

TEST REPORT

FCC PART 15 SUBPART C 15.247

Test report On Behalf of SUNVALLEYTEK INTERNATIONAL, INC. For Bluetooth Remote Control Model No.: VA-LT003

FCC ID: 2AFDGVA-LT003

Prepared for : SUNVALLEYTEK INTERNATIONAL, INC. 46724 Lakeview Blvd, Fremont, CA 94538

Prepared By : Shenzhen HUAK Testing Technology Co., Ltd. 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China

 Date of Test:
 Nov. 06, 2018 ~ Nov. 13, 2018

 Date of Report:
 Nov. 13, 2018

 Report Number:
 HK1811141569E



TEST RESULT CERTIFICATION

Applicant's name SUNVALLEYTEK INTERNATIONAL, INC.

Address 46724 Lakeview Blvd, Fremont, CA 94538

Manufacture's Name Shenzhen NearbyExpress Technology Development Company Limited

333 Bulong Road, Jialianda Industrial Park, Building 1, Bantian, Address LonggangDistrict, Shenzhen, China

Product description

Trade Mark: VAVA

Product nameBluetooth Remote Control

Model and/or type reference ... VA-LT003

This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen HUAK Testing Technology Co., Ltd. is acknowledged as copyright owner and source of the material. Shenzhen HUAK Testing Technology Co., Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

2

Date of Test	
Date (s) of performance of tests:	Nov. 06, 2018 ~ Nov. 13, 2018
Date of Issue	Nov. 13, 2018
Test Result:	Pass

Testing Engineer

Good Gim (Gary Qian) Edan Mu (Eden Hu)

Technical Manager

Authorized Signatory

(Jason Zhou)



