

FCC PART 15B

TEST REPORT

For

Quanshun Communication Technology Co., Ltd

Quanshun Bldg., Daxiamei, Nan'an, Quanzhou, Fujian, China

<p>Test Model: N56 Multiple Models: N2X, N3X, N4X, N5X, N50, N55, N56, N57, N58, N59</p>

Report Type: Original Report	Product Type: PTT Network Radio
Report Number:	RXM190410052-00A
Report Date:	2019-05-13
Reviewed By:	Jerry Zhang EMC Manager <i>Jerry Zhang</i>
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

TABLE OF CONTENTS

General Information	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
TEST METHODOLOGY	3
MEASUREMENT UNCERTAINTY	3
TEST FACILITY	4
System Test Configuration	5
DESCRIPTION OF TEST CONFIGURATION	5
EQUIPMENT MODIFICATIONS	5
EUT EXERCISE SOFTWARE	5
SUPPORT EQUIPMENT LIST AND DETAILS	5
SUPPORT CABLE LIST AND DETAILS	5
BLOCK DIAGRAM OF TEST SETUP	6
TEST EQUIPMENT LIST	7
ENVIRONMENTAL CONDITIONS	7
Summary of Test Results	8
Conducted emissions	9
EUT SETUP	9
EMI TEST RECEIVER SETUP	9
TEST PROCEDURE	9
TEST DATA	11
Radiated emissions	13
EUT SETUP	13
EMI TEST RECEIVER SETUP	14
TEST PROCEDURE	14
CORRECTED AMPLITUDE & MARGIN CALCULATION	14
TEST DATA	15
Exhibit A – Eut Photographs	19
Exhibit B – Test Setup Photographs	34
DECLARATION LETTER	37

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		PTT Network Radio
EUT Model:		N56
Multiple Models:		N2X, N3X, N4X, N5X, N50, N55, N56, N57, N58, N59
Rated Input Voltage:		DC7.4V from battery
Adapter Information	Model:	WA-36A12
	Input:	100-240V~50/60Hz,0.9A Max.
	Output:	12V3A
The Highest Operating Frequency:		2690MHz
External Dimension:		55mm(L)*30mm(W)*115mm(H)
Serial Number:		190410052
EUT Received Date:		2019.04.15

Notes: Model N56 was selected for fully testing, the detailed information about the difference among N2X, N3X, N4X, N5X, N50, N55, N56, N57, N58, N59 and model N56 can be referred to the declaration letter which was stated and guaranteed by the manufacturer.

Objective

This report is prepared on behalf of **Quanshun Communication Technology Co., Ltd** in accordance with FCC Part 15B Part 2, Part J, and Part 15, Subpart A and B of the Federal Communications Commission's rules.

The objective is to determine the compliance of EUT with: FCC Part 15B, Class B.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014 American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.

Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.55 dB, 200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Temperature	±1°C
Humidity	±5%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

FINAL

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for Charging mode.

Equipment Modifications

No modification was made to the EUT.

EUT Exercise Software

No Software was used

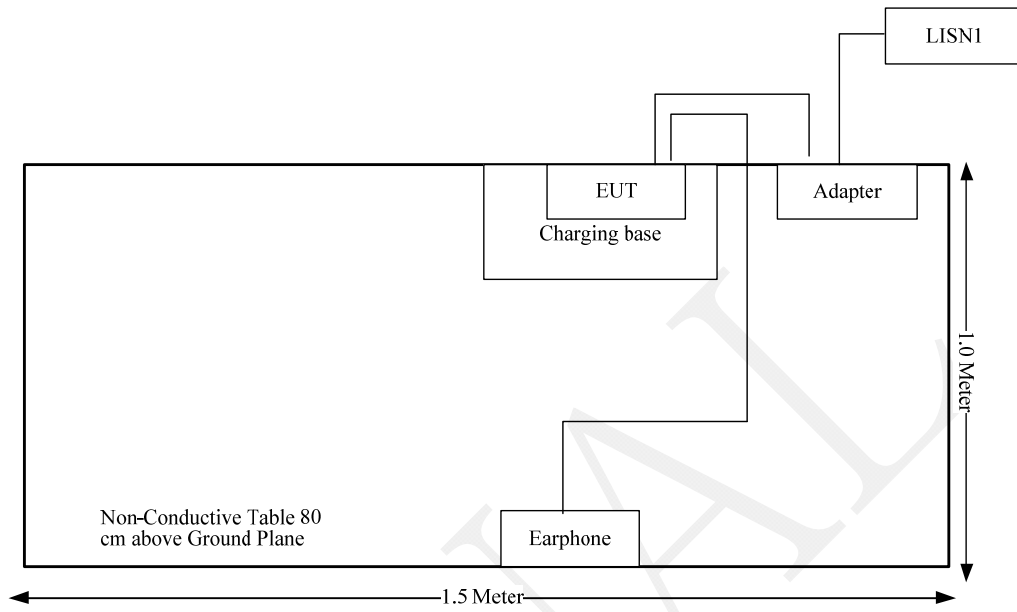
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
Apple	iPhone6s Plus	MGAA2CH/A	FK1R96UYG5QT
Asian Power Devices Inc.	Adapter	WA-36A12	N/A
Quanshun	Charging base	N/A	N/A
Quanshun	Earphone	N/A	N/A

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Adapter cable	No	Yes	1.76	Adapter	Charging base
Earphone cable	No	No	1.1	EUT	Earphone
USB cable	No	No	1.05	EUT	iPhone6s Plus

Block Diagram of Test Setup



Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2018-09-05	2019-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2018-12-10	2019-12-10
R&S	EMI Test Receiver	ESCI	101121	2019-03-23	2020-03-23
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-3	2017-07-21	2019-07-21
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-02	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0530-01	2018-09-24	2019-09-24
Sonoma	Amplifier	310N	185914	2018-10-13	2019-10-13
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-01-04	2020-01-04
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2018-09-05	2019-09-05

* Statement of Traceability: Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Environmental Conditions

Temperature:	24.4-27.2 °C
Relative Humidity:	56-61%
ATM Pressure:	100.7-100.8kPa
Tester:	Vito Chen,Tyler Pan
Test Date:	2019.04.26-2019-04.28

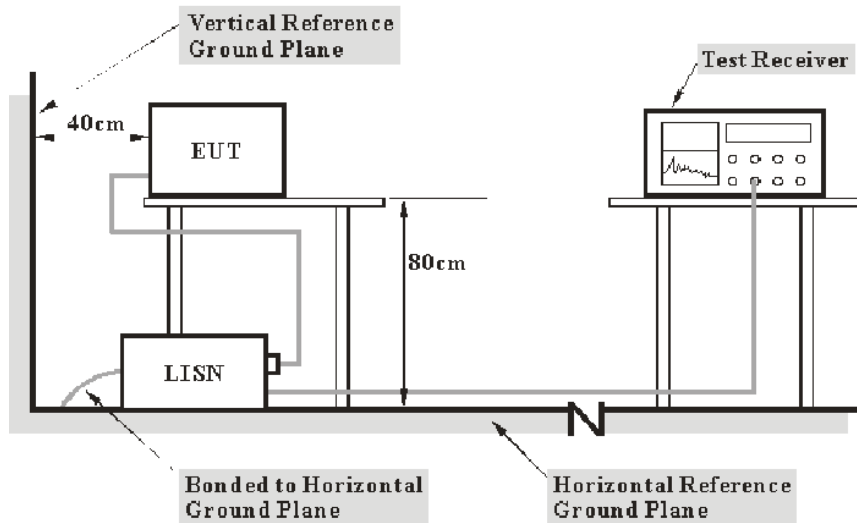
SUMMARY OF TEST RESULTS

Rule and Clause	Description of Test	Test Results
FCC §15.107	Conducted emissions	Compliance
FCC §15.109	Radiated emissions	Compliance

