FCC TEST REPORT

FCC ID: 2BO6I-N2

On Behalf of

Shenzhen Tiangua Technology Co., Ltd

Wireless Earbuds

Model No.: N2

Prepared for	:	Shenzhen Tiangua Technology Co., Ltd
Address	:	4th Floor, Building A1, Jinchi Industrial Park, Beiba Road, Bao'an District,Shenzhen

Prepared By	:	Shenzhen PSI Testing Co., Ltd.
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Report Number	:	psi2504171-C01-R02
Date of Receipt	:	April 21, 2025
Date of Test	:	April 21, 2025- April 29, 2025
Date of Report	:	April 29, 2025
Version Number	:	V0

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TEST REPORT DECLARATION

Applicant	:	Shenzhen Tiangua Technology Co., Ltd
Address	:	4th Floor, Building A1, Jinchi Industrial Park, Beiba Road, Bao'an District,Shenzhen
Manufacturer	:	Shenzhen Tiangua Technology Co., Ltd
Address	:	4th Floor, Building A1, Jinchi Industrial Park, Beiba Road, Bao'an District,Shenzhen
EUT Description	:	Wireless Earbuds
		(A) Model No. : N2
		(B) Trademark : N/A

Measurement Standard Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.249

ANSI C63.10:2013

Test Result: PASS

The device described above is tested by Shenzhen PSI Testing Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits both conducted and radiated emissions. The test results are contained in this test report and Shenzhen PSI Testing Co., Ltd. is assumed of full responsibility for the accuracy and completeness of these tests.

After the test, our opinion is that EUT compliance with the requirement of the above standards.

This report applies to above tested sample only. This report shall not be reproduced in parts without written approval of Shenzhen PSI Testing Co., Ltd.

Tested by (name + signature).....:	Felix Pang Test Engineer	Felix Pang
Approved by (name + signature).....:	Simple Guan Project Manager	Simple Guan
Date of issue……..:	April 21, 2025	

Revision History

Revision	Issue Date	Revisions	Revised By
V0	April 29, 2025	Initial released Issue	Felix Pang

1. General Information

1.1. Description of Device (EUT)

EUT Name	:	Wireless Earbuds
Model No./HVIN	:	N2
DIFF.	:	N/A
Power supply	:	DC 5V from adapter or DC 3.7V from battery
Radio technology	:	BT
Operation frequency	:	2402~2480MHz
Modulation	:	GFSK, π/4-DQPSK, 8-DPSK
Channel No.		79CH
Antenna Type	:	Chip antenna, max gain 2.7dBi
Software version	:	SV1.0
Hardware version	:	HV1.0
Intend use environment	:	Residential, commercial and light industrial environment
Note	:	Antenna information is provided by applicant. Testing lab is not responsible for the accuracy of the information.

1.2. Test Facility

Shenzhen PSI Testing Co., Ltd.

1-2/F., Building 5, Yudafu Industrial Park, No.10, Xingye West Road, Shajing Subdistrict, Bao'an District, Shenzhen, Guangdong, China

September 21, 2023 File on Federal Communication Commission
Registration Number: 916281

September 21, 2023 Certificated by IC
Registration Number: 31123
CAB identifier: CN0158

1.3. Equipment List

Item	Equipment	Manufacturer	Model No.	Serial No.	Firmware Version	Last Cal.	Cal. Interval
1.	9*6*6 anechoic chamber	SKET	9*6*6	N/A	/	2022.12.20	3 Year
2.	Test Receiver	Rohde&Schwarz	ESCI 7	101032/003	4.42 SP3	2024.12.18	1 Year
3.	L.I.S.N.#1	Rohde&Schwarz	ENV216	102282	/	2024.12.18	1 Year
4.	L.I.S.N.#2	RFT	NNB111	13835240	/	2024.12.18	1 Year
5.	Loop Antenna	Schwarz beck	FMZB 1519B	00128	/	2025.01.02	2 Year
6.	Bilog Antenna	Schwarz beck	VULB 9168	01448	/	2025.01.02	2 Year
7.	Spectrum Analyzer	Rohde&Schwarz	FSV-40N	101648	3.70	2024.12.18	1 Year
8.	Horn Antenna	Schwarz beck	BBHA 9120 D	02706	/	2025.01.02	2 Year
9.	Amplifier	SKET	LAPA_01G18G-45dB	SK2022032901	/	2024.12.18	1 Year
10.	Horn Antenna	Schwarz beck	BBHA 9170	00946	/	2024.12.31	2 Year
11.	Amplifier	SKET	LNPA_0118G-45	SK2020010801	/	2024.12.18	1 Year
12	RF Power Probe	Rohde&Schwarz	NRP-Z11	1138.3004.02-1111533-Fz	/	2024.12.18	1 Year
13	RF Sensor Unit	Tachoy	TR1029-2	20220428P008	/	2024.12.18	1 Year
14	Spectrum Analyzer	Agilent	N9020A	MY51281067	A.14.03	2024.12.18	1 Year
15	Temp. & Humid Chamber	Auchno	9606	/	/	2024.12.18	1 Year
16	Regulated DC Power Supply	Xinouhua	ADC120V10A	202211251638		2024.12.18	1 Year

For Test Software Information

Item	Software Name	Manufacturer	Version
RE	EZ_EMC	Farad	PSI-3A1
CE	EZ_EMC	Farad	PSI-3A1
RF	RTS	TACHOY	V1.0.0

2. Summary Of Measurement

2.1. Summary of Test Result

EMISSION			
Description of Test Item	**Test Requirement**	**Standard Paragraph**	**Results**
Power Line Conducted Emission Test	FCC Part 15	Section 15.207	P
Spurious Emission Test	FCC Part 15	Section 15.209	P
20dB Channel Bandwidth	FCC Part 15	Section 15.215 (c)	P
Band edge Requirement	FCC Part 15	Section 15.205	P
Antenna Requirement	FCC Part 15	Section 15.203	P

Note:
1. P is an abbreviation for Pass.
2. F is an abbreviation for Fail.
3. N/A is an abbreviation for Not Applicable.
4. The conclusion of this test report is judged by actual test data without considering measurement uncertainty.

Note: The EUT has been tested as an independent unit. And continual transmitting in maximum power.

2.2. Test Connection

Radiated Emission

EUT

Conducted Spurious

EUT

2.3. Assistant Equipment Used For Test

No.	Description	Manufacturer	Model	Serial Number	Certification
1	/	/	/	/	/

2.4. Test Mode

The test software used to control EUT work in Continuous TX mode, and select test channel, wireless mode

Tested mode, channel, and data rate information		
Mode	Channel	Frequency (MHz)
GFSK / Pi/4-DQPSK / 8DPSK Carrier Tx Mode	CH0	2402
	CH39	2441
	CH78	2480
GFSK / Pi/4-DQPSK / 8DPSK hopping on Tx Mode	CH0 to CH78	2402 to 2480
GFSK / Pi/4-DQPSK / 8DPSK hopping off Tx Mode	CH0	2402
	CH39	2441
	CH78	2480

2.5. Software test version and power setting information

Software testing version	Bluetooth MP Tool.exe		
Mode	The client 's preset testing software is used to control the operation of EUT in continuous transmission mode and select the testing channel, wireless mode:		
Power level setup by client			
Mode	Channel	Frequency (MHz)	Soft Set
GFSK, Pi/4-DQPSK, 8DPSK	CH0	2402	TX level is set as defaults value.
	CH39	2441	TX level is set as defaults value.
	CH78	2480	TX level is set as defaults value.

