



JAPAN SPECIFIED RADIO EQUIPMENT

TEST REPORT

For

Siao Shan Po Life Co., Ltd.

4F., No.5, Ln. 123, Sec. 2, Jianguo S. Rd., Da'an Dist., Taipei City 106, Taiwan (R.O.C.)

Model: Stereo Puzzle Elephant

Report Type Original Report	Product Type: Stereo Puzzle - Wireless Speaker
Test Engineer : <u>Andy Shih</u> <i>Andy Shih</i>	
Report Number : <u>RXZ1803002-05</u>	
Report Date : <u>2018-03-22</u>	
Reviewed By: <u>Jerry Chang</u> <i>Jerry Chang</i>	
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1. TEST RESULT CERTIFICATION

Applicant: Siao Shan Po Life Co., Ltd.
4F., No.5, Ln. 123, Sec. 2, Jianguo S. Rd., Da' an Dist., Taipei
City 106, Taiwan (R.O.C.)

Manufacturer: Siao Shan Po Life Co., Ltd.
4F., No.5, Ln. 123, Sec. 2, Jianguo S. Rd., Da' an Dist., Taipei
City 106, Taiwan (R.O.C.)

Equipment Under Test: Stereo Puzzle - Wireless Speaker

Main Model Number: Stereo Puzzle Elephant

Series Model Number: Stereo Puzzle Penguin, Stereo Puzzle Panda, Stereo Puzzle Moai
Statue, Stereo Puzzle Spike

Model Difference: Different appearance

**Detailed EUT
Description:** See Item 3 of this report

Date of Test: March 10, 2018 ~ March 22, 2018

EUT Receive Date March 05, 2018

APPLICABLE STANDARDS	
CLASSIFICATION	TEST RESULT
MIC Notice No.88 Appendix No.43 Article 2, Paragraph 1, Item 19 Rules Section	No non-compliance noted

The above equipment was tested by Bay Area Compliance Laboratories Corp. (Taiwan) for compliance with the requirements set forth in Article 2, Paragraph 1, Item 19 Rules Section. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

2. SUMMARY OF TEST RESULTS

2.1 BLUETOOTH BLE (CH0~CH39) (2402~2480MHz)

MIC Notice No.88 Appendix No.43 Article 2, Paragraph 1, Item 19 Rules Section	Description of Test	Result
3	Frequency Error	Compliance
4	Occupied Bandwidth and Spreading Bandwidth	Compliance
5	Transmitter Spurious Emission and Unwanted Emission Intensity	Compliance
6	Antenna Output Power and Output Power Tolerance	Compliance
7	Receiver Spurious Emission and Unwanted Emission Intensity	Compliance
8	Transmission Antenna Gain	Not Applicable*
9	Transmission Radiation Angle Width	Not Applicable*
10	Carrier Sense Capability	Not Applicable**
10	Frequency Hopping Dwell Time	Not Applicable
11	Interference Prevention Function	Compliance
Note 1	Construction Protection Confirmation	Compliance

Not Applicable : Testing is only required for FHSS system devices.

Not Applicable *: This test item will not be applied to the Antenna power (EIRP) of 12.14dB or less.

Not Applicable **:The test only required for bandwidth more than 26MHz and less than 38MHz.

Test Report

Specified Radio Equipment	Class	Article 2 Paragraph 1 Item 19	Model	Stereo Puzzle Elephant	Test Date	2018/3/20
	Type of Emission	F1D	Serial No.	1	Test Location	Bay Area Compliance Laboratories Corp.(Taiwan) 70, Lane 169, Sec. 2, Datong Road, Xizhi Dist., New Taipei City 22183, Taiwan, R.O.C.
	Modulation Type	GFSK	Antenna Power	3[mW]	Temp. / Humid.	25℃ / 52%
	Frequency	2402MHz~2480MHz (2MHz separation, 40channels)			Test Conducted By	
					Name	Andy Shih
					Department	RF Testing Department

2. Test Results

Test Voltage		V	Normal Voltage (5V)			High Voltage + 10 % (5.5 V)			Low Voltage - 10 % (4.5 V)			Remarks
Test Frequency		MHz	2402.00	2440.00	2480.00							
Measured Frequency		MHz	2401.99611	2439.98077	2479.97898							
Frequency Error		ppm	-1.62	-7.88	-8.48							±50 ppm within
Occupied Bandwidth		MHz	1.030	1.030	1.020							26 MHz or below
Spread-spectrum Bandwidth		MHz										500 kHz or more
Spreading Factor		---										
Spurious Emission Intensity	※1	μW/100kHz	0.00125	0.00050	0.00048							0.25 μW/100kHz or below
	※2	μW/MHz	0.11455	0.13397	0.15171							2.5 μW/MHz or below
	※3	μW/MHz	5.70164	0.16943	0.16255							25 μW/MHz or below
	※4	μW/MHz	0.17022	0.17947	0.21677							25 μW/MHz or below
	※5	μW/MHz	0.15631	0.19498	0.18408							2.5 μW/MHz or below
Antenna Power (EIRP)		dBm	2.09816	2.53816	2.11816							Antenna Gain = 1.9[dBi] Limit 12.14dBm/MHz
Antenna Power (Conductive)		mW	1.04669	1.15829	1.05152							10 mW or below
Antenna Power Error		mW	-1.95331	-1.84171	-1.94848							
		%	-65.11	-61.39	-64.95							+ 20 , - 80 % within
A-factor	※ 8	A	0.099	0.110	0.099							A = EIRP (in mW) / 16.37
	※ 9	degrees	360	360	360							360/A
Limitation of Collateral Emission of Receiver	※ 6	nW	0.43853									4 nW or below
	※ 7	nW	1.52757									20 nW or below
Hopping Frequency Dwell Time		sec										
Radio Interference Prevention Function	ID Code	MAC Address (40:b8:37:26:45:05)										
	Carrier Sense											

※ 1 : Frequency Band 1 (30MHz ~ less than 1000MHz)

※ 4 : Frequency Band 4 (more than 2,483.5MHz ~ 2,496.5GHz)

※ 7 : Frequency Band 2 (1,000MHz ~ 12.5GHz)

※ 2 : Frequency Band 2 (1000MHz ~ less than 2387MHz)

※ 5 : Frequency Band 5 (2,496.5MHz ~ less than 12.5GHz)

※ 8 : A is equal to EIRP (in mW) / 16.37 .The conducted power is limited to 10 mW .

※ 3 : Frequency Band 3 (2387MHz ~ 2400MHz)

※ 6 : Frequency Band 1 (30MHz ~ 1,000GHz)

※ 9 : The calculated A is smaller than 1 by definition A becomes 1.

3. EUT DESCRIPTION

Product	Stereo Puzzle - Wireless Speaker
Main Model Number	Stereo Puzzle Elephant
Series Model Number	Stereo Puzzle Penguin, Stereo Puzzle Panda, Stereo Puzzle Moai Statue, Stereo Puzzle Spike
Power Supply	DC: 4.5V for Battery DC: 5V for USB
Frequency Range	2402~2480MHz
Rated Antenna Power (mW)	3mW
Measured Antenna Power (mW)	1.15829mW
Modulation Technique	GFSK
Number of Channels	40 channels
Antenna Specification	PCB Antenna: 1.9dBi
Hardware Version	V1.0
Software Version	V1.0

Remark: for more details, please refer to the User's manual of the EUT.

4. TEST METHODOLOGY & CONDITIONS

4.1 TEST CONDITIONS

Voltage Fluctuation Test	Normal Voltage	High Voltage + 10% of Normal Voltage	Low Voltage - 10% of Normal Voltage
Input DC Power	5.0	5.5	4.5
Output DC Power	1.8	1.8	1.8
Voltage Variation (%)	-	+0%	-0%

The main board has voltage regulator

Voltage Variation (%) = (Output High or Low Voltage - Output Normal Voltage) / Output Normal Voltage * 100

During the input supply voltage to the EUT from the external power source is varied by +/- 10%, if output voltage had been confirmed that the fluctuation of power supply to the RF circuit of EUT (excluding power source) is equal to or less than +/- 1%.Exempt extremely high and low supply voltage condition tests, EUT only operated in normal voltage to test all regulations.

4.2 DESCRIPTION OF TEST MODES

The EUT (model: Stereo Puzzle Elephant) had been tested under operating condition.

Software used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

Channel Low (2402MHz), Channel Mid (2440MHz) and Channel High (2480MHz) were chosen for full testing.

Output power (mW)=10^(((power meter (dBm)+ Duty Factor+ System Factor)/10)

4.3 RF SHIELDING METHOD

The RF part of sample are not easy accessible because the sample are sealed using resin coating.



4.4 SETUP OF EQUIPMENT UNDER TEST

Setup Diagram

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

No	Equipment	Model	Serial No.	FCC ID	Trade Name	Data Cable	Power Cord
1.	N/A	N/A	N/A	N/A	N/A	N/A	N/A

5. INSTRUMENT AND CALIBRATION

5.1 MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

5.2 TEST AND MEASUREMENT EQUIPMENT

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and other equivalent standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective manual.

Equipment Used for Emission Measurement

Remark: Each piece of equipment is scheduled for calibration once a year.

Conducted Emission Test Site						
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date	Measurement Lab	Proposed Calibration Date
Spectrum Analyzer	ROHDE&SCHWAZ	FSU26	200268	2017/05/08	ETC	2018/05/07
Power Meter	HEWLETT PACKARD	E4418B	US39402167	2017/06/08	ETC	2018/06/07
Power Sensor	HEWLETT PACKARD	E9300A	US39210953	2017/06/08	ETC	2018/06/07

5.3 MEASUREMENT UNCERTAINTY

For the test methods, according to the present document, the measurement uncertainty figures shall be calculated in accordance with TR 100 028-1 [2] and shall correspond to an expansion factor (coverage factor) $k = 1,96$ or $k = 2$ (which provide confidence levels of respectively 95 % and 95,45 % in the case where the distributions characterizing the actual measurement uncertainties are normal (Gaussian)).

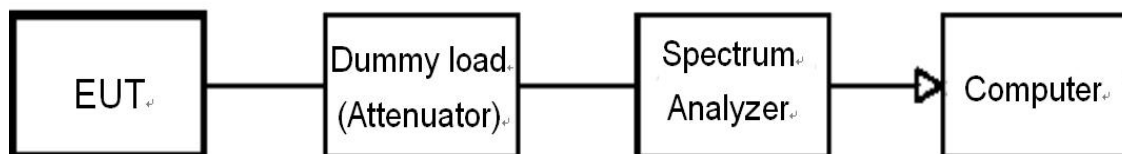
Table 6 is based on such expansion factors.

