A2LA Cert. No. 5463.01

FCC TEST REPORT

Test report
On Behalf of
Shantou City Youjie Technology Co.,Ltd.
For
R/C CAR
Model No.: UJ99-Y240,UJ99-Y241,UJ99-Y242,UJ99-Y243,UJ99-P220,UJ99-P221,UJ99-P222,UJ99-P223,UJ99-Y201,UJ99-Y201,UJ99-Y202,UJ99-Y203,UJ99-Q240,UJ99-Q241,UJ99-Q242,UJ99-Q243,UJ99-P380,UJ99-P381,UJ99-P382,UJ99-P383,UJ99-ZK01,UJ99-ZK02

FCC ID: 2BB3TY24049

Prepared for :	**Shantou City Youjie Technology Co.,Ltd.** Shangxindong Road,Shangcun,Lianxia Town,Chenghai District,Shantou,China
Prepared By :	**Shenzhen Tongzhou Testing Co.,Ltd** **1th Floor, Building 1, Haomai High-tech Park, Huating Road 387, Dalang Street, Longhua, Shenzhen, China**
Date of Test:	**2024/7/4 ~ 2024/7/10**
Date of Report:	**2024/7/11**
Report Number:	**TZ240706015-SRD**

The test report apply only to the specific sample(s) tested under stated test conditions
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TEST RESULT CERTIFICATION

Applicant's name .....:	**Shantou City Youjie Technology Co.,Ltd.**
Address.....:	Shangxindong Road,Shangcun,Lianxia Town,Chenghai District,Shantou,China
Manufacture's Name .....:	**Shantou City Youjie Technology Co.,Ltd.**
Address.....:	Shangxindong Road,Shangcun,Lianxia Town,Chenghai District,Shantou,China

Product description

Trade Mark .....:	N/A
Product name.....:	R/C CAR
Model and/or type reference .:	UJ99-Y240,UJ99-Y241,UJ99-Y242,UJ99-Y243,UJ99-P220,UJ99-P221,UJ99-P222,UJ99-P223,UJ99-Y201,UJ99-Y201,UJ99-Y202,UJ99-Y203,UJ99-Q240,UJ99-Q241,UJ99-Q242,UJ99-Q243,UJ99-P380,UJ99-P381,UJ99-P382,UJ99-P383,UJ99-ZK01,UJ99-ZK02
Standards .....:	FCC Rules and Regulations Part 15 Subpart C Section 15.235 ANSI C63.10: 2013

Date of Test.....:	
Date (s) of performance of tests .....:	2024/7/4 ~ 2024/7/10
Date of Issue .....:	2024/7/11
Test Result.....:	**Pass**

Testing Engineer : Allen Lai

(Allen Lai)

Technical Manager : Hugo Chen

(Hugo Chen)

Authorized Signatory : Andy Zhang

(Andy Zhang)

Revision History

Revision	Issue Date	Revisions	Revised By
00	2024/7/11	Initial Issue	Andy Zhang

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1 1. GENERAL INFORMATION

1.1 Description of Device (EUT)

EUT	:	R/C CAR
Model Number	:	UJ99-Y240,UJ99-Y241,UJ99-Y242,UJ99-Y243,UJ99-P220,UJ99-P221,UJ99-P222,UJ99-P223,UJ99-Y201,UJ99-Y201,UJ99-Y202,UJ99-Y203,UJ99-Q240,UJ99-Q241,UJ99-Q242,UJ99-Q243,UJ99-P380,UJ99-P381,UJ99-P382,UJ99-P383,UJ99-ZK01,UJ99-ZK02
Model Declaration	:	All the same except for color of cover
Test Model	:	UJ99-Y240
Power Supply	:	DC 3.0V by 2*AA batteries
Hardware version	:	JG-373T 49M V1.0
Software version	:	TX-2A V1.0

1.2 Wireless Function Tested in this Report

SRD		
Channel Number	:	49.86MHz
Modulation Technology	:	AM
Antenna Type And Gain	:	Internal Antenna 0dBi