2.6. Test Conditions

Temperature range	21-25℃
Humidity range	40-75%
Pressure range	86-106kPa

2.7. Measurement Uncertainty (95% confidence levels, k=2)

Item	Uncertainty
Uncertainty for Power point Conducted Emissions Test	2.17dB
Uncertainty for Radiation Emission test in 3m chamber (below 30MHz)	3.5dB
Uncertainty for Radiation Emission test in 3m chamber (30MHz to 1GHz)	2.74dB(Polarize: V)
	2.76dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (1GHz to 18GHz)	4.29dB(Polarize: V)
	4.82dB(Polarize: H)
Uncertainty for Radiation Emission test in 3m chamber (18GHz to 40GHz)	4.31dB(Polarize: V)
	4.30dB(Polarize: H)
Uncertainty for radio frequency	48.24KHz
Uncertainty for conducted RF Power	0.41dB
Uncertainty for Power Spectral Density	0.39 dB
Uncertainty for OBW	928Hz

3. Radiated Emission and Band Edge

3.1. Radiated Emission Limits

FCC Part 15.209

Frequency MHz	Distance (Meters)	Field Strengths Limits	
		uV/m	dB uV/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	----
1.705 ~ 30	30	30	29.5
30 ~ 88	3	100(3nW)	40
88 ~ 216	3	150(6.8nW)	43.5
216 ~ 960	3	200(12nW)	46
Above 960	3	500(75nW)	54
Carrier frequency	3	50000(avg)	113.97(peak) 93.97(avg)

Notes:
1. Emission level = Read level + Antenna Factor - Preamp Factor + Cable Loss
2. The smaller limit shall apply at the cross point between two frequency bands.
3. Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
4. For frequencies above 1000 MHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

Spectrum Parameter	Setting
Detector	Peak
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1MHz/3MHz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2. Test Procedure

a. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Below 1GHz)
b. The measuring distance of 3m shall used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Above 1GHz)
c. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization of the antenna are set to make the measurement.
d. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform (Below 1GHz)
f. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak & AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(Above 1GHz)
g. For the actual test configuration, please refer to the related Item –EUT Test Photos.

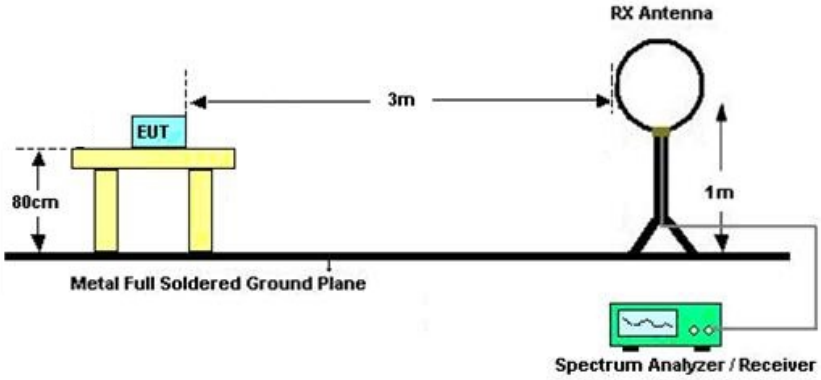
Note: Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.3. Deviation From Test Standard

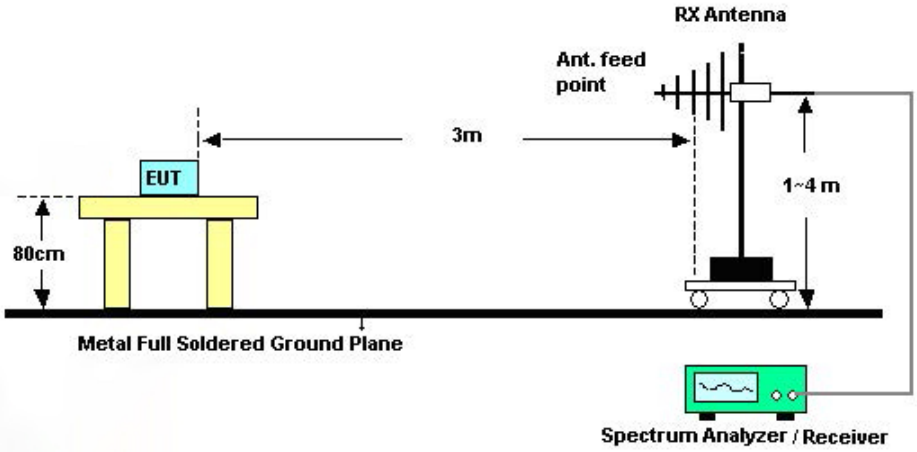
No deviation

3.4. Test Setup

（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz

3.5. Eut Operating Conditions

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.6. Test Results

For the actual test, please refer to the ANSI C63.10, refer to section 7 for more detail

We have scanned from 9kHz to the 10th harmonic of the EUT's highest frequency.
Detailed information please see the following page.

From 9KHz to 30MHz:					
Test Date	:	2025.04.25	Temperature	:	26℃
Test Engineer	:	Felix Pang	Humidity	:	54%
Test Mode	:	TX-GFSK-2402MHz mode-Worst Case			
Test Results	:	**PASS**			
Note:	The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.				

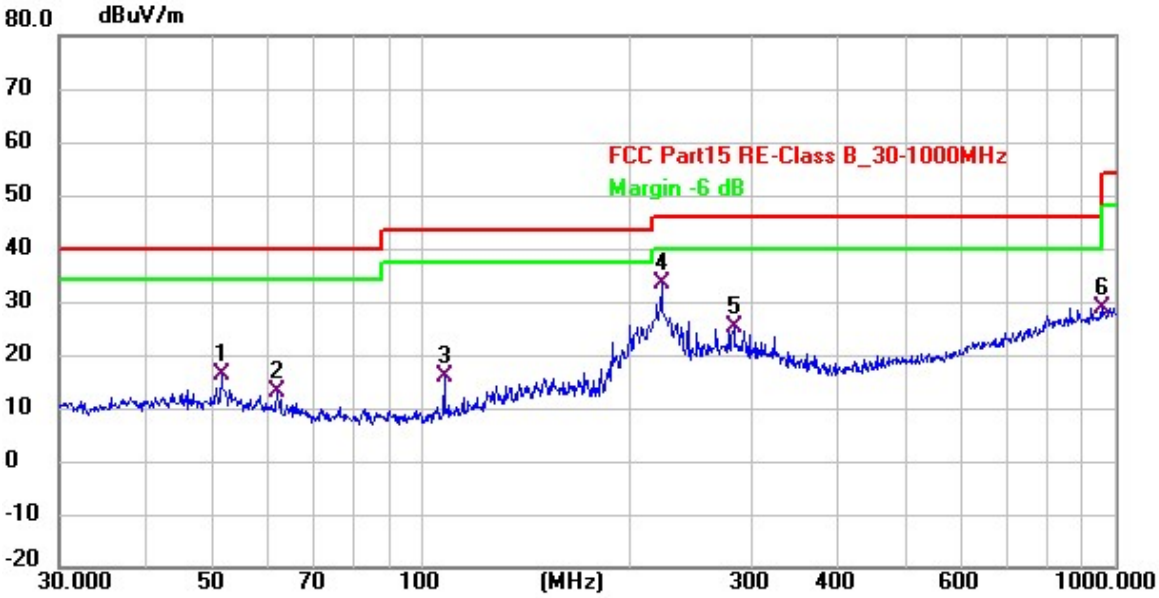
From 30MHz to 1000MHz:					
Test Date	:	2025.04.25	Temperature	:	26℃
Test Engineer	:	Felix Pang	Humidity	:	54%
Test Mode	:	TX-GFSK-2402MHz mode-Worst Case			
Test Results	:	**PASS**			
Note:	1. The test results are listed in next pages. 2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. 3. All modes have been tested, and only worst data of FSK 5730MHz mode was listed in this report.				