Table: Maximum measurement uncertainty

Parameter	Uncertainty
RF frequency	+/-4.67 ppm
Total RF power conducted	+/- 0.61 dB
RF power density, conducted	+/- 1.74 dB
Spurious emissions, conducted	+/- 0.61 dB
All emissions, radiated	+/- 4.88 dB
Humidity	+/- 5 %
Temperature	+/- 1°C
DC and low frequency voltages	+/- 3%

6. TEST RESULT FOR BLUETOOTH BLE (CH0~CH39)

6.1 FREQUENCY ERROR

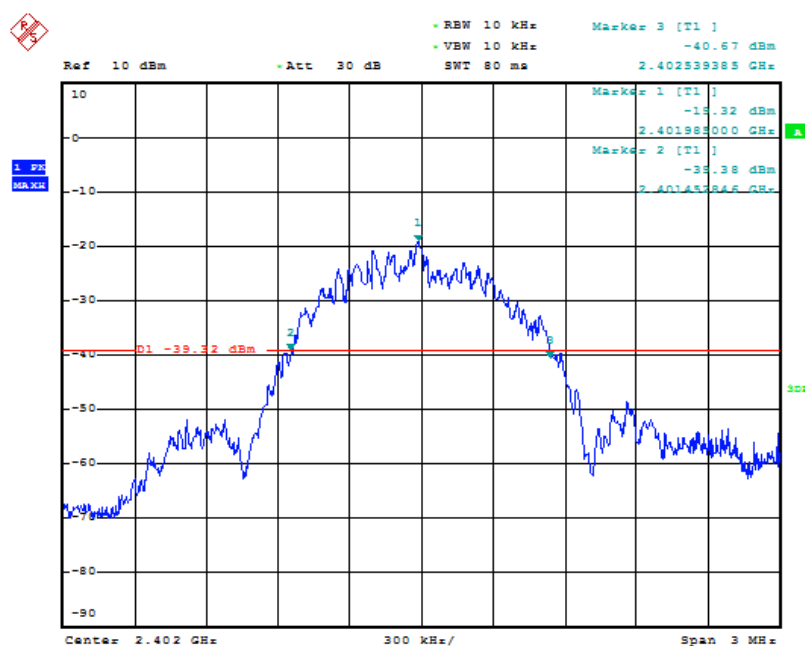


TEST RESULT

Frequency (MHz)	Frequency low (MHz)	Frequency high (MHz)	Reading (MHz)	Deviation (Hz)	Tolerance (ppm)	Remark
2402.0000	2401.45284	2402.53938	2401.996110	-3890	-1.6195	Normal Voltage : DC5V
2440.0000	2439.42307	2440.53846	2439.980765	-19235	-7.8832	
2480.0000	2479.42307	2480.53488	2479.978975	-21025	-8.4778	

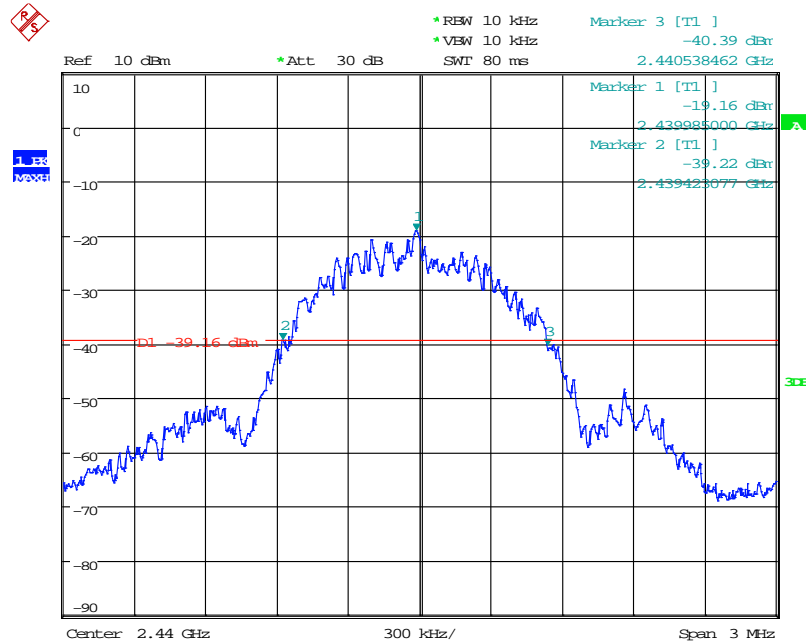
TEST PLOTS

CH Low



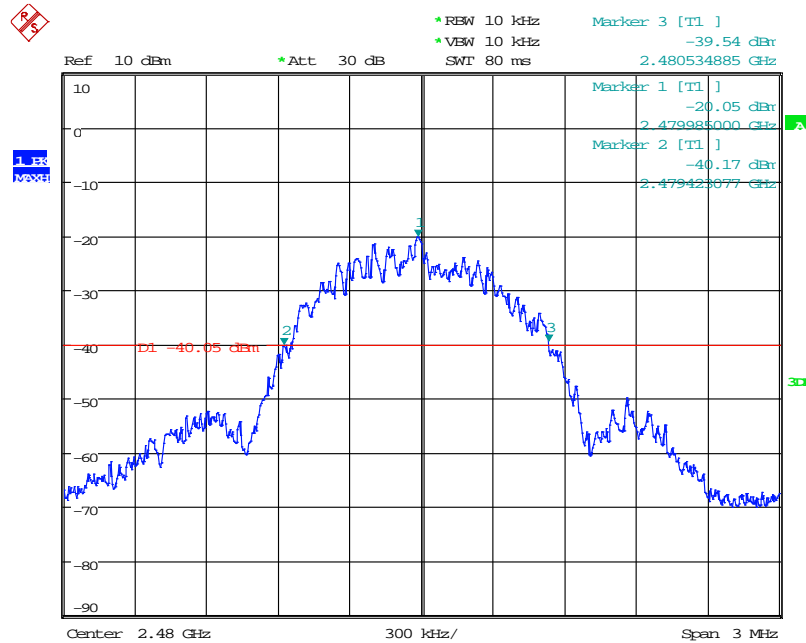
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CH Mid



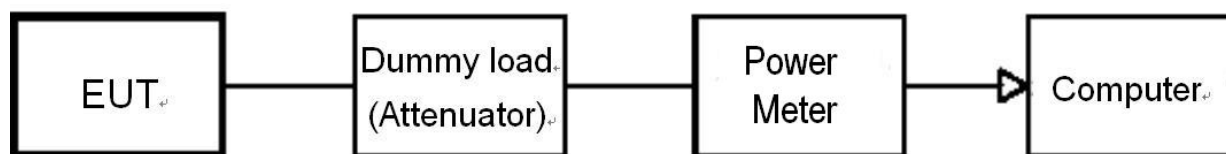
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CH High



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6.2 ANTENNA POWER



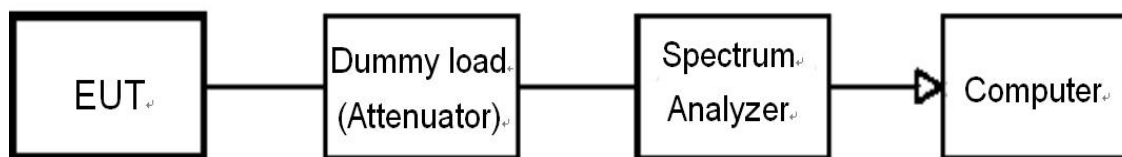
TEST RESULT

Frequency (MHz)	Power Meter (dBm)	System Factor (dB)	Output Power (dBm)	Output Power (mW)	Remark
2402.0000	-2.91	0.80	0.20	1.04669	Normal Voltage : DC5V
2440.0000	-2.47	0.80	0.64	1.15829	
2480.0000	-2.89	0.80	0.22	1.05152	

(Duty)

	Frequency (MHz)	ON time (ms)	OFF time (ms)	Duty Factor (dB)	Remark
	2402.0000	0.3825	0.2683	2.31	Normal Voltage : DC5V
	2440.0000	0.3825	0.2683	2.31	
	2480.0000	0.3825	0.2683	2.31	

6.3 SPURIOUS EMISSIONS INTENSITY



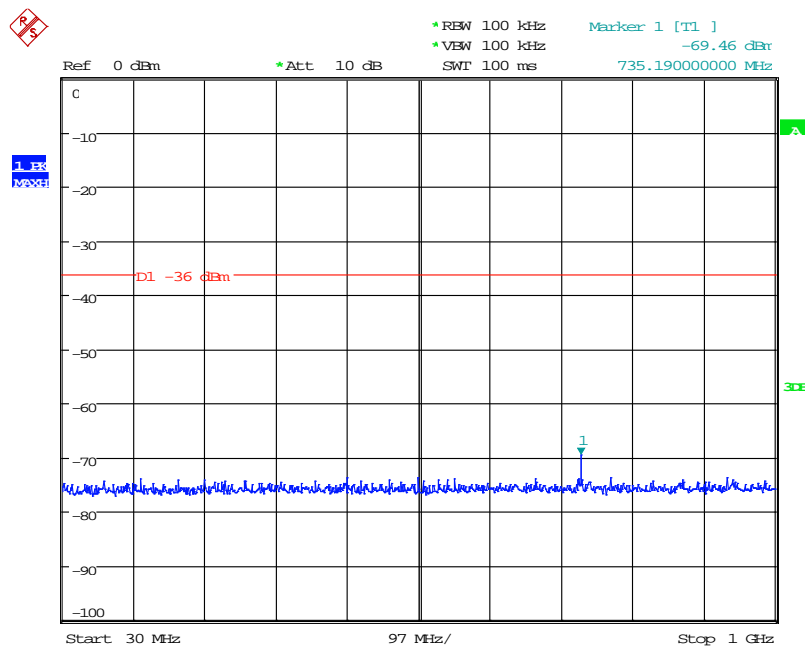
TEST RESULT

30MHz~1000MHz

Frequency (MHz)	Reading (MHz)	Reading (dBm)	Cable Factor (dB)	Result (μW/100kHz)	Remark
2402.0000	735.1900	-69.46	10.44	0.00125	Normal Voltage : DC5V
2440.0000	989.3300	-73.49	10.44	0.00050	
2480.0000	889.4200	-73.66	10.44	0.00048	

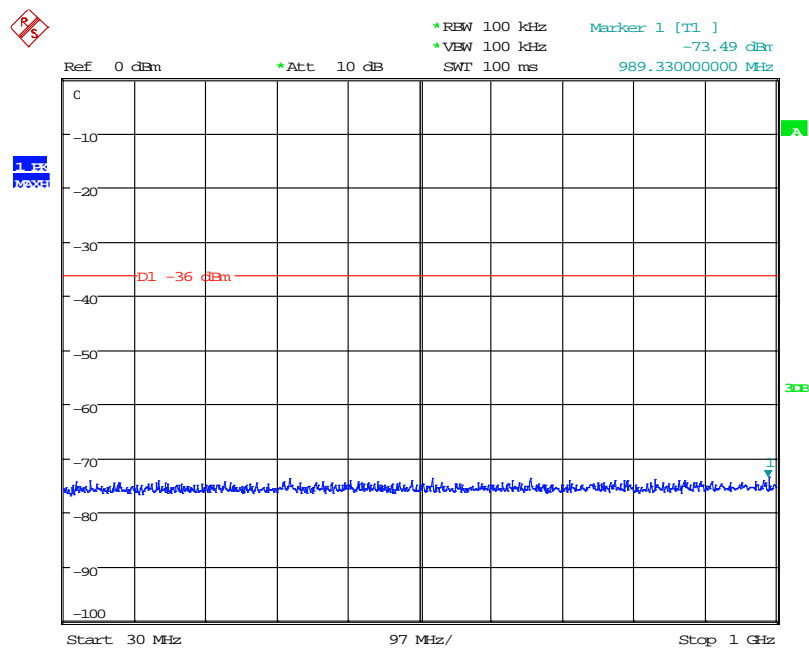
TEST PLOTS

CH Low



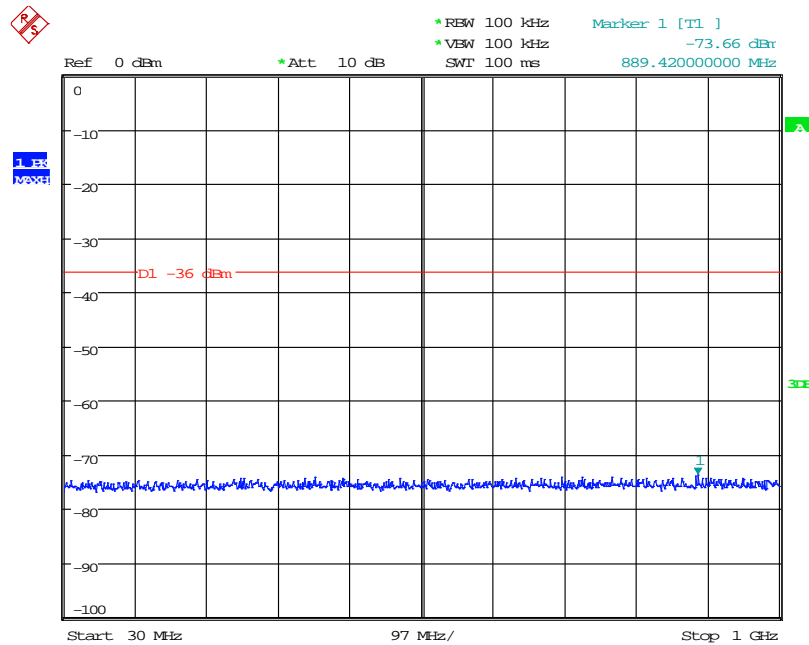
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CH Mid



