

TEST REPORT

Product Name : FIMI X8 Pro Drone
Model Number : FMWRJ03A9
FCC ID : 2AYVYFMWRJ03A9

Prepared for : Shenzhen FIMI Robot Technology Co., Ltd
Address : 2nd Floor, East Block, Tianliao Building, 1133 Xueyuan
Avenue, Taoyuan Street, Nanshan District, Shenzhen City,
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Prepared by : EMTEK (SHENZHEN) CO., LTD.
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Report Number : ENS2309260241W00602R
Date(s) of Tests : October 18, 2023 to December 31, 2023
Date of issue : January 8, 2024

TEST RESULT CERTIFICATION

Applicant : Shenzhen FIMI Robot Technology Co., Ltd
Address : 2nd Floor, East Block, Tianliao Building, 1133 Xueyuan Avenue, Taoyuan Street, Nanshan District, Shenzhen City, Guangdong Province, China
Manufacturer : Shenzhen FIMI Robot Technology Co., Ltd
Address : 2nd Floor, East Block, Tianliao Building, 1133 Xueyuan Avenue, Taoyuan Street, Nanshan District, Shenzhen City, Guangdong Province, China
EUT : FIMI X8 Pro Drone
Model Name : FMWRJ03A9
Trademark : N/A

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 : October 18, 2023 to December 31, 2023

Prepared by : 

Una Yu /Editor

Reviewer : 

Joe Xia/Supervisor

Approved & Authorized Signer : 

Lisa Wang/Manager



Modified History

Version	Report No.	Revision Date	Summary
V1.0	ENS2309260241W00602R	/	Original Report



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1 EUT TECHNICAL DESCRIPTION

Characteristics	Description
Product	FIMI X8 Pro Drone
Model Number	FMWRJ03A9
Sample Number	2#
Modulation	BPSK, QPSK, 16QAM, 64QAM
Operating Frequency Range&Number of Channels	9 Channels for 2406-2470MHz
Transmit Power Max	25.16 dBm
Antenna Type	PCB Antenna
Antenna Gain	Antenna 1/ Antenna 2: 2.8 dBi
Power supply:	DC 15.4V from internal battery Charged by Adapter
Adapter:	Model: CDQ04A7 Input: 100-240Vac 50/60Hz 1.45A Output: 17.6Vdc 3.5A
Temperature Range:	0°C ~ 40°C

2 SUMMARY OF TEST RESULT

FCC Part Clause	Test Parameter	Verdict	Remark
15.247(a)(2)	DTS (6dB) 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	N/A	
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: 2AYVYFMWRJ03A9 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	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESCI	101384	2023/5/13	1Year
AMN	Rohde & Schwarz	ENV216	101161	2023/5/13	1Year

For Spurious Emissions Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
EMI Test Receiver	Rohde & Schwarz	ESU 26	100154	2023/5/13	1Year
Spectrum Analyzer	Rohde & Schwarz	FSV40	100967	2023/5/10	1Year
Pre-Amplifier	Lunar EM	LNA30M3G-25	J10100000070	2023/5/13	1Year
Pre-Amplifier	HP	8447F	2944A07999	2023/5/13	1Year
Pre-Amplifier	SKET	LNPA_0118G-45	SK2019051801	2023/5/10	1Year
Pre-Amplifier	Lunar EM	LNA18G26-40	J1012131010001	2023/5/10	1Year
Loop Antenna	Schwarzbeck	FMZB1519	1519-012	2023/5/12	2 Year
Bilog Antenna	Schwarzbeck	VULB9163	659	2023/9/1	2 Year
Bilog Antenna	Schwarzbeck	VULB9163	712	2023/7/2	2 Year
Horn antenna	Schwarzbeck	BBHA9120D	9120D-1177	2023/5/12	2 Year
Horn antenna	Schwarzbeck	BBHA9170	9170-399	2023/5/12	2 Year
Wideband Radio Communication Tester	R&S	CMW500	171168	2023/9/14	1Year
Thermometer	Hegao	HTC-1	\	2023/5/16	1Year

For Other Test

Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
Signal Analyzer	Agilent	N9010A	MY53470879	2023/5/10	1Year
Vector Signal Generater	Agilent	N5182B	MY53050878	2023/5/10	1Year
Analog Signal Generator	Agilent	N5171B	MY53050553	2023/5/10	1Year
RF Control Unit(Power Meter)	Tonscend	JS0806-2	\	2023/5/13	1Year
Temperature&Humidity Chamber	ESPEC	EL-02KA	12107166	2023/5/10	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.

All modulations 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

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2406	4	2430	7	2454
2	2414	5	2438	8	2462
3	2422	6	2446	9	2470

Test Frequency and Channel

Lowest Frequency		Middle Frequency		Highest Frequency	
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2406	5	2438	9	2470

The EUT has two antennas and support Multiple Outputs ; Antenna 1 Gain is 2.80 dBi; Antenna 2.80 Gain is 3.1dBi; For this function is belong to Correlated Categorization equipment

According to KDB 662911, for Unequal antenna gains,

Directional gain = $10 \log [(10^{2.8/10} + 10^{2.8/20})^2/2]$ dBi=5.81 dBi

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:

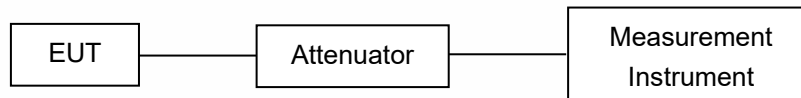
Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-5}$
Maximum Peak Output Power Test	$\pm 1.0\text{dB}$
Conducted Emissions Test	$\pm 2.0\text{dB}$
Radiated Emission Test	$\pm 2.0\text{dB}$
Power Density	$\pm 2.0\text{dB}$
Occupied Bandwidth Test	$\pm 1.0\text{dB}$
Band Edge Test	$\pm 3\text{dB}$
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 port(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.

