TEST REPORT

Applicant Name:	Fanvil Link Technology Co.,LTD
Address:	Room 1517, Building G, Hualian City Panorama.27 Region, Bao'an District;Shenzhen,China
Report Number:	SZ1240307-11374E-RF-00B
FCC ID:	2BCUQ-W611WV2

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type:	Portable Wi-Fi Phone
Model No.:	W611W
Multiple Model(s) No.:	N/A
Trade Mark:	LINKVIL
Date Received:	2024/03/07
Issue Date:	2024/06/13

Test Result:	Pass▲

▲ In the configuration tested, the EUT complied with the standards above.

Prepared and Checked By:

Jojo Guo
RF Engineer

Approved By:

Jimmy Xiao
RF Supervisor

Note: The information marked# is provided by the applicant, the laboratory is not responsible for its authenticity and this information can affect the validity of the result in the test report. Customer model name, addresses, names, trademarks etc. are included.

This report may contain data that are not covered by the NVLAP accreditation and are marked with an asterisk "▼".

TABLE OF CONTENTS

DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	SZ1240307-11374E-RF-00B	Original Report	2024/06/13

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Portable Wi-Fi Phone
Tested Model	W611W
Multiple Model(s)	N/A
Frequency Range	BLE 1M/2M: 2402-2480MHz Wi-Fi: 2412-2462MHz
Maximum Conducted Output Peak Power	BLE: 9.63dBm Wi-Fi: 13.73dBm(802.11b), 17.47dBm(802.11g), 17.36dBm(802.11n20) 18.16dBm(802.11AX20)
Modulation Technique	BLE: GFSK Wi-Fi: DSSS, OFDM, OFDMA
Antenna Specification#	BLE: 3dBi Wi-Fi: ANT1: 3dBi ANT2: 1.5dBi (provided by the applicant)
Voltage Range	DC 3.8V from battery or DC 5V from adapter
Sample serial number	2IGP-3 for Conducted and 2IGP-2 for Radiated Emissions Test 2IGP-1 for RF Conducted Test (Assigned by BACL, Shenzhen)
Sample/EUT Status	Good condition
Adapter Information	Adapter 1 Model:F12L20-050200SPAU Input: AC 100-240V~50/60Hz 0.3A Output: DC 5.0V.2.0A 10.0W Adapter 2 Model:GQ12-050200-AU Input: AC 100-240V~50/60Hz 0.4A Max Output: DC 5.0V.2.0A

Objective

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

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209 and 15.247 rules.

Test Methodology

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

And KDB 558074 D01 15.247 Meas Guidance v05r02.

All emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Shenzhen). 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 output power, conducted		0.72 dB(k=2, 95% level of confidence)
AC Power Lines Conducted Emissions	9kHz~150 kHz	3.94dB(k=2, 95% level of confidence)
	150 kHz ~30MHz	3.84dB(k=2, 95% level of confidence)
Radiated Emissions	9kHz - 30MHz	3.30dB(k=2, 95% level of confidence)
	30MHz~200MHz (Horizontal)	4.48dB(k=2, 95% level of confidence)
	30MHz~200MHz (Vertical)	4.55dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Horizontal)	4.85dB(k=2, 95% level of confidence)
	200MHz~1000MHz (Vertical)	5.05dB(k=2, 95% level of confidence)
	1GHz - 6GHz	5.35dB(k=2, 95% level of confidence)
	6GHz - 18GHz	5.44dB(k=2, 95% level of confidence)
	18GHz - 40GHz	5.16dB(k=2, 95% level of confidence)
Temperature		±1℃
Humidity		±1%
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 Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 5F(B-West) , 6F, 7F, the 3rd Phase of Wan Li Industrial Building D, Shihua Rd, FuTian Free Trade Zone, Shenzhen, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 715558, the FCC Designation No. : CN5045.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

For 2.4GHz 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	/	/

802.11b, 802.11g, 802.11n-HT20 and 802.11ax-HE20 mode was tested with Channel 1, 6 and 11.

For BLE mode, 40 channels are provided to testing:

Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2402	20	2442
1	2404	21	2444
2	2406	22	2446
3	2408	23	2448
4	2410	24	2450
5	2412	25	2452
6	2414	26	2454
7	2416	27	2456
8	2418	28	2458
9	2420	29	2460
10	2422	30	2462
11	2424	31	2464
12	2426	32	2466
13	2428	33	2468
14	2430	34	2470
15	2432	35	2472
16	2434	36	2474
17	2436	37	2476
18	2438	38	2478
19	2440	39	2480

EUT was tested with Channel 0, 19 and 39.

Equipment Modifications

No modification was made to the EUT tested.

EUT Exercise Software

EUT was testing in engineering mode.

The device was tested with the worst case was performed as below:

Mode	Data rate	Power Level#		
		Low Channel	Middle Channel	High Channel
802.11b	1Mbps	10	10	10
802.11g	6Mbps	7	7	7
802.11n20	MCS0	7	7	7
802.11ax20	MCS0	7	7	7
BLE	1Mbps	Default	Default	Default
BLE	2Mbps	Default	Default	Default

Note: the power level was provided by applicant.
For 2.4G WiFi:
1. All mode support SISO/MIMO except 802.11b only support SISO.
2. SISO/MIMO with same setting for same mode, pre-scan SISO/MIMO, worst case MIMO was recorded in report.
3. Two antenna with same power level setting.
4. For 802.11ax mode, only support full RU mode.

Duty cycle

Test Result: Compliant. Please refer to the Appendix.

Support Equipment List and Details

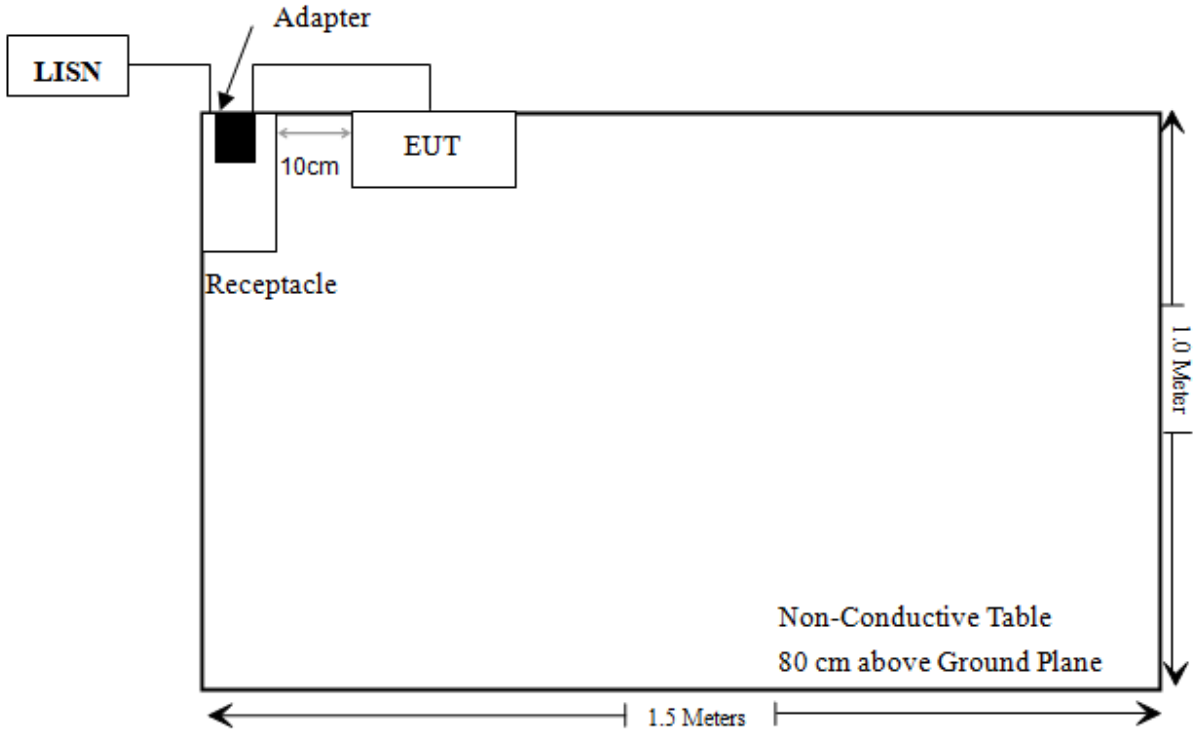
Manufacturer	Description	Model	Serial Number
/	/	/	/

External I/O Cable

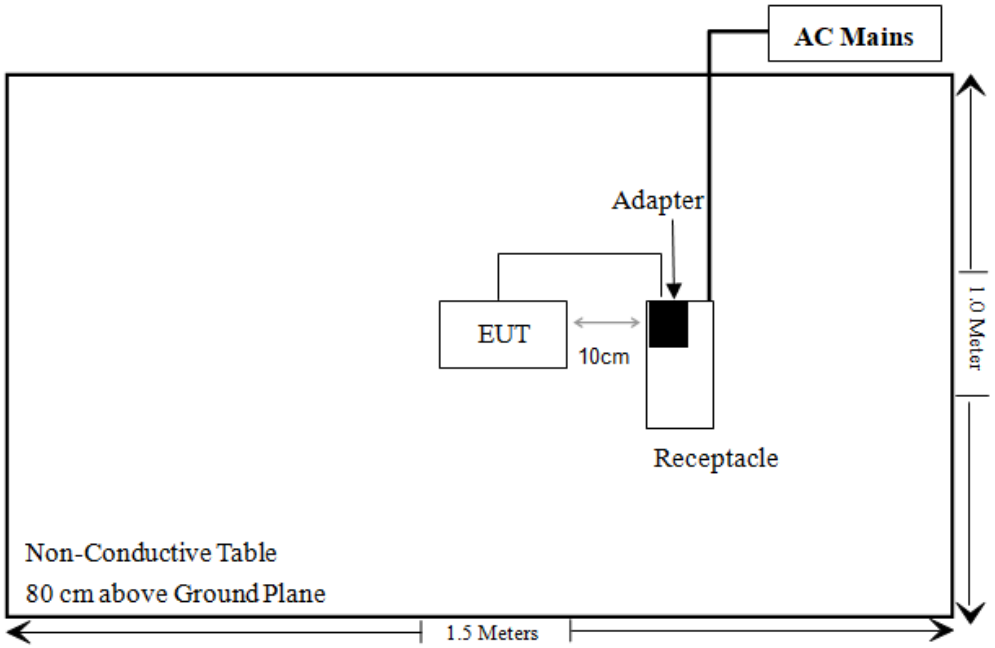
Cable Description	Length (m)	From Port	To
Un-shielding Detachable USB Cable	1.0	EUT	Adapter
Un-shielding Detachable AC Cable	1.2	Receptacle	LINS
Un-shielding Detachable AC Cable	1.2	Receptacle	AC Mains

Block Diagram of Test Setup

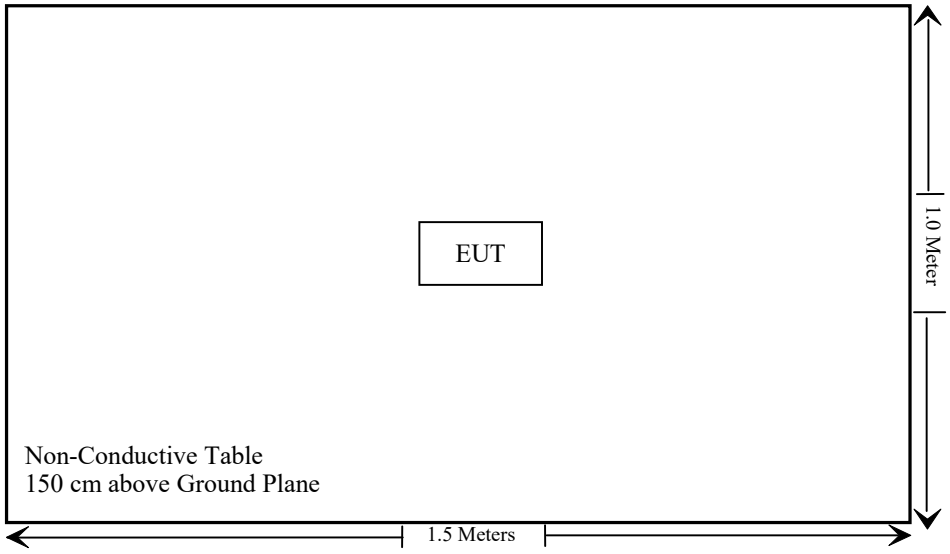
For Conducted Emissions:



For Radiated Emissions below 1GHz:



For Radiated Emissions above 1GHz:



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §1.1307 (b) (1) & §2.1093	RF Exposure	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)	6 dB Emission Bandwidth	Compliant
§15.247(b)(3)	Maximum Conducted Output Power	Compliant
§15.247(d)	100 kHz 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	101120	2024/01/16	2025/01/15
Rohde & Schwarz	LISN	ENV216	101613	2024/01/16	2025/01/15
Rohde & Schwarz	Transient Limiter	ESH3Z2	DE25985	2023/08/03	2024/08/02
Unknown	CE Cable	CE Cable	UF A210B-1-0720-504504	2023/08/03	2024/08/02
Audix	EMI Test software	E3	191218(V9)	NCR	NCR
Radiated Emission Test					
R&S	EMI Test Receiver	ESR3	102455	2024/01/16	2025/01/15
Sonoma instrument	Pre-amplifier	310 N	186238	2023/06/08	2024/06/07
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2023/07/20	2026/07/19
ETS	Passive Loop Antenna	6512	29604	2023/07/07	2026/07/06
Unknown	Cable	Chamber Cable 1	F-03-EM236	2023/08/03	2024/08/02
Unknown	Cable	Chamber Cable 4	EC-007	2023/08/03	2024/08/02
Rohde & Schwarz	Spectrum Analyzer	FSV40	101605	2024/03/27	2025/03/26
COM-POWER	Pre-amplifier	PA-122	181919	2023/06/29	2024/06/28
Schwarzbeck	Horn Antenna	BBHA9120D(1201)	1143	2023/07/26	2026/07/25
Unknown	RF Cable	KMSE	0735	2023/10/08	2024/10/07
Unknown	RF Cable	UFA147	219661	2023/10/08	2024/10/07
SNSD	2.4G Band Reject filter	BSF2402-2480MN-0898-001	2.4G filter	2023/08/03	2024/08/02
A.H.System	Pre-amplifier	PAM-1840VH	190	2023/08/02	2024/08/01
Electro-Mechanics Co	Horn Antenna	3116	9510-2270	2023/09/18	2026/09/17
UTIFLEX	RF Cable	NO. 13	232308-001	2023/08/03	2024/08/02
Audix	EMI Test software	E3	191218(V9)	NCR	NCR

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
RF Conducted Test					
Tonscend	RF control Unit	JS0806-2	19D8060154	2023/09/06	2024/09/05
ANRITSU	Microwave peak power sensor	MA24418A	12622	2023/08/08	2024/08/07
Rohde & Schwarz	Signal and Spectrum Analyzer	FSV40	101473	2024/01/16	2025/01/15
Unknown	10dB Attenuator	Unknown	F-03-EM190	2023/07/04	2024/07/03

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) 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) (1) & §2.1093 - RF EXPOSURE

Applicable Standard

According to FCC §2.1093 and §1.1307(b) (1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

a) According to KDB 447498 D01 General RF Exposure Guidance

The 1-g and 10-g SAR test exclusion thresholds for 100 MHz to 6 GHz at test separation distances ≤ 50 mm are determined by:
[(max. power of channel, including tune-up tolerance, mW)/(min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR and ≤ 7.5 for 10-g extremity SAR, where
1. f(GHz) is the RF channel transmit frequency in GHz.
2. Power and distance are rounded to the nearest mW and mm before calculation.
3. The result is rounded to one decimal place for comparison.
4. When the minimum test separation distance is < 5 mm, a distance of 5 mm is applied to determine SAR test Exclusion.

Measurement Result

For worst case:

For BLE:

Frequency (MHz)	Maximum Tune-up power[#]		Calculated Distance (mm)	Calculated Value	Threshold (1-g SAR)	SAR Test Exclusion
	(dBm)	(mW)				
2402-2480	9.7	9.33	5	2.9	3.0	**Pass**

Result: No Standalone SAR test is required

For Wi-Fi mode, please refer to SAR report: Please refer to SAR test report: SZ1240307-11374E-SA.

FCC §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:

a. Antenna must be permanently attached to the unit.
b. Antenna must use a unique type of connector to attach to the EUT.
c. 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.

Antenna Connector Construction

The EUT has two internal antenna arrangement, which was permanently attached, one share with BT and Wi-Fi, one only for Wi-Fi, fulfill the requirement of this section. Please refer to the EUT photos.

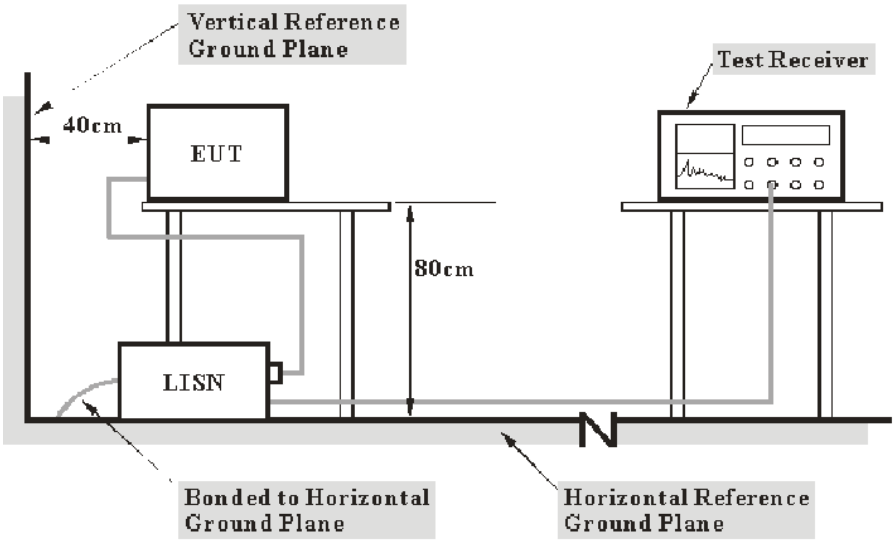
Result: Compliant

FCC §15.207 (a) - AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC§15.207

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.

EMI Test Receiver Setup

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

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

During the conducted emission test, the adapter was connected to the outlet of the LISN.

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.

Factor & Over Limit Calculation

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

Factor = LISN VDF + 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 -7 dB means the emission is 7 dB below the limit. The equation for calculation is as follows:

Over Limit = Level – Limit
Level = Read Level + Factor

Note: The term "cable loss" refers to the combination of a cable and a 10dB transient limiter (attenuator).

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	101.0 kPa

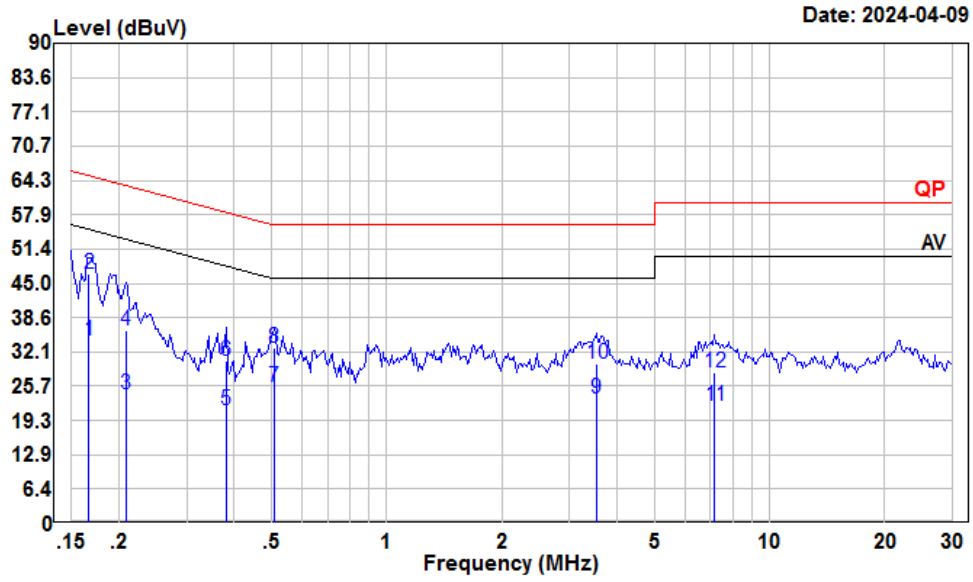
The testing was performed by Macy Shi on 2024-04-09.

EUT operation mode: Transmitting

For adapter 1

BLE: *(Maximum output mode BLE 2M Low Channel)*

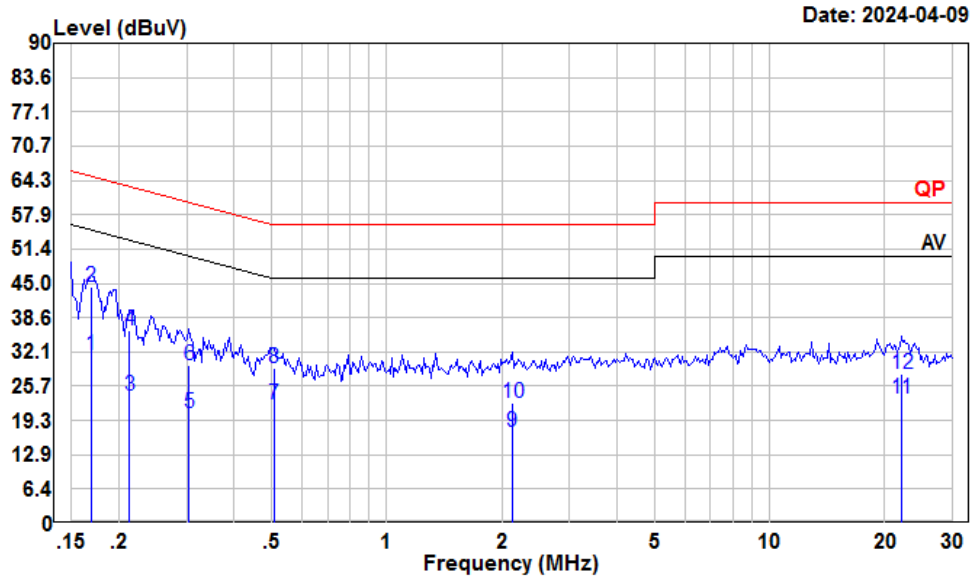
AC 120V/60 Hz, Line



Condition: Line
Project : SZ1240307-11374E-RF
Tester : Macy shi
Note : BLE

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.17	13.31	34.32	10.86	10.15	55.12	-20.80	Average
2	0.17	25.86	46.87	10.86	10.15	65.12	-18.25	QP
3	0.21	3.20	24.10	10.79	10.11	53.27	-29.17	Average
4	0.21	15.38	36.28	10.79	10.11	63.27	-26.99	QP
5	0.38	0.34	21.13	10.59	10.20	48.25	-27.12	Average
6	0.38	9.69	30.48	10.59	10.20	58.25	-27.77	QP
7	0.51	4.98	25.64	10.50	10.16	46.00	-20.36	Average
8	0.51	12.23	32.89	10.50	10.16	56.00	-23.11	QP
9	3.53	2.67	23.28	10.35	10.26	46.00	-22.72	Average
10	3.53	9.26	29.87	10.35	10.26	56.00	-26.13	QP
11	7.18	1.39	22.12	10.51	10.22	50.00	-27.88	Average
12	7.18	7.54	28.27	10.51	10.22	60.00	-31.73	QP

AC 120V/60 Hz, Neutral

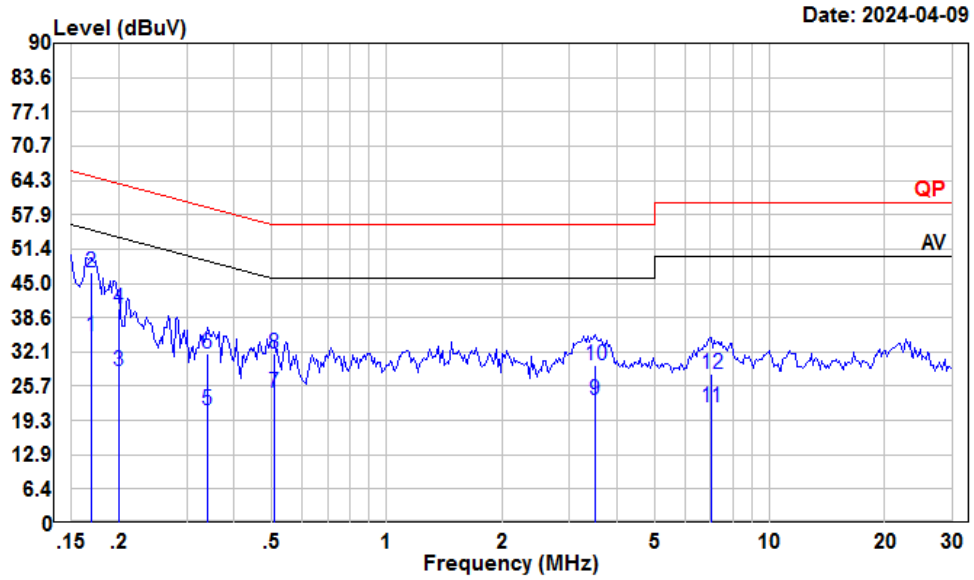


Condition: Neutral
Project : SZ1240307-11374E-RF
Tester : Macy shi
Note : BLE

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.17	10.79	31.46	10.52	10.15	55.03	-23.57	Average
2	0.17	23.68	44.35	10.52	10.15	65.03	-20.68	QP
3	0.21	3.32	23.86	10.42	10.12	53.10	-29.24	Average
4	0.21	15.51	36.05	10.42	10.12	63.10	-27.05	QP
5	0.31	0.04	20.70	10.54	10.12	50.10	-29.40	Average
6	0.31	9.07	29.73	10.54	10.12	60.10	-30.37	QP
7	0.51	1.51	22.37	10.70	10.16	46.00	-23.63	Average
8	0.51	8.14	29.00	10.70	10.16	56.00	-27.00	QP
9	2.12	-3.35	17.24	10.40	10.19	46.00	-28.76	Average
10	2.12	2.07	22.66	10.40	10.19	56.00	-33.34	QP
11	22.06	2.58	23.39	10.65	10.16	50.00	-26.61	Average
12	22.06	7.34	28.15	10.65	10.16	60.00	-31.85	QP

2.4G WiFi: *(Maximum output mode ax20 Low Channel)*

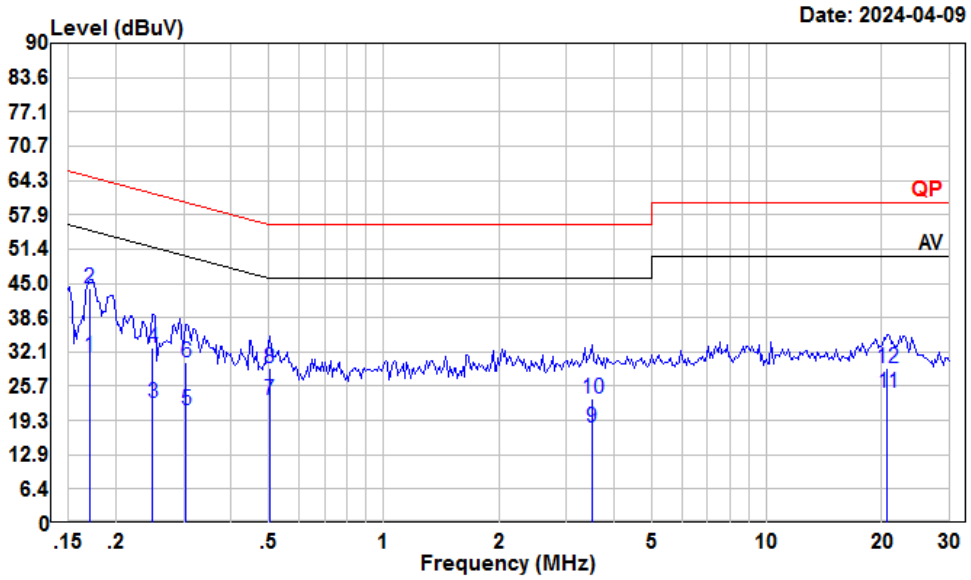
AC 120V/60 Hz, Line



Condition: Line
Project : SZ1240307-11374E-RF
Tester : Macy shi
Note : 2.4G WIFI

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.17	14.18	35.19	10.86	10.15	55.03	-19.84	Average
2	0.17	25.94	46.95	10.86	10.15	65.03	-18.08	QP
3	0.20	7.64	28.53	10.80	10.09	53.62	-25.09	Average
4	0.20	19.34	40.23	10.80	10.09	63.62	-23.39	QP
5	0.34	0.34	21.12	10.63	10.15	49.22	-28.10	Average
6	0.34	11.10	31.88	10.63	10.15	59.22	-27.34	QP
7	0.51	3.87	24.53	10.50	10.16	46.00	-21.47	Average
8	0.51	11.15	31.81	10.50	10.16	56.00	-24.19	QP
9	3.49	2.60	23.23	10.36	10.27	46.00	-22.77	Average
10	3.49	9.12	29.75	10.36	10.27	56.00	-26.25	QP
11	7.02	1.04	21.76	10.50	10.22	50.00	-28.24	Average
12	7.02	7.18	27.90	10.50	10.22	60.00	-32.10	QP

AC 120V/60 Hz, Neutral



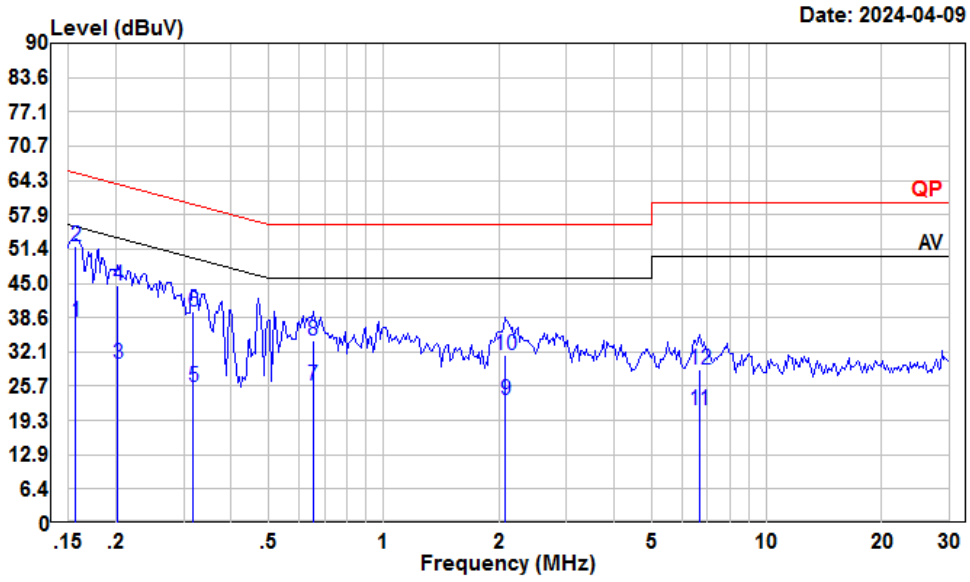
Condition: Neutral
Project : SZ1240307-11374E-RF
Tester : Macy shi
Note : 2.4G WIFI

	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.17	10.70	31.36	10.51	10.15	54.94	-23.58	Average
2	0.17	23.42	44.08	10.51	10.15	64.94	-20.86	QP
3	0.25	1.77	22.45	10.47	10.21	51.78	-29.33	Average
4	0.25	12.25	32.93	10.47	10.21	61.78	-28.85	QP
5	0.31	0.51	21.17	10.54	10.12	50.10	-28.93	Average
6	0.31	9.50	30.16	10.54	10.12	60.10	-29.94	QP
7	0.50	2.22	23.07	10.70	10.15	46.00	-22.93	Average
8	0.50	8.37	29.22	10.70	10.15	56.00	-26.78	QP
9	3.49	-2.64	18.03	10.40	10.27	46.00	-27.97	Average
10	3.49	2.63	23.30	10.40	10.27	56.00	-32.70	QP
11	20.70	3.54	24.35	10.68	10.13	50.00	-25.65	Average
12	20.70	8.24	29.05	10.68	10.13	60.00	-30.95	QP

For adapter 2

BLE: *(Maximum output mode BLE 2M Low Channel)*

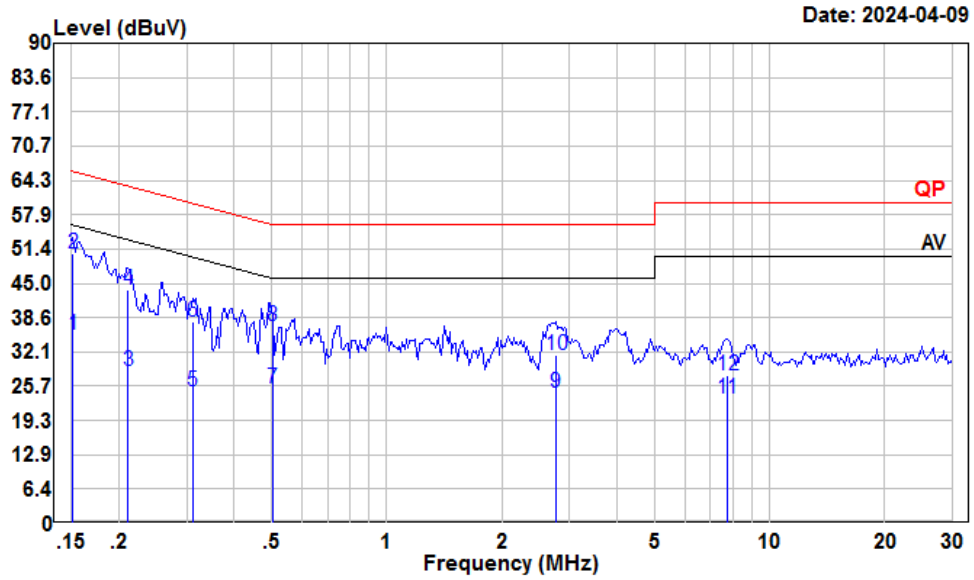
AC 120V/60 Hz, Line



Condition: Line
Project : SZ1240307-11374E-RF
Tester : Macy shi
Note : BLE

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.16	16.69	37.73	10.89	10.15	55.65	-17.92	Average
2	0.16	30.81	51.85	10.89	10.15	65.65	-13.80	QP
3	0.20	9.09	29.98	10.80	10.09	53.54	-23.56	Average
4	0.20	23.80	44.69	10.80	10.09	63.54	-18.85	QP
5	0.32	4.84	25.62	10.65	10.13	49.75	-24.13	Average
6	0.32	18.90	39.68	10.65	10.13	59.75	-20.07	QP
7	0.65	5.25	25.96	10.50	10.21	46.00	-20.04	Average
8	0.65	13.62	34.33	10.50	10.21	56.00	-21.67	QP
9	2.08	2.23	23.00	10.58	10.19	46.00	-23.00	Average
10	2.08	10.74	31.51	10.58	10.19	56.00	-24.49	QP
11	6.66	0.47	21.17	10.48	10.22	50.00	-28.83	Average
12	6.66	8.14	28.84	10.48	10.22	60.00	-31.16	QP

AC 120V/60 Hz, Neutral

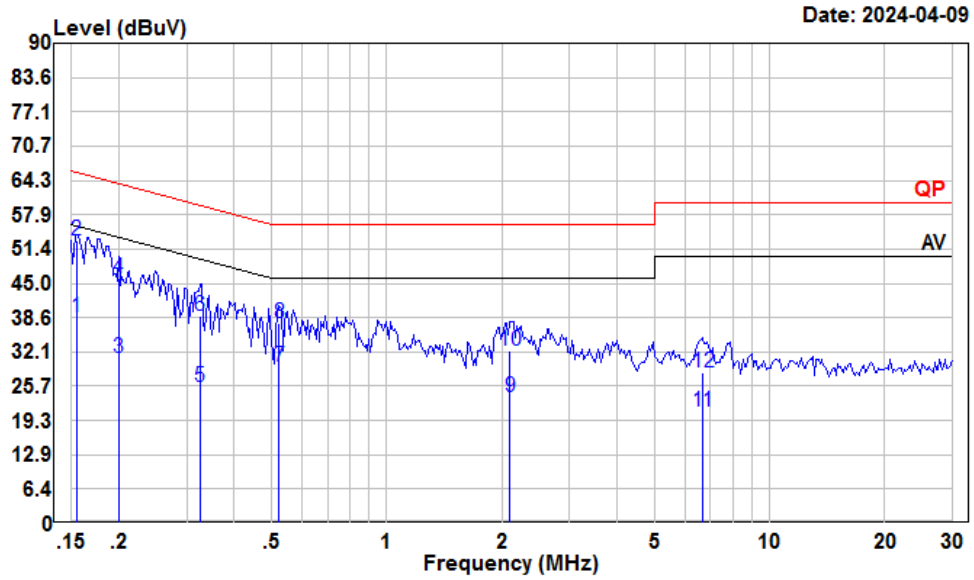


Condition: Neutral
Project : SZ1240307-11374E-RF
Tester : Macy shi
Note : BLE

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.15	14.73	35.47	10.59	10.15	55.91	-20.44	Average
2	0.15	29.98	50.72	10.59	10.15	65.91	-15.19	QP
3	0.21	8.00	28.54	10.42	10.12	53.18	-24.64	Average
4	0.21	23.26	43.80	10.42	10.12	63.18	-19.38	QP
5	0.31	4.03	24.71	10.55	10.13	49.93	-25.22	Average
6	0.31	17.03	37.71	10.55	10.13	59.93	-22.22	QP
7	0.50	4.47	25.32	10.70	10.15	46.00	-20.68	Average
8	0.50	16.12	36.97	10.70	10.15	56.00	-19.03	QP
9	2.76	3.72	24.36	10.40	10.24	46.00	-21.64	Average
10	2.76	10.97	31.61	10.40	10.24	56.00	-24.39	QP
11	7.73	2.50	23.46	10.73	10.23	50.00	-26.54	Average
12	7.73	6.82	27.78	10.73	10.23	60.00	-32.22	QP

