

TEST REPORT

Applicant Name : Shenzhen Junge Yunchuang Technology Co., Ltd.
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Report Number : RA230516-26708E-RF-00B
FCC ID: 2A3FP-P05

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type: Projector
Model No.: RV500W
Multiple Model(s) No.: SK518W, J501, J502, J503, J504, J505
Trade Mark: N/A
Date Received: 2023/05/16
Report Date: 2023/06/06

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Roger Ling

Roger Ling
EMC Engineer

Approved By:

Candy Li

Candy Li
EMC Engineer

Note: This report may contain data that are not covered by the A2LA accreditation and are marked with an asterisk "★".

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RA230516-26708E-RF-00B	Original Report	2023/06/06

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Projector
Test Model	RV500W
Multiple Model(s)	SK518W, J501, J502, J503, J504, J505 (model difference see product declaration letter of similarity)
Frequency Range	Wi-Fi: 2412-2462MHz
Maximum Conducted Output Power	Wi-Fi: 15.52dBm
Modulation Technique	Wi-Fi: DSSS, OFDM
Antenna Specification*	2.30dBi (provided by the applicant)
Voltage Range	AC 120V
Sample serial number	RE&CE: 25TJ-1 RF: 25TJ-2 (Assigned by ATC)
Sample/EUT Status	Good condition

Objective

This report is in accordance with Part 2-Subpart J, Part 15-Subparts A and C of the Federal Communication Commission's rules.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliant Testing of Unlicensed Wireless Devices.

And KDB 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed at Shenzhen Accurate Technology Co., Ltd. The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		0.082×10^{-7}
RF output power, conducted		0.71dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Audio Frequency Response		0.1dB
Low Pass Filter Response		1.2dB
Modulation Limiting		1%
Emissions, Radiated	9kHz - 30MHz	2.06dB
	30MHz - 1GHz	5.08dB
	1GHz - 18GHz	4.96dB
	18GHz - 26.5GHz	5.16dB
	26.5GHz - 40GHz	4.64dB
Temperature		1°C
Humidity		6%
Supply voltages		0.4%

Note: The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval. Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty.

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the Floor 1, KuMaKe Building, Dongzhou Community, Guangming Street, Guangming District, Shenzhen, Guangdong, China

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358, the FCC Designation No.: CN1189.

Accredited by American Association for Laboratory Accreditation (A2LA). The Certificate Number is 4297.01

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0016. The Registration Number is 30241.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

For Wi-Fi mode, total 11 channels are provided to testing:

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

For 802.11b, 802.11g, 802.11n-HT20, EUT was tested with Channel 1, 6 and 11.

For 802.11n-HT40, EUT was tested with Channel 3, 6 and 9.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

“SecureCRT*” Exercise Software was used.

The worst case was performed under:

Mode	Data rate	Power Level*		
		Low Channel	Middle Channel	High Channel
802.11b	1Mbps	13	13	13
802.11g	6Mbps	13	13	13
802.11n-HT20	MCS0	13	13	13
802.11n-HT40	MCS0	13	13	13

The worse-case data rates are determined to be as follows for each mode based upon investigations by measuring the output power and PSD across all data rated bandwidths, and modulations.

The software and power level was provided by the applicant.

Support Equipment List and Details

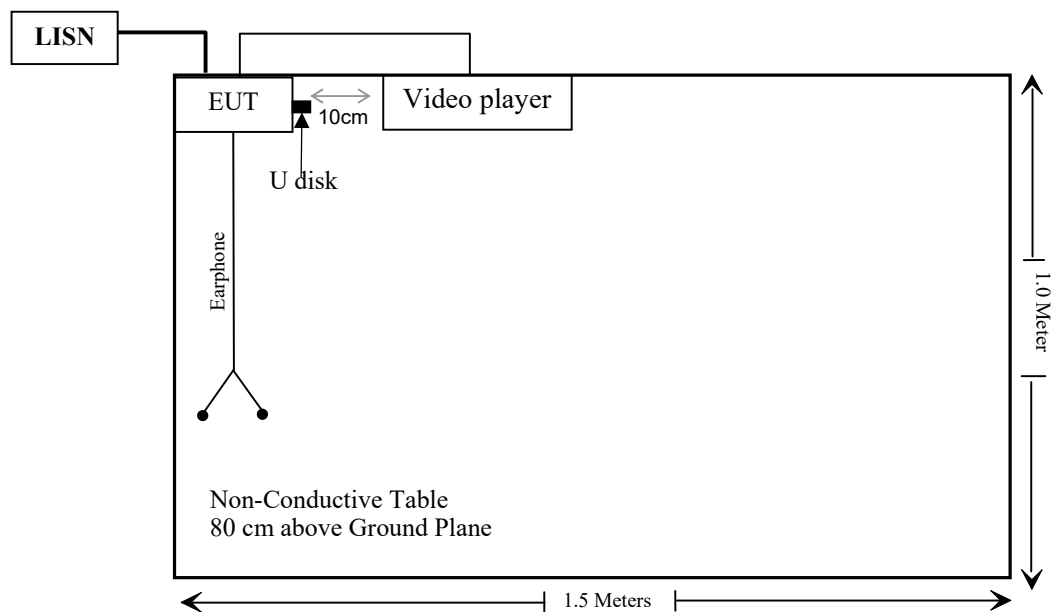
Manufacturer	Description	Model	Serial Number
GIEC	Video player	BDP-G4350	BD4350KXM2104150073 2
Unknown	U disk	Unknown	Unknown
Unknown	Earphone	Unknown	Unknown

External I/O Cable

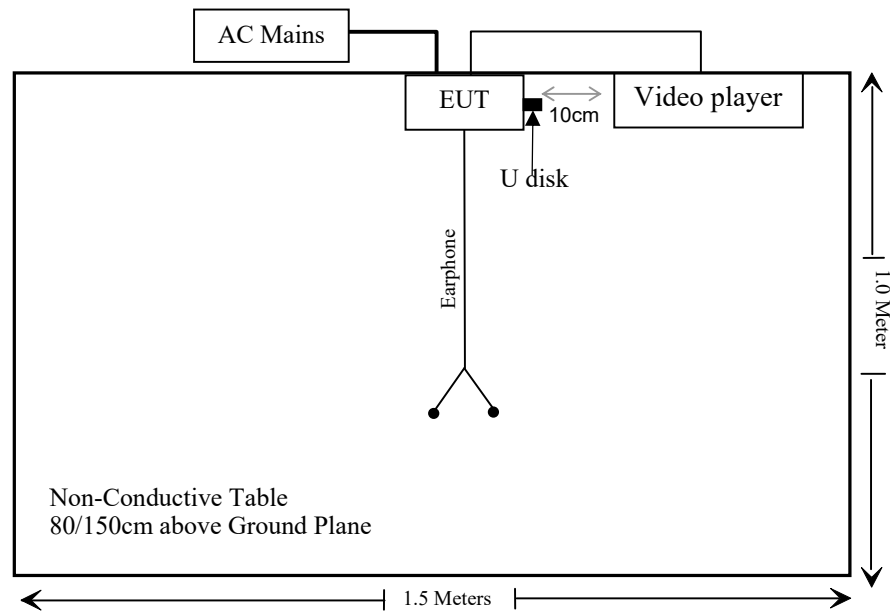
Cable Description	Length (m)	From Port	To
Un-shielded detachable AC cable	1.0	EUT	LISN/AC Mains
Un-shielded detachable Audio cable	1.0	EUT	Video player

Block Diagram of Test Setup

For conducted emission



For Radiated Emissions:



Note: the support table edge was flush with the center of turntable

SUMMARY OF TEST RESULTS

Rules	Description of Test	Result
FCC§15.247 (i), §1.1307 (b) (3) &§2.1091	MPE-BASED EXEMPTION	Compliant
§15.203	Antenna Requirement	Compliant
§15.207 (a)	AC Line Conducted Emissions	Compliant
§15.205, §15.209, §15.247(d)	Spurious Emissions	Compliant
§15.247 (a)(2)	99% Occupied Bandwidth &6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Compliant
§15.247(e)	Power Spectral Density	Compliant

TEST EQUIPMENT LIST

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted emission test					
Rohde& Schwarz	EMI Test Receiver	ESCI	100784	2022/11/25	2023/11/24
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2022/11/25	2023/11/24
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2022/12/07	2023/12/06
Unknown	RF Coaxial Cable	No.17	N0350	2022/11/25	2023/11/24
Conducted Emission Test Software: e3 19821b (V9)					
Radiated emission test					
Rohde& Schwarz	Test Receiver	ESR	102725	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2022/11/25	2023/11/24
SONOMA INSTRUMENT	Amplifier	310 N	186131	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2022/11/08	2023/11/07
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	837	2023/02/22	2026/02/21
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2022/12/26	2025/12/25
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.11	N1000	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.12	N040	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.13	N300	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.14	N800	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.15	N600	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.16	N650	2022/11/25	2023/11/24
Wainwright	High Pass Filter	WHKX3.6/18 G-10SS	5	2022/11/25	2023/11/24
RF Conducted Test					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101590	2022/11/25	2023/11/24
Agilent	Power Sensor	U2021XA	MY5425003	2023/02/25	2024/02/24
Tonscend	RF Control Unit	JS0806-2	19G8060182	2022/10/24	2023/10/23
WEINSCHHEL	10dB Attenuator	5324	AU 3842	2022/11/25	2023/11/24

* **Statement of Traceability:** Shenzhen Accurate Technology Co., Ltd. attests that all calibrations have been performed in accordance to requirements that traceable to National Primary Standards and International System of Units (SI).

FCC §15.247 (I) & §1.1307 (B) (3) & §2.1091- MPE-BASED EXEMPTION

Applicable Standard

According to subpart 1.1307 (b) (3) and subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

General frequency and separation-distance dependent MPE-based effective radiated power(ERP) thresholds are in Table B.1 [Table 1 of § 1.1307(b)(1)(i)(C)] to support an exemption from further evaluation from 300 kHz through 100 GHz.

Table 1 to § 1.1307(b)(3)(i)(C) - Single RF Sources Subject to Routine Environmental Evaluation

RF Source frequency (MHz)	Threshold ERP (watts)
0.3-1.34	$1,920 R^2$.
1.34-30	$3,450 R^2/f^2$.
30-300	$3.83 R^2$.
300-1,500	$0.0128 R^2f$.
1,500-100,000	$19.2R^2$.

R is the minimum separation distance in meters

f = frequency in MHz

For multiple RF sources: Multiple RF sources are exempt if:

in the case of fixed RF sources operating in the same time-averaging period, or of multiple mobile or portable RF sources within a device operating in the same time averaging period, if the sum of the fractional contributions to the applicable thresholds is less than or equal to 1 as indicated in the following equation:

$$\sum_{i=1}^a \frac{P_i}{P_{th,i}} + \sum_{j=1}^b \frac{ERP_j}{ERP_{th,j}} + \sum_{k=1}^c \frac{Evaluated_k}{Exposure Limit_k} \leq 1$$

Result

Mode	Frequency (MHz)	Tune up conducted power	Antenna Gain		ERP		Evaluation Distance (m)	ERP Limit (W)
		(dBm)	(dBi)	(dBd)	(dBm)	(W)		
BT	2402-2480	2.0	-0.68	-2.83	-0.83	0.001	0.2	0.768
2.4G Wi-Fi	2412-2462	16.0	2.30	0.15	16.15	0.041	0.2	0.768
5G Wi-Fi	5150-5250	14.0	2.97	0.82	14.82	0.030	0.2	0.768
	5725-5850	13.0	2.97	0.82	13.82	0.024	0.2	0.768

Note: 1. The tune up conducted power and antenna gain was declared by the applicant.

2. The BT can transmit at same time with 2.4G Wi-Fi or 5G Wi-Fi

3. 0dBd=2.15dBi

Simultaneous transmitting consideration (worst case):

The ratio= $ERP_{BT}/limit + ERP_{Wi-Fi}/limit = 0.001/0.768 + 0.041/0.768 = 0.055 < 1.0$, so simultaneous exposure is compliant.

To maintain compliance with the FCC's RF exposure guidelines, place the equipment at least 20cm from nearby persons.

Result: Compliant.

§ 15.203 ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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 manufacturer may design the unit so that a broken antenna can be replaced by the user, but the user of a standard antenna jack or electrical connector is prohibited. The structure and application of the EUT were analyzed to determine compliance with section §15.203 of the rules. §15.203 state that the subject device must meet the following criteria:

Antenna must be permanently attached to the unit.

Antenna must use a unique type of connector to attach to the EUT.

Unit must be professionally installed, and installer shall be responsible for verifying that the correct antenna is employed with the unit.

And according to FCC 47 CFR section 15.247 (b), if the transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The applicant for equipment certification shall provide a list of all antenna types that may be used with the transmitter, where applicable (i.e. for transmitters with detachable antenna), indicating the maximum permissible antenna gain (in dBi) and the required impedance for each antenna. The test report shall demonstrate the compliance of the transmitter with the limit for maximum equivalent isotropically radiated power (e.i.r.p.) specified in the applicable RSS, when the transmitter is equipped with any antenna type, selected from this list.

For expediting the testing, measurements may be performed using only the antenna with highest gain of each combination of transmitter and antenna type, with the transmitter output power set at the maximum level. However, the transmitter shall comply with the applicable requirements under all operational conditions and when in combination with any type of antenna from the list provided in the test report (and in the notice to be included in the user manual, provided below).

When measurements at the antenna port are used to determine the RF output power, the effective gain of the device's antenna shall be stated, based on a measurement or on data from the antenna's manufacturer.

The test report shall state the RF power, output power setting and spurious emission measurements with each antenna type that is used with the transmitter being tested.

Antenna Connector Construction

The EUT has one internal antenna arrangement which were permanently attached for Wi-Fi, the antenna gain is 2.30dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Antenna Type	Antenna Gain	Impedance	Frequency Range
FPC	2.30dBi	50 Ω	2.4~2.5GHz

Result: Compliant

§ 15.207 (a) AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC § 15.207 (a)

Unless stated otherwise in the applicable RSS, for radio apparatus that are designed to be connected to the public utility AC power network, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the range 150 kHz to 30 MHz shall not exceed the limits in table 4, as measured using a 50 μ H / 50 Ω line impedance stabilization network. This requirement applies for the radio frequency voltage measured between each power line and the ground terminal of each AC power-line mains cable of the EUT.

For an EUT that connects to the AC power lines indirectly, through another device, the requirement for compliance with the limits in table 4 shall apply at the terminals of the AC power-line mains cable of a representative support device, while it provides power to the EUT. The lower limit applies at the boundary between the frequency ranges. The device used to power the EUT shall be representative of typical applications.

