Report No. : FR422340-02AA





RADIO TEST REPORT

FCC ID	4	2AI5IMTD2
Equipment	:	MEATER PRO DUO Charger
Brand Name	:	MEATER
Model Name	:	MT-CD20, MT-MD201
Applicant	:	Apption Labs Limited
		66 Commercial Square, Leicester, LE2 7SR United Kingdom
Manufacturer (1)	:	AboCom Systems, Inc.
		No. 77, Yu-Yih Rd, Chu-Nan Chen, Miao-Lih Hsuan,Taiwan, R.O.C.
Manufacturer (2)	:	Jin Yeong Hann Technology CO., LTD
		No. 6, Lane 187, Sec. 2, Chung Cheng Rd, Hu Kou Hsiang, Hsin Chu Hsieh,Taiwan, R.O.C.
Standard	1	47 CFR FCC Part 15.247

The product was received on Sep. 04, 2024, and testing was started from Oct. 04, 2024 and completed on Jan. 15, 2025. We, Sporton International Inc. Hsinchu Laboratory, would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.10-2013 and shown compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of Sporton International Inc. Hsinchu Laboratory, the test report shall not be reproduced except in full.

Approved by: Rex Liao

Sporton International Inc. Hsinchu Laboratory No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)

TEL : 886-3-656-9065 FAX : 886-3-656-9085 Report Template No.: CB-A10_10 Ver1.3 Page Number: 1 of 28Issued Date: Feb. 06, 2025Report Version: 01



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Photographs of EUT v01



History of this test report

Report No.	Version	Description	Issued Date
FR422340-02AA	01	Initial issue of report	Feb. 06, 2025



Summary of Test Result

Report Clause	Ref Std. Clause	Test Items	Result (PASS/FAIL)	Remark		
1.1.2	15.203	Antenna Requirement	PASS	-		
3.1	15.207	AC Power-line Conducted Emissions	PASS	Note		
3.2	15.247(a)	DTS Bandwidth	PASS	-		
3.3	15.247(b)	Maximum Conducted Output Power	PASS	-		
3.4	15.247(e)	Power Spectral Density	PASS	-		
3.5	15.247(d)	Emissions in Non-restricted Frequency Bands	PASS	-		
3.6	15.247(d)	Emissions in Restricted Frequency Bands	PASS	-		
	Note: For Battery Mode, the EUT is powered by battery, so it's not necessary to apply to AC Power-line Conducted Emissions test.					

Conformity Assessment Condition:

1. The test results (PASS/FAIL) with all measurement uncertainty excluded are presented against the regulation limits or in accordance with the requirements stipulated by the applicant/manufacturer who shall bear all the risks of non-compliance that may potentially occur if measurement uncertainty is taken into account.

2. The measurement uncertainty please refer to each test result in the chapter "Measurement Uncertainty".

Disclaimer:

1. The product specifications of the EUT presented in the test report that may affect the test assessments are declared by the manufacturer who shall take full responsibility for the authenticity.

2. The test configuration, test mode and test software were written in this test report are declared by the manufacturer.

Reviewed by: Sam Chen Report Producer: Sophia Shiung



1 General Description

1.1 Information

1.1.1 **RF General Information**

Frequency Range (MHz)	IEEE Std. 802.11	Ch. Frequency (MHz)	Channel Number
2400-2483.5	b, g, n (HT20)	2412-2462	1-11 [11]

Band	Mode	BWch (MHz)	Nant
2.4-2.4835GHz	802.11b	20	1TX
2.4-2.4835GHz	802.11g	20	1TX
2.4-2.4835GHz	802.11n HT20	20	1TX

Note:

• 11b mode uses a combination of DSSS-DBPSK, DQPSK, CCK modulation.

• 11g and HT20 use a combination of OFDM-BPSK, QPSK, 16QAM, 64QAM modulation.

• BWch is the nominal channel bandwidth.

1.1.2 Antenna Information

	Port		, Model A		Antonno		Gain (dBi)	
Ant.	WLAN 2.4GHz	Bluetooth	Brand	Name	Antenna Type	Connector	WLAN 2.4GHz	Bluetooth
1	1	-	ApptionLabs	WIFI-01	PCB	N/A	1.74	-
2	-	1	ApptionLabs	BT-01	PCB	N/A	-	0.55

Note 1: The above information was declared by manufacturer.

Note 2: For WLAN 2.4GHz function:

For IEEE 802.11 b/g/n (1TX/1RX):

Only Port 1 can be used as transmitting/receiving antenna.

For Bluetooth function (1TX/1RX):

Only Port 1 can be used as transmitting/receiving functions.

1.1.3 Mode Test Duty Cycle

Mode	DC	DCF	Т	VBW
		(dB)	(s)	(Hz)_1/T
802.11b	0.955	0.2	11.393m	100
802.11g	0.925	0.34	1.893m	1k
802.11n HT20	0.907	0.42	1.765m	1k

Note:

• DC is Duty Cycle.

DCF is Duty Cycle Factor.

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1.1.4 EUT Operational Condition

EUT Power Type	From battery or host system with USB type-C cable					
Beamforming Function		□ With beamforming ☑ Without beamforming				
Function	Point-to-multipoint Point-to-point		Point-to-point			
Test Software Version	Rac	lio Tool GUI v1.0.3.13	Radio Tool GUI v1.0.3.13			

Note: The above information was declared by manufacturer.

1.1.5 Table for Multiple Listing

The two models are identical except for the difference listed below:

Model Name	Marketed with Probes
MT-CD20	No
MT-MD201	Yes

Note 1: From the above models, model: MT-MD201 was selected to test all the teat items. Note 2: The above information was declared by manufacturer.



1.2 Applicable Standards

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

- 47 CFR FCC Part 15.247
- ANSI C63.10-2013

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

- FCC KDB 558074 D01 v05r02
- FCC KDB 414788 D01 v01r01

1.3 Testing Location Information

Testing Location InformationTest Lab. : Sporton International Inc. Hsinchu LaboratoryHsinchuADD: No.8, Ln. 724, Bo'ai St., Zhubei City, Hsinchu County 302010, Taiwan (R.O.C.)(TAF: 3787)TEL: 886-3-656-9065FAX: 886-3-656-9085Test site Designation No. TW3787 with FCC.Conformity Assessment Body Identifier (CABID) TW3787 with ISED.

Test Condition	Test Site No.	Test Engineer	Test Environment (°C / %)	Test Date
RF Conducted	TH01-CB	Ken Yeh	23.7~24.1 / 61~63	Dec. 13, 2024~ Jan. 15, 2025
Radiated < 1GHz	03CH05-CB	Alex Kuo	21.9~22.4 / 60~62	Oct. 04, 2024
Radiated > 1GHz	03CH06-CB	Eason Chen	22.5~22.9 / 58~60	Nov. 12, 2024~ Nov. 16, 2024
AC Conduction	CO01-CB	Tim Chen	22~23 / 58~59	Oct. 09, 2024





1.4 Measurement Uncertainty

ISO/IEC 17025 requires that an estimate of the measurement uncertainties associated 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 Items	Uncertainty	Remark
Conducted Emission (150kHz ~ 30MHz)	3.8 dB	Confidence levels of 95%
Radiated Emission (9kHz ~ 30MHz)	4.1 dB	Confidence levels of 95%
Radiated Emission (30MHz ~ 1,000MHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (1GHz ~ 18GHz)	4.2 dB	Confidence levels of 95%
Radiated Emission (18GHz ~ 40GHz)	4.0 dB	Confidence levels of 95%
Conducted Emission	3.1 dB	Confidence levels of 95%
Output Power Measurement	0.8 dB	Confidence levels of 95%
Power Density Measurement	3.1 dB	Confidence levels of 95%
Bandwidth Measurement	2.1 %	Confidence levels of 95%



2 Test Configuration of EUT

2.1 Test Channel Mode

Mode
802.11b_Nss1,(1Mbps)_1TX
2412MHz
2437MHz
2462MHz
802.11g_Nss1,(6Mbps)_1TX
2412MHz
2437MHz
2462MHz
802.11n HT20_Nss1,(MCS0)_1TX
2412MHz
2437MHz
2462MHz



2.2 The Worst Case Measurement Configuration

The Worst Case Mode for Following Conformance Tests		
Tests Item	AC power-line conducted emissions	
Condition	AC power-line conducted measurement for line and neutral Test Voltage: 120Vac / 60Hz	
Operating Mode	Normal Link	
1	Charge Mode: EUT (Powered by host system with USB type-C cable) + Probe	

The Worst Case Mode for Following Conformance Tests		
Tests Item	DTS Bandwidth Maximum Conducted Output Power Power Spectral Density Emissions in Non-restricted Frequency Bands	
Test Condition	Conducted measurement at transmit chains	

The	The Worst Case Mode for Following Conformance Tests		
Tests Item Emissions in Restricted Frequency Bands			
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.		
	Normal Link		
Operating Mode < 1GHz	After evaluating, EUT in Z axis was the worst case, so the measurement will follow this same test configuration.		
1	Battery Mode: EUT in Z axis (Powered by battery) + Probe		
2	Charge Mode: EUT in Z axis (Powered by host system with USB type-C cable) + Probe		
For operating, mode 1 is th	e worst case and it was recorded in this test report.		
	СТХ		
Operating Mode > 1GHz	After evaluating, EUT in Y axis was the worst case, so the measurement will follow this same test configuration.		
1	EUT in Y axis		

The Worst Case Mode for Following Conformance Tests			
Tests Item Simultaneous Transmission Analysis - Co-location RF Exposure Evaluation			
Operating Mode			
1	WLAN 2.4GHz + Bluetooth		
Refer to Sporton Test Report No.: FA422340-02 for Co-location RF Exposure Evaluation.			



2.3 EUT Operation during Test

For CTX Mode:

The EUT was programmed to be in continuously transmitting mode.

For Normal Link Mode:

During the test, the EUT operation to normal function.

2.4 Accessories

Accessories
Probe*2 (Marketed with model: MT-MD201 only)
USB type-C cable*1: Shielded, 1.0m

2.5 Support Equipment

For AC Conduction:

		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
-	Adapter	Apple	A1401	N/A

For Radiated < 1GHz:

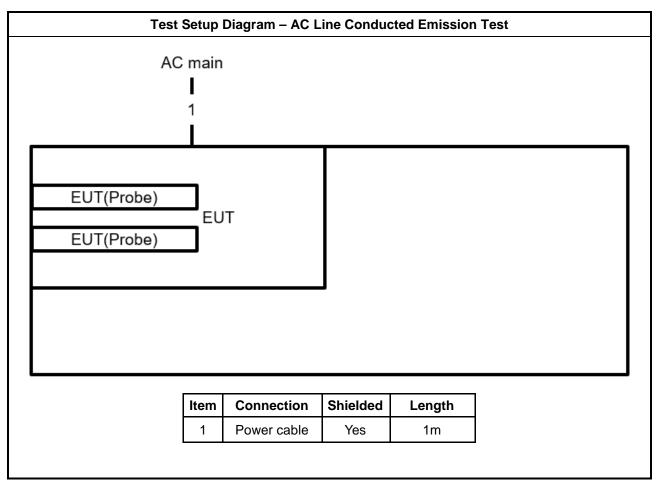
		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
А	Phone	OTTERBOX	VQP9MW0Y54	N/A
В	AP	ASUS	AX88U	N/A
С	Notebook	DELL	E4300	N/A

For Radiated > 1GHz and RF Conducted:

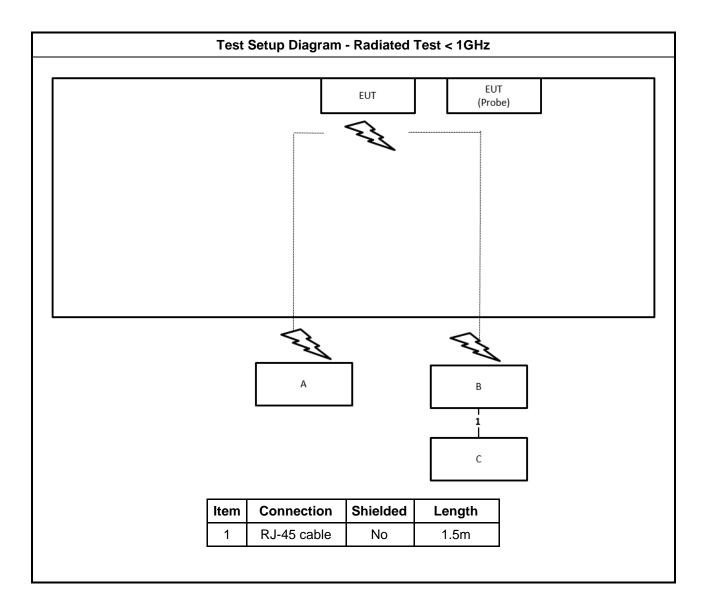
		Support Equ	ipment	
No.	Equipment	Brand Name	Model Name	FCC ID
А	Notebook	DELL	E4300	N/A



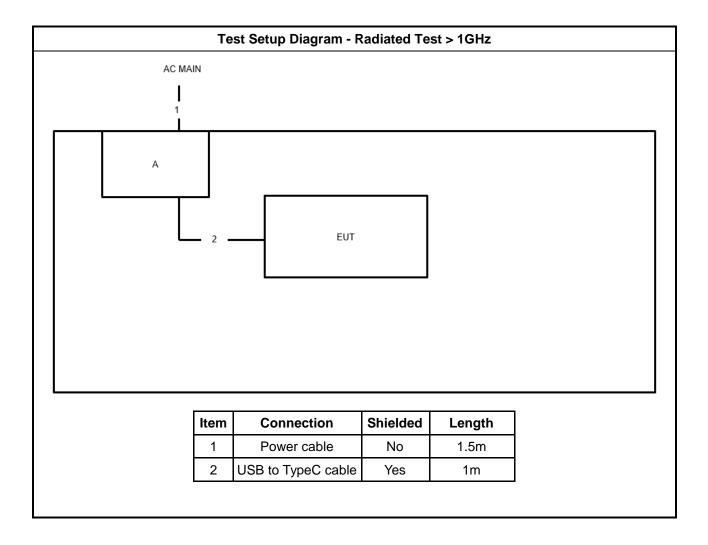
2.6 Test Setup Diagram













3 Transmitter Test Result

3.1 AC Power-line Conducted Emissions

3.1.1 AC Power-line Conducted Emissions Limit

AC Pov	ver-line Conducted Emissions	Limit
Frequency Emission (MHz)	Quasi-Peak	Average
0.15-0.5	66 - 56 *	56 - 46 *
0.5-5	56	46
5-30	60	50
Note 1: * Decreases with the logarithm	of the frequency.	

