

Test Report No:
2470803R-RFUSV01S-A

TEST REPORT

FCC Rules&Regulations

Product Name	WiFi USB Adapter
Brand Name	msi
Model No.	GUBE65
FCC ID	I4L-GUBE65
Applicant's Name / Address	Micro-Star Int'l Co.,Ltd. No.69, Lide St., Zhonghe Dist., New Taipei City 235, Taiwan
Manufacturer's Name / Address	Micro-Star Int'l Co.,Ltd. No.69, Lide St., Zhonghe Dist., New Taipei City 235, Taiwan
Test Method Requested, Standard	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10-2013
Verdict Summary	IN COMPLIANCE
Documented By	 Jennie She
Approved By	 Allen Lin
Date of Receipt	Jul. 26, 2024
Date of Issue	Jan. 15, 2025
Report Version	V1.0

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Appendix A. Test Result of AC Power Line Conducted Emission

Appendix B. Test Result of Occupied Bandwidth & DTS Bandwidth

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Appendix E. Test Result of Antenna Port Conducted Emission

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Appendix G. Test Setup Photograph

Competences and Guarantees

DEKRA is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, DEKRA has a calibration and maintenance program for its measurement equipment.

DEKRA guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated in the report and it is based on the knowledge and technical facilities available at DEKRA at the time of performance of the test.

DEKRA is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

The results presented in this Test Report apply only to the particular item under test established in this document.

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of DEKRA.

General Conditions

1. The test results relate only to the samples tested.
2. The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.
3. This report must not be used to claim product endorsement by TAF or any agency of the government.
4. The test report shall not be reproduced without the written approval of DEKRA Testing and Certification Co., Ltd.
5. Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Revision History

Version	Description	Issued Date
V1.0	Initial issue of report	Jan. 15, 2025

Summary of Test Result

Report Clause	Test Items	Result (PASS/FAIL)	Remark
3	AC Power Line Conducted Emission	PASS	-
4	Occupied Bandwidth & DTS Bandwidth	PASS	-
5	Maximum Conducted Output Power	PASS	-
6	Maximum Power Spectral Density	PASS	-
7	Antenna Port Conducted Emission	PASS	-
8	Transmitter Radiated Spurious Emission	PASS	-

Comments and Explanations

The declared of product specification for EUT presented in the report are provided by the manufacturer, and the manufacturer takes all the responsibilities for the accuracy of product specification.

Comments and Remarks

The product specification and testing instructions for the EUT declared in the report are provided by the manufacturer who will take all responsibilities for the accuracy.

1. General Information

1.1. EUT Description

Frequency Range	2400 ~ 2483.5 MHz	
Operating Frequency	IEEE 802.11b/g IEEE 802.11n/ax/be, VHT (20 MHz)	2412 ~ 2472 MHz
	IEEE 802.11n/ax/be, VHT (40 MHz)	2422 ~ 2462 MHz
Channel Number	IEEE 802.11b/g IEEE 802.11n/ax/be, VHT (20 MHz)	13 Channels
	IEEE 802.11n/ax/be, VHT (40 MHz)	9 Channels
Type of Modulation	IEEE 802.11b	DSSS-DBPSK, DQPSK, CCK
	IEEE 802.11g/n	OFDM-BPSK, QPSK, 16QAM, 64QAM
	IEEE 802.11ax	OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
	IEEE 802.11be	OFDMA-BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM, 4096QAM
	VHT	OFDM-BPSK, QPSK, 16QAM, 64QAM, 256QAM

Accessories Information				
No.	Equipment Name	Brand Name	Model No.	Remark
1	Cradle	msi	GUBE65 Cradle	With cable: Shielded, 0.9m

Antenna Information						
Ant.	Brand Name	Model No.	Type	Antenna Gain (dBi)	Maximum Antenna Gain (dBi)	Directional Gain (dBi)
1	WHA YU	C059-510503-A	PCB	1.78	1.78	4.71
2	WHA YU	C059-510504-A	PCB	1.62		

For IEEE 802.11b/g/n/ax/be, VHT Mode: (2TX, 2RX)

Both Ant. 1 and Ant. 2 can be used as transmitting/receiving antennas, and they can transmit/receive signal simultaneously.

1.2. EUT Information

EUT Power Type	From Host system			
Beamforming Function	☐	With beamforming	☒	Without beamforming
Resource Unit of 802.11ax/be	☒	Full RU	☐	Partial RU

1.3. Testing Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- ♦ 47 CFR FCC Part 15
- ♦ ANSI C63.10-2013

The following reference test guidance is not within the scope of accreditation of TAF:

- ♦ KDB 558074 D01 v05r02
- ♦ KDB 662911 D01 v02r01
- ♦ KDB 414788 D01 v01r01

1.4. Testing Location Information

Testing Location Information		
Test Laboratory : DEKRA Testing and Certification Co., Ltd.		
1 (TAF: 3024)	ADD: No.372-2, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 FAX: +886-3-582-8958 Test site Designation No. TW3024 with FCC. Conformity Assessment Body Identifier (CABID) TW3024 with ISED.	
2 (TAF: 3024)	ADD: No.372, Sec. 4, Zhongxing Rd., Zhudong Township, Hsinchu County 31061, Taiwan, R.O.C. TEL: +886-3-582-8001 FAX: +886-3-582-8958 Test site Designation No. TW3024 with FCC. Conformity Assessment Body Identifier (CABID) TW3024 with ISED.	
Test site number for address 1 includes HC-SR02. Test site number for address 2 includes HC-CB02, HC-CB03, HC-CB04, HC-SR10 and HC-SR12.		

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
AC Conduction Emission	HC-SR02	Gary Liao	19~21 / 60~61.5	2024/11/21~2024/11/22
RF Conducted Emission	HC-SR12	Kevin Teng	22.8~24.2 / 49.2~52.1	2024/10/01~2024/11/22
Radiated Emission	HC-CB04	Cyril Chen	22.9~24.8 / 47.5~51.3	2024/10/04~2024/10/08

1.5. Measurement Uncertainty

Uncertainties have been calculated according to the DEKRA internal document with the emissions test results be included in the report. The measurement uncertainties given below are based on a 95% confidence level (based on a coverage factor (k=2)).

Test Item	Uncertainty
AC Power Line Conducted Emission	± 2.34 dB
Occupied Bandwidth & DTS Bandwidth	± 282.55 Hz
Maximum Conducted Output Power	± 1.16 dB
Maximum Power Spectral Density	± 2.47 dB
Antenna Port Conducted Emission	± 2.47 dB
Transmitter Radiated Spurious Emission	± 3.52 dB below 1 GHz ± 3.56 dB above 1 GHz

1.6. List of Test Equipment

HC-SR02

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal. Date	Next Cal. Date
Artificial Mains Network	R&S	ENV4200	848411/010	9kHz-30MHz, 4line/100A	2023/12/15	2024/12/14
EMI Test Receiver	R&S	ESR3	102608	9 kHz - 3.6 GHz	2024/09/11	2025/09/10
Two-Line V-Network	R&S	ENV216	100096	9kHz-30MHz	2024/06/03	2025/06/02
Coaxial Cable(9 m)	Harbour	RG-400	HC-SR02	9 kHz–2500 MHz	2024/08/15	2025/08/14
EMI Testing System	Audix	e3 210616 dekra V9	HC-SR02	N/A	N/A	N/A

HC-SR12

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal. Date	Next Cal. Date
Power Meter	Anritsu	ML2496A	1947001	0.3-40 GHz	2024/01/09	2025/01/08
Power Sensor	Anritsu	MA2411B	1911082	0.3-40 GHz	2024/01/09	2025/01/08
Power Sensor	Anritsu	MA2411B	1911083	0.3-40 GHz	2024/01/09	2025/01/08
Signal & Spectrum Analyzer	R&S	FSV40	101869	10Hz-40GHz	2024/06/20	2025/06/19

HC-CB04

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal. Date	Next Cal. Date
Signal and Spectrum Analyzer	R&S	FSVA40	101435	10 Hz-40 GHz	2024/05/17	2025/05/16
Trilog Broadband Antenna	Schwarzbeck	VULB 9168	1209	30 MHz-2 GHz	2024/06/11	2025/06/10
Double Ridged Horn Antenna	RF SPIN	DRH18-E	211212A18EN	1G-18GHz	2023/11/17	2024/11/16
Horn Antenna	Schwarzbeck	BBHA 9170	203	18G-40GHz	2024/02/02	2025/02/01
Pre-Amplifier	EMCI	EMC01820I	980364	30M-8 GHz,20 dB	2024/06/04	2025/06/03
Pre-Amplifier	EMEC	EM01G18GA	060835	1-18 GHz,50 dB	2024/07/16	2025/07/15
Pre-Amplifier	SGH	SGH184	20230411-2	18G-40 GHz,54 dB	2024/04/23	2025/04/22
EMI Test Receiver	R&S	ESR7	102260	10 Hz-7 GHz	2023/11/27	2024/11/26
Magnetic Loop Antenna	Teseq	HLA 6121	44287	0.01-30 MHz	2023/10/13	2024/10/12
Coaxial Cable	Huber+Suhner	SF104	HC-CB04	30 MHz-18 GHz, 11m	2024/08/07	2025/08/06
Coaxial Cable	Huber+Suhner, Rosnol	SF102_UP0264	HC-CB04-1	18-40 GHz, 3m	2024/08/13	2025/08/12
Radiated Software	Audix	e3 V9	HC-CB04_1	N/A	N/A	N/A

Note: All equipment upon which need to calibrated are with calibration period of 1 year.

