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# FCC Test Report

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Report No.: AGC01040250315FR05

**FCC ID** : 2BOPJXX

**APPLICATION PURPOSE** : Original Equipment

**PRODUCT DESIGNATION** : SMART BIKE TRAINER

**BRAND NAME** : ThinkRider

**MODEL NAME** : XX, XX Pro, XX Max, XX Fold, XX Ultra

**APPLICANT** : Wuxi Thinkrider Technology Co., Ltd.

**DATE OF ISSUE** : Apr. 24, 2025

**STANDARD(S)** : FCC Part 15 Subpart C §15.249

**REPORT VERSION** : V1.0

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**Report Revise Record**

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	Apr. 24, 2025	Valid	Initial Release

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## Table of Contents

<b>1. General Information .....</b>	<b>4</b>
<b>2. Product Information .....</b>	<b>5</b>
2.1 Product Technical Description .....	5
2.2 Test Frequency List .....	5
2.3 Related Submittal(S) / Grant (S) .....	6
2.4 Test Methodology.....	6
2.5 Antenna Requirement.....	6
<b>3. Test Environment .....</b>	<b>7</b>
3.1 Address of the Test Laboratory.....	7
3.2 Test Facility .....	7
3.3 Environmental Conditions .....	8
3.4 Measurement Uncertainty .....	8
3.5 List of Equipment Use .....	9
<b>4. System Test Configuration.....</b>	<b>10</b>
4.1 EUT Configuration .....	10
4.2 EUT Exercise.....	10
4.3 Configuration of Tested System .....	10
4.4 Equipment Used In Tested System.....	10
4.5 Summary of Test Results.....	11
<b>5. Description of Test Modes .....</b>	<b>12</b>
<b>6. Duty Cycle Measurement .....</b>	<b>13</b>
<b>7. 20dB Bandwidth Measurement.....</b>	<b>14</b>
7.1 Provisions Applicable.....	14
7.2 Measurement Procedure .....	14
7.3 Measurement Setup (Block Diagram of Configuration) .....	14
7.4 Measurement Results.....	15
<b>8. Field Strength of Fundamental and Radiated Spurious Emission .....</b>	<b>16</b>
8.1 Measurement Limit .....	16
8.2 Measurement Procedure.....	17
8.3 Measurement Setup (Block Diagram of Configuration) .....	20
8.4 Measurement Results.....	21
<b>9. AC Power Line Conducted Emission.....</b>	<b>30</b>
9.1 Measurement Limit .....	30
9.2 Measurement Setup (Block Diagram of Configuration) .....	30
9.3 Preliminary Procedure of Line Conducted Emission Test .....	31
9.4 Final Procedure of Line Conducted Emission Test.....	31
9.5 Measurement Result .....	31
<b>Appendix I: Photographs of Test Setup.....</b>	<b>34</b>
<b>Appendix II: Photographs of Test EUT.....</b>	<b>34</b>

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## 1. General Information

Applicant	Wuxi Thinkrider Technology Co., Ltd.
Address	9th Floor, Building 8, No. 67, Zhujiang Road, Xinwu District, Wuxi City, China.
Manufacturer	Wuxi Thinkrider Technology Co., Ltd.
Address	9th Floor, Building 8, No. 67, Zhujiang Road, Xinwu District, Wuxi City, China.
Factory	Wuxi Thinkrider Technology Co., Ltd.
Address	9th Floor, Building 8, No. 67, Zhujiang Road, Xinwu District, Wuxi City, China.
Product Designation	SMART BIKE TRAINER
Brand Name	ThinkRider
Test Model	XX
Series Model(s)	XX Pro, XX Max, XX Fold, XX Ultra
Difference Description	All the same except the model name and colors.
Date of receipt of test item	Mar. 25, 2025
Date of Test	Mar. 25, 2025~Apr. 24, 2025
Deviation from Standard	No any deviation from the test method
Condition of Test Sample	Normal
Test Result	Pass
Test Report Form No	AGCER-FCC-ANT+-V1

Note: The test results of this report relate only to the tested sample identified in this report.

Prepared By		
	Jack Gui (Project Engineer)	Apr. 24, 2025
Reviewed By		
	Calvin Liu (Reviewer)	Apr. 24, 2025
Approved By		
	Angela Li (Authorized Officer)	Apr. 24, 2025

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## 2. Product Information

### 2.1 Product Technical Description

Equipment Specification	Low Power Short Range Equipment (ANT <sup>+</sup> )
Frequency Band	2400MHz-2483.5MHz
Operation Frequency	2457MHz
Modulation Type	GFSK
Field Strength of Fundamental	83.56dBμV/m (Peak)
Hardware Version	V2.2
Software Version	V1.0.1
Antenna Designation	PCB Antenna
Antenna Gain	4.13dBi
Power Supply	DC 48V by adapter

### 2.2 Test Frequency List

Frequency Band	Channel Number	Test Frequency
2400~2483.5MHz	1	2457 MHz

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## 2.3 Related Submittal(S) / Grant (S)

This submittal(s) (test report) is intended for FCC ID: **2BOPJXX**, filing to comply with Part 2, Part 15 of the Federal Communication Commission rules.

## 2.4 Test Methodology

The tests were performed according to following standards:

No.	Identity	Document Title
1	FCC 47 CFR Part 2	Frequency allocations and radio treaty matters; general rules and regulations
2	FCC 47 CFR Part 15	Radio Frequency Devices
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

## 2.5 Antenna Requirement

Standard Requirement
<b>15.203 requirement:</b> An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.
<b>EUT Antenna:</b> The non-detachable antenna inside the device cannot be replaced by the user at will. The gain of the antenna is 4.13dBi.

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### 3. Test Environment

#### 3.1 Address of the Test Laboratory

Laboratory: Attestation of Global Compliance (Shenzhen) Co., Ltd.

Address: 1-2/F, Building 19, Junfeng Industrial Park, Chongqing Road, Heping Community, Fuhai Street, Bao'an District, Shenzhen, Guangdong, China

#### 3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

##### **CNAS-Lab Code: L5488**

Attestation of Global Compliance (Shenzhen) Co., Ltd. has been assessed and proved to follow CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories).

##### **A2LA-Lab Cert. No.: 5054.02**

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to follow ISO/IEC 17025: 2017 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing.

##### **FCC-Registration No.: 975832**

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files with Registration 975832.

##### **IC-Registration No.: 24842 (CAB identifier: CN0063)**

Attestation of Global Compliance (Shenzhen) Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the Certification and Engineering Bureau of Industry Canada. The acceptance letter from the IC is maintained in our files with Registration 24842.

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### 3.3 Environmental Conditions

	Normal Conditions
Temperature range (°C)	15 - 35
Relative humidity range	20 % - 75 %
Pressure range (kPa)	86 - 106
Power supply	DC 48V

### 3.4 Measurement Uncertainty

The reported uncertainty of measurement  $y \pm U$ , where expanded uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%.

Item	Measurement Uncertainty
Uncertainty of Conducted Emission for AC Port	$U_c = \pm 2.9 \text{ dB}$
Uncertainty of Radiated Emission below 1GHz	$U_c = \pm 3.9 \text{ dB}$
Uncertainty of Radiated Emission above 1GHz	$U_c = \pm 4.9 \text{ dB}$
Uncertainty of total RF power, conducted	$U_c = \pm 0.8 \text{ dB}$
Uncertainty of RF power density, conducted	$U_c = \pm 2.6 \text{ dB}$
Uncertainty of spurious emissions, conducted	$U_c = \pm 2 \%$
Uncertainty of Occupied Channel Bandwidth	$U_c = \pm 2 \%$

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### 3.5 List of Equipment Use

● RF Conducted Test System							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
<input checked="" type="checkbox"/>	AGC-ER-E036	Spectrum Analyzer	Agilent	N9020A	MY49100060	2025-01-30	2026-01-29
<input checked="" type="checkbox"/>	AGC-ER-A007	6dB Fixed Attenuator	Mini circuits	BW-S6-2W263A+	N/A	2025-01-30	2026-01-29
<input checked="" type="checkbox"/>	N/A	RF Connection Cable	N/A	1#	N/A	Each time	N/A
<input checked="" type="checkbox"/>	N/A	RF Connection Cable	N/A	2#	N/A	Each time	N/A

