FCC Test Report

Report No.:	2405A112469EC
Applicant:	Zhuhai Glory Technology Co., Ltd
Address:	8F, Bldg 7, No. 178 Dingxing Road, Tangjiawan Town, Zhuhai, Guangdong, China
Product Name:	Wi-Fi Video Doorbell
Product Model:	R1
Multiple Models:	N/A
Trade Mark:	N/A
FCC ID:	2BMPT-R1
Standards:	FCC CFR Title 47 Part 15C (§15.247)
Test Date:	2025-01-13 to 2025-02-27
Test Result:	Complied
Report Date:	2025-03-03

Reviewed by: Frank Yin — Project Engineer

Approved by: Jacob Kong — Manager

Prepared by:

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

NVLAP TESTING NVLAP LAB CODE 600335-0

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

Revision History

Version No.	Issued Date	Description
00	*2025-03-03*	*Original*

Contents

1 General Information

1.1 Client Information

Applicant:	Zhuhai Glory Technology Co., Ltd
Address:	8F, Bldg 7, No. 178 Dingxing Road, Tangjiawan Town, Zhuhai, Guangdong, China
Manufacturer:	Zhuhai Glory Technology Co., Ltd
Address:	8F, Bldg 7, No. 178 Dingxing Road, Tangjiawan Town, Zhuhai, Guangdong, China

1.2 Product Description of EUT

The EUT is Wi-Fi Video Doorbell that contains 2.4G WLAN radio, this report covers the full testing of the 2.4G WLAN radio.

Sample Serial Number	2WLF-1 for CE&RE test, 2WLF-2 for RF conducted test(assigned by WATC)
Sample Received Date	2024-12-26
Sample Status	Good Condition
Frequency Range	2412MHz - 2462MHz(802.11b, g, n-HT20)
Maximum Conducted Peak Output Power	19.97dBm
Modulation Technology	DSSS, OFDM
Antenna Gain#	3.14dBi
Spatial Streams#	SISO(1TX, 1RX)
Power Supply	DC 5V from type-C port or DC 3.7V from battery or AC8-24V from AC port
Adapter Information	N/A
Modification	Sample No Modification by the test lab

1.3 Antenna information

15.203 requirement:

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

Device Antenna information:	

The Wi-Fi antenna is an internal antenna which cannot replace by end-user. Please see product internal photos for details.

1.4 Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s)

1.5 Measurement Uncertainty

Parameter		Expanded Uncertainty (Confidence of 95%(U = 2Uc(y)))
AC Power Lines Conducted Emissions		±3.14dB
Emissions, Radiated	Below 30MHz	±2.78dB
	Below 1GHz	±4.84dB
	Above 1GHz	±5.44dB
Emissions, Conducted		1.75dB
Conducted Power		0.74dB
Frequency Error		150Hz
Bandwidth		0.34%
Power Spectral Density		0.74dB
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.*		

1.6 Laboratory Location

World Alliance Testing & Certification (Shenzhen) Co., Ltd

No. 1002, East Block, Laobing Building, Xingye Road 3012, Xixiang street, Bao'an District, Shenzhen, Guangdong, People's Republic of China

Tel: +86-755-29691511, Email: qa@watc.com.cn

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 463912, the FCC Designation No. : CN5040.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier: CN0160.

1.7 Test Methodology

FCC CFR 47 Part 2

FCC CFR 47 Part 15

KDB 558074 D01 15.247 Meas Guidance v05r02

ANSI C63.10-2013

Unless otherwise stated there are no any additions to, deviations, or exclusions from the method

2 Description of Measurement

2.1 Test Configuration

Operating channels:					
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2412	5	2432	9	2452
2	2417	6	2437	10	2457
3	2422	7	2442	11	2462
4	2427	8	2447	/	/
According to ANSI C63.10-2013 chapter 5.6.1 Table 11 requirement, select lowest channel, middle channel, and highest channel in the frequency range in which device operates for testing. The detailed frequency points are as follows:					
802.11b, 802.11g, 802.11n-HT20					
Lowest channel		Middle channel		Highest channel	
Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2412	6	2437	11	2462

Test Mode:				
Transmitting mode:	Keep the EUT in continuous transmitting with modulation			
Exercise software#:	SecureCRT			
Mode	**Worst-case Data rate**	**Power Level Setting#**		
		Low Channel	**Middle Channel**	**High Channel**
802.11b	1Mbps	-70	-70	-70
802.11g	6Mbps	-100	-100	-100
802.11n-HT20	MCS0	-100	-100	-100
The exercise software and the maximum power setting that provided by manufacturer.				

Worst-Case Configuration:
For AC power line conducted emission and radiated emission 9kHz-1GHz and above 18GHz were performed with the EUT transmits at the channel with highest output power as worst-case scenario. For radiated emissions below 30MHz, three antenna orientations (parallel, perpendicular, gound-parallel) were tested, only record the worse case test data in report. The EUT has two type external power supply, one is from type-C port and another is from the AC port, both the two type was tested for AC power line conducted emission and radiated emission below 1GHz, other item only test the type-C power supply as worst-case scenario. For the AC port, a typical voltage of 12Vac was used for the test.

2.2 Test Auxiliary Equipment

Manufacturer	Description	Model	Serial Number
unknown	AC adaptor	unknown	unknown
unknown	Transformer*	DX-24V2000MA	unknown

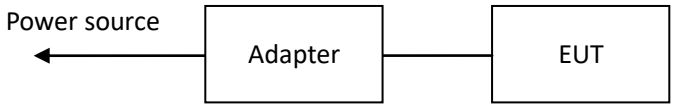
Note*: the transformer was provided by applicant.

2.3 Interconnecting Cables

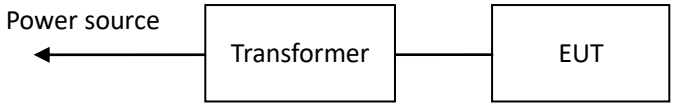
Manufacturer	Description	Length(m)	From	To
unknown	USB Cable	1.0	Adapter	EUT
unknown	Power Cable	0.5	Power source	Transformer
unknown	Power Cable	1.5	Transformer	EUT

2.4 Block Diagram of Connection between EUT and AE

Type-C port:



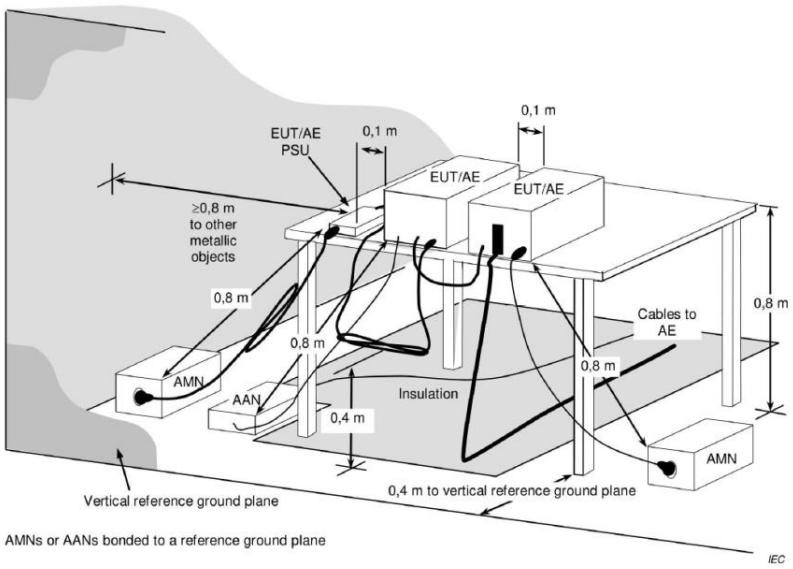
AC port:



Note: for reference only, the actual connection setup used for testing please refer to the test photos.

2.5 Test Setup

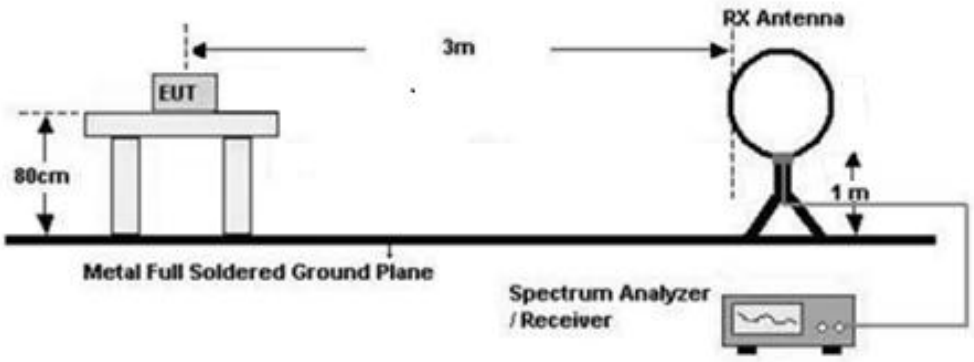
1) Conducted emission measurement:



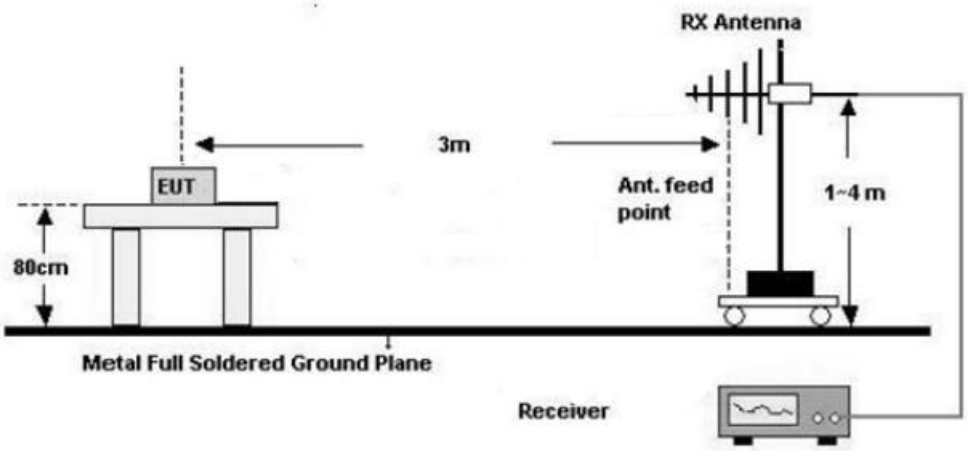
Note: The 0.8 m distance specified between EUT/AE/PSU and AMN/AAN, is applicable only to the EUT being measured. If the device is AE then it shall be >0.8 m.

2) Radiated emission measurement:

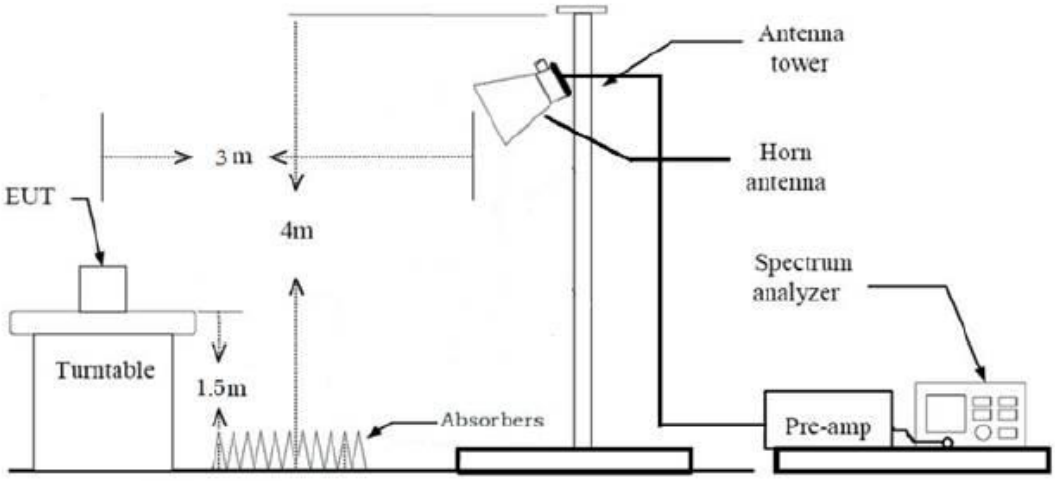
Below 30MHz (3m SAC)



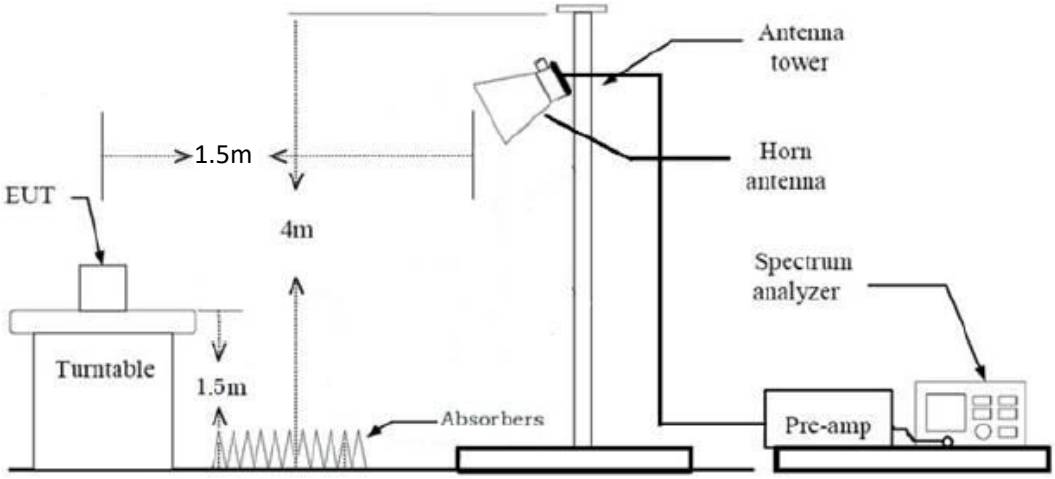
30MHz-1GHz (3m SAC)



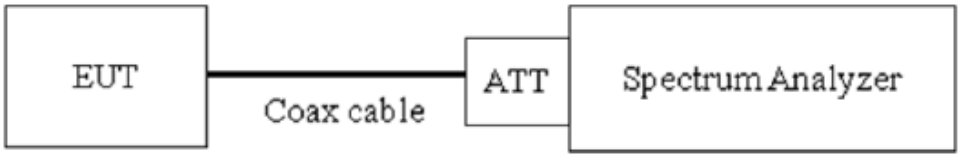
1GHz-18GHz(3m FAC)



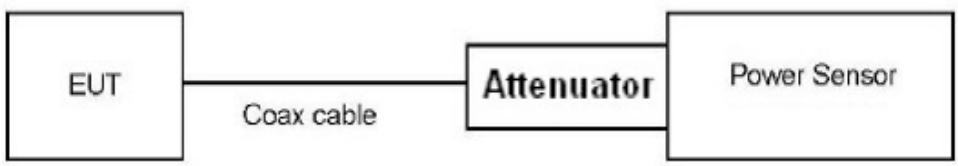
Above 18GHz (3m FAC)



3) RF Conducted Test



or



2.6 Test Procedure

Conducted emission:

1. The E.U.T is placed on a non-conducting table 40cm from the vertical ground plane and 80cm above the horizontal ground plane (Please refer to the block diagram of the test setup and photographs).
2. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.
3. Line conducted data is recorded for both Line and Neutral

Radiated Emission Procedure:

a) For below 30MHz

1. All measurements were made at a test distance of 3 m. The measured data was extrapolated from the test distance (3m) to the specification distance (300 m from 9-490 kHz and 30 m from 490 kHz- 30 MHz) to clearly show the relative levels of fundamental and spurious emissions and demonstrate compliance with the requirement that the level of any spurious emissions be below the level of the intentionally transmitted signal. The extrapolation factor for the limits were 40*Log (test distance / specification distance).
2. Loop antenna use, investigation was done on the three antenna orientations (parallel, perpendicular, gound-parallel)
3. The RBW/VBW of receiver is set to 300Hz/1kHz for 9kHz to 150kHz range, to 10kHz/30kHz for 150kHz to 30MHz range for scan Peak emission, 200Hz/9kHz IF BW was used for final measurement in the Quasi-peak or average detection mode for frequency range 9~150kHz/150kHz~30MHz respectively.
4. If the Peak emission complies with the QP limit, then perform final measurement is optional.

b) For 30MHz-1GHz:

1. The EUT was placed on the tabletop of a rotating table 0.8 m the ground at a 3 m semi anechoic chamber. The measurement distance from the EUT to the receiving antenna is 3 m.
2. EUT works in each mode of operation that needs to be tested. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.
3. The RBW/VBW of receiver is set to 100kHz/300kHz for scan Peak emission, 120kHz IF BW was used for final measurement in the Quasi-peak detection mode.
4. If the Peak emission complies with the QP limit, then perform final measurement is optional.

c) For above 1GHz:

1. The EUT was placed on the tabletop of a rotating table 1.5 m the ground at a 3 m fully anechoic room. The measurement distance from the EUT to the receiving antenna is 3 m (1-18GHz) and 1.5 m (above 18GHz).
2. EUT works in each mode of operation that needs to be tested，and having the EUT continuously working. The highest signal levels relative to the limit shall be determined by rotating the EUT from 0° to 360° and with varying the measurement antenna height between 1 m and 4 m in vertical and horizontal polarizations.

3. The RBW/VBW of spectrum analyzer is set to 1MHz/3MHz for scan Peak emission, for measured average emission, reduce the VBW to 10Hz(for duty cycle≥98%), or ≥1/T(for duty cycle<98%). T is minimum transmission duration. (Note: a high VBW (for example 1kHz, not less than 1/T) may used to scan average emissions to avoid long sweep time.)
4. If the Peak emission complies with the Average limit, then perform average measurement is optional.
5. Open the test software to control the test antenna and test turntable. Perform the test, save the test results, and export the test data.
6. Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

RF Conducted Test:

1. The antenna port of EUT was connected to the RF port of the test equipment (Power Meter or Spectrum analyzer) through Attenuator and RF cable.
2. The cable assembly insertion loss of 8.0dB (including 6.0 dB Attenuator and 2.0 dB cable) was entered as an offset in the power meter. Note: Actual cable loss was unavailable at the time of testing, therefore a loss of 2.0dB was assumed as worst case. This was later verified to be true by laboratory. (if the RF cable provided by client, the cable loss declared by client)
3. The EUT is keeping in continuous transmission mode and tested in all modulation modes.

2.7 Measurement Method

Description of Test	Measurement Method
AC Line Conducted Emissions	ANSI C63.10-2013 Section 6.2
Maximum Conducted Output Power	ANSI C63.10-2013 Section 11.9.1.2 PKPM1 Peak power meter method or ANSI C63.10-2013 Section 11.9.2.3.2 Method AVGPM-G
Power Spectral Density	ANSI C63.10-2013 Section 11.10.2 Method PKPSD (peak PSD)
6 dB Emission Bandwidth	ANSI C63.10-2013 Section 11.8.1
99% Occupied Bandwidth	ANSI C63.10-2013 Section 6.9.3
100kHz Bandwidth of Frequency Band Edge	ANSI C63.10-2013 Section 6.10
Radiated emission	ANSI C63.10-2013 Section 11.11&11.12
Duty Cycle	ANSI C63.10-2013 Section 11.6

2.8 Measurement Equipment

Manufacturer	Description	Model	Management No.	Calibration Date	Calibration Due Date
AC Line Conducted Emission Test					
ROHDE& SCHWARZ	EMI TEST RECEIVER	ESR	101817	2024/6/4	2025/6/3
R&S	LISN	ENV216	101748	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.12	N/A	2024/6/4	2025/6/3
Farad	Test Software	EZ-EMC	Ver. EMEC-3A1	/	/
Radiated Emission Test					
R&S	EMI test receiver	ESR3	102758	2024/6/4	2025/6/3
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40-N	101608	2024/6/4	2025/6/3
SONOMA INSTRUMENT	Low frequency amplifier	310	186014	2024/6/4	2025/6/3
A.H. Systems	PREAMPLIFIER	PAM-0118P	531	2024/6/4	2025/6/3
COM-POWER	Amplifier	PAM-840A	461306	2024/8/7	2025/8/6
BACL	Loop Antenna	1313-1A	4010611	2024/2/7	2027/2/6
SCHWARZBECK	Log - periodic wideband antenna	VULB 9163	9163-872	2023/7/7	2026/7/6
Astro Antenna Ltd	Horn antenna	AHA-118S	3015	2023/7/6	2026/7/5
Ducommun technologies	Horn Antenna	ARH-4223-02	1007726-03	2023/7/10	2026/7/9
Oulitong	Band Reject Filter	OBSF-2400-2483.5-50N	OE02103119	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.9	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.13	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.15	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.16	N/A	2024/6/4	2025/6/3
N/A	Coaxial Cable	NO.17	N/A	2024/6/4	2025/6/3
Audix	Test Software	E3	191218 V9	/	/
RF Conducted Test					
ROHDE& SCHWARZ	SPECTRUM ANALYZER	FSV40	101419	2024/6/4	2025/6/3
ANRITSU	USB Power Sensor	MA24418A	12620	2024/6/4	2025/6/3
MEEA	6dB attenuator	603-06-1	N/A	2024/6/4	2025/6/3

Note: All equipment is calibrated with valid calibrations. Each measurement data is traceable to the national or International standards.

