

<b>Prüfbericht-Nr.:</b> <i>Test report no.:</i>	<b>CN22KG8L 002</b>	<b>Auftrags-Nr.:</b> <i>Order no.:</i>	<b>168368607</b>	<b>Seite 1 von 23</b> <i>Page 1 of 23</i>	
<b>Kunden-Referenz-Nr.:</b> <i>Client reference no.:</i>	<b>N/A</b>	<b>Auftragsdatum:</b> <i>Order date:</i>	<b>2022-04-21</b>		
<b>Auftraggeber:</b> <i>Client:</i>	<b>SZ DJI TECHNOLOGY CO., LTD.</b> 14th Floor, West Wing, Skyworth Semiconductor Design Building No.18 Gaoxin South 4th Ave Nanshan District, Shenzhen, P.R. China				
<b>Prüfgegenstand:</b> <i>Test item:</i>	<b>DJI RC Motion 2</b>				
<b>Bezeichnung / Typ-Nr.:</b> <i>Identification / Type no.:</i>	<b>RM220</b>				
<b>Auftrags-Inhalt:</b> <i>Order content:</i>	<b>Test Report</b>				
<b>Prüfgrundlage:</b> <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209				
<b>Wareneingangsdatum:</b> <i>Date of sample receipt:</i>	<b>2022-06-24</b>	Please refer to photo documents			
<b>Prüfmuster-Nr.:</b> <i>Test sample no.:</i>	<b>A003318870-002,005 A003318870-009</b>				
<b>Prüfzeitraum:</b> <i>Testing period:</i>	<b>2022-06-28 to 2022-09-02</b>				
<b>Ort der Prüfung:</b> <i>Place of testing:</i>	<b>TÜV Rheinland (Shenzhen) Co., Ltd.</b>				
<b>Prüflaboratorium:</b> <i>Testing laboratory:</i>	<b>TÜV Rheinland (Shenzhen) Co., Ltd.</b>				
<b>Prüfergebnis*:</b> <i>Test result*:</i>	<b>Pass</b>				
<b>geprüft von:</b> <i>tested by:</i>	<b>Hardy</b> <i>X</i> <b>Suo</b>		<b>genehmigt von:</b> <i>authorized by:</i>	<b>Winni</b> <i>X</i> <b>e Hou</b>	
<b>Datum:</b> <i>Date:</i>	<b>2022-10-10</b>		<b>Ausstellungsdatum:</b> <i>Issue date:</i>	<b>2022-10-10</b>	
<b>Stellung / Position:</b>	<b>Sachverständige(r) / Expert</b>		<b>Stellung / Position:</b>	<b>Sachverständige(r) / Expert</b>	
<b>Sonstiges / Other:</b>	FCC ID: SS3-RM22022 This report is for 2.4GHz SDR.				
<b>Zustand des Prüfgegenstandes bei Anlieferung:</b> <i>Condition of the test item at delivery:</i>	<b>Prüfmuster vollständig und unbeschädigt</b> <i>Test item complete and undamaged</i>				
* Legende:	1 = sehr gut P(ass) = entspricht o.g. Prüfgrundlage(n)	2 = gut F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	3 = befriedigend N/A = nicht anwendbar	4 = ausreichend N/A = nicht anwendbar	5 = mangelhaft N/T = nicht getestet
* Legend:	1 = very good P(ass) = passed a.m. test specification(s)	2 = good F(ail) = failed a.m. test specification(s)	3 = satisfactory N/A = not applicable	4 = sufficient N/A = not applicable	5 = poor N/T = not tested
<b>Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.</b> <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

v05

## **Test Summary**

**5.1.1 ANTENNA REQUIREMENT**

*RESULT: Pass*

**5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER**

*RESULT: Pass*

**5.1.3 CONDUCTED POWER SPECTRAL DENSITY**

*RESULT: Pass*

**5.1.4 6DB BANDWIDTH**

*RESULT: Pass*

**5.1.5 99% BANDWIDTH**

*RESULT: Pass*

**5.1.6 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHZ BANDWIDTH**

*RESULT: Pass*

**5.1.7 RADIATED SPURIOUS EMISSION**

*RESULT: Pass*

**5.1.8 CONDUCTED EMISSION ON AC MAINS**

*RESULT: Pass*

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# 1 General Remarks

## 1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Test Results of 2.4GHz SDR

Appendix B: Photographs of the Test Set-up

## 2 Test Sites

### 2.1 Test Facilities

**TÜV Rheinland (Shenzhen) Co., Ltd.**

No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China.

