Prüfbericht-Nr.: *Test report no.:*	**CN224PNQ 009**	**Auftrags-Nr.:** *Order no.:*	**168371699**	**Seite 1 von 19** *Page 1 of 19*
Kunden-Referenz-Nr.: *Client reference no.:*	**N/A**	**Auftragsdatum:** *Order date:*	2022-05-11	
Auftraggeber: *Client:*	**SZ DJI TECHNOLOGY CO., LTD.** 14th Floor, West Wing, Skyworth Semiconductor Design Building No.18 Gaoxin South 4th Ave Nanshan District, Shenzhen, P.R. China			
Prüfgegenstand: *Test item:*	INSPIRE 3			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	T740 (Trademark: DJI)			
Auftrags-Inhalt: *Order content:*	Test Report			
Prüfgrundlage: *Test specification:*	CFR47 FCC Part 15: Subpart E Section 15.407			

Wareneingangsdatum: *Date of sample receipt:*	2022-09-06	Please refer to photo documents
Prüfmuster-Nr.: *Test sample no:*	A003330976-003~006	
Prüfzeitraum: *Testing period:*	2022-09-13 to 2022-09-19	
Ort der Prüfung: *Place of testing:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüflaboratorium: *Testing laboratory:*	TÜV Rheinland (Shenzhen) Co., Ltd.	
Prüfergebnis*: *Test result*:*	Pass	

geprüft von: *tested by:*	X Breeze Jiang Signed by: Breeze Jiang	**genehmigt von:** *authorized by:*	X Lin Lin Signed by: Lin Lin
Datum: *Date:* 2022-11-21		**Ausstellungsdatum:** *Issue date:* 2022-11-21	
Stellung */ Position:*	Assistants Project Manager	**Stellung** */ Position:*	Reviewer

Sonstiges */ Other:*
FCC ID: SS3-T7402206
This report is for 5.2GHz SDR.

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
** Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

TEST SUMMARY

5.1.1 ANTENNA REQUIREMENT
RESULT: Pass

5.1.2 MAXIMUM OUTPUT POWER
RESULT: Pass

5.1.3 POWER SPECTRAL DENSITY
RESULT: Pass

5.1.4 FREQUENCY STABILITY
RESULT: Pass

5.1.5 26DB BANDWIDTH AND 99% BANDWIDTH
RESULT: Pass

5.1.6 RADIATED SPURIOUS EMISSION
RESULT: Pass

TABLE OF CONTENTS

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 5.2GHz 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, Shenzhen 518110, People's Republic of China

FCC Accreditation Designation No.: CN1260
ISED Wireless Device Testing Laboratory: 25069
A2LA Certificate Number: 5162.01

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Radio Spectrum Testing (SRD-Tonscend)				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
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
Unwanted Emission Testing (TS9975)				
Equipment	**Manufacturer**	**Model**	**Serial No.**	**Cal. until**
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

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 Uncertainty of Measurement

The value of the measurement uncertainty of each parameter is listed as below:

Table 2: Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	±1 x 10-7
RF Power (conducted)	±2.5 dB
Radiated Emission of Transmitter, valid up to 26.5 GHz	±6 dB
Radiated Emission of Receiver, valid up to 26.5 GHz	±6 dB
Temperature	±1 °C
Humidity	±5 %
Voltage (DC)	±1 %
Voltage (AC, <10kHz)	±2 %

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.

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, Shenzhen 518110, People's Republic of 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 (**E**quipment **U**nder **T**est) is an Aircraft. It supports 2.4GHz SDR, 5.2GHz SDR, 5.8GHz SDR, GNSS and ADS-B 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

General Information of EUT	Value
Kind of Equipment	INSPIRE 3
Type Designation	T740
Trademark	DJI
FCC ID	SS3-T7402206
Operating Temperature Range	-20 °C ~ 40 °C
Operating Voltage	Battery operated (DC 23.1V@4280mAh, Li-ion battery)
Testing Voltage	Fully charged battery
Radiofrequency operating mode	1) 2.4GHz SDR: operating within 2400-2483.5MHz, supports 1.4MHz/3MHz/10MHz/20MHz/40MHz Bandwidth 2) 5.2GHz SDR: operating within 5150-5250MHz, supports 10MHz/20MHz/40MHz Bandwidth 3) 5.8GHz SDR: operating within 5725-5850MHz, supports 1.4MHz/3MHz/10MHz/20MHz/40MHz Bandwidth 4) GPS & BDS & Galileo & Glonass (receiver): operating within 1559-1610MHz 5) ADS-B (receiver): operating at 978MHz and 1090MHz
Technical Specification of 5.2GHz SDR	
Operating Frequency	5157-5245MHz for 10MHz Bandwidth 5161-5240MHz for 20MHz Bandwidth 5170-5230MHz for 40MHz Bandwidth
Type of Modulation	OFDM (QPSK, 16QAM, 64QAM)
Channel Number	9 channels for 10MHz Bandwidth 12 channels for 20MHz Bandwidth 22 channels for 40MHz Bandwidth
Channel Separation	10MHz, 20MHz, 40MHz
Antenna Type	Integral Antennas
Antenna Number	1Tx1Rx for SISO mode (ANT0 or ANT1 or ANT2 or ANT3) 2Tx2Rx for MIMO mode (ANT0+ANT1 or ANT0+ANT3 or ANT2+ANT1 or ANT2+ANT3)
Antenna Gain	2.0dBi
The type of wideband data transmission equipment	DTS