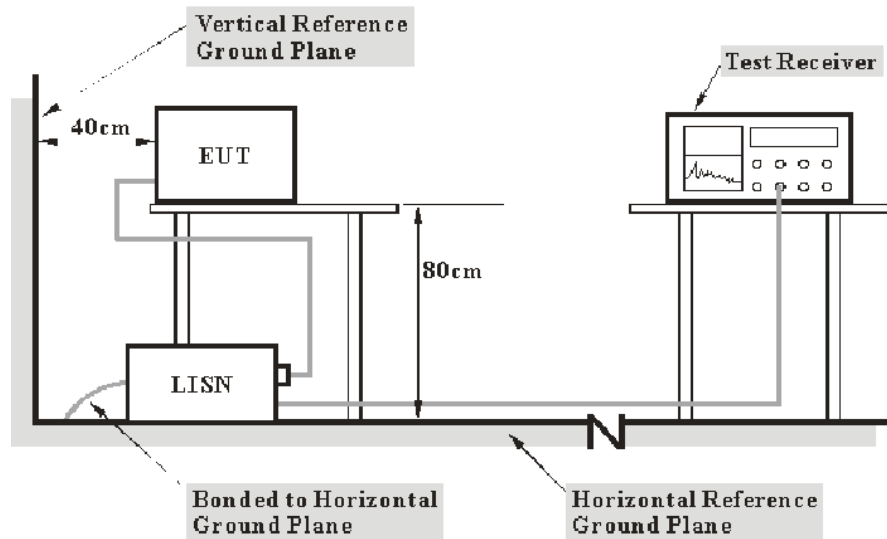
Table 4 - AC Power Lines Conducted Emission Limits		
Frequency range (MHz)	Conducted limit (dB μ V)	
	Quasi-Peak	Average
0.15 – 0.5	66 to 56 ¹	56 to 46 ¹
0.5 – 5	56	46
5 – 30	60	50

Note 1: The level decreases linearly with the logarithm of the frequency.

For an EUT with a permanent or detachable antenna operating between 150 kHz and 30 MHz, the AC power-line conducted emissions must be measured using the following configurations:

- Perform the AC power-line conducted emissions test with the antenna connected to determine compliance with the limits of table 4 outside the transmitter's fundamental emission band.
- Retest with a dummy load instead of the antenna to determine compliance with the limits of table 4 within the transmitter's fundamental emission band. For a detachable antenna, remove the antenna and connect a suitable dummy load to the antenna connector. For a permanent antenna, remove the antenna and terminate the RF output with a dummy load or network that simulates the antenna in the fundamental frequency band.

EUT Setup



Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The spacing between the peripherals was 10 cm.

The external I/O cables were draped along the test table and formed a bundle 30 to 40cm long in the middle.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All final data was recorded in the Quasi-peak and average detection mode.

Corrected Factor & Margin Calculation

The Transd factor is calculated by adding LISN VDF (Voltage Division Factor) and Cable Loss. The basic equation is as follows:

$$\text{Transd Factor} = \text{LISN VDF} + \text{Cable Loss}$$

The “**Over limit**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over limit of -7dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

$$\begin{aligned}\text{Over Limit} &= \text{Level} - \text{Limit} \\ \text{Level} &= \text{Read Level} + \text{Factor}\end{aligned}$$

Test Data

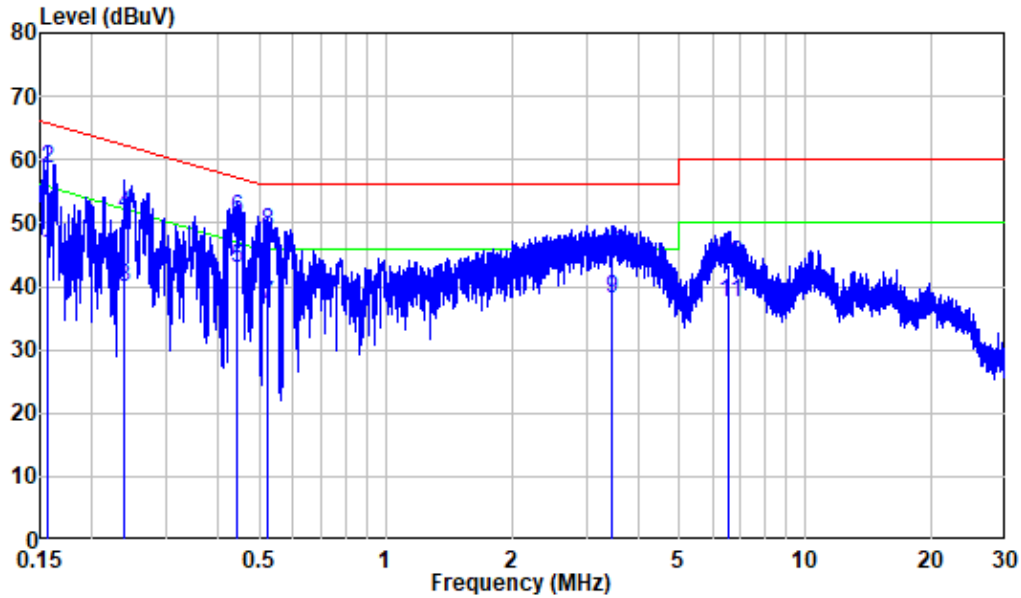
Environmental Conditions

Temperature:	23 °C
Relative Humidity:	49 %
ATM Pressure:	101.0 kPa

The testing was performed by Jerry Wu on 2023-05-31.

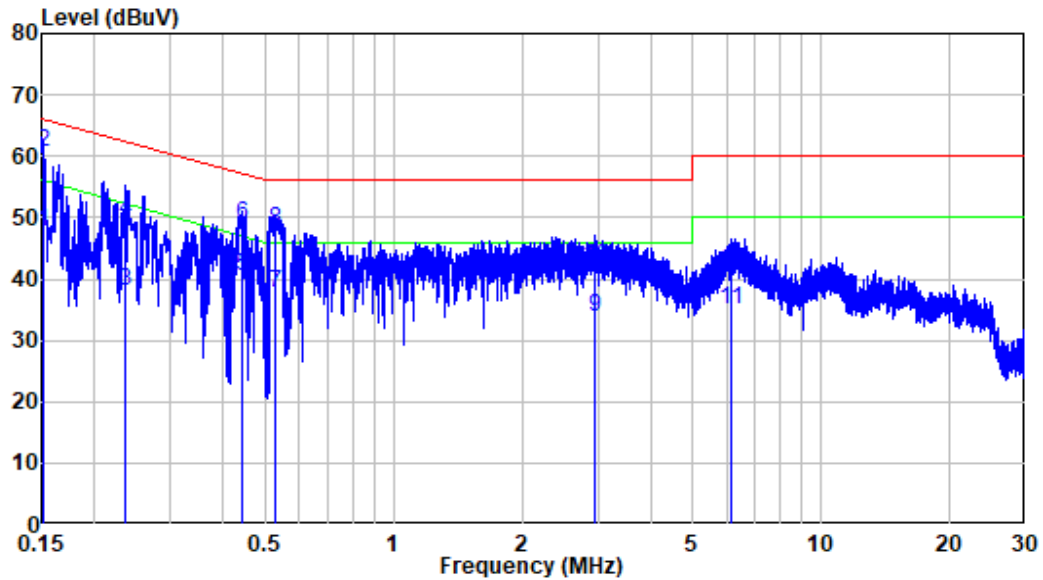
EUT operation mode: Transmitting (802.11b mode, Middle channel)

AC 120V/60 Hz, Line



Site : Shielding Room
 Condition: Line
 Job No. : RA230516-26708E-RF
 Mode : 2.4G WIFI Transmitting
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.157	10.28	34.78	45.06	55.64	-10.58	Average
2	0.157	10.28	48.35	58.63	65.64	-7.01	QP
3	0.238	10.30	29.66	39.96	52.16	-12.20	Average
4	0.238	10.30	40.91	51.21	62.16	-10.95	QP
5	0.442	10.35	32.41	42.76	47.02	-4.26	Average
6	0.442	10.35	40.50	50.85	57.02	-6.17	QP
7	0.525	10.40	26.85	37.25	46.00	-8.75	Average
8	0.525	10.40	38.12	48.52	56.00	-7.48	QP
9	3.447	10.51	27.40	37.91	46.00	-8.09	Average
10	3.447	10.51	34.57	45.08	56.00	-10.92	QP
11	6.583	10.42	26.91	37.33	50.00	-12.67	Average
12	6.583	10.42	33.11	43.53	60.00	-16.47	QP

AC 120V/60 Hz, Neutral

Site : Shielding Room
 Condition: Neutral
 Job No. : RA230516-26708E-RF
 Mode : 2.4G WIFI Transmitting
 Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.152	10.27	37.38	47.65	55.91	-8.26	Average
2	0.152	10.27	50.34	60.61	65.91	-5.30	QP
3	0.236	10.38	27.61	37.99	52.23	-14.24	Average
4	0.236	10.38	39.05	49.43	62.23	-12.80	QP
5	0.442	10.36	30.19	40.55	47.03	-6.48	Average
6	0.442	10.36	38.62	48.98	57.03	-8.05	QP
7	0.527	10.39	27.37	37.76	46.00	-8.24	Average
8	0.527	10.39	37.63	48.02	56.00	-7.98	QP
9	2.940	10.52	23.35	33.87	46.00	-12.13	Average
10	2.940	10.52	31.38	41.90	56.00	-14.10	QP
11	6.145	10.49	24.45	34.94	50.00	-15.06	Average
12	6.145	10.49	30.81	41.30	60.00	-18.70	QP

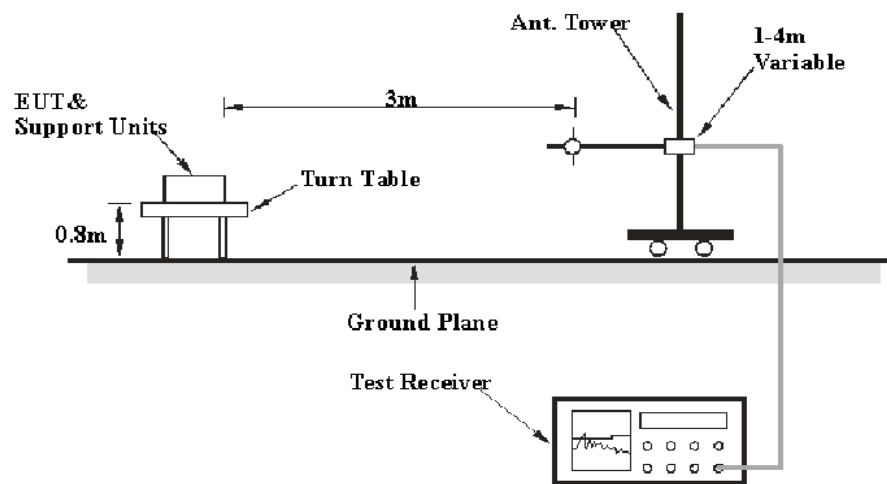
FCC§15.205, §15.209,§15.247(d) SPURIOUS EMISSIONS

Applicable Standard

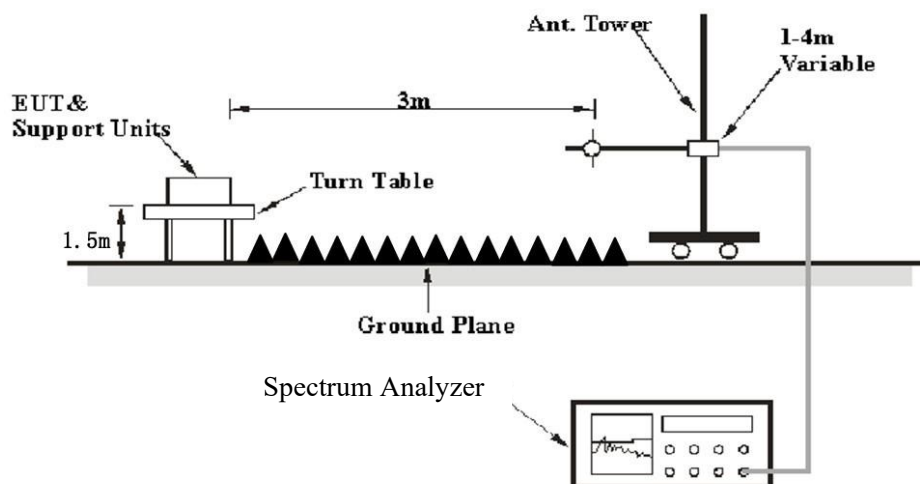
FCC §15.247 (d); §15.209;§15.205;

EUT Setup

Below 1 GHz:



Above 1GHz:



The radiated emission tests were performed in the 3meters test site, using the setup accordance with the ANSI C63.10-2013& RSS-Gen. The specification used was the FCC 15.209, and FCC 15.247 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40cm long in the middle.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30MHz – 1000 MHz	100 kHz	300 kHz	120kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz ^{Note 1}	/	Average
	1MHz	> 1/T ^{Note 2}	/	Average

Note 1: when duty cycle is no less than 98%

Note 2: when duty cycle is less than 98%

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz, peak and Average detection modes for frequencies above 1 GHz.

Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.

Repeat above procedures until all measured frequencies were complete.

Factor & Margin Calculation

The Factor is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain. The basic equation is as follows:

$$\text{Factor} = \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Over Limit/Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, an Over Limit/margin of -7dB means the emission is 7dB below the limit. The equation for calculation is as follows:

$$\begin{aligned} \text{Over Limit/Margin} &= \text{Level} / \text{Corrected Amplitude} - \text{Limit} \\ \text{Level} / \text{Corrected Amplitude} &= \text{Read Level} + \text{Factor} \end{aligned}$$

Test Data**Environmental Conditions**

Temperature:	23~25.5℃
Relative Humidity:	50~52%
ATM Pressure:	101.0 kPa

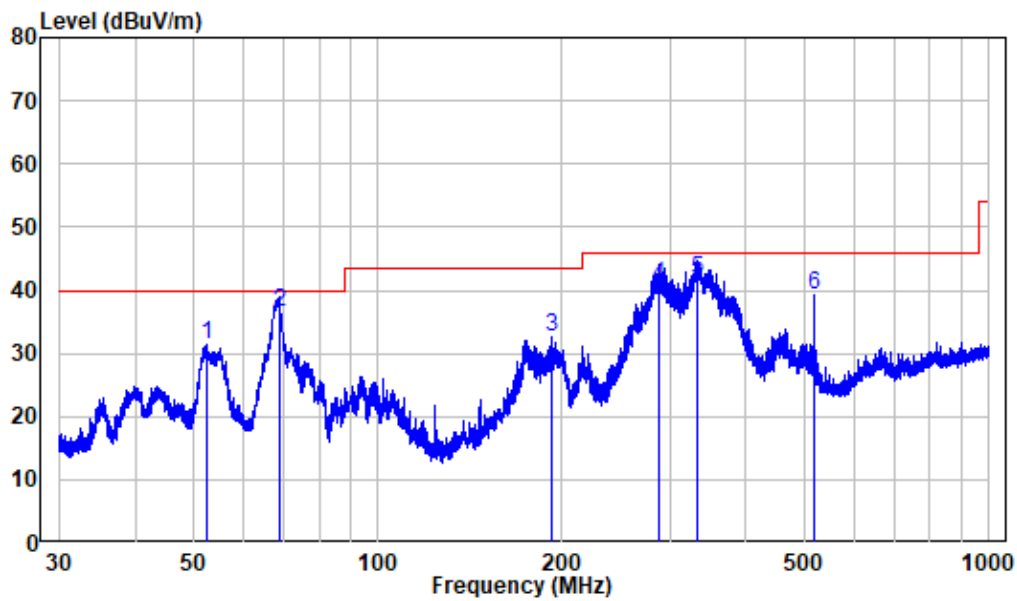
The testing was performed by Jason Liu on 2023-05-30 for below 1GHz, and Jimi Zheng on 2023-05-24 for above 1GHz

EUT operation mode: Transmitting (Pre-scan in the X,Y and Z axes of orientation, the worst case X-axes of orientation was recorded)

30 MHz~1 GHz: (802.11b mode, middle channel)

Note: When the result of Peak less than the limit of QP by more than 6dB, just the peak value was recorded.