2. Test Configuration of EUT

2.1. Test Condition

EUT Operational Condition	
Testing Voltage	AC 120V/60Hz

2.2. Test Frequency Mode

Test Software Version	AX Series MP Toolkit
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<2TX, Nss1>

Modulation	Frequency (MHz)	Power Setting
802.11b	2412	12.25
	2437	12.25
	2462	12.25
	2467	12.25
	2472	12.25
802.11g	2412	12.25
	2437	12.50
	2462	12.50
	2467	12.50
	2472	12.50
802.11be (20 MHz)	2412	12.50
	2437	12.50
	2462	12.50
	2467	12.50
	2472	12.50
802.11be (40 MHz)	2422	12.50
	2437	12.50
	2452	12.25
	2457	12.50
	2462	12.50

<2TX, Nss2>

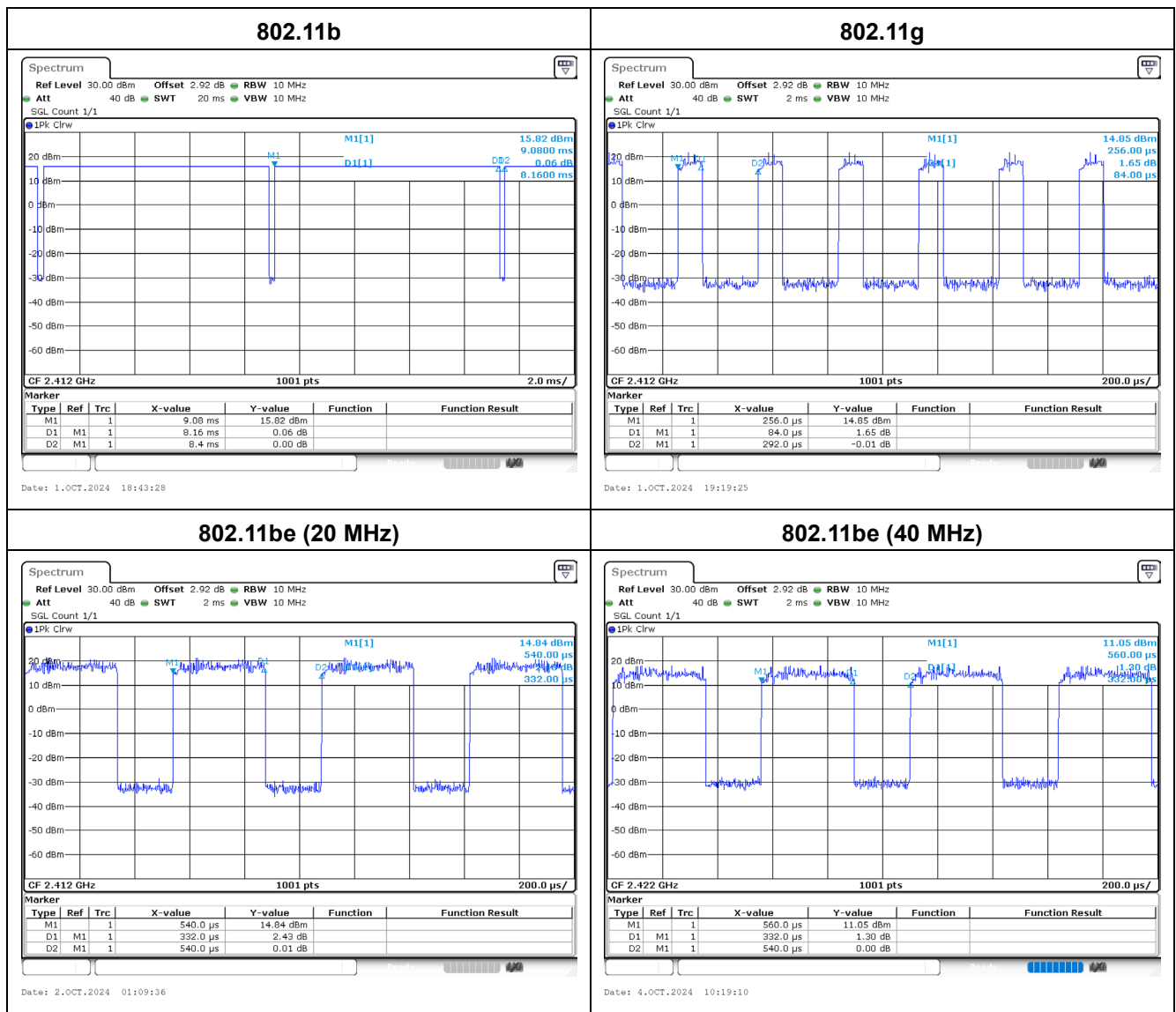
Modulation	Frequency (MHz)	Power Setting
802.11be (20 MHz)	2412	12.25
	2437	12.50
	2462	12.50
	2467	12.50
	2472	12.50
802.11be (40 MHz)	2422	12.25
	2437	12.25
	2452	12.25
	2457	12.25
	2462	12.25

2.3. Duty Cycle

<2TX, Nss1>

Modulation	On Times (ms)	On+Off Times (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11b	8.160	8.400	97.14	0.126	0.123
802.11g	0.084	0.292	28.77	5.411	11.905
802.11be (20 MHz)	0.332	0.540	61.48	2.113	3.012
802.11be (40 MHz)	0.332	0.540	61.48	2.113	3.012

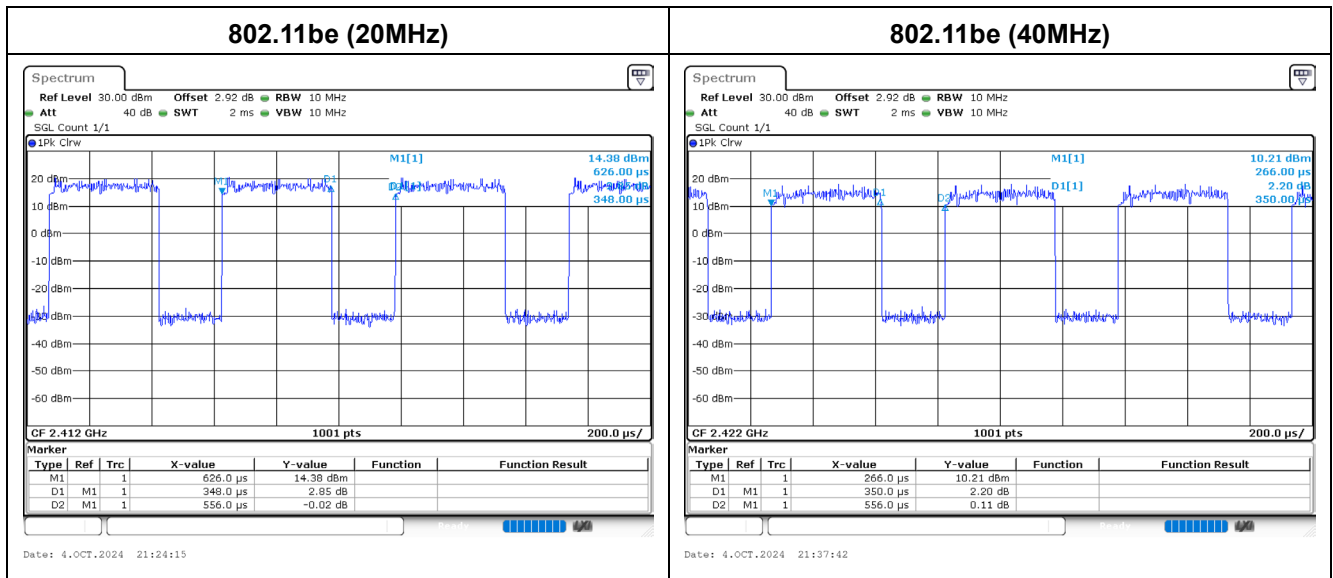
Note: The duty factor will compensate for the total power and power spectral density.



<2TX, Nss2>

Modulation	On Times (ms)	On+Off Times (ms)	Duty Cycle (%)	Duty Factor (dB)	1/T Minimum VBW (kHz)
802.11be (20 MHz)	0.348	0.556	62.59	2.035	2.874
802.11be (40 MHz)	0.350	0.556	62.95	2.010	2.857

Note: The duty factor will compensate for the total power and power spectral density.



2.4. The Worst Case Measurement Configuration

Tests Item	AC Power Line Conducted Emission
Test Condition	AC power line conducted measurement for line and neutral
Operating Mode	Transmit

Tests Item	Occupied Bandwidth & DTS Bandwidth Maximum Conducted Output Power Maximum Power Spectral Density Antenna Port Conducted Emission
Test Condition	Conducted measurement at transmit chains

Tests Item	Transmitter Radiated Spurious Emission
Test Condition	Radiated measurement If EUT consist of multiple antenna assembly (multiple antenna are used in EUT regardless of spatial multiplexing MIMO configuration), the radiated test should be performed with highest antenna gain of each antenna type.
Operating Mode	Transmit
The EUT was performed at X axis, Y axis and Z axis position for radiated spurious emission test. The worst case was found at Z axis, so the measurement will follow this same test configuration.	