FINAL

CONDUCTED EMISSIONS

EUT Setup



- Note: 1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The adapter was connected to the Main LISN with 120V/60Hz AC power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Procedure

During the conducted emission test, the Adapter was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

Herein,

V_C : corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN or ISN

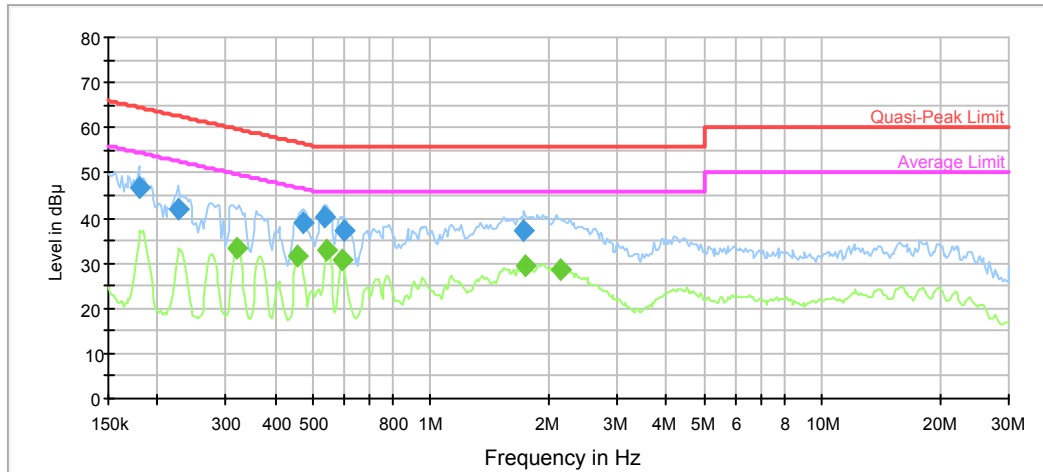
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Data

Please refer to following table and plots:

Port: L
 Test Mode: Charging
 Power Source: AC120V/60Hz



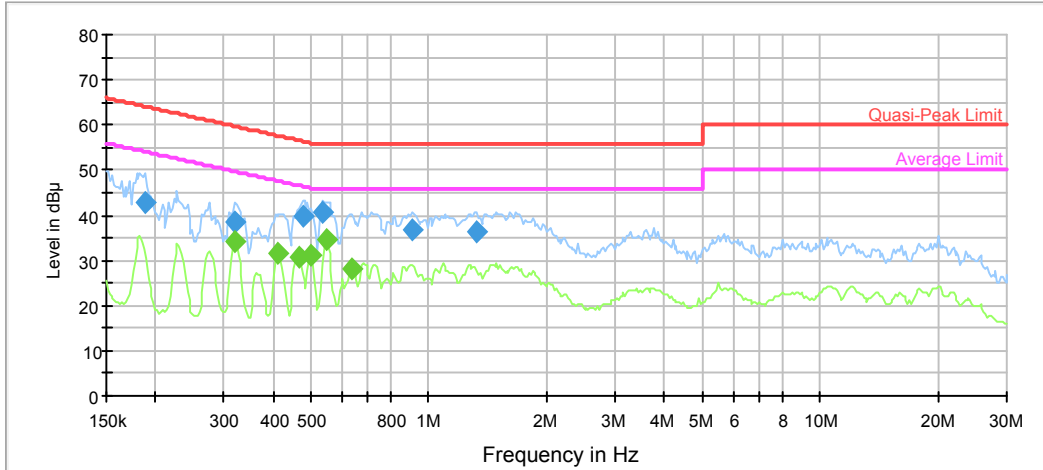
Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.179422	46.8	9.000	L1	10.8	17.7	64.5
0.225563	41.9	9.000	L1	10.5	20.7	62.6
0.471031	38.8	9.000	L1	9.9	17.7	56.5
0.536077	40.4	9.000	L1	9.9	15.6	56.0
0.604065	37.3	9.000	L1	9.8	18.7	56.0
1.734401	37.1	9.000	L1	9.7	18.9	56.0

Final Result 2

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.319533	33.2	9.000	L1	10.1	16.5	49.7
0.457178	31.4	9.000	L1	9.9	15.3	46.7
0.541438	32.8	9.000	L1	9.9	13.2	46.0
0.592163	30.7	9.000	L1	9.8	15.3	46.0
1.751745	29.3	9.000	L1	9.7	16.7	46.0
2.137462	28.5	9.000	L1	9.7	17.5	46.0

Port: N
 Test Mode: Charging
 Power Source: AC120V/60Hz



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.188575	42.6	9.000	N	10.7	21.5	64.1
0.319533	38.3	9.000	N	10.1	21.4	59.7
0.475741	39.9	9.000	N	9.9	16.5	56.4
0.536077	40.7	9.000	N	9.9	15.3	56.0
0.908365	36.9	9.000	N	9.8	19.1	56.0
1.325783	36.3	9.000	N	9.8	19.7	56.0

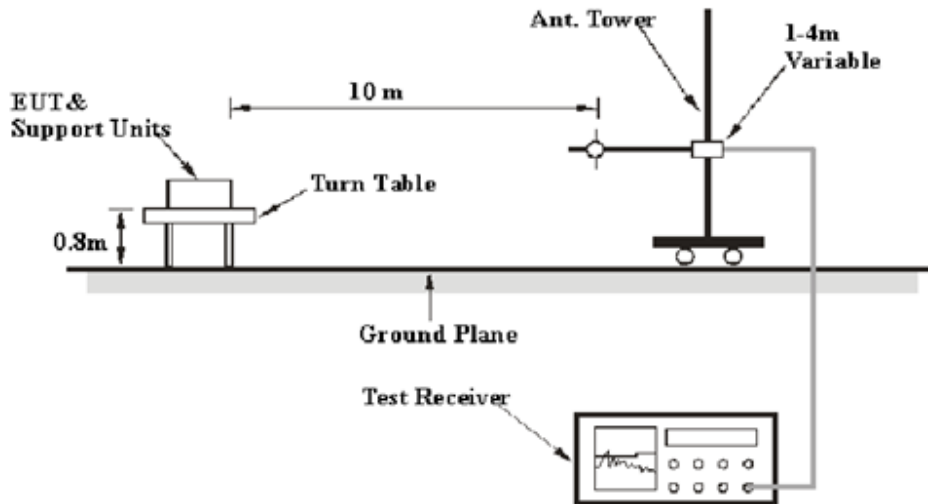
Final Result 2

Frequency (MHz)	Average (dBµV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.319533	34.2	9.000	N	10.1	15.5	49.7
0.413877	31.7	9.000	N	9.9	15.9	47.6
0.466367	30.7	9.000	N	9.9	15.9	46.6
0.500009	31.1	9.000	N	9.9	14.9	46.0
0.546852	34.4	9.000	N	9.8	11.6	46.0
0.634879	28.2	9.000	N	9.8	17.8	46.0