3 Test Results

3.1 Test Summary

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207 (a)	AC Line Conducted Emissions	Compliance
§15.247(b)(3)	Maximum Conducted Output Power	Compliance
§15.247(e)	Power Spectral Density	Compliance
§15.247 (a)(2)	6 dB Emission Bandwidth	Compliance
-	99% Occupied Bandwidth	Report only
§15.247(d)	100kHz Bandwidth of Frequency Band Edge	Compliance
§15.205, §15.209, §15.247(d)	Radiated emission	Compliance
-	Duty Cycle	Report only

3.2 Limit

Test items	Limit
AC Line Conducted Emissions	See details §15.207 (a)
Conducted Output Power	For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.
6dB Emission Bandwidth	The minimum 6 dB bandwidth shall be at least 500 kHz.
Power Spectral Density	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.
Spurious Emissions, 100kHz Bandwidth of Frequency Band Edge	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)).

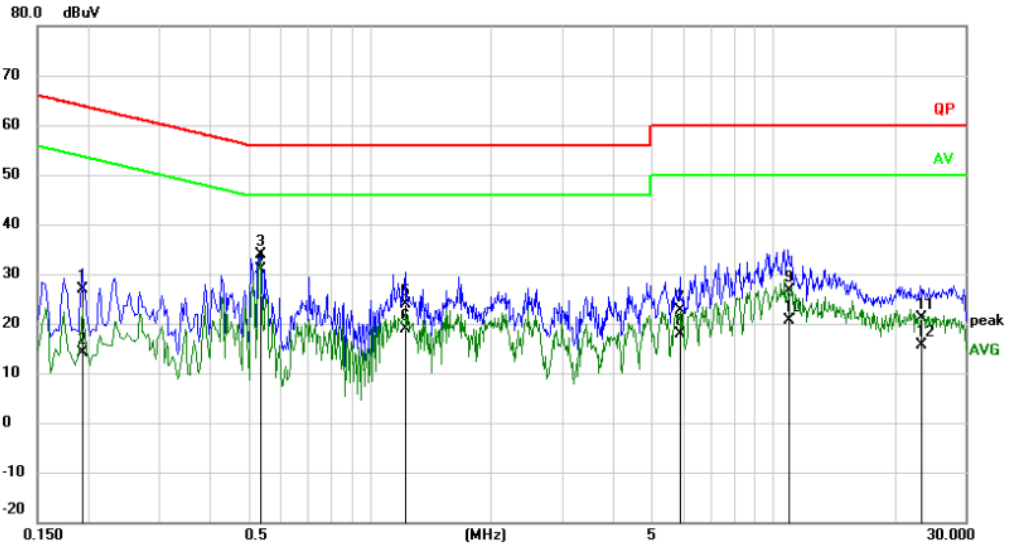
3.3 AC Line Conducted Emissions Test Data

Test Date:	2025-01-13~2025-02-27	Test By:	Lirou Li, Ryan Zhang
Environment condition:	Temperature: 22.1~25.4°C; Relative Humidity:32~61%; ATM Pressure: 100.9~101.0kPa		

Type-C:

Conducted Emission Measurement

File :2405A112469E Data :#3 Date: 2025/1/13 Time: 17:43:01



Limit: QP Phase: L1 Temperature: 22.1 ℃

Mode:transmitting Power: AC 120V/60Hz Humidity: 32 %

Note: 802.11n HT20 High channel-Type-C Air Pressure: 1010 hpa

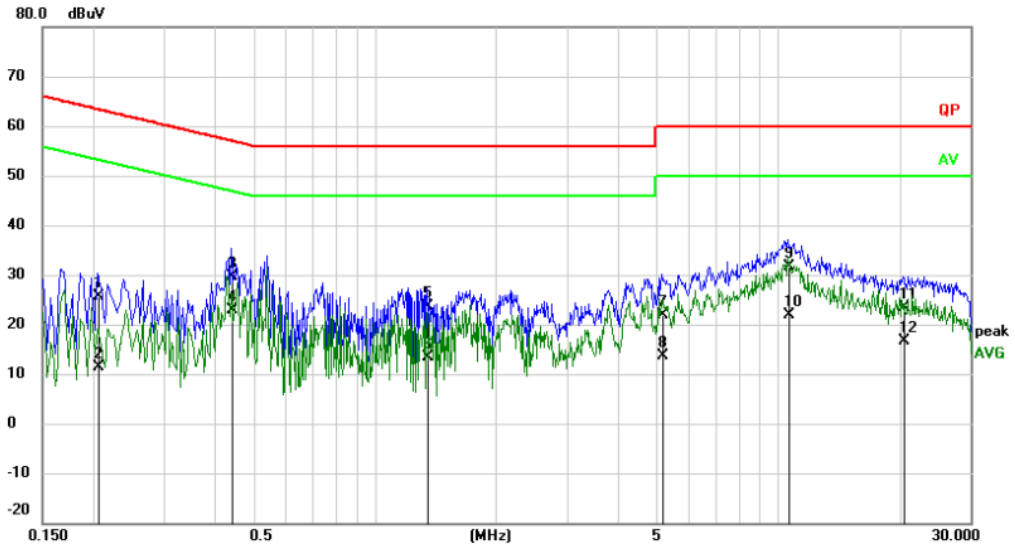
Receiver Setting: 9~150kHz: Pre-scan: RBW: 200Hz, DET: PK/AV; Final measure: RBW: 200Hz, DET: QP/AV
0.15~30MHz: Pre-scan: RBW: 9kHz, DET: PK/AV; Final measure: RBW: 9kHz, DET: QP/AV

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over Limit		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1940	16.35	10.65	27.00	63.86	-36.86	QP	
2		0.1940	3.50	10.65	14.15	53.86	-39.71	AVG	
3		0.5340	23.10	10.66	33.76	56.00	-22.24	QP	
4	*	0.5340	20.10	10.66	30.76	46.00	-15.24	AVG	
5		1.2260	12.97	11.01	23.98	56.00	-32.02	QP	
6		1.2260	7.82	11.01	18.83	46.00	-27.17	AVG	
7		5.8940	12.25	10.48	22.73	60.00	-37.27	QP	
8		5.8940	7.47	10.48	17.95	50.00	-32.05	AVG	
9		10.9340	15.99	10.57	26.56	60.00	-33.44	QP	
10		10.9340	10.05	10.57	20.62	50.00	-29.38	AVG	
11		23.1940	9.75	11.30	21.05	60.00	-38.95	QP	
12		23.1940	4.28	11.30	15.58	50.00	-34.42	AVG	

*:Maximum data x:Over limit !:over margin Engineer Signature: Ryan

Conducted Emission Measurement

File :2405A112469E Data :#4 Date: 2025/1/13 Time: 17:45:40



Limit: QP Phase: N Temperature: 22.1 ℃

Mode:transmitting Power: AC 120V/60Hz Humidity: 32 %

Note: 802.11n HT20 High channel-Type-C Air Pressure: 1010 hpa

Receiver Setting: 9~150kHz: Pre-scan: RBW: 200Hz, DET: PK/AV; Final measure: RBW: 200Hz, DET: QP/AV
0.15~30MHz: Pre-scan: RBW: 9kHz, DET: PK/AV; Final measure: RBW: 9kHz, DET: QP/AV

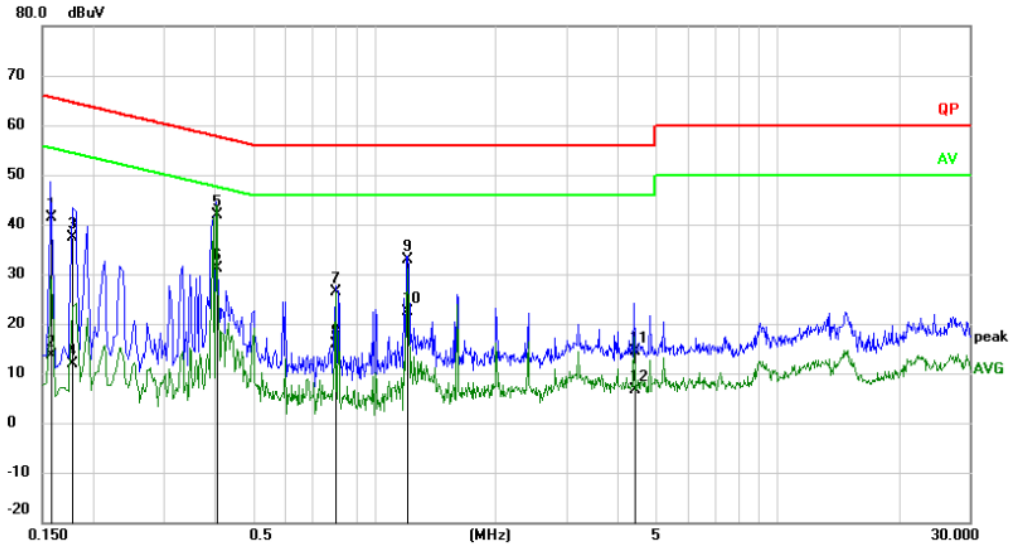
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over Limit		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2060	15.06	10.47	25.53	63.37	-37.84	QP	
2		0.2060	0.93	10.47	11.40	53.37	-41.97	AVG	
3		0.4420	18.96	10.72	29.68	57.02	-27.34	QP	
4	*	0.4420	12.09	10.72	22.81	47.02	-24.21	AVG	
5		1.3460	13.21	10.30	23.51	56.00	-32.49	QP	
6		1.3460	3.02	10.30	13.32	46.00	-32.68	AVG	
7		5.1500	11.47	10.39	21.86	60.00	-38.14	QP	
8		5.1500	3.14	10.39	13.53	50.00	-36.47	AVG	
9		10.6140	20.92	10.67	31.59	60.00	-28.41	QP	
10		10.6140	11.22	10.67	21.89	50.00	-28.11	AVG	
11		20.4740	12.02	11.38	23.40	60.00	-36.60	QP	
12		20.4740	5.35	11.38	16.73	50.00	-33.27	AVG	

*:Maximum data x:Over limit !:over margin Engineer Signature: Ryan

AC Port:

Conducted Emission Measurement

File :2405A112469E Data :#9 Date: 2025/2/27 Time: 18:37:29



Limit: QP Phase: L1 Temperature: 25.4 ℃

Mode:Transmitting Power: AC 120V/60Hz Humidity: 61 %

Note: 802.11n HT20 High channel-AC Port Air Pressure: 1009 hpa

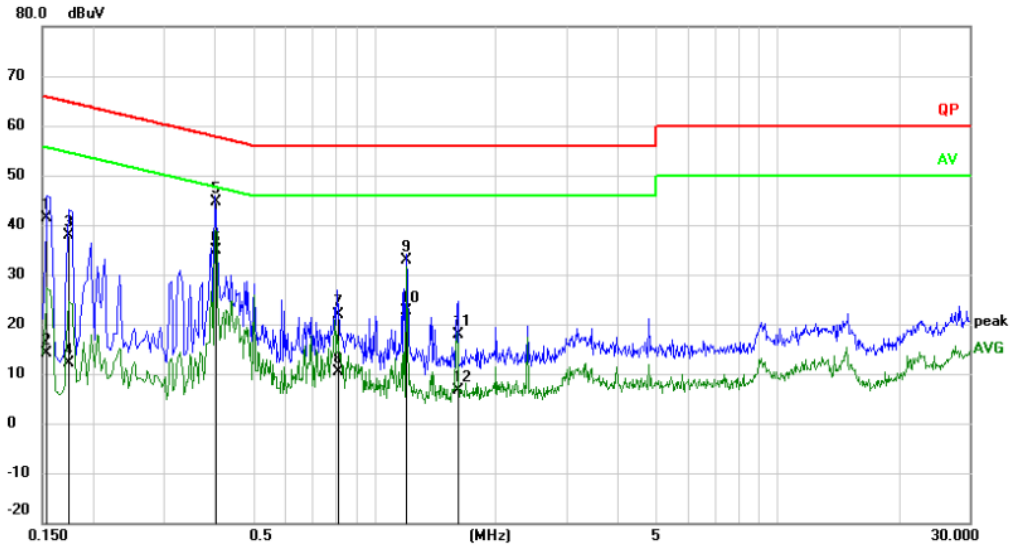
Receiver Setting: 9~150kHz: Pre-scan: RBW: 200Hz, DET: PK/AV; Final measure: RBW: 200Hz, DET: QP/AV
0.15~30MHz: Pre-scan: RBW: 9kHz, DET: PK/AV; Final measure: RBW: 9kHz, DET: QP/AV

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over Limit		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1580	30.83	10.45	41.28	65.57	-24.29	QP	
2		0.1580	3.27	10.45	13.72	55.57	-41.85	AVG	
3		0.1780	26.99	10.46	37.45	64.58	-27.13	QP	
4		0.1780	1.30	10.46	11.76	54.58	-42.82	AVG	
5	*	0.4060	31.22	10.69	41.91	57.73	-15.82	QP	
6		0.4060	20.55	10.69	31.24	47.73	-16.49	AVG	
7		0.8020	15.83	10.55	26.38	56.00	-29.62	QP	
8		0.8020	5.25	10.55	15.80	46.00	-30.20	AVG	
9		1.2059	22.72	10.28	33.00	56.00	-23.00	QP	
10		1.2059	12.04	10.28	22.32	46.00	-23.68	AVG	
11		4.4180	3.90	10.45	14.35	56.00	-41.65	QP	
12		4.4180	-3.77	10.45	6.68	46.00	-39.32	AVG	

*:Maximum data x:Over limit !:over margin Engineer Signature: Ryan

Conducted Emission Measurement

File :2405A112469E Data :#10 Date: 2025/2/27 Time: 18:39:52



Limit: QP	Phase: N	Temperature: 25.4 ℃
Mode:Transmitting	Power: AC 120V/60Hz	Humidity: 61 %
Note: 802.11n HT20 High channel-AC Port		Air Pressure: 1009 hpa

Receiver Setting: 9~150kHz: Pre-scan: RBW: 200Hz, DET: PK/AV; Final measure: RBW: 200Hz, DET: QP/AV
0.15~30MHz: Pre-scan: RBW: 9kHz, DET: PK/AV; Final measure: RBW: 9kHz, DET: QP/AV

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over Limit		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1539	31.01	10.45	41.46	65.79	-24.33	QP	
2		0.1539	3.71	10.45	14.16	55.79	-41.63	AVG	
3		0.1740	27.32	10.45	37.77	64.77	-27.00	QP	
4		0.1740	1.72	10.45	12.17	54.77	-42.60	AVG	
5		0.4020	33.84	10.68	44.52	57.81	-13.29	QP	
6	*	0.4020	24.11	10.68	34.79	47.81	-13.02	AVG	
7		0.8100	11.41	10.54	21.95	56.00	-34.05	QP	
8		0.8100	-0.25	10.54	10.29	46.00	-35.71	AVG	
9		1.2020	22.72	10.28	33.00	56.00	-23.00	QP	
10		1.2020	12.26	10.28	22.54	46.00	-23.46	AVG	
11		1.6140	7.46	10.33	17.79	56.00	-38.21	QP	
12		1.6140	-3.78	10.33	6.55	46.00	-39.45	AVG	

*:Maximum data x:Over limit !:over margin Engineer Signature: Ryan

Remark:

Measurement (dBuV)= Reading Level (dBuV) + Correct Factor(dB)

Correct Factor (dB)= LISN Voltage Division Factor (dB)+ Cable loss(dB)

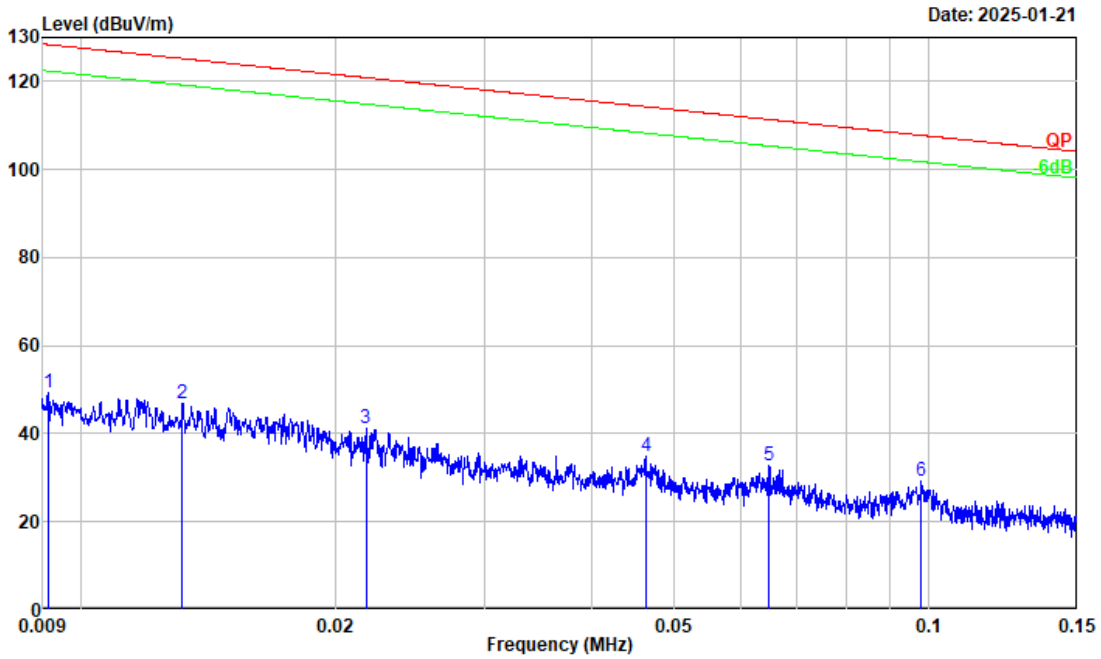
Over Limit = Measurement – Limit

3.4 Radiated emission Test Data

9 kHz-30MHz:

Test Date:	2025-01-21~2025-02-20	**Test By:**	Luke Li
Environment condition:	Temperature: 22.5~22.6°C; Relative Humidity:41~58%; ATM Pressure: 101.1~101kPa		

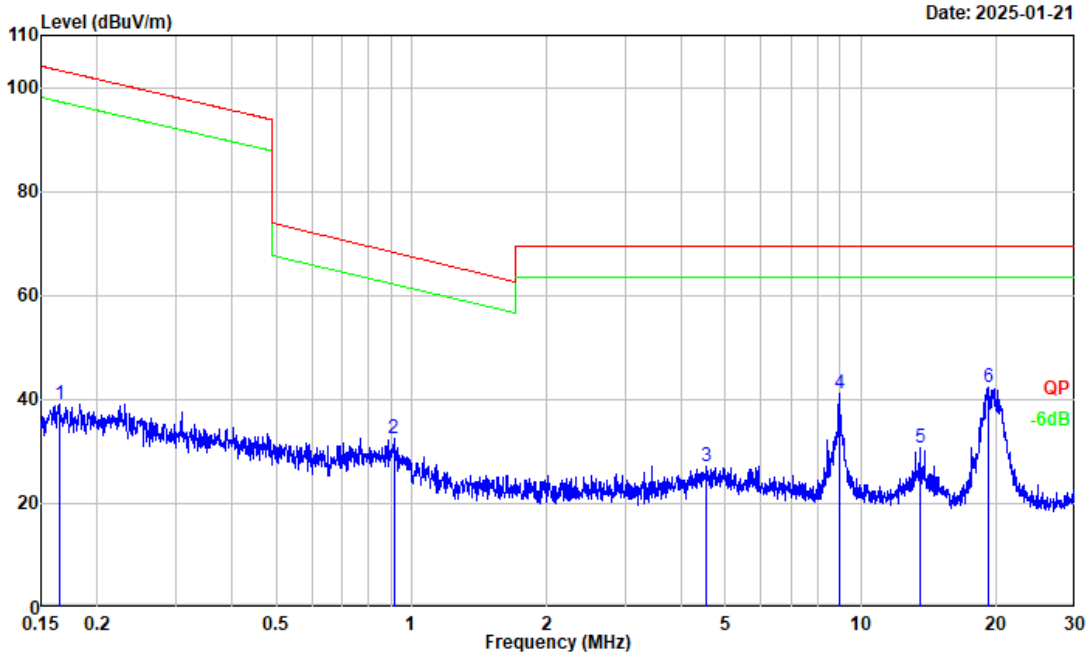
Type-C:



Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz(Type-C)
Environment : 22.5℃/41%R.H./101.1kPa
Tested by : Luke Li
Polarization : PARALLEL
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	0.009	11.35	37.90	49.25	128.37	-79.12	Peak
2	0.013	11.65	35.20	46.85	125.21	-78.36	Peak
3	0.022	11.50	29.80	41.30	120.88	-79.58	Peak
4	0.046	13.58	21.16	34.74	114.28	-79.54	Peak
5	0.065	14.29	18.35	32.64	111.36	-78.72	Peak
6	0.098	14.02	15.12	29.14	107.79	-78.65	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: RBW/VWB: 200Hz/1kHz, DET: PK