● Radiated Spurious Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
<input checked="" type="checkbox"/>	AGC-EM-E046	EMI Test Receiver	R&S	ESCI	10096	2025-01-14	2026-01-13
<input type="checkbox"/>	AGC-EM-E116	EMI Test Receiver	R&S	ESCI	100034	2024-05-24	2025-05-23
<input checked="" type="checkbox"/>	AGC-EM-E061	Spectrum Analyzer	Agilent	N9010A	MY53470504	2024-05-28	2025-05-27
<input checked="" type="checkbox"/>	AGC-EM-E086	Loop Antenna	ZHINAN	ZN30900C	18051	2024-03-05	2026-03-04
<input checked="" type="checkbox"/>	AGC-EM-E001	Wideband Antenna	SCHWARZBECK	VULB9168	D69250	2023-06-03	2025-06-02
<input checked="" type="checkbox"/>	AGC-EM-E029	Broadband Ridged Horn Antenna	ETS	3117	00034609	2024-05-24	2025-05-23
<input checked="" type="checkbox"/>	AGC-EM-E082	Horn Antenna	SCHWARZBECK	BBHA 9170	#768	2023-09-24	2025-09-23
<input checked="" type="checkbox"/>	AGC-EM-E146	Pre-amplifier	ETS	3117-PA	00246148	2024-07-24	2026-07-23
<input checked="" type="checkbox"/>	AGC-EM-A119	2.4G Filter	SongYi	N/A	N/A	2024-05-23	2025-05-22
<input checked="" type="checkbox"/>	AGC-EM-A138	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2025-06-08
<input type="checkbox"/>	AGC-EM-A139	6dB Attenuator	Eeatsheep	LM-XX-6-5W	N/A	2023-06-09	2025-06-08

● AC Power Line Conducted Emission							
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal. Date (YY-MM-DD)	Next Cal. Date (YY-MM-DD)
<input checked="" type="checkbox"/>	AGC-EM-E045	EMI Test Receiver	R&S	ESPI	101206	2024-05-28	2025-05-27
<input checked="" type="checkbox"/>	AGC-EM-A130	6dB Attenuator	Eeatsheep	LM-XX-6-5W	DC-6GZ	2024-02-01	2026-01-31
<input checked="" type="checkbox"/>	AGC-EM-E023	AMN	R&S	100086	ESH2-Z5	2024-05-28	2025-05-27

● Test Software					
Used	Equipment No.	Test Equipment	Manufacturer	Model No.	Version Information
<input checked="" type="checkbox"/>	AGC-EM-S003	RE Test System	FARA	EZ-EMC	VRA-03A
<input checked="" type="checkbox"/>	AGC-ER-S012	BT/WIFI Test System	Tonscend	JS1120-2	2.6
<input checked="" type="checkbox"/>	AGC-EM-S011	RSE Test System	Tonscend	TS+-Ver2.1(JS36-RSE)	4.0.0.0

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## 4. System Test Configuration

### 4.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commission's requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 4.2 EUT Exercise

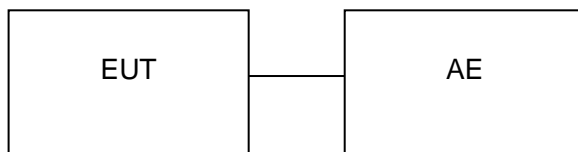
The Transmitter was operated in the normal operating mode. The TX frequency was fixed which was for the purpose of the measurements.

### 4.3 Configuration of Tested System

Radiated Emission Configure:



Conducted Emission Configure:



### 4.4 Equipment Used In Tested System

The following peripheral devices and interface cables were connected during the measurement:

☒ Test Accessories Come From The Laboratory

No.	Equipment	Manufacturer	Model No.	Specification Information	Cable
1	Control Box	USB-TTL	--	--	--

☒ Test Accessories Come From The Manufacturer

No.	Equipment	Manufacturer	Model No.	Specification Information	Cable
1	Adapter	Guangdong Mingxin Power Technologies Co., Ltd	MX65C1-4801250	Input: AC 100-240V 50/60Hz, 2A Output: DC 48V 1.25A 60W	1.0m unshielded

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#### 4.5 Summary of Test Results

Item	FCC Rules	Description of Test	Result
1	§15.203	Antenna Equipment	Pass
2	§15.249(a)	Field Strength of Fundamental	Pass
3	§15.209&§15.249(d)	Radiated Emission& Band Edge	Pass
4	§15.205	Restricted Bands of Operation	Pass
5	§15.215	20dB Bandwidth	Pass
6	§15.207	AC Power Line Conducted Emission	Pass

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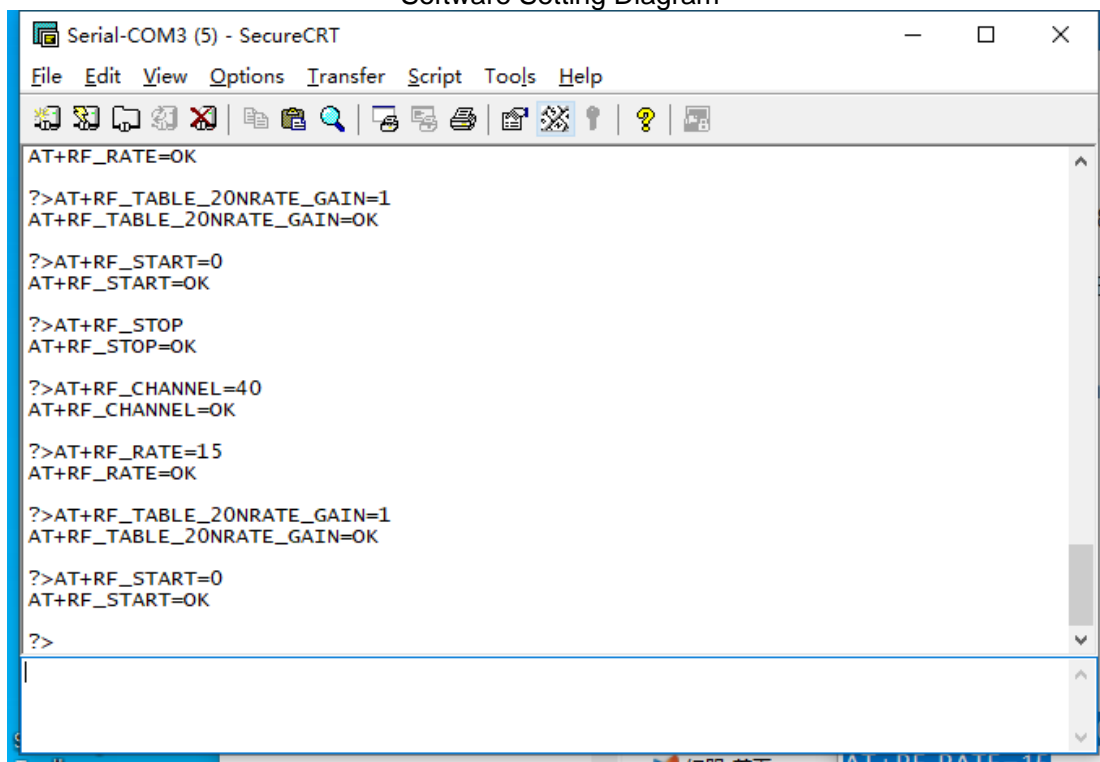
## 5. Description of Test Modes

Summary Table of Test Cases	
Test Item	Equipment type / Modulation
	Short Distance and Low Power Consumption/ GFSK
Radiated & Conducted Test Cases	Mode 1: ANT <sup>+</sup> Normal transmission (2457MHz) (AC/DC adapter)
AC Conducted Emission	Mode 1: ANT <sup>+</sup> Normal transmission (2457MHz) + AC/DC adapter

Note:

1. Only the result of the worst case was recorded in the report, if no other cases.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
3. For Conducted Test method, a temporary antenna connector is provided by the manufacture.

