FCC Test Report

Report No.: AGC03366180402FE03

FCC ID	:	2APQ80001
APPLICATION PURPOSE	:	Class II Permissive Change
PRODUCT DESIGNATION	:	Bluetooth earphone
BRAND NAME	:	Panon, BSHAK, LUCKYKS
MODEL NAME	:	See page 4
CLIENT	:	Shenzhen Xinmao E-commerce Co., Ltd.
DATE OF ISSUE	:	Jun. 20, 2018
STANDARD(S) **TEST PROCEDURE(S)**	:	FCC Part 15 Subpart C Section 15.249
REPORT VERSION	:	V1.1

*A*ttestation of *G*lobal *C*ompliance (Shenzhen) Co., Ltd

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Report Revise Record

Report Version	Revise Time	Issued Date	Valid Version	Notes
V1.0	/	May 22, 2018	Valid	Initial release
V1.1	1st	Jun. 20, 2018	Valid	Revise Report

Note: Owing to the product under testing was identical with the AGC03366180401FE03's product except for the additional jump wire on the PCB board. So the test data may refer to the AGC03366180401FE03 except for the data of radiated emission below 1GHz.

TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Xinmao E-commerce Co., Ltd.	
Address	No.606, Shangyou Mansion, Yousong Community, Longhua Street, Longhua District, Shenzhen, Guangdong Province, China	
Manufacturer	Dongguan Fansound Intelligent Technology Co., Ltd.	
Address	No.139, Sanjiang Industrial Park, Hengli Town, Dongguan City, Guangdong Province, China 523460	
Product Designation	Bluetooth earphone	
Brand Name	Panon, BSHAK, LUCKYKS	
Test Model	SX-1	
Series Model	SX-2, SX-3, SG-1, SG-2, SG-3, BK-1, BK-2, BK-3, BK-4, BK-5, LSX1, LSX2, LSX3, LSX4, LSX5	
Difference Description	All the same except for the model name and brand name and corresponding relation of the model and brand name as follows:	
	Panon	SX-1, SX-2, SX-3, SG-1, SG-2, SG-3
	BSHAK	BK-1, BK-2, BK-3, BK-4, BK-5
	LUCKYKS	LSX1, LSX2, LSX3, LSX4, LSX5
Date of test	May 14, 2018 to May 16, 2018	
Deviation	None	
Condition of Test Sample	Normal	
Report Template	AGCRT-US-BR/RF	

We hereby certify that:
The above equipment was tested by Attestation of Global Compliance (Shenzhen) Co., Ltd. The test data, the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.249.

Tested By Henry Zhang
Henry Zhang(Zhang Zhuorui) May 16, 2018

Reviewed By cool cheng
Cool Cheng(Cheng Mengguo) Jun. 20, 2018

Approved By Forrest Lei
Forrest Lei(Lei Yonggang) Jun. 20, 2018
Authorized Officer

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz
RF Output Power	0.95dBm(Max EIRP Power=Max radiation field-95.2)
Bluetooth Version	V4.1
Modulation	GFSK, π /4-DQPSK, 8DPSK
Number of channels	79
Hardware Version	V1.0
Software Version	V1.0
Antenna Designation	Ceramic Antenna
Antenna Gain	2.5dBi
Power Supply	DC 3.7V by battery

Note:
1. The EUT didn't support BLE.
2. The BT function of EUT isn't work when charging.
3. The USB port only used for charging and can't be used to transfer data with PC.

2.2. TABLE OF CARRIER FREQUENCYS

Frequency Band	Channel Number	Frequency
2400~2483.5MHz	0	2402MHz
	1	2403MHz
	:	:
	38	2440 MHz
	39	2441 MHz
	40	2442 MHz
	:	:
	77	2479 MHz
	78	2480 MHz

3. MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ±U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %.

No.	Item	Uncertainty
1	All emissions, radiated	±3.9dB
2	Temperature	±0.5°C
3	Humidity	±2%

4. DESCRIPTION OF TEST MODES

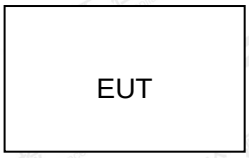
NO.	TEST MODE DESCRIPTION
1	Low channel GFSK
2	Middle channel GFSK
3	High channel GFSK
4	Low channel π /4-DQPSK
5	Middle channel π /4-DQPSK
6	High channel π /4-DQPSK
7	Low channel 8DPSK
8	Middle channel 8DPSK
9	High channel 8DPSK
10	BT Link

Note:
1. All the test modes can be supply by battery, only the result of the worst case was recorded in the report, if no other cases.
2. For Radiated Emission, 3axis were chosen for testing for each applicable mode.
3. The EUT used fully-charged battery when tested.

5. SYSTEM TEST CONFIGURATION

5.1. CONFIGURATION OF EUT SYSTEM

Configure 1: (Normal Mode)



5.2. EQUIPMENT USED IN EUT SYSTEM

Item	Equipment	Model No.	ID or Specification	Remark
1	Bluetooth earphone	Panon	SX-1	EUT
2	Battery	VDL	601115	Accessory
3	IPOD	APPLE	A1367	A.E

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249(a) §15.209	Radiated Emission	Compliant

6. TEST FACILITY

Test Site	Attestation of Global Compliance (Shenzhen) Co., Ltd
Location	1-2F., Bldg.2, No.1-4, Chaxi Sanwei Technical Industrial Park, Gushu, Xixiang, Bao'an District B112-B113, Bldg.12, Baoan Bldg Materials Center, No.1 of Xixiang Inner Ring Road, Baoan District, Shenzhen 518012
NVLAP Lab Code	600153-0
Designation Number	CN5028
Test Firm Registration Number	682566
Description	Attestation of Global Compliance(Shenzhen) Co., Ltd is accredited by National Voluntary Laboratory Accreditation program, NVLAP Code 600153-0

7. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013.