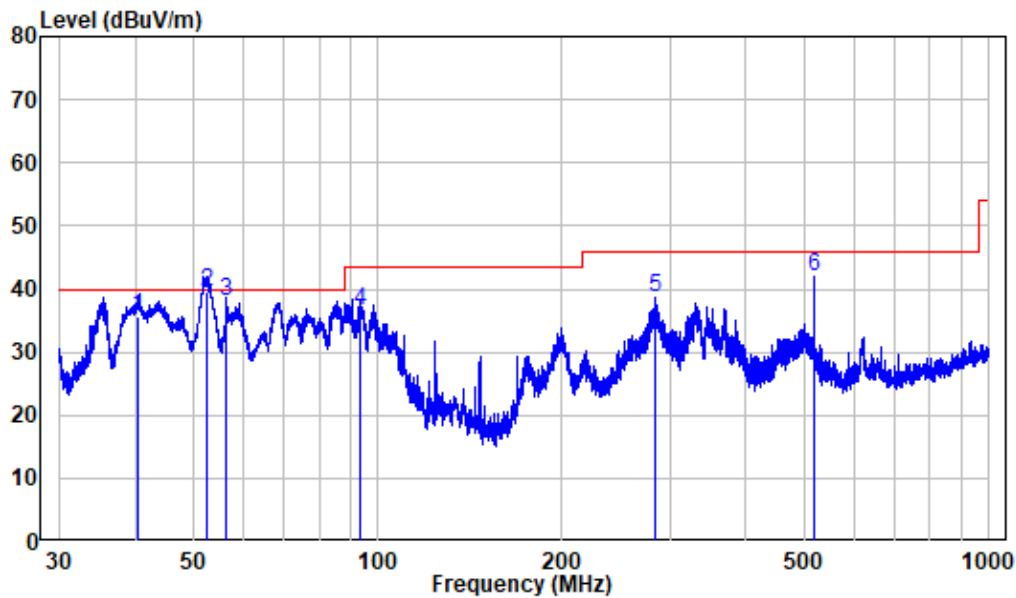
Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No. : RA230516-26708E-RF
Test Mode: 2.4G WIFI Transmitting

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	52.254	-10.02	41.29	31.27	40.00	-8.73	Peak
2	68.902	-14.26	50.80	36.54	40.00	-3.46	QP
3	191.913	-11.26	43.72	32.46	43.50	-11.04	Peak
4	287.360	-9.37	50.19	40.82	46.00	-5.18	QP
5	332.810	-7.78	49.55	41.77	46.00	-4.23	QP
6	516.116	-4.28	43.40	39.12	46.00	-6.88	QP

Vertical



Site : chamber
 Condition: 3m VERTICAL
 Job No. : RA230516-26708E-RF
 Test Mode: 2.4G WIFI Transmitting

	Freq	Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.435	-10.27	45.90	35.63	40.00	-4.37	QP
2	52.345	-10.04	49.60	39.56	40.00	-0.44	QP
3	56.420	-10.13	48.10	37.97	40.00	-2.03	QP
4	93.277	-12.92	49.32	36.40	43.50	-7.10	QP
5	283.979	-9.47	48.04	38.57	46.00	-7.43	Peak
6	516.116	-4.28	46.20	41.92	46.00	-4.08	QP

1 GHz-25 GHz:**Wi-Fi:**

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected. Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11b									
Low Channel2412MHz									
2389.59	76.51	PK	140	1.8	H	-10.62	65.89	74	-8.11
2389.59	58.34	AV	140	1.8	H	-10.62	47.72	54	-6.28
2388.96	76.25	PK	196	1.6	V	-10.62	65.63	74	-8.37
2388.96	58.12	AV	196	1.6	V	-10.62	47.50	54	-6.50
2390	74.99	PK	357	1.2	H	-10.62	64.37	74	-9.63
2390	57.83	AV	357	1.2	H	-10.62	47.21	54	-6.79
2390	74.87	PK	178	1.1	V	-10.62	64.25	74	-9.75
2390	57.70	AV	178	1.1	V	-10.62	47.08	54	-6.92
4824	60.95	PK	149	2.4	H	-5.55	55.40	74	-18.60
4824	47.13	AV	149	2.4	H	-5.55	41.58	54	-12.42
4824	60.66	PK	174	1.7	V	-5.55	55.11	74	-18.89
4824	46.87	AV	174	1.7	V	-5.55	41.32	54	-12.68
Middle Channel2437MHz									
4874	61.50	PK	299	1.3	H	-5.29	56.21	74	-17.79
4874	47.83	AV	299	1.3	H	-5.29	42.54	54	-11.46
4874	61.22	PK	149	2.5	V	-5.29	55.93	74	-18.07
4874	47.58	AV	149	2.5	V	-5.29	42.29	54	-11.71
High Channel(2462 MHz)									
2483.5	68.06	PK	356	2.4	H	-10.46	57.6	74	-16.40
2483.5	55.70	AV	356	2.4	H	-10.46	45.24	54	-8.76
2483.5	67.92	PK	222	2.1	V	-10.46	57.46	74	-16.54
2483.5	55.54	AV	222	2.1	V	-10.46	45.08	54	-8.92
2483.91	70.65	PK	199	1.3	H	-10.46	60.19	74	-13.81
2483.91	56.19	AV	199	1.3	H	-10.46	45.73	54	-8.27
2484.12	70.48	PK	64	1	V	-10.46	60.02	74	-13.98
2484.12	56.03	AV	64	1	V	-10.46	45.57	54	-8.43
4924	61.13	PK	245	2.5	H	-5.03	56.10	74	-17.90
4924	47.44	AV	245	2.5	H	-5.03	42.41	54	-11.59
4924	60.90	PK	301	1.8	V	-5.03	55.87	74	-18.13
4924	47.21	AV	301	1.8	V	-5.03	42.18	54	-11.82

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected. Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11g									
Low Channel 2412MHz									
2389.48	74.20	PK	308	1.5	H	-10.62	63.58	74	-10.42
2389.48	58.39	AV	308	1.5	H	-10.62	47.77	54	-6.23
2389.87	73.93	PK	273	2.4	V	-10.62	63.31	74	-10.69
2389.87	58.18	AV	273	2.4	V	-10.62	47.56	54	-6.44
2390	73.02	PK	73	1	H	-10.62	62.40	74	-11.60
2390	57.87	AV	73	1	H	-10.62	47.25	54	-6.75
2390	72.85	PK	197	1.4	V	-10.62	62.23	74	-11.77
2390	57.74	AV	197	1.4	V	-10.62	47.12	54	-6.88
4824	61.37	PK	211	2.5	H	-5.55	55.82	74	-18.18
4824	46.45	AV	211	2.5	H	-5.55	40.90	54	-13.10
4824	61.14	PK	43	1.8	V	-5.55	55.59	74	-18.41
4824	46.22	AV	43	1.8	V	-5.55	40.67	54	-13.33
Middle Channel 2437MHz									
4874	60.99	PK	345	1.2	H	-5.29	55.7	74	-18.30
4874	46.07	AV	345	1.2	H	-5.29	40.78	54	-13.22
4874	60.78	PK	306	1.2	V	-5.29	55.49	74	-18.51
4874	45.86	AV	306	1.2	V	-5.29	40.57	54	-13.43
High Channel 2462MHz									
2483.5	69.59	PK	98	1.7	H	-10.46	59.13	74	-14.87
2483.5	57.78	AV	98	1.7	H	-10.46	47.32	54	-6.68
2483.5	69.45	PK	284	2.1	V	-10.46	58.99	74	-15.01
2483.5	57.64	AV	284	2.1	V	-10.46	47.18	54	-6.82
2483.93	71.70	PK	85	1.9	H	-10.46	61.24	74	-12.76
2483.93	58.33	AV	85	1.9	H	-10.46	47.87	54	-6.13
2483.78	71.42	PK	274	2.3	V	-10.46	60.96	74	-13.04
2483.78	58.16	AV	274	2.3	V	-10.46	47.7	54	-6.30
4924	60.48	PK	288	1.3	H	-5.03	55.45	74	-18.55
4924	45.64	AV	288	1.3	H	-5.03	40.61	54	-13.39
4924	60.23	PK	249	2.3	V	-5.03	55.20	74	-18.80
4924	45.41	AV	249	2.3	V	-5.03	40.38	54	-13.62

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected. Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11n20									
Low Channel 2412MHz									
2389.15	75.14	PK	251	1.1	H	-10.62	64.52	74	-9.48
2389.15	58.81	AV	251	1.1	H	-10.62	48.19	54	-5.81
2388.88	74.89	PK	40	1.7	V	-10.62	64.27	74	-9.73
2388.88	58.60	AV	40	1.7	V	-10.62	47.98	54	-6.02
2390	73.85	PK	295	2.1	H	-10.62	63.23	74	-10.77
2390	58.23	AV	295	2.1	H	-10.62	47.61	54	-6.39
2390	73.72	PK	229	1.2	V	-10.62	63.10	74	-10.90
2390	58.11	AV	229	1.2	V	-10.62	47.49	54	-6.51
4824	61.53	PK	324	1.2	H	-5.55	55.98	74	-18.02
4824	46.38	AV	324	1.2	H	-5.55	40.83	54	-13.17
4824	61.27	PK	281	2.4	V	-5.55	55.72	74	-18.28
4824	46.16	AV	281	2.4	V	-5.55	40.61	54	-13.39
Middle Channel 2437MHz									
4874	61.13	PK	54	2.3	H	-5.29	55.84	74	-18.16
4874	46.04	AV	54	2.3	H	-5.29	40.75	54	-13.25
4874	60.91	PK	199	1.6	V	-5.29	55.62	74	-18.38
4874	45.82	AV	199	1.6	V	-5.29	40.53	54	-13.47
High Channel 2462MHz									
2483.5	70.20	PK	198	1.1	H	-10.46	59.74	74	-14.26
2483.5	58.24	AV	198	1.1	H	-10.46	47.78	54	-6.22
2483.5	70.09	PK	114	2.2	V	-10.46	59.63	74	-14.37
2483.5	58.11	AV	114	2.2	V	-10.46	47.65	54	-6.35
2483.87	72.38	PK	60	1.7	H	-10.46	61.92	74	-12.08
2483.87	58.75	AV	60	1.7	H	-10.46	48.29	54	-5.71
2484.22	72.13	PK	105	1.4	V	-10.46	61.67	74	-12.33
2484.22	58.52	AV	105	1.4	V	-10.46	48.06	54	-5.94
4924	60.61	PK	203	1.4	H	-5.03	55.58	74	-18.42
4924	45.56	AV	203	1.4	H	-5.03	40.53	54	-13.47
4924	60.42	PK	205	1.5	V	-5.03	55.39	74	-18.61
4924	45.37	AV	205	1.5	V	-5.03	40.34	54	-13.66

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Corrected. Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11n40									
Low Channel 2422MHz									
2389.89	74.23	PK	68	1.3	H	-10.62	63.61	74	-10.39
2389.89	59.30	AV	68	1.3	H	-10.62	48.68	54	-5.32
2389.24	74.02	PK	103	1.6	V	-10.62	63.40	74	-10.60
2389.24	59.11	AV	103	1.6	V	-10.62	48.49	54	-5.51
2390	73.38	PK	236	1.9	H	-10.62	62.76	74	-11.24
2390	58.79	AV	236	1.9	H	-10.62	48.17	54	-5.83
2390	73.25	PK	216	1.2	V	-10.62	62.63	74	-11.37
2390	58.64	AV	216	1.2	V	-10.62	48.02	54	-5.98
4844	61.22	PK	272	1.1	H	-5.52	55.70	74	-18.30
4844	47.09	AV	272	1.1	H	-5.52	41.57	54	-12.43
4844	60.98	PK	31	2.3	V	-5.52	55.46	74	-18.54
4844	46.87	AV	31	2.3	V	-5.52	41.35	54	-12.65
Middle Channel 2437MHz									
4874	60.89	PK	158	2.2	H	-5.29	55.6	74	-18.40
4874	46.76	AV	158	2.2	H	-5.29	41.47	54	-12.53
4874	60.67	PK	291	2.2	V	-5.29	55.38	74	-18.62
4874	46.54	AV	291	2.2	V	-5.29	41.25	54	-12.75
High Channel 2452MHz									
2483.5	71.56	PK	309	2.5	H	-10.46	61.1	74	-12.90
2483.5	58.64	AV	309	2.5	H	-10.46	48.18	54	-5.82
2483.5	71.38	PK	286	1.4	V	-10.46	60.92	74	-13.08
2483.5	58.52	AV	286	1.4	V	-10.46	48.06	54	-5.94
2483.98	73.49	PK	141	1.1	H	-10.46	63.03	74	-10.97
2483.98	59.17	AV	141	1.1	H	-10.46	48.71	54	-5.29
2483.75	73.26	PK	54	1.3	V	-10.46	62.8	74	-11.20
2483.75	58.95	AV	54	1.3	V	-10.46	48.49	54	-5.51
4904	60.49	PK	198	2.2	H	-5.06	55.43	74	-18.57
4904	46.40	AV	198	2.2	H	-5.06	41.34	54	-12.66
4904	60.26	PK	56	1.4	V	-5.06	55.20	74	-18.80
4904	46.17	AV	56	1.4	V	-5.06	41.11	54	-12.89

Note:

Corrected Factor=Antenna factor (RX) + Cable Loss – Amplifier Factor

Corrected Amplitude = Corrected Factor + Reading

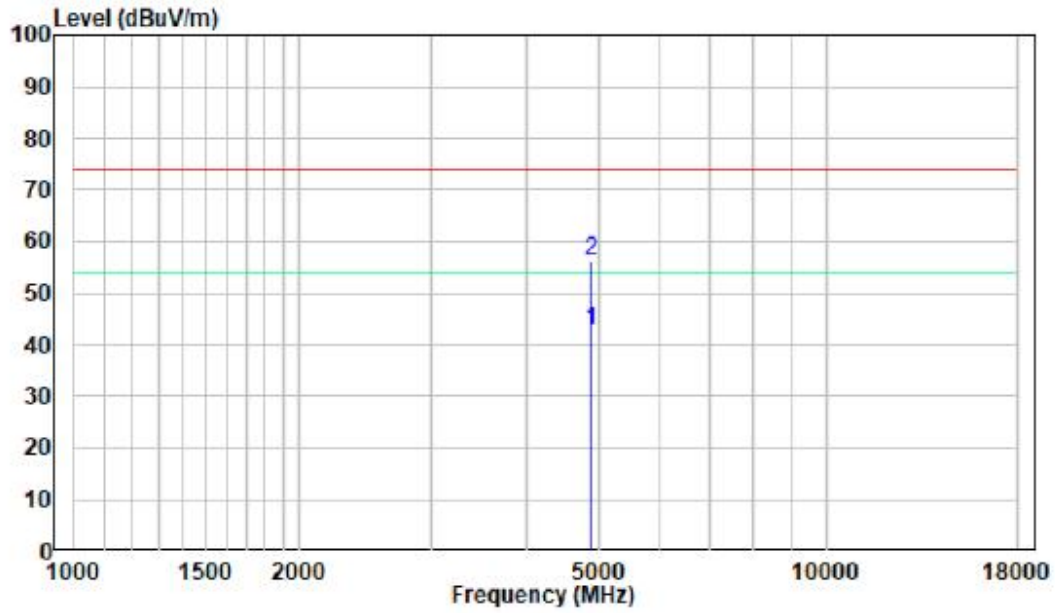
Margin = Corrected. Amplitude - Limit

The other spurious emission which is 20dB to the limit or in the noise floor level was not recorded.