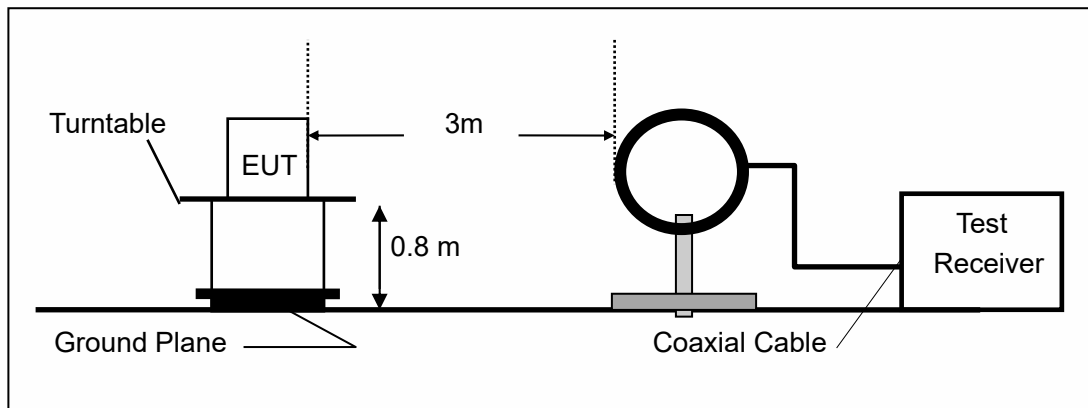
(13) Using the plot, the 0° can be rotated to determine the worst-case installation tilt angle.

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

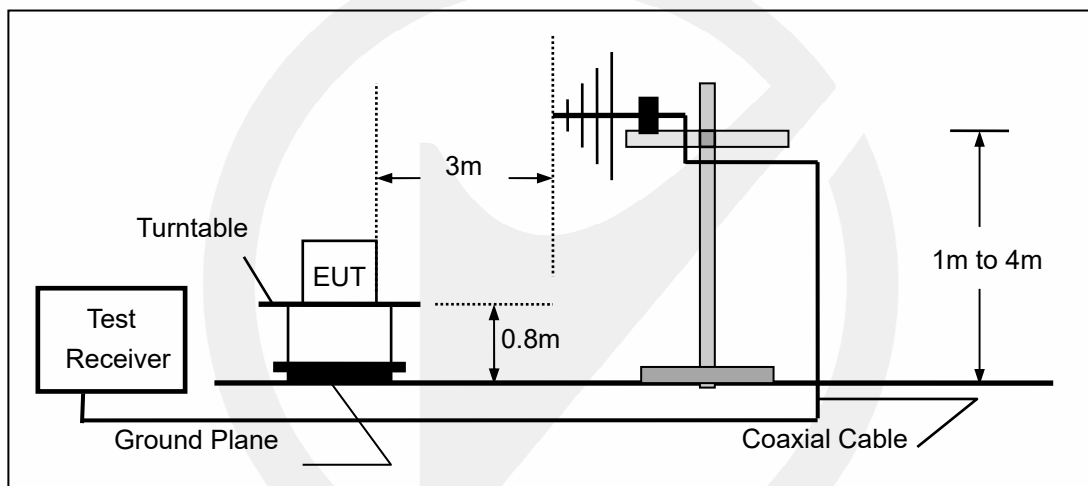
(15) Antenna type(s), antenna model number(s), and worst-case tilt angle(s) necessary to remain compliant with the elevation mask requirement set forth in Section 6.2.2(3) of RSS-247 shall be clearly indicated in the user manual.

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

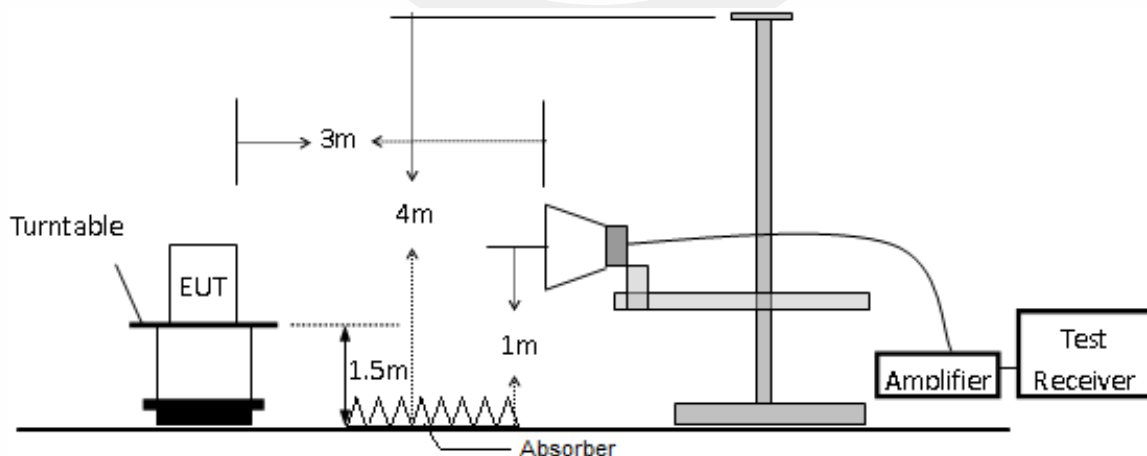
(a) Radiated Emission Test Set-Up, Frequency Below 30MHz