TABLE OF CONTENTS

1.1 TEST STANDARDS 4 1.2 TEST DESCRIPTION 4 1.3 TEST FACILITY 5 1.4 STATEMENT OF THE MEASUREMENT UNCERTAINTY 5 2.GENERAL INFORMATION 6 2.GENERAL INFORMATION 6 2.GENERAL DESCRIPTION OF EUT 6 2.3 DESCRIPTION OF TEST MODES AND TEST FREQUENCY 6 2.4 RELATED SUBMITTAL(S) (GRANT (S). 7 2.5 MODIFICATIONS 7 2.6 EQUIPMENT USED 7 3. PEAK OUTPUT POWER. 7 3.1 MEASUREMENT PROCEDURE 8 3.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 8 3.3 LIMITS AND MEASUREMENT RESULT 5 4. 6 DB BANDWIDTH. 1 4.1. MEASUREMENT PROCEDURE 11 4.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 12 4.3 LIMITS AND MEASUREMENT RESULT 13 5. CONDUCTED SPURIOUS EMISSION 11 4.3. LIMITS AND MEASUREMENT RESULT 13 5.4. LIMITS AND MEASUREMENT RESULT 13 5.4. LIMITS AND MEASUREMENT RESULT 14 6.1 MEASUREMENT PROCEDURE 15 6.1 MEASUREMENT PROCEDURE 15	1.SUMMARY	4
2.1 ENVIRONMENTAL CONDITIONS 0 2.2 GENERAL DESCRIPTION OF EUT 0 2.3 DESCRIPTION OF TEST MODES AND TEST FREQUENCY 0 2.4 RELATED SUBMITTAL(S) / GRANT (S) 7 2.5 MODIFICATIONS 7 2.6 EQUIPMENT USED 7 3. PEAK OUTPUT POWER 6 3.1. MEASUREMENT PROCEDURE 8 3.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 6 3.3. LIMITS AND MEASUREMENT RESULT 5 4.6 DB BANDWIDTH 1 4.1. MEASUREMENT PROCEDURE 11 4.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 11 4.3. LIMITS AND MEASUREMENT RESULTS 11 4.4. MEASUREMENT PROCEDURE 11 4.5. CONDUCTED SPURIOUS EMISSION 11 5.1. MEASUREMENT PROCEDURE 12 5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 12 5.3. MEASUREMENT PROCEDURE 12 5.4. LIMITS AND MEASUREMENT RESULT 12 6.1 MEASUREMENT PROCEDURE 12 6.1 MEASUREMENT PROCEDURE 12 6.1 MEASUREMENT PROCEDURE 12 6.1 MEASUREMENT PROCEDURE 12 6.1 MEASUREMENT PROCEDURE <td>1.2 TEST DESCRIPTION 1.3 TEST FACILITY</td> <td>4 5</td>	1.2 TEST DESCRIPTION 1.3 TEST FACILITY	4 5
2.2 GENERAL DESCRIPTION OF EUT	2.GENERAL INFORMATION	6
3.1. MEASUREMENT PROCEDURE 8 3.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 8 3.3. LIMITS AND MEASUREMENT RESULT 5 4.6 DB BANDWIDTH 1 4.1. MEASUREMENT PROCEDURE 11 4.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 11 4.3. LIMITS AND MEASUREMENT RESULTS 11 5. CONDUCTED SPURIOUS EMISSION 11 5.1. MEASUREMENT PROCEDURE 12 5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 13 5.1. MEASUREMENT PROCEDURE 12 5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 13 5.3. MEASUREMENT PROCEDURE 12 5.4. LIMITS AND MEASUREMENT RESULT 13 6.4. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY 14 6.1 MEASUREMENT PROCEDURE 16 6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 16 6.3 MEASUREMENT PROCEDURE 16 6.4 LIMITS AND MEASUREMENT RESULT 16 7.1. MEASUREMENT PROCEDURE 20 7.1. MEASUREMENT PROCEDURE 21 7.2. TEST SETUP 21 7.3. LIMITS AND MEASUREMENT RESULT 22 7.4. TEST RESULT 22	 2.1 ENVIRONMENTAL CONDITIONS 2.2 GENERAL DESCRIPTION OF EUT 2.3 DESCRIPTION OF TEST MODES AND TEST FREQUENCY 2.4 RELATED SUBMITTAL(S) / GRANT (S)	
3.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 5 3.3. LIMITS AND MEASUREMENT RESULT 5 4.6 DB BANDWIDTH. 1 4.1. MEASUREMENT PROCEDURE 11 4.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 11 4.3. LIMITS AND MEASUREMENT RESULTS 11 5. CONDUCTED SPURIOUS EMISSION 11 5.1. MEASUREMENT PROCEDURE 12 5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 12 5.3. MEASUREMENT PROCEDURE 12 5.4. LIMITS AND MEASUREMENT RESULT 13 6.4. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY 14 6.1 MEASUREMENT PROCEDURE 16 6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 16 6.3 MEASUREMENT PROCEDURE 16 6.4 LIMITS AND MEASUREMENT RESULT 16 6.4 LIMITS AND MEASUREMENT RESULT 16 7. RADIATED EMISSION 17 7.1. MEASUREMENT PROCEDURE 20 7.1. MEASUREMENT PROCEDURE 21 7.3. LIMITS AND MEASUREMENT RESULT 22 7.3. LIMITS AND MEASUREMENT RESULT 22 7.4. TEST RESULT 22 7.4. TEST RESULT 22	3. PEAK OUTPUT POWER	8
4.1. MEASUREMENT PROCEDURE. 11 4.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION). 11 4.3. LIMITS AND MEASUREMENT RESULTS. 11 5. CONDUCTED SPURIOUS EMISSION 11 5.1. MEASUREMENT PROCEDURE 13 5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 13 5.3. MEASUREMENT PROCEDURE 13 5.4. LIMITS AND MEASUREMENT RESULT 13 6. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY 14 6.1 MEASUREMENT PROCEDURE 16 6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 16 6.4 LIMITS AND MEASUREMENT RESULT 14 6.4 LIMITS AND MEASUREMENT RESULT 16 6.4 LIMITS AND MEASUREMENT RESULT 16 7. RADIATED EMISSION 17 7.1. MEASUREMENT PROCEDURE 20 7.1. MEASUREMENT PROCEDURE 20 7.1. MEASUREMENT PROCEDURE 20 7.1. MEASUREMENT PROCEDURE 21 7.3. LIMITS AND MEASUREMENT RESULT 22 7.4. TEST RESULT 22 7.4. TEST RESULT 22 APPENDIX A: PHOTOGRAPHS OF TEST SETUP 33	3.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	8
4.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 11 4.3. LIMITS AND MEASUREMENT RESULTS 11 5. CONDUCTED SPURIOUS EMISSION 12 5.1. MEASUREMENT PROCEDURE 13 5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 13 5.3. MEASUREMENT PROCEDURE 13 5.4. LIMITS AND MEASUREMENT RESULT 13 6. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY 14 6.1 MEASUREMENT PROCEDURE 16 6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 16 6.3 MEASUREMENT PROCEDURE 16 6.4 LIMITS AND MEASUREMENT RESULT 16 6.4 LIMITS AND MEASUREMENT RESULT 16 7. RADIATED EMISSION 16 7.1. MEASUREMENT PROCEDURE 20 7.1. MEASUREMENT PROCEDURE 20 7.1. MEASUREMENT PROCEDURE 20 7.2. TEST SETUP 21 7.3. LIMITS AND MEASUREMENT RESULT 22 7.4. TEST RESULT 22 7.4. TEST RESULT 22 APPENDIX A: PHOTOGRAPHS OF TEST SETUP 33	4. 6 DB BANDWIDTH	11
5.1. MEASUREMENT PROCEDURE135.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)135.3. MEASUREMENT EQUIPMENT USED135.4. LIMITS AND MEASUREMENT RESULT136. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY146.1 MEASUREMENT PROCEDURE166.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)166.3 MEASUREMENT EQUIPMENT USED166.4 LIMITS AND MEASUREMENT RESULT167. RADIATED EMISSION207.1. MEASUREMENT PROCEDURE207.2. TEST SETUP217.3. LIMITS AND MEASUREMENT RESULT227.4. TEST RESULT22APPENDIX A: PHOTOGRAPHS OF TEST SETUP33	4.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)	
5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 13 5.3. MEASUREMENT EQUIPMENT USED 13 5.4. LIMITS AND MEASUREMENT RESULT 13 6. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY 14 6.1 MEASUREMENT PROCEDURE 16 6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 16 6.3 MEASUREMENT EQUIPMENT USED 16 6.4 LIMITS AND MEASUREMENT RESULT 16 7. RADIATED EMISSION 16 7.1. MEASUREMENT PROCEDURE 20 7.2. TEST SETUP 21 7.3. LIMITS AND MEASUREMENT RESULT 22 7.4. TEST RESULT 22 APPENDIX A: PHOTOGRAPHS OF TEST SETUP 33	5. CONDUCTED SPURIOUS EMISSION	
6.1 MEASUREMENT PROCEDURE186.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)186.3 MEASUREMENT EQUIPMENT USED186.4 LIMITS AND MEASUREMENT RESULT187. RADIATED EMISSION207.1. MEASUREMENT PROCEDURE207.2. TEST SETUP217.3. LIMITS AND MEASUREMENT RESULT227.4. TEST RESULT22APPENDIX A: PHOTOGRAPHS OF TEST SETUP32	5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 5.3. MEASUREMENT EQUIPMENT USED	13 13
6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)186.3 MEASUREMENT EQUIPMENT USED186.4 LIMITS AND MEASUREMENT RESULT187. RADIATED EMISSION207.1. MEASUREMENT PROCEDURE207.2. TEST SETUP217.3. LIMITS AND MEASUREMENT RESULT227.4. TEST RESULT22APPENDIX A: PHOTOGRAPHS OF TEST SETUP32	6. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY	
7.1. MEASUREMENT PROCEDURE207.2. TEST SETUP217.3. LIMITS AND MEASUREMENT RESULT227.4. TEST RESULT22APPENDIX A: PHOTOGRAPHS OF TEST SETUP32	6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) 6.3 MEASUREMENT EQUIPMENT USED	
7.2. TEST SETUP	7. RADIATED EMISSION	
	7.2. TEST SETUP 7.3. LIMITS AND MEASUREMENT RESULT	21 22
APPENDIX B: PHOTOGRAPHS OF EUT	APPENDIX A: PHOTOGRAPHS OF TEST SETUP	
	APPENDIX B: PHOTOGRAPHS OF EUT	