3.1.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

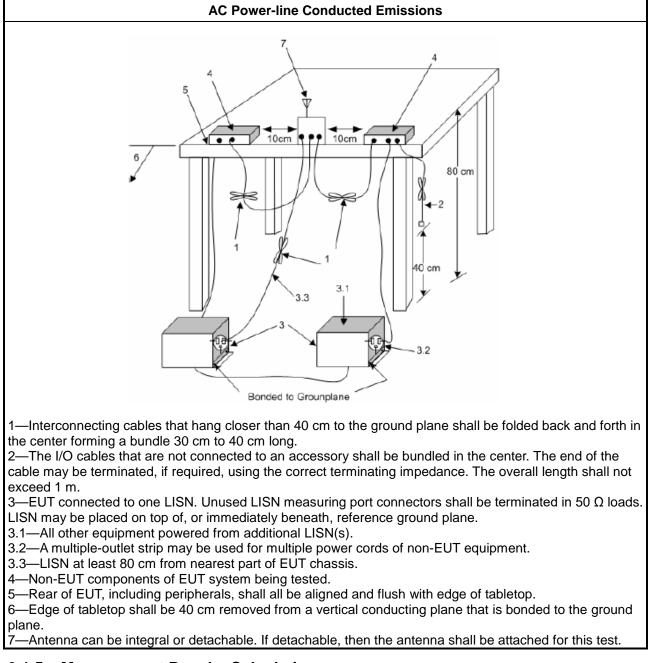
3.1.3 Test Procedures

Test Method

Refer as ANSI C63.10-2013, clause 6.2 for AC power-line conducted emissions.



3.1.4 Test Setup



3.1.5 Measurement Results Calculation

The measured Level is calculated using:

- a. Corrected Reading: LISN Factor (LISN) + Attenuator (AT/AUX) + Cable Loss (CL) + Read Level (Raw) = Level
- b. Margin = -Limit + Level

3.1.6 Test Result of AC Power-line Conducted Emissions

Refer as Appendix A



3.2 **DTS Bandwidth**

3.2.1 6dB Bandwidth Limit

6dB Bandwidth Limit
Systems using digital modulation techniques:
 6 dB bandwidth ≥ 500 kHz.

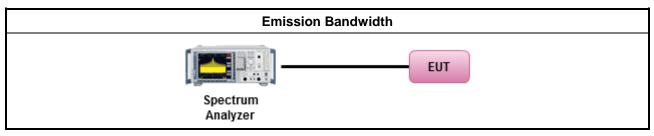
3.2.2 **Measuring Instruments**

Refer a test equipment and calibration data table in this test report.

3.2.3 **Test Procedures**

For	
	the emission bandwidth shall be measured using one of the options below:
	Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.1 Option 1 for 6 dB bandwidth measurement.
	Refer as FCC KDB 558074, clause 8.2 & C63.10 clause 11.8.2 Option 2 for 6 dB bandwidth measurement.
	Refer as ANSI C63.10, clause 6.9.1 for occupied bandwidth testing.

Test Setup 3.2.4



3.2.5 **Test Result of Emission Bandwidth**

Refer as Appendix B



3.3 Maximum Conducted Output Power

3.3.1 Maximum Conducted Output Power Limit

Maximum Conducted Output Power Limit

• If $G_{TX} \le 6$ dBi, then $P_{Out} \le 30$ dBm (1 W)	f G⊤x ≤ 6 dBi, then I	P _{Out} ≤ 30 dBm (1 W)
--	-----------------------	---------------------------------

•	Point-to-multipoint systems	(P2M): If G _{TX} > 6 dBi, t	hen $P_{Out} = 30 - (G_{TX} - 6) dBm$
---	-----------------------------	--------------------------------------	---------------------------------------

- Point-to-point systems (P2P): If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
- Smart antenna system (SAS):
 - Single beam: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3$ dBm
 - Overlap beam: If $G_{TX} > 6 \text{ dBi}$, then $P_{Out} = 30 (G_{TX} 6)/3 \text{ dBm}$
 - Aggregate power on all beams: If $G_{TX} > 6$ dBi, then $P_{Out} = 30 (G_{TX} 6)/3 + 8$ dB dBm

 P_{Out} = maximum peak conducted output power or maximum conducted output power in dBm, G_{TX} = the maximum transmitting antenna directional gain in dBi.

3.3.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

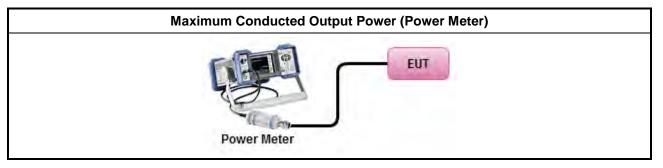
3.3.3 Test Procedures

Test Method							
Maximum Peak Conducted Output Power							
☐ Refer as FCC KDB 558074, clause 8.3.1.1 & C63.10 clause 11.9.1.1 (RBW ≥ EBW me	ethod).						
Refer as FCC KDB 558074, clause 8.3.1.3 & C63.10 clause 11.9.1.3 (peak power met	er).						
 Maximum Conducted Output Power 							
[duty cycle ≥ 98% or external video / power trigger]							
Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.2 Method AVGSA	\-1 .						
Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.3 Method (alternative)	AVGSA-1A.						
duty cycle < 98% and average over on/off periods with duty factor							
Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.4 Method AVGSA	\-2 .						
Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.5 Method (alternative)	AVGSA-2A						
Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.6 Method AVGSA	\- 3						
Refer as FCC KDB 558074, clause 8.3.2.2 & C63.10 clause 11.9.2.2.7 Method (alternative)	AVGSA-3A						
Measurement using a power meter (PM)							
Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.1 Method AVGPM (using a RF average power meter).							
Refer as FCC KDB 558074, clause 8.3.2.3 & C63.10 clause 11.9.2.3.2 Method AVGF an gate RF average power meter).	PM-G (using						
	8 of 28						



•	For conducted measurement.								
	 If the EUT supports multiple transmit chains using options given below: Refer as FCC KDB 662911, In-band power measurements. Using the measure-and-sum approach, measured all transmit ports individually. Sum the power (in linear power units e.g., mW) of all ports for each individual sample and save them. 								
	 If multiple transmit chains, EIRP calculation could be following as methods: P_{total} = P₁ + P₂ + + P_n (calculated in linear unit [mW] and transfer to log unit [dBm]) EIRP_{total} = P_{total} + DG 								

3.3.4 Test Setup



3.3.5 Test Result of Maximum Conducted Output Power

Refer as Appendix C



3.4 Power Spectral Density

3.4.1 Power Spectral Density Limit

Power Spectral Density Limit

■ Power Spectral Density (PSD) ≤ 8 dBm/3kHz

3.4.2 Measuring Instruments

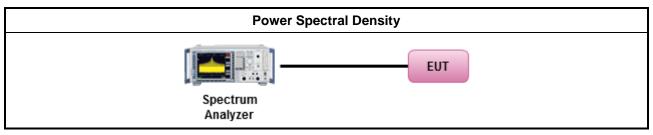
Refer a test equipment and calibration data table in this test report.

3.4.3 Test Procedures

			Test Method							
•	Peak power spectral density procedures that the same method as used to determine the conducted output power. If maximum peak conducted output power was measured to demonstrate compliance to the output power limit, then the peak PSD procedure below (Method PKPSD) shall be used. If maximum conducted output power was measured to demonstrate compliance to the output power limit, then one of the average PSD procedures shall be used, as applicable based on the following criteria (the peak PSD procedure is also an acceptable option).									
	\square	Refe	er as FCC KDB 558074, clause 8.4 & C63.10 clause 11.10 Method Max. PSD.							
•	For	cond	ucted measurement.							
	•	lf Th	ne EUT supports multiple transmit chains using options given below:							
			Option 1: Measure and sum the spectra across the outputs. Refer as FCC KDB 662911, In-band power spectral density (PSD). Sample all transmit ports simultaneously using a spectrum analyzer for each transmit port. Where the trace bin-by-bin of each transmit port summing can be performed. (i.e., in the first spectral bin of output 1 is summed with that in the first spectral bin of output 2 and that from the first spectral bin of output 3, and so on up to the NTX output to obtain the value for the first frequency bin of the summed spectrum.). Add up the amplitude (power) values for the different transmit chains and use this as the new data trace.							
			Option 2: Measure and sum spectral maxima across the outputs. With this technique, spectra are measured at each output of the device at the required resolution bandwidth. The maximum value (peak) of each spectrum is determined. These maximum values are then summed mathematically in linear power units across the outputs. These operations shall be performed separately over frequency spans that have different out-of-band or spurious emission limits,							
			Option 3: Measure and add 10 log(N) dB, where N is the number of transmit chains. Refer as FCC KDB 662911, In-band power spectral density (PSD). Performed at each transmit chains and each transmit chains shall be compared with the limit have been reduced with 10 log(N). Or each transmit chains shall be add 10 log(N) to compared with the limit.							



3.4.4 Test Setup



3.4.5 Test Result of Power Spectral Density

Refer as Appendix D



3.5 Emissions in Non-restricted Frequency Bands

3.5.1 Emissions in Non-restricted Frequency Bands Limit

Un-restricted Band Emissions Limit						
RF output power procedure Limit (dBc)						
20						
30						

Note 1: If the peak output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum measured in-band peak PSD level.

Note 2: If the average output power procedure is used to measure the fundamental emission power to demonstrate compliance to requirements, then the power in any 100 kHz outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum measured in-band average PSD level.

3.5.2 Measuring Instruments

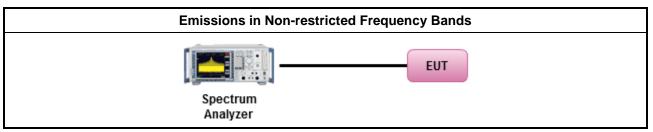
Refer a test equipment and calibration data table in this test report.

3.5.3 Test Procedures

Test Method

Refer as FCC KDB 558074, clause 8.5 for unwanted emissions into non-restricted bands.

3.5.4 Test Setup



3.5.5 Test Result of Emissions in Non-restricted Frequency Bands

Refer as Appendix E



3.6 Emissions in Restricted Frequency Bands

3.6.1 Emissions in Restricted Frequency Bands Limit

Restricted Band Emissions Limit								
Frequency Range (MHz)	Field Strength (uV/m)	Field Strength (dBuV/m)	Measure Distance (m)					
0.009~0.490	2400/F(kHz)	48.5 - 13.8	300					
0.490~1.705	24000/F(kHz)	33.8 - 23	30					
1.705~30.0	30	29	30					
30~88	100	40	3					
88~216	150	43.5	3					
216~960	200	46	3					
Above 960	500	54	3					

Note 1: Test distance for frequencies at or above 30 MHz, measurements may be performed at a distance other than the limit distance provided they are not performed in the near field and the emissions to be measured can be detected by the measurement equipment. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse of linear distance for field-strength measurements, inverse of linear distance-squared for power-density measurements).

Note 2: Test distance for frequencies at below 30 MHz, measurements may be performed at a distance closer than the EUT limit distance; however, an attempt should be made to avoid making measurements in the near field. When performing measurements below 30 MHz at a closer distance than the limit distance, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two or more distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade). The test report shall specify the extrapolation method used to determine compliance of the EUT.

Note 3: Using the distance of 1m during the test for above 18 GHz, and the test value to correct for the distance factor at 3m.

3.6.2 Measuring Instruments

Refer a test equipment and calibration data table in this test report.

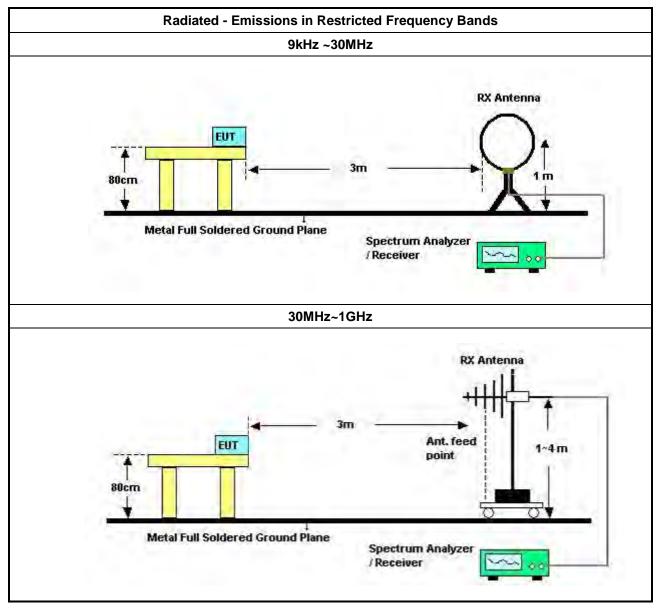


3.6.3 Test Procedures

	Test Method
•	The average emission levels shall be measured in [duty cycle \geq 98 or duty factor].
•	Refer as ANSI C63.10, clause 6.10.3 band-edge testing shall be performed at the lowest frequency channel and highest frequency channel within the allowed operating band.
•	For the transmitter unwanted emissions shall be measured using following options below:
	 Refer as FCC KDB 558074, clause 8.6 for unwanted emissions into restricted bands.
	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.1(trace averaging for duty cycle ≥98%).
	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.2(trace averaging + duty factor).
	☑ Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.5.3(Reduced VBW≥1/T).
	□ Refer as ANSI C63.10, clause 11.12.2.5.3 (Reduced VBW). VBW \ge 1/T, where T is pulse time.
	Refer as ANSI C63.10, clause 7.5 average value of pulsed emissions.
	Refer as FCC KDB 558074, clause 8.6 & C63.10 clause 11.12.2.4 measurement procedure peak limit.
•	For the transmitter band-edge emissions shall be measured using following options below:
	 Refer as FCC KDB 558074 clause 8.7 & C63.10 clause 11.13.1, When the performing peak or average radiated measurements, emissions within 2 MHz of the authorized band edge may be measured using the marker-delta method described below.
	 Refer as FCC KDB 558074, clause 8.7 (ANSI C63.10, clause 6.10.6) for marker-delta method for band-edge measurements.
	 Refer as FCC KDB 558074, clause 8.7 for narrower resolution bandwidth (100kHz) using the band power and summing the spectral levels (i.e., 1 MHz).
	 For conducted unwanted emissions into restricted bands (absolute emission limits). Devices with multiple transmit chains using options given below: (1) Measure and sum the spectra across the outputs or (2) Measure and add 10 log(N) dB
	 For FCC KDB 662911 The methodology described here may overestimate array gain, thereby resulting in apparent failures to satisfy the out-of-band limits even if the device is actually compliant. In such cases, compliance may be demonstrated by performing radiated tests around the frequencies at which the apparent failures occurred.

