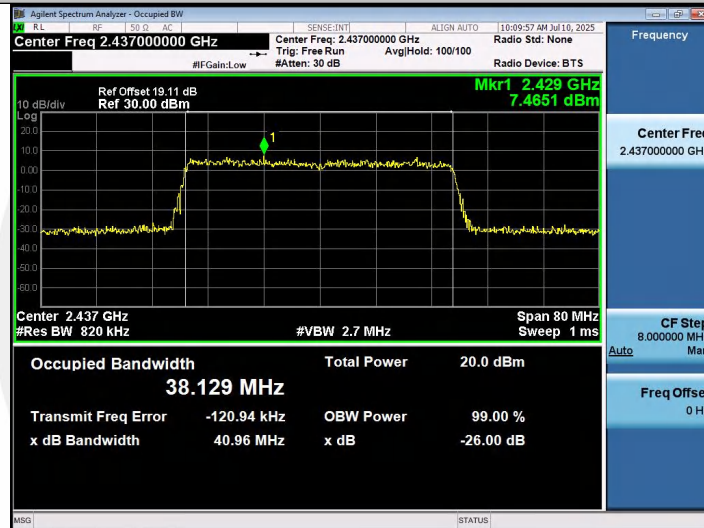


11AX20SISO-Ant1-2462

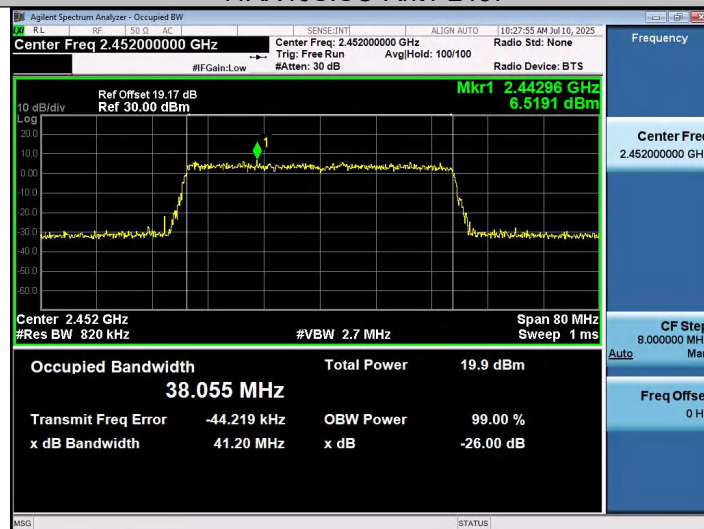




11AX40SISO-Ant1-2422



11AX40SISO-Ant1-2437



11AX40SISO-Ant1-2452

### 7.3 MAXIMUM PEAK CONDUCTED OUTPUT POWER

#### 7.3.1 Applicable Standard

According to FCC Part15.247 (b)(3) and KDB 558074 D01 15.247 Meas Guidance v05r02

#### 7.3.2 Conformance Limit

The maximum peak conducted output power of the intentional radiator for systems using digital modulation in the 2400 - 2483.5 MHz bands shall not exceed: 1 Watt (30dBm).

#### 7.3.3 Test Configuration

Test according to clause 7.1 radio frequency test setup 1

#### 7.3.4 Test Procedure

■ According to FCC Part15.247(b)(3)

The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.

The testing follows FCC public Notice DA 00-705 Measurement Guidelines.

The RF output of EUT was connected to the power meter by RF cable and attenuator. The path loss was compensated to the results for each measurement.

Set to the maximum output power setting and enable the EUT transmit continuously.

Measure the conducted output power with cable loss and record the results in the test report.

Measure and record the results in the report.