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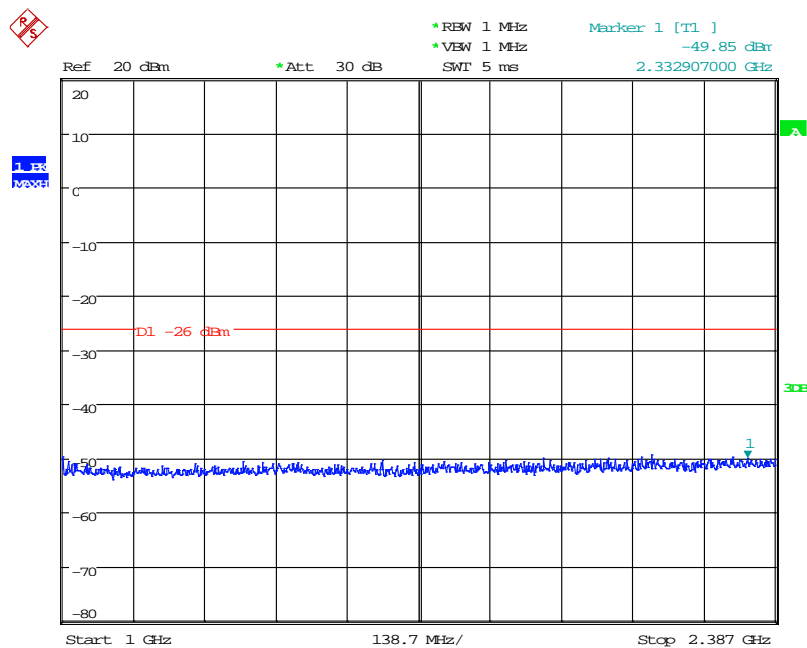
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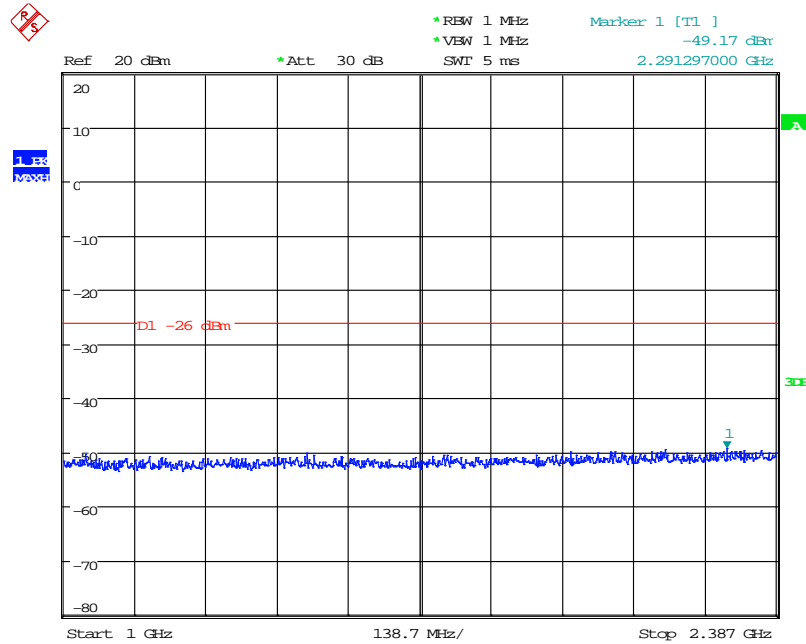
TEST RESULT**1000MHz~2387MHz**

Frequency (MHz)	Reading (MHz)	Reading (dBm)	Cable Factor (dB)	Result (μ W/MHz)	Remark
2402.0000	2332.9070	-49.85	10.44	0.11455	Normal Voltage : DC5V
2440.0000	2291.2970	-49.17	10.44	0.13397	
2480.0000	1840.5220	-48.63	10.44	0.15171	

TEST PLOTS**CH Low**

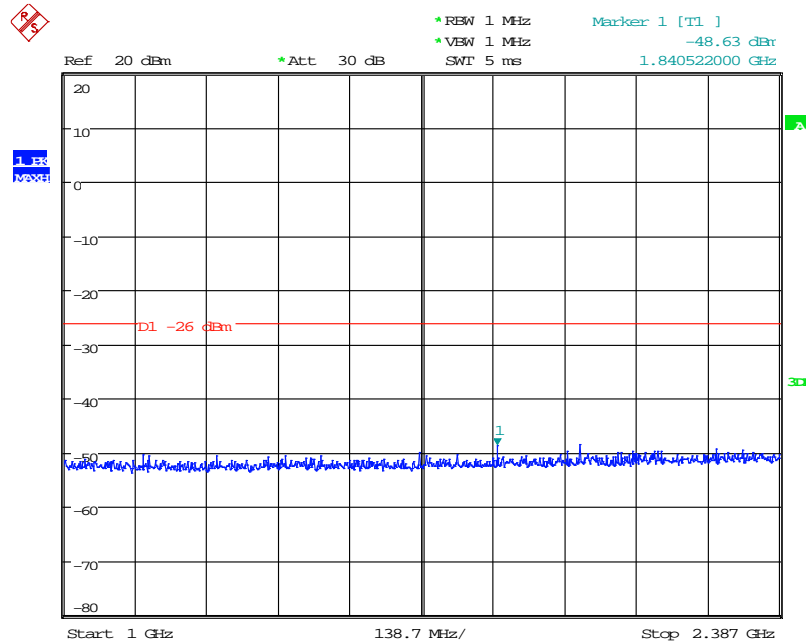
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CH Mid



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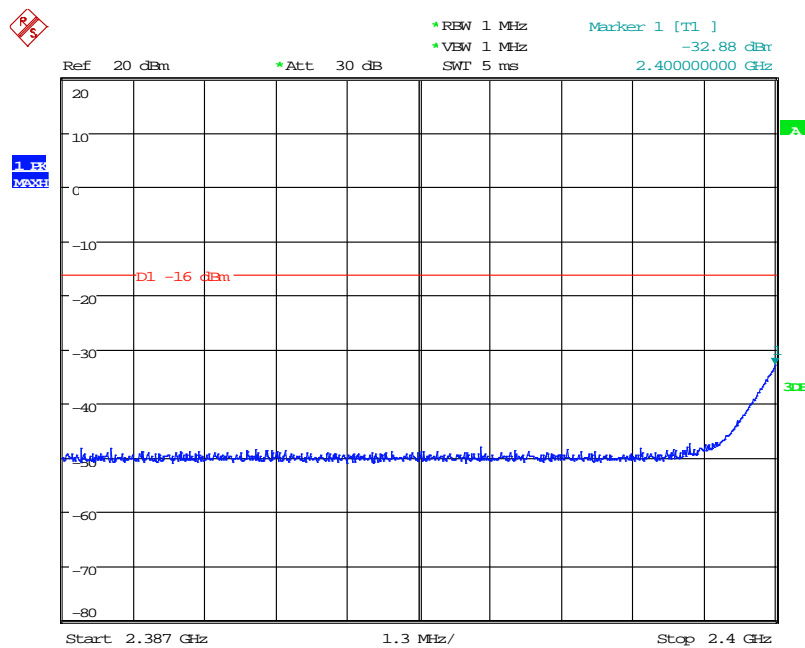
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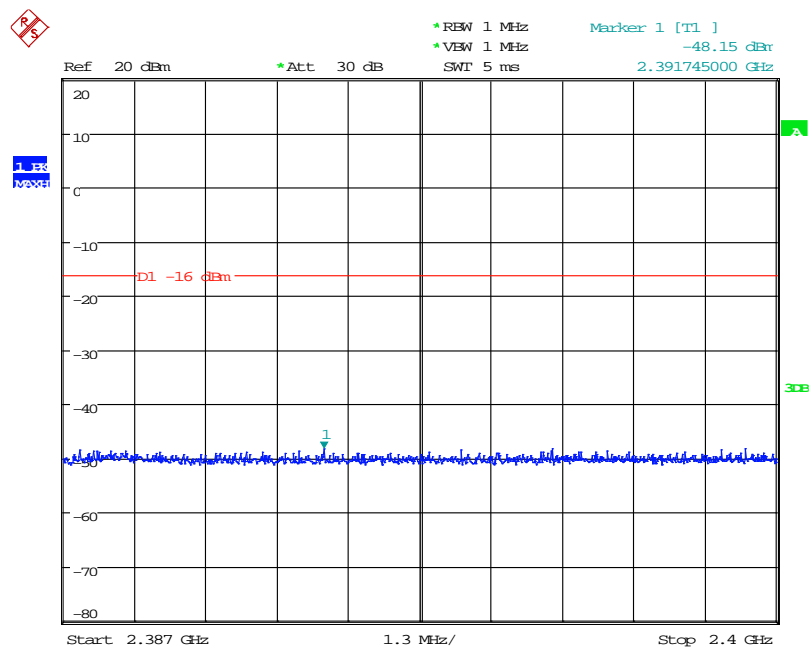
TEST RESULT**2387MHZ ~ 2400MHZ**

Frequency (MHz)	Reading (MHz)	Reading (dBm)	Cable Factor (dB)	Result (μW/MHz)	Remark
2402.0000	2400.0000	-32.88	10.44	5.70164	Normal Voltage : DC5V
2440.0000	2391.7450	-48.15	10.44	0.16943	
2480.0000	2395.4890	-48.33	10.44	0.16255	

TEST PLOTS**CH Low**

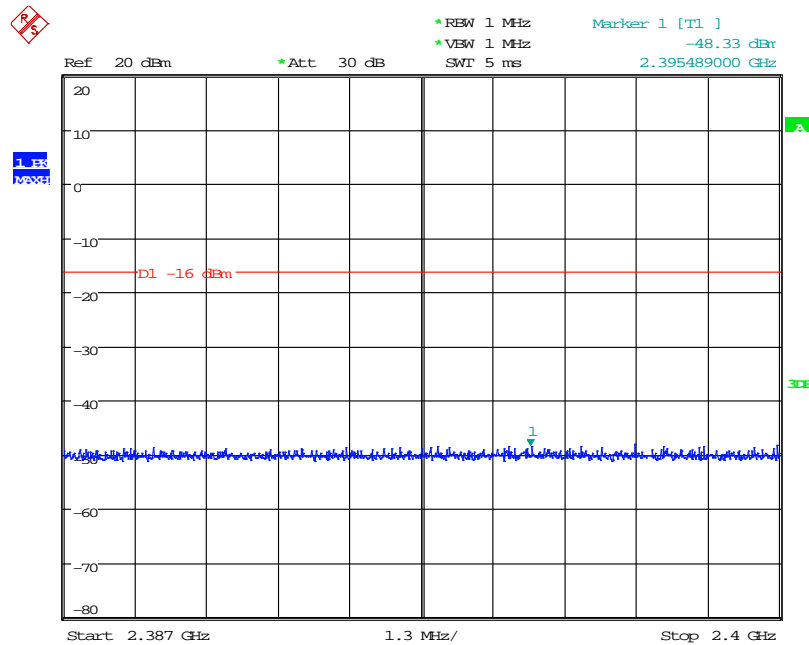
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CH Mid



Date: 10.MAR.2018 09:17:05

CH High



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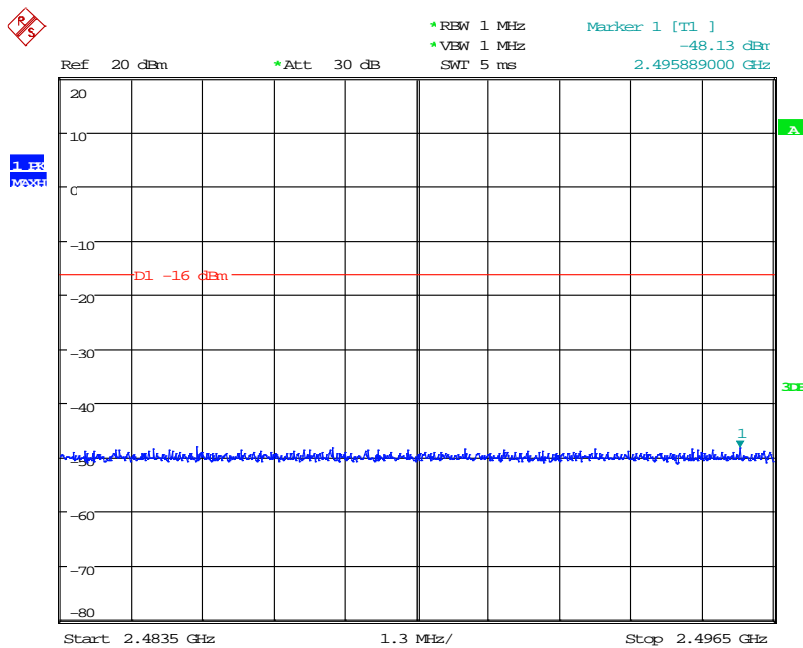
TEST RESULT