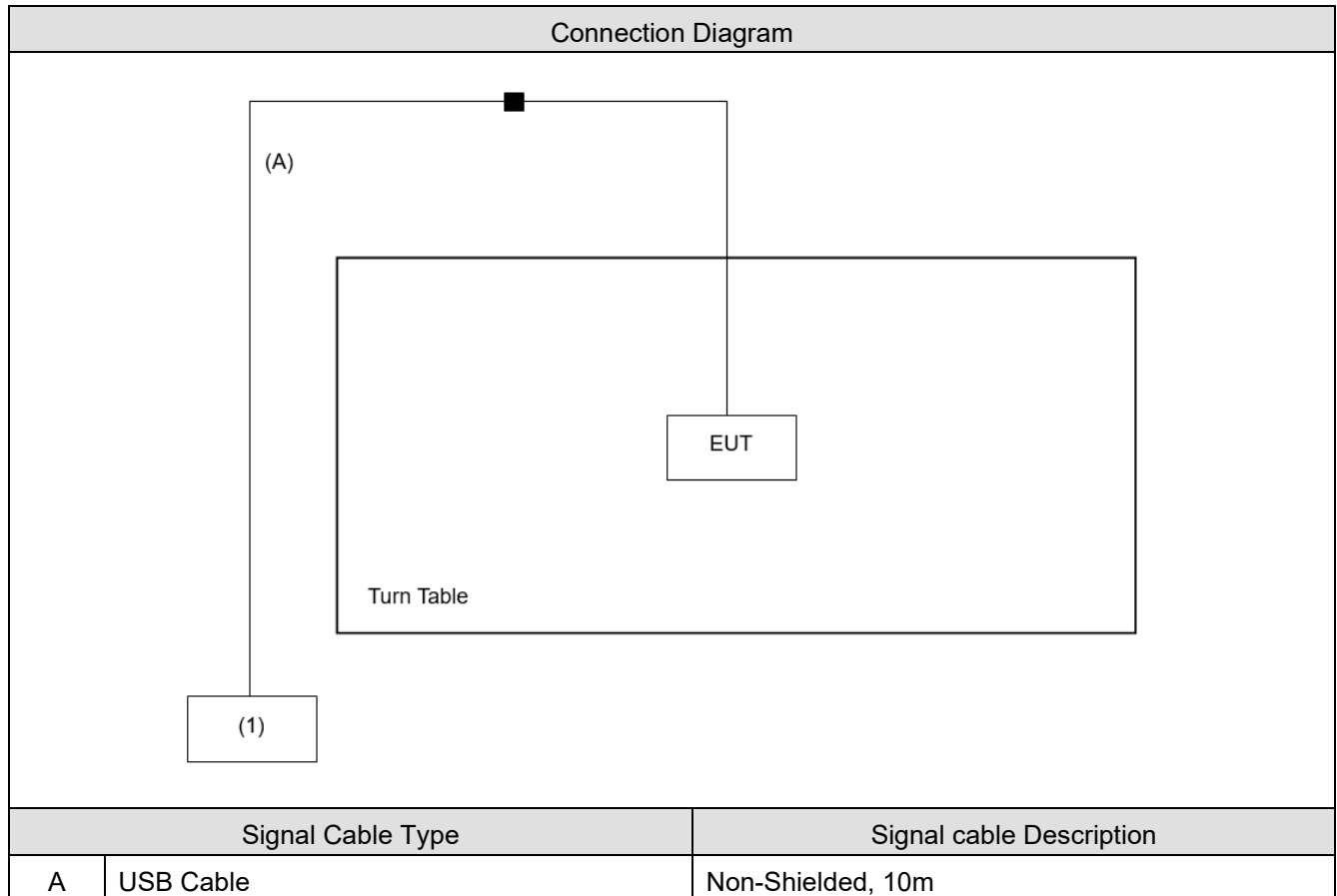
Note:

1. Determining compliance shall be based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
2. For radiated spurious emission below 1 GHz and AC power line conducted emission have performed all modes of operation were investigated and the worst-case emissions are reported.
3. The modulation and bandwidth are similar for 802.11n mode for HT20/HT40, VHT mode for VHT20/VHT40, 802.11ax mode for HEW20/HEW40 and 802.11be mode for EHT20/EHT40, therefore investigated worst case to representative mode in test report.

2.5. Tested System Details

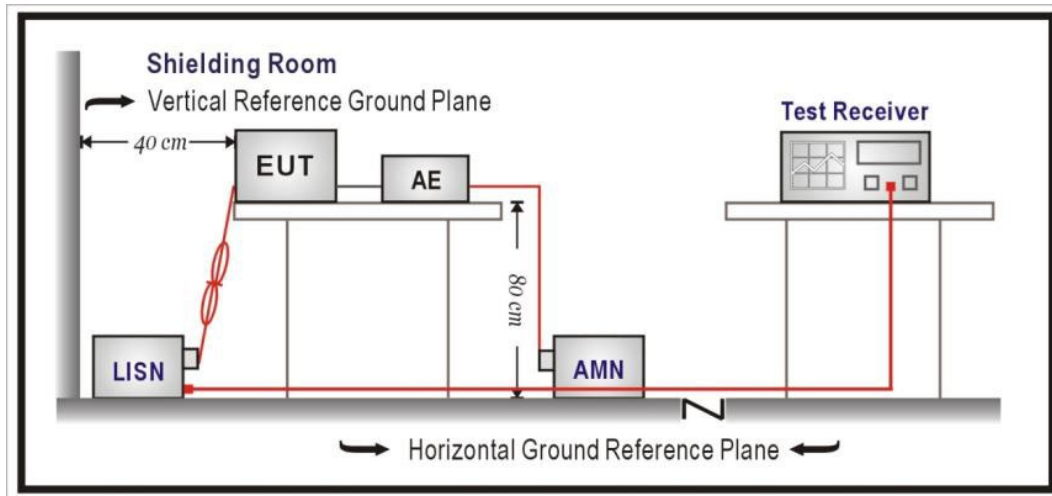
No.	Equipment	Brand Name	Model No.	Serial No.
1	Notebook	ASUS	BX310U	J5N0CV04S32319B

2.6. Configuration of Tested System



3. AC Power Line Conducted Emission

3.1. Test Setup



3.2. Test Limit

Frequency (MHz)	QP (dBuV)	AV (dBuV)
0.15 - 0.50	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

3.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013. The EUT was placed on a platform of nominal size, 1 m by 1.5 m, raised 80 cm above the conducting ground plane. The vertical conducting plane was located 40 cm to the rear of the EUT. All other surfaces of EUT were at least 80 cm from any other grounded conducting surface. The EUT and simulators are connected to the main power through a line impedance stabilization network (LISN). The LISN provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN. (Please refer to the block diagram of the test setup and photographs.)

Each current-carrying conductor of the EUT power cord, except the ground (safety) conductor, was individually connected through a LISN to the input power source.

The excess length of the power cord between the EUT and the LISN receptacle were folded back and forth at the center of the lead to form a bundle not exceeding 40 cm in length.

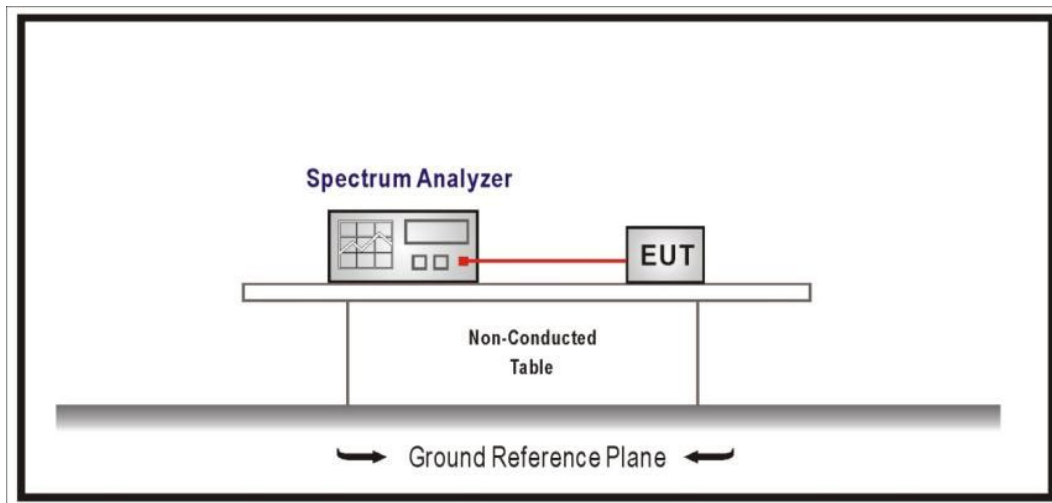
Conducted emissions were investigated over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

3.4. Test Result of AC Power Line Conducted Emission

Refer as Appendix A

4. Occupied Bandwidth & DTS Bandwidth

4.1. Test Setup



4.2. Test Limit

The 6 dB bandwidth: ≥ 0.50 MHz.