2.4G WiFi: *(Maximum output mode ax20 Low Channel)*

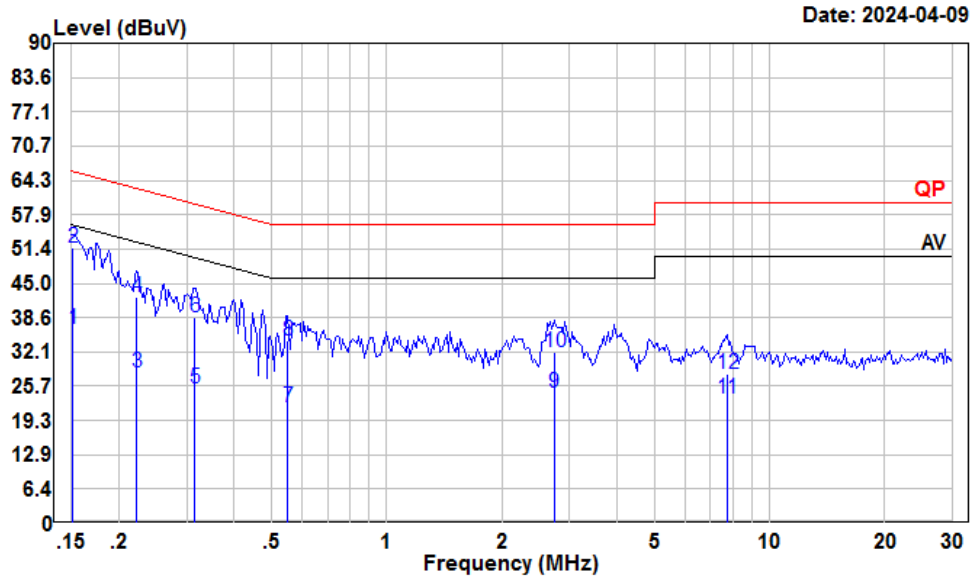
AC 120V/60 Hz, Line



Condition: Line
Project : SZ1240307-11374E-RF
Tester : Macy shi
Note : 2.4G WIFI

	Freq	Read Level	LISN Level	Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.15	17.50	38.54	10.89	10.15	55.74	-17.20	Average
2	0.15	31.93	52.97	10.89	10.15	65.74	-12.77	QP
3	0.20	10.07	30.96	10.80	10.09	53.62	-22.66	Average
4	0.20	25.09	45.98	10.80	10.09	63.62	-17.64	QP
5	0.33	4.86	25.64	10.64	10.14	49.57	-23.93	Average
6	0.33	18.16	38.94	10.64	10.14	59.57	-20.63	QP
7	0.52	8.83	29.50	10.50	10.17	46.00	-16.50	Average
8	0.52	16.76	37.43	10.50	10.17	56.00	-18.57	QP
9	2.10	2.92	23.69	10.58	10.19	46.00	-22.31	Average
10	2.10	11.60	32.37	10.58	10.19	56.00	-23.63	QP
11	6.66	0.26	20.96	10.48	10.22	50.00	-29.04	Average
12	6.66	7.64	28.34	10.48	10.22	60.00	-31.66	QP

AC 120V/60 Hz, Neutral



Condition: Neutral
Project : SZ1240307-11374E-RF
Tester : Macy shi
Note : 2.4G WIFI

	Freq	Read Level	Level	LISN Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	dB	
1	0.15	15.75	36.49	10.59	10.15	55.91	-19.42	Average
2	0.15	30.93	51.67	10.59	10.15	65.91	-14.24	QP
3	0.22	7.60	28.17	10.43	10.14	52.74	-24.57	Average
4	0.22	21.96	42.53	10.43	10.14	62.74	-20.21	QP
5	0.31	4.73	25.41	10.55	10.13	49.84	-24.43	Average
6	0.31	17.90	38.58	10.55	10.13	59.84	-21.26	QP
7	0.55	0.76	21.65	10.70	10.19	46.00	-24.35	Average
8	0.55	13.34	34.23	10.70	10.19	56.00	-21.77	QP
9	2.74	3.73	24.37	10.40	10.24	46.00	-21.63	Average
10	2.74	11.47	32.11	10.40	10.24	56.00	-23.89	QP
11	7.73	2.43	23.39	10.73	10.23	50.00	-26.61	Average
12	7.73	7.02	27.98	10.73	10.23	60.00	-32.02	QP

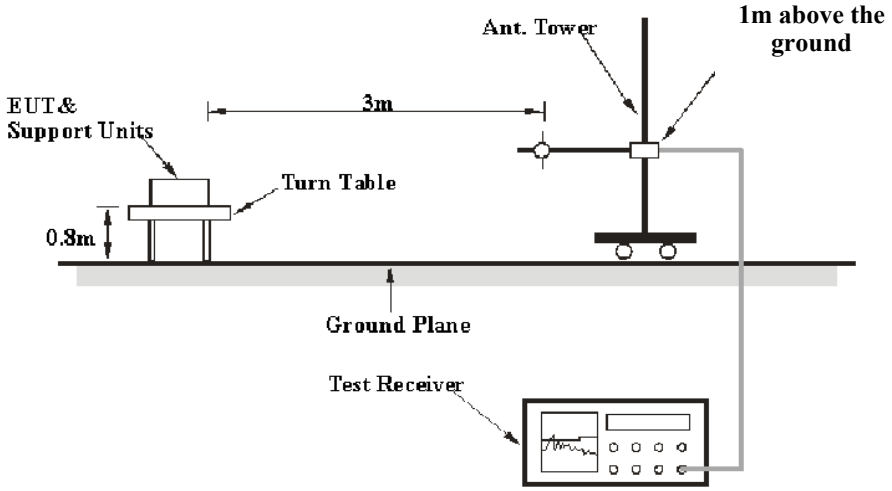
FCC §15.209, §15.205 & §15.247(d) - SPURIOUS EMISSIONS

Applicable Standard

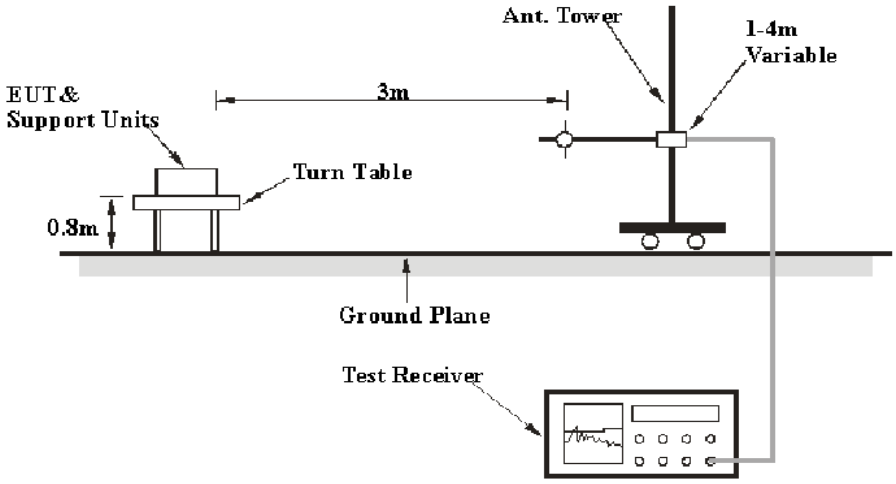
FCC §15.247 (d); §15.209; §15.205;

EUT Setup

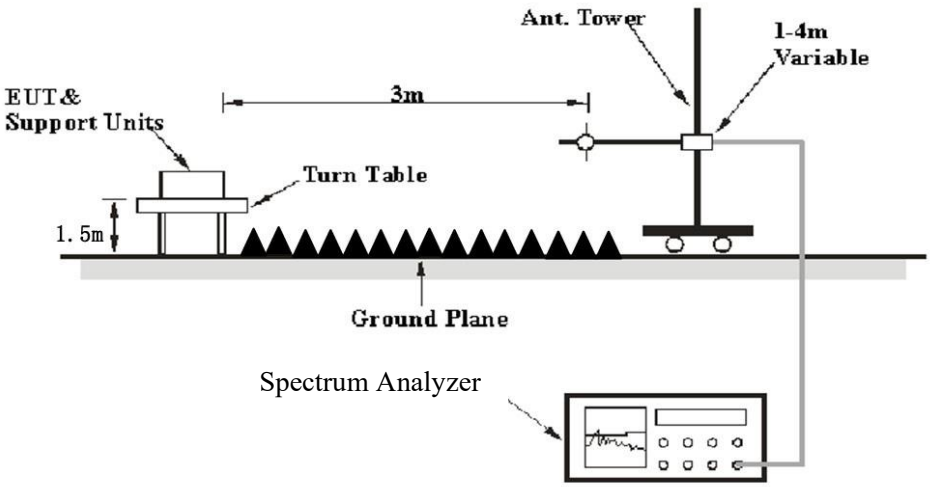
9 kHz-30MHz:



30MHz-1GHz:



Above 1GHz:



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

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 9 kHz to 25 GHz.

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

9 kHz-1GHz:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
9 kHz – 150 kHz	/	/	200 Hz	QP
	300 Hz	1 kHz	/	PK
150 kHz – 30 MHz	/	/	9 kHz	QP
	10 kHz	30 kHz	/	PK
30 MHz – 1000 MHz	/	/	120 kHz	QP
	100 kHz	300 kHz	/	PK

1-25GHz:

Measurement	Duty cycle	RBW	Video B/W
PK	Any	1MHz	3 MHz
AV	>98%	1MHz	10 Hz
	<98%	1MHz	≥1/Ton

Note: Ton is minimum transmission duration

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

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

All final data was recorded in Quasi-peak detection mode except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz, average detection modes for frequency bands 9–90 kHz and 110–490 kHz, peak and average detection modes for frequencies above 1 GHz.

For 9 kHz-30MHz, the report shall list the six emissions with the smallest margin relative to the limit, for each of the three antenna orientations (parallel, perpendicular, and ground-parallel) unless the margin is greater than 20 dB.

All emissions under the average limit and under the noise floor have not recorded in the report.

Factor & Over Limit/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:

Factor = Antenna Factor + Cable Loss - 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:

Over Limit/Margin = Level/Corrected Amplitude – Limit
Level / Corrected Amplitude = Read Level + Factor

Test Data

Environmental Conditions

Temperature:	25~25.5 ℃
Relative Humidity:	50~55 %
ATM Pressure:	101.0 kPa

The testing was performed by Warren Huang on 2024-04-12 for below 1GHz, Zenos Qiao and Dylan Yang from 2024-04-20 to 2024-06-13 for above 1GHz.

EUT operation mode: Transmitting

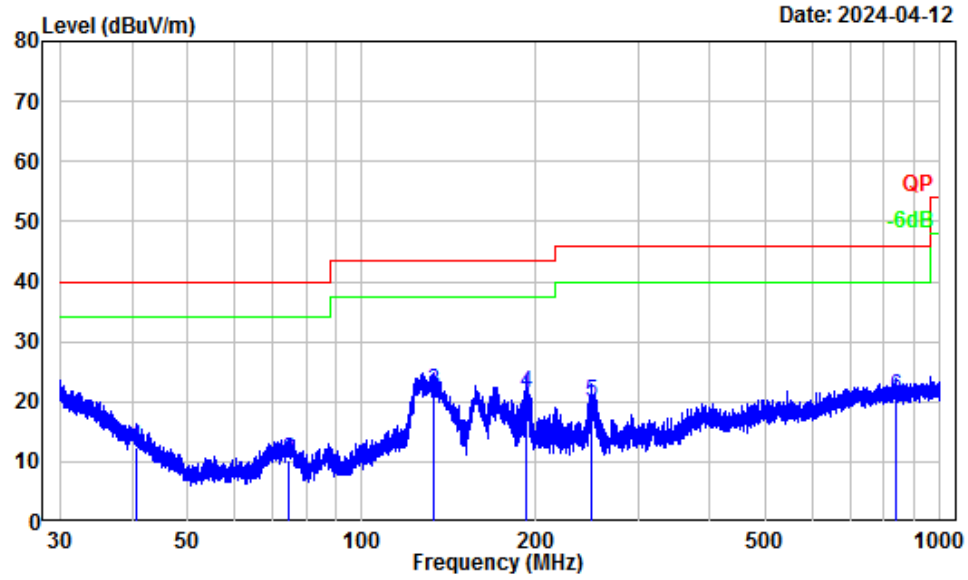
Note: Pre-scan in the X, Y and Z axes of orientation, the worst case X-axis of orientation was recorded.

9 kHz-30MHz:

Note: The data of 9kHz-30 MHz test is below the 20 dB limit or noise floor which is not recorded

For adapter 1
30MHz-1GHz:
BLE *(Maximum output mode BLE 2M Low Channel)*

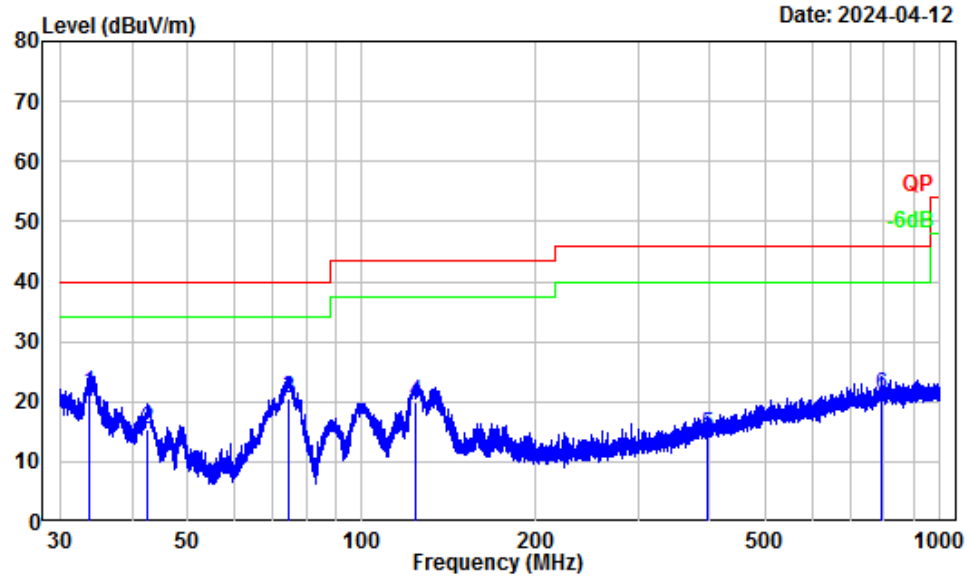
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: SZ1240307-11374E-RF
Note : BLE
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.83	-12.04	24.42	12.38	40.00	-27.62	QP
2	74.69	-17.88	28.26	10.38	40.00	-29.62	QP
3	133.03	-12.24	33.87	21.63	43.50	-21.87	QP
4	191.75	-14.47	35.80	21.33	43.50	-22.17	QP
5	249.43	-14.52	34.52	20.00	46.00	-26.00	QP
6	839.18	-4.92	25.73	20.81	46.00	-25.19	QP

Vertical

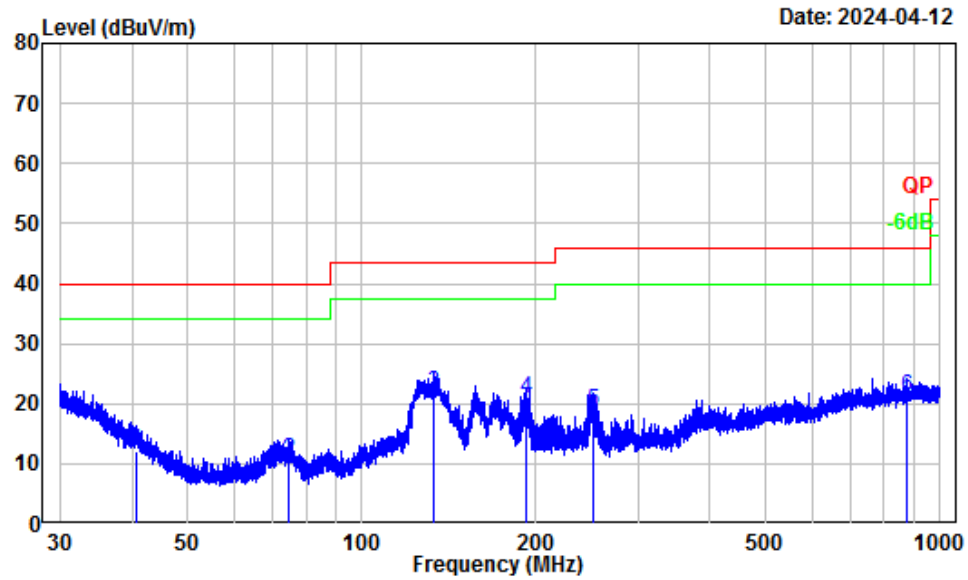


Site : Chamber A
Condition : 3m Vertical
Project Number: SZ1240307-11374E-RF
Note : BLE
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	33.70	-8.95	30.49	21.54	40.00	-18.46	QP
2	42.64	-14.52	30.06	15.54	40.00	-24.46	QP
3	74.62	-18.70	39.21	20.51	40.00	-19.49	QP
4	123.59	-12.70	32.60	19.90	43.50	-23.60	QP
5	396.07	-10.92	25.39	14.47	46.00	-31.53	QP
6	794.09	-5.47	26.65	21.18	46.00	-24.82	QP

2.4G WiFi *(Maximum output mode ax20 Low Channel)*

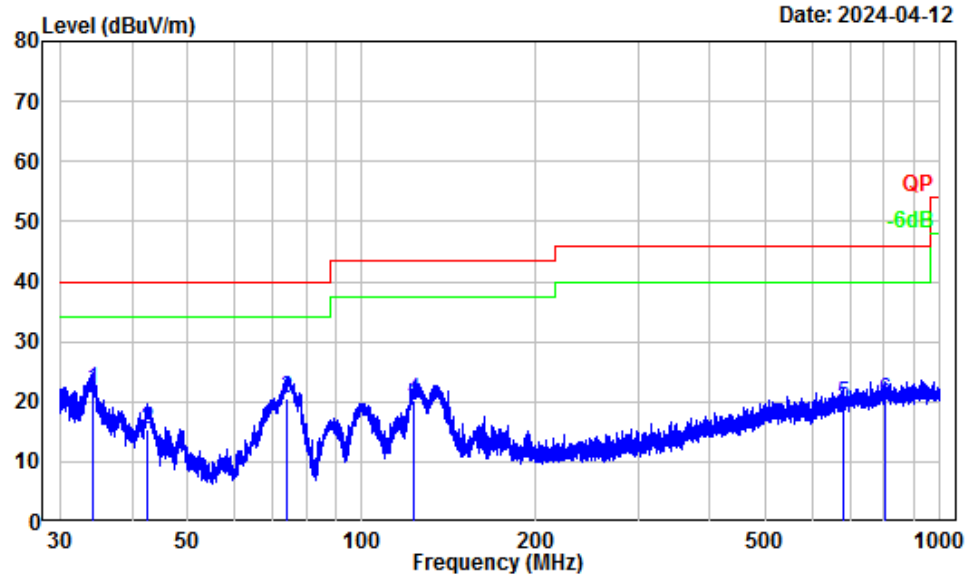
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: SZ1240307-11374E-RF
Note : 2.4G WIFI
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.77	-12.01	24.21	12.20	40.00	-27.80	QP
2	74.49	-17.86	28.57	10.71	40.00	-29.29	QP
3	133.03	-12.24	34.03	21.79	43.50	-21.71	QP
4	192.67	-14.36	35.10	20.74	43.50	-22.76	QP
5	251.29	-14.48	33.30	18.82	46.00	-27.18	QP
6	877.55	-4.61	25.66	21.05	46.00	-24.95	QP

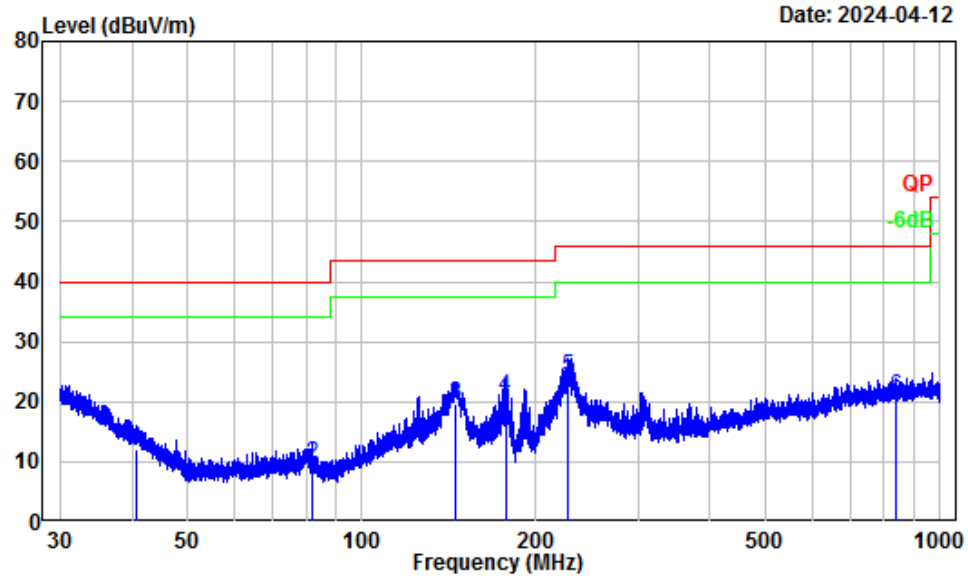
Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: SZ1240307-11374E-RF
Note : 2.4G WIFI
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	34.20	-9.29	31.40	22.11	40.00	-17.89	QP
2	42.60	-14.50	29.98	15.48	40.00	-24.52	QP
3	74.10	-18.69	39.10	20.41	40.00	-19.59	QP
4	123.21	-12.71	32.86	20.15	43.50	-23.35	QP
5	679.66	-6.77	26.29	19.52	46.00	-26.48	QP
6	804.96	-5.37	25.57	20.20	46.00	-25.80	QP

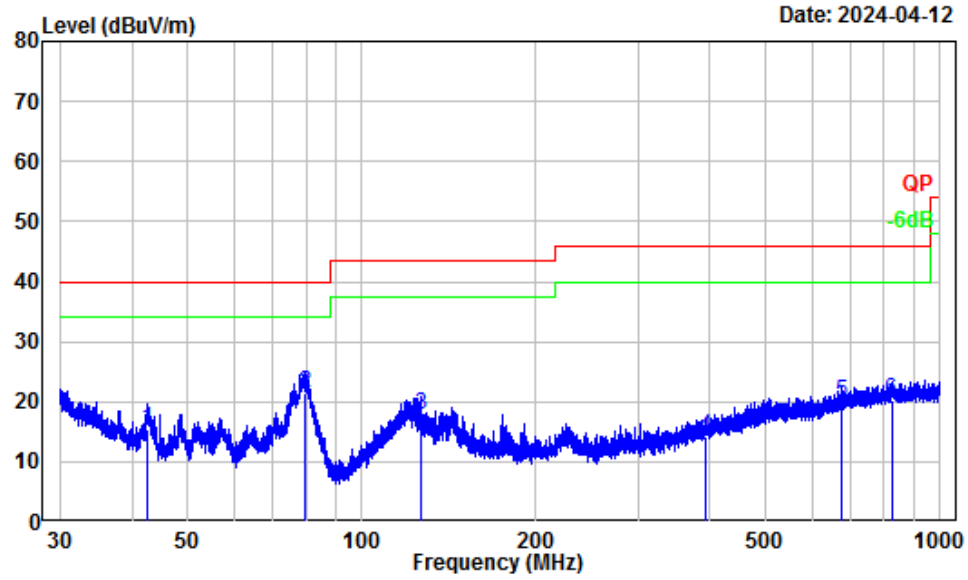
For adapter 2
30MHz-1GHz:
BLE *(Maximum output mode BLE 2M Low Channel)*
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: SZ1240307-11374E-RF
Note : BLE
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.79	-12.02	24.05	12.03	40.00	-27.97	QP
2	82.11	-18.21	28.01	9.80	40.00	-30.20	QP
3	145.54	-13.17	32.80	19.63	43.50	-23.87	QP
4	177.04	-14.62	35.59	20.97	43.50	-22.53	QP
5	227.89	-14.06	38.31	24.25	46.00	-21.75	QP
6	838.81	-4.92	25.68	20.76	46.00	-25.24	QP

Vertical

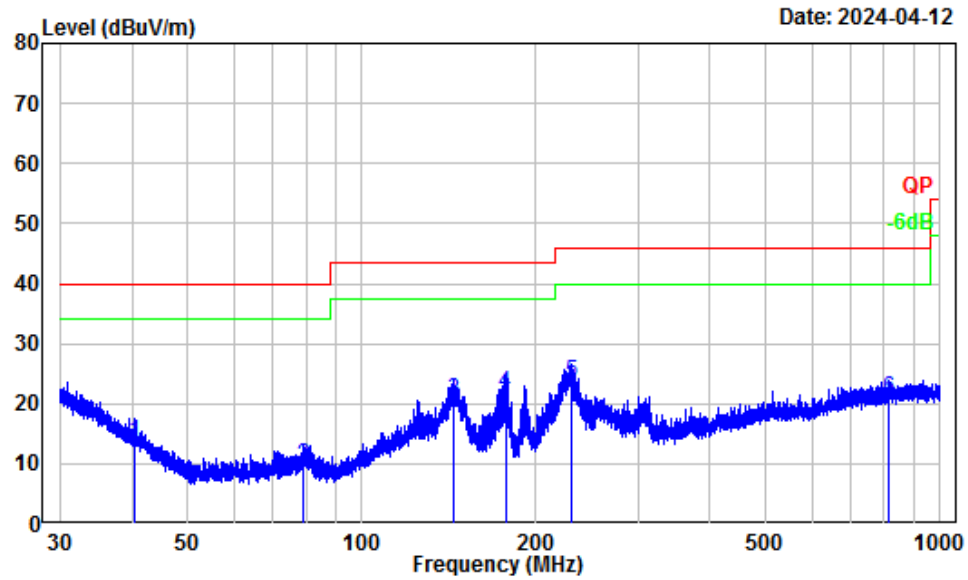


Site : Chamber A
Condition : 3m Vertical
Project Number: SZ1240307-11374E-RF
Note : BLE
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	42.58	-14.49	30.00	15.51	40.00	-24.49	QP
2	79.63	-18.74	40.30	21.56	40.00	-18.44	QP
3	126.16	-12.64	30.48	17.84	43.50	-25.66	QP
4	392.96	-11.01	25.11	14.10	46.00	-31.90	QP
5	676.10	-6.81	26.70	19.89	46.00	-26.11	QP
6	824.24	-5.27	25.58	20.31	46.00	-25.69	QP

2.4G WiFi *(Maximum output mode ax20 Low Channel)*

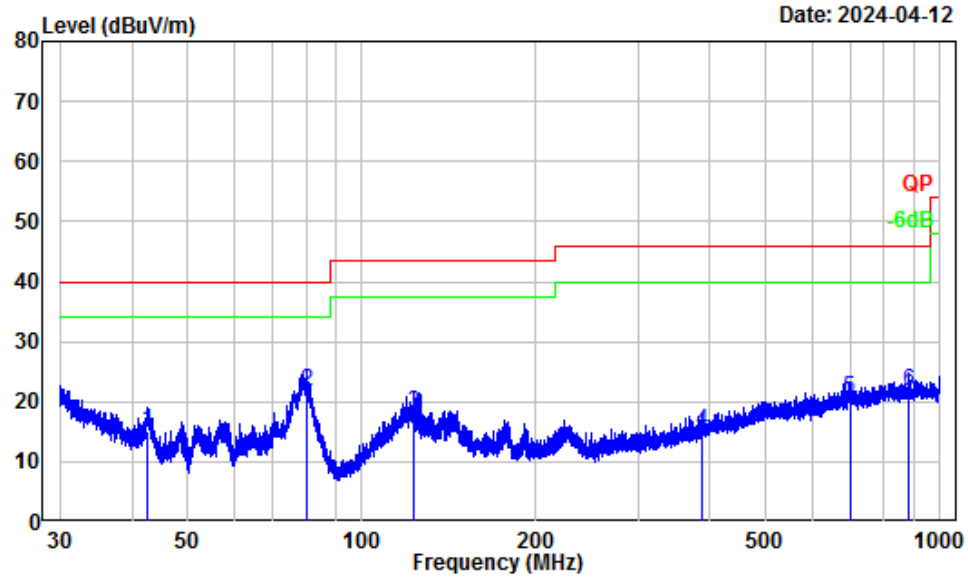
Horizontal



Site : Chamber A
Condition : 3m Horizontal
Project Number: SZ1240307-11374E-RF
Note : 2.4G WIFI
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	40.40	-11.77	25.37	13.60	40.00	-26.40	QP
2	79.35	-18.19	27.82	9.63	40.00	-30.37	QP
3	143.83	-13.01	33.50	20.49	43.50	-23.01	QP
4	177.04	-14.62	36.38	21.76	43.50	-21.74	QP
5	229.90	-14.11	37.58	23.47	46.00	-22.53	QP
6	818.12	-5.12	25.88	20.76	46.00	-25.24	QP

Vertical



Site : Chamber A
Condition : 3m Vertical
Project Number: SZ1240307-11374E-RF
Note : 2.4G WIFI
Tester : Warren Huang

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	42.64	-14.52	29.61	15.09	40.00	-24.91	QP
2	80.19	-18.74	40.34	21.60	40.00	-18.40	QP
3	123.16	-12.71	30.93	18.22	43.50	-25.28	QP
4	388.33	-11.15	26.22	15.07	46.00	-30.93	QP
5	698.08	-6.60	27.00	20.40	46.00	-25.60	QP
6	882.18	-4.94	26.59	21.65	46.00	-24.35	QP

1-25 GHz:

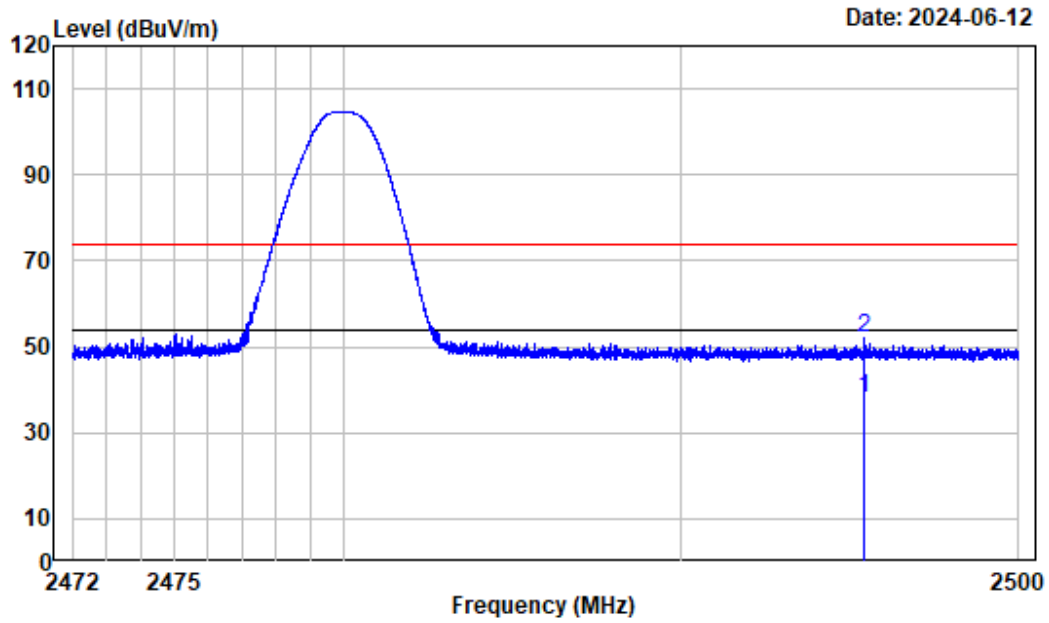
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
BLE 1M							
Low Channel 2402MHz							
2383.54	54.89	PK	H	-2.93	51.96	74	-22.04
2383.54	42.02	AV	H	-2.93	39.09	54	-14.91
2381.95	54.68	PK	V	-2.93	51.75	74	-22.25
2381.95	41.87	AV	V	-2.93	38.94	54	-15.06
4804.00	47.44	PK	H	2.42	49.86	74	-24.14
4804.00	33.32	AV	H	2.42	35.74	54	-18.26
4804.00	47.21	PK	V	2.42	49.63	74	-24.37
4804.00	33.15	AV	V	2.42	35.57	54	-18.43
Middle Channel 2440MHz							
4880.00	47.22	PK	H	2.58	49.80	74	-24.20
4880.00	33.14	AV	H	2.58	35.72	54	-18.28
4880.00	47.03	PK	V	2.58	49.61	74	-24.39
4880.00	32.95	AV	V	2.58	35.53	54	-18.47
High Channel 2480MHz							
2495.43	55.13	PK	H	-3.19	51.94	74	-22.06
2495.43	41.32	AV	H	-3.19	38.13	54	-15.87
2491.97	55.21	PK	V	-3.18	52.03	74	-21.97
2491.97	41.45	AV	V	-3.18	38.27	54	-15.73
4960.00	46.94	PK	H	2.68	49.62	74	-24.38
4960.00	33.01	AV	H	2.68	35.69	54	-18.31
4960.00	46.76	PK	V	2.68	49.44	74	-24.56
4960.00	32.82	AV	V	2.68	35.50	54	-18.50

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
BLE 2M							
Low Channel 2402MHz							
2388.46	54.78	PK	H	-2.93	51.85	74	-22.15
2388.46	42.47	AV	H	-2.93	39.54	54	-14.46
2387.51	51.53	PK	V	-2.93	48.60	74	-25.40
2387.51	42.24	AV	V	-2.93	39.31	54	-14.69
4804.00	46.88	PK	H	2.42	49.30	74	-24.70
4804.00	33.12	AV	H	2.42	35.54	54	-18.46
4804.00	46.69	PK	V	2.42	49.11	74	-24.89
4804.00	32.94	AV	V	2.42	35.36	54	-18.64
Middle Channel 2440MHz							
4880.00	46.64	PK	H	2.58	49.22	74	-24.78
4880.00	32.87	AV	H	2.58	35.45	54	-18.55
4880.00	46.46	PK	V	2.58	49.04	74	-24.96
4880.00	32.68	AV	V	2.58	35.26	54	-18.74
High Channel 2480MHz							
2483.54	56.23	PK	H	-3.17	53.06	74	-20.94
2483.54	44.77	AV	H	-3.17	41.60	54	-12.40
2483.67	54.03	PK	V	-3.17	50.86	74	-23.14
2483.67	42.67	AV	V	-3.17	39.50	54	-14.50
4960.00	46.36	PK	H	2.68	49.04	74	-24.96
4960.00	32.67	AV	H	2.68	35.35	54	-18.65
4960.00	46.18	PK	V	2.68	48.86	74	-25.14
4960.00	32.51	AV	V	2.68	35.19	54	-18.81

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 in the noise floor level was not recorded.