Note 1: Antenna position refer to EUT Photos
Note 2: The above information supplied by the applicant

1.3 Host System Configuration List and Details

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

● supplied by the manufacturer
○ - supplied by the lab

/	/	/	/
/	/	/	/
/	/	/	/

1.4 Description of Test Facility

FCC

Designation Number: CN1275

Test Firm Registration Number: 167722

Shenzhen Tongzhou Testing Co.,Ltd has been listed on the US Federal Communications Commission list of test facilities recognized to perform electromagnetic emissions measurements.

A2LA

Certificate Number: 5463.01

Shenzhen Tongzhou Testing Co.,Ltd has been listed by American Association for Laboratory Accreditation to perform electromagnetic emission measurement.

IC

ISED#: 22033

CAB identifier: CN0099

Shenzhen Tongzhou Testing Co.,Ltd has been listed by Innovation, Science and Economic Development Canada to perform electromagnetic emission measurement.

The 3m-Semi anechoic test site fulfils CISPR 16-1-4 according to ANSI C63.10 and CISPR 16-1-4:2010

1.5 Statement of the Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements” and is documented in the Shenzhen Tongzhou Testing Co.,Ltd’s quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.6 Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	9KHz~30MHz	±3.26dB	(1)
		30MHz~1000MHz	±3.92dB	(1)
		1GHz~40GHz	±5.62dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±2.71dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.7 Description of Test Modes

The EUT has been tested under operating condition.

All test modes were tested, only the result of the worst case was recorded in the report.

All test modes were tested, only the result of the worst case was recorded in the report.

Channel List & Frequency

Channel	Frequency(MHz)
1	49.86

Test Channel

Channel	Transmitting Frequency (MHz)
1	49.86

2 TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013, American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen Tongzhou Testing Co.,Ltd

2.1 EUT Configuration

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

2.2 EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.205, 15.207, 15.209 and 15.235 under the FCC Rules Part 15 Subpart C.

2.3 Test Sample

Sample ID	Description
TZ240706015–1#	Normal sample – Intermittent transmit

3 SYSTEM TEST CONFIGURATION

3.1 Justification

The system was configured for testing in a continuous transmits condition.

3.2 EUT Exercise Software

The system was configured for testing in a continuous transmits condition and change test channels by Press a button provided by application.

3.3 Special Accessories

No.	Equipment	Manufacturer	Model No.	Serial No.	Length	shielded/ unshielded	Notes
/	/	/	/	/	/	/	/

3.4 Block Diagram/Schematics

Please refer to the related document

3.5 Equipment Modifications

Shenzhen Tongzhou Testing Co.,Ltd has not done any modification on the EUT.

3.6 Test Setup

Please refer to the test setup photo.

4 SUMMARY OF TEST RESULTS

Applied Standard: FCC Part 15 Subpart C			
FCC Rules	**Description of Test**	**Test Sample**	**Result**
§15.35(c)	Duty Cycle	TZ240706015–1#	Compliant
/	20 dB Bandwidth	TZ240706015–1#	Compliant
§15.235(a), 15.235(b), §15.35, §15.205	Radiated Emission and Field strength of fundamental	TZ240706015–1#	Compliant
§15.207(a)	Conducted Emissions	N/A	N/A
§15.203	Antenna Requirements	N/A	Compliant

5 TEST RESULT

5.1 Duty Cycle

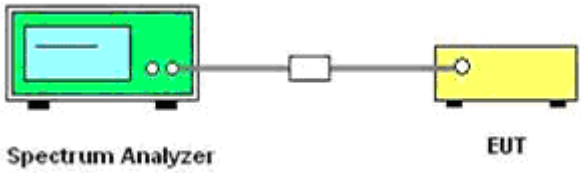
5.1.1 Standard Applicable

None; for reporting purpose only.