■ According to FCC Part 15.247(b)(4):

Conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

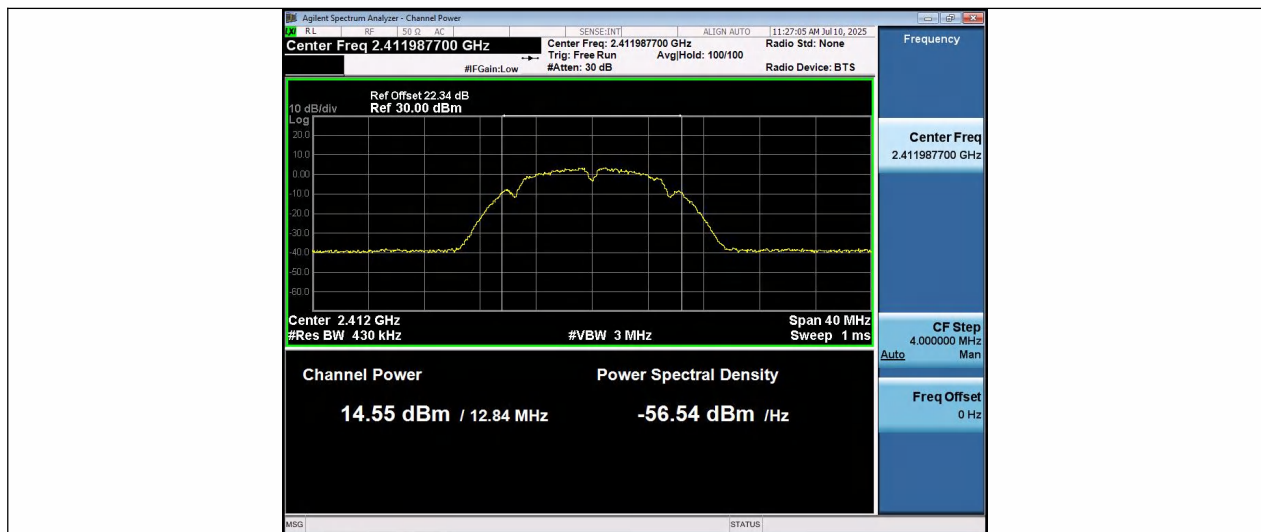
Note: If antenna Gain exceeds 6 dBi, then Output power Limit=30-(Gain- 6)