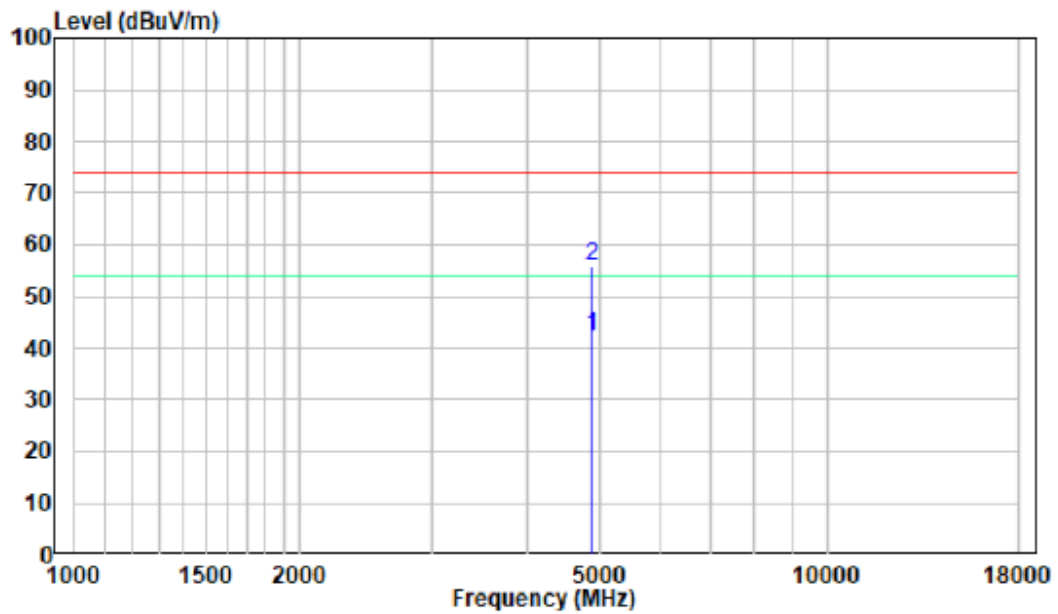
1-18 GHz:

Pre-scan for 802.11b Middle Channel

Horizontal



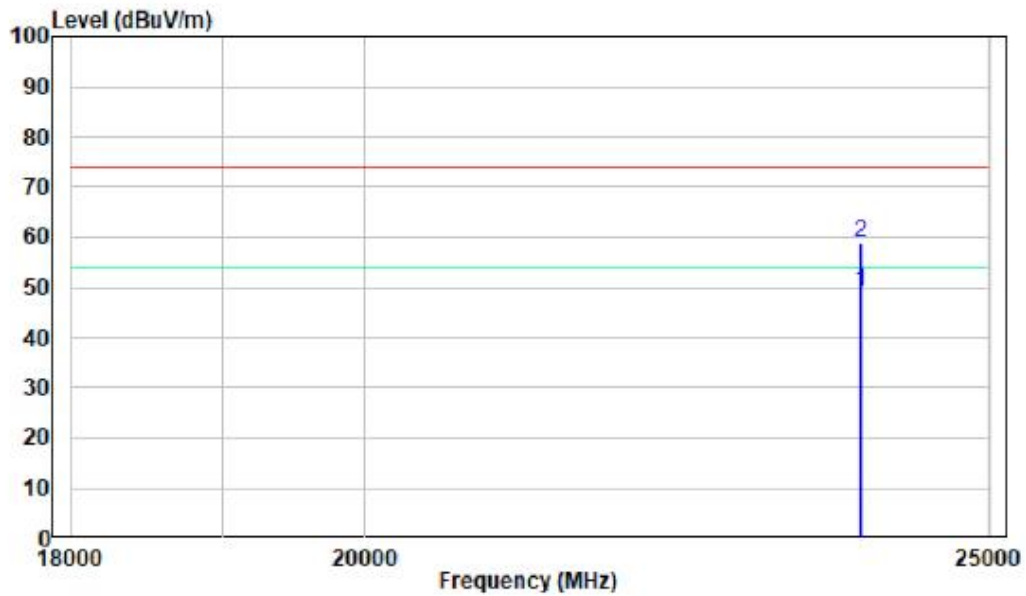
Vertical



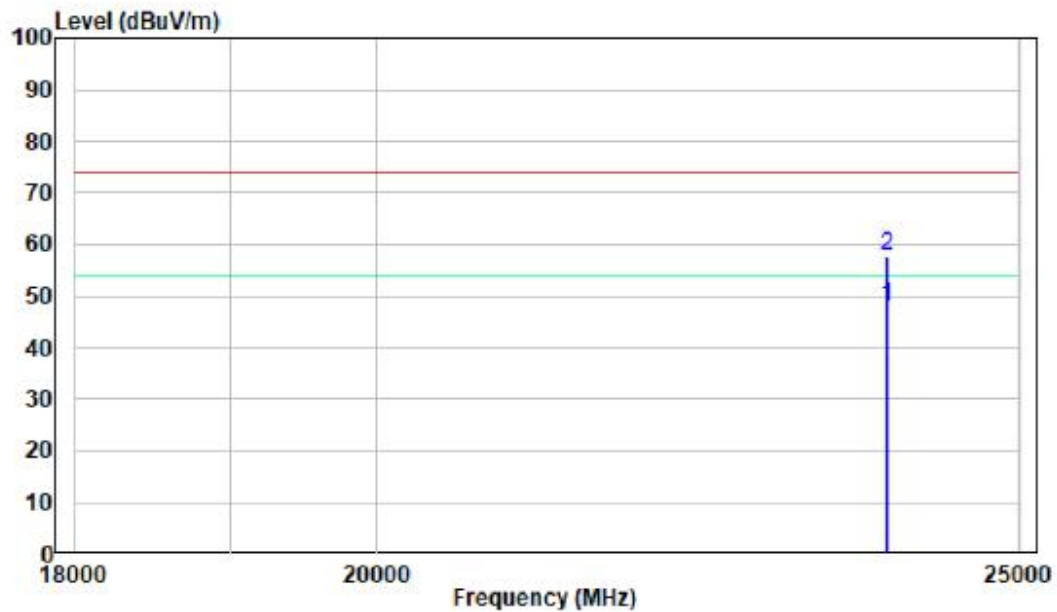
18 -25GHz:

Pre-scan for 802.11b Middle Channel

Horizontal



Vertical



§15.247 (a)(2) 99% OCCUPIED BANDWIDTH & 6dB EMISSION BANDWIDTH

Applicable Standard

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

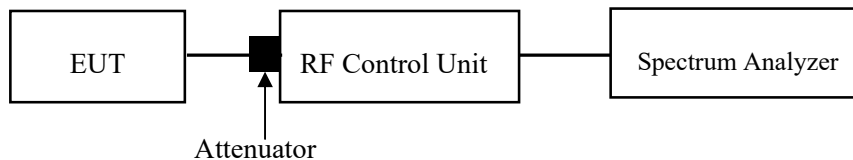
The occupied bandwidth or the “99% emission bandwidth” is defined as the frequency range between two points, one above and the other below the carrier frequency, within which 99% of the total transmitted power of the fundamental transmitted emission is contained. The occupied bandwidth shall be reported for all equipment in addition to the specified bandwidth required in the applicable RSSs.

In some cases, the “6 dB bandwidth” is required, which is defined as the frequency range between two points, one at the lowest frequency below and one at the highest frequency above the carrier frequency, at which the maximum power level of the transmitted emission is attenuated 6 dB below the maximum in-band power level of the modulated signal, where the two points are on the outskirts of the in-band emission.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.8.1 & Clause 6.9.3

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.



Test Data

Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Amanda Wei on 2023-05-30.

EUT operation mode: Transmitting

Test Result Compliant. Please refer to the Appendix.

§15.247(b)(3) MAXIMUM CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.

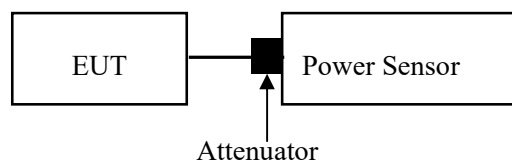
For DTSs employing digital modulation techniques operating in the bands 902-928 MHz and 2400-2483.5 MHz, the maximum peak conducted output power shall not exceed 1 W. The e.i.r.p. shall not exceed 4 W, except as provided in section 5.4(e).

As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or transmitting at a reduced power level. If multiple modes of operation are implemented, the maximum conducted output power is the highest total transmit power occurring in any mode.

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.9.2.3.2 for Wi-Fi

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to one test equipment.
3. Add a correction factor to the display.



Test Data**Environmental Conditions**

Temperature:	24.5 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Amanda Wei on 2023-05-30.

EUT operation mode: Transmitting

Test Result Compliant. Please refer to the Appendix.

§ 15.247(d) 100kHz BANDWIDTH OF FREQUENCY BAND EDGE

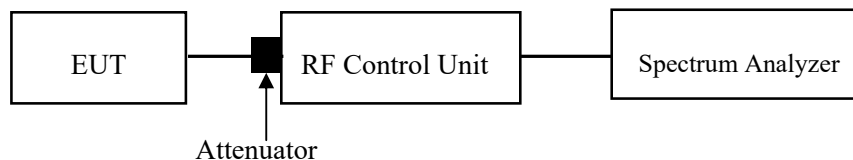
Applicable Standard

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 either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.11

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.



Test Data

Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Amanda Wei on 2023-05-30.

EUT operation mode: Transmitting

Test Result Compliant. Please refer to the Appendix.

§15.247(e) POWER SPECTRAL DENSITY

Applicable Standard

FCC: For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

RSS: The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

Test Procedure

Test Method: ANSI C63.10-2013 Clause 11.10.2

Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.

1. Set the RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
2. Set the VBW $\geq 3 \times \text{RBW}$.
3. Set the span to 1.5 times the DTS bandwidth.
4. Detector = peak.
5. Sweep time = auto couple.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Use the peak marker function to determine the maximum amplitude level within the RBW.
9. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Method: ANSI C63.10-2013 Clause 11.10.3 Method AVGPSD-1

The following procedure may be used when the maximum (average) conducted output power was used to determine compliance to the fundamental output power limit. This is the baseline method for determining the maximum (average) conducted PSD level. If the instrument has a power averaging (rms) detector, then it must be used; otherwise, use the sample detector. The EUT must be configured to transmit continuously ($D \geq 98\%$), or else sweep triggering/signal gating must be implemented to ensure that measurements are made only when the EUT is transmitting at its maximum power control level (no transmitter OFF time to be considered):

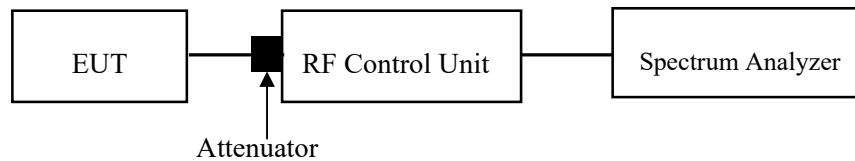
1. Set instrument center frequency to DTS channel center frequency.
2. Set span to at least 1.5 times the OBW.
3. Set the RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
4. Set the VBW $\geq 3 \times \text{BW}$.
5. Detector = power averaging (rms) or sample detector (when rms not available)
6. Ensure that the number of measurement points in the sweep $\geq [2 \times \text{span} / \text{RBW}]$.
7. Sweep time = auto couple.
8. Employ trace averaging (rms) mode over a minimum of 100 traces.
9. Use the peak marker function to determine the maximum amplitude level.
10. If the measured value exceeds requirement, 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).

Test Method: ANSI C63.10-2013 Clause 11.10.5 Method AVGPSD-2

The following procedure is applicable when the EUT cannot be configured to transmit continuously (i.e., $D < 98\%$), when sweep triggering/signal gating cannot be used to measure only when the EUT is transmitting at its maximum power control level, and when the transmission duty cycle is constant (i.e., duty cycle variations are less than $\pm 2\%$):

1. Measure the duty cycle (D) of the transmitter output signal as described in 11.6.
2. Set instrument center frequency to DTS channel center frequency.
3. Set span to at least 1.5 times the OBW.
4. Set the RBW to: $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
5. Set the VBW $\geq 3 \times \text{BW}$.
6. Detector = power averaging (rms) or sample detector (when rms not available)
7. Ensure that the number of measurement points in the sweep $\geq [2 \times \text{span} / \text{RBW}]$.
8. Sweep time = auto couple.
9. Do not 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. If the measured value exceeds requirement, 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).



Test Data

Environmental Conditions

Temperature:	24.5 °C
Relative Humidity:	52 %
ATM Pressure:	101.0 kPa

The testing was performed by Amanda Wei on 2023-05-30.

EUT operation mode: Transmitting

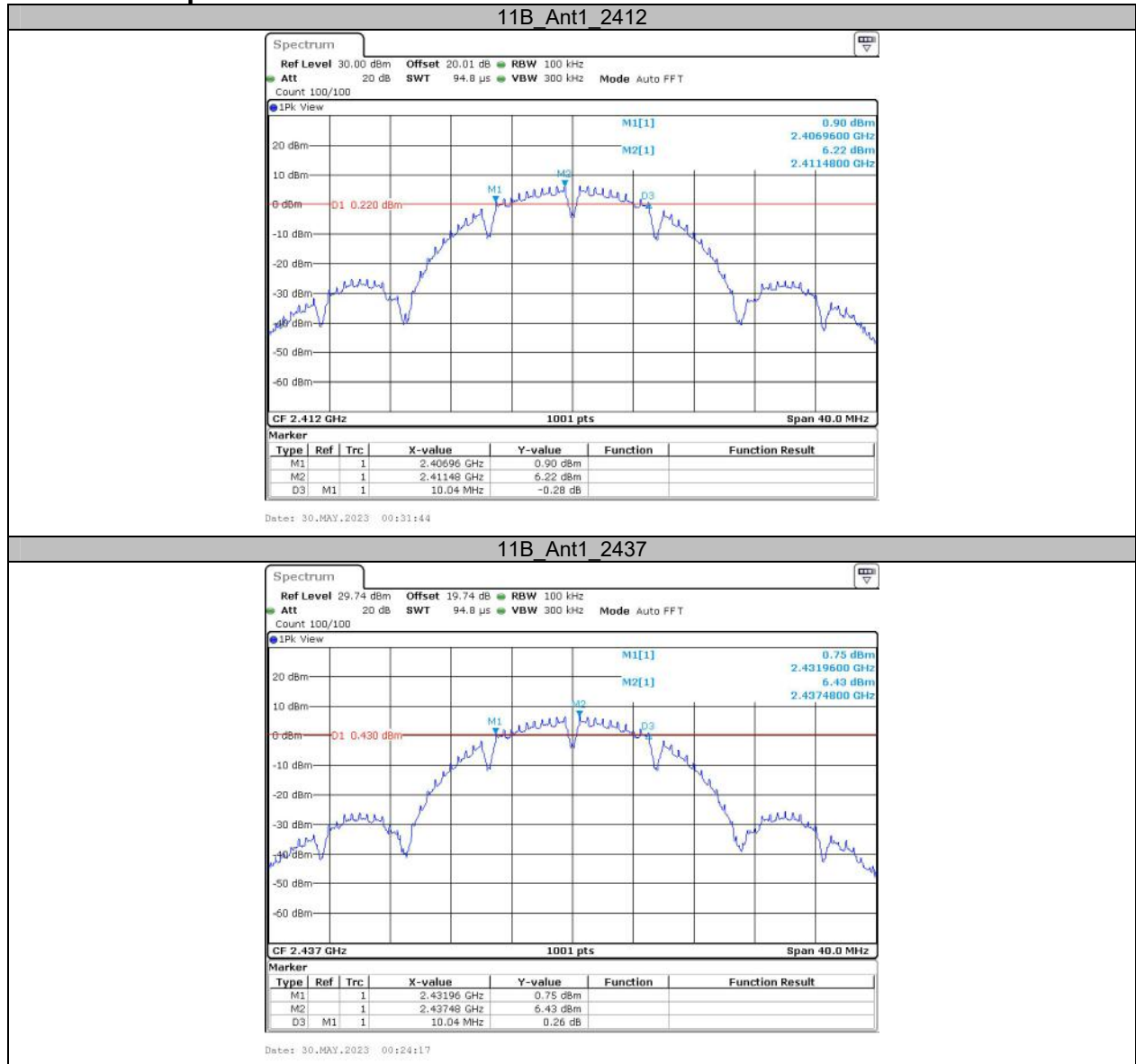
Test Result: Compliant. Please refer to the Appendix.