Software Setting Diagram



```

Serial-COM3 (5) - SecureCRT
File Edit View Options Transfer Script Tools Help
[Icons]
AT+RF_RATE=OK
?>AT+RF_TABLE_20NRATE_GAIN=1
AT+RF_TABLE_20NRATE_GAIN=OK
?>AT+RF_START=0
AT+RF_START=OK
?>AT+RF_STOP
AT+RF_STOP=OK
?>AT+RF_CHANNEL=40
AT+RF_CHANNEL=OK
?>AT+RF_RATE=15
AT+RF_RATE=OK
?>AT+RF_TABLE_20NRATE_GAIN=1
AT+RF_TABLE_20NRATE_GAIN=OK
?>AT+RF_START=0
AT+RF_START=OK
?>
  
```

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## 6. Duty Cycle Measurement

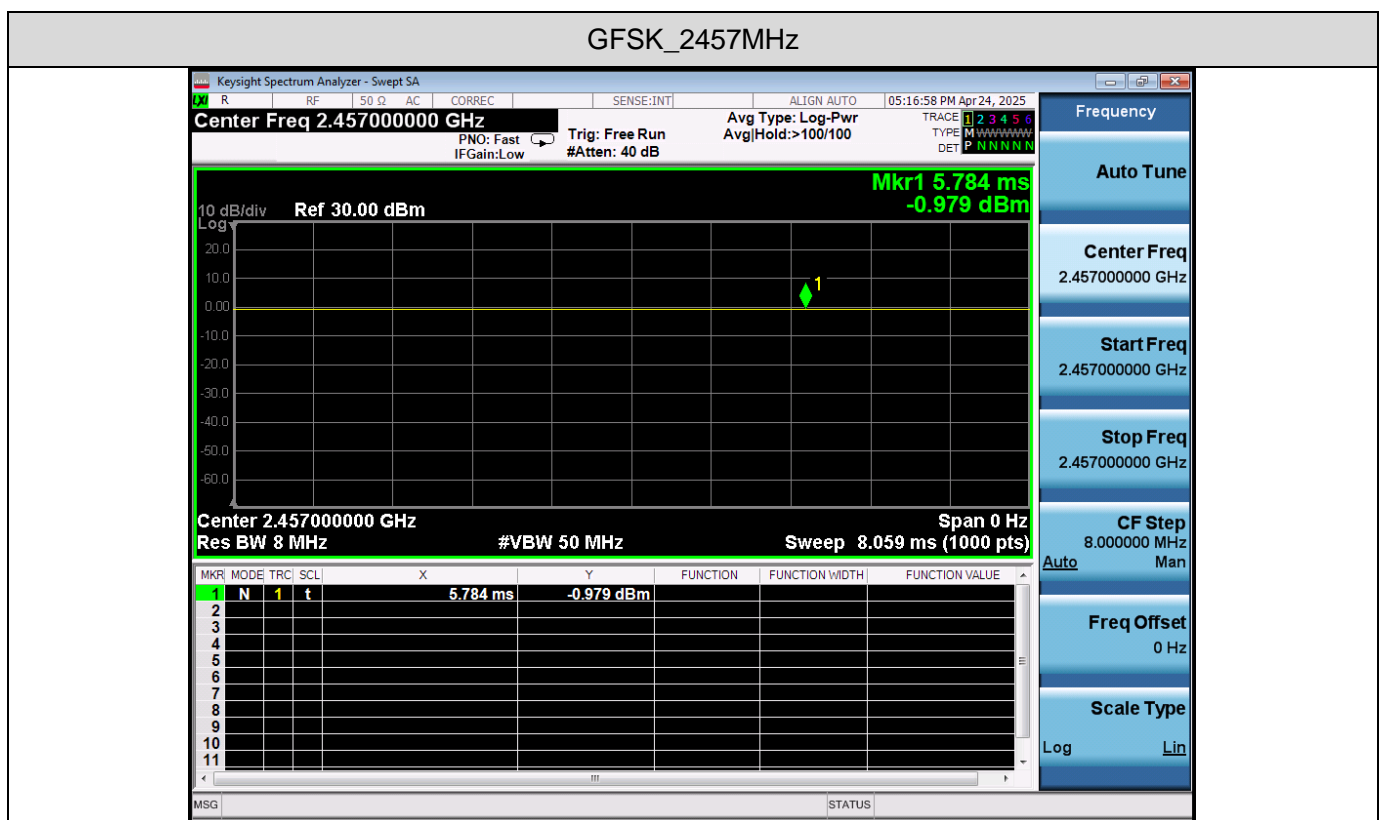
The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz, and detector = Average. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

Operating mode	T(μs)	Duty Cycle (%)	Duty Cycle Factor (dB)
GFSK_2457MHz	0	100	0

Remark:

- Duty Cycle factor =  $10 * \log (1/ \text{Duty cycle})$

The test plots as follows:



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## 7. 20dB Bandwidth Measurement

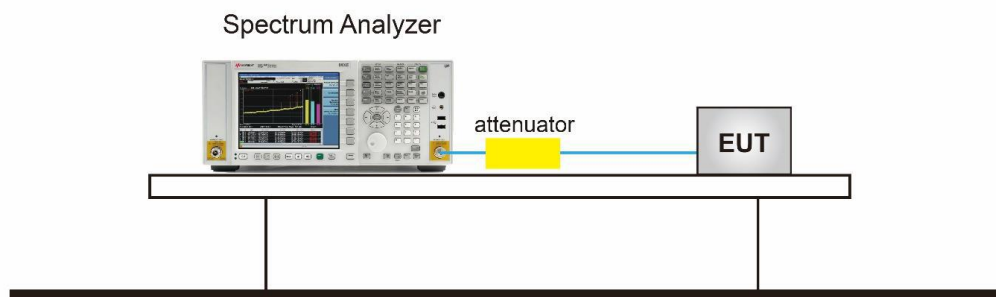
### 7.1 Provisions Applicable

N/A

### 7.2 Measurement Procedure

1. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
2. Set to the maximum power setting and enable the EUT transmit continuously.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 30 kHz. Set the Video bandwidth (VBW) = 100 kHz. In order to make an accurate measurement.
4. For 99% Bandwidth Measurement, the spectrum analyzer's resolution bandwidth (RBW) is set 1-5% of the emission bandwidth and set the Video bandwidth (VBW)  $\geq 3 * RBW$ .
5. Measure and record the results in the test report.

### 7.3 Measurement Setup (Block Diagram of Configuration)



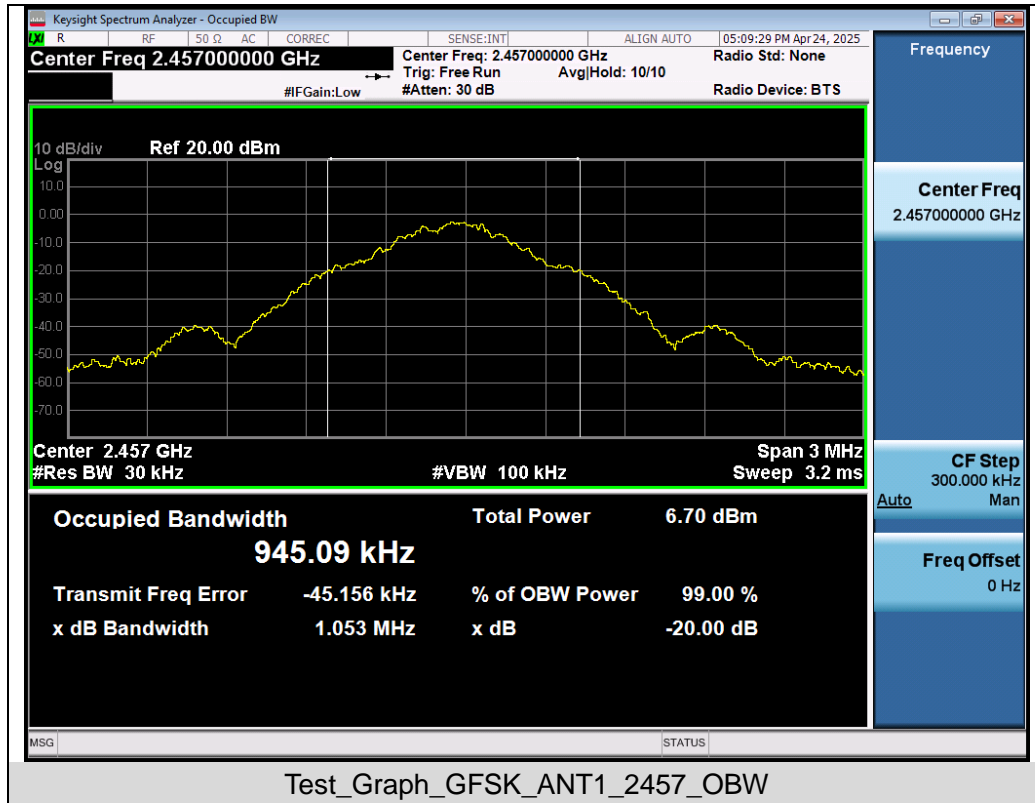
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## 7.4 Measurement Results

Test Data of Occupied Bandwidth and -20dB Bandwidth					
Test Mode	Test Frequency (MHz)	Occupied Bandwidth (MHz)	-20dB Bandwidth (MHz)	Limits (MHz)	Pass or Fail
GFSK	2457	0.945	1.053	N/A	Pass

## Test Graphs of Occupied Bandwidth and -20 Bandwidth



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## 8. Field Strength of Fundamental and Radiated Spurious Emission

### 8.1 Measurement Limit

15.249 Limit in the below table has to be followed:

Frequency Range	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

15.209 Limit in the below table has to be followed:

Frequency Range (MHz)	Distance Meters	Field Strengths Limit	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
0.009 ~ 0.490	300	$2400/\text{F}(\text{kHz})$	---
0.490 ~ 1.705	30	$24000/\text{F}(\text{kHz})$	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

Remark:

- 1) Emission level  $\text{dB}\mu\text{V} = 20 \log$  Emission level  $\mu\text{V}/\text{m}$ .
- 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.

