MEASUREMENT REPORT

FCC Part 15B

FCC ID:	2ACVFK-10B
Applicant:	Shenzhen ChangTaiWei Electronic CO., LTD
Application Type:	Certification
Product:	Walkie Talkie
Model No.:	K-10
FCC Rule Part(s):	FCC Part 15 Subpart B: 2020, Class B
Test Procedure(s):	ANSI C63.4: 2014
Result:	Complies
Test Date:	November 16 ~ 17, 2020

Reviewed By: Sunny Sun
(Sunny Sun)

Approved By: Robin Wu
(Robin Wu)

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.01

The test results relate only to the samples tested.
This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in ANSI C63.4-2014. Test results reported herein relate only to the item(s) tested.
The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
2011RSU065-U3	Rev. 01	Initial Report	11-27-2020	Valid

Note: This report is based on MRT original report (Report no.: 2011ESZ036-U1) to copy report for Certification.

CONTENTS

1. GENERAL INFORMATION

1.1. Applicant

Shenzhen ChangTaiWei Electronic CO., LTD

5/F.,6 Block, XinGu Industrial Zone, GuShu Village, XiXiang Town, BaoAn District, Shenzhen City, China

1.2. Manufacturer

Shenzhen ChangTaiWei Electronic CO., LTD

5/F.,6 Block, XinGu Industrial Zone, GuShu Village, XiXiang Town, BaoAn District, Shenzhen City, China

1.3. Testing Facility

☐	**Test Site – MRT Suzhou Laboratory**	
	Laboratory Location (Suzhou - Wuzhong)	
	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China	
	Laboratory Location (Suzhou - SIP)	
	4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China	
	Laboratory Accreditations	
	A2LA: 3628.01	CNAS: L10551
	FCC: CN1166	ISED: CN0001
	VCCI: R-20025, G-20034, C-20020, T-20020	
☒	**Test Site – MRT Shenzhen Laboratory**	
	Laboratory Location (Shenzhen)	
	1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China	
	Laboratory Accreditations	
	A2LA: 3628.02	CNAS: L10551
	FCC: CN1284	ISED: CN0105
☐	**Test Site – MRT Taiwan Laboratory**	
	Laboratory Location (Taiwan)	
	No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)	
	Laboratory Accreditations	
	TAF: L3261-190725	
	FCC: 291082, TW3261	ISED: TW3261

2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	Walkie Talkie
Model No.:	K-10
Frequency Range:	462.5625 ~ 462.7125MHz (1~7 channel) 467.5625 ~ 467.7125MHz (8~14 channel) 462.5500 ~ 462.7250MHz (15~22 channel)
Working Voltage:	3.6V ~ 4.5V
Type of Modulation:	FM
Antenna Type:	Spring antenna / Internal
Accessory	
Adapter:	Model No.: W&T-AD1806C050100UU Input: 100-240V ~ 50/60Hz 0.3A Output: 5V⎓2A
Dual Charger Pod:	Model No.: K-10 Input: 5V⎓1A
Li-Po Battery:	Model No.: 103450 Capacity: 1800mAh/ 6.66Wh Rated Voltage: DC 3.7V

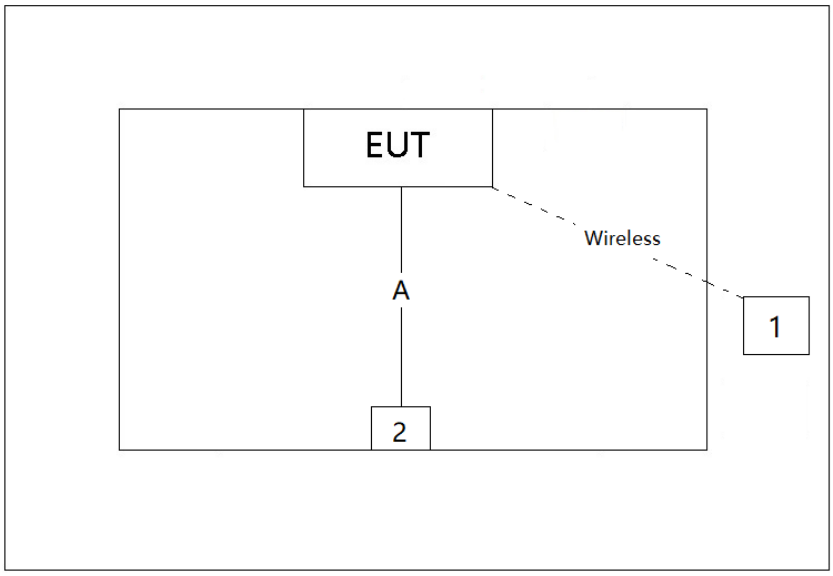
2.2. Test Mode

Test Mode
Mode 1: Receiver Mode. Mode 2: Charging Mode.