8. ALL TEST EQUIPMENT LIST

FOR RADIATED EMISSION TEST (BELOW 1GHz)

Radiated Emission Test					
Name of Equipment	**Manufacturer**	**Model Number**	**Serial Number**	**Last Calibration**	**Due Calibration**
TEST RECEIVER	R&S	ESCI	10096	Jun.20, 2017	Jun.19, 2018
EXA Signal Analyzer	Aglient	N9010A	MY53470504	Dec.08, 2017	Dec.07, 2018
Broadband Preamplifier	SCHWARZBECK	BBV 9718	9718-205	Jun.20, 2017	Jun.19, 2018
Antenna	SCHWARZBECK	VULB9168	D69250	Sep.28, 2017	Sep.27, 2018
Loop Antenna	A.H.Systems,Inc	SAS-562B	--	Mar. 01, 2018	Feb. 28, 2019

9. RADIATED EMISSION

9.1 TEST LIMIT

Standard FCC15.249

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of Harmonics (microvolts/meter)
900-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

Standard FCC 15.209

Frequency (MHz)	Distance Meters	Field Strengths Limit	
		μ V/m	dB(μV)/m
0.009 ~ 0.490	300	2400/F(kHz)	---
0.490 ~ 1.705	30	24000/F(kHz)	---
1.705 ~ 30	30	30	---
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000	3	Other:74.0 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission level dBμ V = 20 log Emission level μ V/m

(2) The smaller limit shall apply at the cross point between two frequency bands.

(3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

9.2. MEASUREMENT PROCEDURE

1. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(Below 1GHz)
2. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.
3. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
4. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform(Below 1GHz)

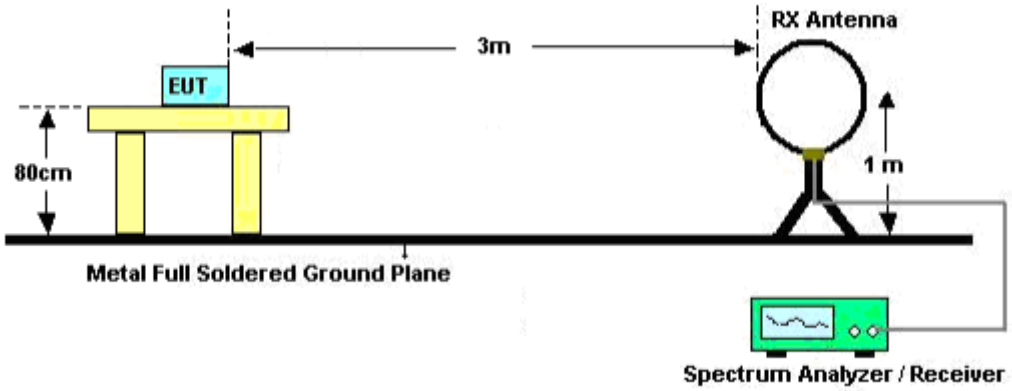
The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

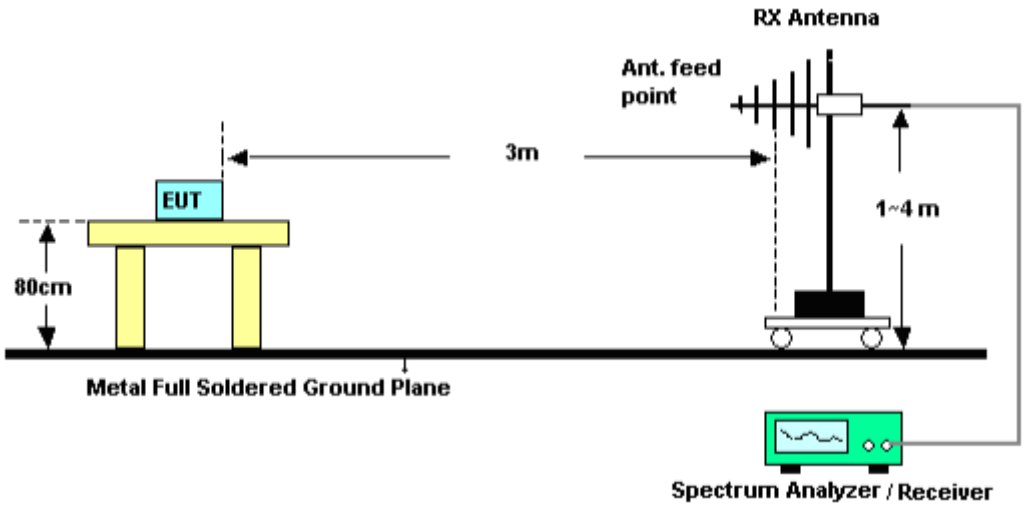
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