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



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

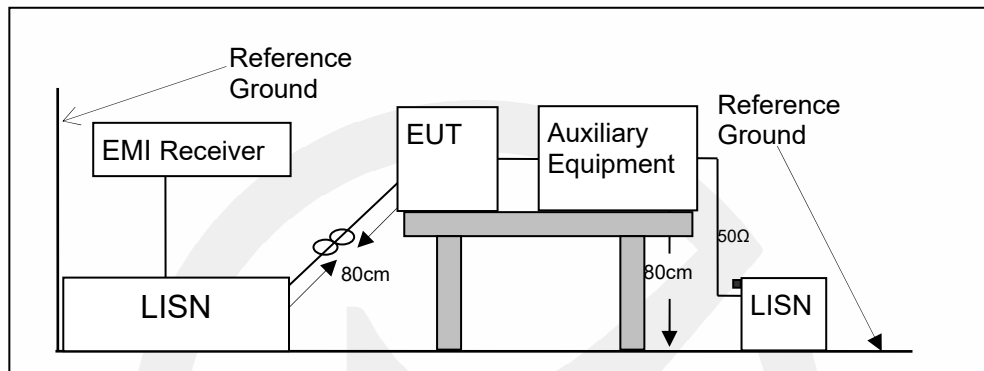


6.3 CONDUCTED EMISSION TEST SETUP

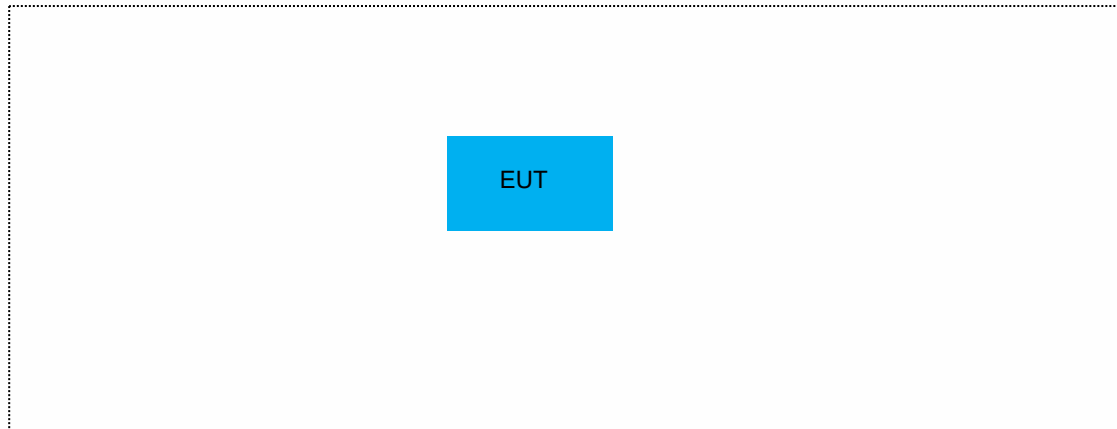
The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All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

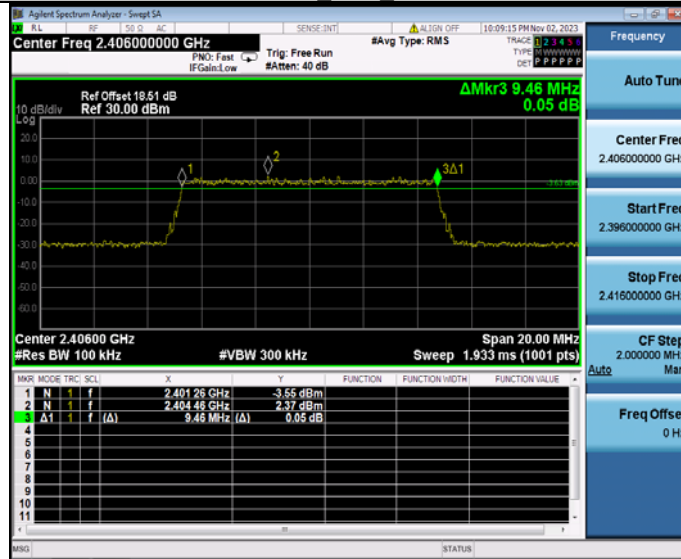
7.1.5 Test Results

Temperature : 26°C
Humidity : 55 %

ATM Pressure:: 1011 mbar
Test By: Lily

TestMode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BPSK	Ant1	2406	9.460	2401.260	2410.720	0.5	PASS
	Ant2	2406	9.460	2401.280	2410.740	0.5	PASS
	Ant1	2438	9.460	2433.260	2442.720	0.5	PASS
	Ant2	2438	9.400	2433.300	2442.700	0.5	PASS
	Ant1	2470	9.480	2465.260	2474.740	0.5	PASS
	Ant2	2470	9.440	2465.300	2474.740	0.5	PASS
QPSK	Ant1	2406	9.460	2401.280	2410.740	0.5	PASS
	Ant2	2406	9.440	2401.280	2410.720	0.5	PASS
	Ant1	2438	9.480	2433.260	2442.740	0.5	PASS
	Ant2	2438	9.460	2433.280	2442.740	0.5	PASS
	Ant1	2470	9.480	2465.260	2474.740	0.5	PASS
	Ant2	2470	9.460	2465.280	2474.740	0.5	PASS
16QAM	Ant1	2406	9.480	2401.260	2410.740	0.5	PASS
	Ant2	2406	9.440	2401.280	2410.720	0.5	PASS
	Ant1	2438	9.460	2433.280	2442.740	0.5	PASS
	Ant2	2438	9.440	2433.280	2442.720	0.5	PASS
	Ant1	2470	9.460	2465.260	2474.720	0.5	PASS
	Ant2	2470	9.460	2465.280	2474.740	0.5	PASS
64QAM	Ant1	2406	9.480	2401.260	2410.740	0.5	PASS
	Ant2	2406	9.480	2401.280	2410.760	0.5	PASS
	Ant1	2438	9.460	2433.280	2442.740	0.5	PASS
	Ant2	2438	9.440	2433.280	2442.720	0.5	PASS
	Ant1	2470	9.500	2465.260	2474.760	0.5	PASS
	Ant2	2470	9.500	2465.260	2474.760	0.5	PASS