Test plots for Band Edge Measurements (Radiated):

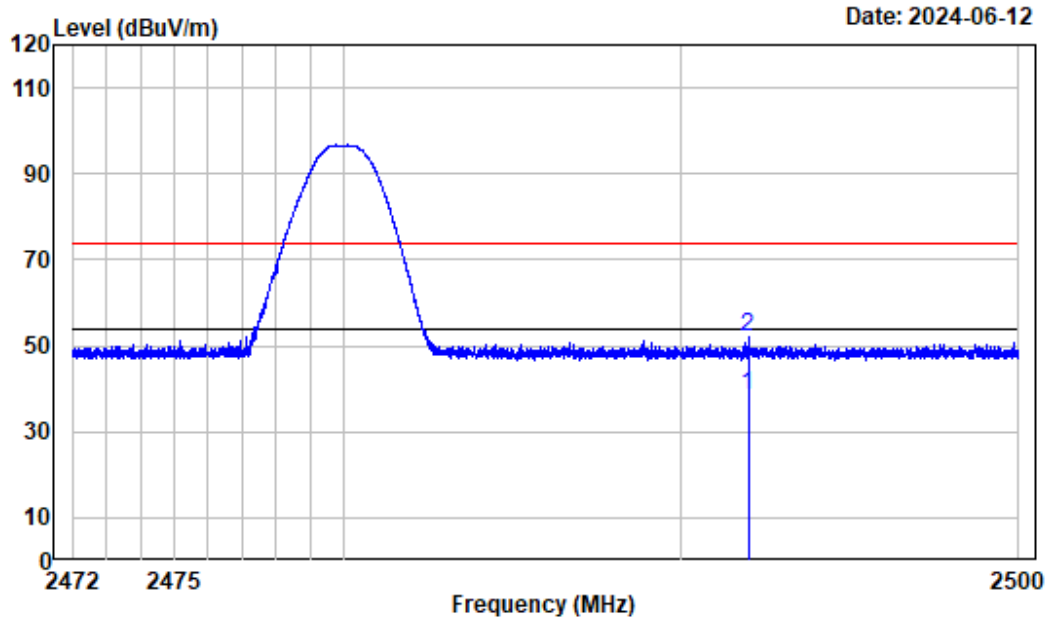
BLE 1M			
Test Channel:	**2480MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: SZ1240307-11374E-RF
Tester : Dylan
Note : BLE1M_2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2495.428	-3.19	41.32	38.13	54.00	-15.87	Average
2	2495.428	-3.19	55.13	51.94	74.00	-22.06	peak

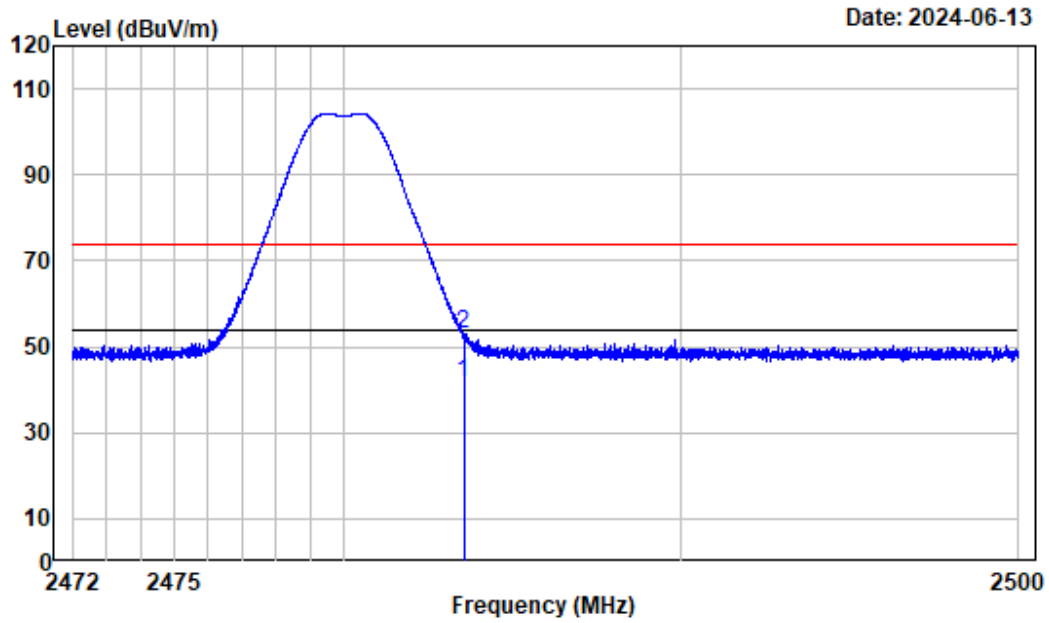
BLE 1M			
Test Channel:	**2480MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: SZ1240307-11374E-RF
Tester : Dylan
Note : BLE1M_2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2491.966	-3.18	41.45	38.27	54.00	-15.73	Average
2	2491.966	-3.18	55.21	52.03	74.00	-21.97	peak

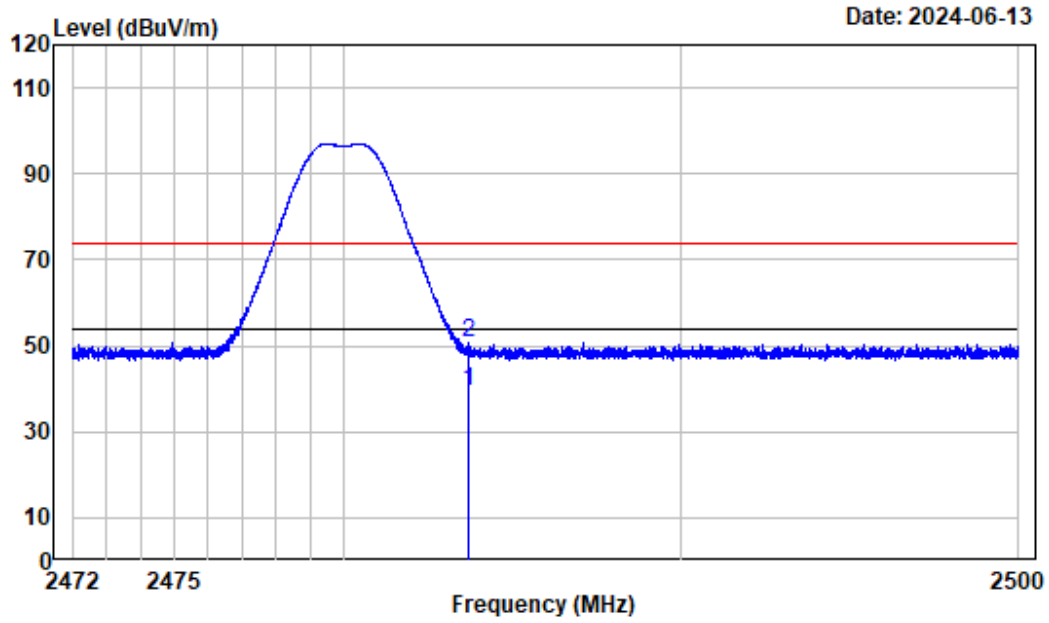
BLE 2M			
Test Channel:	**2480MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: SZ1240307-11374E-RF
Tester : Dylan
Note : BLE2M_2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.542	-3.17	44.77	41.60	54.00	-12.40	Average
2	2483.542	-3.17	56.23	53.06	74.00	-20.94	peak

BLE 2M			
Test Channel:	**2480MHz**	**Ant. Polar. :**	**Vertical**



Condition : Vertical
Project No.: SZ1240307-11374E-RF
Tester : Dylan
Note : BLE2M_2480

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2483.686	-3.17	42.67	39.50	54.00	-14.50	Average
2	2483.686	-3.17	54.03	50.86	74.00	-23.14	peak

2.4G Wi-Fi

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
ANT1							
802.11b							
Low Channel 2412MHz							
2386.58	67.68	PK	H	-2.93	64.75	74	-9.25
2386.58	40.82	AV	H	-2.93	37.89	54	-16.11
2389.94	60.27	PK	V	-2.93	57.34	74	-16.66
2389.94	40.66	AV	V	-2.93	37.73	54	-16.27
4824.00	47.85	PK	H	2.45	50.30	74	-23.70
4824.00	32.14	AV	H	2.45	34.59	54	-19.41
4824.00	47.57	PK	V	2.45	50.02	74	-23.98
4824.00	31.81	AV	V	2.45	34.26	54	-19.74
Middle Channel 2437MHz							
4874.00	47.58	PK	H	2.56	50.14	74	-23.86
4874.00	31.66	AV	H	2.56	34.22	54	-19.78
4874.00	47.39	PK	V	2.56	49.95	74	-24.05
4874.00	31.47	AV	V	2.56	34.03	54	-19.97
High Channel 2462MHz							
2485.04	68.73	PK	H	-3.17	65.56	74	-8.44
2485.04	40.78	AV	H	-3.17	37.61	54	-16.39
2484.05	58.52	PK	V	-3.17	55.35	74	-18.65
2484.05	39.54	AV	V	-3.17	36.37	54	-17.63
4924.00	47.32	PK	H	2.63	49.95	74	-24.05
4924.00	31.25	AV	H	2.63	33.88	54	-20.12
4924.00	47.13	PK	V	2.63	49.76	74	-24.24
4924.00	31.08	AV	V	2.63	33.71	54	-20.29

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
ANT2							
802.11b							
Low Channel 2412MHz							
2380.33	68.28	PK	H	-2.93	65.35	74	-8.65
2380.33	40.18	AV	H	-2.93	37.25	54	-16.75
2381.03	64.73	PK	V	-2.93	61.80	74	-12.20
2381.03	40.09	AV	V	-2.93	37.16	54	-16.84
4824.00	47.48	PK	H	2.45	49.93	74	-24.07
4824.00	31.87	AV	H	2.45	34.32	54	-19.68
4824.00	47.29	PK	V	2.45	49.74	74	-24.26
4824.00	31.64	AV	V	2.45	34.09	54	-19.91
Middle Channel 2437MHz							
4874.00	47.16	PK	H	2.56	49.72	74	-24.28
4874.00	31.55	AV	H	2.56	34.11	54	-19.89
4874.00	46.94	PK	V	2.56	49.50	74	-24.50
4874.00	31.37	AV	V	2.56	33.93	54	-20.07
High Channel 2462MHz							
2484.27	66.57	PK	H	-3.10	63.47	74	-10.53
2484.27	41.47	AV	H	-3.10	38.37	54	-15.63
2496.28	68.19	PK	V	-3.10	65.09	74	-8.91
2496.28	41.68	AV	V	-3.10	38.58	54	-15.42
4924.00	46.78	PK	H	2.63	49.41	74	-24.59
4924.00	31.25	AV	H	2.63	33.88	54	-20.12
4924.00	46.56	PK	V	2.63	49.19	74	-24.81
4924.00	31.03	AV	V	2.63	33.66	54	-20.34

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11g							
Low Channel 2412MHz							
2376.47	54.77	PK	H	-2.93	51.84	74	-22.16
2376.47	41.06	AV	H	-2.93	38.13	54	-15.87
2378.68	54.58	PK	V	-2.93	51.65	74	-22.35
2378.68	40.93	AV	V	-2.93	38.00	54	-16.00
4824.00	47.71	PK	H	2.45	50.16	74	-23.84
4824.00	33.02	AV	H	2.45	35.47	54	-18.53
4824.00	47.53	PK	V	2.45	49.98	74	-24.02
4824.00	32.85	AV	V	2.45	35.30	54	-18.70
Middle Channel 2437MHz							
4874.00	47.29	PK	H	2.56	49.85	74	-24.15
4874.00	32.86	AV	H	2.56	35.42	54	-18.58
4874.00	47.08	PK	V	2.56	49.64	74	-24.36
4874.00	32.67	AV	V	2.56	35.23	54	-18.77
High Channel 2462MHz							
2487.02	56.43	PK	H	-3.10	53.33	74	-20.67
2487.02	42.94	AV	H	-3.10	39.84	54	-14.16
2485.71	54.23	PK	V	-3.10	51.13	74	-22.87
2485.71	41.95	AV	V	-3.10	38.85	54	-15.15
4924.00	46.87	PK	H	2.63	49.50	74	-24.50
4924.00	32.64	AV	H	2.63	35.27	54	-18.73
4924.00	46.72	PK	V	2.63	49.35	74	-24.65
4924.00	32.43	AV	V	2.63	35.06	54	-18.94

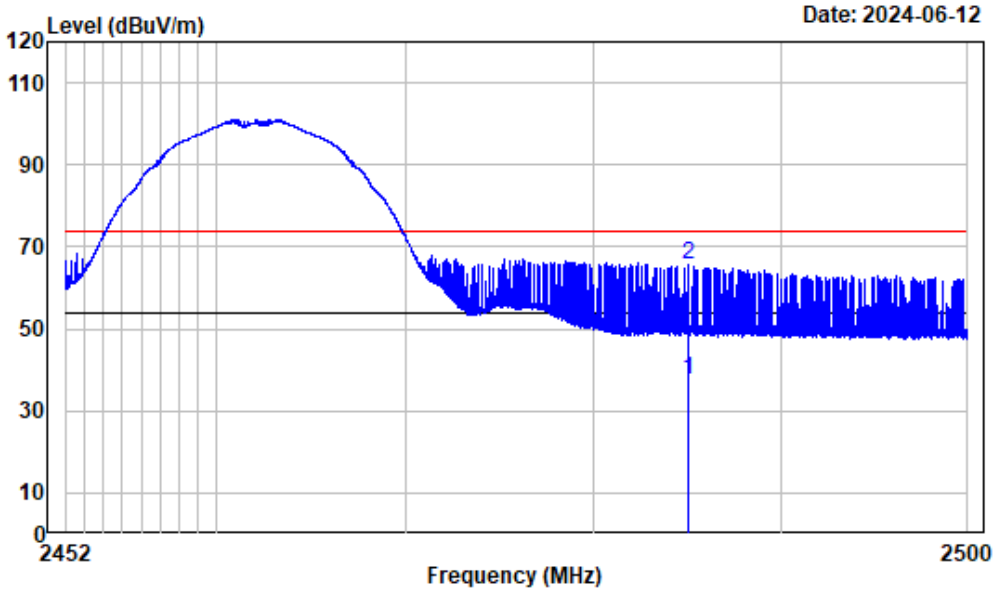
Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11n20							
Low Channel 2412MHz							
2384.54	54.82	PK	H	-2.93	51.89	74	-22.11
2384.54	41.03	AV	H	-2.93	38.10	54	-15.90
2385.77	54.66	PK	V	-2.93	51.73	74	-22.27
2385.77	40.90	AV	V	-2.93	37.97	54	-16.03
4824.00	47.53	PK	H	2.45	49.98	74	-24.02
4824.00	32.94	AV	H	2.45	35.39	54	-18.61
4824.00	47.26	PK	V	2.45	49.71	74	-24.29
4824.00	32.78	AV	V	2.45	35.23	54	-18.77
Middle Channel 2437MHz							
4874.00	47.24	PK	H	2.56	49.80	74	-24.20
4874.00	32.65	AV	H	2.56	35.21	54	-18.79
4874.00	47.03	PK	V	2.56	49.59	74	-24.41
4874.00	32.49	AV	V	2.56	35.05	54	-18.95
High Channel 2462MHz							
2483.69	55.32	PK	H	-3.17	52.15	74	-21.85
2483.69	42.73	AV	H	-3.10	39.63	54	-14.37
2483.56	55.13	PK	V	-3.17	51.96	74	-22.04
2483.56	42.08	AV	V	-3.10	38.98	54	-15.02
4924.00	46.96	PK	H	2.63	49.59	74	-24.41
4924.00	32.34	AV	H	2.63	34.97	54	-19.03
4924.00	46.77	PK	V	2.63	49.40	74	-24.60
4924.00	32.19	AV	V	2.63	34.82	54	-19.18

Frequency (MHz)	Receiver		Polar (H/V)	Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/AV					
802.11ax20							
Low Channel 2422MHz							
2388.84	54.73	PK	H	-2.93	51.80	74	-22.20
2388.84	41.72	AV	H	-2.93	38.79	54	-15.21
2389.27	54.59	PK	V	-2.93	51.66	74	-22.34
2389.27	40.84	AV	V	-2.93	37.91	54	-16.09
4824.00	47.63	PK	H	2.45	50.08	74	-23.92
4824.00	32.98	AV	H	2.45	35.43	54	-18.57
4824.00	47.40	PK	V	2.45	49.85	74	-24.15
4824.00	32.84	AV	V	2.45	35.29	54	-18.71
Middle Channel 2437MHz							
4874.00	47.35	PK	H	2.56	49.91	74	-24.09
4874.00	32.69	AV	H	2.56	35.25	54	-18.75
4874.00	47.17	PK	V	2.56	49.73	74	-24.27
4874.00	32.51	AV	V	2.56	35.07	54	-18.93
High Channel 2452MHz							
2483.59	55.44	PK	H	-3.17	52.27	74	-21.73
2483.59	44.03	AV	H	-3.10	40.93	54	-13.07
2483.86	55.25	PK	V	-3.17	52.08	74	-21.92
2483.86	43.52	AV	V	-3.10	40.42	54	-13.58
4924.00	47.02	PK	H	2.63	49.65	74	-24.35
4924.00	32.38	AV	H	2.63	35.01	54	-18.99
4924.00	46.83	PK	V	2.63	49.46	74	-24.54
4924.00	32.21	AV	V	2.63	34.84	54	-19.16

Note:
Factor = Antenna factor (RX) + Cable Loss – Amplifier Factor
Corrected Amplitude = Factor + Reading
Margin = Corrected. Amplitude - Limit
The other spurious emission which is in the noise floor level was not recorded.

Test plots for Band Edge Measurements (Radiated):

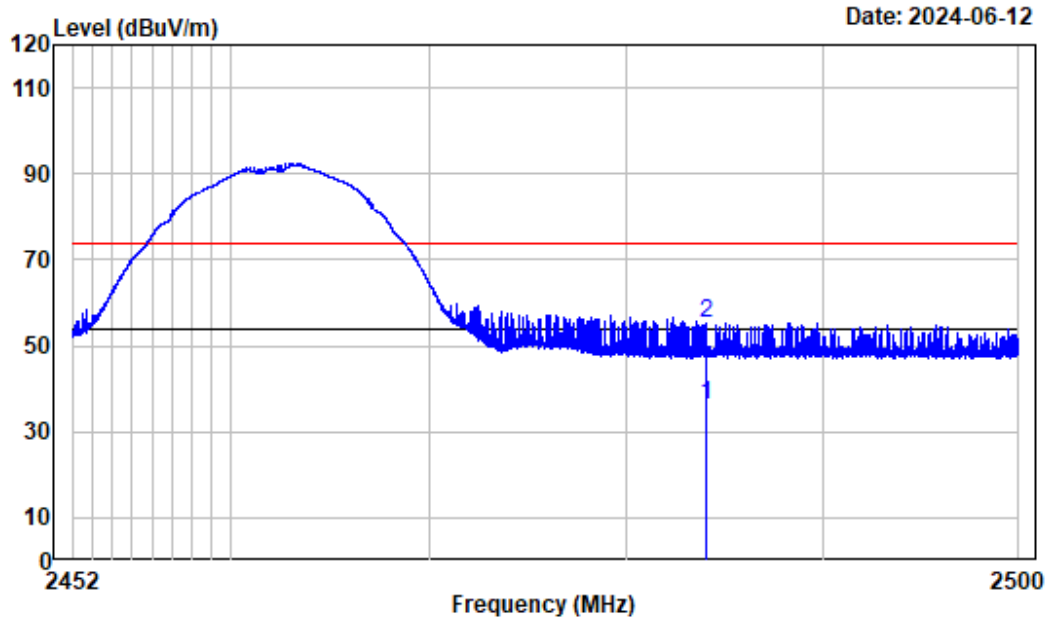
802.11b(ANT1)			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Horizontal**



Condition : Horizontal
Project No.: SZ1240307-11374E-RF
Tester : Dylan
Note : 802.11B_2462

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2485.036	-3.17	40.78	37.61	54.00	-16.39	Average
2	2485.036	-3.17	68.73	65.56	74.00	-8.44	peak

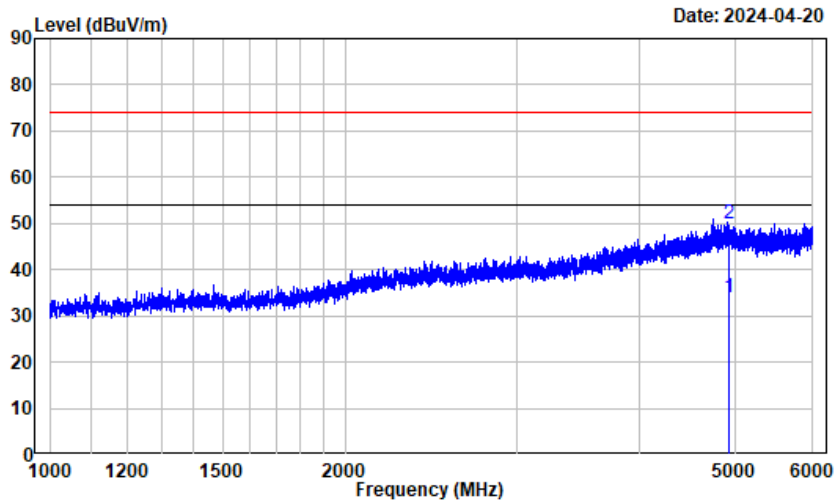
802.11b(ANT1)			
Test Channel:	**2462MHz**	**Ant. Polar. :**	**Vertical**



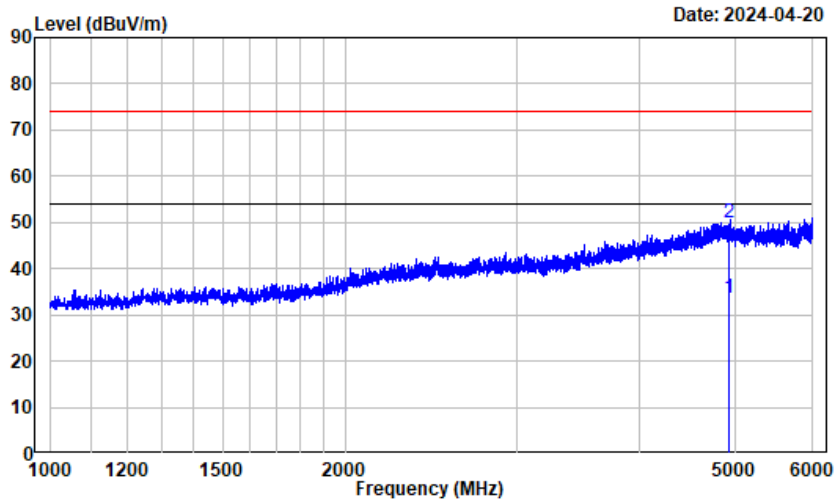
Condition : Vertical
Project No.: SZ1240307-11374E-RF
Tester : Dylan
Note : 802.11B_2462

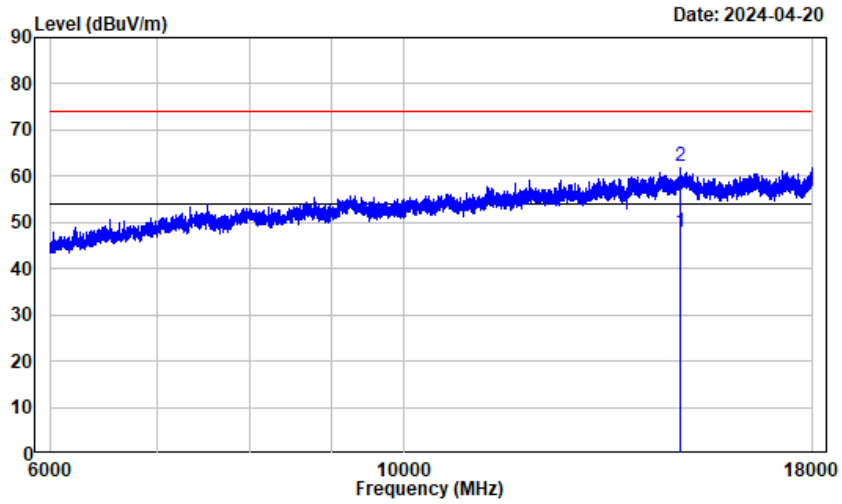
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	2484.052	-3.17	39.54	36.37	54.00	-17.63	Average
2	2484.052	-3.17	58.52	55.35	74.00	-18.65	peak

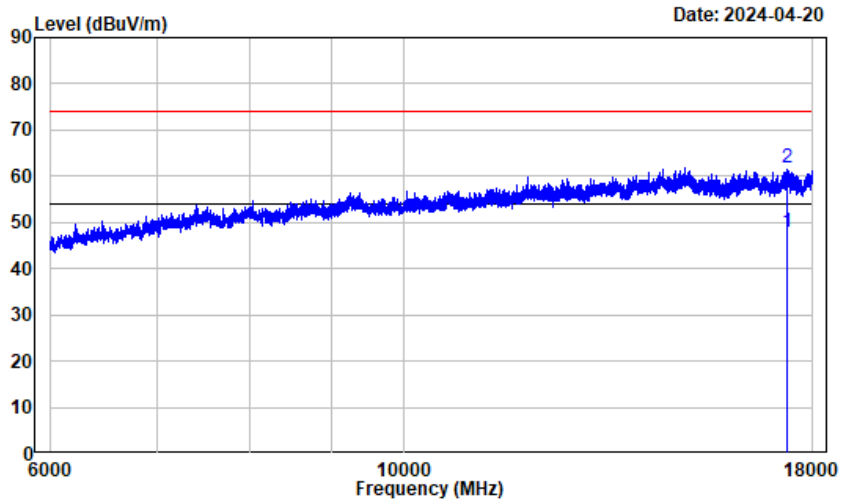
Listed with the worst harmonic margin test plot:

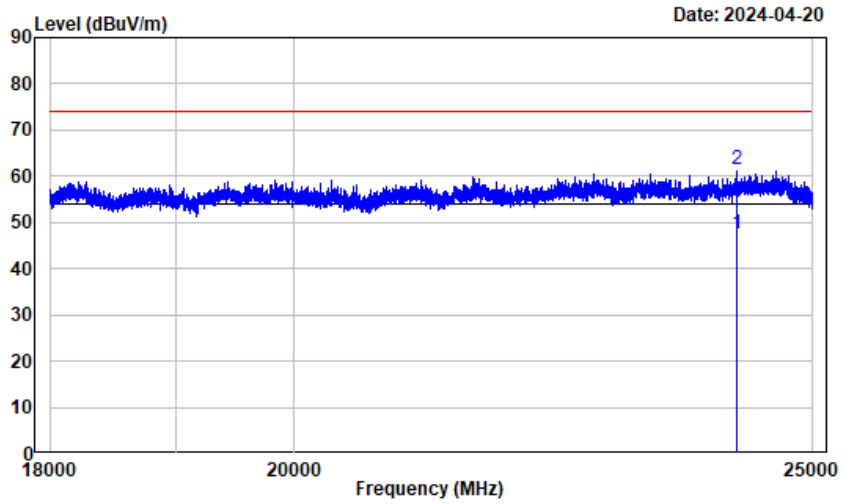
Horizontal	
1-6GHz	 Condition : Horizontal Project No.: SZ1240307-11374E Tester : Zenos Qiao Note : 2.4GWiFi-ANT1-b-2462

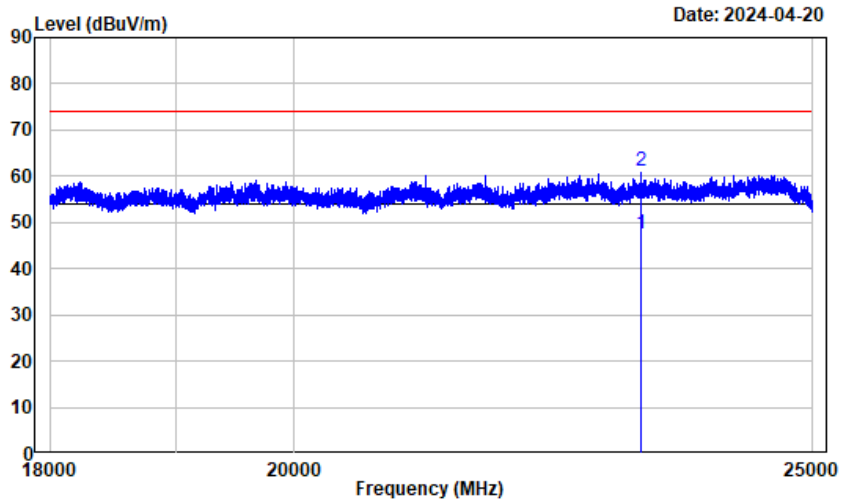
	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	4924.000	2.63	31.25	33.88	54.00	-20.12	Average
2	4924.000	2.63	47.32	49.95	74.00	-24.05	Peak

Vertical	
1-6GHz	 Condition : Vertical Project No.: SZ1240307-11374E Tester : Zenos Qiao Note : 2.4GWiFi-ANT1-b-2462 | | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark | | | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | | | 1 | 4924.000 | 2.63 | 31.08 | 33.71 | 54.00 | -20.29 | Average | | 2 | 4924.000 | 2.63 | 47.13 | 49.76 | 74.00 | -24.24 | Peak |

Horizontal	
6-18GHz	 Condition : Horizontal Project No.: SZ1240307-11374E Tester : Zenos Qiao Note : 2.4GWiFi-ANT1-b-2462 | | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark | | | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | | | 1 | 14866.500 | 16.69 | 31.20 | 47.89 | 54.00 | -6.11 | Average | | 2 | 14866.500 | 16.69 | 45.56 | 62.25 | 74.00 | -11.75 | Peak |

Vertical	
6-18GHz	 Condition : Vertical Project No.: SZ1240307-11374E Tester : Zenos Qiao Note : 2.4GWiFi-ANT1-b-2462 | | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark | | | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | | | 1 | 17332.500 | 19.51 | 28.22 | 47.73 | 54.00 | -6.27 | Average | | 2 | 17332.500 | 19.51 | 42.46 | 61.97 | 74.00 | -12.03 | Peak |

Horizontal	
18-25GHz	 Condition : Horizontal Project No.: SZ1240307-11374E Tester : Zenos Qiao Note : 2.4GWiFi-ANT1-b-2462 Freq / Factor / Read Level / Limit Level / Limit Line / Over Limit / Remark MHz / dB/m / dBuV / dBuV/m / dBuV/m / dB 1 24195.880 18.28 29.37 47.65 54.00 -6.35 Average 2 24195.880 18.28 43.18 61.46 74.00 -12.54 Peak

Vertical	
18-25GHz	 Condition : Vertical Project No.: SZ1240307-11374E Tester : Zenos Qiao Note : 2.4GWiFi-ANT1-b-2462 | | Freq | Factor | Read Level | Level | Limit Line | Over Limit | Remark | | | MHz | dB/m | dBuV | dBuV/m | dBuV/m | dB | | | 1 | 23217.630 | 17.34 | 30.17 | 47.51 | 54.00 | -6.49 | Average | | 2 | 23217.630 | 17.34 | 43.78 | 61.12 | 74.00 | -12.88 | Peak |

FCC §15.247(a) (2) - 6 dB EMISSION BANDWIDTH

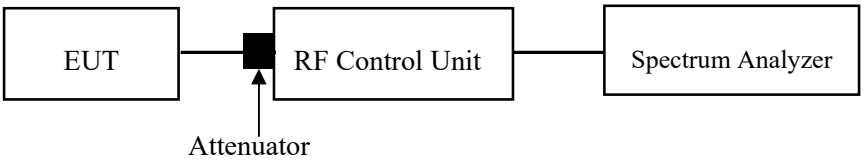
Applicable Standard

According to FCC §15.247(a) (2)
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.

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:	24~26 ℃
Relative Humidity:	52~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Lee Li on 2024-04-19 and 2024-04-23.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

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

Applicable Standard

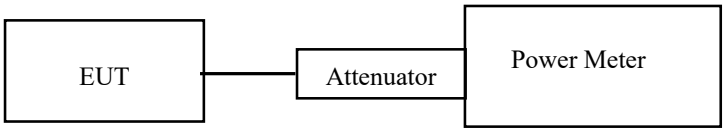
According to FCC §15.247(b) (3), for systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted 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.

Test Procedure

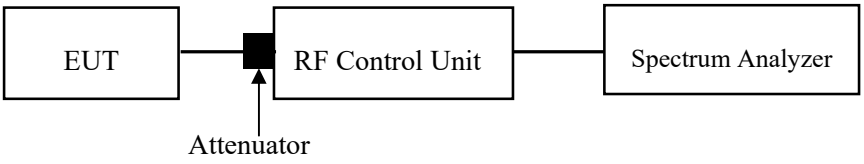
Test Method: ANSI C63.10-2013 Clause 11.9.1.1 for BLE & Clause 11.9.1.3 & 11.9.2.3.2 for Wi-Fi

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.

For Wi-Fi mode:



For BLE mode:



Test Data

Environmental Conditions

Temperature:	24~26 ℃
Relative Humidity:	52~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Lee Li on 2024-04-19 and 2024-04-23.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

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

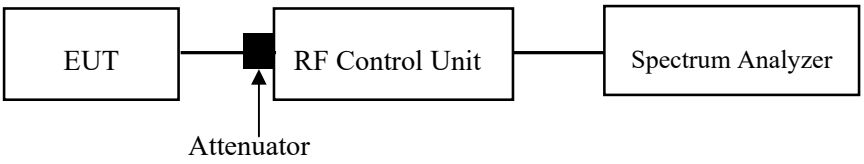
Applicable Standard

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:	24~26 ℃
Relative Humidity:	52~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Lee Li on 2024-04-19 and 2024-04-23.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

FCC §15.247(e) - POWER SPECTRAL DENSITY

Applicable Standard

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.

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: 3kHz≤ RBW≤100 kHz.
2. Set the VBW ≥ 3×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

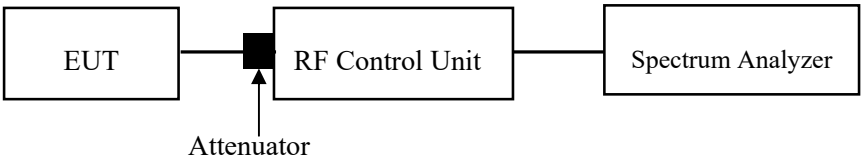
The following procedure may be used when the maximum (average) conducted output power was used to determine compliance to the fundamental output power limit. This is the baseline method for determining the maximum (average) conducted PSD level. If the instrument has a power averaging (rms) detector, then it must be used; otherwise, use the sample detector. The EUT must be configured to transmit continuously (D ⩾ 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: 3kHz≤ RBW≤100 kHz.
4. Set the VBW ≥ 3×BW.
5. Detector = power averaging (rms) or sample detector (when rms not available)
6. Ensure that the number of measurement points in the sweep ⩾ [2 × span / 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 ±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: 3kHz≤ RBW≤100 kHz.
5. Set the VBW ≥ 3×BW.
6. Detector = power averaging (rms) or sample detector (when rms not available)
7. Ensure that the number of measurement points in the sweep ⩾ [2 × span / 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:	24~26 ℃
Relative Humidity:	52~56 %
ATM Pressure:	101.0 kPa

The testing was performed by Lee Li on 2024-04-19 and 2024-04-23.

EUT operation mode: Transmitting

Test Result: Compliant. Please refer to the Appendix.

EUT PHOTOGRAPHS

Please refer to the attachment SZ1240307-11374E-RF External photo and SZ1240307-11374E-RF Internal photo.

TEST SETUP PHOTOGRAPHS

Please refer to the attachment SZ1240307-11374E-RF Test Setup photo.