9.3. TEST SETUP

RADIATED EMISSION TEST-SETUP FREQUENCY BELOW 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



9.4. TEST RESULT

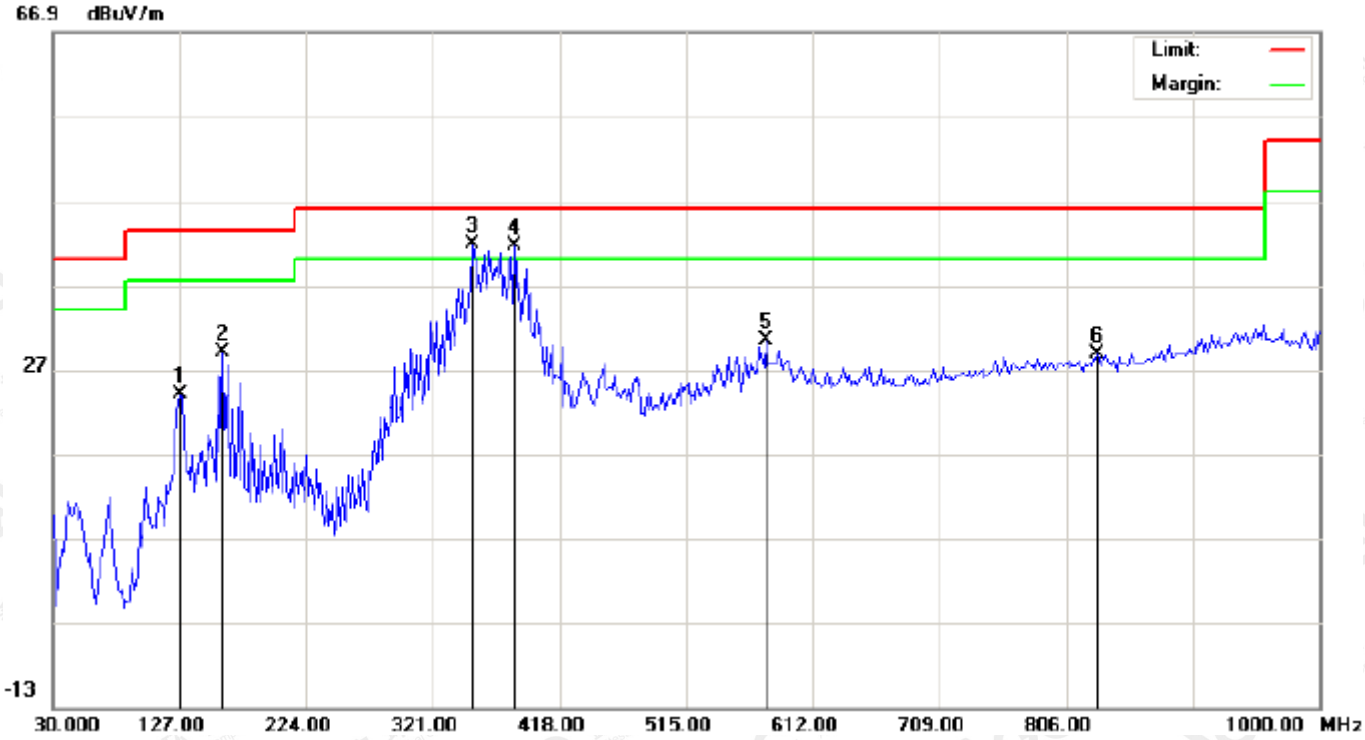
(Worst modulation: GFSK)

RADIATED EMISSION BELOW 30MHZ

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

RADIATED EMISSION BELOW 1GHZ

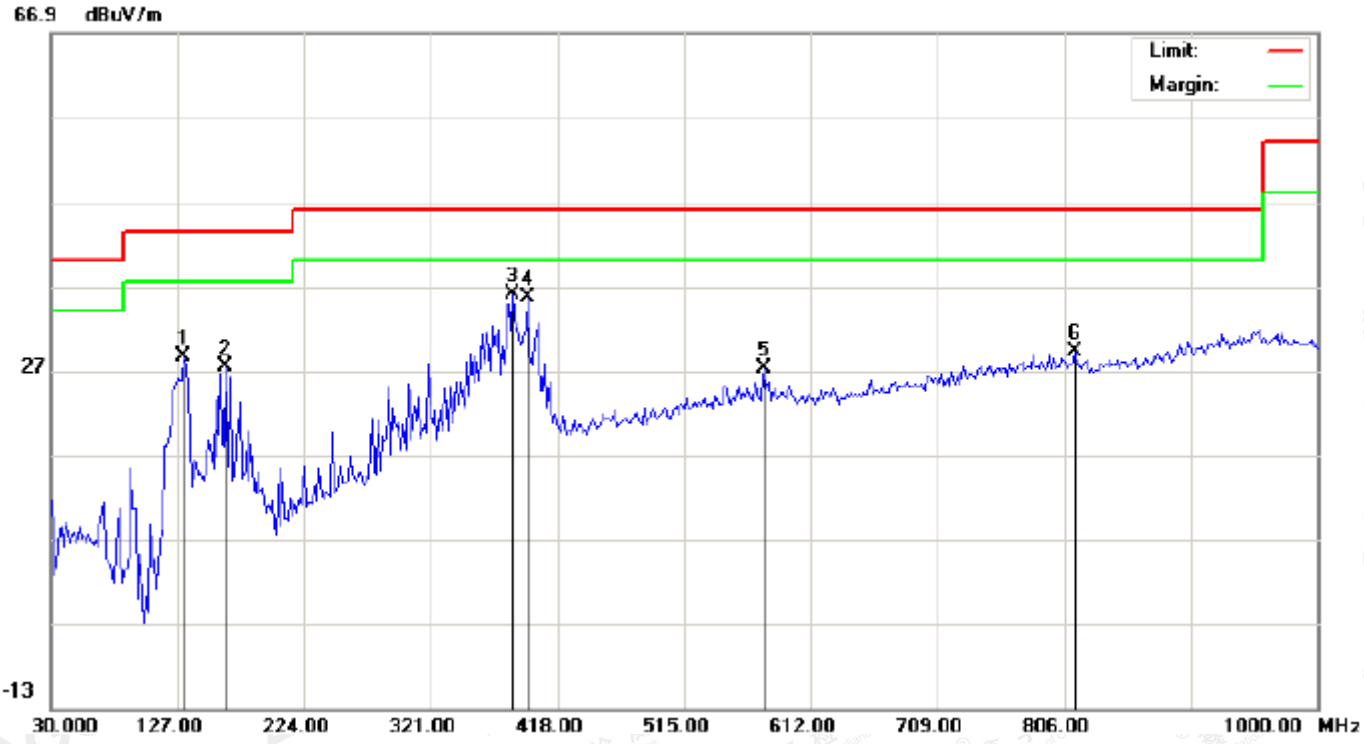
RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL-HORIZONTAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		127.0000	14.78	9.13	23.91	43.50	-19.59	peak			
2		159.3333	18.54	10.49	29.03	43.50	-14.47	peak			
3	*	351.7167	23.12	18.75	41.87	46.00	-4.13	peak			
4	!	384.0500	22.61	18.96	41.57	46.00	-4.43	peak			
5		576.4333	7.17	23.14	30.31	46.00	-15.69	peak			
6		830.2500	1.47	27.31	28.78	46.00	-17.22	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHz-1GHz)-LOW CHANNEL -VERTICAL