5.1.2 Test Procedures

1. Set the centre frequency of the spectrum analyzer to the transmitting frequency;
2. Set the span=0MHz, RBW=8MHz, VBW=8MHz;
3. Detector = peak;
4. Trace mode = Single hold.

5.1.3 Test Setup Layout

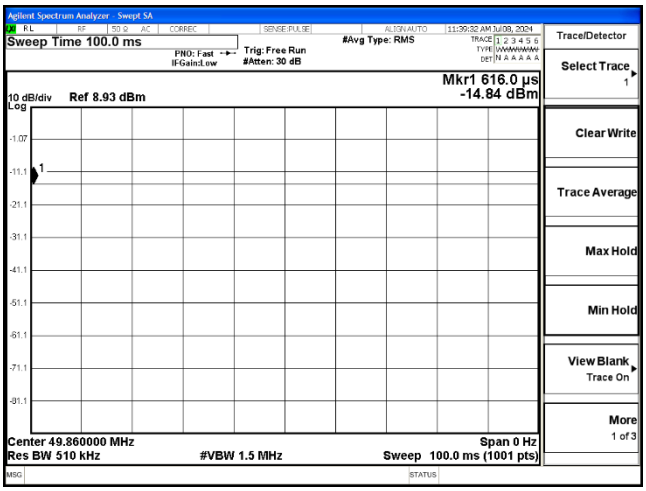


5.1.4 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.1.5 Test result

Frequency(MHz)	On Time B (ms)	Period (ms)	Duty Cycle x (Linear)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	1/B Minimum VBW(KHz)
49.86	100	100	1	100	0	0.010

On Time and Duty Cycle	
	/
49.86MHz	/

5.2 20 dB Bandwidth

5.2.1 Standard Applicable

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.2.2 Test Procedures

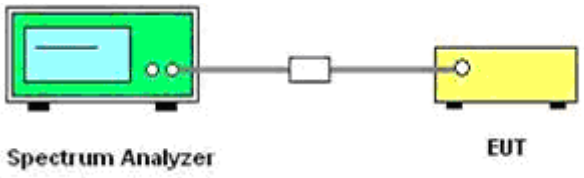
1). Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel.

2). RBW ≥1% of the 20 dB bandwidth, VBW ≥RBW.

3). Detector function = peak.

4). Trace = max hold.

5.2.3 Test Setup Layout



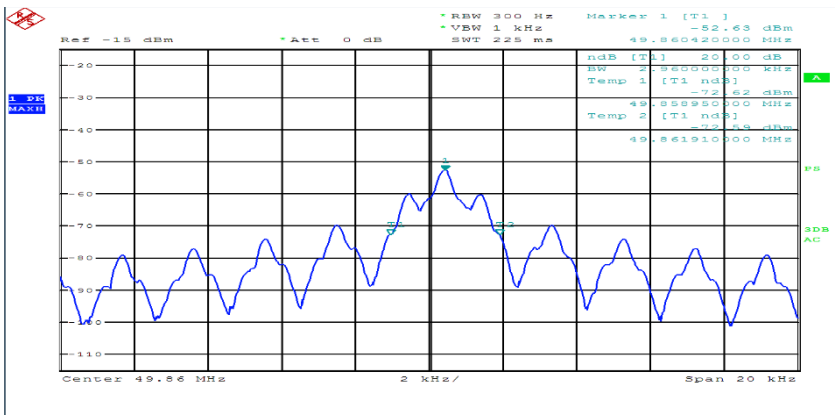
5.2.4 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.2.5 Test result

Temperature	22.8℃	Humidity	55%
Test Engineer	Tony Luo	Configurations	TX

FL (MHz)	FH(MHz)	Limit (kHz)	Conclusion
49.859	49.862	49.82-49.90	PASS



5.3 Radiated Emissions Measurement

5.3.1 Standard Applicable

15.205 (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
\1\ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293.	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(\2\)
13.36-13.41			