Polarization: Vertical

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	50.232	39.17	-14.15	25.02	40.00	-14.98	QP
2	61.778	32.72	-15.29	17.43	40.00	-22.57	QP
3	107.888	38.35	-16.85	21.50	43.50	-22.00	QP
4 *	225.308	48.03	-15.46	32.57	46.00	-13.43	QP
5	483.909	29.45	-7.03	22.42	46.00	-23.58	QP
6	595.133	30.27	-5.84	24.43	46.00	-21.57	QP

Note: Level = Reading + Factor Margin = Level - Limit

Polarization: Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	51.481	30.35	-14.26	16.09	40.00	-23.91	QP
2	61.995	28.48	-15.31	13.17	40.00	-26.83	QP
3	107.888	32.71	-16.85	15.86	43.50	-27.64	QP
4 *	222.170	48.96	-15.74	33.22	46.00	-12.78	QP
5	281.995	37.84	-12.66	25.18	46.00	-20.82	QP
6	958.794	27.57	1.35	28.92	46.00	-17.08	QP

Note: Level = Reading + Factor Margin = Level - Limit

From 1GHz to 25GHz:					
Test Date	:	2025.04.25	Temperature	:	26℃
Test Engineer	:	Felix Pang	Humidity	:	54%
Test Mode	:	GFSK, π/4 DQPSK, 8DPSK mode			
Test Results	:	**PASS**			
Note:	1. The test results are listed in next pages. 2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. 3. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out.				

Frequency range: 1GHz~25GHz

BT(GFSK)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2402									
V	2402.00	113.81	52.16	2.78	27.41	91.84	114	-22.16	PK
V	2402.00	105.86	52.16	2.78	27.41	83.89	94	-10.11	AV
V	4804.00	78.42	51.74	3.08	31.25	61.01	74	-12.99	PK
V	4804.00	61.25	51.74	3.08	31.25	43.84	54	-10.16	AV
V	16132.00	54.76	51.56	7.36	41.57	52.13	74	-21.87	PK
H	2402.00	114.34	52.16	2.78	27.41	92.37	114	-21.63	PK
H	2402.00	104.72	52.16	2.78	27.41	82.75	94	-11.25	AV
H	4804.00	76.69	51.74	3.08	31.25	59.28	74	-14.72	PK
H	4804.00	60.03	51.74	3.08	31.25	42.62	54	-11.38	AV
H	16132.00	56.05	51.56	7.36	41.57	53.42	74	-20.58	PK
operation frequency:2441									
V	2441.00	113.28	52.11	2.82	27.47	91.46	114	-22.54	PK
V	2441.00	106.91	52.11	2.82	27.47	85.09	94	-8.91	AV
V	4882.00	78.76	51.77	3.03	31.34	61.36	74	-12.64	PK
V	4882.00	61.73	51.77	3.03	31.34	44.33	54	-9.67	AV
V	16132.00	55.75	51.56	7.36	41.57	53.12	74	-20.88	PK
H	2441.00	113.41	52.11	2.82	27.47	91.59	114	-22.41	PK
H	2441.00	105.70	52.11	2.82	27.47	83.88	94	-10.12	AV
H	4882.00	77.85	51.77	3.03	31.34	60.45	74	-13.55	PK
H	4882.00	61.07	51.77	3.03	31.34	43.67	54	-10.33	AV
H	16132.00	56.88	51.56	7.36	41.57	54.25	74	-19.75	PK
operation frequency:2480									
V	2480.00	113.82	52.23	2.86	27.44	91.89	114	-22.11	PK
V	2480.00	107.14	52.23	2.86	27.44	85.21	94	-8.79	AV
V	4960.00	79.10	51.69	3.05	31.39	61.85	74	-12.15	PK
V	4960.00	61.05	51.69	3.05	31.39	43.80	54	-10.20	AV
V	16132.00	54.98	51.56	7.36	41.57	52.35	74	-21.65	PK
H	2480.00	114.47	52.23	2.86	27.44	92.54	114	-21.46	PK
H	2480.00	106.41	52.23	2.86	27.44	84.48	94	-9.52	AV
H	4960.00	78.23	51.69	3.05	31.39	60.98	74	-13.02	PK
H	4960.00	60.06	51.69	3.05	31.39	42.81	54	-11.19	AV
H	16132.00	55.54	51.56	7.36	41.57	52.91	74	-21.09	PK

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

BT(PI/4 DQPSK)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2402									
V	2402.00	113.61	52.16	2.78	27.41	91.64	114	-22.36	PK
V	2402.00	103.60	52.16	2.78	27.41	81.63	94	-12.37	AV
V	4804.00	77.65	51.74	3.08	31.25	60.24	74	-13.76	PK
V	4804.00	61.97	51.74	3.08	31.25	44.56	54	-9.44	AV
V	16132.00	54.49	51.56	7.36	41.57	51.86	74	-22.14	PK
H	2402.00	113.46	52.16	2.78	27.41	91.49	114	-22.51	PK
H	2402.00	106.53	52.16	2.78	27.41	84.56	94	-9.44	AV
H	4804.00	79.61	51.74	3.08	31.25	62.20	74	-11.80	PK
H	4804.00	54.05	51.74	3.08	31.25	36.64	54	-17.36	AV
H	16132.00	54.80	51.56	7.36	41.57	52.17	74	-21.83	PK
operation frequency:2441									
V	2441.00	112.60	52.11	2.82	27.47	90.78	114	-23.22	PK
V	2441.00	105.54	52.11	2.82	27.47	83.72	94	-10.28	AV
V	4882.00	77.69	51.77	3.03	31.34	60.29	74	-13.71	PK
V	4882.00	61.26	51.77	3.03	31.34	43.86	54	-10.14	AV
V	16132.00	55.66	51.56	7.36	41.57	53.03	74	-20.97	PK
H	2441.00	112.23	52.11	2.82	27.47	90.41	114	-23.59	PK
H	2441.00	105.62	52.11	2.82	27.47	83.80	94	-10.20	AV
H	4882.00	76.61	51.77	3.03	31.34	59.21	74	-14.79	PK
H	4882.00	60.67	51.77	3.03	31.34	43.27	54	-10.73	AV
H	16132.00	55.32	51.56	7.36	41.57	52.69	74	-21.31	PK
operation frequency:2480									
V	2480.00	114.13	52.23	2.86	27.44	92.20	114	-21.80	PK
V	2480.00	105.82	52.23	2.86	27.44	83.89	94	-10.11	AV
V	4960.00	77.90	51.69	3.05	31.39	60.65	74	-13.35	PK
V	4960.00	61.06	51.69	3.05	31.39	43.81	54	-10.19	AV
V	16132.00	55.54	51.56	7.36	41.57	52.91	74	-21.09	PK
H	2480.00	114.25	52.23	2.86	27.44	92.32	114	-21.68	PK
H	2480.00	105.16	52.23	2.86	27.44	83.23	94	-10.77	AV
H	4960.00	77.67	51.69	3.05	31.39	60.42	74	-13.58	PK
H	4960.00	60.18	51.69	3.05	31.39	42.93	54	-11.07	AV
H	16132.00	56.51	51.56	7.36	41.57	53.88	74	-20.12	PK