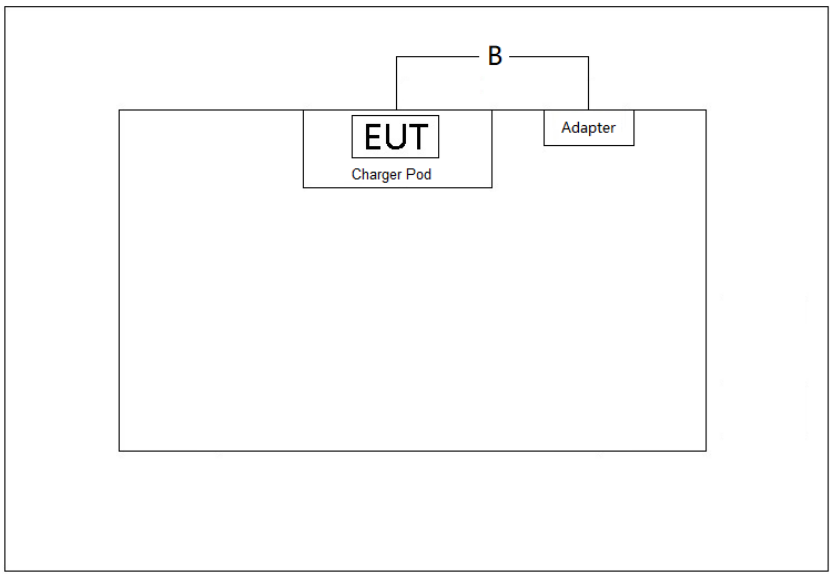
2.3. Configuration of Tested System

ANSI C63.4:2014 was used to reference the appropriate EUT setup for radiated emissions testing and AC line conducted testing.

Connection Diagram (Mode 1)



Connection Diagram (Mode 2)



Cable Type		Cable Description
A	Audio Cable	Non-Shielding, < 1.0m
B	USB Cable	Non-Shielding, < 1.5m

2.4. Test System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

Product		Manufacturer	Model No.
1	Headset	Shenzhen ChangTaiWei Electronic CO., LTD	N/A
2	Walkie Talkie	Shenzhen ChangTaiWei Electronic CO., LTD	K-10

2.5. Test Procedure

1	Setup the EUT and simulators as shown on above.
2	Mode 1: Make the EUT working on receiver mode. Mode 2: Make the EUT charging by charger pod.
3	Begin to test.

2.6. EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and/or no modifications were made during testing.

3. TEST EQUIPMENT CALIBRATION DATE

Conducted Emission - NS-SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESL3	MRTSUE06575	1 year	2021/07/09
Two-Line V-Network	R&S	ENV216	MRTSUE06578	1 year	2021/07/09
Two-Line V-Network	R&S	ENV216	MRTSUE06577	1 year	2021/07/09
8-WIRE ISN	R&S	ENY81	MRTSUE06579	1 year	2021/07/09
8-WIRE ISN for CAT6	R&S	ENY81-CA6	MRTSUE06580	1 year	2021/06/23
Temperature/Humidity Meter	DELI	NO.8813	MRTSUE06587	1 year	2021/07/08
Shielding Anechoic Chamber	BOOMWAVE	SR2	MRTSUE06551	5 year	2024/06/04

Radiated Emission - NS- AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cal. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06575	1 year	2021/07/09
EXA Signal Analyzer	Keysight	N9010A	MRTSUE06195	1 year	2021/04/14
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06573	1 year	2021/07/03
Broad-Band Horn Antenna	Schwarzbeck	9120D	MRTSUE06572	1 year	2021/07/03
Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06292	1 year	2020/11/19
Broadband Coaxial Preamplifie	Schwarzbeck	BBV 9718	MRTSUE06574	1 year	2021/07/13
Preamplifier	Schwarzbeck	EMC184045SE	MRTSUE06641	1 year	2021/01/16
Thermal Hygrometer	DELI	NO.8813	MRTSUE06588	1 year	2021/07/08
Anechoic Chamber	BOOMWAVE	AC1	MRTSUE06496	1 year	2021/07/25

Software	Version	Function
EMI Software	V3	EMI Test Software

4. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Conducted Emission Measurement
The maximum measurement uncertainty is evaluated as: 9kHz~150kHz: 3.74dB 150kHz~30MHz: 3.44dB
Radiated Emission Measurement
The maximum measurement uncertainty is evaluated as: Horizontal: 30MHz~300MHz: 5.04dB 300MHz~1GHz: 4.95dB 1GHz~6GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB

5. TEST RESULT

5.1. Summary

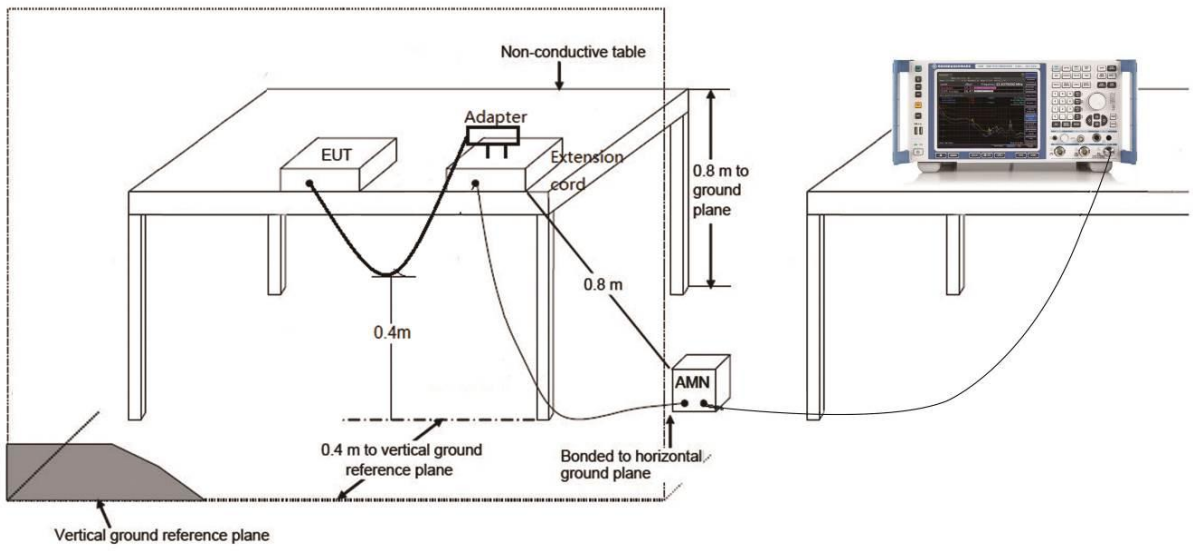
FCC Part Section(s)	Test Description	Test Result
15.107	Conducted Emissions	Pass
15.109	Radiated Emissions	Pass

5.2. Conducted Emission Measurement

5.2.1.Test Limit

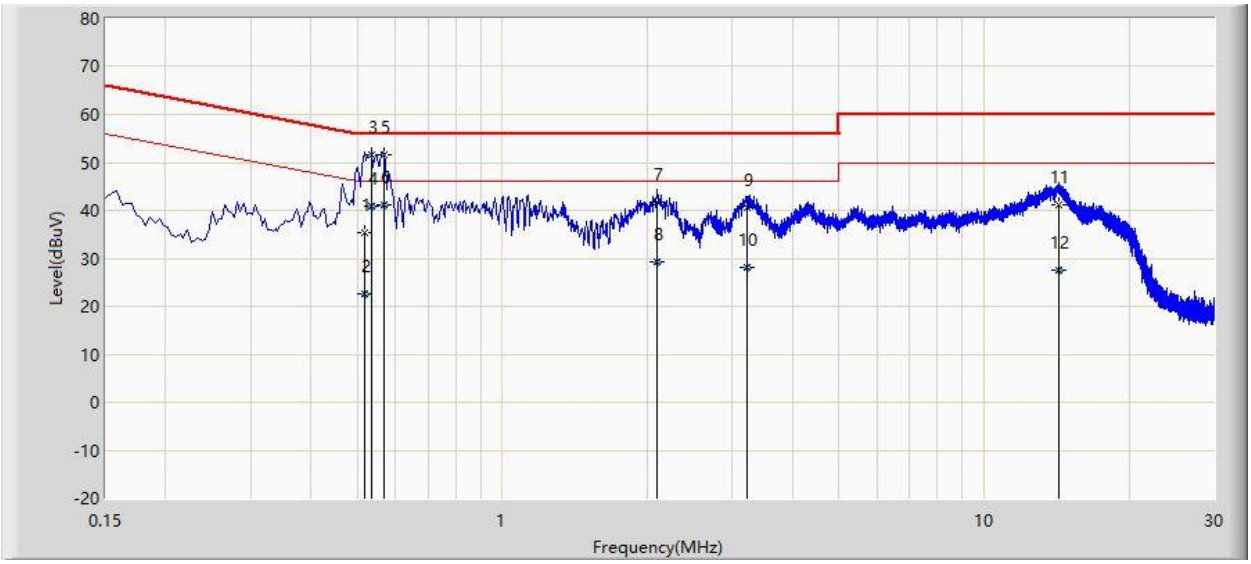
FCC Part 15.107 Limit		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 ~ 0.50	66 ~ 56	56 ~ 46
0.50 ~ 5.0	56	46
5.0 ~ 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

5.2.2.Test Setup



5.2.3.Test Result

Site: NS-SR2	Time: 2020/11/16 - 16:35
Limit: FCC_Part15.107_CE_AC Power_Class B	Engineer: Louie Liu
Probe: ENV216_102494_Filter On	Polarity: Line
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	