\1\ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

\2\ Above 38.6

According to §15.235 (a): Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

According to §15.235 (a): Except as provided in paragraph (b) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Fundamental frequency	Average Field strength		Peak Field strength	
	microvolts/meter	dBuV/m	microvolts/meter	dBuV/m
49.82-49.90 MHz	10000	80	100000	100

As shown in §15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section 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. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth

5.3.2 Measuring Instruments and Setting

Please refer to equipment list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average
RB / VB (Emission in non-restricted band)	1MHz / 1MHz for Peak, 1 MHz / 1/B kHz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB/VB 200Hz/1KHz for QP/AVG
Start ~ Stop Frequency	150kHz~30MHz / RB/VB 9kHz/30KHz for QP/AVG
Start ~ Stop Frequency	30MHz~1000MHz / RB/VB 120kHz/1MHz for QP

5.3.3 Test Procedures

1) Sequence of testing 9 kHz to 30 MHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.

--- If the EUT is a floor standing device, it is placed on the ground.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions.

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna height is 1.0 meter.

--- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

--- Identified emissions during the premeasurement the software maximizes by rotating the turntable position (0° to 360°) and by rotating the elevation axes (0° to 360°).

--- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.

--- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz

Setup:

--- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.

--- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.

--- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.

--- Auxiliary equipment and cables were positioned to simulate normal operation conditions

--- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.

--- The measurement distance is 3 meter.

--- The EUT was set into operation.

Premeasurement:

--- The turntable rotates from 0° to 315° using 45° steps.

--- The antenna is polarized vertical and horizontal.

--- The antenna height changes from 1 to 3 meter.

--- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

--- The final measurement will be performed with minimum the six highest peaks.

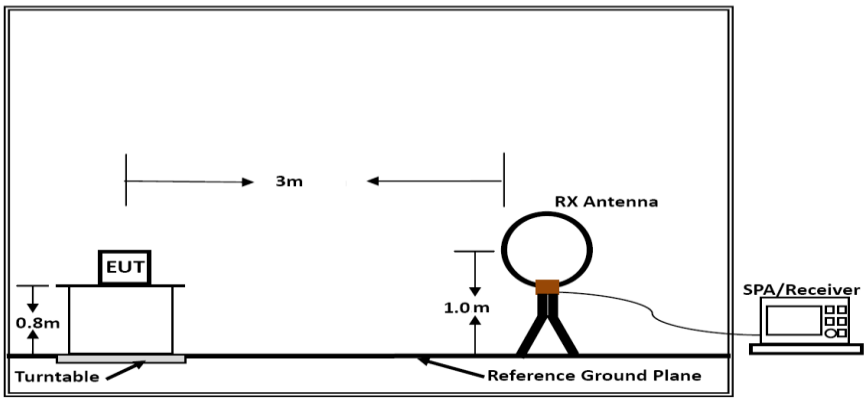
--- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position (± 45°) and antenna movement between 1 and 4 meter.

--- The final measurement will be done with QP detector with an EMI receiver.

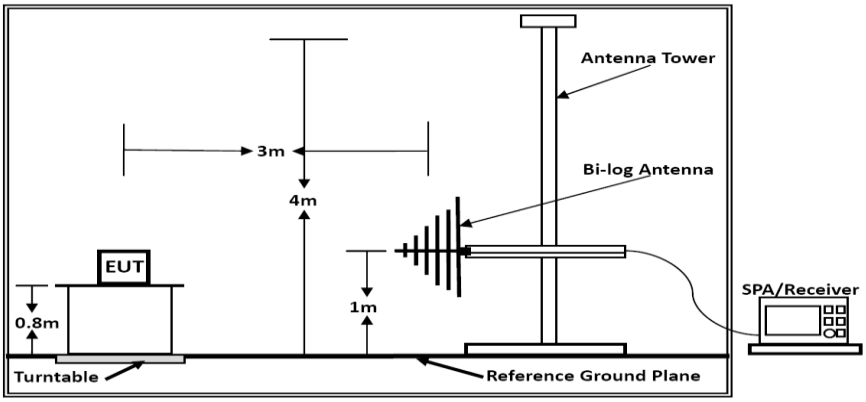
--- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

5.3.4 Test Setup Layout

For radiated emissions below 30MHz



Below 30MHz



Below 1GHz

5.3.5 EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

6.6.6. Radiated Emissions

Temperature	22.8℃	Humidity	56%
Test Engineer	Anna Hu	Configurations	Low Channel/High Channel

5.3.5.1 Results of Radiated Emissions (9 kHz~30MHz)

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Over Limit (dBuV)	Remark
-	-	-	-	See Note

Note:

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

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor.