Note: All modes were tested for restricted band radiated emission, the test records reported below are the worst result compared to other modes.



## 8.2 Measurement Procedure

1. The EUT was placed on the top of the turntable 0.1 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.
3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.
4. For each suspected emission, the antenna tower was scan (from 1 M to 4 M) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading.
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.
6. For emissions above 1GHz, use 1MHz RBW and 3MHz VBW for peak reading. Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response. The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
7. When the radiated emissions limits are expressed in terms of the average value of the emissions, and pulsed operation is employed, the measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum values.
8. If the emissions level of the EUT in peak mode was 3 dB lower than the average limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method for below 1GHz.
9. For testing above 1GHz, the emissions level of the EUT in peak mode was lower than average limit (that means the emissions level in peak mode also complies with the limit in average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.
10. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be QP measured by receiver. High - Low scan is not required in this case.

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- The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9kHz~150kHz/RB 200Hz for QP
Start ~Stop Frequency	150kHz~30MHz/RB 9kHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120kHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/3MHz for Average

Receiver Parameter	Setting
Start ~Stop Frequency	9kHz~150kHz/RB 200Hz for QP
Start ~Stop Frequency	150kHz~30MHz/RB 9kHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120kHz for QP

- The following is the test setup of Field Strength of Fundamental:
- Peak detection: RBW is greater than the main frequency OBW, VBW=50MHz / Sweep=AUTO
  - Average detection: RBW is greater than the main frequency OBW, VBW=50MHz / Sweep=AUTO

- The following is the test setup of Band Edge:

The EUT operates at transmitting mode. The operate channel is tested to verify the largest transmission and spurious emissions power at the continuous transmission mode.

- Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
  - Peak detection: RBW=1MHz, VBW=3MHz / Sweep=AUTO
  - Average detection: RBW=1MHz; VBW=1/T / Sweep=AUTO (Duty cycle is less than 98%)
  - Average detection: RBW=1MHz; VBW=3M / Sweep=AUTO
  - Other procedures refer to clause 7.2.

- **Quasi-Peak Measurements below 1GHz**

1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. Span was set greater than 1MHz
3. RBW = as shown in the table above
4. Detector = CISPR quasi-peak
5. Sweep time = auto couple
6. Trace was allowed to stabilize

- **Peak Measurements above 1GHz**

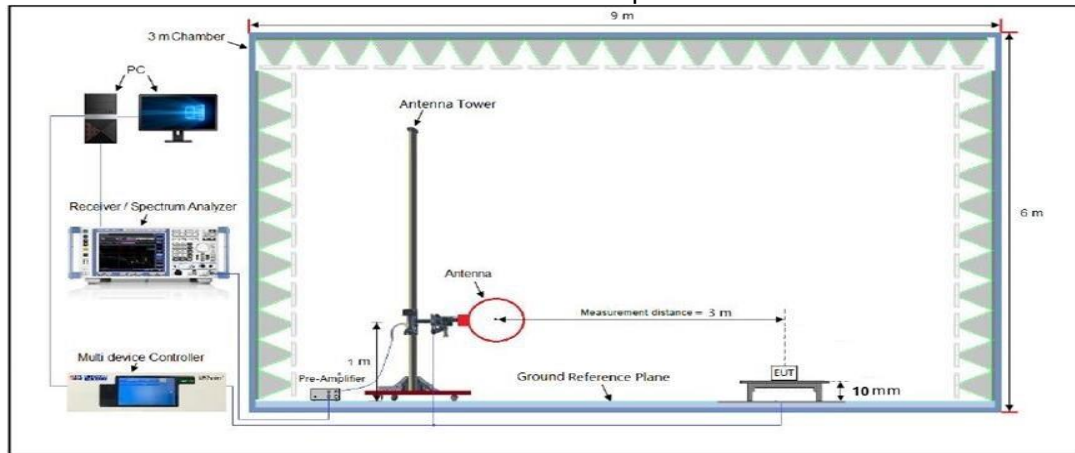
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW = 3MHz
4. Detector = peak
5. Sweep time = auto couple
6. Trace mode = max hold
7. Trace was allowed to stabilize

- **Average Measurements above 1GHz**

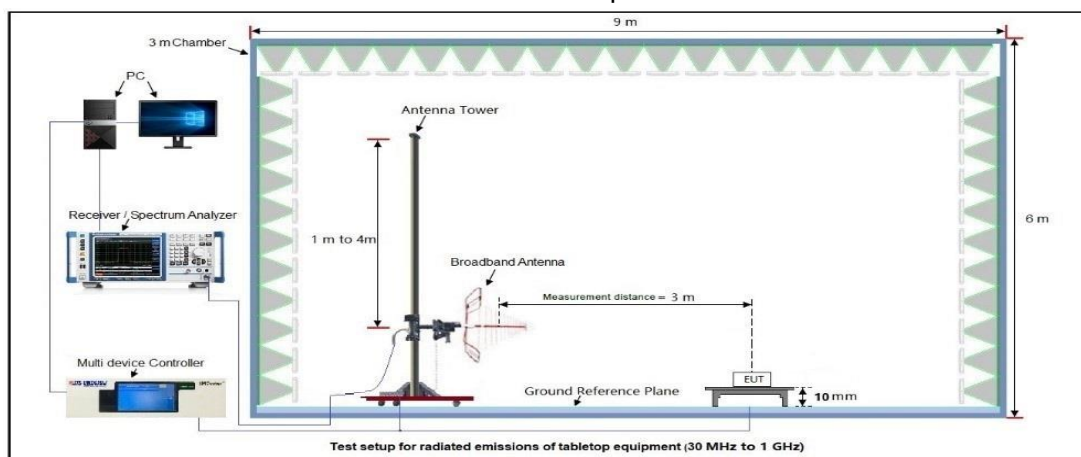
1. Analyzer center frequency was set to the frequency of the radiated spurious emission of interest
2. RBW = 1MHz
3. VBW  $\geq [3 \times \text{RBW}]$
4. Detector = Power averaging (rms)
5. Averaging type = power (i.e., rms)
6. Sweep time = auto
7. Perform a trace average of at least 100 traces.
8. The applicable correction factor is  $[10 \cdot \log(1 / D)]$ , where D is the duty cycle. The factor had been edited in the "Input Correction" of the Spectrum Analyzer.