2483.5MHz ~ 2496.5MHz

Frequency (MHz)	Reading (MHz)	Reading (dBm)	Cable Factor (dB)	Result (μW/MHz)	Remark
2402.0000	2495.8890	-48.13	10.44	0.17022	Normal Voltage : DC5V
2440.0000	2494.6800	-47.90	10.44	0.17947	
2480.0000	2491.7030	-47.08	10.44	0.21677	

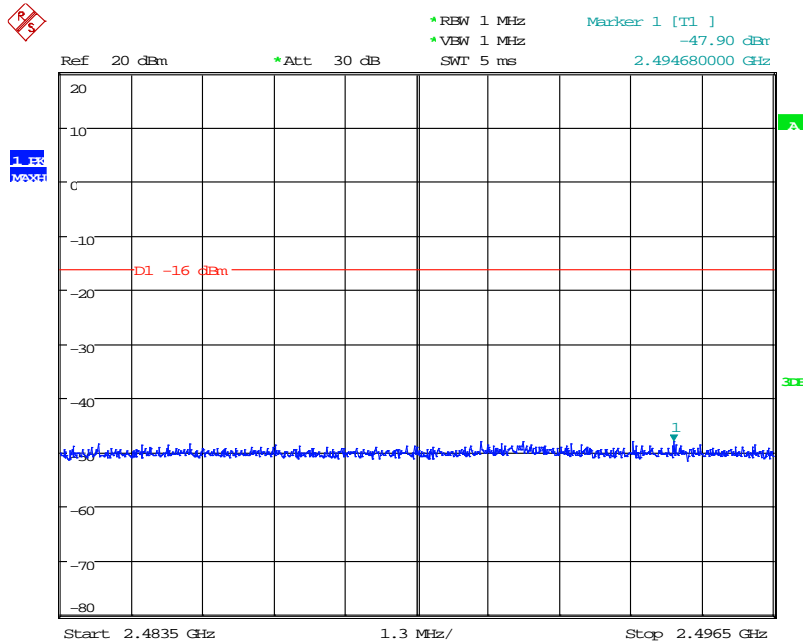
TEST PLOTS

CH Low



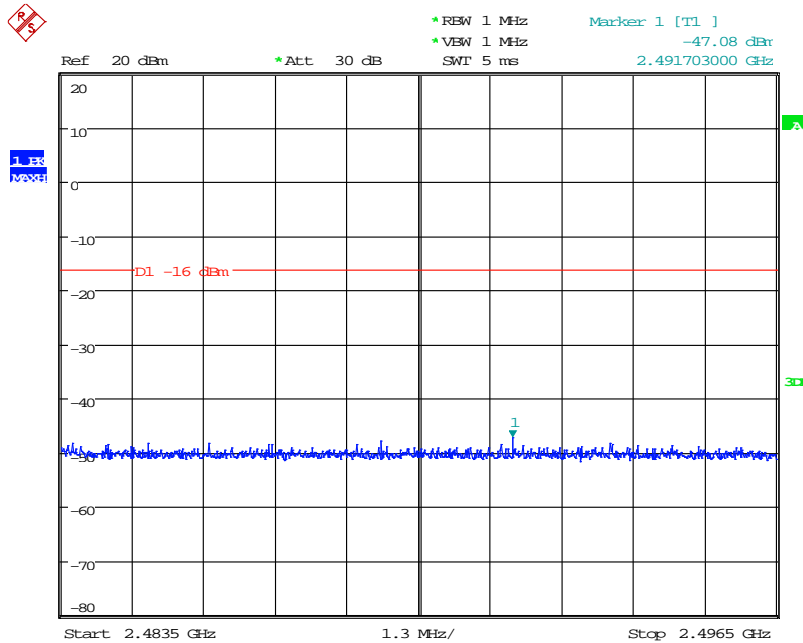
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CH Mid



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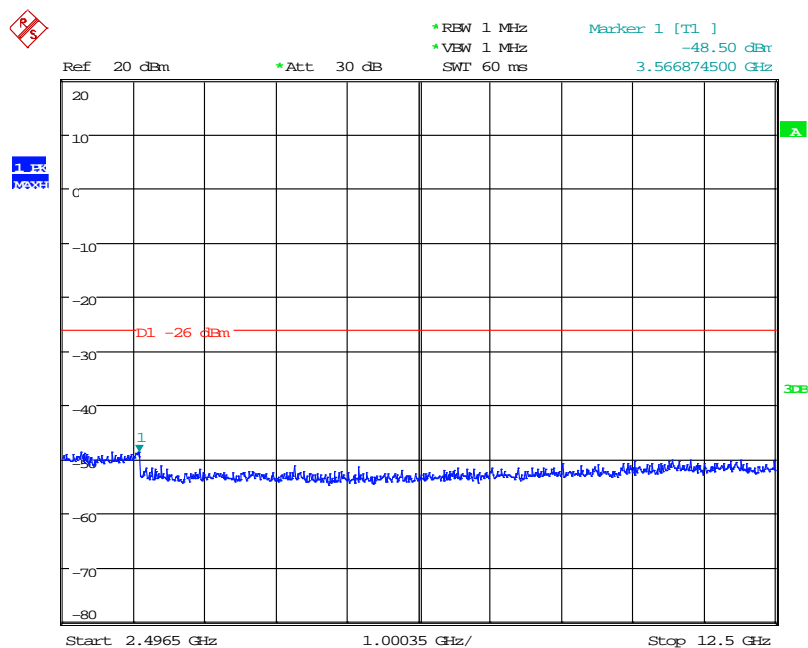
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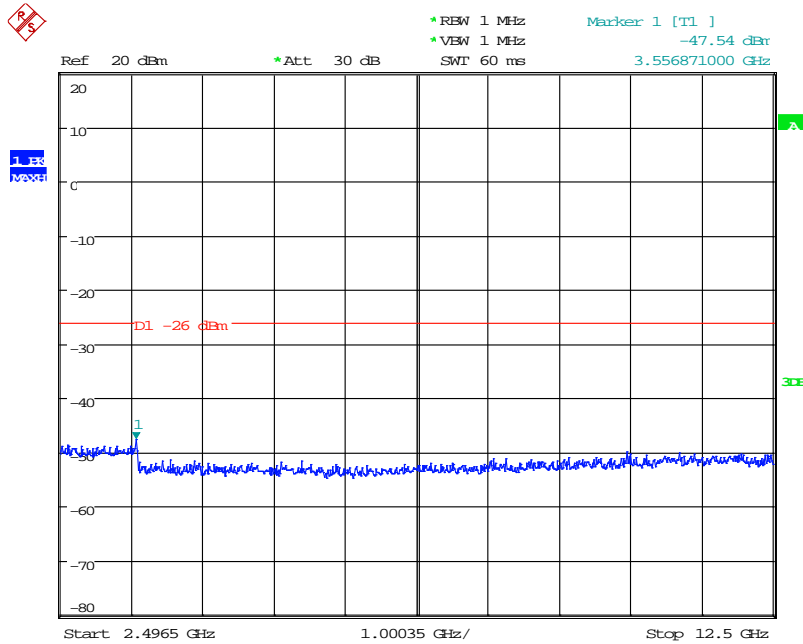
TEST RESULT**2496.5MHz~12.5GHz**

Frequency (MHz)	Reading (MHz)	Reading (dBm)	Cable Factor (dB)	Result (μW/MHz)	Remark
2402.0000	3566.8745	-48.50	10.44	0.15631	Normal Voltage : DC5V
2440.0000	3556.8710	-47.54	10.44	0.19498	
2480.0000	3526.8605	-47.79	10.44	0.18408	

TEST PLOTS**CH Low**

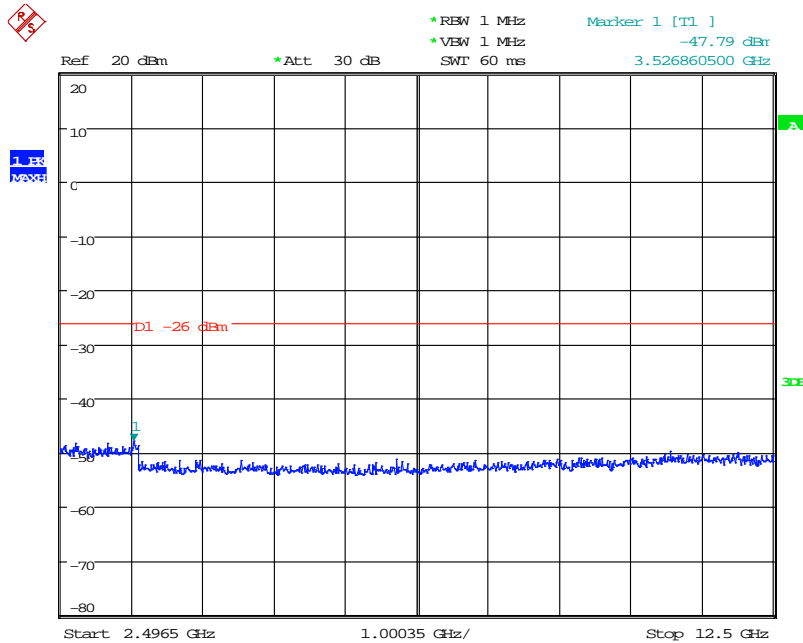
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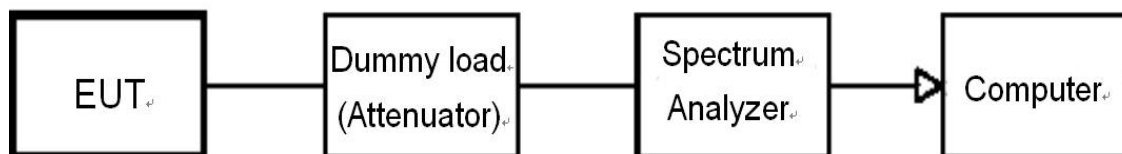
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CH High



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6.4 OCCUPIED BANDWIDTH (99%)

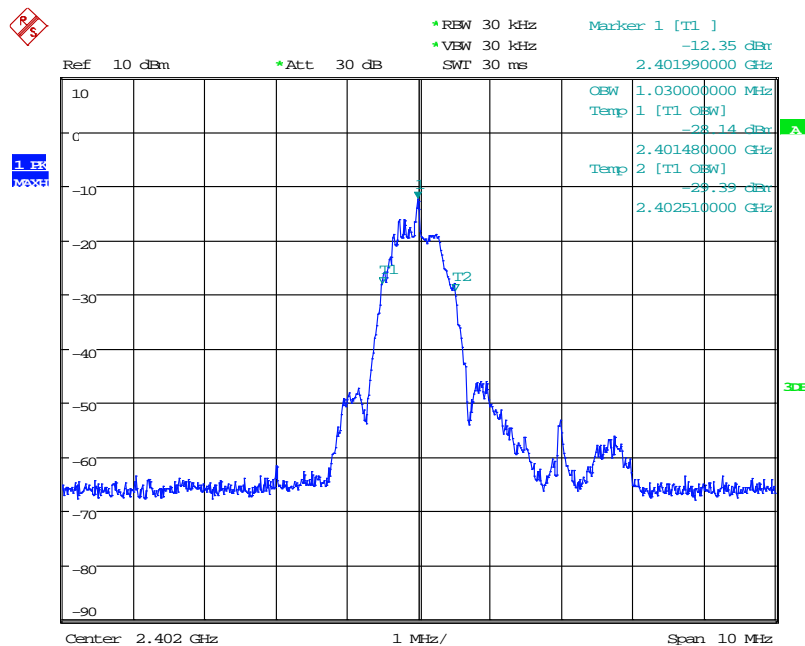


TEST RESULT

Frequency (MHz)	Center Frequency (MHz)	Bandwidth (MHz)	Remark
2402.0000	2401.9900	1.03	Normal Voltage : DC5V
2440.0000	2439.9900	1.03	
2480.0000	2479.9900	1.02	