PASS.

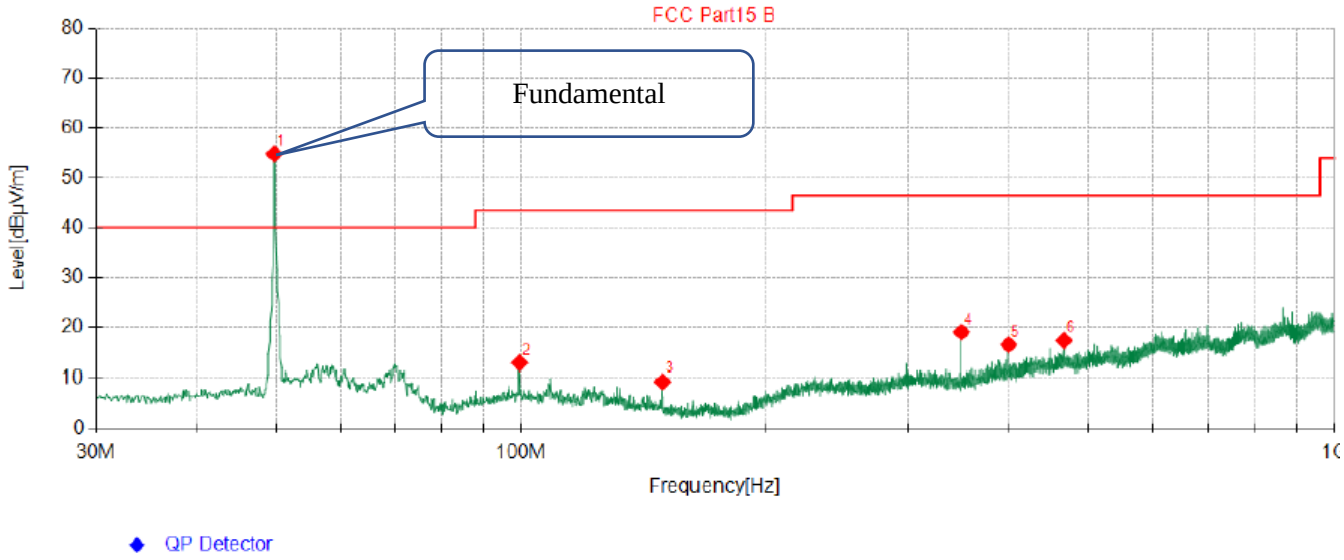
Only record the worst test result in this report.

The test data please refer to following page.

5.3.5.2 Results of Radiated Emissions (30MHz ~1GHz)

Below 1GHz (Low Channel)

Vertical



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	49.86	68.98	-14.17	54.81	40.00	-14.81	100	199	Vertical
2	99.71	29.03	-16.02	13.01	43.50	30.49	100	114	Vertical
3	149.5	28.50	-19.11	9.39	43.50	34.11	100	355	Vertical
4	349.0	30.54	-11.44	19.10	46.50	27.40	100	342	Vertical
5	398.9	26.65	-10.06	16.59	46.50	29.91	100	13	Vertical
6	466.7	26.13	-8.71	17.42	46.50	29.08	100	70	Vertical