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

BT(8DPSK)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2402									
V	2402.00	112.72	52.16	2.78	27.41	90.75	114	-23.25	PK
V	2402.00	105.97	52.16	2.78	27.41	84.00	94	-10.00	AV
V	4804.00	76.84	51.74	3.08	31.25	59.43	74	-14.57	PK
V	4804.00	60.18	51.74	3.08	31.25	42.77	54	-11.23	AV
V	16132.00	55.60	51.56	7.36	41.57	52.97	74	-21.03	PK
H	2402.00	112.93	52.16	2.78	27.41	90.96	114	-23.04	PK
H	2402.00	105.51	52.16	2.78	27.41	83.54	94	-10.46	AV
H	4804.00	77.01	51.74	3.08	31.25	59.60	74	-14.40	PK
H	4804.00	60.87	51.74	3.08	31.25	43.46	54	-10.54	AV
H	16132.00	54.69	51.56	7.36	41.57	52.06	74	-21.94	PK
operation frequency:2441									
V	2441.00	113.07	52.11	2.82	27.47	91.25	114	-22.75	PK
V	2441.00	104.75	52.11	2.82	27.47	82.93	94	-11.07	AV
V	4882.00	77.49	51.77	3.03	31.34	60.09	74	-13.91	PK
V	4882.00	62.90	51.77	3.03	31.34	45.50	54	-8.50	AV
V	16132.00	55.13	51.56	7.36	41.57	52.50	74	-21.50	PK
H	2441.00	112.61	52.11	2.82	27.47	90.79	114	-23.21	PK
H	2441.00	103.96	52.11	2.82	27.47	82.14	94	-11.86	AV
H	4882.00	75.80	51.77	3.03	31.34	58.40	74	-15.60	PK
H	4882.00	62.12	51.77	3.03	31.34	44.72	54	-9.28	AV
H	16132.00	55.04	51.56	7.36	41.57	52.41	74	-21.59	PK
operation frequency:2480									
V	2480.00	112.75	52.23	2.86	27.44	90.82	114	-23.18	PK
V	2480.00	104.07	52.23	2.86	27.44	82.14	94	-11.86	AV
V	4960.00	77.70	51.69	3.05	31.39	60.45	74	-13.55	PK
V	4960.00	60.09	51.69	3.05	31.39	42.84	54	-11.16	AV
V	16132.00	56.16	51.56	7.36	41.57	53.53	74	-20.47	PK
H	2480.00	113.24	52.23	2.86	27.44	91.31	114	-22.69	PK
H	2480.00	103.82	52.23	2.86	27.44	81.89	94	-12.11	AV
H	4960.00	78.38	51.69	3.05	31.39	61.13	74	-12.87	PK
H	4960.00	61.83	51.69	3.05	31.39	44.58	54	-9.42	AV
H	16132.00	54.90	51.56	7.36	41.57	52.27	74	-21.73	PK

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Band Edge Test Results:
BT(GFSK)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	**Detector Type**
operation frequency:2402									
V	2390.00	76.10	52.12	2.73	27.38	54.09	74.00	-19.91	PK
V	2390.00	65.17	52.12	2.73	27.38	43.16	54.00	-10.84	AV
V	2400.00	77.16	52.16	2.78	27.41	55.19	74.00	-18.81	PK
V	2400.00	65.14	52.16	2.78	27.41	43.17	54.00	-10.83	AV
H	2390.00	77.82	52.12	2.73	27.38	55.81	74.00	-18.19	PK
H	2390.00	65.80	52.12	2.73	27.38	43.79	54.00	-10.21	AV
H	2400.00	76.73	52.16	2.78	27.41	54.76	74.00	-19.24	PK
H	2400.00	65.59	52.16	2.78	27.41	43.62	54.00	-10.38	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2480									
V	2483.50	75.06	52.23	2.86	27.44	53.13	74.00	-20.87	PK
V	2483.50	66.24	52.23	2.86	27.44	44.31	54.00	-9.69	AV
V	2500.00	74.80	52.26	2.88	27.49	52.91	74.00	-21.09	PK
V	2500.00	65.10	52.26	2.88	27.49	43.21	54.00	-10.79	AV
H	2483.50	74.92	52.23	2.86	27.44	52.99	74.00	-21.01	PK
H	2483.50	64.42	52.23	2.86	27.44	42.49	54.00	-11.51	AV
H	2500.00	74.79	52.26	2.88	27.49	52.90	74.00	-21.10	PK
H	2500.00	66.30	52.26	2.88	27.49	44.41	54.00	-9.59	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

BT(PI/4 DQPSK)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2402									
V	2390.00	75.93	52.12	2.73	27.38	53.92	74.00	-20.08	PK
V	2390.00	64.59	52.12	2.73	27.38	42.58	54.00	-11.42	AV
V	2400.00	75.63	52.16	2.78	27.41	53.66	74.00	-20.34	PK
V	2400.00	63.84	52.16	2.78	27.41	41.87	54.00	-12.13	AV
H	2390.00	76.15	52.12	2.73	27.38	54.14	74.00	-19.86	PK
H	2390.00	64.86	52.12	2.73	27.38	42.85	54.00	-11.15	AV
H	2400.00	75.93	52.16	2.78	27.41	53.96	74.00	-20.04	PK
H	2400.00	65.06	52.16	2.78	27.41	43.09	54.00	-10.91	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2480									
V	2483.50	76.94	52.23	2.86	27.44	55.01	74.00	-18.99	PK
V	2483.50	65.78	52.23	2.86	27.44	43.85	54.00	-10.15	AV
V	2500.00	76.72	52.26	2.88	27.49	54.83	74.00	-19.17	PK
V	2500.00	66.20	52.26	2.88	27.49	44.31	54.00	-9.69	AV
H	2483.50	77.37	52.23	2.86	27.44	55.44	74.00	-18.56	PK
H	2483.50	65.95	52.23	2.86	27.44	44.02	54.00	-9.98	AV
H	2500.00	77.00	52.26	2.88	27.49	55.11	74.00	-18.89	PK
H	2500.00	65.83	52.26	2.88	27.49	43.94	54.00	-10.06	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

BT(8DPSK)