1.SUMMARY

1.1 TEST STANDARDS

The tests were performed according to following standards:

FCC Rules Part 15.247: Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

ANSI C63.10:2013 : American National Standard for Testing Unlicensed Wireless Devices

1.2 TEST DESCRIPTION

FCC RULES	DESCRIPTION OF TEST	RESULT
15.247	Peak Output Power	Compliant
15.247	6 dB Bandwidth	Compliant
15.247	Conducted Spurious Emission and Band Edges	Compliant
15.247	Maximum Conducted Output Power Density	Compliant
15.247&15.209	Radiated Emission	Compliant
§15.207	Line Conduction Emission	NA



1.3 TEST FACILITY

1.3.1 ADDRESS OF THE TEST LABORATORY Shenzhen HUAK Testing Technology Co., Ltd. Add.:1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park,Heping Community, Fuhai Street, Bao'an District, Shenzhen, China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4 and CISPR 32/EN 55032 requirements. 1.3.2 LABORATORY ACCREDITATION

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

IC Registration No.: 21210

The 3m alternate test site of Shenzhen HUAK Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 21210 on May 24, 2016.

FCC Registration No.: CN1229

Test Firm Registration Number : 616276

1.4 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 HUAK Testing Technology Co., Ltd. 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.

Test	Measurement Uncertainty	Notes
Transmitter power conducted	±0.57 dB	(1)
Transmitter power Radiated	±2.20 dB	(1)
Conducted spurious emission 9KHz-40 GHz	±2.20 dB	(1)
Occupied Bandwidth	±0.01ppm	(1)
Radiated Emission 30~1000MHz	±4.10dB	(1)
Radiated Emission Above 1GHz	±4.32dB	(1)
Conducted Disturbance0.15~30MHz	±3.20dB	(1)

Hereafter the best measurement capability for HUAK laboratory is reported:

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



2.GENERAL INFORMATION

2.1 ENVIRONMENTAL CONDITIONS

During the measurement the environmental conditions were within the listed ranges:

Normal Temperature:	25°C
Relative Humidity:	55 %
Air Pressure:	101 kPa

2.2 GENERAL DESCRIPTION OF EUT

Product Name:	Bluetooth Remote Control
Model/Type reference:	VA-LT003
Power supply:	DC 3V by Battery
Version:	Supported BT4.2
Modulation:	GFSK(BLE)
Operation frequency:	2402MHz~2480MHz
Channel number:	40
Channel separation:	2MHz
Antenna type:	PCB Antenna
Antenna gain:	1.30dBi
Hardware Version:	GFVA1812 V01
Software Version:	V1.0

Note: For more details, refer to the user's manual of the EUT.

