TEST REPORT

Applicant Name :	Shenzhen Huion Trend Technology Co., Ltd.
Address :	Huion Science and Technology Park, Keji 1st Road, Bao'an District, Shenzhen China
Report Number :	RA230103-00156E-RF-00B
FCC ID:	2A8IG-D227

Test Standard (s)

FCC PART 15.247

Sample Description

Product Type:	Creative Pen Computer
Model No.:	KS2401
Multiple Model(s) No.:	KS2201,KT2201,KS2402,KS2701
Trade Mark:	HUION
Date Received:	2023/01/03
Report Date:	2023/04/21

Test Result:	Pass*

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

Prepared and Checked By:

Andy Yu
EMC Engineer

Approved By:

Candy Li
EMC Engineer

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DOCUMENT REVISION HISTORY

Revision Number	Report Number	Description of Revision	Date of Revision
0	RA230103-00156E-RF-00B	Original Report	2023/04/21

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

Product	Creative Pen Computer
Tested Model	KS2401
Multiple Models	KS2201,KT2201,KS2402,KS2701 (model difference see product declaration letter of similarity)
Frequency Range	BLE_1M/2M: 2402-2480MHz Wi-Fi: 2412-2462MHz
Maximum Conducted Output Power	BLE: 9.41dBm Wi-Fi: 17.23dBm
Modulation Technique	BLE: GFSK Wi-Fi: DSSS, OFDM, OFDMA
Antenna Specification*	4.88dBi (provided by the applicant)
Voltage Range	DC 19V from adapter
Sample serial number	1X74-1 for Conducted and Radiated Emissions Test 1X79-1 for RF Conducted Test (Assigned by ATC)
Sample/EUT Status	Good condition
Adapter Information	Model: FSP270-RBAN3 Input: AC 100-240V,50/60Hz,3.5A Output: DC 19.0V,14.21A,270.0W

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 Compliant Testing of Unlicensed Wireless Devices.

And KDB 558074 D01 15.247 Meas Guidance v05r02.

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

Each test item follows test standards and with no deviation.

Measurement Uncertainty

Parameter		Uncertainty
Occupied Channel Bandwidth		5%
RF Frequency		$0.082*10^{-7}$
RF output power, conducted		0.73dB
Unwanted Emission, conducted		1.6dB
AC Power Lines Conducted Emissions		2.72dB
Emissions, Radiated	9kHz - 30MHz	2.66dB
	30MHz - 1GHz	4.28dB
	1GHz - 18GHz	4.98dB
	18GHz -26.5GHz	5.06dB
	26.5GHz -40GHz	4.72dB
Temperature		1℃
Humidity		6%
Supply voltages		0.4%

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

Test Facility

The test site used by Shenzhen Accurate Technology Co., Ltd. to collect test data is located on the 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China.

The test site has been approved by the FCC under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No.: 708358,the FCC Designation No.: CN1189. Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 429 7.01.

Listed by Innovation, Science and Economic Development Canada (ISEDC), the Registration Number is 5077A.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

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

For 802.11b, 802.11g, 802.11n-HT20 and 802.11ax20, EUT was tested with Channel 1, 6 and 11.
For 802.11n-HT40 and 802.11ax40, EUT was tested with Channel 3, 6 and 9.

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

"QA_Tool*" exercise software was used for Wi-Fi test, " WCN_Comb_Tool"* exercise software was used for BLE test, The software and power level was provided by the applicant.

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	1 Mbps	12	12	12
802.11g	6 Mbps	12	12	12
802.11n20	MCS0	12	12	12
802.11n40	MCS0	12	12	12
BLE	1 Mbps	3	3	3
	2 Mbps	3	3	3

Mode	Data rate	RU/Tone	Power level*		
			Low channel	Middle channel	High channel
802.11AX20	MCS0	26-0	3	3	3
	MCS0	52-37	6	6	6
	MCS0	106-53	9	9	9
	MCS0	242-61	12	12	12
802.11AX40	MCS0	26-0	0	0	0
	MCS0	52-37	3	3	3
	MCS0	106-53	6	6	6
	MCS0	242-61	9	9	9
	MCS0	484-65	12	12	12

Note:

For Wi-Fi mode, the 802.11 b/g mode only support SISO, the 802.11 n/ax mode support SISO/MIMO transmitting, and for MIMO mode, the device employ CDD. According pre-scan, the worst case MIMO mode was selected to test and record in report.

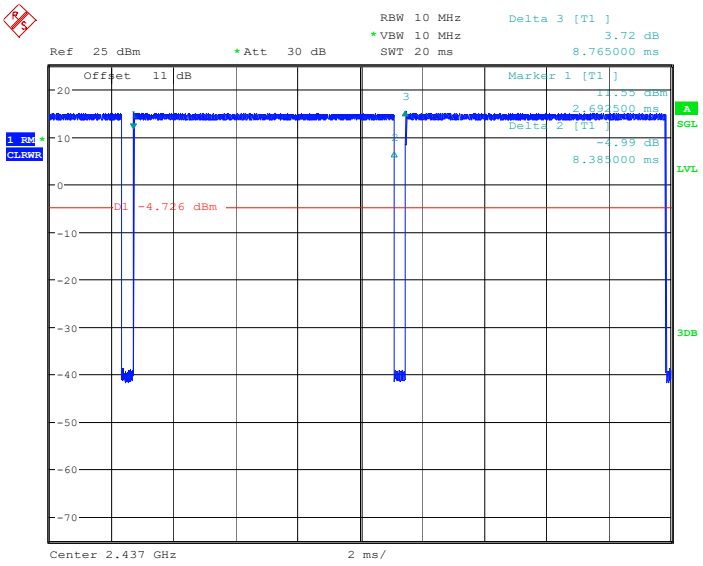
For 802.11ax mode, the device support difference RU configurations, the output power was tested for difference RU mode, other items only test the worst case full RU mode.

The worst-case data rates are determined to be as follows for each mode based upon inverstigation by measuring the average power, peak power and PSD across all data rates, bandwidths and modulations.

The EUT has two antennas which share the same power level.

Duty Cycle

802.11b Mode



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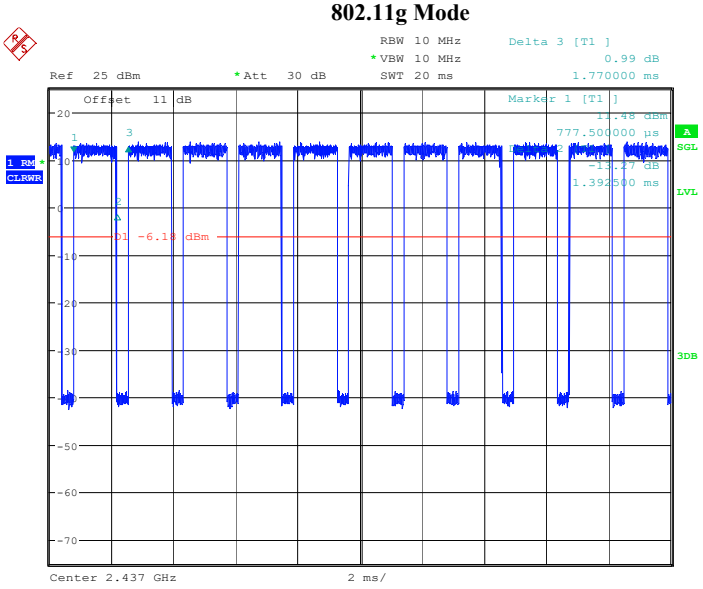
802.11g Mode



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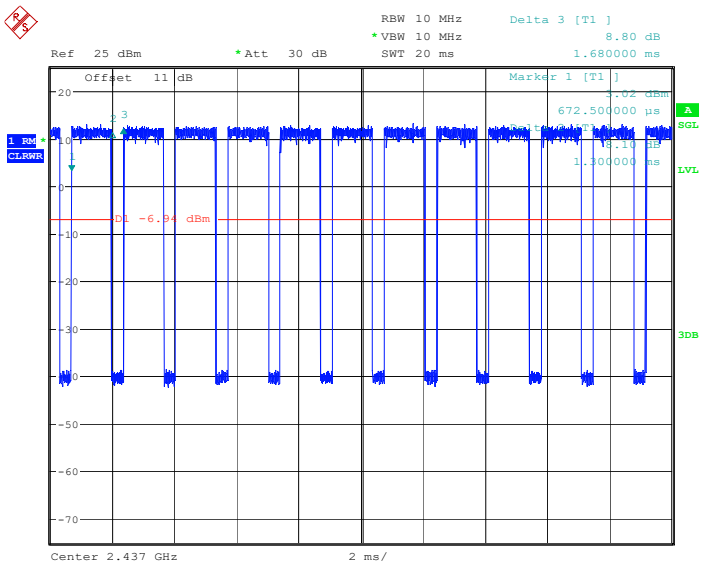
802.11n20



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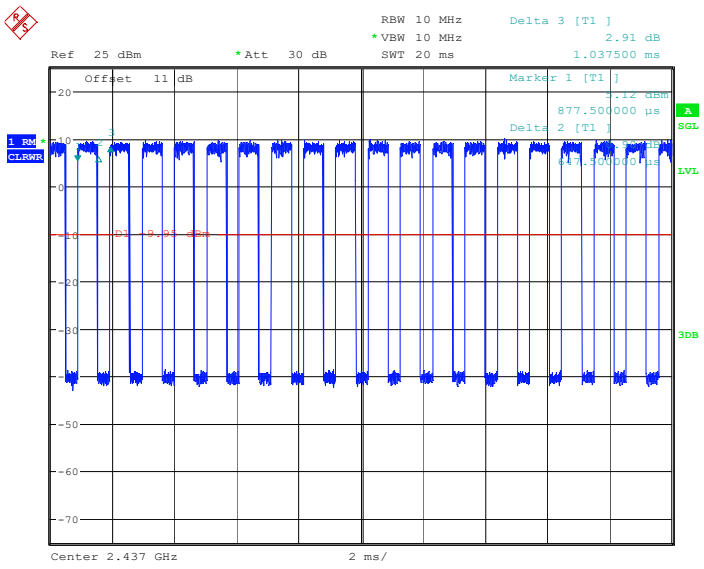

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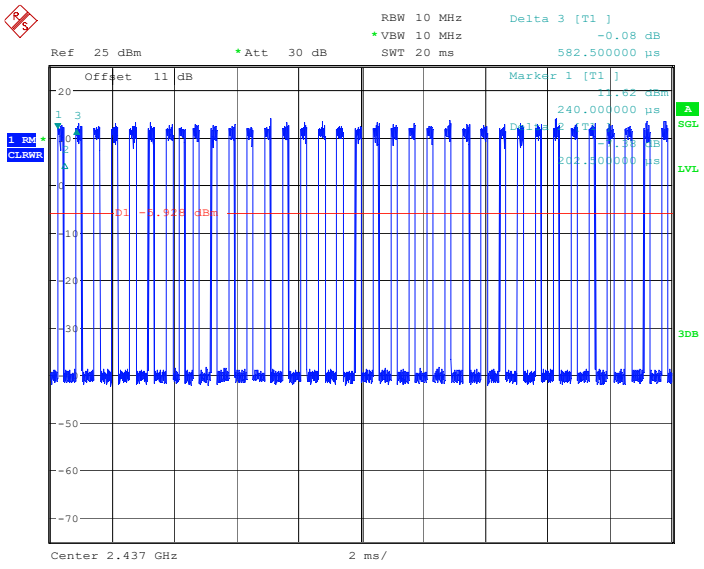
802.1ax20



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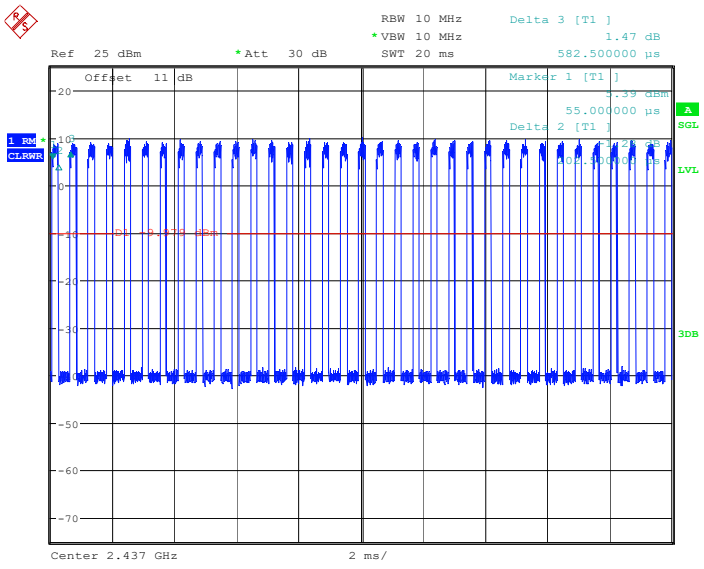
802.11 ax40



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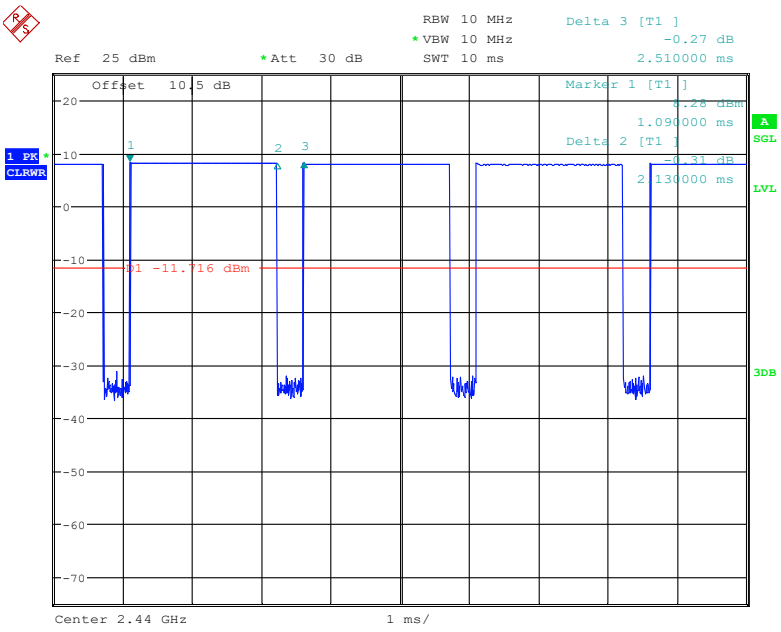
BLE-1M:



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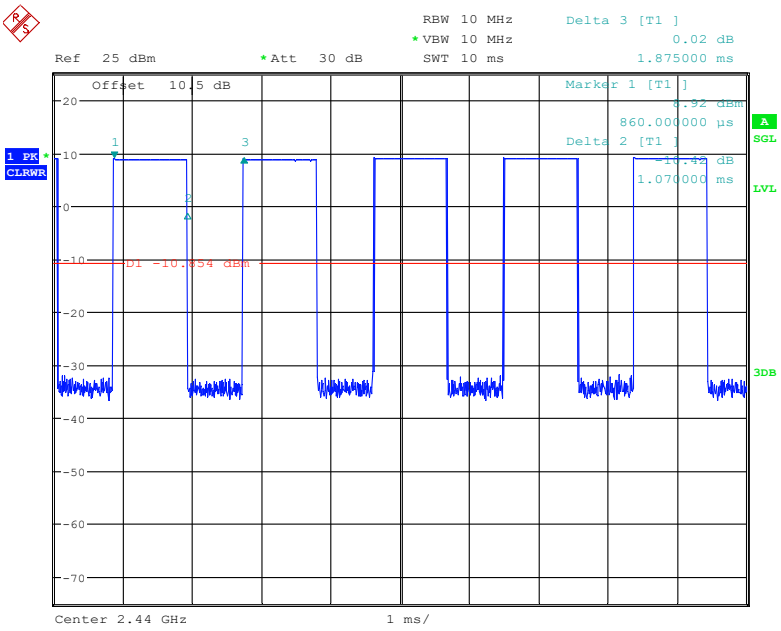
BLE-2M:



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Mode	T_{on} (ms)	T_{on+off} (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)	1/T minimum VBW setting(kHz)
802.11b	8.385	8.765	95.66	0.19	0.12
802.11g	1.393	1.770	78.70	1.04	0.72
802.11n-HT20	1.300	1.680	77.38	1.11	0.77
802.11n-HT40	0.647	1.038	62.33	2.05	1.55
802.11AX-HE20	0.203	0.583	34.82	4.58	4.93
802.11AX-HE40	0.203	0.583	34.65	4.58	4.93
BLE 1M	2.130	2.510	84.86	0.71	0.47
BLE 2M	1.070	1.875	57.07	2.44	0.93

Note: duty cycle factor=10*log(1/duty cycle)

Support Equipment List and Details

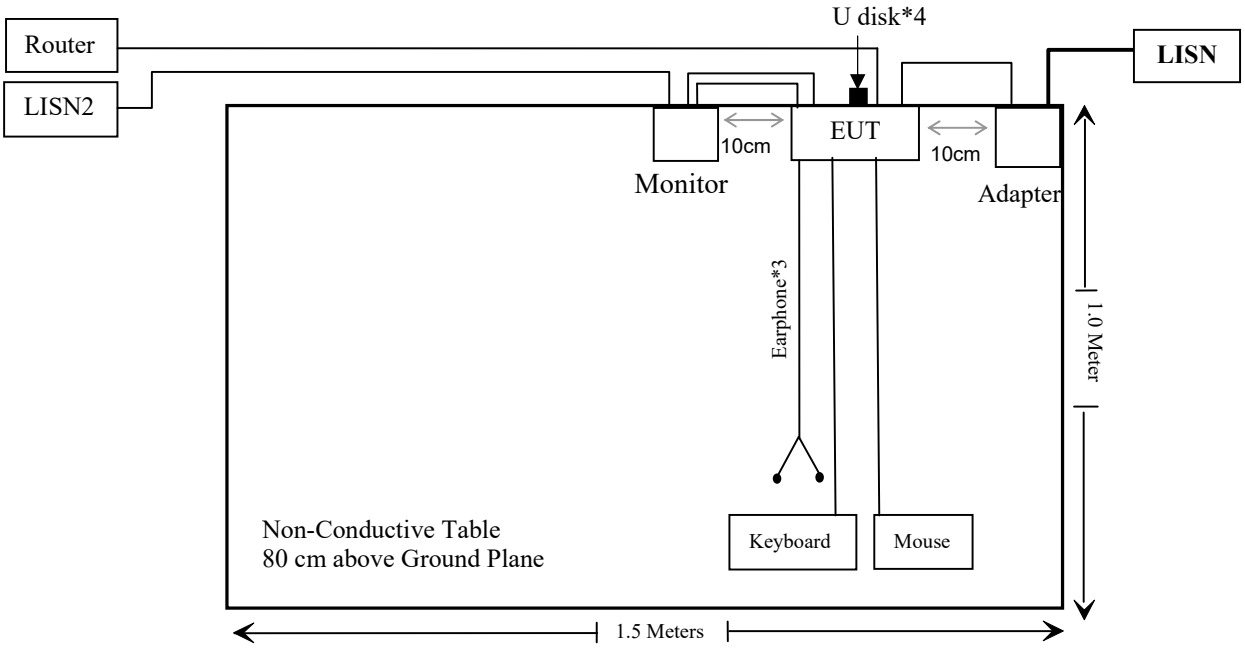
Manufacturer	Description	Model	Serial Number
Teda	Router	WS5100	A4933FEF1D01
Unknown	Earphone*3	Unknown	Unknown
Unknown	U disk *4	Unknown	Unknown
DELL	Monitor	RVE A00	506250042400R
DELL	Keyboard	Unknown	Unknown
DELL	Mouse	Unknown	Unknown

External I/O Cable

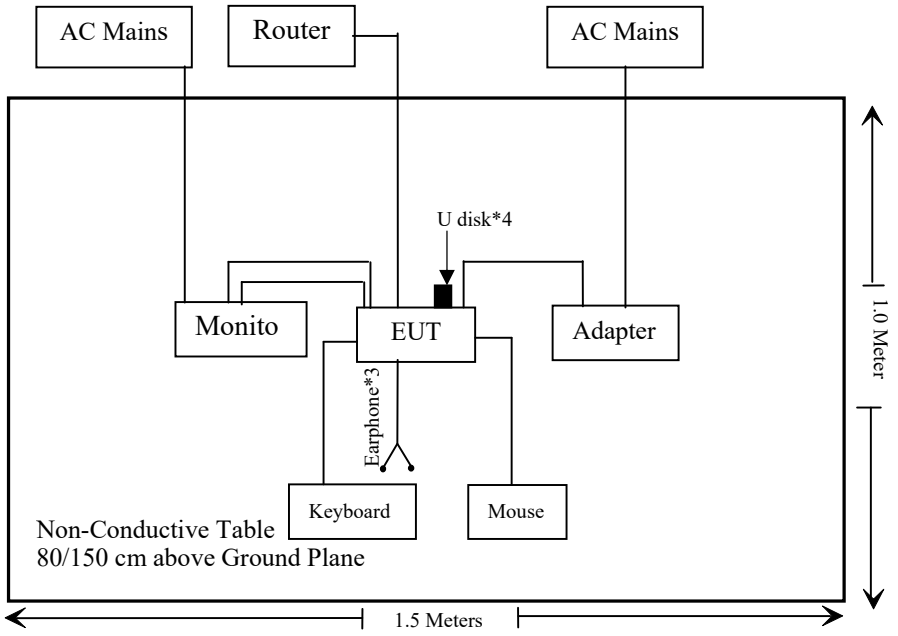
Cable Description	Length (m)	From/Port	To
Un-shielded detachable RJ45 cable	8.0	EUT	Router
Unshielded Detachable DC cable	1.5	Adapter	EUT
Shielded detachable HDMI cable	2.0	EUT	Monitor
Shielded detachable DVI cable	2.0	EUT	Monitor
Unshielded Detachable AC cable	1.0	Adapter	AC Mains/ LISN
Unshielded Detachable USB cable	1.2	EUT	Keyboard
Unshielded Detachable USB cable	1.2	EUT	Mouse
Unshielded Detachable AC cable	1.5	Monitor	LISN2

Block Diagram of Test Setup

For conducted emission



For Radiation emission



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.247 (i), §2.1091	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 & Occupied 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	100784	2022/11/25	2023/11/24
Rohde & Schwarz	L.I.S.N.	ENV216	101314	2022/11/25	2023/11/24
Anritsu Corp	50 Coaxial Switch	MP59B	6100237248	2022/12/07	2023/12/06
Unknown	RF Coaxial Cable	No.17	N0350	2022/11/25	2023/11/24
Conducted Emission Test Software: e3 19821b (V9)					
Radiated emission test					
Rohde& Schwarz	Test Receiver	ESR	102725	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSV40	101949	2022/11/25	2023/11/24
SONOMA INSTRUMENT	Amplifier	310 N	186131	2022/11/08	2023/11/07
A.H. Systems, inc.	Preamplifier	PAM-0118P	135	2022/11/08	2023/11/07
Quinstar	Amplifier	QLW-18405536-J0	15964001002	2022/11/08	2023/11/07
Schwarzbeck	Bilog Antenna	VULB9163	9163-323	2021/07/06	2024/07/05
Schwarzbeck	Horn Antenna	BBHA9120D	9120D-1067	2022/11/30	2025/11/29
Schwarzbeck	HORN ANTENNA	BBHA9170	9170-359	2022/12/26	2025/12/25
Radiated Emission Test Software: e3 19821b (V9)					
Unknown	RF Coaxial Cable	No.10	N050	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.11	N1000	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.12	N040	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.13	N300	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.14	N800	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.15	N600	2022/11/25	2023/11/24
Unknown	RF Coaxial Cable	No.16	N650	2022/11/25	2023/11/24
RF Conducted Test					
Rohde&Schwarz	Spectrum Analyzer	FSV-40	101590	2022/11/25	2023/11/24
Rohde&Schwarz	Spectrum Analyzer	FSU26	200982	2022/07/04	2023/07/03
Agilent	USB wideband power sensor	U2021XA	MY54250003	2022/06/27	2023/06/26
WEINSCHEL	10dB Attenuator	5324	AU 3842	2022/11/25	2023/11/24

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

FCC §15.247 (i) &§2.1091- RF EXPOSURE

Applicable Standard

According to subpart 15.247 (i) and subpart 2.1091 systems operating under the provisions of this section shall be operated in a manner that ensures the public is not exposed to RF energy level in excess of the communication guidelines.

According to KDB 447498 D04 Interim General RF Exposure Guidance

MPE-Based Exemption:

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

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

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

Ris the minimum separation distance in meters
f = frequency in MHz

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

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

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

Result

Mode	Frequency (MHz)	Antenna Gain		Tune up conducted power		ERP		Evaluation Distance (m)	ERP Limit (W)
		(dBi)	(dBd)	(dBm)	(W)	(dBm)	(W)		
Bluetooth	2402-2480	4.88	2.73	12.0	0.016	14.73	0.030	0.2	0.768
BLE	2402-2480	4.88	2.73	10.5	0.011	13.23	0.021	0.2	0.768
Wi-Fi	2412-2462	4.88	2.73	18.0	0.063	20.73	0.118	0.2	0.768
	5180-5240	4.98	2.83	16.0	0.040	18.83	0.076	0.2	0.768
	5260-5320	4.98	2.83	17.5	0.056	20.33	0.108	0.2	0.768
	5500-5700	4.98	2.83	16.5	0.045	19.33	0.086	0.2	0.768
	5745-5825	4.98	2.83	16.0	0.040	18.83	0.076	0.2	0.768

Note:
1. The tune up conducted power and antenna gain was declared by the applicant.
2: 0dBd=2.15dBi.
3: The Bluetooth/BLE can transmit at same time with 2.4G Wi-Fi or 5G Wi-Fi

Simultaneous transmitting consideration (worst case):

The ratio=ERP_{BT}/ERP+ ERP_{Wi-Fi}/ ERP =0.030/0.768+0.118/0.768=0.193＜1.0, so simultaneous exposure is compliant.

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

Result: Compliance

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.

Antenna Connector Construction

The EUT has two internal antennas arrangement which were permanently attached, one for Wi-Fi and BLE, another only for Wi-Fi, the antenna gain is 4.88dBi, fulfill the requirement of this section. Please refer to the EUT photos.

Antenna	Antenna Type	Antenna Gain	Impedance	Frequency Range
Wi-Fi ANT1	PCB	4.88dBi	50 Ω	2.4~2.5GHz
Wi-Fi ANT2/BLE ANT	PCB	4.88dBi	50 Ω	2.4~2.5GHz

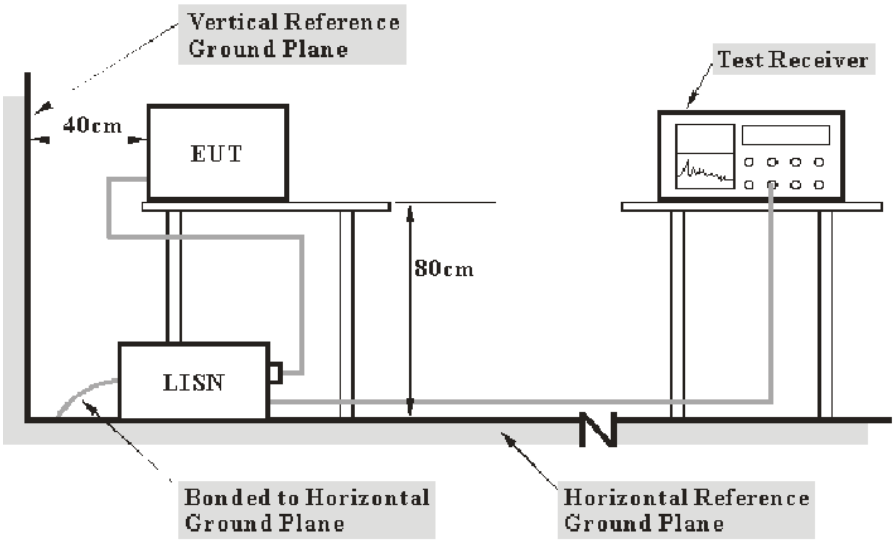
Result: Compliant

FCC § 15.207 (a) AC LINE CONDUCTED EMISSIONS

Applicable Standard

FCC §15.207(a)

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 measurement procedure of EUT setup is according with ANSI C63.10-2013. The related limit was specified in FCC Part 15.207.

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

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.

Transd Factor & Margin Calculation

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

Transd 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

Test Data

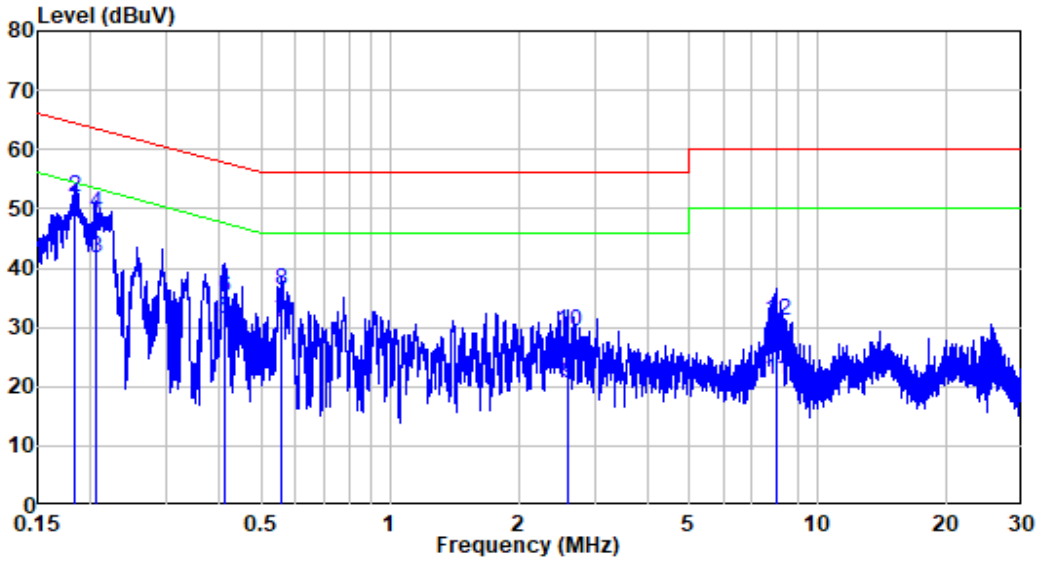
Environmental Conditions

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

The testing was performed by Lipa on2023-02-01.

EUT operation mode: Transmitting(worst case is 802.11ax20 mode, high channel)

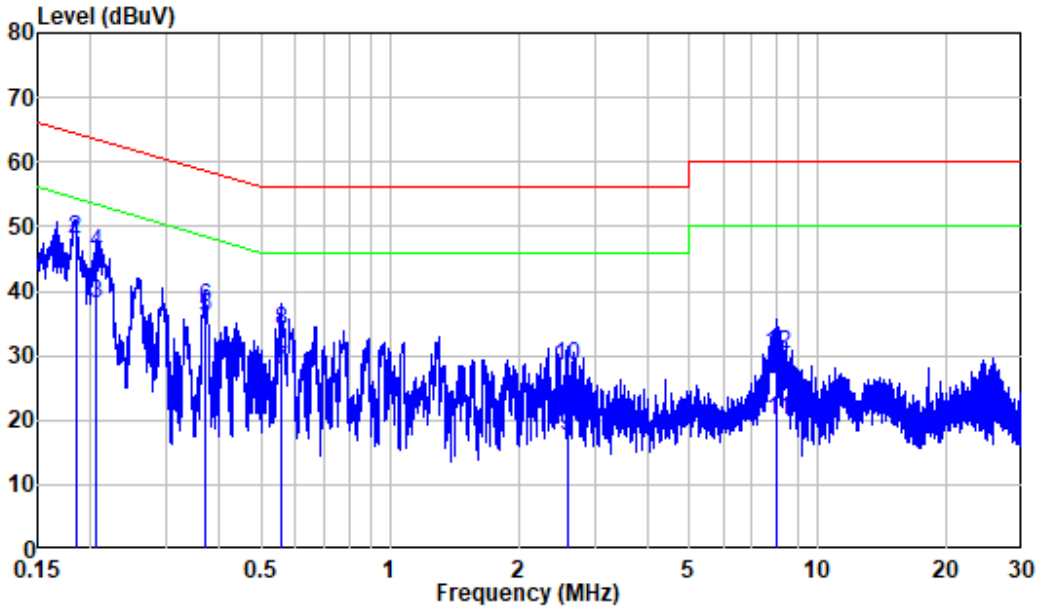
AC 120V/60 Hz, Line



Site : Shielding Room
Condition: Line
Job No. : RA230103-00156E-RF
Mode : 2.4G Wifi
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.183	9.90	40.39	50.29	54.34	-4.05	Average
2	0.183	9.90	42.08	51.98	64.34	-12.36	QP
3	0.206	9.90	31.68	41.58	53.35	-11.77	Average
4	0.206	9.90	39.17	49.07	63.35	-14.28	QP
5	0.412	9.82	21.44	31.26	47.60	-16.34	Average
6	0.412	9.82	25.15	34.97	57.60	-22.63	QP
7	0.556	9.84	21.05	30.89	46.00	-15.11	Average
8	0.556	9.84	26.32	36.16	56.00	-19.84	QP
9	2.593	9.93	10.46	20.39	46.00	-25.61	Average
10	2.593	9.93	19.39	29.32	56.00	-26.68	QP
11	7.999	9.98	11.08	21.06	50.00	-28.94	Average
12	7.999	9.98	20.99	30.97	60.00	-29.03	QP

AC 120V/60 Hz, Neutral



Site : Shielding Room
Condition: Neutral
Job No. : RA230103-00156E-RF
Mode : 2.4G Wifi
Power : AC 120V 60Hz

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dBuV	dBuV	dBuV	dB	
1	0.184	9.80	37.16	46.96	54.30	-7.34	Average
2	0.184	9.80	38.34	48.14	64.30	-16.16	QP
3	0.206	9.80	28.37	38.17	53.38	-15.21	Average
4	0.206	9.80	36.14	45.94	63.38	-17.44	QP
5	0.371	9.87	26.14	36.01	48.48	-12.47	Average
6	0.371	9.87	27.52	37.39	58.48	-21.09	QP
7	0.557	9.88	17.82	27.70	46.00	-18.30	Average
8	0.557	9.88	23.78	33.66	56.00	-22.34	QP
9	2.589	9.83	7.68	17.51	46.00	-28.49	Average
10	2.589	9.83	18.47	28.30	56.00	-27.70	QP
11	8.020	10.04	9.82	19.86	50.00	-30.14	Average
12	8.020	10.04	20.15	30.19	60.00	-29.81	QP

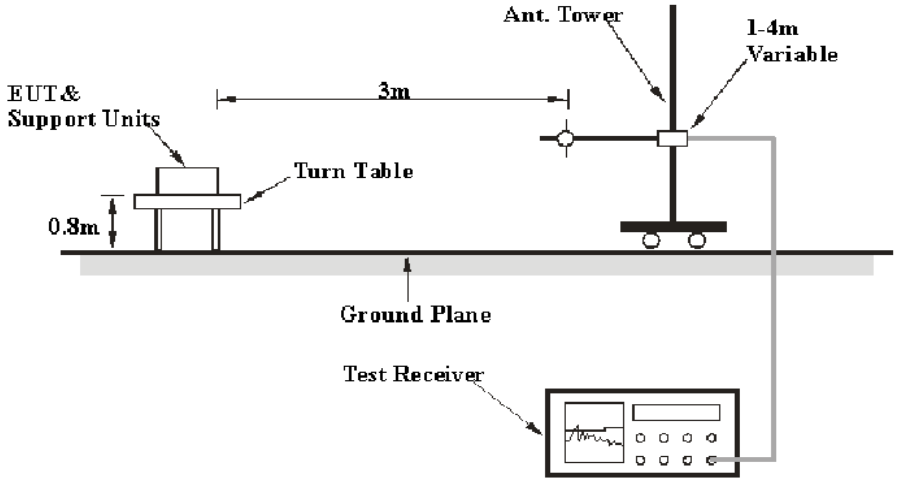
FCC§15.205, §15.209,§15.247(d) SPURIOUS EMISSIONS

Applicable Standard

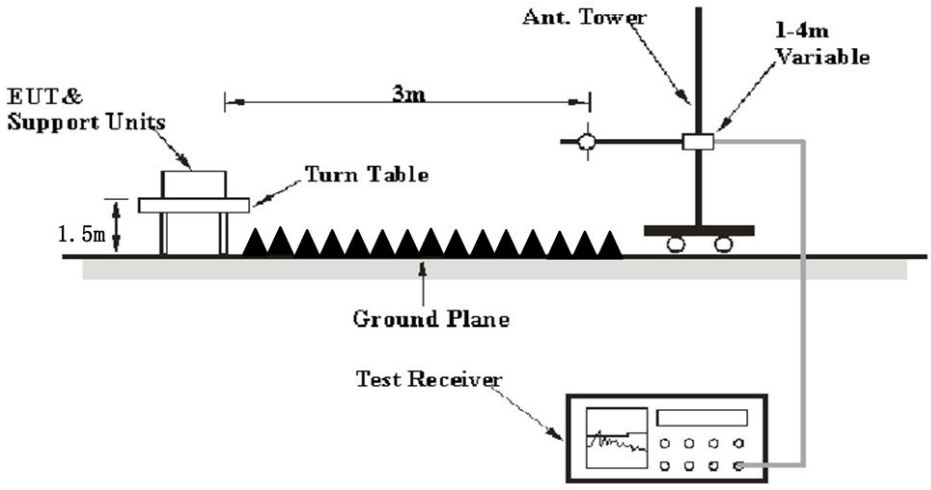
FCC §15.247 (d); §15.209;§15.205;

EUT Setup

Below 1 GHz:



Above 1GHz



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

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

EMI Test Receiver& Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

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

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

Note 1: when duty cycle is no less than 98%
Note 2: when duty cycle is less than 98%

Test Procedure

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

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

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

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

Repeat above procedures until all measured frequencies were complete.