Occupied Bandwidth: N/A

4.3. Test Procedures

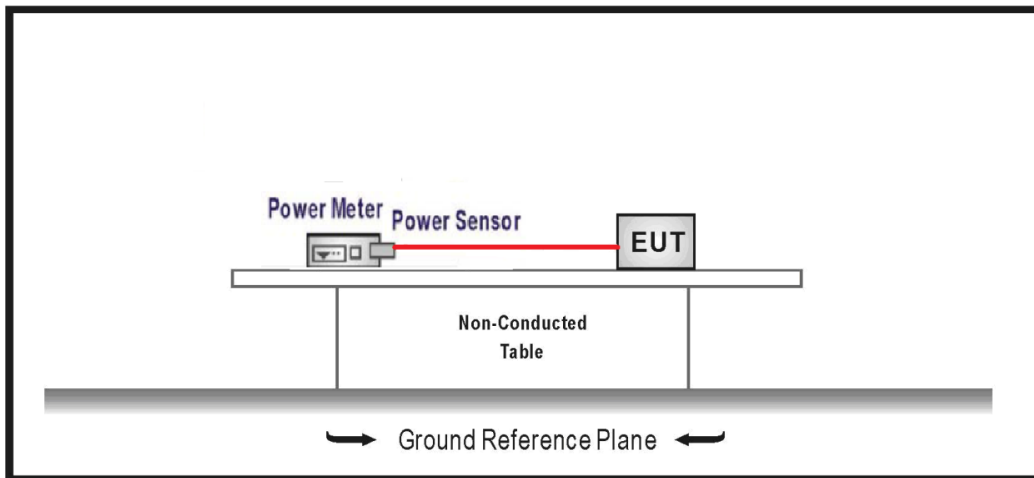
The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074.

4.4. Test Result of Occupied Bandwidth & DTS Bandwidth

Refer as Appendix B

5. Maximum Conducted Output Power

5.1. Test Setup



5.2. Test Limit

The maximum conducted output power shall be less 30 dBm (1 Watt).

5.3. Test Procedures

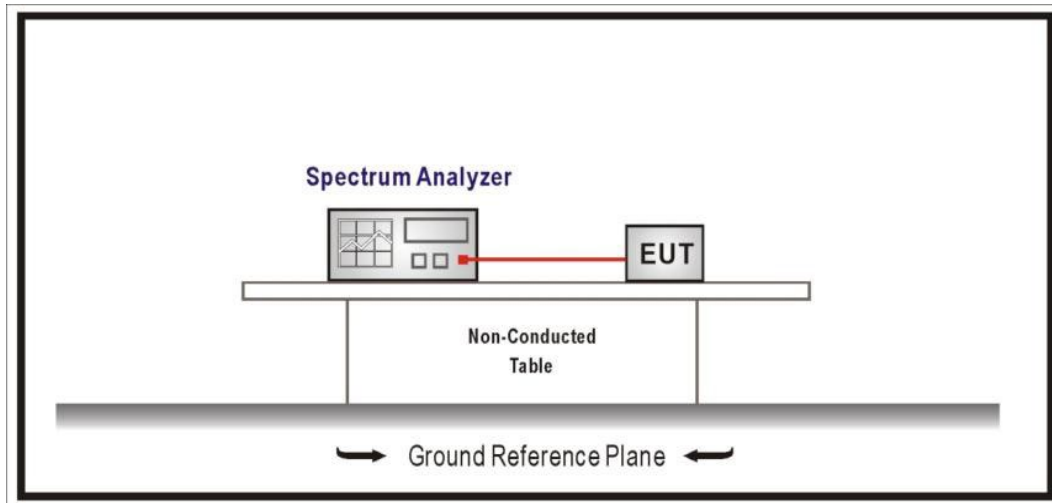
The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074.

5.4. Test Result of Maximum Conducted Output Power

Refer as Appendix C

6. Maximum Power Spectral Density

6.1. Test Setup



6.2. Test Limit

The peak power spectral density conducted from the intentional radiated to the antenna shall not be greater than +8 dBm in any 3 kHz band during any time interval of continuous transmission.

6.3. Test Procedures

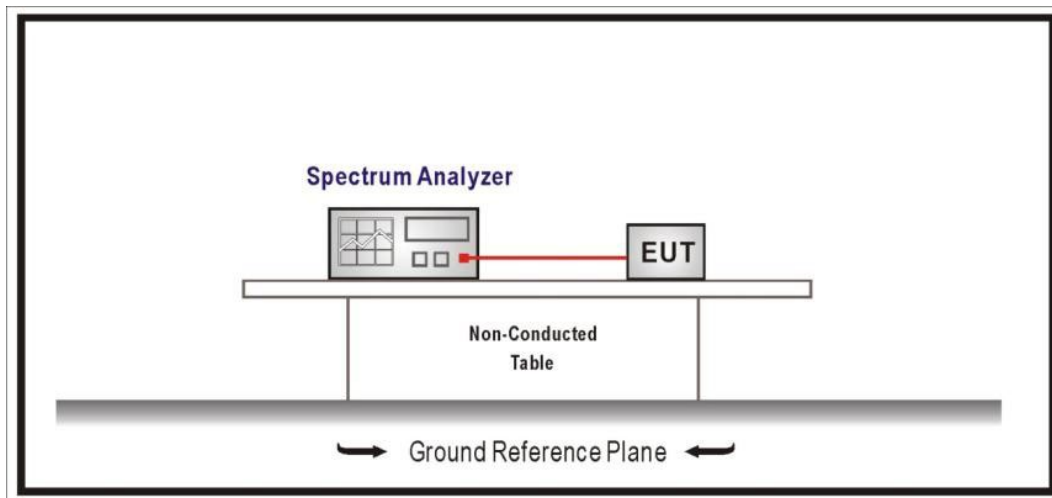
The EUT was setup according to ANSI C63.10: 2013; tested according to DTS test procedure of KDB 558074.

6.4. Test Result of Maximum Power Spectral Density

Refer as Appendix D

7. Antenna Port Conducted Emission

7.1. Test Setup



7.2. Test Limit

RF output power procedure	Limit (dBc)
Peak output power procedure	20
Average output power procedure	30

Remarks:

1. 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 limit.
2. If the transmitter complies with the conducted power limit based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

7.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074.

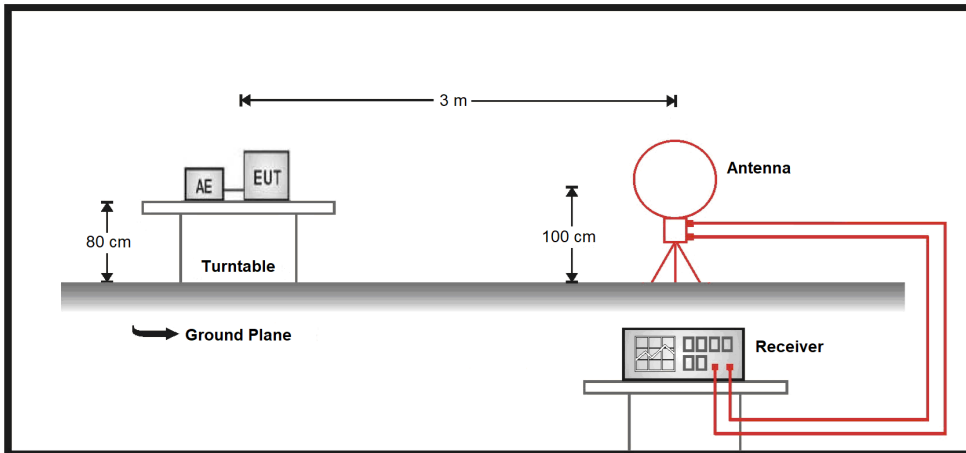
7.4. Test Result of Antenna Port Conducted Emission

Refer as Appendix E

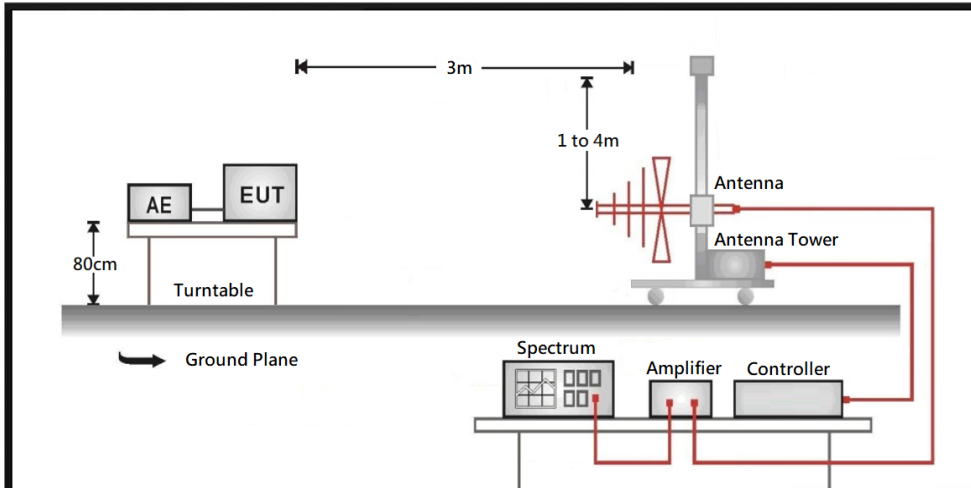
8. Transmitter Radiated Spurious Emission