2.3 DESCRIPTION OF TEST MODES AND TEST FREQUENCY

Frequency Band	Channel Number	Frequency
2400~2483.5MHZ	0	2402MHZ
	1	2404MHZ
	:	:
	38	2478MHZ
	39	2480MHZ



NO.	TEST MODE DESCRIPTION	
1	Low channel TX	
2	Middle channel TX	
3	High channel TX	

Note:

- 1. The EUT has been set to operate continuously on the lowest, middle and highest operation frequency Individually by special test software, and the EUT is operating at its maximum Power Control Level and maximum duty cycle>or equal 98%.
- 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.

2.4 RELATED SUBMITTAL(S) / GRANT (S)

This submittal(s) (test report) is intended to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.5 MODIFICATIONS

No modifications were implemented to meet testing criteria.

2.6 EQUIPMENT USED

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Receiver	R&S	ESCI 7	HKE-010	Dec. 28, 2017	1 Year
2.	RF automatic control unit	Tonscend	JS0806-2	HKE-060	Dec. 28, 2017	1 Year
3.	Horn Antenna	Schewarzbeck	BBHA 9170	HKE-090	Dec. 28, 2017	1 Year
4.	Spectrum analyzer	Agilent	N9020A	HKE-048	Dec. 28, 2017	1 Year
5.	Preamplifier	Schwarzbeck	BBV 9743	HKE-006	Dec. 28, 2017	1 Year
6.	Bilog Broadband Antenna	Schwarzbeck	VULB9163	HKE-012	Dec. 28, 2017	1 Year
7.	Loop Antenna	Schwarzbeck	FMZB 1519 B	HKE-014	Dec. 28, 2017	1 Year
8.	Horn Antenna	Schewarzbeck	9120D	HKE-013	Dec. 28, 2017	1 Year
9.	Pre-amplifier	EMCI	EMC051845 SE	HKE-015	Dec. 28, 2017	1 Year
10.	Pre-amplifier	Agilent	83051A	HKE-016	Dec. 28, 2017	1 Year
11.	EMI Test Software EZ-EMC	Tonscend	JS1120-B Version	HKE-083	Dec. 28, 2017	N/A
12.	Shielded room	Shiel Hong	4*3*3	HKE-039	Dec. 28, 2017	3 Year

The calibration interval was one year.



3. PEAK OUTPUT POWER

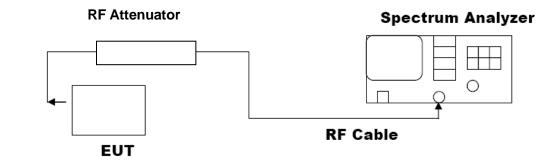
3.1. MEASUREMENT PROCEDURE

For peak power test:

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. RBW≥DTS bandwidth
- 3. VBW≥3*RBW.
- 4. SPAN≥VBW.
- 5. Sweep: Auto.
- 6. Detector function: Peak.
- 7. Trace: Max hold.

Allow trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. The indicated level is the peak output power, after any corrections for external attenuators and cables.

3.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION) PEAK POWER TEST SETUP





3.3. LIMITS AND MEASUREMENT RESULT

PEAK OUTPUT POWER MEASUREMENT RESULT FOR GFSK MOUDULATION				
Frequency (GHz)Peak Power (dBm)Applicable Limits (dBm)Pass or Fail				
2.402	-1.518	30	Pass	
2.440	-2.238	30	Pass	
2.480	-3.686	30	Pass	

CH0

🔤 Keysight Spectrum Analyzer - Swept SA				
₩ L RF 50Ω AC Marker 1 2.401705000000) GHz PNO: East Trig: Free F	Avg Type: Log-	Pwr TRACE 1 2 3 4 5 6	Screen Image
	PNO: Fast Trig: Free F IFGain:Low Atten: 20 d	IB	DET P NNNNN	Themes
10 dB/div Ref 10.00 dBm		N	lkr1 2.401 705 GHz -1.518 dBm	3D Color
0.00	↓ 1			Save As
-10.0				
-20.0				
-30.0				
-40.0				
-50.0				
-60.0				
-70.0				
-80.0				
Center 2.402000 GHz #Res BW 1.5 MHz	#VBW 5.0 MHz	Swee	Span 5.000 MHz p 1.000 ms (1001 pts)	
MSG			STATUS	





CH19

CH39

L RF 50 Ω AC	SENSE:INT	ALIGN AUTO	Peak Search
Marker 1 2.47965500000	PNO: Fast Frig: Free Run IFGain:Low Atten: 20 dB	Avg Type: Log-Pwr TRACE 2 3 4 5 6 Avg Hold:>100/100 TYPE M	
10 dB/div Ref 10.00 dBm		Mkr1 2.479 655 GHz -3.686 dBm	Next Pea
0.00	1		Next Pk Righ
20.0			Next Pk Le
30.0			Marker Delt
50.0			Mkr→C
70.0			Mkr→RefL
80.0			Mor 1 of
Center 2.480000 GHz Res BW 1.5 MHz	#VBW 5.0 MHz	Span 5.000 MHz Sweep 1.000 ms (1001 pts)	
SG		STATUS	



4. 6 DB BANDWIDTH

4.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Centre Frequency = Operation Frequency, RBW= 100 KHz, VBW \ge 3×RBW.
- 4. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

4.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 7.2.