Factor& Margin Calculation

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

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:	52~55%
ATM Pressure:	101.0 kPa

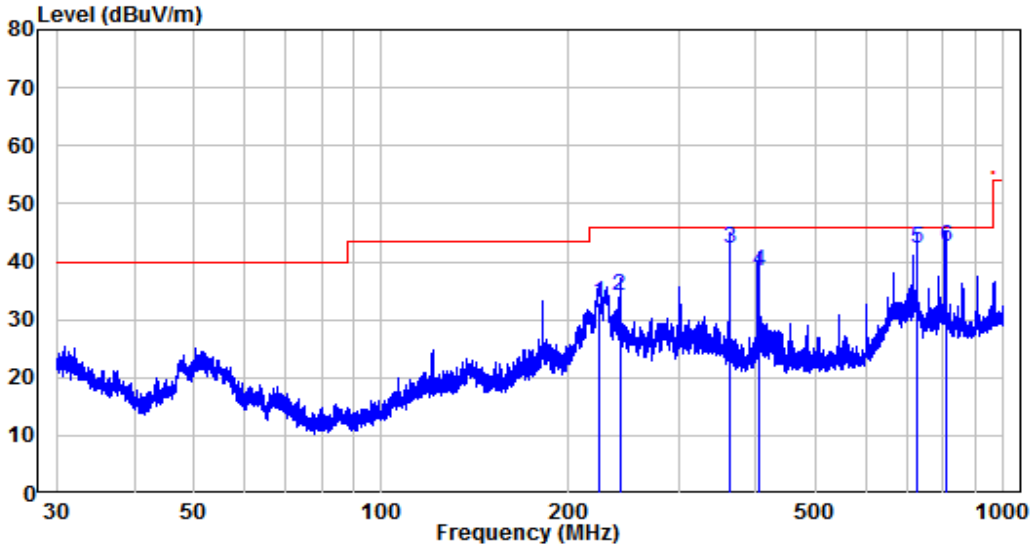
The testing was performed by Jimi Zheng on 2023-02-15 for below 1GHz,andon 2023-02-08 for above 1GHz

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

30 MHz~1 GHz: *(worst case is 802.11ax20 mode, high channel)*

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

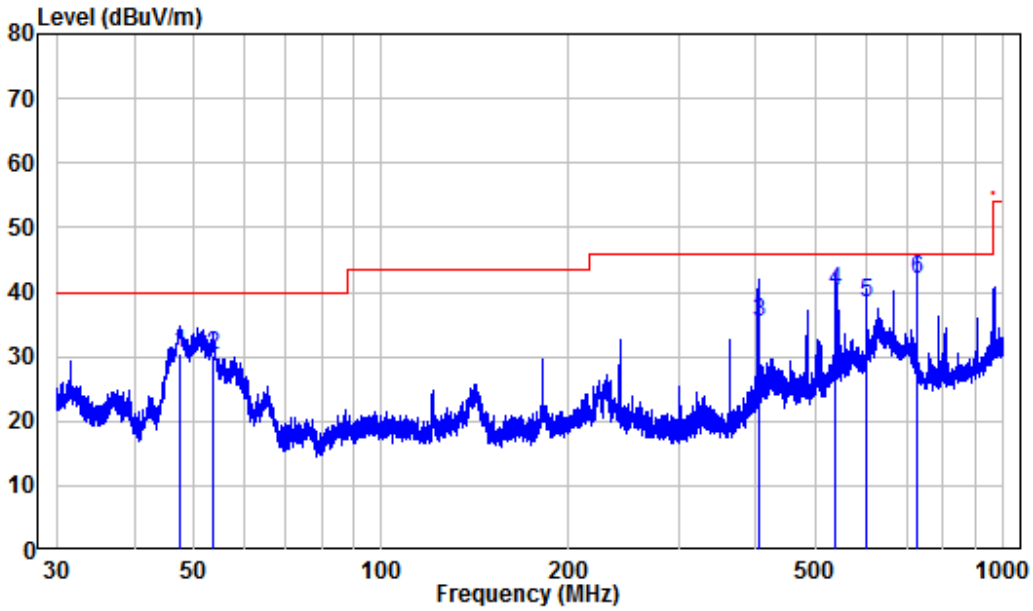
Horizontal



Site : chamber
Condition: 3m Horizontal
Job No. : RA230103-00156E-RF
Test Mode: 2.4G WIFI

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	224.03	-11.42	44.30	32.88	46.00	-13.12	QP
2	241.46	-11.71	45.70	33.99	46.00	-12.01	QP
3	362.35	-9.24	51.60	42.36	46.00	-3.64	QP
4	405.02	-7.19	45.60	38.41	46.00	-7.59	QP
5	724.58	-1.59	44.00	42.41	46.00	-3.59	QP
6	807.43	-0.44	43.00	42.56	46.00	-3.44	QP

Vertical



Site : chamber
Condition: 3m Vertical
Job No. : RA230103-00156E-RF
Test Mode: 2.4G WIFI

	Freq	Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dBuV	dBuV/m	dBuV/m	dB	
1	47.30	-15.00	45.58	30.58	40.00	-9.42	QP
2	53.51	-16.60	46.81	30.21	40.00	-9.79	QP
3	404.84	-7.19	42.50	35.31	46.00	-10.69	QP
4	538.06	-4.69	44.77	40.08	46.00	-5.92	QP
5	603.80	-4.31	42.70	38.39	46.00	-7.61	QP
6	724.58	-1.59	43.66	42.07	46.00	-3.93	QP

1 GHz-25 GHz:

Wi-Fi:

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11b (worst case ANT1)									
Low Channel2412MHz									
2310	61.34	PK	37	1.6	H	-7.24	54.10	74	-19.90
2310	48.06	AV	37	1.6	H	-7.24	40.82	54	-13.18
2310	61.55	PK	359	2.5	V	-7.24	54.31	74	-19.69
2310	48.17	AV	359	2.5	V	-7.24	40.93	54	-13.07
2390	65.10	PK	50	1.8	H	-7.22	57.88	74	-16.12
2390	51.65	AV	50	1.8	H	-7.22	44.43	54	-9.57
2390	66.18	PK	356	1.6	V	-7.22	58.96	74	-15.04
2390	54.03	AV	356	1.6	V	-7.22	46.81	54	-7.19
4824	63.58	PK	140	1.9	H	-3.52	60.06	74	-13.94
4824	54.74	AV	140	1.9	H	-3.52	51.22	54	-2.78
4824	64.13	PK	314	1.2	V	-3.52	60.61	74	-13.39
4824	55.49	AV	314	1.2	V	-3.52	51.97	54	-2.03
Middle Channel2437MHz									
4874	63.71	PK	24	2	H	-3.42	60.29	74	-13.71
4874	54.79	AV	24	2	H	-3.42	51.37	54	-2.63
4874	64.02	PK	103	1.8	V	-3.42	60.6	74	-13.40
4874	55.57	AV	103	1.8	V	-3.42	52.15	54	-1.85
High Channel2462MHz									
2483.5	66.48	PK	288	1.6	H	-7.20	59.28	74	-14.72
2483.5	53.23	AV	288	1.6	H	-7.20	46.03	54	-7.97
2483.5	67.89	PK	341	2.2	V	-7.20	60.69	74	-13.31
2483.5	55.82	AV	341	2.2	V	-7.20	48.62	54	-5.38
2500	62.89	PK	165	1.2	H	-7.18	55.71	74	-18.29
2500	50.64	AV	165	1.2	H	-7.18	43.46	54	-10.54
2500	64.22	PK	38	2.4	V	-7.18	57.04	74	-16.96
2500	51.98	AV	38	2.4	V	-7.18	44.8	54	-9.20
4924	63.31	PK	96	2.4	H	-3.16	60.15	74	-13.85
4924	54.47	AV	96	2.4	H	-3.16	51.31	54	-2.69
4924	63.63	PK	206	2.5	V	-3.16	60.47	74	-13.53
4924	55.29	AV	206	2.5	V	-3.16	52.13	54	-1.87

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11g (worst case ANT1)									
Low Channel2412MHz									
2310	62.18	PK	202	2.2	H	-7.24	54.94	74	-19.06
2310	49.65	AV	202	2.2	H	-7.24	42.41	54	-11.59
2310	62.79	PK	135	1.7	V	-7.24	55.55	74	-18.45
2310	50.53	AV	135	1.7	V	-7.24	43.29	54	-10.71
2390	67.83	PK	326	2.4	H	-7.22	60.61	74	-13.39
2390	55.54	AV	326	2.4	H	-7.22	48.32	54	-5.68
2390	70.09	PK	6	2.2	V	-7.22	62.87	74	-11.13
2390	56.61	AV	6	2.2	V	-7.22	49.39	54	-4.61
4824	60.04	PK	5	1.2	H	-3.52	56.52	74	-17.48
4824	46.53	AV	5	1.2	H	-3.52	43.01	54	-10.99
4824	59.41	PK	318	1.9	V	-3.52	55.89	74	-18.11
4824	45.98	AV	318	1.9	V	-3.52	42.46	54	-11.54
Middle Channel2437MHz									
4874	61.17	PK	358	1.4	H	-3.42	57.75	74	-16.25
4874	47.52	AV	358	1.4	H	-3.42	44.1	54	-9.90
4874	60.20	PK	265	2.1	V	-3.42	56.78	74	-17.22
4874	46.63	AV	265	2.1	V	-3.42	43.21	54	-10.79
High Channel2462MHz									
2483.5	71.24	PK	261	1.4	H	-7.20	64.04	74	-9.96
2483.5	56.71	AV	261	1.4	H	-7.20	49.51	54	-4.49
2483.5	73.40	PK	251	1.9	V	-7.20	66.2	74	-7.80
2483.5	58.97	AV	251	1.9	V	-7.20	51.77	54	-2.23
2500	65.04	PK	61	2	H	-7.18	57.86	74	-16.14
2500	53.01	AV	61	2	H	-7.18	45.83	54	-8.17
2500	67.17	PK	205	1.5	V	-7.18	59.99	74	-14.01
2500	55.76	AV	205	1.5	V	-7.18	48.58	54	-5.42
4924	60.39	PK	286	1.2	H	-3.16	57.23	74	-16.77
4924	46.84	AV	286	1.2	H	-3.16	43.68	54	-10.32
4924	58.90	PK	21	1.8	V	-3.16	55.74	74	-18.26
4924	45.95	AV	21	1.8	V	-3.16	42.79	54	-11.21

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11n20									
Low Channel2412MHz									
2310	63.86	PK	211	1.1	H	-7.24	56.62	74	-17.38
2310	49.89	AV	211	1.1	H	-7.24	42.65	54	-11.35
2310	64.74	PK	271	1.8	V	-7.24	57.50	74	-16.50
2310	50.90	AV	271	1.8	V	-7.24	43.66	54	-10.34
2390	72.41	PK	147	2.2	H	-7.22	65.19	74	-8.81
2390	57.44	AV	147	2.2	H	-7.22	50.22	54	-3.78
2390	72.28	PK	329	1.5	V	-7.22	65.06	74	-8.94
2390	57.00	AV	329	1.5	V	-7.22	49.78	54	-4.22
4824	59.14	PK	207	2	H	-3.52	55.62	74	-18.38
4824	44.40	AV	207	2	H	-3.52	40.88	54	-13.12
4824	59.23	PK	338	2.3	V	-3.52	55.71	74	-18.29
4824	44.47	AV	338	2.3	V	-3.52	40.95	54	-13.05
Middle Channel2437MHz									
4874	59.70	PK	95	2	H	-3.42	56.28	74	-17.72
4874	44.61	AV	95	2	H	-3.42	41.19	54	-12.81
4874	59.12	PK	244	2.1	V	-3.42	55.7	74	-18.30
4874	43.84	AV	244	2.1	V	-3.42	40.42	54	-13.58
High Channel2462MHz									
2483.5	73.84	PK	128	2.1	H	-7.20	66.64	74	-7.36
2483.5	58.02	AV	128	2.1	H	-7.20	50.82	54	-3.18
2483.5	69.89	PK	150	1.1	V	-7.20	62.69	74	-11.31
2483.5	55.40	AV	150	1.1	V	-7.20	48.2	54	-5.80
2500	68.11	PK	115	1.2	H	-7.18	60.93	74	-13.07
2500	53.78	AV	115	1.2	H	-7.18	46.6	54	-7.40
2500	65.93	PK	82	1.2	V	-7.18	58.75	74	-15.25
2500	52.28	AV	82	1.2	V	-7.18	45.1	54	-8.90
4924	58.26	PK	51	2.5	H	-3.16	55.10	74	-18.90
4924	44.89	AV	51	2.5	H	-3.16	41.73	54	-12.27
4924	58.54	PK	100	1.8	V	-3.16	55.38	74	-18.62
4924	44.59	AV	100	1.8	V	-3.16	41.43	54	-12.57

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11n40									
Low Channel2422MHz									
2310	64.71	PK	218	1.3	H	-7.24	57.47	74	-16.53
2310	49.97	AV	218	1.3	H	-7.24	42.73	54	-11.27
2310	64.70	PK	127	2.1	V	-7.24	57.46	74	-16.54
2310	50.63	AV	127	2.1	V	-7.24	43.39	54	-10.61
2390	71.87	PK	165	1.2	H	-7.22	64.65	74	-9.35
2390	57.64	AV	165	1.2	H	-7.22	50.42	54	-3.58
2390	70.89	PK	2	2.5	V	-7.22	63.67	74	-10.33
2390	57.15	AV	2	2.5	V	-7.22	49.93	54	-4.07
4844	59.51	PK	99	2.1	H	-3.54	55.97	74	-18.03
4844	45.09	AV	99	2.1	H	-3.54	41.55	54	-12.45
4844	58.70	PK	254	1.7	V	-3.54	55.16	74	-18.84
4844	44.77	AV	254	1.7	V	-3.54	41.23	54	-12.77
Middle Channel2437MHz									
4874	59.15	PK	53	1.9	H	-3.42	55.73	74	-18.27
4874	44.99	AV	53	1.9	H	-3.42	41.57	54	-12.43
4874	58.70	PK	211	1.6	V	-3.42	55.28	74	-18.72
4874	44.72	AV	211	1.6	V	-3.42	41.3	54	-12.70
High Channel2452MHz									
2483.5	72.63	PK	122	2.5	H	-7.20	65.43	74	-8.57
2483.5	56.60	AV	122	2.5	H	-7.20	49.4	54	-4.60
2483.5	73.07	PK	208	2.4	V	-7.20	65.87	74	-8.13
2483.5	58.26	AV	208	2.4	V	-7.20	51.06	54	-2.94
2500	66.85	PK	135	1.2	H	-7.18	59.67	74	-14.33
2500	53.22	AV	135	1.2	H	-7.18	46.04	54	-7.96
2500	66.71	PK	283	2.4	V	-7.18	59.53	74	-14.47
2500	52.61	AV	283	2.4	V	-7.18	45.43	54	-8.57
4904	58.89	PK	257	1.4	H	-3.26	55.63	74	-18.37
4904	44.89	AV	257	1.4	H	-3.26	41.63	54	-12.37
4904	57.62	PK	128	1.3	V	-3.26	54.36	74	-19.64
4904	44.64	AV	128	1.3	V	-3.26	41.38	54	-12.62

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ax20									
Low Channel2412MHz									
2310	63.97	PK	66	1.6	H	-7.24	56.73	74	-17.27
2310	50.08	AV	66	1.6	H	-7.24	42.84	54	-11.16
2310	63.37	PK	36	1.7	V	-7.24	56.13	74	-17.87
2310	49.94	AV	36	1.7	V	-7.24	42.70	54	-11.30
2390	73.37	PK	112	1.4	H	-7.22	66.15	74	-7.85
2390	58.36	AV	112	1.4	H	-7.22	51.14	54	-2.86
2390	71.78	PK	3	1.7	V	-7.22	64.56	74	-9.44
2390	56.66	AV	3	1.7	V	-7.22	49.44	54	-4.56
4824	59.23	PK	115	1.3	H	-3.52	55.71	74	-18.29
4824	44.75	AV	115	1.3	H	-3.52	41.23	54	-12.77
4824	57.58	PK	231	1.1	V	-3.52	54.06	74	-19.94
4824	44.79	AV	231	1.1	V	-3.52	41.27	54	-12.73
Middle Channel2437MHz									
4874	58.59	PK	256	2.4	H	-3.42	55.17	74	-18.83
4874	45.11	AV	256	2.4	H	-3.42	41.69	54	-12.31
4874	57.87	PK	270	1.1	V	-3.42	54.45	74	-19.55
4874	44.74	AV	270	1.1	V	-3.42	41.32	54	-12.68
High Channel2462MHz									
2483.5	73.61	PK	86	2	H	-7.20	66.41	74	-7.59
2483.5	58.14	AV	86	2	H	-7.20	50.94	54	-3.06
2483.5	70.21	PK	69	1.6	V	-7.20	63.01	74	-10.99
2483.5	56.33	AV	69	1.6	V	-7.20	49.13	54	-4.87
2500	66.38	PK	1	1.2	H	-7.18	59.2	74	-14.80
2500	53.24	AV	1	1.2	H	-7.18	46.06	54	-7.94
2500	66.32	PK	0	1.8	V	-7.18	59.14	74	-14.86
2500	53.00	AV	0	1.8	V	-7.18	45.82	54	-8.18
4924	58.11	PK	131	1.2	H	-3.16	54.95	74	-19.05
4924	44.89	AV	131	1.2	H	-3.16	41.73	54	-12.27
4924	57.41	PK	202	2.4	V	-3.16	54.25	74	-19.75
4924	45.12	AV	202	2.4	V	-3.16	41.96	54	-12.04

Frequency (MHz)	Receiver		Turntable Angle Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
802.11ax40									
Low Channel2422MHz									
2310	63.42	PK	292	2	H	-7.24	56.18	74	-17.82
2310	50.07	AV	292	2	H	-7.24	42.83	54	-11.17
2310	64.79	PK	234	2.2	V	-7.24	57.55	74	-16.45
2310	51.73	AV	234	2.2	V	-7.24	44.49	54	-9.51
2390	73.28	PK	330	1.5	H	-7.22	66.06	74	-7.94
2390	58.50	AV	330	1.5	H	-7.22	51.28	54	-2.72
2390	75.26	PK	316	1.8	V	-7.22	68.04	74	-5.96
2390	57.64	AV	316	1.8	V	-7.22	50.42	54	-3.58
4844	58.40	PK	179	1.6	H	-3.54	54.86	74	-19.14
4844	45.39	AV	179	1.6	H	-3.54	41.85	54	-12.15
4844	58.09	PK	118	2.2	V	-3.54	54.55	74	-19.45
4844	44.83	AV	118	2.2	V	-3.54	41.29	54	-12.71
Middle Channel2437MHz									
4874	57.71	PK	329	1.6	H	-3.42	54.29	74	-19.71
4874	44.98	AV	329	1.6	H	-3.42	41.56	54	-12.44
4874	58.14	PK	148	1.9	V	-3.42	54.72	74	-19.28
4874	45.13	AV	148	1.9	V	-3.42	41.71	54	-12.29
High Channel2452MHz									
2483.5	75.26	PK	41	1.2	H	-7.20	68.06	74	-5.94
2483.5	58.61	AV	41	1.2	H	-7.20	51.41	54	-2.59
2483.5	73.15	PK	282	2.2	V	-7.20	65.95	74	-8.05
2483.5	57.32	AV	282	2.2	V	-7.20	50.12	54	-3.88
2500	67.17	PK	241	1.3	H	-7.18	59.99	74	-14.01
2500	53.71	AV	241	1.3	H	-7.18	46.53	54	-7.47
2500	66.91	PK	235	1.1	V	-7.18	59.73	74	-14.27
2500	53.67	AV	235	1.1	V	-7.18	46.49	54	-7.51
4904	57.95	PK	255	1.6	H	-3.26	54.69	74	-19.31
4904	45.17	AV	255	1.6	H	-3.26	41.91	54	-12.09
4904	57.48	PK	12	2.1	V	-3.26	54.22	74	-19.78
4904	45.04	AV	12	2.1	V	-3.26	41.78	54	-12.22

BLE:

Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
BLE1M									
Low Channel 2402MHz									
2310	61.80	PK	253	1.8	H	-7.24	54.56	74	-19.44
2310	48.26	AV	253	1.8	H	-7.24	41.02	54	-12.98
2310	62.13	PK	122	1.2	V	-7.24	54.89	74	-19.11
2310	48.51	AV	122	1.2	V	-7.24	41.27	54	-12.73
2390	64.70	PK	278	1.4	H	-7.22	57.48	74	-16.52
2390	51.24	AV	278	1.4	H	-7.22	44.02	54	-9.98
2390	65.05	PK	180	1.9	V	-7.22	57.83	74	-16.17
2390	51.39	AV	180	1.9	V	-7.22	44.17	54	-9.83
4804	61.30	PK	305	1.8	H	-3.51	57.79	74	-16.21
4804	48.35	AV	305	1.8	H	-3.51	44.84	54	-9.16
4804	61.14	PK	233	2.3	V	-3.51	57.63	74	-16.37
4804	48.22	AV	233	2.3	V	-3.51	44.71	54	-9.29
Middle Channel 2440MHz									
4880	57.64	PK	57	2.1	H	-3.38	54.26	74	-19.74
4880	42.83	AV	57	2.1	H	-3.38	39.45	54	-14.55
4880	57.61	PK	261	2	V	-3.38	54.23	74	-19.77
4880	43.00	AV	261	2	V	-3.38	39.62	54	-14.38
High Channel 2480MHz									
2483.5	63.85	PK	28	1.7	H	-7.20	56.65	74	-17.35
2483.5	50.30	AV	28	1.7	H	-7.20	43.1	54	-10.90
2483.5	63.99	PK	263	1.2	V	-7.20	56.79	74	-17.21
2483.5	50.80	AV	263	1.2	V	-7.20	43.6	54	-10.40
2500	63.58	PK	308	1.9	H	-7.18	56.4	74	-17.60
2500	49.74	AV	308	1.9	H	-7.18	42.56	54	-11.44
2500	64.28	PK	149	1.2	V	-7.18	57.1	74	-16.90
2500	49.95	AV	149	1.2	V	-7.18	42.77	54	-11.23
4960	58.05	PK	324	1.9	H	-3.01	55.04	74	-18.96
4960	42.76	AV	324	1.9	H	-3.01	39.75	54	-14.25
4960	57.21	PK	255	2.3	V	-3.01	54.20	74	-19.80
4960	42.93	AV	255	2.3	V	-3.01	39.92	54	-14.08

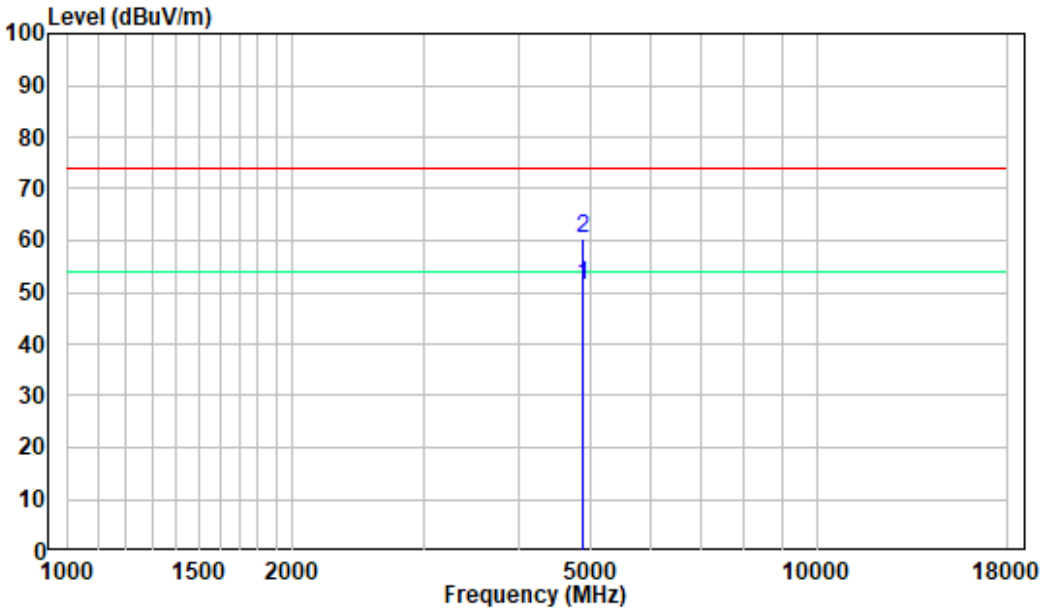
Frequency (MHz)	Receiver		Turntable Degree	Rx Antenna		Factor (dB/m)	Absolute Level (dBμV/m)	Limit (dBμV/m)	Margin (dB)
	Reading (dBμV)	PK/Ave		Height (m)	Polar (H/V)				
BLE2M									
Low Channel 2402MHz									
2310	61.52	PK	266	2.5	H	-7.24	54.28	74	-19.72
2310	48.47	AV	266	2.5	H	-7.24	41.23	54	-12.77
2310	61.61	PK	189	2.5	V	-7.24	54.37	74	-19.63
2310	48.51	AV	189	2.5	V	-7.24	41.27	54	-12.73
2390	63.63	PK	280	1.4	H	-7.22	56.41	74	-17.59
2390	50.26	AV	280	1.4	H	-7.22	43.04	54	-10.96
2390	63.71	PK	311	1.6	V	-7.22	56.49	74	-17.51
2390	50.25	AV	311	1.6	V	-7.22	43.03	54	-10.97
4804	61.08	PK	182	2	H	-3.51	57.57	74	-16.43
4804	47.99	AV	182	2	H	-3.51	44.48	54	-9.52
4804	59.83	PK	225	1.6	V	-3.51	56.32	74	-17.68
4804	47.77	AV	225	1.6	V	-3.51	44.26	54	-9.74
Middle Channel 2440MHz									
4880	57.47	PK	262	2	H	-3.38	54.09	74	-19.91
4880	43.13	AV	262	2	H	-3.38	39.75	54	-14.25
4880	57.59	PK	249	1.1	V	-3.38	54.21	74	-19.79
4880	43.19	AV	249	1.1	V	-3.38	39.81	54	-14.19
High Channel 2480MHz									
2483.5	63.63	PK	54	1.6	H	-7.20	56.43	74	-17.57
2483.5	51.39	AV	54	1.6	H	-7.20	44.19	54	-9.81
2483.5	64.67	PK	236	1.6	V	-7.20	57.47	74	-16.53
2483.5	51.70	AV	236	1.6	V	-7.20	44.5	54	-9.50
2500	63.65	PK	152	2	H	-7.18	56.47	74	-17.53
2500	50.21	AV	152	2	H	-7.18	43.03	54	-10.97
2500	63.55	PK	288	1.5	V	-7.18	56.37	74	-17.63
2500	50.28	AV	288	1.5	V	-7.18	43.1	54	-10.90
4960	57.51	PK	292	1.4	H	-3.01	54.50	74	-19.50
4960	43.10	AV	292	1.4	H	-3.01	40.09	54	-13.91
4960	57.43	PK	167	1.6	V	-3.01	54.42	74	-19.58
4960	43.20	AV	167	1.6	V	-3.01	40.19	54	-13.81

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 20dB to the limit or in the noise floor level was not recorded.
When the test result of peak was less than the limit of average, just peak values were recorded.

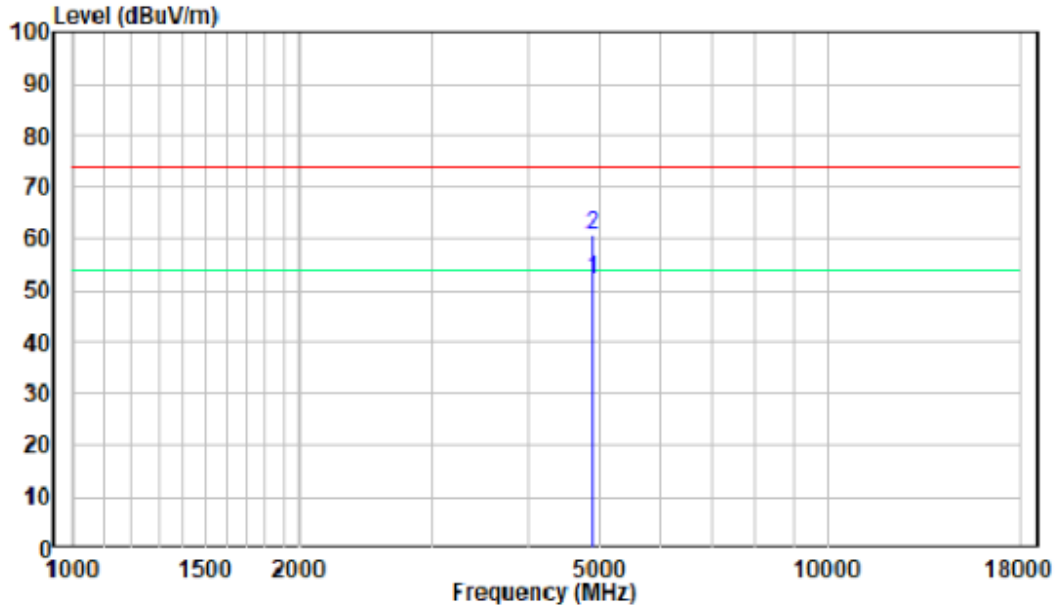
1-18 GHz:

Pre-scan for 802.11b Middle Channel

Horizontal



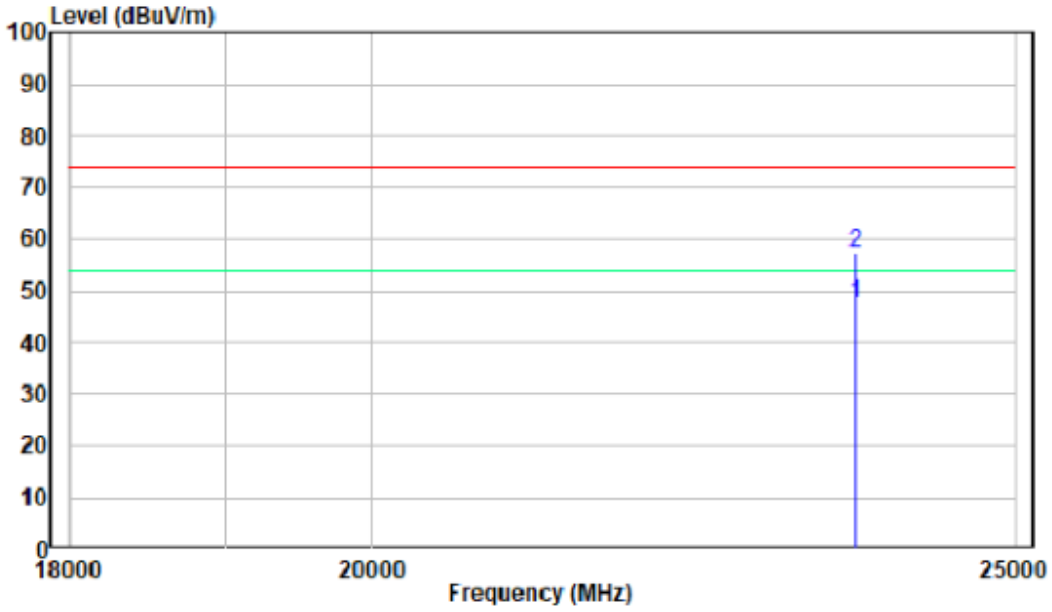
Vertical



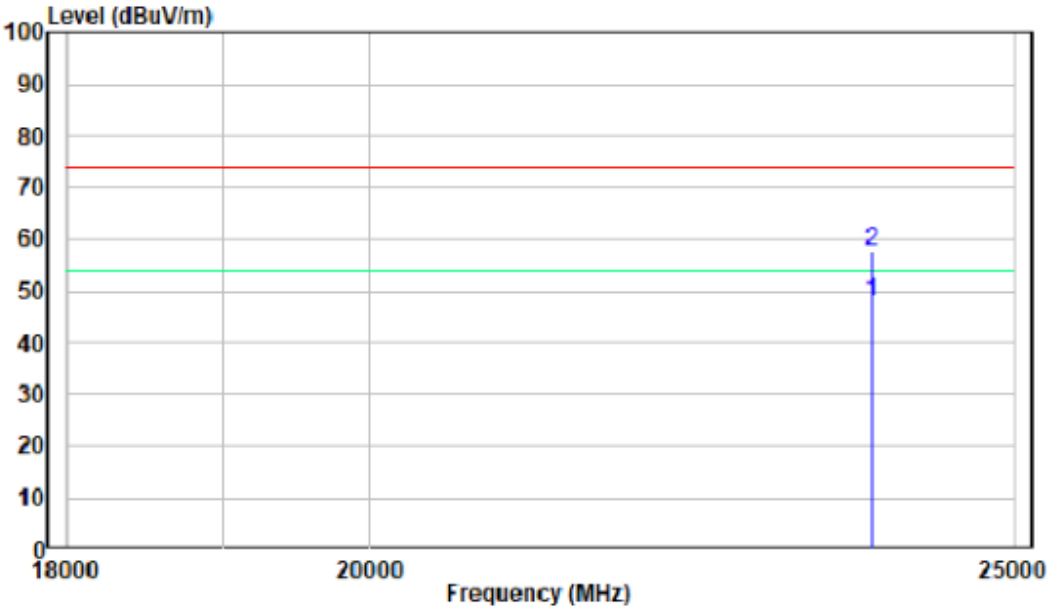
18 -25GHz:

Pre-scan for 802.11b Middle Channel

Horizontal



Vertical



§15.247 (a)(2) § 5.2 (a)99% OCCUPIED BANDWIDTH &6dB EMISSION BANDWIDTH

Applicable Standard

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

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

Test Procedure

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

The following conditions shall be observed for measuring the occupied bandwidth and 6 dB bandwidth:
• The transmitter shall be operated at its maximum carrier power measured under normal test conditions.

• The span of the spectrum analyzer shall be set large enough to capture all products of the modulation process, including the emission skirts, around the carrier frequency, but small enough to avoid having other emissions (e.g. on adjacent channels) within the span.

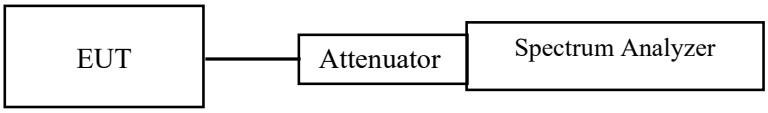
• The detector of the spectrum analyzer shall be set to "Sample". However, a peak, or peak hold, may be used in place of the sampling detector since this usually produces a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold (or "Max Hold") may be necessary to determine the occupied / 6 dB bandwidth if the device is not transmitting continuously.

• The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the actual occupied / 6 dB bandwidth and the video bandwidth (VBW) shall not be smaller than three times the RBW value. Video averaging is not permitted.

Note: It may be necessary to repeat the measurement a few times until the RBW and VBW are in compliance with the above requirement.

For the 99% emission bandwidth, the trace data points are recovered and directly summed in linear power level terms. The recovered amplitude data points, beginning at the lowest frequency, are placed

in a running sum until 0.5% of the total is reached, and that frequency recorded. The process is repeated for the highest frequency data points (starting at the highest frequency, at the right side of the span, and going down in frequency). This frequency is then recorded. The difference between the two recorded frequencies is the occupied bandwidth (or the 99% emission bandwidth).



Test Data

Environmental Conditions

Temperature:	23.6~27.4℃
Relative Humidity:	39~56%
ATM Pressure:	100.2~101.0 kPa

The testing was performed by Roger Ling on 2023-02-28 and 03-28.

EUT operation mode: Transmitting

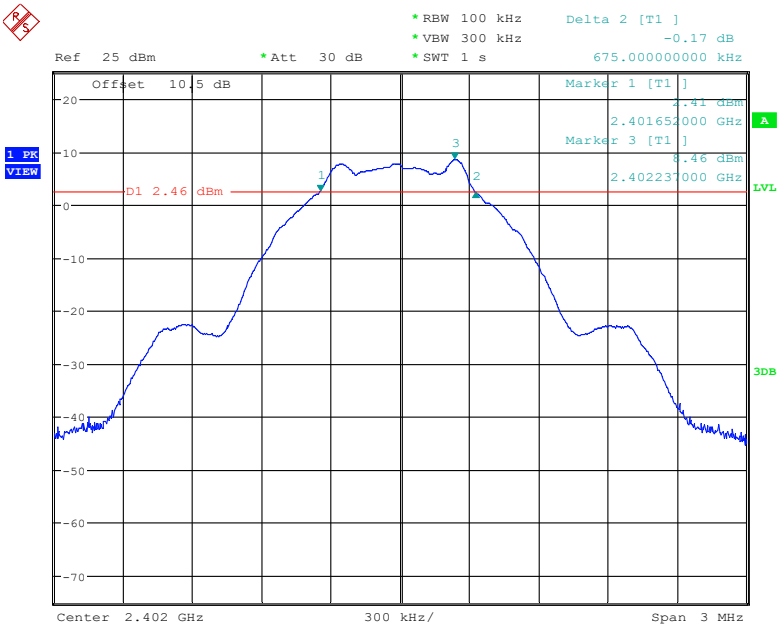
Test Result Compliant.

Channel	Frequency (MHz)	6 dB Emission Bandwidth (MHz)	99%Emission Bandwidth (MHz)	6dB BW Limit (kHz)
802.11b mode				
Low	2412	8.10	12.40	≥500
Middle	2437	8.13	12.40	≥500
High	2462	8.07	12.40	≥500
802.11g mode				
Low	2412	15.18	16.80	≥500
Middle	2437	15.51	18.00	≥500
High	2462	15.87	18.04	≥500
802.11n-HT20 mode				
Low	2412	15.36	17.72	≥500
Middle	2437	16.14	19.00	≥500
High	2462	16.95	19.00	≥500
802.11n-HT40 mode				
Low	2422	35.28	36.24	≥500
Middle	2437	32.70	36.00	≥500
High	2452	35.28	36.32	≥500
802.11AX-HT20 mode				
Low	2412	18.09	18.80	≥500
Middle	2437	18.42	19.28	≥500
High	2462	18.36	19.24	≥500
802.11AX-HT40 mode				
Low	2422	36.48	37.60	≥500
Middle	2437	36.48	37.60	≥500
High	2452	37.20	37.60	≥500
BLE 1M				
Low	2402	0.675	1.035	≥500
Middle	2440	0.672	1.032	≥500
High	2480	0.675	1.032	≥500
BLE 2M				
Low	2402	1.188	2.064	≥500
Middle	2440	1.188	2.064	≥500
High	2480	1.188	2.058	≥500

Note: the Ant 2 was tested.