8.1. Test Setup

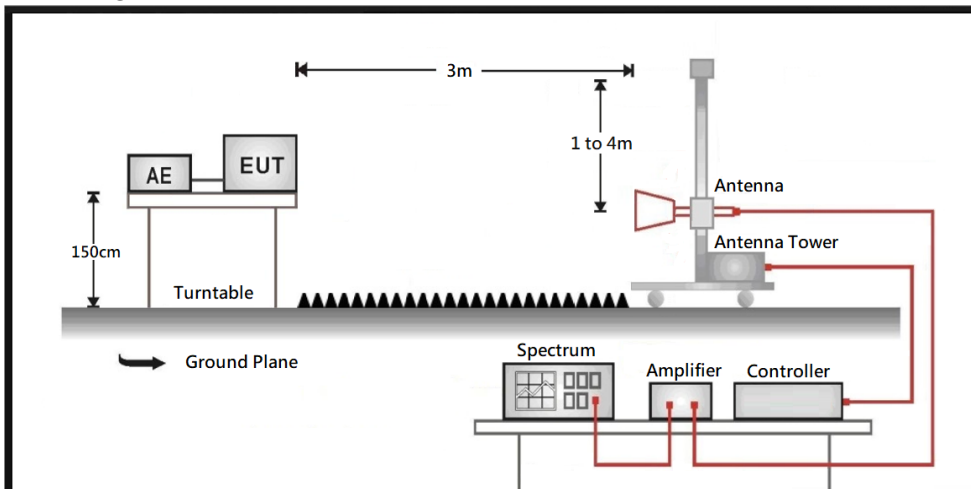
9 kHz ~ 30 MHz



30 MHz ~ 1 GHz



Above 1 GHz



8.2. Test Limit

Frequency (MHz)	Field strength (uV/m)	Field strength (dBuV/m)	Measurement distance (m)
0.009 – 0.490	2400/F(kHz)	20 log (2400/F(kHz))	300
0.490 – 1.705	24000/F(kHz)	20 log (24000/F(kHz))	30
1.705 - 30	30	29.5	30
30 - 88	100	40	3
88 - 216	150	43.5	3
216 - 960	200	46	3
Above 960	500	54	3

Remarks:

1. Field strength (dBuV/m) = 20 log Field strength (uV/m)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

8.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to DTS test procedure of KDB 558074.

The EUT and its simulators are placed on a turn table which is 0.8 or 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

On any frequency or frequencies from 9 kHz(include The the lowest oscillator frequency generated within the device up to the 10th harmonic) to 1000 MHz, the limit shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limit shown are based upon the use of measurement instrumentation employing an average detector function. When average radiated emission measurement are included emission measurement below 1000 MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit.

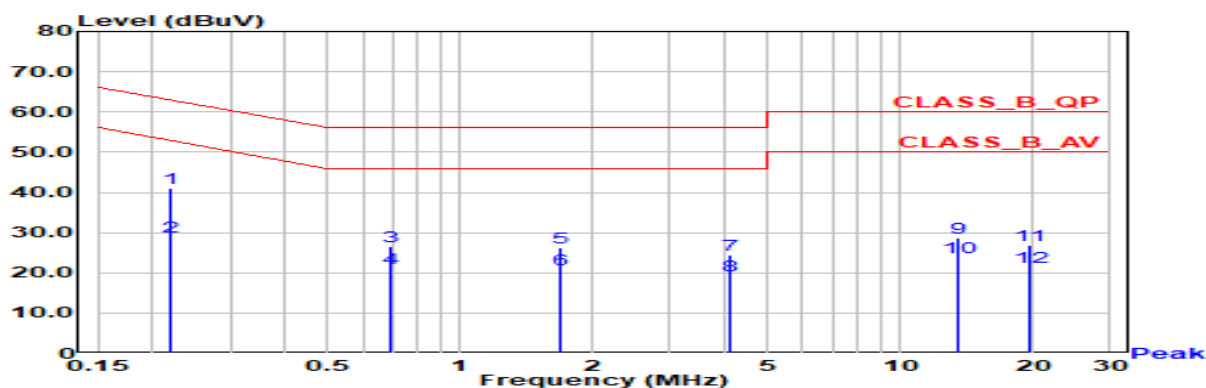
The bandwidth below 1 GHz setting on the field strength meter is 120 kHz and above 1 GHz is 1 MHz.

8.4. Test Result of Transmitter Radiated Spurious Emission

Refer as Appendix F

Appendix A. Test Result of AC Power Line Conducted Emission

Test Mode	Transmit	Phase	Line
Test Condition	802.11be (40 MHz) / Ant. 1 + Ant. 2 / 2437 MHz		

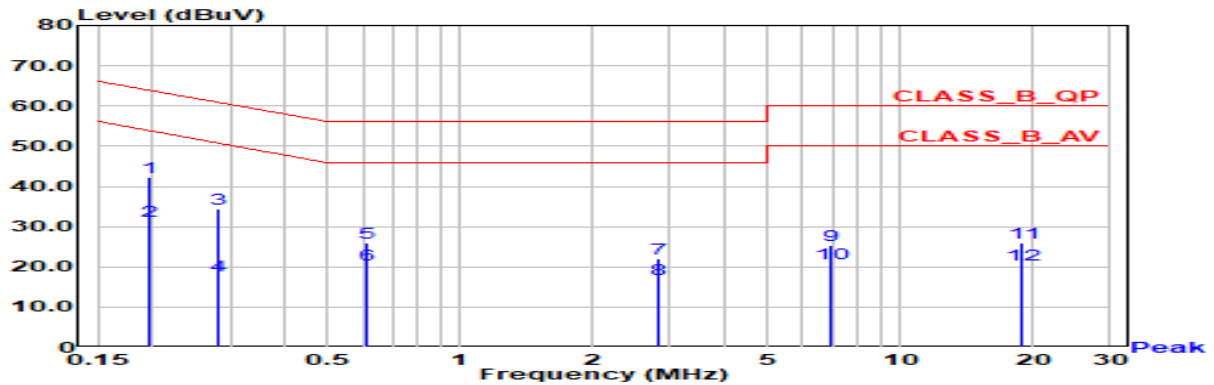


No	Frequency (MHz)	Emission Level (dBUV)	Limit (dBUV)	Margin (dB)	Reading Level (dBUV)	Correct Factor (dB)	Detector Type
*1	0.219	41.19	62.85	-21.65	31.52	9.67	QP
2	0.219	29.06	52.85	-23.79	19.39	9.67	AV
3	0.690	26.42	56.00	-29.58	16.74	9.68	QP
4	0.690	21.09	46.00	-24.91	11.41	9.68	AV
5	1.688	26.39	56.00	-29.61	16.57	9.82	QP
6	1.688	20.73	46.00	-25.27	10.92	9.82	AV
7	4.092	24.46	56.00	-31.54	14.53	9.93	QP
8	4.092	19.18	46.00	-26.82	9.25	9.93	AV
9	13.551	28.61	60.00	-31.39	18.44	10.16	QP
10	13.551	23.90	50.00	-26.10	13.74	10.16	AV
11	19.571	26.81	60.00	-33.19	16.56	10.25	QP
12	19.571	21.42	50.00	-28.58	11.17	10.25	AV

Note:

1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Test Mode	Transmit	Phase	Neutral
Test Condition	802.11be (40 MHz) / Ant. 1 + Ant. 2 / 2437 MHz		



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
*1	0.197	42.17	63.72	-21.55	32.50	9.67	QP
2	0.197	31.29	53.72	-22.43	21.62	9.67	AV
3	0.281	34.51	60.79	-26.28	24.84	9.67	QP
4	0.281	17.88	50.79	-32.91	8.21	9.67	AV
5	0.609	25.93	56.00	-30.07	16.25	9.68	QP
6	0.609	20.39	46.00	-25.61	10.72	9.68	AV
7	2.809	21.92	56.00	-34.08	12.02	9.89	QP
8	2.809	16.84	46.00	-29.16	6.94	9.89	AV
9	6.983	25.46	60.00	-34.54	15.45	10.01	QP
10	6.983	20.96	50.00	-29.04	10.95	10.01	AV
11	18.921	26.02	60.00	-33.98	15.78	10.24	QP
12	18.921	20.49	50.00	-29.51	10.25	10.24	AV

Note:

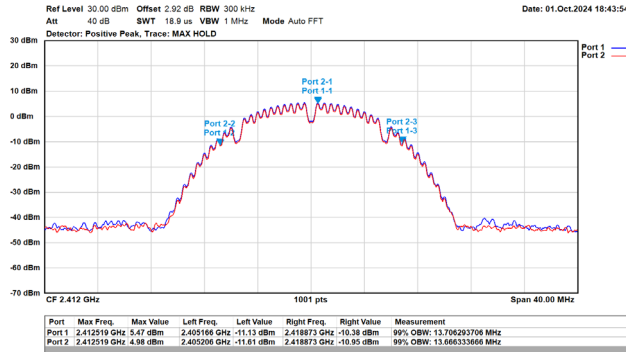
1. "*" means this data is the worst emission level.
2. Emission Level = Reading Level + Correct Factor (Correct Factor = LISN Insertion Loss + Cable Loss).
3. Margin = Emission Level - Limit.