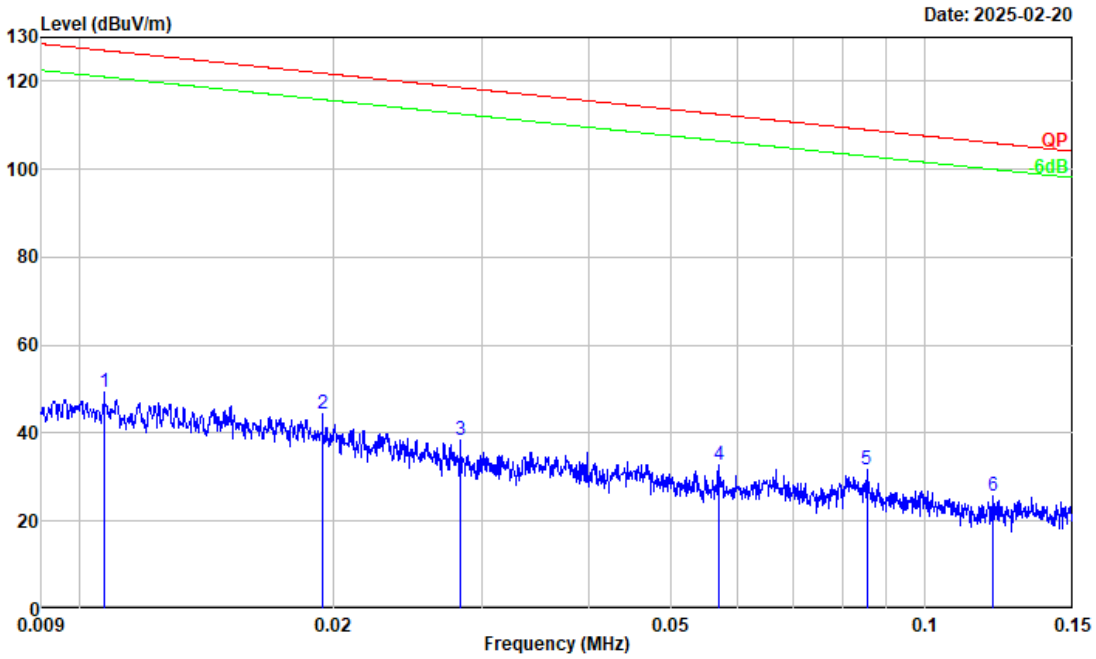


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz(Type-C)
Environment : 22.5℃/41%R.H./101.1kPa
Tested by : Luke Li
Polarization : PARALLEL
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	0.165	25.90	13.25	39.15	103.27	-64.12	Peak
2	0.914	31.09	1.37	32.46	68.27	-35.81	Peak
3	4.539	31.14	-3.87	27.27	69.54	-42.27	Peak
4	8.976	44.66	-3.62	41.04	69.54	-28.50	Peak
5	13.571	34.20	-3.49	30.71	69.54	-38.83	Peak
6	19.187	45.44	-3.09	42.35	69.54	-27.19	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: RBW/VWB: 9kHz/30kHz, DET: PK

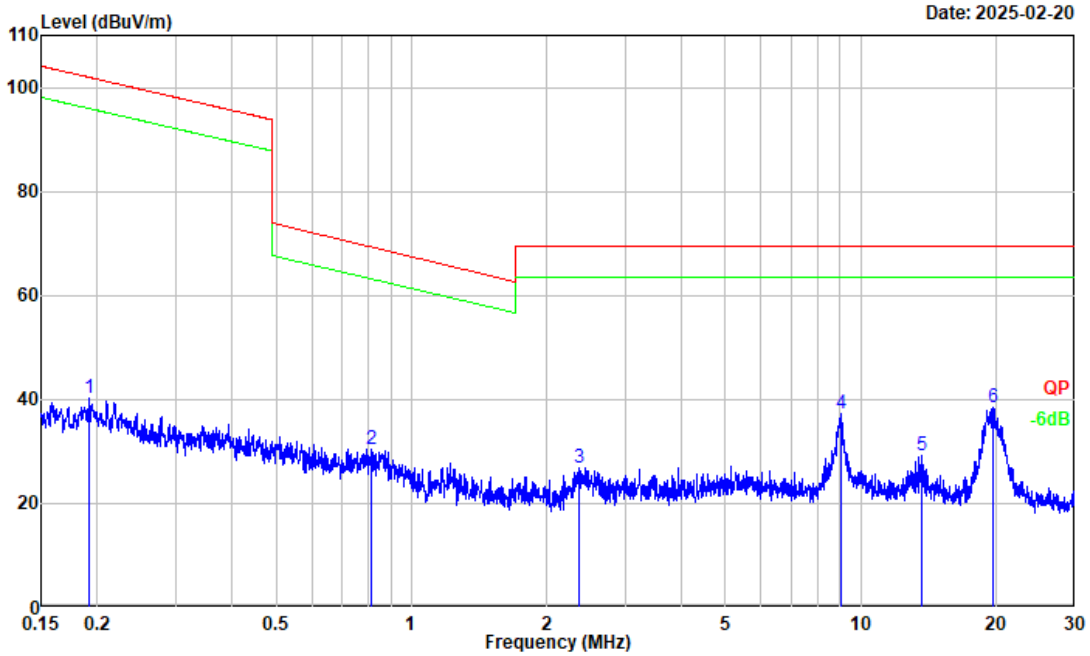
AC Port:



Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz(AC Port)
Environment : 22.6℃/58%R.H./101.3kPa
Tested by : Luke Li
Polarization : PARALLEL
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	0.011	12.42	36.77	49.19	127.02	-77.83	Peak
2	0.019	13.21	31.26	44.47	121.86	-77.39	Peak
3	0.028	12.57	25.65	38.22	118.59	-80.37	Peak
4	0.057	13.32	19.44	32.76	112.48	-79.72	Peak
5	0.085	15.69	15.92	31.61	108.97	-77.36	Peak
6	0.121	11.34	14.40	25.74	105.98	-80.24	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: RBW/VWB: 200Hz/1kHz, DET: PK



Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz(AC Port)
Environment : 22.6℃/58%R.H./101.3kPa
Tested by : Luke Li
Polarization : PARALLEL
Remark : 802.11n20 2462

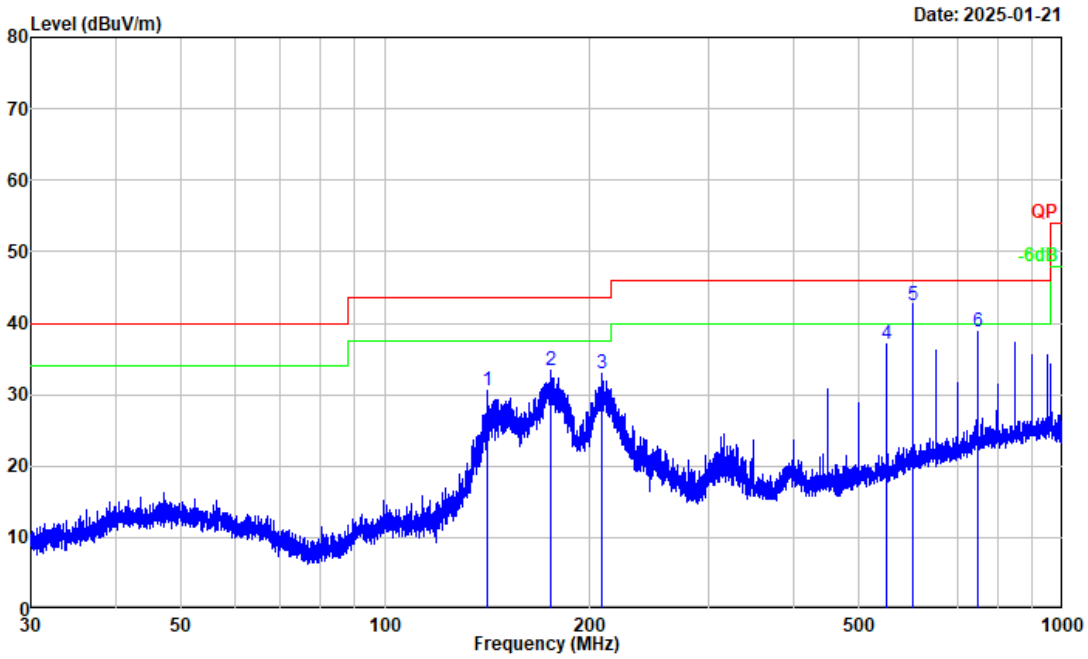
--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	0.192	27.69	12.48	40.17	101.95	-61.78	Peak
2	0.815	28.06	2.36	30.42	69.29	-38.87	Peak
3	2.361	29.47	-2.69	26.78	69.54	-42.76	Peak
4	9.040	40.73	-3.61	37.12	69.54	-32.42	Peak
5	13.667	32.76	-3.49	29.27	69.54	-40.27	Peak
6	19.737	41.68	-3.08	38.60	69.54	-30.94	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: RBW/VWB: 9kHz/30kHz, DET: PK

30MHz-1GHz:

Test Date:	2025-01-21~2025-02-20	**Test By:**	Bard Huang
Environment condition:	Temperature: 22.5~22.6°C; Relative Humidity:41~58%; ATM Pressure: 101.1~101kPa		

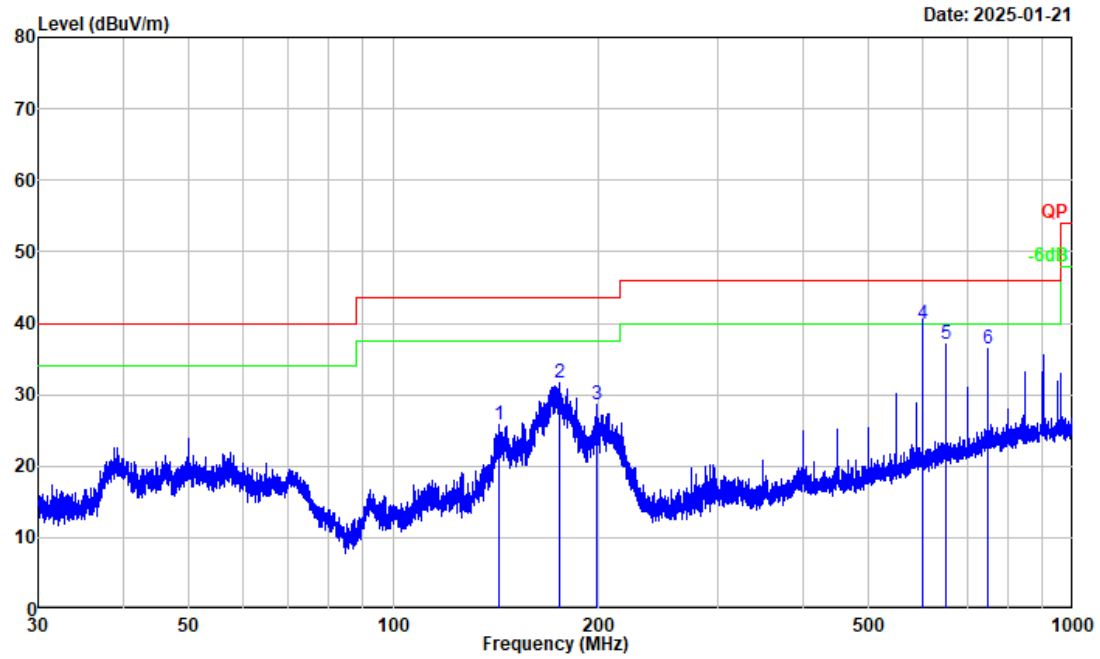
Type-C:



Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz(Type-C)
Environment : 22.5℃/41%R.H./101.1kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	141.640	48.10	-17.49	30.61	43.50	-12.89	Peak
2	175.652	49.24	-15.92	33.32	43.50	-10.18	Peak
3	209.038	46.85	-13.81	33.04	43.50	-10.46	Peak
4	549.983	43.53	-6.40	37.13	46.00	-8.87	Peak
5	600.110	47.51	-5.12	42.39	46.00	-3.61	QP
6	750.108	41.48	-2.66	38.82	46.00	-7.18	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Pre-scan: RBW/VWB: 100kHz/300kHz, DET: PK
Final measure: RBW: 120kHz, DET: QP

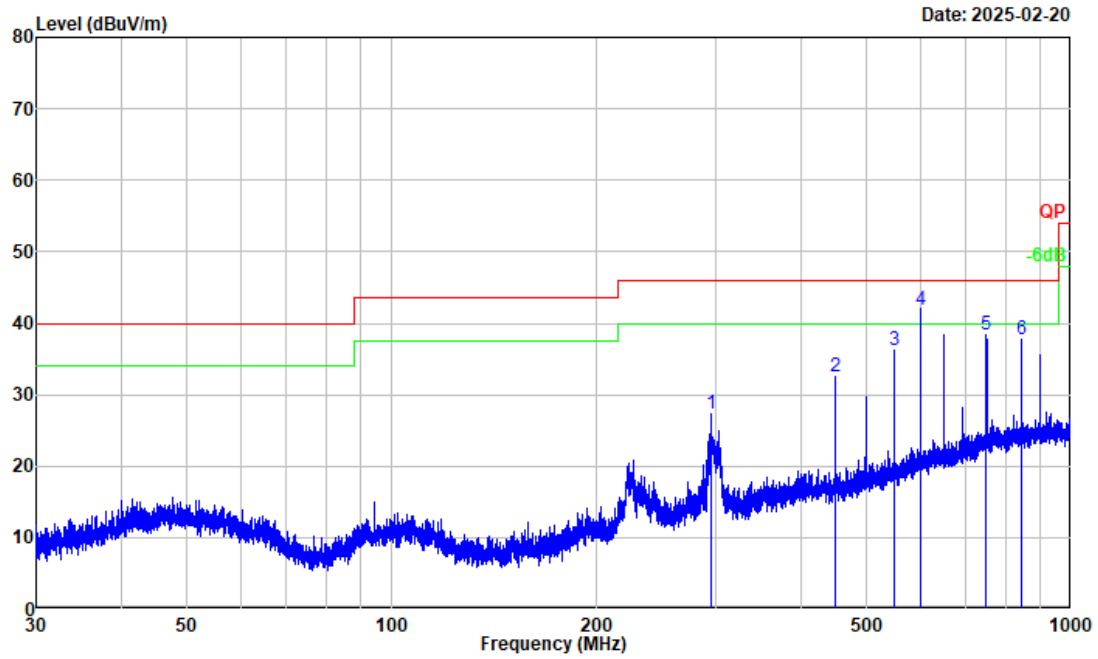


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz(Type-C)
Environment : 22.5℃/41%R.H./101.1kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	143.326	43.19	-17.47	25.72	43.50	-17.78	Peak
2	175.190	47.60	-15.92	31.68	43.50	-11.82	Peak
3	199.460	42.28	-13.72	28.56	43.50	-14.94	Peak
4	600.110	45.11	-5.12	39.99	46.00	-6.01	QP
5	650.229	41.36	-4.33	37.03	46.00	-8.97	Peak
6	750.108	39.03	-2.66	36.37	46.00	-9.63	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Pre-scan: RBW/VWB: 100kHz/300kHz, DET: PK
Final measure: RBW: 120kHz, DET: QP

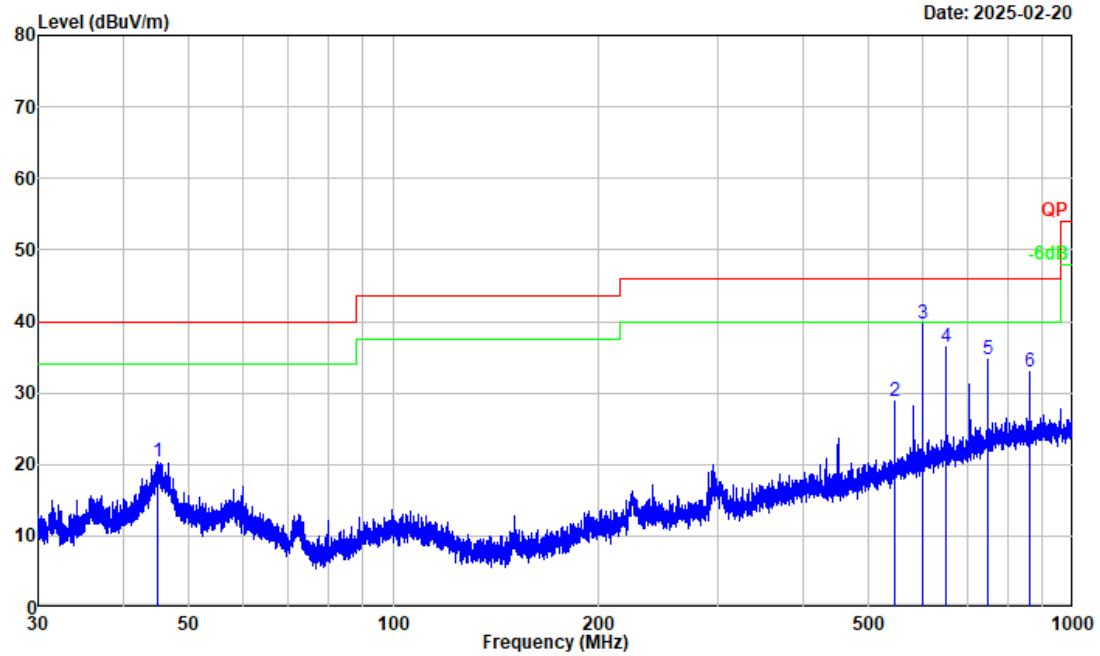
AC Port:



Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz(AC Port)
Environment : 22.6℃/58%R.H./101.3kPa
Tested by : Bard Huang
Polarization : horizontal
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	295.794	38.77	-11.37	27.40	46.00	-18.60	Peak
2	449.753	40.82	-8.27	32.55	46.00	-13.45	Peak
3	549.983	42.57	-6.40	36.17	46.00	-9.83	Peak
4	599.847	46.90	-5.12	41.78	46.00	-4.22	QP
5	750.766	41.02	-2.64	38.38	46.00	-7.62	Peak
6	846.942	39.74	-2.12	37.62	46.00	-8.38	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Pre-scan: RBW/VWB: 100kHz/300kHz, DET: PK
Final measure: RBW: 120kHz, DET: QP



Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz(AC Port)
Environment : 22.6℃/58%R.H./101.3kPa
Tested by : Bard Huang
Polarization : vertical
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	44.901	32.49	-12.11	20.38	40.00	-19.62	Peak
2	546.139	35.41	-6.48	28.93	46.00	-17.07	Peak
3	600.373	44.83	-5.11	39.72	46.00	-6.28	Peak
4	648.806	40.70	-4.34	36.36	46.00	-9.64	Peak
5	748.794	37.41	-2.69	34.72	46.00	-11.28	Peak
6	861.544	35.01	-1.95	33.06	46.00	-12.94	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Pre-scan: RBW/VWB: 100kHz/300kHz, DET: PK
Final measure: RBW: 120kHz, DET: QP

Above 1GHz:

Test Date:	2025-01-25	Test By:	Luke Li
Environment condition:	Temperature: 22.8°C; Relative Humidity:40%; ATM Pressure: 101.0kPa		

Frequency (MHz)	Reading level (dBμV)	Polar	Corrected Factor (dB/m)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark
802.11b							
Low Channel							
4824.000	53.68	horizontal	-2.29	51.39	74.00	-22.61	Peak
4824.000	54.31	vertical	-2.29	52.02	74.00	-21.98	Peak
Middle Channel							
4874.000	52.05	horizontal	-1.92	50.13	74.00	-23.87	Peak
4874.000	53.20	vertical	-1.92	51.28	74.00	-22.72	Peak
High Channel							
4924.000	51.15	horizontal	-1.70	49.45	74.00	-24.55	Peak
4924.000	52.71	vertical	-1.70	51.01	74.00	-22.99	Peak
802.11g							
Low Channel							
4824.000	50.77	horizontal	-2.29	48.48	74.00	-25.52	Peak
4824.000	52.09	vertical	-2.29	49.80	74.00	-24.20	Peak
Middle Channel							
4874.000	51.29	horizontal	-1.92	49.37	74.00	-24.63	Peak
4874.000	50.57	vertical	-1.92	48.65	74.00	-25.35	Peak
High Channel							
4924.000	49.81	horizontal	-1.70	48.11	74.00	-25.89	Peak
4924.000	49.12	vertical	-1.70	47.42	74.00	-26.58	Peak
802.11n20							
Low Channel							
4824.000	49.88	horizontal	-2.29	47.59	74.00	-26.41	Peak
4824.000	51.33	vertical	-2.29	49.04	74.00	-24.96	Peak
Middle Channel							
4874.000	48.75	horizontal	-1.92	46.83	74.00	-27.17	Peak
4874.000	51.34	vertical	-1.92	49.42	74.00	-24.58	Peak
High Channel							

4924.000	49.46	horizontal	-1.70	47.76	74.00	-26.24	Peak
4924.000	49.81	vertical	-1.70	48.11	74.00	-25.89	Peak

Remark:
Corrected Amplitude= Reading level + corrected Factor
Corrected Factor = Antenna factor + Cable loss – Amplifier gain
Margin = Corrected Amplitude – Limit

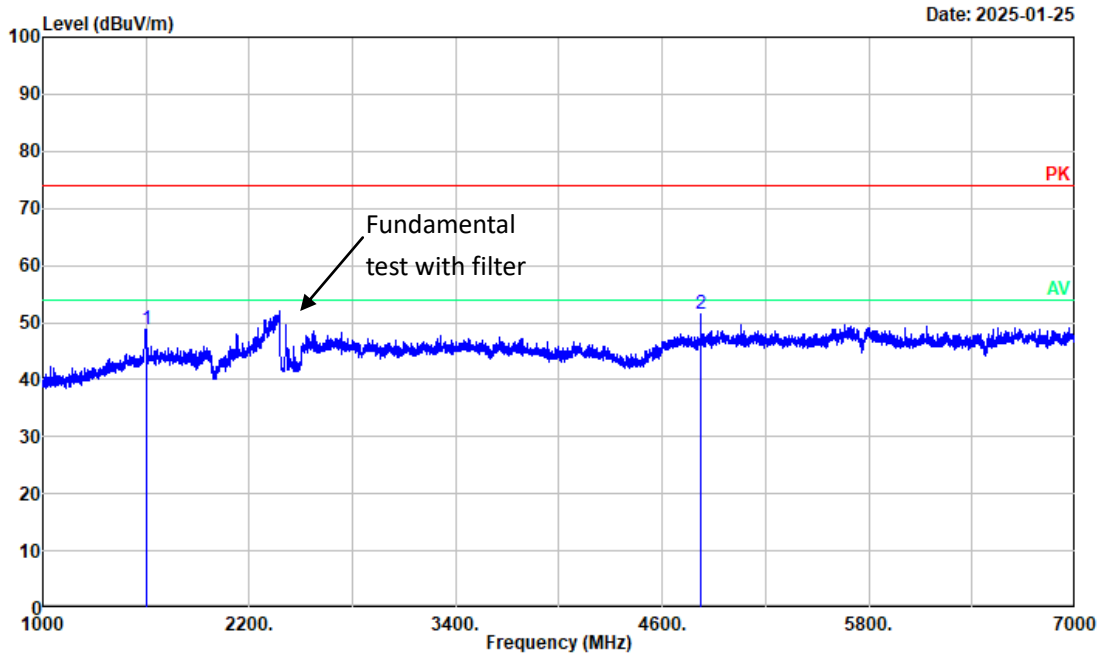
For the test result of Peak below the Peak limit more than 20dB, which can compliance with the average limit, just the Peak level was recorded.