### 8.3 Measurement Setup (Block Diagram of Configuration)

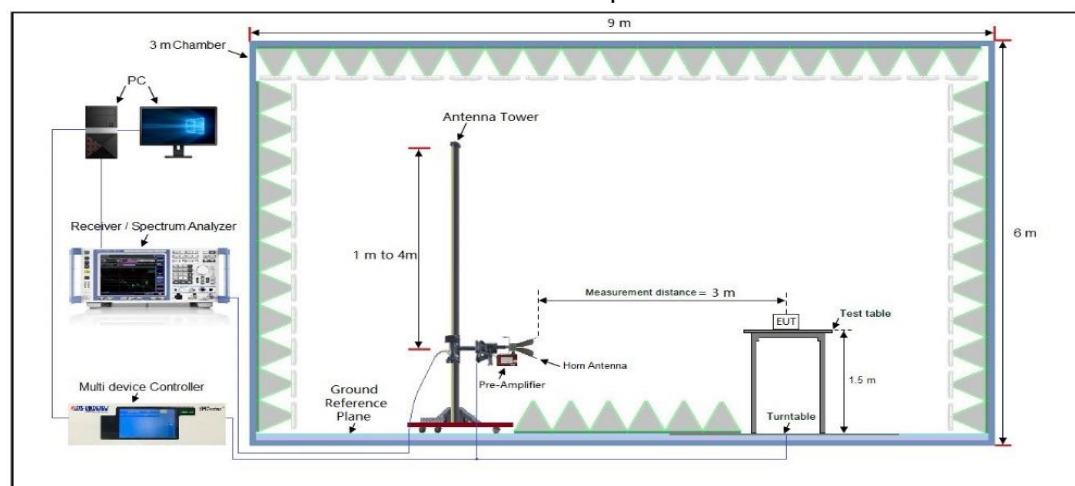
Radiated Emission Test Setup 9kHz-30MHz



Radiated Emission Test Setup 30MHz-1000MHz



Radiated Emission Test Setup Above 1000MHz



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## 8.4 Measurement Results

### Field Strength of Fundamental

EUT Name		SMART BIKE TRAINER		Model Name		XX	
Temperature		25°C		Relative Humidity		55.4%	
Pressure		960hPa		Test Voltage		Normal Voltage	
Test Mode		Mode 1		Antenna Polarity		Horizontal/ Vertical	
Peak Value							
Frequency (MHz)	Measured Level@3m (dBµV/m)		Correction Factor dB/m	Field Strength (dBµV/m)	Limit @3m (dBµV/m)	Polarity	
2457	93.62		-10.06	83.56	114.00	Horizontal	
2457	93.58		-10.06	83.52	114.00	Vertical	
Average Value							
Frequency (MHz)	Measured Level@3m (dBµV/m)		Correction Factor dB/m	Field Strength (dBµV/m)	Limit @3m (dBµV/m)	Polarity	
2457	93.44		-10.06	83.38	94.00	Horizontal	
2457	93.40		-10.06	83.34	94.00	Vertical	

### **RESULT: Pass**

**Note:** Corr. Factor= Antenna Factor (dB/m) + Cable Loss (dB)

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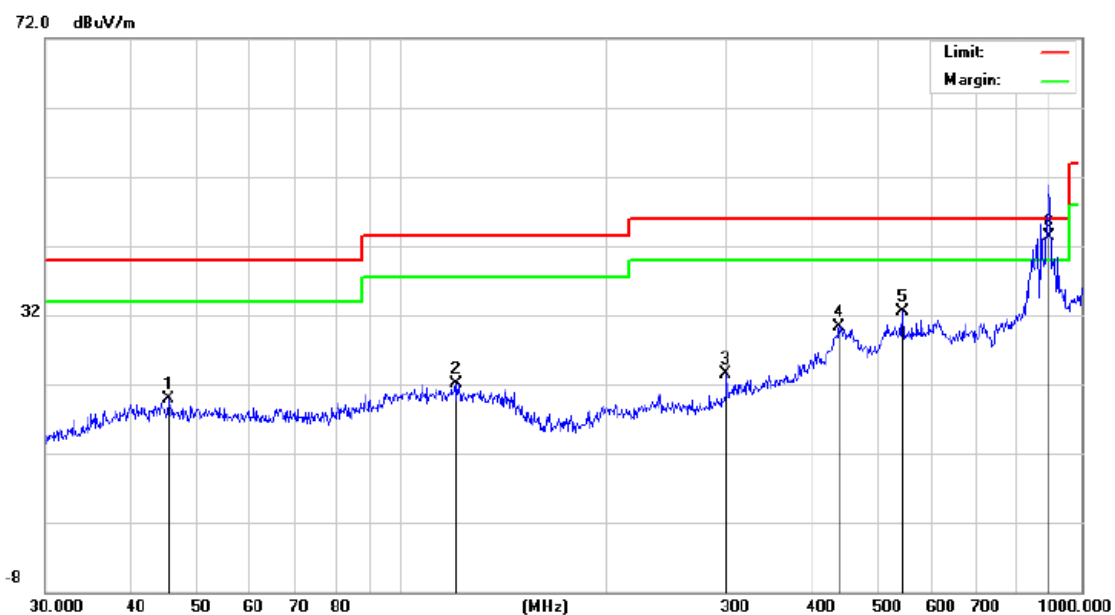
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### Radiated Emission Below 30MHz

The amplitude of spurious emissions from 9kHz to 30MHz which are attenuated more than 20dB below the permissible value need not be reported.

#### Radiated Emission Test Results at 30MHz-1GHz

<b>EUT Name</b>	SMART BIKE TRAINER	<b>Model Name</b>	XX
<b>Temperature</b>	21.5°C	<b>Relative Humidity</b>	48.8%
<b>Pressure</b>	960hPa	<b>Test Voltage</b>	Normal Voltage
<b>Test Mode</b>	Mode 1	<b>Antenna Polarity</b>	Horizontal

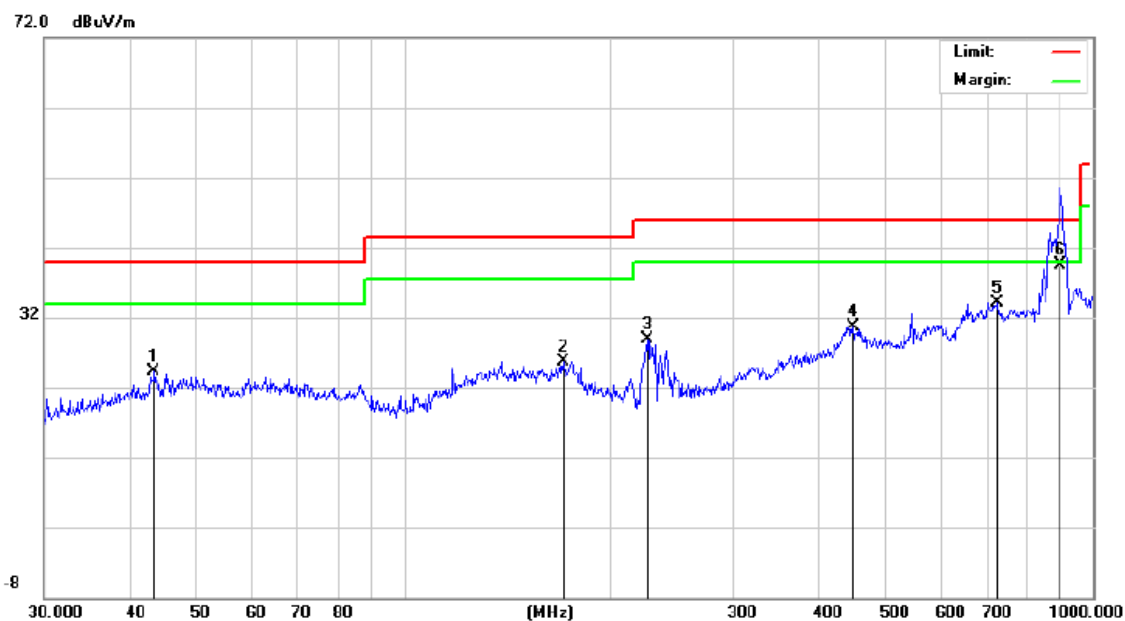


No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		45.5348	6.43	13.51	19.94	40.00	-20.06	peak
2		120.2766	5.66	16.38	22.04	43.50	-21.46	peak
3		300.3672	7.00	16.50	23.50	46.00	-22.50	peak
4		440.1963	5.30	25.09	30.39	46.00	-15.61	peak
5		545.1826	8.48	23.98	32.46	46.00	-13.54	peak
6	*	893.8567	12.24	31.03	43.27	46.00	-2.73	QP

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Radiated Emission Test Results at 30MHz-1GHz			
EUT Name	SMART BIKE TRAINER	Model Name	XX
Temperature	21.5℃	Relative Humidity	48.8%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna Polarity	Vertical



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1		43.3534	7.44	16.93	24.37	40.00	-15.63	peak
2		170.1948	7.35	18.35	25.70	43.50	-17.80	peak
3		225.3080	12.46	16.35	28.81	46.00	-17.19	peak
4		447.9822	4.88	25.74	30.62	46.00	-15.38	peak
5		726.8052	5.91	28.15	34.06	46.00	-11.94	peak
6	*	893.8567	11.52	28.06	39.58	46.00	-6.42	QP

## RESULT: Pass

Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

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### Radiated Emissions Test Results for Above 1GHz

EUT Name	SMART BIKE TRAINER	Model Name	XX
Temperature	21.5℃	Relative Humidity	48.8%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna Polarity	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4914.000	50.33	0.08	50.41	74.00	-23.59	peak
4914.000	40.31	0.08	40.39	54.00	-13.61	AVG
7371.000	48.93	2.21	51.14	74.00	-22.86	peak
7371.000	40.58	2.21	42.79	54.00	-11.21	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT Name	SMART BIKE TRAINER	Model Name	XX
Temperature	21.5℃	Relative Humidity	48.8%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna Polarity	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
4914.000	50.12	0.08	50.20	74.00	-23.80	peak
4914.000	40.64	0.08	40.72	54.00	-13.28	AVG
7371.000	48.34	2.21	50.55	74.00	-23.45	peak
7371.000	40.12	2.21	42.33	54.00	-11.67	AVG

Remark:

Factor = Antenna Factor + Cable Loss – Pre-amplifier.