****Note:*
1. Level [dBµV/m] = Reading [dBµV] + Factor [dB/m]
2. Margin [dB] = Limit [dBµV/m] - Level [dBµV/m]

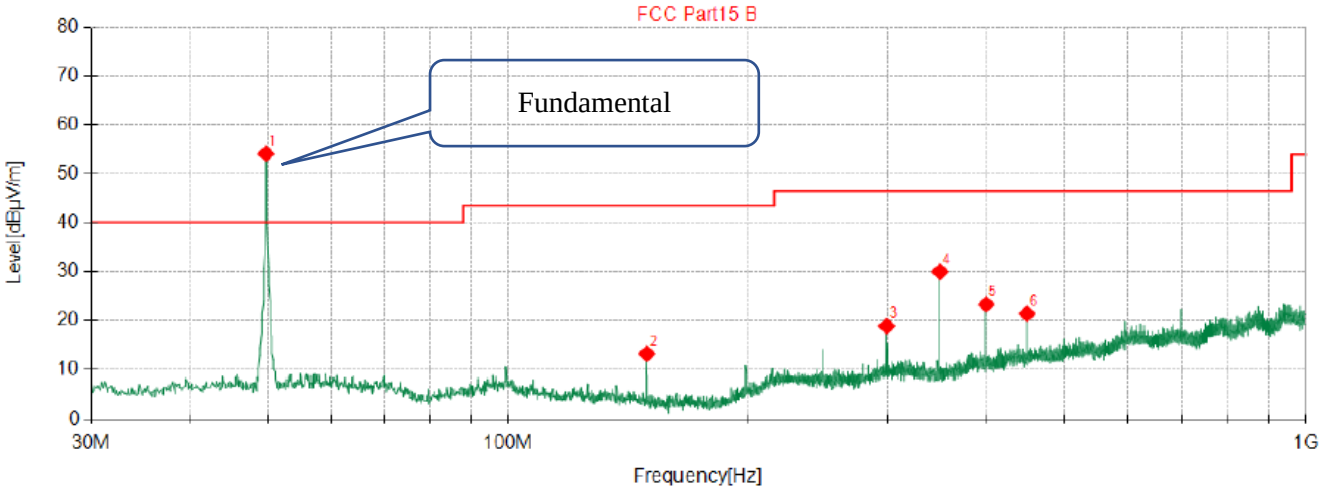
Frequency (MHz)	Peak Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)	Duty cycle factor(dB)	Average value (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)	Polarization
49.86	54.81	100	45.19	0	54.81	80	25.19	Vertical

Note:

1. *Peak Margin [dB] = Peak Limit [dBµV/m] - Peak Level [dBµV/m]*
2. *Average value [dBµV/m] = Peak Level [dBµV/m] + Duty cycle factor [dB]*
3. *Average Margin [dB] = Average Limit [dBµV/m] - Average Level [dBµV/m]*

ERP = Average value (dBuV/m) – 95.2 - 2.15 = -42.54 dBm

Horizontal



Suspected Data List									
NO.	Freq. [MHz]	Reading [dBµV]	Factor [dB/m]	Level [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	49.86	68.28	-14.17	54.11	40.00	-14.11	100	266	Horizontal
2	149.5	32.33	-19.11	13.22	43.50	30.28	100	310	Horizontal
3	299.1	31.72	-12.82	18.90	46.50	27.60	100	263	Horizontal
4	349.0	41.43	-11.44	29.99	46.50	16.51	100	266	Horizontal
5	398.9	33.39	-10.06	23.33	46.50	23.17	100	65	Horizontal
6	448.7	30.48	-9.07	21.41	46.50	25.09	100	75	Horizontal

****Note:*
1. Level [dBµV/m] = Reading [dBµV] + Factor [dB/m]
2. Margin [dB] = Limit [dBµV/m] - Level [dBµV/m]

Frequency (MHz)	Peak Level (dBuV/m)	Peak Limit (dBuV/m)	Peak Margin (dB)	Duty cycle factor(dB)	Average value (dBuV/m)	Average Limit (dBuV/m)	Average Margin (dB)	Polarization
49.86	54.11	100	45.89	0	54.11	80	25.89	Horizontal