FCC Accreditation Designation No.: CN1260

ISED wireless device testing laboratory: 25069

### 2.2 List of Test and Measurement Instruments

**Table 1: List of Test and Measurement Equipment**

<b>Radio Spectrum Testing (SRD-Tonscend)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Cal. until</b>
EXA Signal Analyzer, Multi-touch	Keysight	N9010B	MY60241175	2022-09-28
MXG X-Series RF Vector Signal Generator	Keysight	N5182B	MY61250137	2022-09-28
EXG X-Series Microwave Analog Signal Generator	Keysight	N5173B	MY61250141	2022-09-28
DC power supply	Keysight	E3642A	MY61276100	2022-09-28
Power Control Unit	Tonscend	JS0806-4ADC	N/A	2022-09-28
Automation Control Unit	Tonscend	JS0806-2	21C8060396	2022-09-28
Test Software	Tonscend	JS1120-3	N/A	N/A
Control PC	Lenovo	TianYi510S-071MB	YLX23JMF	N/A
Shielding Room 8#	Albatross	SR8	APC17151-SR8	2024-06-22
<b>Unwanted Emission Testing (TS9975)</b>				
<b>Equipment</b>	<b>Manufacturer</b>	<b>Model</b>	<b>Serial No.</b>	<b>Cal. until</b>
EMI Test Receiver	R&S	ESR 7	102021	2023-08-02
Signal Analyzer	R&S	FSV 40	101439	2023-08-01
System Controller Interface	R&S	SCI-100	S10010038	N/A
Filterbank	R&S	Wlan	100759	2023-08-01
OSP	R&S	OSP 120	102040	N/A
Pre-amplifier	R&S	SCU08F1	08320031	2023-08-02
Amplifier	R&S	SCU-18F	180070	2023-08-02
Amplifier	R&S	SCU40A	100475	2023-08-02
Trilog Broadband Antenna (30 MHz - 7 GHz)	Schwarzbeck	VULB 9162	193	2024-08-06
Double-Ridged Antenna (1 -18 GHz)	ETS-LINDGREN	3117	00218717	2024-08-06
Wideband Ridged Horn Antenna (18-40 GHz)	Steatite	QMS-00880	19067	2024-08-27
Active Loop Antenna	Schwarzbeck	FMZB 1513	302	2023-08-06
Test software	R&S	EMC32 (V10.60.10)	N/A	N/A
Control PC	Dell	OptiPlex 7050	36NV9P2	N/A

3m Semi-Anechoic Chamber	Albatross	SAC-3m	APC17151-SAC	2024-06-22
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**Conducted Emission on AC Mains**

Equipment	Manufacturer	Model No.	Serial No.	Cal. Until
EMI Test Receiver	R&S	ESR3	102680	2023-02-27
Artificial Mains Network	R&S	ENV216	101445	2023-02-27
EMC32 test software	R&S	EMC32(Ver.10.50.00)	N/A	N/A

## 2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

## 2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

## 2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

**Table 2: Measurement Uncertainty**

Parameter	Uncertainty (k=2)
RF output power, conducted	± 0.99 dB
Occupied Channel Bandwidth	± 2.08 %
RF power density, conducted	± 0.99 dB
Unwanted Emissions, conducted	± 0.89 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	±4.17 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	±4.17 dB
Conducted Emission, (9kHz to 150kHz)/(150kHz to 30MHz)	± 3.70 dB / ± 3.30 dB

## 2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Shenzhen) Co., Ltd. file for certification follow-up purposes.

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## 2.7 Status of Facility Used for Testing

The TÜV Rheinland (Shenzhen) Co., Ltd. Test facility located at No. 362 Huanguan Road Middle, Longhua District, 518110, Shenzhen, P. R. China. is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

## 3 General Product Information

### 3.1 Product Function and Intended Use

The EUT (Equipment Under Test) is a DJI RC Motion 2. It supports 2.4GHz SDR and 5.8GHz SDR functions.

