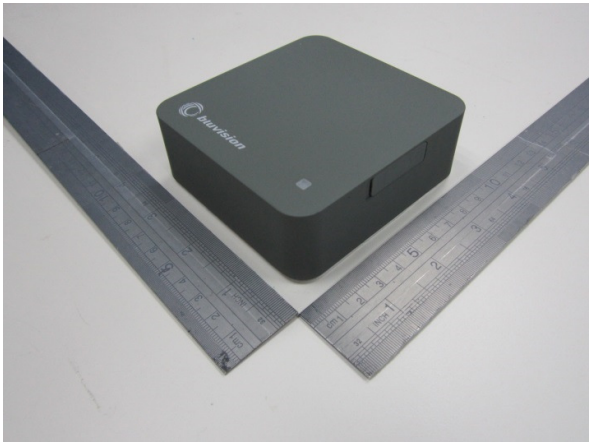


Prüfbericht-Nr.: <i>Test Report No.:</i>	50104295 001	Auftrags-Nr.: <i>Order No.:</i>	144163823	Seite 1 von 21 <i>Page 1 of 21</i>
Kunden-Referenz-Nr.: <i>Client Reference No.:</i>	N/A	Auftragsdatum: <i>Order date.:</i>	16 Oct, 2017	
Auftraggeber: <i>Client:</i>	BluVision, Inc 600 Corporate Drive Suite 410 Fort Lauderdale Florida United States 33334			
Prüfgegenstand: <i>Test item:</i>	Battery Blufi	FCC ID: <i>FCC ID:</i>	SL6-BLUFIBAT	
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	BVBBF			
Auftrags-Inhalt: <i>Order content:</i>	TUV Rheinland - EMC service			
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247			
Wareneingangsdatum: <i>Date of receipt:</i>	06 Oct, 2017			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000629574-001			
Prüfzeitraum: <i>Testing period:</i>	16 Oct, 2017 to 31, Oct, 2017			
Ort der Prüfung: <i>Place of testing:</i>	Refer to section 2.1			
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Guangdong) Ltd.			
Prüfergebnis*: <i>Test result*:</i>	Pass			
geprüft von / tested by:		kontrolliert von / reviewed by:		
				
31 Oct, 2017	Lambert Tang / Senior Project Engineer	31 Oct, 2017	Amy Wang/ Project Manager	
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>
Sonstiges / Other:				
This report covers partial test result of CFR47 FCC Part 15: Subpart C Section 15.247. This report should be read in conjunction with test report# 171021001RFC-1, 171021001RFC-2, 171021001EMC-1 and 171026002SZN-001.				
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>		Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* 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 specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested				
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines <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>				

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Passed

5.1.2 6dB BANDWIDTH MEASUREMENT

RESULT: Passed

5.1.3 MAXIMUM CONDUCTED OUTPUT POWER

RESULT: Passed

5.1.4 POWER SPECTRAL DENSITY

RESULT: Passed

5.1.5 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 kHz BANDWIDTH

RESULT: Passed

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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 1: Test result

2 Test Sites

2.1 Test Facilities

TÜV RHEINLAND (GUANGDONG) LTD.

No.102, 1F of Southwest and No.205, 2F of West Warehouse Building, No.767 Tianyuan Road, Tianhe District, Guangzhou 510650, Guangdong, P.R. China.

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
6dB Bandwidth Measurement / Maximum Output Power / Power Spectral Density / Conducted Spurious Emissions in 100 kHz Bandwidth				
Spectrum Analyzer	Rohde & Schwarz	FSP30	100610	15 Oct 2018
Power Sensor	Boonton	55006	9910	16 Nov 2017

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

Uncertainty for conducted emissions measurements is 2.40dB.

Uncertainty for radiated emissions measurements is 4.40dB (30M-1GHz) and 4.40dB (> 1GHz).

The reported expanded uncertainty is based on a standard uncertainty multiply by a coverage factor $k=2$, providing a level of confidence of approximately 95%.

2.6 Location of original data

The original copies of test data taken during actual testing were attached at Appendix 1 of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Guangdong) file for certification follow-up purposes.

2.7 Status of facility used for testing

TÜV RHEINLAND (GUANGDONG) LTD.