### **RESULT: Pass**

Note:

1. The amplitude of other spurious emissions from 1G to 25 GHz which are attenuated more than 20 dB below the permissible value need not be reported.
2. Factor = Antenna Factor + Cable loss – Pre-amplifier gain, Margin =Emission Level-Limit.
3. The “Factor” value can be calculated automatically by software of measurement system.

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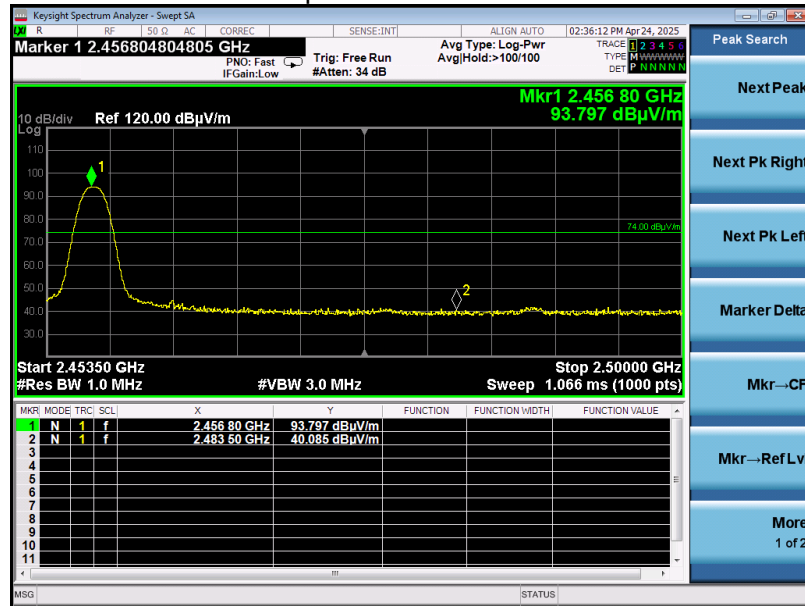
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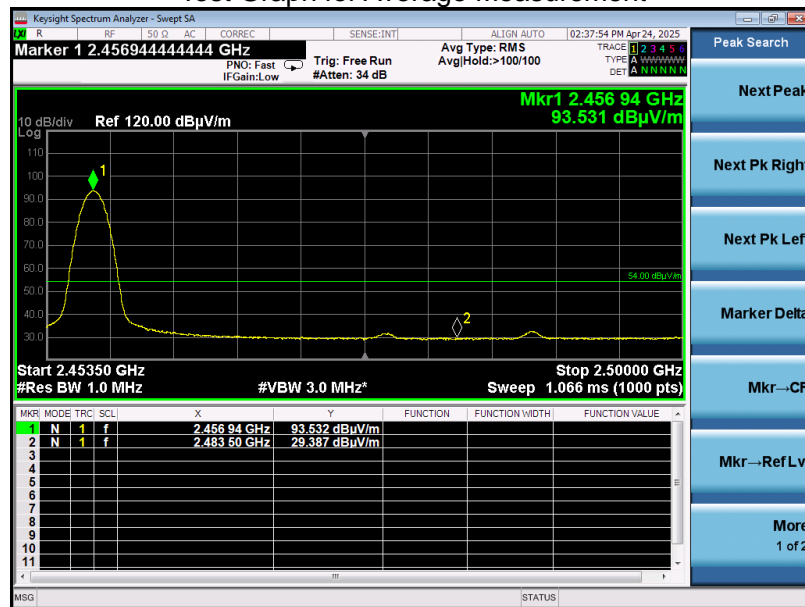
### Band Edge Emission Test Results for Restricted Bands

EUT Name	SMART BIKE TRAINER	Model Name	XX
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna Polarity	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement



**RESULT: Pass**

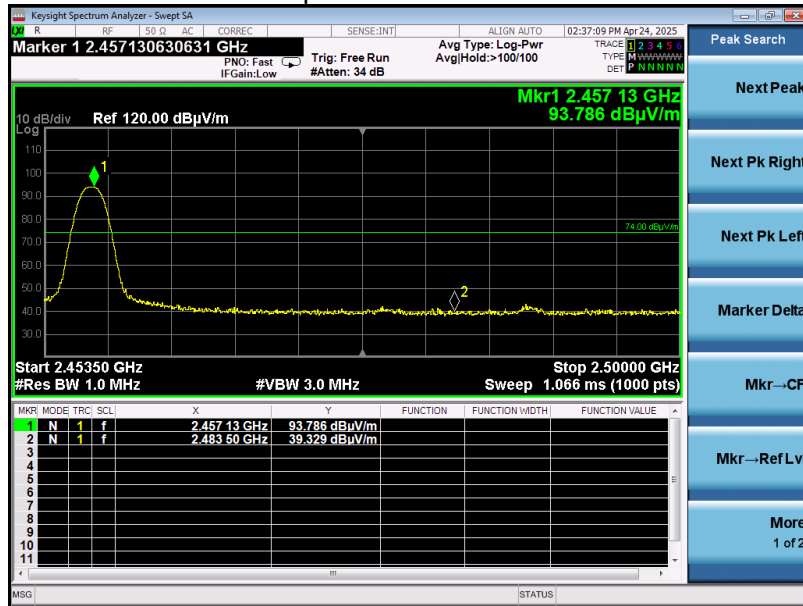
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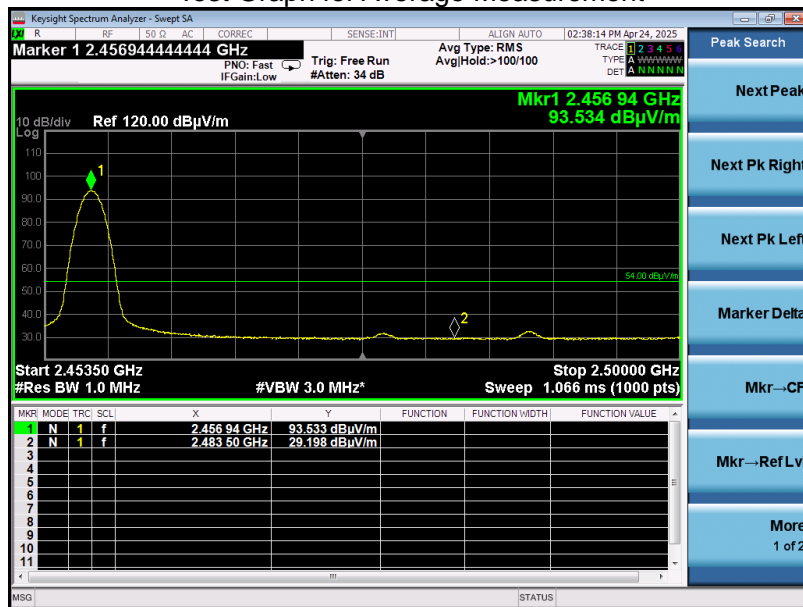
### Band Edge Emission Test Results for Restricted Bands

EUT Name	SMART BIKE TRAINER	Model Name	XX
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna Polarity	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