\*remark: SDR means specific defined radio, and cannot changes radio specification via software/firmware by end-users.

For details refer to the User Manual, Technical Description and Circuit Diagram.

### 3.2 Ratings and System Details

**Table 3: Technical Specification of EUT**

General Information of EUT	Value
Kind of Equipment	DJI RC Motion 2
Type Designation	RM220
Trademark	DJI
FCC ID	SS3-RM22022
Operating Temperature Range	-10 °C ~ 40 °C
Operating Voltage	Internal battery operated (DC 3.6V@2600mAh) or Charged by USB port (DC 5V)
Testing Voltage	Fully charged battery
Radiofrequency operating mode	1) 2.4GHz SDR: operating within 2400-2483.5MHz, supports 1.4MHz/10MHz/20MHz Bandwidth 2) 5.8GHz SDR: operating within 5725-5850MHz, supports 1.4MHz/10MHz/20MHz Bandwidth
<b>Technical Specification of 2.4GHz SDR</b>	
Operating Frequency	2407.5-2465.5MHz for 1.4MHz Bandwidth 2409.12-2467.12MHz for 1.4MHz Bandwidth (CA mode) 2405.5-2476.5 MHz for 10MHz Bandwidth (RX Only) 2410.5-2472.5 MHz for 20MHz Bandwidth (RX Only)
Type of Modulation	OFDM (QPSK, 16QAM, 64QAM)
Channel Number	30 channels for 1.4MHz Bandwidth 30 channels for 1.4MHz Bandwidth (CA mode) 72 channels for 10MHz Bandwidth 63 channels for 20MHz Bandwidth
Channel Separation	2MHz for 1.4MHz Bandwidth 2MHz for 1.4MHz Bandwidth (CA mode) 1MHz for 10MHz Bandwidth 1MHz for 20MHz Bandwidth
Antenna Type	Dipole antenna
Antenna Number	2Tx2Rx for MIMO mode (ANT0+ANT1), un-correlated signals, only supports MIMO
Antenna Gain	0.5 dBi for ANT0 & ANT1
The type of wideband data transmission equipment	DTS



**Table 4: RF Channel and Frequency of 2.4GHz SDR**

2.4GHz 1.4MHz Bandwidth (2407.5MHz-2465.5MHz)			
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	2407.5	16	2437.5
2	2409.5	17	2439.5
3	2411.5	18	2441.5
4	2413.5	19	2443.5
5	2415.5	20	2445.5
6	2417.5	21	2447.5
7	2419.5	22	2449.5
8	2421.5	23	2451.5
9	2423.5	24	2453.5
10	2425.5	25	2455.5
11	2427.5	26	2457.5
12	2429.5	27	2459.5
13	2431.5	28	2461.5
14	2433.5	29	2463.5
15	2435.5	30	2465.5

2.4GHz 1.4MHz Bandwidth (CA Mode) (2409.12MHz-2467.12MHz)			
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	2409.12	16	2439.12
2	2411.12	17	2441.12
3	2413.12	18	2443.12
4	2415.12	19	2445.12
5	2417.12	20	2447.12
6	2419.12	21	2449.12
7	2421.12	22	2451.12
8	2423.12	23	2453.12
9	2425.12	24	2455.12
10	2427.12	25	2457.12
11	2429.12	26	2459.12
12	2431.12	27	2461.12
13	2433.12	28	2463.12
14	2435.12	29	2465.12
15	2437.12	30	2467.12