Table 4: RF Channel and Frequency of 5.2GHz SDR

5.2GHz SDR 10MHz Bandwidth (5157MHz-5245MHz)	
Channel	Frequency (MHz)
1	5157
2	5158
3	5159
4	5160
5	5161
6	5162
7	5163
8	5200
9	5245
5.2GHz SDR 20MHz Bandwidth (5161MHz-5240MHz)	
Channel	Frequency (MHz)
1	5161
2	5162
3	5163
4	5164
5	5165
6	5166
7	5167
8	5168
9	5169
10	5170
11	5200
12	5240
5.2GHz SDR 40MHz Bandwidth (5170MHz-5230MHz)	
Channel	Frequency (MHz)
1	5170
2	5171
3	5172
4	5173
5	5174
6	5175
7	5176
8	5177
9	5178
10	5179
11	5180
12	5181
13	5182

14	5183
15	5184
16	5185
17	5186
18	5187
19	5188
20	5189
21	5200
22	5230

3.3 Independent Operation Modes

The basic operation modes are:

A. On, 5.2GHz SDR wireless transmitting mode
   1) Low Channel
   2) Middle Channel
   3) High Channel

B. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

- Application Form
- Block Diagram
- User Manual
- Rating Label

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.

4.2 Test Operation

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 T740 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N
Laptop	Lenovo	T480	PF-16A6N8

4.4 Countermeasures to Achieve ERM 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)

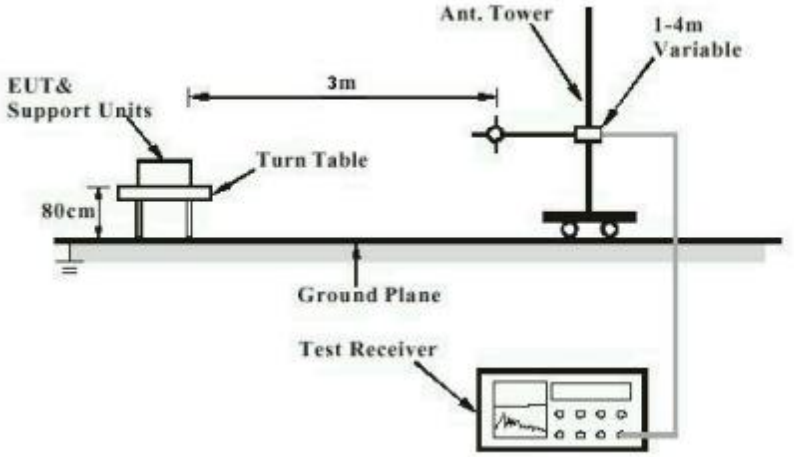


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

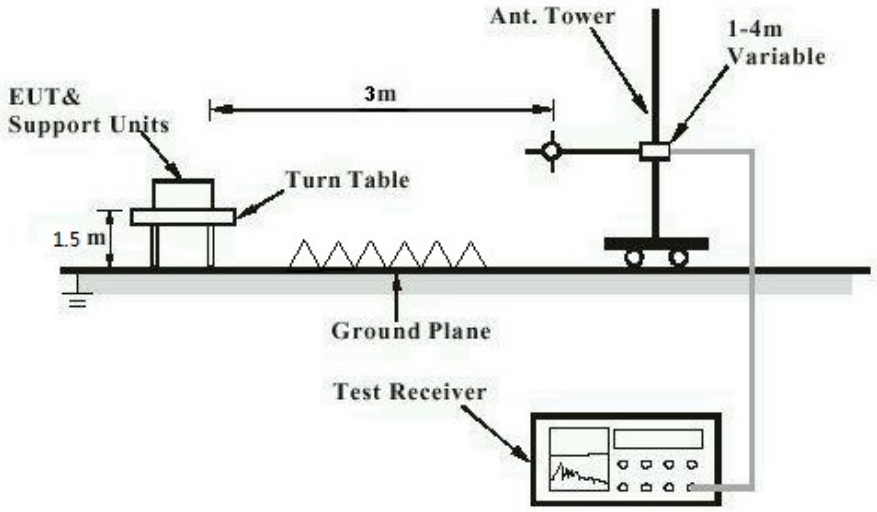
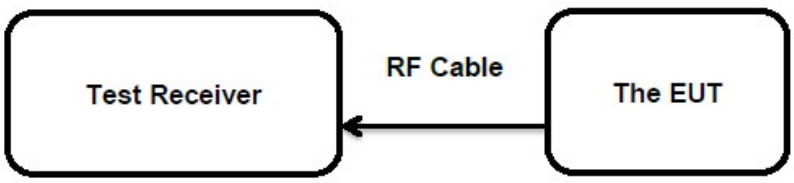