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2402									
V	2390.00	76.73	52.12	2.73	27.38	54.72	74.00	-19.28	PK
V	2390.00	65.46	52.12	2.73	27.38	43.45	54.00	-10.55	AV
V	2400.00	77.78	52.16	2.78	27.41	55.81	74.00	-18.19	PK
V	2400.00	65.42	52.16	2.78	27.41	43.45	54.00	-10.55	AV
H	2390.00	77.29	52.12	2.73	27.38	55.28	74.00	-18.72	PK
H	2390.00	65.41	52.12	2.73	27.38	43.40	54.00	-10.60	AV
H	2400.00	76.34	52.16	2.78	27.41	54.37	74.00	-19.63	PK
H	2400.00	65.08	52.16	2.78	27.41	43.11	54.00	-10.89	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
operation frequency:2480									
V	2483.50	77.22	52.23	2.86	27.44	55.29	74.00	-18.71	PK
V	2483.50	65.56	52.23	2.86	27.44	43.63	54.00	-10.37	AV
V	2500.00	76.34	52.26	2.88	27.49	54.45	74.00	-19.55	PK
V	2500.00	65.23	52.26	2.88	27.49	43.34	54.00	-10.66	AV
H	2483.50	77.86	52.23	2.86	27.44	55.93	74.00	-18.07	PK
H	2483.50	65.22	52.23	2.86	27.44	43.29	54.00	-10.71	AV
H	2500.00	76.29	52.26	2.88	27.49	54.40	74.00	-19.60	PK
H	2500.00	66.20	52.26	2.88	27.49	44.31	54.00	-9.69	AV

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
   Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

4. Power Line Conducted Emission

4.1. Test Limits

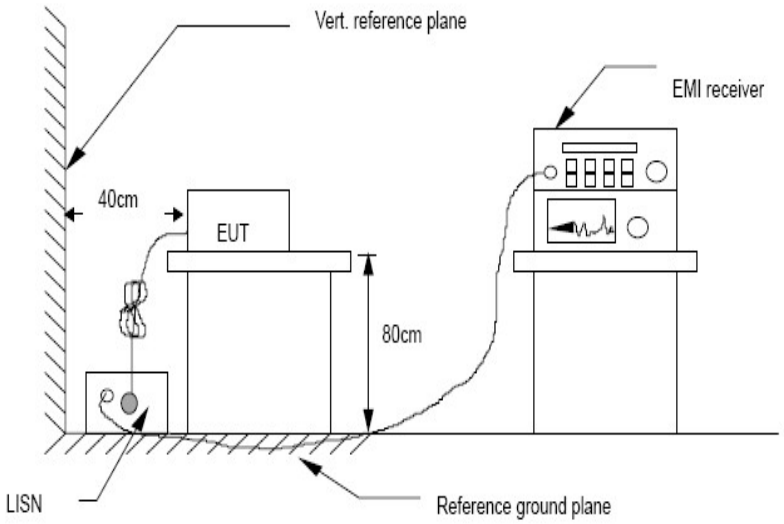
Frequency	Limits dB(μV)	
MHz	Quasi-peak Level	Average Level
0.15 -0.50	66 -56*	56 - 46*
0.50 -5.00	56	46
5.00 -30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.
3. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

4.2. Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10:2013 on Conducted Emission Measurement.
The bandwidth of test receiver is set at 9 kHz.

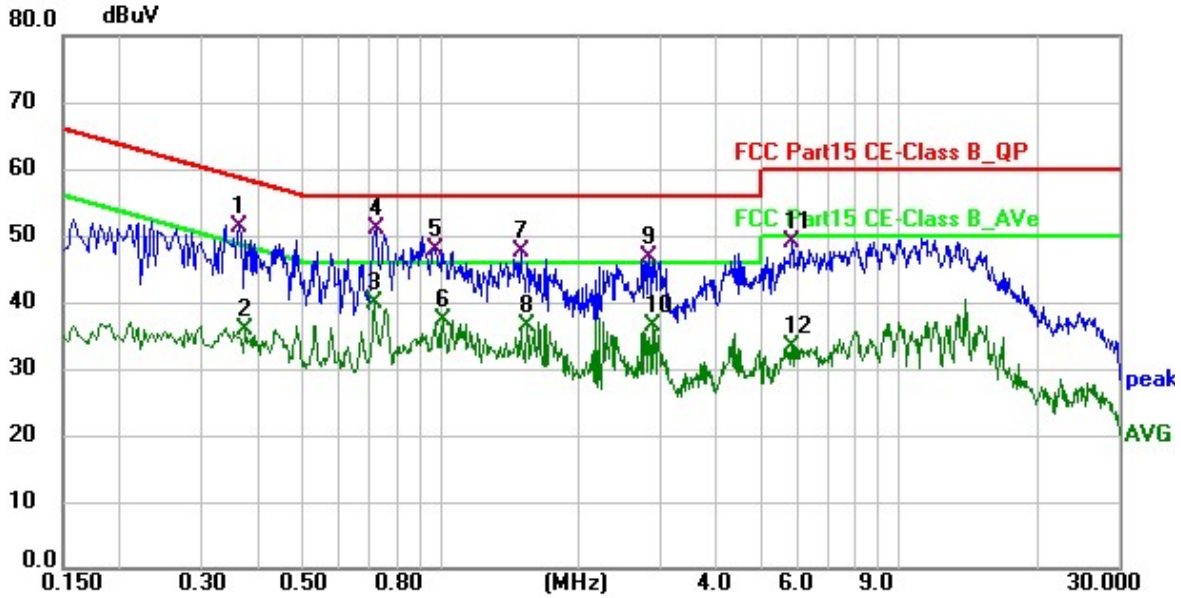
4.3. Test Setup



4.4. Test Results

Test Date	:	2025.04.25	Temperature	:	26℃
Test Engineer	:	Felix Pang	Humidity	:	54%
Test Mode	:	/			
Test Results	:	**PASS**			
Note:	1. The test results are listed in next pages. 2. If the limits for the measurement with the average detector are met when using a receiver with a peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector and quasi-peak detector need not be carried out. 3. If the limits for the measurement with the average detector are met when using a receiver with a quasi-peak detector, the test unit shall be deemed to meet both limits and the measurement with the average detector need not be carried out. 3. The EUT employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines. Measurements to demonstrate compliance with the conducted limits are not required for devices.				