APPENDIX – BLE

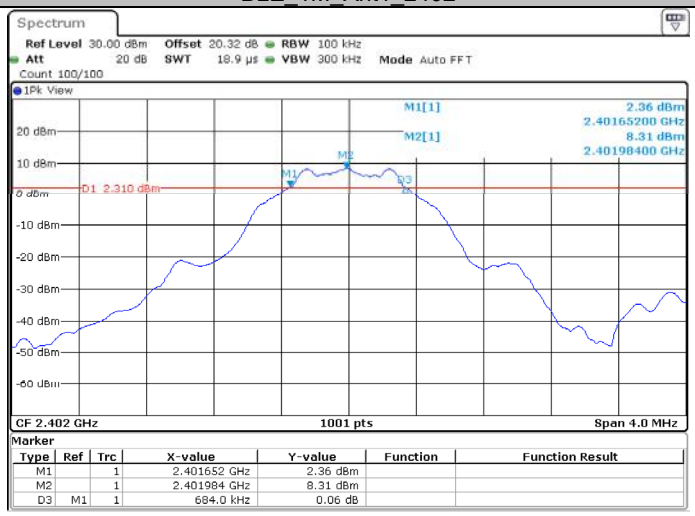
Appendix A: DTS Bandwidth

Test Result

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	0.68	2401.65	2402.34	0.5	PASS
		2440	0.69	2439.65	2440.34	0.5	PASS
		2480	0.68	2479.64	2480.33	0.5	PASS
BLE_2M	Ant1	2402	1.23	2401.36	2402.59	0.5	PASS
		2440	1.24	2439.34	2440.58	0.5	PASS
		2480	1.24	2479.34	2480.58	0.5	PASS

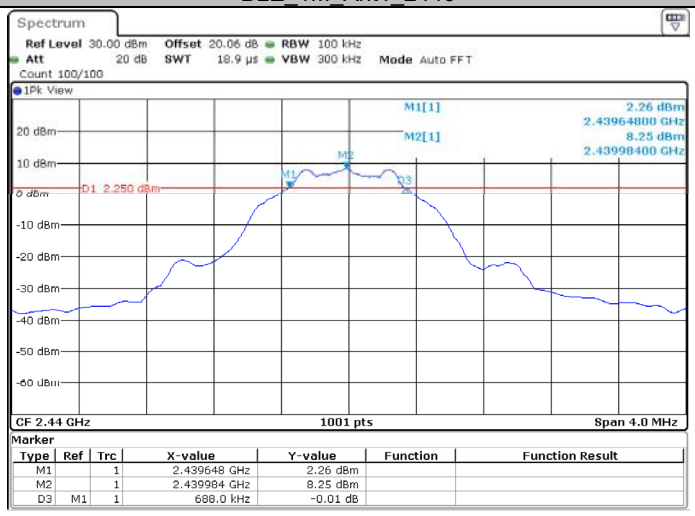
Test Graphs

BLE_1M_Ant1_2402



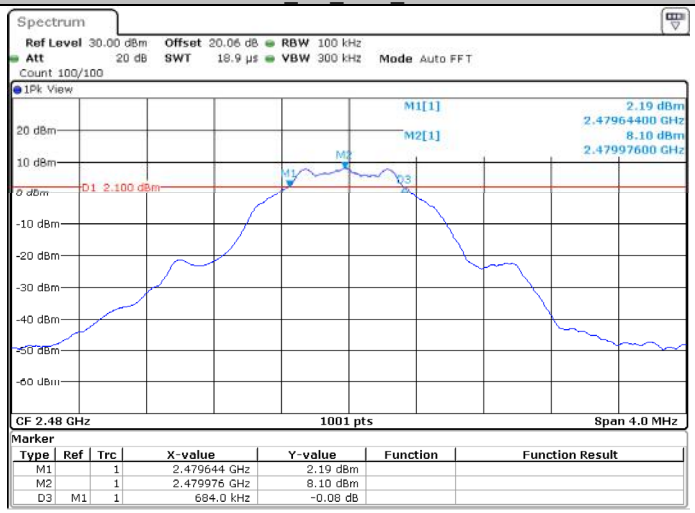
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:43:03

BLE_1M_Ant1_2440



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:45:11

BLE_1M_Ant1_2480

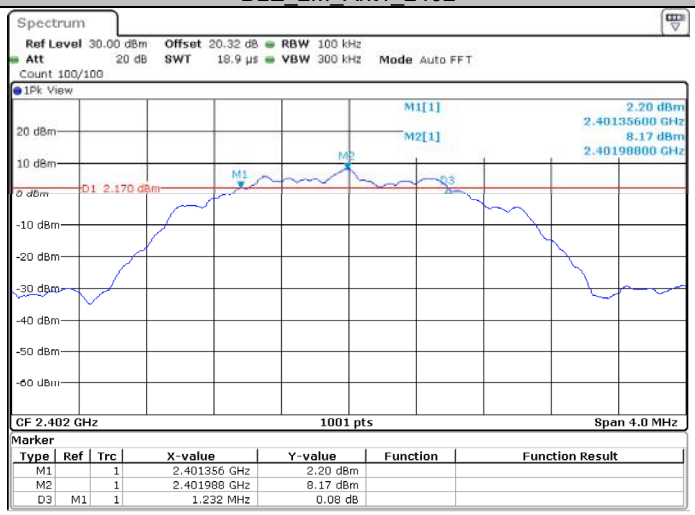


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.479644 GHz	2.19 dBm		
M2		1	2.479976 GHz	8.10 dBm		
D3	M1	1	684.0 kHz	-0.08 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:46:40

BLE_2M_Ant1_2402

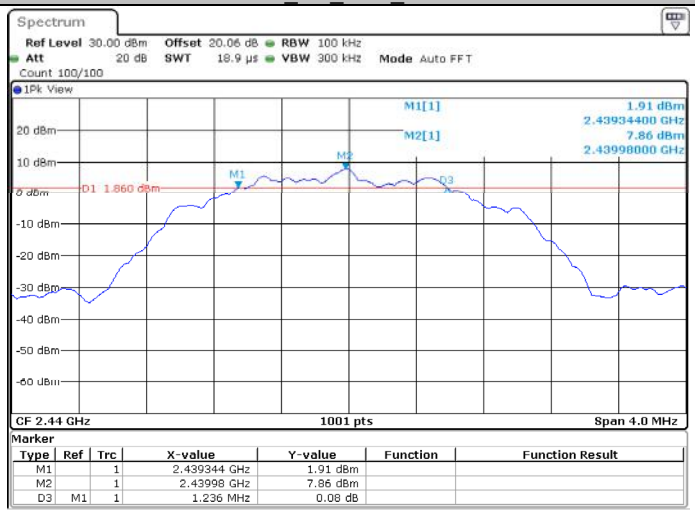


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.401356 GHz	2.20 dBm		
M2		1	2.401988 GHz	8.17 dBm		
D3	M1	1	1.232 MHz	0.08 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:47:56

BLE_2M_Ant1_2440

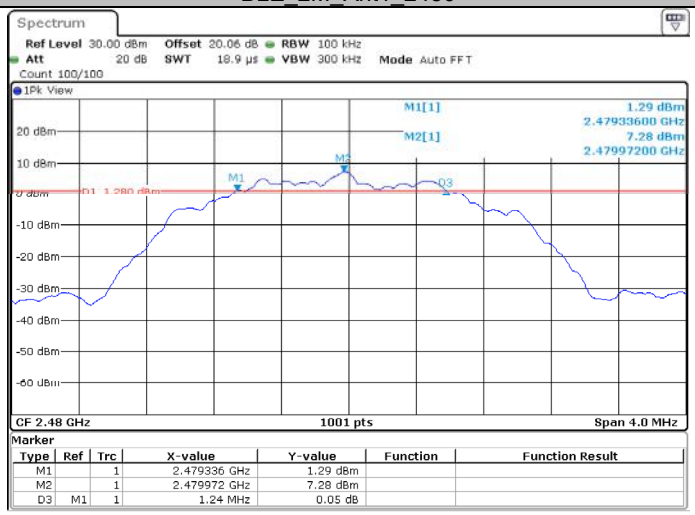


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.439344 GHz	1.91 dBm		
M2		1	2.43998 GHz	7.86 dBm		
D3	M1	1	1.236 MHz	0.08 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:49:12

BLE_2M_Ant1_2480



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.479336 GHz	1.29 dBm		
M2		1	2.479972 GHz	7.28 dBm		
D3	M1	1	1.24 MHz	0.05 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:52:18

Appendix B: Occupied Channel Bandwidth

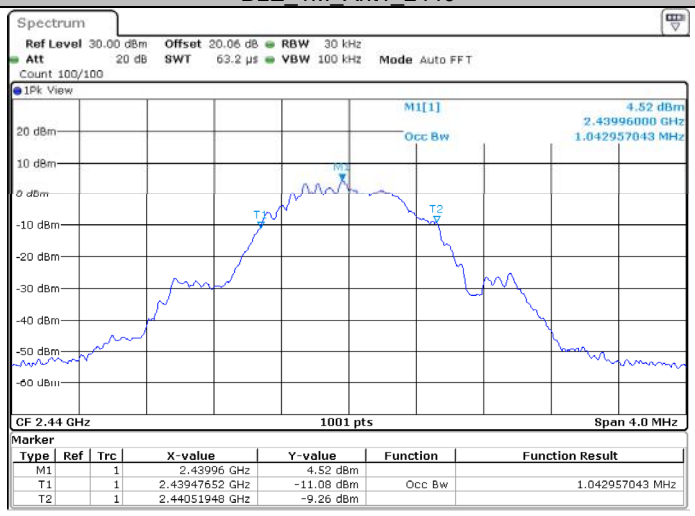
Test Result

Test Mode	Antenna	Frequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
BLE_1M	Ant1	2402	1.043	2401.4845	2402.5275	---	---
		2440	1.043	2439.4765	2440.5195	---	---
		2480	1.043	2479.4725	2480.5155	---	---
BLE_2M	Ant1	2402	2.034	2401.0010	2403.0350	---	---
		2440	2.030	2438.9970	2441.0270	---	---
		2480	2.034	2478.9890	2481.0230	---	---

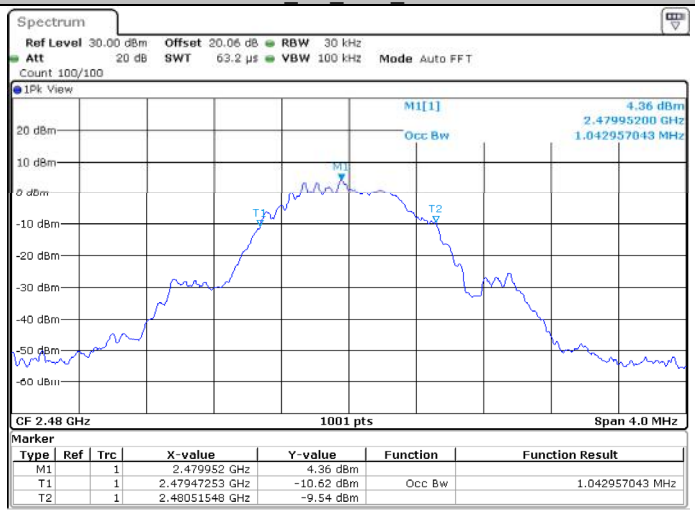
Test Graphs

BLE_1M_Ant1_2402

BLE_1M_Ant1_2440

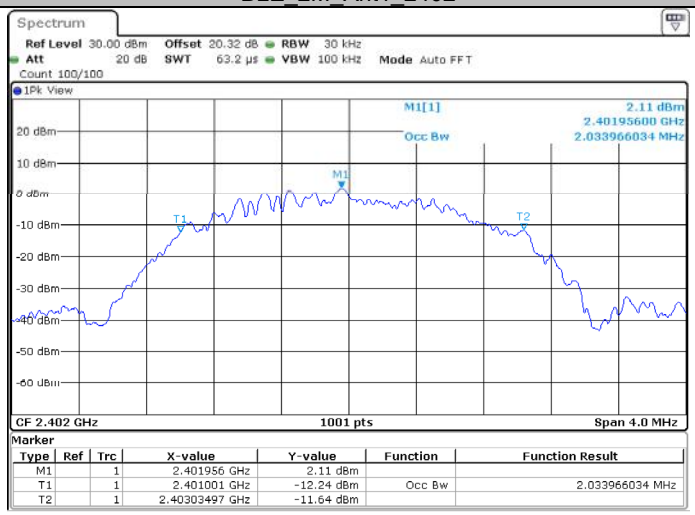


BLE_1M_Ant1_2480



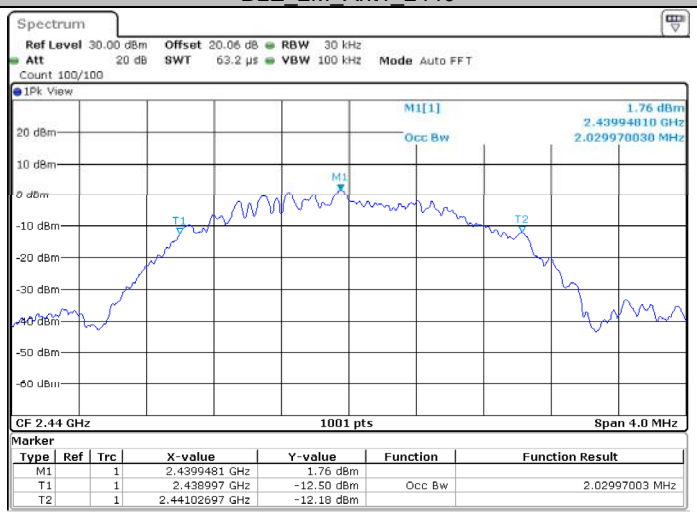
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:46:46

BLE_2M_Ant1_2402

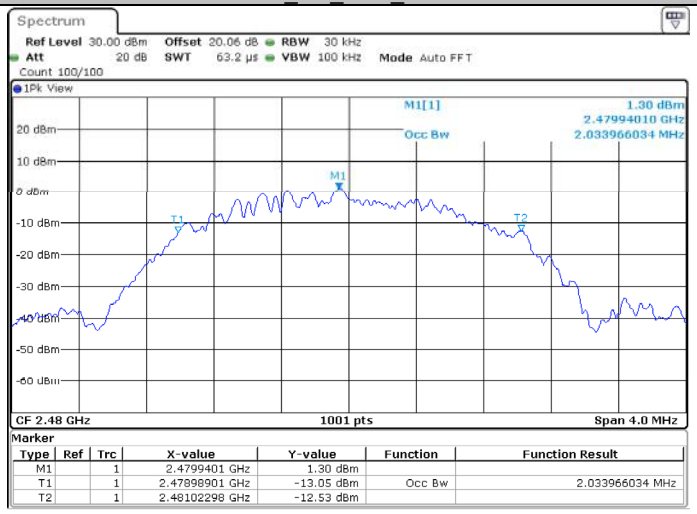


ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:48:02

BLE_2M_Ant1_2440



BLE_2M_Ant1_2480



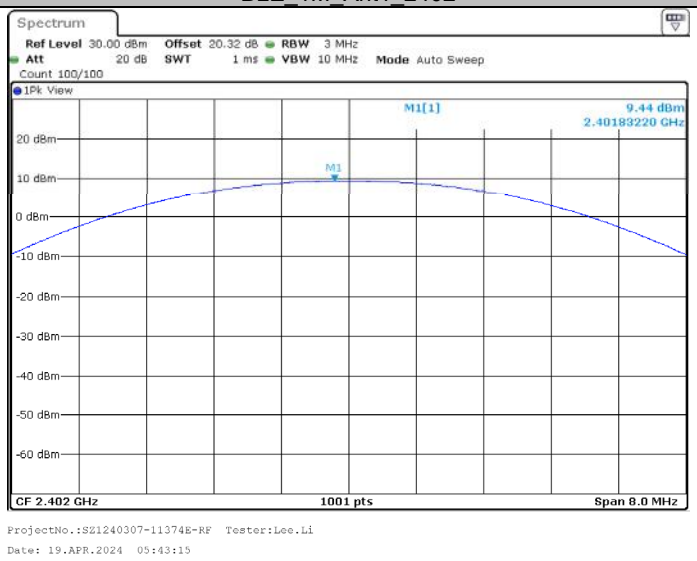
Appendix C: Maximum conducted output power

Test Result Peak

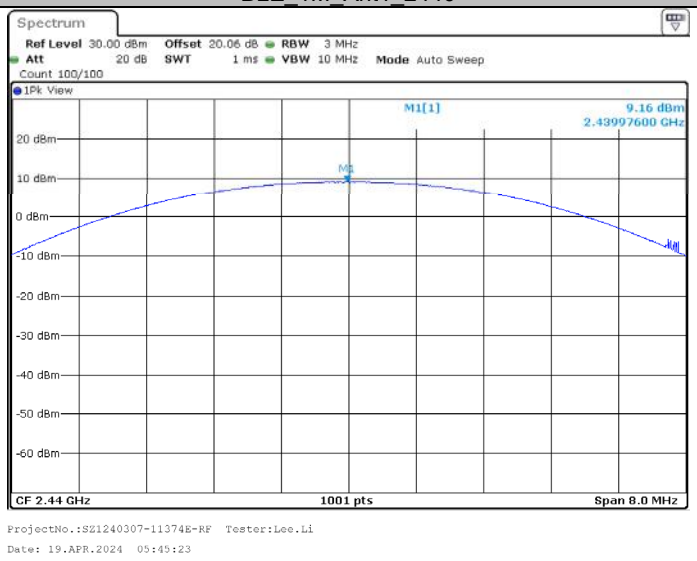
Test Mode	Antenna	Frequency[MHz]	Conducted Peak Powert[dBm]	Conducted Limit[dBm]	Verdict
BLE_1M	Ant1	2402	9.44	≤30	PASS
		2440	9.16	≤30	PASS
		2480	9.17	≤30	PASS
BLE_2M	Ant1	2402	9.63	≤30	PASS
		2440	9.39	≤30	PASS
		2480	9.08	≤30	PASS

Test Graphs Peak

BLE_1M_Ant1_2402



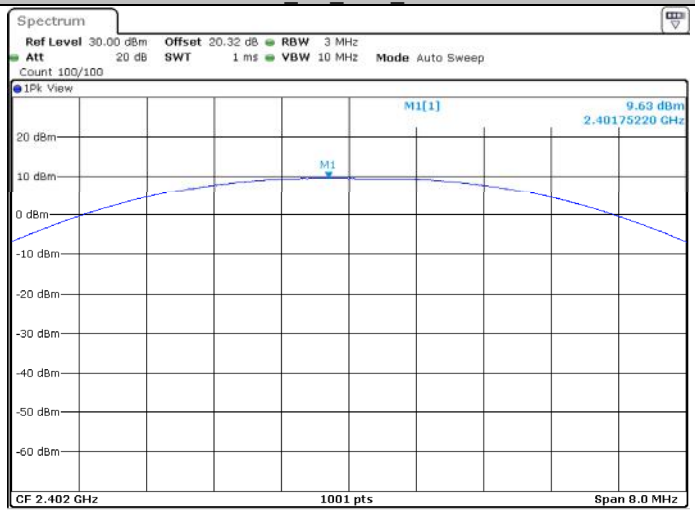
BLE_1M_Ant1_2440



BLE_1M_Ant1_2480

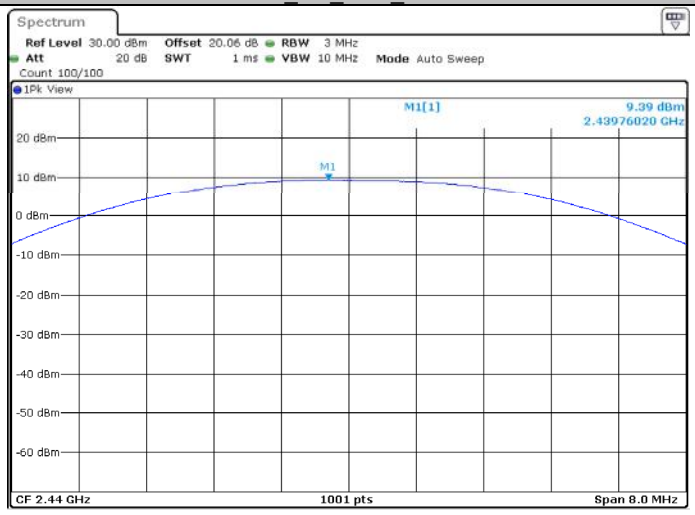
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:46:52

BLE_2M_Ant1_2402



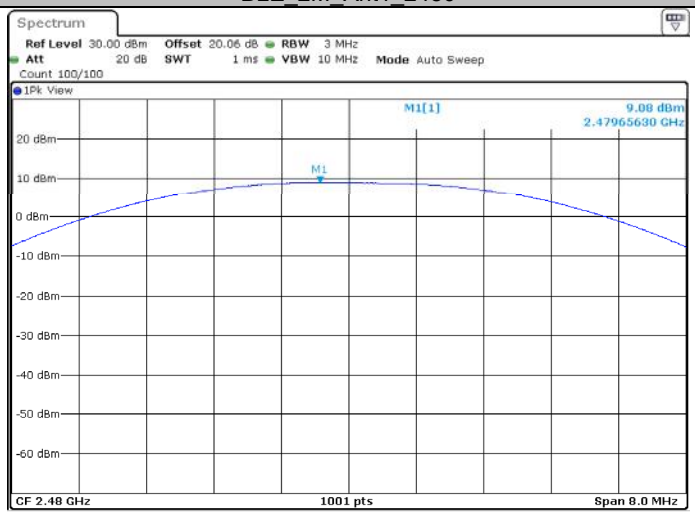
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:48:08

BLE_2M_Ant1_2440



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:50:40

BLE_2M_Ant1_2480



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:52:30

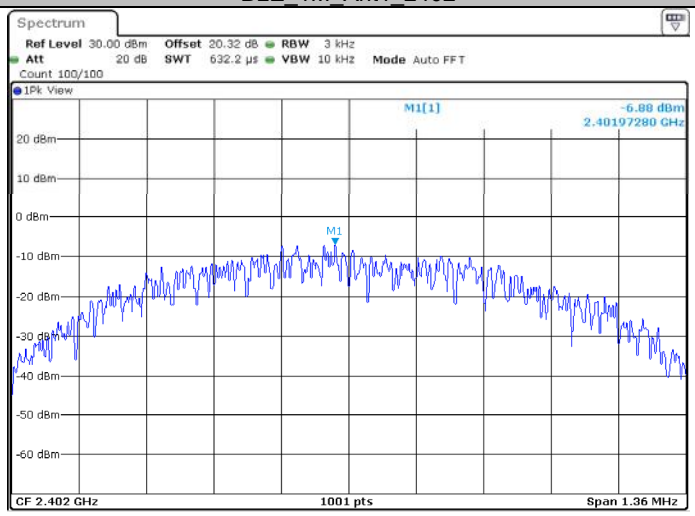
Appendix D: Maximum power spectral density

Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
BLE_1M	Ant1	2402	-6.88	≤8.00	PASS
		2440	-6.96	≤8.00	PASS
		2480	-7.09	≤8.00	PASS
BLE_2M	Ant1	2402	-8.87	≤8.00	PASS
		2440	-9.45	≤8.00	PASS
		2480	-9.66	≤8.00	PASS

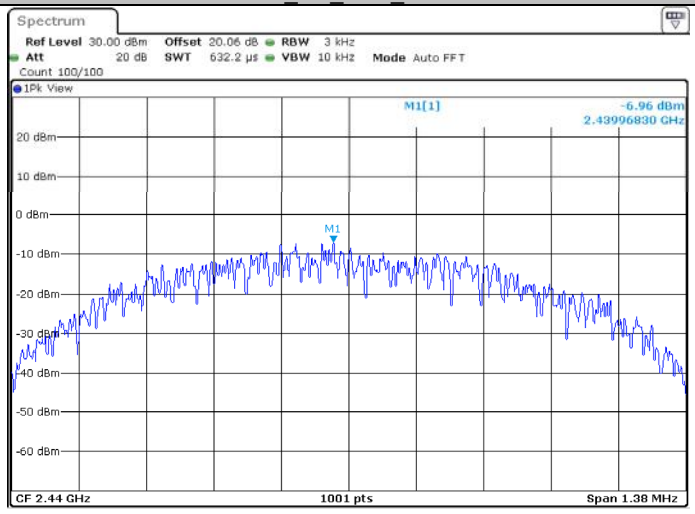
Test Graphs

BLE_1M_Ant1_2402



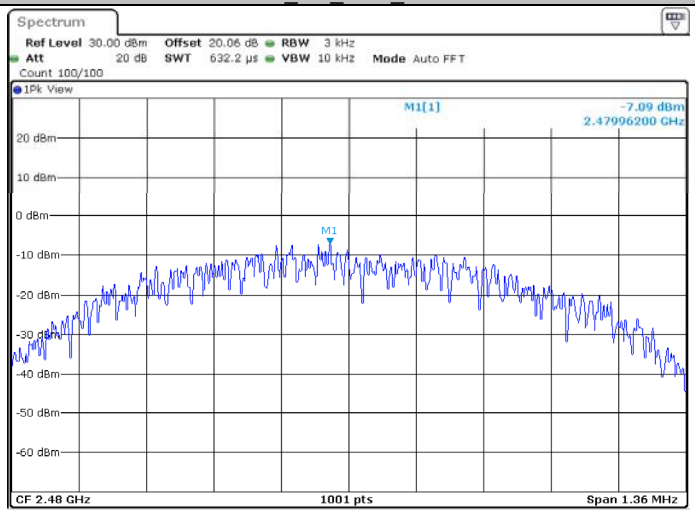
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:43:21

BLE_1M_Ant1_2440



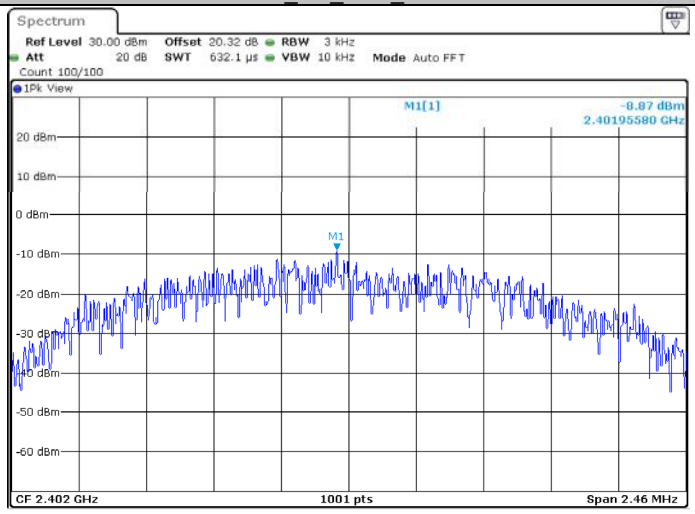
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:46:07

BLE_1M_Ant1_2480



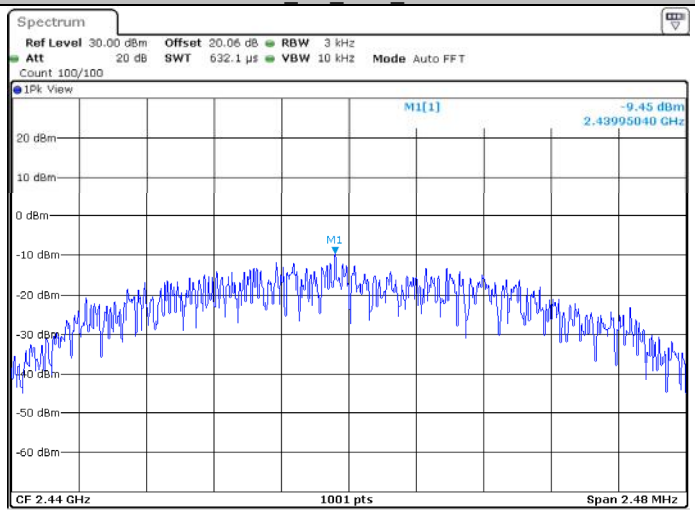
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:46:59

BLE_2M_Ant1_2402



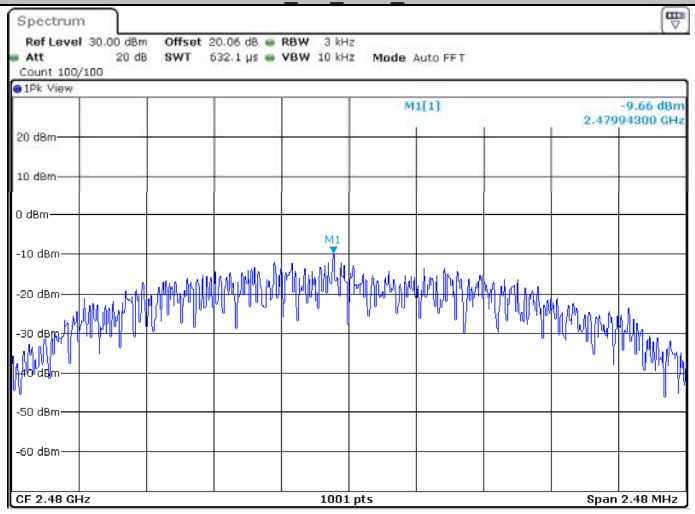
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:48:15

BLE_2M_Ant1_2440



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:51:42

BLE_2M_Ant1_2480

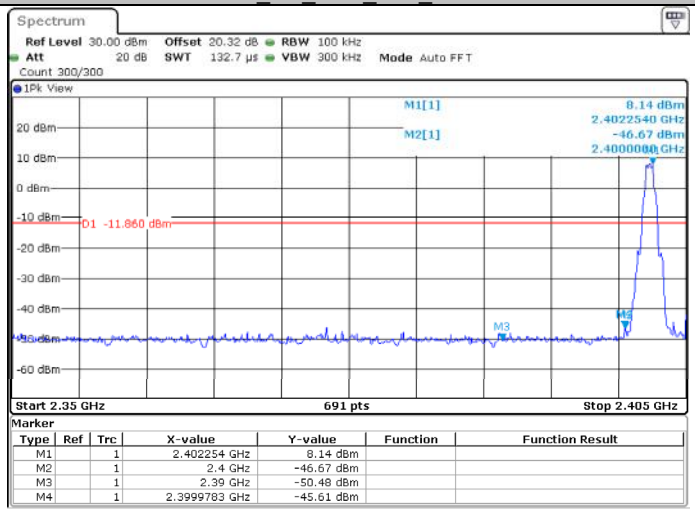


ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:52:36

Appendix E: Band edge measurements

Test Graphs

BLE_1M_Ant1_Low_2402

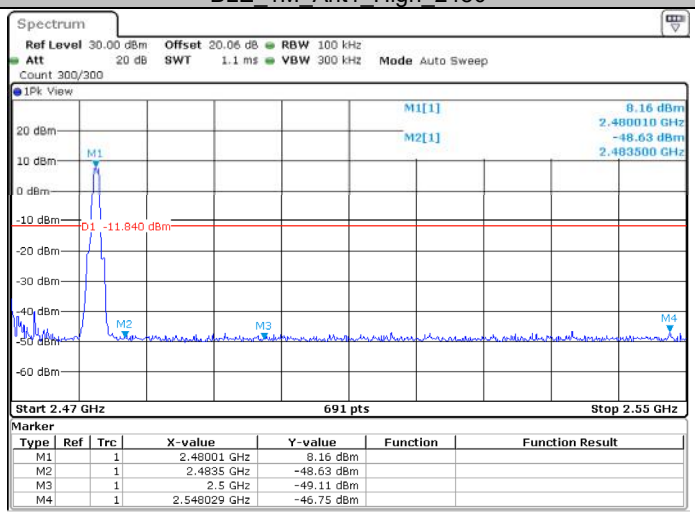


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402254 GHz	8.14 dBm		
M2		1	2.4 GHz	-46.67 dBm		
M3		1	2.39 GHz	-50.48 dBm		
M4		1	2.3999783 GHz	-45.61 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:44:03

BLE_1M_Ant1_High_2480

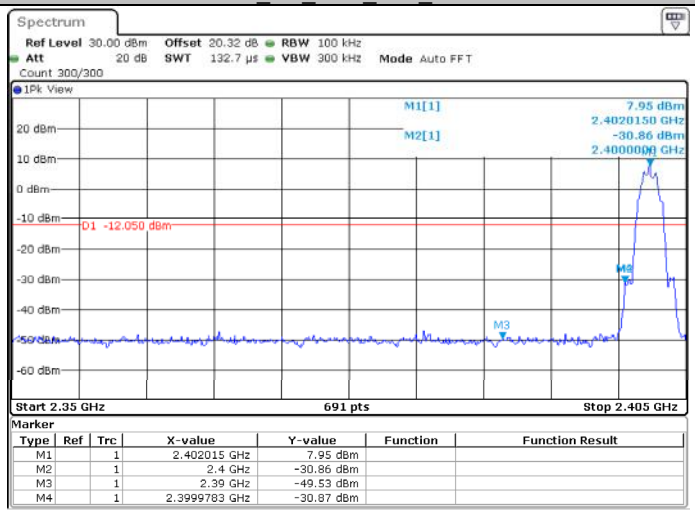


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48001 GHz	8.16 dBm		
M2		1	2.4835 GHz	-48.63 dBm		
M3		1	2.5 GHz	-49.11 dBm		
M4		1	2.548029 GHz	-46.75 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:47:07

BLE_2M_Ant1_Low_2402

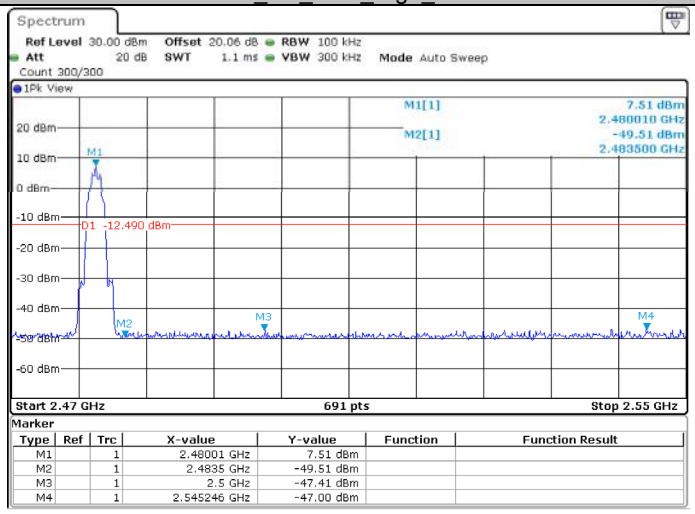


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.402015 GHz	7.95 dBm		
M2		1	2.4 GHz	-30.86 dBm		
M3		1	2.39 GHz	-49.53 dBm		
M4		1	2.3999783 GHz	-30.87 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:48:23

BLE_2M_Ant1_High_2480



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.48001 GHz	7.51 dBm		
M2		1	2.4835 GHz	-49.51 dBm		
M3		1	2.5 GHz	-47.41 dBm		
M4		1	2.545246 GHz	-47.00 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:52:45

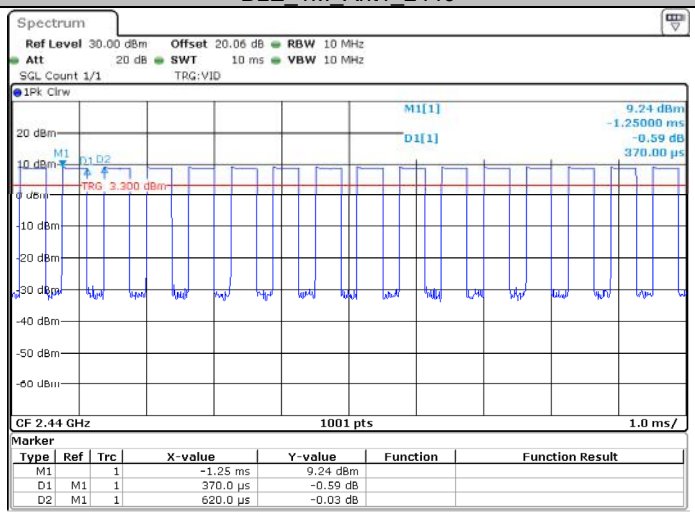
Appendix F: Duty Cycle

Test Result

Test Mode	Antenna	Frequency[MHz]	ON Time [ms]	Period [ms]	Duty Cycle [%]	Duty Cycle Factor[dB]	1/T (Hz)	VBW setting (Hz)
BLE_1M	Ant1	2440	0.37	0.62	59.68	2.24	2703	3000
BLE_2M	Ant1	2440	0.19	0.63	30.16	5.21	5263	10000

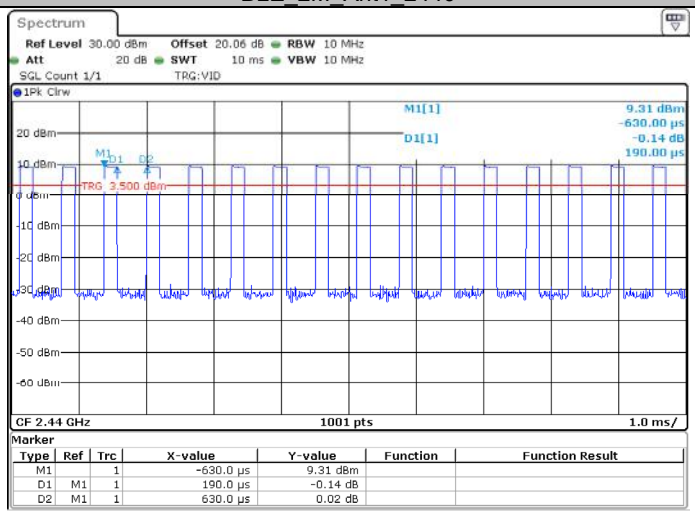
Test Graphs

BLE_1M_Ant1_2440



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:45:04

BLE_2M_Ant1_2440



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:49:05

APPENDIX – WIFI

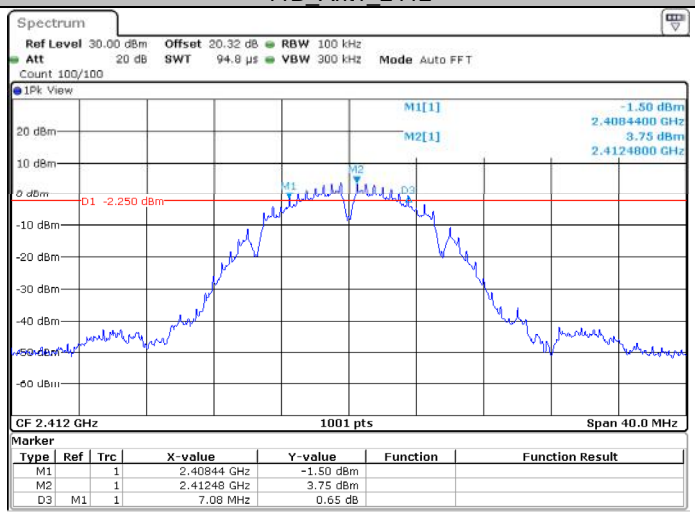
Appendix A: DTS Bandwidth

Test Result

Test Mode	Antenna	Frequency[MHz]	DTS BW [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	7.08	2408.44	2415.52	0.5	PASS
	Ant2	2412	7.08	2408.44	2415.52	0.5	PASS
	Ant1	2437	7.08	2433.44	2440.52	0.5	PASS
	Ant2	2437	7.08	2433.44	2440.52	0.5	PASS
	Ant1	2462	7.08	2458.44	2465.52	0.5	PASS
	Ant2	2462	7.08	2458.44	2465.52	0.5	PASS
11G-CDD	Ant1	2412	16.32	2403.84	2420.16	0.5	PASS
	Ant2	2412	16.36	2403.80	2420.16	0.5	PASS
	Ant1	2437	16.36	2428.80	2445.16	0.5	PASS
	Ant2	2437	16.36	2428.80	2445.16	0.5	PASS
	Ant1	2462	16.36	2453.80	2470.16	0.5	PASS
	Ant2	2462	16.36	2453.80	2470.16	0.5	PASS
11N20MIMO	Ant1	2412	17.60	2403.20	2420.80	0.5	PASS
	Ant2	2412	17.56	2403.20	2420.76	0.5	PASS
	Ant1	2437	17.56	2428.20	2445.76	0.5	PASS
	Ant2	2437	17.60	2428.20	2445.80	0.5	PASS
	Ant1	2462	17.56	2453.20	2470.76	0.5	PASS
	Ant2	2462	17.60	2453.20	2470.80	0.5	PASS
11AX20MIMO	Ant1	2412	18.48	2402.92	2421.40	0.5	PASS
	Ant2	2412	18.36	2402.92	2421.28	0.5	PASS
	Ant1	2437	18.40	2427.84	2446.24	0.5	PASS
	Ant2	2437	18.20	2428.24	2446.44	0.5	PASS
	Ant1	2462	18.88	2452.56	2471.44	0.5	PASS
	Ant2	2462	18.16	2452.88	2471.04	0.5	PASS

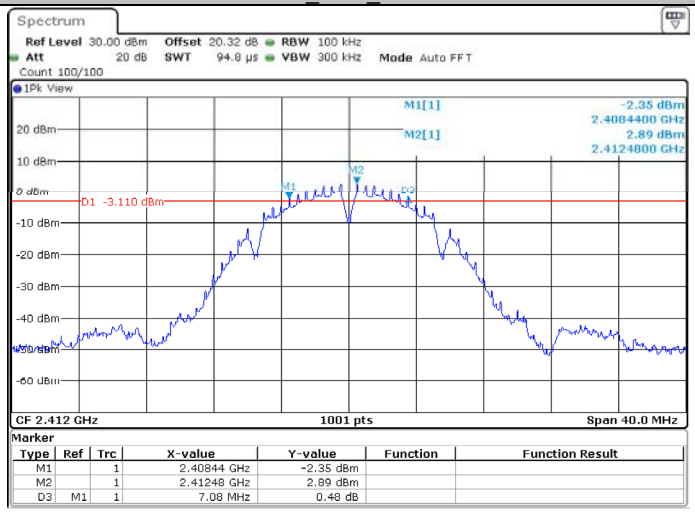
Test Graphs

11B_Ant1_2412



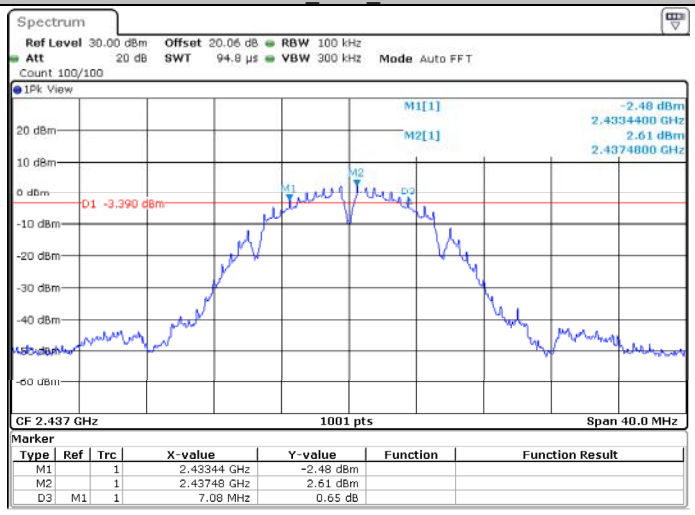
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:08:07