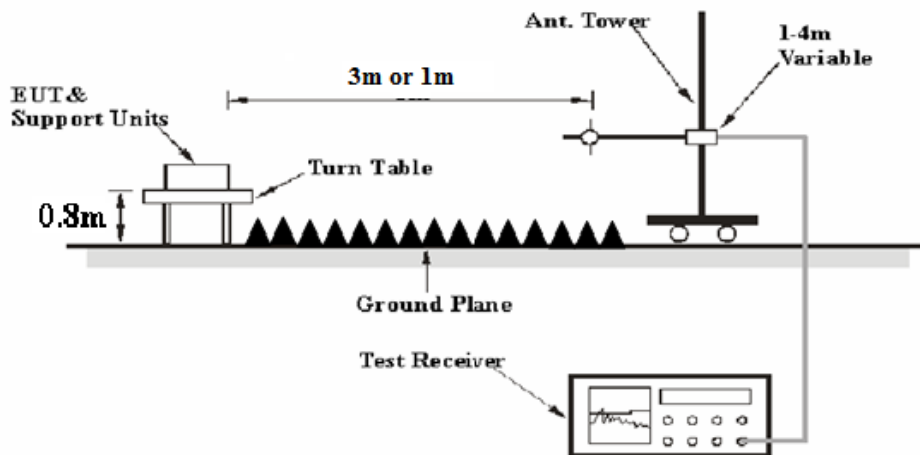
RADIATED EMISSIONS

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission below 1GHz tests were performed in the 10 meters chamber test site, above 1GHz tests were performed in the 3 meters chamber test site A, 1GHz-10GHz were performed at the 3 m distance, using the setup accordance with the ANSI C63.4-2014. The specification used was with the FCC Part 15 B and Innovation Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 10 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	IF B/W	Measurement
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	Reduced video bandwidth	/	AVG

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

During the radiated emissions, the adapter of laptop was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:

Corrected = Antenna Factor + Cable Loss - Amplifier Gain

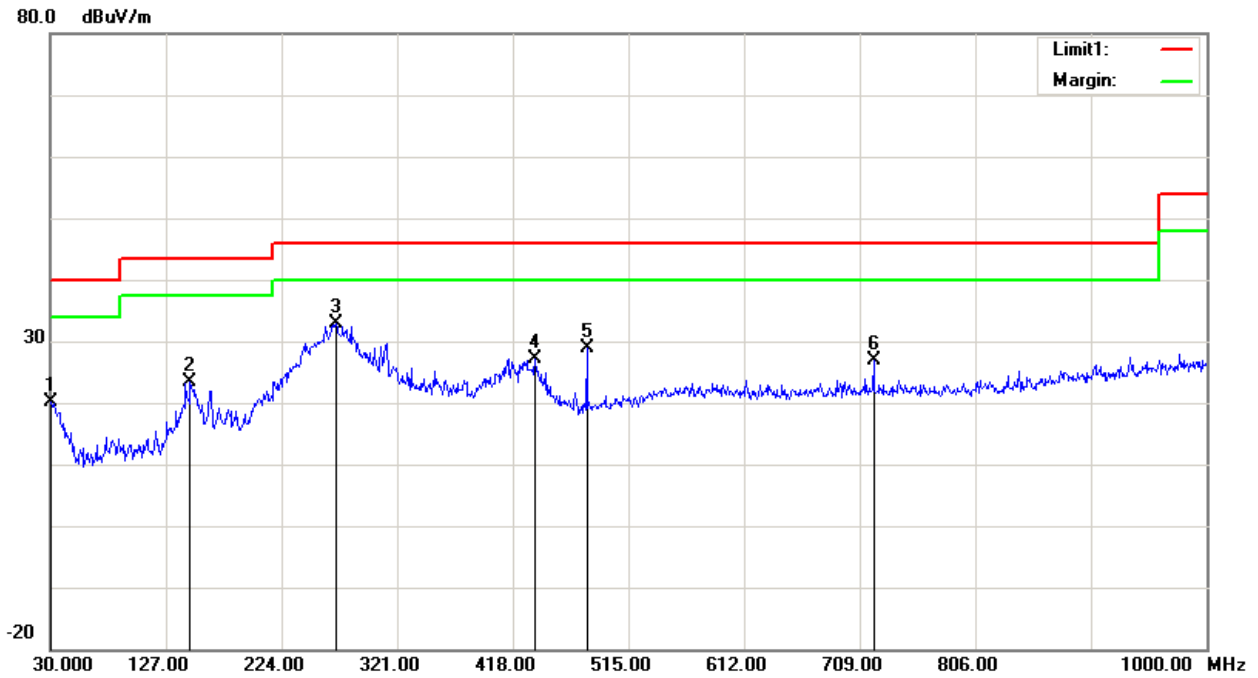
The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7 dB means the emission is 7 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Result}$$

Test Data

Please refer to following table and plots:

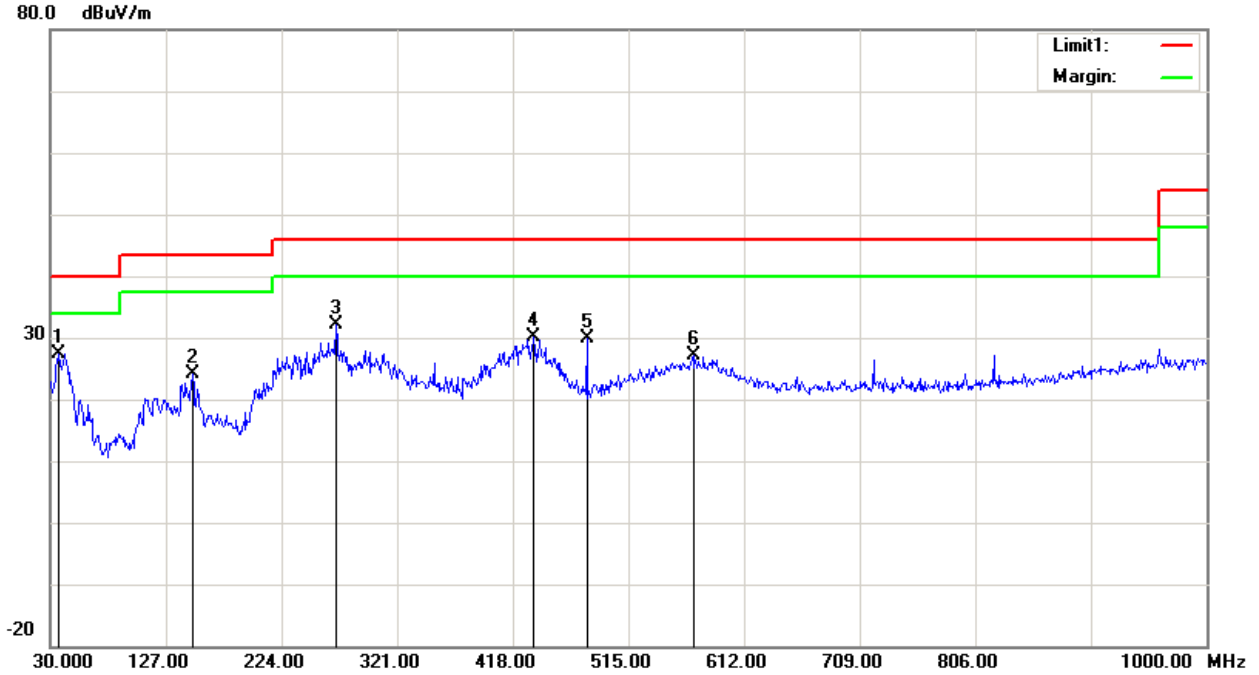
Condition:	FCC Part 15B Class B	Polarization:	Horizontal
EUT:	PTT Network Radio	Power:	AC 120V/60Hz
Model:	N56	Distance:	3m
Test Mode:	Charging		
Note:			