#### 7.3.5 Test Results

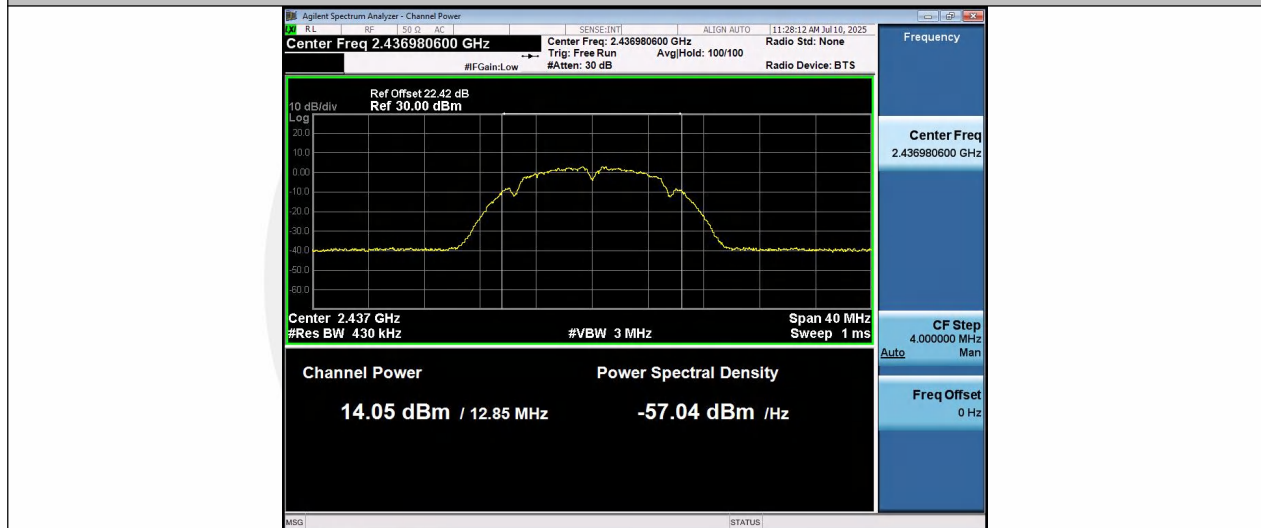
Temperature : 25.5°C  
Humidity : 53 %

ATM Pressure:: 1011 mbar  
Test By: LJM

TestMode	Antenna	Frequen cy[MHz]	Peak Power[dBm]	Conducted Limit[dBm]	EIRP [dBm]	EIRP Limit[dBm]	Verdict
11B	Ant1	2412	14.55	≤30.00	15.85	≤36.00	PASS
		2437	14.05	≤30.00	15.35	≤36.00	PASS
		2462	14.63	≤30.00	15.93	≤36.00	PASS
11G	Ant1	2412	14.00	≤30.00	15.30	≤36.00	PASS
		2437	14.08	≤30.00	15.38	≤36.00	PASS
		2462	15.18	≤30.00	16.48	≤36.00	PASS
11N20SIS O	Ant1	2412	12.92	≤30.00	14.22	≤36.00	PASS
		2437	13.07	≤30.00	14.37	≤36.00	PASS
		2462	13.98	≤30.00	15.28	≤36.00	PASS
11N40SIS O	Ant1	2422	12.29	≤30.00	13.59	≤36.00	PASS
		2437	12.81	≤30.00	14.11	≤36.00	PASS
		2452	12.71	≤30.00	14.01	≤36.00	PASS
11AX20SI SO	Ant1	2412	13.32	≤30.00	14.62	≤36.00	PASS
		2437	13.37	≤30.00	14.67	≤36.00	PASS
		2462	13.78	≤30.00	15.08	≤36.00	PASS
11AX40SI SO	Ant1	2422	12.03	≤30.00	13.33	≤36.00	PASS
		2437	13.06	≤30.00	14.36	≤36.00	PASS
		2452	12.69	≤30.00	13.99	≤36.00	PASS