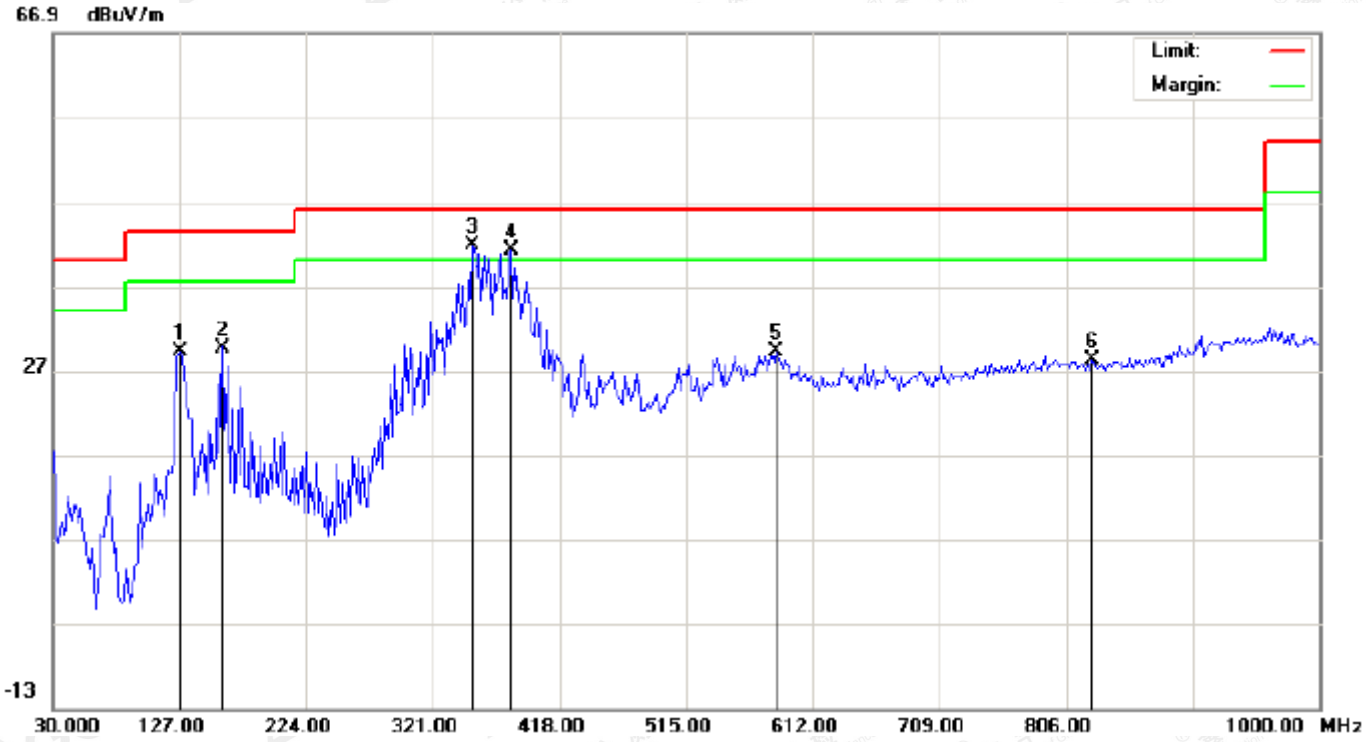
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		131.8500	16.84	11.80	28.64	43.50	-14.86	peak			
2		164.1833	12.25	15.07	27.32	43.50	-16.18	peak			
3	*	384.0500	17.09	18.96	36.05	46.00	-9.95	peak			
4		395.3667	16.60	19.04	35.64	46.00	-10.36	peak			
5		576.4333	4.63	22.61	27.24	46.00	-18.76	peak			
6		814.0833	1.91	27.32	29.23	46.00	-16.77	peak			