Note:

1. *Peak Margin [dB] = Peak Limit [dBµV/m] - Peak Level [dBµV/m]*
2. *Average value [dBµV/m] = Peak Level [dBµV/m] + Duty cycle factor [dB]*
3. *Average Margin [dB] = Average Limit [dBµV/m] - Average Level [dBµV/m]*

ERP = Average value (dBuV/m) – 95.2 - 2.15 = -43.24 dBm

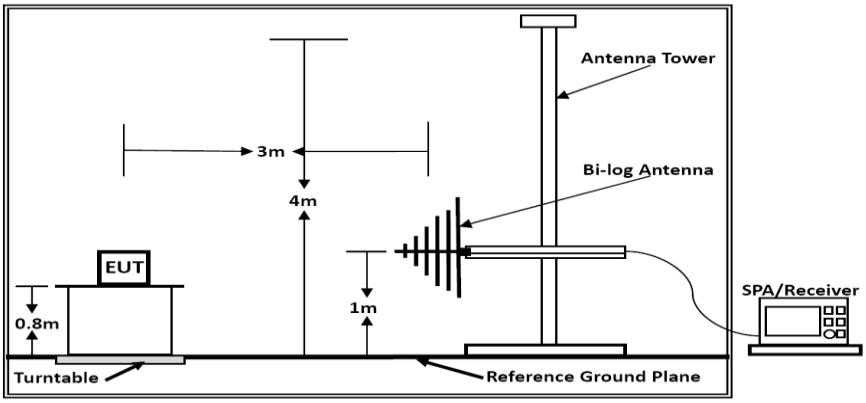
5.4 Band-edge measurements for radiated emissions

5.4.1 Standard Applicable

The field strength of any emissions appearing between the band edges and up to 10 kHz above and below the band edges shall be attenuated at least 26 dB below the level of the unmodulated carrier or to the general limits in §15.209, whichever permits the higher emission levels. The field strength of any emissions removed by more than 10 kHz from the band edges shall not exceed the general radiated emission limits in §15.209. All signals exceeding 20 microvolts/meter at 3 meters shall be reported in the application for certification.

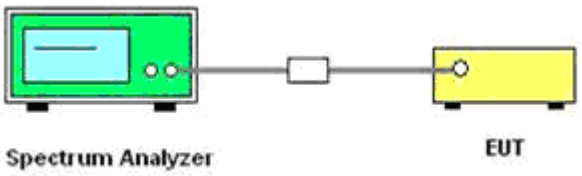
5.4.2 Test Setup Layout

☒For Radiated



Below 1GHz

☐For Conducted



5.3.3. Measuring Instruments and Setting

Please refer to equipment list in this report. The following table is the setting of Spectrum Analyzer.

5.4.3 Test Procedures

☒Radiated Method:

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0℃ to 360℃ to acquire the highest emissions from EUT.
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed..
5. The distance between test antenna and EUT was 3 meter:
6. Setting test receiver/spectrum as following table states:

Test Frequency range	Test Receiver/Spectrum Setting	Detector
30MHz-1GHz	Peak Value: RBW=100kHz/VBW=300kHz, Sweep time=Auto	Peak

☐**Conducted Method:**

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to an EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW=1MHz, VBW=3MHz for peak detector and RBW=1MHz, VBW=1/B for AV detector.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.
6. Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 12.2.2, 12.2.3, and 12.2.4 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
7. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)
8. Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
9. For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
10. Convert the result ant EIRP level to an equivalent electric field strength using the following relationship:

$$E = EIRP – 20\log D + 104.77 = EIRP + 95.23$$

Where:
E = electric field strength in dBμV/m,
EIRP = equivalent isotropic radiated power in dBm
D = specified measurement distance in meters.

11. Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.
12. Compare the resultant electric field strength level to the applicable regulatory limit.
13. Perform radiated spurious emission test duress until all measured frequencies were complete.