APPENDIX

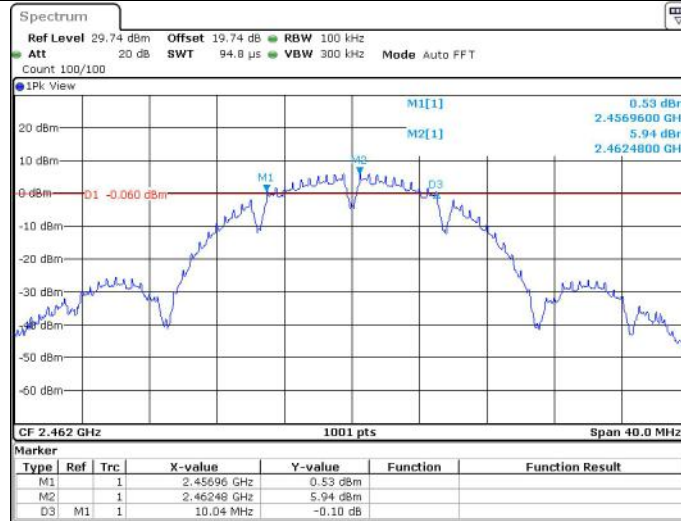
Appendix A: DTS Bandwidth Test Result

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	10.04	2406.96	2417.00	0.5	PASS
		2437	10.04	2431.96	2442.00	0.5	PASS
		2462	10.04	2456.96	2467.00	0.5	PASS
11G	Ant1	2412	16.36	2403.80	2420.16	0.5	PASS
		2437	16.32	2428.84	2445.16	0.5	PASS
		2462	16.36	2453.80	2470.16	0.5	PASS
11N20SISO	Ant1	2412	17.60	2403.20	2420.80	0.5	PASS
		2437	17.60	2428.20	2445.80	0.5	PASS
		2462	17.64	2453.16	2470.80	0.5	PASS
11N40SISO	Ant1	2422	36.32	2403.84	2440.16	0.5	PASS
		2437	36.32	2418.84	2455.16	0.5	PASS
		2452	36.32	2433.84	2470.16	0.5	PASS

Test Graphs

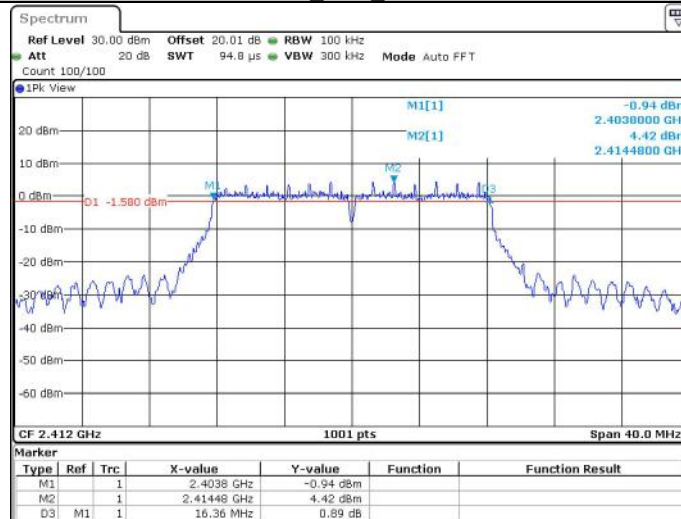


11B_Ant1_2462



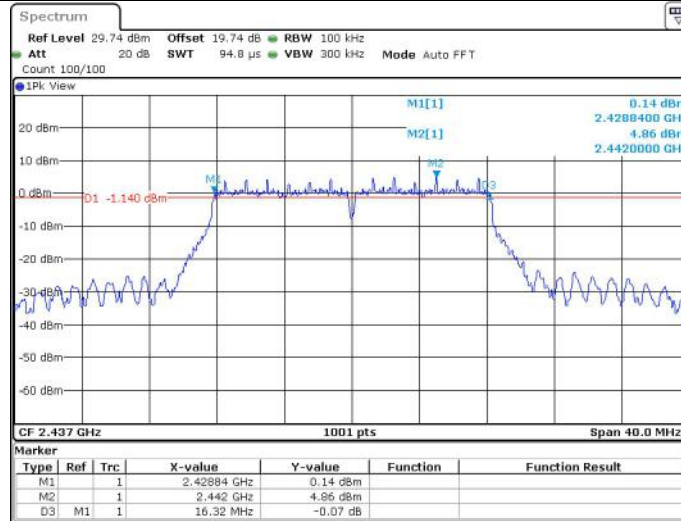
Date: 30.MAY.2023 00:35:17

11G_Ant1_2412



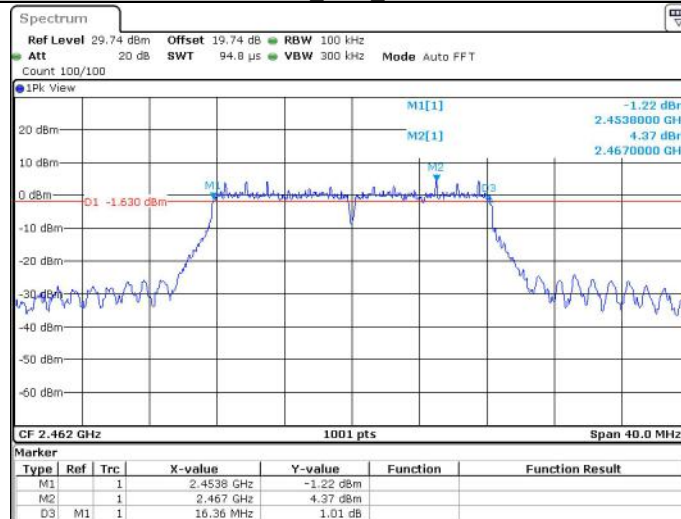
Date: 30.MAY.2023 00:44:01

11G_Ant1_2437



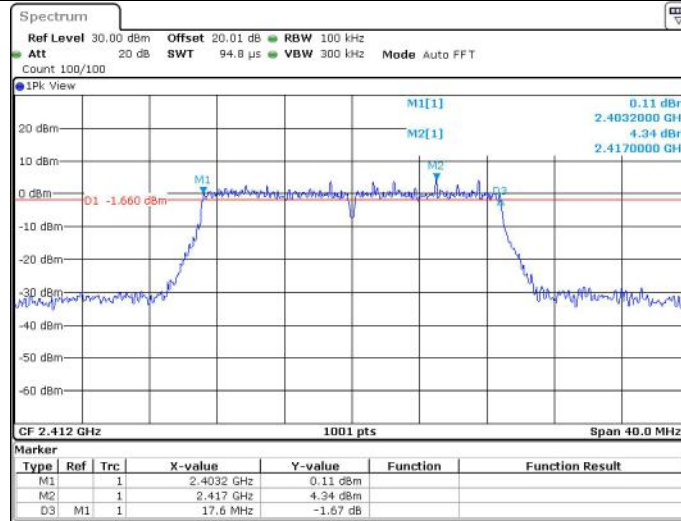
Date: 30.MAY.2023 00:42:20

11G_Ant1_2462



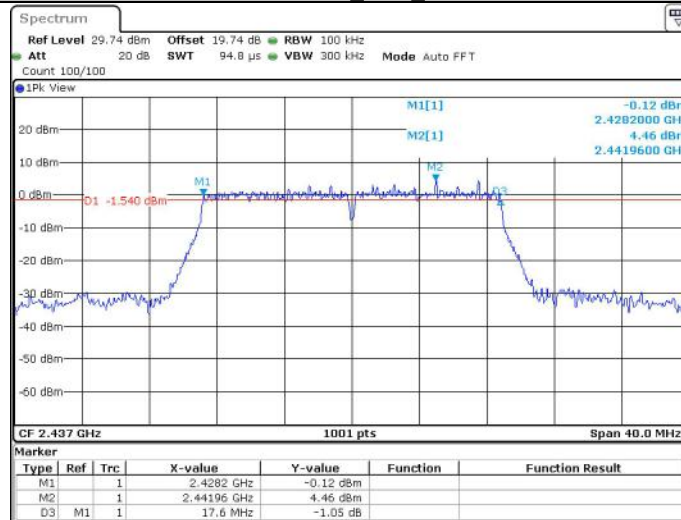
Date: 30.MAY.2023 00:47:02

11N20SISO_Ant1_2412



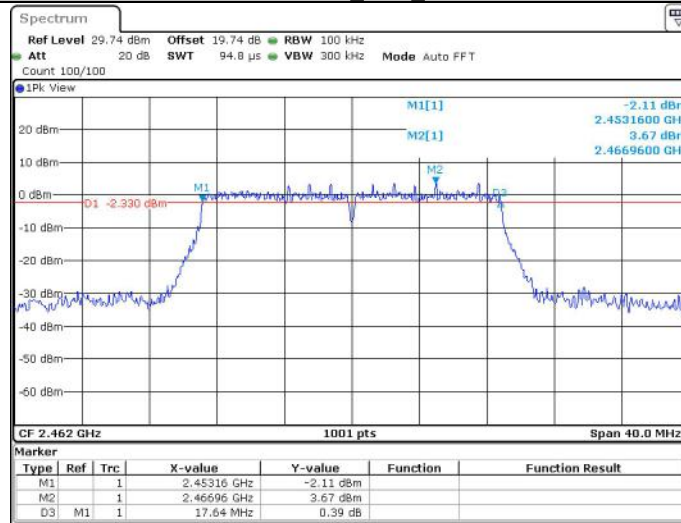
Date: 30.MAY.2023 00:50:55

11N20SISO_Ant1_2437



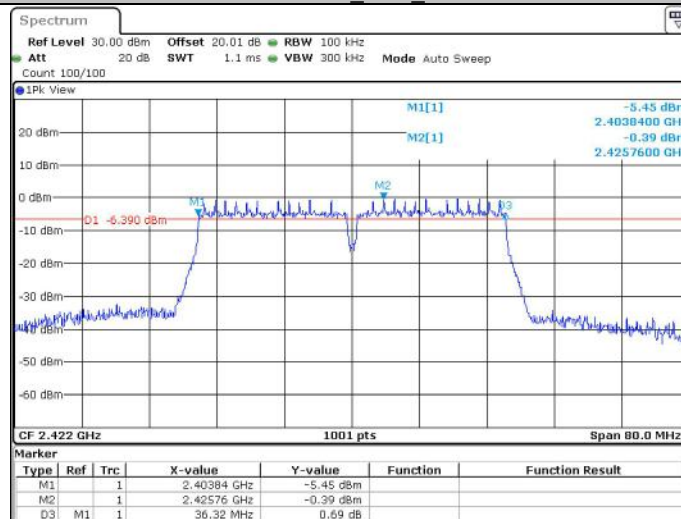
Date: 30.MAY.2023 00:53:24

11N20SISO_Ant1_2462



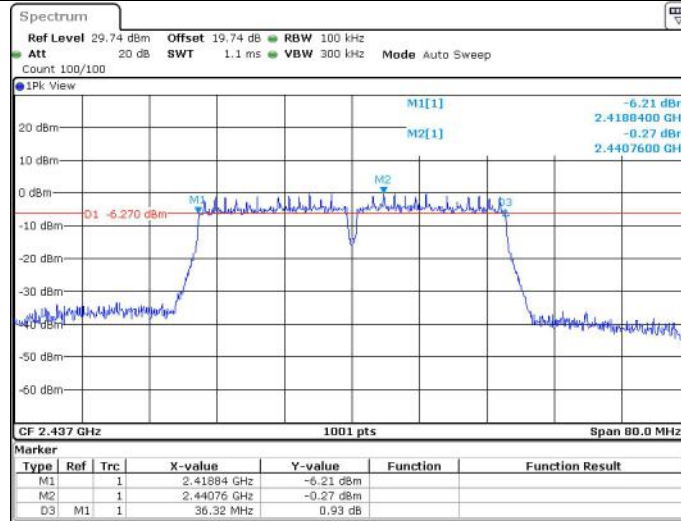
Date: 30.MAY.2023 00:59:11

11N40SISO_Ant1_2422



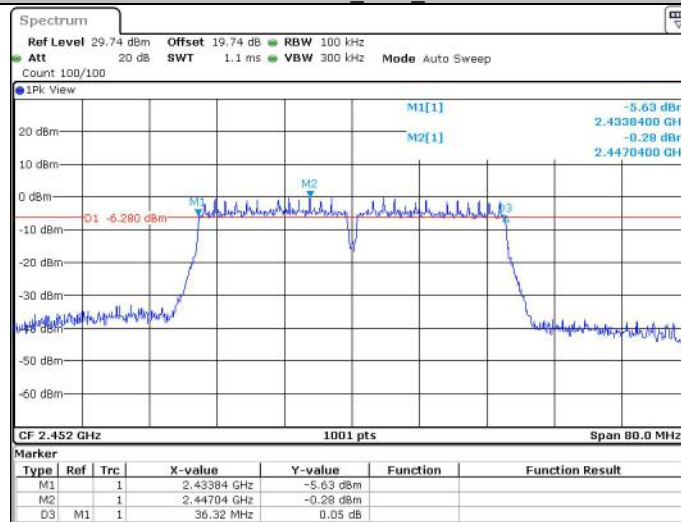
Date: 30.MAY.2023 00:58:07

11N40SISO_Ant1_2437



Date: 30.MAY.2023 01:00:09

11N40SISO_Ant1_2452



Date: 30.MAY.2023 01:01:44

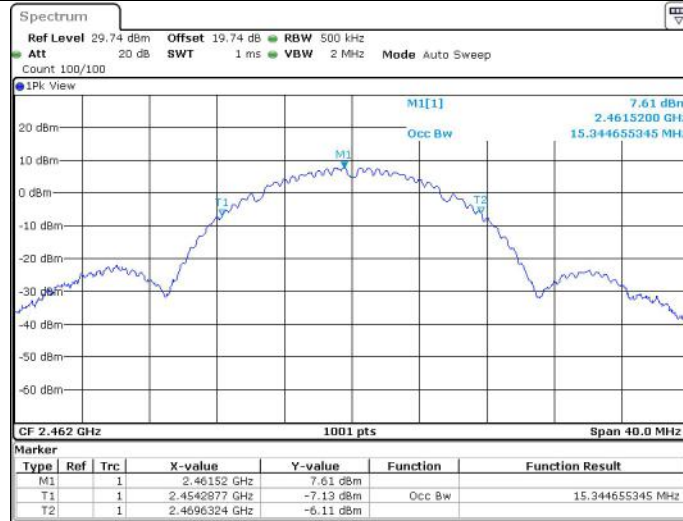
**Appendix B: Occupied Channel Bandwidth
Test Result**