RESULT: PASS

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

2. The “Factor” value can be calculated automatically by software of measurement system.

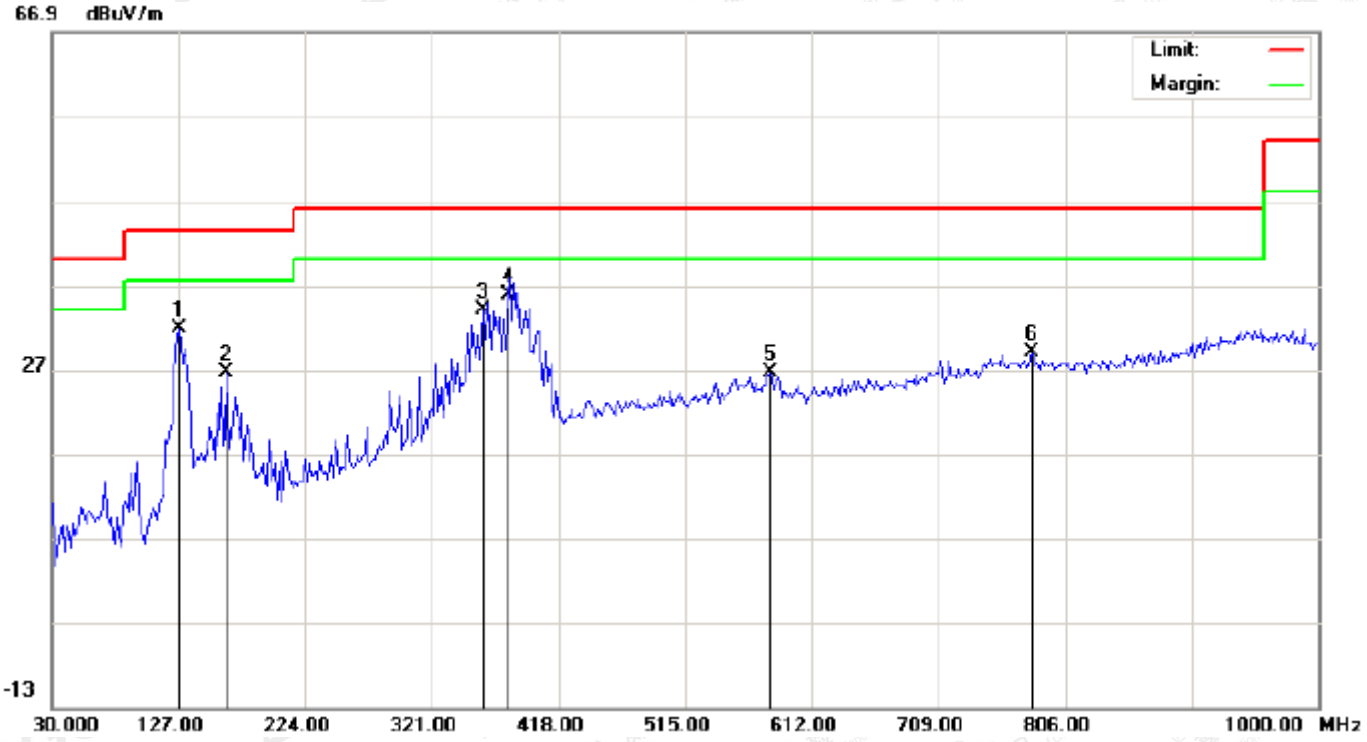
RADIATED EMISSION TEST- (30MHz-1GHz)-MIDDLE CHANNEL-HORIZONTAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		127.0000	20.14	9.13	29.27	43.50	-14.23	peak			
2		159.3333	19.21	10.49	29.70	43.50	-13.80	peak			
3	*	351.7167	23.04	18.75	41.79	46.00	-4.21	peak			
4	!	380.8167	22.18	18.94	41.12	46.00	-4.88	peak			
5		584.5167	5.85	23.34	29.19	46.00	-16.81	peak			
6		825.4000	0.93	27.31	28.24	46.00	-17.76	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHz-1GHz)-MIDDLE CHANNEL -VERTICAL



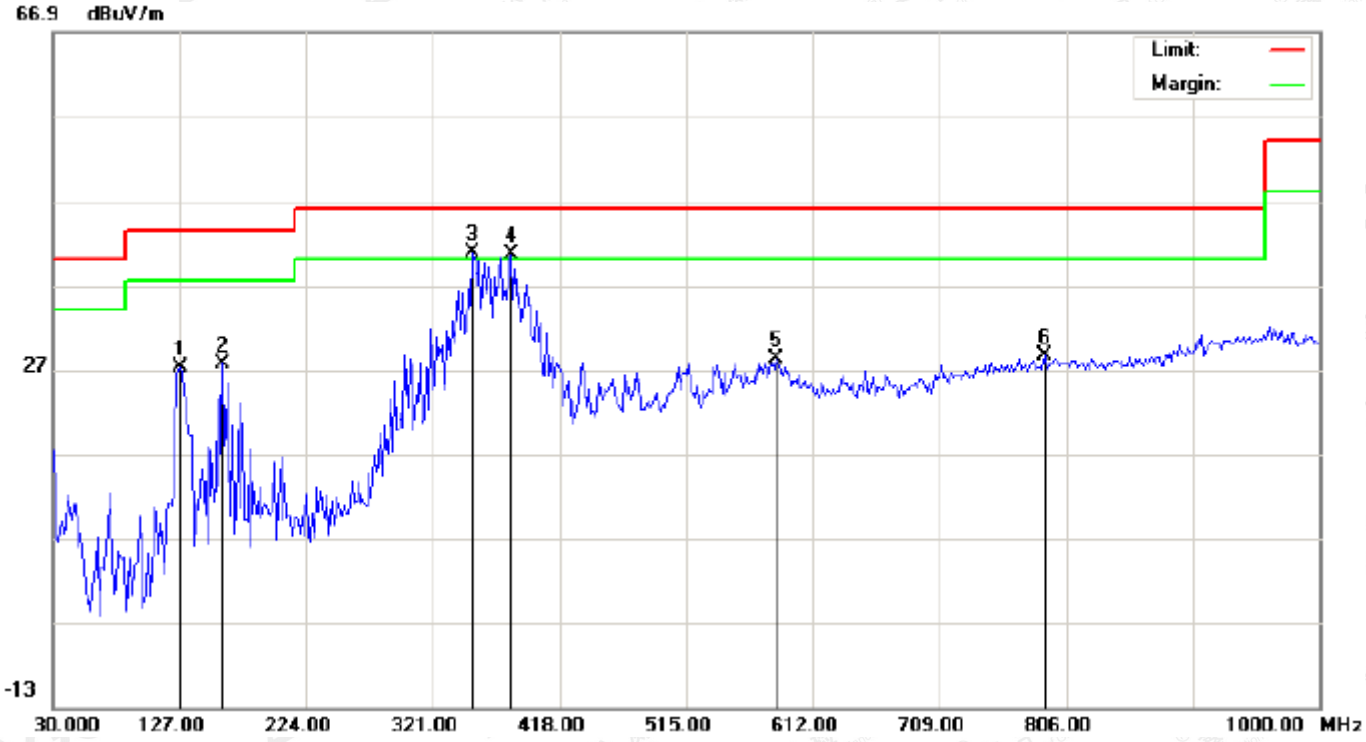
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		127.0000	22.08	9.78	31.86	43.50	-11.64	peak			
2		164.1833	11.48	15.07	26.55	43.50	-16.95	peak			
3		359.8000	15.12	18.80	33.92	46.00	-12.08	peak			
4	*	379.2000	16.92	18.93	35.85	46.00	-10.15	peak			
5		579.6667	4.02	22.63	26.65	46.00	-19.35	peak			
6		780.1333	1.90	27.05	28.95	46.00	-17.05	peak			