5.4.4 Test Results

Pass

it consider to compliance with 15.235(b) from radiated emission result in 5.3.5.2 of this report

5.5 Power line conducted emissions

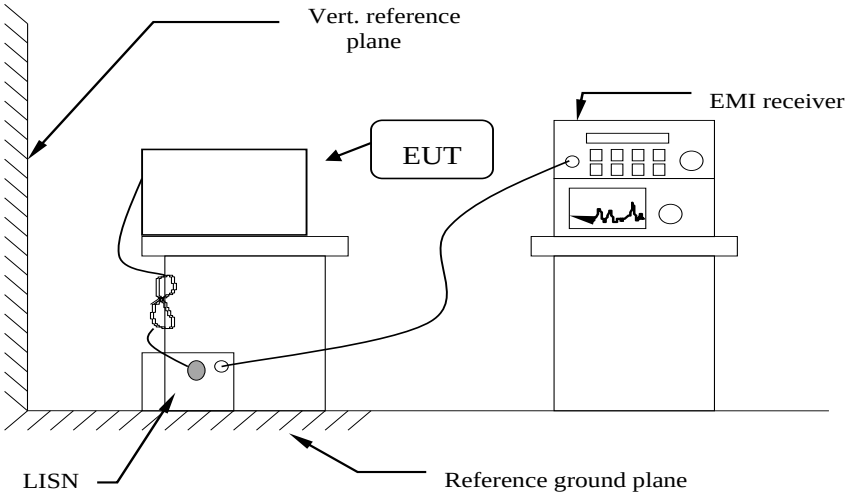
5.5.1 Standard Applicable

According to §15.207 (a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range are listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

* Decreasing linearly with the logarithm of the frequency

5.5.2 Block Diagram of Test Setup



Note: the distance between LISN and Vertical reference plane is 40 cm and the distance between LISN and EUT is 80 cm.

5.5.3 Test Results

N/A

as this product is power supplied by battery

5.6 Antenna Requirements

5.6.1 Standard Applicable

According to antenna requirement of §15.203.

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 shall be considered sufficient to comply with the provisions of this Section. The manufacturer may design the unit so that a broken antenna can be re-placed by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of Sections 15.211, 15.213, 15.217, 15.219, or 15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with Section 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this Part are not exceeded.

5.6.2 Antenna Connected Construction

5.6.3 Standard Applicable

According to § 15.203, 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.

5.6.4 Antenna Connector Construction

The antenna is a Internal antenna connect to PCB board and no consideration of replacement. Please see EUT photo for details.

5.6.5 Results:

Compliance.

6 LIST OF MEASURING EQUIPMENTS

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
1	Wideband Antenna	schwarzbeck	VULB 9163	958	2022/11/13	2025/11/12
2	EMI Test Receiver	R&S	ESCI	100849/003	2024/1/4	2025/1/3
3	Controller	MF	MF7802	N/A	N/A	N/A
4	RF Cable(below 1GHz)	HUBER+SUHNER	RG214	N/A	2024/1/4	2025/1/3
5	RF Cable(above 1GHz)	HUBER+SUHNER	RG214	N/A	2024/1/4	2025/1/3
6	RE test software	Tonscend	JS32-RE	V5.0.0.0	N/A	N/A
7	Loop Antenna	schwarzbeck	FMZB 1519 B	00023	2022/11/13	2025/11/12
8	Artificial Mains	ROHDE & SCHWARZ	ENV 216	101333-IP	2024/1/4	2025/1/3
9	EMI Test Software	ROHDE & SCHWARZ	ESK1	V1.71	N/A	N/A
10	MXA Signal Analyzer	Keysight	N9020A	MY52091623	2024/1/4	2025/1/3

7 TEST SETUP PHOTOGRAPHS OF EUT

Please refer to separated files for Test Setup Photos of the EUT.

8 EXTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for External Photos of the EUT.

9 INTERIOR PHOTOGRAPHS OF THE EUT

Please refer to separated files for Internal Photos of the EUT.

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