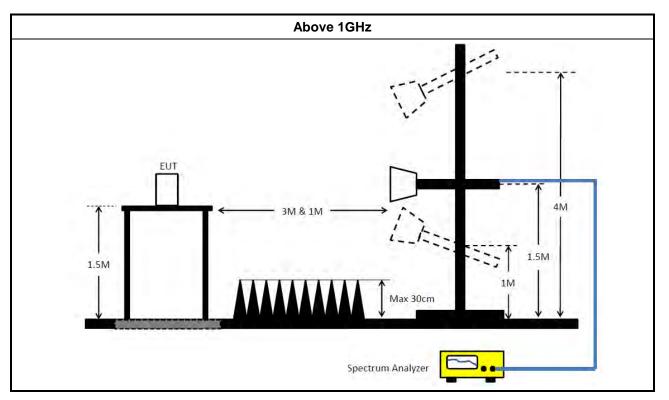


3.6.4 Test Setup









3.6.5 Measurement Results Calculation

The measured Level is calculated using:

Corrected Reading: Antenna factor (AF) + Cable loss (CL) + Read level (Raw) - Preamp factor (PA)(if applicable) = Level.

3.6.6 Emissions in Restricted Frequency Bands (Below 30MHz)

There is a comparison data of both open-field test site and alternative test site - semi-Anechoic chamber according to KDB414788 Radiated Test Site, and the result came out very similar.

All amplitude of spurious emissions that are attenuated by more than 20 dB below the permissible value has no need to be reported.

The radiated emissions were investigated from 9 kHz or the lowest frequency generated within the device, up to the 10th harmonic or 40 GHz, whichever is appropriate.

3.6.7 Test Result of Emissions in Restricted Frequency Bands

Refer as Appendix F



Test Equipment and Calibration Data 4

Instrument	Brand	Model No.	Serial No.	Serial No. Characteristics		Calibration Due Date	Remark
EMI Receiver	Agilent	N9038A	My52260123	9kHz ~ 8.4GHz	Mar. 01, 2024	Feb. 28, 2025	Conduction (CO01-CB)
LISN	F.C.C.	FCC-LISN-50- 16-2	04083	150kHz ~ 100MHz	Feb. 19, 2024	Feb. 18, 2025	Conduction (CO01-CB)
LISN	Schwarzbeck	NSLK 8127	8127647	9kHz ~ 30MHz	Apr. 24, 2024	Apr. 23, 2025	Conduction (CO01-CB)
Pulse Limiter	Rohde&Schwarz	ESH3-Z2	100430	9kHz ~ 30MHz	Feb. 08, 2024	Feb. 07, 2025	Conduction (CO01-CB)
COND Cable	Woken	Cable	Low cable-CO01	9kHz ~ 30MHz	Oct. 17, 2023	Oct. 16, 2024	Conduction (CO01-CB)
Test Software	SPORTON	SENSE-EMI	V5.11	150kHz-30MHz	N.C.R.	N.C.R.	Conduction (CO01-CB)
Loop Antenna	Teseq	HLA 6121	65417	9kHz - 30 MHz	Oct. 13, 2023	Oct. 12, 2024	Radiation (03CH05-CB)
3m Semi Anechoic Chamber NSA	TDK	SAC-3M	03CH05-CB	30MHz ~ 1GHz	Aug. 01, 2024	Jul. 31, 2025	Radiation (03CH05-CB)
Bilog Antenna with 6dB Attenuator	TESEQ & EMCI	CBL 6112D & N-6-06	35236 & AT-N0610	30MHz ~ 2GHz	Mar. 23, 2024	Mar. 22, 2025	Radiation (03CH05-CB)
Amplifier	EMCI	EMC330N	980331	20MHz ~ 3GHz	May 02, 2024	May 01, 2025	Radiation (03CH05-CB)
Spectrum Analyzer	R&S	FSP40	100304	9kHz ~ 40GHz	Apr. 17, 2024	Apr. 16, 2025	Radiation (03CH05-CB)
EMI Test Receiver	R&S	ESR7	102172	9kHz ~ 7GHz	Oct. 20, 2023	Oct. 19, 2024	Radiation (03CH05-CB)
RF Cable-low	Woken	RG402	Low Cable-04+23	30MHz~1GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH05-CB)
Test Software	SPORTON	SENSE-EMI	V5.11.8	30MHz-40GHz	N.C.R.	N.C.R.	Radiation (03CH05-CB)
3m Semi Anechoic Chamber VSWR	ТDК	SAC-3M	03CH06-CB	1GHz ~18GHz 3m	Oct. 08, 2024	Oct. 07, 2025	Radiation (03CH06-CB)
Horn Antenna	SCHWARZBECK	BBHA9120D	BBHA 9120D-1292	1GHz~18GHz	Jul. 29, 2024	Jul. 28, 2025	Radiation (03CH06-CB)
Horn Antenna	Schwarzbeck	BBHA 9170	BBHA9170252	15GHz ~ 40GHz	Sep. 23, 2024	Sep. 22, 2025	Radiation (03CH06-CB)
Pre-Amplifier	EMCI	EMC12630SE	980383	1GHz ~ 18GHz	Jul. 31, 2024	Jul. 30, 2025	Radiation (03CH06-CB)
Pre-Amplifier	SGH	SGH184	20221107-3	18GHz ~ 40GHz	Nov. 24, 2023	Nov. 23, 2024	Radiation (03CH06-CB)
Signal analyzer	R&S	FSV3044	101667	9kHz~44GHz	Aug. 20, 2024	Aug. 19, 2025	Radiation (03CH06-CB)

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Instrument	Brand	Model No.	Serial No.	Characteristics	Calibration Date	Calibration Due Date	Remark
RF Cable-high	Woken	RG402	High Cable-05+68	1GHz~18GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH06-CB)
High Cable	Woken	WCA0929M	40G#5+6	1GHz ~ 40 GHz	Oct. 01, 2024	Sep. 30, 2025	Radiation (03CH06-CB)
Test Software	SPORTON	SENSE-15247 _DTS	V5.11.18	2.4GHz- 2.4835GHz	N.C.R.	N.C.R.	Radiation (03CH06-CB)
Spectrum analyzer	R&S	FSV40	100979	9kHz~40GHz	May 27, 2024	May 26, 2025	Conducted (TH01-CB)
Switch	SPTCB	SP-SWI	SWI-01	1~18 GHz	Oct. 02, 2024	Oct. 01, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-06	1 GHz – 18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-07	1 GHz – 18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-08	1 GHz – 18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-09	1 GHz – 18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH01-CB)
RF Cable-high	Woken	RG402	High Cable-10	1 GHz – 18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH01-CB)
Cable 9k-18G	Woken	RG402	Cable-95	9 kHz –18 GHz	Oct. 01, 2024	Sep. 30, 2025	Conducted (TH01-CB)
Power Sensor	Anritsu	MA2411B	1339408	300MHz~40GHz	Sep. 13, 2024	Sep. 12, 2025	Conducted (TH01-CB)
Power Meter	Anritsu	ML2495A	1517009	300MHz~40GHz	Sep. 13, 2024	Sep. 12, 2025	Conducted (TH01-CB)
Test Software	SPORTON	SENSE-15247 _DTS	V5.11.18	2.4GHz- 2.4835GHz	N.C.R.	N.C.R.	Conducted (TH01-CB)

Note: Calibration IntervNote: Calibration Interval of instruments listed above is one year.

NCR means Non-Calibration required.



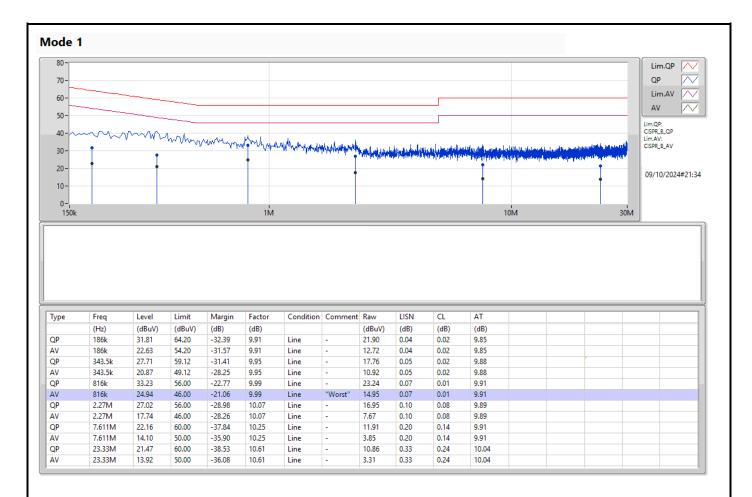
Conducted Emissions at Powerline

Appendix A

Summary	Summary										
Mode	Result	Туре	Freq	Level	Limit	Margin	Condition				
			(Hz)	(dBuV)	(dBuV)	(dB)					
Mode 1	Pass	AV	816k	24.94	46.00	-21.06	Line				

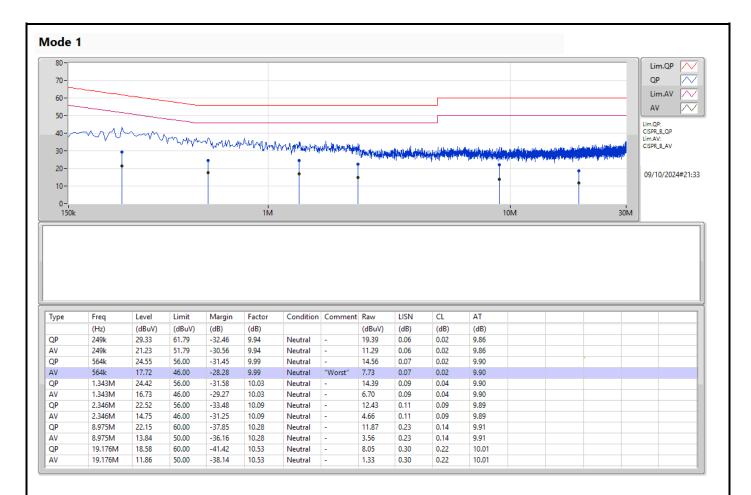














Summary

Mode	Max-N dB	Max-OBW	ITU-Code	Min-N dB	Min-OBW
	(Hz)	(Hz)		(Hz)	(Hz)
2.4-2.4835GHz	-	-	-	-	-
802.11b_Nss1,(1Mbps)_1TX	8.65M	14.009M	14M0G1D	8.55M	13.859M
802.11g_Nss1,(6Mbps)_1TX	15.925M	16.822M	16M8D1D	14.45M	16.29M
802.11n HT20_Nss1,(MCS0)_1TX	17.525M	17.665M	17M7D1D	15.45M	17.415M

 $\label{eq:max-NdB} Max\cdot N\, dB = Maximum 6dB \ down \ bandwidth; \ Max-OBW = Maximum 99\% \ occupied \ bandwidth; \ Min-NdB = Minimum 6dB \ down \ bandwidth; \ Min-OBW = Minimum 99\% \ occupied \ bandwidth; \ bandwidth; \ Minimum 99\% \ occupied \ bandwidth; \$



Result

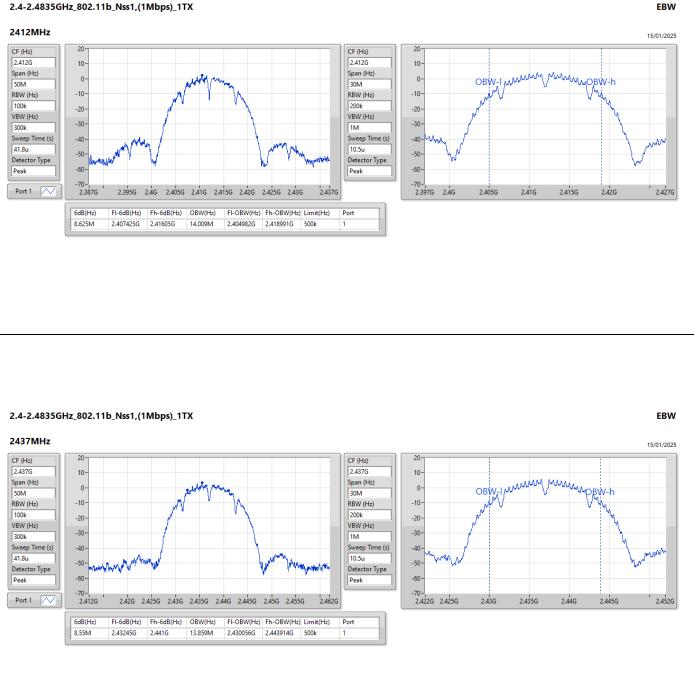
Mode	Result	Limit	Port 1-N dB	Port 1-OBW
		(Hz)	(Hz)	(Hz)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	8.625M	14.009M
2437MHz	Pass	500k	8.55M	13.859M
2462MHz	Pass	500k	8.65M	13.952M
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-
2412MHz	Pass	500k	14.45M	16.29M
2437MHz	Pass	500k	15.925M	16.822M
2462MHz	Pass	500k	15.075M	16.356M
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-
2412MHz	Pass	500k	17.525M	17.547M
2437MHz	Pass	500k	16.675M	17.665M
2462MHz	Pass	500k	15.45M	17.415M