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5. Test Results

5.1 Radio Test Requirement & Test Suites (5GHz Bands)

5.1.1 Antenna Requirement

RESULT: **Pass**

Test Specification
Test standard : FCC Part 15.203

According to the manufacturer declared, the EUT has internal antennas, the max. uncorrelated antenna gain antenna is 2.0dBi for 5.2GHz 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 output power

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.407 (a)
Basic standard	:	ANSI C63.10:2013
Limits	:	<250mW (24dBm) (5150-5250MHz)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2022-09-13 to 2022-09-15
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24.8 ℃
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

Table 6: Test Result of Maximum Conducted Output Power

Worst case for SISO mode (Ant 3)

Test Mode	Test Channel (MHz)	Measured Average Power		Limit (W)
		(dBm)	(W)	
10MHz BW	5157	17.75	0.0596	< 0.250
	5201	17.85	0.0610	
	5245	18.04	0.0637	
20MHz BW	5161	17.73	0.0593	
	5200	17.65	0.0582	
	5240	17.78	0.0600	
40MHz BW	5170	17.21	0.0526	
	5200	17.33	0.0541	
	5230	17.32	0.0540	
Max. e.i.r.p.=18.04dBm+2dBi=20.04dBm, which is less than 30dBm=1W.				

Worst case for MIMO mode (Ant 0+3)

Test Mode	Test Channel (MHz)	Measured Average Power		Limit (W)
		(dBm)	(W)	
10MHz BW	5157	18.01	0.0632	< 0.250
	5158	**18.98**	0.0791	
	5159	18.96	0.0787	
	5201	18.61	0.0726	
	5245	18.47	0.0703	
20MHz BW	5161	16.07	0.0405	
	5162	18.83	0.0764	
	5200	18.62	0.0728	
	5240	18.44	0.0698	
40MHz BW	5170	16.53	0.0450	
	5171	18.50	0.0708	
	5172	18.53	0.0713	
	5173	18.58	0.0721	
	5174	18.60	0.0724	
	5175	18.68	0.0738	
	5200	18.64	0.0731	
	5230	18.40	0.0692	
Max. e.i.r.p.=18.98dBm+2dBi=20.98dBm, which is less than 30dBm=1W.				

Note:
1) The cable loss is taken into account in results.
2) Antenna gain(G): 2.0dBi (uncorrelated antenna gain)
   e.i.r.p.=$P_{(Peak\ power)}$+ G, which is far below the 1W
3) Both SISO and MIMO tested for all RF ports, only the worst-case reported.

Remark: The worst case mode: 10MHz BW: ANT0+ANT3

5.1.3 Power Spectral Density

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.407 (a)
Basic standard	:	ANSI C63.10:2013
Limits	:	<11dBm/MHz (5150-5250MHz)
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2022-09-13 to 2022-09-15
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24.8 ℃
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

Refer to attached Appendix A for details of test data.

Remark: The worst case mode: 10MHz BW: ANT0+ANT3

5.1.4 Frequency Stability

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.407 (g)
Basic standard	:	ANSI C63.10:2013
Limits	:	Within assigned bands
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2022-09-13 to 2022-09-15
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24.8 ℃
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

Refer to attached Appendix A for details of test data.

Remark: The worst case mode: 10MHz BW: ANT0

5.1.5 26dB Bandwidth and 99% Bandwidth

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.407
Basic standard	:	ANSI C63.10:2013
Limits	:	N/A
Kind of test site	:	Shielded Room

Test Setup

Date of testing	:	2022-09-13 to 2022-09-15
Input voltage	:	Fully charged battery
Operation mode	:	A
Test channel	:	Low / Middle / High
Ambient temperature	:	24.8 ℃
Relative humidity	:	55 %
Atmospheric pressure	:	101 kPa

Refer to attached Appendix A for details of test data.

Remark: The worst case mode: 40MHz BW: ANT0

5.1.6 Radiated Spurious Emission

RESULT: **Pass**

Test Specification

Test standard	:	FCC Part 15.407(b) & FCC Part 15.205 & FCC Part 15.209
Basic standard	:	ANSI C63.10:2013
Limits	:	• For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz. • Restricted Bands meet the requirement of 15.209 limit
Kind of test site	:	3m Semi-Anechoic Chamber

Test Setup

Date of testing	:	2022-09-19
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

Refer to attached Appendix A for details of test data.

Remark: The worst case mode: 40MHz BW: ANT0+ANT3

6. Photographs of the Test Set-Up

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

7. List of Tables