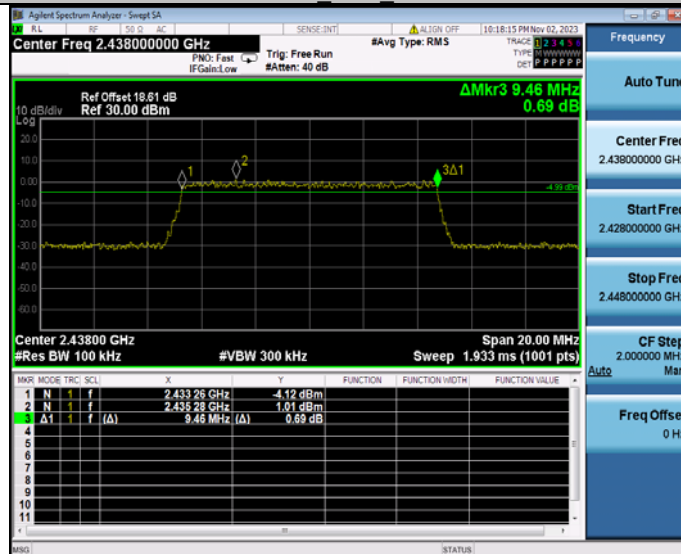
BPSK Ant1 2406



BPSK Ant2 2406



BPSK Ant1 2438



[illegible]

The screenshot shows the Agilent Spectrum Analyzer interface. At the top, it displays "Agilent Spectrum Analyzer - Sweep SA". Below this, the main title bar reads "Center Freq 2.470000000 GHz". To the right of the title bar, there are several status indicators: "RF" (selected), "IF" (selected), "SQ" (selected), "AC" (selected), "SENSE INTL", "ALTON OFF", "10:23:08 PM Nov 02, 2023", "TRACE 0 1 2 3 4 5", "TYPE PL WWWWWW", and "DET P P P P P".

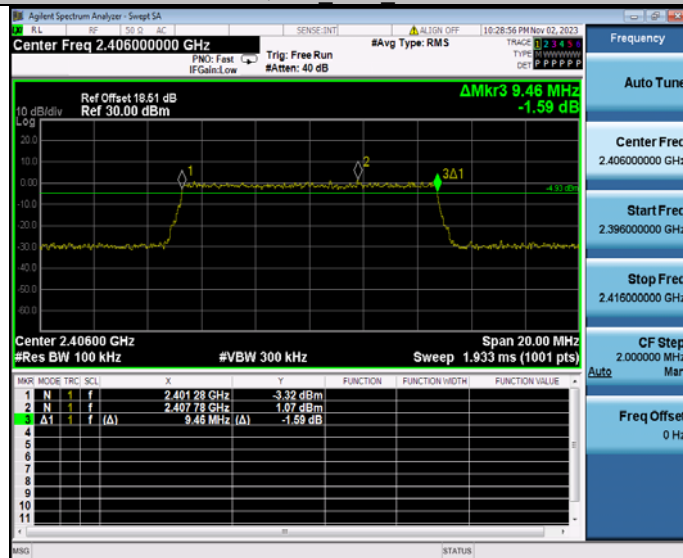
The main display area shows a spectrum plot with a yellow trace. The y-axis is labeled "dBm" and ranges from -60.0 to 10.0. The x-axis is labeled "MHz" and ranges from 2.450 to 2.490. A green horizontal line indicates the noise floor at approximately -10.0 dBm. A yellow trace shows a signal centered at 2.470 GHz. A peak is labeled "3Δ1" with a value of "-0.16 dB". Other labels include "Ref Offset 16.79 dB", "Ref 30.00 dBm", "PNO: Fast IF GainLow", "Trig: Free Run", "#Atten: 40 dB", "#Avg Type: RMS", "Span 20.00 MHz", "#Res BW 100 kHz", and "Sweep 1.933 ms (1001 pts)".

MNR	MODE	TRIG	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.465 26 GHz	-4.01 dBm			
2	N	1	f	2.471 38 GHz	1.06 dBm			
3	A1	1	f (Δ)	9.48 MHz (Δ)	-0.16 dB			

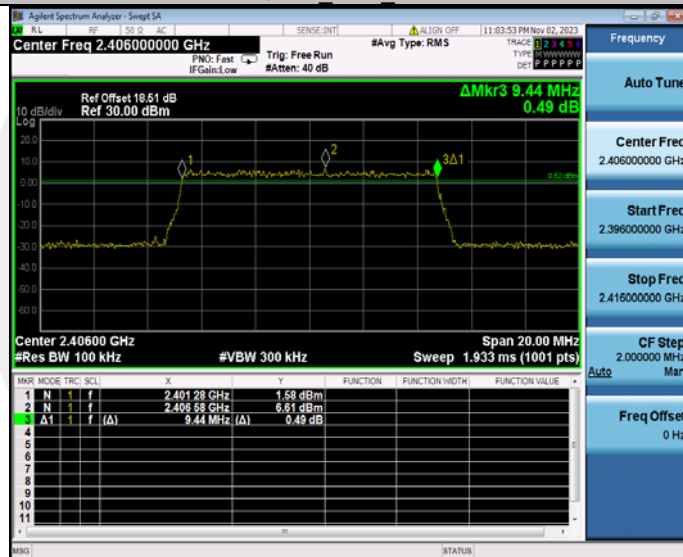
The figure displays an Agilent Spectrum Analyzer screen during a sweep labeled 'S4'. The main display shows a frequency spectrum centered at 2.470000000 GHz. A green trace represents the signal, which has a flat top and steep skirts. Three points are marked on the trace: point 1 at the start of the signal, point 2 at the peak, and point 3 at the end of the signal. A green arrow labeled '3Δ1' indicates the measured 3 dB bandwidth. The top status bar shows various settings: Center Freq 2.470000000 GHz, Span 20.00 MHz, Res BW 100 kHz, #VBW 300 kHz, Sweep 1.933 ms (1001 pts), and #Avg Type: RMS. The right side of the screen shows a vertical scale from -60.0 dBm to 20.0 dBm. The bottom of the screen shows a table of measurement results.