Appendix B.1 Test Result of Occupied Bandwidth

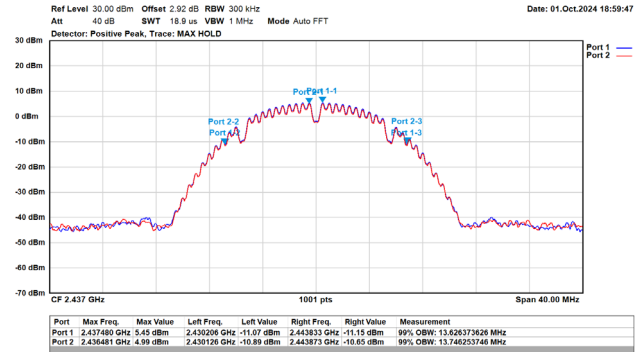
Modulation	Frequency (MHz)	Occupied Bandwidth (MHz)		Limit (MHz)
		Ant. 1	Ant. 2	
802.11b	2412	13.71	13.67	-
	2437	13.63	13.75	-
	2462	13.67	13.63	-
	2467	13.67	13.63	-
	2472	13.67	13.63	-
802.11g	2412	16.26	16.34	-
	2437	16.18	16.34	-
	2462	16.22	16.22	-
	2467	16.26	16.30	-
	2472	16.26	16.26	-
802.11be (20 MHz)	2412	18.74	18.78	-
	2437	18.74	18.82	-
	2462	18.82	18.78	-
	2467	18.78	18.78	-
	2472	18.78	18.82	-
802.11be (40 MHz)	2422	37.72	37.64	-
	2437	37.32	37.40	-
	2452	37.64	37.56	-
	2457	37.72	37.40	-
	2462	37.64	37.72	-