RESULT: PASS

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

2. The “Factor” value can be calculated automatically by software of measurement system.

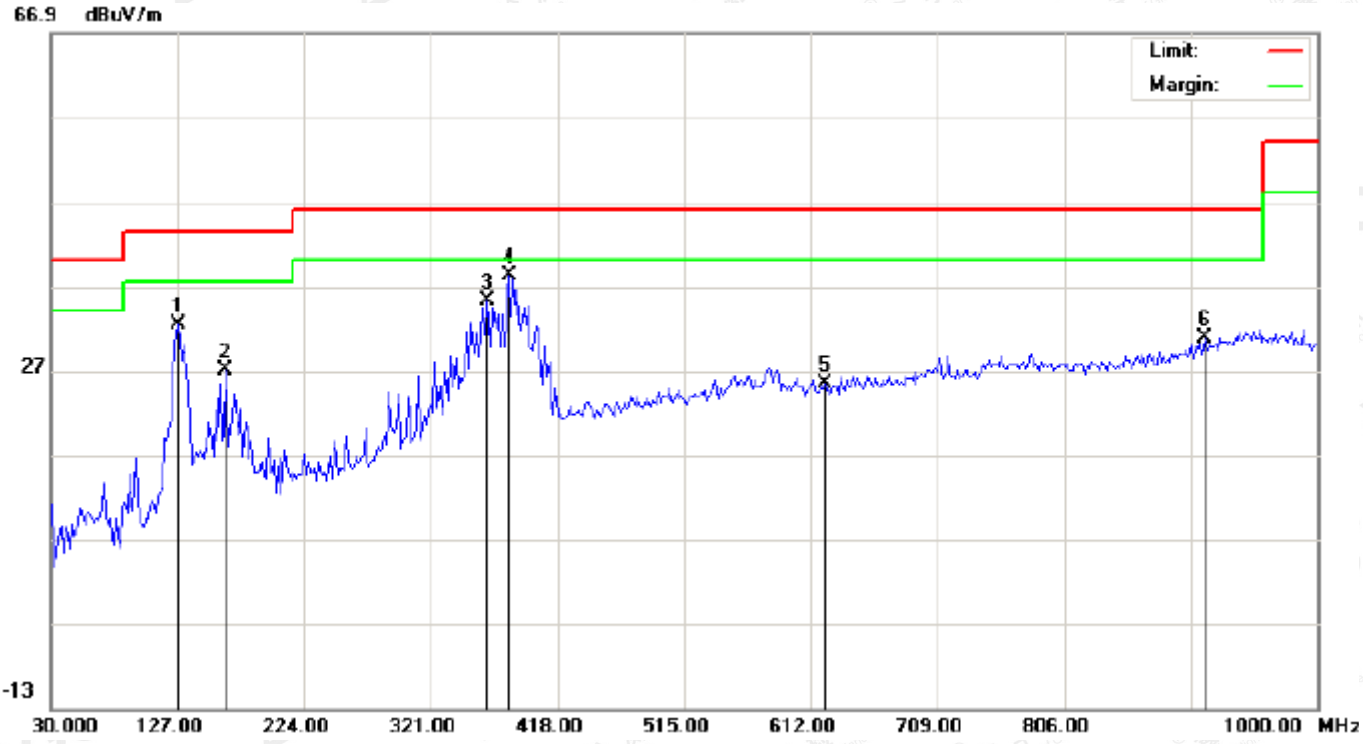
RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL-HORIZONTAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		127.0000	18.14	9.13	27.27	43.50	-16.23	peak			
2		159.3333	17.21	10.49	27.70	43.50	-15.80	peak			
3	*	351.7167	22.04	18.75	40.79	46.00	-5.21	peak			
4	!	380.8167	21.68	18.94	40.62	46.00	-5.38	peak			
5		584.5167	4.85	23.34	28.19	46.00	-17.81	peak			
6		789.8333	1.48	27.18	28.66	46.00	-17.34	peak			