Test Mode	Antenna	Channel Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	15.385	2404.248	2419.632	---	---
		2437	15.265	2429.408	2444.672	---	---
		2462	15.345	2454.288	2469.632	---	---
11G	Ant1	2412	18.062	2402.889	2420.951	---	---
		2437	17.942	2428.009	2445.951	---	---
		2462	18.022	2452.929	2470.951	---	---
11N20SISO	Ant1	2412	18.621	2402.689	2421.311	---	---
		2437	18.541	2427.769	2446.311	---	---
		2462	18.581	2452.689	2471.271	---	---
11N40SISO	Ant1	2422	37.163	2403.379	2440.541	---	---
		2437	36.923	2418.538	2455.462	---	---
		2452	37.003	2433.459	2470.462	---	---

Test Graphs

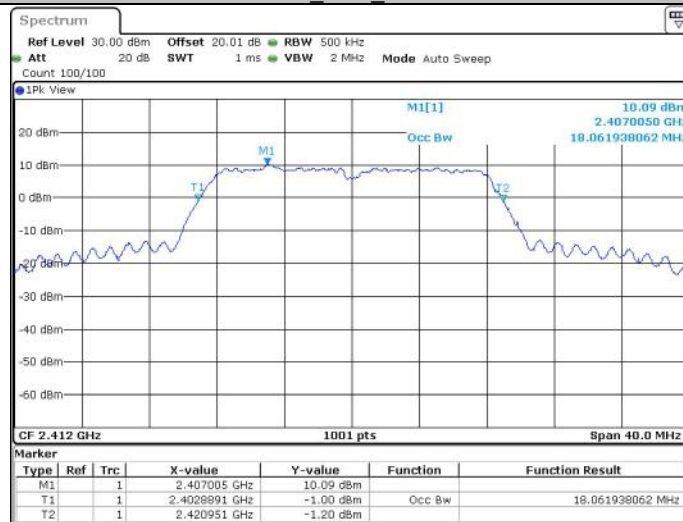


11B_Ant1_2462



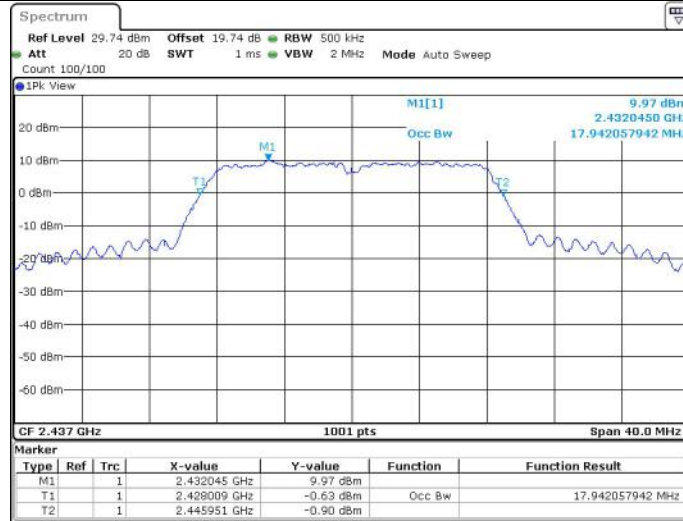
Date: 30.MAY.2023 00:35:30

11G_Ant1_2412

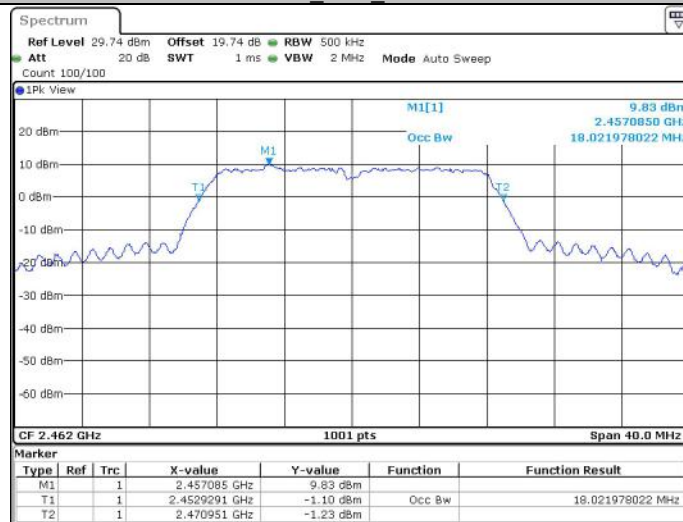


Date: 30.MAY.2023 00:44:13

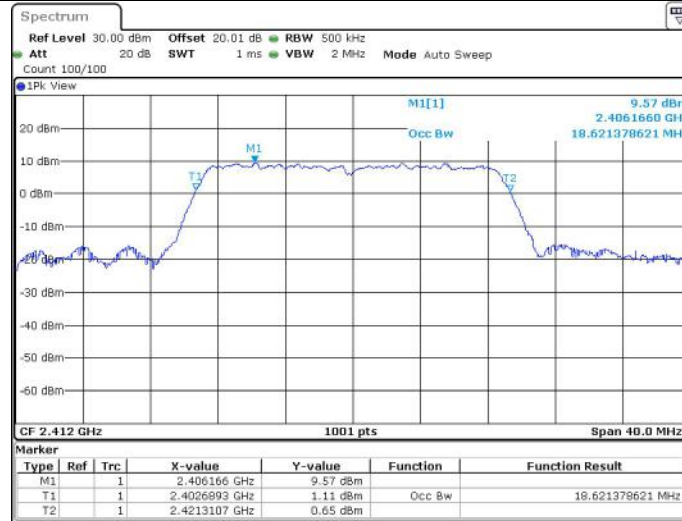
11G_Ant1_2437



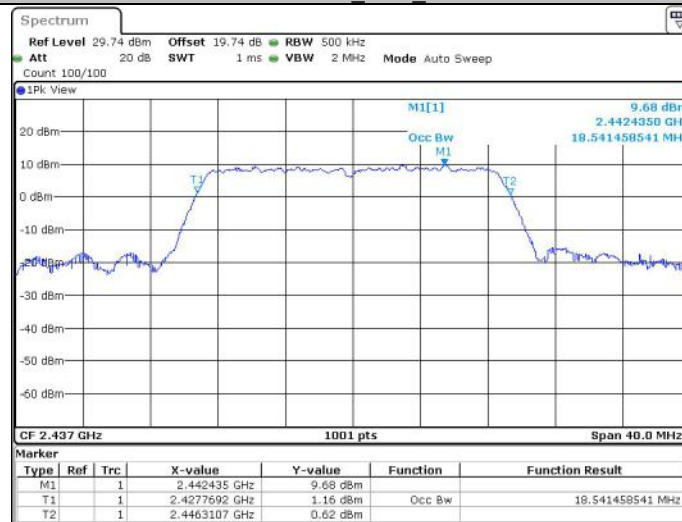
11G_Ant1_2462



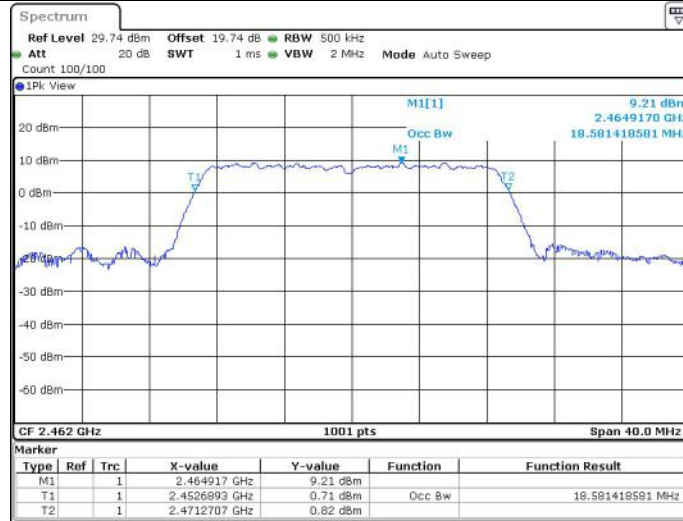
11N20SISO_Ant1_2412



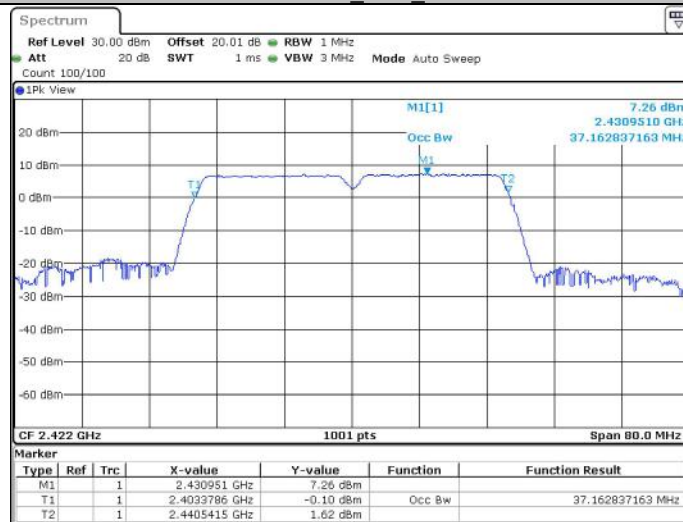
11N20SISO_Ant1_2437



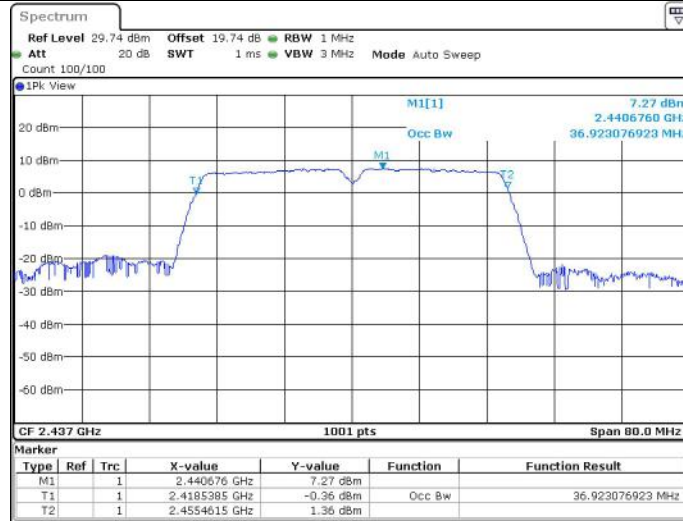
11N20SISO_Ant1_2462



11N40SISO_Ant1_2422

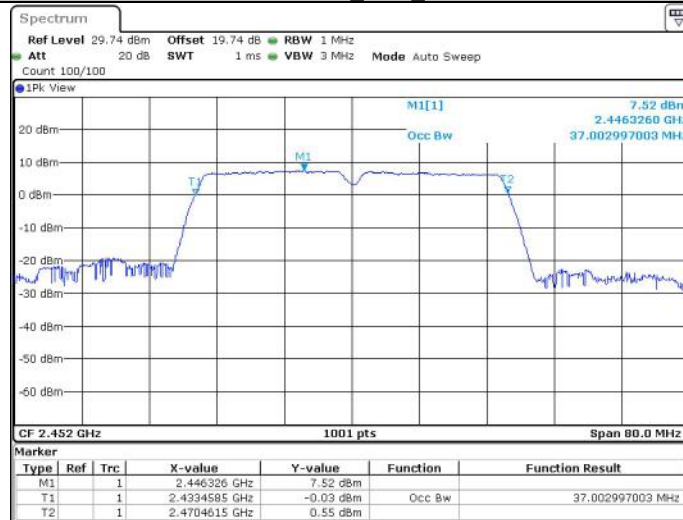


11N40SISO_Ant1_2437



Date: 30.MAY.2023 01:00:21

11N40SISO_Ant1_2452



Date: 30.MAY.2023 01:01:56

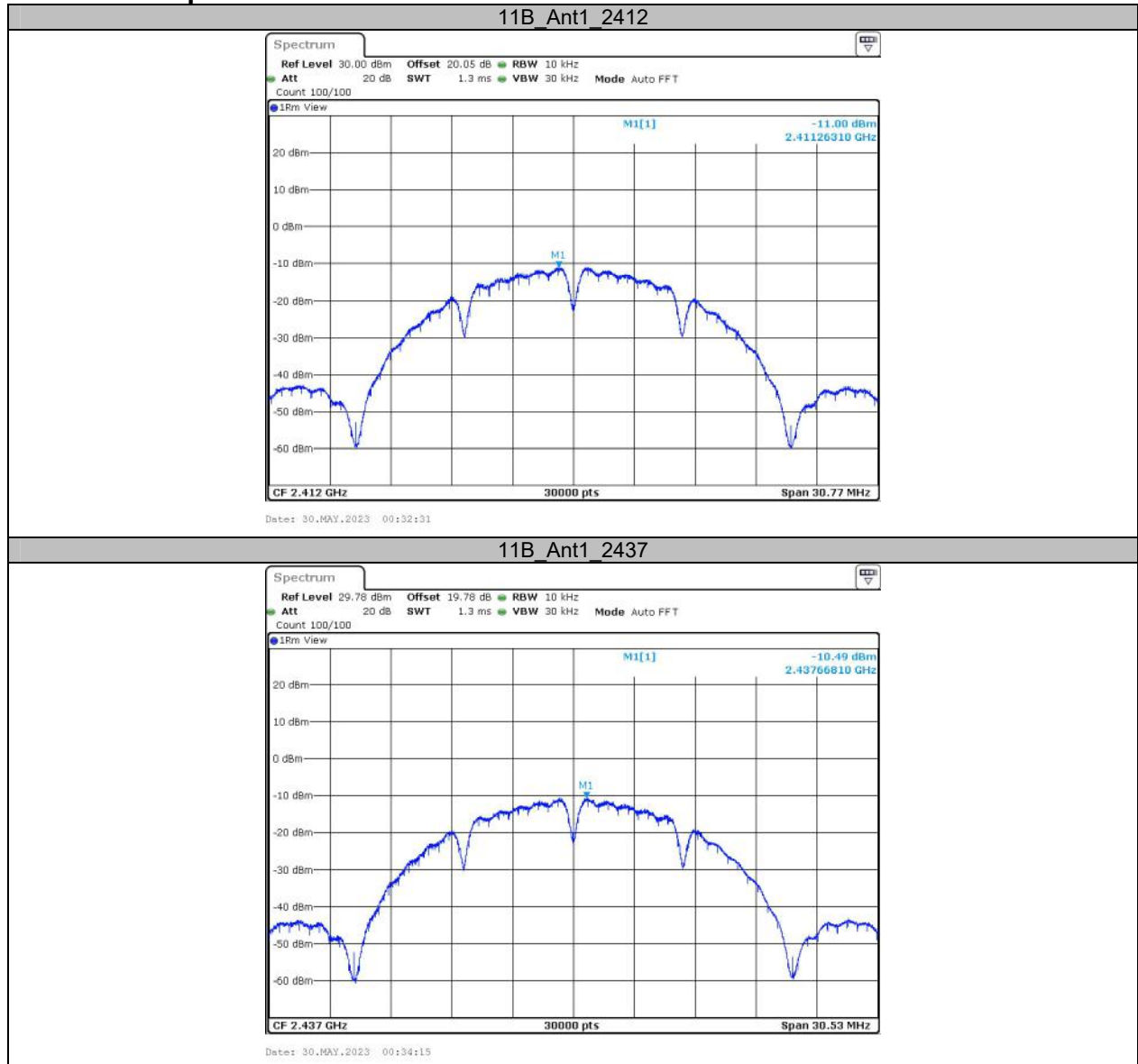
**Appendix C: Maximum conducted output power
Test Result**