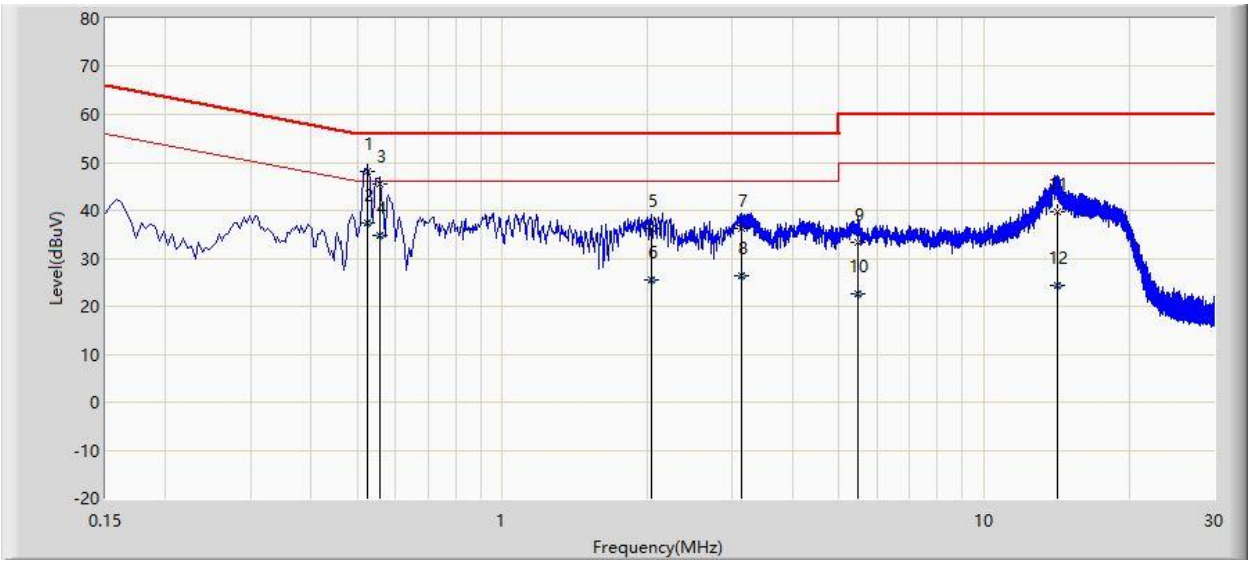


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.518	35.462	25.487	-20.538	56.000	9.975	QP
2			0.518	22.479	12.504	-23.521	46.000	9.975	AV
3		*	0.534	51.732	41.766	-4.268	56.000	9.967	QP
4			0.534	40.813	30.847	-5.187	46.000	9.967	AV
5			0.566	51.564	41.611	-4.436	56.000	9.953	QP
6			0.566	41.292	31.339	-4.708	46.000	9.953	AV
7			2.098	41.731	32.032	-14.269	56.000	9.699	QP
8			2.098	29.203	19.505	-16.797	46.000	9.699	AV
9			3.230	40.540	30.843	-15.460	56.000	9.697	QP
10			3.230	28.095	18.398	-17.905	46.000	9.697	AV
11			14.286	41.187	31.303	-18.813	60.000	9.884	QP
12			14.286	27.584	17.700	-22.416	50.000	9.884	AV

Test Mode: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

Site: NS-SR2	Time: 2020/11/16 - 16:45
Limit: FCC_Part15.107_CE_AC Power_Class B	Engineer: Louie Liu
Probe: ENV216_102494_Filter On	Polarity: Neutral
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.526	48.047	38.076	-7.953	56.000	9.971	QP
2			0.526	37.380	27.409	-8.620	46.000	9.971	AV
3			0.558	45.368	35.412	-10.632	56.000	9.956	QP
4			0.558	34.845	24.889	-11.155	46.000	9.956	AV
5			2.038	36.272	26.585	-19.728	56.000	9.687	QP
6			2.038	25.514	15.826	-20.486	46.000	9.687	AV
7			3.126	36.240	26.554	-19.760	56.000	9.687	QP
8			3.126	26.320	16.633	-19.680	46.000	9.687	AV
9			5.486	33.346	23.618	-26.654	60.000	9.729	QP
10			5.486	22.547	12.818	-27.453	50.000	9.729	AV
11			14.210	39.608	29.688	-20.392	60.000	9.919	QP
12			14.210	24.306	14.387	-25.694	50.000	9.919	AV

Test Mode: Measure Level (dBμV) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + LISN Factor (dB).