MNR	MODE	FREQ	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.46530 GHz	1.98 dBm			
2	N	1	f	2.47170 GHz	7.05 dBm			
3	Δ1	1	f (Δ)	9.44 MHz (Δ)	-0.60 dB			

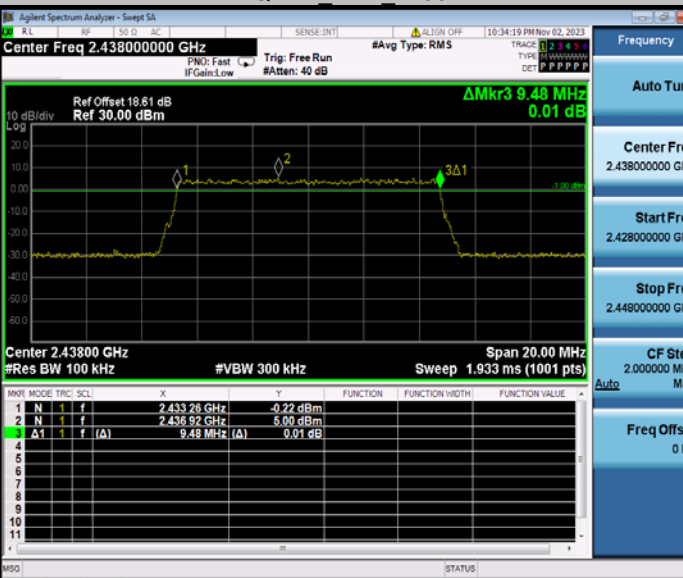
QPSK Ant1 2406



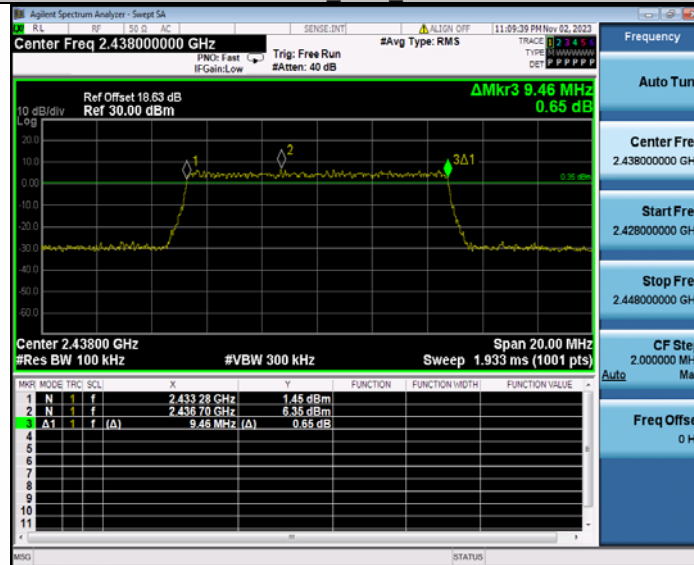
QPSK Ant2 2406



QPSK Ant1 2438



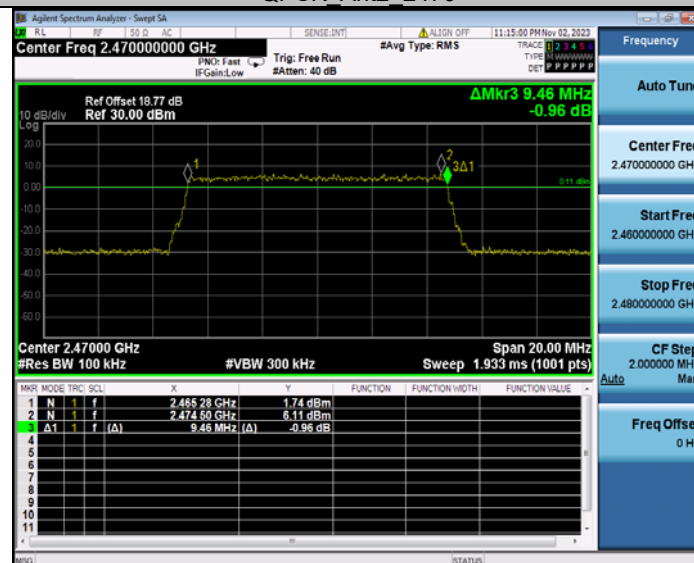
QPSK Ant2 2438



QPSK Ant1 2470



QPSK Ant2 2470



Agilent Spectrum Analyzer - Screenshot

Center Freq 2.406000000 GHz

Trig: Free Run

#Avg Type: RMS

Ref Offset 19.51 dB

Ref 30.00 dBm

Span 20.00 MHz

#Res BW 100 kHz

#VBW 300 kHz

Sweep 1.933 ms (1001 pts)

ΔMkr3 9.48 MHz

-0.24 dB

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.401 28 GHz	-2.00 dBm			
2	N	1	f	2.402 58 GHz	3.61 dBm			
3	A1	1	f (Δ)	9.48 MHz (Δ)	-0.24 dB			

[illegible]