Port X-N dB = Port X 6dB down bandwidth; Port X-OBW = Port X 99% occupied bandwidth





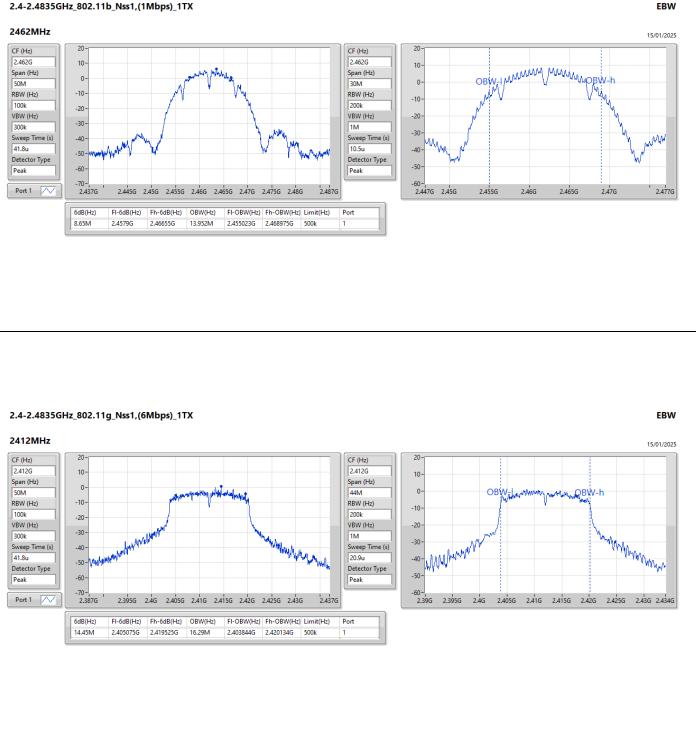
2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX







2.4-2.4835GHz_802.11b_Nss1,(1Mbps)_1TX

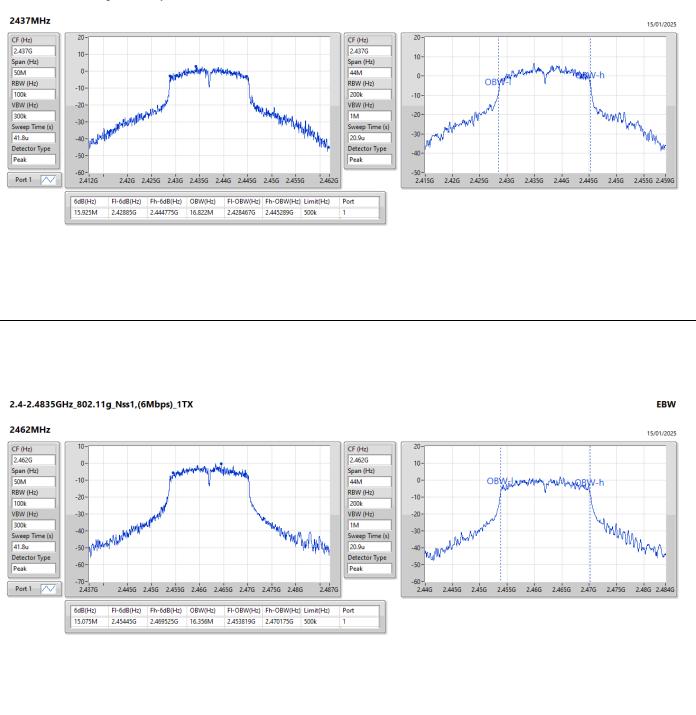




EBW



2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX

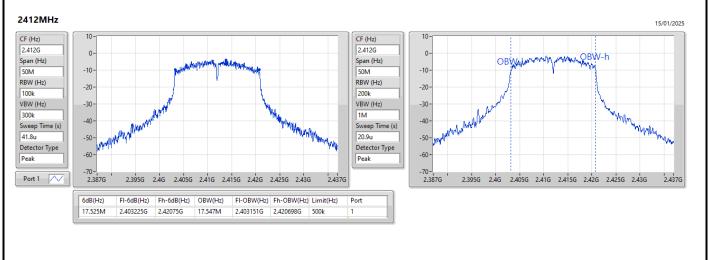




EBW

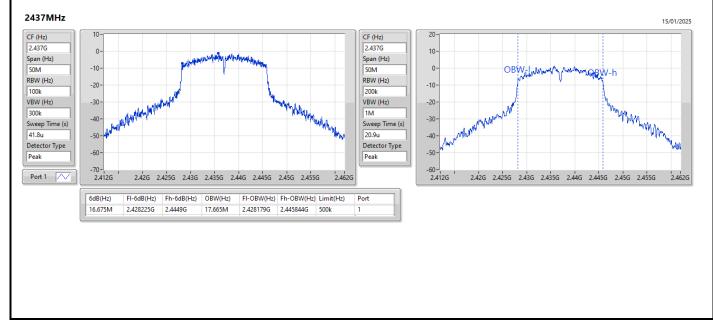


2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX



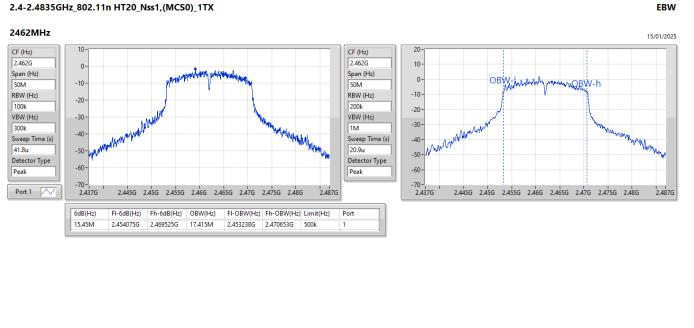
2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX

EBW





2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX





Summary

Mode	Total Power	Total Power
	(dBm)	(W)
2.4-2.4835GHz	-	-
802.11b_Nss1,(1Mbps)_1TX	16.80	0.04786
802.11g_Nss1,(6Mbps)_1TX	16.19	0.04159
802.11n HT20_Nss1,(MCS0)_1TX	12.57	0.01807



Average Power

Appendix C

Result

Mode	Result	DG	Port 1	Total Power	Power Limit
		(dBi)	(dBm)	(dBm)	(dBm)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	1.74	13.10	13.10	30.00
2437MHz	Pass	1.74	14.21	14.21	30.00
2462MHz	Pass	1.74	16.80	16.80	30.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	1.74	11.99	11.99	30.00
2437MHz	Pass	1.74	16.19	16.19	30.00
2462MHz	Pass	1.74	12.62	12.62	30.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-
2412MHz	Pass	1.74	10.26	10.26	30.00
2437MHz	Pass	1.74	12.57	12.57	30.00
2462MHz	Pass	1.74	11.69	11.69	30.00

DG = Directional Gain; Port X = Port X output power; Inf = There's no restriction for the limit.



Summary

Mode	PD
	(dBm/RBW)
2.4-2.4835GHz	-
802.11b_Nss1,(1Mbps)_1TX	-11.63
802.11g_Nss1,(6Mbps)_1TX	-11.17
802.11n HT20_Nss1,(MCS0)_1TX	-14.44

RBW = 3kHz;

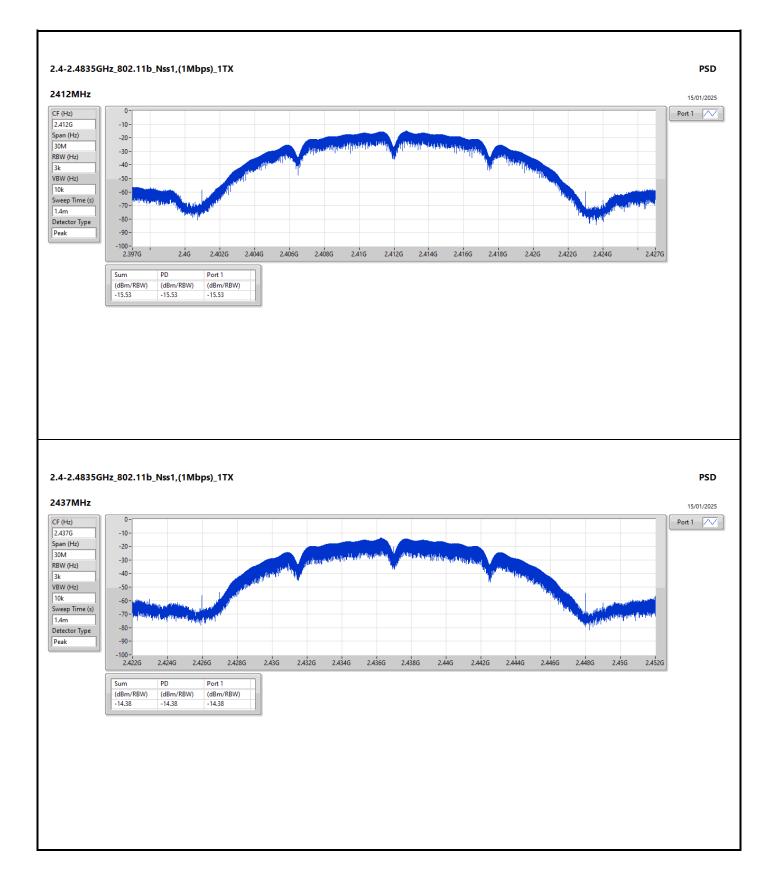


Result

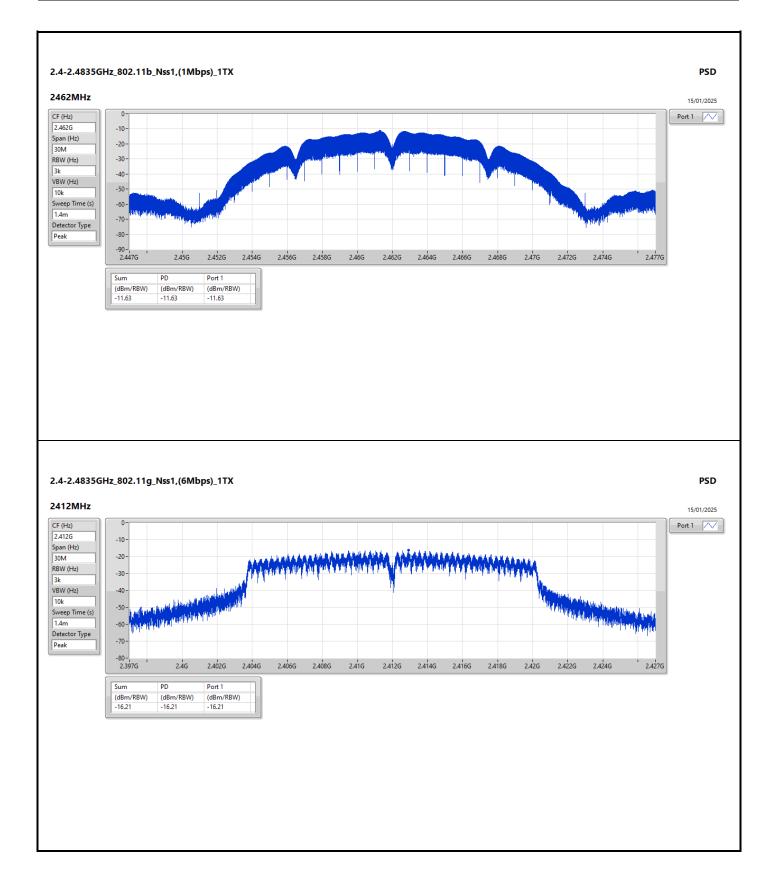
Mode	Result	DG	Port 1	PD	PD Limit
		(dBi)	(dBm/RBW)	(dBm/RBW)	(dBm/RBW)
802.11b_Nss1,(1Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	1.74	-15.53	-15.53	8.00
2437MHz	Pass	1.74	-14.38	-14.38	8.00
2462MHz	Pass	1.74	-11.63	-11.63	8.00
802.11g_Nss1,(6Mbps)_1TX	-	-	-	-	-
2412MHz	Pass	1.74	-16.21	-16.21	8.00
2437MHz	Pass	1.74	-11.17	-11.17	8.00
2462MHz	Pass	1.74	-15.22	-15.22	8.00
802.11n HT20_Nss1,(MCS0)_1TX	-	-	-	-	-
2412MHz	Pass	1.74	-15.87	-15.87	8.00
2437MHz	Pass	1.74	-15.53	-15.53	8.00
2462MHz	Pass	1.74	-14.44	-14.44	8.00

DG = Directional Gain; RBW = 3kHz; PD = trace bin-by-bin of each transmits port summing can be performed maximum power density; Port X = Port X Power Density; Inf = There's no restriction for the limit.