Spectrum plot of value

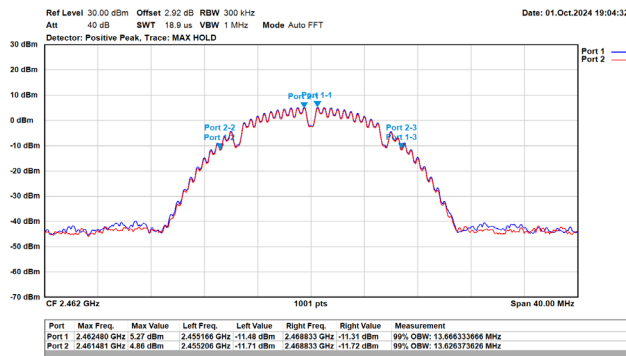
802.11b / Ant. 1 + Ant. 2 / 2412 MHz



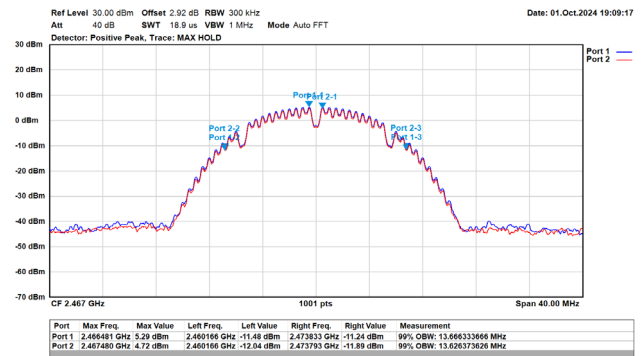
802.11b / Ant. 1 + Ant. 2 / 2437 MHz



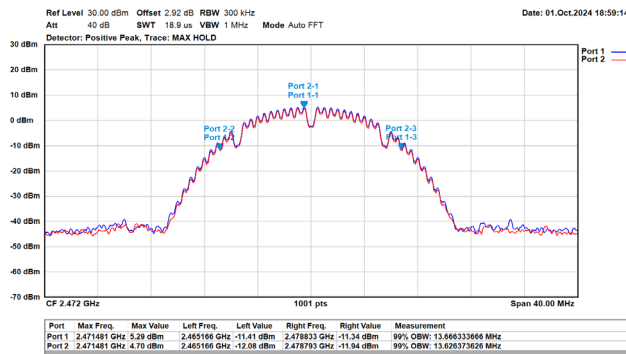
802.11b / Ant. 1 + Ant. 2 / 2462 MHz



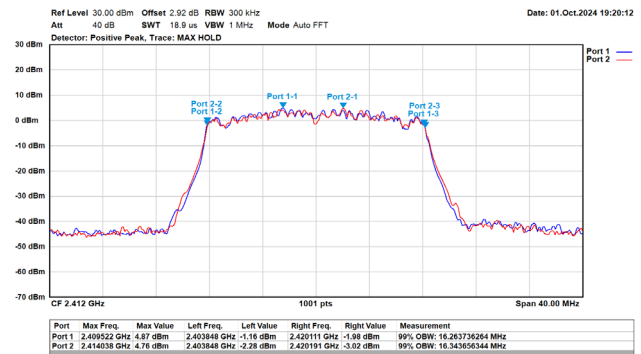
802.11b / Ant. 1 + Ant. 2 / 2467 MHz



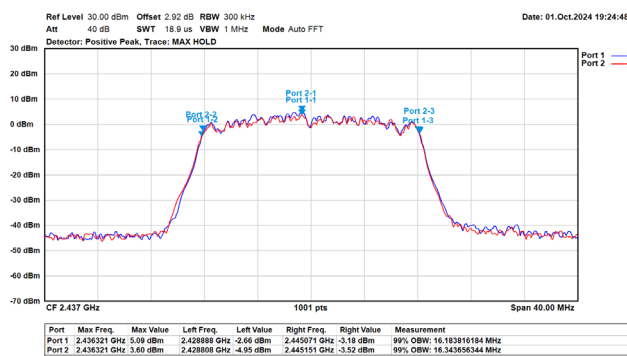
802.11b / Ant. 1 + Ant. 2 / 2472 MHz



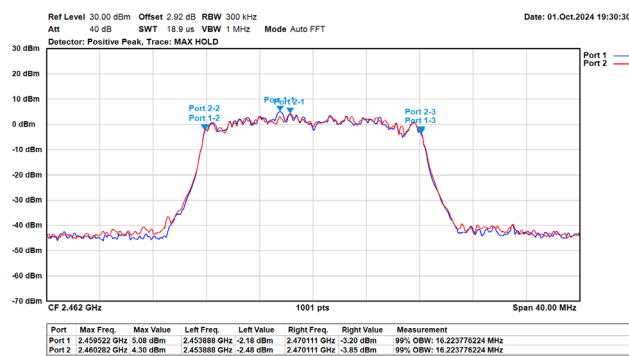
802.11g / Ant. 1 + Ant. 2 / 2412 MHz



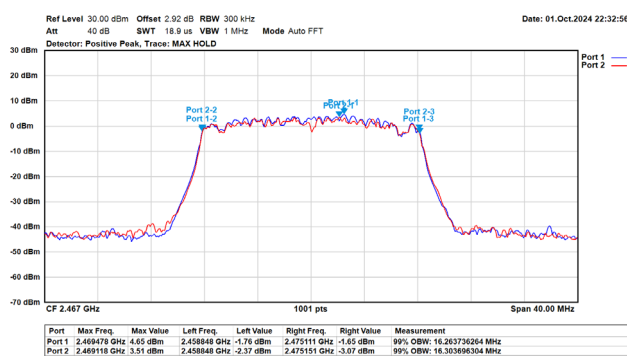
802.11g / Ant. 1 + Ant. 2 / 2437 MHz



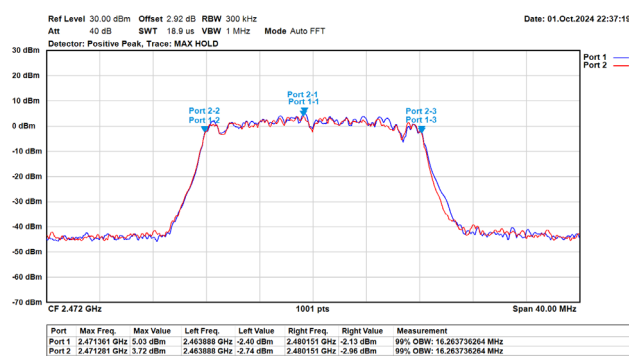
802.11g / Ant. 1 + Ant. 2 / 2462 MHz



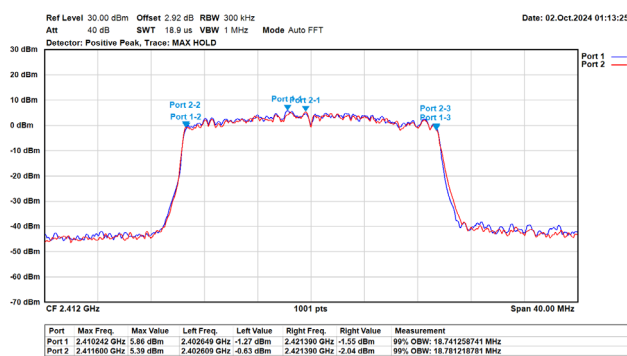
802.11g / Ant. 1 + Ant. 2 / 2467 MHz



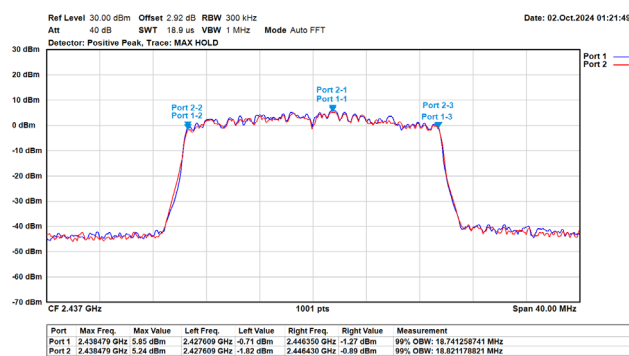
802.11g / Ant. 1 + Ant. 2 / 2472 MHz



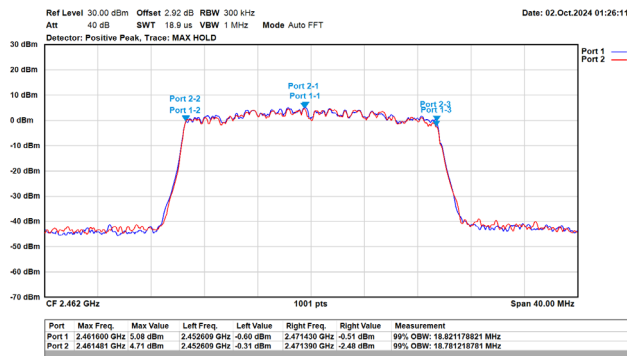
802.11be (20 MHz) / Ant. 1 + Ant. 2 / 2412 MHz



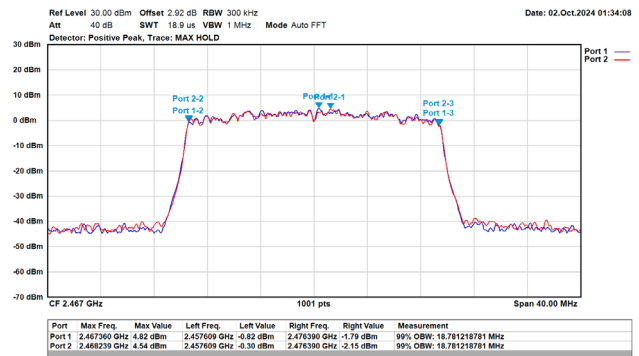
802.11be (20 MHz) / Ant. 1 + Ant. 2 / 2437 MHz



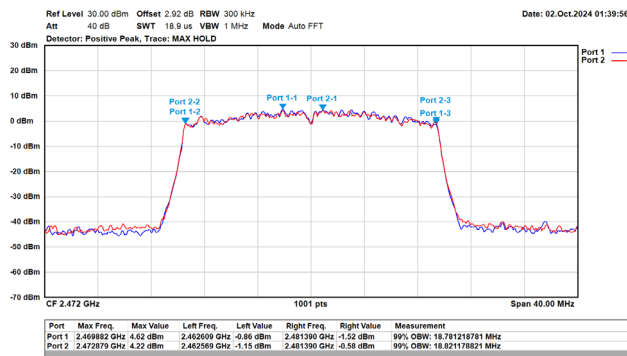
802.11be (20 MHz) / Ant. 1 + Ant. 2 / 2462 MHz



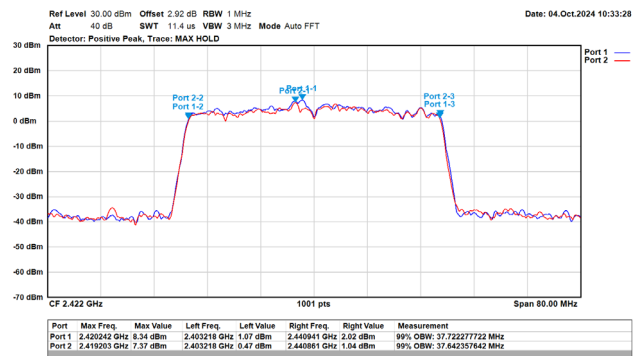
802.11be (20 MHz) / Ant. 1 + Ant. 2 / 2467 MHz



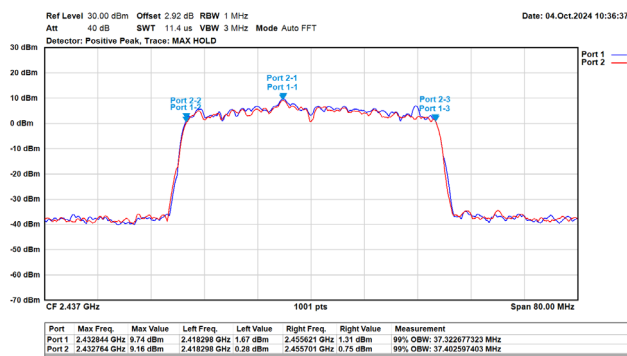
802.11be (20 MHz) / Ant. 1 + Ant. 2 / 2472 MHz



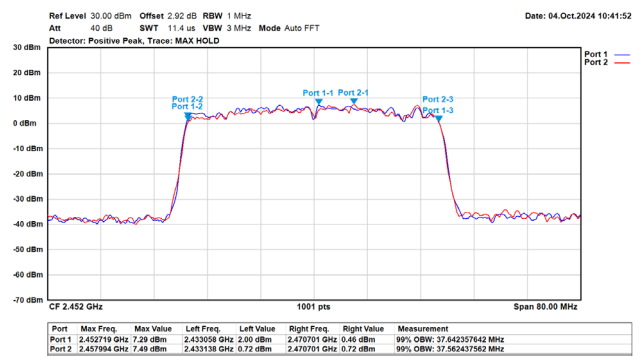
802.11be (40 MHz) / Ant. 1 + Ant. 2 / 2422 MHz



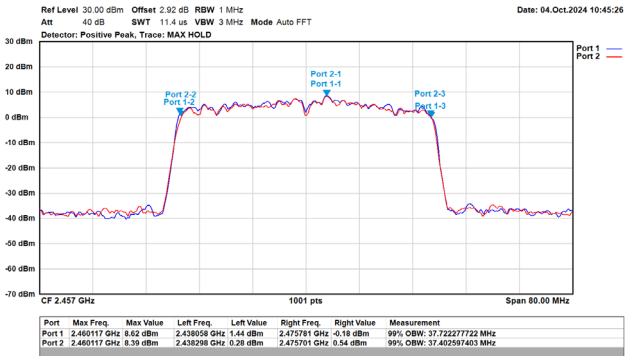
802.11be (40 MHz) / Ant. 1 + Ant. 2 / 2437 MHz



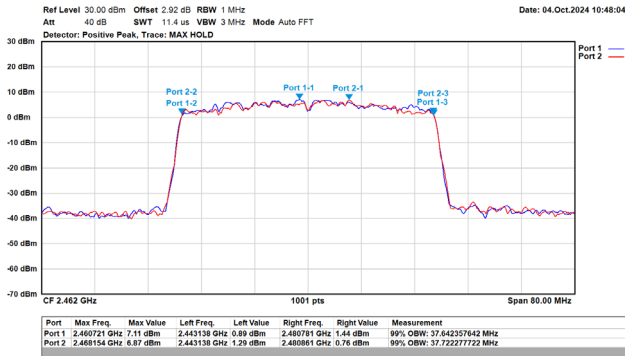
802.11be (40 MHz) / Ant. 1 + Ant. 2 / 2452 MHz