11B_Ant2_2412



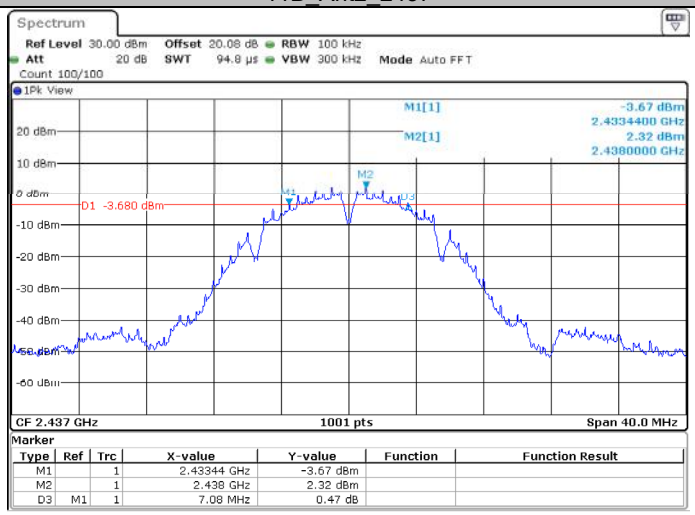
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:10:56

11B_Ant1_2437



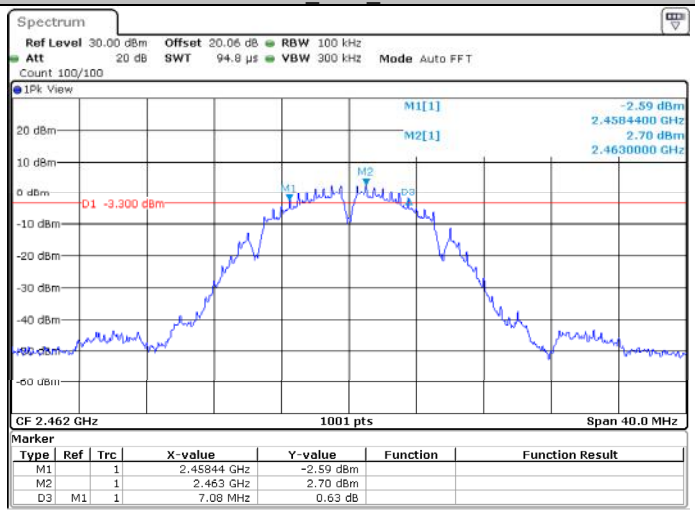
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:14:52

11B_Ant2_2437



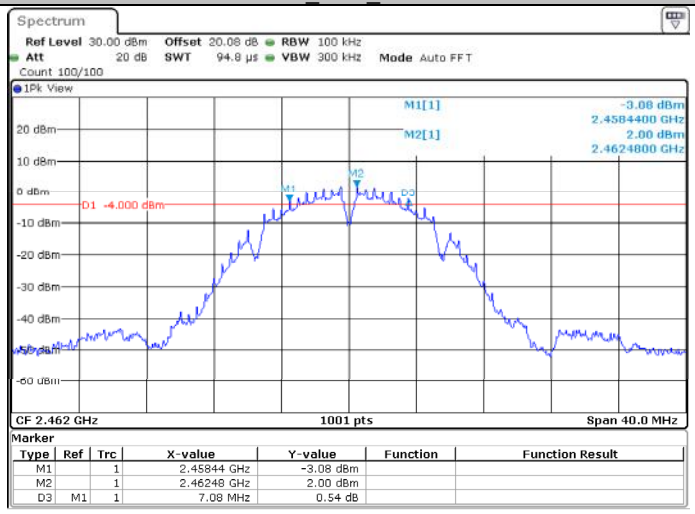
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:16:17

11B_Ant1_2462



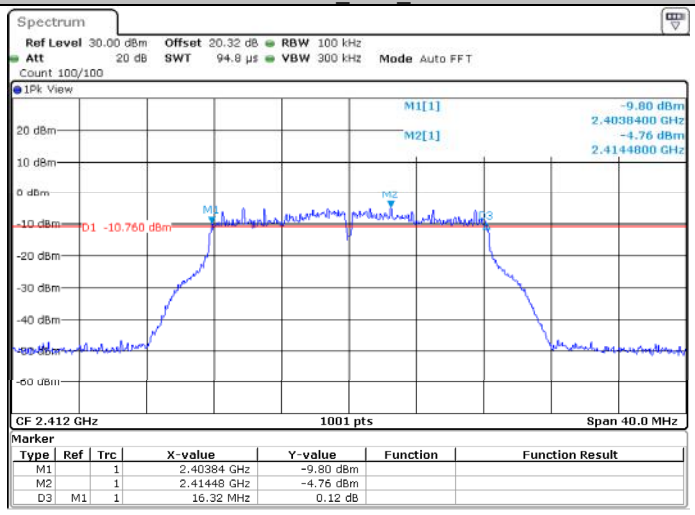
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:17:36

11B_Ant2_2462



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:18:53

11G-CDD_Ant1_2412

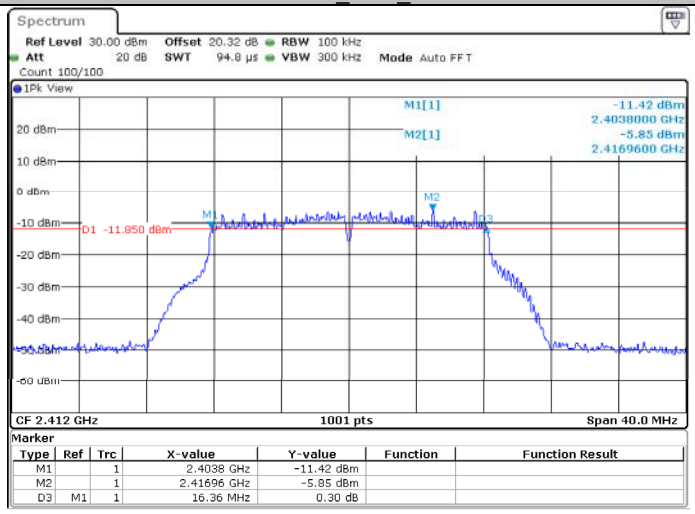


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.40384 GHz	-9.80 dBm		
M2		1	2.41448 GHz	-4.76 dBm		
D3	M1	1	16.32 MHz	0.12 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:21:45

11G-CDD_Ant2_2412

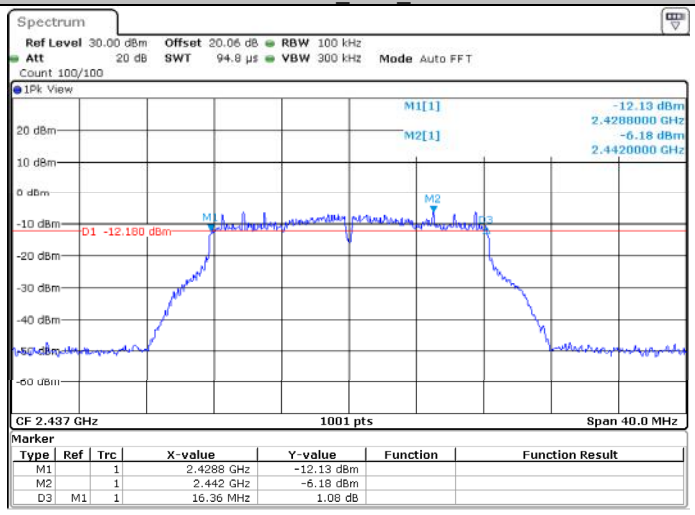


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4038 GHz	-11.42 dBm		
M2		1	2.41696 GHz	-5.85 dBm		
D3	M1	1	16.36 MHz	0.30 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:22:33

11G-CDD_Ant1_2437

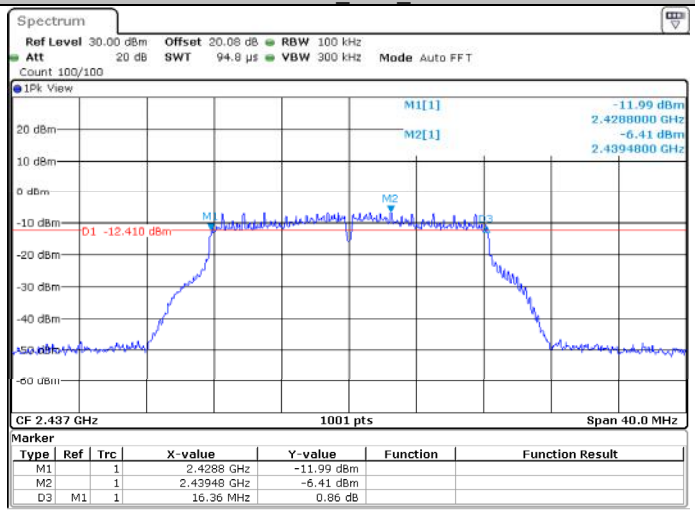


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4288 GHz	-12.13 dBm		
M2		1	2.442 GHz	-6.18 dBm		
D3	M1	1	16.36 MHz	1.08 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:23:49

11G-CDD_Ant2_2437

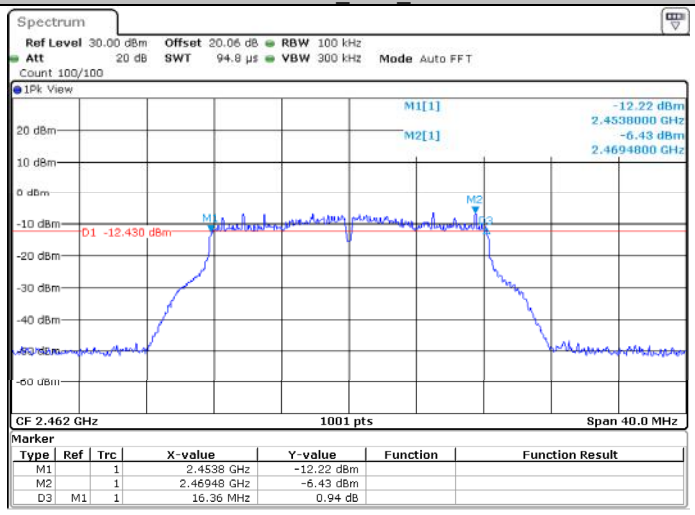


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4288 GHz	-11.99 dBm		
M2		1	2.43948 GHz	-6.41 dBm		
D3	M1	1	16.36 MHz	0.86 dB		

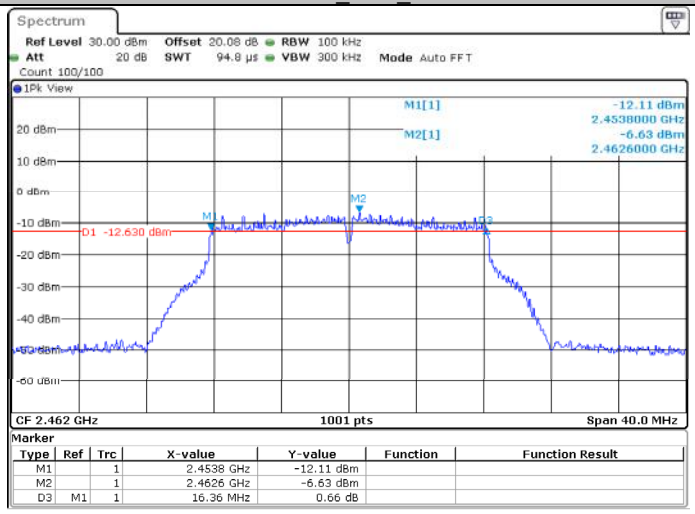
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:24:29

11G-CDD_Ant1_2462



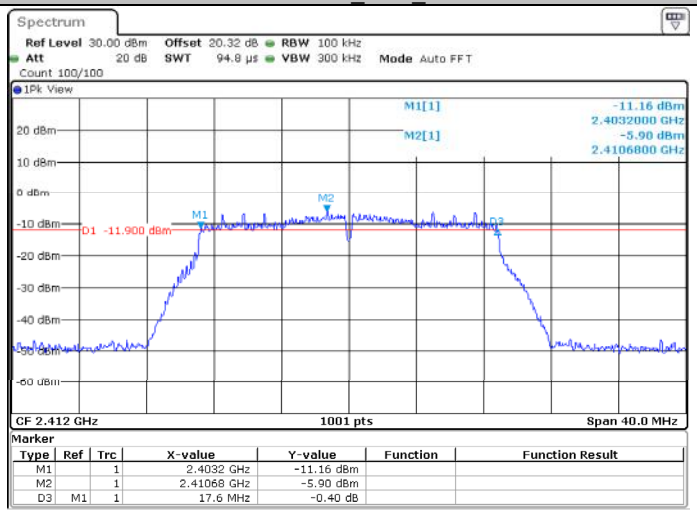
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:25:41

11G-CDD_Ant2_2462



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:26:31

11N20MIMO_Ant1_2412

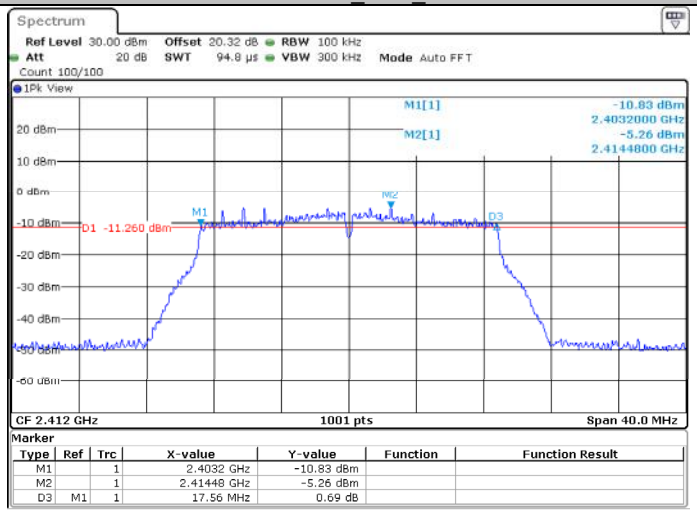


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4032 GHz	-11.16 dBm		
M2		1	2.41068 GHz	-5.90 dBm		
D3	M1	1	17.6 MHz	-0.40 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:21:45

11N20MIMO_Ant2_2412

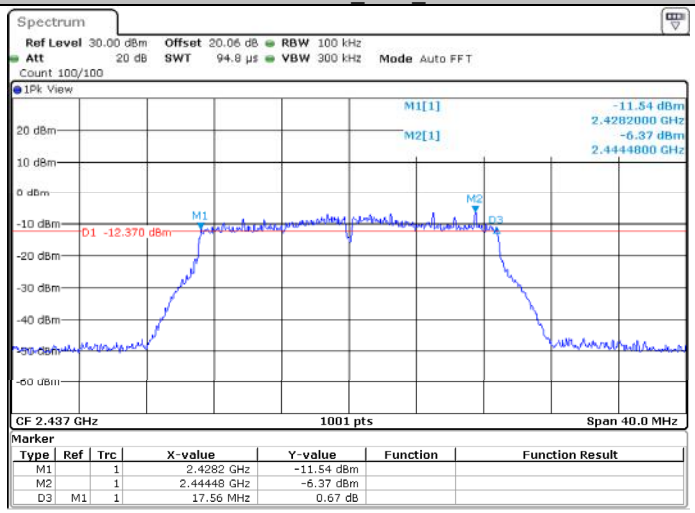


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4032 GHz	-10.83 dBm		
M2		1	2.41448 GHz	-5.26 dBm		
D3	M1	1	17.56 MHz	0.69 dB		

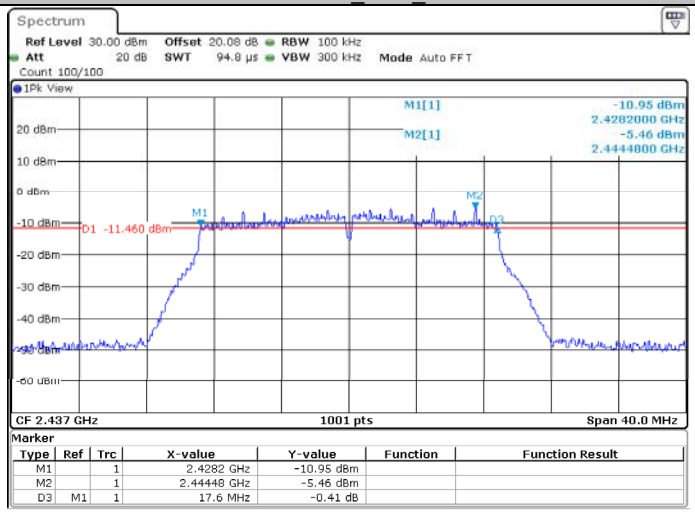
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:23:05

11N20MIMO_Ant1_2437



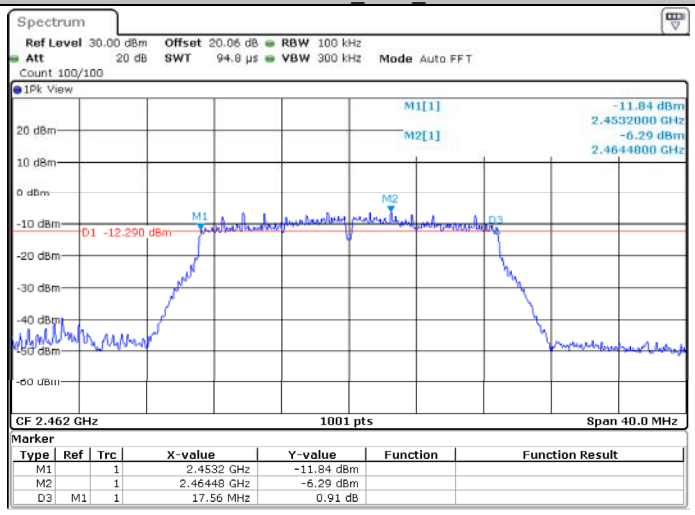
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:24:37

11N20MIMO_Ant2_2437



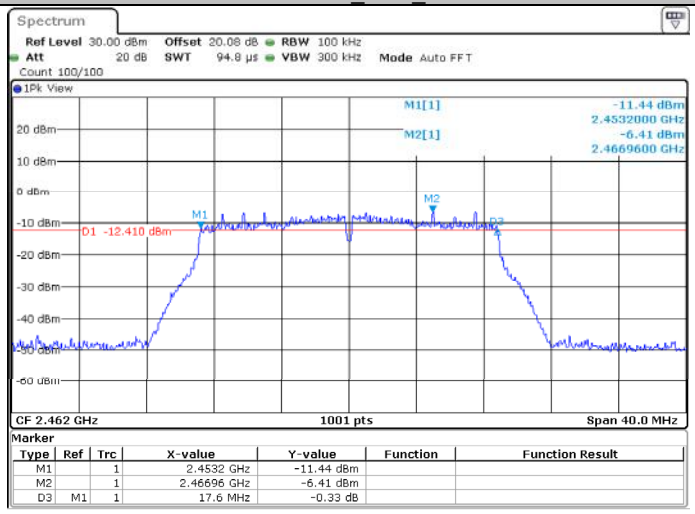
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:25:46

11N20MIMO_Ant1_2462



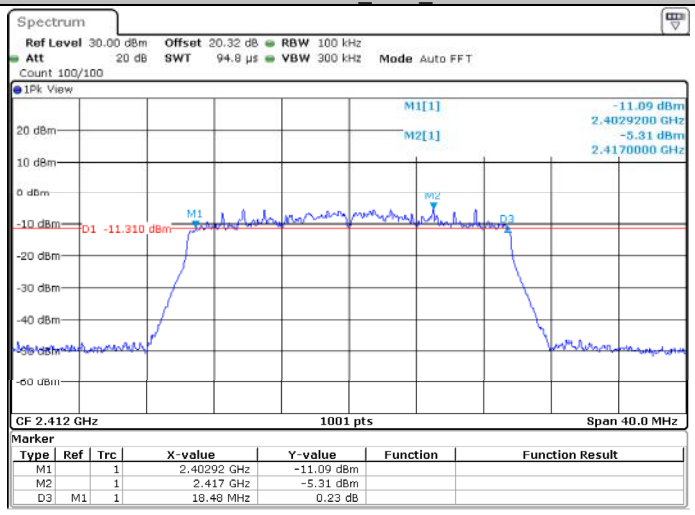
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:27:07

11N20MIMO_Ant2_2462



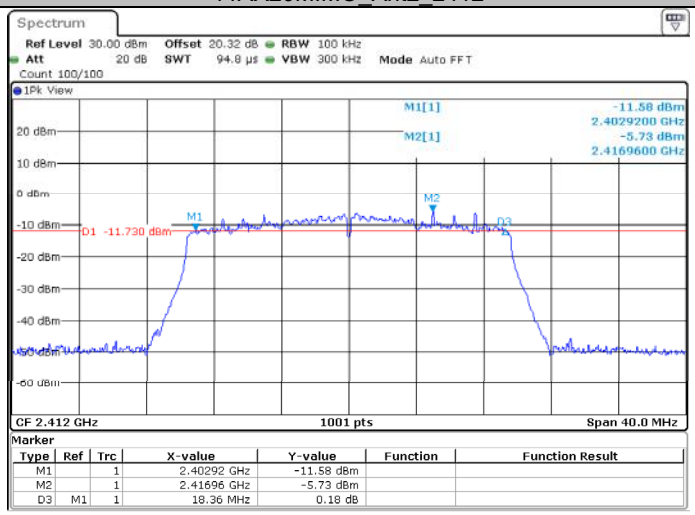
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:28:42

11AX20MIMO_Ant1_2412



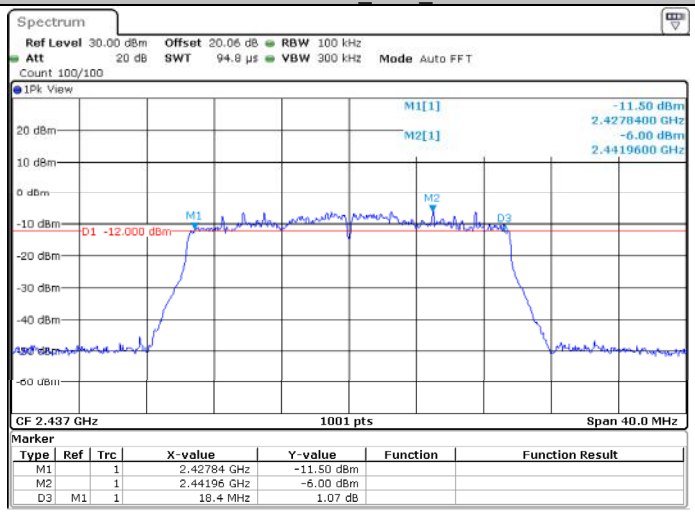
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:31:20

11AX20MIMO_Ant2_2412



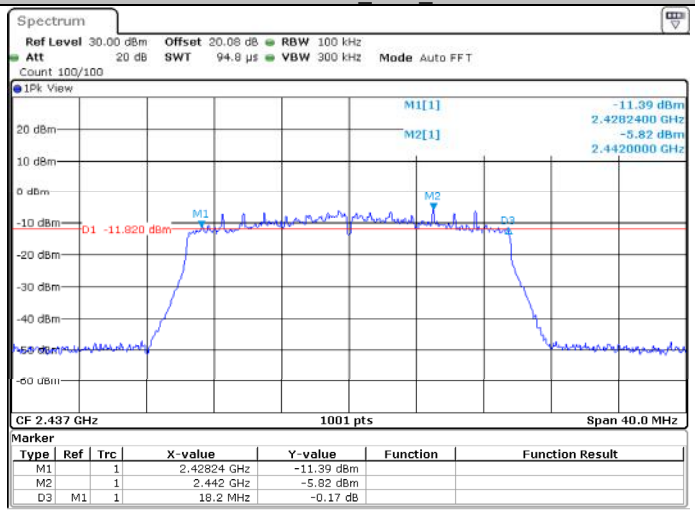
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:32:07

11AX20MIMO_Ant1_2437



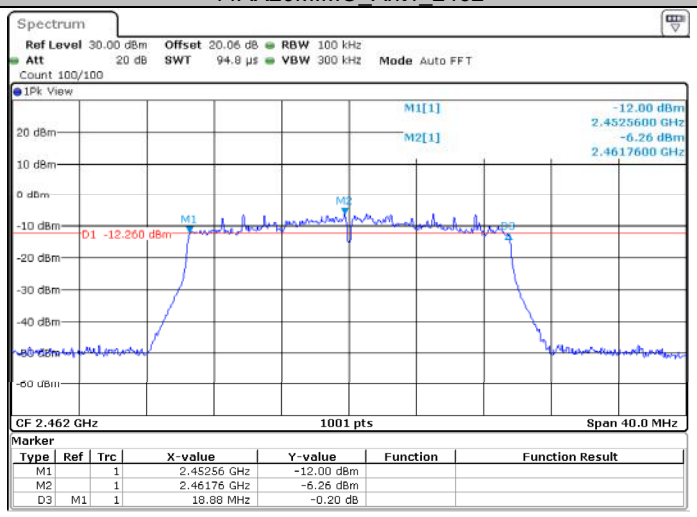
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:33:25

11AX20MIMO_Ant2_2437



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:34:03

11AX20MIMO_Ant1_2462

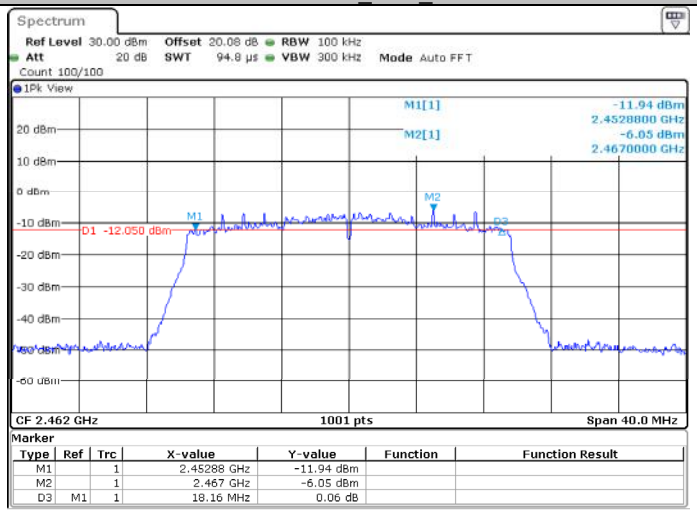


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45256 GHz	-12.00 dBm		
M2		1	2.46176 GHz	-6.26 dBm		
D3	M1	1	18.88 MHz	-0.20 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:35:11

11AX20MIMO_Ant2_2462



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.45288 GHz	-11.94 dBm		
M2		1	2.467 GHz	-6.05 dBm		
D3	M1	1	18.16 MHz	0.06 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:35:59

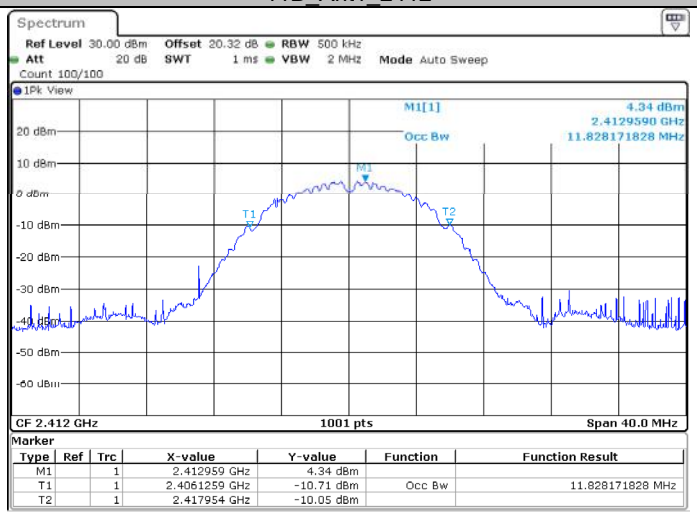
Appendix B: Occupied Channel Bandwidth

Test Result

Test Mode	Antenna	ChannelFrequency[MHz]	OCB [MHz]	FL[MHz]	FH[MHz]	Limit[MHz]	Verdict
11B	Ant1	2412	11.828	2406.1259	2417.9540	---	---
	Ant2	2412	11.948	2406.0460	2417.9940	---	---
	Ant1	2437	11.828	2431.1259	2442.9540	---	---
	Ant2	2437	11.988	2431.0460	2443.0340	---	---
	Ant1	2462	11.828	2456.1259	2467.9540	---	---
	Ant2	2462	12.028	2456.0060	2468.0340	---	---
11G-CDD	Ant1	2412	17.622	2403.2488	2420.8711	---	---
	Ant2	2412	17.223	2403.4885	2420.7113	---	---
	Ant1	2437	17.582	2428.2488	2445.8312	---	---
	Ant2	2437	17.183	2428.4885	2445.6713	---	---
	Ant1	2462	17.662	2453.2088	2470.8711	---	---
	Ant2	2462	17.183	2453.4885	2470.6713	---	---
11N20MIMO	Ant1	2412	18.541	2402.8092	2421.3506	---	---
	Ant2	2412	18.581	2402.7293	2421.3107	---	---
	Ant1	2437	18.581	2427.7692	2446.3506	---	---
	Ant2	2437	18.621	2427.6893	2446.3107	---	---
	Ant1	2462	18.581	2452.7692	2471.3506	---	---
	Ant2	2462	18.541	2452.7692	2471.3107	---	---
11AX20MIMO	Ant1	2412	19.061	2402.5295	2421.5904	---	---
	Ant2	2412	19.061	2402.4895	2421.5504	---	---
	Ant1	2437	19.141	2427.4496	2446.5904	---	---
	Ant2	2437	19.061	2427.4895	2446.5504	---	---
	Ant1	2462	19.181	2452.4496	2471.6304	---	---
	Ant2	2462	19.021	2452.5295	2471.5504	---	---

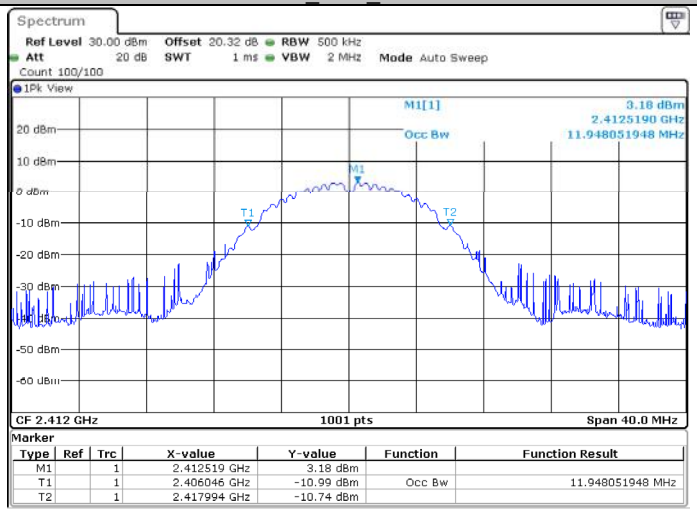
Test Graphs

11B_Ant1_2412



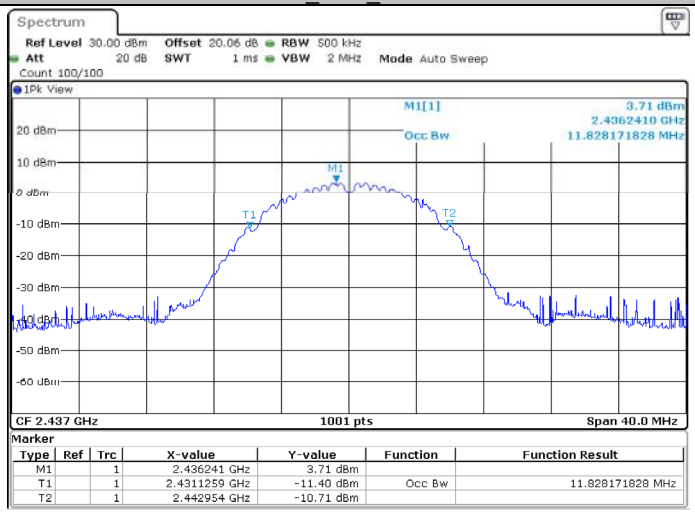
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:08:13

11B_Ant2_2412



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:11:02

11B_Ant1_2437

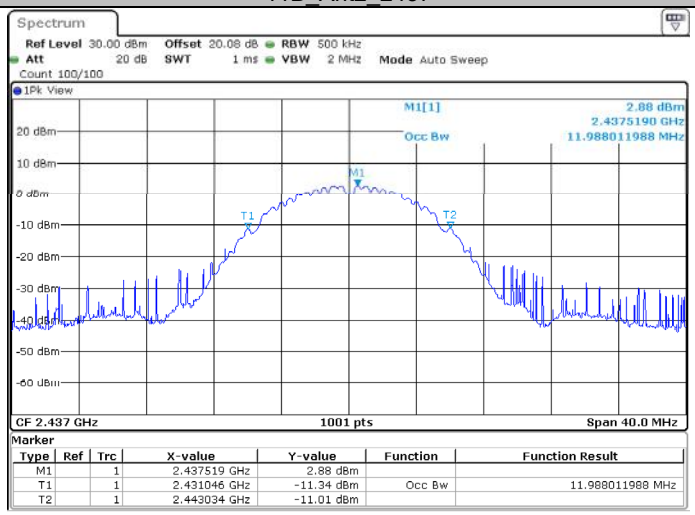


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.436241 GHz	3.71 dBm		
T1		1	2.4311259 GHz	-11.40 dBm	Occ Bw	11.828171828 MHz
T2		1	2.442954 GHz	-10.71 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:14:58

11B_Ant2_2437



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.437519 GHz	2.88 dBm		
T1		1	2.431046 GHz	-11.34 dBm	Occ Bw	11.988011988 MHz
T2		1	2.443034 GHz	-11.01 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
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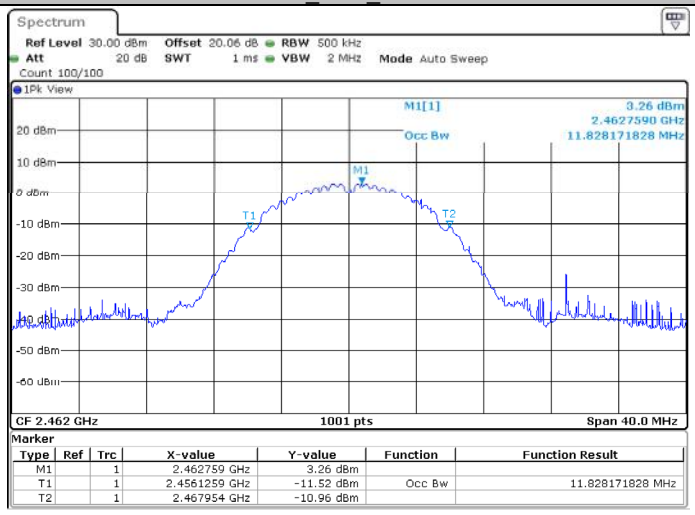
11B_Ant1_2462



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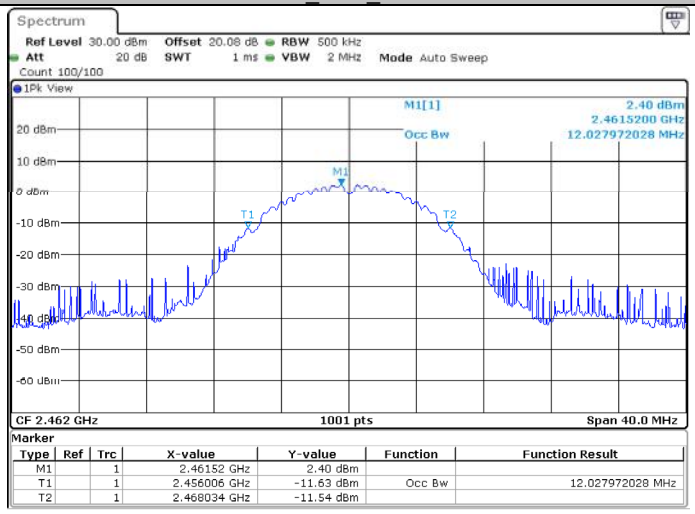
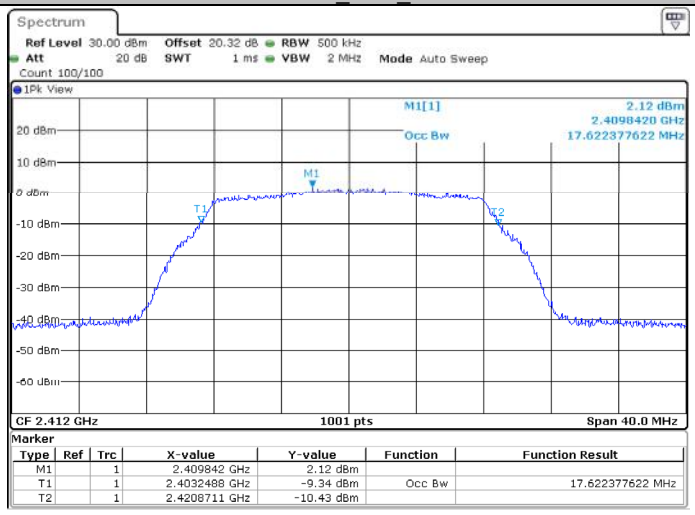