**RESULT: Pass**

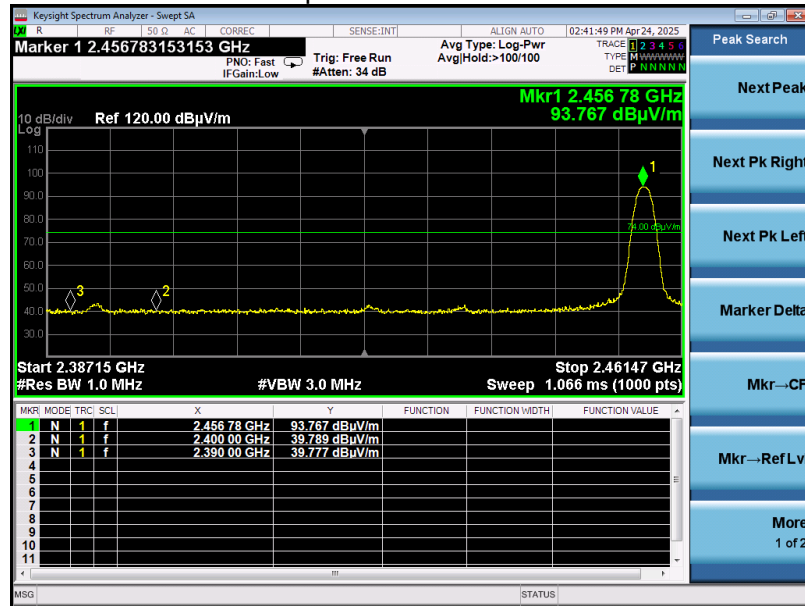
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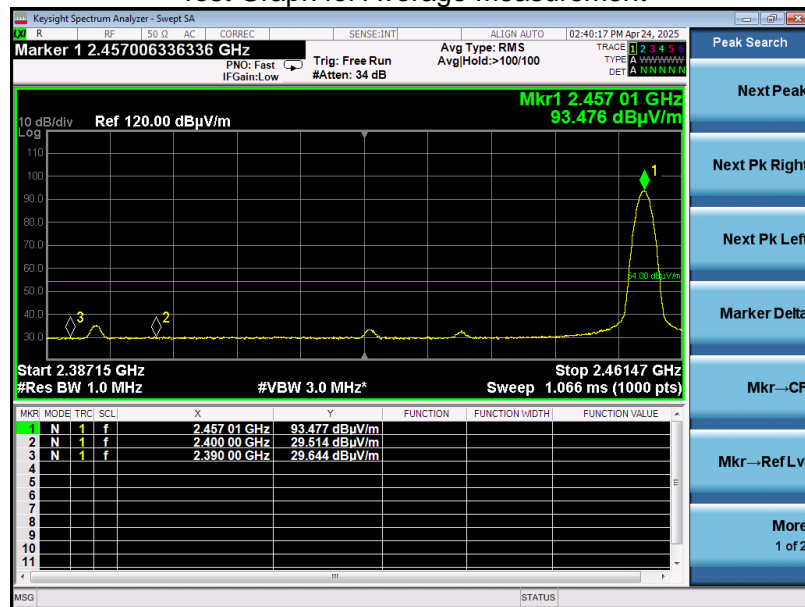
### Band Edge Emission Test Results for Restricted Bands

EUT Name	SMART BIKE TRAINER	Model Name	XX
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna Polarity	Horizontal

Test Graph for Peak Measurement



Test Graph for Average Measurement



**RESULT: Pass**

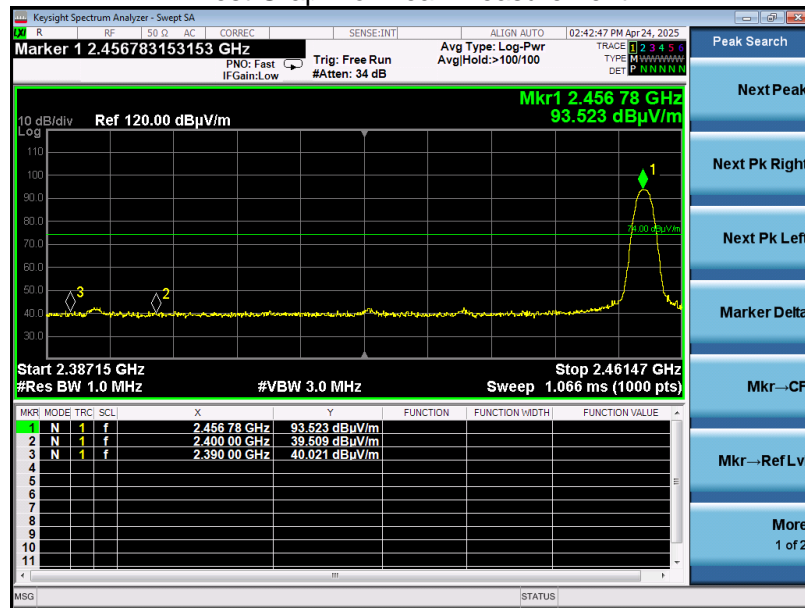
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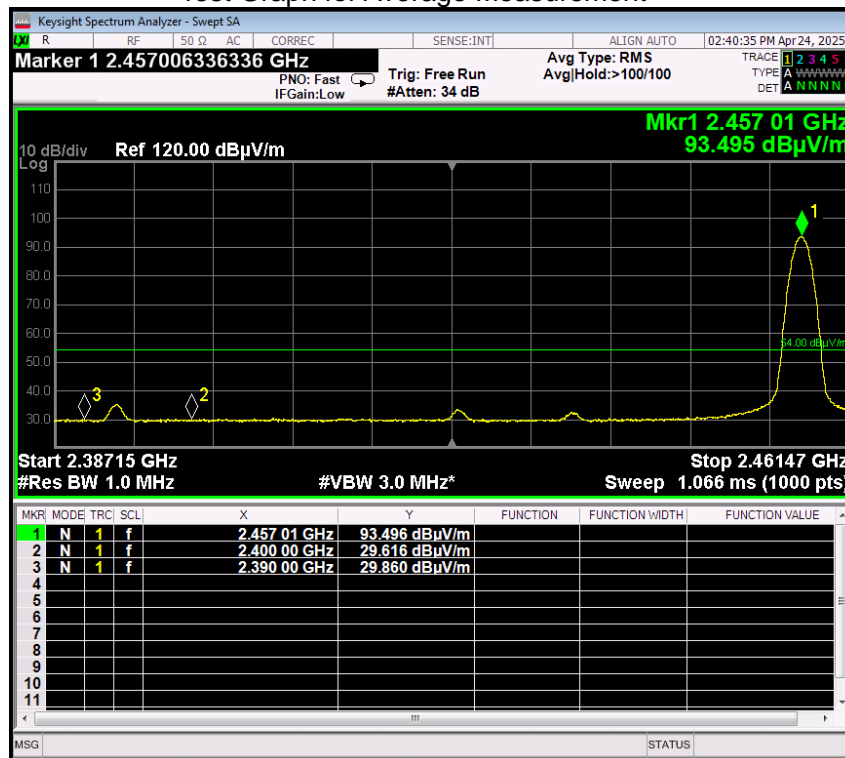
### Band Edge Emission Test Results for Restricted Bands

EUT Name	SMART BIKE TRAINER	Model Name	XX
Temperature	25°C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna Polarity	Vertical

Test Graph for Peak Measurement



Test Graph for Average Measurement



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**RESULT: Pass**

**Note:**

- 1) Factor=Antenna Factor + Cable loss - Amplifier gain. Field Strength=Factor + Reading level
- 2) The factor had been edited in the "Input Correction" of the Spectrum Analyzer. So the Amplitude of test plots is equal to Reading level plus the Factor in dB. Use the A dB( $\mu$ V) to represent the Amplitude. Use the F dB( $\mu$ V/m) to represent the Field Strength. So A=F.