2.4GHz 10MHz Bandwidth (2405.5MHz-2476.5MHz)							
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	2405.5	19	2423.5	37	2441.5	55	2459.5
2	2406.5	20	2424.5	38	2442.5	56	2460.5
3	2407.5	21	2425.5	39	2443.5	57	2461.5
4	2408.5	22	2426.5	40	2444.5	58	2462.5
5	2409.5	23	2427.5	41	2445.5	59	2463.5
6	2410.5	24	2428.5	42	2446.5	60	2464.5
7	2411.5	25	2429.5	43	2447.5	61	2465.5
8	2412.5	26	2430.5	44	2448.5	62	2466.5
9	2413.5	27	2431.5	45	2449.5	63	2467.5
10	2414.5	28	2432.5	46	2450.5	64	2468.5
11	2415.5	29	2433.5	47	2451.5	65	2469.5
12	2416.5	30	2434.5	48	2452.5	66	2470.5
13	2417.5	31	2435.5	49	2453.5	67	2471.5
14	2418.5	32	2436.5	50	2454.5	68	2472.5
15	2419.5	33	2437.5	51	2455.5	69	2473.5
16	2420.5	34	2438.5	52	2456.5	70	2474.5
17	2421.5	35	2439.5	53	2457.5	71	2475.5
18	2422.5	36	2440.5	54	2458.5	72	2476.5

2.4GHz 20MHz Bandwidth (2410.5MHz-2472.5MHz)					
RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
1	2410.5	22	2431.5	43	2452.5
2	2411.5	23	2432.5	44	2453.5
3	2412.5	24	2433.5	45	2454.5
4	2413.5	25	2434.5	46	2455.5
5	2414.5	26	2435.5	47	2456.5
6	2415.5	27	2436.5	48	2457.5
7	2416.5	28	2437.5	49	2458.5
8	2417.5	29	2438.5	50	2459.5
9	2418.5	30	2439.5	51	2460.5
10	2419.5	31	2440.5	52	2461.5
11	2420.5	32	2441.5	53	2462.5
12	2421.5	33	2442.5	54	2463.5
13	2422.5	34	2443.5	55	2464.5
14	2423.5	35	2444.5	56	2465.5
15	2424.5	36	2445.5	57	2466.5
16	2425.5	37	2446.5	58	2467.5
17	2426.5	38	2447.5	59	2468.5
18	2427.5	39	2448.5	60	2469.5

19	2428.5	40	2449.5	61	2470.5
20	2429.5	41	2450.5	62	2471.5
21	2430.5	42	2451.5	63	2472.5

### 3.3 Independent Operation Modes

The basic operation modes are:

- A. On, 2.4GHz SDR wireless transmitting mode (1.4MHz, 1.4MHz CA)
  - 1) Low Channel
  - 2) Middle Channel
  - 3) High Channel
- B. On, Charging by AC/DC Adapter + Normal Operation by 2.4G SDR
- C. Off

### 3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

### 3.5 Submitted Documents

- User Manual
- Block Diagram
- Operation Description
- ID Label and Location Info

## 4 Test Set-up and Operation Modes

### 4.1 Principle of Configuration Selection

**Radio Spectrum:** The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

**Emission:** The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

### 4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model RM220 in this report.

### 4.3 Special Accessories and Auxiliary Equipment

Table 5: Auxiliary Equipment Used during Test

Description	Manufacturer	Model	S/N	Rating
Laptop	Lenovo	T480	PF-16A6N8	N/A
Huawei Adapter	Huawei	HW-100225C00	HC78EAM4W03196	Output: DC 5V, 2A