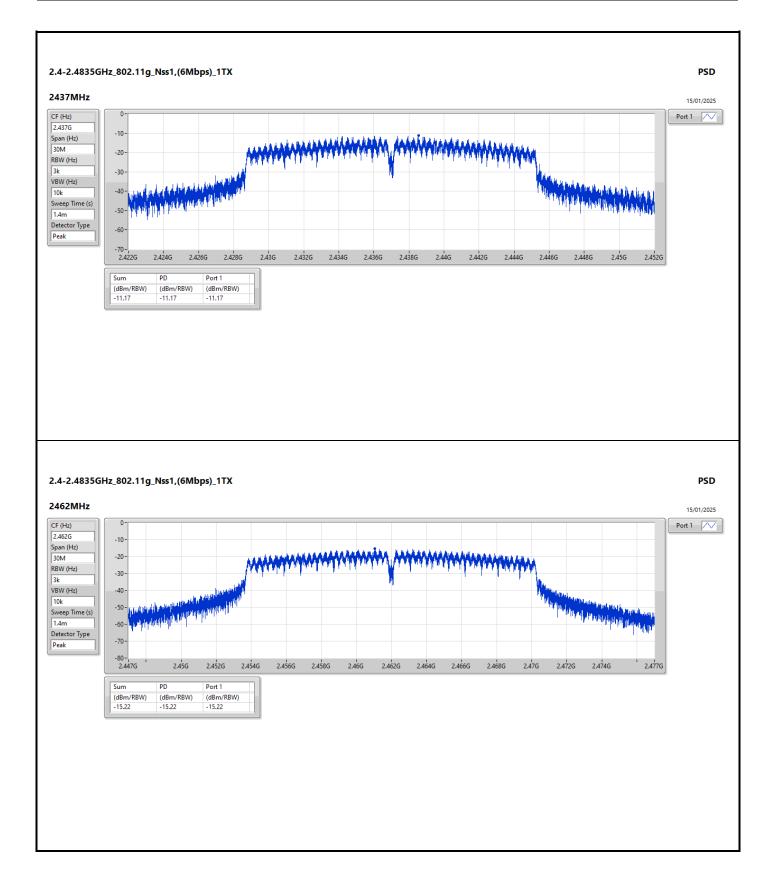




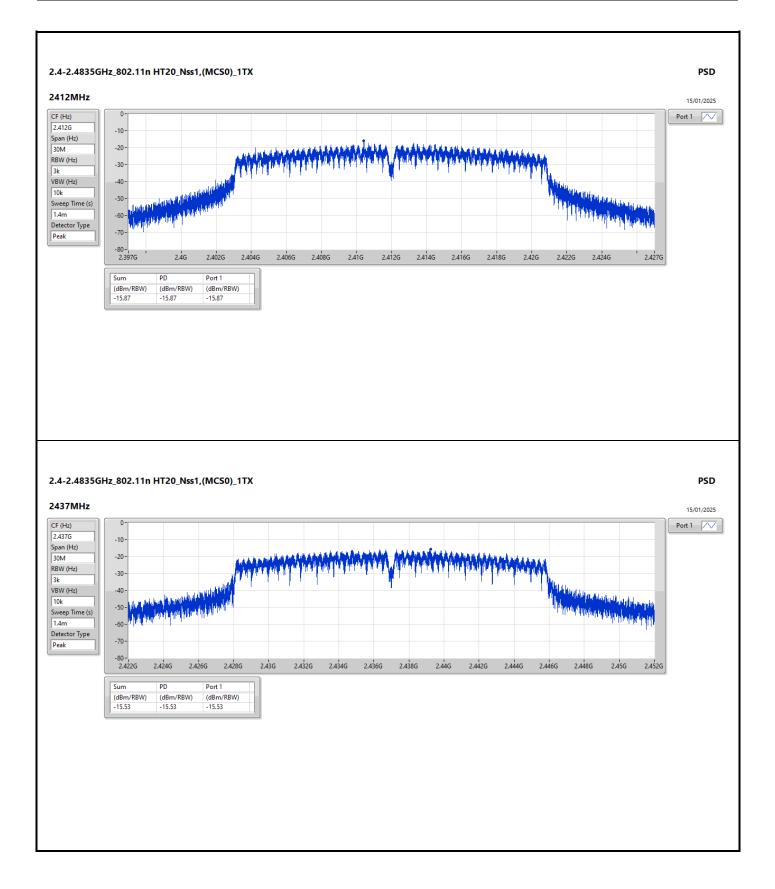




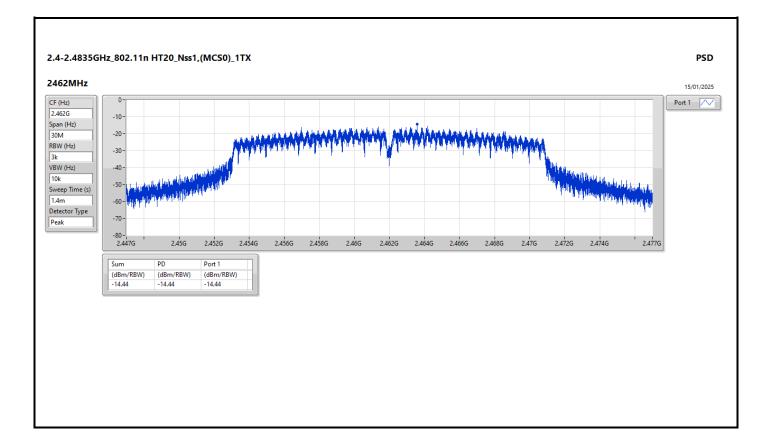














Appendix E

Summary

Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
2.4-2.4835GHz	-	-	-	-	-	-	-	-	•	-		-		-	-
802.11b_Nss1,(1Mbps)_1TX	Pass	2.46146G	6.57	-23.43	819.87M	-30.98	2.39096G	-46.36	2.4G	-48.80	2.5147G	-44.89	3.28208G	-27.02	1
802.11g_Nss1,(6Mbps)_1TX	Pass	2.43941G	5.60	-24.40	796.57M	-36.22	2.4G	-28.72	2.4G	-28.58	2.50422G	-47.28	3.21465G	-24.67	1
802.11n HT20_Nss1,(MCS0)_1TX	Pass	2.43941G	2.36	-27.64	802.4M	-38.83	2.39888G	-32.72	2.4G	-31.65	2.52046G	-47.58	3.21465G	-33.06	1

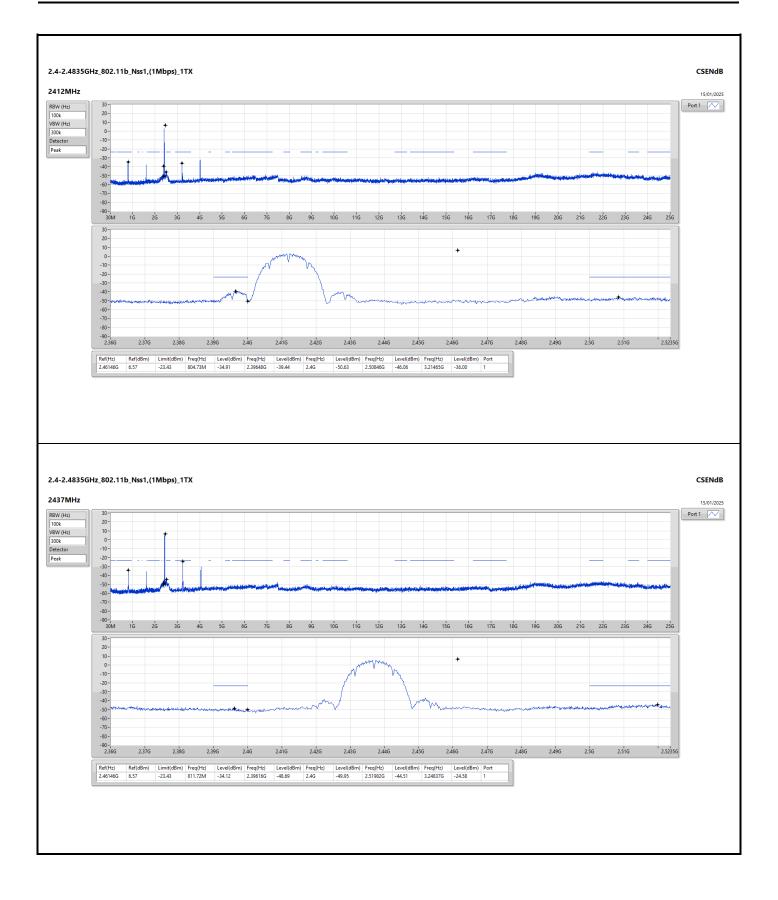


Appendix E

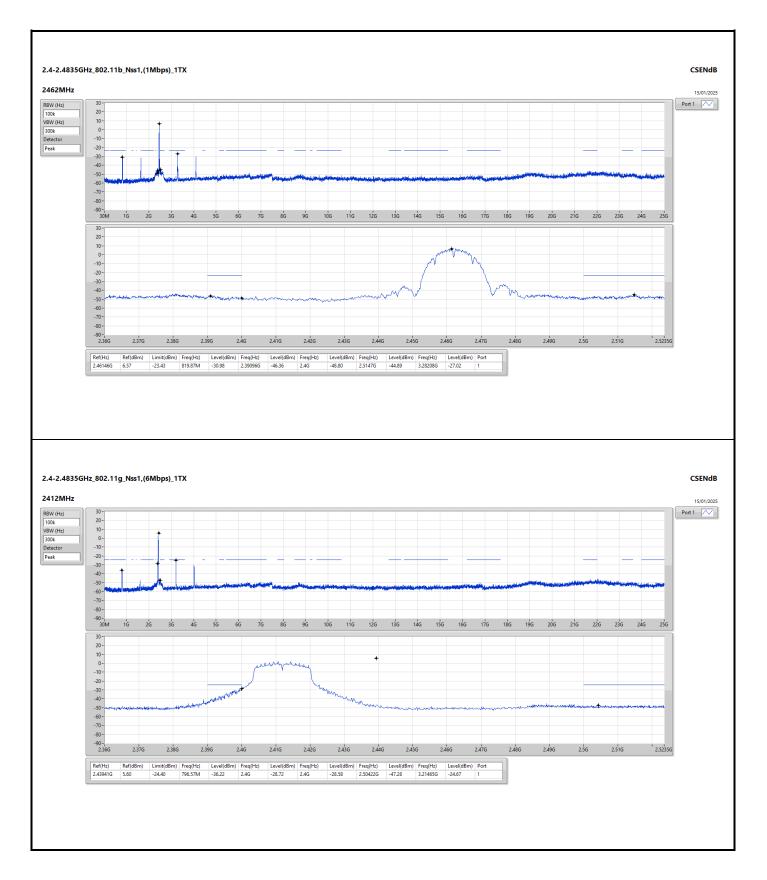
Result

Mode	Result	Ref	Ref	Limit	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Freq	Level	Port
		(Hz)	(dBm)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	(Hz)	(dBm)	
802.11b_Nss1,(1Mbps)_1TX	-		-	-		-		-	-	-		-		-	-
2412MHz	Pass	2.46146G	6.57	-23.43	804.73M	-34.91	2.39648G	-39.44	2.4G	-50.63	2.50846G	-46.06	3.21465G	-36.00	1
2437MHz	Pass	2.46146G	6.57	-23.43	811.72M	-34.12	2.39616G	-48.69	2.4G	-49.95	2.51982G	-44.51	3.24837G	-24.58	1
2462MHz	Pass	2.46146G	6.57	-23.43	819.87M	-30.98	2.39096G	-46.36	2.4G	-48.80	2.5147G	-44.89	3.28208G	-27.02	1
802.11g_Nss1,(6Mbps)_1TX	-		-	-		-		-	-	-		-		-	-
2412MHz	Pass	2.43941G	5.60	-24.40	796.57M	-36.22	2.4G	-28.72	2.4G	-28.58	2.50422G	-47.28	3.21465G	-24.67	1
2437MHz	Pass	2.43941G	5.60	-24.40	810.55M	-31.28	2.39792G	-47.19	2.4G	-47.95	2.51614G	-44.02	3.24837G	-25.88	1
2462MHz	Pass	2.43941G	5.60	-24.40	818.71M	-35.63	2.3984G	-47.98	2.4G	-52.59	2.5055G	-48.05	3.28208G	-34.66	1
802.11n HT20_Nss1,(MCS0)_1TX	-		-	-	-	-		-	-	-		-		-	-
2412MHz	Pass	2.43941G	2.36	-27.64	802.4M	-38.83	2.39888G	-32.72	2.4G	-31.65	2.52046G	-47.58	3.21465G	-33.06	1
2437MHz	Pass	2.43941G	2.36	-27.64	810.55M	-35.48	2.39776G	-49.83	2.4G	-51.07	2.50934G	-46.40	3.24837G	-34.61	1
2462MHz	Pass	2.43941G	2.36	-27.64	816.38M	-38.60	2.39504G	-49.59	2.4G	-53.31	2.5059G	-48.51	3.28208G	-33.22	1