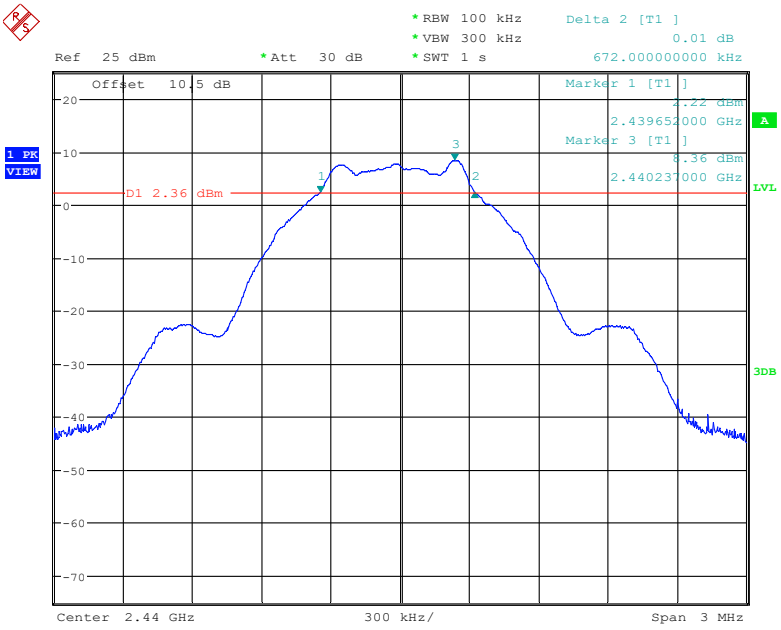
6dB Bandwidth:
BLE 1M:

Low Channel



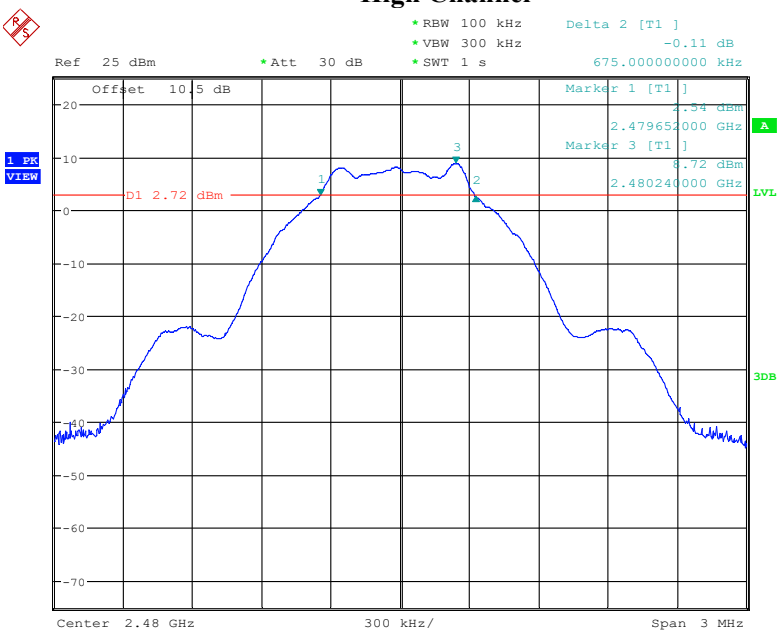
Date: 28.MAR.2023 17:33:21

Middle Channel



Date: 28.MAR.2023 17:37:35

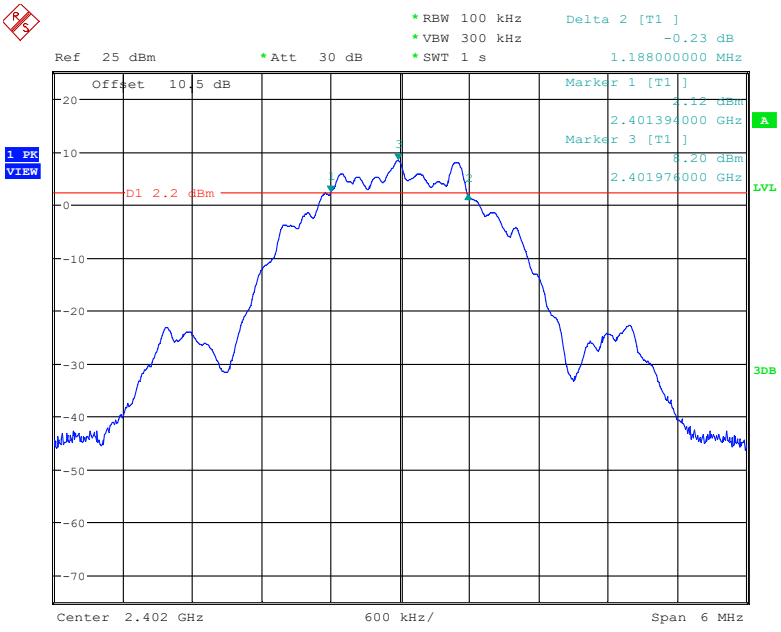
High Channel



Date: 28.MAR.2023 17:55:16

BLE 2M:

Low Channel



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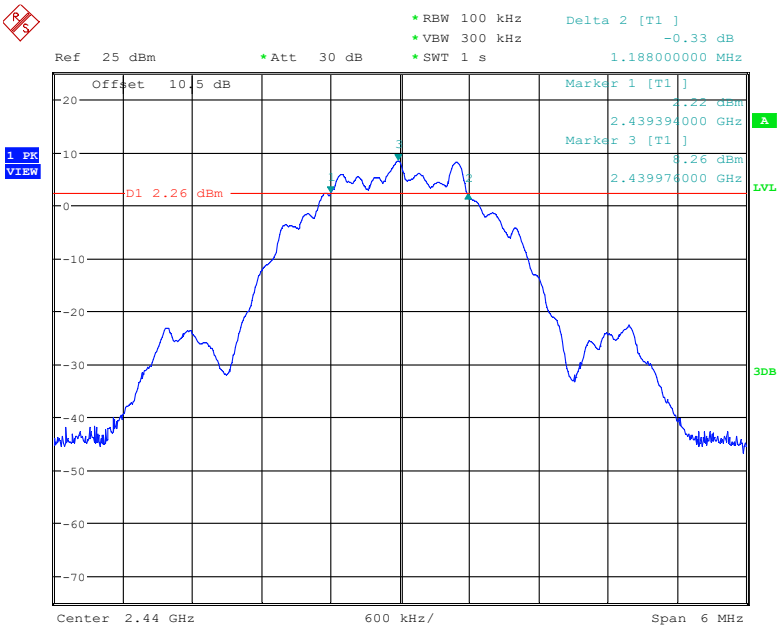
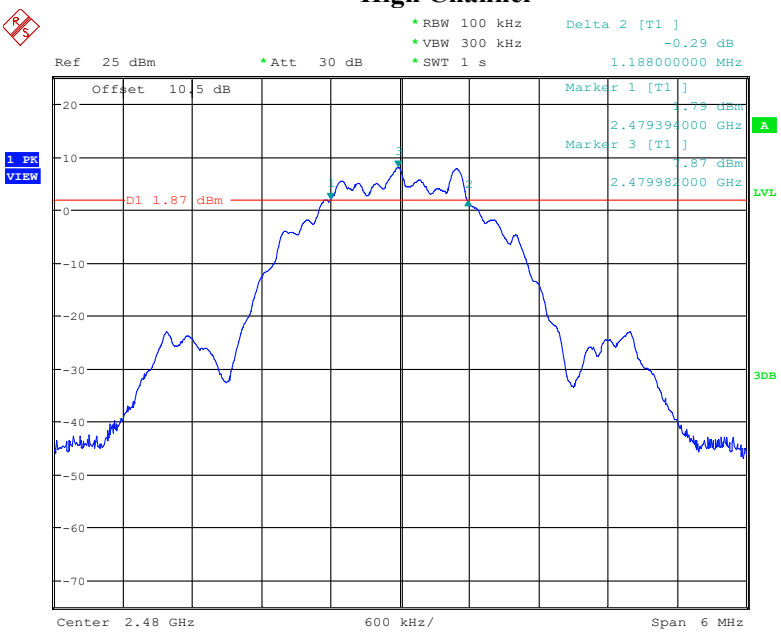
Middle Channel



Date: 28.MAR.2023 18:01:16

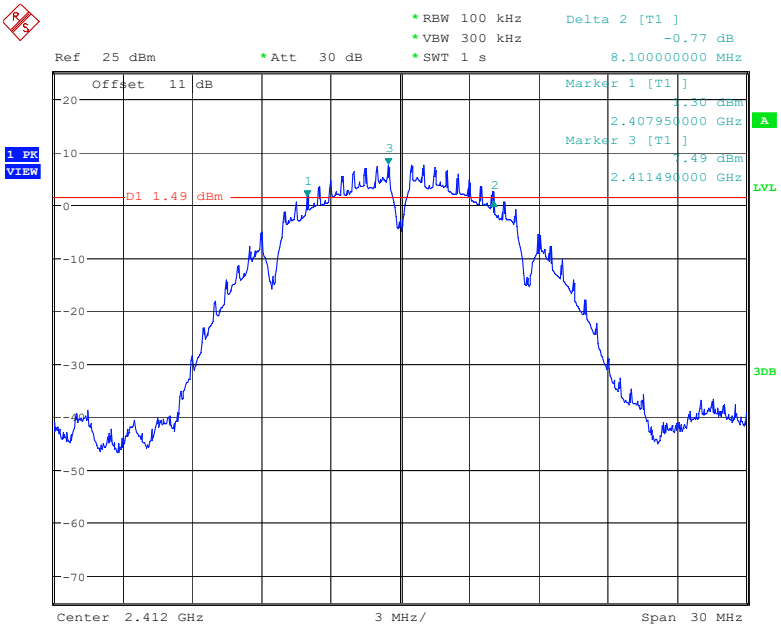
High Channel



Date: 28.MAR.2023 18:03:33

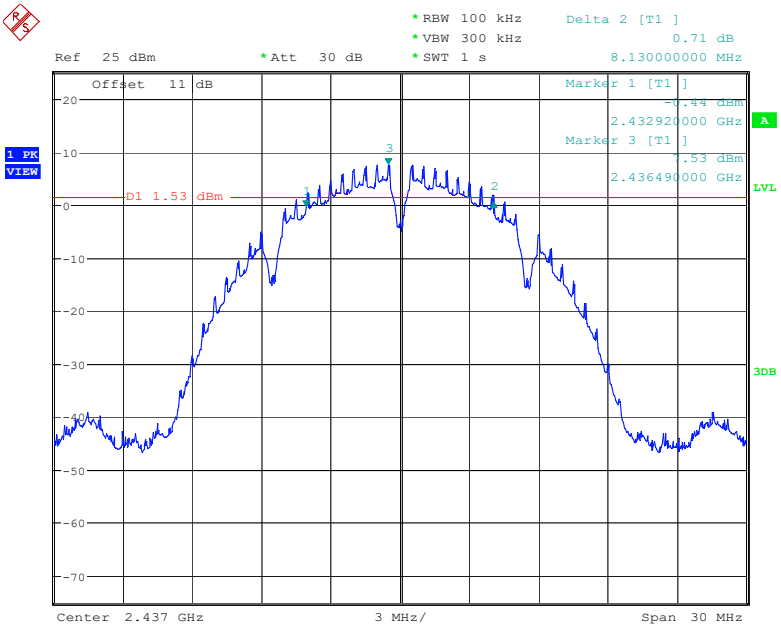
802.11b Mode:

Low Channel



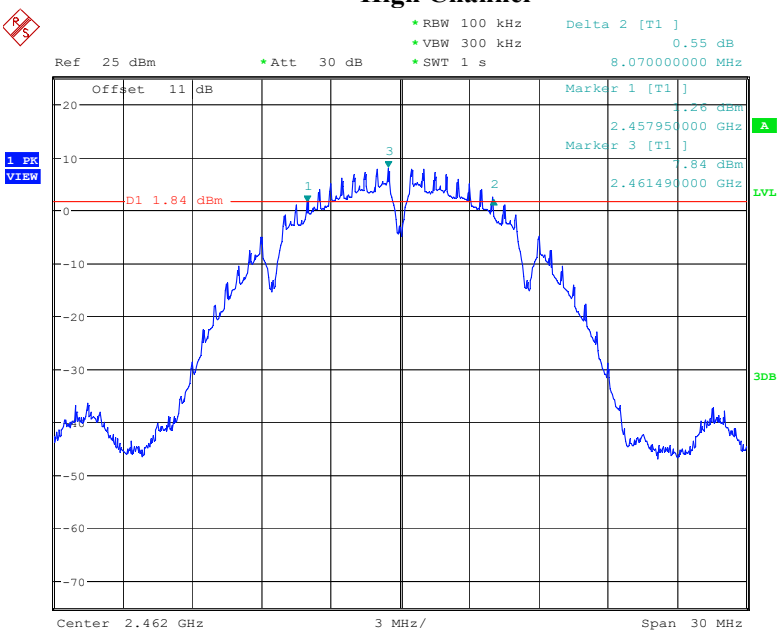
Date: 28.FEB.2023 20:15:11

Middle Channel



Date: 28.FEB.2023 20:38:09

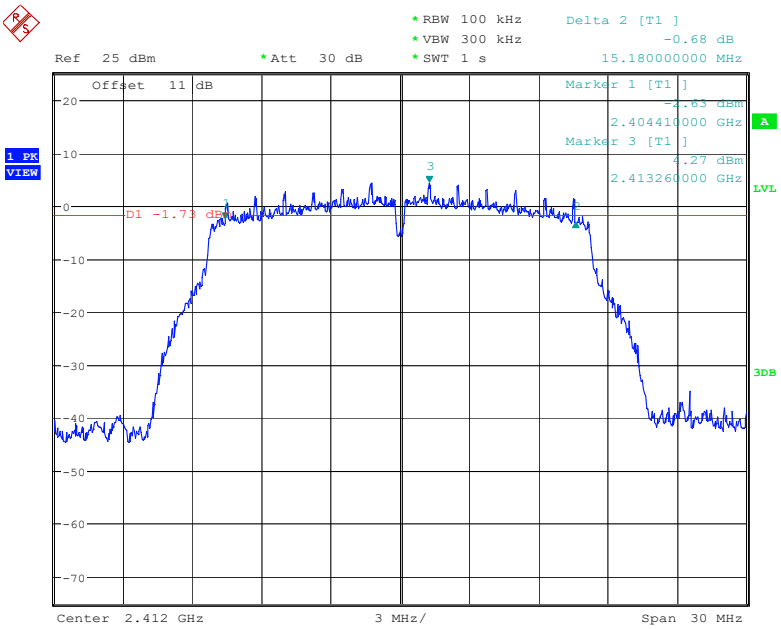
High Channel



Date: 28.FEB.2023 20:47:41

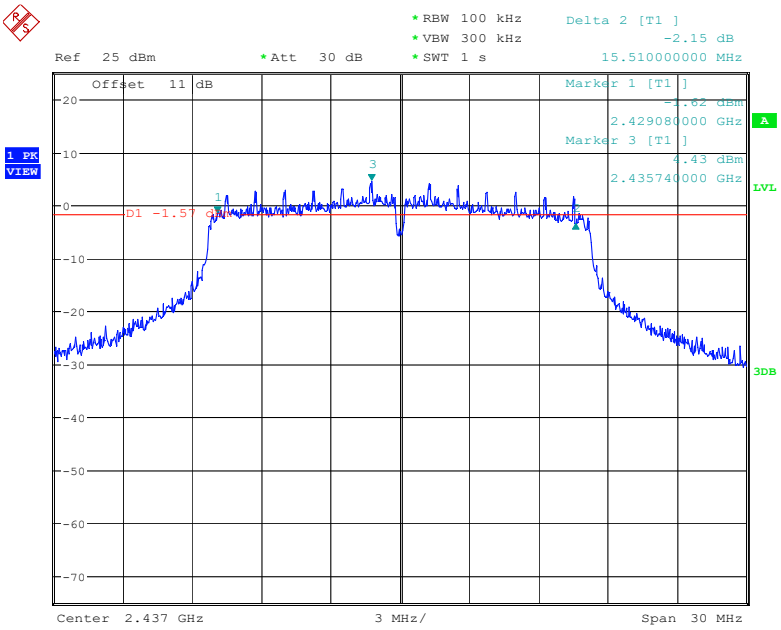
802.11g Mode:

Low Channel



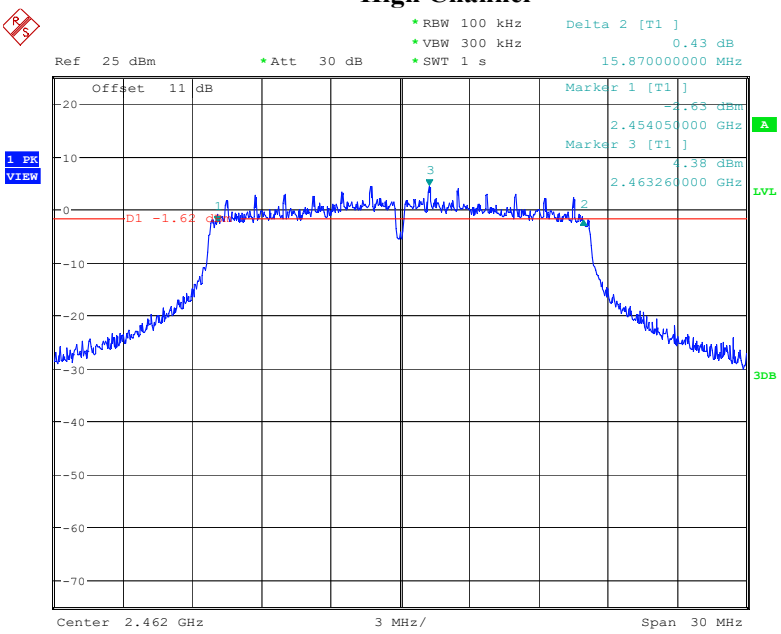
Date: 28.FEB.2023 21:01:55

Middle Channel



Date: 28.FEB.2023 21:08:03

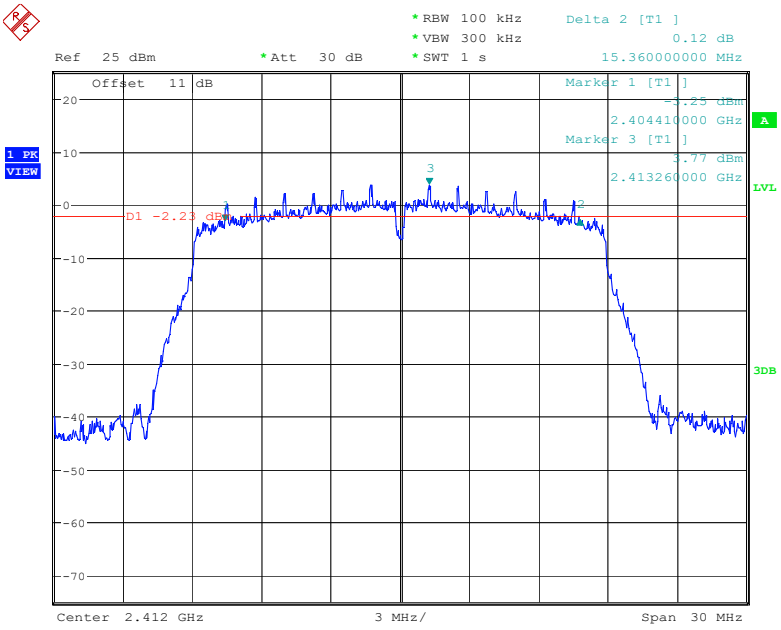
High Channel



Date: 28.FEB.2023 21:13:07

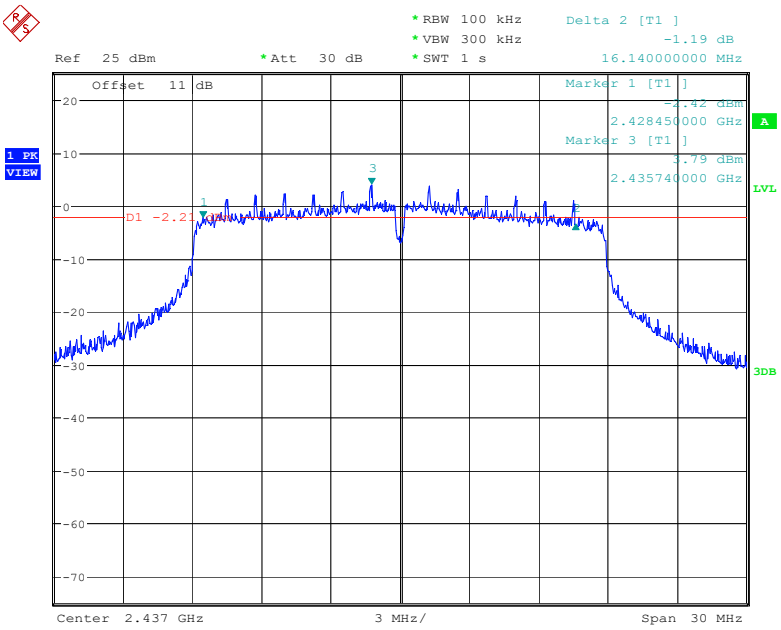
802.11n-20 Mode:

Low Channel



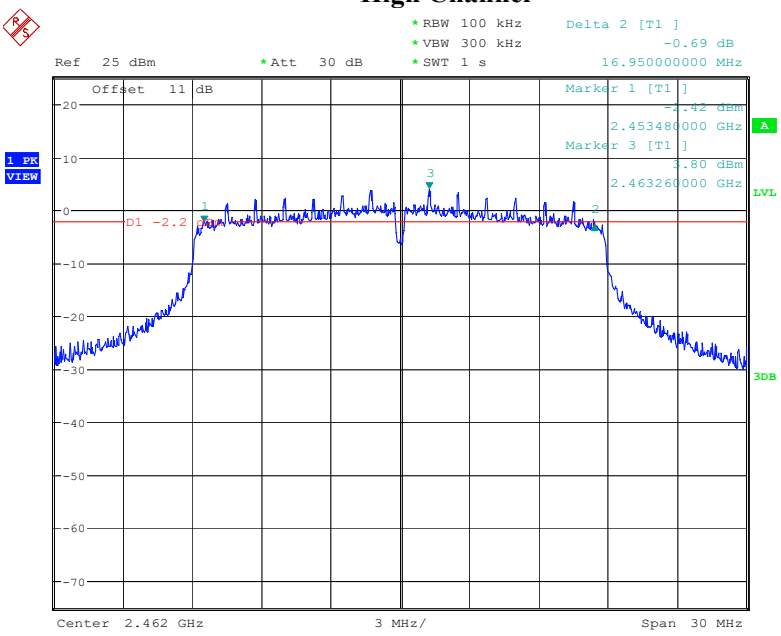
Date: 28.FEB.2023 21:17:15

Middle Channel



Date: 28.FEB.2023 21:21:16

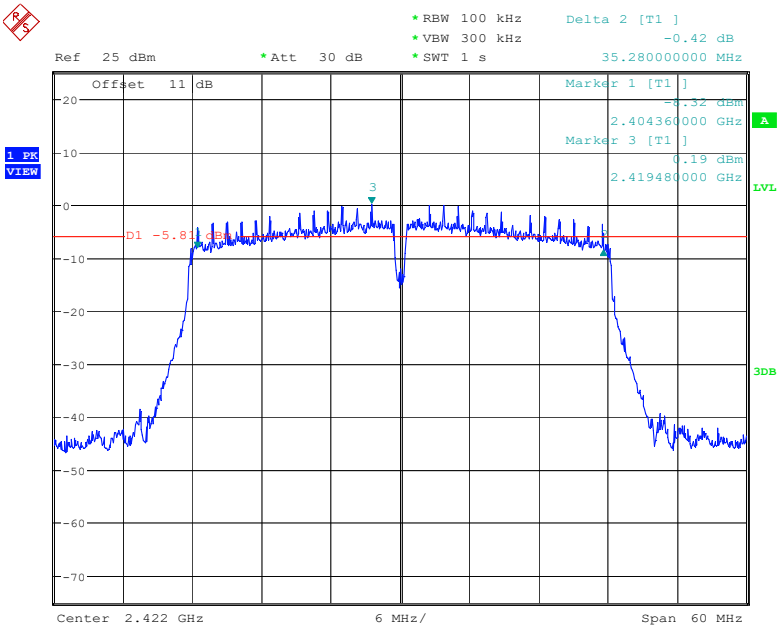
High Channel



Date: 28.FEB.2023 21:24:19

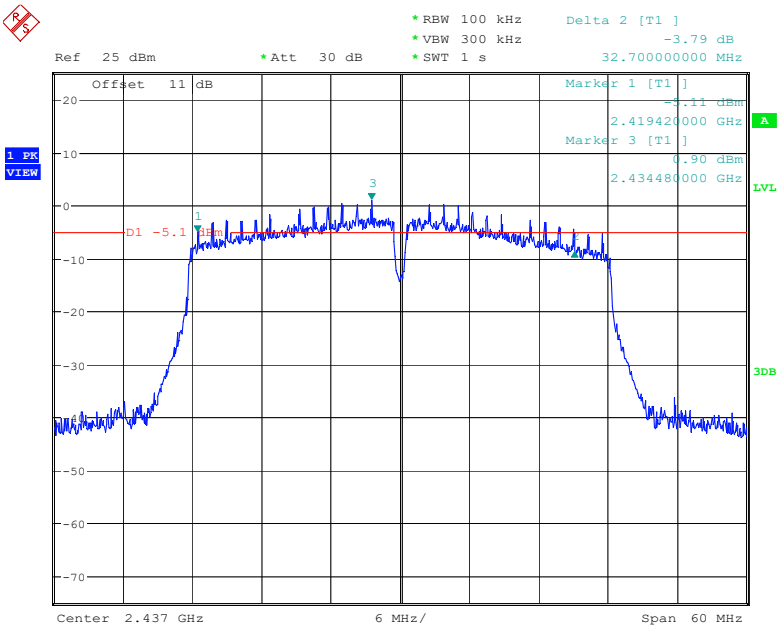
802.11n-40Mode:

Low Channel



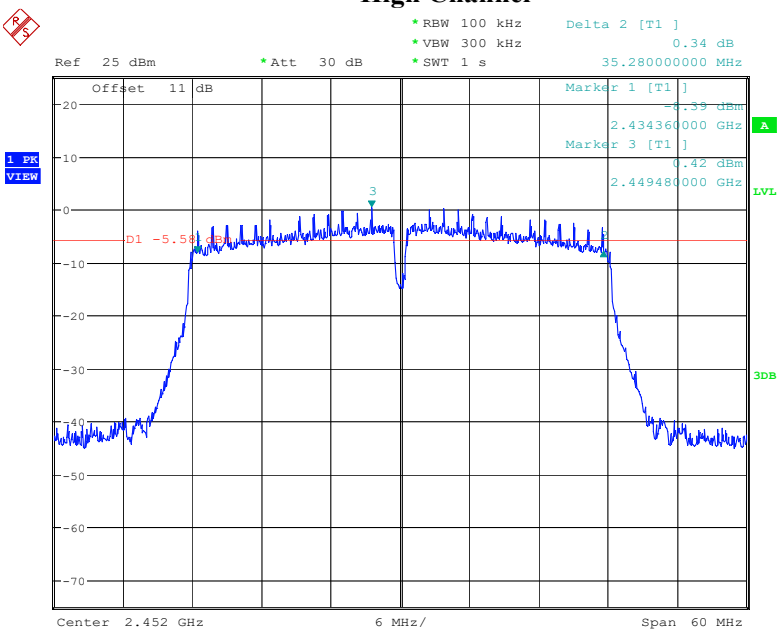
Date: 28.FEB.2023 21:28:05

Middle Channel



Date: 28.FEB.2023 21:31:44

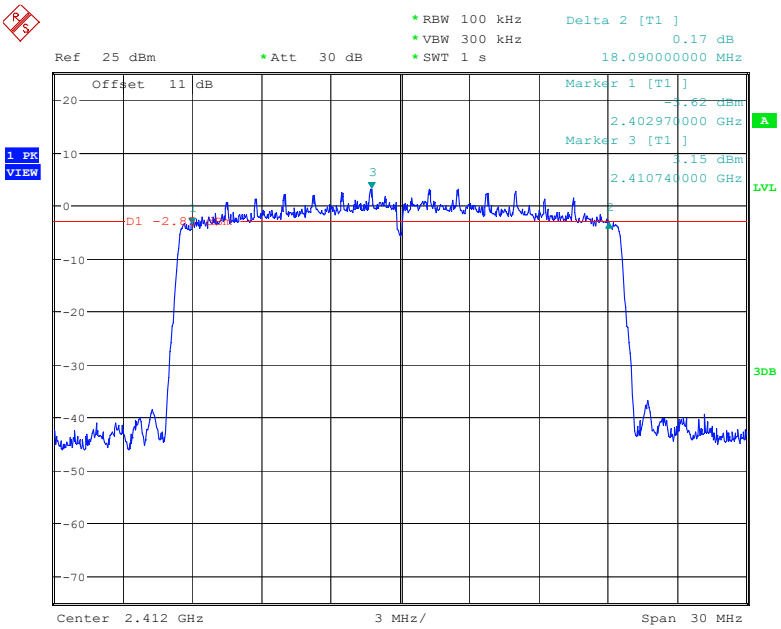
High Channel



Date: 28.FEB.2023 21:34:43

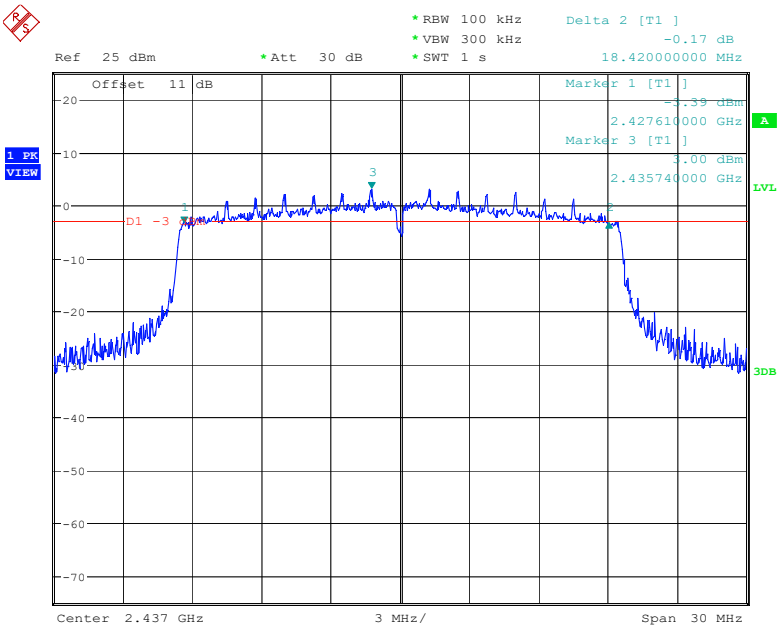
802.11AX-HT20 Mode:

Low Channel



Date: 28.FEB.2023 23:09:52

Middle Channel



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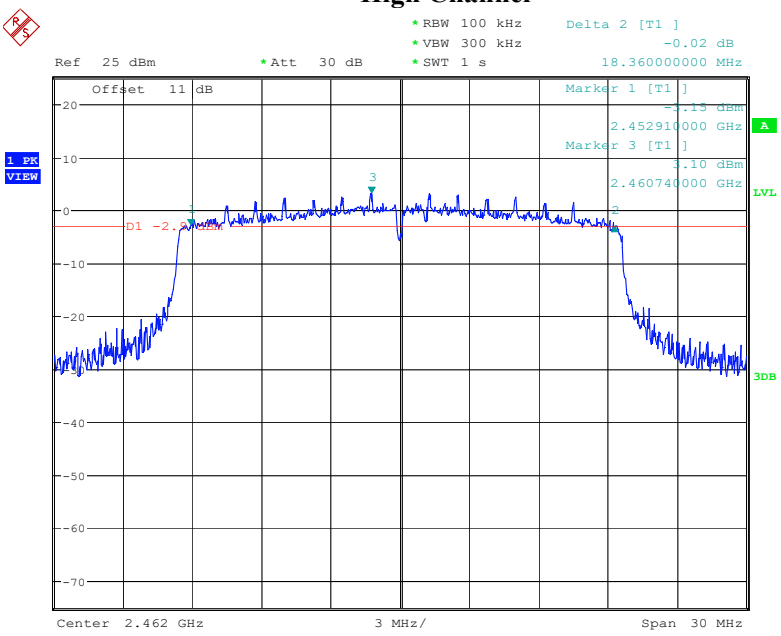
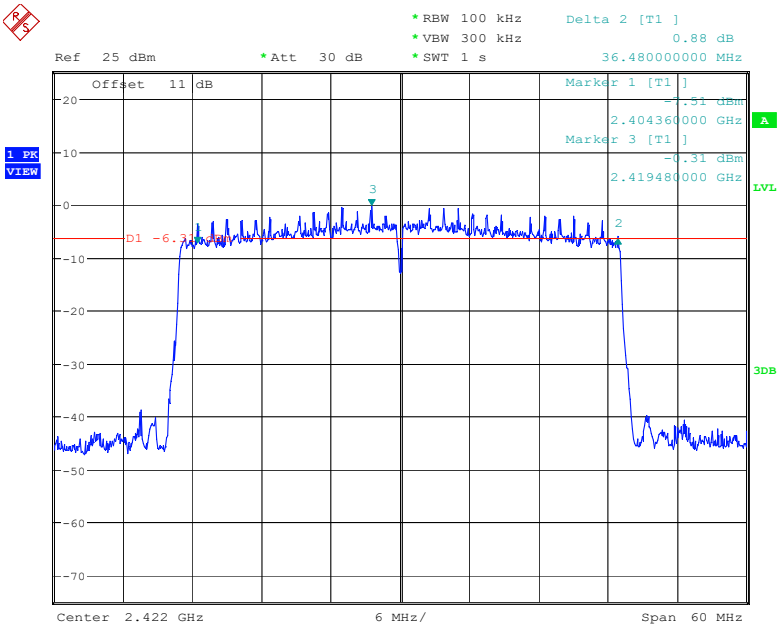
High Channel



Date: 28.FEB.2023 23:18:30

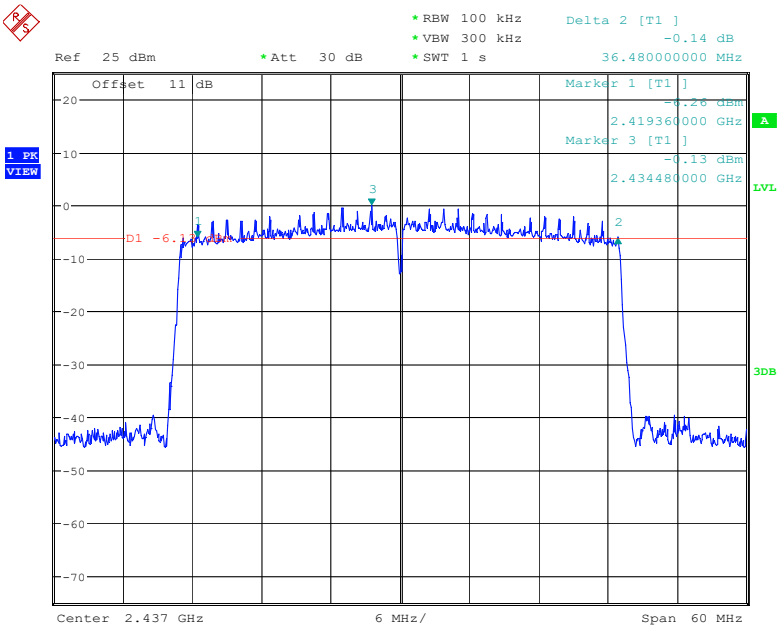
802.11AX-HT40 Mode:

Low Channel



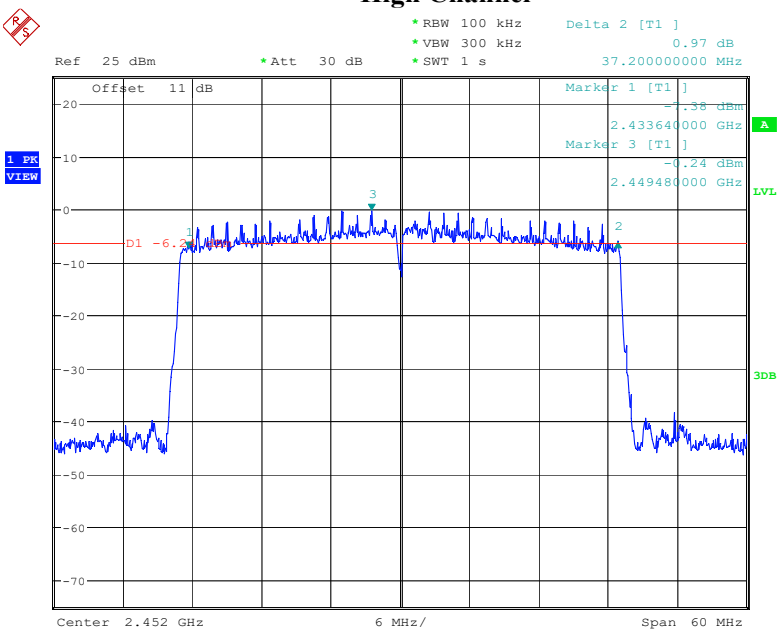
Date: 28.FEB.2023 23:22:11

Middle Channel



Date: 28.FEB.2023 23:27:03

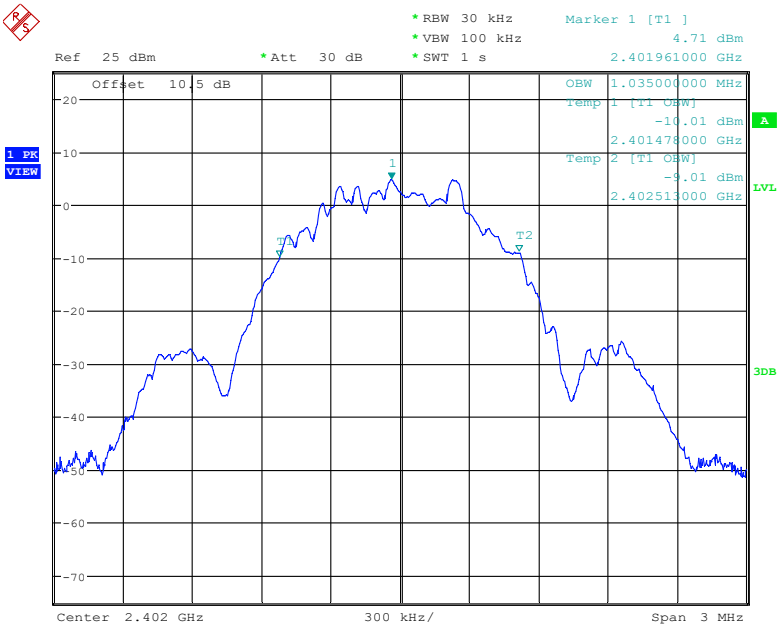
High Channel



Date: 28.FEB.2023 23:29:49

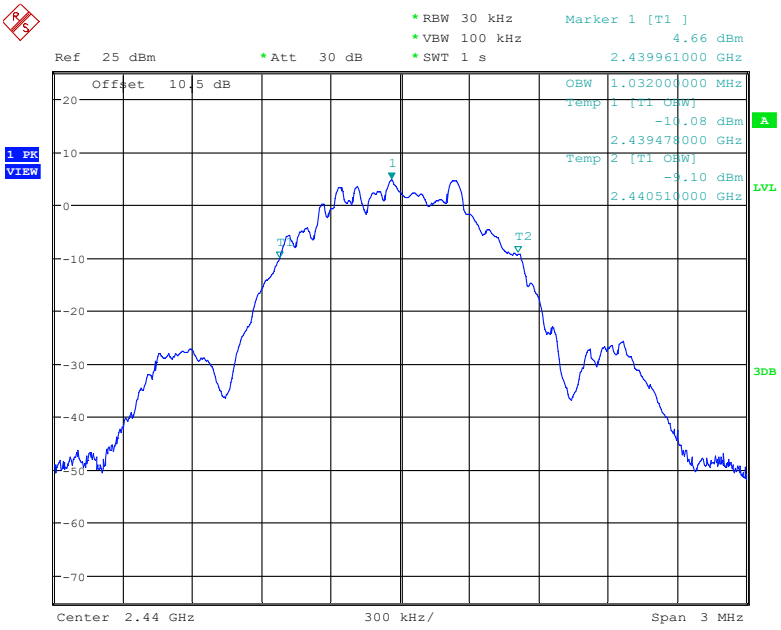
99%Emission Bandwidth:
BLE 1M:

Low Channel



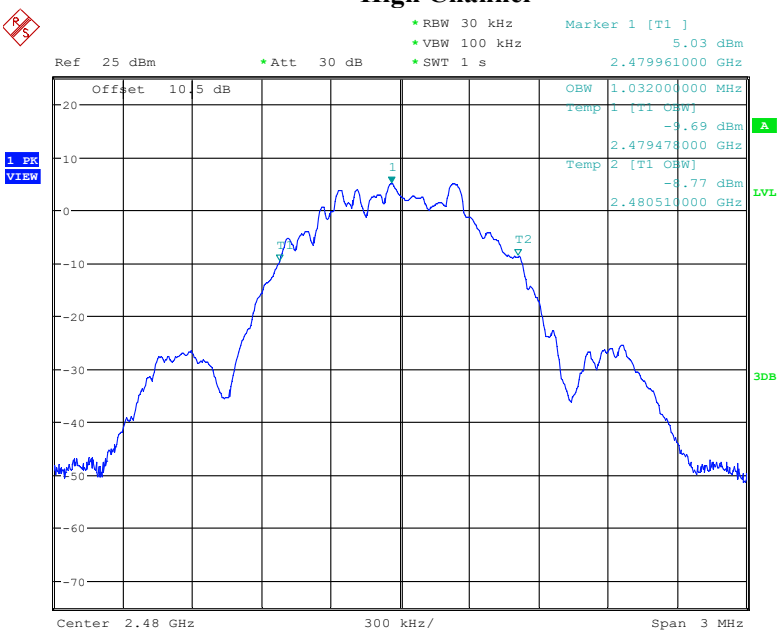
Date: 28.MAR.2023 17:32:58

Middle Channel



Date: 28.MAR.2023 17:37:11

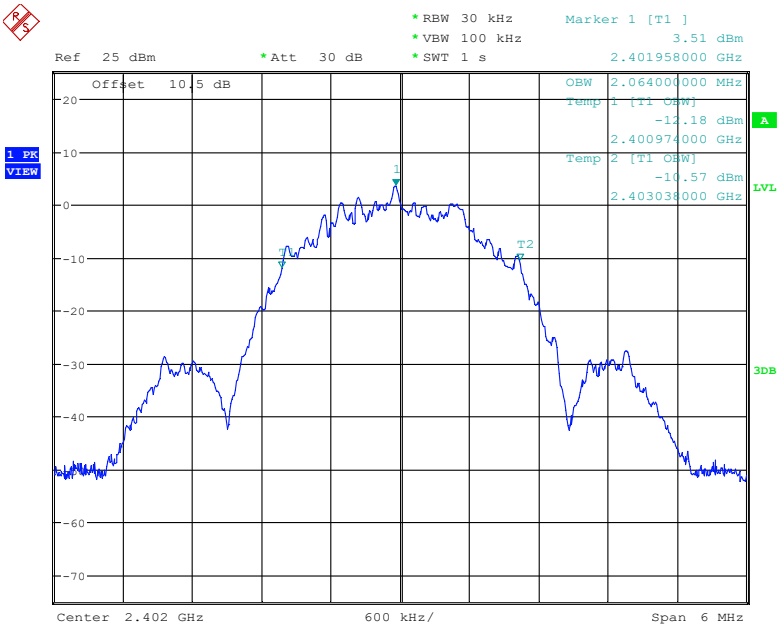
High Channel



Date: 28.MAR.2023 17:54:52

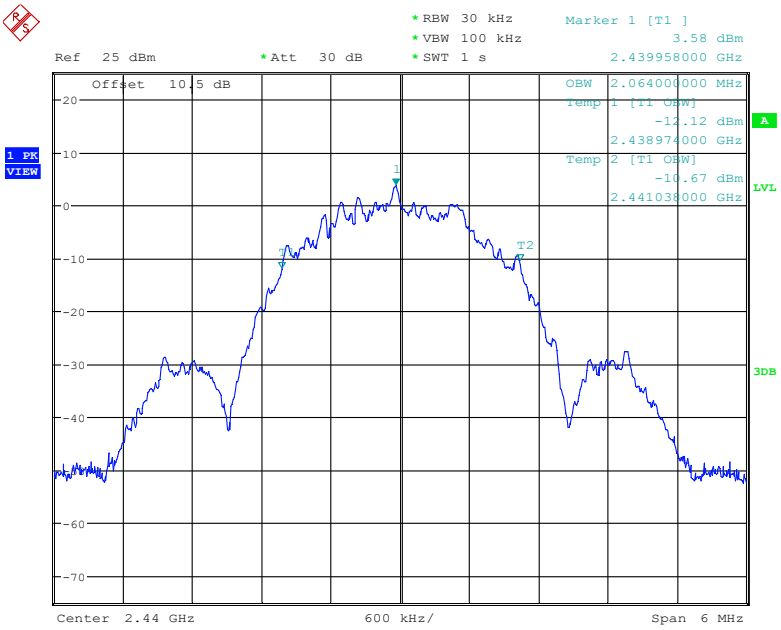
BLE 2M:

Low Channel



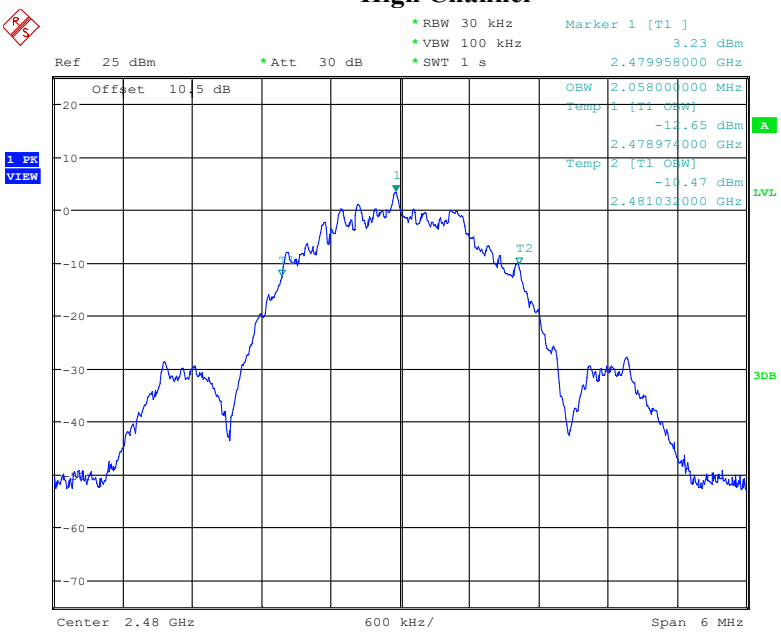
Date: 28.MAR.2023 17:57:46

Middle Channel



Date: 28.MAR.2023 18:00:53

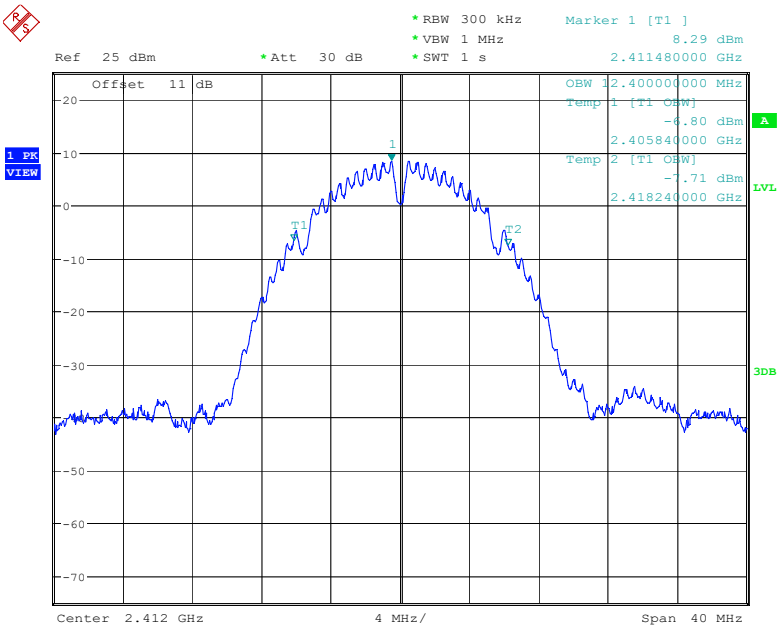
High Channel



Date: 28.MAR.2023 18:03:08

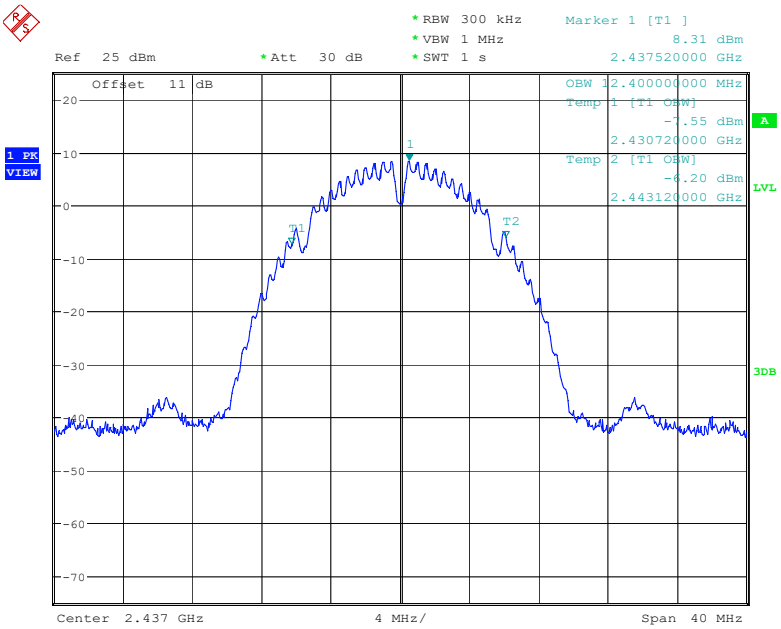
802.11b Mode:

Low Channel



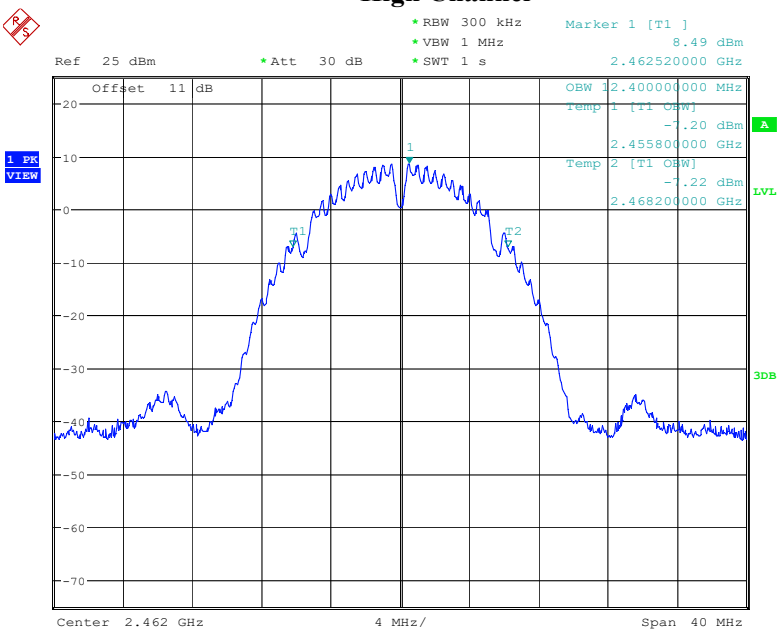
Date: 28.FEB.2023 20:14:50

Middle Channel



Date: 28.FEB.2023 20:37:48

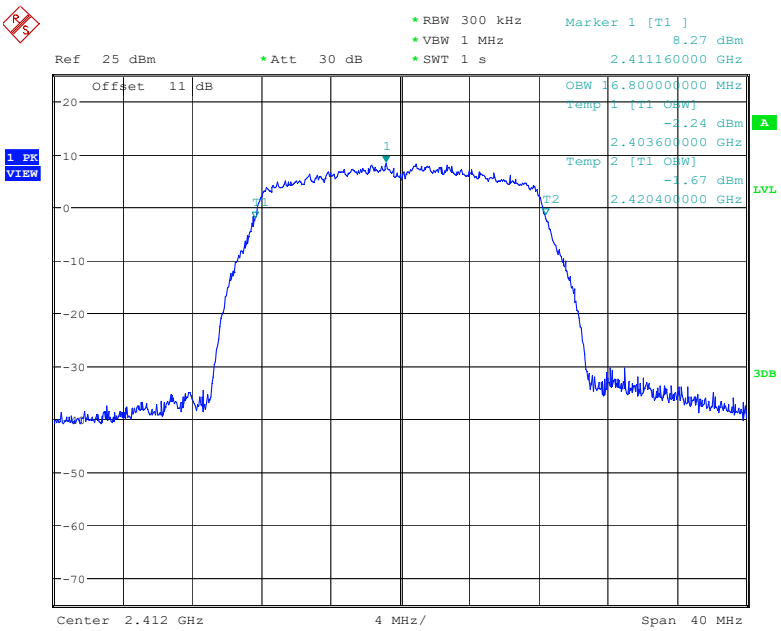
High Channel



Date: 28.FEB.2023 20:47:20

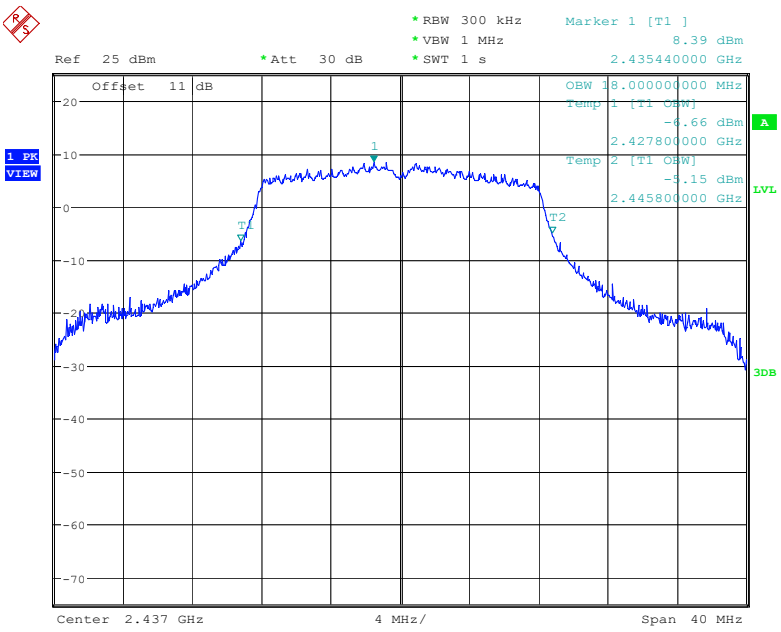
802.11g Mode:

Low Channel



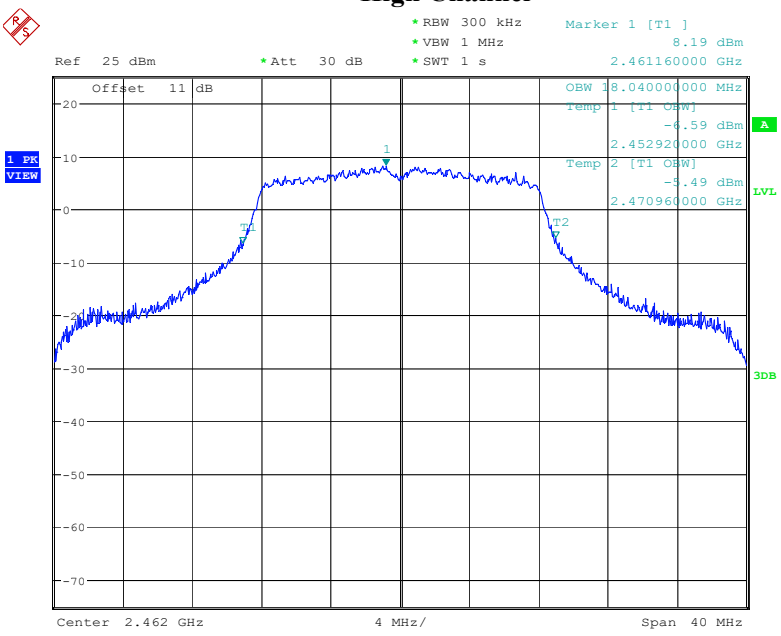
Date: 28.FEB.2023 21:01:10

Middle Channel



Date: 28.FEB.2023 21:07:42

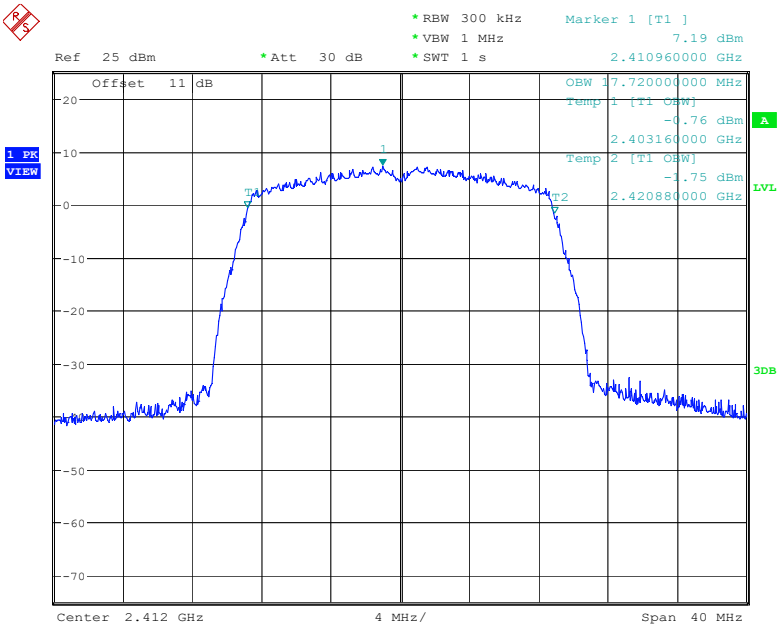
High Channel



Date: 28.FEB.2023 21:12:34

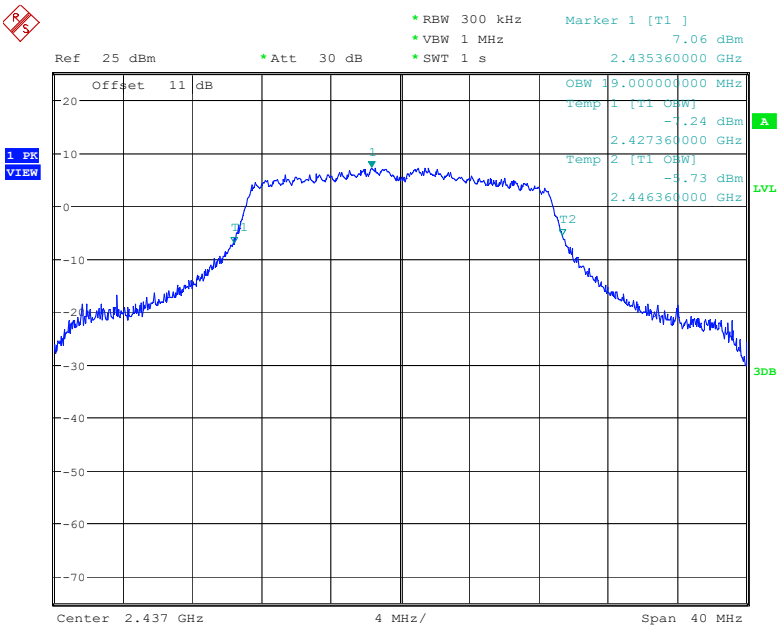
802.11n-20 Mode:

Low Channel



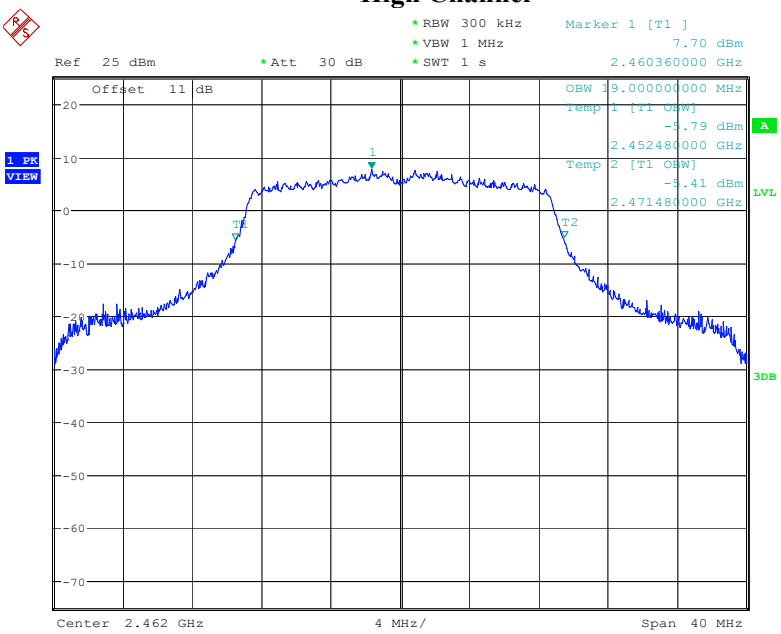
Date: 28.FEB.2023 21:16:42

Middle Channel



Date: 28.FEB.2023 21:20:55

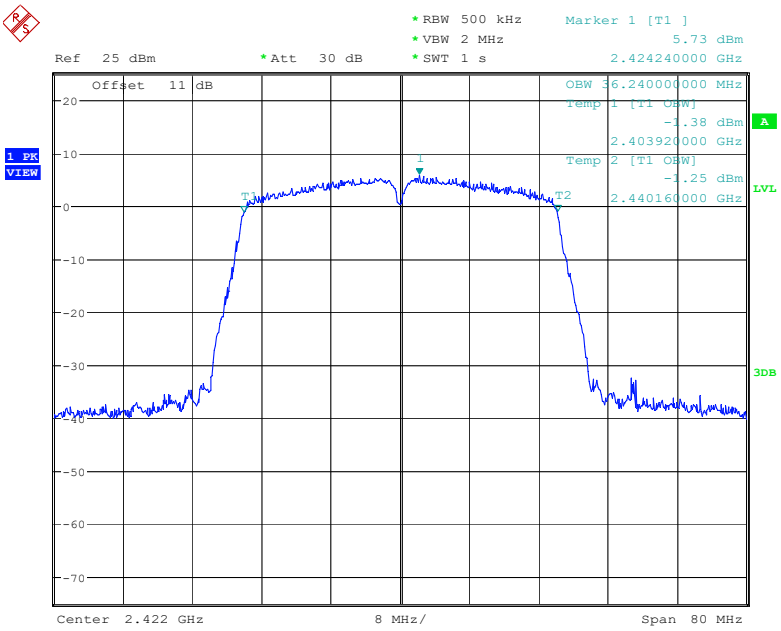
High Channel



Date: 28.FEB.2023 21:23:45

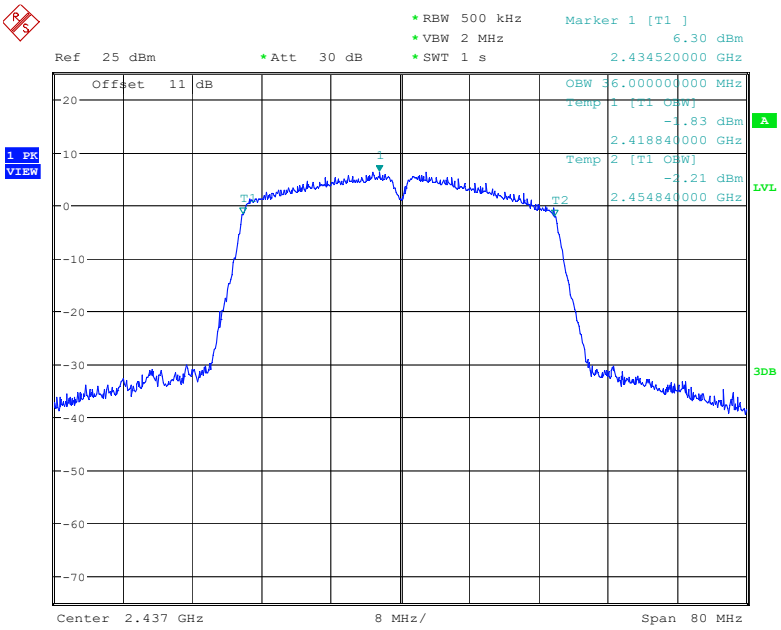
802.11n-40 Mode:

Low Channel



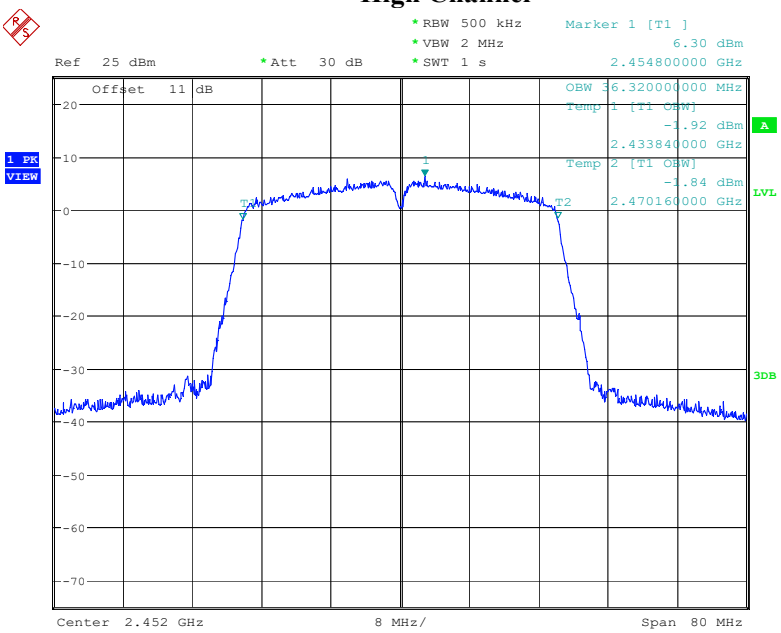
Date: 28.FEB.2023 21:27:46

Middle Channel



Date: 28.FEB.2023 21:31:23

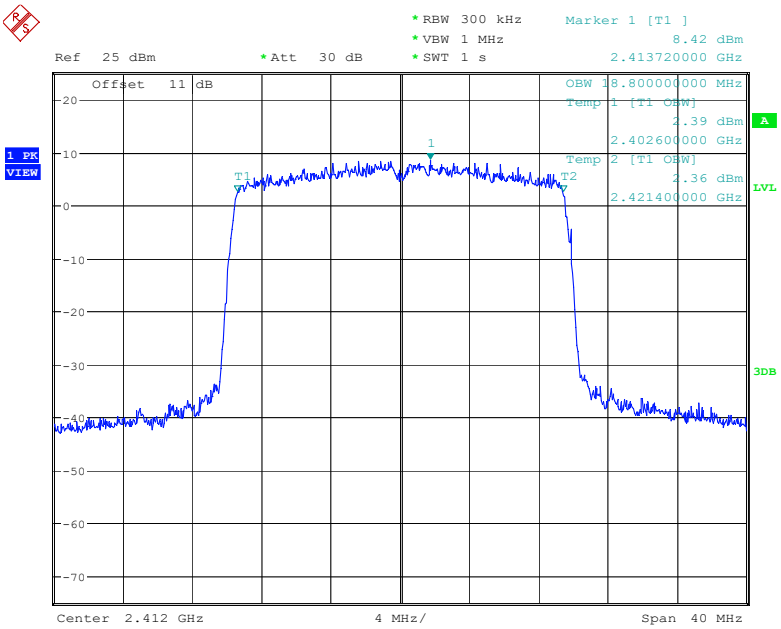
High Channel



Date: 28.FEB.2023 21:34:23

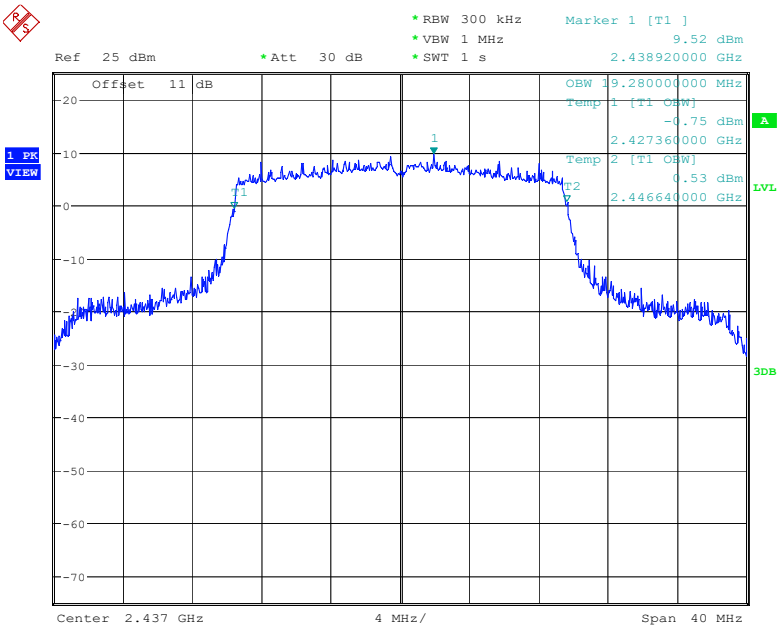
802.11AX-HT20 Mode:

Low Channel



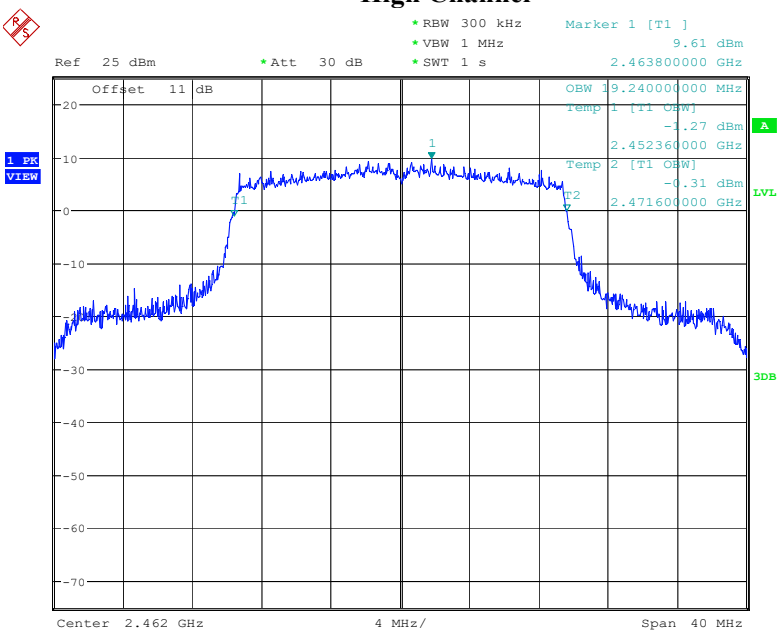
Date: 28.FEB.2023 23:09:19

Middle Channel



Date: 28.FEB.2023 23:13:26

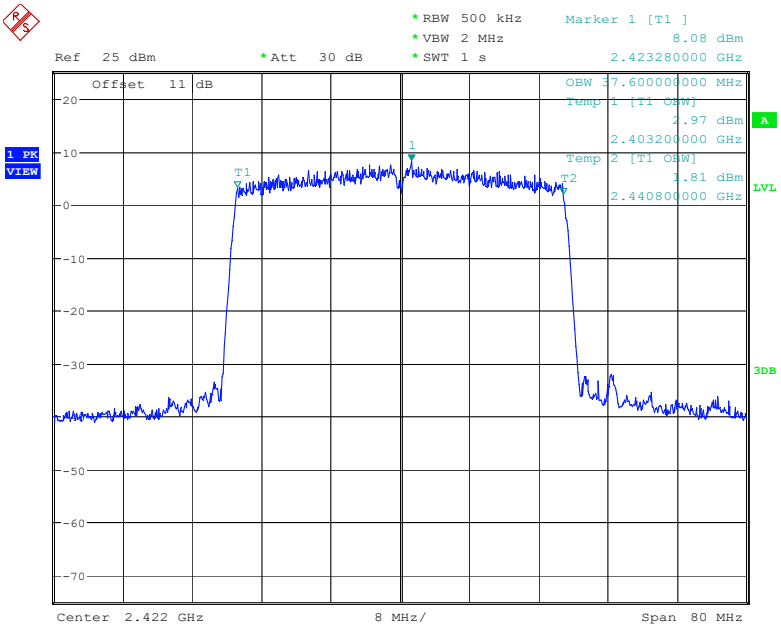
High Channel



Date: 28.FEB.2023 23:17:33

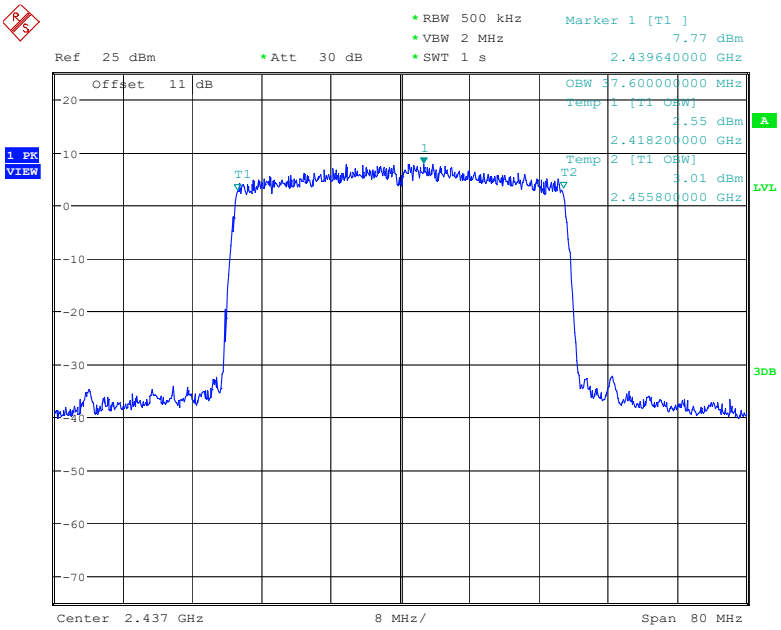
802.11AX-HT40 Mode:

Low Channel



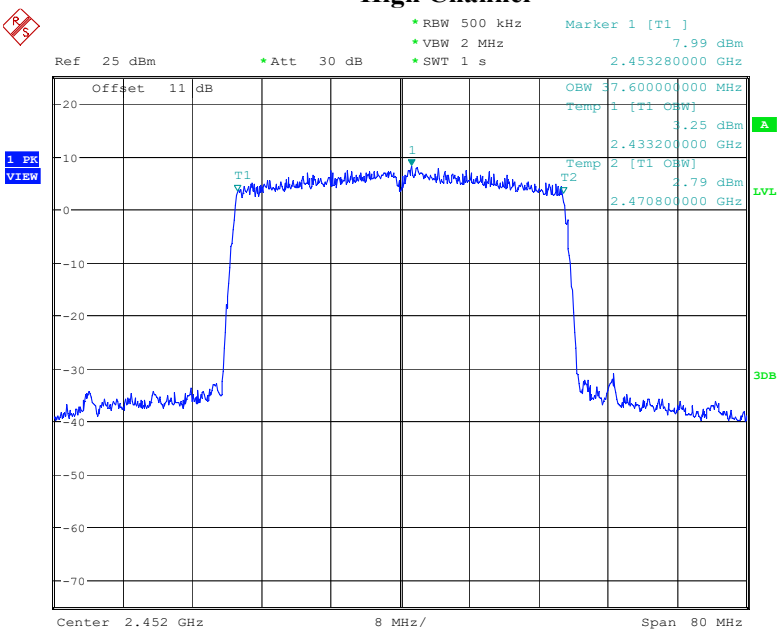
Date: 28.FEB.2023 23:21:51

Middle Channel



Date: 28.FEB.2023 23:26:30

High Channel



Date: 28.FEB.2023 23:29:29

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

Applicable Standard

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

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

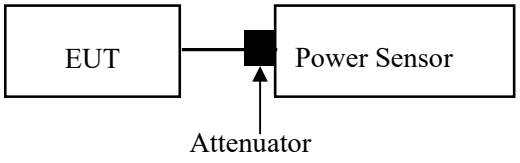
As an alternative to a peak power measurement, compliance can be based on a measurement of the maximum conducted output power. The maximum conducted output power is the total transmit power delivered to all antennas and antenna elements, averaged across all symbols in the signalling alphabet when the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

Test Procedure

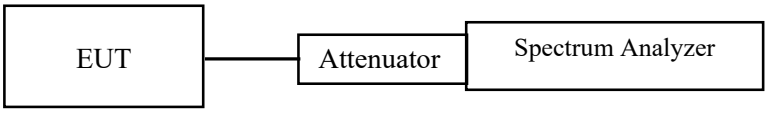
Test Method: ANSI C63.10-2013 Clause 11.9.1.1 for BLE &Clause 11.9.2.3.2 for Wi-Fi

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

For Wi-Fi mode:



For BLE mode:



Test Data

Environmental Conditions

Temperature:	23.6~27.4℃
Relative Humidity:	39~56%
ATM Pressure:	100.2~101.0 kPa

The testing was performed by Roger Ling on 2023-02-28 and 2023-03-28.