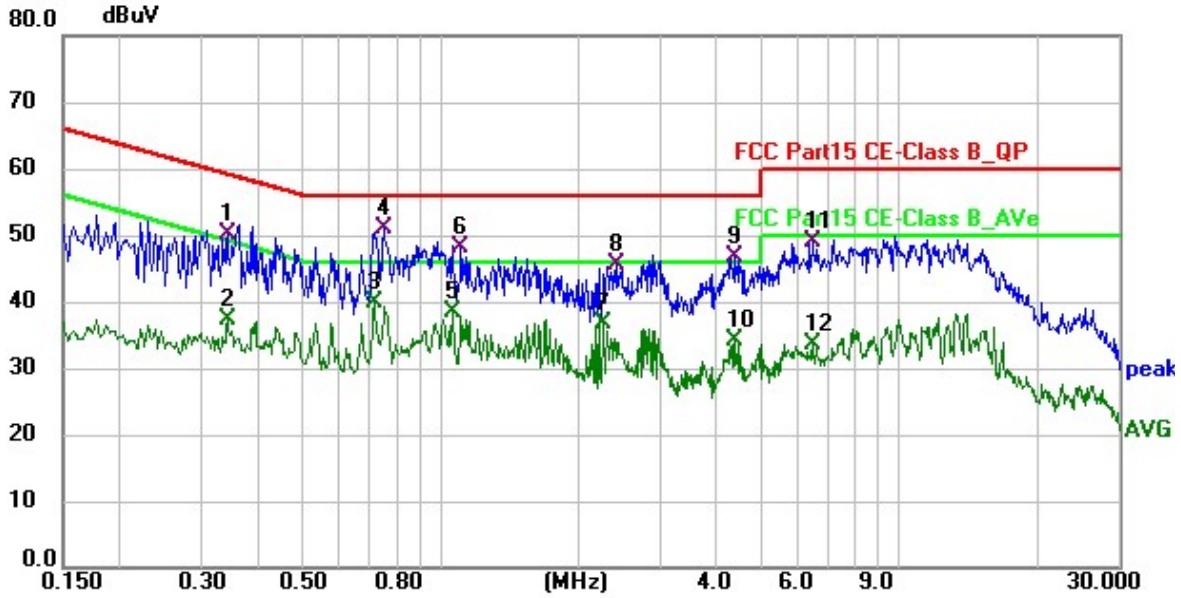
Polarization: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.362	30.68	20.47	51.15	58.68	-7.53	QP
2	0.374	15.50	20.46	35.96	48.41	-12.45	AVG
3	0.718	19.48	20.32	39.80	46.00	-6.20	AVG
4 *	0.726	30.81	20.32	51.13	56.00	-4.87	QP
5	0.974	27.62	20.27	47.89	56.00	-8.11	QP
6	1.014	16.96	20.27	37.23	46.00	-8.77	AVG
7	1.502	27.27	20.20	47.47	56.00	-8.53	QP
8	1.546	16.18	20.20	36.38	46.00	-9.62	AVG
9	2.850	26.55	20.13	46.68	56.00	-9.32	QP
10	2.894	16.23	20.13	36.36	46.00	-9.64	AVG
11	5.842	28.84	20.08	48.92	60.00	-11.08	QP
12	5.842	13.27	20.08	33.35	50.00	-16.65	AVG

Note: Level = Reading + Factor Margin = Level - Limit

Polarization: N



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector
1	0.342	29.62	20.49	50.11	59.15	-9.04	QP
2	0.342	16.73	20.49	37.22	49.15	-11.93	AVG
3	0.718	19.41	20.32	39.73	46.00	-6.27	AVG
4 *	0.754	30.60	20.31	50.91	56.00	-5.09	QP
5	1.066	18.06	20.25	38.31	46.00	-7.69	AVG
6	1.106	28.01	20.24	48.25	56.00	-7.75	QP
7	2.262	16.47	20.15	36.62	46.00	-9.38	AVG
8	2.410	25.45	20.16	45.61	56.00	-10.39	QP
9	4.390	26.67	20.10	46.77	56.00	-9.23	QP
10	4.390	14.09	20.10	34.19	46.00	-11.81	AVG
11	6.470	28.97	20.08	49.05	60.00	-10.95	QP
12	6.470	13.40	20.08	33.48	50.00	-16.52	AVG

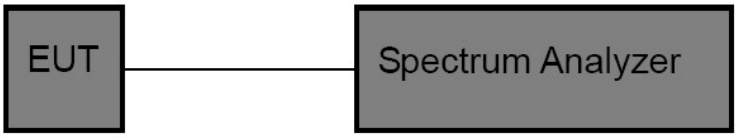
Note: Level = Reading + Factor Margin = Level - Limit

5. Bandwidth Test

5.1. Test Standard and Limit

Test Standard	FCC 15.249
Test Limit	N/A

5.2. Test Setup



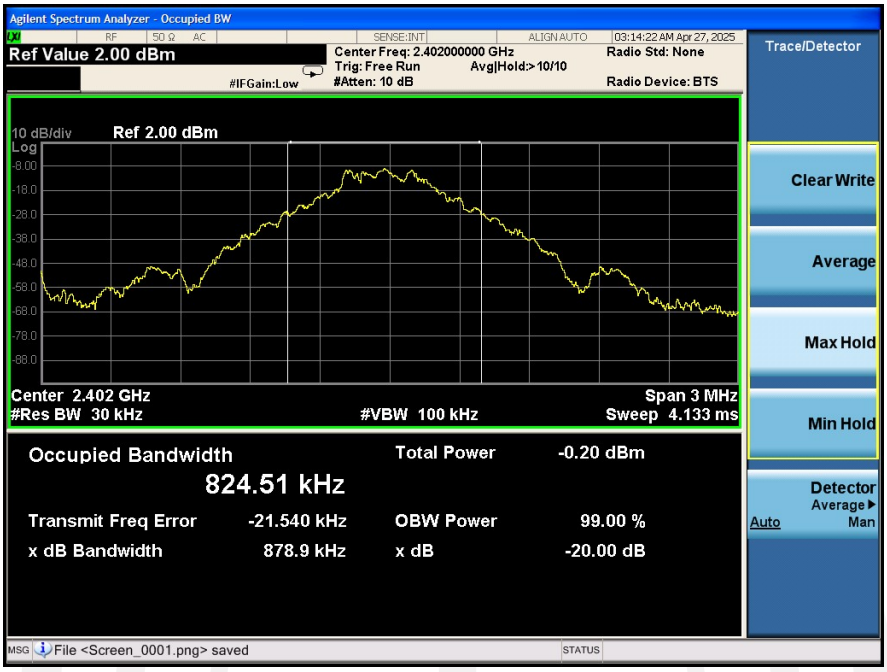
5.3. Test Procedure

Using the following spectrum analyzer settings:
1. Span= approximately 2 to 3 times the 20dB bandwidth, centered on a hopping channel.
2. Set the RBW ≥1% of the 20 dB bandwidth.
3. Set the VBW ≥RBW
4. Sweep time = auto couple.
5. Detector function = peak.
6. Trace mode = max hold.
7. Allow trace to fully stabilize.
8. Measure the frequency difference of two frequencies that were attenuated 20dB from the reference level. Record the frequency difference as the emission bandwidth.
9. Measure the 99% Bandwidth use the function button of “Occupied Bandwidth”.