The emission levels of other frequencies that were lower than the limit 20dB not show in test report.

For emissions in 18GHz-25GHz range, all emissions were investigated and in the noise floor level.

Test plot for example as below:

Mode:	802.11b	Channel:	2412MHz

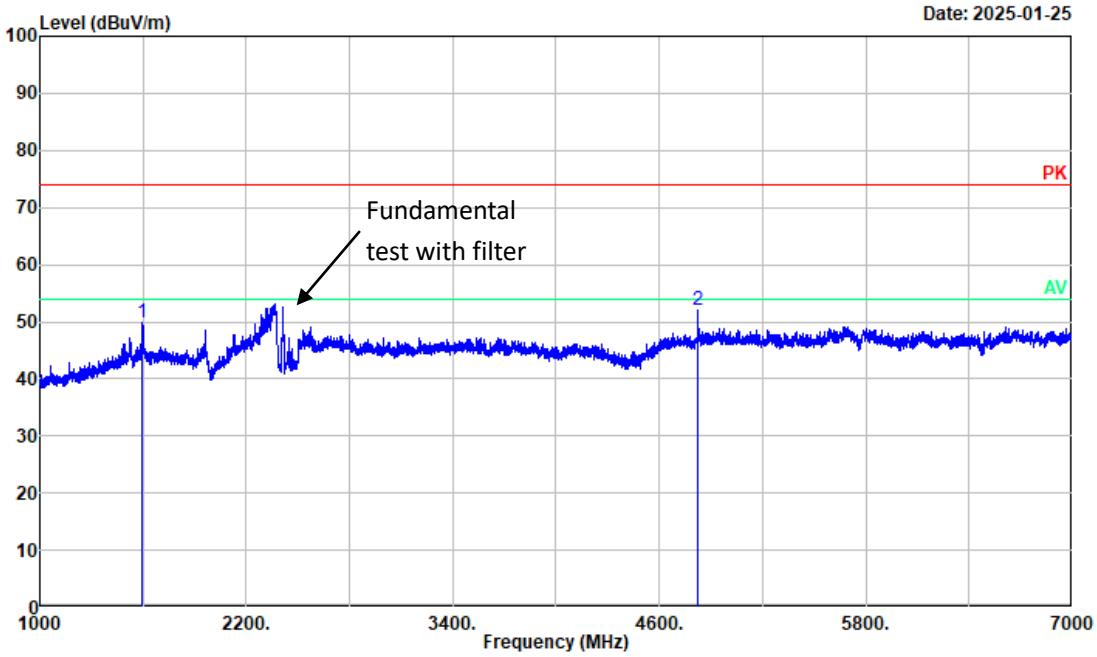


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11b 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	1599.000	52.97	-4.22	48.75	74.00	-25.25	Peak
2	4824.000	53.68	-2.29	51.39	74.00	-22.61	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11b	Channel:	2412MHz

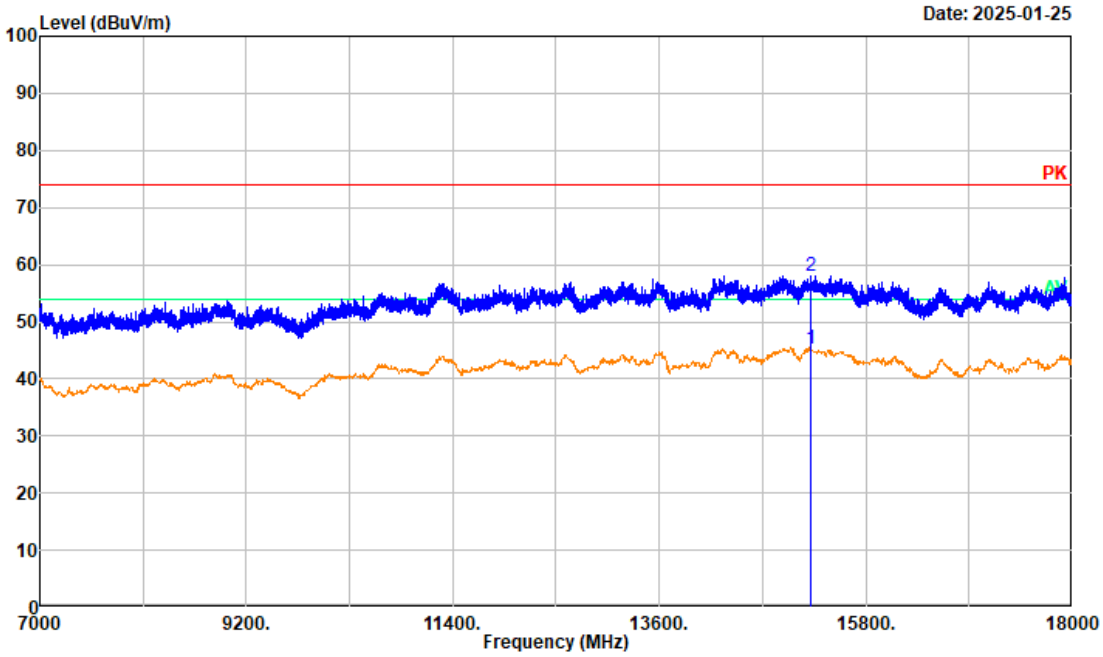


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11b 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	1596.000	53.98	-4.24	49.74	74.00	-24.26	Peak
2	4824.000	54.31	-2.29	52.02	74.00	-21.98	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11b	Channel:	2412MHz

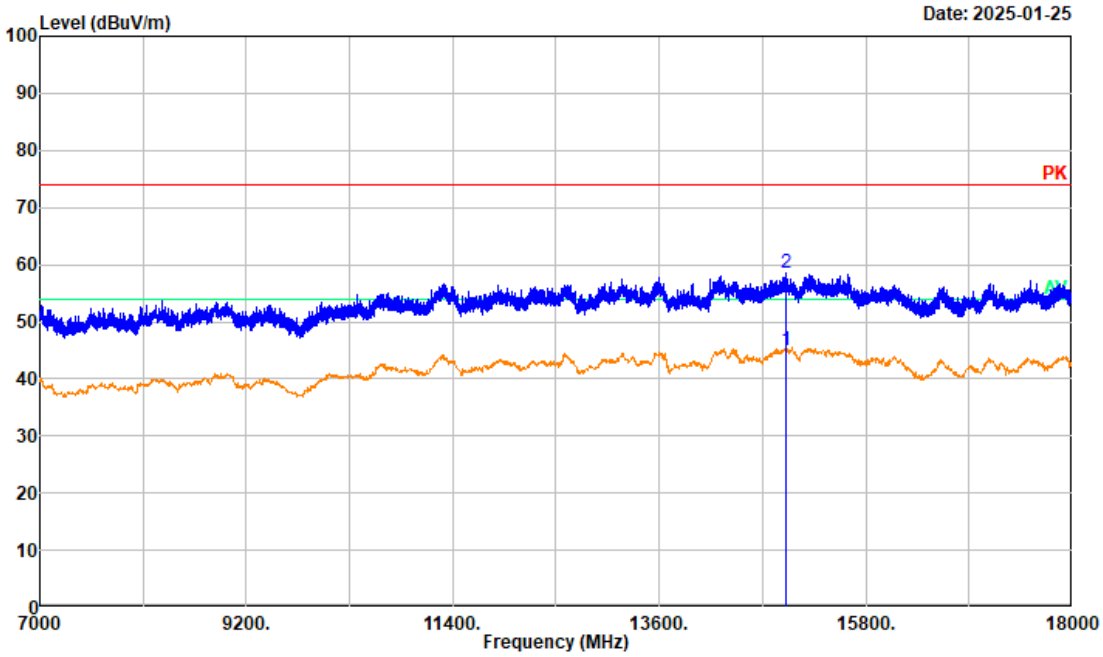


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11b 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	15216.000	38.92	6.27	45.19	54.00	-8.81	Average
2	15216.000	51.76	6.27	58.03	74.00	-15.97	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11b	Channel:	2412MHz

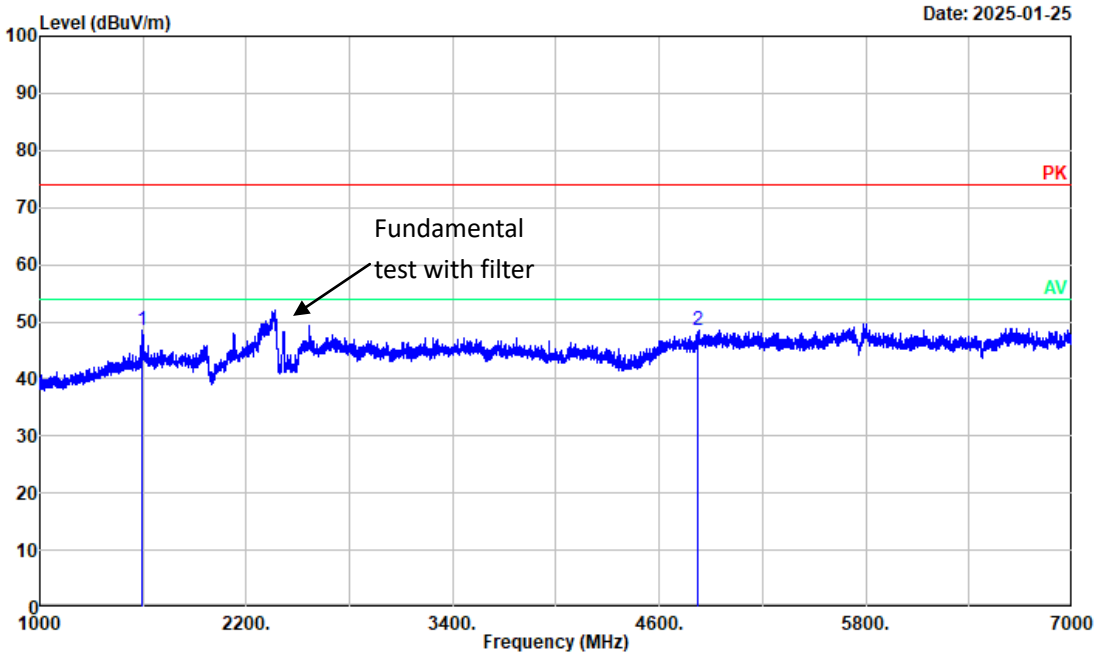


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11b 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	14944.000	38.54	6.57	45.11	54.00	-8.89	Average
2	14944.000	51.93	6.57	58.50	74.00	-15.50	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11g	Channel:	2412MHz

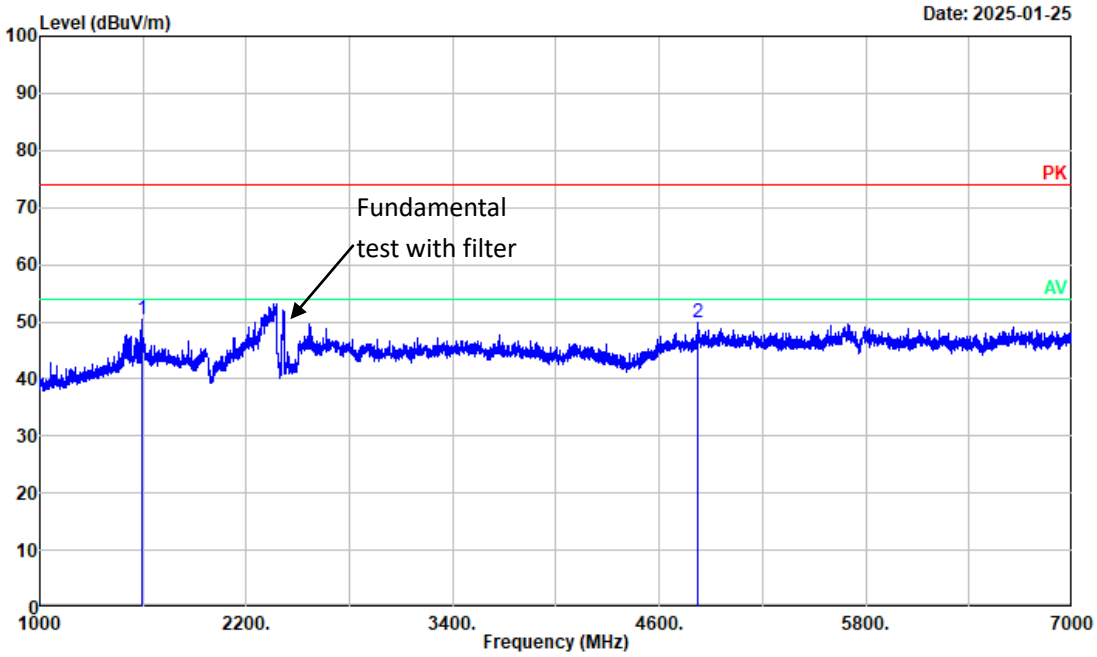


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11g 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	1597.000	52.78	-4.23	48.55	74.00	-25.45	Peak
2	4824.000	50.77	-2.29	48.48	74.00	-25.52	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11g	Channel:	2412MHz

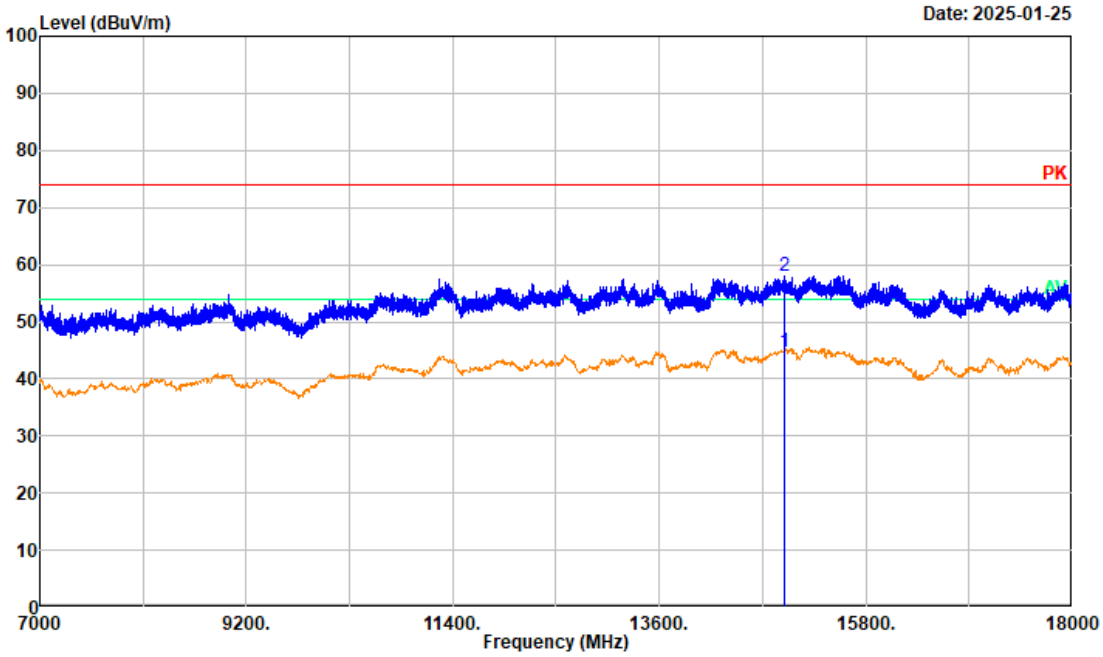


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11g 2412

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	1595.000	54.54	-4.25	50.29	74.00	-23.71	Peak
2	4824.000	52.09	-2.29	49.80	74.00	-24.20	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11g	Channel:	2412MHz

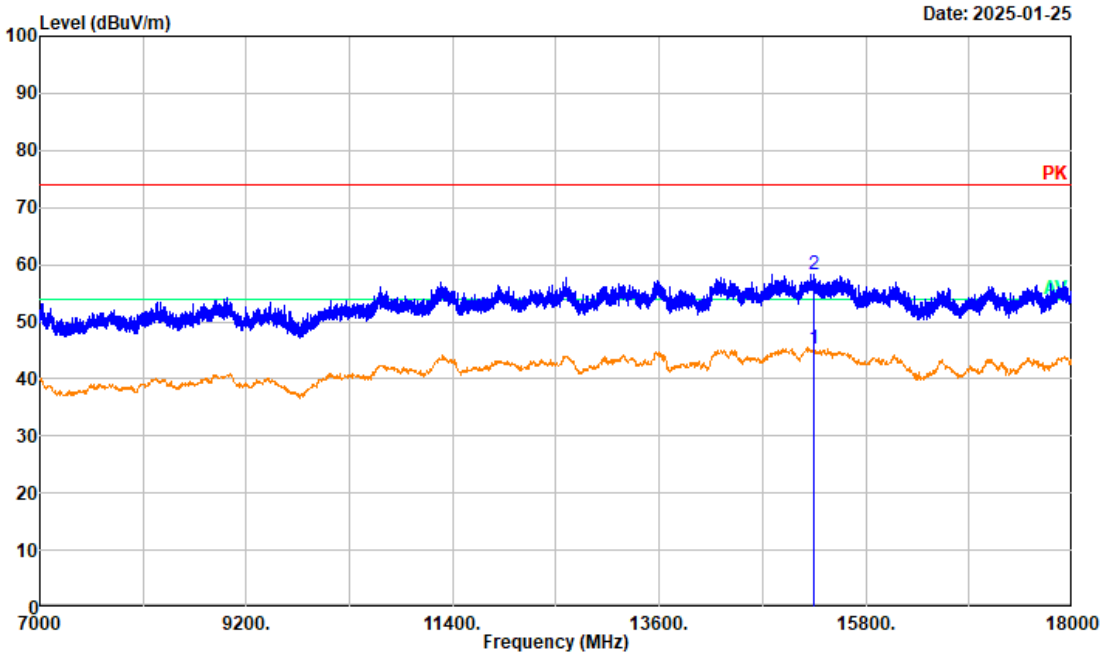


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11g 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	14931.000	38.06	6.56	44.62	54.00	-9.38	Average
2	14931.000	51.54	6.56	58.10	74.00	-15.90	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11g	Channel:	2412MHz