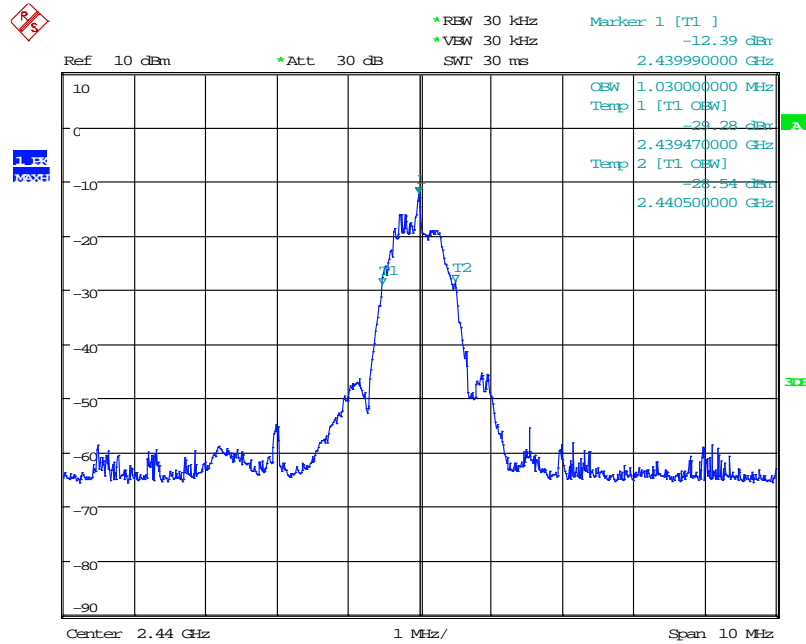
TEST PLOTS

CH Low



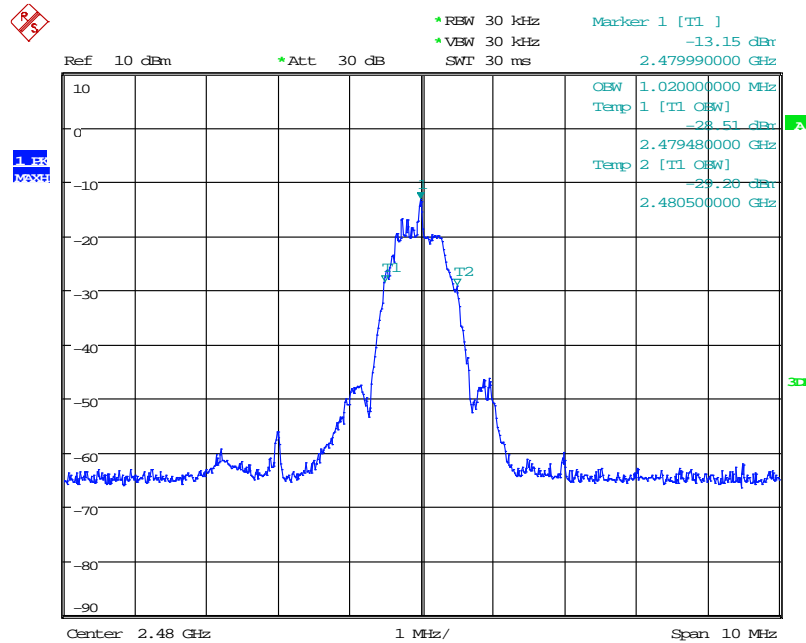
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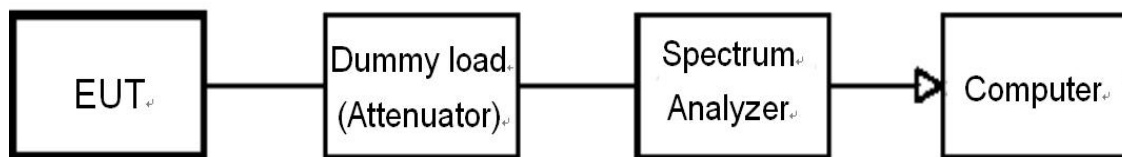
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CH High



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6.5 LIMITATION OF COLLATERAL EMISSION OF RECEIVER

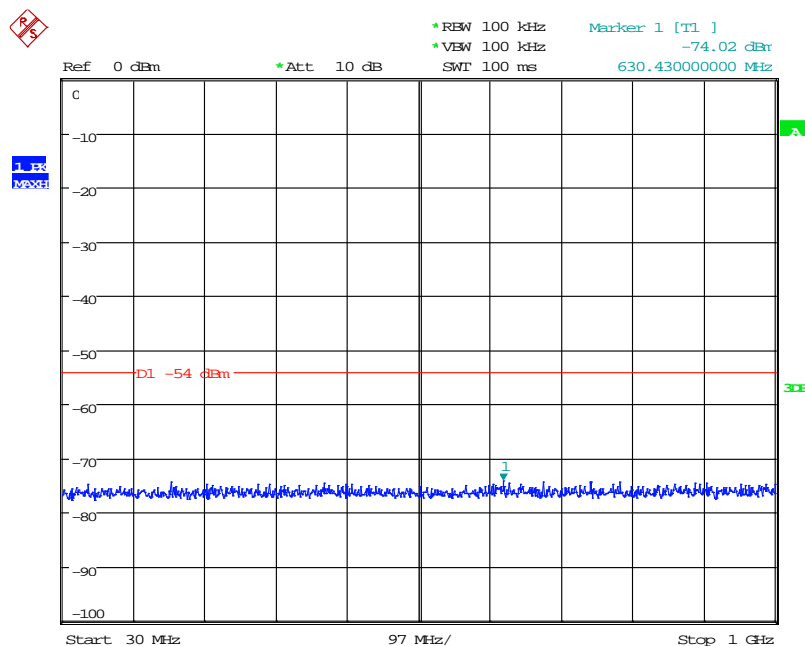


TEST RESULT

30MHz~1GHz

	Frequency (MHz)	Reading (dBm)	Cable Factor (dB)	Result (nW/MHz)	Remark
30MHz~less than 1GHz	630.4300	-74.02	10.44	0.4385	Normal Voltage : DC5V

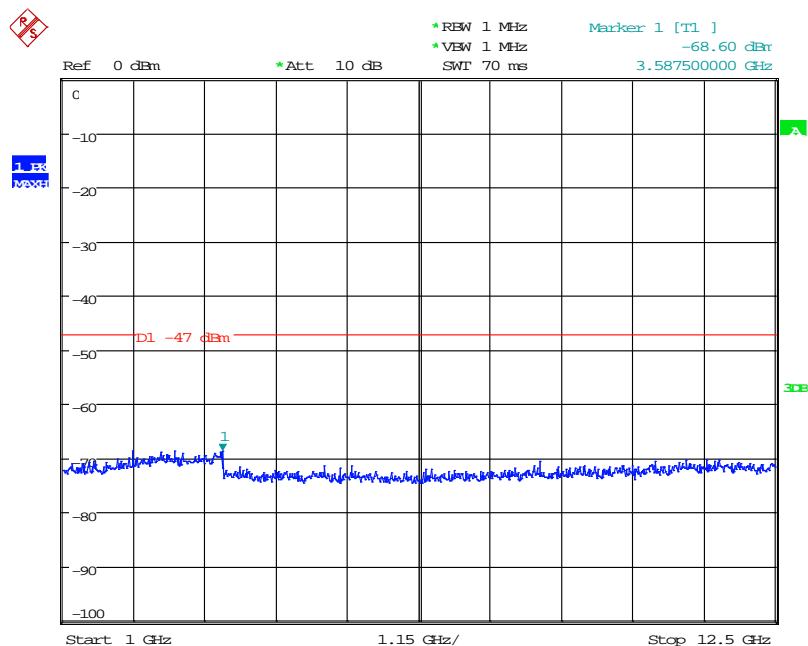
TEST PLOTS



Date: 10.MAR.2018 09:30:57

TEST RESULT**1GHz~12.5GHz**

	Frequency (MHz)	Reading (dBm)	Cable Factor (dB)	Result (nW/MHz)	Remark
1GHz~12.5GHz	3587.5000	-68.60	10.44	1.5276	Normal Voltage : DC5V