No.	Frequency (MHz)	Reading (dBµV)	Detector	Corrected (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)
1	30.9700	28.53	peak	-8.40	20.13	40.00	19.87
2	147.3700	36.06	peak	-12.78	23.28	43.50	20.22
3	269.5900	44.85	peak	-12.06	32.79	46.00	13.21
4	436.4300	34.92	peak	-7.70	27.22	46.00	18.78
5	480.0800	35.33	peak	-6.57	28.76	46.00	17.24
6	720.6400	28.55	peak	-1.64	26.91	46.00	19.09

Condition: FCC Part 15B Class B
EUT: PTT Network Radio
Model: N56
Test Mode: Charging
Note:

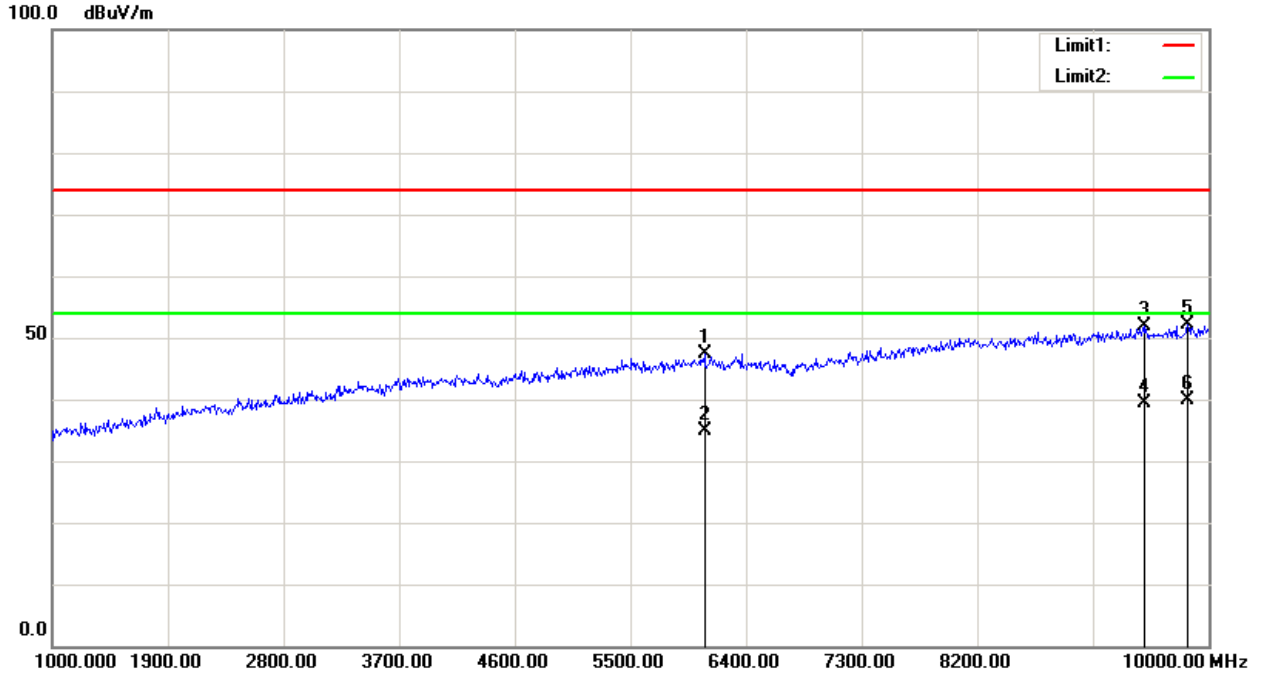
Polarization: Vertical
Power: AC 120V/60Hz
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	36.7900	38.56	peak	-11.29	27.27	40.00	12.73
2	149.3100	36.97	peak	-12.80	24.17	43.50	19.33
3	269.5900	44.29	peak	-12.06	32.23	46.00	13.77
4	435.4600	37.95	peak	-7.71	30.24	46.00	15.76
5	480.0800	36.55	peak	-6.57	29.98	46.00	16.02
6	569.3200	30.76	peak	-3.72	27.04	46.00	18.96

Condition: FCC Part 15B Class B
EUT: PTT Network Radio
Model: N56
Test Mode: Charging
Note:

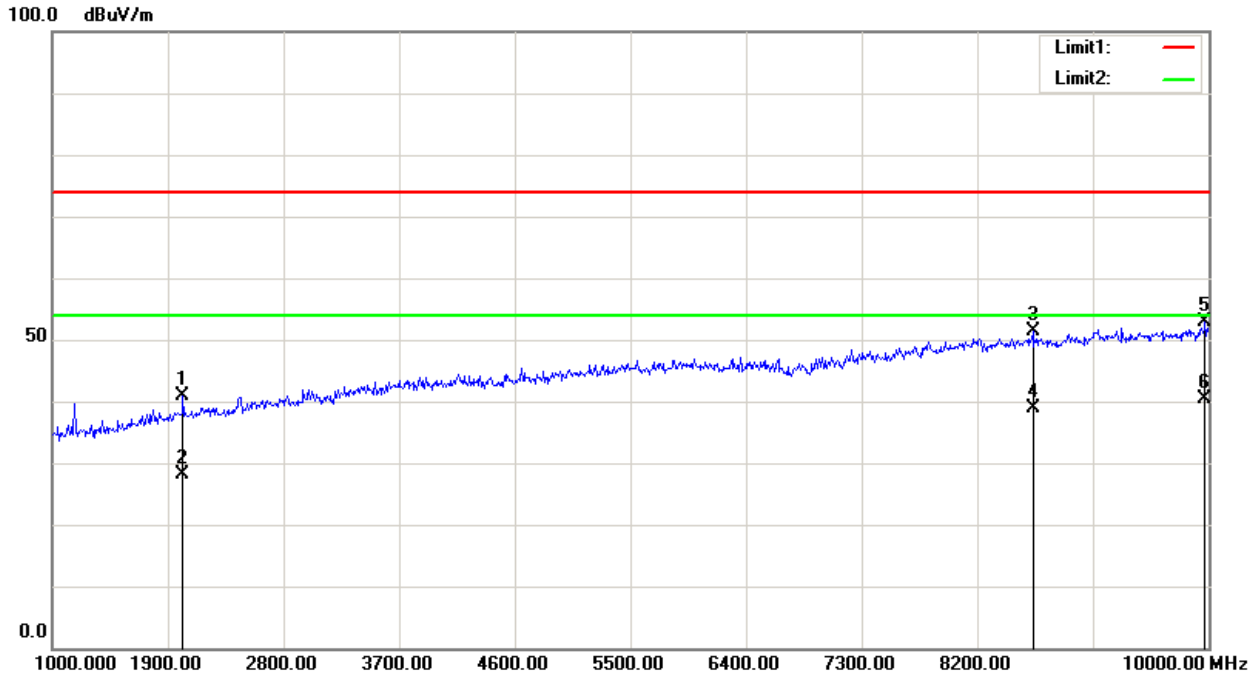
Polarization: Horizontal
Power: AC 120V/60Hz
Distance: 3m



No.	Frequency (MHz)	Reading (dBμV)	Detector	Corrected (dB/m)	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)
1	6076.000	46.32	peak	0.96	47.28	74.00	26.72
2	6076.000	33.87	AVG	0.96	34.83	54.00	19.17
3	9496.000	44.87	peak	7.03	51.90	74.00	22.10
4	9496.000	32.34	AVG	7.03	39.37	54.00	14.63
5	9842.500	44.92	peak	7.29	52.21	74.00	21.79
6	9842.500	32.55	AVG	7.29	39.84	54.00	14.16

Condition: FCC Part 15B Class B
EUT: PTT Network Radio
Model: N56
Test Mode: Charging
Note:

Polarization: Vertical
Power: AC 120V/60Hz
Distance: 3m



No.	Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1	2017.000	47.93	peak	-7.15	40.78	74.00	33.22
2	2017.000	35.33	AVG	-7.15	28.18	54.00	25.82
3	8636.500	45.63	peak	5.67	51.30	74.00	22.70
4	8636.500	33.17	AVG	5.67	38.84	54.00	15.16
5	9973.000	45.59	peak	7.38	52.97	74.00	21.03
6	9973.000	33.12	AVG	7.38	40.50	54.00	13.50

EXHIBIT A – EUT PHOTOGRAPHS





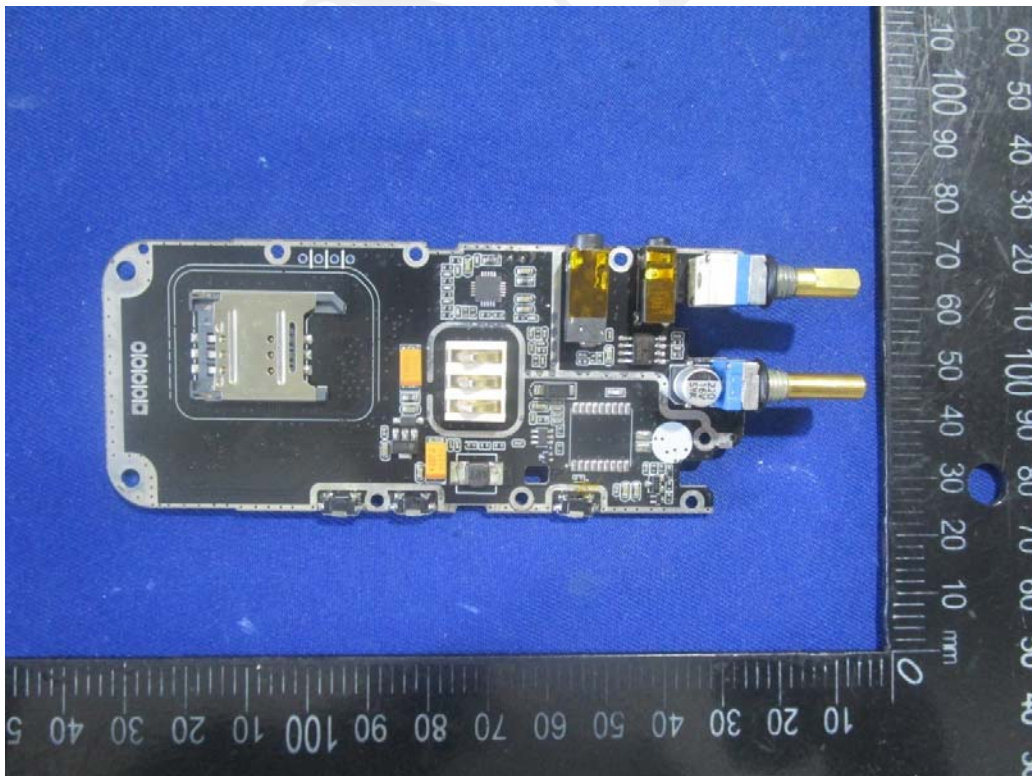
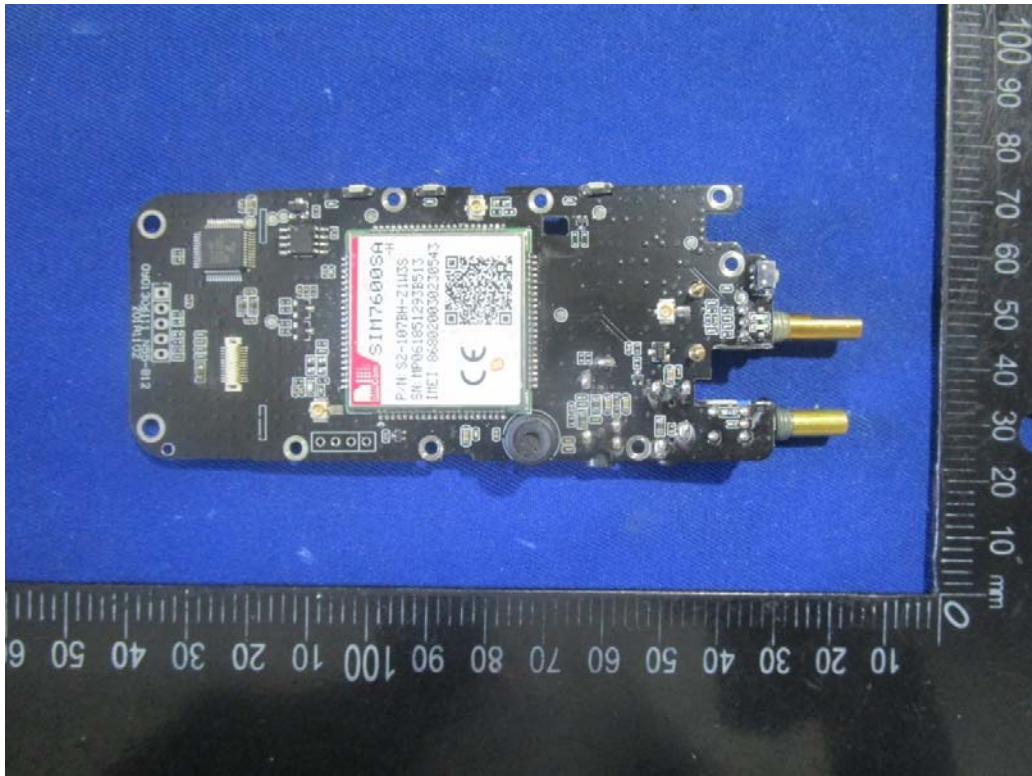