Agilent Spectrum Analyzer - Sweep SA

Center Freq 2.43800000 GHz

Ref Offset 18.61 dB
Ref 30.00 dBm

Trig: Free Run
#Atten: 40 dB

#Avg Type: RMS

ALIGN OFF

11:50:56 PM Nov 03, 2023

TRACE 1 2 3 4 5
TYPE WWWWWWWW
DET P P P P P P

Frequency

Auto Tune

Center Freq
2.43800000 GHz

Start Freq
2.42800000 GHz

Stop Freq
2.44800000 GHz

CFO Step
2.000000 MHz

Freq Offset
0 Hz

10 dB/div
Log

Ref Offset 18.61 dB
Ref 30.00 dBm

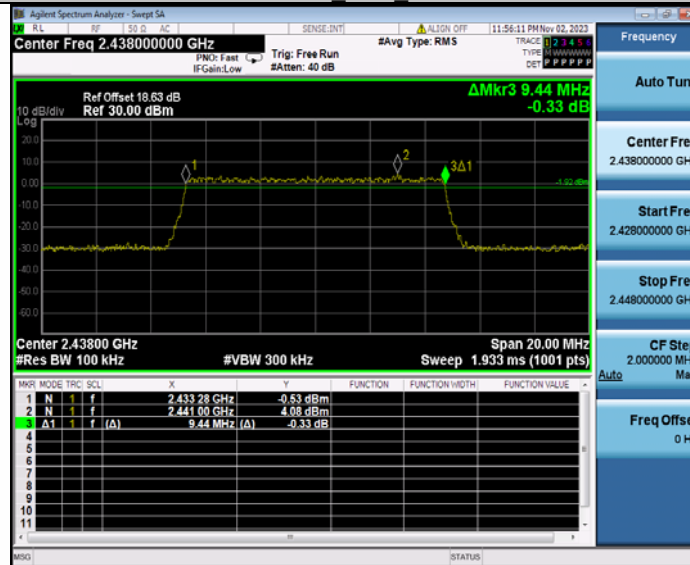
DMkr3 9.46 MHz
-0.71 dB

3Δ1

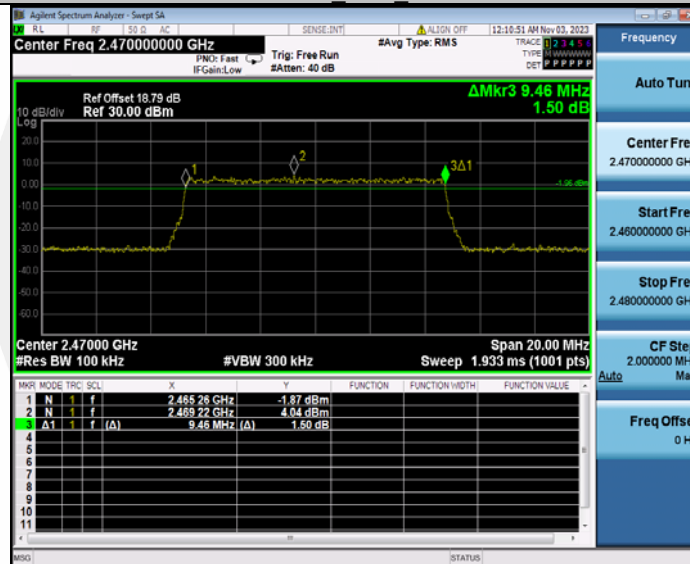
Span 20.00 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.933 ms (1001 pts)

MNTR MODE TRC SC1	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1 N 1 f	2.433 28 GHz	-0.74 dBm			
2 N 1 f	2.433 90 GHz	3.71 dBm			
3 Δ1 1 f (A)	9.46 MHz (Δ)	-0.71 dB			
4					
5					
6					
7					
8					
9					
10					
11					

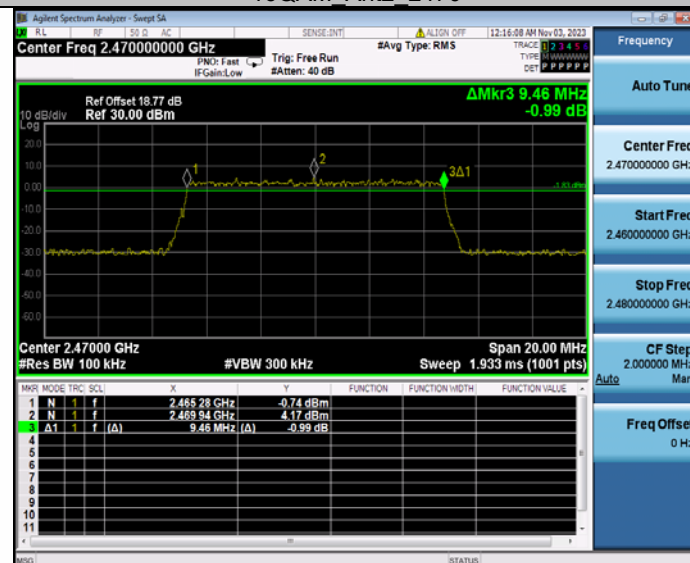
16QAM Ant2 2438



16QAM Ant1 2470



16QAM Ant2 2470



Agilent Spectrum Analyzer - Screenshot

Center Freq 2.40600000 GHz

Trig: Free Run

#Ave Type: RMS

Trace 1: 2.40600000 GHz

Type: M

DET: P

Frequency

Auto Tun

Center Freq 2.40600000 GHz

Start Freq 2.39600000 GHz

Stop Freq 2.41600000 GHz

CF Stop 2.000000 MHz

Auto

Freq Offset 0 Hz

Center 2.406000 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 20.00 MHz

Sweep 1.933 ms (1001 pts)

Ref Offset 19.51 dB

Ref 30.00 dBm

ΔMkr3 9.48 MHz

-0.02 dB

1

2

3d1

2.40 MHz

MNR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.40128 GHz	-1.65 dBm			
2	N	1	f	2.40498 GHz	3.75 dBm			
3	A1	1	f (A)	9.48 MHz (A)	-0.02 dB			
4								
5								
6								
7								
8								
9								
10								
11								

MISO

(STATUS)

Center Freq 2.40600000 GHz

Ref Offset 19.51 dB
Ref 30.00 dBm

ΔMkr3 9.48 MHz
-0.08 dB

Center 2.40600 GHz
#Res BW 100 kHz

#BW 300 kHz
Sweep 1.933 ms (1001 pts)

MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	f	f	2.401 28 GHz	-0.95 dBm			
2	N	f	f	2.402 28 GHz	4.52 dBm			
3	A1	f	(A)	9.48 MHz (A)	-0.08 dB			