4.3. LIMITS AND MEASUREMENT RESULTS

LIMITS AND MEASUREMENT RESULT					
	Applicable Limits				
Applicable Limits	Test Data (kHz) Criteria				
	Low Channel	732.9	PASS		
>500KHZ	Middle Channel	740.7	PASS		
	High Channel	741.3	PASS		

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL







TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

STATUS





5. CONDUCTED SPURIOUS EMISSION

5.1. MEASUREMENT PROCEDURE

- 1. Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- 2, Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- 3. Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to ANSI C63.10 for compliance to FCC PART 15.247 requirements.

5.2. TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

The same as described in section 7.2.

5.3. MEASUREMENT EQUIPMENT USED

The same as described in section 6.

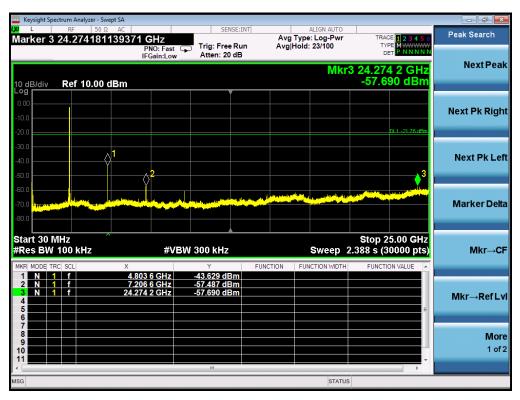
5.4. LIMITS AND MEASUREMENT RESULT

LIMITS AND MEASUREMENT RESULT					
Annlinghla Limita	Measurement Result				
Applicable Limits	Test Data	Criteria			
In any 100 KHz Bandwidth Outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produce by the intentional radiator shall be at least 20 dB below that in 100KHz bandwidth within the band that contains the highest level of the desired power.	At least -20dBc than the reference level	PASS PASS			

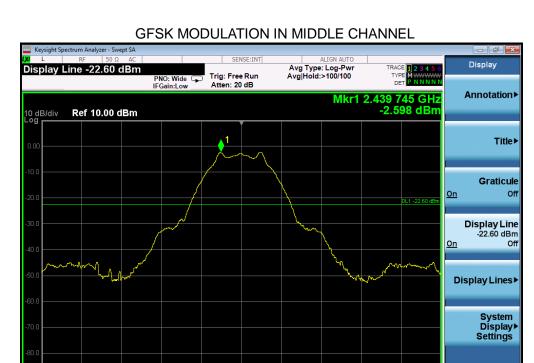




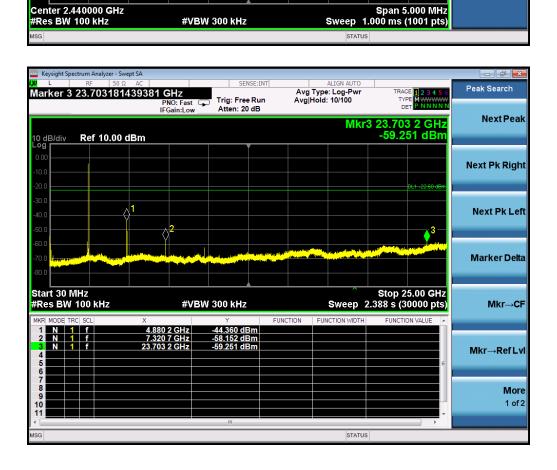
TEST RESULT FOR ENTIRE FREQUENCY RANGE GFSK MODULATION IN LOW CHANNEL







Page 15 of 37



More 1 of 2



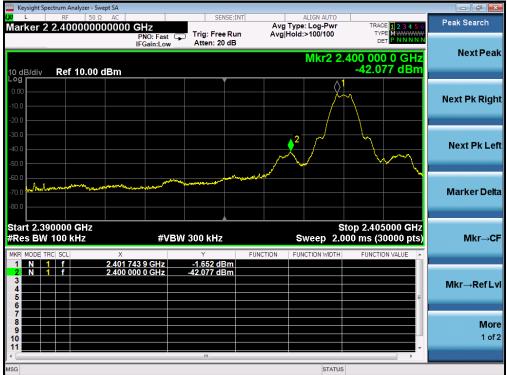


Page 16 of 37

Note: The peak emissions without marker on the above plots are fundamental wave and need not to compare with the limit.