EUT operation mode: Transmitting

Test Result Compliant.

Wi-Fi:

Frequency (MHz)	Antenna Port	Max Conducted Average Output Power (dBm)	Total Average Output Power (dBm)	Limit (dBm)
802.11B				
2412	2	15.01	/	30
	1	15.44		
2437	2	15.33	/	
	1	15.46		
2462	2	15.31	/	
	1	15.59		
802.11G				
2412	2	14.62	/	30
	1	14.71		
2437	2	14.74	/	
	1	14.69		
2462	2	14.76	/	
	1	14.96		
802.11N20				
2412	2	13.98	17.02	30
	1	14.04		
2437	2	14.14	17.11	
	1	14.05		
2462	2	14.18	17.22	
	1	14.23		
802.11N40				
2422	2	13.18	16.25	30
	1	13.29		
2437	2	13.26	16.35	
	1	13.41		
2452	2	13.22	16.34	
	1	13.44		

Channel	Frequency (MHz)	Antenna	Max Conducted Average Output Power (dBm)	Total Average Output Power (dBm)	Limit (dBm)
AX_20M_RU26-0					
Low	2412	1	4.96	7.79	30
		2	4.59		
Middle	2437	1	4.91	7.93	30
		2	4.93		
High	2462	1	4.77	7.77	30
		2	4.74		
AX_20M_RU52-37					
Low	2412	1	8.14	11.02	30
		2	7.87		
Middle	2437	1	8.13	11.05	30
		2	7.95		
High	2462	1	8.40	11.29	30
		2	8.15		
AX_20M_RU106-53					
Low	2412	1	11.19	14.09	30
		2	10.96		
Middle	2437	1	11.11	14.10	30
		2	11.06		
High	2462	1	11.50	14.40	30
		2	11.27		
AX_20M_RU242-61					
Low	2412	1	14.18	17.19	30
		2	14.18		
Middle	2437	1	14.08	17.15	30
		2	14.20		
High	2462	1	14.15	17.23	30
		2	14.28		

Channel	Frequency (MHz)	Antenna	Max Conducted Average Output Power (dBm)	Total Average Output Power (dBm)	Limit (dBm)
AX_40M_RU26-0					
Low	2422	1	2.52	4.99	30
		2	1.37		
Middle	2437	1	2.24	4.73	30
		2	1.13		
High	2452	1	1.72	4.52	30
		2	1.28		
AX_40M_RU52-37					
Low	2422	1	5.47	7.85	30
		2	4.11		
Middle	2437	1	5.48	7.88	30
		2	4.16		
High	2452	1	4.21	7.45	30
		2	4.65		
AX_40M_RU106-53					
Low	2422	1	8.61	10.97	30
		2	7.20		
Middle	2437	1	8.36	10.81	30
		2	7.16		
High	2452	1	7.26	10.23	30
		2	7.17		
AX_40M_RU242-61					
Low	2422	1	11.49	14.06	30
		2	10.57		
Middle	2437	1	11.34	13.96	30
		2	10.52		
High	2452	1	10.51	13.52	30
		2	10.50		
AX_40M_RU484-65					
Low	2422	1	13.27	16.86	30
		2	14.36		
Middle	2437	1	13.3	16.87	30
		2	14.35		
High	2452	1	13.37	16.41	30
		2	13.42		

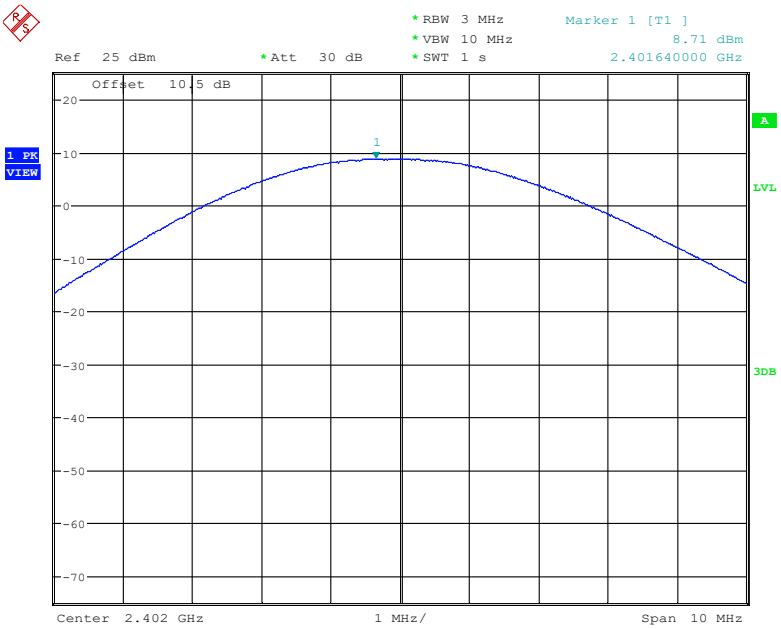
Note:
The device employ CDD for 802.11n/ ax mode.
Direction Gain = G_{ANT} + Array Gain
For Output Power measurement,
Array Gain = 0 for N_{ANT}<4
G_{ANT}=4.88dBi
So Direction gain=4.88dBi<6dBi

BLE:

Channel	Frequency (MHz)	Max Conducted Peak Output Power (dBm)	Limit (dBm)
BLE 1M			
Low	2402	8.71	30
Middle	2440	8.64	30
High	2480	9.06	30
BLE 2M			
Low	2402	9.35	30
Middle	2440	9.41	30
High	2480	9.05	30

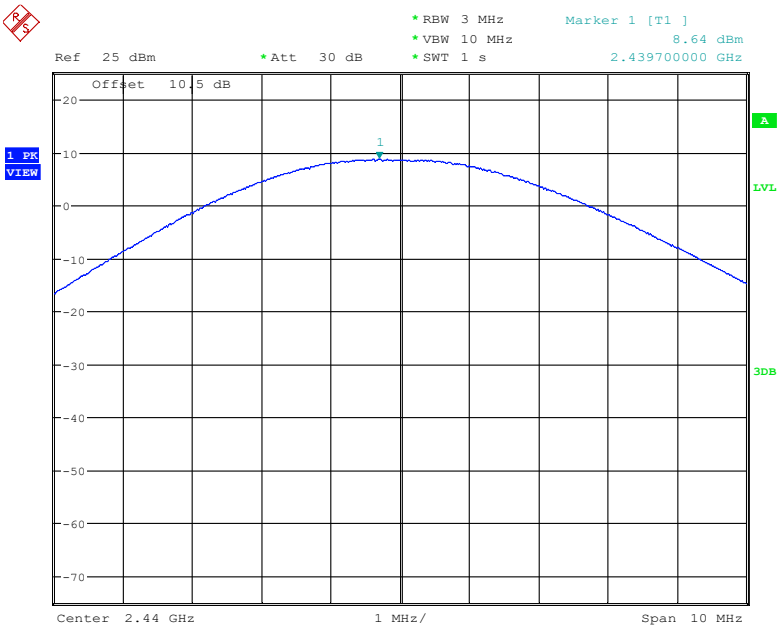
BLE 1M:

Low Channel



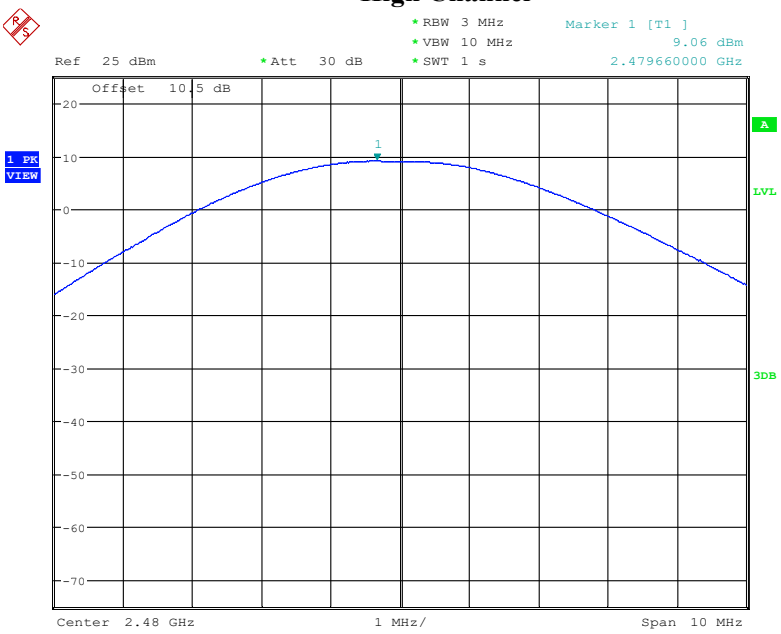
Date: 28.MAR.2023 17:32:35

Middle Channel



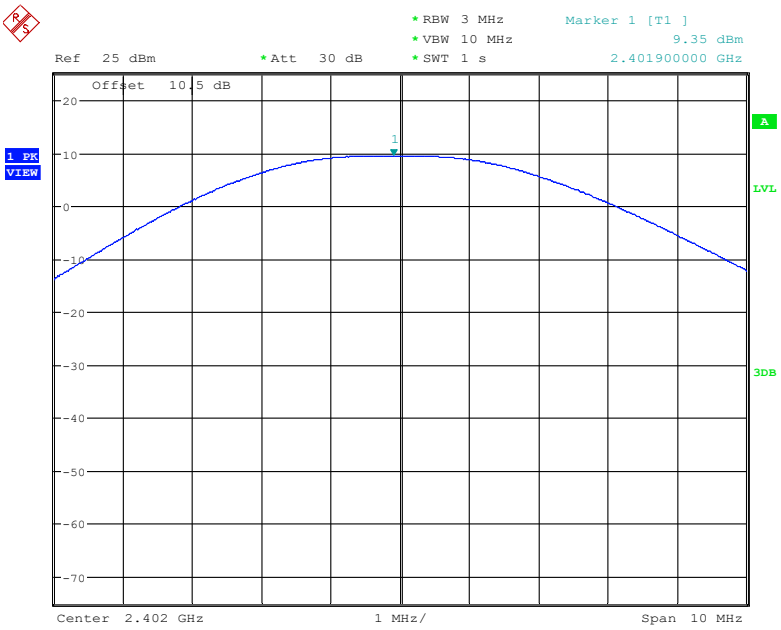
Date: 28.MAR.2023 17:36:48

High Channel

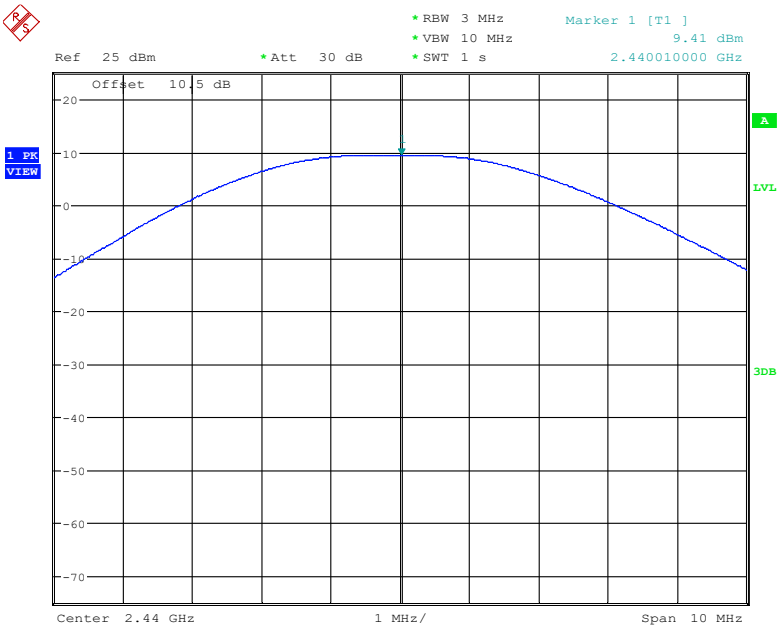


BLE 2M:

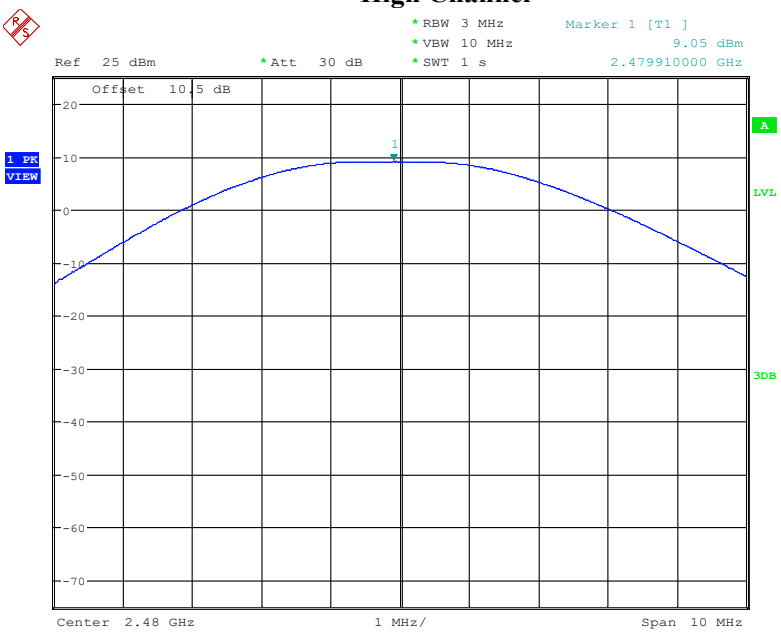
Low Channel



Middle Channel



High Channel



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

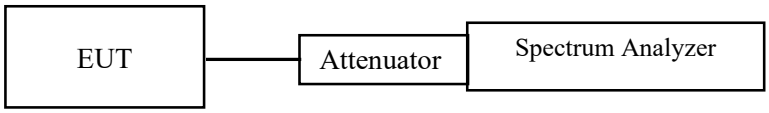
Applicable Standard

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:	23.6~27.4℃
Relative Humidity:	39~56%
ATM Pressure:	100.2~101.0 kPa

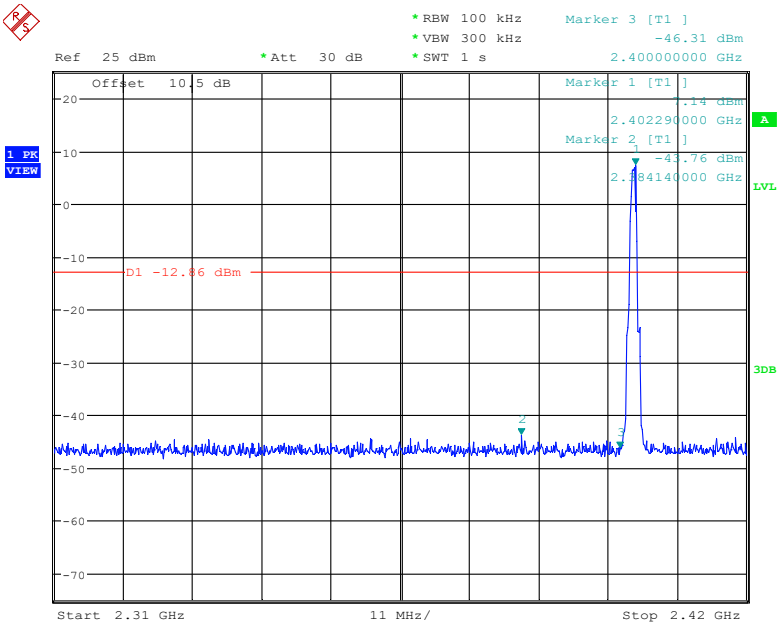
The testing was performed by Roger Ling on 2023-02-28 and 2023-03-28.

EUT operation mode: Transmitting

Test Result Compliant.

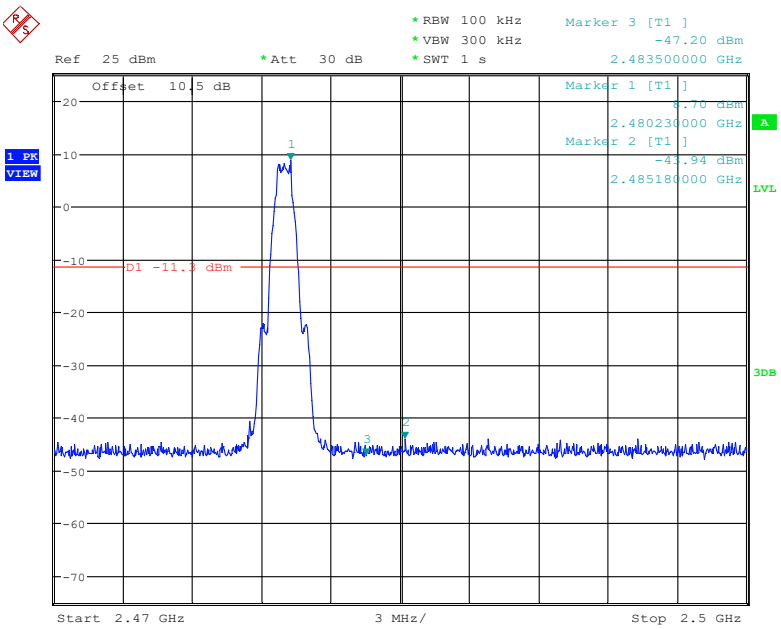
BLE 1M:

Band Edge, Left Side



Date: 28.MAR.2023 17:34:09

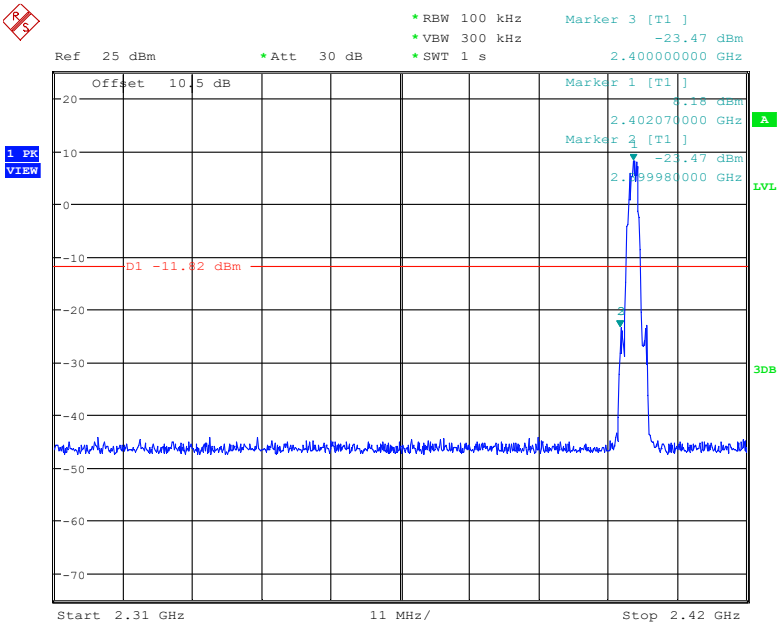
Band Edge, Right Side



Date: 28.MAR.2023 17:56:04

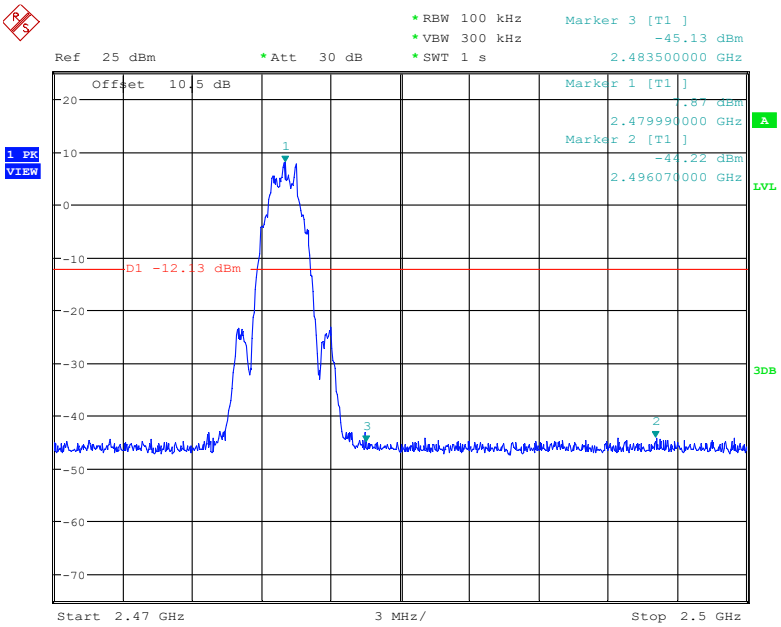
BLE 2M:

Band Edge, Left Side



Date: 28.MAR.2023 17:59:20

Band Edge, Right Side

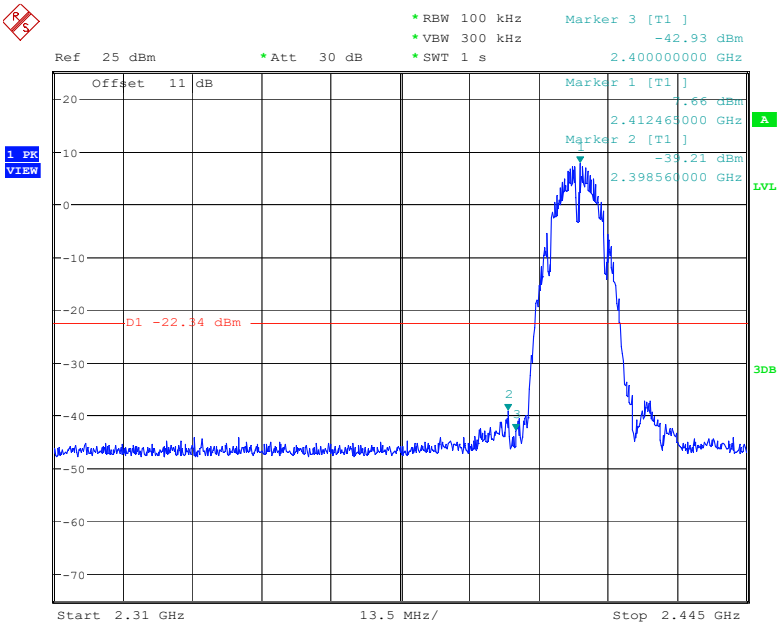


Date: 28.MAR.2023 18:04:32

Wi-Fi

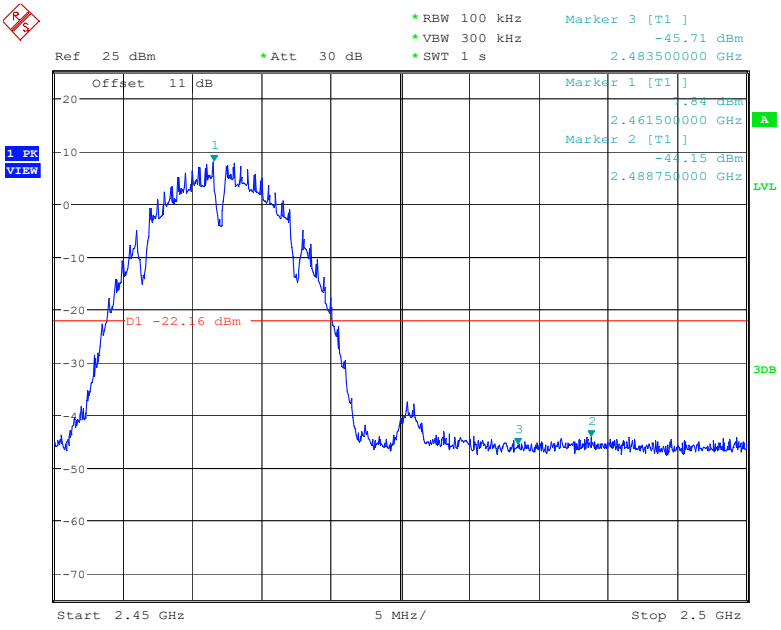
Ant 1:

802.11b mode Left Side



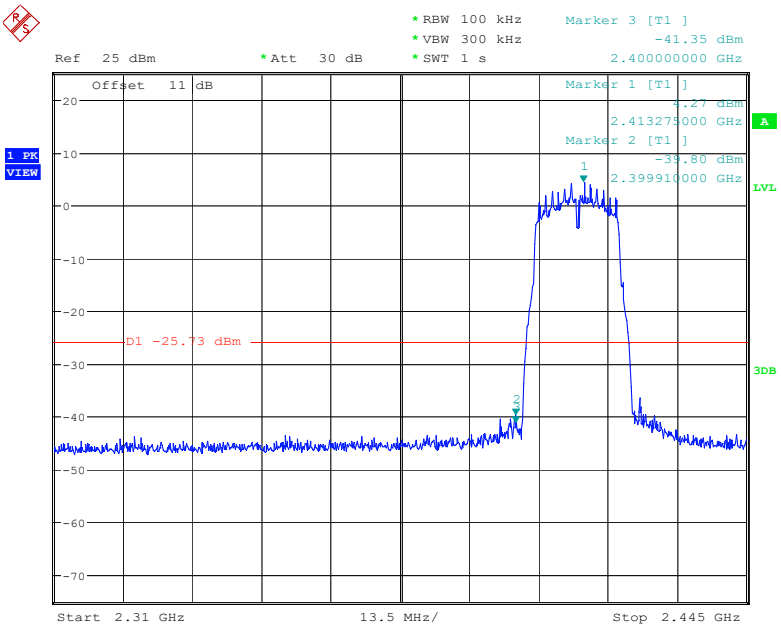
Date: 28.FEB.2023 20:18:10

802.11b mode Right Side



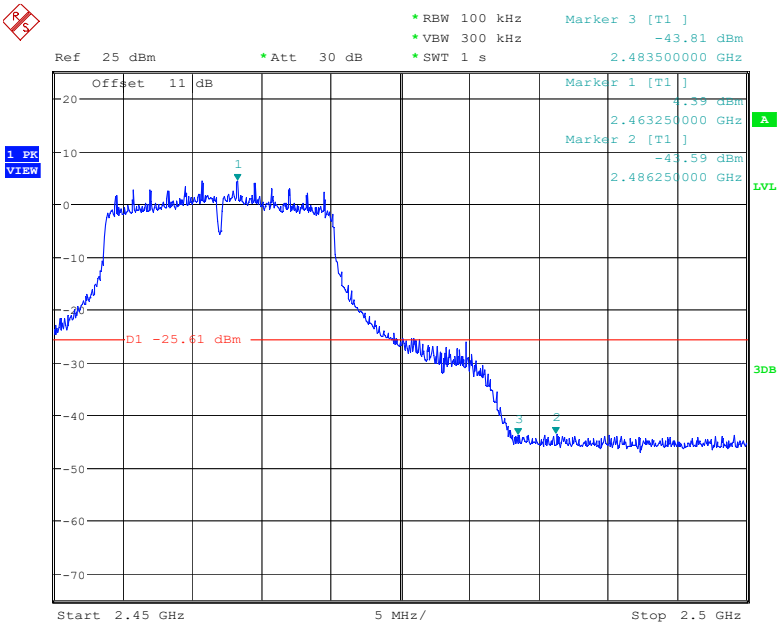
Date: 28.FEB.2023 20:50:39

802.11g mode Left Side



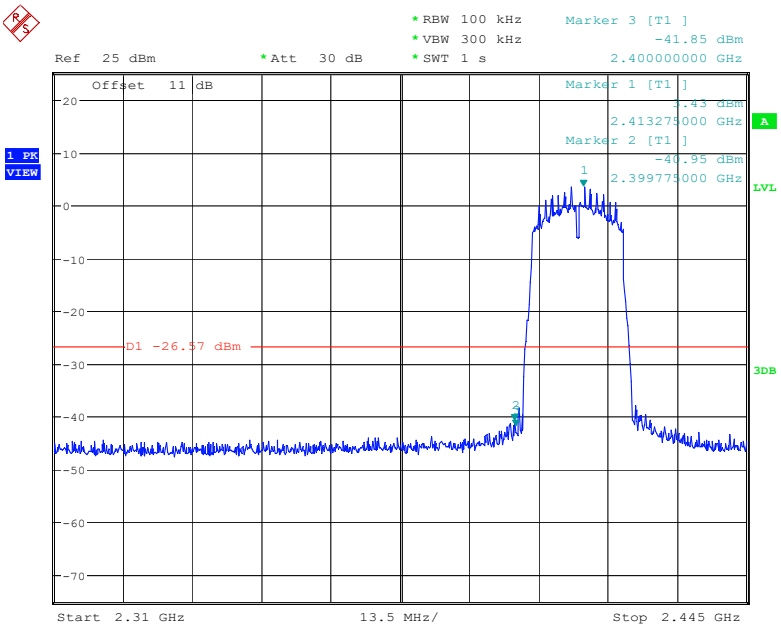
Date: 28.FEB.2023 21:02:55

802.11g mode Right Side



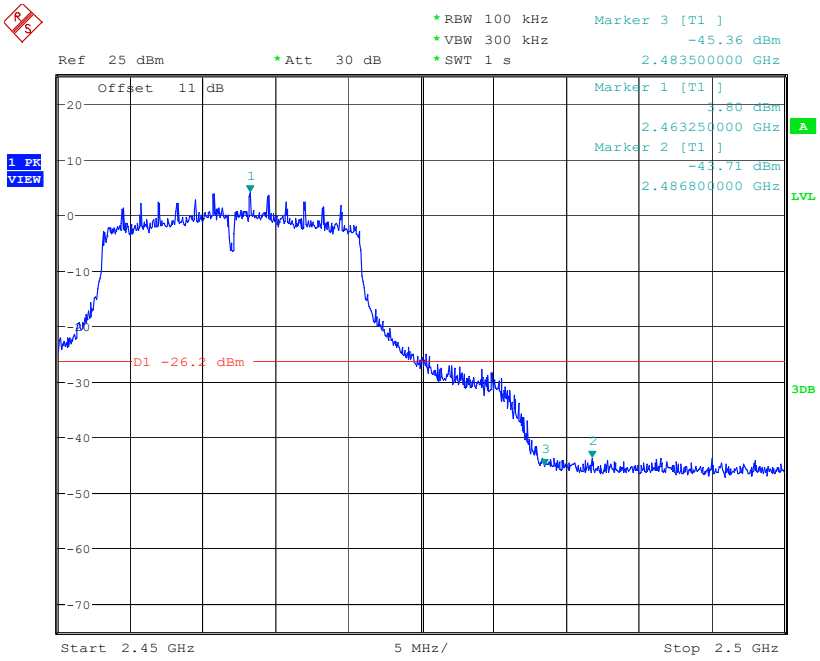
Date: 28.FEB.2023 21:14:08

802.11n-20 mode Left Side

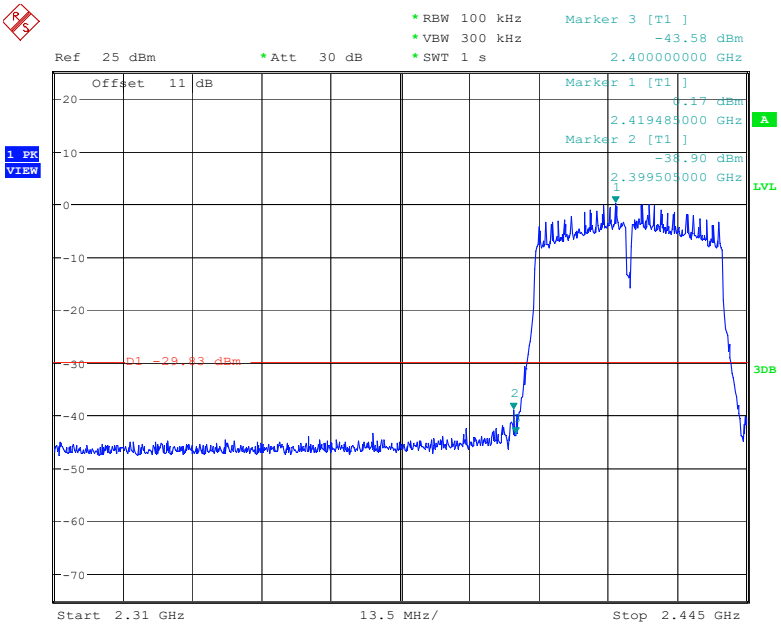


Date: 28.FEB.2023 21:18:04

802.11n-20 mode Right Side

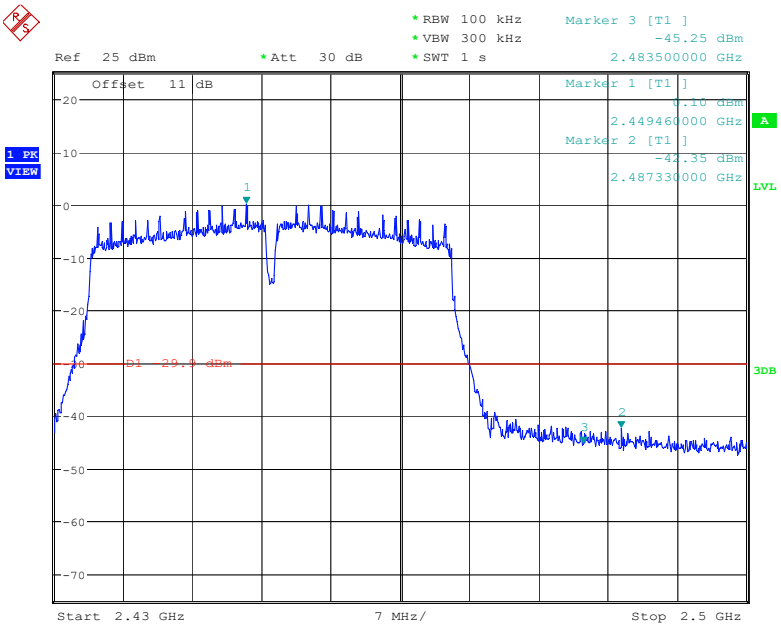


802.11n-40 mode Left Side



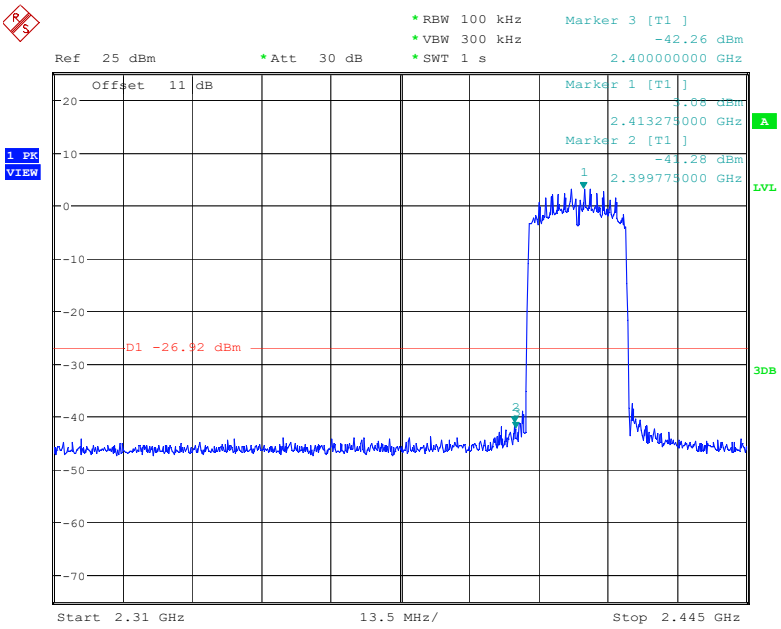
Date: 28.FEB.2023 21:29:28

802.11n-40 mode Right Side



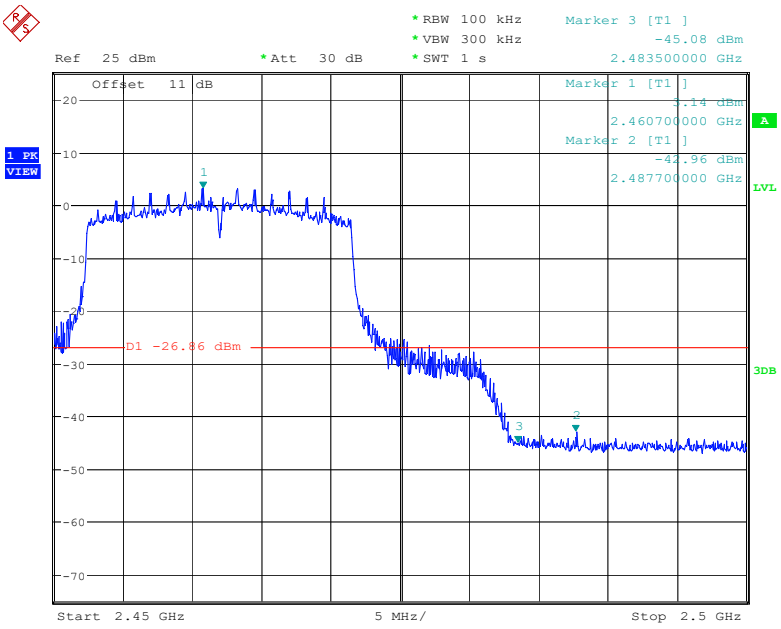
Date: 28.FEB.2023 21:35:48

802.11ax20 mode Left Side



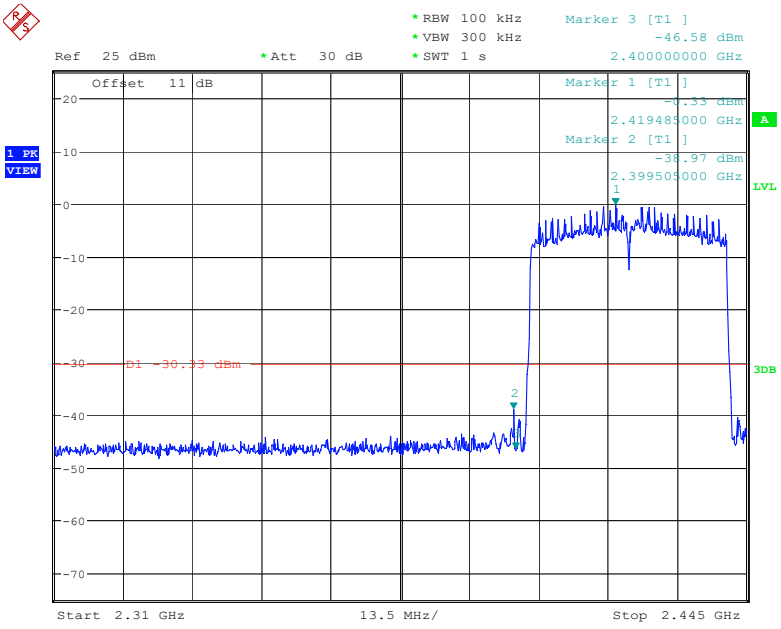
Date: 28.FEB.2023 23:11:20

802.11ax20 mode Right Side



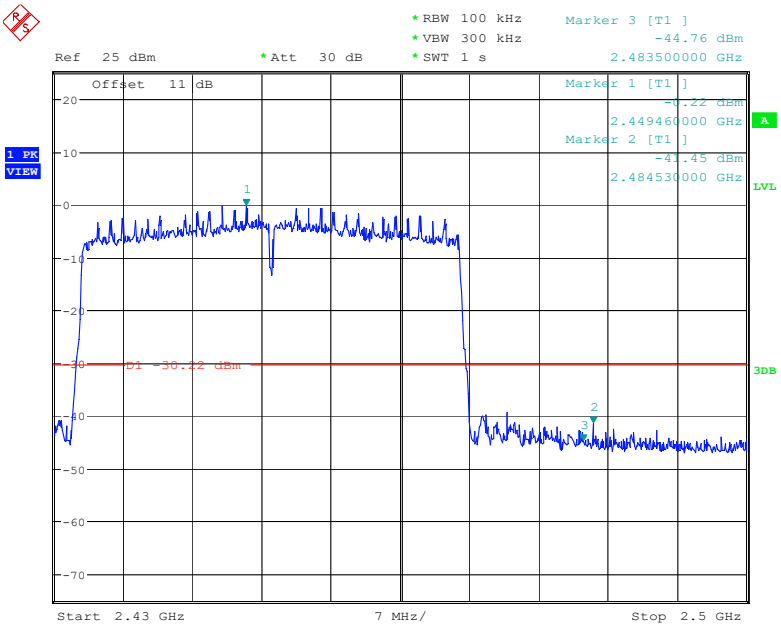
Date: 28.FEB.2023 23:20:01

802.11ax40 mode Left Side



Date: 28.FEB.2023 23:23:16

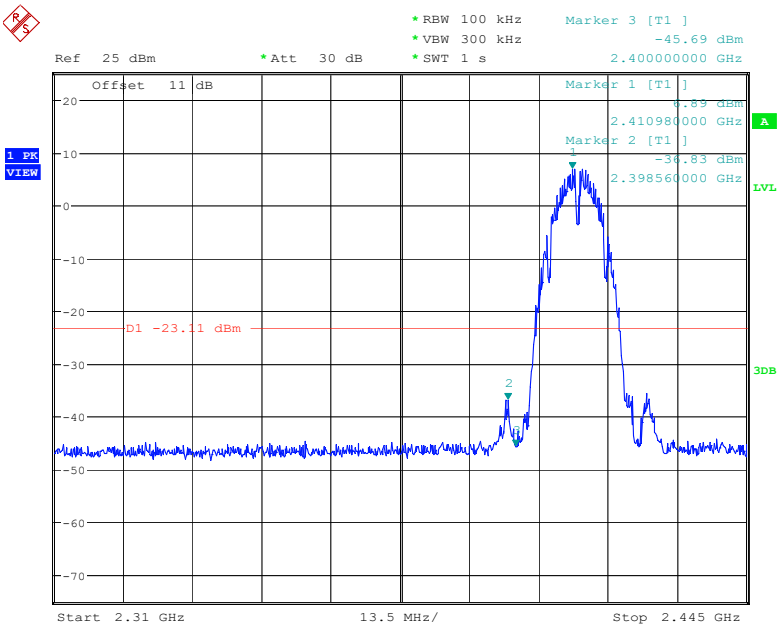
802.11ax40 mode Right Side



Date: 28.FEB.2023 23:31:11

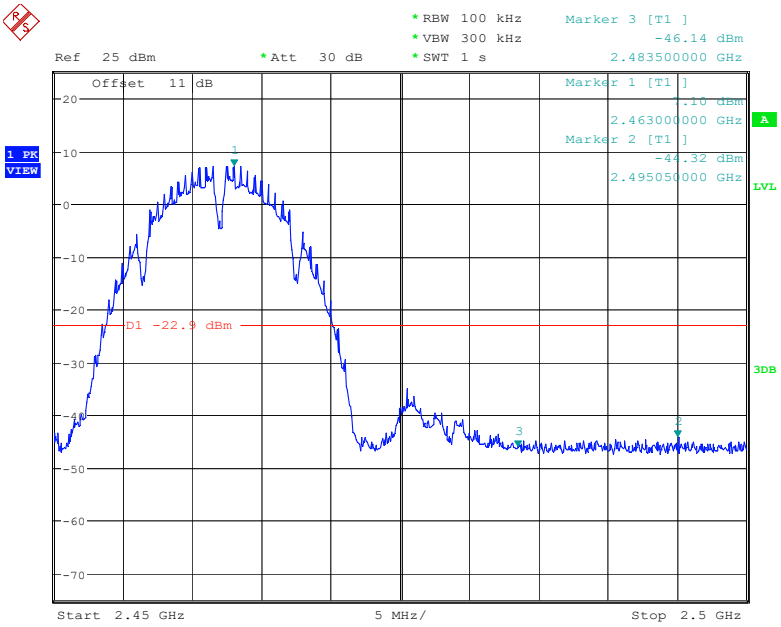
Ant 2:

802.11b mode Left Side



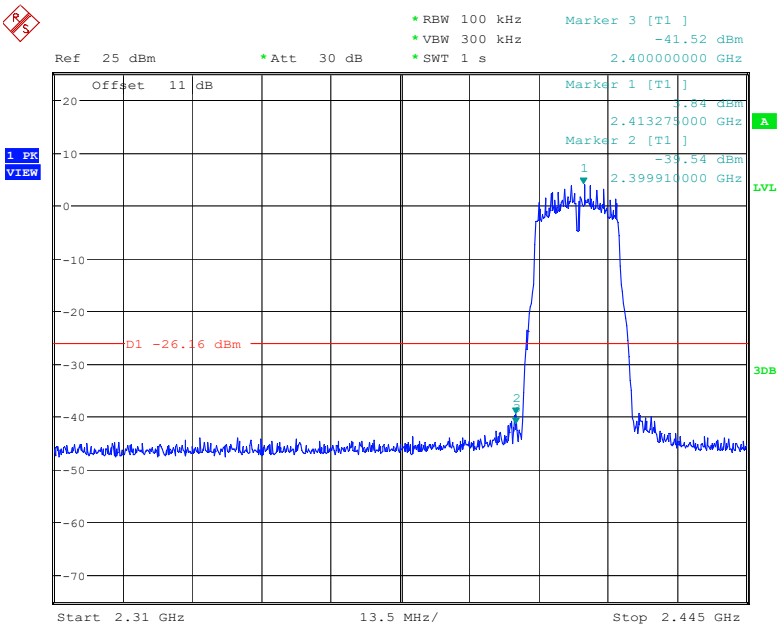
Date: 28.FEB.2023 21:59:32

802.11b mode Right Side



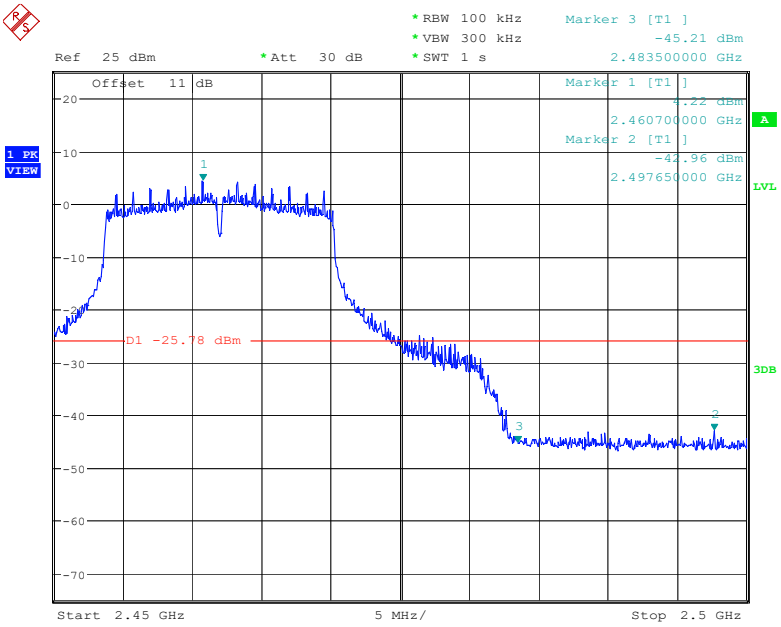
Date: 28.FEB.2023 22:06:41

802.11g mode Left Side



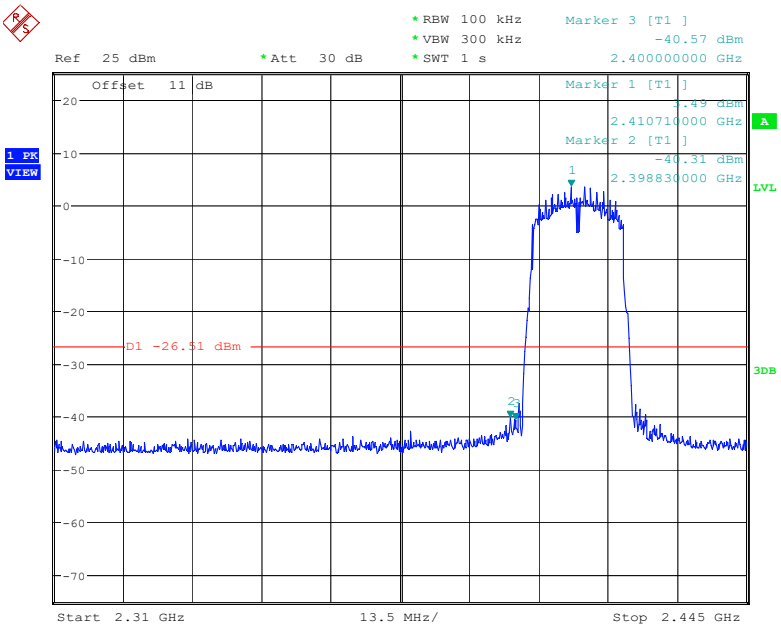
Date: 28.FEB.2023 22:09:11

802.11g mode Right Side



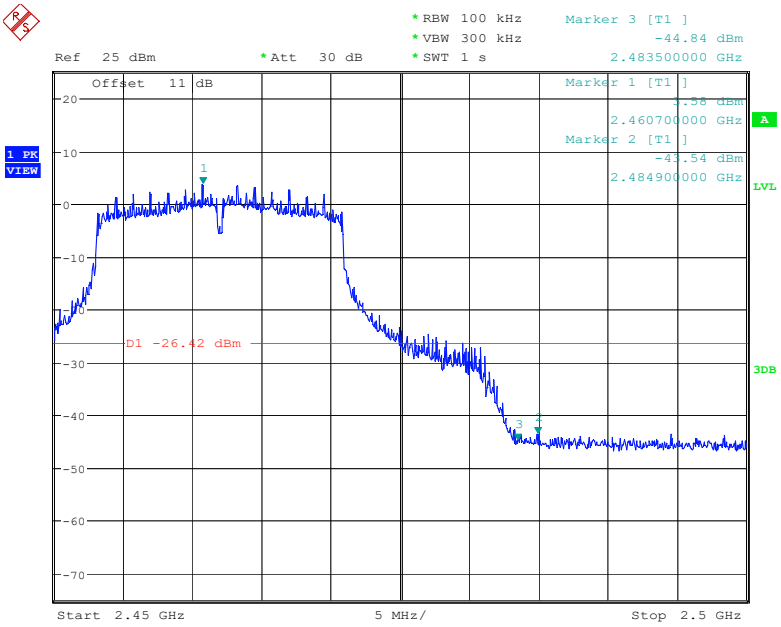
Date: 28.FEB.2023 22:15:42

802.11n-20 mode Left Side



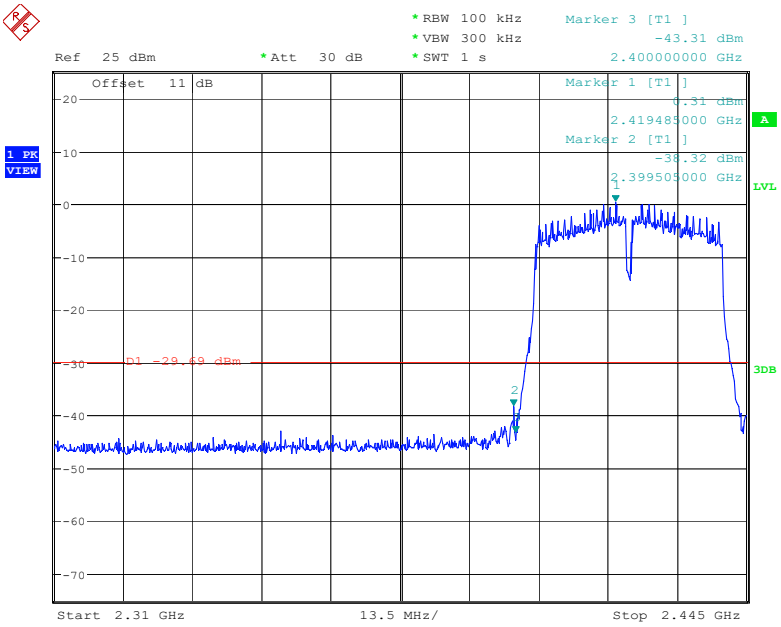
Date: 28.FEB.2023 22:18:34

802.11n-20 mode Right Side



Date: 28.FEB.2023 22:24:52

802.11n-40 mode Left Side



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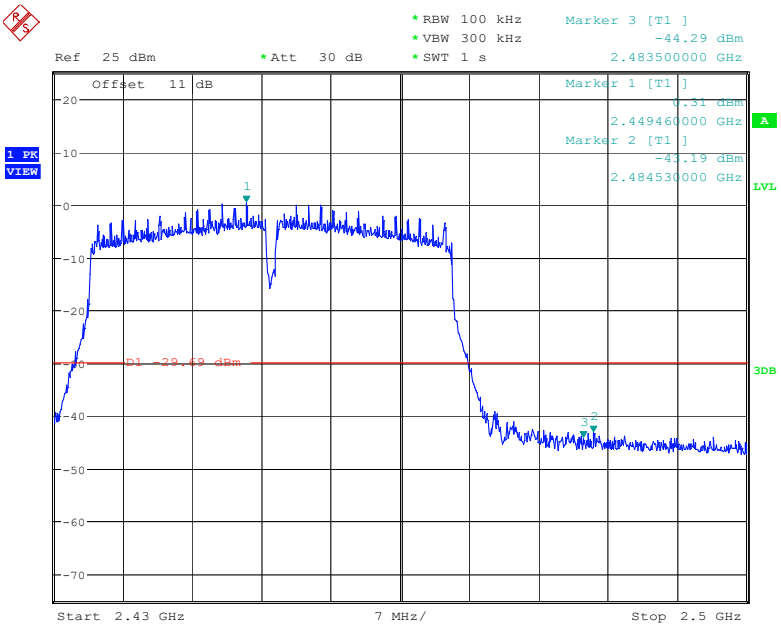
802.11n-40 mode Right Side



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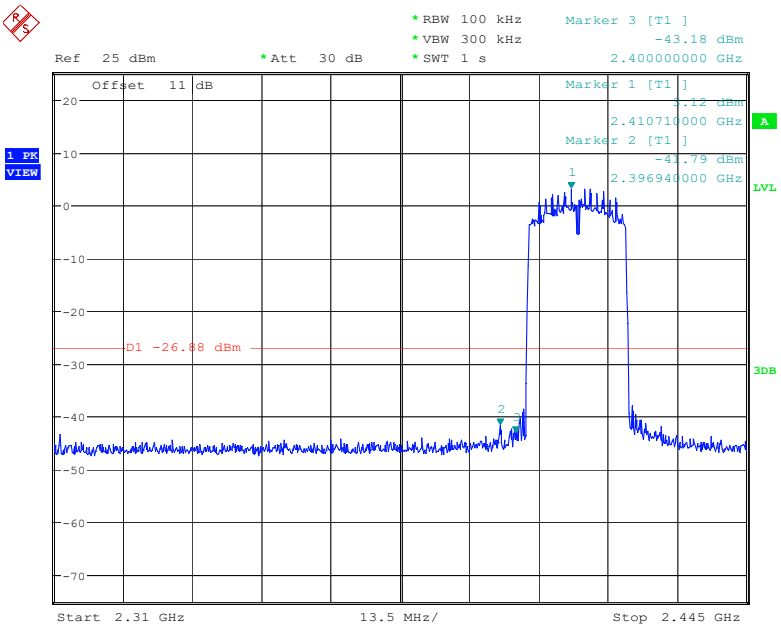
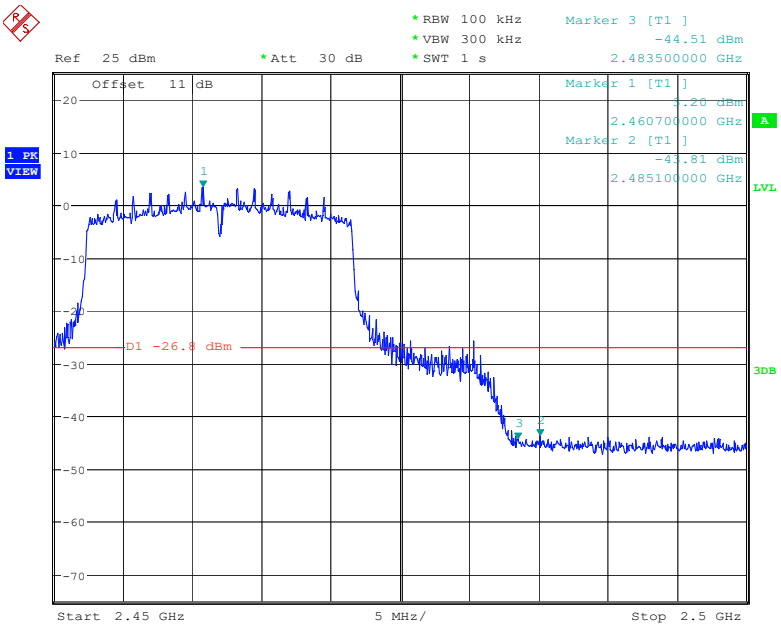
802.11ax20 mode Left Side



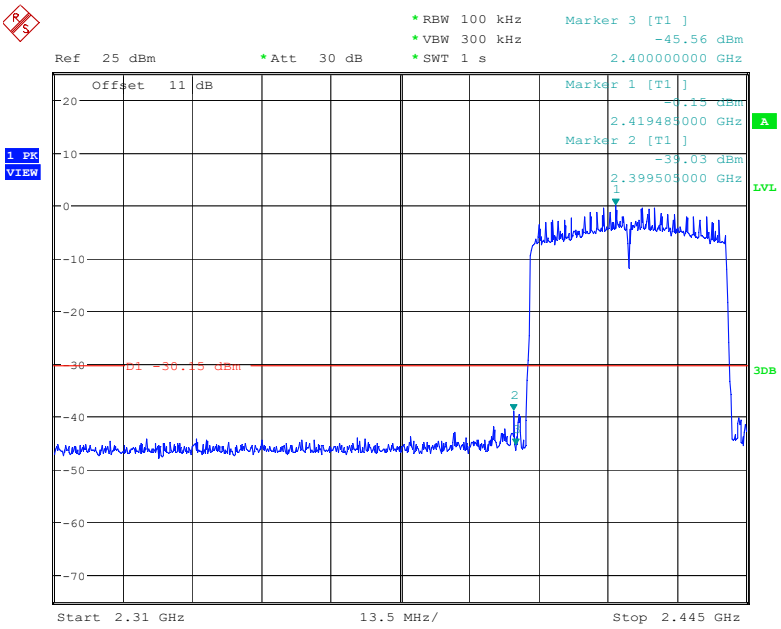
Date: 28.FEB.2023 22:56:35

802.11ax20 mode Right Side



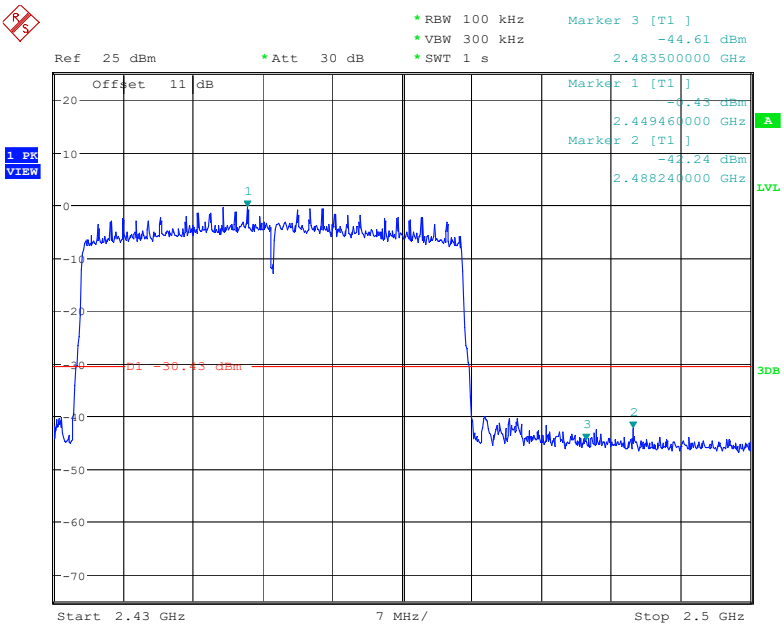
Date: 28.FEB.2023 23:05:13

802.11ax40 mode Left Side



Date: 28.FEB.2023 22:49:15

802.11ax40 mode Right Side



Date: 28.FEB.2023 22:41:54

§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.

The transmitter power spectral density conducted from the transmitter to the antenna shall not be greater than8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of section 5.4(d), (i.e. the power spectral density shall be determined using the same method as is used to determine the conducted output power).

Test Procedure

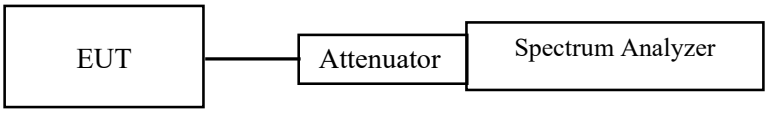
Test Method: ANSI C63.10-2013 Clause 11.10.2

Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
Set the RBW to: 3kHz≤ RBW≤100 kHz.
1. Set the VBW ≥ 3×RBW.
2. Set the span to 1.5 times the DTS bandwidth.
3. Detector = peak.
4. Sweep time = auto couple.
5. Trace mode = max hold.
6. Allow trace to fully stabilize.
7. Use the peak marker function to determine the maximum amplitude level within the RBW.

If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Test Method: ANSI C63.10-2013 11.10.5

Use this procedure when the maximum average conducted output power in the fundamental emission is used to demonstrate compliance.
1. Measure the duty cycle (*D*) of the transmitter output signal as described in ANSI C63.10-201311.6.
2. Set the RBW to: 3kHz≤ RBW≤100 kHz.
3. Set the VBW ≥ 3×RBW.
4. Set the span to 1.5 times the DTS bandwidth.
5. Detector = Power Averaging (rms).
6. Ensure that the number of measurement points in the sweep ≥ [2 ×span / RBW].
7. Sweep time = auto couple.
8. Trace mode = trace averaging (rms) mode over a minimum of 100 traces.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum amplitude level.
11. 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%), add [10 log (1 / D)], where D is the duty cycle measured in step 1), to the measured PSD to compute the average PSD during the actual transmission time.



Test Data

Environmental Conditions

Temperature:	26.8℃
Relative Humidity:	37 %
ATM Pressure:	101.0 kPa

The testing was performed by Roger Ling on 2023-02-28 and 03-28.

EUT operation mode: Transmitting

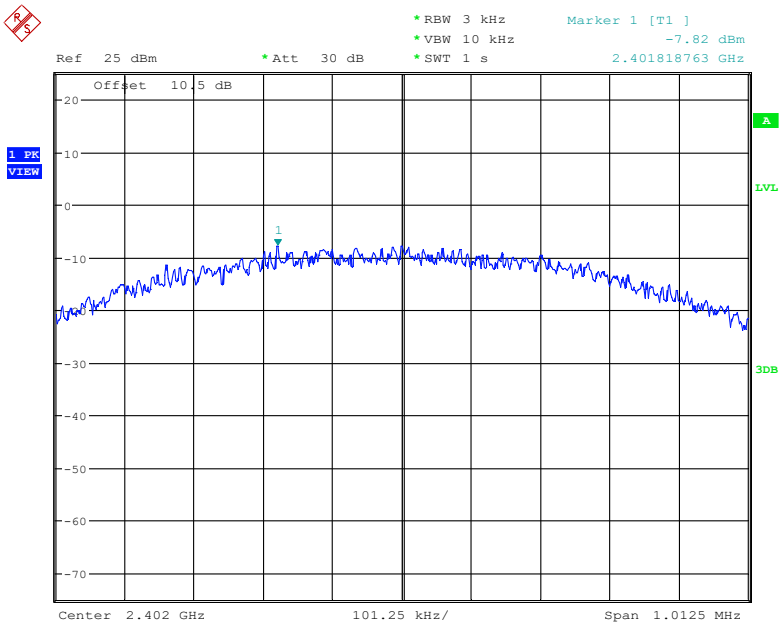
Test Result: Compliant.

BLE:

Channel	Frequency (MHz)	PSD (dBm/3kHz)	Limit (dBm/3kHz)
BLE 1M			
Low	2402	-7.82	≤8
Middle	2440	-8.15	≤8
High	2480	-7.52	≤8
BLE 2M			
Low	2402	-9.64	≤8
Middle	2440	-9.49	≤8
High	2480	-9.89	≤8

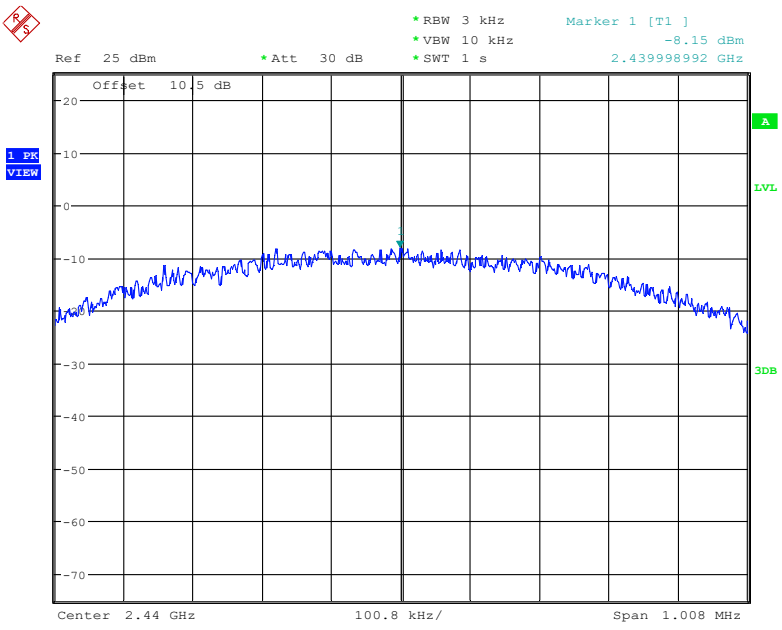
BLE 1M:

Power Spectral Density, Low Channel



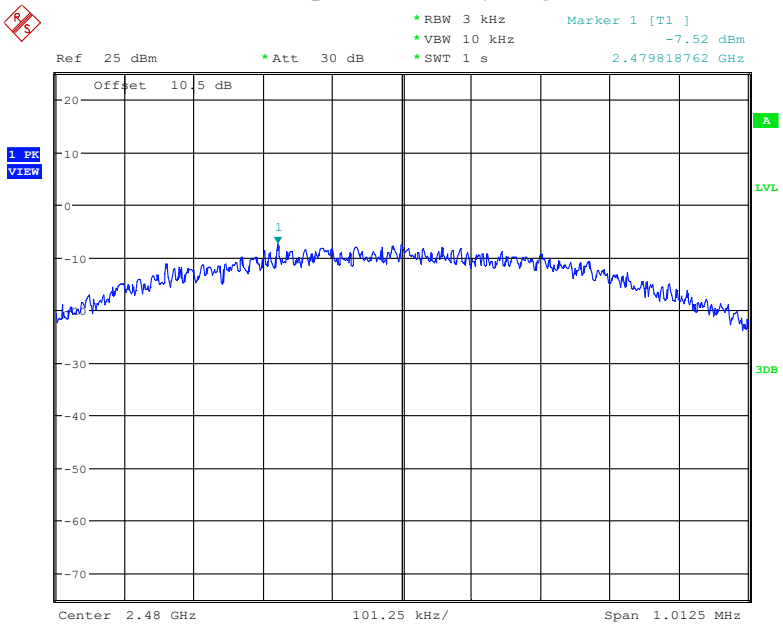
Date: 28.MAR.2023 17:33:45

Power Spectral Density, Middle Channel



Date: 28.MAR.2023 17:37:58

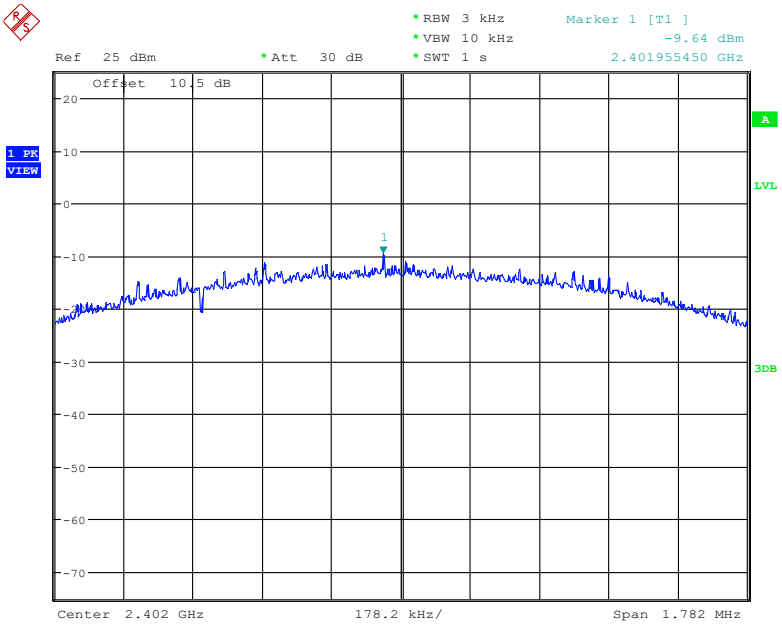
Power Spectral Density, High Channel



Date: 28.MAR.2023 17:55:39

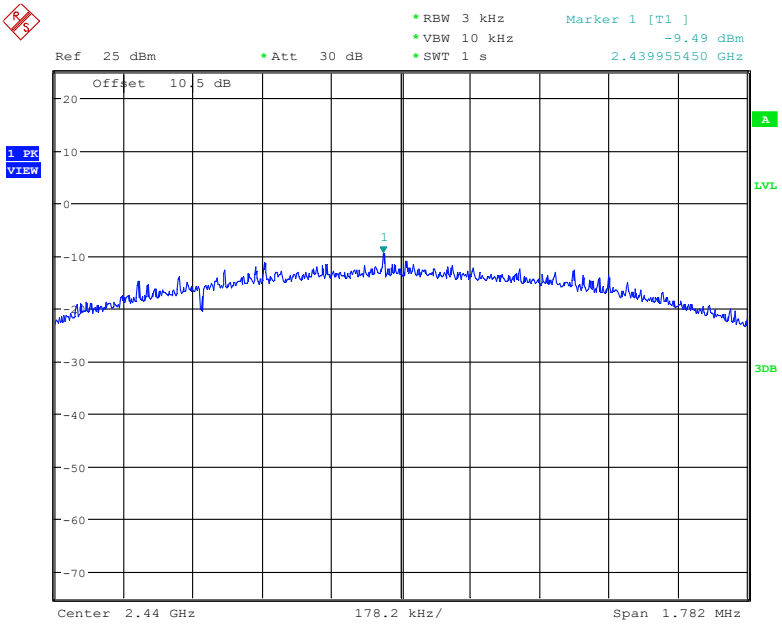
BLE 2M:

Power Spectral Density, Low Channel



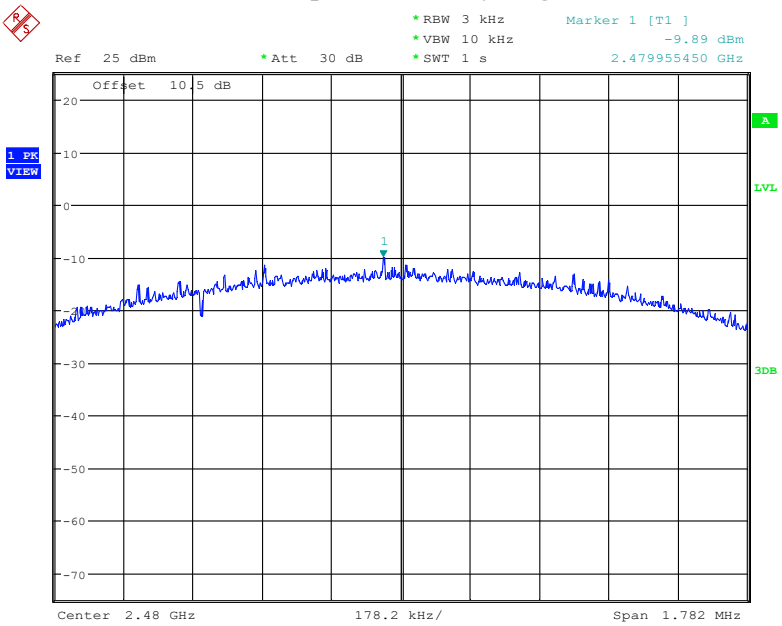
Date: 28.MAR.2023 17:58:44

Power Spectral Density, Middle Channel



Date: 28.MAR.2023 18:01:40

Power Spectral Density, High Channel



Date: 28.MAR.2023 18:03:56

Wi-Fi:

Frequency (MHz)	Antenna Port	Reading (dBm/10kHz)	Duty Cycle Factor (dB)	PSD (dBm/10kHz)	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)
802.11B						
2412	2	-10.68	0.19	-10.49	/	8
	1	-11.54	0.19	-11.35		
2437	2	-10.30	0.19	-10.11	/	
	1	-12.22	0.19	-12.03		
2462	2	-10.67	0.19	-10.48	/	
	1	-11.83	0.19	-11.64		
802.11G						
2412	2	-14.39	1.04	-13.35	/	8
	1	-17.00	1.04	-15.96		
2437	2	-14.15	1.04	-13.11	/	
	1	-17.47	1.04	-16.43		
2462	2	-14.71	1.04	-13.67	/	
	1	-16.73	1.04	-15.69		
802.11N20						
2412	2	-15.28	1.11	-14.17	-12.10	6.12
	1	-17.43	1.11	-16.32		
2437	2	-15.06	1.11	-13.95	-11.55	
	1	-16.38	1.11	-15.27		
2462	2	-14.93	1.11	-13.82	-11.40	
	1	-16.20	1.11	-15.09		
802.11N40						
2422	2	-19.30	2.05	-17.25	-14.56	6.12
	1	-19.96	2.05	-17.91		
2437	2	-19.39	2.05	-17.34	-14.15	
	1	-19.04	2.05	-16.99		
2452	2	-18.83	2.05	-16.78	-14.14	
	1	-19.60	2.05	-17.55		