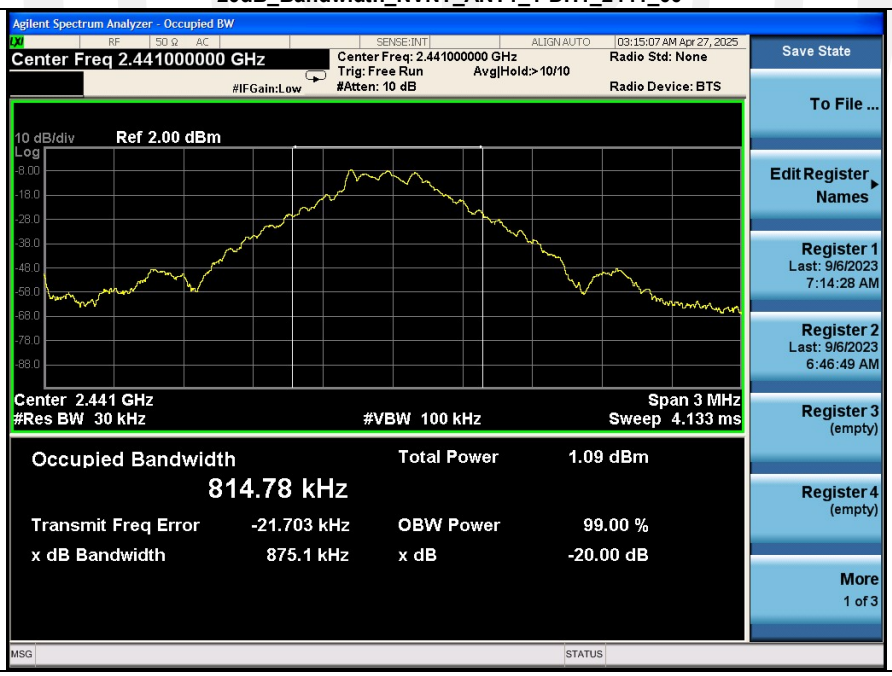
5.4. Test Results

Condition	Antenna	Modulation	Frequency (MHz)	-20dB BW(MHz)	if larger than CFS
NVNT	ANT1	1-DH1	2402.00	0.878	Yes
NVNT	ANT1	1-DH1	2441.00	0.875	Yes
NVNT	ANT1	1-DH1	2480.00	0.870	Yes
NVNT	ANT1	2-DH1	2402.00	1.258	Yes
NVNT	ANT1	2-DH1	2441.00	1.212	Yes
NVNT	ANT1	2-DH1	2480.00	1.213	Yes
NVNT	ANT1	3-DH1	2402.00	1.250	Yes
NVNT	ANT1	3-DH1	2441.00	1.251	Yes
NVNT	ANT1	3-DH1	2480.00	1.254	Yes