Test Mode	Antenna	Frequency[MHz]	Average Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	15.47	≤30.00	PASS
		2437	15.52	≤30.00	PASS
		2462	15.46	≤30.00	PASS
11G	Ant1	2412	15.22	≤30.00	PASS
		2437	15.25	≤30.00	PASS
		2462	15.17	≤30.00	PASS
11N20SISO	Ant1	2412	15.21	≤30.00	PASS
		2437	15.22	≤30.00	PASS
		2462	15.15	≤30.00	PASS
11N40SISO	Ant1	2422	13.09	≤30.00	PASS
		2437	13.03	≤30.00	PASS
		2452	13.00	≤30.00	PASS

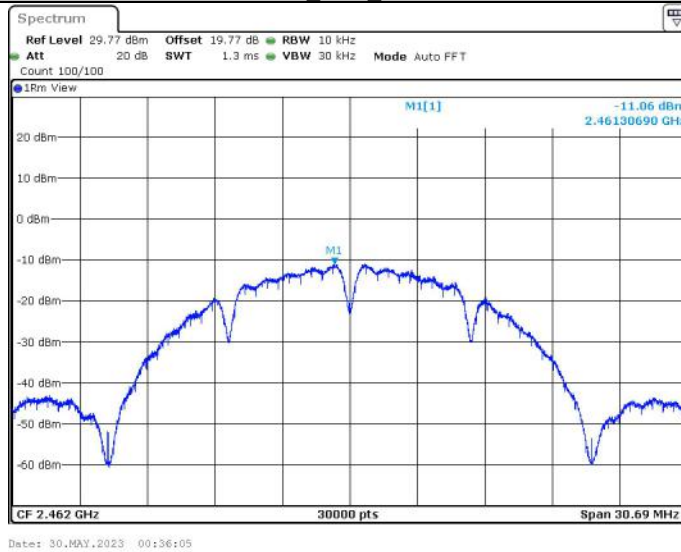
**Appendix D: Maximum power spectral density
Test Result**

Test Mode	Antenna	Frequency[MHz]	Result[dBm/10kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-11.00	≤8.00	PASS
		2437	-10.49	≤8.00	PASS
		2462	-11.06	≤8.00	PASS
11G	Ant1	2412	-12.74	≤8.00	PASS
		2437	-12.31	≤8.00	PASS
		2462	-13.08	≤8.00	PASS
11N20SISO	Ant1	2412	-12.60	≤8.00	PASS
		2437	-12.54	≤8.00	PASS
		2462	-13.04	≤8.00	PASS
11N40SISO	Ant1	2422	-18.00	≤8.00	PASS
		2437	-18.09	≤8.00	PASS
		2452	-18.20	≤8.00	PASS

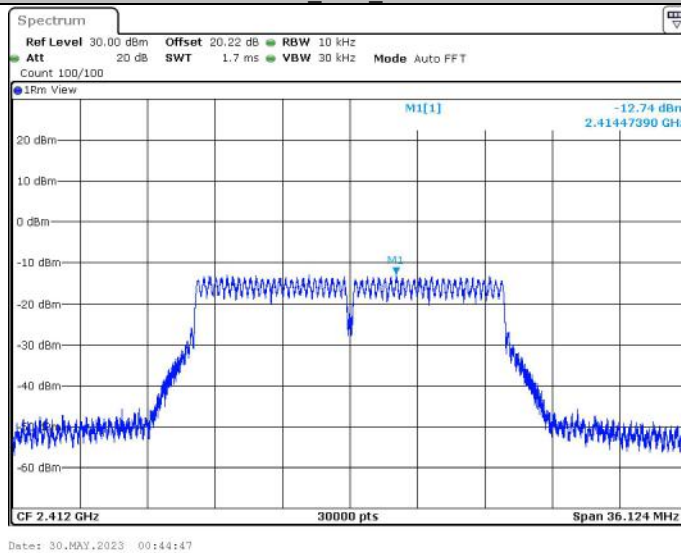
Note: the duty cycle factor has added to the plot.