RESULT: PASS

RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL -VERTICAL



No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		127.0000	22.58	9.78	32.36	43.50	-11.14	peak			
2		164.1833	11.98	15.07	27.05	43.50	-16.45	peak			
3		364.6500	16.45	18.84	35.29	46.00	-10.71	peak			
4	*	380.8167	19.29	18.94	38.23	46.00	-7.77	peak			
5		623.3167	2.09	23.25	25.34	46.00	-20.66	peak			
6		914.3167	1.83	29.01	30.84	46.00	-15.16	peak			

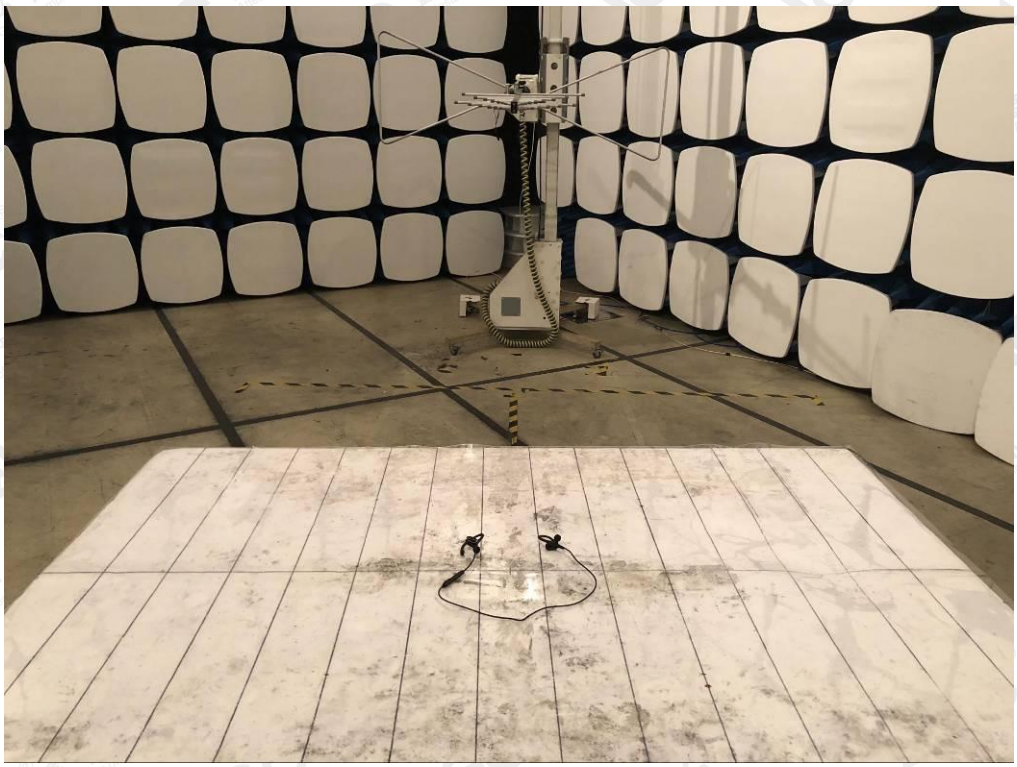
RESULT: PASS

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

2. The “Factor” value can be calculated automatically by software of measurement system.

APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC RADIATED EMISSION 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

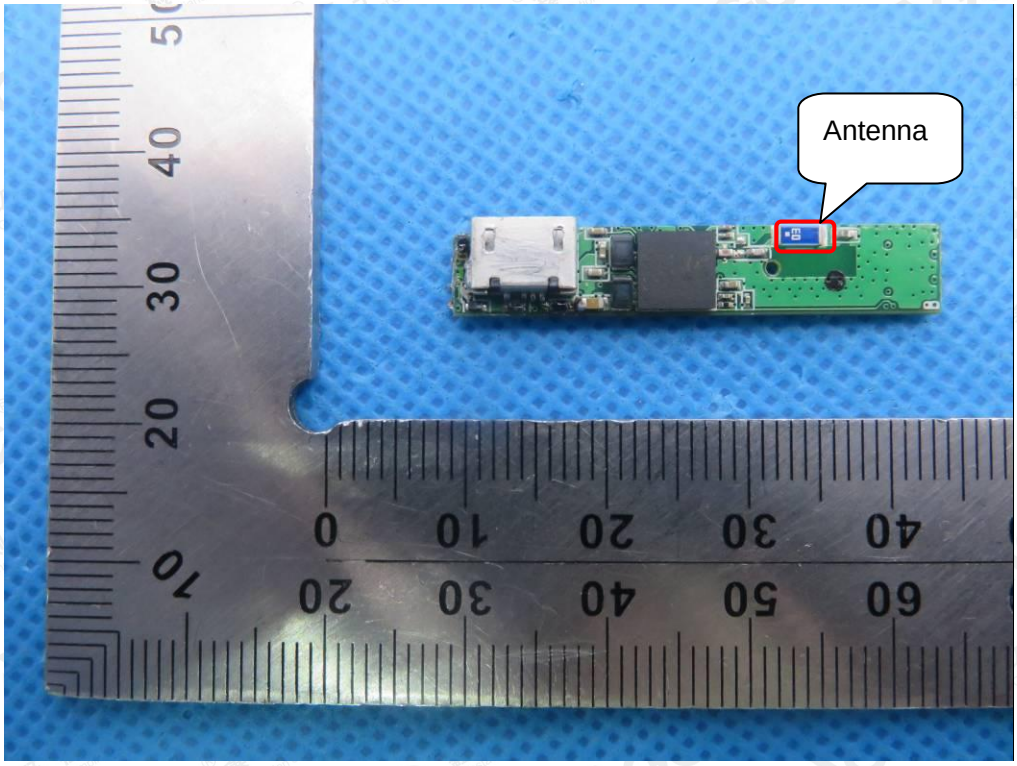
RIGHT VIEW OF EUT

VIEW OF EUT (PORT)