Frequency (MHz)	Antenna Port	Reading (dBm/10kHz)	Duty Cycle Factor (dB)	PSD (dBm/10kHz)	Total PSD (dBm/10kHz)	Limit (dBm/3kHz)
802.11ax20 RU242-61						
2412	2	-16.59	4.58	-12.01	-9.06	6.12
	1	-16.71	4.58	-12.13		
2437	2	-16.33	4.58	-11.75	-8.94	
	1	-16.75	4.58	-12.17		
2462	2	-16.34	4.58	-11.76	-9.14	
	1	-17.16	4.58	-12.58		
802.11ax40 RU484-65						
2422	2	-17.88	4.58	-13.3	-11.37	6.12
	1	-20.39	4.58	-15.81		
2437	2	-18.87	4.58	-14.29	-11.99	
	1	-20.44	4.58	-15.86		
2452	2	-19.70	4.58	-15.12	-12.29	
	1	-20.06	4.58	-15.48		

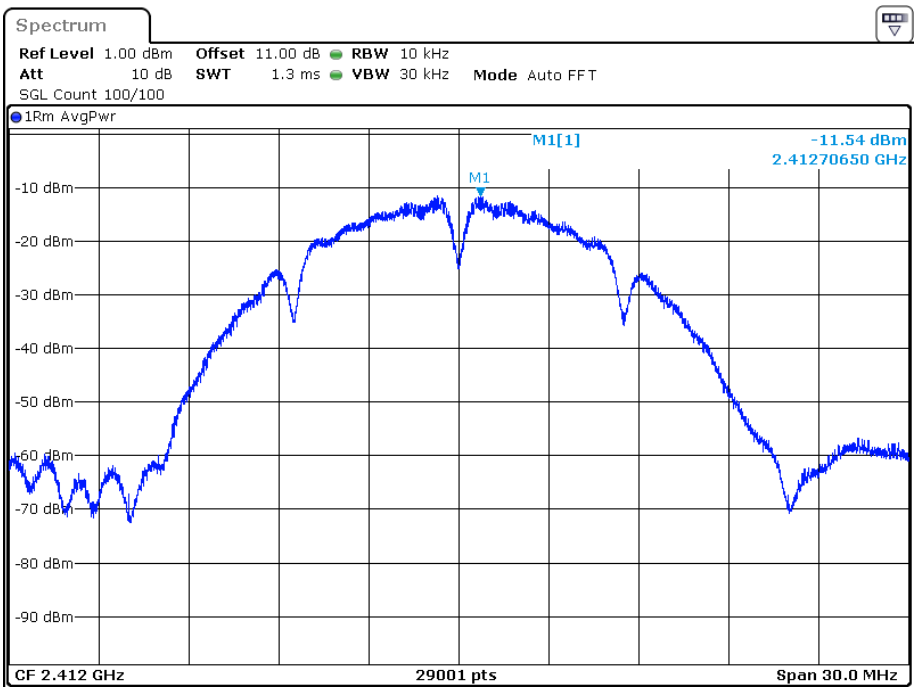
Note:
The device employ CDD for 802.11n/ax mode.
Direction Gain = G_{ANT} + Array Gain

For PSD measurement,
Array Gain = 10*log(N_{ANT})
G_{ANT}=4.88dBi, N_{ANT} =2
Direction gain=4.88dBi+10*log(2)=7.88>6dBi

So for 802.11n/ax mode, the limit should reduce 1.88dB

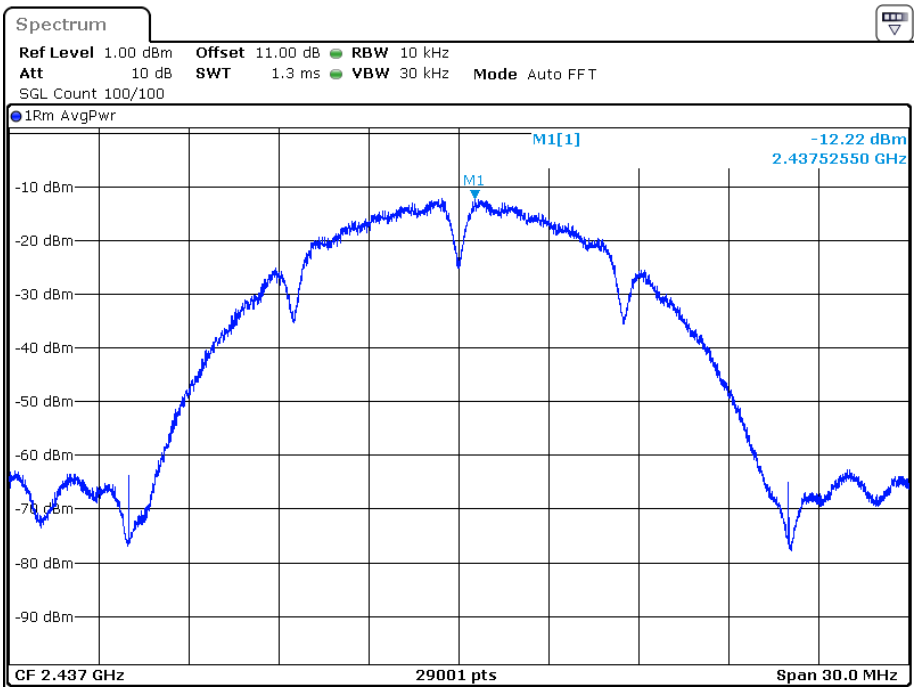
Ant 1
802.11 b mode：

Power Spectral Density, Low Channel



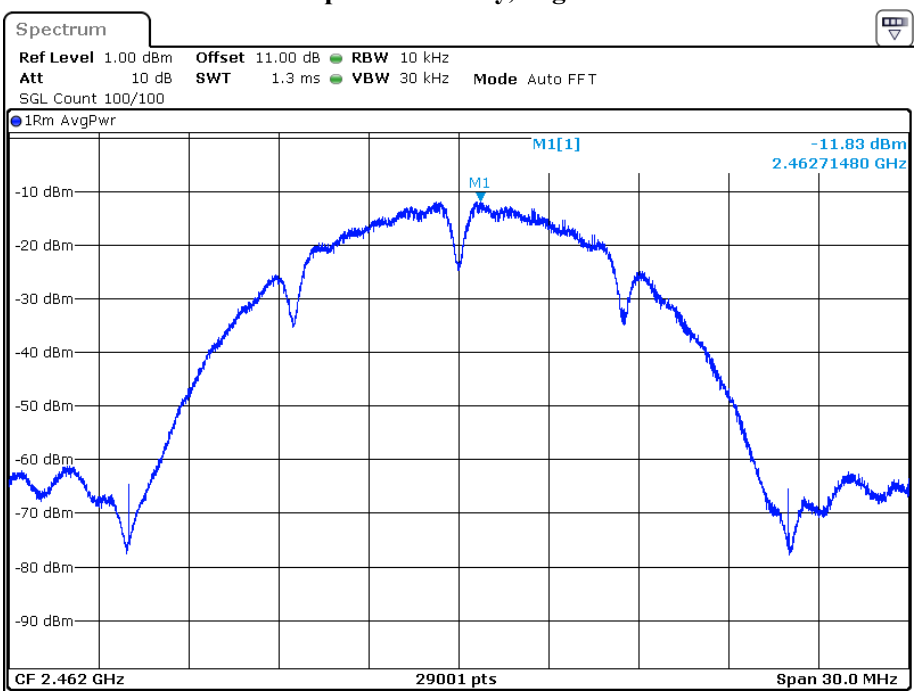
Date: 1.MAR.2023 23:45:33

Power Spectral Density, Middle Channel



Date: 1.MAR.2023 23:46:48

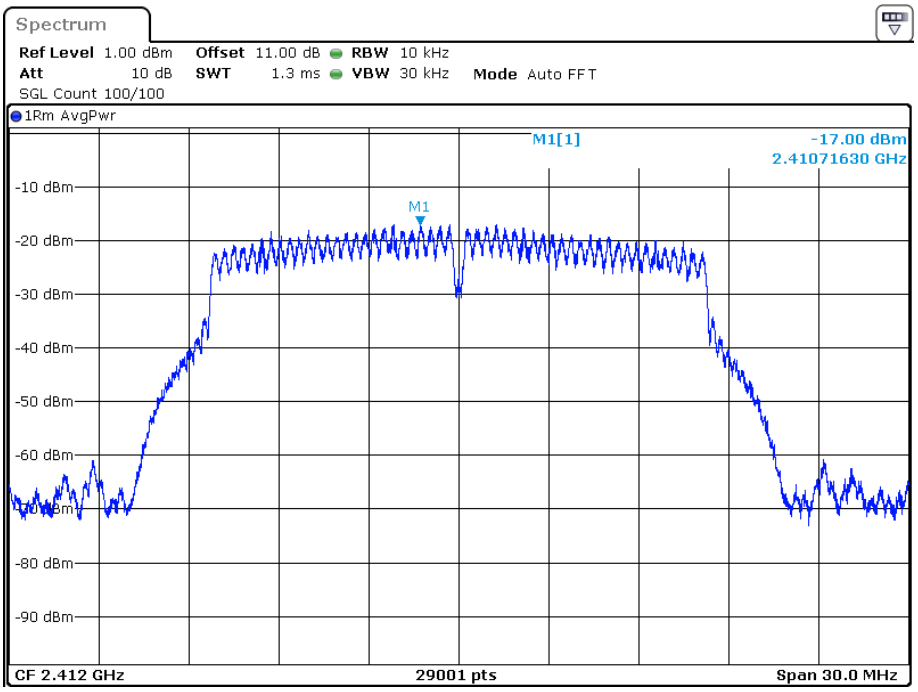
Power Spectral Density, High Channel



Date: 1.MAR.2023 23:47:37

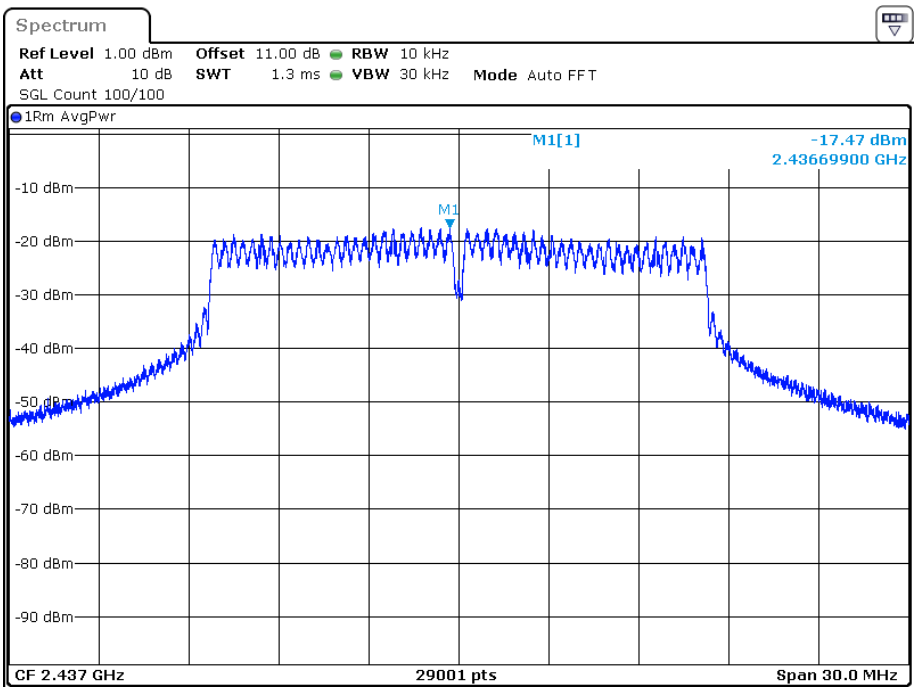
802.11 g mode：

Power Spectral Density, Low Channel



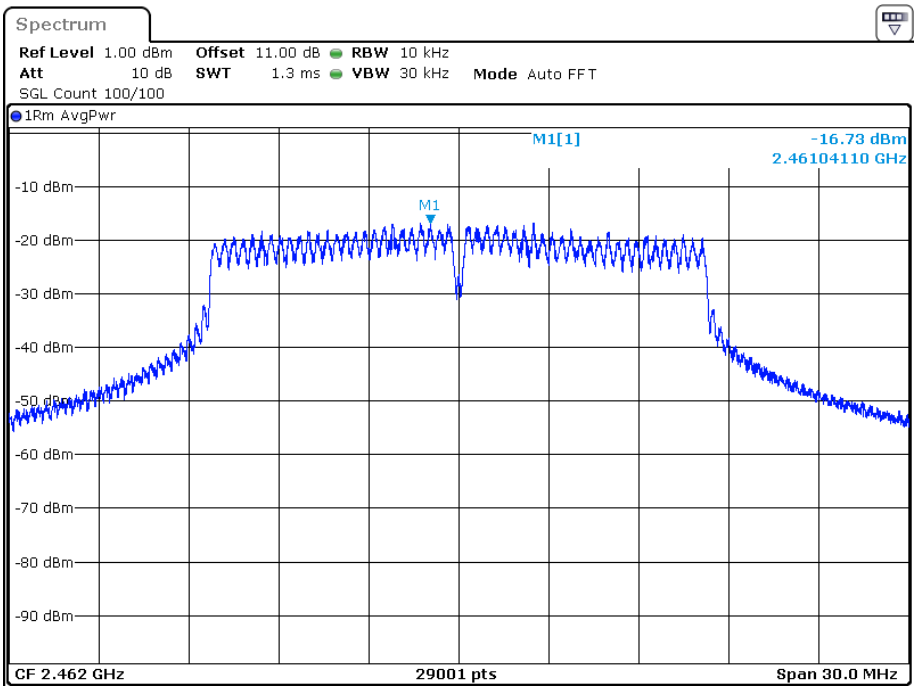
Date: 1.MAR.2023 23:49:21

Power Spectral Density, Middle Channel



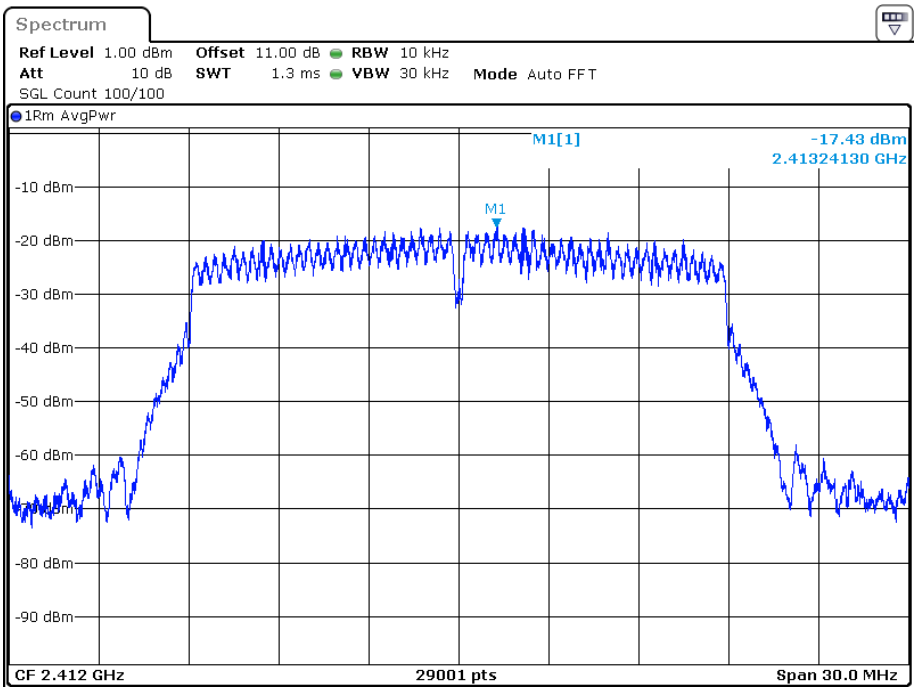
Date: 1.MAR.2023 23:48:52

Power Spectral Density, High Channel



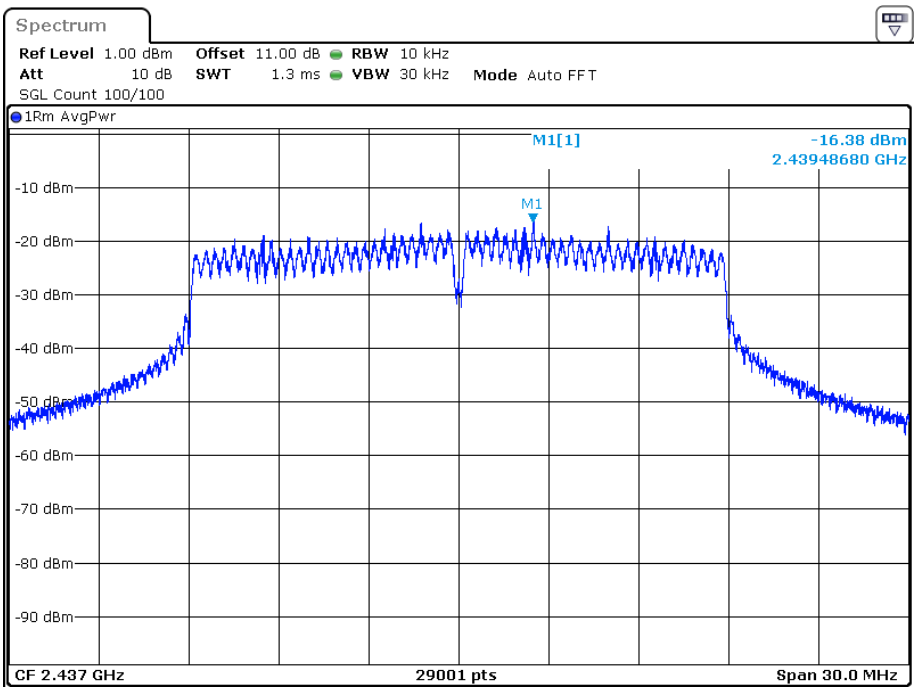
802.11n-20 mode:

Power Spectral Density, Low Channel



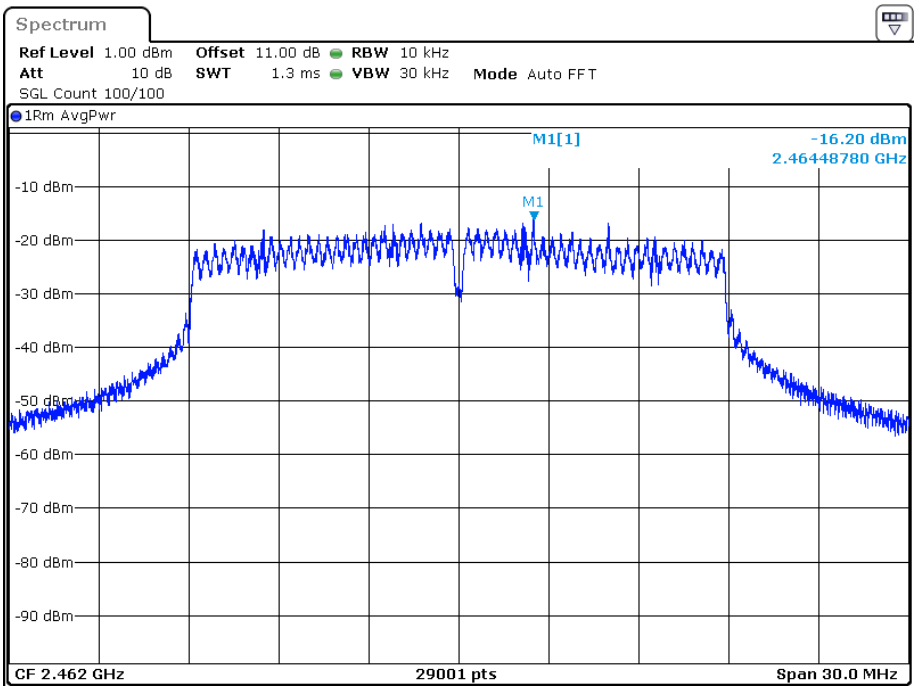
Date: 1.MAR.2023 23:50:00

Power Spectral Density, Middle Channel



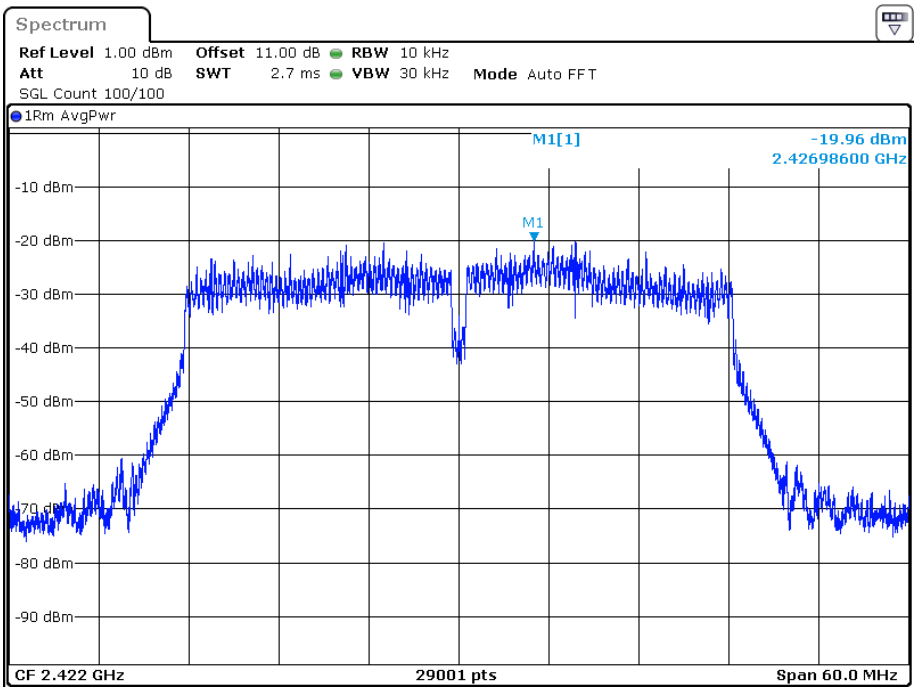
Date: 1.MAR.2023 23:50:30

Power Spectral Density, High Channel



802.11n-40 mode:

Power Spectral Density, Low Channel



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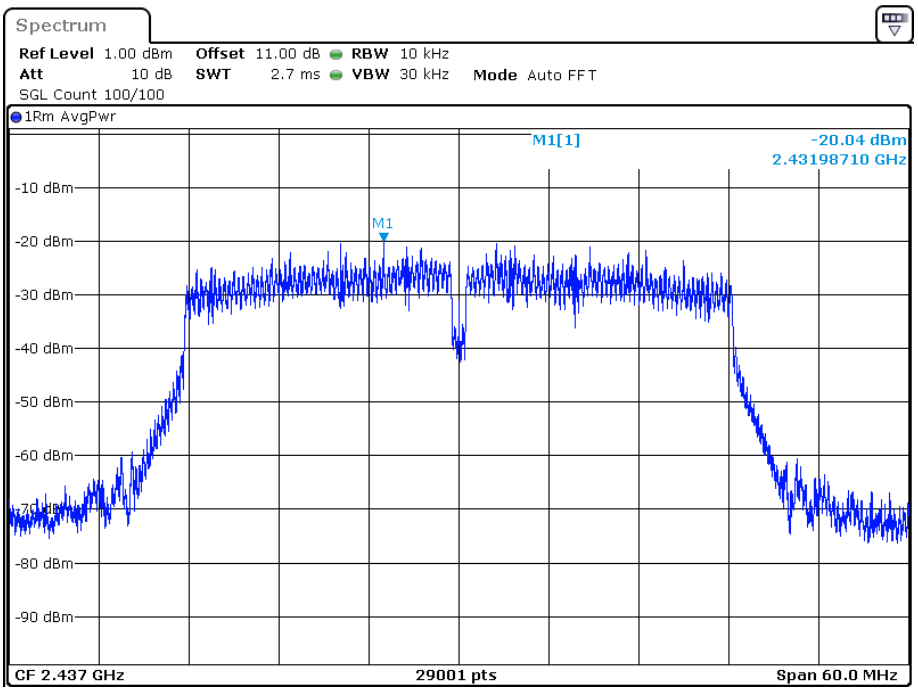
Power Spectral Density, Middle Channel



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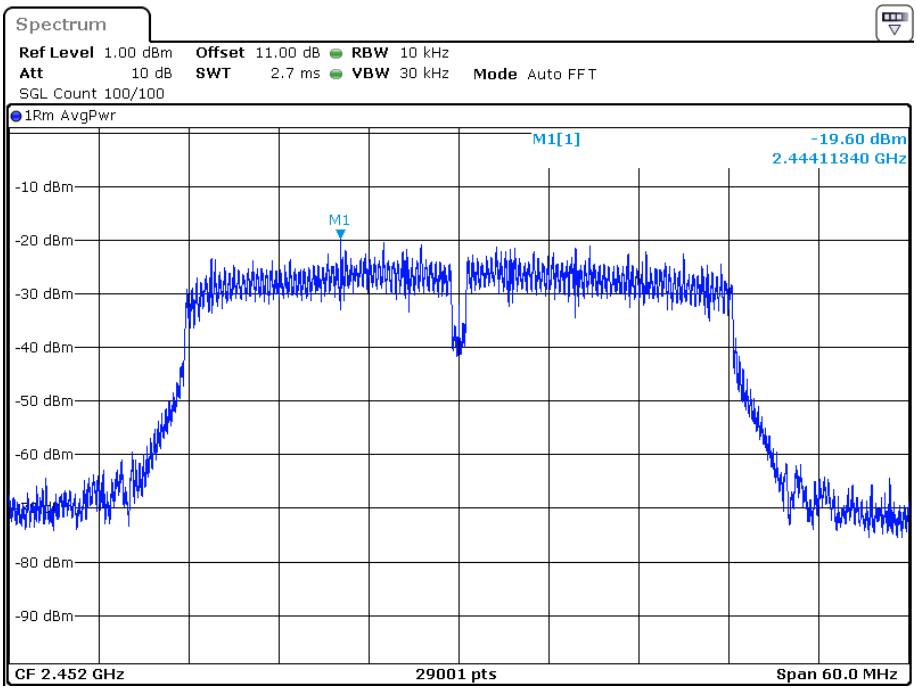
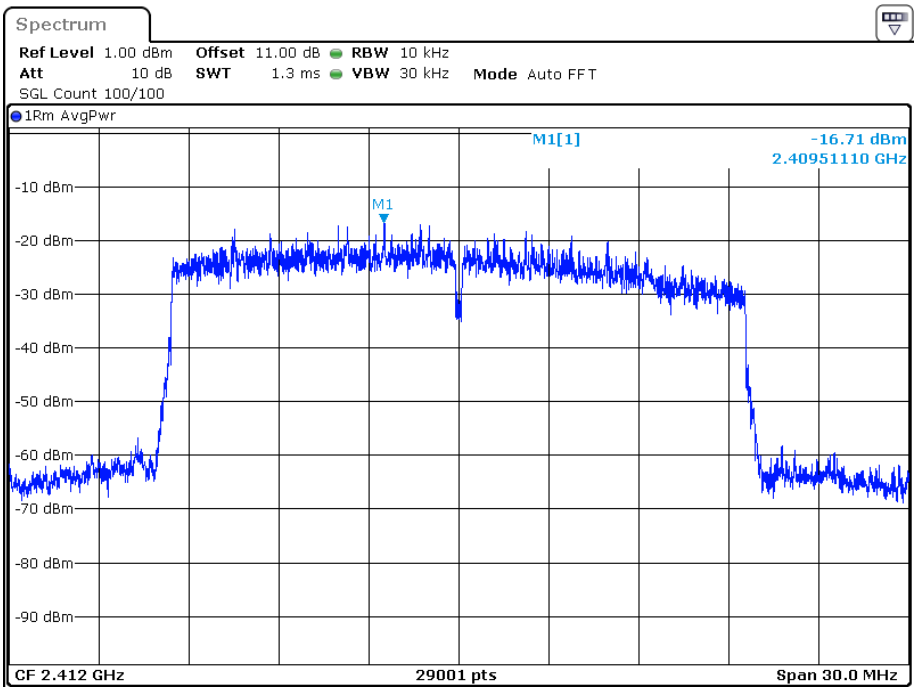
Power Spectral Density, High Channel



802.11ax20 mode:

Power Spectral Density, Low Channel



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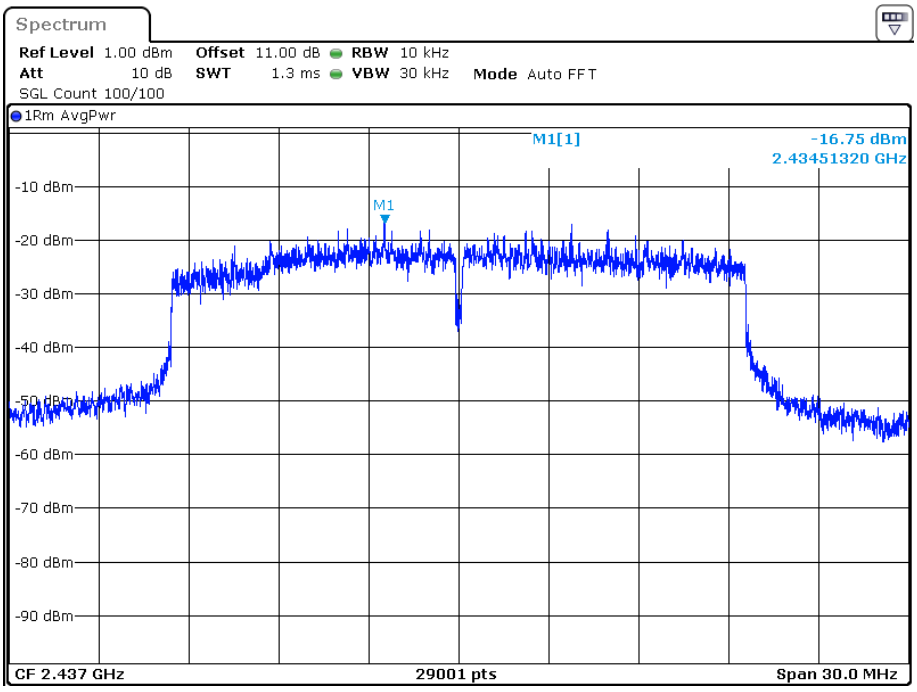
Power Spectral Density, Middle Channel



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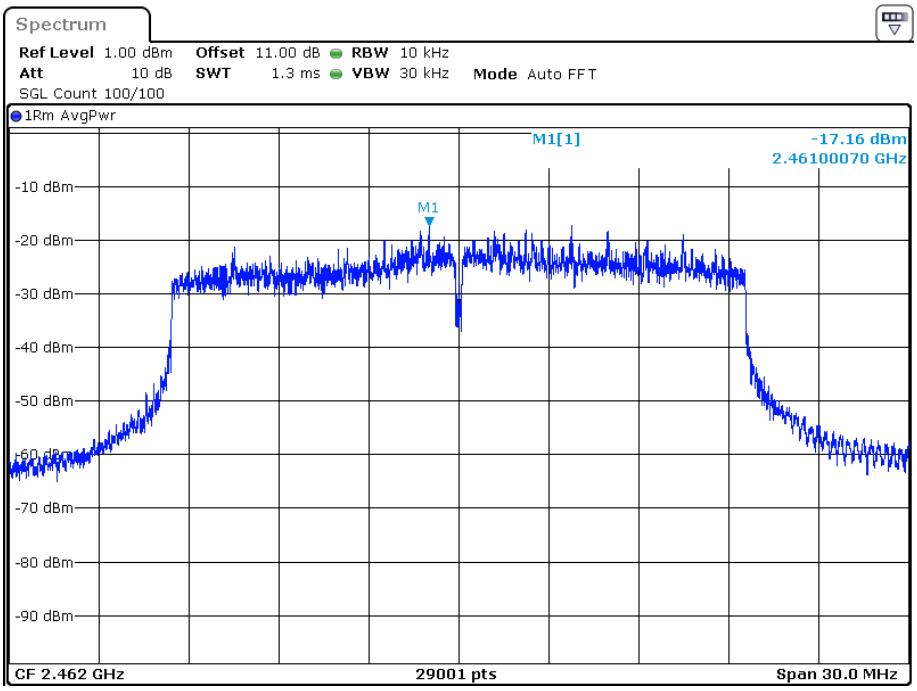
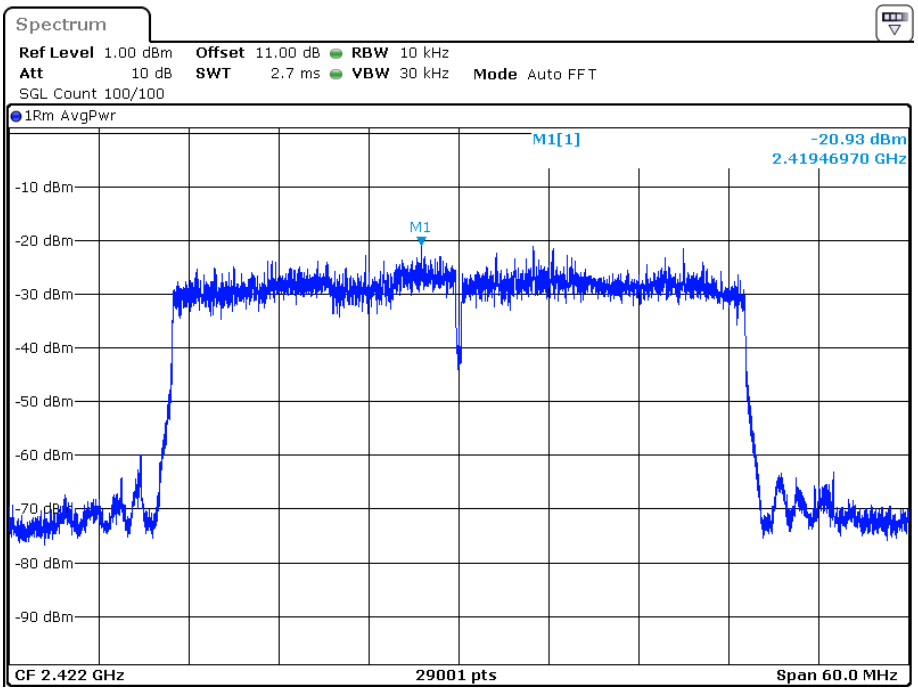
Power Spectral Density, High Channel



802.11ax40 mode:

Power Spectral Density, Low Channel



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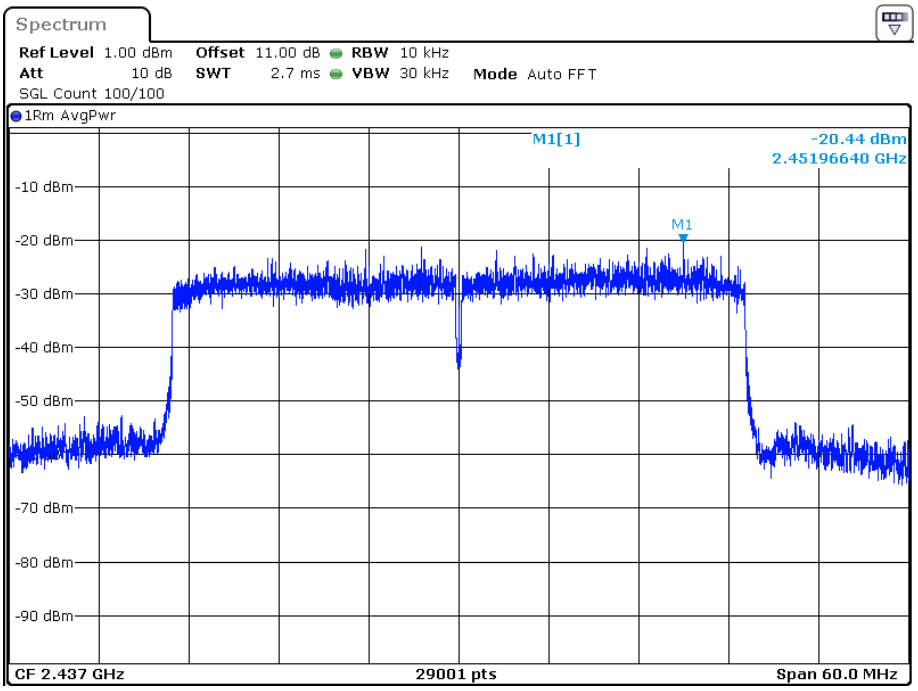
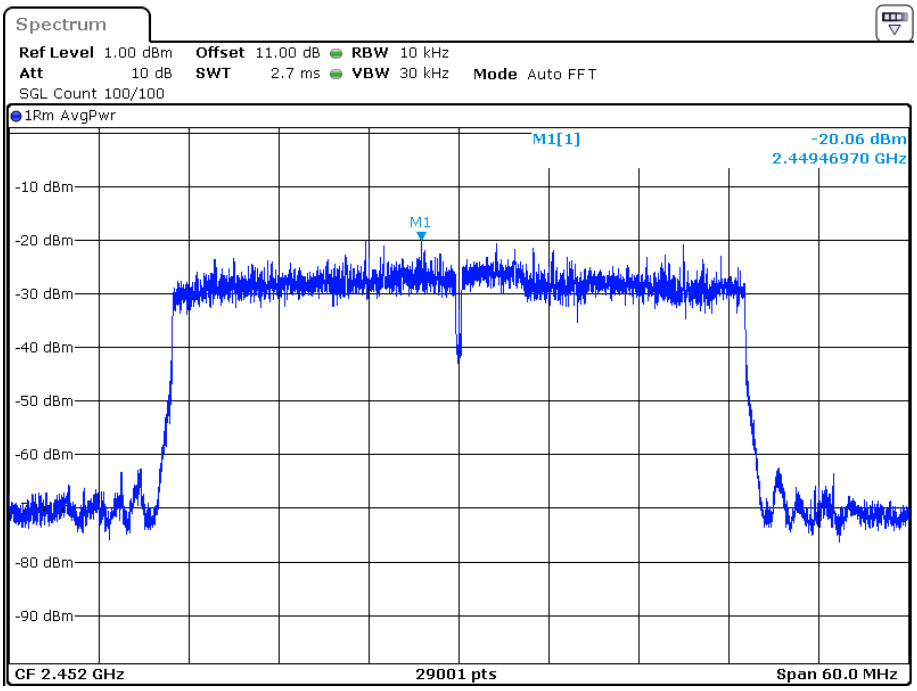
Power Spectral Density, Middle Channel