STATUS

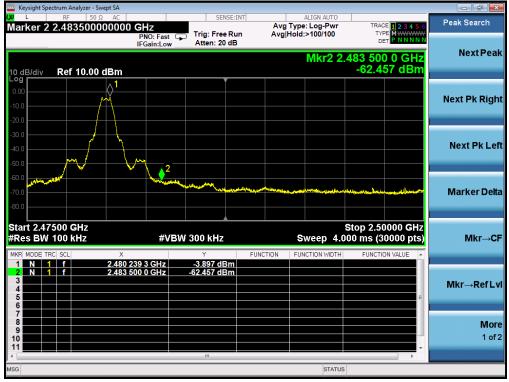




TEST RESULT FOR BAND EDGE

GFSK MODULATION IN LOW CHANNEL

GFSK MODULATION IN HIGH CHANNEL





6. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

6.1 MEASUREMENT PROCEDURE

- (1). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator
- (2). Set the EUT Work on the top, the middle and the bottom operation frequency individually.
- (3). Set SPA Trace 1 Max hold, then View.

Note: The method of PKPSD in the KDB 558074 item 10.2 was used in this testing.

6.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)

Refer To Section 7.2.

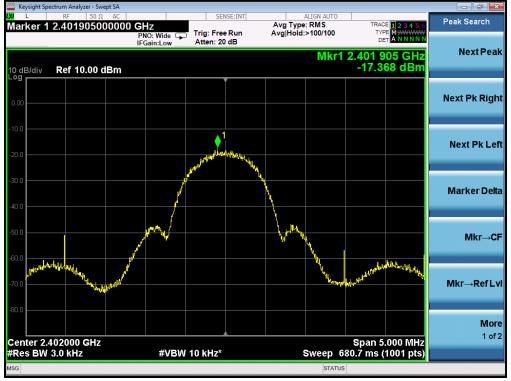
6.3 MEASUREMENT EQUIPMENT USED

Refer To Section 6.

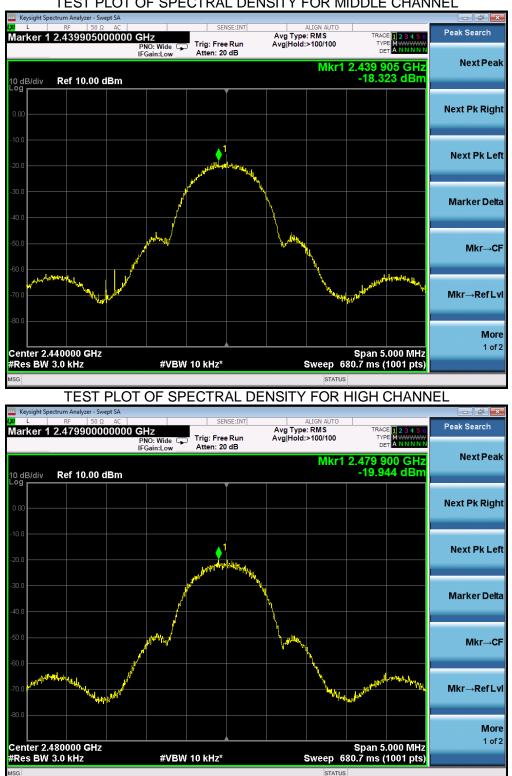
6.4 LIMITS AND MEASUREMENT RESULT

Channel No.	PSD (dBm/3kHz)	Limit (dBm/3kHz)	Result
Low Channel	-17.368	8	Pass
Middle Channel	-18.323	8	Pass
High Channel	-19.944	8	Pass

TEST PLOT OF SPECTRAL DENSITY FOR LOW CHANNEL







TEST PLOT OF SPECTRAL DENSITY FOR MIDDLE CHANNEL



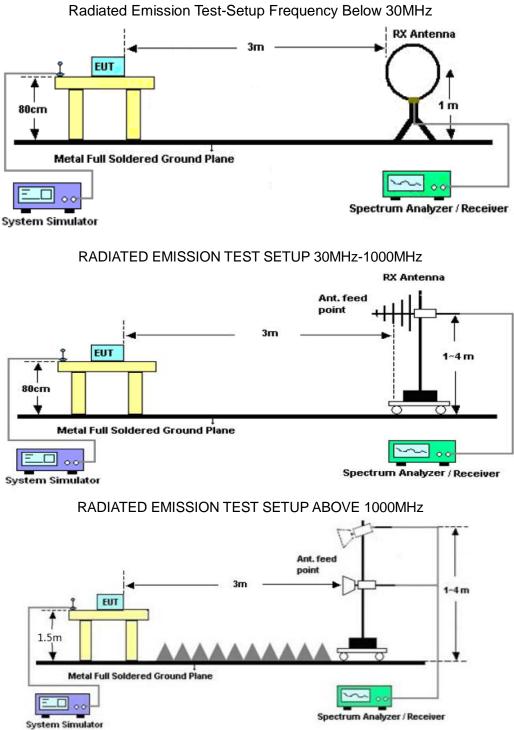
7. RADIATED EMISSION

7.1. MEASUREMENT PROCEDURE

- 1. The EUT was placed on the top of the turntable 0.8 or 1.5 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 emissions, 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.



7.2. TEST SETUP





7.3. LIMITS AND MEASUREMENT RESULT

15.209 Limit in the below table has to be followed

Frequencies (MHz)	Field Strength (micorvolts/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

Note: All modes were tested For restricted band radiated emission,

the test records reported below are the worst result compared to other modes.