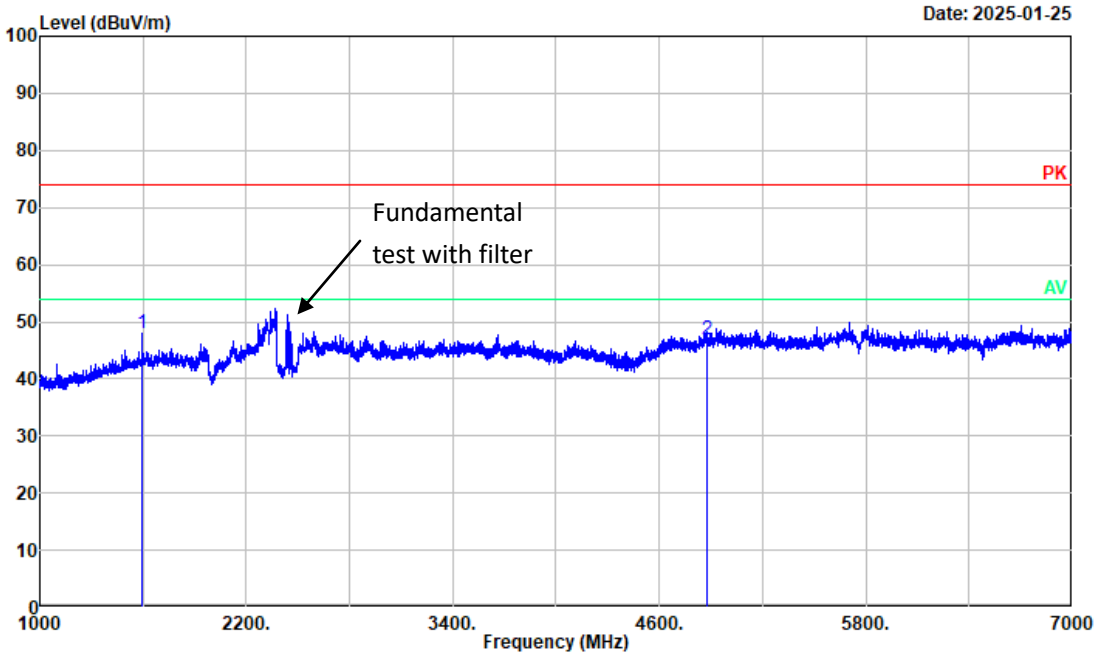


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11g 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	15251.000	38.97	6.22	45.19	54.00	-8.81	Average
2	15251.000	52.15	6.22	58.37	74.00	-15.63	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11n	Channel:	2437MHz

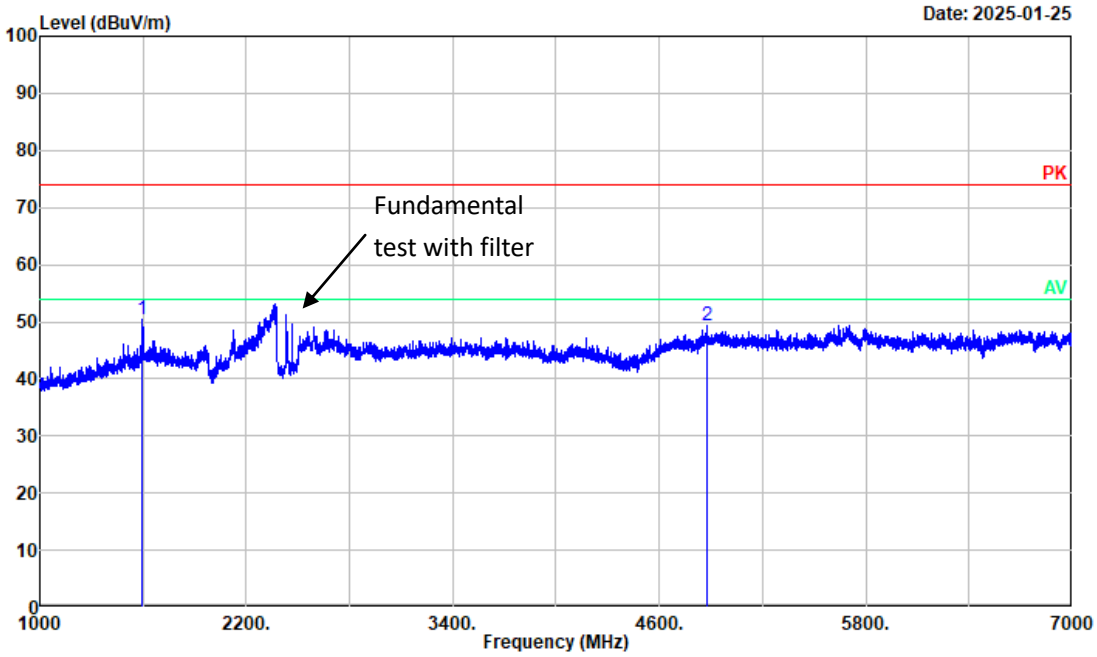


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11n 2437

--No.	Frequency (MHz)	Reading (dBμV)	Factor (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Over Limit (dB)	Detector
1	1597.000	52.27	-4.23	48.04	74.00	-25.96	Peak
2	4874.000	48.75	-1.92	46.83	74.00	-27.17	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11n	Channel:	2437MHz

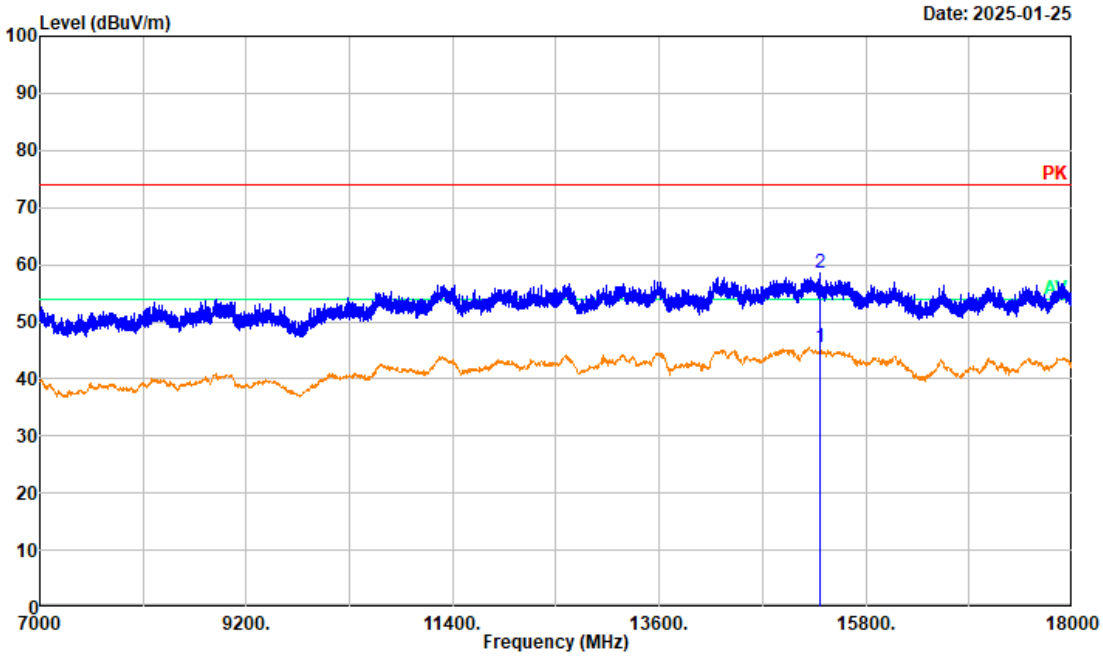


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11n 2437

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	1594.000	54.77	-4.26	50.51	74.00	-23.49	Peak
2	4874.000	51.34	-1.92	49.42	74.00	-24.58	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11n	Channel:	2437MHz

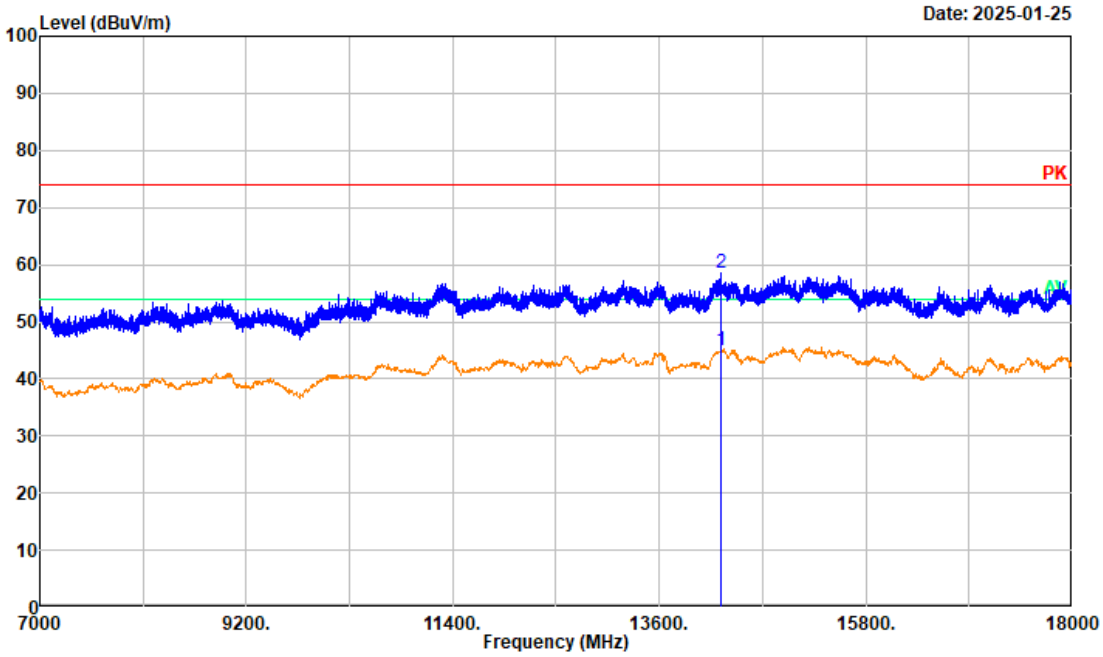


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11n 2437

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	15306.000	39.26	6.18	45.44	54.00	-8.56	Average
2	15306.000	52.45	6.18	58.63	74.00	-15.37	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11n	Channel:	2437MHz

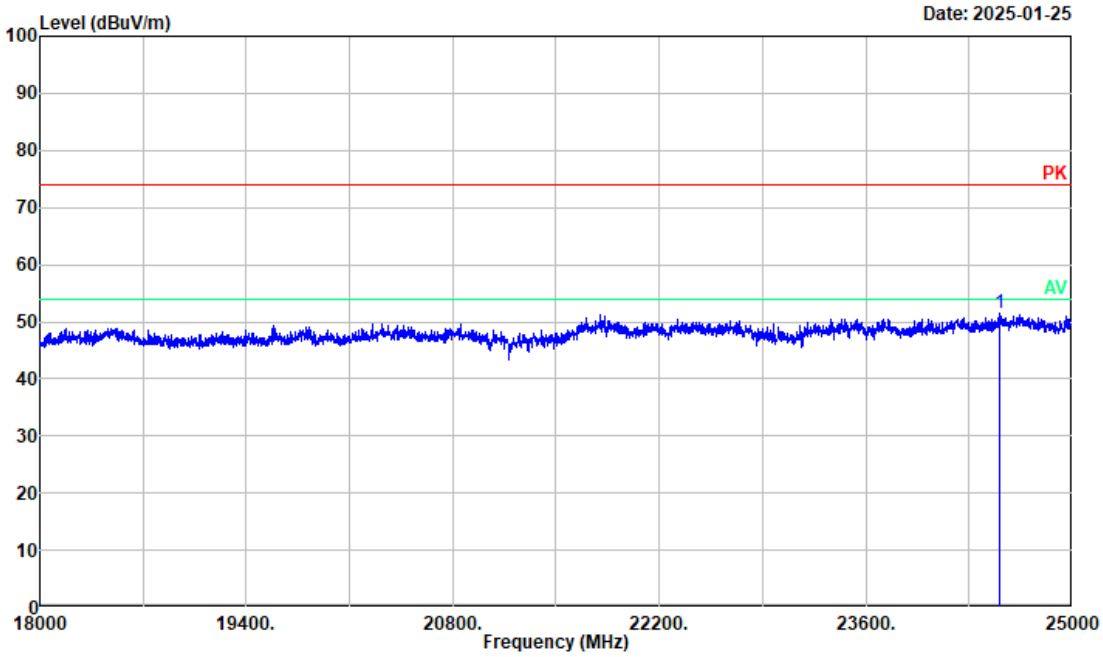


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11n 2437

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	14250.000	38.11	6.74	44.85	54.00	-9.15	Average
2	14250.000	51.92	6.74	58.66	74.00	-15.34	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11n20	Channel:	2462MHz

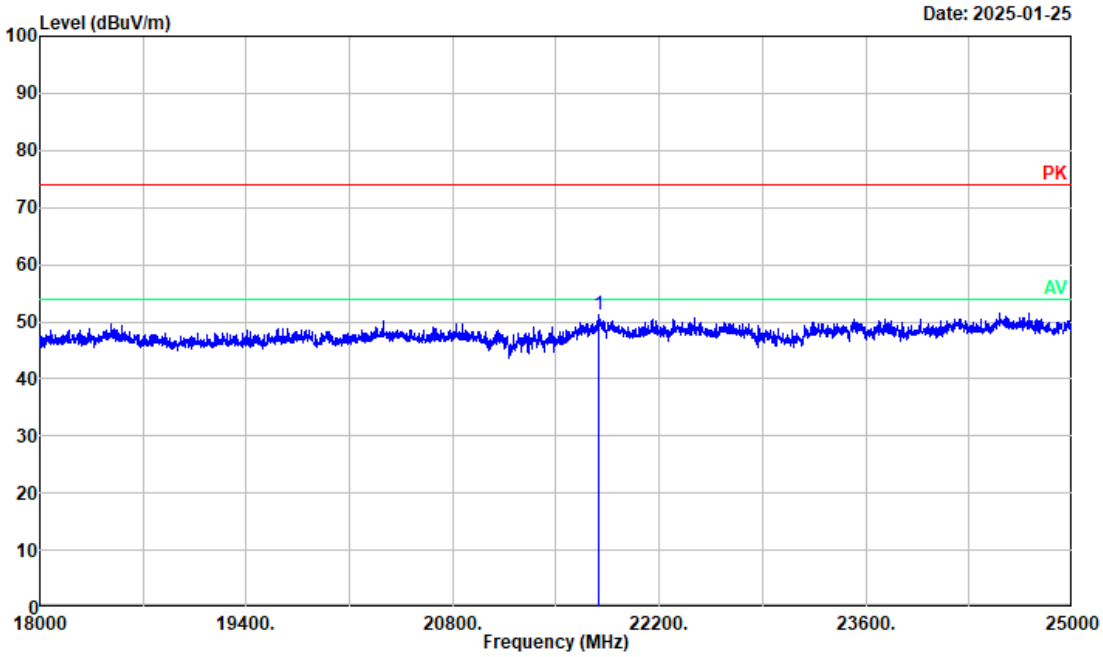


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : Horizontal
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	24503.820	52.99	-1.43	51.56	74.00	-22.44	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain - Distance extrapolate factor
Distance extrapolate factor = 20*log(specified distance/measured distance)
Specified distance = 3 meters, measured distance = 1.5 meters
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Mode:	802.11n20	Channel:	2462MHz



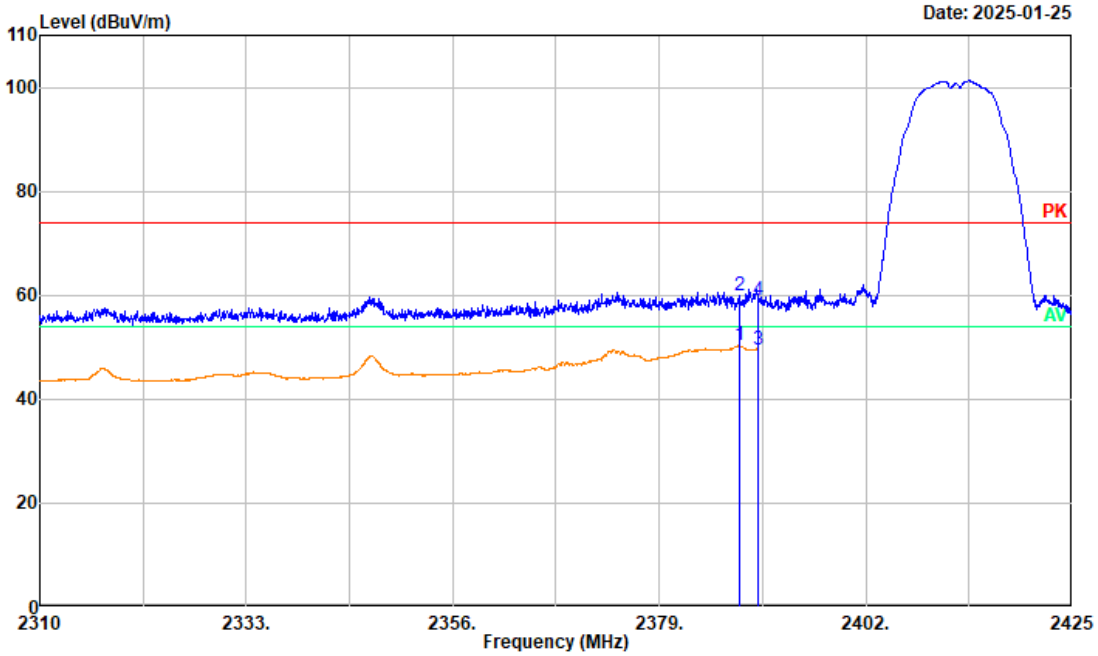
Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : Vertical
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	21790.290	54.40	-3.21	51.19	74.00	-22.81	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain - Distance extrapolate factor
Distance extrapolate factor = 20*log(specified distance/measured distance)
Specified distance = 3 meters, measured distance = 1.5 meters
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/1kHz, DET: PK

Radiated Band edge:

Mode:	802.11b	Channel:	2412MHz

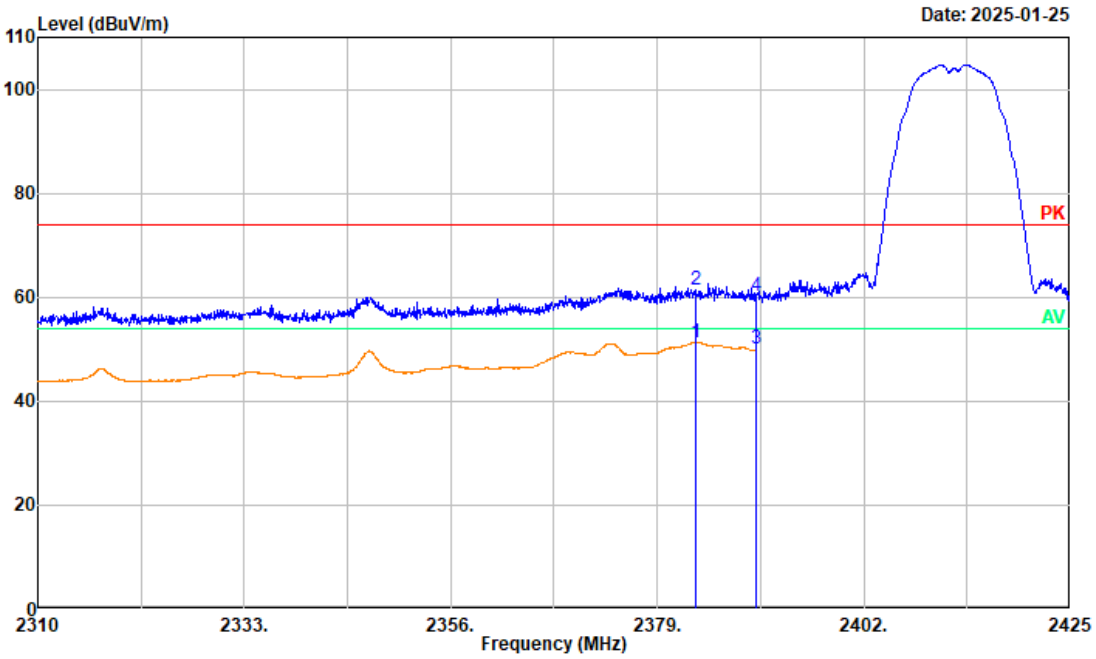


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11b 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2387.979	43.40	7.00	50.40	54.00	-3.60	Average
2	2387.979	52.88	7.00	59.88	74.00	-14.12	Peak
3	2390.000	42.62	7.00	49.62	54.00	-4.38	Average
4	2390.000	52.00	7.00	59.00	74.00	-15.00	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11b	Channel:	2412MHz