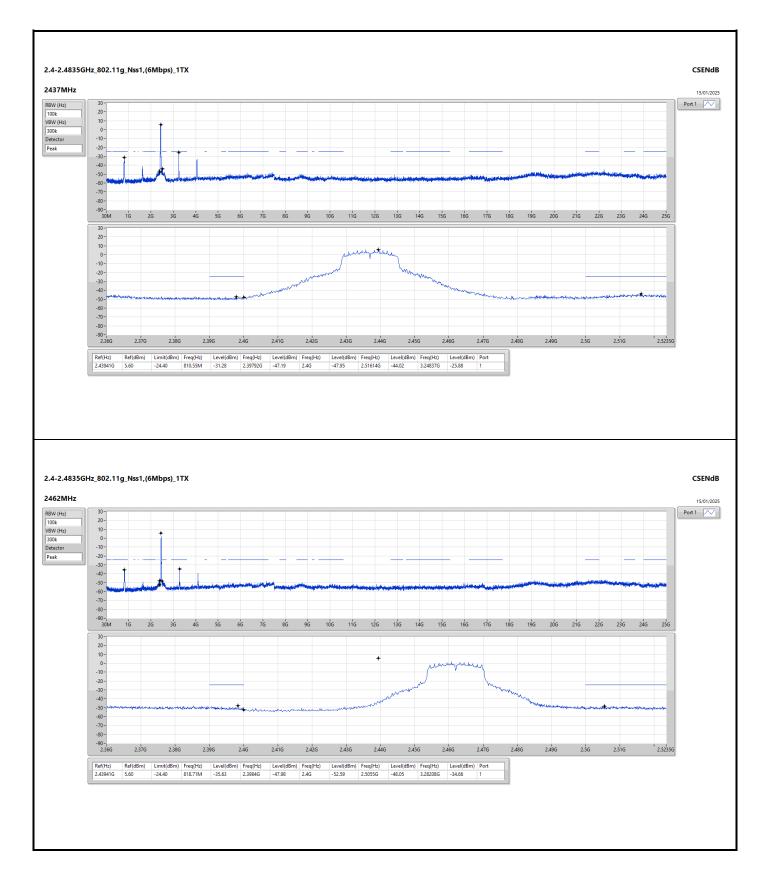




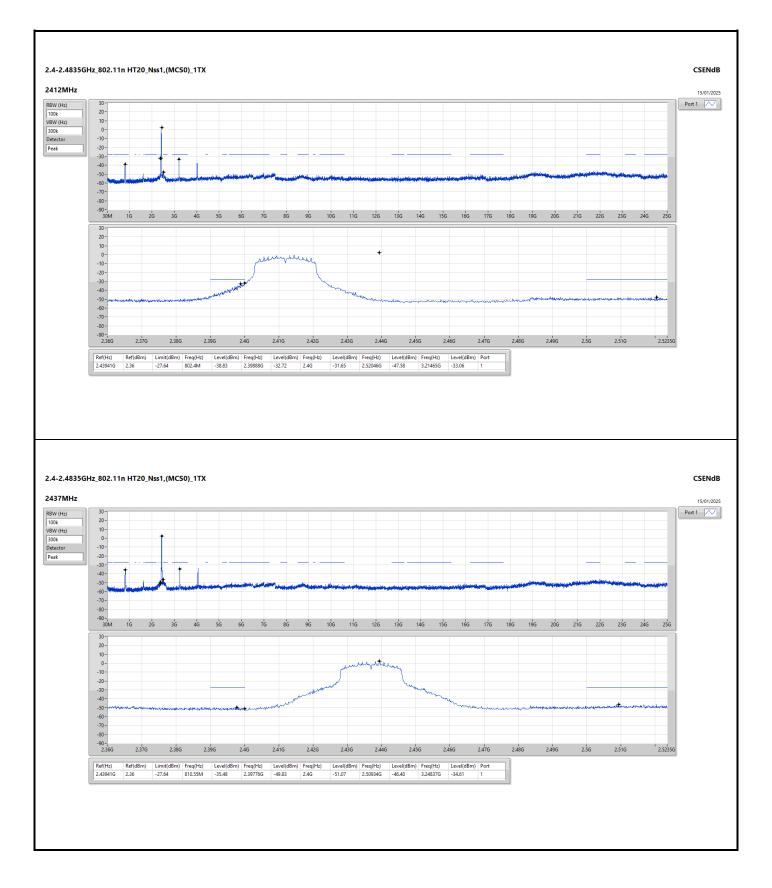




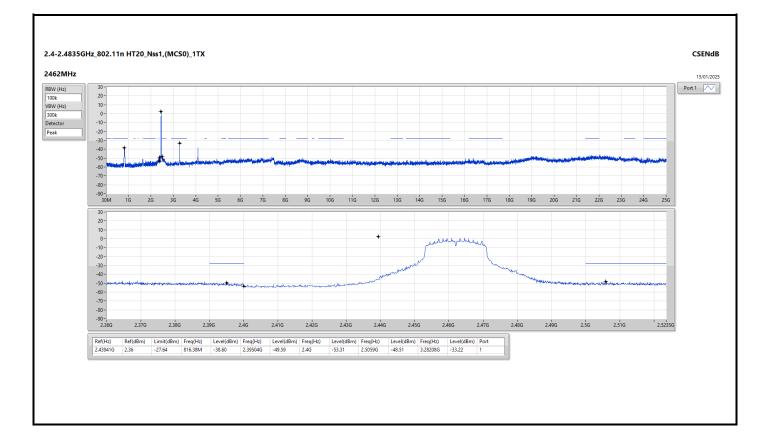












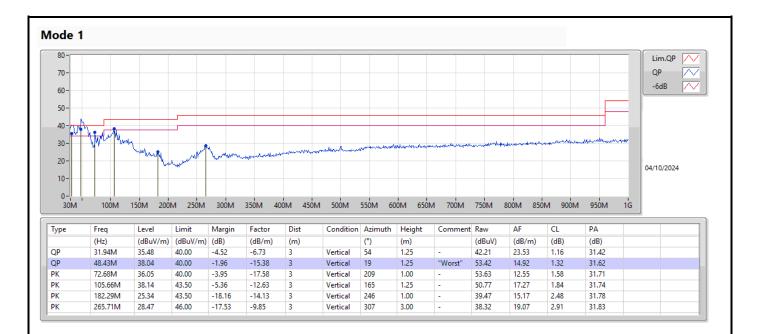


Radiated Emissions below 1GHz

Summary							
Mode	Result	Туре	Freq	Level	Limit	Margin	Condition
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	
Mode 1	Pass	QP	48.43M	38.04	40.00	-1.96	Vertical

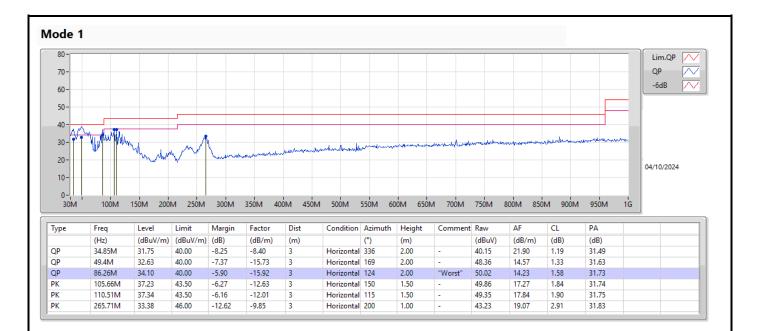


Radiated Emissions below 1GHz





Radiated Emissions below 1GHz





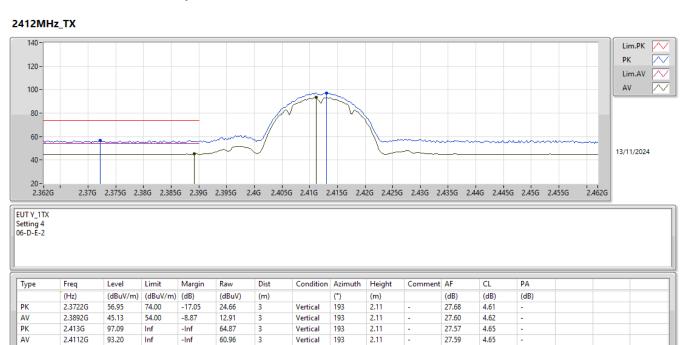
RSE TX above 1GHz

Appendix F.2

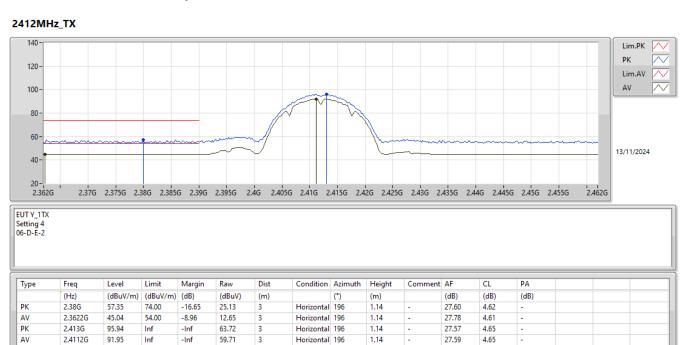
Summary

Mode	Result	Туре	Freq	Level	Limit	Margin	Dist	Condition	Azimuth	Height	Comments
			(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(m)		(°)	(m)	
2.4-2.4835GHz	-	-	-				-	-		-	-
802.11b_Nss1,(1Mbps)_1TX	Pass	AV	4.06088G	53.67	54.00	-0.33	3	Vertical	168	1.93	-

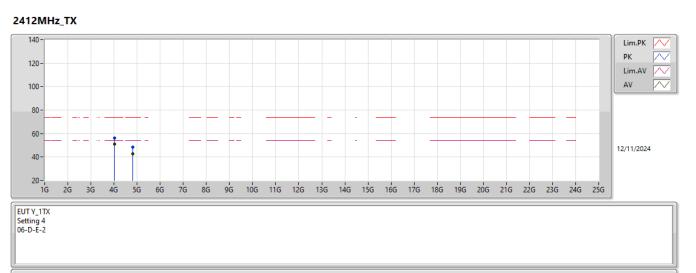






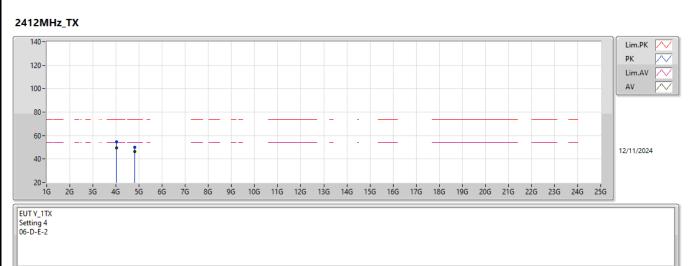






Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.02096G	56.13	74.00	-17.87	54.21	3	Vertical	169	1.77	-	29.64	5.95	33.67		
AV	4.01924G	51.24	54.00	-2.76	49.32	3	Vertical	169	1.77	-	29.64	5.95	33.67		
PK	4.82394G	48.43	74.00	-25.57	44.49	3	Vertical	294	1.80	-	31.35	6.55	33.96		
AV	4.824G	43.00	54.00	-11.00	39.06	3	Vertical	294	1.80	-	31.35	6.55	33.96		

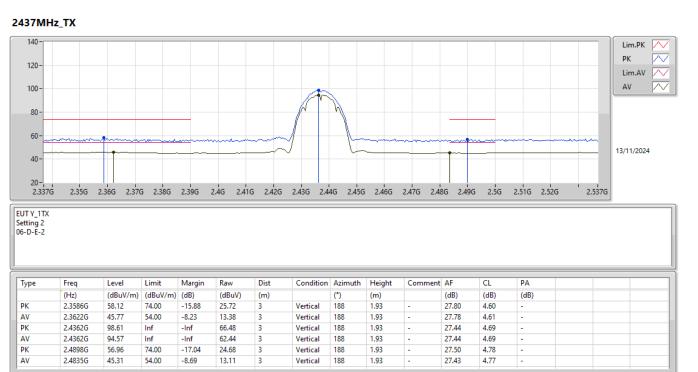




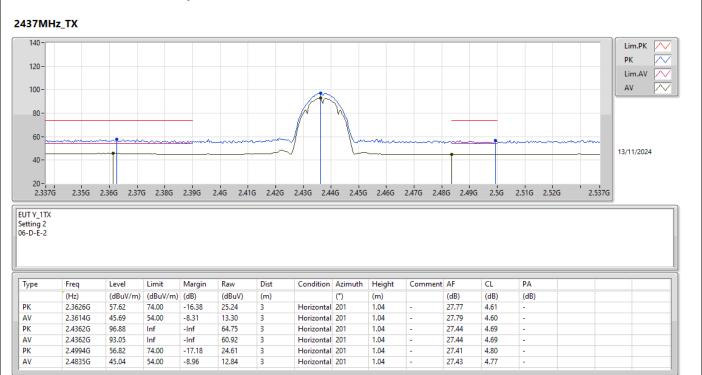
Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
PK	4.01898G	54.55	74.00	-19.45	52.63	3	Horizontal	277	2.06	-	29.64	5.95	33.67		
AV	4.01922G	49.30	54.00	-4.70	47.38	3	Horizontal	277	2.06	-	29.64	5.95	33.67		
PK	4.82412G	50.04	74.00	-23.96	46.10	3	Horizontal	227	2.01	-	31.35	6.55	33.96		
AV	4.82394G	46.29	54.00	-7.71	42.35	3	Horizontal	227	2.01	-	31.35	6.55	33.96		













AV PK

AV

4.87392G

7.31284G

7.301G

44.43

51.48

37.47

54.00

74.00

54.00

-9.57

-22.52

-16.53

40.55

40.49

26.49

3

3

3

Vertical

Vertical

Vertical

287

358

358

1.86

2.72

2.72

31.30

36.60

36.60

6.55

8.58

8.57

33.97

34.19 34.19

Appendix F.2





AV PK

AV

4.87396G

7.30788G

7.30416G

47.38

51.36

37.45

54.00

74.00

54.00

-6.62

-22.64

-16.55

43.50

40.38

26.47

3

3

3

Horizontal 227

Horizontal 353

Horizontal 353

2.06

1.00

1.00

31.30

36.60

36.60

6.55

8.57

8.57

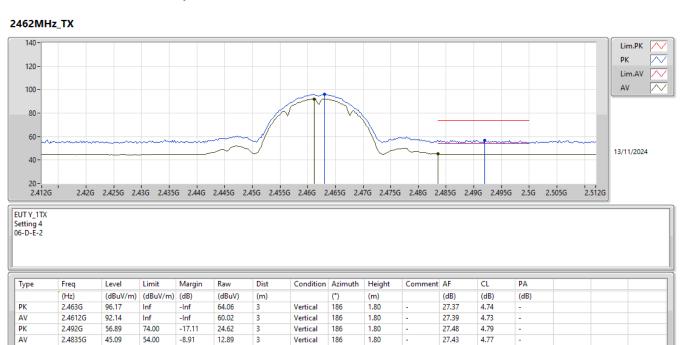
33.97

34.19 34.19

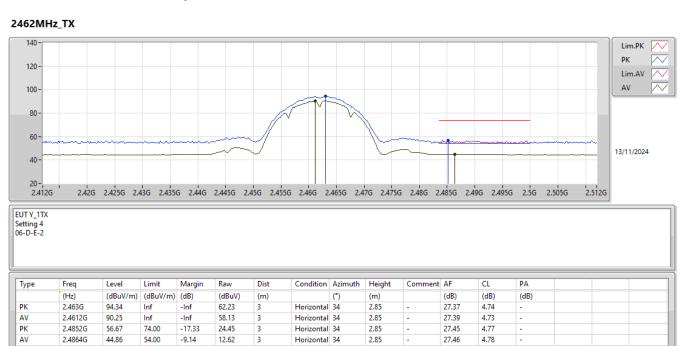
Appendix F.2



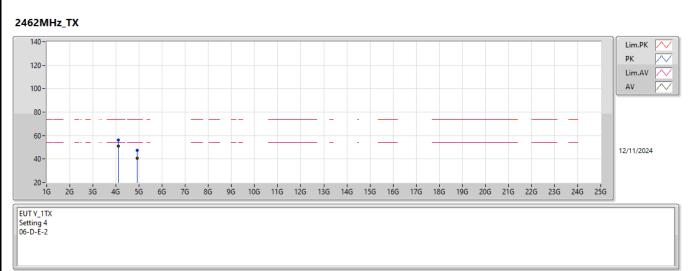






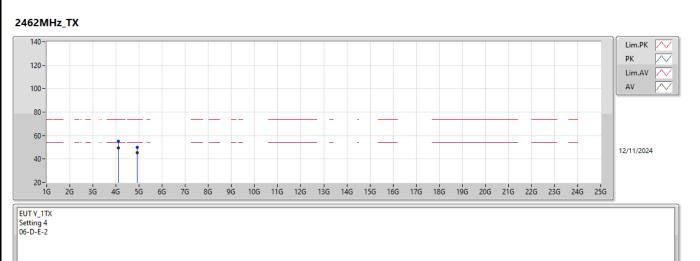






Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.10432G	55.95	74.00	-18.05	53.79	3	Vertical	169	1.87	-	29.81	6.06	33.71		
AV	4.10252G	51.06	54.00	-2.94	48.90	3	Vertical	169	1.87	-	29.81	6.06	33.71		
PK	4.92392G	47.24	74.00	-26.76	43.26	3	Vertical	167	1.76	-	31.40	6.56	33.98		
AV	4.92392G	40.79	54.00	-13.21	36.81	3	Vertical	167	1.76	-	31.40	6.56	33.98		





Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.10424G	54.99	74.00	-19.01	52.83	3	Horizontal	278	1.80	-	29.81	6.06	33.71		
AV	4.10256G	49.64	54.00	-4.36	47.48	3	Horizontal	278	1.80	-	29.81	6.06	33.71		
PK	4.92392G	49.93	74.00	-24.07	45.95	3	Horizontal	165	2.01	-	31.40	6.56	33.98		
AV	4.92396G	45.37	54.00	-8.63	41.39	3	Horizontal	165	2.01	-	31.40	6.56	33.98		



PK

AV

2.4134G

2.4134G

99.22

89.90

Inf

Inf

-Inf

-Inf

67.00

57.68

3

3

Vertical

Vertical

191

191

2.12

2.12

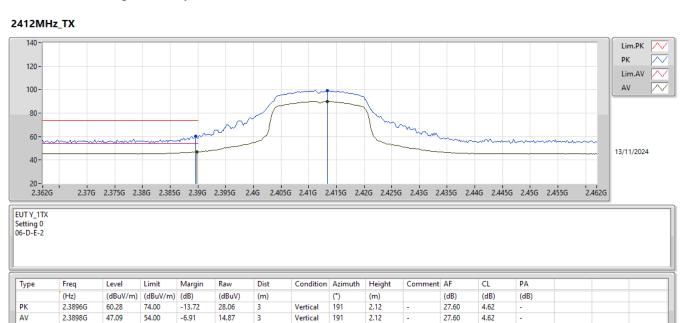
27.57

27.57

4.65

4.65

Appendix F.2





PK

AV

2.4134G

2.413G

98.42

89.10

Inf

Inf

-Inf

-Inf

66.20

56.88

3

3

Horizontal 197

Horizontal 197

1.12

1.12

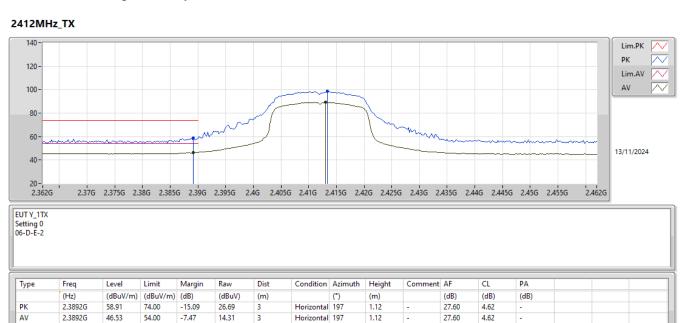
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27.57

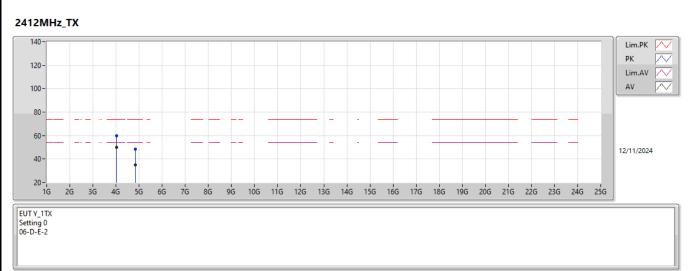
4.65

4.65

Appendix F.2







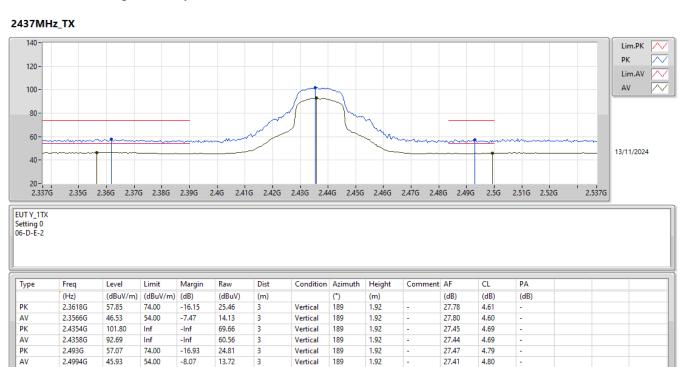
Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.02104G	59.81	74.00	-14.19	57.89	3	Vertical	170	2.20	-	29.64	5.95	33.67		
AV	4.02104G	49.97	54.00	-4.03	48.05	3	Vertical	170	2.20	-	29.64	5.95	33.67		
PK	4.8258G	48.68	74.00	-25.32	44.74	3	Vertical	288	2.04	-	31.35	6.55	33.96		
AV	4.82588G	34.87	54.00	-19.13	30.93	3	Vertical	288	2.04	-	31.35	6.55	33.96		



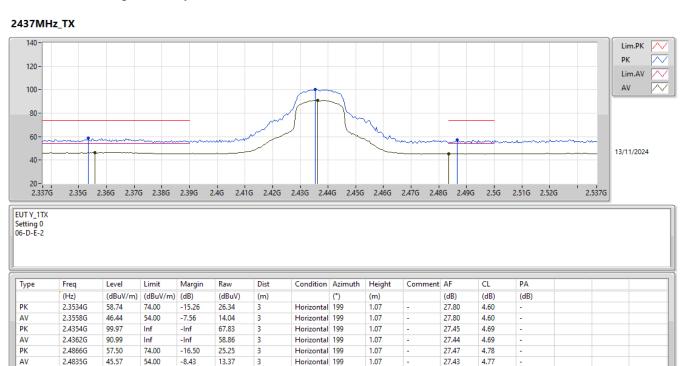


Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.02188G	56.22	74.00	-17.78	54.30	3	Horizontal	275	1.80	-	29.64	5.95	33.67		
AV	4.0188G	46.51	54.00	-7.49	44.59	3	Horizontal	275	1.80	-	29.64	5.95	33.67		
PK	4.82624G	50.35	74.00	-23.65	46.41	3	Horizontal	230	2.02	-	31.35	6.55	33.96		
AV	4.82428G	35.77	54.00	-18.23	31.83	3	Horizontal	230	2.02	-	31.35	6.55	33.96		











2.4-2.4835GHz_802.11g_Nss1,(6Mbps)_1TX

7.31704G

7.31036G

AV

52.44

39.11

74.00

54.00

-21.56

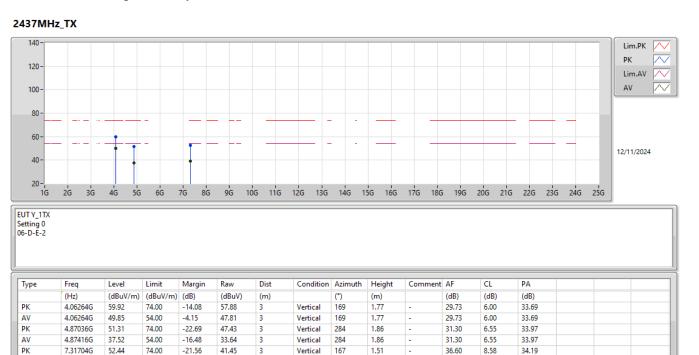
-14.89

41.45

28.13

3

3



167

167

1.51

1.51

36.60

36.60

8.58

8.57

34.19 34.19

Vertical

Vertical



AV PK

AV

4.8742G

7.3084G

7.31348G

41.16

52.06

39.23

54.00

74.00

54.00

-12.84

-21.94

-14.77

37.28

41.08

28.24

3

3

3

Horizontal 229

Horizontal 258

Horizontal 258

2.06

1.51

1.51

31.30

36.60

36.60

6.55

8.57

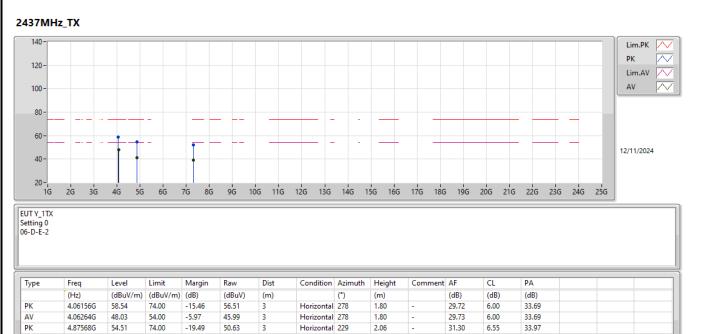
8.58

33.97

34.19

34.19

Appendix F.2





AV PK

AV

2.461G

2.4835G

2.4835G

89.79

58.90

46.63

Inf

74.00

54.00

-Inf

-15.10

-7.37

57.67

26.70

14.43

3

3

3

Vertical

Vertical

Vertical

188

188

188

1.86

1.86

1.86

27.39

27.43

27.43

4.73

4.77

4.77

Appendix F.2





AV

PK

AV

2.463G

2.4844G

2.4835G

86.90

58.04

45.99

Inf

74.00

54.00

-Inf

-15.96

-8.01

54.79

25.83

13.79

3

3

3

Horizontal 37

Horizontal 37

Horizontal 37

2.86

2.86

2.86

27.37

27.44

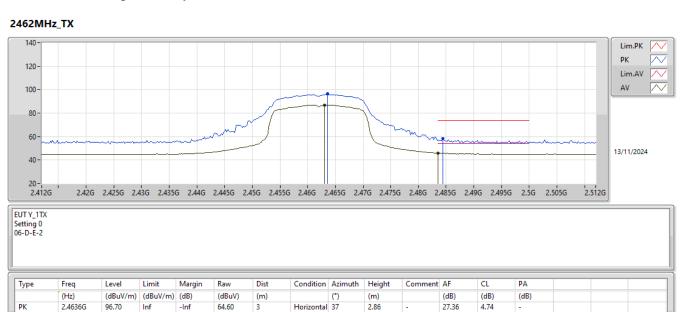
27.43

4.74

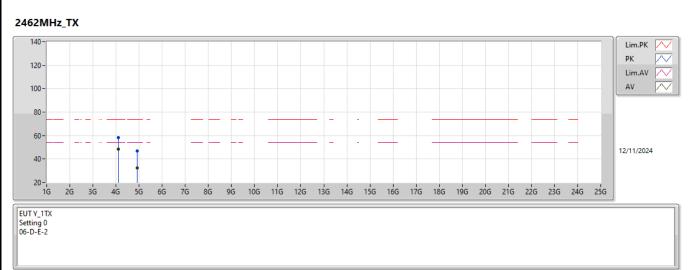
4.77

4.77

Appendix F.2







Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
PK	4.10432G	58.37	74.00	-15.63	56.21	3	Vertical	170	2.13	-	29.81	6.06	33.71		
AV	4.10208G	48.59	54.00	-5.41	46.44	3	Vertical	170	2.13	-	29.80	6.06	33.71		
PK	4.92028G	46.93	74.00	-27.07	42.97	3	Vertical	289	1.80	-	31.38	6.56	33.98		
AV	4.92404G	32.37	54.00	-21.63	28.39	3	Vertical	289	1.80	-	31.40	6.56	33.98		

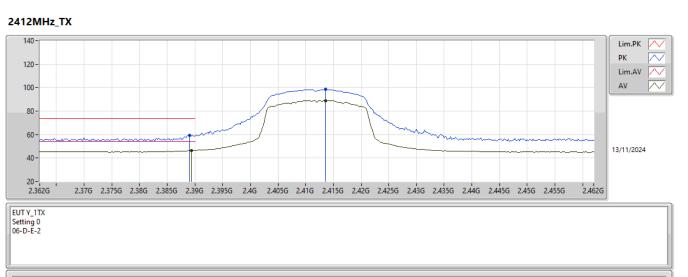




Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
PK	4.10508G	56.82	74.00	-17.18	54.66	3	Horizontal	277	1.80	-	29.81	6.06	33.71		
AV	4.10224G	47.13	54.00	-6.87	44.98	3	Horizontal	277	1.80	-	29.80	6.06	33.71		
PK	4.92716G	47.92	74.00	-26.08	43.93	3	Horizontal	162	1.80	-	31.41	6.56	33.98		
AV	4.92388G	34.33	54.00	-19.67	30.35	3	Horizontal	162	1.80	-	31.40	6.56	33.98		