7.4. TEST RESULT

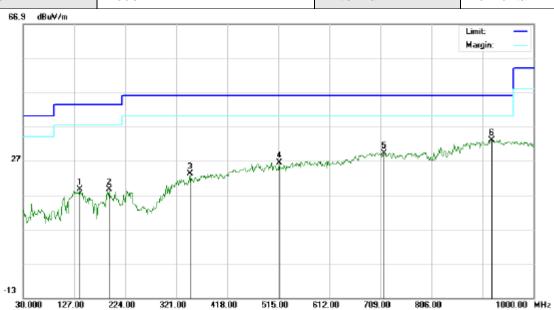
RADIATED EMISSION BELOW 30MHZ

No emission found between lowest internal used/generated frequencies to 30MHz.



RADIATED EMISSION BELOW IGHZ						
EUT	Bluetooth Remote Control	Model Name	VA-LT003			
Temperature	25° C	Relative Humidity	55.4%			
Pressure	960hPa	Test Voltage	Normal Voltage			
Test Mode	Mode 1	Antenna	Horizontal			
cc g dBabilm	•	•	•			

RADIATED EMISSION BELOW 1GHZ



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure- ment	Limit	Over			
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment	
1		138.3161	4.12	14.41	18.53	43.50	-24.97	peak		
2		193.2828	6.96	11.69	18.65	43.50	-24.85	peak		
3	:	346.8666	4.72	18.53	23.25	46.00	-22.75	peak		
4		516.6165	4.91	21.58	26.49	46.00	-19.51	peak		
5		715.4663	3.50	25.66	29.16	46.00	-16.84	peak		
6	*	920.7833	3.80	29.19	32.99	46.00	-13.01	peak		



EUT	Bluetooth Remote Control	Model Name	VA-LT003	
Temperature	25° C	Relative Humidity	55.4%	
Pressure	960hPa	Test Voltage	Normal Voltage	
Test Mode	Mode 1	Antenna	Vertical	
66.9 dBuV/m	224.00 321.00 418.00 515.00 6 Reading Correct Measure-			
	req. Level Factor ment Lim //Hz dBuV dB dBuV/m dBuV/		ment	

		20101	1 0 0 0 1	mont				
	MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	Comment
1	131.8497	9.72	11.80	21.52	43.50	-21.98	peak	
2	167.4165	6.90	14.86	21.76	43.50	-21.74	peak	
3	324.2330	6.72	17.02	23.74	46.00	-22.26	peak	
4	451.9497	4.89	20.61	25.50	46.00	-20.50	peak	
5	573.2000	5.15	22.60	27.75	46.00	-18.25	peak	
6 *	749.4166	4.44	26.61	31.05	46.00	-14.95	peak	

RESULT: PASS Note:

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

2. All test modes had been tested. The mode 1 is the worst case and recorded in the report.



EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal

RADIATED EMISSION ABOVE 1GHZ

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type			
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type			
4804.011	46.88	7.12	54	74	-20	peak			
4804.011	40.63	7.12	47.75	54	-6.25	AVG			
7206.022	42.11	9.84	51.95	74	-22.05	peak			
7206.022	36.86	9.84	46.7	54	-7.3	AVG			
Remark:									
Factor = Ante	enna Factor + C	able Loss – P	re-amplifier.						

EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type		
4804.011	45.47	7.12	52.59	74	-21.41	peak		
4804.011	41.26	7.12	48.38	54	-5.62	AVG		
7206.022	43.21	9.84	53.05	74	-20.95	peak		
7206.022	37.89	9.84	47.73	54	-6.27	AVG		
Remark:								
actor = Ante	enna Factor + Ca	ble Loss –	Pre-amplifier.					



EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin		
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	Value Type	
4880.005	45.84	7.12	52.96	74	-21.04	peak	
4880.005	42.13	7.12	49.25	54	-4.75	AVG	
7320.140	43.28	9.84	53.12	74	-20.88	peak	
7320.140	37.21	9.84	47.05	54	-6.95	AVG	
Remark:							
Factor = Antenna Factor + Cable Loss – Pre-amplifier.							

EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 2	Antenna	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4880.050	45.14	7.12	52.26	74	-21.74	peak
4880.050	39.72	7.12	46.84	54	-7.16	AVG
7320.080	43.93	9.84	53.77	74	-20.23	peak
7320.080	36.71	9.84	46.55	54	-7.45	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						



EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Value Type
(MHz)	(dBµV)	(dB)	(dBµV/m)	(dBµV/m)	(dB)	value Type
4960.012	46.87	7.12	53.99	74	-20.01	peak
4960.012	41.79	7.12	48.91	54	-5.09	AVG
7440.027	43.61	9.84	53.45	74	-20.55	peak
7440.027	37.55	9.84	47.39	54	-6.61	AVG
Remark:						
Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical

ue Type						
ie Type						
beak						
AVG						
beak						
AVG						
emark:						
Remark: Factor = Antenna Factor + Cable Loss – Pre-amplifier.						