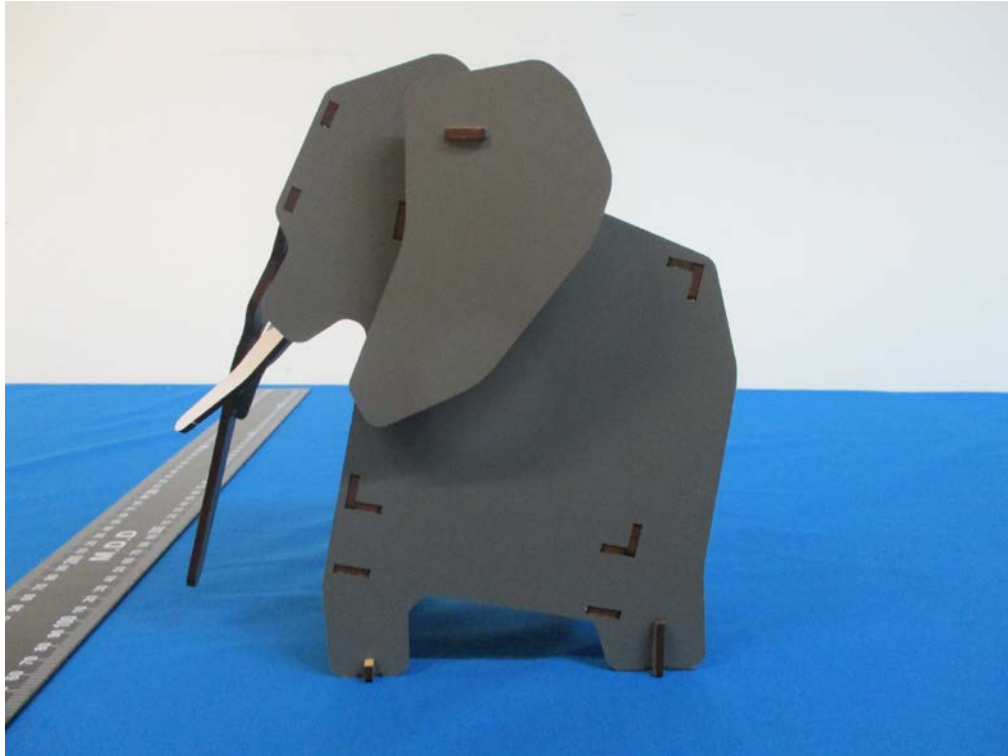
TEST PLOTS

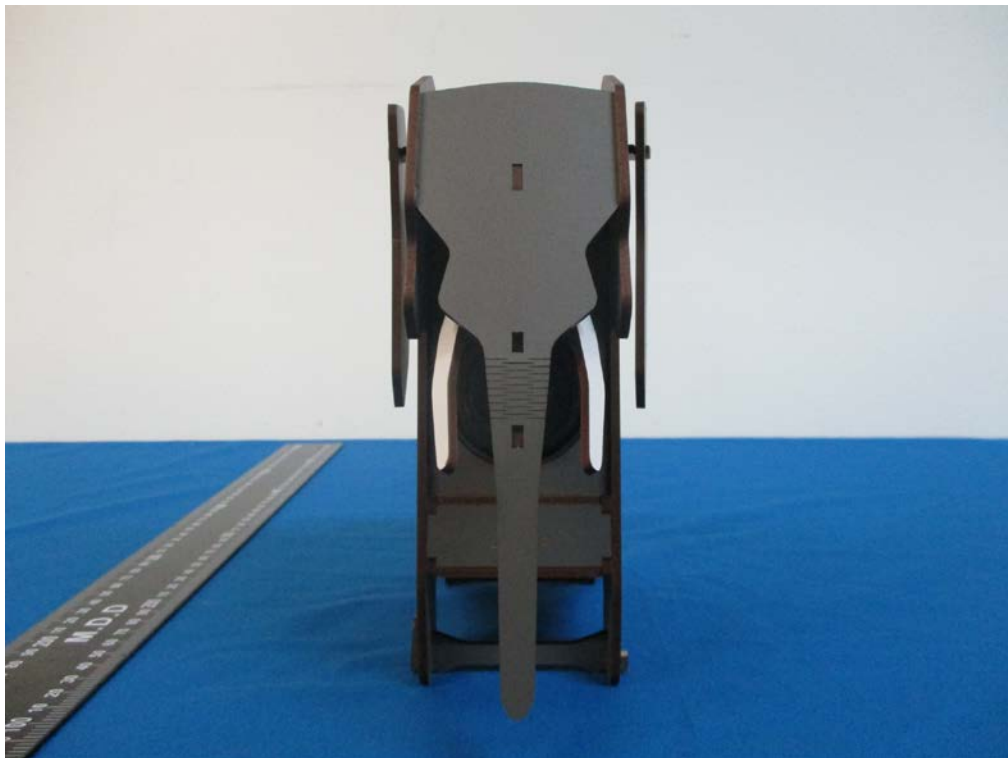
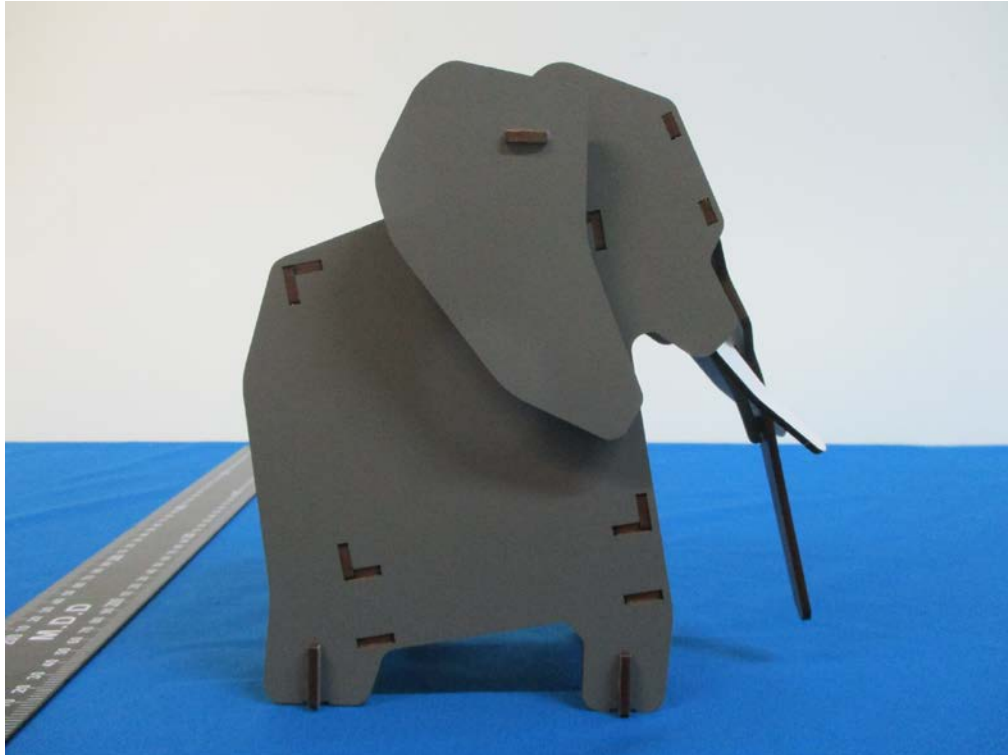
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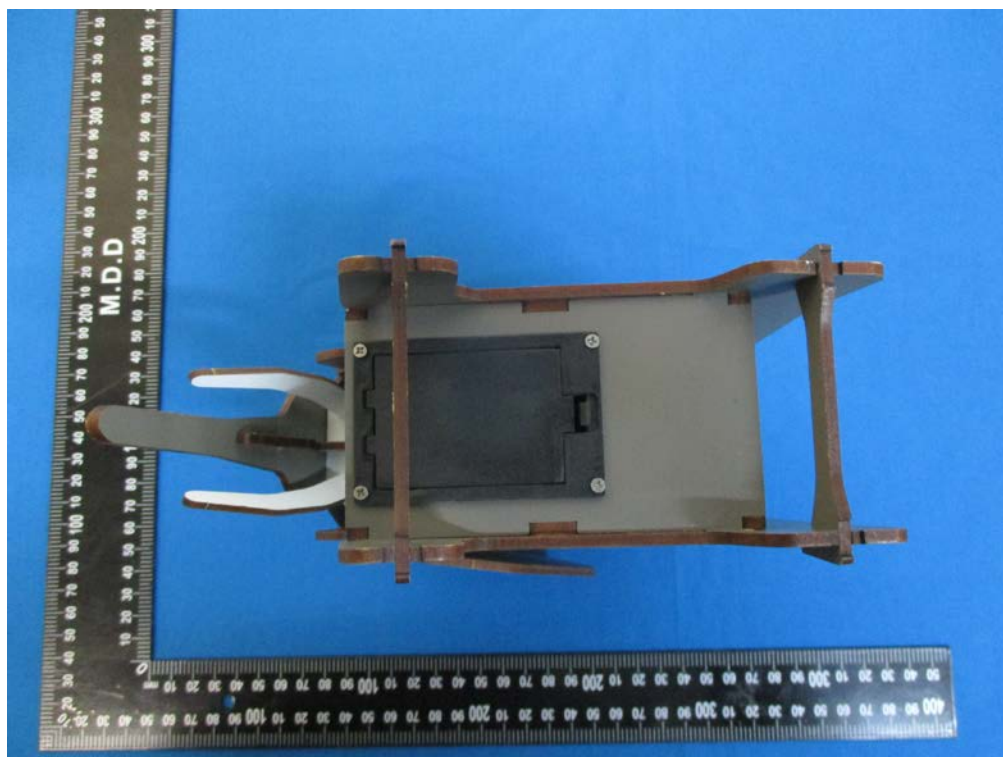
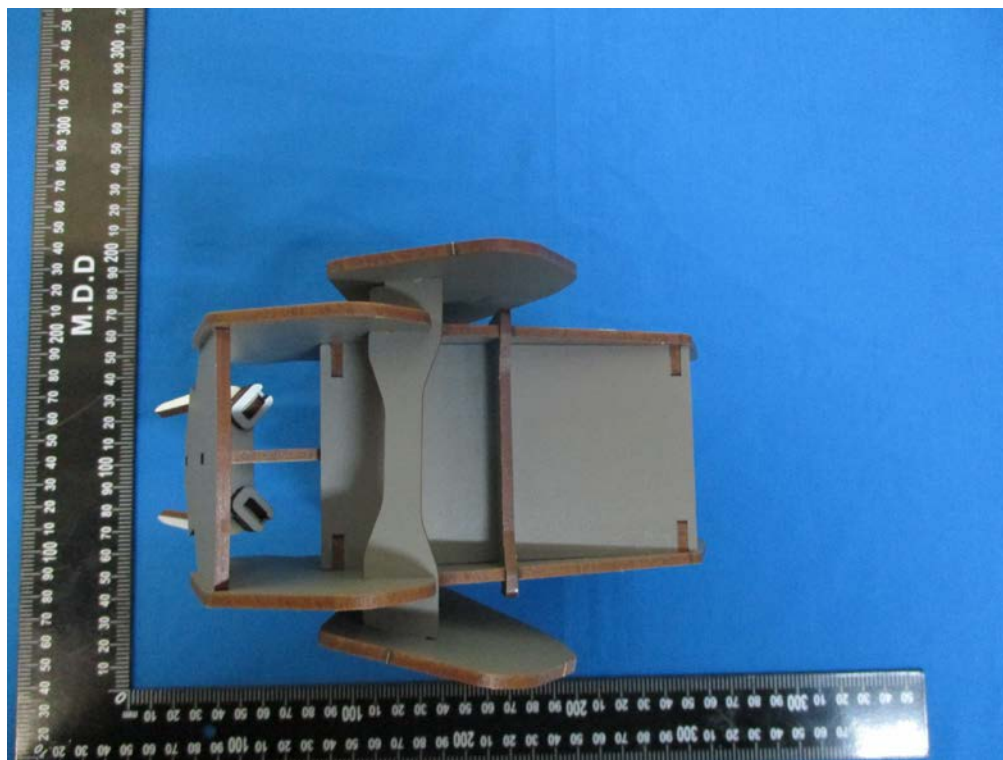
APPENDIX 1 - PHOTOGRAPHS OF TEST SETUP



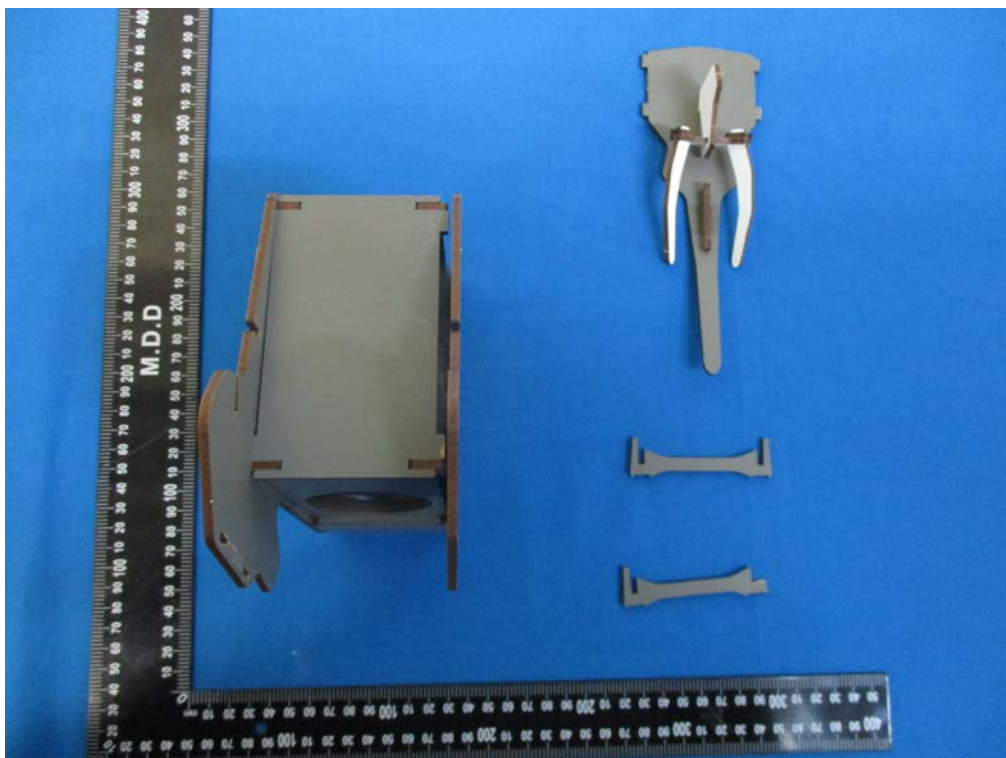
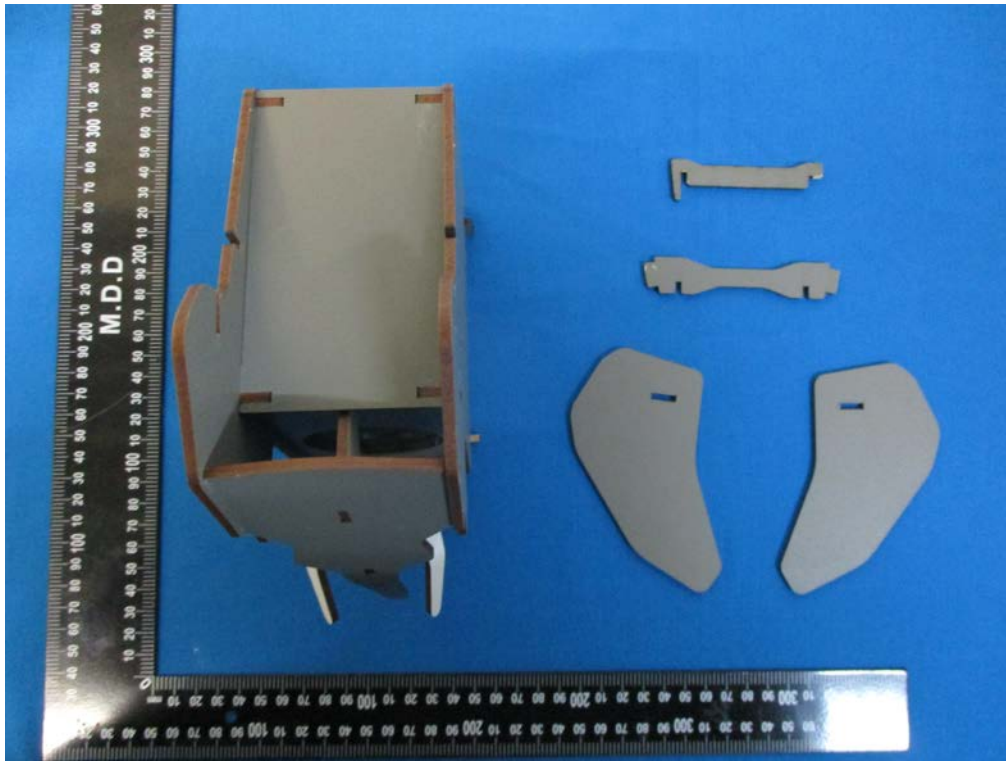
APPENDIX 2 - PHOTOGRAPHS OF EUT EXTERNAL PHOTOGRAPHS OF EUT