Agilent Spectrum Analyzer - Sweep SA

SENSE:INT1

ALIGN:OFF

12/24/31 AM Nov 03, 2023

Center Freq 2.438000000 GHz

Trace 1 2.438 GHz

TYPE: WWWWWWWW

DET: P P P P P P

PROT: Fast

Trig: Free Run

#Avg Type: RMS

IF Gain: Low

#Atten: 40 dB

Ref Offset 18.61 dB

Ref 30.00 dBm

Δ Mkr3 9.46 MHz

0.52 dB

10 dB/div

Log

20

10

0

-10

-20

-30

-40

-50

-60

1

2

3d1

-1.81 dBm

Center 2.43800 GHz

#Res BW 100 kHz

#VBW 300 kHz

Span 20.00 MHz

Sweep 1.933 ms (1001 pts)

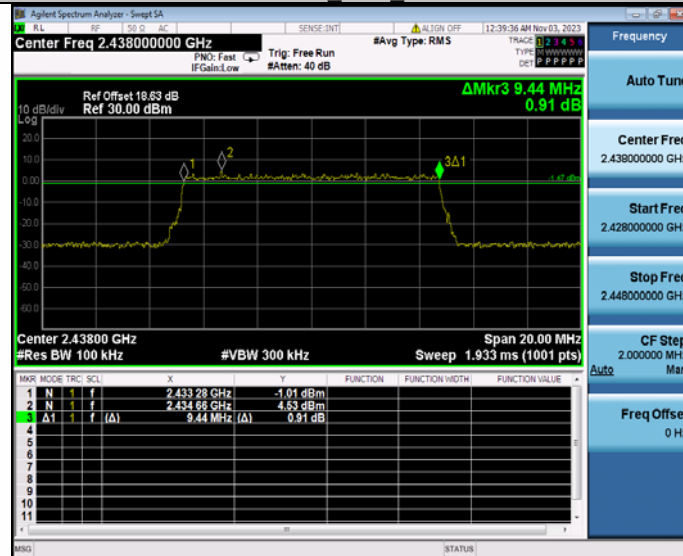
MWR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.433 28 GHz	-1.29 dBm			
2	N	1	f	2.436 50 GHz	4.19 dBm			
3	A1	1	f	(A)	9.46 MHz (A)	0.52 dB		
4								
5								
6								
7								
8								
9								
10								
11								

Auto

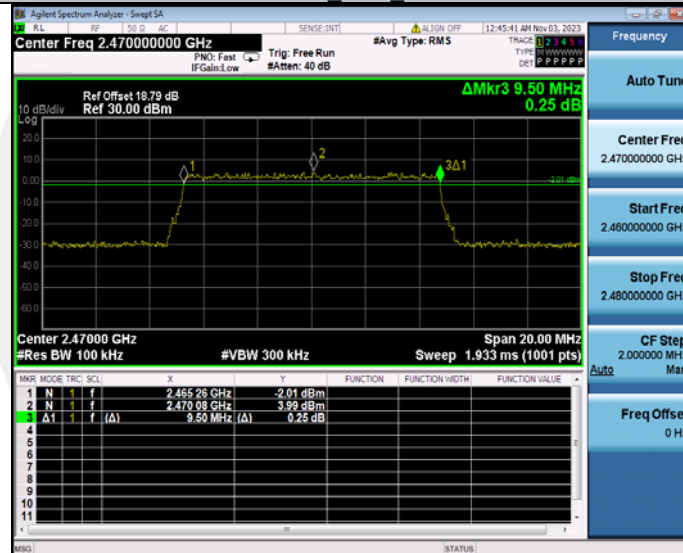
Freq Offset

01

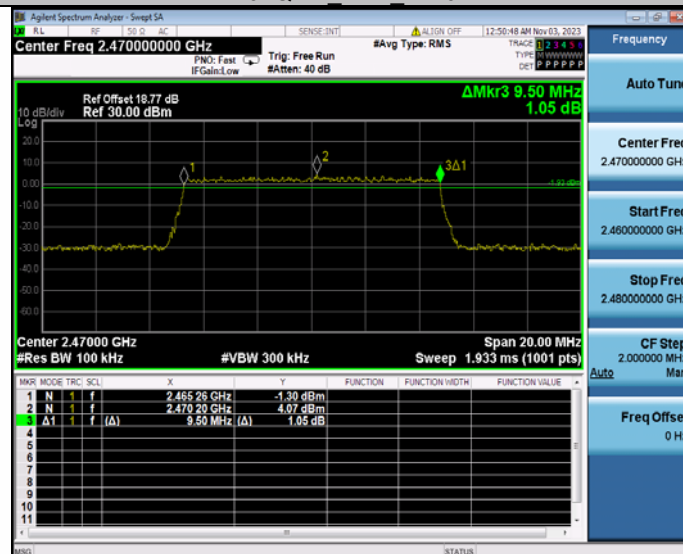
64QAM Ant2 2438



64QAM Ant1 2470



64QAM Ant2 2470



7.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

7.2.1 Applicable Standard

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

7.2.2 Conformance Limit

The maximum 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).

7.2.3 Test Configuration

Test according to clause 6.1 radio frequency test setup

7.2.4 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):

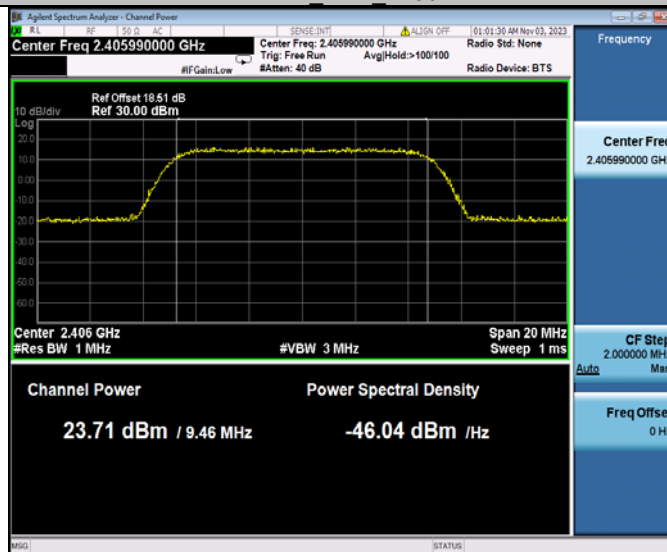
Conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced 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)