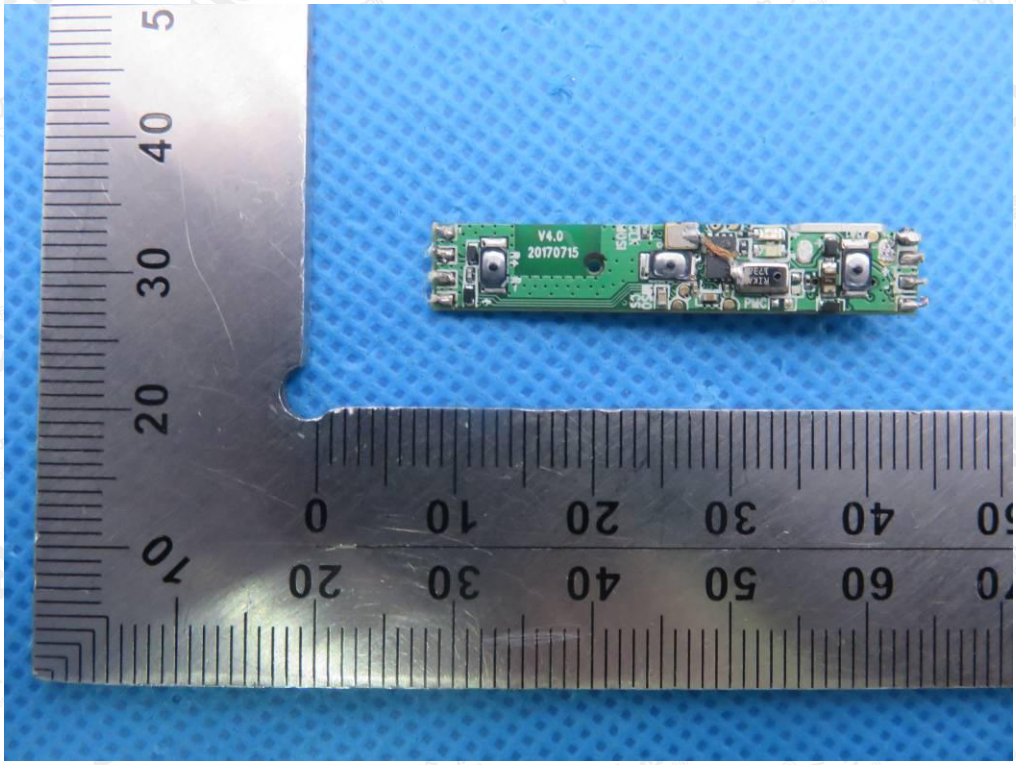
OPEN VIEW OF EUT

VIEW OF BATTERY

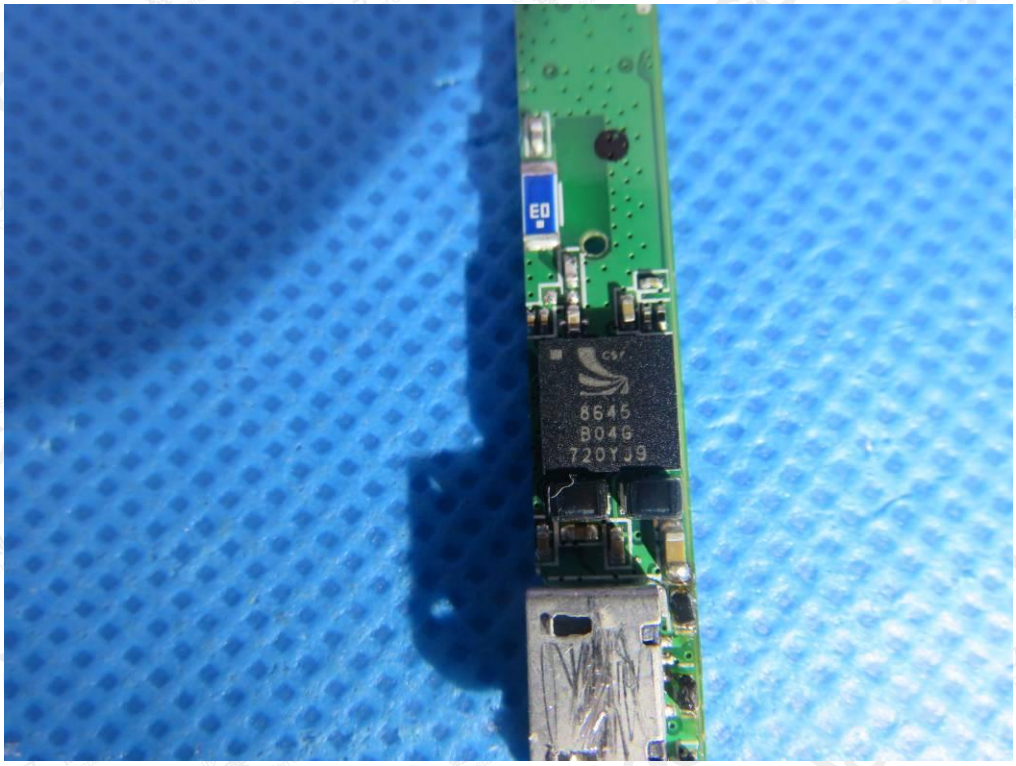
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



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