11G-CDD_Ant1_2412



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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.409842 GHz	2.12 dBm		
T1		1	2.4032488 GHz	-9.34 dBm	Occ Bw	17.622377622 MHz
T2		1	2.4208711 GHz	-10.43 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
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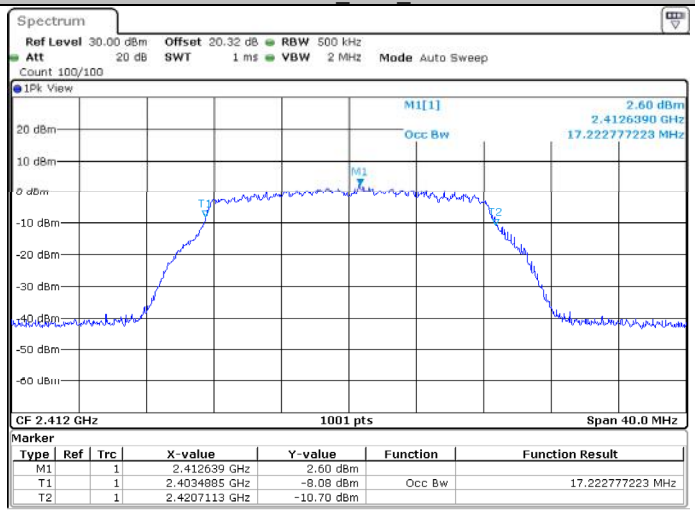
11G-CDD_Ant2_2412



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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.412639 GHz	2.60 dBm		
T1		1	2.4034885 GHz	-8.08 dBm	Occ Bw	17.222777223 MHz
T2		1	2.4207113 GHz	-10.70 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
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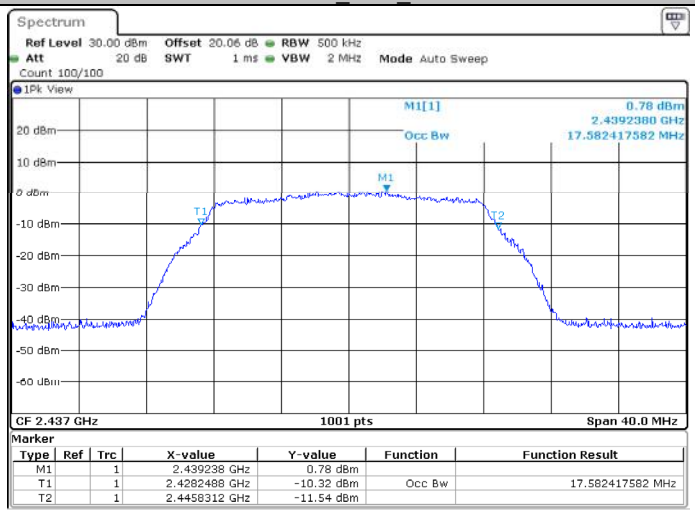
11G-CDD_Ant1_2437



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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.439238 GHz	0.78 dBm		
T1		1	2.4282488 GHz	-10.32 dBm	Occ Bw	17.582417582 MHz
T2		1	2.4458312 GHz	-11.54 dBm		

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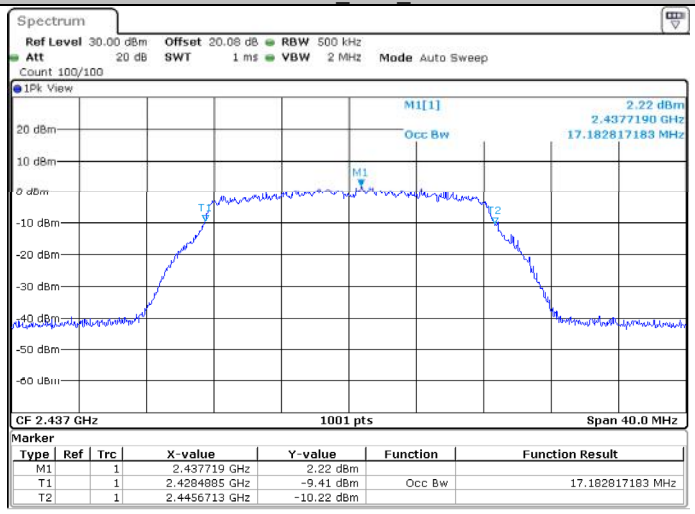
Date: 19.APR.2024 05:23:55

11G-CDD_Ant2_2437



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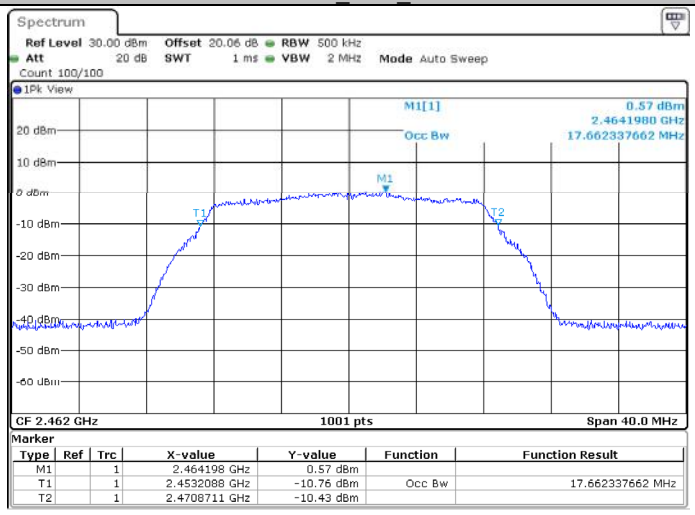
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.437719 GHz	2.22 dBm		
T1		1	2.4284885 GHz	-9.41 dBm	Occ Bw	17.182817183 MHz
T2		1	2.4456713 GHz	-10.22 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:24:35

11G-CDD_Ant1_2462



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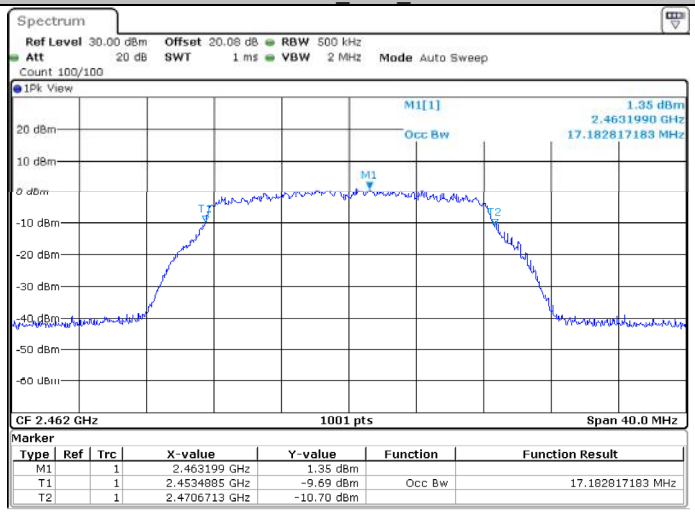
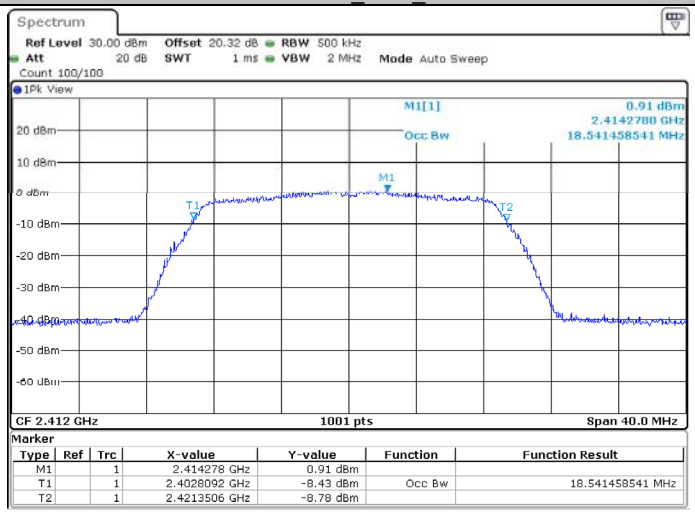
Date: 19.APR.2024 05:25:47

11G-CDD_Ant2_2462



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:26:37

11N20MIMO_Ant1_2412



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:21:51

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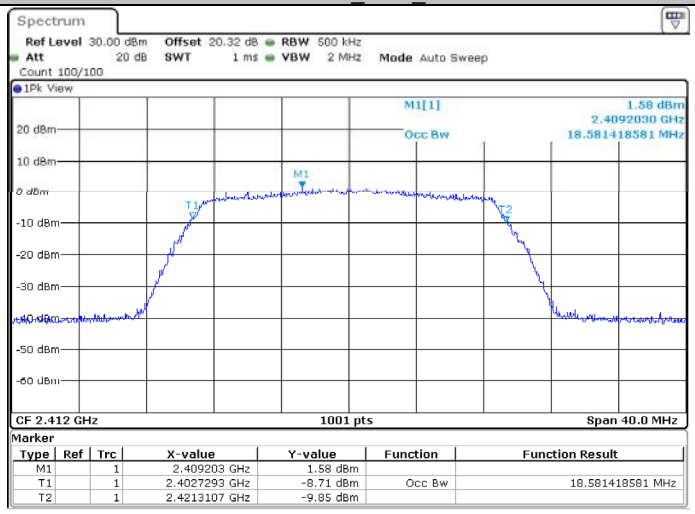

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Date: 23.APR.2024 07:23:10

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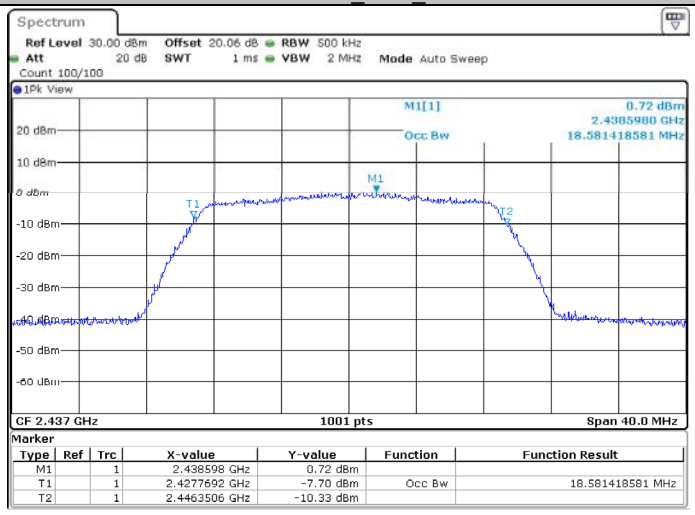

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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.438598 GHz	0.72 dBm		
T1		1	2.4277692 GHz	-7.70 dBm	Occ Bw	18.581418581 MHz
T2		1	2.4463506 GHz	-10.33 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
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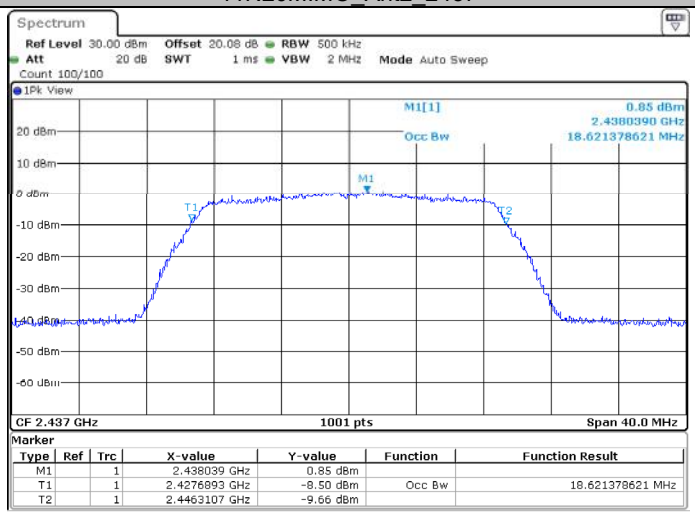
11N20MIMO_Ant2_2437



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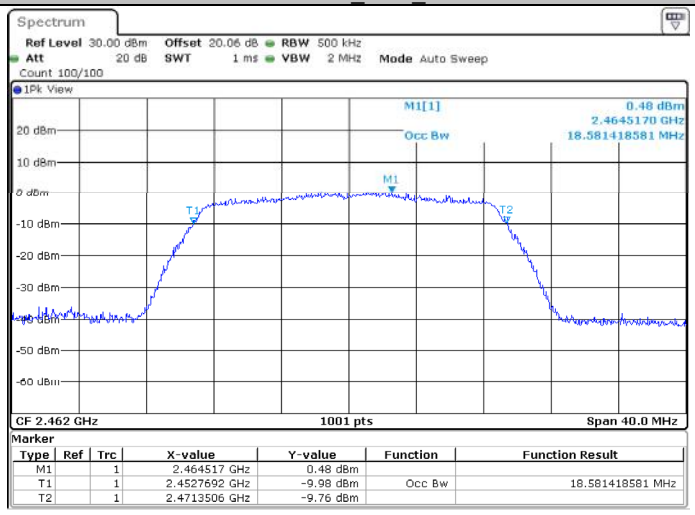
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.438039 GHz	0.85 dBm		
T1		1	2.4276893 GHz	-8.50 dBm	Occ Bw	18.621378621 MHz
T2		1	2.4463107 GHz	-9.66 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:25:52

11N20MIMO_Ant1_2462



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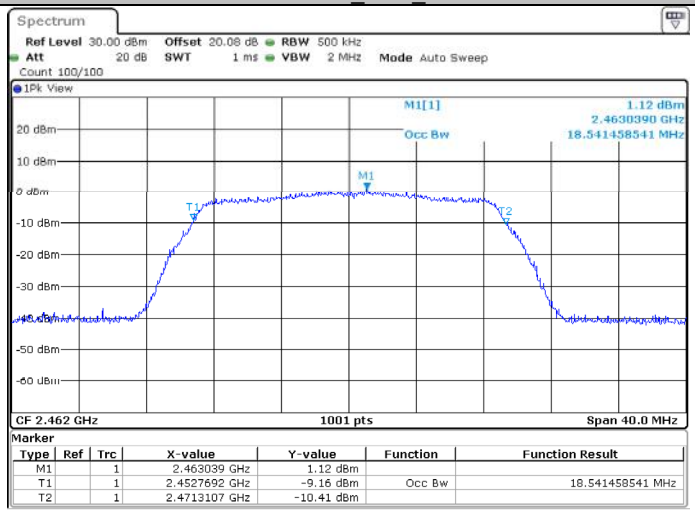
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.464517 GHz	0.48 dBm		
T1		1	2.4527692 GHz	-9.98 dBm	Occ Bw	18.581418581 MHz
T2		1	2.4713506 GHz	-9.76 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:27:13

11N20MIMO_Ant2_2462



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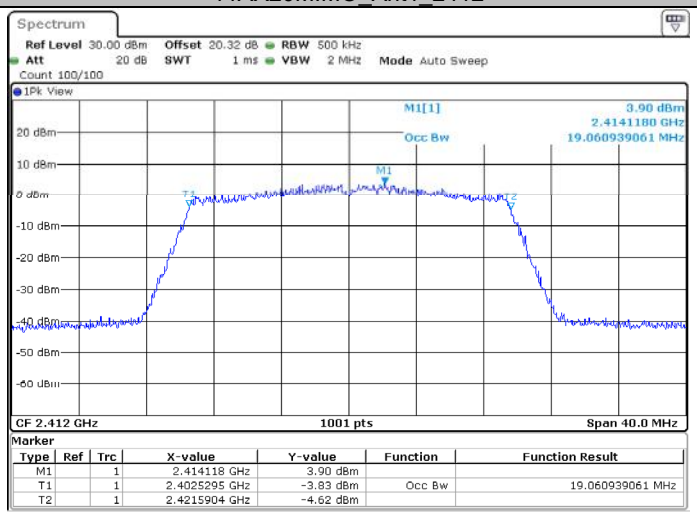
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.463039 GHz	1.12 dBm		
T1		1	2.4527692 GHz	-9.16 dBm	Occ Bw	18.541458541 MHz
T2		1	2.4713107 GHz	-10.41 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:28:48

11AX20MIMO_Ant1_2412



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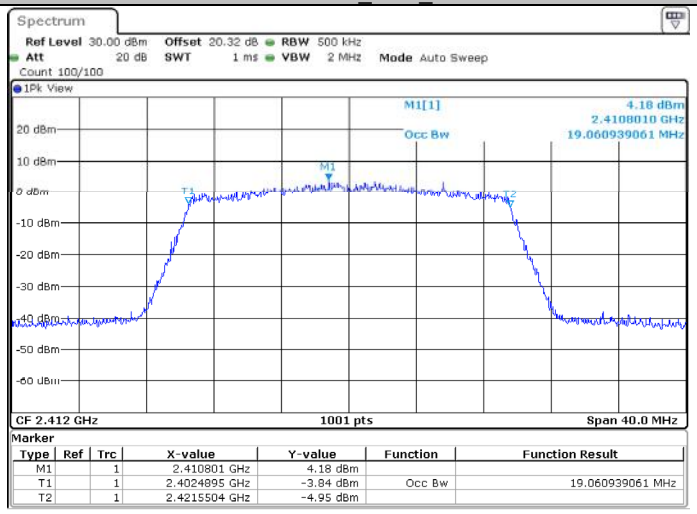

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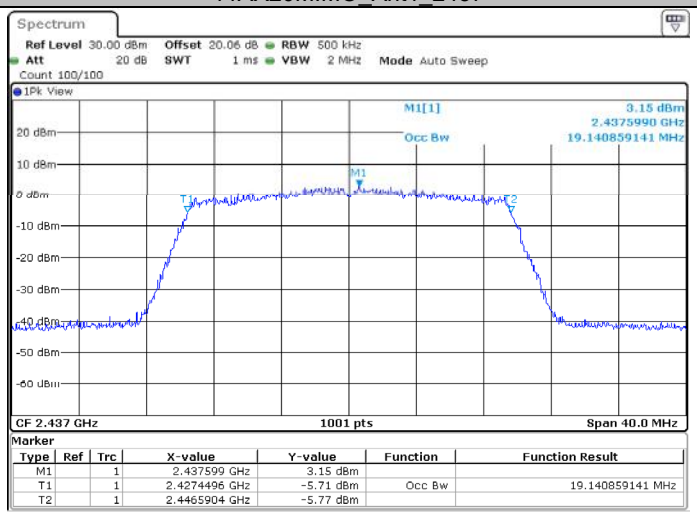

Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.437599 GHz	3.15 dBm		
T1		1	2.4274496 GHz	-5.71 dBm	Occ Bw	19.140859141 MHz
T2		1	2.4465904 GHz	-5.77 dBm		

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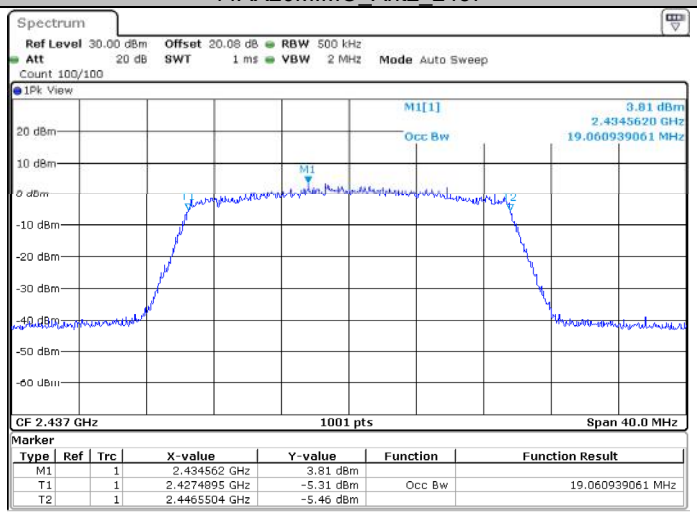
11AX20MIMO_Ant2_2437



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.434562 GHz	3.81 dBm		
T1		1	2.4274895 GHz	-5.31 dBm	Occ Bw	19.060939061 MHz
T2		1	2.4465504 GHz	-5.46 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
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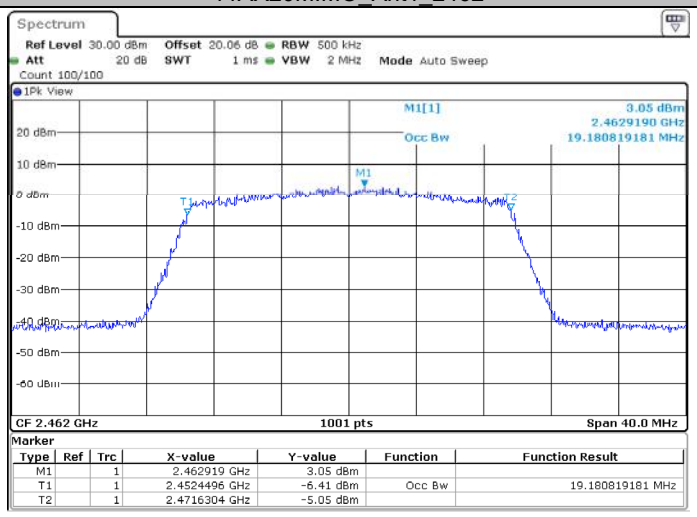
11AX20MIMO_Ant1_2462



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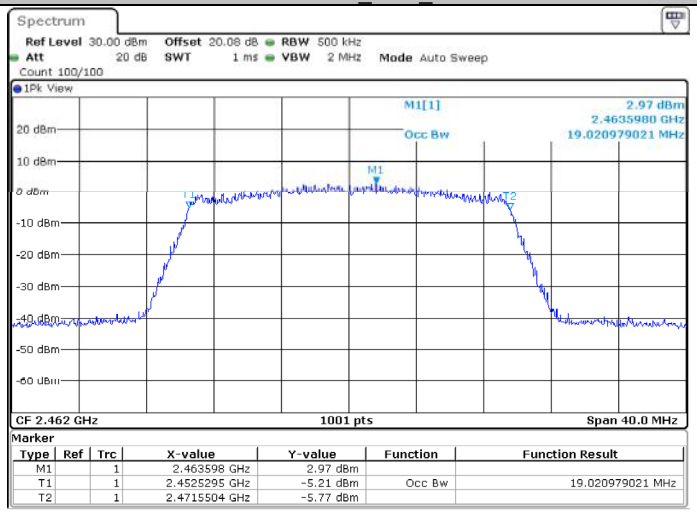
11AX20MIMO_Ant2_2462



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:36:05

Appendix C: Maximum conducted output power

Test Result Peak

Test Mode	Antenna	Frequency[MHz]	Peak Power [dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	13.73	≤30.00	PASS
	Ant2	2412	12.98	≤30.00	PASS
	Ant1	2437	13.11	≤30.00	PASS
	Ant2	2437	12.63	≤30.00	PASS
	Ant1	2462	12.85	≤30.00	PASS
	Ant2	2462	12.17	≤30.00	PASS
11G-CDD	Ant1	2412	14.87	≤30.00	PASS
	Ant2	2412	14.01	≤30.00	PASS
	total	2412	17.47	≤30.00	PASS
	Ant1	2437	13.61	≤30.00	PASS
	Ant2	2437	13.76	≤30.00	PASS
	total	2437	16.70	≤30.00	PASS
	Ant1	2462	13.40	≤30.00	PASS
	Ant2	2462	13.38	≤30.00	PASS
	total	2462	16.40	≤30.00	PASS
11N20MIMO	Ant1	2412	14.19	≤30.00	PASS
	Ant2	2412	14.51	≤30.00	PASS
	total	2412	17.36	≤30.00	PASS
	Ant1	2437	13.41	≤30.00	PASS
	Ant2	2437	14.23	≤30.00	PASS
	total	2437	16.85	≤30.00	PASS
	Ant1	2462	13.57	≤30.00	PASS
	Ant2	2462	13.71	≤30.00	PASS
	total	2462	16.65	≤30.00	PASS
11AX20MIMO	Ant1	2412	15.31	≤30.00	PASS
	Ant2	2412	14.99	≤30.00	PASS
	total	2412	18.16	≤30.00	PASS
	Ant1	2437	14.59	≤30.00	PASS
	Ant2	2437	14.49	≤30.00	PASS
	total	2437	17.55	≤30.00	PASS
	Ant1	2462	14.38	≤30.00	PASS
	Ant2	2462	14.37	≤30.00	PASS
	total	2462	17.39	≤30.00	PASS

Note: the device employ CDD for MIMO, according to KDB 662911 D01 Multiple Transmitter Output v02r01, Directional gain = G_{ANT} + Array Gain
For power measurements on IEEE 802.11 devices:
Array Gain = 0 dB for $N_{ANT} \leq 4$;
$G_{ANT\ 1}$=3dBi, $G_{ANT\ 2}$=1.5dBi, use the higher antenna gain for calculate
So Directional gain = 3.0dBi + 0dB =3.0dBi<6

Test Result Average

Test Mode	Antenna	Frequency[MHz]	Average Power[dBm]	Conducted Limit[dBm]	Verdict
11B	Ant1	2412	10.95	≤30.00	PASS
	Ant2	2412	9.65	≤30.00	PASS
	Ant1	2437	10.49	≤30.00	PASS
	Ant2	2437	9.76	≤30.00	PASS
	Ant1	2462	10.42	≤30.00	PASS
	Ant2	2462	9.15	≤30.00	PASS
11G-CDD	Ant1	2412	6.57	≤30.00	PASS
	Ant2	2412	4.89	≤30.00	PASS
	total	2412	8.82	≤30.00	PASS
	Ant1	2437	6.31	≤30.00	PASS
	Ant2	2437	5.36	≤30.00	PASS
	total	2437	8.87	≤30.00	PASS
	Ant1	2462	5.70	≤30.00	PASS
	Ant2	2462	5.33	≤30.00	PASS
	total	2462	8.53	≤30.00	PASS
11N20MIMO	Ant1	2412	6.72	≤30.00	PASS
	Ant2	2412	5.60	≤30.00	PASS
	total	2412	9.21	≤30.00	PASS
	Ant1	2437	6.12	≤30.00	PASS
	Ant2	2437	5.48	≤30.00	PASS
	total	2437	8.82	≤30.00	PASS
	Ant1	2462	6.01	≤30.00	PASS
	Ant2	2462	5.49	≤30.00	PASS
	total	2462	8.77	≤30.00	PASS
11AX20MIMO	Ant1	2412	6.95	≤30.00	PASS
	Ant2	2412	5.33	≤30.00	PASS
	total	2412	9.23	≤30.00	PASS
	Ant1	2437	6.39	≤30.00	PASS
	Ant2	2437	5.67	≤30.00	PASS
	total	2437	9.06	≤30.00	PASS
	Ant1	2462	6.21	≤30.00	PASS
	Ant2	2462	5.79	≤30.00	PASS
	total	2462	9.02	≤30.00	PASS

Note: the device employ CDD for MIMO, according to KDB 662911 D01 Multiple Transmitter Output v02r01, Directional gain = G_{ANT} + Array Gain
For power measurements on IEEE 802.11 devices:
Array Gain = 0 dB for $N_{ANT} \leq 4$;
$G_{ANT\ 1}$=3dBi, $G_{ANT\ 2}$=1.5dBi, use the higher antenna gain for calculate
So Directional gain = 3.0dBi + 0dB =3.0dBi<6

Appendix D: Maximum power spectral density

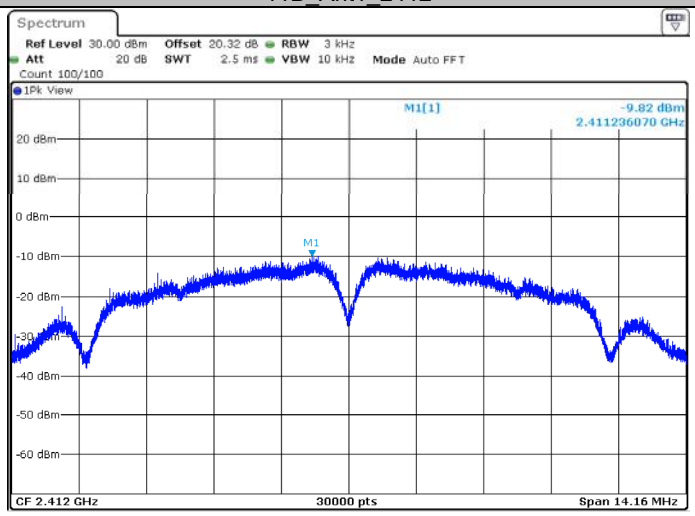
Test Result

Test Mode	Antenna	Frequency[MHz]	Result[dBm/3kHz]	Limit[dBm/3kHz]	Verdict
11B	Ant1	2412	-9.82	≤8.00	PASS
	Ant2	2412	-9.37	≤8.00	PASS
	Ant1	2437	-9.38	≤8.00	PASS
	Ant2	2437	-10.53	≤8.00	PASS
	Ant1	2462	-11.07	≤8.00	PASS
	Ant2	2462	-10.11	≤8.00	PASS
11G-CDD	Ant1	2412	-16.50	≤8.00	PASS
	Ant2	2412	-17.54	≤8.00	PASS
	total	2412	-13.98	≤8.00	PASS
	Ant1	2437	-17.64	≤8.00	PASS
	Ant2	2437	-17.83	≤8.00	PASS
	total	2437	-14.72	≤8.00	PASS
	Ant1	2462	-18.04	≤8.00	PASS
	Ant2	2462	-17.99	≤8.00	PASS
	total	2462	-15.00	≤8.00	PASS
11N20MIMO	Ant1	2412	-17.33	≤8.00	PASS
	Ant2	2412	-16.59	≤8.00	PASS
	total	2412	-13.93	≤8.00	PASS
	Ant1	2437	-17.42	≤8.00	PASS
	Ant2	2437	-17.00	≤8.00	PASS
	total	2437	-14.19	≤8.00	PASS
	Ant1	2462	-18.02	≤8.00	PASS
	Ant2	2462	-17.63	≤8.00	PASS
	total	2462	-14.81	≤8.00	PASS
11AX20MIMO	Ant1	2412	-17.58	≤8.00	PASS
	Ant2	2412	-16.52	≤8.00	PASS
	total	2412	-14.01	≤8.00	PASS
	Ant1	2437	-17.47	≤8.00	PASS
	Ant2	2437	-17.21	≤8.00	PASS
	total	2437	-14.33	≤8.00	PASS
	Ant1	2462	-18.73	≤8.00	PASS
	Ant2	2462	-18.32	≤8.00	PASS
	total	2462	-15.51	≤8.00	PASS

Note: the device employ CDD for MIMO, according to KDB 662911 D01 Multiple Transmitter Output v02r01, Directional gain = G_{ANT} + Array Gain
For power spectral density (PSD) measurements:
Array Gain = 10log(N_{ANT}), N_{ANT}=2
$G_{ANT\ 1}$=3dBi, $G_{ANT\ 2}$=1.5dBi, use the higher antenna gain for calculate
So Directional gain = 3.0dBi + 10log(2)dB =6.0dBi≤6

Test Graphs

11B_Ant1_2412



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
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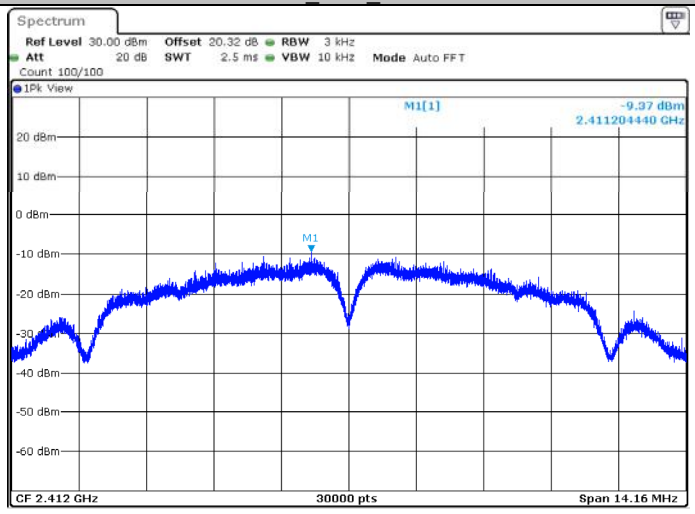
11B_Ant2_2412



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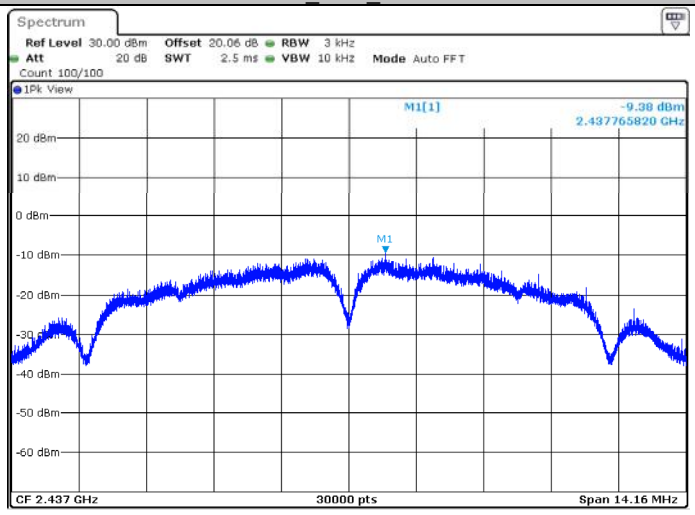

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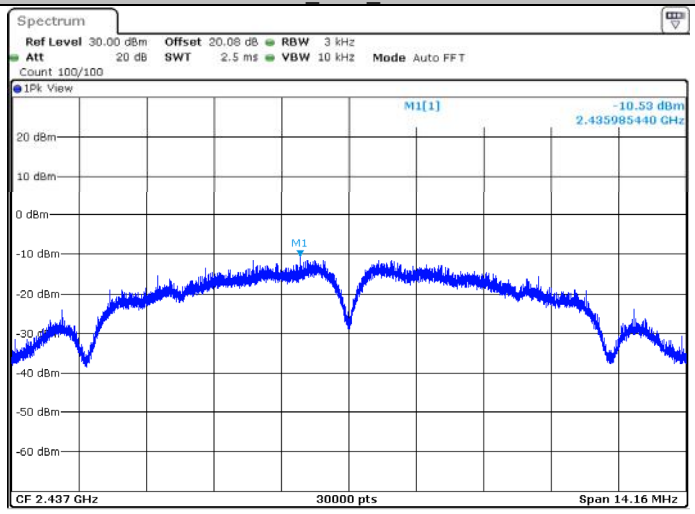
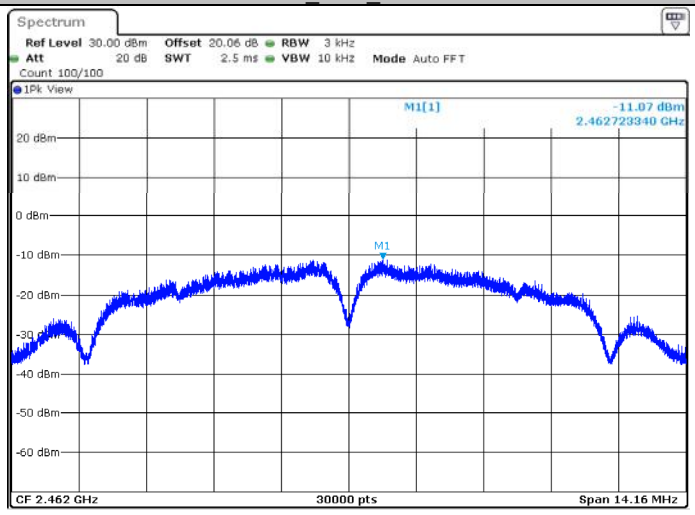
Date: 19.APR.2024 05:15:12

11B_Ant2_2437


ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:16:36

11B_Ant1_2462


ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:17:56

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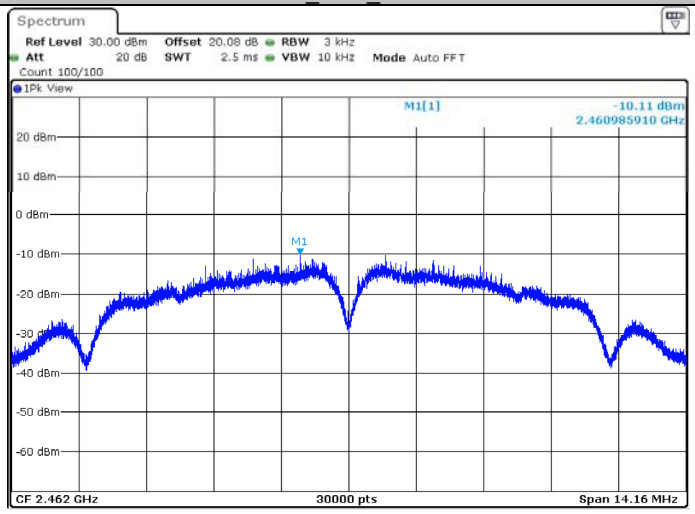

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:19:12

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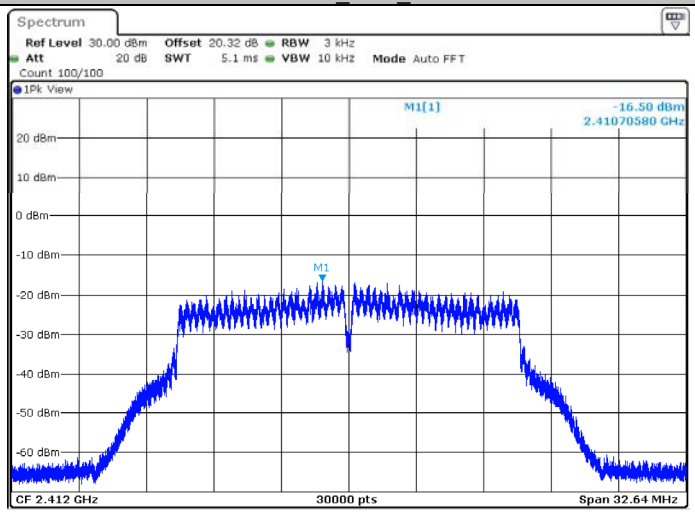