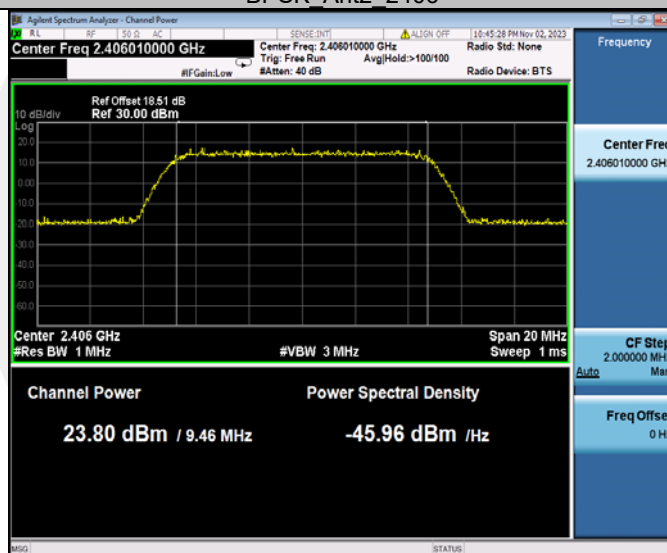
7.2.5 Test Results

TestMode	Antenna	Frequen cy[MHz]	Peak Power[dBm]	Conducted Limit[dBm]	Verdict
BPSK	Ant1	2406	23.71	≤30.00	PASS
	Ant2	2406	23.80	≤30.00	PASS
	Ant1	2438	23.62	≤30.00	PASS
	Ant2	2438	24.08	≤30.00	PASS
	Ant1	2470	23.84	≤30.00	PASS
	Ant2	2470	24.76	≤30.00	PASS
QPSK	Ant1	2406	23.85	≤30.00	PASS
	Ant2	2406	24.44	≤30.00	PASS
	Ant1	2438	23.73	≤30.00	PASS
	Ant2	2438	24.41	≤30.00	PASS
	Ant1	2470	23.99	≤30.00	PASS
	Ant2	2470	24.56	≤30.00	PASS
16QAM	Ant1	2406	21.94	≤30.00	PASS
	Ant2	2406	21.82	≤30.00	PASS
	total	2406	24.89	≤30.00	PASS
	Ant1	2438	21.83	≤30.00	PASS
	Ant2	2438	21.71	≤30.00	PASS
	total	2438	24.78	≤30.00	PASS
	Ant1	2470	22.06	≤30.00	PASS
	Ant2	2470	22.12	≤30.00	PASS
	total	2470	25.10	≤30.00	PASS
64QAM	Ant1	2406	22.07	≤30.00	PASS
	Ant2	2406	21.77	≤30.00	PASS
	total	2406	24.93	≤30.00	PASS
	Ant1	2438	21.85	≤30.00	PASS
	Ant2	2438	21.80	≤30.00	PASS
	total	2438	24.84	≤30.00	PASS
	Ant1	2470	22.13	≤30.00	PASS
	Ant2	2470	22.17	≤30.00	PASS
	total	2470	25.16	≤30.00	PASS

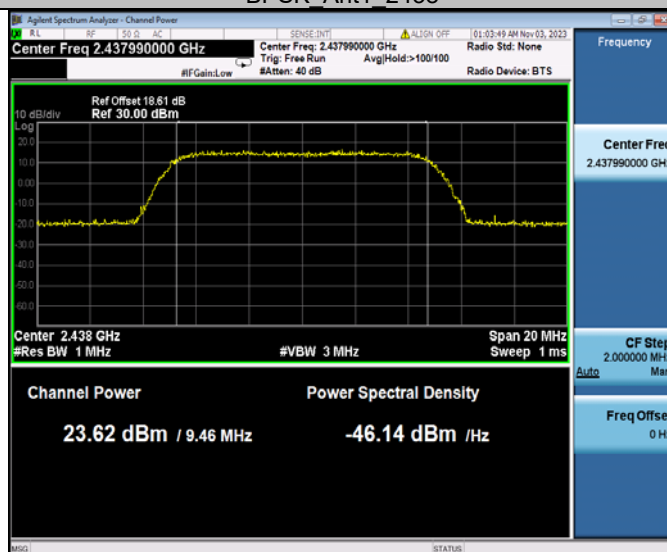
BPSK Ant1 2406



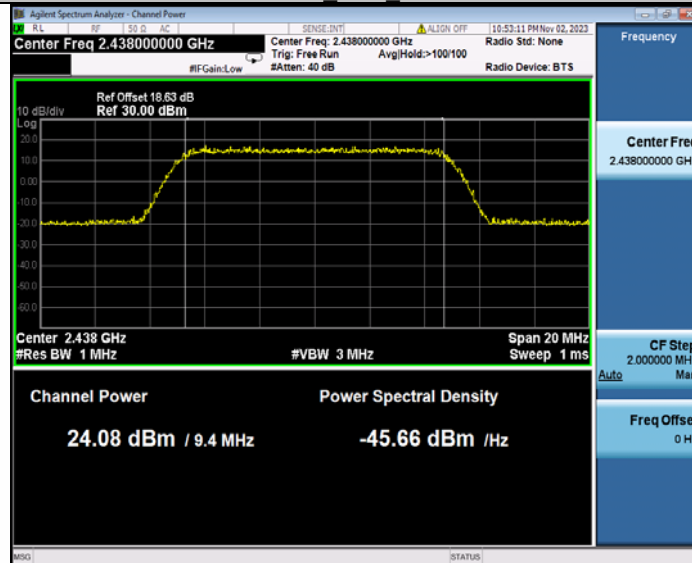
BPSK Ant2 2406



BPSK Ant1 2438



BPSK Ant2 2438



BPSK Ant1 2470



BPSK Ant2 2470