### 4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

## 4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

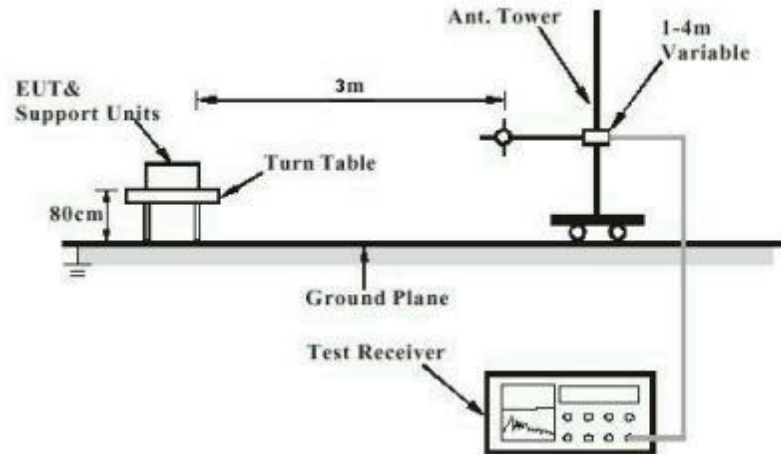


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

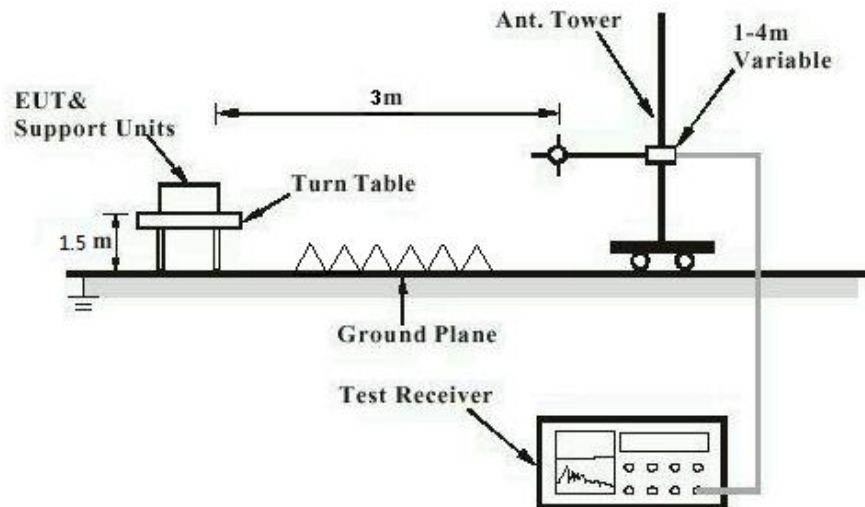


Diagram of Measurement Configuration for Mains Conduction Measurement

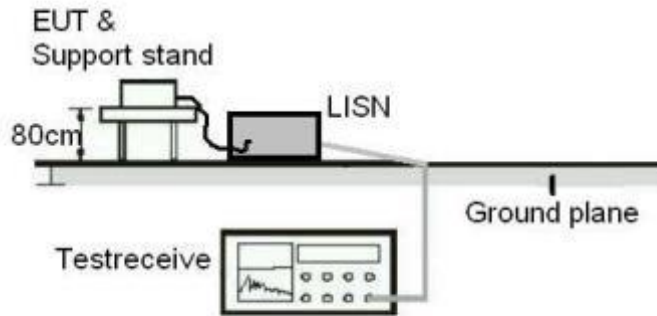
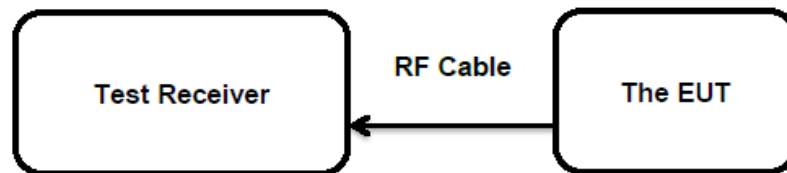


Diagram of Measurement Configuration for Conducted Transmitter Measurement



## 5 Test Results

### 5.1 Transmitter Requirement & Test Suites

#### 5.1.1 Antenna Requirement

RESULT:

**Pass**

**Test Specification**

Test standard : FCC Part 15.247(b)(4) and Part 15.203

According to the manufacturer declared, the EUT has integral antenna, the max. Un-correlated antenna gain is 0.5dBi for 2.4GHz SDR, permanent attachment and no consideration of replacement.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

### 5.1.2 Maximum Peak Conducted Output Power

**RESULT:**
**Pass**
**Test Specification**

Test standard : FCC Part 15.247(b)(3)  
 Basic standard : ANSI C63.10: 2013  
 Limits : 1.0 Watts  
 Kind of test site : Shielded Room