11B-Ant1-2412-PASS

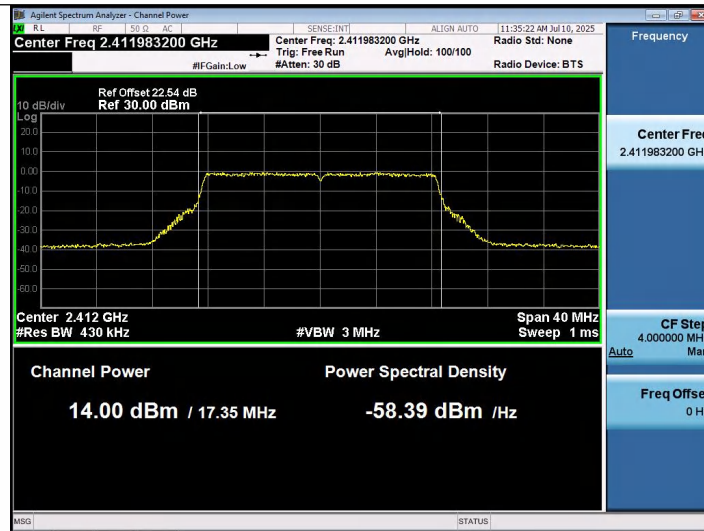


11B-Ant1-2437-PASS

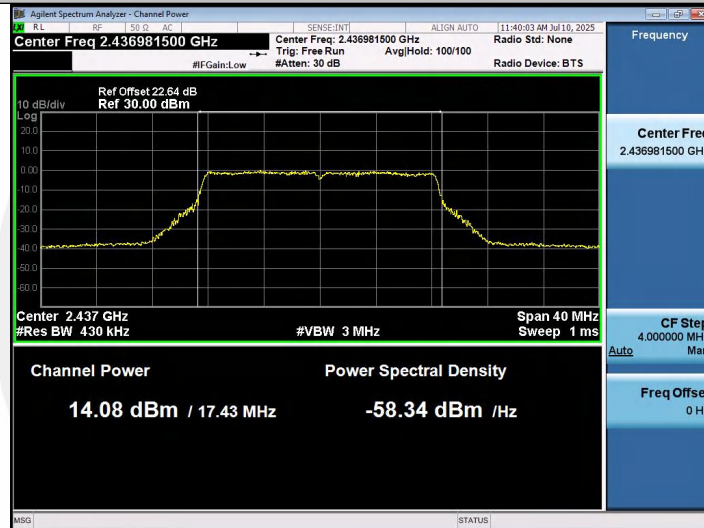


11B-Ant1-2462-PASS

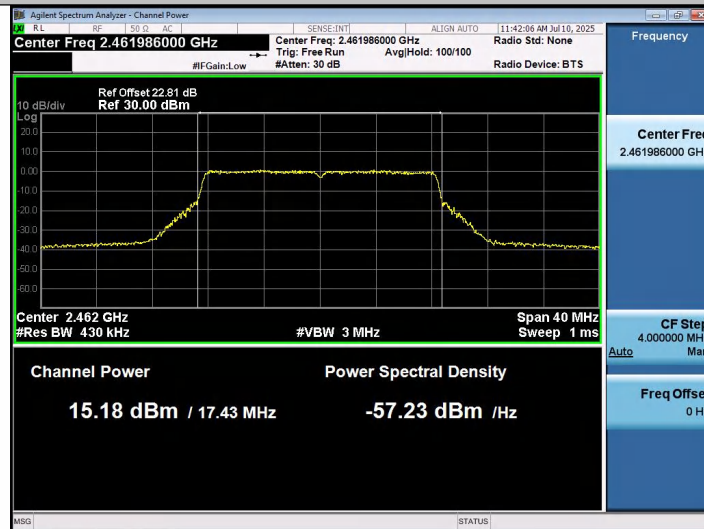




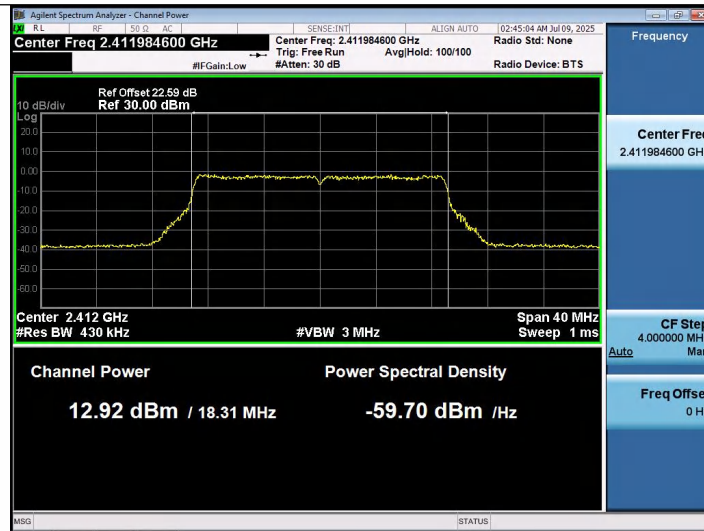
11G-Ant1-2412-PASS



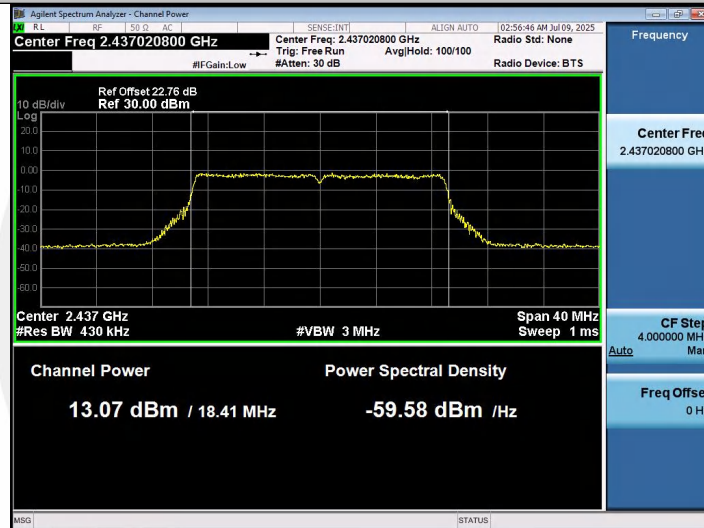