No.102, 1F of Southwest and No.205, 2F of West Warehouse Building, No.767 Tianyuan Road, Tianhe District, Guangzhou 510650, Guangdong, P.R. China whose designation number is CN1207.

3 General Product Information

3.1 Product Function and Intended Use

The submitted sample FX-27E is radio controlled toy helicopter embedded with WiFi camera. It is intended to use in following electromagnetic environment: residential and urban outdoors.

3.2 Ratings and System Details

Table 2: Rating of EUT

Kind of Equipment	WIFI, BLE device
Type Designation	Battery Blufi
FCC ID	SL6-BLUFIBAT

Table 3: Technical Specification of Bluetooth (BLE)

Technical Specification	Value
Operating Frequency band	2402 – 2480 MHz
Bluetooth Core Version	Bluetooth Low Energy 4.1
Channel separation	2MHz
Extreme Temperature Range	-20°C to +70°C
Operation Voltage	DC 5V (USB)
Operation Voltage	DC 3.7V (Rechargeable battery)
Modulation	GFSK
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	0 dBi
RF Output Power	0.0027W (4.31 dBm)

Table 4: RF channel and frequency of Bluetooth (BDR & EDR mode)

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402.00	20	2442.00
1	2404.00	21	2444.00
2	2406.00	22	2446.00
3	2408.00	23	2448.00
4	2410.00	24	2450.00
5	2412.00	25	2452.00
6	2414.00	26	2454.00
7	2416.00	27	2456.00
8	2418.00	28	2458.00
9	2420.00	29	2460.00
10	2422.00	30	2462.00
11	2424.00	31	2464.00
12	2426.00	32	2466.00
13	2428.00	33	2468.00
14	2430.00	34	2470.00
15	2432.00	35	2472.00
16	2434.00	36	2474.00
17	2436.00	37	2476.00
18	2438.00	38	2478.00
19	2440.00	39	2480.00

Table 5: Technical Specification of WiFi

Technical Specification	Value
Operating Frequency band	2412 – 2462 MHz
WIFI Version	802.11b/g/n-HT20
Channel separation	5MHz
Extreme Temperature Range	-20°C to +70°C
Operation Voltage	DC 5V (USB)
Operation Voltage	DC 3.7V (Rechargeable battery)
Modulation	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g: OFDM (64-QAM, 16-QAM, QPSK, BPSK) 802.11n: OFDM (64-QAM, 16-QAM, QPSK, BPSK)
Antenna Type	Internal Antenna, Non-User Replaceable
Antenna Gain	0 dBi
RF Output Power	IEEE 802.11b: 0.05W (16.98 dBm) IEEE 802.11g: 0.084W (19.25 dBm) IEEE 802.11n-HT20: 0.080W (18.99 dBm)

Table 6: RF channel and frequency

RF Channel	Frequency (MHz)
0	2412.00
1	2417.00
2	2422.00
3	2427.00
4	2432.00
5	2437.00
6	2442.00
7	2447.00
8	2452.00
9	2457.00
10	2462.00
11	2412.00

3.3 Independent Operation Modes

The basic operation modes are:

A. On, BLE

1. Transmitting on low channel
2. Transmitting on middle channel
3. Transmitting on high channel

B. On, 802.11b

4. Transmitting on low channel
5. Transmitting on middle channel
6. Transmitting on high channel

C. On, 802.11g

7. Transmitting on low channel
8. Transmitting on middle channel
9. Transmitting on high channel

D. On, 802.11n

10. Transmitting on low channel
11. Transmitting on middle channel
12. Transmitting on high channel

3.4 Noise Generating and Noise Suppressing Parts

Refer to the Circuit Diagram.

3.5 Submitted Documents

1. Block Diagram
2. Circuit Diagram
3. Operation Description
4. FCC label and location
5. User Manual
6. Internal Photos
7. External Photos
8. Test setup Photos

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

The equipment under test (EUT) was configured to measure its maximum power level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

During testing, Channel & Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power was selected according to the instruction given by the manufacturer. The setting of the RF output power expected by the customer shall be fixed on the firmware of the final end product.

All testing were performed according to the procedures in ANSI C63.10: 2013.

4.3 Special Accessories and Auxiliary Equipment

The product has been tested together with the following additional accessories:

Kind of Equipment	Manufacturer	Model Name	S/N
Notebook	Lenovo	80Q6	PF0BEWWR

4.4 Countermeasures to achieve EMC Compliance

The test sample, which has been tested, contained the noise suppression parts as described in the technical document. No additional measures were employed to achieve compliance.