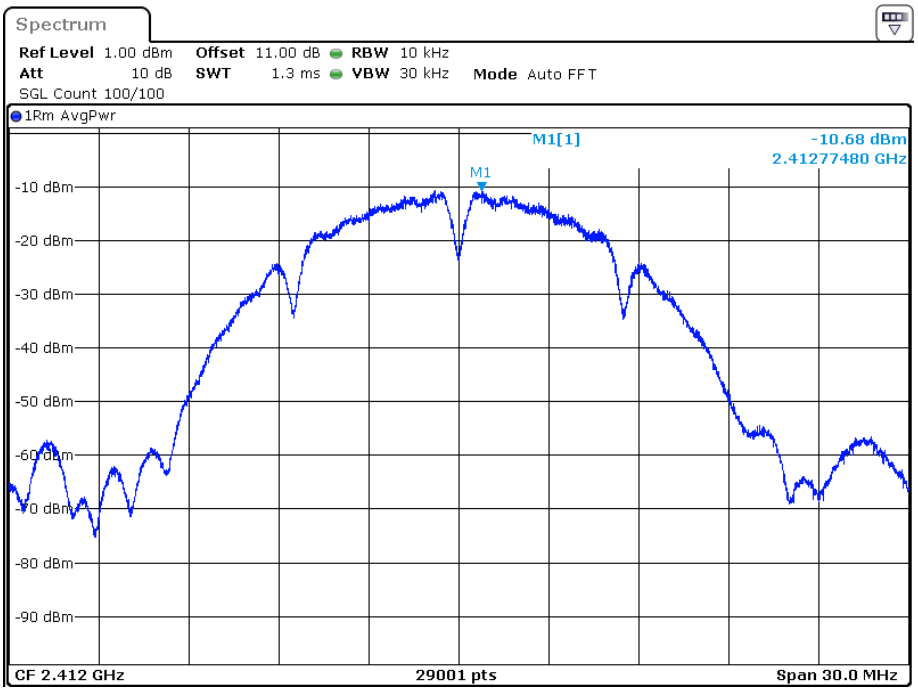
Date: 1.MAR.2023 23:39:59

Power Spectral Density, High Channel



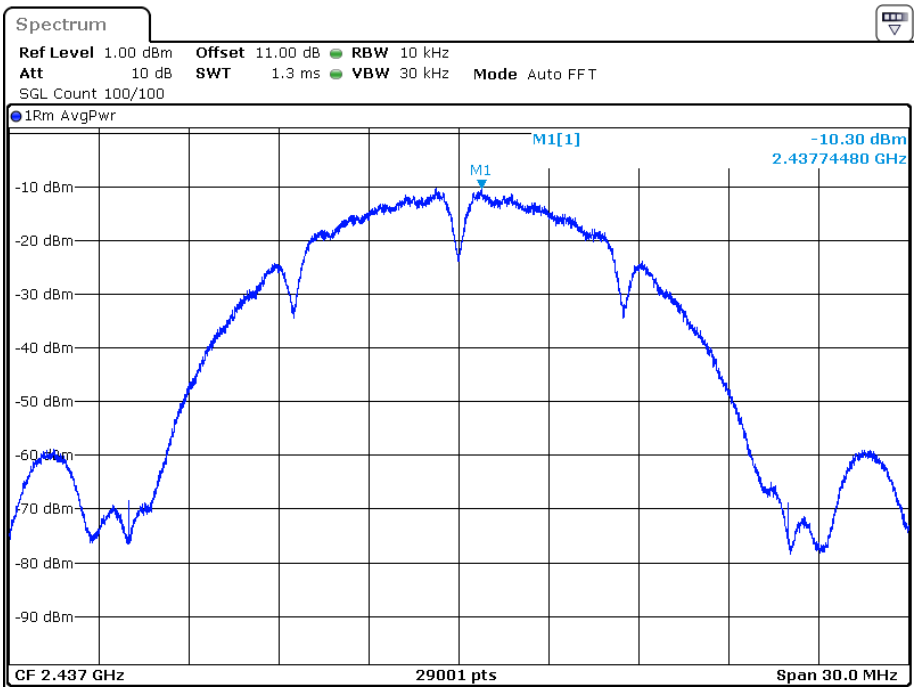
Ant2
802.11 b mode：

Power Spectral Density, Low Channel



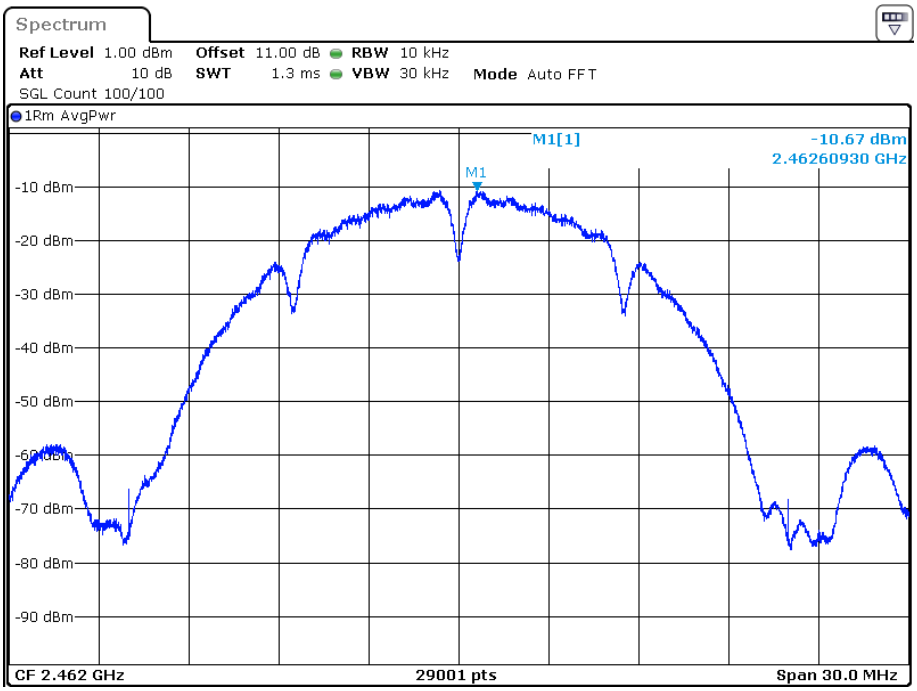
Date: 1.MAR.2023 23:18:16

Power Spectral Density, Middle Channel



Date: 1.MAR.2023 23:17:21

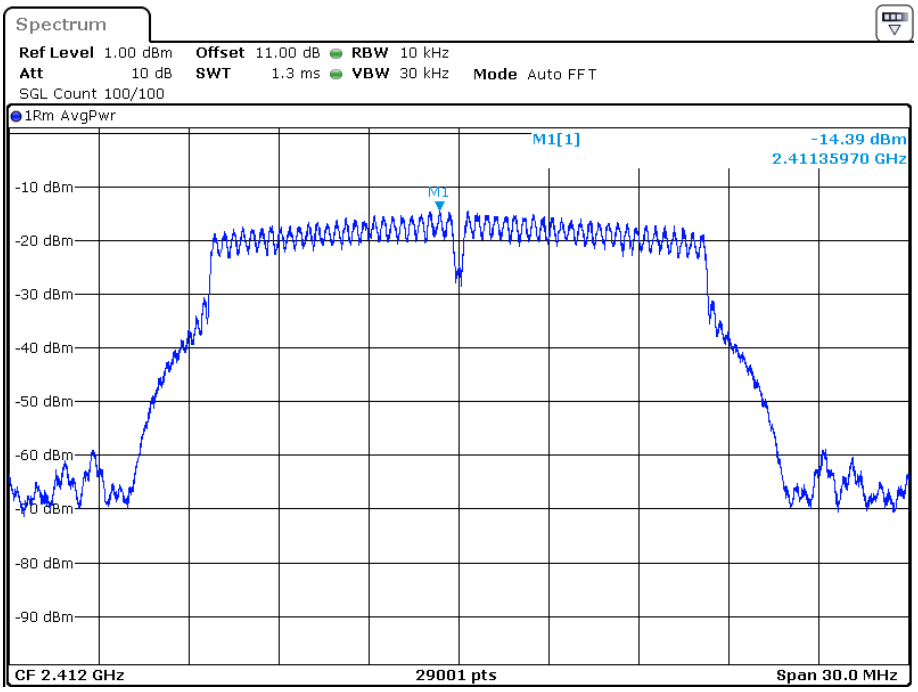
Power Spectral Density, High Channel



Date: 1.MAR.2023 23:19:14

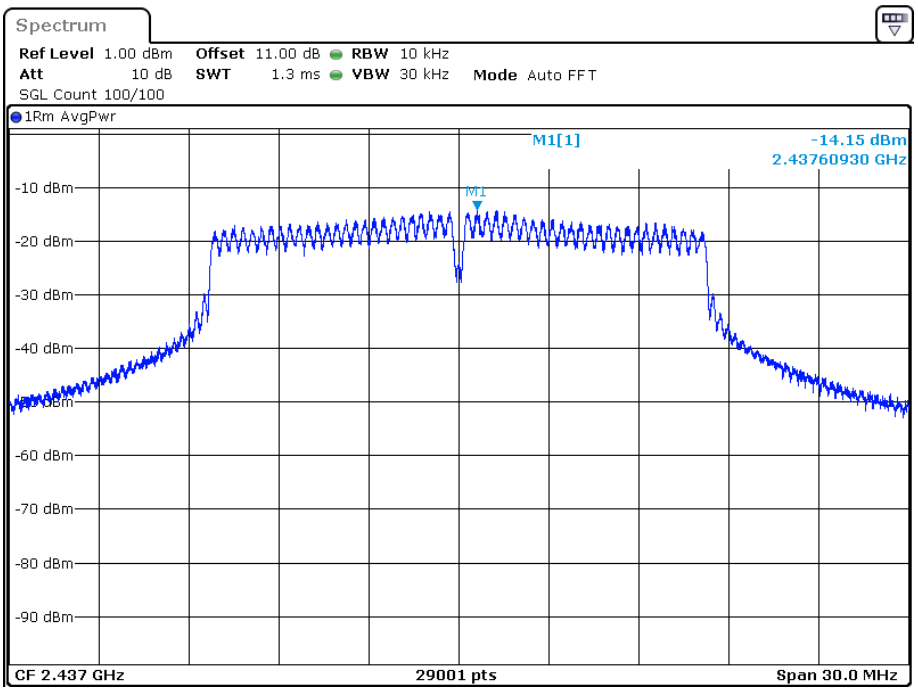
802.11 g mode:

Power Spectral Density, Low Channel



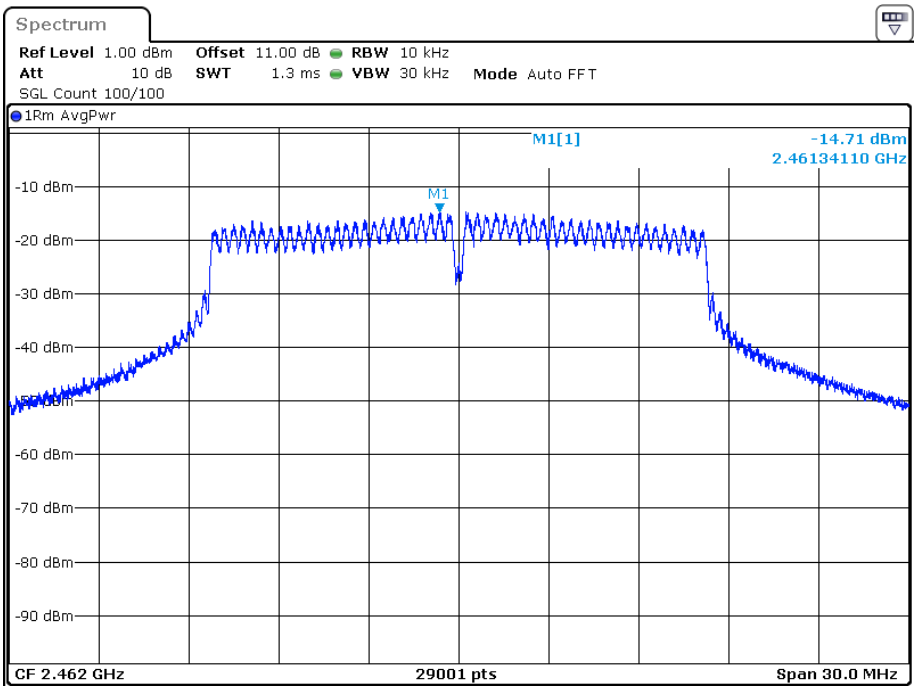
Date: 1.MAR.2023 23:22:02

Power Spectral Density, Middle Channel



Date: 1.MAR.2023 23:21:13

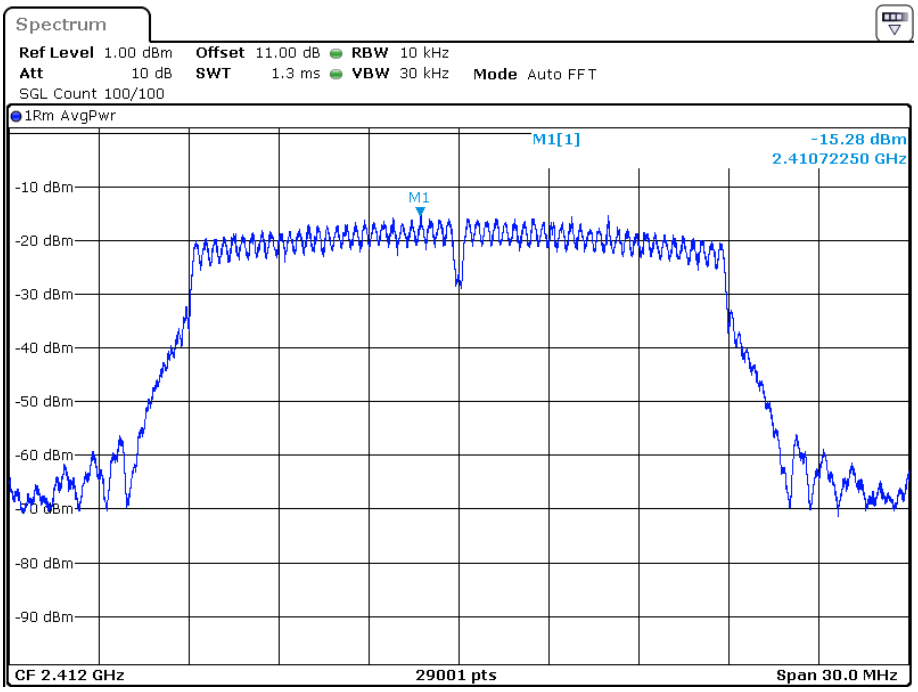
Power Spectral Density, High Channel



Date: 1.MAR.2023 23:20:10

802.11n-20 mode:

Power Spectral Density, Low Channel



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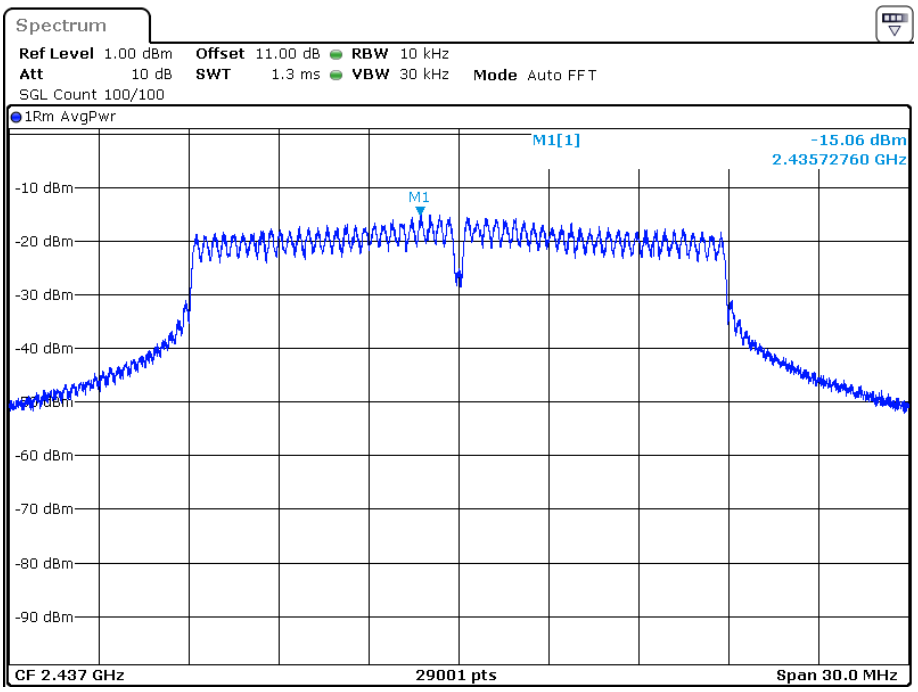
Power Spectral Density, Middle Channel



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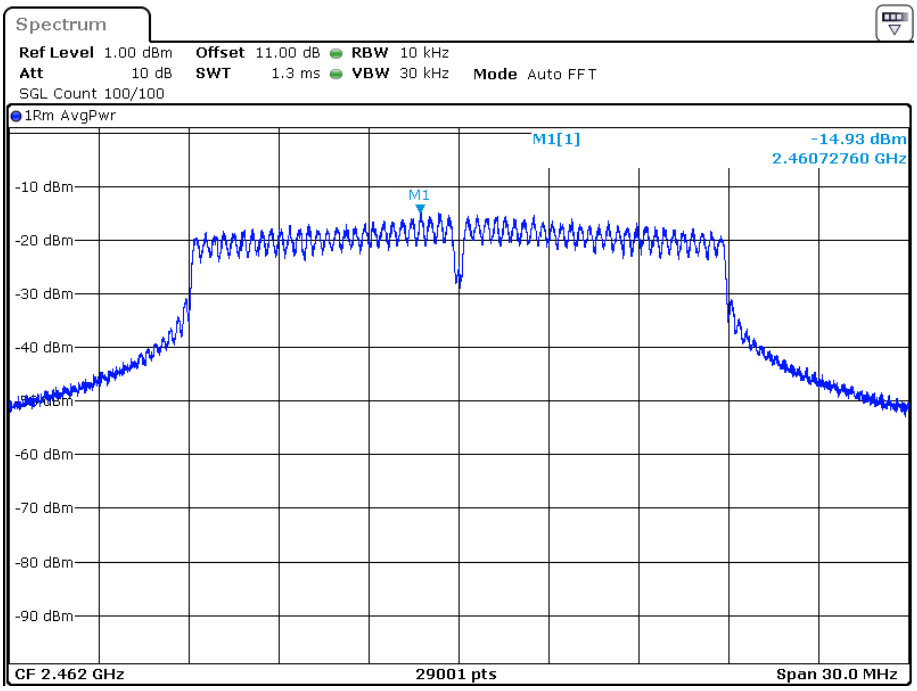
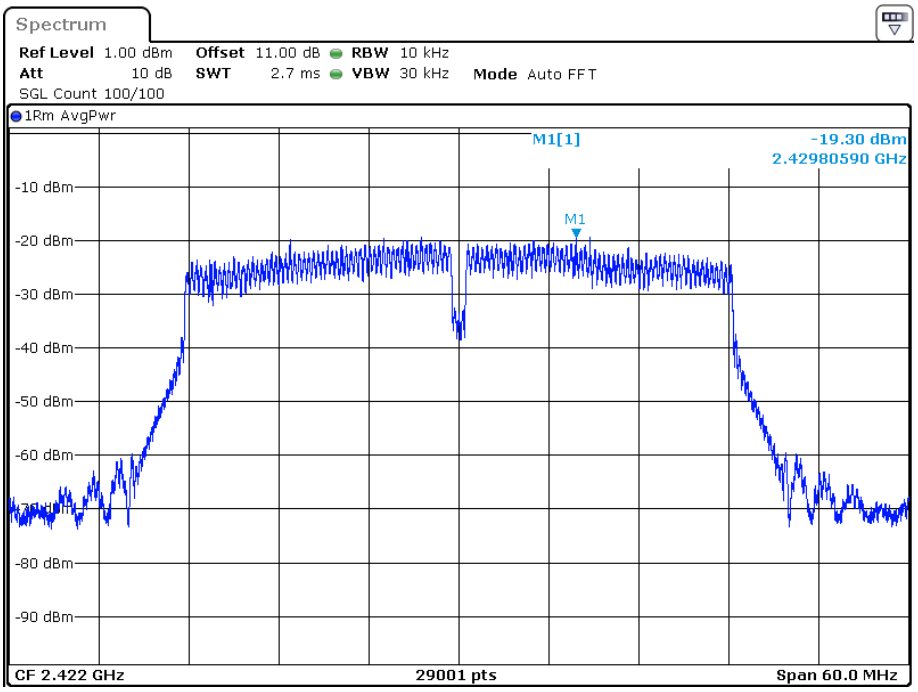
Power Spectral Density, High Channel



802.11n-40 mode:

Power Spectral Density, Low Channel



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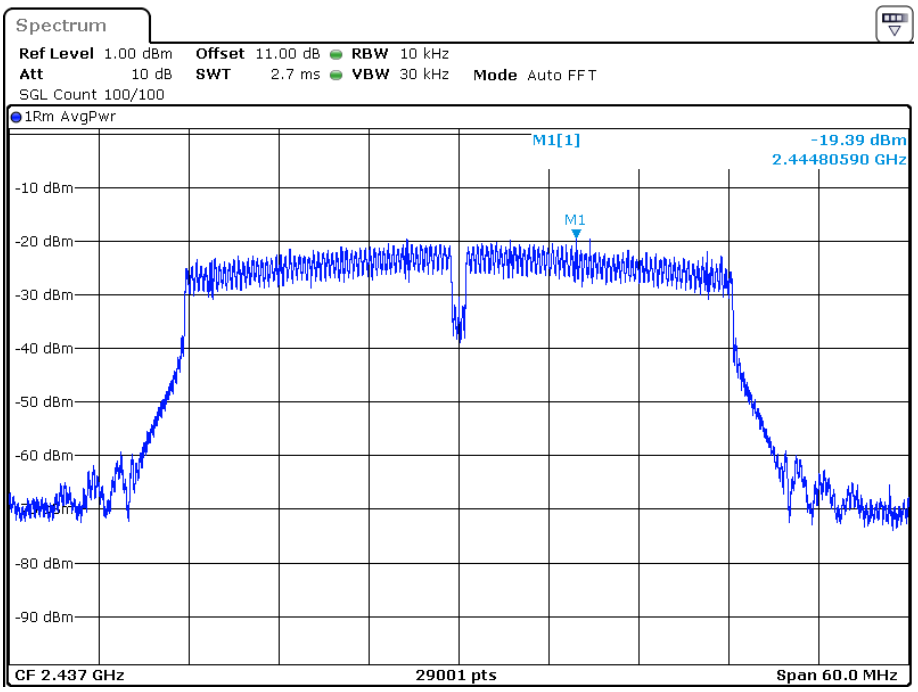
Power Spectral Density, Middle Channel



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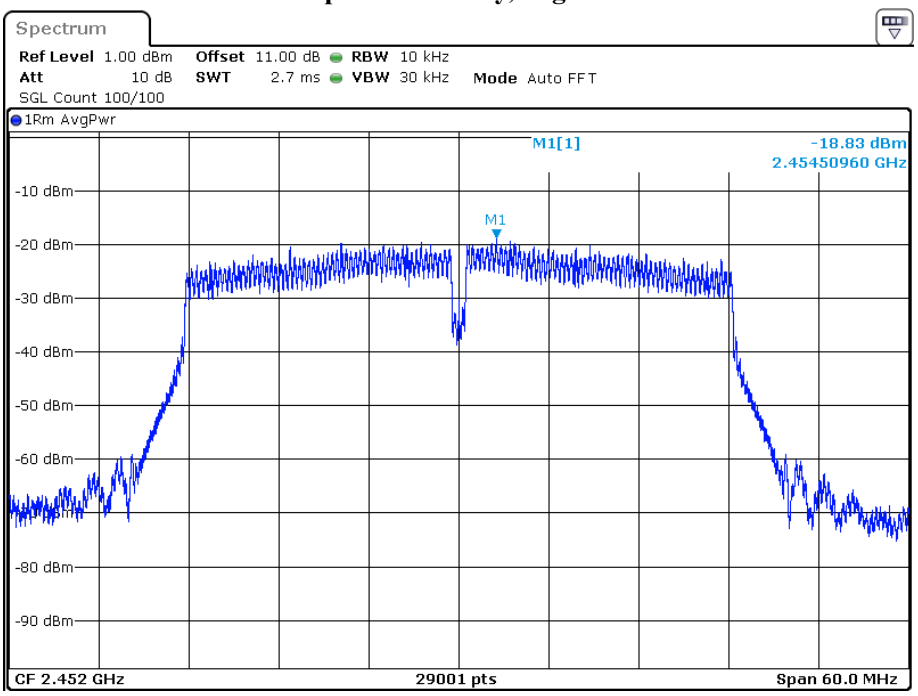
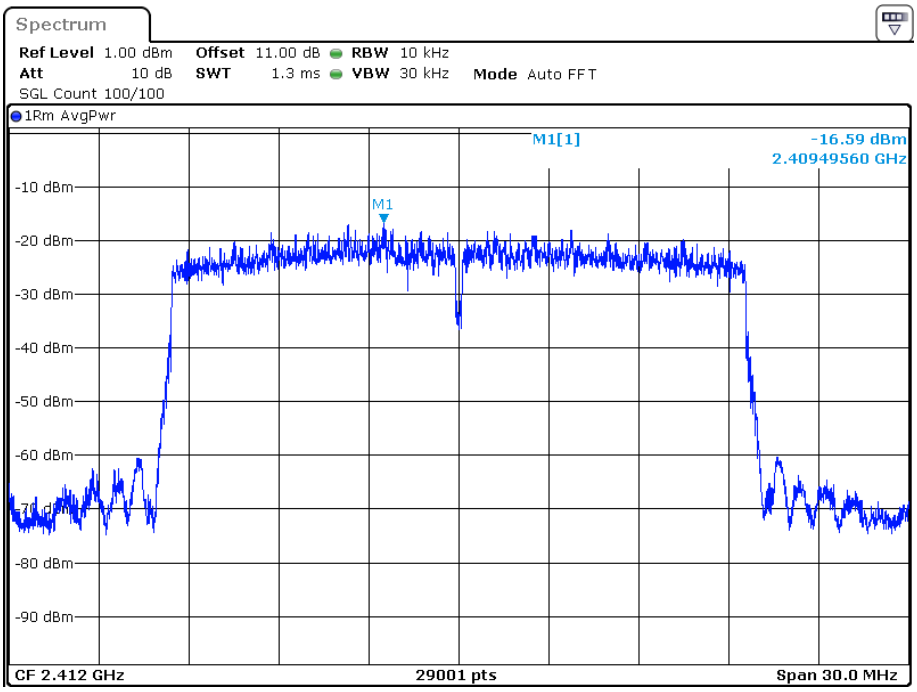
Power Spectral Density, High Channel



802.11ax20 mode:

Power Spectral Density, Low Channel



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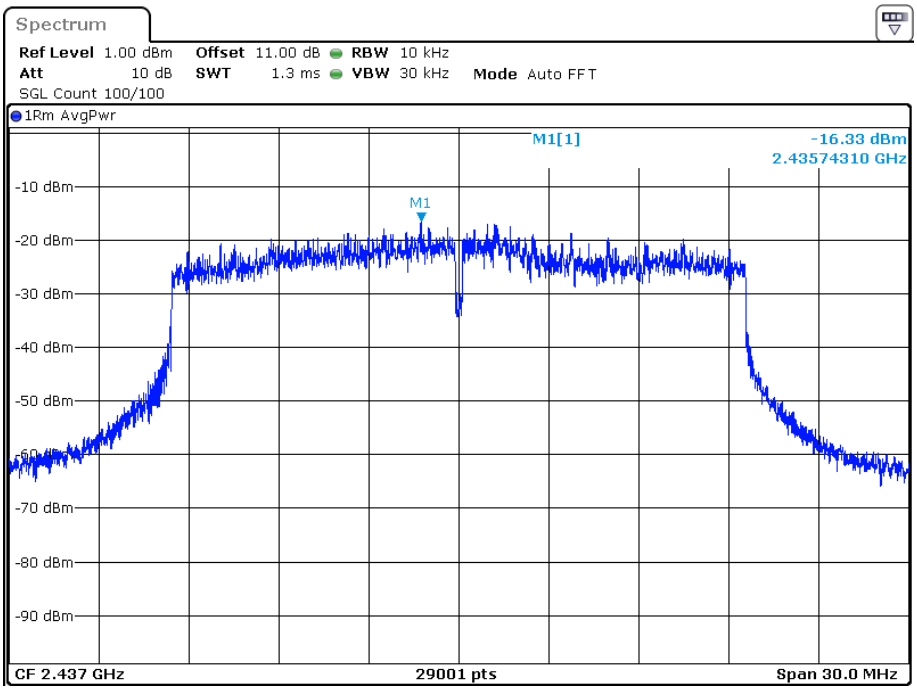
Power Spectral Density, Middle Channel



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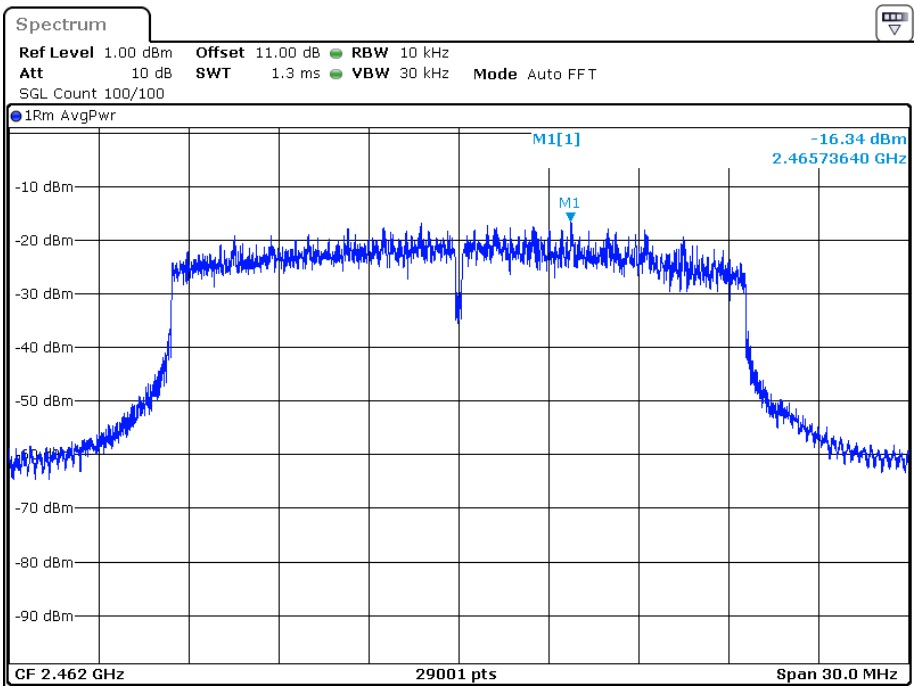
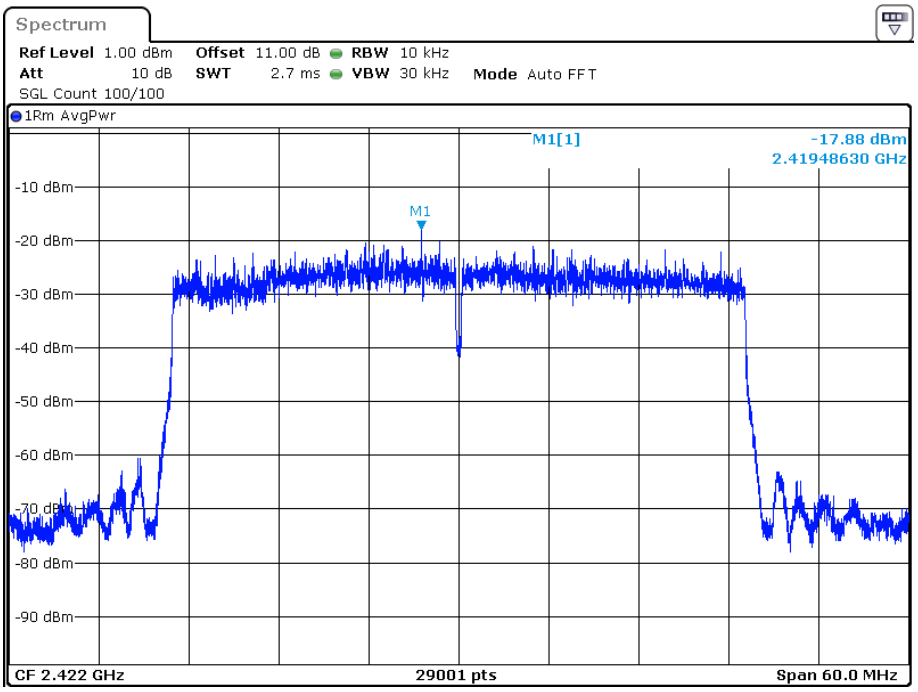
Power Spectral Density, High Channel



802.11ax40 mode:

Power Spectral Density, Low Channel



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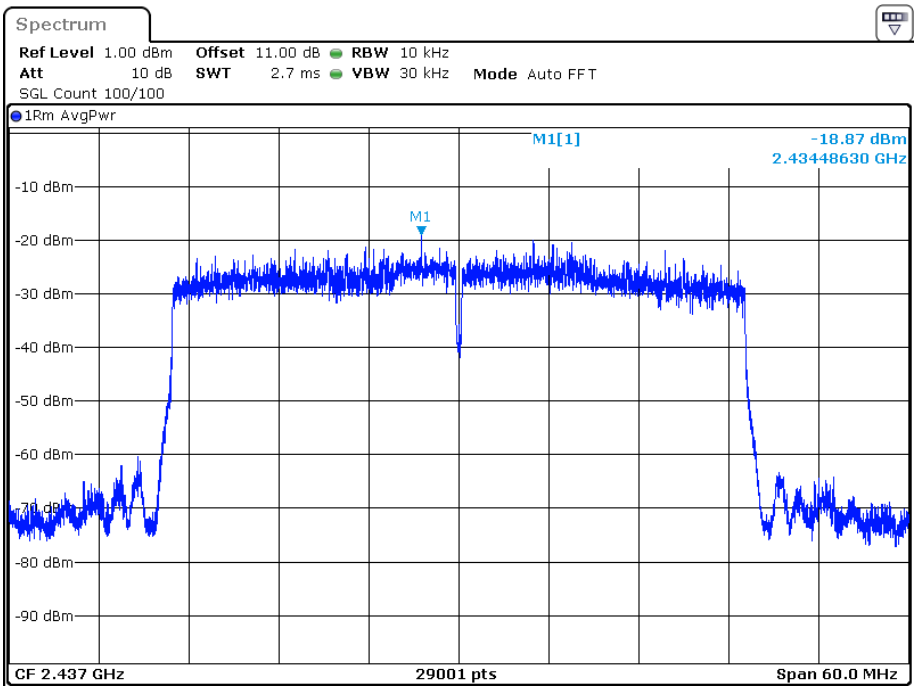
Power Spectral Density, Middle Channel



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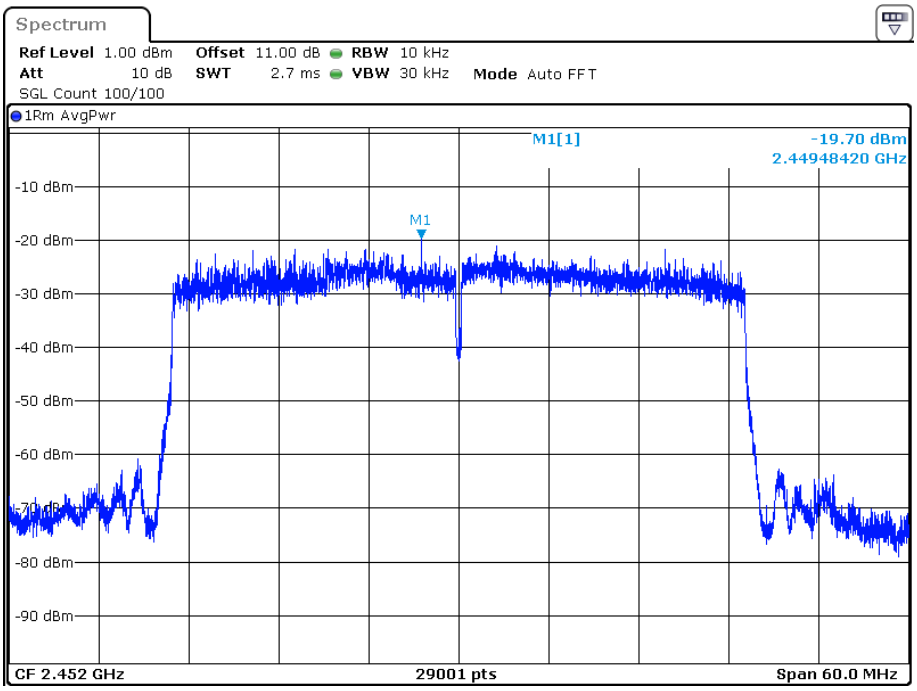
Power Spectral Density, High Channel



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