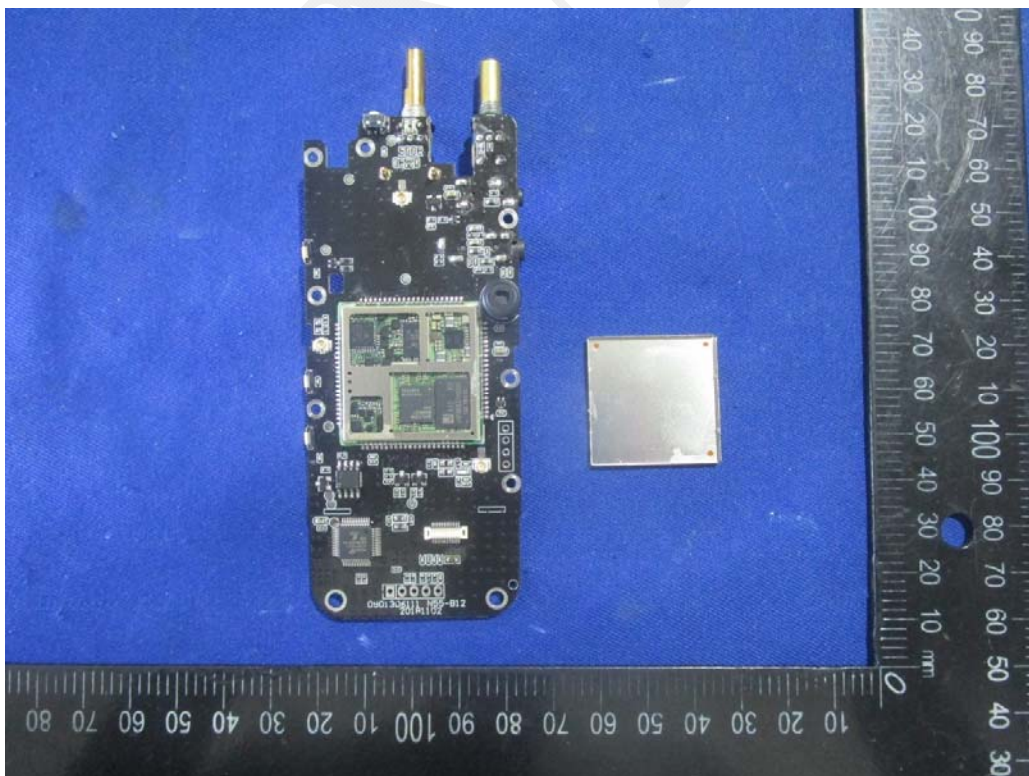


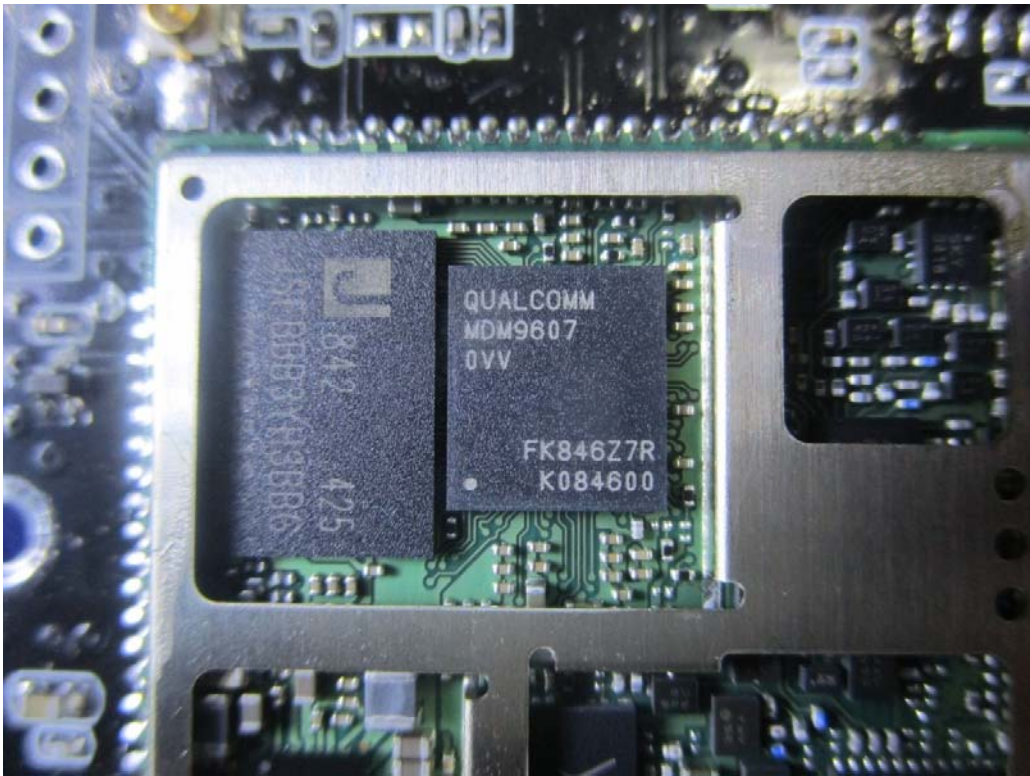






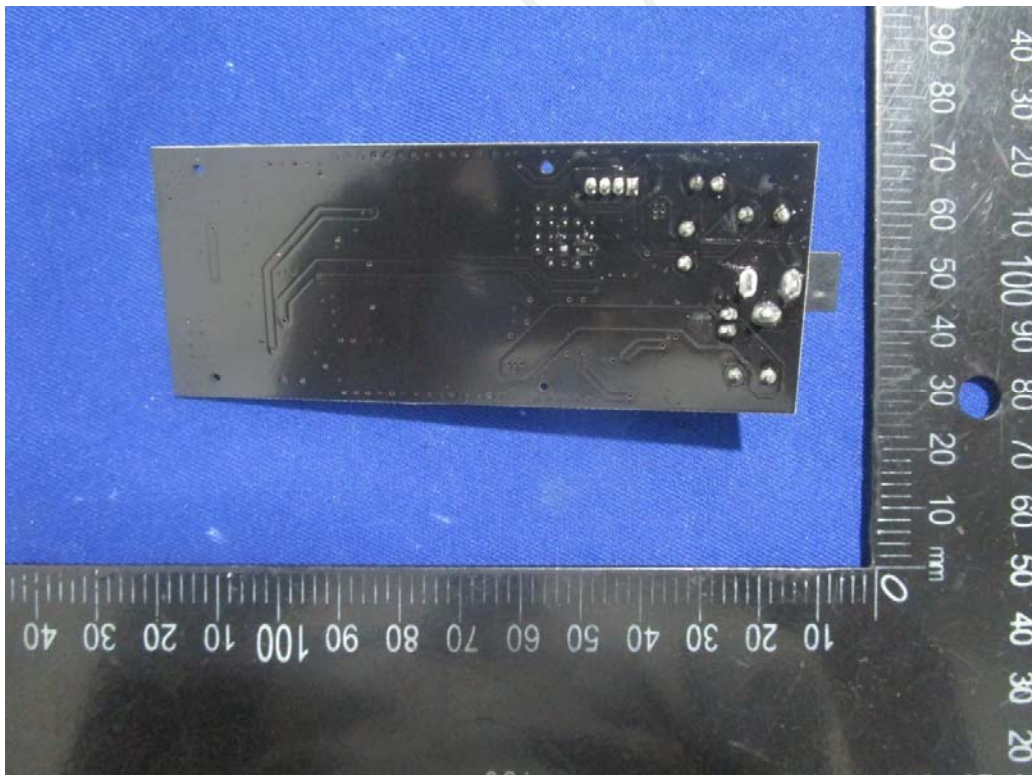
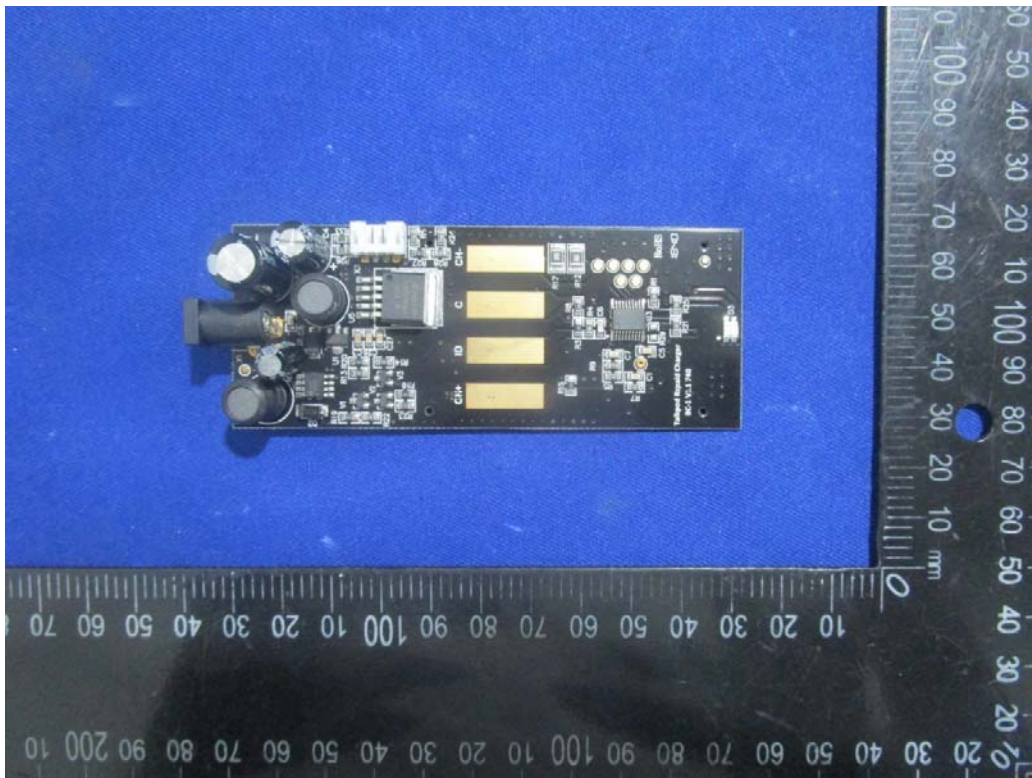