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:22:03

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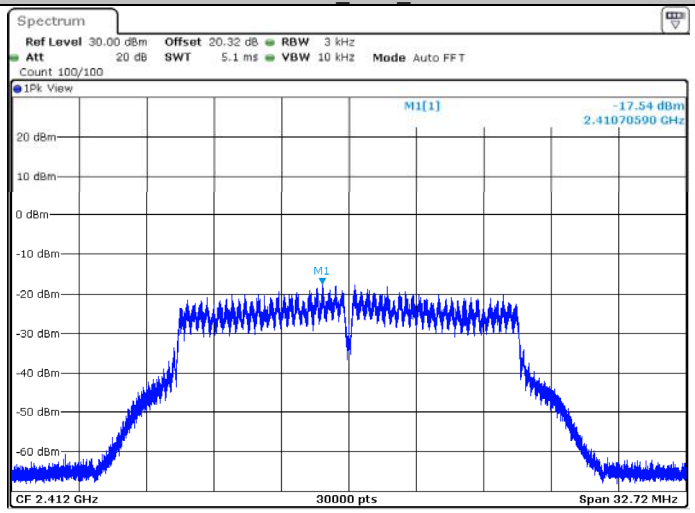

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Date: 19.APR.2024 05:22:54

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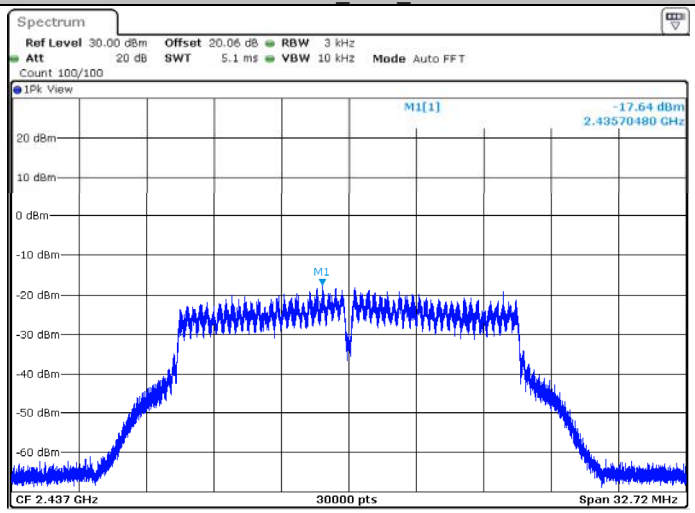

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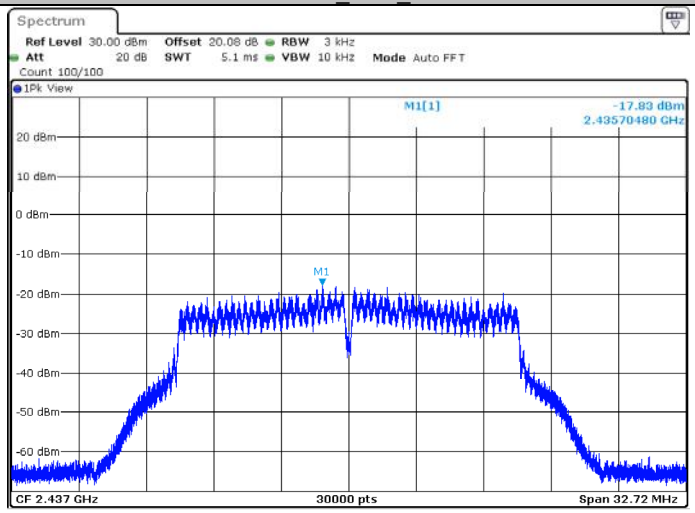

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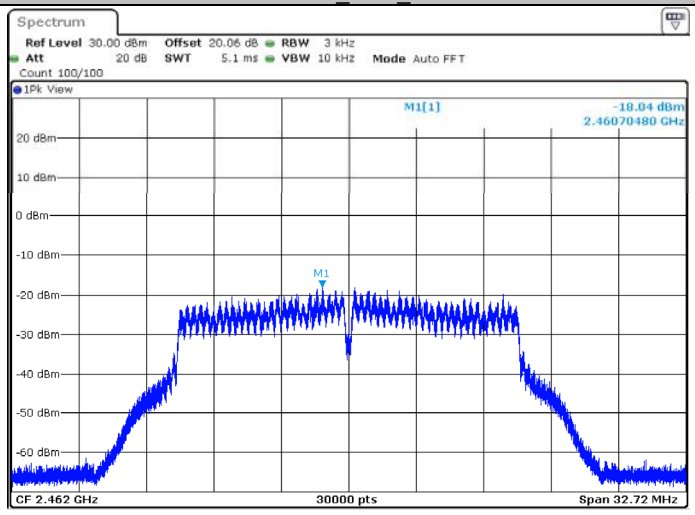
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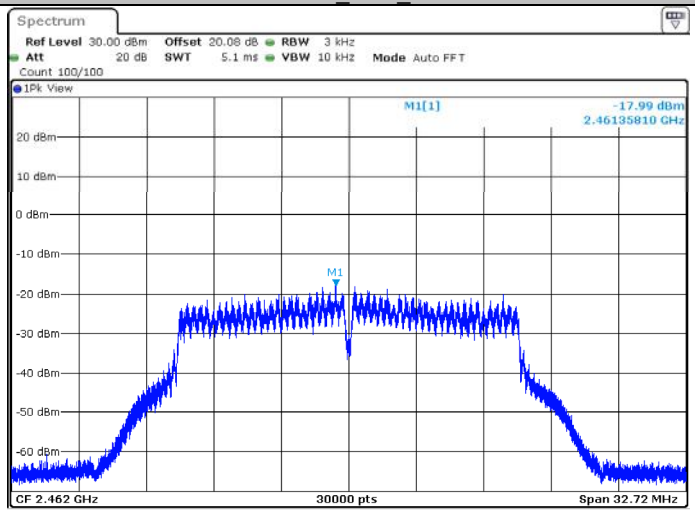

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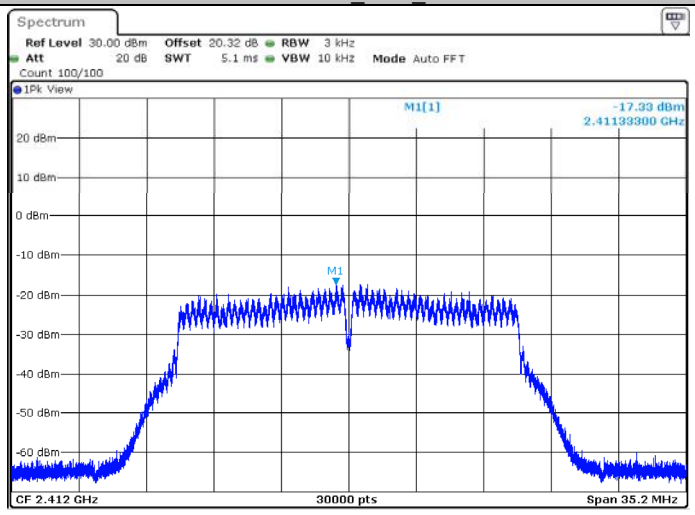

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:22:04

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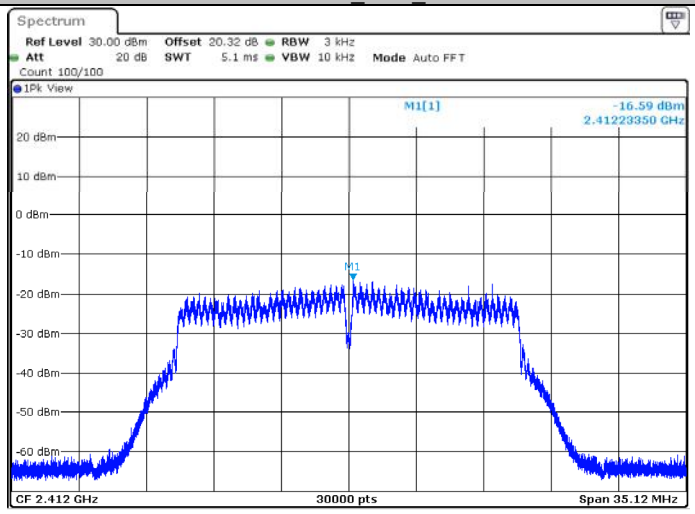

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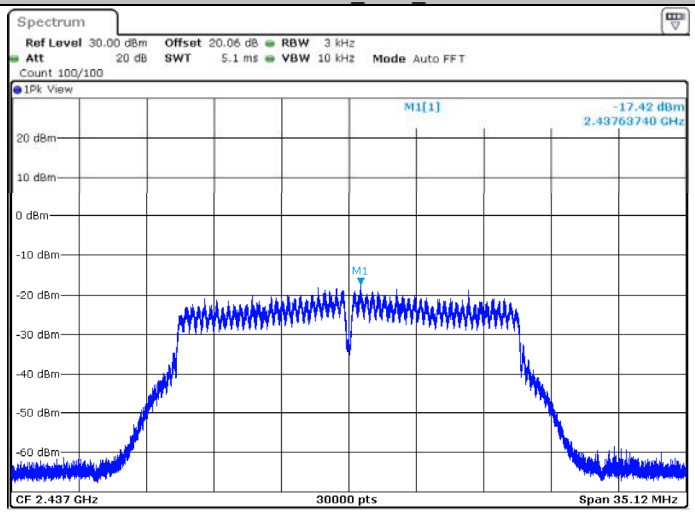 ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li Date: 23.APR.2024 07:24:57
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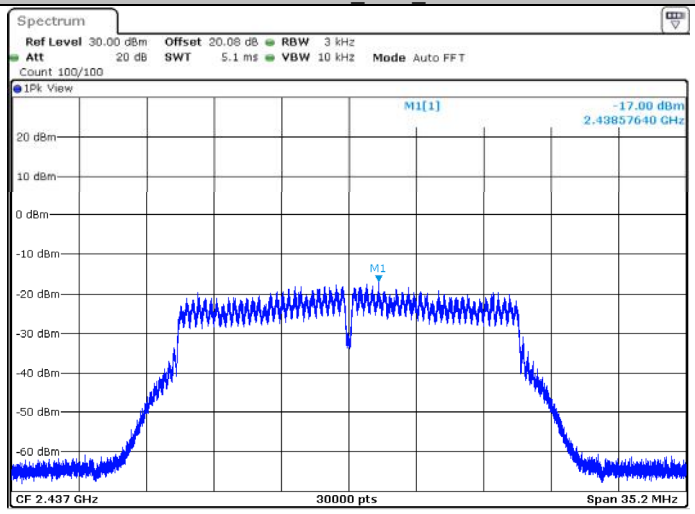 ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li Date: 23.APR.2024 07:26:08

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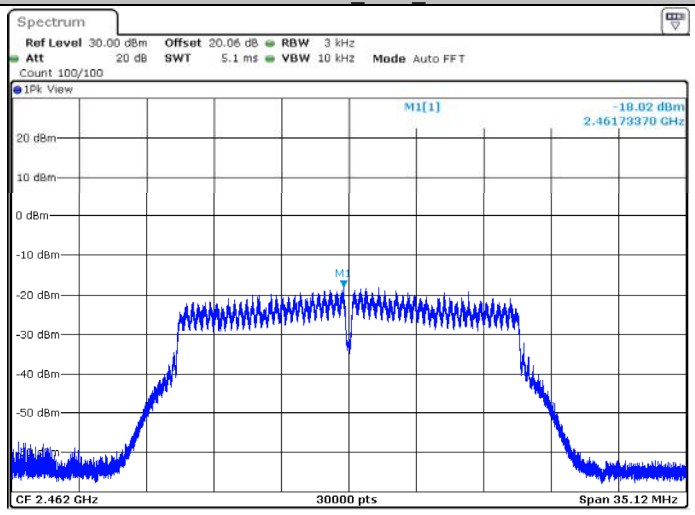 ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li Date: 23.APR.2024 07:27:27
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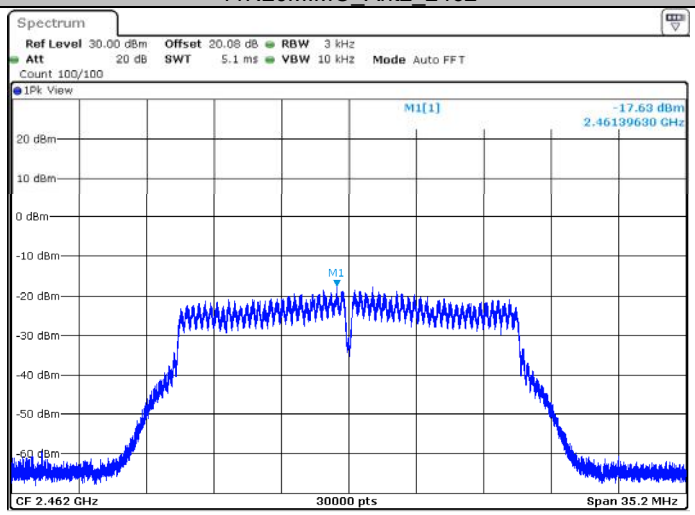 ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li Date: 23.APR.2024 07:29:03

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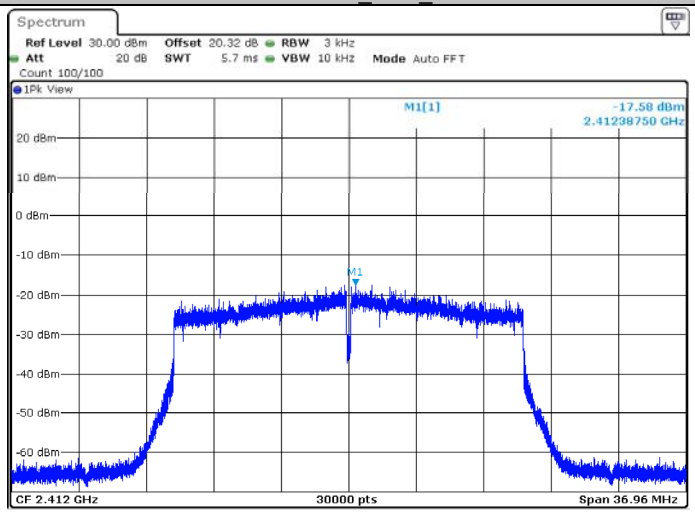

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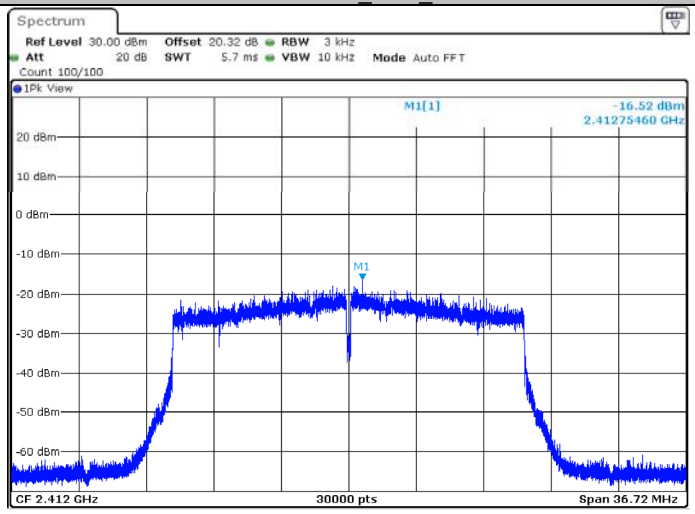

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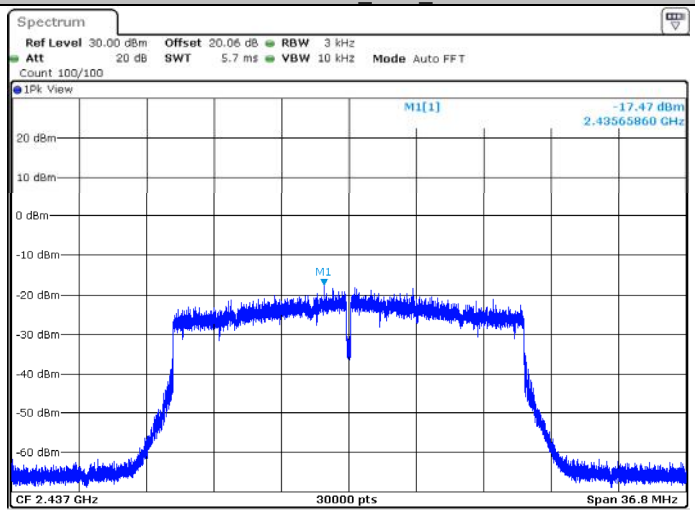 ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li Date: 19.APR.2024 05:33:44
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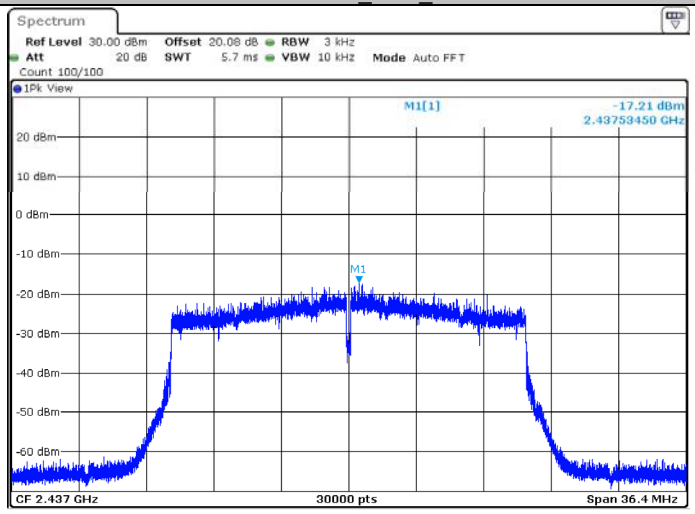 ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li Date: 19.APR.2024 05:34:23

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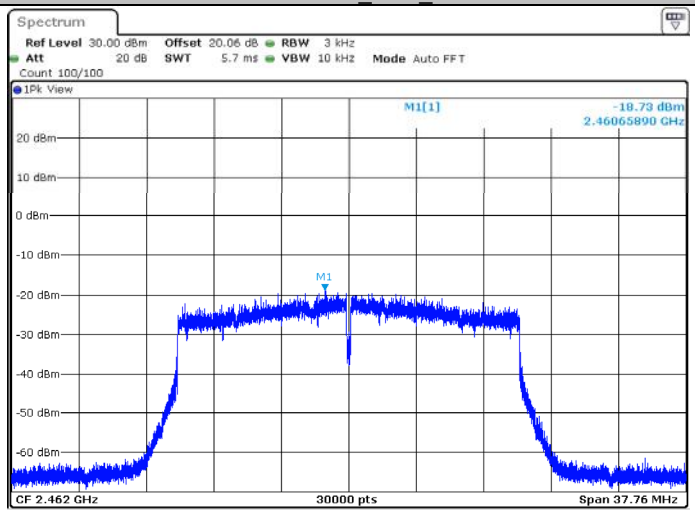 ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li Date: 19.APR.2024 05:35:30
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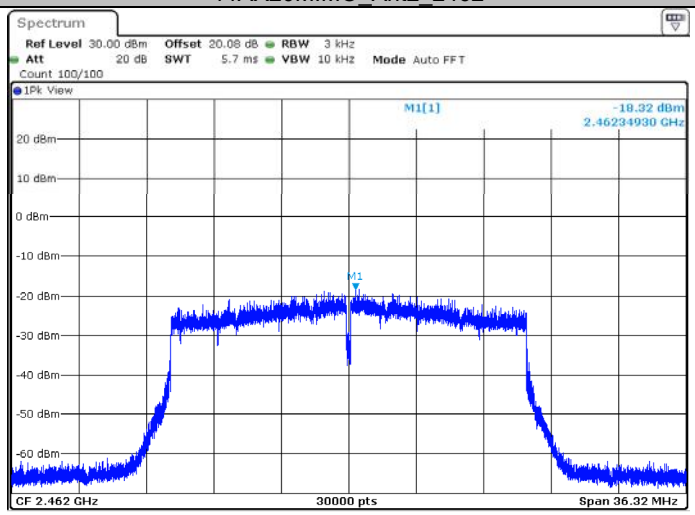
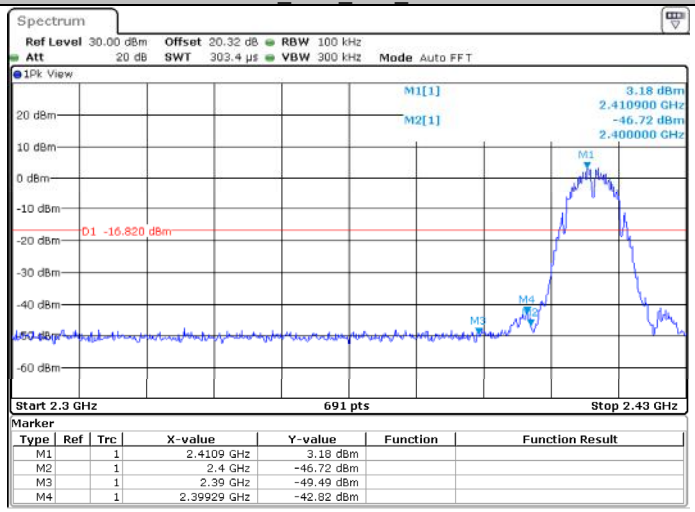
 ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li Date: 19.APR.2024 05:36:20

Appendix E: Band edge measurements

Test Graphs

11B_Ant1_Low_2412

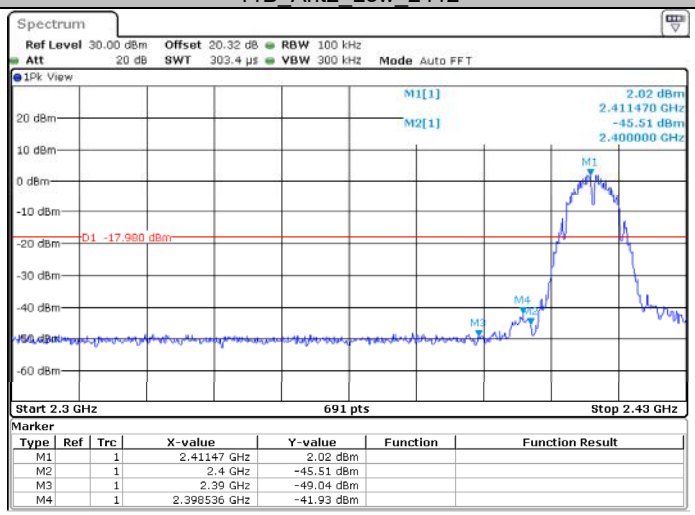


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4109 GHz	3.18 dBm		
M2		1	2.4 GHz	-46.72 dBm		
M3		1	2.39 GHz	-49.49 dBm		
M4		1	2.39929 GHz	-42.82 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:13:53

11B_Ant2_Low_2412

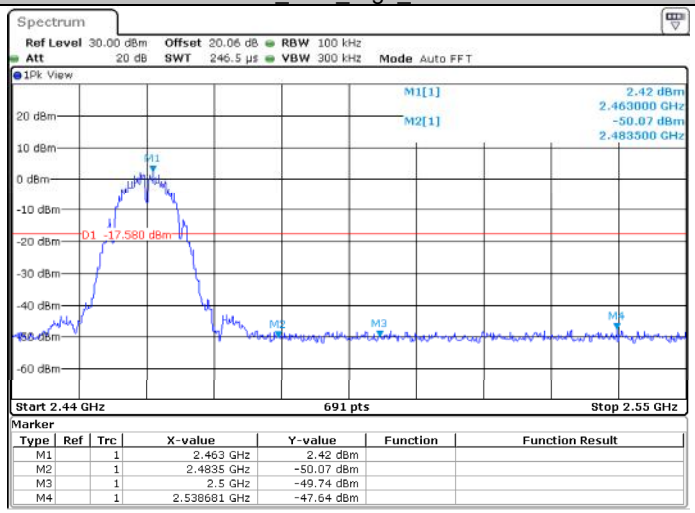


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41147 GHz	2.02 dBm		
M2		1	2.4 GHz	-45.51 dBm		
M3		1	2.39 GHz	-49.04 dBm		
M4		1	2.398536 GHz	-41.93 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:13:16

11B_Ant1_High_2462



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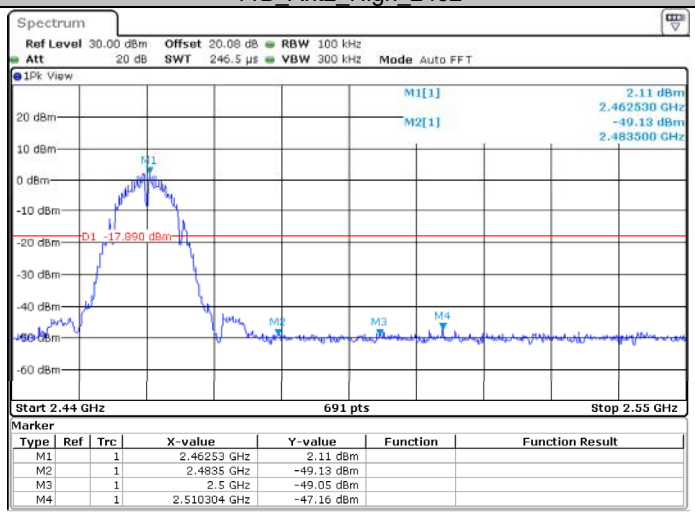
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.463 GHz	2.42 dBm		
M2		1	2.4835 GHz	-50.07 dBm		
M3		1	2.5 GHz	-49.74 dBm		
M4		1	2.538681 GHz	-47.64 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:18:04

11B_Ant2_High_2462



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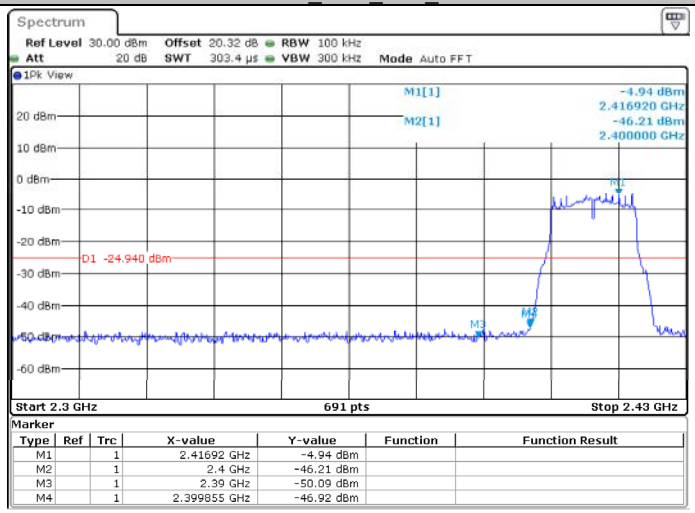
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46253 GHz	2.11 dBm		
M2		1	2.4835 GHz	-49.13 dBm		
M3		1	2.5 GHz	-49.05 dBm		
M4		1	2.510304 GHz	-47.16 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:19:21

11G-CDD_Ant1_Low_2412

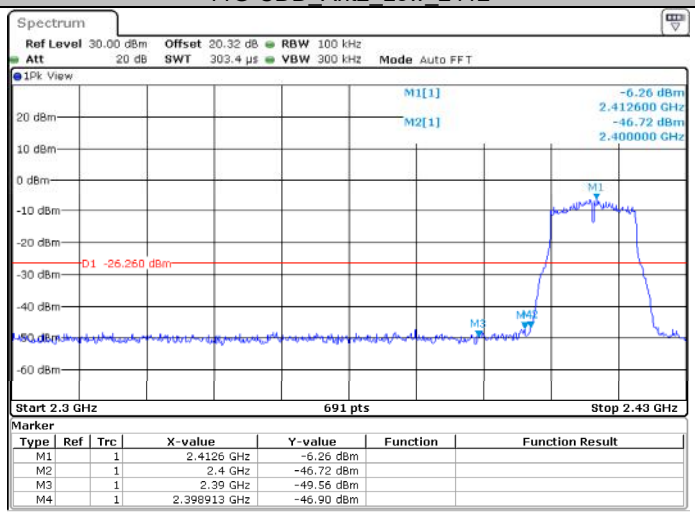


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41692 GHz	-4.94 dBm		
M2		1	2.4 GHz	-46.21 dBm		
M3		1	2.39 GHz	-50.09 dBm		
M4		1	2.399855 GHz	-46.92 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:22:12

11G-CDD_Ant2_Low_2412



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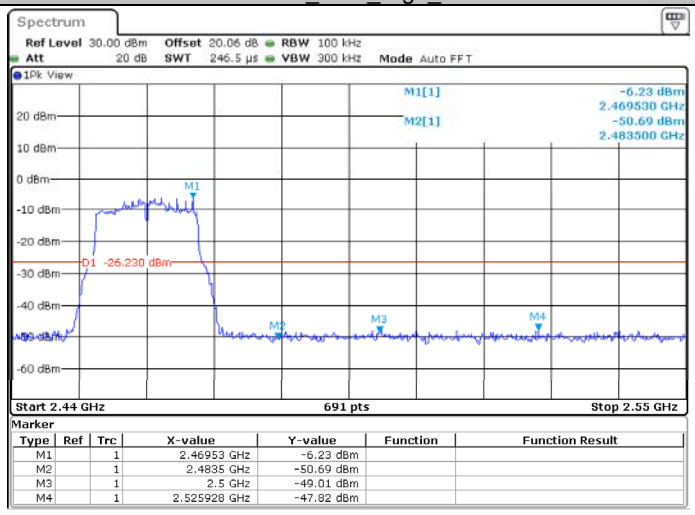
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.4126 GHz	-6.26 dBm		
M2		1	2.4 GHz	-46.72 dBm		
M3		1	2.39 GHz	-49.56 dBm		
M4		1	2.398913 GHz	-46.90 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:23:04

11G-CDD_Ant1_High_2462



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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46953 GHz	-6.23 dBm		
M2		1	2.4835 GHz	-50.69 dBm		
M3		1	2.5 GHz	-49.01 dBm		
M4		1	2.525928 GHz	-47.82 dBm		

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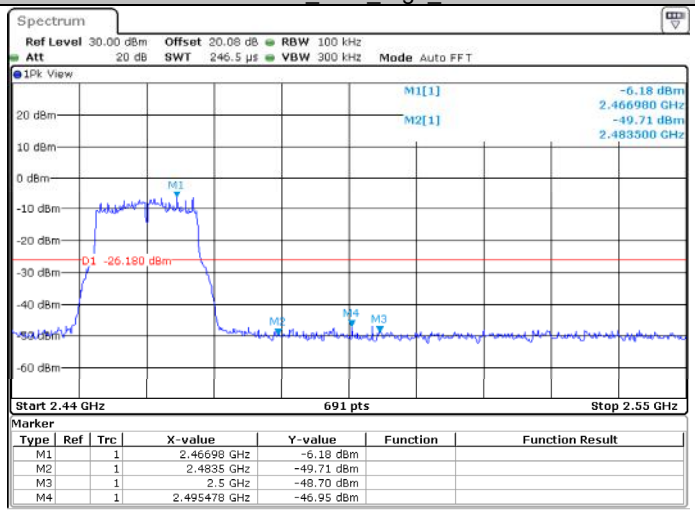
11G-CDD_Ant2_High_2462



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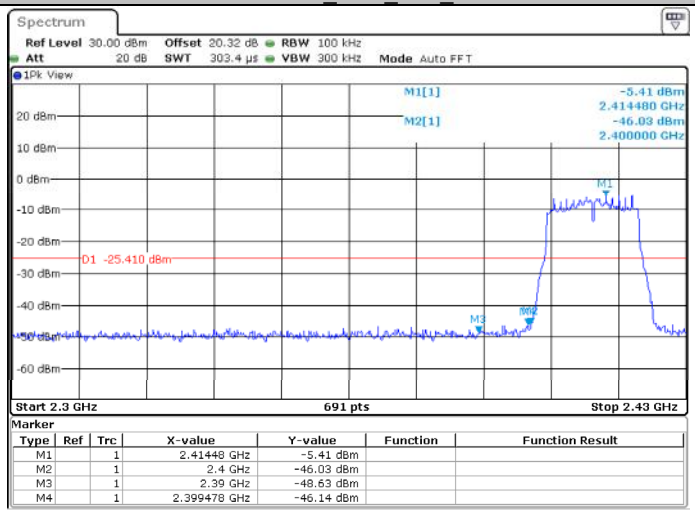
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46698 GHz	-6.18 dBm		
M2		1	2.4835 GHz	-49.71 dBm		
M3		1	2.5 GHz	-48.70 dBm		
M4		1	2.495478 GHz	-46.95 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:27:01

11N20MIMO_Ant1_Low_2412



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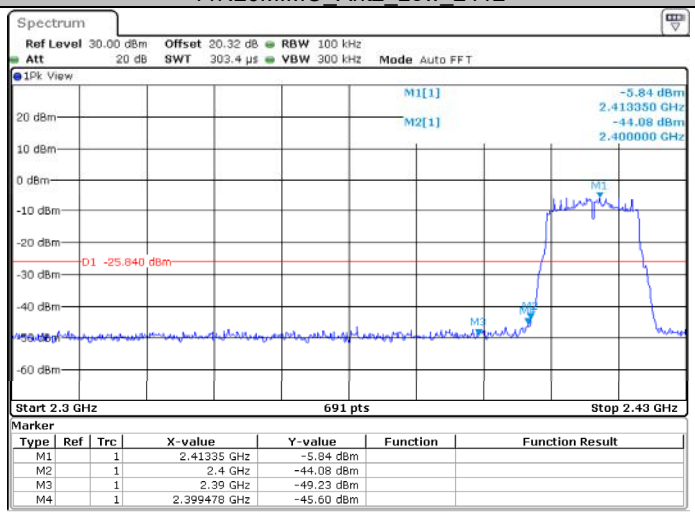
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41448 GHz	-5.41 dBm		
M2		1	2.4 GHz	-46.03 dBm		
M3		1	2.39 GHz	-48.63 dBm		
M4		1	2.399478 GHz	-46.14 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:22:13

11N20MIMO_Ant2_Low_2412



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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41335 GHz	-5.84 dBm		
M2		1	2.4 GHz	-44.08 dBm		
M3		1	2.39 GHz	-49.23 dBm		
M4		1	2.399478 GHz	-45.60 dBm		

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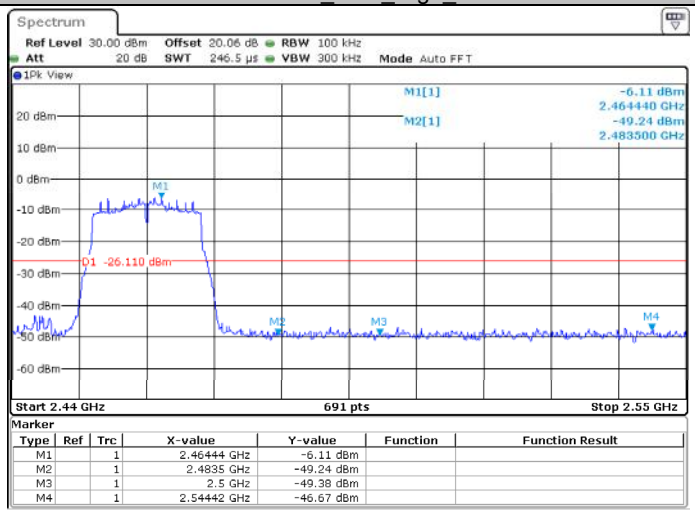
Date: 23.APR.2024 07:23:35

11N20MIMO_Ant1_High_2462



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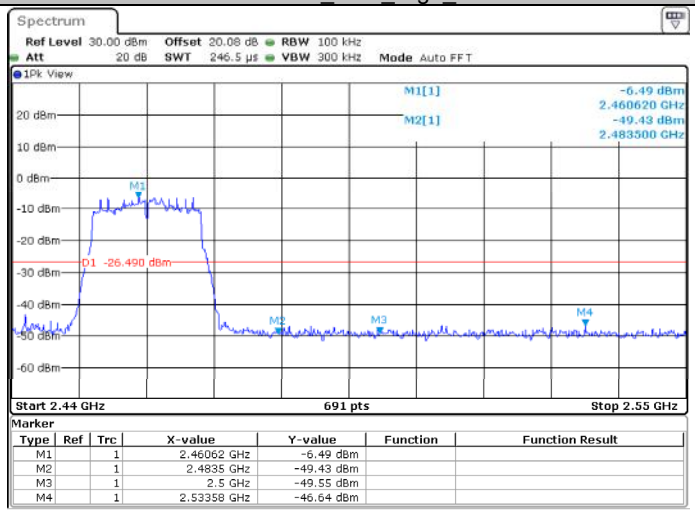
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46444 GHz	-6.11 dBm		
M2		1	2.4835 GHz	-49.24 dBm		
M3		1	2.5 GHz	-49.38 dBm		
M4		1	2.54442 GHz	-46.67 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:27:36

11N20MIMO_Ant2_High_2462



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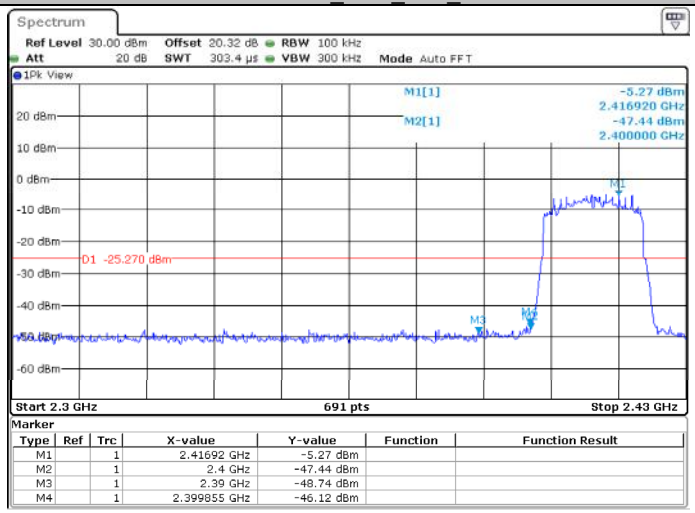
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46062 GHz	-6.49 dBm		
M2		1	2.4835 GHz	-49.43 dBm		
M3		1	2.5 GHz	-49.55 dBm		
M4		1	2.53358 GHz	-46.64 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:29:13