11G-Ant1-2437-PASS



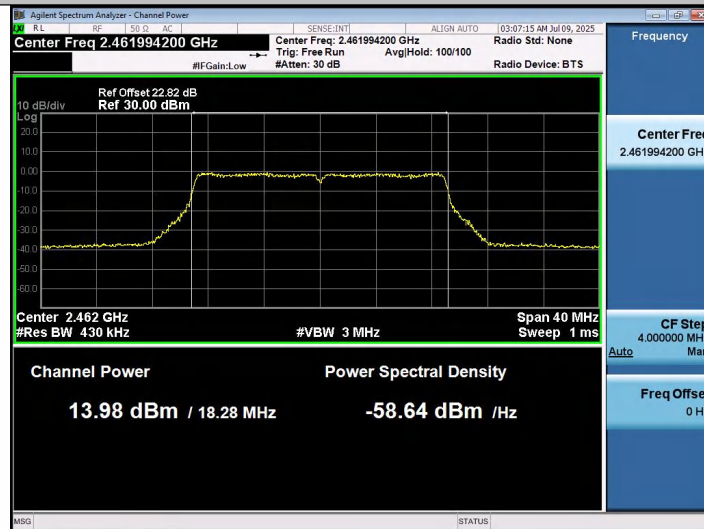
11G-Ant1-2462-PASS



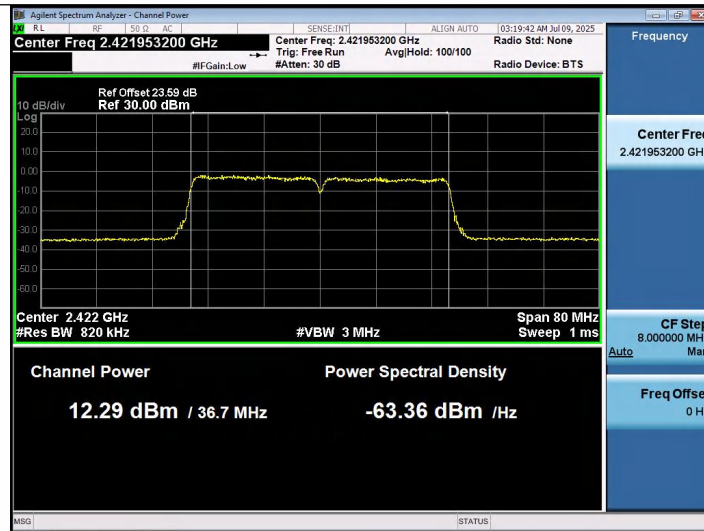
11N20SISO-Ant1-2412-PASS



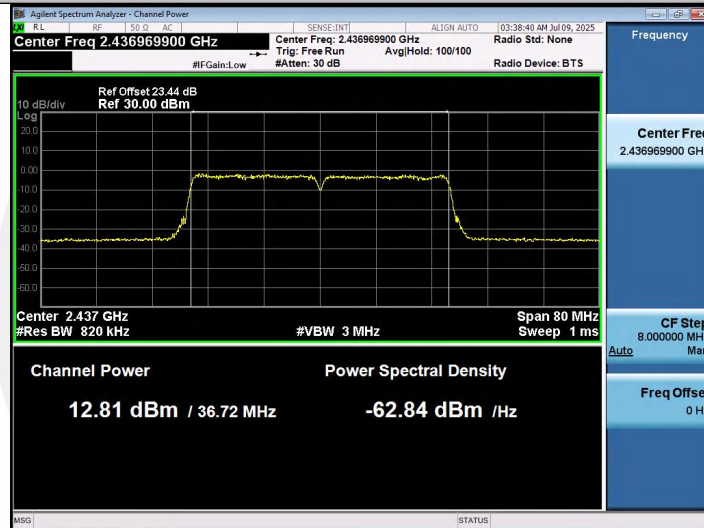
11N20SISO-Ant1-2437-PASS



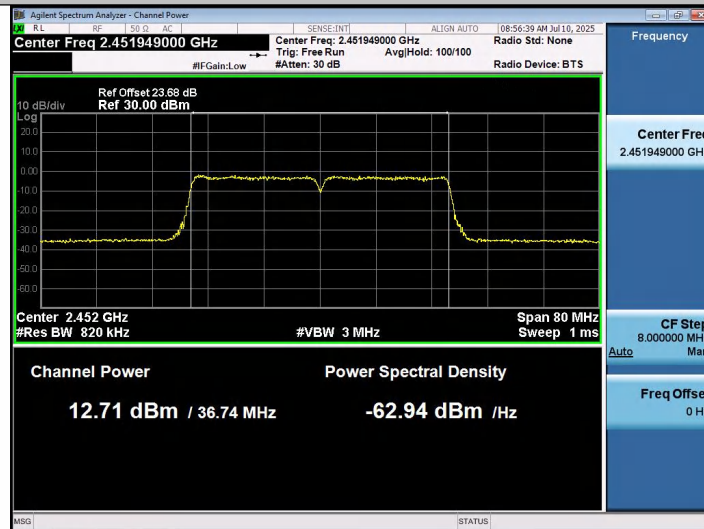
11N20SISO-Ant1-2462-PASS