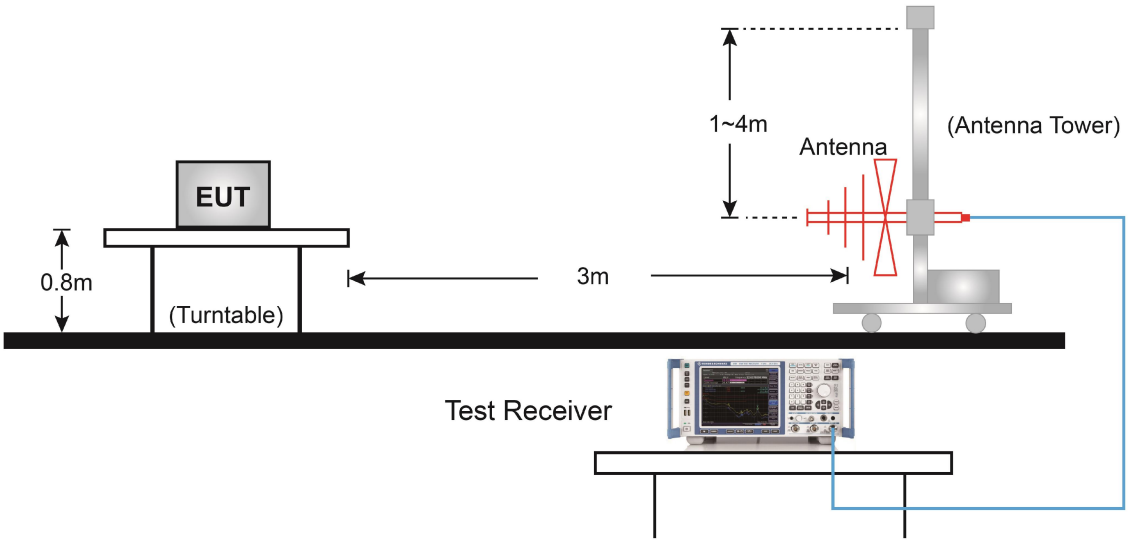
5.3. Radiated Emission Measurement

5.3.1.Test Limit

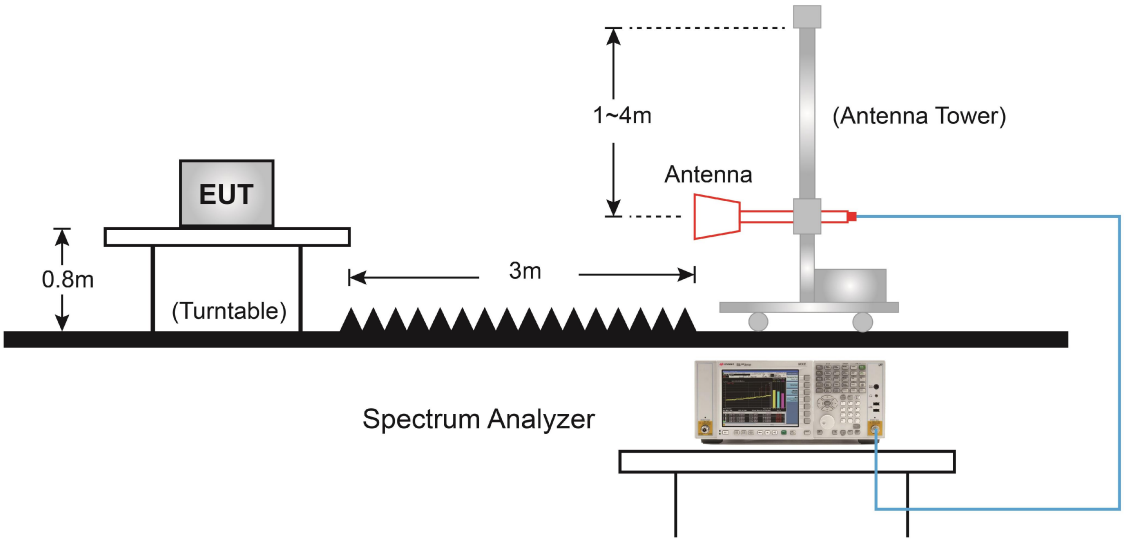
FCC Part 15.109 Limit		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system. Note 3: E field strength (dBμV/m) = 20 log E field strength (uV/m)		

5.3.2.Test Setup

Below 1GHz Test Setup:

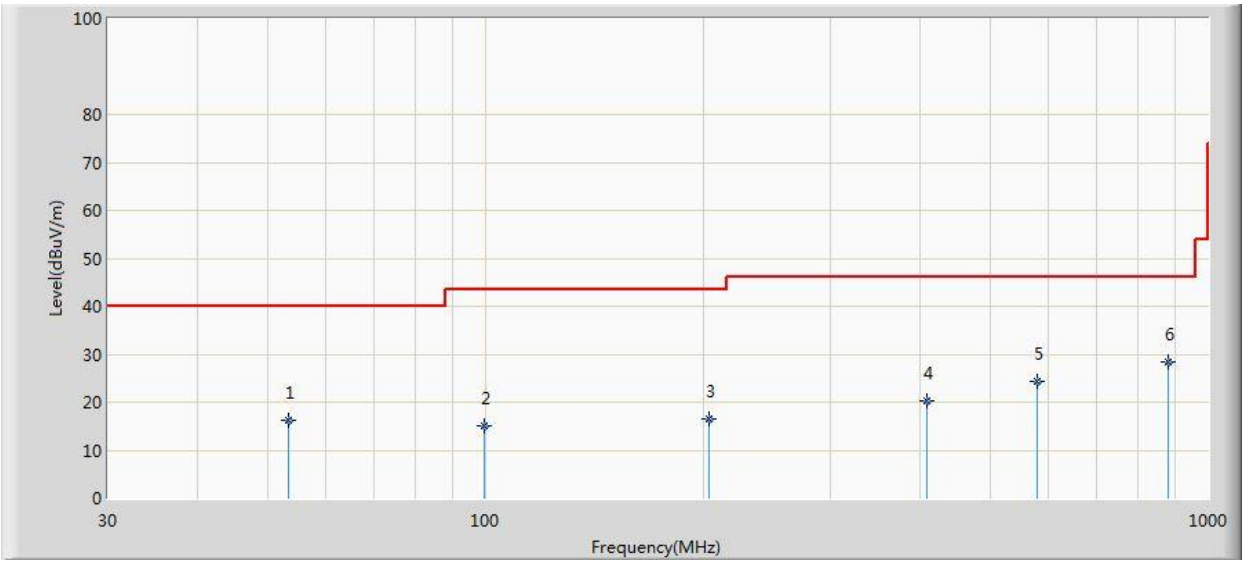


Above 1GHz Test Setup:



5.3.3.Test Result

Site: NS-AC1	Time: 2020/11/17
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Silence Liu
Probe: NS-AC1_VULB9162	Polarity: Horizontal
EUT: Walkie Talkie	Power: By Battery
Test Mode 1	

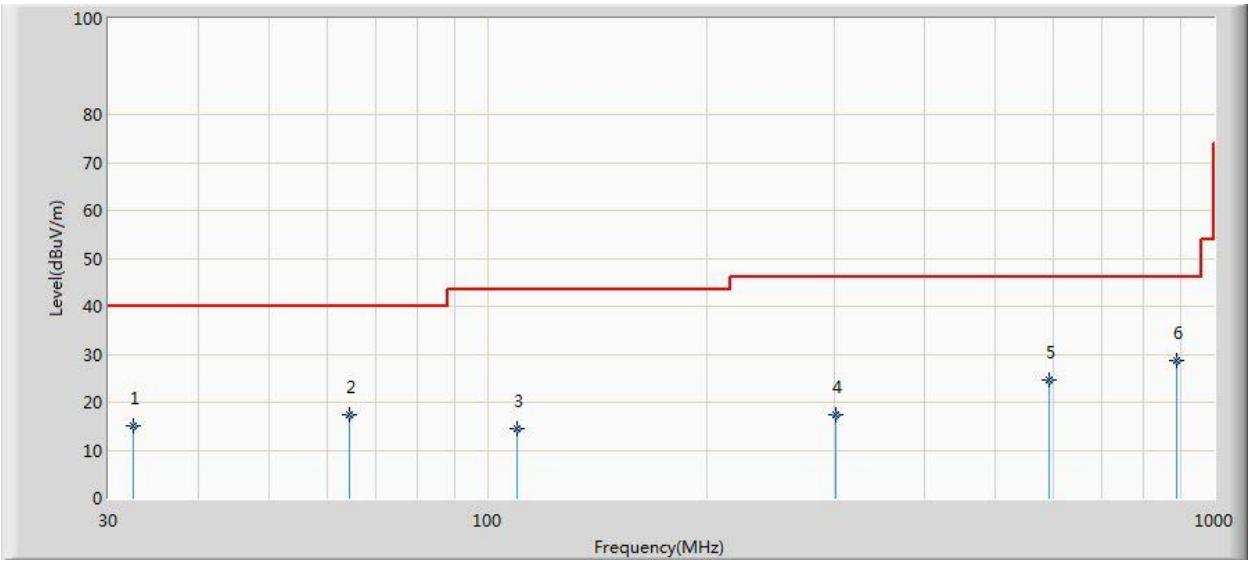


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			53.280	16.249	-3.399	-23.751	40.000	19.648	QP
2			99.355	15.021	-2.751	-28.479	43.500	17.772	QP
3			204.115	16.504	-1.013	-26.996	43.500	17.517	QP
4			407.815	20.391	-1.319	-25.609	46.000	21.710	QP
5			579.020	24.281	-0.107	-21.719	46.000	24.388	QP
6		*	879.720	28.268	-0.180	-17.732	46.000	28.448	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: NS-AC1	Time: 2020/11/17
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Silence Liu
Probe: NS-AC1_VULB9162	Polarity: Vertical
EUT: Walkie Talkie	Power: By Battery
Test Mode 1	