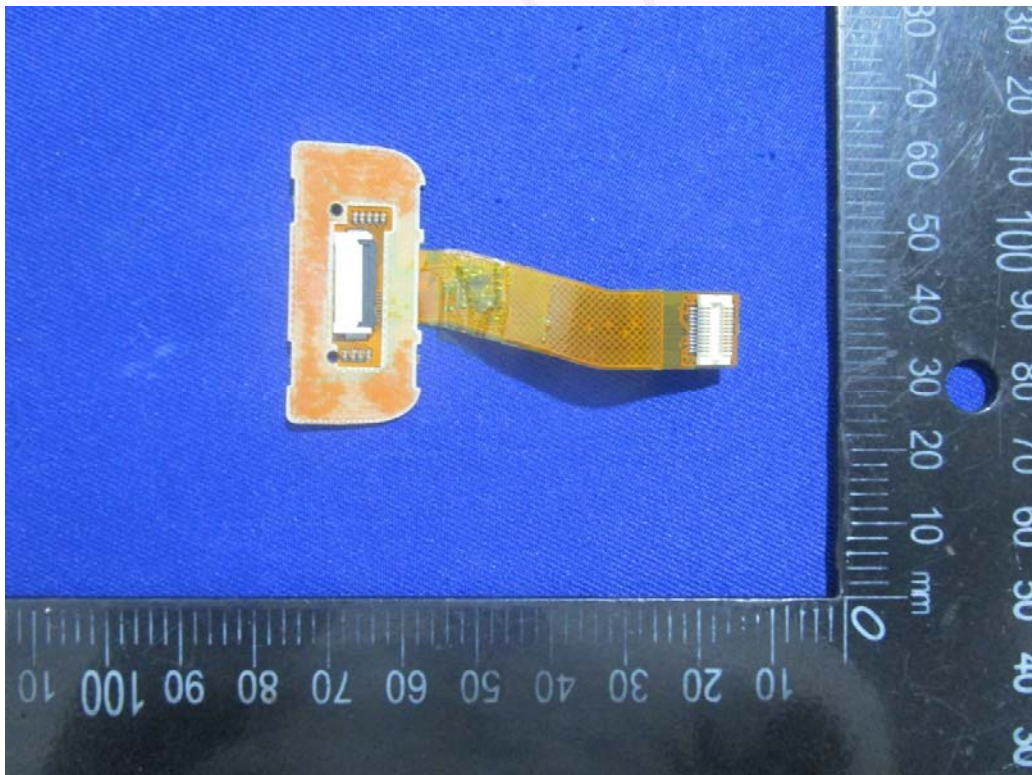


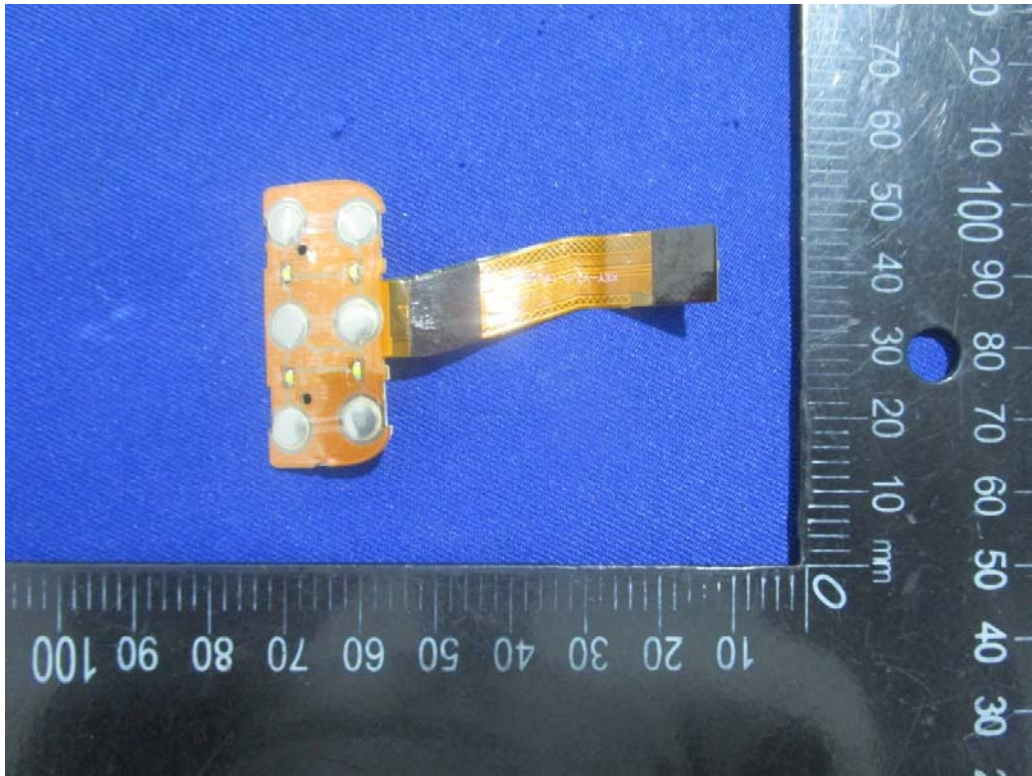












FUN

EXHIBIT B – TEST SETUP PHOTOGRAPHS

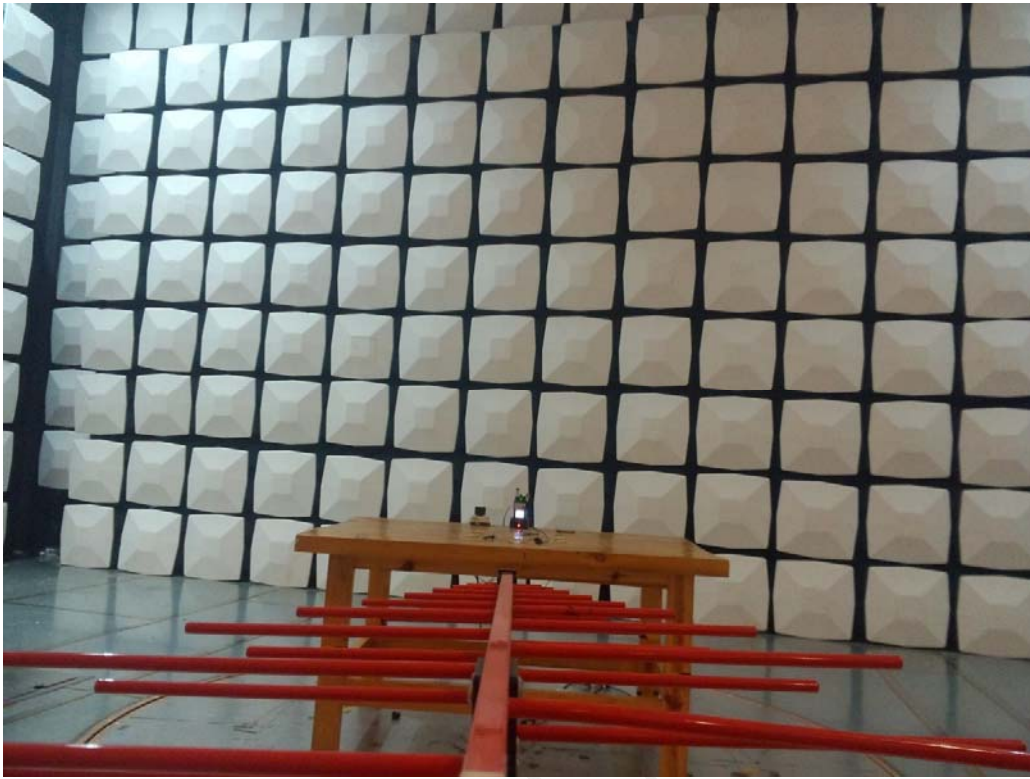
CE Front View



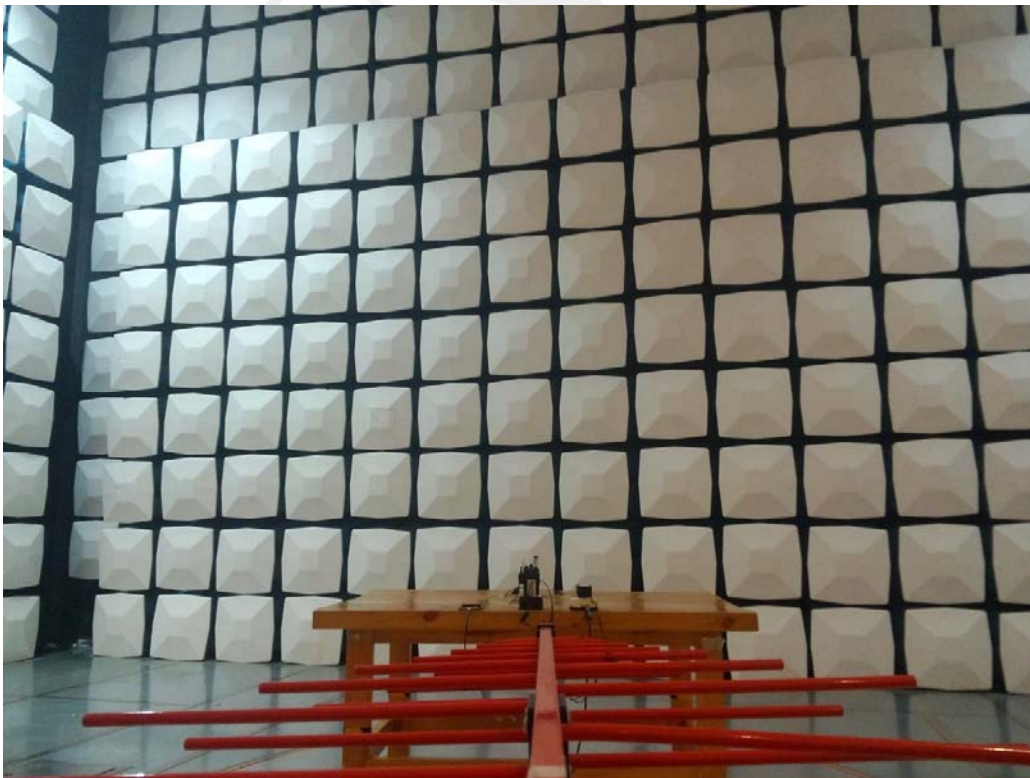
CE Side View



RE Below 1G Front View



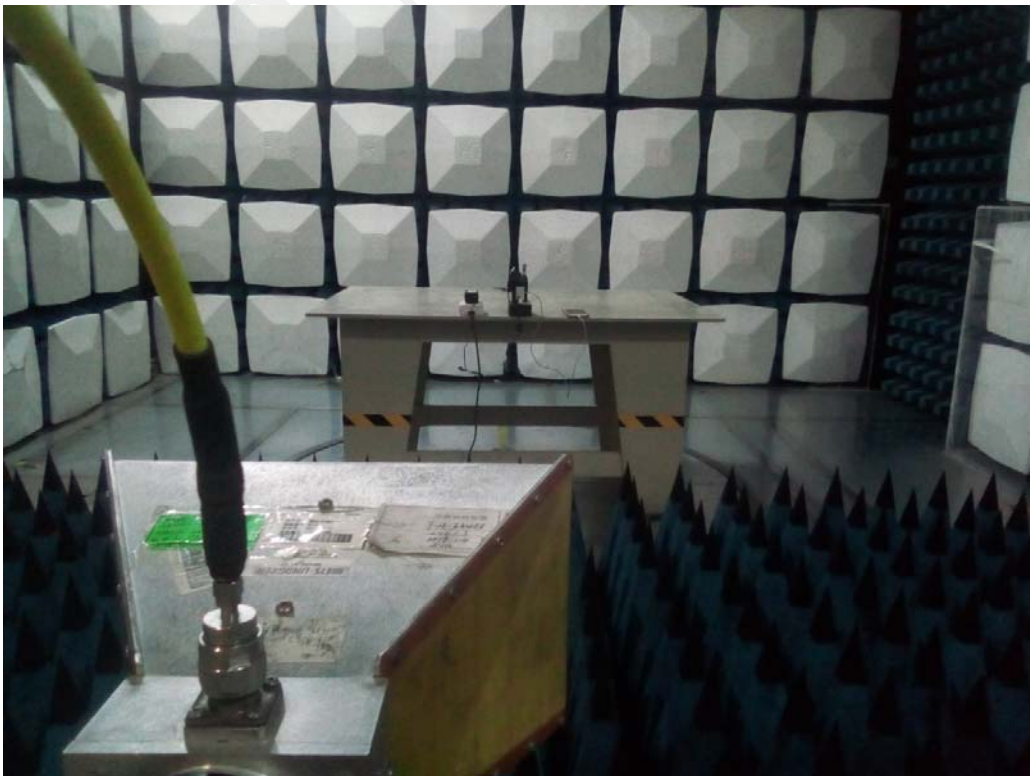
RE Below 1G Rear View



RE Above 1G Front View



RE Above 1G Rear View



DECLARATION LETTER



Quanshun Communication Technology Co.,Ltd
ADD: Quanshun Bldg., Daxiamei, Nan'an, Quanzhou, Fujian, China
TEL: (86 595) 86753355
FAX: (86 595) 86758299
Mail Address: roger@qstx.com

Declaration of Similarity

To:
FEDERAL COMMUNICATIONS COMMISSION
Authorization and Evaluation Division
7435 Oakland Mills Road
Columbia, MD 21046

Dear Sir/Madam,

We, Quanshun Communication Technology Co.,Ltd, hereby declare that we have a product named as PTT Network Radio (model: N56, FCC ID: 2ADQZTP4GNX) was tested by BACL, Meanwhile, for our marketing purpose, we would like to list a series model (N2X, N3X, N4X, N5X, N50, N55, N56, N57, N58, N59) on reports and certificate, all the models are electrically identical, only named differently. No other changes are made to them. We confirm that all information above is true, and we'll be responsible for all the consequences. Please contact me if you have any question.

Sincerely Yours,

Client's signature

A handwritten signature in black ink, appearing to read "Roger Chen".

Typed or Printed Name: Roger Chen
Title: Manager

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