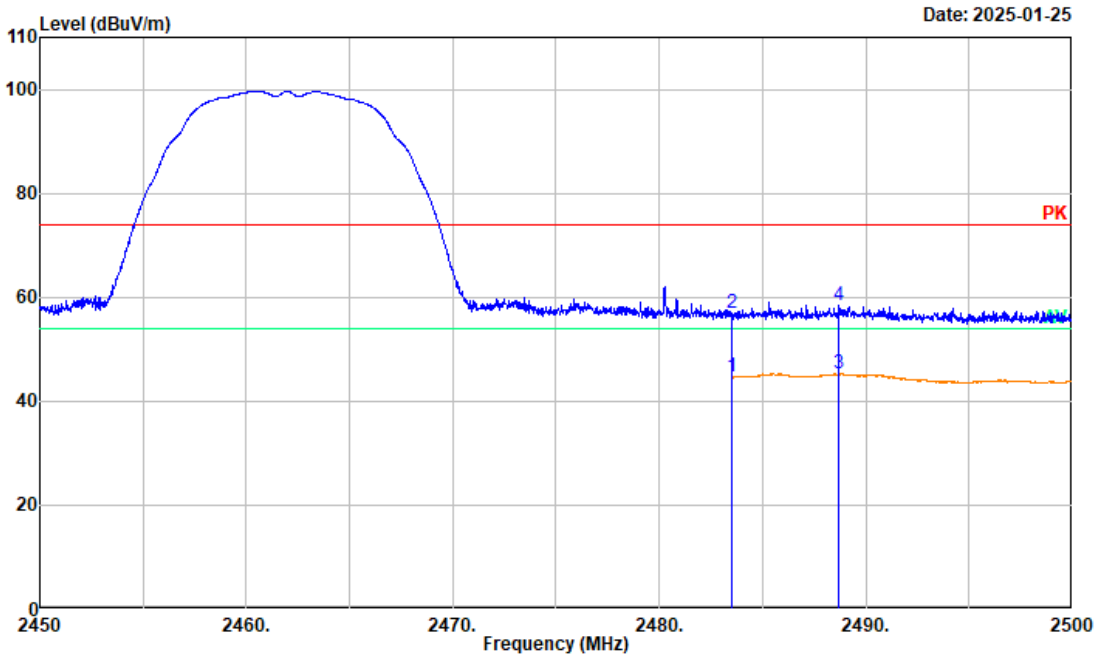


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11b 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2383.297	44.32	7.00	51.32	54.00	-2.68	Average
2	2383.297	54.31	7.00	61.31	74.00	-12.69	Peak
3	2390.000	43.09	7.00	50.09	54.00	-3.91	Average
4	2390.000	53.33	7.00	60.33	74.00	-13.67	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11b	Channel:	2462MHz

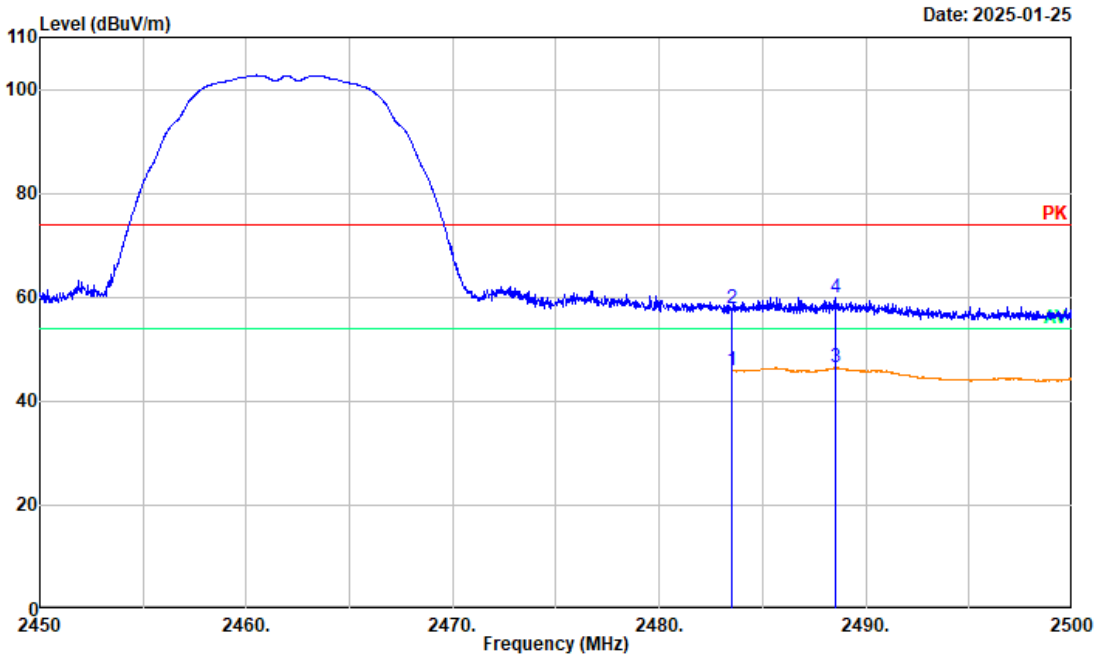


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11b 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	37.49	7.20	44.69	54.00	-9.31	Average
2	2483.500	49.80	7.20	57.00	74.00	-17.00	Peak
3	2488.694	38.12	7.21	45.33	54.00	-8.67	Average
4	2488.694	51.16	7.21	58.37	74.00	-15.63	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11b	Channel:	2462MHz

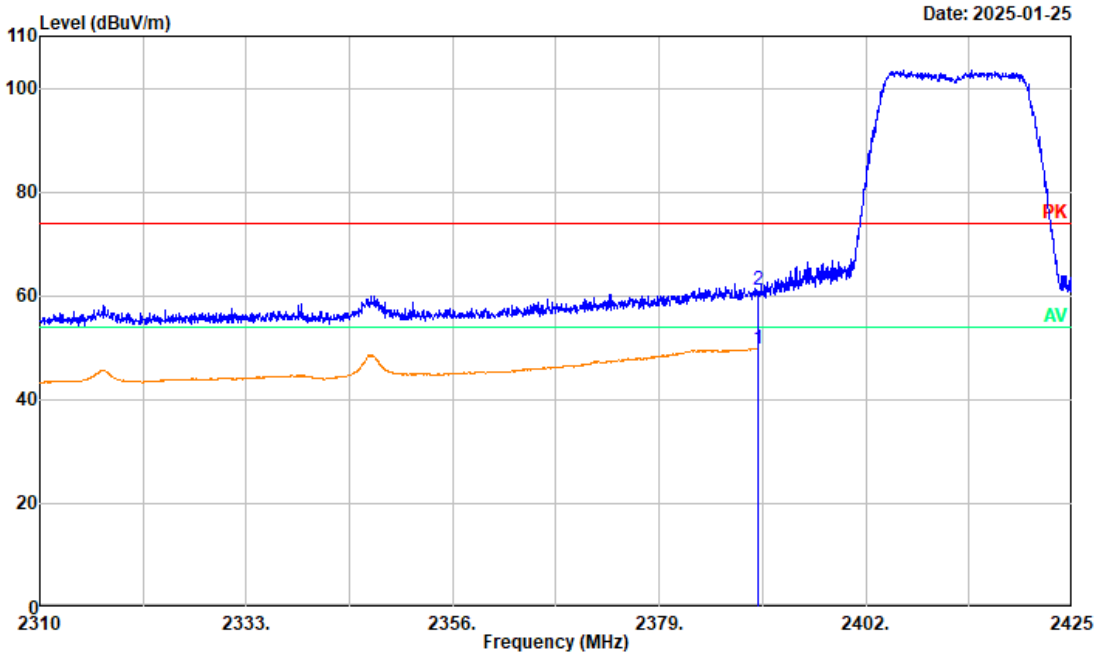


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11b 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	38.62	7.20	45.82	54.00	-8.18	Average
2	2483.500	50.60	7.20	57.80	74.00	-16.20	Peak
3	2488.544	39.21	7.21	46.42	54.00	-7.58	Average
4	2488.544	52.56	7.21	59.77	74.00	-14.23	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11g	Channel:	2412MHz

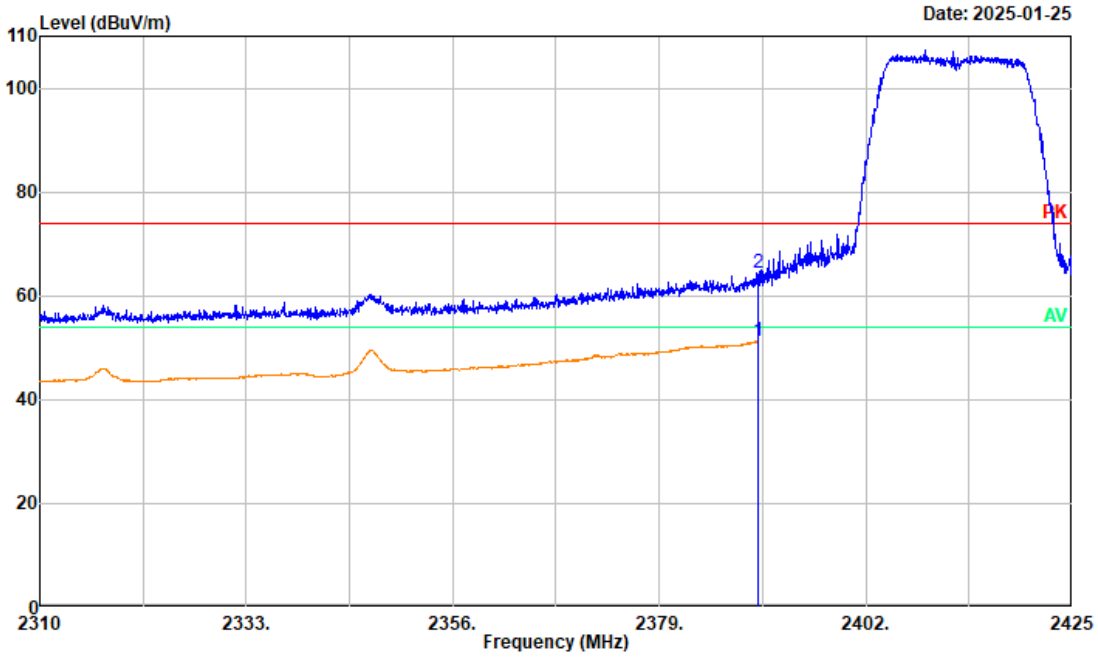


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11g 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2390.000	42.65	7.00	49.65	54.00	-4.35	Average
2	2390.000	54.00	7.00	61.00	74.00	-13.00	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11g	Channel:	2412MHz

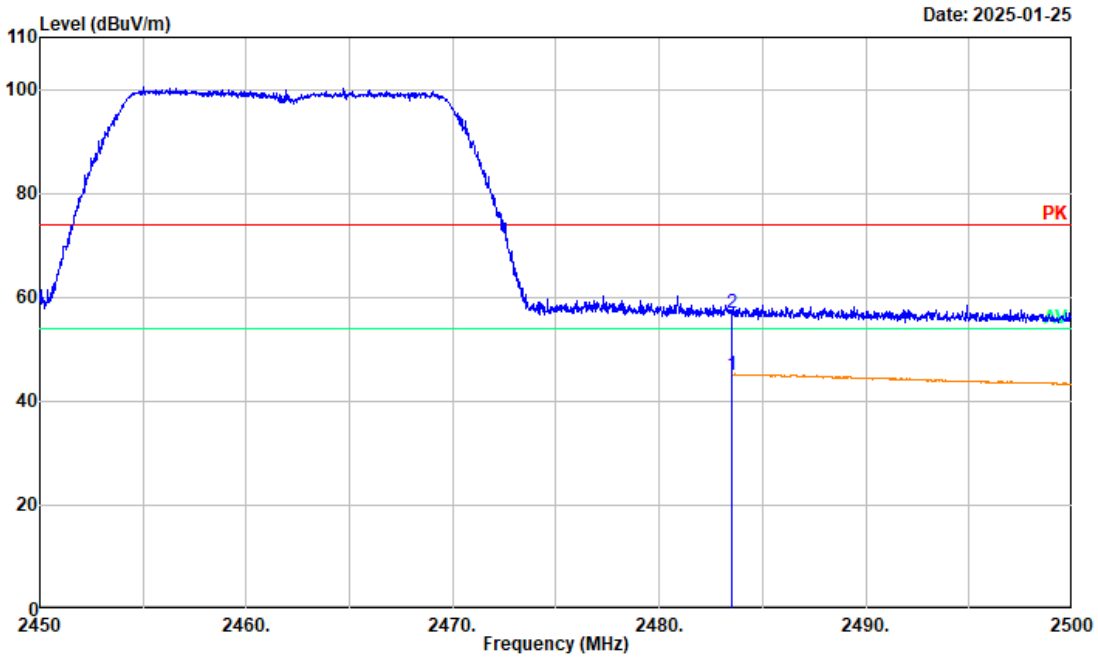


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11g 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2390.000	44.16	7.00	51.16	54.00	-2.84	Average
2	2390.000	57.37	7.00	64.37	74.00	-9.63	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11g	Channel:	2462MHz

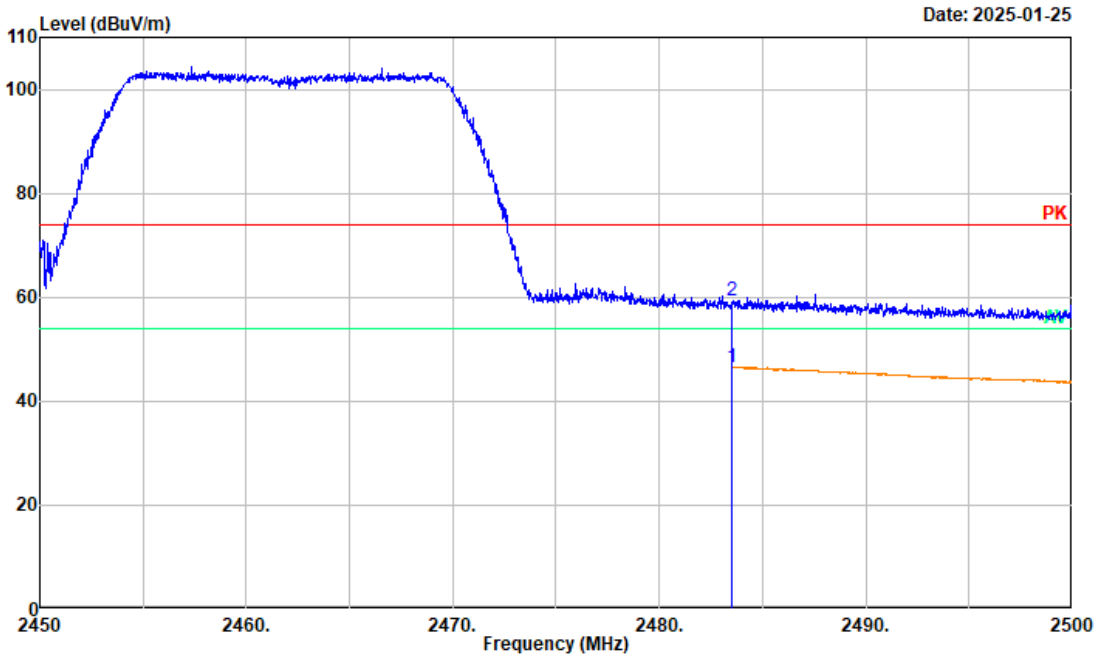


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11g 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	37.96	7.20	45.16	54.00	-8.84	Average
2	2483.500	49.71	7.20	56.91	74.00	-17.09	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11g	Channel:	2462MHz

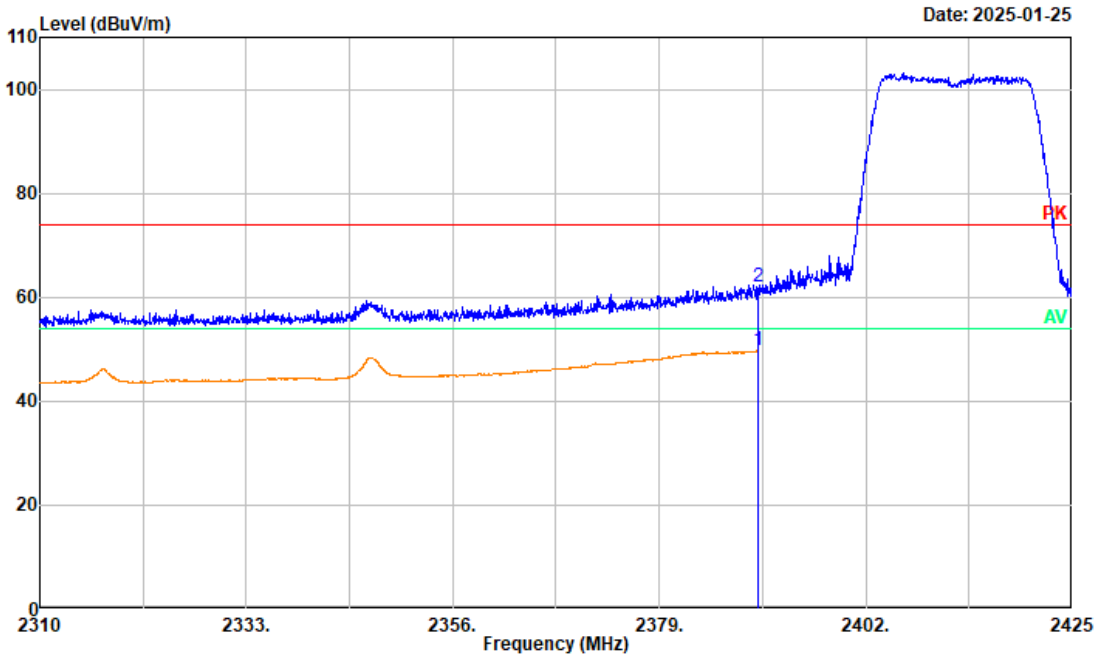


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11g 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	39.31	7.20	46.51	54.00	-7.49	Average
2	2483.500	52.05	7.20	59.25	74.00	-14.75	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11n20	Channel:	2412MHz

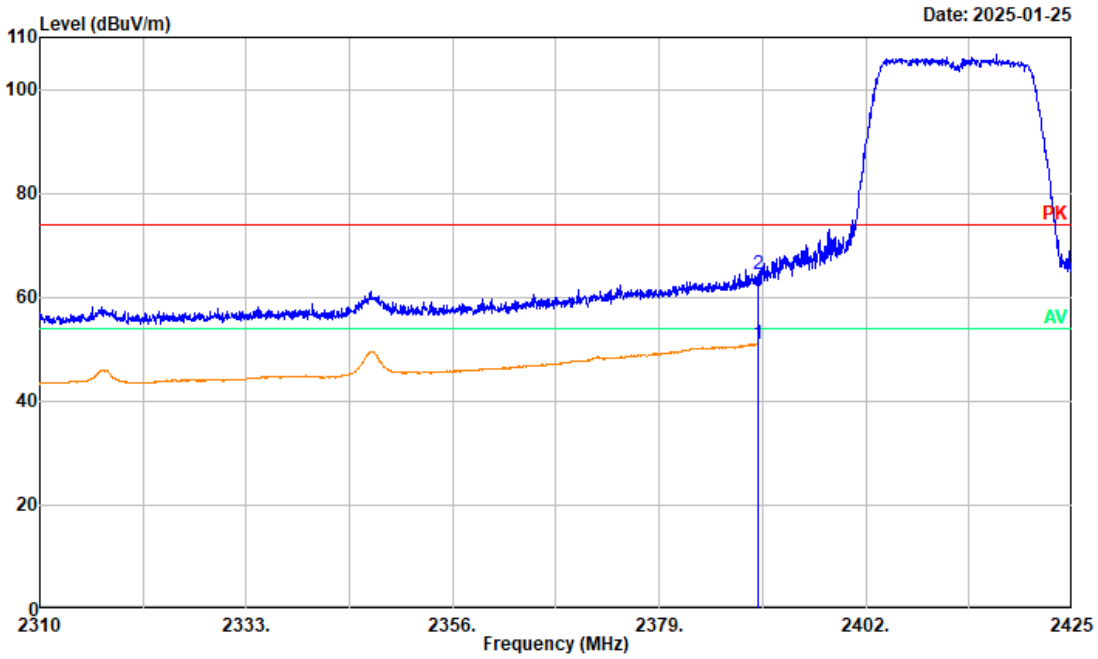


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11n20 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2390.000	42.70	7.00	49.70	54.00	-4.30	Average
2	2390.000	54.93	7.00	61.93	74.00	-12.07	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11n20	Channel:	2412MHz