11AX20MIMO_Ant1_Low_2412



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41692 GHz	-5.27 dBm		
M2		1	2.4 GHz	-47.44 dBm		
M3		1	2.39 GHz	-48.74 dBm		
M4		1	2.399855 GHz	-46.12 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
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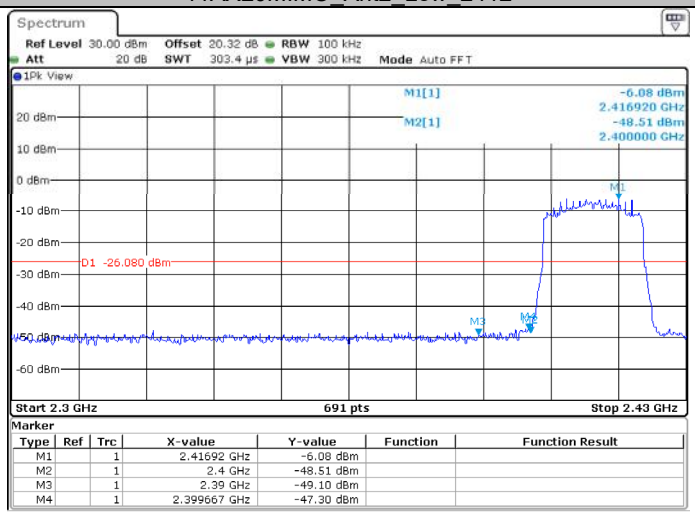
11AX20MIMO_Ant2_Low_2412



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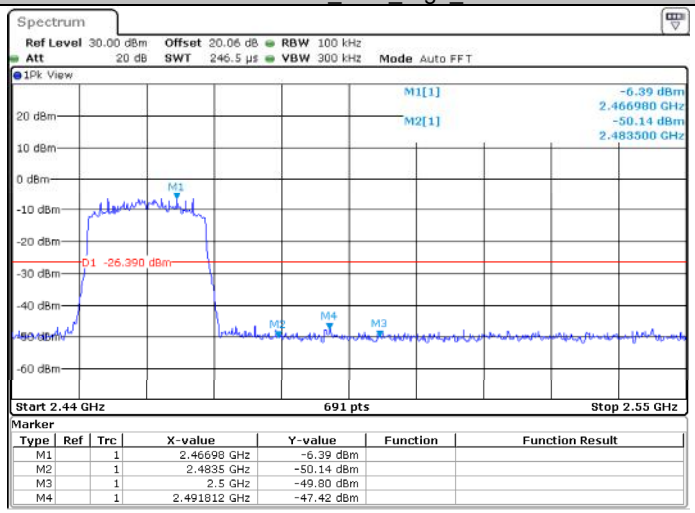
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.41692 GHz	-6.08 dBm		
M2		1	2.4 GHz	-48.51 dBm		
M3		1	2.39 GHz	-49.10 dBm		
M4		1	2.399667 GHz	-47.30 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:32:37

11AX20MIMO_Ant1_High_2462



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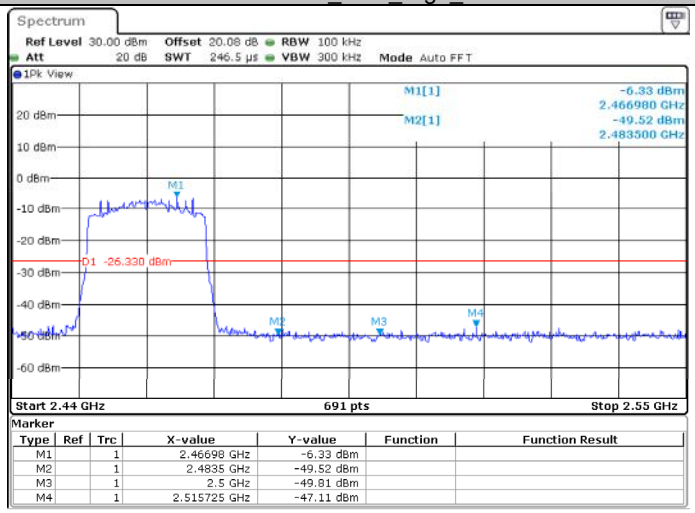
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46698 GHz	-6.39 dBm		
M2		1	2.4835 GHz	-50.14 dBm		
M3		1	2.5 GHz	-49.80 dBm		
M4		1	2.491812 GHz	-47.42 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:35:39

11AX20MIMO_Ant2_High_2462



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.46698 GHz	-6.33 dBm		
M2		1	2.4835 GHz	-49.52 dBm		
M3		1	2.5 GHz	-49.81 dBm		
M4		1	2.515725 GHz	-47.11 dBm		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:36:29

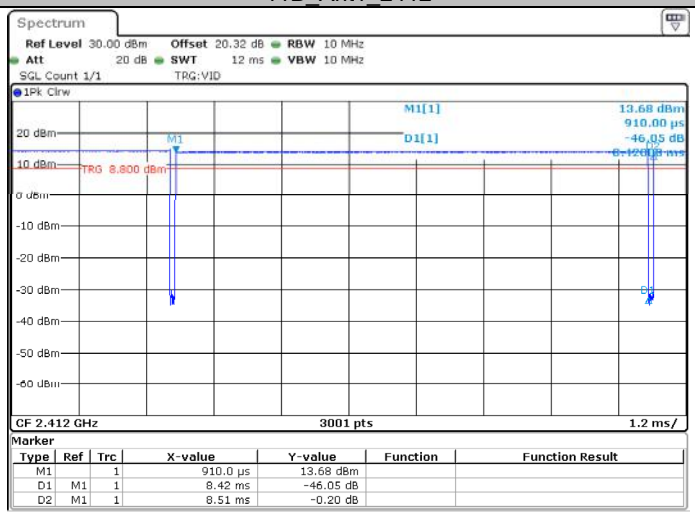
Appendix F: Duty Cycle

Test Result

Test Mode	Antenna	Frequency[MHz]	Transmission Duration [ms]	Transmission Period [ms]	Duty Cycle [%]	1/T (Hz)	VBW Setting (Hz)
11B	Ant1	2412	8.42	8.51	98.94	/	10
	Ant2	2412	8.42	8.51	98.94	/	10
	Ant1	2437	8.41	8.50	98.94	/	10
	Ant2	2437	8.41	8.50	98.94	/	10
	Ant1	2462	8.41	8.50	98.94	/	10
	Ant2	2462	8.42	8.51	98.94	/	10
11G-CDD	Ant1	2412	2.06	2.08	99.04	/	10
	Ant2	2412	2.06	2.07	99.52	/	10
	Ant1	2437	2.06	2.08	99.04	/	10
	Ant2	2437	2.06	2.08	99.04	/	10
	Ant1	2462	2.06	2.08	99.04	/	10
	Ant2	2462	2.06	2.08	99.04	/	10
11N20MIMO	Ant1	2412	1.92	1.94	98.97	/	10
	Ant2	2412	1.91	1.93	98.96	/	10
	Ant1	2437	1.92	1.94	98.97	/	10
	Ant2	2437	1.91	1.93	98.96	/	10
	Ant1	2462	1.92	1.94	98.97	/	10
	Ant2	2462	1.91	1.93	98.96	/	10
11AX20MIMO	Ant1	2412	1.02	1.12	91.07	980	1000
	Ant2	2412	1.02	1.12	91.07	980	1000
	Ant1	2437	1.02	1.12	91.07	980	1000
	Ant2	2437	1.03	1.13	91.15	971	1000
	Ant1	2462	1.03	1.12	91.96	971	1000
	Ant2	2462	1.02	1.12	91.07	980	1000

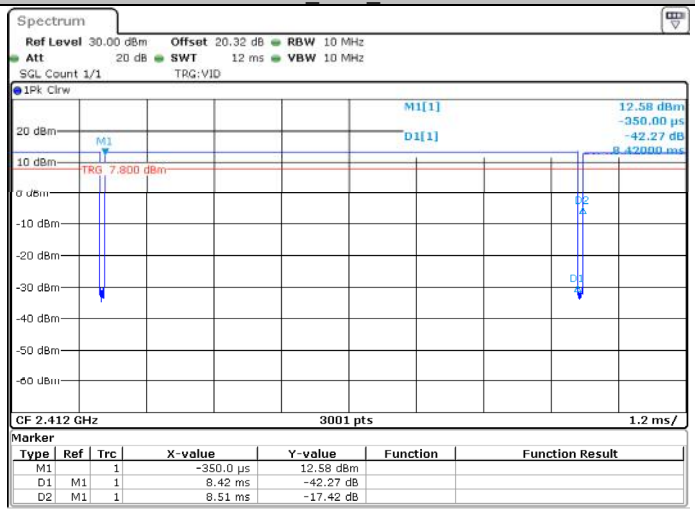
Test Graphs

11B_Ant1_2412



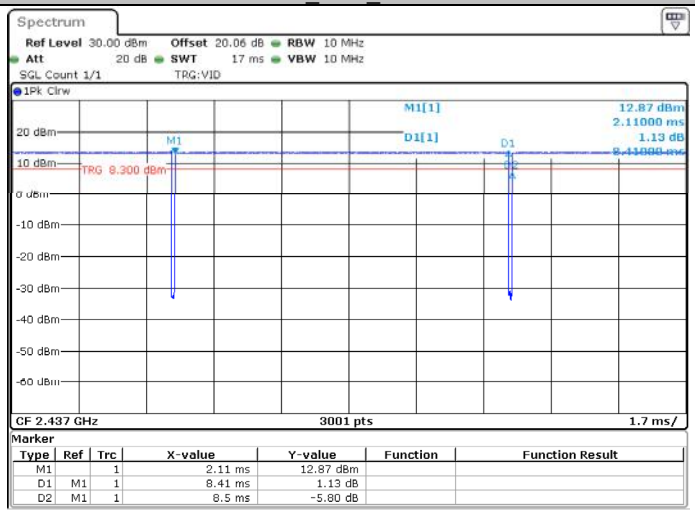
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:07:59

11B_Ant2_2412



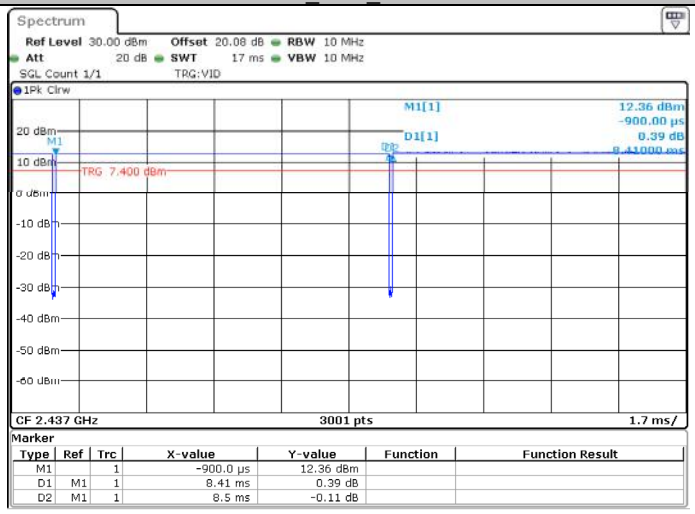
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:10:48

11B_Ant1_2437



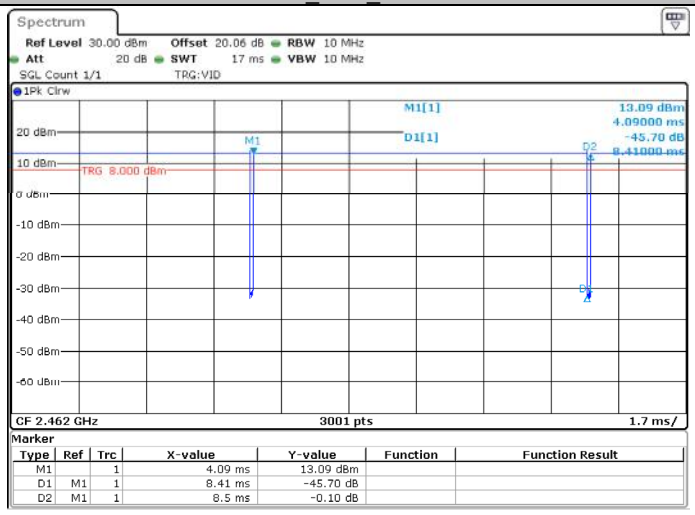
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:14:45

11B_Ant2_2437



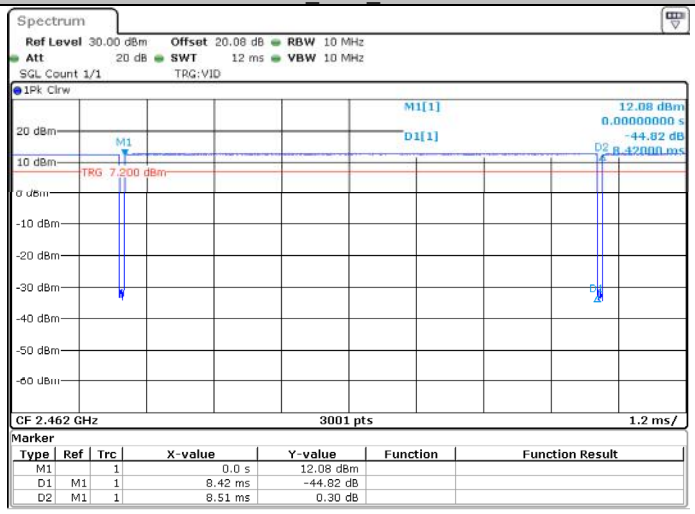
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:16:09

11B_Ant1_2462



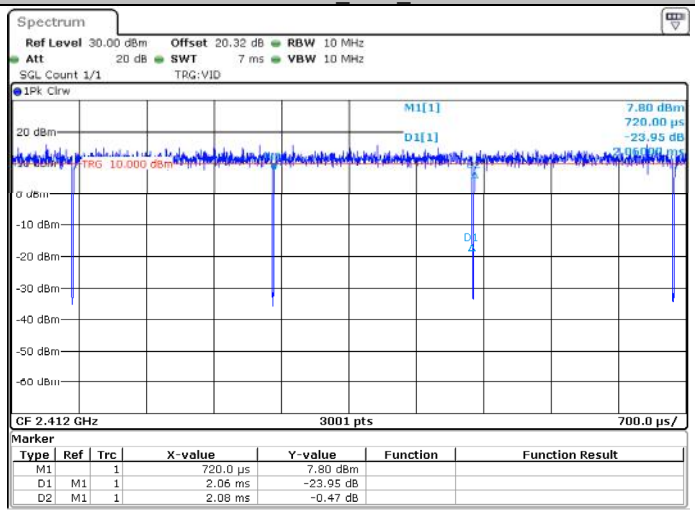
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:17:29

11B_Ant2_2462



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:18:45

11G-CDD_Ant1_2412

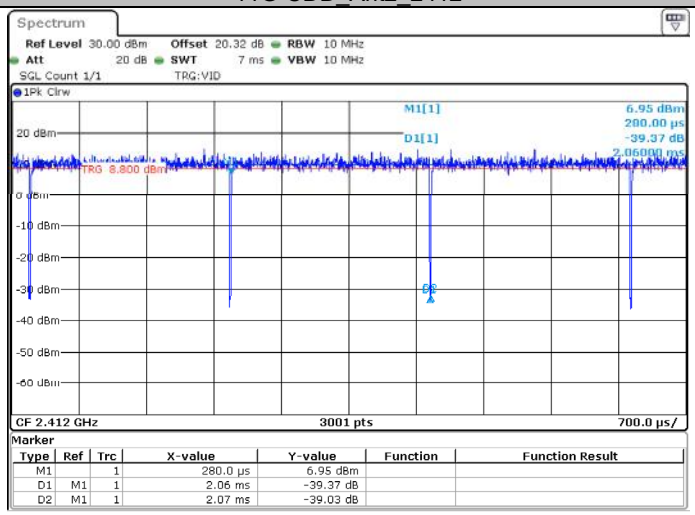


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	720.0 µs	7.80 dBm		
D1	M1	1	2.06 ms	-23.95 dB		
D2	M1	1	2.08 ms	-0.47 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:21:37

11G-CDD_Ant2_2412

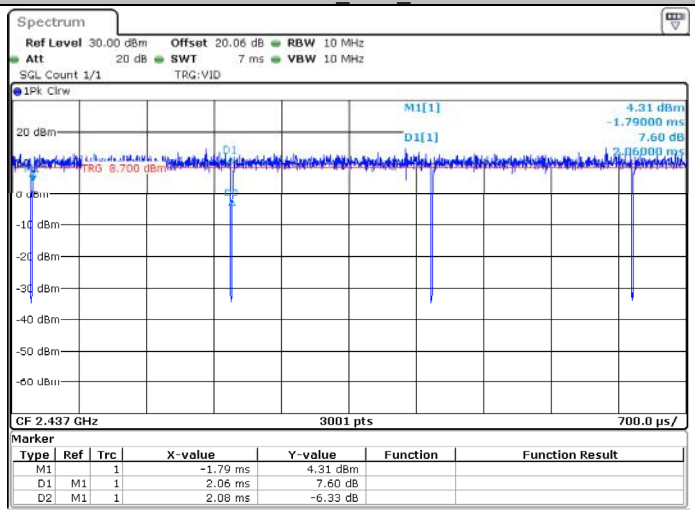


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	280.0 µs	6.95 dBm		
D1	M1	1	2.06 ms	-39.37 dB		
D2	M1	1	2.07 ms	-39.03 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:22:26

11G-CDD_Ant1_2437

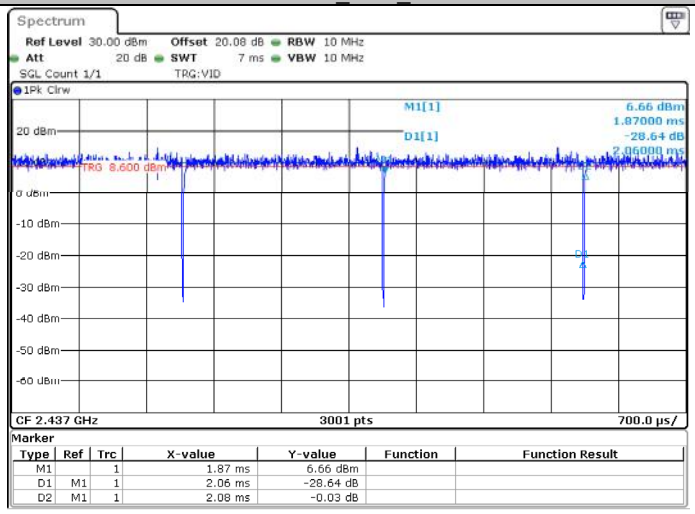


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.79 ms	4.31 dBm		
D1	M1	1	2.06 ms	7.60 dB		
D2	M1	1	2.08 ms	-6.33 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:23:41

11G-CDD_Ant2_2437



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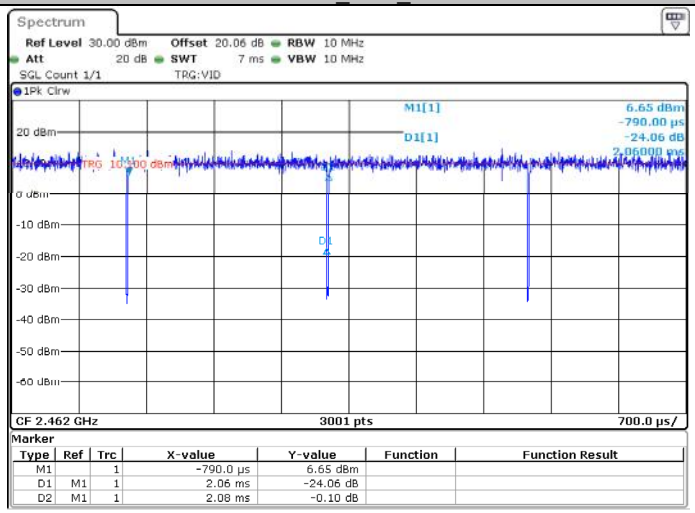
Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.87 ms	6.66 dBm		
D1	M1	1	2.06 ms	-28.64 dB		
D2	M1	1	2.08 ms	-0.03 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:24:21

11G-CDD_Ant1_2462

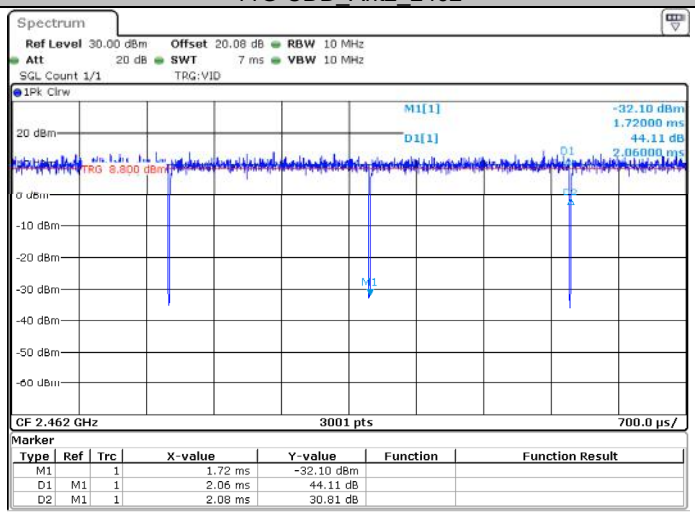


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-790.0 µs	6.65 dBm		
D1	M1	1	2.06 ms	-24.06 dB		
D2	M1	1	2.08 ms	-0.10 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:25:34

11G-CDD_Ant2_2462

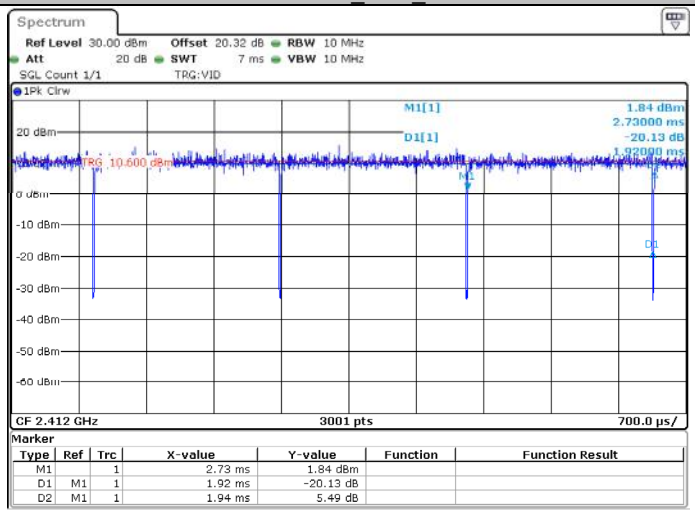


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	1.72 ms	-32.10 dBm		
D1	M1	1	2.06 ms	44.11 dB		
D2	M1	1	2.08 ms	30.81 dB		

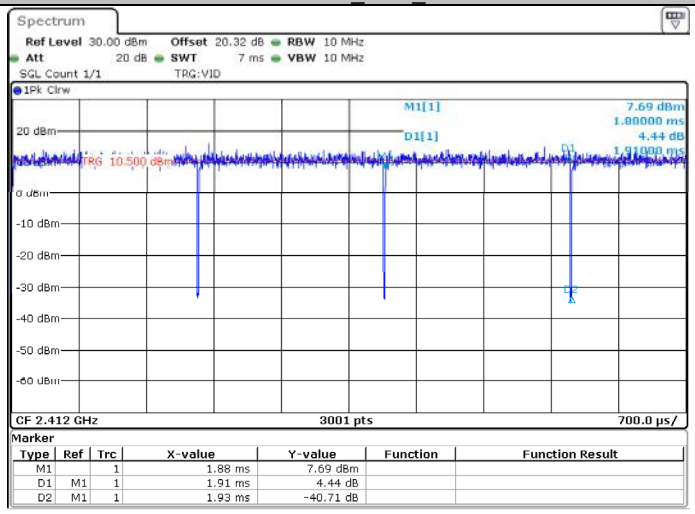
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:26:23

11N20MIMO_Ant1_2412



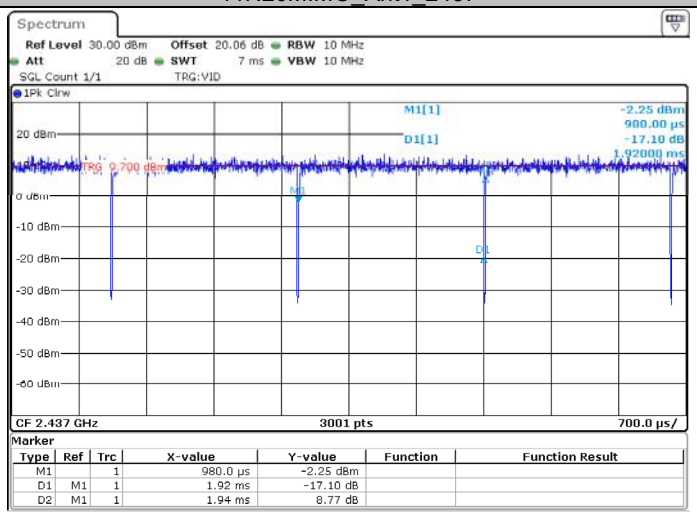
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:21:38

11N20MIMO_Ant2_2412



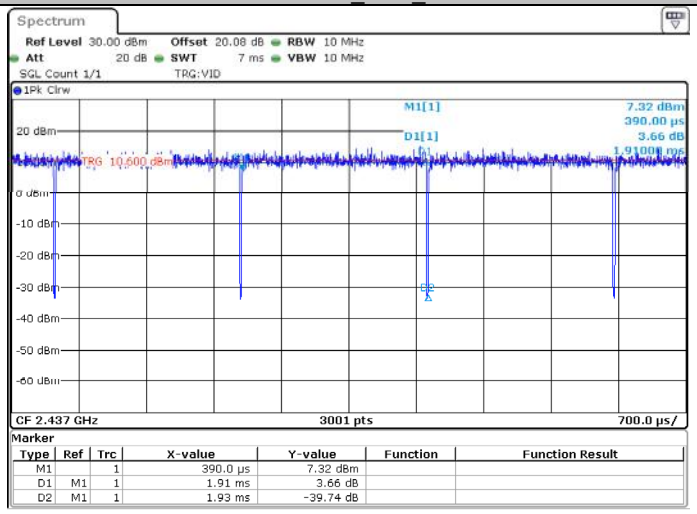
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:22:57

11N20MIMO_Ant1_2437



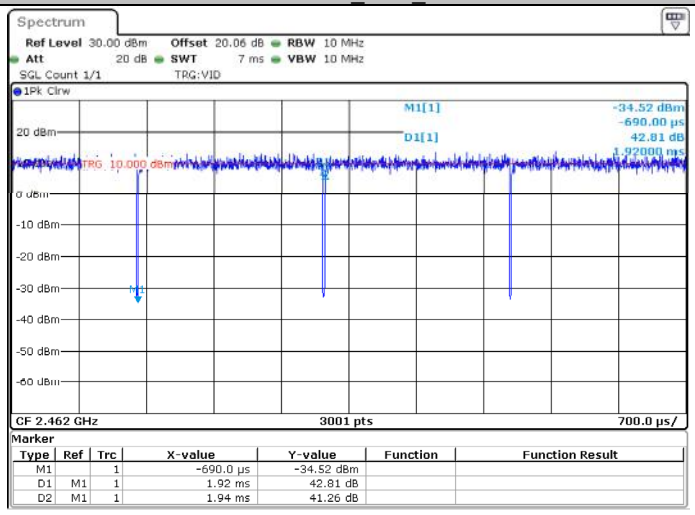
ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:24:30

11N20MIMO_Ant2_2437



ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:25:39

11N20MIMO_Ant1_2462

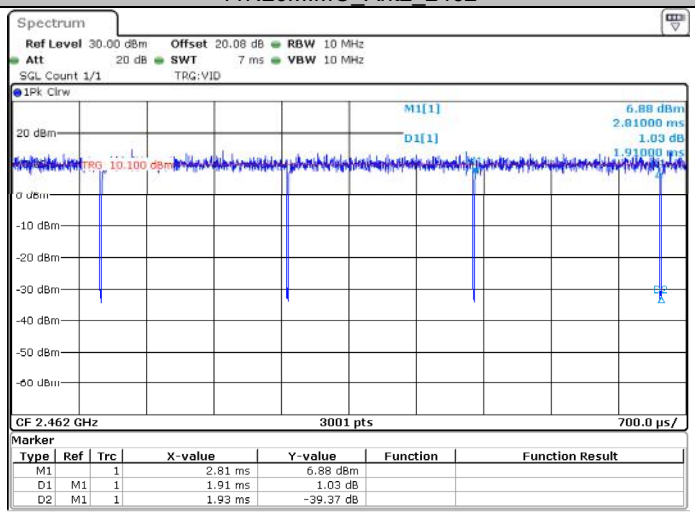


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-690.0 µs	-34.52 dBm		
D1	M1	1	1.92 ms	42.81 dB		
D2	M1	1	1.94 ms	41.26 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:27:00

11N20MIMO_Ant2_2462

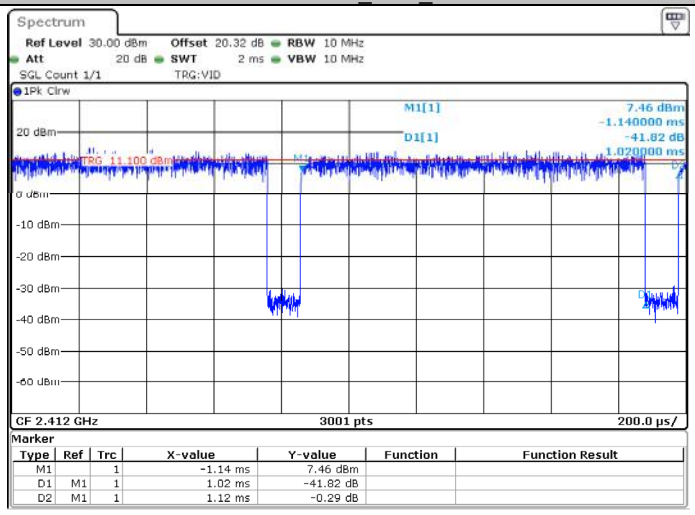


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	2.81 ms	6.88 dBm		
D1	M1	1	1.91 ms	1.03 dB		
D2	M1	1	1.93 ms	-39.37 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 23.APR.2024 07:28:35

11AX20MIMO_Ant1_2412

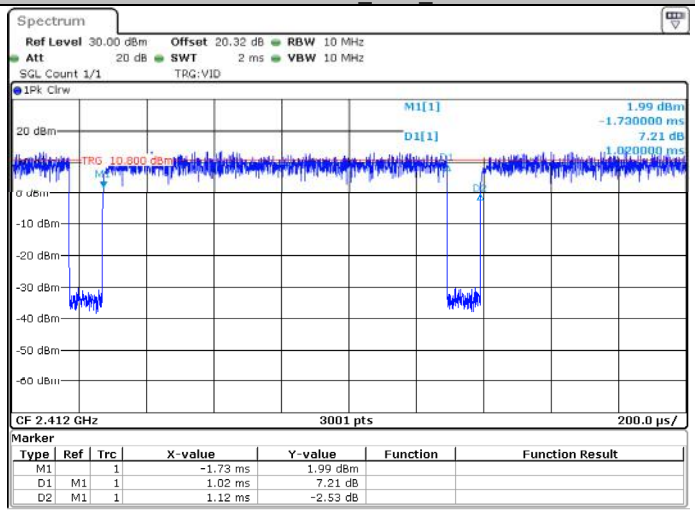


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.14 ms	7.46 dBm		
D1	M1	1	1.02 ms	-41.82 dB		
D2	M1	1	1.12 ms	-0.29 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:31:12

11AX20MIMO_Ant2_2412

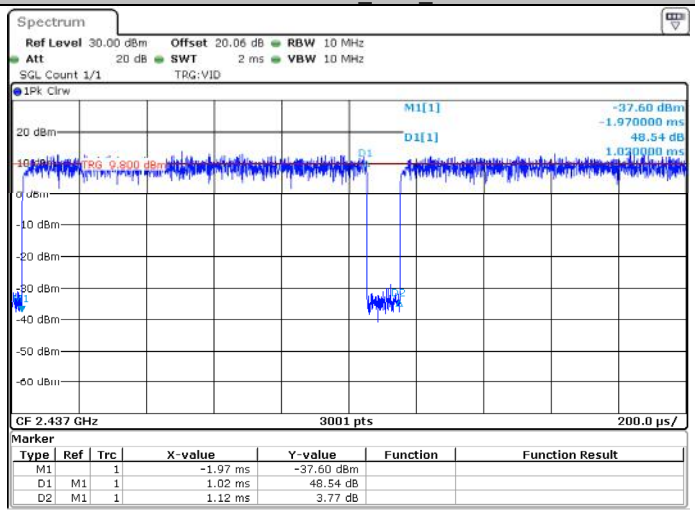


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.73 ms	1.99 dBm		
D1	M1	1	1.02 ms	7.21 dB		
D2	M1	1	1.12 ms	-2.53 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:31:59

11AX20MIMO_Ant1_2437

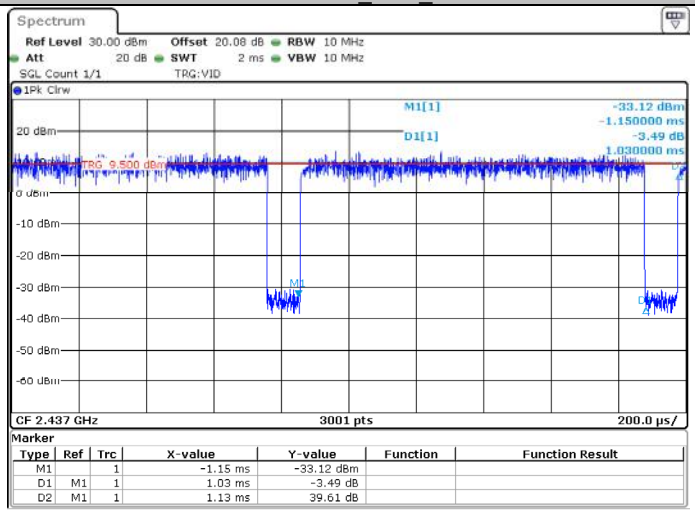


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.97 ms	-37.60 dBm		
D1	M1	1	1.02 ms	48.54 dB		
D2	M1	1	1.12 ms	3.77 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:33:17

11AX20MIMO_Ant2_2437

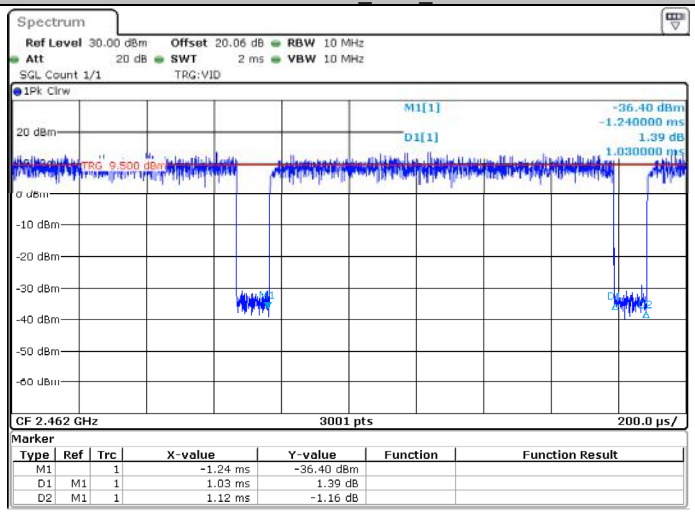


Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.15 ms	-33.12 dBm		
D1	M1	1	1.03 ms	-3.49 dB		
D2	M1	1	1.13 ms	39.61 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:33:55

11AX20MIMO_Ant1_2462



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Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.24 ms	-36.40 dBm		
D1	M1	1	1.03 ms	1.39 dB		
D2	M1	1	1.12 ms	-1.16 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
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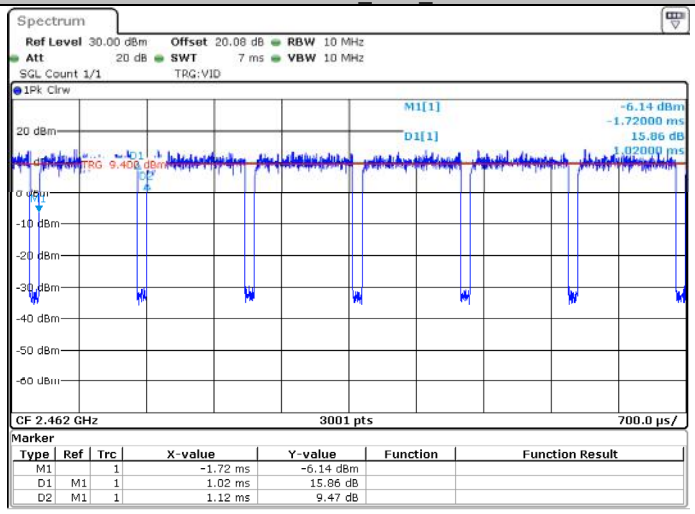
11AX20MIMO_Ant2_2462



Marker

Type	Ref	Trc	X-value	Y-value	Function	Function Result
M1		1	-1.72 ms	-6.14 dBm		
D1	M1	1	1.02 ms	15.86 dB		
D2	M1	1	1.12 ms	9.47 dB		

ProjectNo.:SZ1240307-11374E-RF Tester:Lee.Li
Date: 19.APR.2024 05:35:52

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