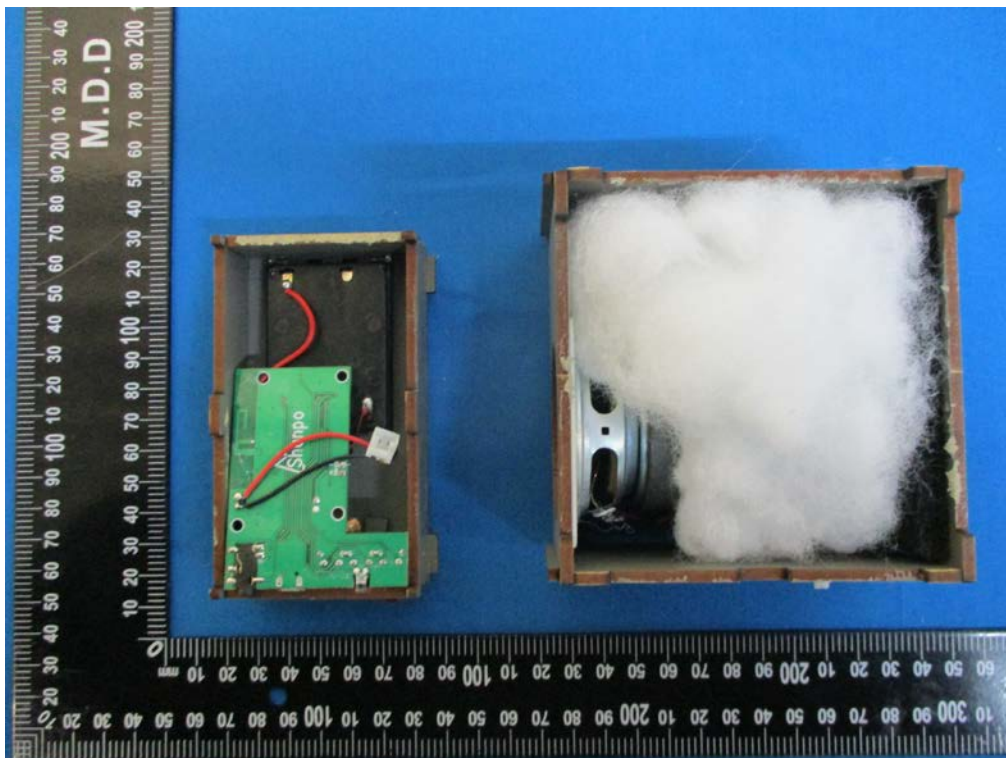
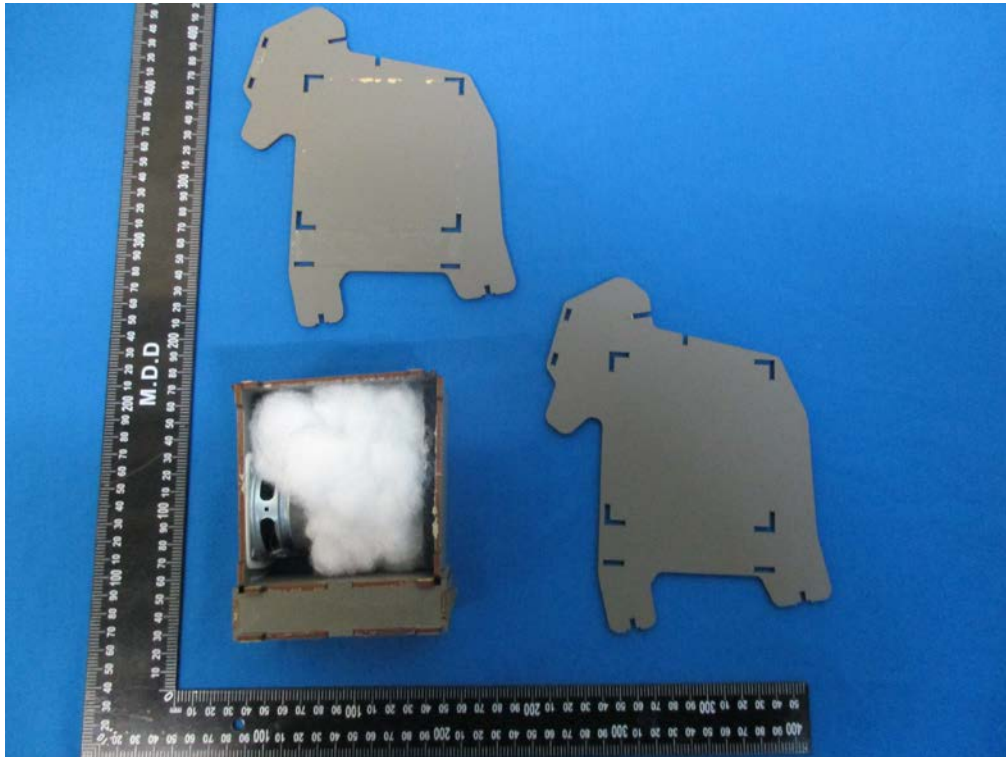


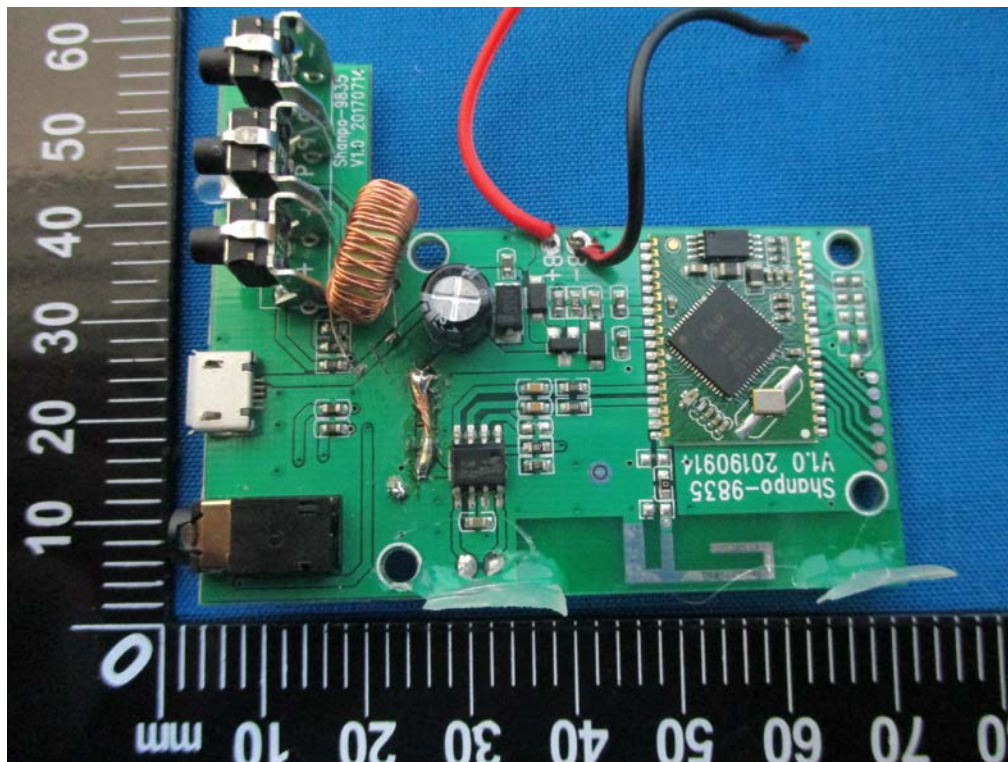
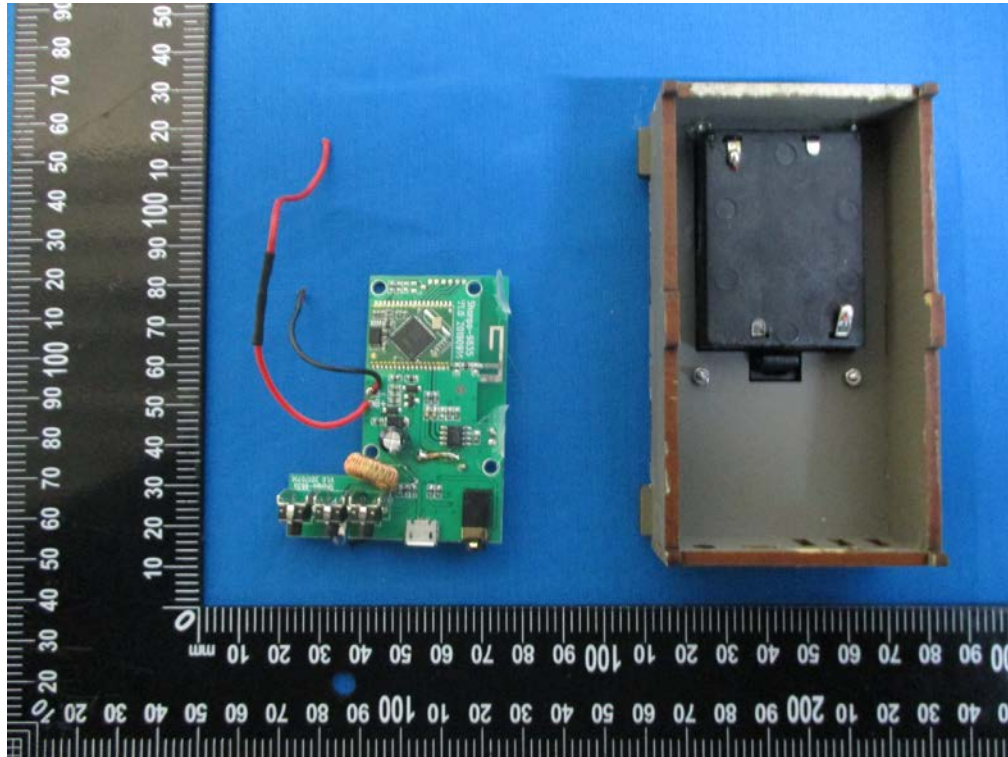