-20dB_Bandwidth_NVNT_ANT1_1-DH1_2402_00

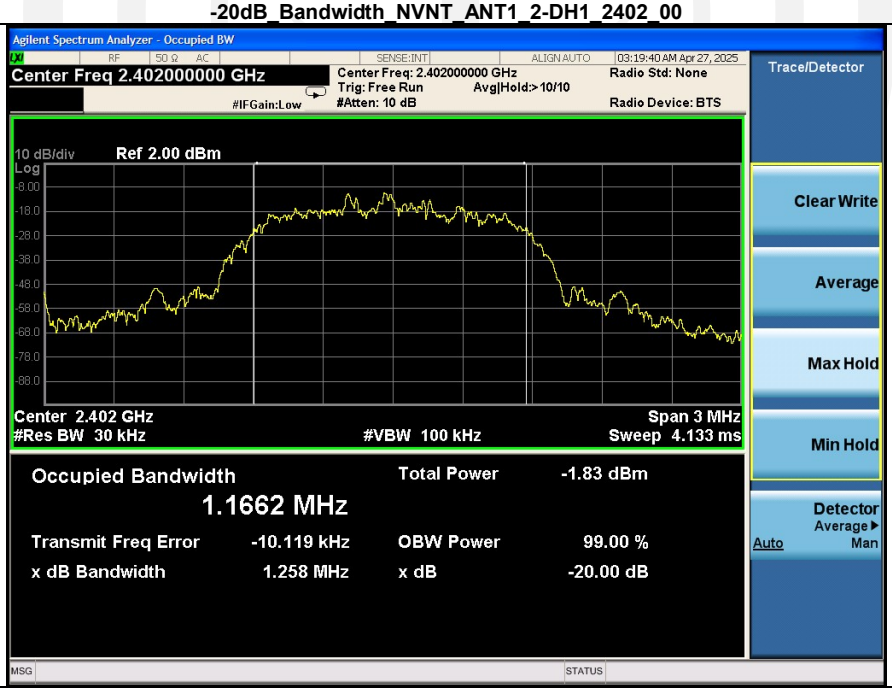


-20dB_Bandwidth_NVNT_ANT1_1-DH1_2441_00

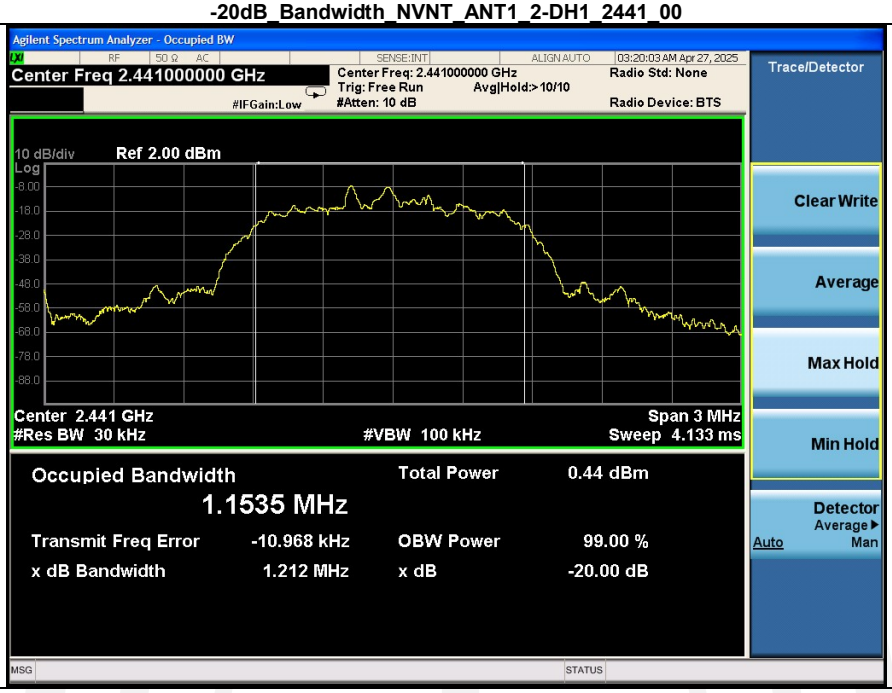


-20dB_Bandwidth_NVNT_ANT1_1-DH1_2480_00

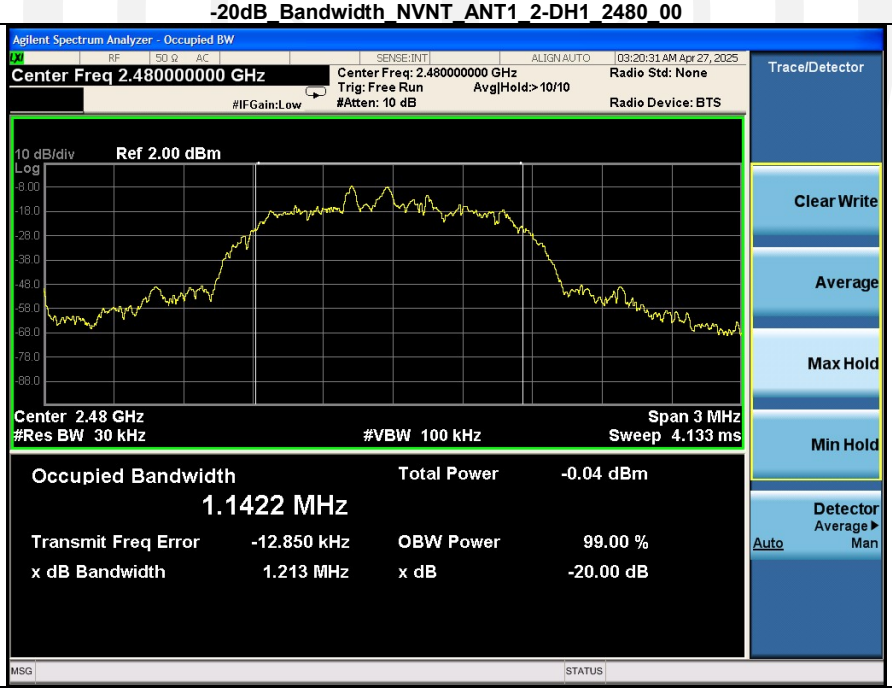
-20dB_Bandwidth_NVNT_ANT1_2-DH1_2402_00



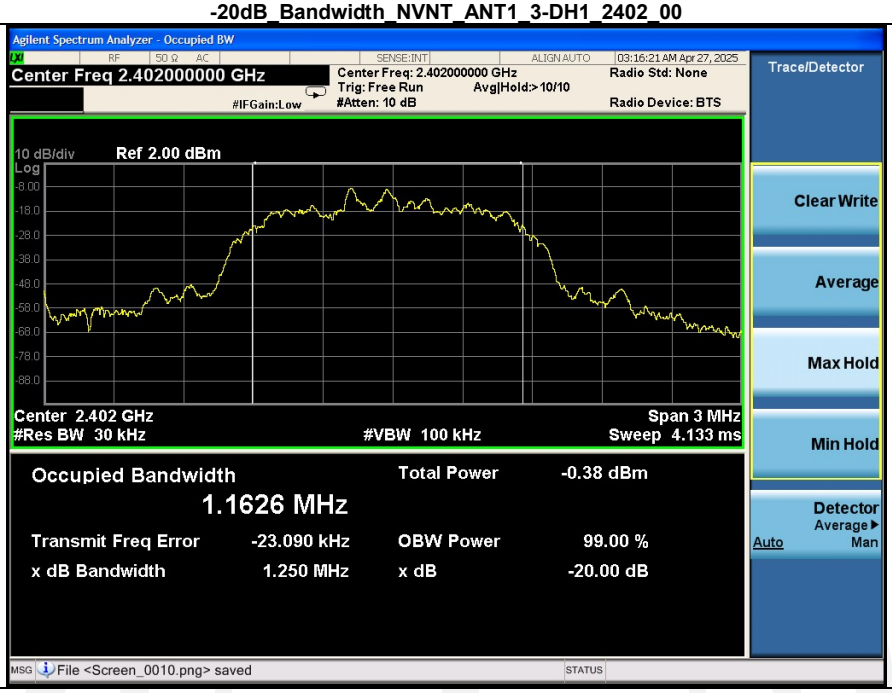
-20dB_Bandwidth_NVNT_ANT1_2-DH1_2441_00



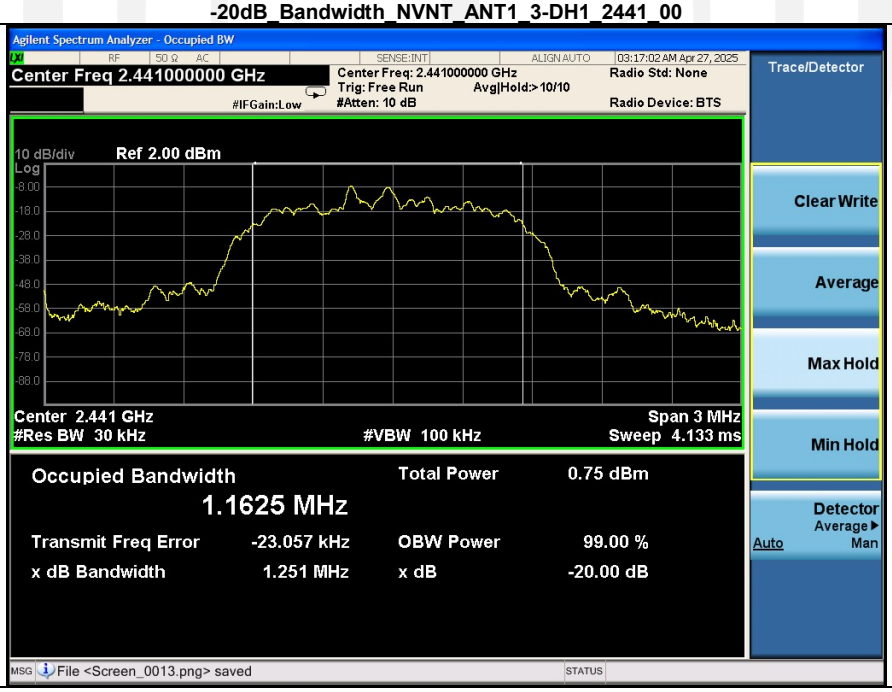
-20dB_Bandwidth_NVNT_ANT1_2-DH1_2480_00



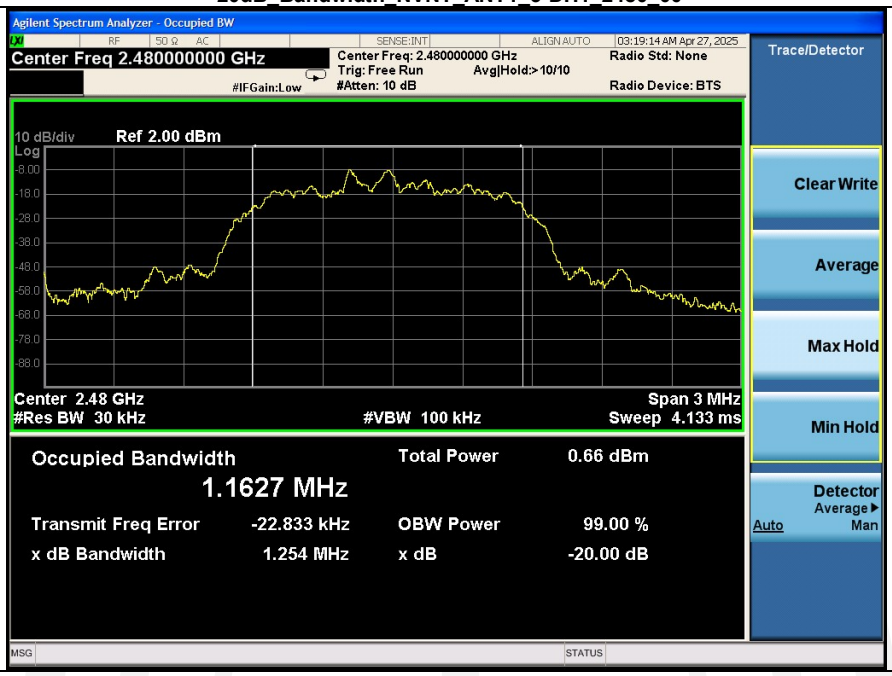
-20dB_Bandwidth_NVNT_ANT1_3-DH1_2402_00



-20dB_Bandwidth_NVNT_ANT1_3-DH1_2441_00



-20dB_Bandwidth_NVNT_ANT1_3-DH1_2480_00



6. Antenna Requirement

6.1. Standard Requirement

According to the FCC Part 15 Paragraph 15.203& RSS-GEN(6.8), 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 to the intentional radiator shall be considered sufficient to comply with the provisions of this section. This product use a permanent ceramic printed antenna, fulfill the requirement of this section

6.2. EUT Antenna

The EUT antenna is Chip antenna. It complies with the standard requirement.

7. Photos of test setup

Reference to the **appendix I Test Setup Photo** for details.

8. Photos of EUT

Reference to the **appendix II external photos** and **appendix III internal photos** for details.

------ END OF REPORT------