RESULT: PASS

Note:

Other emissions from 1G to 25 GHz are considered as ambient noise. No recording in the test report.

Factor = Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

The "Factor" value can be calculated automatically by software of measurement system.



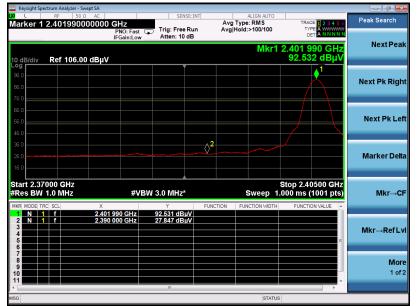
TEST RESULT FOR RESTRICTED BANDS REQUIREMENTS

EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Horizontal





AV





EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 1	Antenna	Vertical

ΡK trum Analyzer - Swept SA rker 1 2.401780000000 GHz PNO: Fast IFGain:Low ALIGN AUTO Avg Type: Log-Pwr Avg|Hold:>100/100 Peak Search TYPE DE1 Next Pea Mkr1 2.401 780 GHz 90.923 dBµ\ Ref 106.00 dBµV /div Next Pk Right Next Pk Left \Diamond^2 Marker Delta Stop 2.40500 GHz Sweep 1.000 ms (1001 pts) Start 2.37000 GHz #Res BW 1.0 MHz #VBW 3.0 MHz Mkr→CF 90.923 dBµV 37.088 dBµV 2.401 780 GHz 2.390 000 GHz 1 f 1 f Mkr→RefLvl More 1 of 2 STATUS

AV

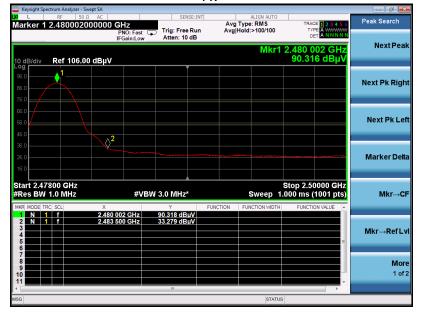




EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Horizontal



AV





EUT	Bluetooth Remote Control	Model Name	VA-LT003
Temperature	25° C	Relative Humidity	55.4%
Pressure	960hPa	Test Voltage	Normal Voltage
Test Mode	Mode 3	Antenna	Vertical



RESULT: PASS

Note: 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(μ V) to represent the Amplitude. Use the F dB(μ V/m) to represent the Field Strength. So A=F.





APPENDIX A: PHOTOGRAPHS OF TEST SETUP



APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



BOTTOM VIEW OF EUT





FRONT VIEW OF EUT



BACK VIEW OF EUT





LEFT VIEW OF EUT



RIGHT VIEW OF EUT

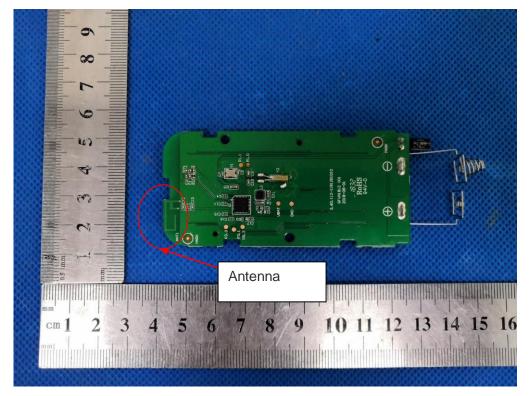


Page 36 of 37

OPEN VIEW OF EUT

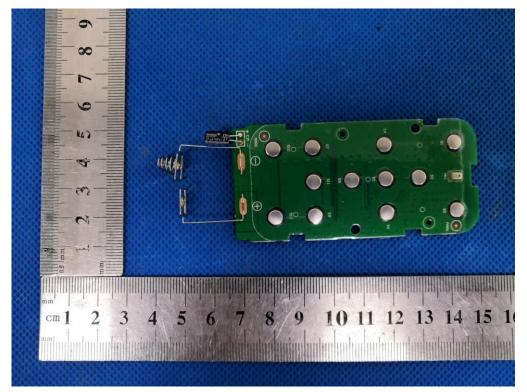


INTERNAL VIEW OF EUT-1

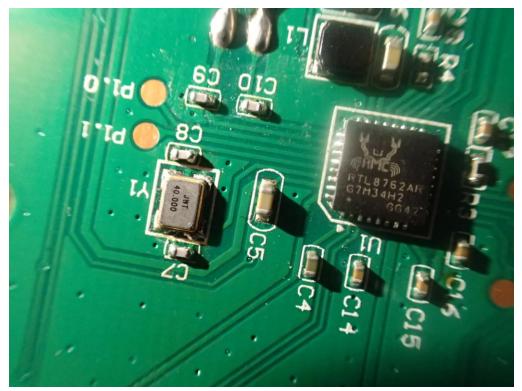




INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



----END OF REPORT----