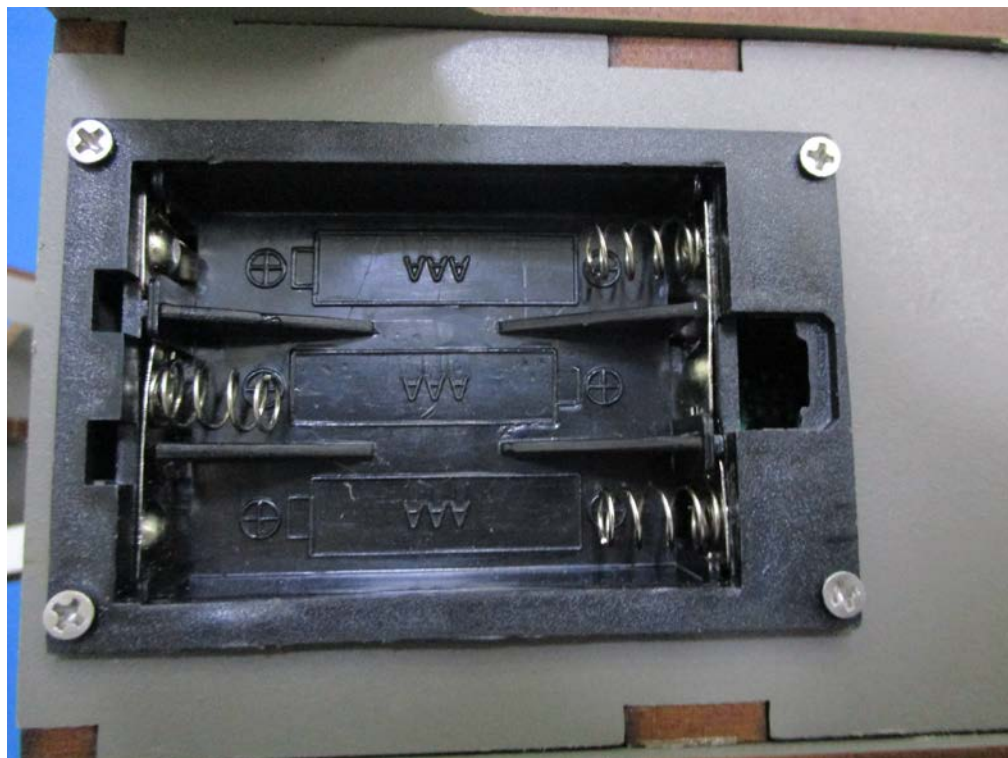
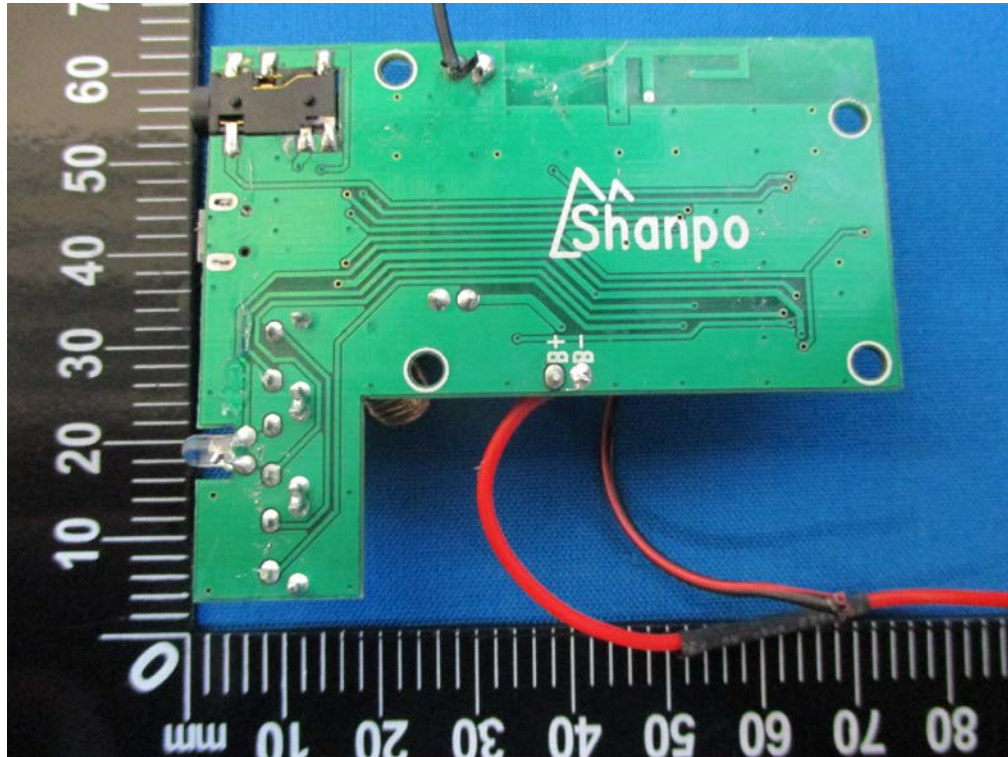


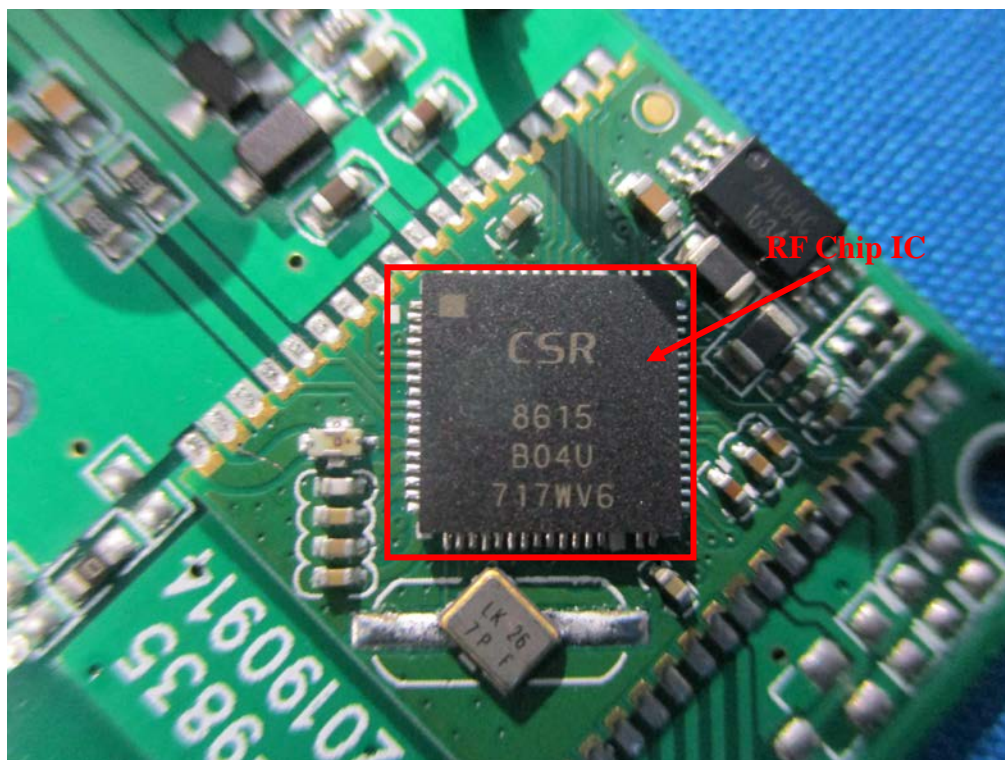
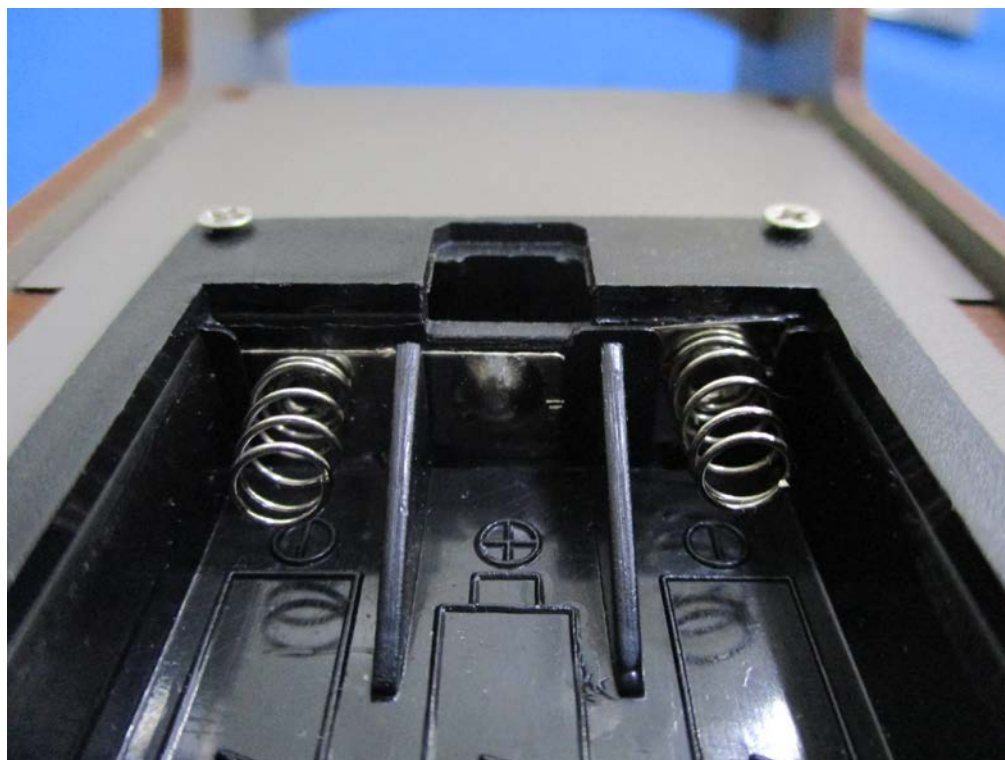
INTERNAL PHOTOGRAPHS OF EUT

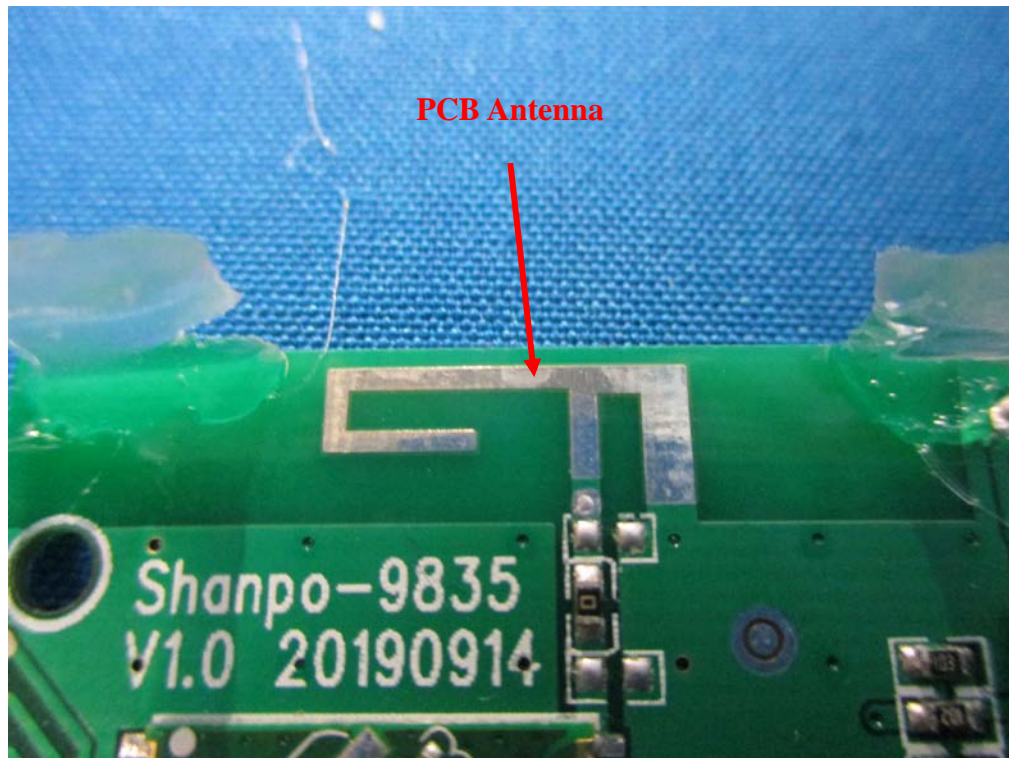












***** END OF REPORT *****