Test Graphs

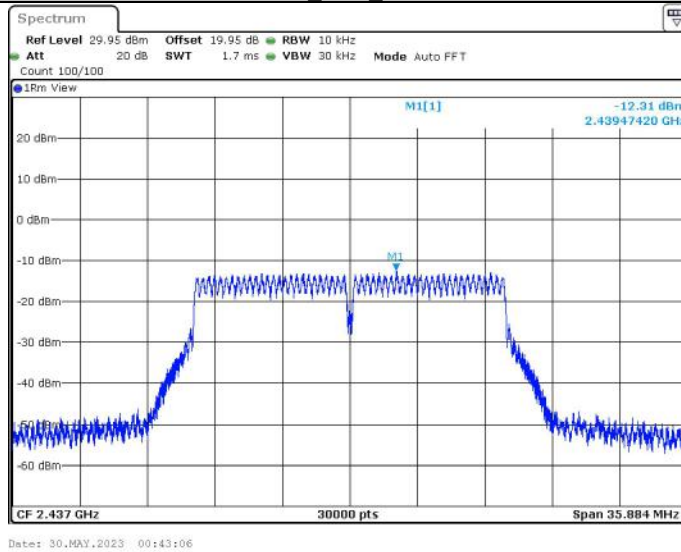
11B_Ant1_2462



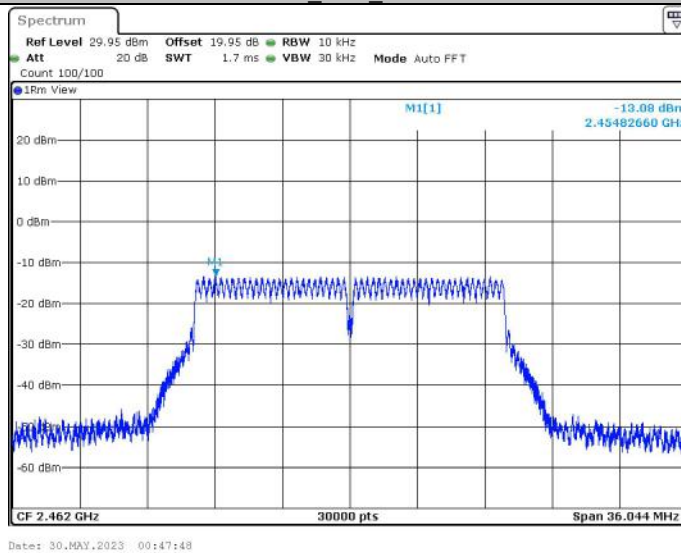
11G_Ant1_2412



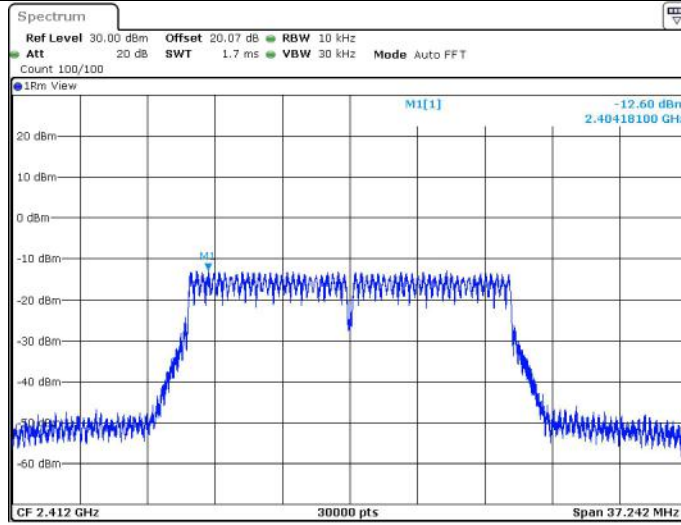
11G_Ant1_2437



11G_Ant1_2462

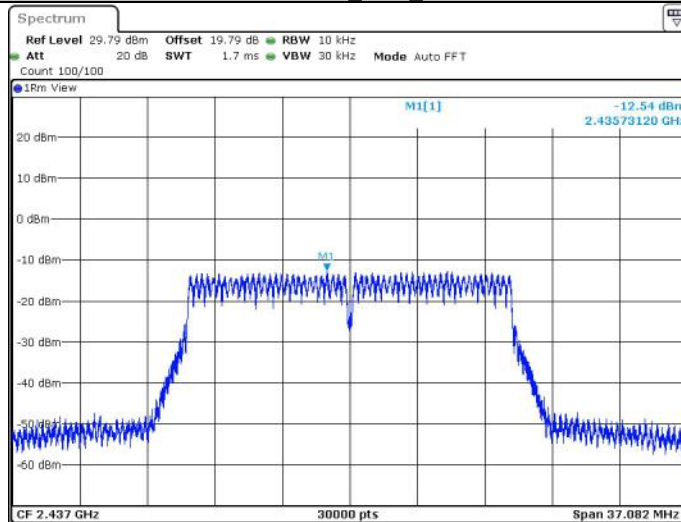


11N20SISO_Ant1_2412



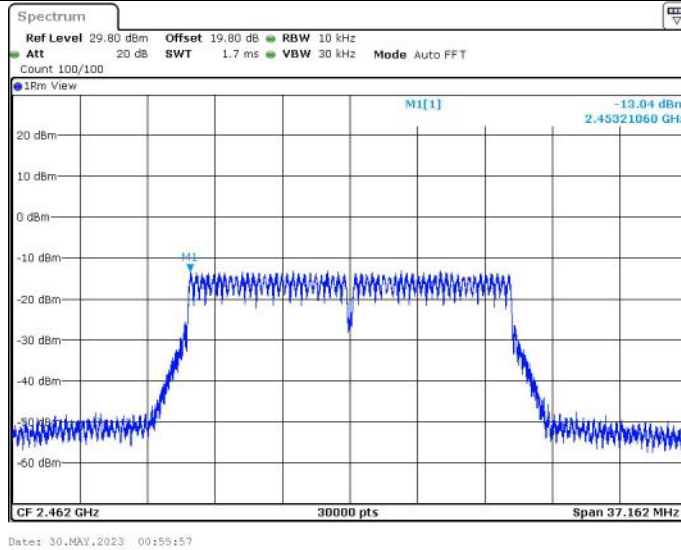
Date: 30.MAY.2023 00:53:42

11N20SISO_Ant1_2437

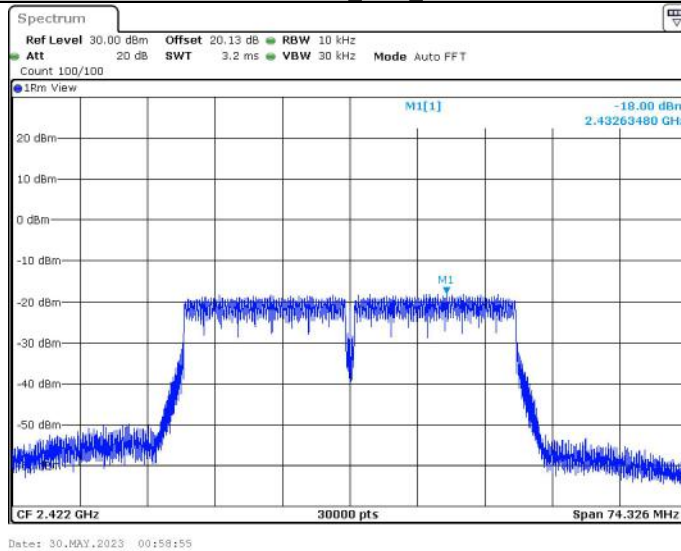


Date: 30.MAY.2023 00:54:10

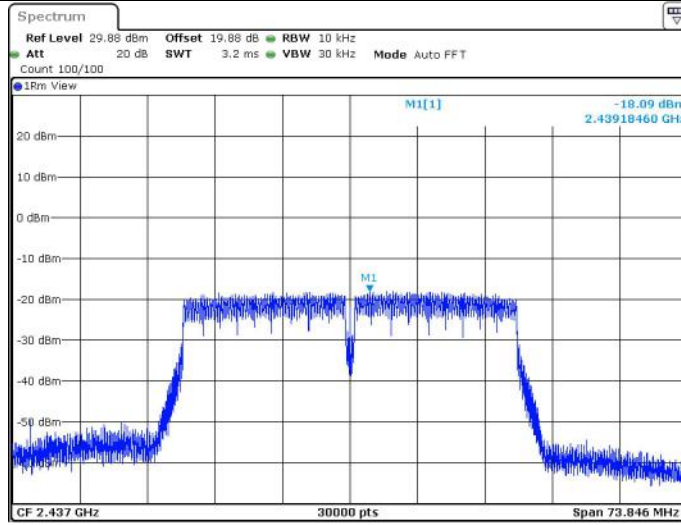
11N20SISO_Ant1_2462



11N40SISO_Ant1_2422

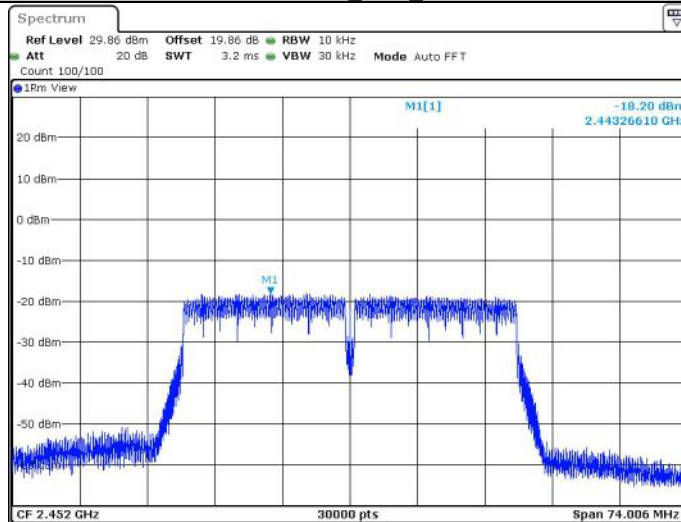


11N40SISO_Ant1_2437



Date: 30.MAY.2023 01:00:55

11N40SISO_Ant1_2452

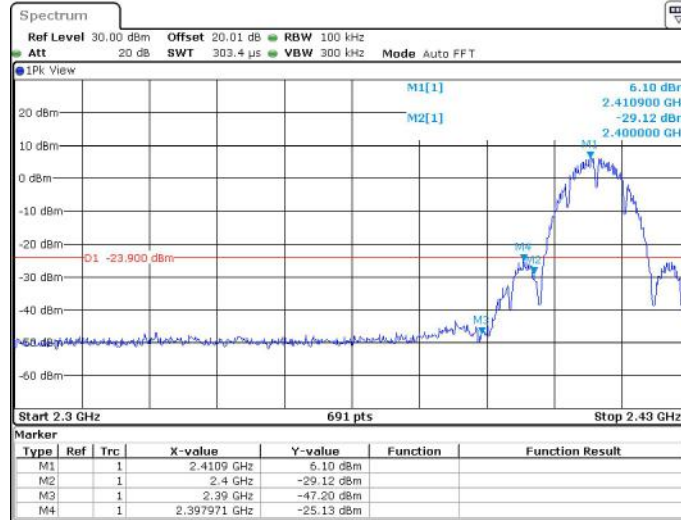


Date: 30.MAY.2023 01:02:31

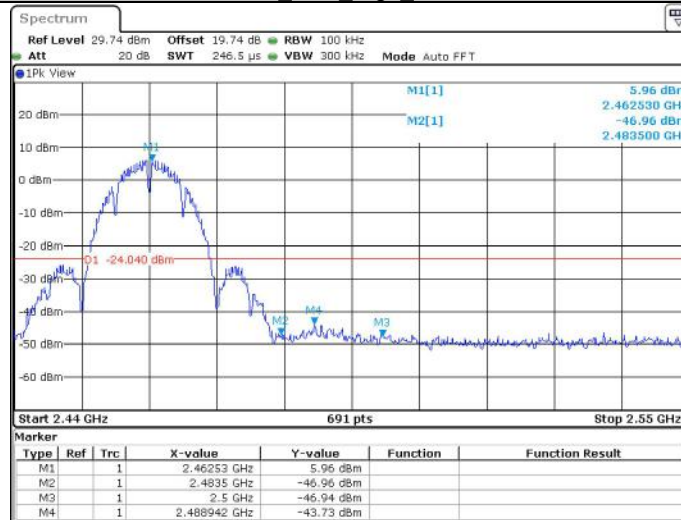
Appendix E: Band edge measurements

Test Graphs

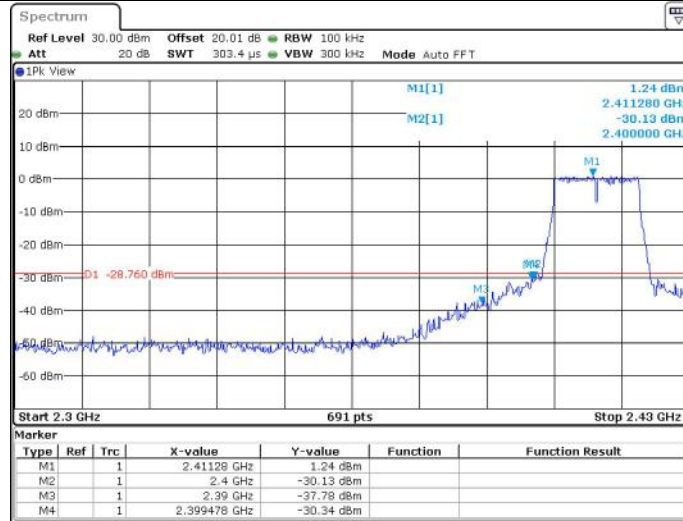
11B_Ant1_Low_2412



11B_Ant1_High_2462

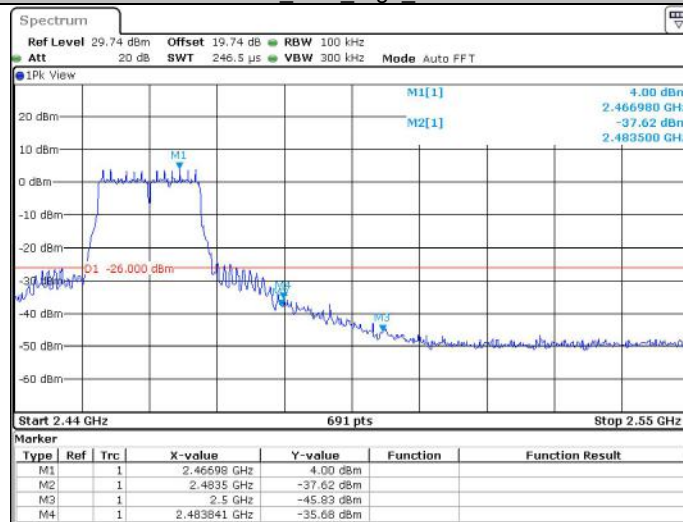


11G_Ant1_Low_2412



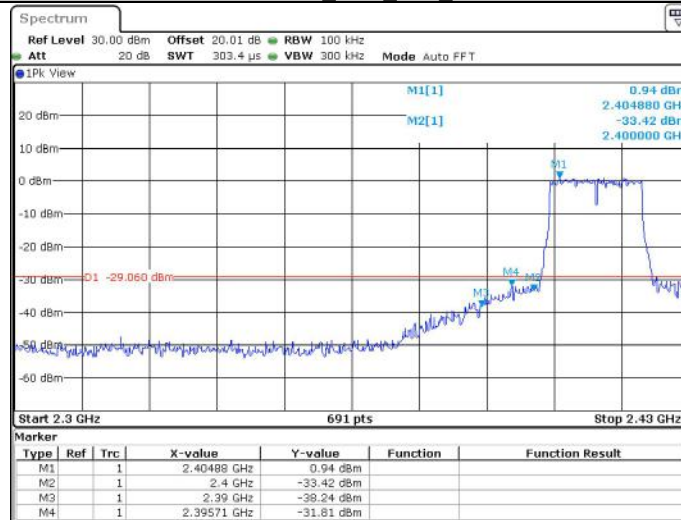
Date: 30.MAY.2023 00:45:29

11G_Ant1_High_2462



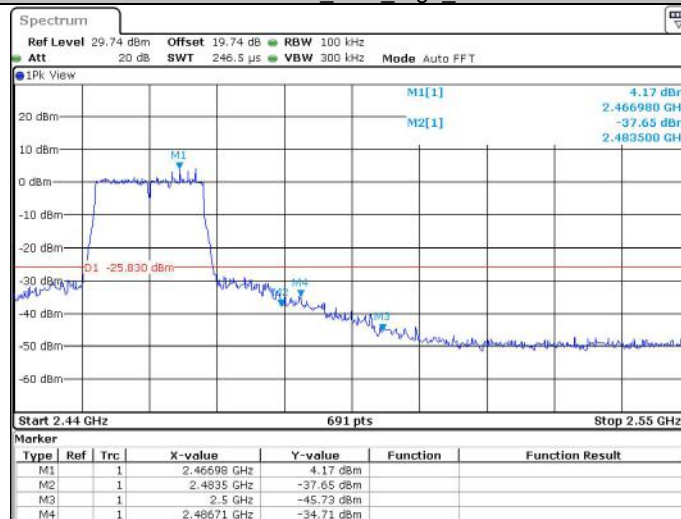
Date: 30.MAY.2023 00:47:59

11N20SISO_Ant1_Low_2412



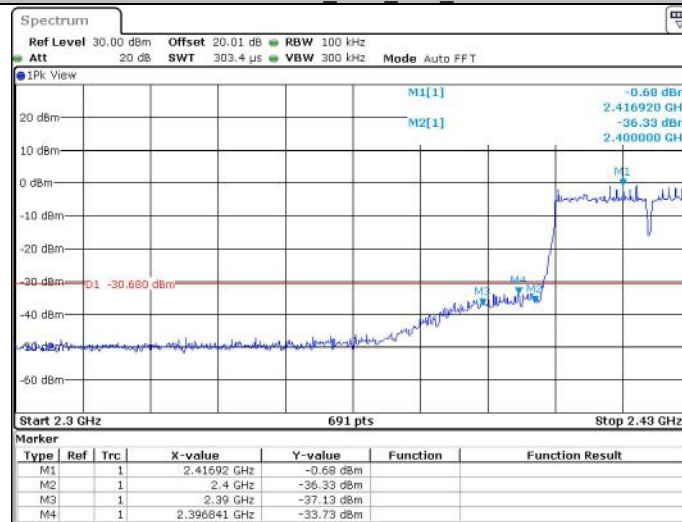
Date: 30.MAY.2023 00:52:24

11N20SISO_Ant1_High_2462



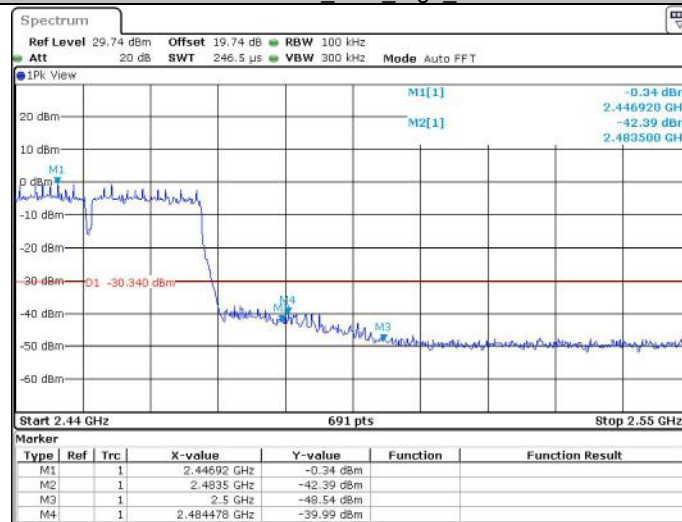
Date: 30.MAY.2023 00:56:08

11N40SISO_Ant1_Low_2422



Date: 30.MAY.2023 00:59:06

11N40SISO_Ant1_High_2452

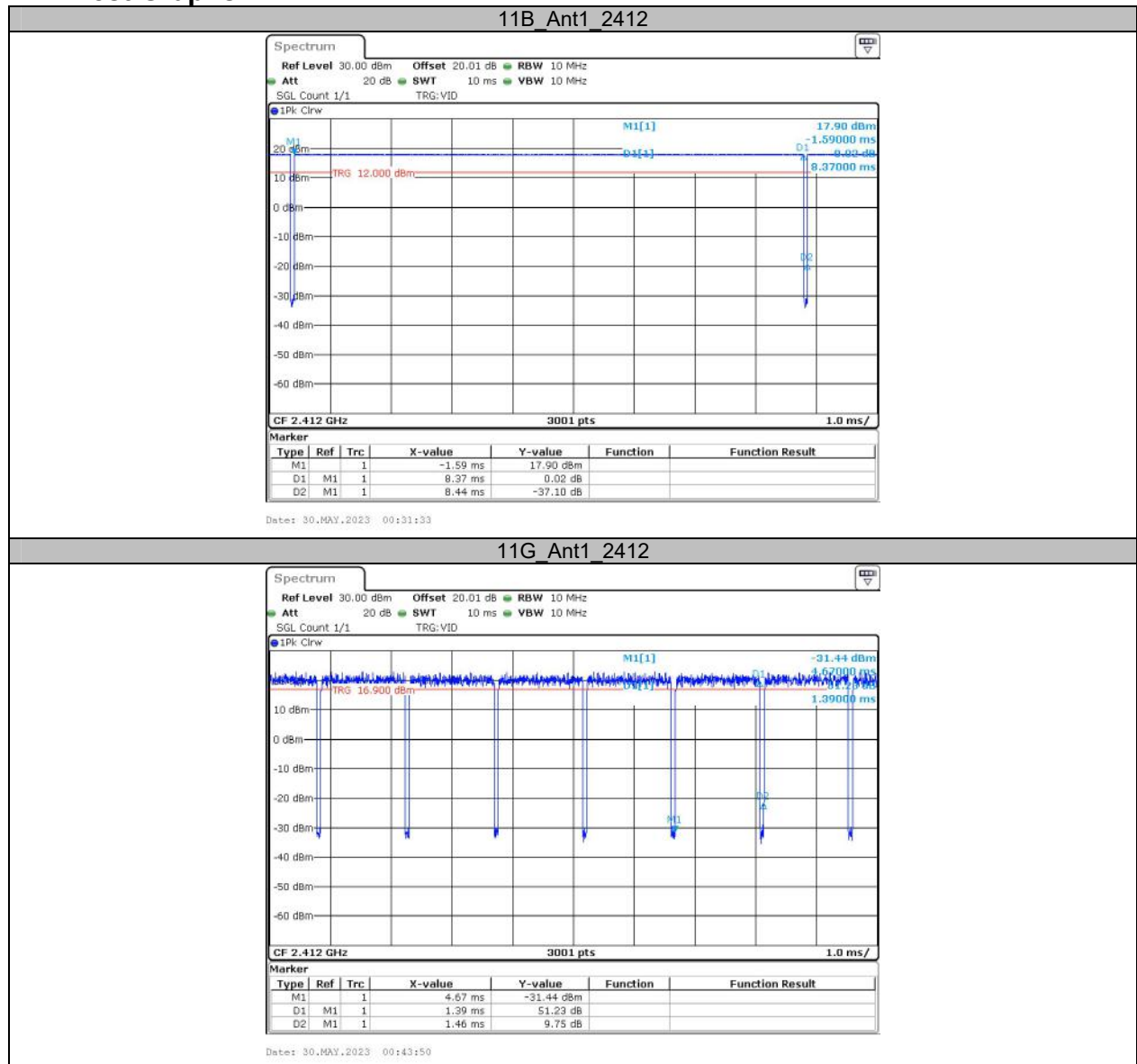


Date: 30.MAY.2023 01:02:41

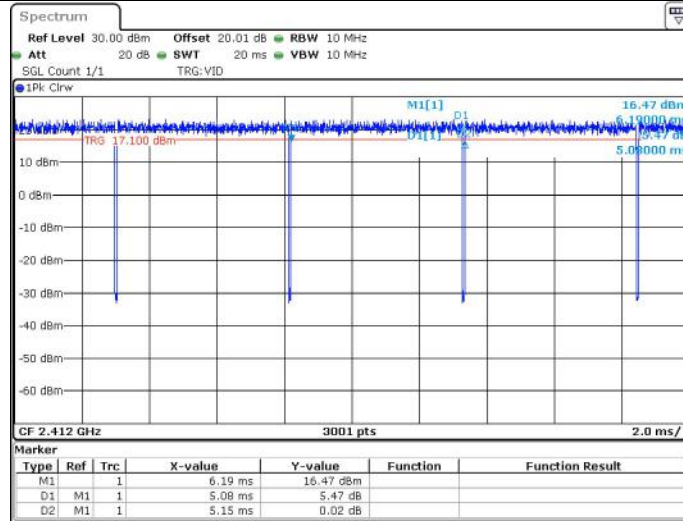
**Appendix F: Duty Cycle
Test Result**

Test Mode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	Duty cycle Correction Factor (dB)	1/T Minimum VBW (kHz)
11B	Ant1	2412	8.37	8.44	99.17	/	/
11G	Ant1	2412	1.39	1.46	95.21	0.21	0.72
11N20SISO	Ant1	2412	5.08	5.15	98.64	/	/
11N40SISO	Ant1	2422	2.46	2.53	97.23	0.12	0.41

Test Graphs

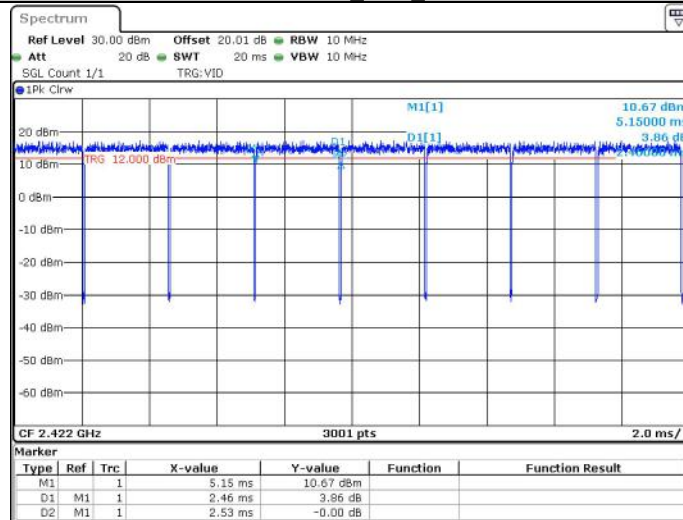


11N20SISO_Ant1_2412



Date: 30.MAY.2023 00:50:44

11N40SISO_Ant1_2422



Date: 30.MAY.2023 00:57:56

***** END OF REPORT *****