4.5 Test set-up

Diagram of Measurement Configuration for Radiation Test

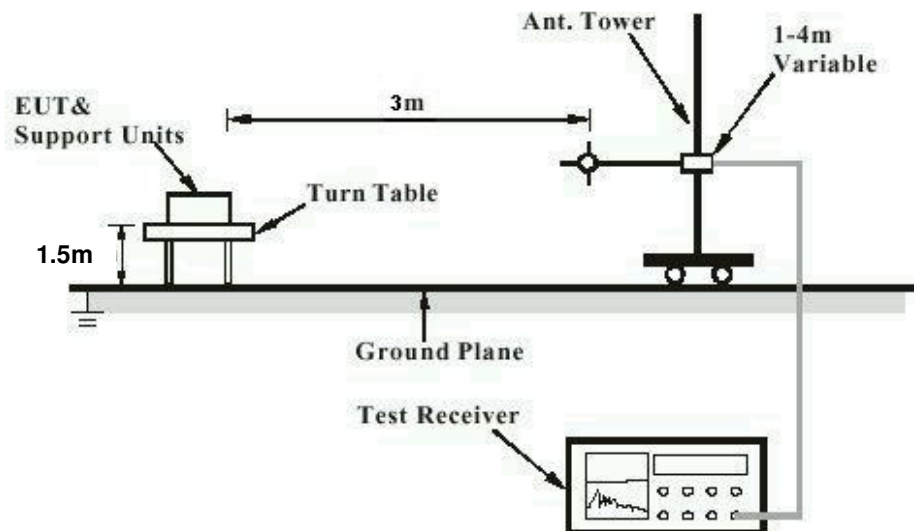


Diagram of Measurement Configuration for Mains Conduction Measurement

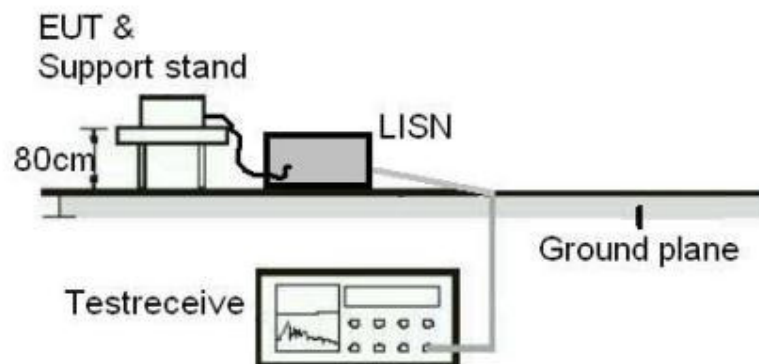
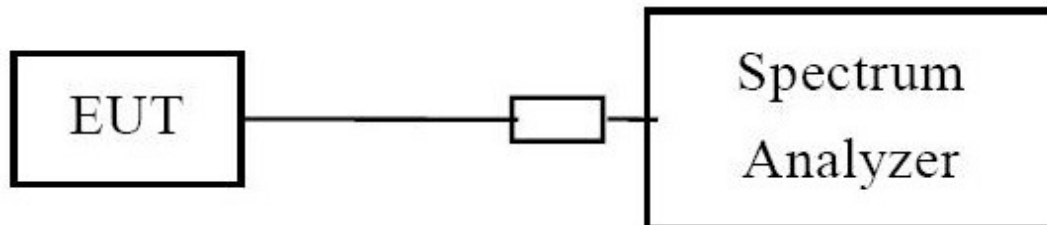


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT: **Passed**

Test Specification

Test standard	: FCC Part 15.247(b)(4) and Part 15.203
Limits	: the use of antennas with directional gains that do not exceed 6 dBi

According to the manufacturer declared, the EUT has an internal antenna, the directional gain of antenna is 0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement.

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

For more details, refer to EUT photo.

5.1.2 6dB Bandwidth Measurement

RESULT:

Passed

Test Specification

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

Test Setup

Date of testing	: 24 Oct, 2017
Power supply	: DC 5V
Operation mode	: A, B, C, D (See 3.3)
Test channel	: Lo, Mi, Hi
Ambient temperature	: 25 °C
Relative Humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix 1.