802.11be (40 MHz) / Ant. 1 + Ant. 2 / 2457 MHz



802.11be (40 MHz) / Ant. 1 + Ant. 2 / 2462 MHz

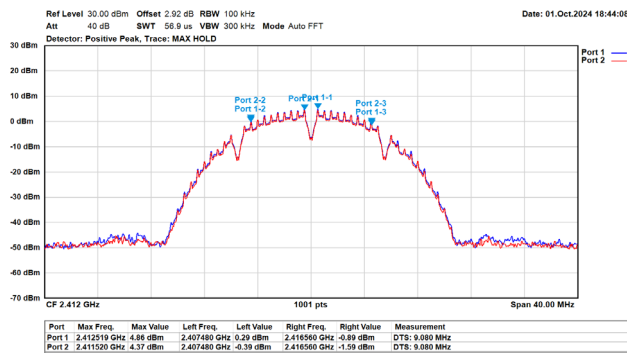


Appendix B.2 Test Result of DTS Bandwidth

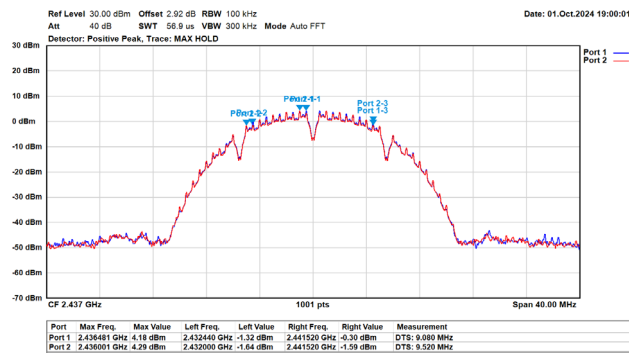
Modulation	Frequency (MHz)	DTS Bandwidth (MHz)		Limit (MHz)	Result
		Ant. 1	Ant. 2		
802.11b	2412	9.08	9.08	0.50	Pass
	2437	9.08	9.52	0.50	Pass
	2462	9.08	9.04	0.50	Pass
	2467	9.52	9.08	0.50	Pass
	2472	10.00	9.08	0.50	Pass
802.11g	2412	15.12	15.12	0.50	Pass
	2437	15.12	15.12	0.50	Pass
	2462	15.12	15.12	0.50	Pass
	2467	15.12	15.16	0.50	Pass
	2472	15.12	15.12	0.50	Pass
802.11be (20 MHz)	2412	16.36	15.16	0.50	Pass
	2437	16.36	16.80	0.50	Pass
	2462	16.80	16.32	0.50	Pass
	2467	17.08	16.36	0.50	Pass
	2472	16.36	16.36	0.50	Pass
802.11be (40 MHz)	2422	35.04	35.12	0.50	Pass
	2437	35.04	35.20	0.50	Pass
	2452	35.04	35.12	0.50	Pass
	2457	35.04	35.12	0.50	Pass
	2462	35.12	35.12	0.50	Pass

Spectrum plot of value

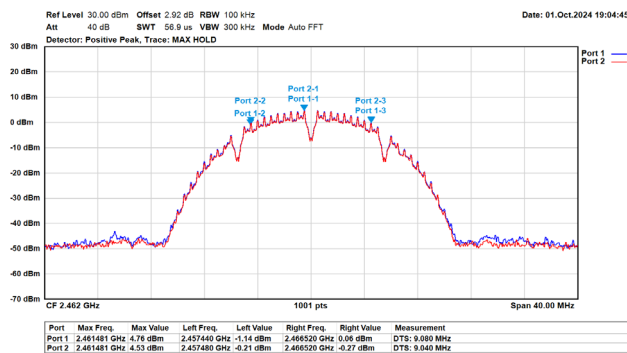
802.11b / Ant. 1 + Ant. 2 / 2412 MHz



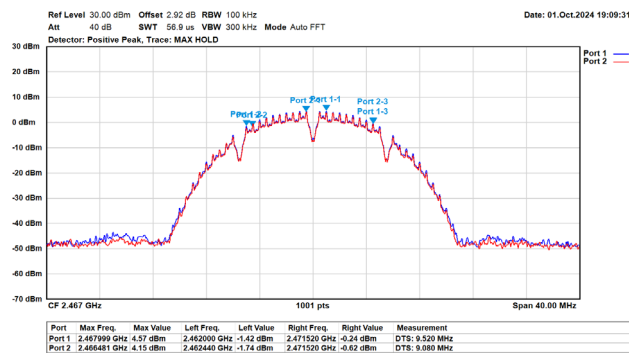
802.11b / Ant. 1 + Ant. 2 / 2437 MHz



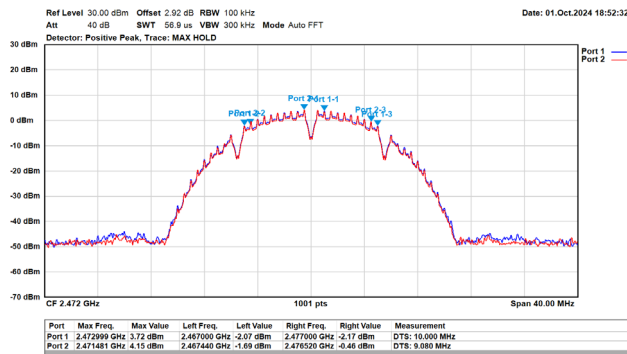
802.11b / Ant. 1 + Ant. 2 / 2462 MHz



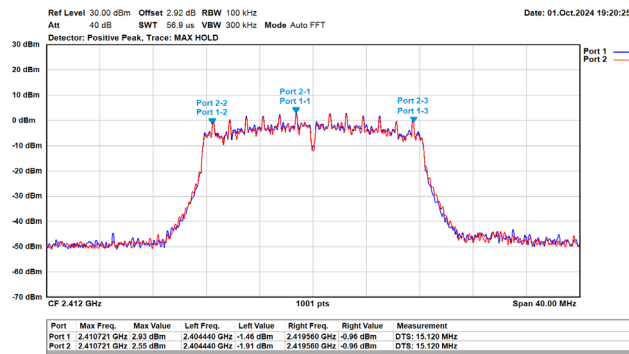
802.11b / Ant. 1 + Ant. 2 / 2467 MHz



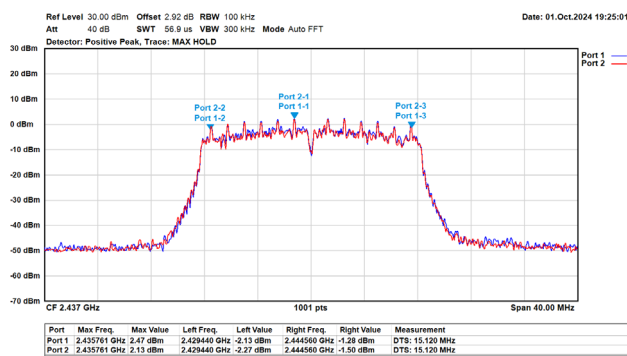
802.11b / Ant. 1 + Ant. 2 / 2472 MHz



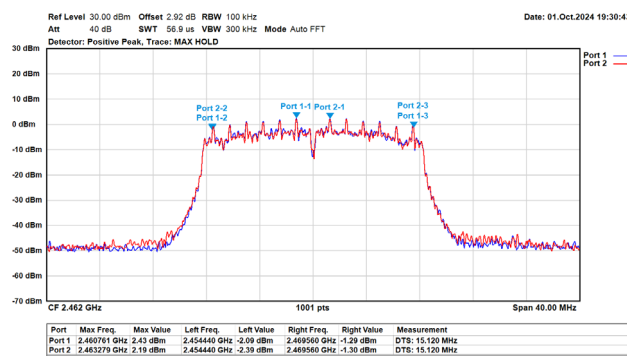
802.11g / Ant. 1 + Ant. 2 / 2412 MHz



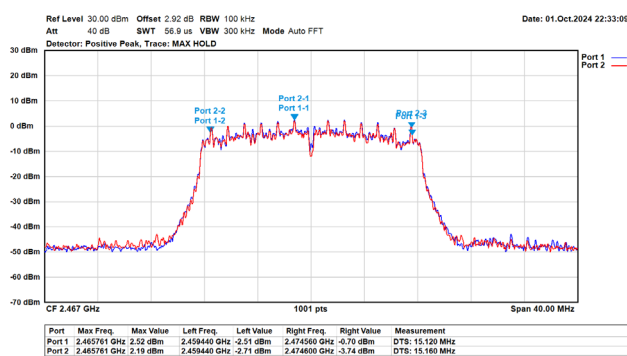
802.11g / Ant. 1 + Ant. 2 / 2437 MHz



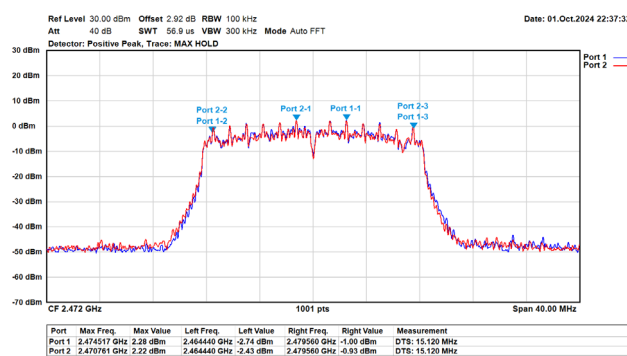
802.11g / Ant. 1 + Ant. 2 / 2462 MHz



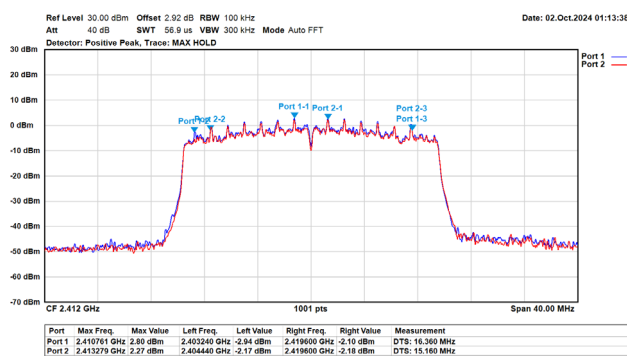
802.11g / Ant. 1 + Ant. 2 / 2467 MHz



802.11g / Ant. 1 + Ant. 2 / 2472 MHz



802.11be (20 MHz) / Ant. 1 + Ant. 2 / 2412 MHz



802.11be (20 MHz) / Ant. 1 + Ant. 2 / 2437 MHz