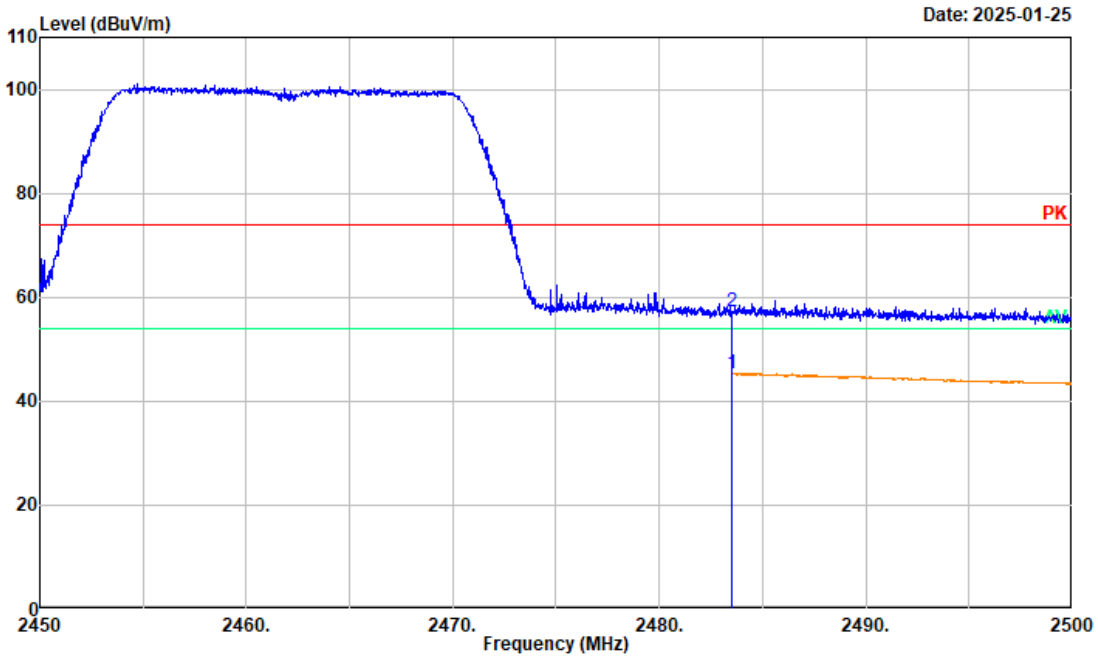


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11n20 2412

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2390.000	44.09	7.00	51.09	54.00	-2.91	Average
2	2390.000	57.52	7.00	64.52	74.00	-9.48	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11n20	Channel:	2462MHz

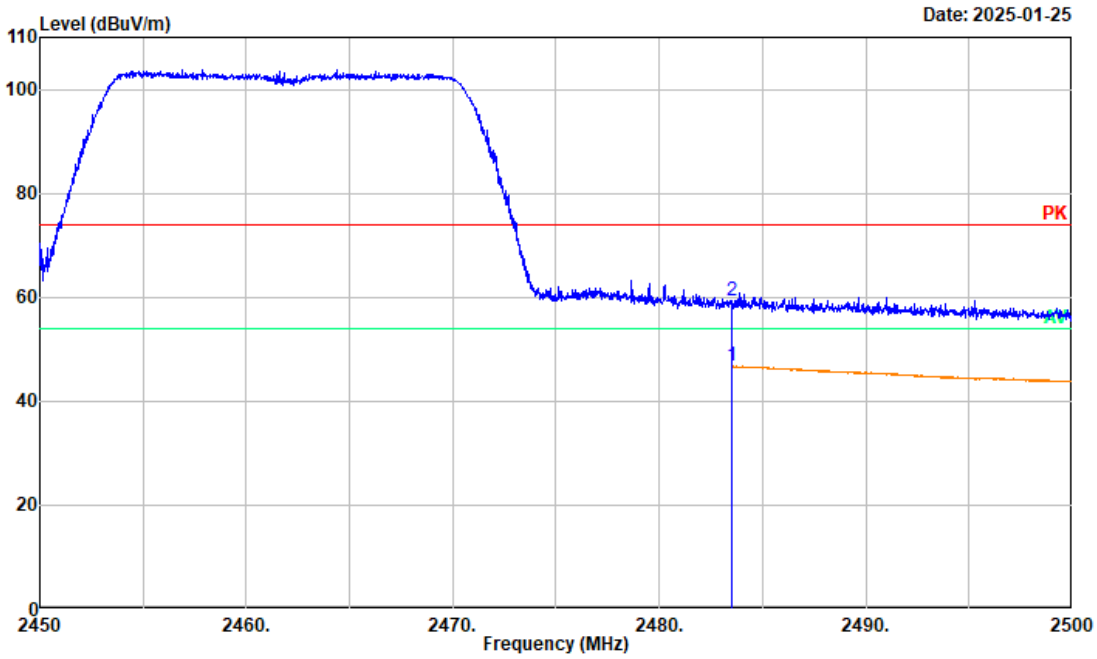


Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : horizontal
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	38.12	7.20	45.32	54.00	-8.68	Average
2	2483.500	49.97	7.20	57.17	74.00	-16.83	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

Mode:	802.11n20	Channel:	2462MHz



Project No. : 2405A112469E
Test Mode : Transmitting
Test Voltage : AC 120V/60Hz
Environment : 22.8℃/40%R.H./101.0kPa
Tested by : Luke Li
Polarization : vertical
Remark : 802.11n20 2462

--No.	Frequency (MHz)	Reading (dBµV)	Factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Over Limit (dB)	Detector
1	2483.500	39.46	7.20	46.66	54.00	-7.34	Average
2	2483.500	52.09	7.20	59.29	74.00	-14.71	Peak

Remarks: Factor = Antenna factor + Cable loss - Preamp gain
Result = Reading + Factor
Over Limit = Result - Limit
SA setting: Peak: RBW/VWB: 1MHz/3MHz, DET: PK
Average: RBW/VWB: 1MHz/10Hz , DET: PK

3.5 RF Conducted Test Data

Test Date:	2025-02-06	Test By:	Ryan Zhang
Environment condition:	Temperature: 22.1°C; Relative Humidity:45%; ATM Pressure: 101.4kPa		

3.5.1 6dB Emission Bandwidth

Mode	Test Frequency (MHz)	Result (MHz)	Limit (MHz)	Verdict
802.11b	2412	9.169	≥0.5	Pass
	2437	9.169	≥0.5	Pass
	2462	9.169	≥0.5	Pass
802.11g	2412	16.456	≥0.5	Pass
	2437	16.456	≥0.5	Pass
	2462	16.456	≥0.5	Pass
802.11n20	2412	17.658	≥0.5	Pass
	2437	17.658	≥0.5	Pass
	2462	17.658	≥0.5	Pass

3.5.2 99% Occupied Bandwidth

Mode	Test Frequency (MHz)	99% OBW (MHz)
802.11b	2412	11.160
	2437	11.080
	2462	11.120
802.11g	2412	16.520
	2437	16.520
	2462	16.520
802.11n20	2412	17.640
	2437	17.640
	2462	17.640

3.5.3 Maximum Conducted Peak Output Power

Mode	Test Frequency (MHz)	Peak Output Power(dBm)	Limit (dBm)	Verdict
802.11b	2412	14.62	30	Pass
	2437	14.18	30	Pass
	2462	14.57	30	Pass
802.11g	2412	19.62	30	Pass
	2437	18.78	30	Pass
	2462	19.54	30	Pass
802.11n20	2412	19.72	30	Pass
	2437	19.70	30	Pass
	2462	19.97	30	Pass

3.5.4 Power Spectral Density

Mode	Test Frequency (MHz)	Result (dBm/3kHz)	Limit (dBm/3kHz)	Verdict
802.11b	2412	-13.15	8	Pass
	2437	-13.25	8	Pass
	2462	-12.00	8	Pass
802.11g	2412	-15.01	8	Pass
	2437	-15.87	8	Pass
	2462	-15.03	8	Pass
802.11n20	2412	-15.48	8	Pass
	2437	-16.11	8	Pass
	2462	-15.63	8	Pass

3.5.5 100 kHz Bandwidth of Frequency Band Edge

Mode	Test Frequency (MHz)	Result (dB)	Limit (dB)	Verdict
802.11b	2412	47.89	20	Pass
	2462	47.93	20	Pass
802.11g	2412	42.85	20	Pass
	2462	44.50	20	Pass
802.11n20	2412	42.63	20	Pass
	2462	44.35	20	Pass

3.5.6 Duty Cycle

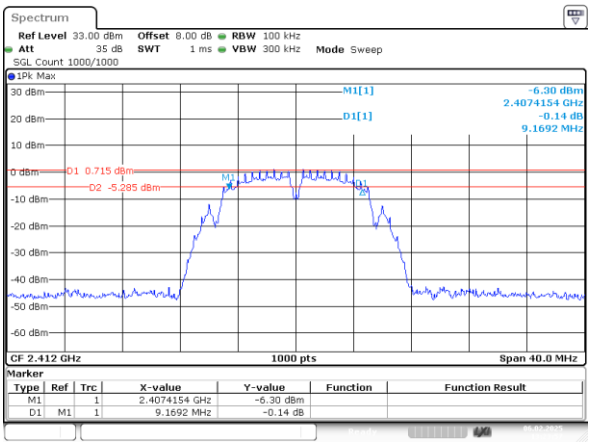
Mode	Test Frequency (MHz)	Ton (ms)	Ton+Toff (ms)	Duty Cycle (%)	Duty Cycle Factor(dB)	1/Ton (Hz)	VBW Setting (kHz)
802.11b	2437	16.410	16.460	99.70	/	/	0.010
802.11g	2437	2.726	2.766	98.55	/	/	0.010
802.11n20	2437	2.533	2.574	98.41	/	/	0.010

Duty Cycle = Ton/(Ton+Toff)*100%

Test Plots:

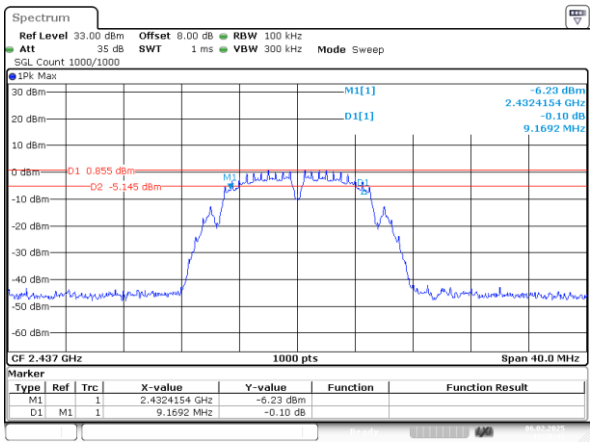
6 dB Emission Bandwidth:

802.11b_2412MHz



ProjectNo.:2405A112469E-RF Tester:Ryan Zhang
Date: 6.FEB.2025 13:23:57

802.11b_2437MHz



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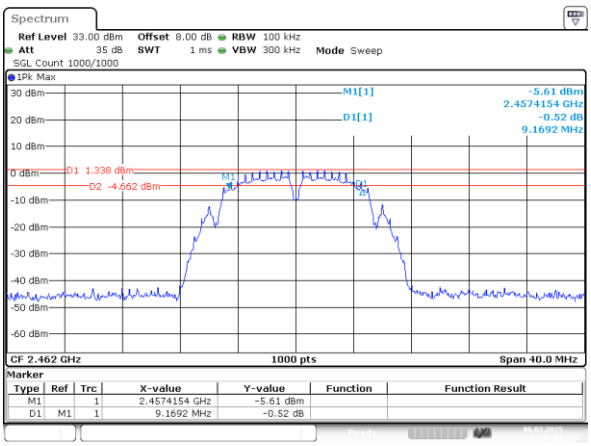
Date: 6.FEB.2025 13:26:40

802.11b_2462MHz



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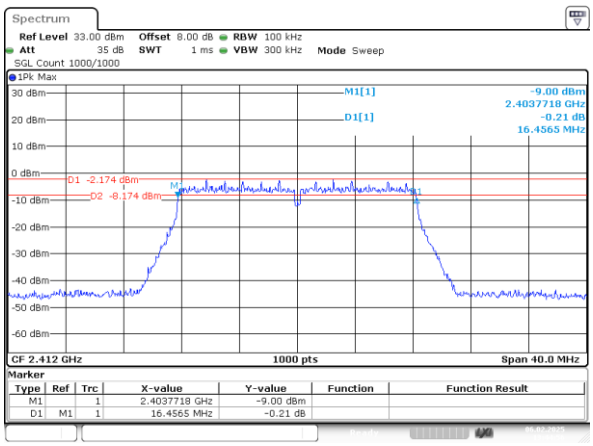
Date: 6.FEB.2025 13:42:09

802.11g_2412MHz



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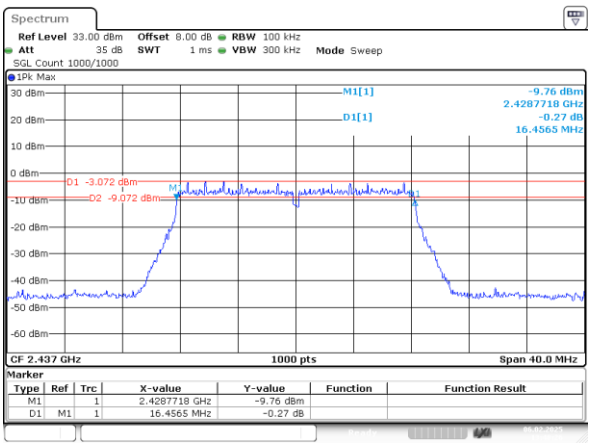
Date: 6.FEB.2025 13:44:57

802.11g_2437MHz



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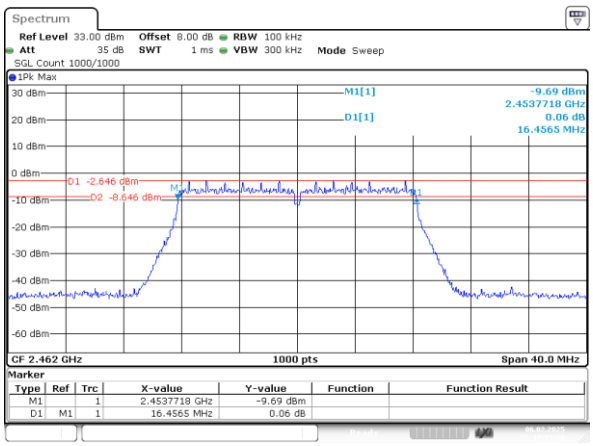
Date: 6.FEB.2025 13:48:26

802.11g_2462MHz



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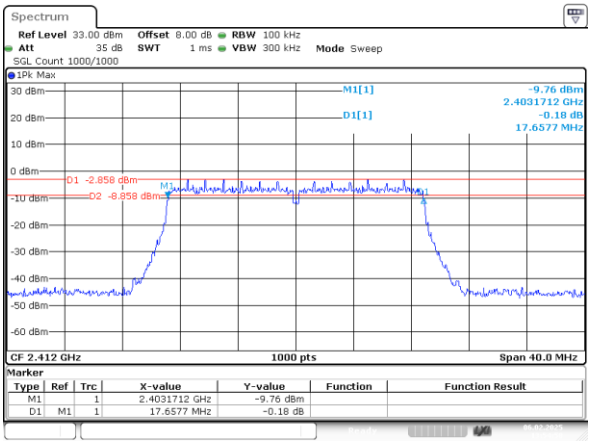
Date: 6.FEB.2025 13:51:29

802.11n20_2412MHz



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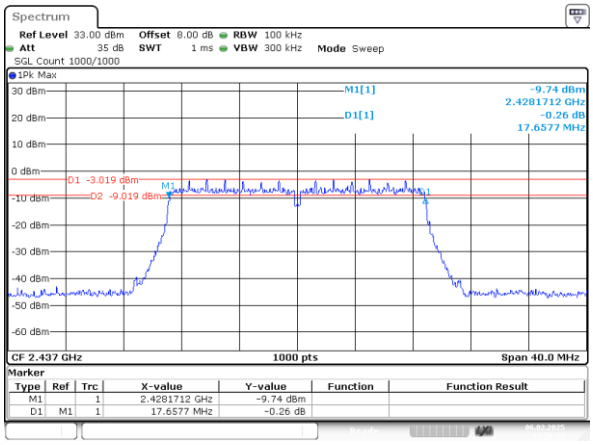
802.11n20_2437MHz



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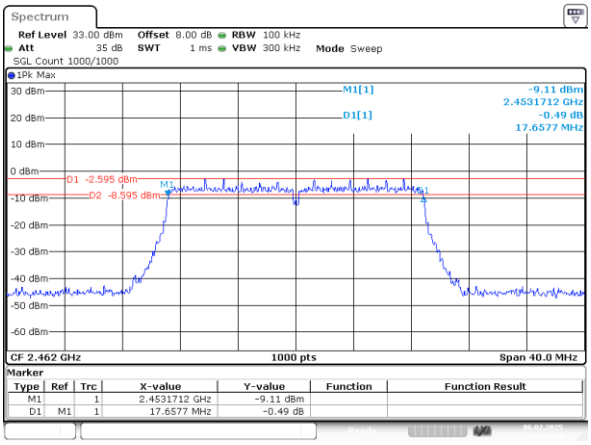
802.11n20_2462MHz



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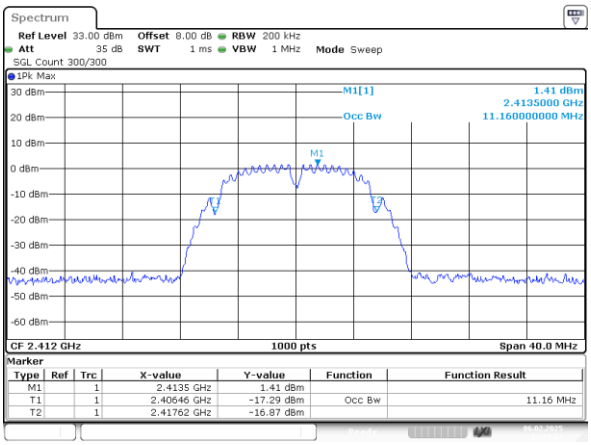
Date: 6.FEB.2025 14:00:59

99% Occupied Bandwidth:

802.11b_2412MHz



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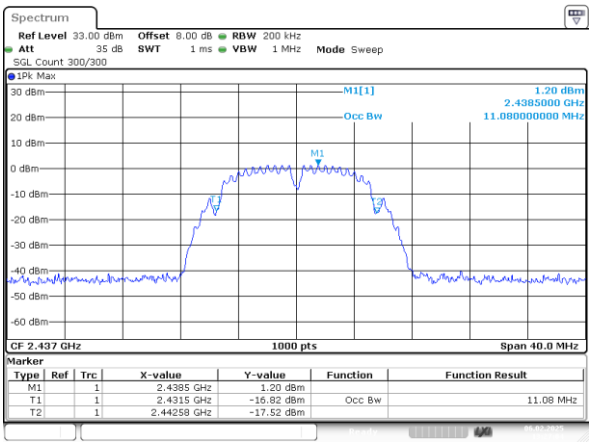
802.11b_2437MHz



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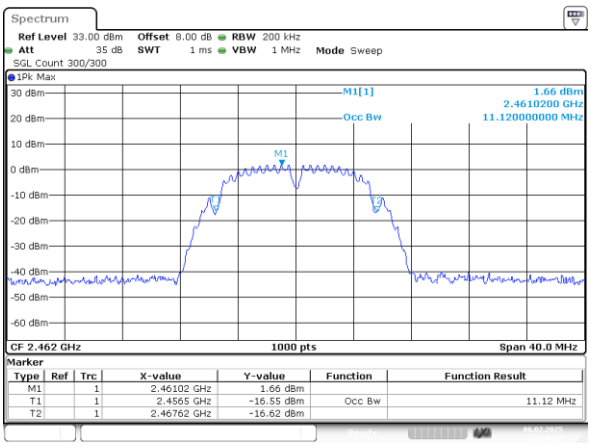
802.11b_2462MHz



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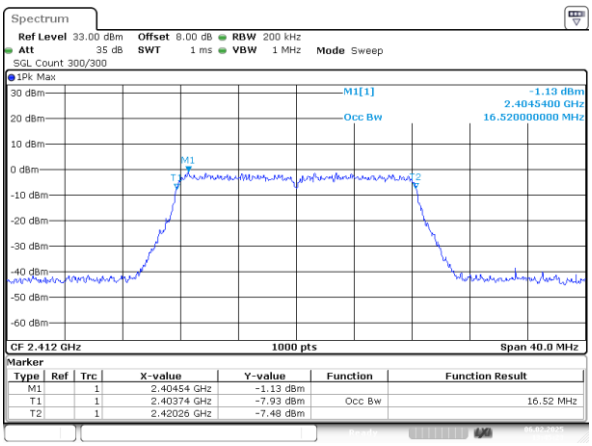
Date: 6.FEB.2025 13:42:35

802.11g_2412MHz



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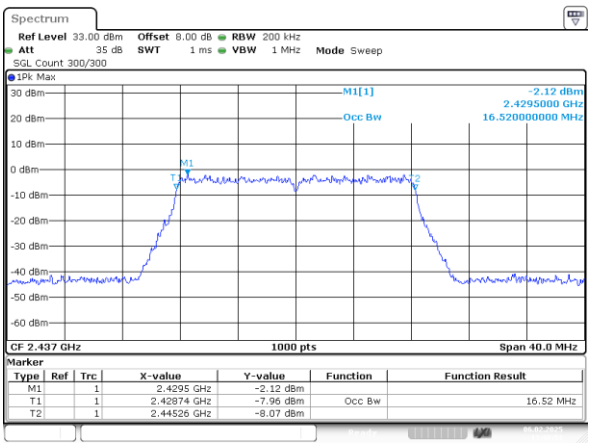
802.11g_2437MHz