Table 7: Test result of 6dB Bandwidth, BLE

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2402	684	500	Pass
Mid Channel	2440	688	500	Pass
High Channel	2480	700	500	Pass

Table 8: Test result of 6dB Bandwidth, 802.11b

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2412	9560	500	Pass
Mid Channel	2437	10040	500	Pass
High Channel	2462	10040	500	Pass

Table 9: Test result of 6dB Bandwidth, 802.11g

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2412	15340	500	Pass
Mid Channel	2437	15350	500	Pass
High Channel	2462	15350	500	Pass

Table 10: Test result of 6dB Bandwidth, 802.11n

Channel	Channel Frequency (MHz)	6dB Bandwidth (kHz)	Limit (kHz)	Result
Low Channel	2412	15350	500	Pass
Mid Channel	2437	15350	500	Pass
High Channel	2462	15350	500	Pass

5.1.3 Maximum Conducted Output Power

RESULT:

Passed

Test Specification

Test standard	: FCC Part 15.247(b)(3)
Basic standard	: ANSI C63.10: 2013
Limits	: For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850MHz bands: 1 Watt (30dBm)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 24 Oct, 2017
Power supply	: DC 5V
Operation mode	: A, B, C, D (See 3.3)
Test channel	: Lo, Mi, Hi
Ambient temperature	: 25 °C
Relative Humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix 1.

Table 11: Test result of Peak Output Power, BLE

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2402	4.31	0.00270	1
Middle Channel	2440	3.15	0.00207	1
High Channel	2480	1.16	0.00131	1

Table 12: Test result of Peak Output Power, 802.11b

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	15.562	0.0360	1
Middle Channel	2437	16.010	0.0399	1
High Channel	2462	16.979	0.0499	1

Table 13: Test result of Peak Output Power, 802.11g

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	18.609	0.0726	1
Middle Channel	2437	19.252	0.0842	1
High Channel	2462	18.907	0.0778	1

Table 14: Test result of Peak Output Power, 802.11n

Channel	Channel Frequency (MHz)	Peak Output Power		Limit (W)
		(dBm)	(W)	
Low Channel	2412	18.529	0.0713	1
Middle Channel	2437	18.923	0.0780	1
High Channel	2462	18.989	0.0792	1

5.1.4 Power Spectral Density

RESULT:

Passed

Test Specification

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

Test Setup

Date of testing	: 24 Oct, 2017
Power supply	: DC 5V
Operation mode	: A, B, C, D (See 3.3)
Test channel	: Lo, Mi, Hi
Ambient temperature	: 25 °C
Relative Humidity	: 55 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix 1.

Table 15: Test result of Power Spectral Density, BLE

Channel	Channel Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Result
Low Channel	2402	4.33	8.0	Pass
Mid Channel	2440	3.37	8.0	Pass
High Channel	2480	1.37	8.0	Pass

Table 16: Test result of Power Spectral Density, 802.11b

Channel	Channel Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Result
Low Channel	2412	2.04	8.0	Pass
Mid Channel	2437	2.47	8.0	Pass
High Channel	2462	2.76	8.0	Pass

Table 17: Test result of Power Spectral Density, 802.11g

Channel	Channel Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Result
Low Channel	2412	-0.68	8.0	Pass
Mid Channel	2437	1.90	8.0	Pass
High Channel	2462	-0.41	8.0	Pass

Table 18: Test result of Power Spectral Density, 802.11n

Channel	Channel Frequency (MHz)	Measured Power Density (dBm)	Limit (dBm)	Result
Low Channel	2412	-1.08	8.0	Pass
Mid Channel	2437	1.65	8.0	Pass
High Channel	2462	-0.90	8.0	Pass

5.1.5 Conducted Spurious Emissions Measured in 100 kHz Bandwidth

RESULT:

Passed

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);
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 24 Oct, 2017
Power supply	: DC 5V
Operation mode	: A, B, C, D (See 3.3)
Test channel	: Lo, Mi, Hi
Ambient temperature	: 25 °C
Relative Humidity	: 55 %
Atmospheric pressure	: 101 kPa

All emissions are more than 20dB below fundamental, compliance is achieved as well.

For the measurement records, refer to the appendix 1.

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