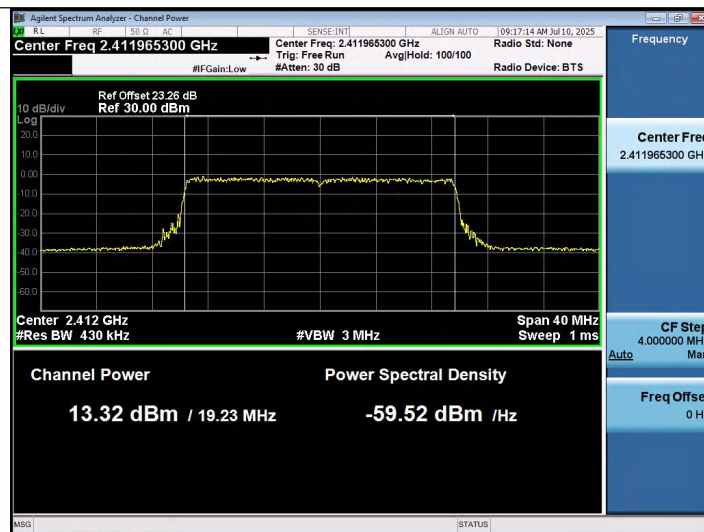
11N40SISO-Ant1-2422-PASS



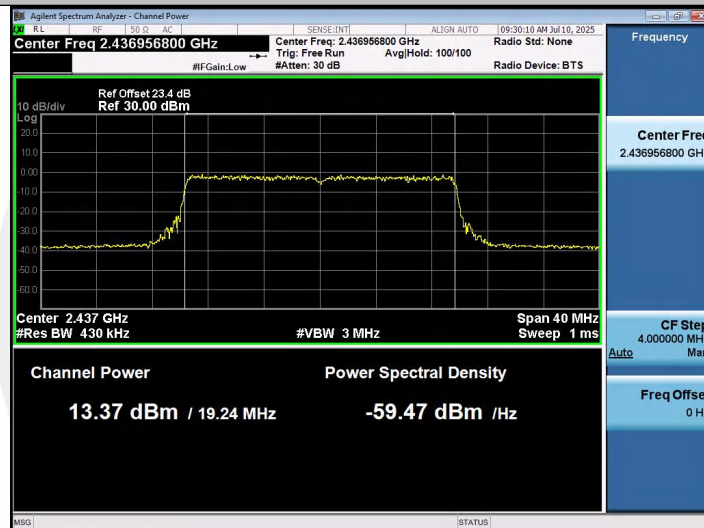
11N40SISO-Ant1-2437-PASS



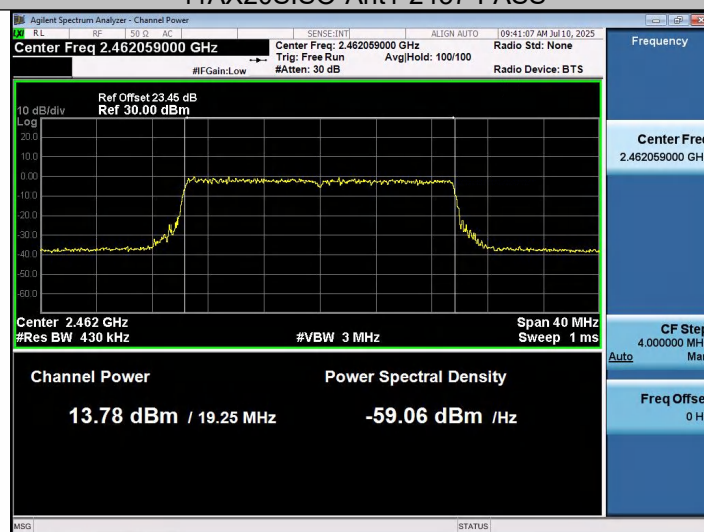
11N40SISO-Ant1-2452-PASS



11AX20SISO-Ant1-2412-PASS



11AX20SISO-Ant1-2437-PASS



11AX20SISO-Ant1-2462-PASS