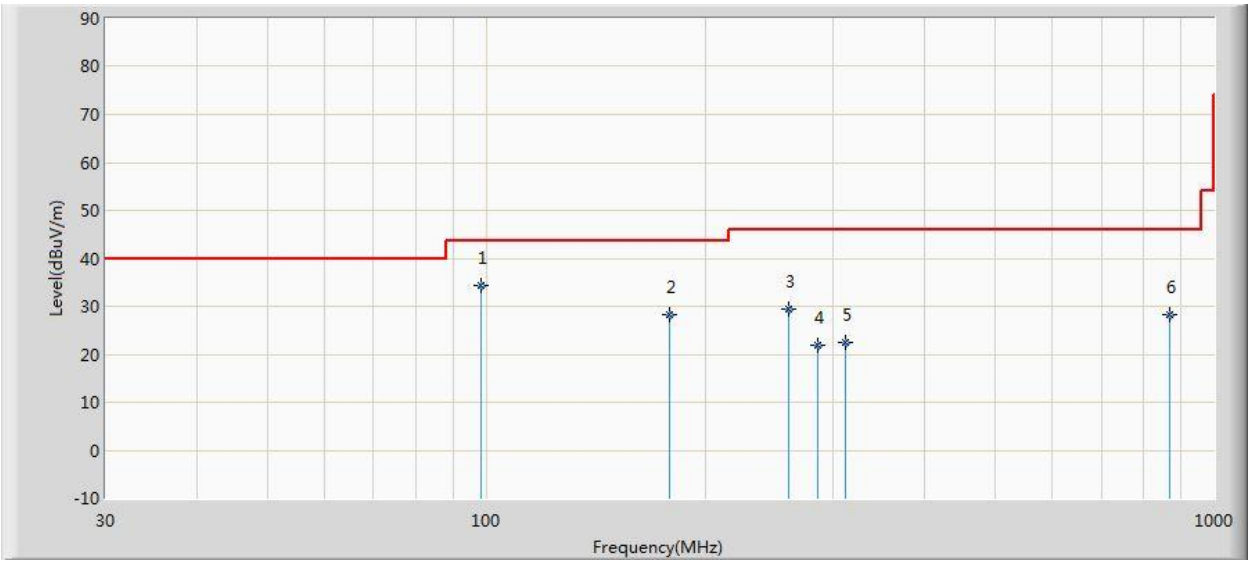


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			32.425	15.104	-1.075	-24.896	40.000	16.179	QP
2			64.435	17.257	-0.428	-22.743	40.000	17.685	QP
3			109.540	14.590	-3.468	-28.910	43.500	18.058	QP
4			301.115	17.398	-1.707	-28.602	46.000	19.105	QP
5			593.570	24.527	-0.174	-21.473	46.000	24.701	QP
6		*	887.965	28.577	0.065	-17.423	46.000	28.512	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: NS-AC1	Time: 2020/11/17
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Silence Liu
Probe: NS-AC1_VULB9162	Polarity: Horizontal
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	

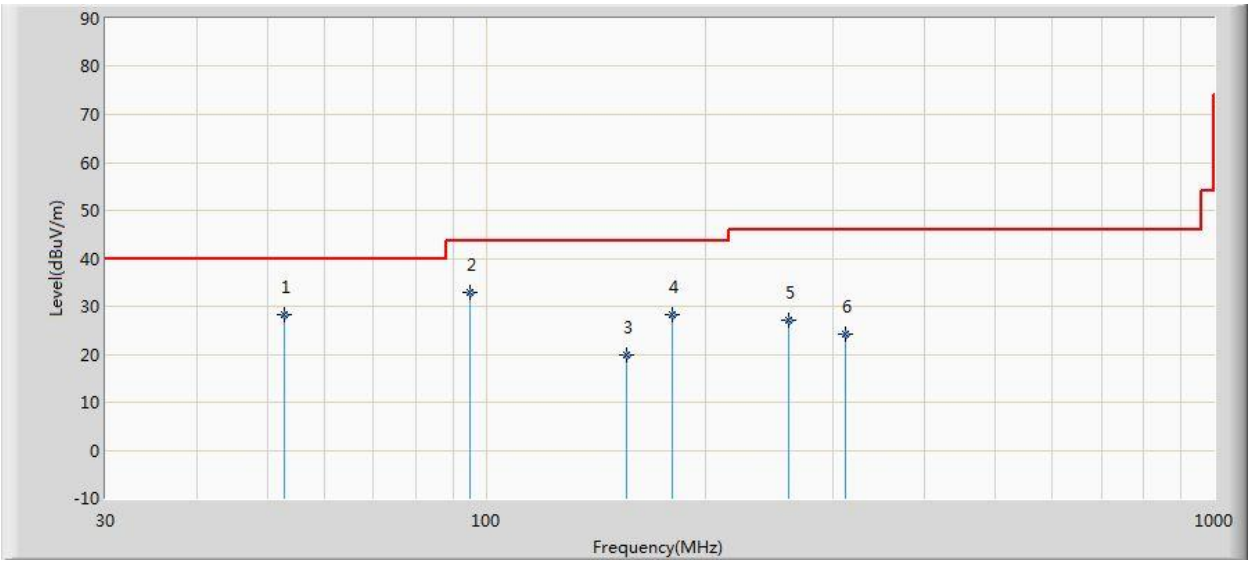


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	98.385	34.469	16.910	-9.031	43.500	17.559	QP
2			178.895	28.178	12.480	-15.322	43.500	15.698	QP
3			259.890	29.280	11.076	-16.720	46.000	18.204	QP
4			286.080	21.890	3.112	-24.110	46.000	18.778	QP
5			311.785	22.431	3.096	-23.569	46.000	19.335	QP
6			869.052	28.244	-0.133	-17.756	46.000	28.377	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: NS-AC1	Time: 2020/11/17
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Silence Liu
Probe: NS-AC1_VULB9162	Polarity: Vertical
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	