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## 9. AC Power Line Conducted Emission

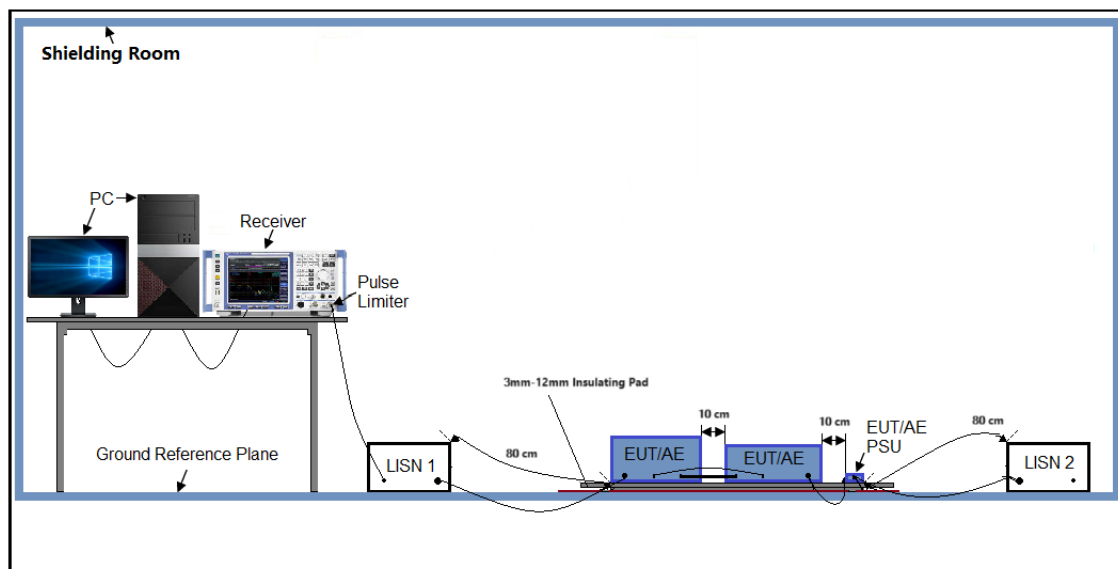
### 9.1 Measurement Limit

Frequency	Maximum RF Line Voltage	
	Q.P. (dB $\mu$ V)	Average (dB $\mu$ V)
150kHz~500kHz	66-56	56-46
500kHz~5MHz	56	46
5MHz~30MHz	60	50

Note:

1. The lower limit shall apply at the transition frequency.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

### 9.2 Measurement Setup (Block Diagram of Configuration)



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### 9.3 Preliminary Procedure of Line Conducted Emission Test

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor-standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.
2. Support equipment, if needed, was placed as per ANSI C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipment received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC 48V power from adapter which received AC120V/60Hz power from a LISN.
6. The test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.
9. The test mode(s) were scanned during the preliminary test.

Then, the EUT configuration and cable configuration of the above highest emission level were recorded for reference of final testing.

### 9.4 Final Procedure of Line Conducted Emission Test

1. EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. If EUT emission level was less – 2dB to the A.V. limit in Peak mode, then the emission signal was re-checked using Q.P and Average detector.
3. The test data of the worst case condition(s) was reported on the Summary Data page.

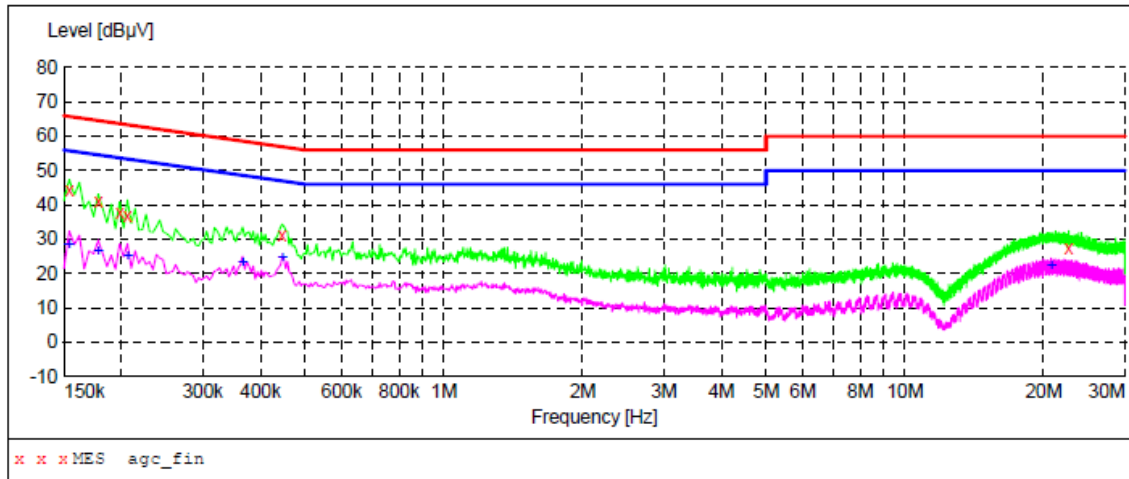
### 9.5 Measurement Result

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### AC Power Line Conducted Emission

Test Mode	Mode 1	LISN Line	Neutral Side
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#### MEASUREMENT RESULT: "agc\_fin"

2025/3/25 23:41

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.154000	44.40	6.1	66	21.4	QP	N
0.178000	41.10	6.1	65	23.5	QP	N
0.198000	37.80	6.1	64	25.9	QP	N
0.206000	36.90	6.1	63	26.5	QP	N
0.446000	31.30	6.1	57	25.6	QP	N
22.670000	27.50	7.6	60	32.5	QP	N

#### MEASUREMENT RESULT: "agc\_fin2"

2025/3/25 23:41

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.154000	28.10	6.1	56	27.7	AV	N
0.178000	26.60	6.1	55	28.0	AV	N
0.206000	24.80	6.1	53	28.6	AV	N
0.366000	23.10	6.1	49	25.5	AV	N
0.446000	24.30	6.1	47	22.6	AV	N
20.758000	22.20	7.2	50	27.8	AV	N

**RESULT: Pass**

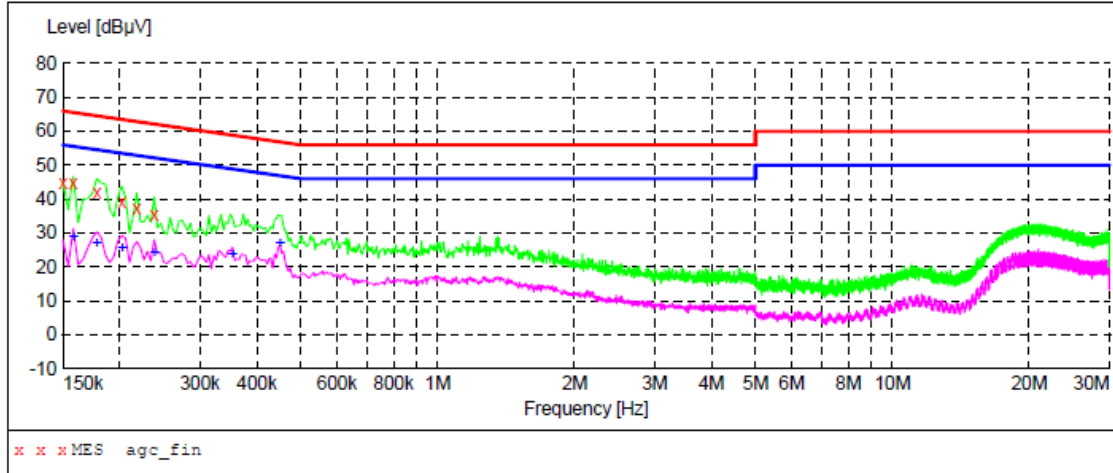
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### AC Power Line Conducted Emission

Test Mode	Mode 1	LISN Line	Hot Side
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#### MEASUREMENT RESULT: "agc\_fin"

2025/3/25 23:44

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.150000	44.70	6.1	66	21.3	QP	L1
0.158000	44.50	6.1	66	21.1	QP	L1
0.178000	42.10	6.1	65	22.5	QP	L1
0.202000	39.10	6.1	64	24.4	QP	L1
0.218000	37.10	6.1	63	25.8	QP	L1
0.238000	35.20	6.1	62	27.0	QP	L1

#### MEASUREMENT RESULT: "agc\_fin2"

2025/3/25 23:44

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line
0.158000	28.70	6.1	56	26.9	AV	L1
0.178000	27.10	6.1	55	27.5	AV	L1
0.202000	25.30	6.1	54	28.2	AV	L1
0.238000	23.90	6.1	52	28.3	AV	L1
0.354000	23.70	6.1	49	25.2	AV	L1
0.450000	26.80	6.1	47	20.1	AV	L1

**RESULT: PASS**

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## **Appendix I: Photographs of Test Setup**

Refer to the Report No.: AGC01040250315AP02

## **Appendix II: Photographs of Test EUT**

Refer to the Report No.: AGC01040250315AP03

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3. The Company shall not be called or be liable to be called to give evidence or testimony on the Report in a court of law without its prior written consent, unless required by the relevant governmental authorities, laws or court orders.
4. In the event of the improper use of the report as determined by the Company, the Company reserves the right to withdraw it, and to adopt any other additional remedies which may be appropriate.
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8. The Company is not responsible for recalling the electronic version of the original report when any revision is made to them. The Client assumes the responsibility to providing the revised version to any interested party who uses them.
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**-----End of Report-----**

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