**Test Setup**

Date of testing : 2022-06-28 to 2022-08-29  
 Input voltage : DC 5V by USB port  
 Operation mode : A  
 Test channel : Low / Middle / High  
 Ambient temperature : 25.7 °C  
 Relative humidity : 55 %  
 Atmospheric pressure : 101 kPa

**Table 6: Test Result of Maximum Average Conducted Output Power**

Test Mode	Test Channel (MHz)	Measured Average Power (MIMO mode)		Limit (W)
		(dBm)	(W)	
1.4MHz BW	2407.5	23.93	0.2472	< 1.0
	2435.5	24.00	0.2512	
	2465.5	23.56	0.2270	
1.4MHz BW CA	2409.12	23.79	0.2393	
	2437.12	23.69	0.2339	
	2467.12	23.43	0.2203	
Max. e.i.r.p.=24.00dBm+0.5dBi=24.50dBm, which is less than 36dBm=4W.				

Note:

- 1) The cable loss is taken into account in results.
- 2) Max. Antenna gain(G) of 2.4GHz SDR: 0.5dBi (uncorrelated antenna gain)  
 e.i.r.p.=P<sub>(Peak power)</sub>+ G, which is far below the 4 W



### 5.1.3 Conducted Power Spectral Density

**RESULT:****Pass****Test Specification**

Test standard	:	FCC Part 15.247(e)
Basic standard	:	ANSI C63.10: 2013
Limits	:	< 8 dBm / 3kHz
Kind of test site	:	Shielded Room

**Test Setup**

Date of testing	:	2022-06-28 to 2022-08-29
Input voltage	:	DC 5V by USB port
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	25.7 °C
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

### 5.1.4 6dB Bandwidth

**RESULT:****Pass****Test Specification**

Test standard	:	FCC Part 15.247(a)(2)
Basic standard	:	ANSI C63.10: 2013
Limits	:	> 500 KHz
Kind of test site	:	Shielded Room

**Test Setup**

Date of testing	:	2022-06-28 to 2022-08-29
Input voltage	:	DC 5V by USB port
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	25.7 °C
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

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### 5.1.5 99% Bandwidth

**RESULT:****Pass****Test Specification**

Test standard : FCC Part 15.247(a)  
Basic standard : ANSI C63.10: 2013  
Kind of test site : Shielded Room

**Test Setup**

Date of testing : 2022-06-28 to 2022-08-29  
Input voltage : DC 5V by USB port  
Operation mode : A  
Test channel : Low / Middle / High  
Ambient temperature : 25.7 °C  
Relative humidity : 55 %  
Atmospheric pressure : 101 kPa

For the measurement records, refer to the appendix A.

## 5.1.6 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.247(d)
Basic standard	: ANSI C63.10: 2013
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	: Shielded Room

**Test Setup**

Date of testing	: 2022-06-28 to 2022-08-29
Input voltage	: DC 5V by USB port
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 25.7 °C
Relative humidity	: 55 %
Atmospheric pressure	: 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix A.

### 5.1.7 Radiated Spurious Emission

**RESULT:****Pass****Test Specification**

Test standard	:	FCC Part 15.247(d) & FCC Part 15.205
Basic standard	:	ANSI C63.10: 2013
Limits	:	Refer to 15.209(a) of FCC part 15.247(d)
Kind of test site	:	3m Semi-anechoic Chamber

**Test Setup**

Date of testing	:	2022-09-02
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	Refer to test result
Relative humidity	:	Refer to test result
Atmospheric pressure	:	101 kPa

**Remark:**

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix A.

## 5.1.8 Conducted Emission on AC Mains

**RESULT:****Pass****Test Specification**

Test standard	:	FCC Part 15.207(a)
Basic standard	:	ANSI C63.10: 2013
Frequency range	:	0.15 – 30MHz
Limits	:	FCC Part 15.207(a)
Kind of test site	:	Shielded Room

**Test Setup**

Date of testing	:	2022-08-23
Input voltage	:	AC 120V, 60Hz
Operation mode	:	B
Earthing	:	Not connected
Ambient temperature	:	23.7 °C
Relative humidity	:	52.4 %
Atmospheric pressure	:	101 kPa

For the measurement records, refer to the appendix A.

## 6 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix B.

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