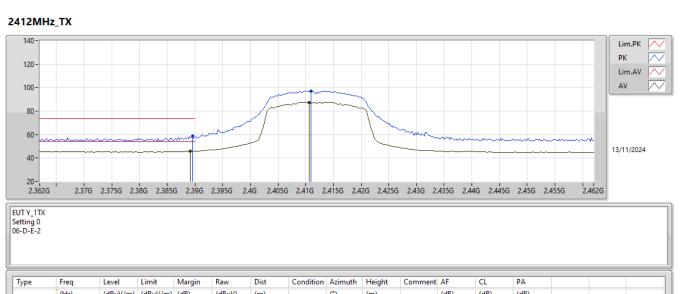
2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX



Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	2.389G	59.51	74.00	-14.49	27.29	3	Vertical	193	2.09	-	27.60	4.62	-		
AV	2.3894G	46.37	54.00	-7.63	14.15	3	Vertical	193	2.09	-	27.60	4.62	-		
PK	2.4136G	98.42	Inf	-Inf	66.21	3	Vertical	193	2.09	-	27.56	4.65	-		
AV	2.4136G	88.97	Inf	-Inf	56.76	3	Vertical	193	2.09	-	27.56	4.65	-		



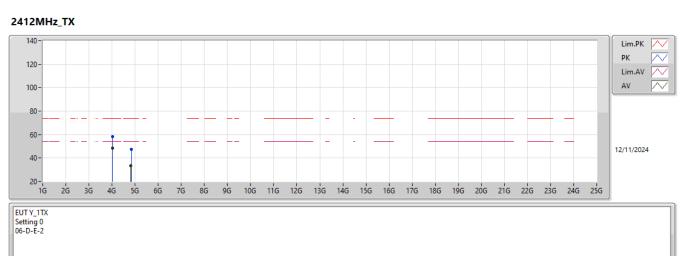
2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX



(m) (Hz) (dBuV/m) (dBuV/m) (dB) (dBuV) (dB) (dB) (dB) (°) (m) PK 2.3896G 58.79 74.00 -15.21 26.57 3 Horizontal 201 1.12 27.60 4.62 AV 2.3892G 46.00 54.00 -8.00 13.78 3 Horizontal 201 1.12 27.60 4.62 РК 2.411G 96.95 Inf -Inf 64.71 3 Horizontal 201 1.12 27.59 4.65 AV 2.4106G 55.26 1.12 27.59 4.65 87.50 Inf -Inf 3 Horizontal 201

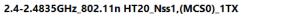


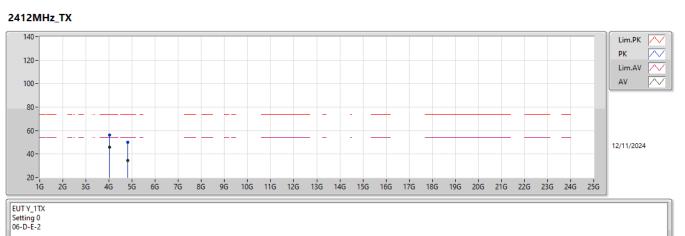




Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
PK	4.018G	58.30	74.00	-15.70	56.39	3	Vertical	167	1.77	-	29.64	5.94	33.67		
AV	4.01852G	48.26	54.00	-5.74	46.34	3	Vertical	167	1.77	-	29.64	5.95	33.67		
PK	4.82744G	47.53	74.00	-26.47	43.59	3	Vertical	290	1.79	-	31.35	6.55	33.96		
AV	4.82388G	33.21	54.00	-20.79	29.27	3	Vertical	290	1.79	-	31.35	6.55	33.96		

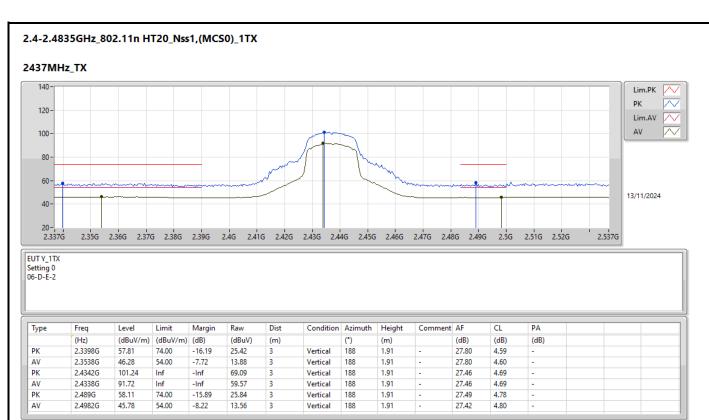






Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.02104G	56.23	74.00	-17.77	54.31	3	Horizontal	277	1.96	-	29.64	5.95	33.67		
AV	4.02132G	46.08	54.00	-7.92	44.16	3	Horizontal	277	1.96	-	29.64	5.95	33.67		
PK	4.82308G	49.75	74.00	-24.25	45.81	3	Horizontal	226	1.90	-	31.35	6.55	33.96		
AV	4.82364G	34.64	54.00	-19.36	30.70	3	Horizontal	226	1.90	-	31.35	6.55	33.96		







AV

PK

AV PK

AV

2.345G

2.4342G

2.4354G

2.4902G

2.4914G

45.56

99.17

89.90

55.96

45.17

54.00

Inf

Inf

74.00

54.00

-8.44

-Inf

-Inf

-18.04

-8.83

13.17

67.02

57.76

23.68

12.89

3

3

3

3

3

Horizontal 31

Horizontal 31

Horizontal 31

Horizontal 31

Horizontal 31

2.92

2.92

2.92

2.92

2.92

27.80

27.46

27.45

27.50 27.49 4.59

4.69

4.69

4.78

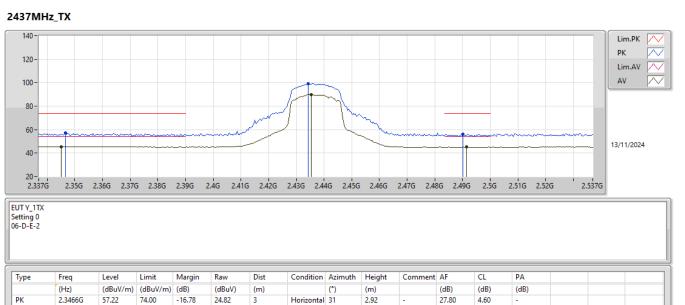
4.79

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Appendix F.2

2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX



Sporton International Inc.	Hsinchu Laboratory
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AV

PK

AV PK

AV

4.0592G

4.87324G

4.87364G

7.31252G

7.30108G

49.10

51.39

36.86

51.07

38.13

54.00

74.00

54.00

74.00

54.00

-4.90

-22.61

-17.14

-22.93

-15.87

47.07

47.51

32.98

40.08

27.15

3

3

3

3

3

Vertical

Vertical

Vertical

Vertical

Vertical

168

284

284

18

18

1.77

1.79

1.79

1.20

1.20

29.72

31.30

31.30

36.60

36.60

6.00

6.55

6.55

8.58

8.57

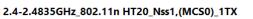
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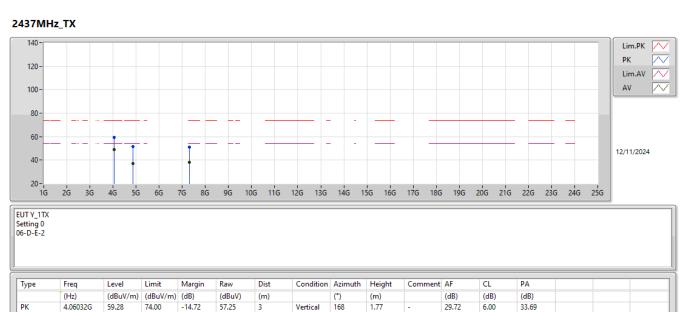
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33.97

34.19

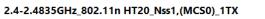
34.19

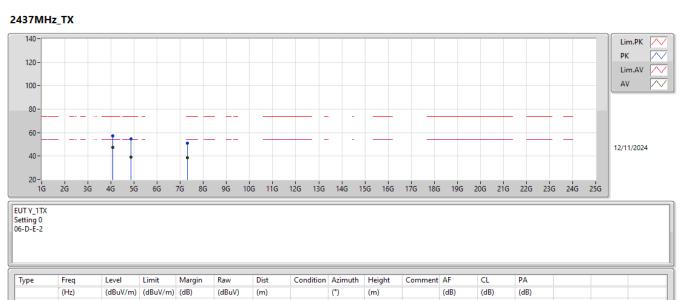




Sporton International Inc. Hsinchu Laboratory



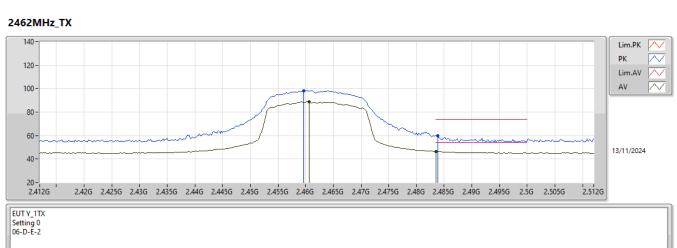




I.	lype	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	РА		
I		(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
I	РК	4.06284G	57.35	74.00	-16.65	55.31	3	Horizontal	276	1.80	-	29.73	6.00	33.69		
J	AV	4.06316G	47.35	54.00	-6.65	45.30	3	Horizontal	276	1.80	-	29.73	6.01	33.69		
I	PK	4.87324G	54.48	74.00	-19.52	50.60	3	Horizontal	231	2.12	-	31.30	6.55	33.97		
I	AV	4.87372G	39.33	54.00	-14.67	35.45	3	Horizontal	231	2.12	-	31.30	6.55	33.97		
	PK	7.3152G	51.08	74.00	-22.92	40.09	3	Horizontal	16	2.72	-	36.60	8.58	34.19		
	AV	7.30428G	38.40	54.00	-15.60	27.42	3	Horizontal	16	2.72	-	36.60	8.57	34.19		
ľ																



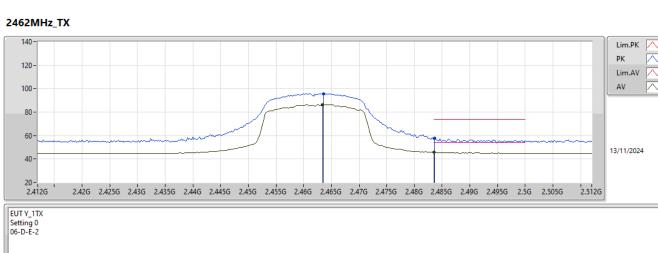
2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX



Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
PK	2.4596G	98.12	Inf	-Inf	65.99	3	Vertical	189	1.87	-	27.40	4.73	-		
AV	2.4606G	88.79	Inf	-Inf	56.67	3	Vertical	189	1.87	-	27.39	4.73	-		
PK	2.4838G	59.95	74.00	-14.05	27.74	3	Vertical	189	1.87	-	27.44	4.77	-		
AV	2.4835G	46.34	54.00	-7.66	14.14	3	Vertical	189	1.87	-	27.43	4.77	-		



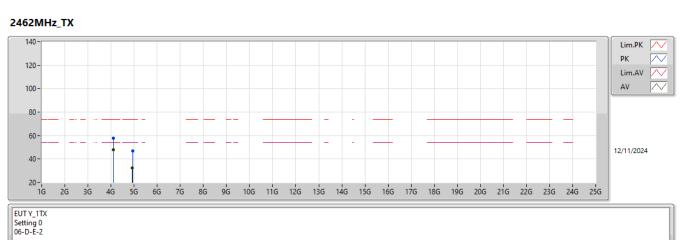
2.4-2.4835GHz_802.11n HT20_Nss1,(MCS0)_1TX



Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
PK	2.4636G	95.66	Inf	-Inf	63.56	3	Horizontal	36	2.83	-	27.36	4.74	-		
AV	2.4634G	86.35	Inf	-Inf	54.24	3	Horizontal	36	2.83	-	27.37	4.74	-		
PK	2.4836G	57.74	74.00	-16.26	25.53	3	Horizontal	36	2.83	-	27.44	4.77	-		
AV	2.4835G	45.78	54.00	-8.22	13.58	3	Horizontal	36	2.83	-	27.43	4.77	-		



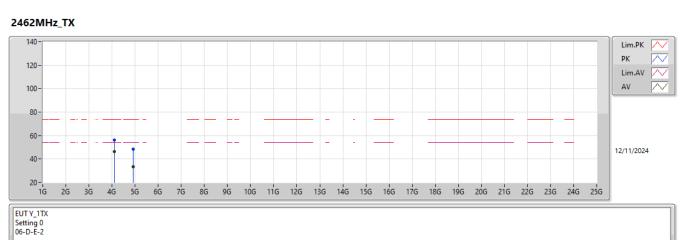




Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
PK	4.10416G	57.95	74.00	-16.05	55.79	3	Vertical	170	2.13	-	29.81	6.06	33.71		
AV	4.10064G	47.77	54.00	-6.23	45.62	3	Vertical	170	2.13	-	29.80	6.06	33.71		
PK	4.9302G	47.12	74.00	-26.88	43.12	3	Vertical	275	1.32	-	31.42	6.56	33.98		
AV	4.9238G	32.31	54.00	-21.69	28.33	3	Vertical	275	1.32	-	31.40	6.56	33.98		







Туре	Freq	Level	Limit	Margin	Raw	Dist	Condition	Azimuth	Height	Comment	AF	CL	PA		
	(Hz)	(dBuV/m)	(dBuV/m)	(dB)	(dBuV)	(m)		(°)	(m)		(dB)	(dB)	(dB)		
РК	4.10096G	56.39	74.00	-17.61	54.24	3	Horizontal	276	1.80	-	29.80	6.06	33.71		
AV	4.10588G	46.41	54.00	-7.59	44.25	3	Horizontal	276	1.80	-	29.81	6.06	33.71		
РК	4.92216G	48.33	74.00	-25.67	44.36	3	Horizontal	166	1.80	-	31.39	6.56	33.98		
AV	4.92412G	33.51	54.00	-20.49	29.53	3	Horizontal	166	1.80	-	31.40	6.56	33.98		