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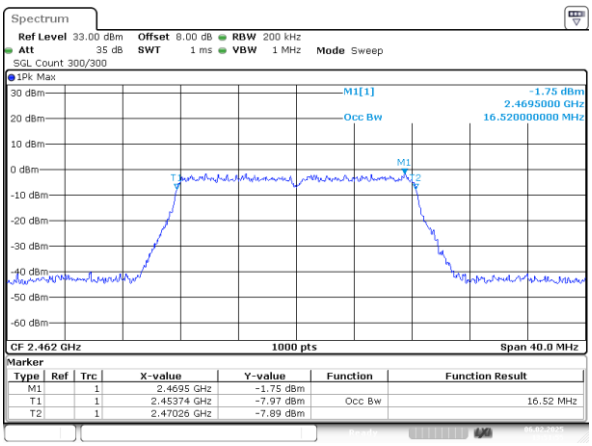
Date: 6.FEB.2025 13:48:50

802.11g_2462MHz



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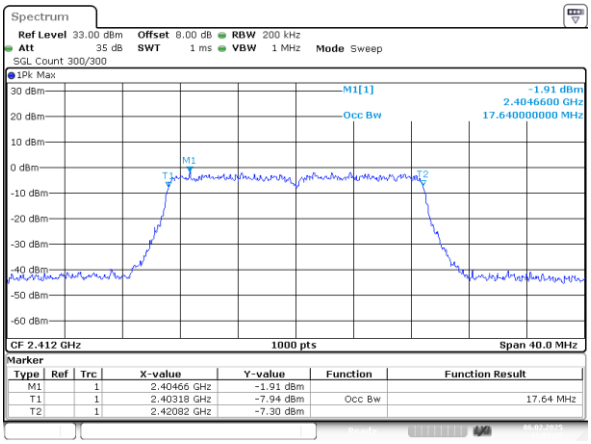
802.11n20_2412MHz



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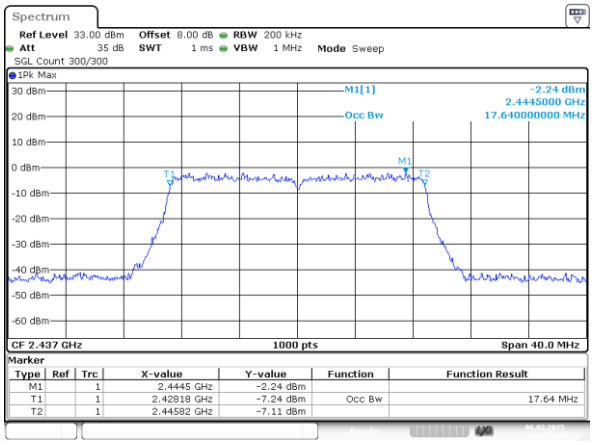
802.11n20_2437MHz



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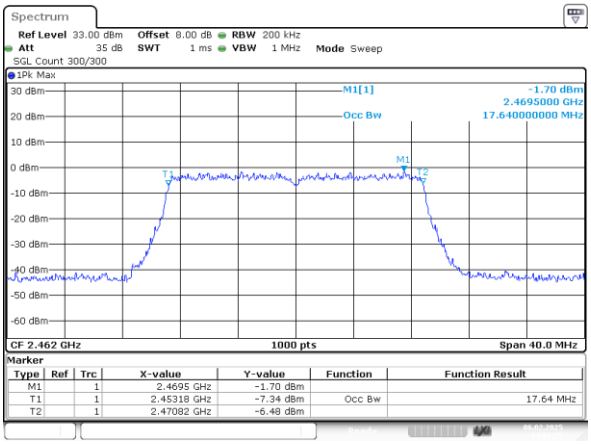
802.11n20_2462MHz



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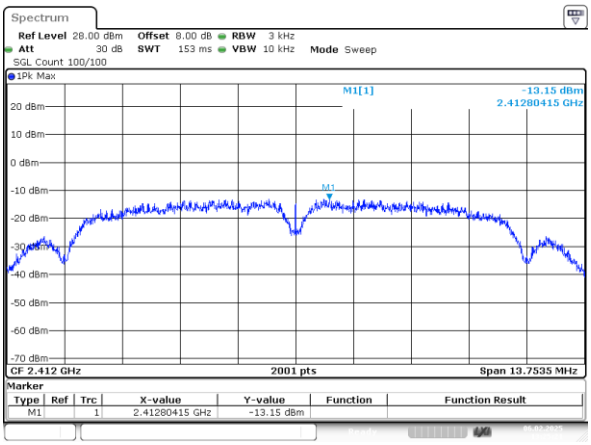
Power Spectral Density:

802.11b_2412MHz



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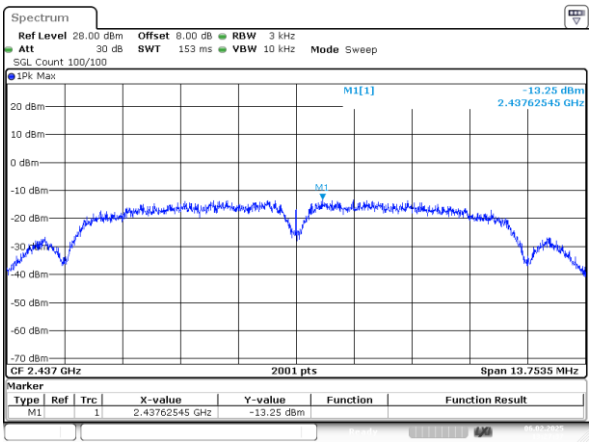
802.11b_2437MHz



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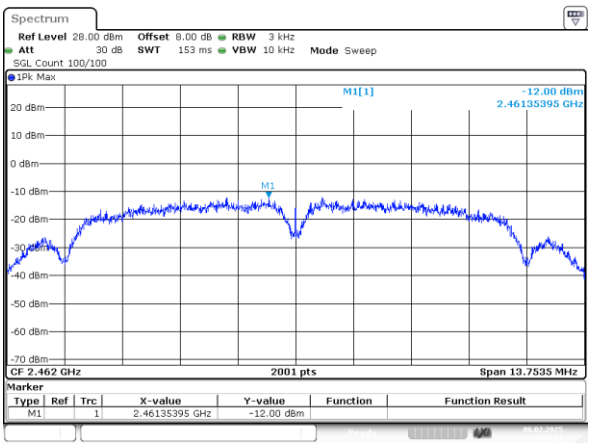
802.11b_2462MHz



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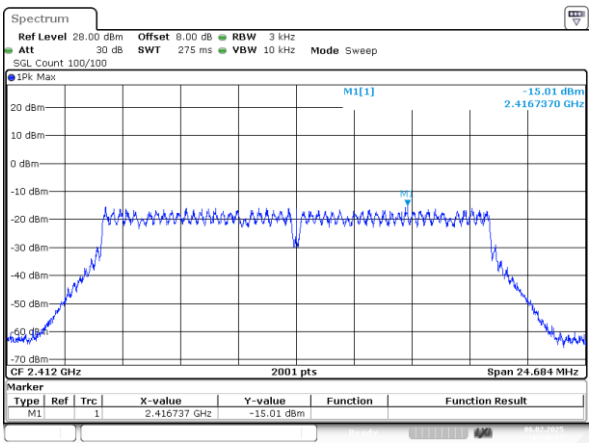
802.11g_2412MHz



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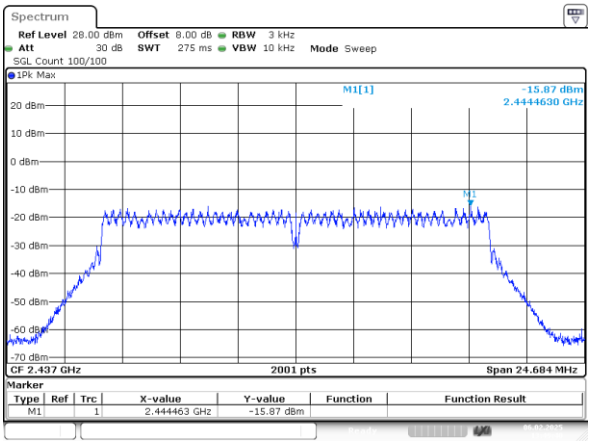
802.11g_2437MHz



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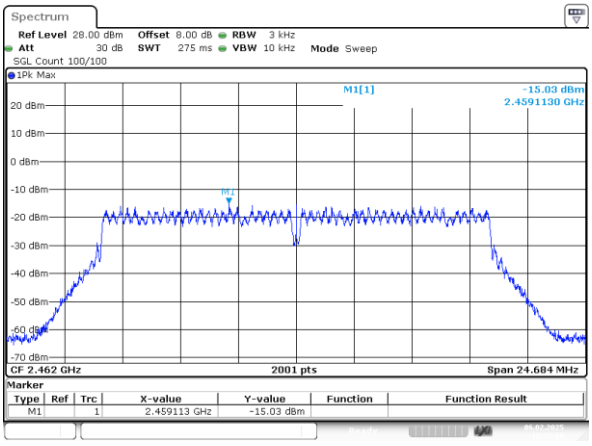
802.11g_2462MHz



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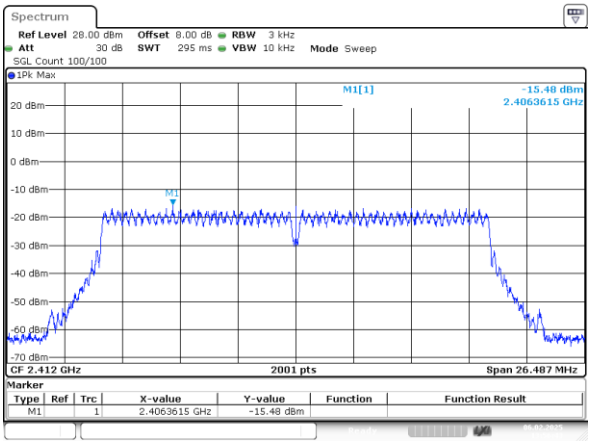
802.11n20_2412MHz



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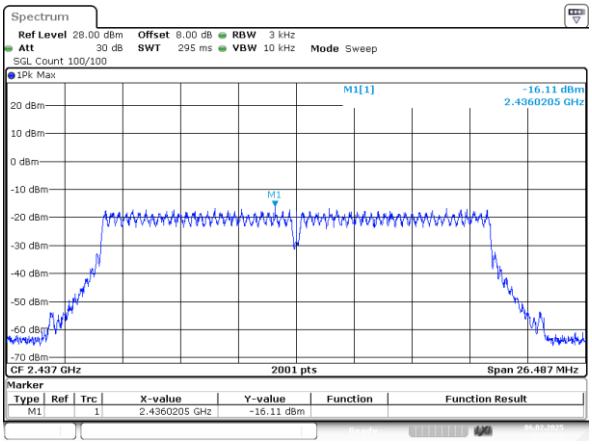
802.11n20_2437MHz



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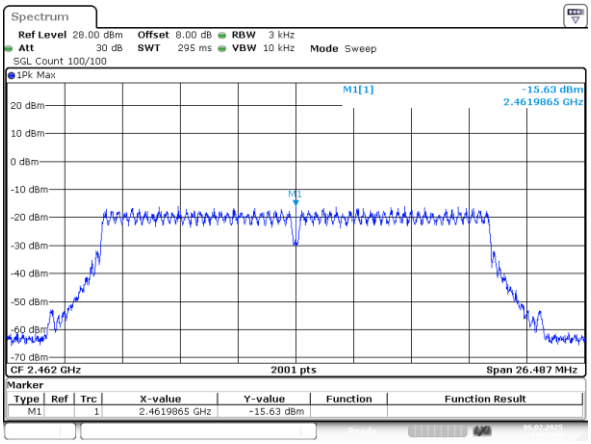
802.11n20_2462MHz



ProjectNo.:2405A112469E-RF Tester:Ryan Zhang
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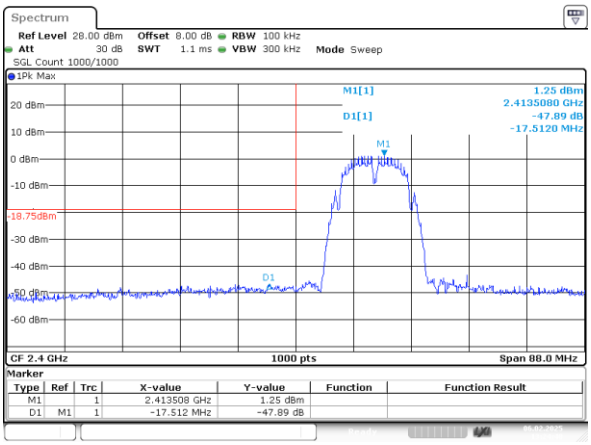
100kHz Bandwidth of Frequency Band Edge:

802.11b_2412MHz



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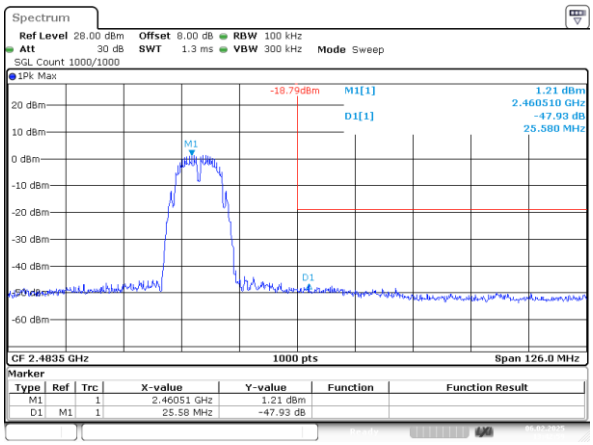
802.11b_2462MHz



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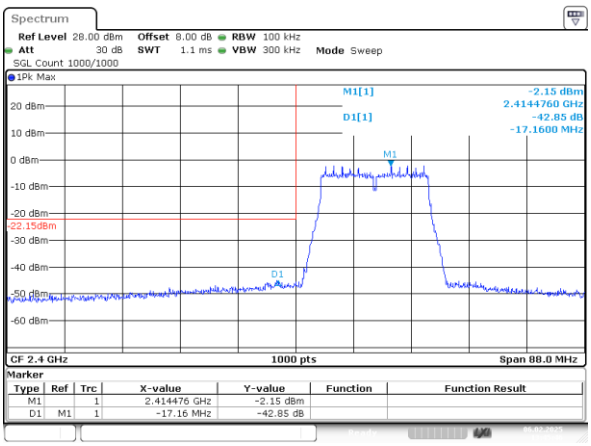
802.11g_2412MHz



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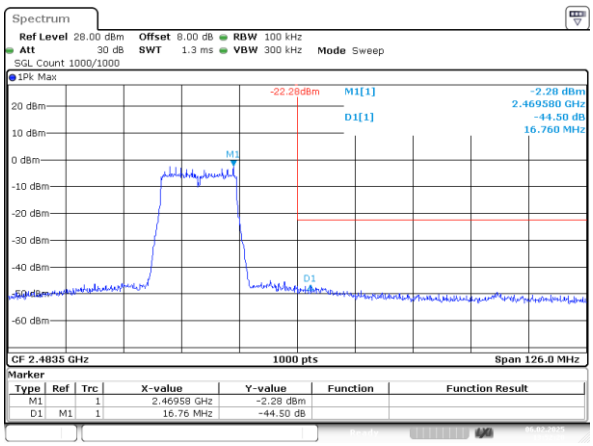
802.11g_2462MHz



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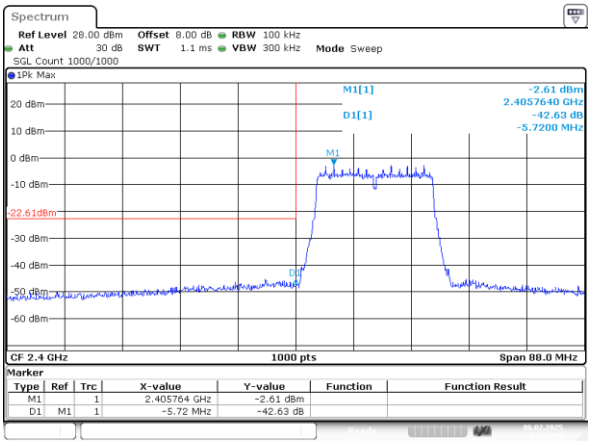
802.11n20_2412MHz



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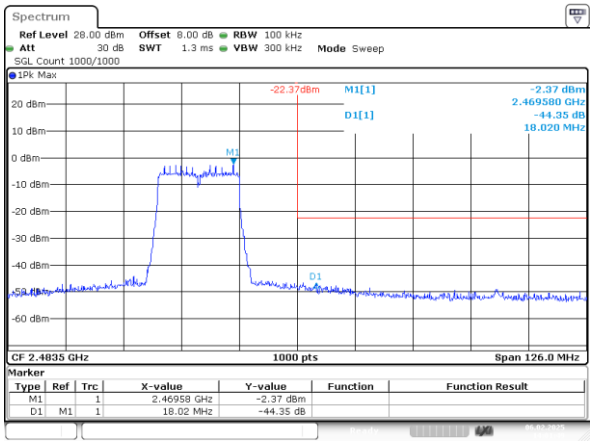
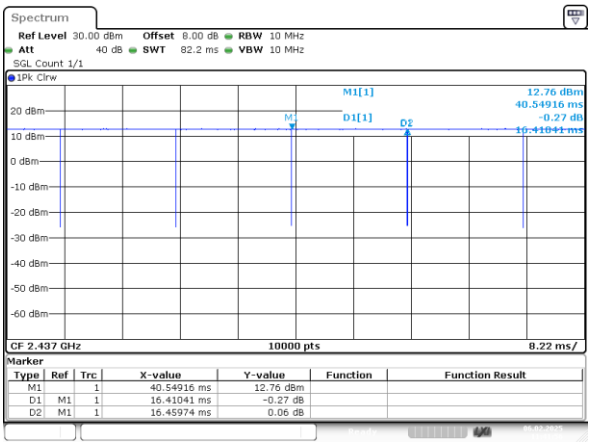
802.11n20_2462MHz



ProjectNo.:2405A112469E-RF Tester:Ryan Zhang
Date: 6.FEB.2025 14:01:49

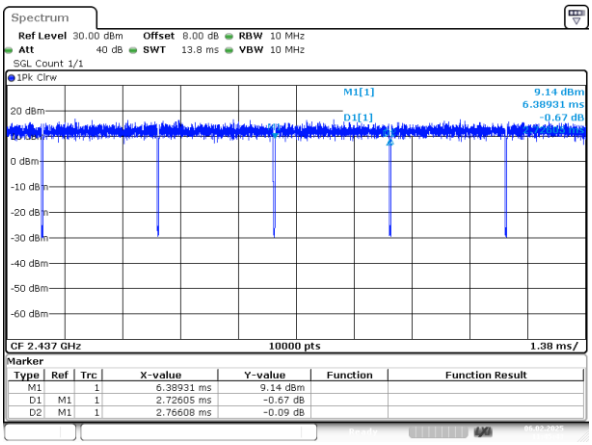
Duty Cycle:

802.11b_2437MHz



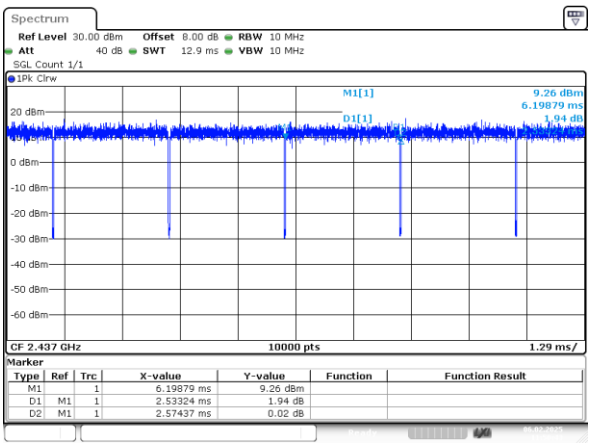
ProjectNo.:2405A112469E-RF Tester:Ryan Zhang
Date: 6.FEB.2025 11:41:56

802.11g_2437MHz



ProjectNo.:2405A112469E-RF Tester:Ryan Zhang
Date: 6.FEB.2025 11:45:43

802.11n20_2437MHz



ProjectNo.:2405A112469E-RF Tester:Ryan Zhang
Date: 6.FEB.2025 11:50:43

4 Test Setup Photo

Please refer to the attachment 2405A112469E Test Setup photo.

5 E.U.T Photo

Please refer to the attachment 2405A112469E External photo and 2405A112469E Internal photo.

---End of Report---