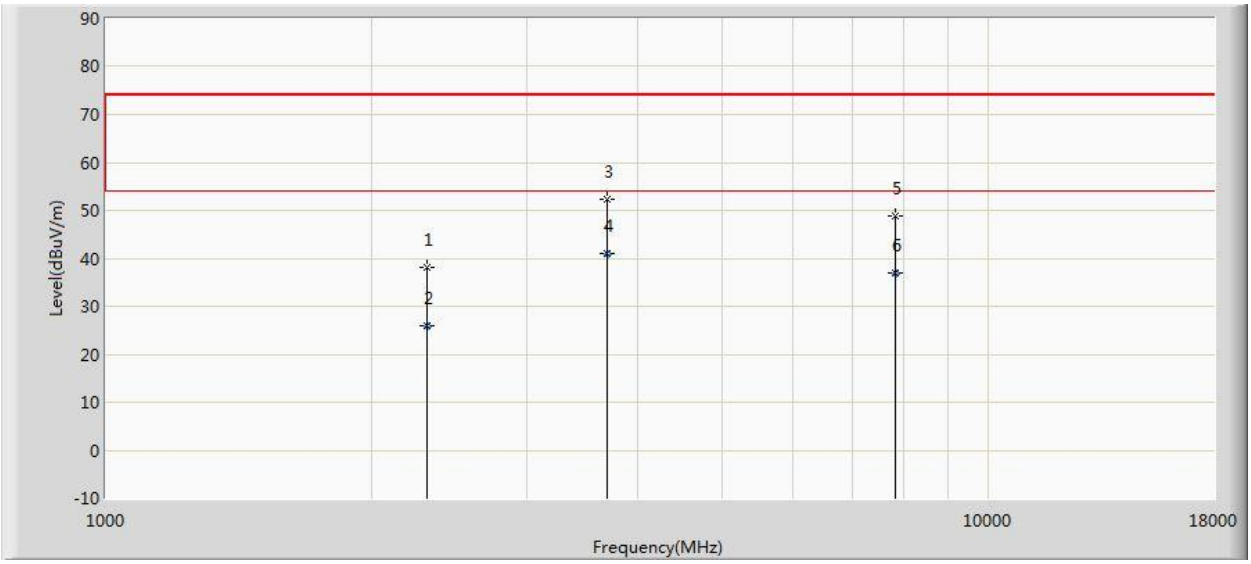


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			52.795	28.124	8.507	-11.876	40.000	19.617	QP
2		*	94.990	32.850	16.048	-10.650	43.500	16.802	QP
3			155.615	19.740	5.342	-23.760	43.500	14.399	QP
4			179.865	28.360	12.562	-15.140	43.500	15.798	QP
5			259.890	27.135	8.931	-18.865	46.000	18.204	QP
6			311.785	24.210	4.875	-21.790	46.000	19.335	QP

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m)

Site: NS-AC1	Time: 2020/11/17
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Silence Liu
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Walkie Talkie	Power: By Battery
Test Mode 1	

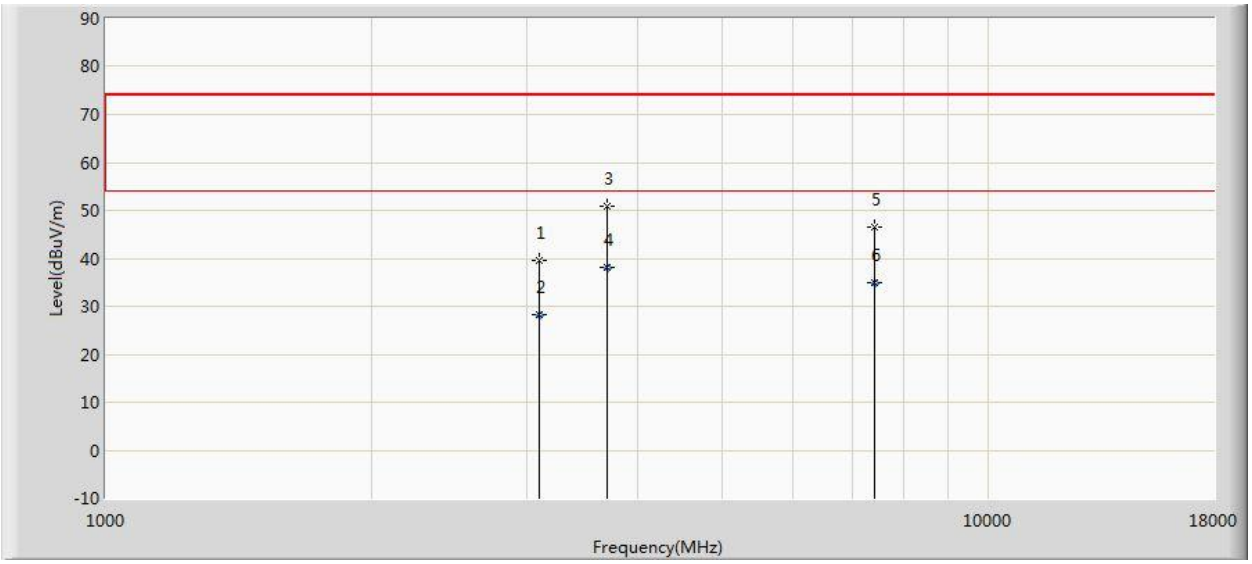


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2309.000	38.202	39.697	-35.798	74.000	-1.494	PK
2			2310.000	25.987	27.488	-28.013	54.000	-1.501	AV
3			3703.000	52.286	52.574	-21.714	74.000	-0.288	PK
4		*	3705.000	40.892	41.176	-13.108	54.000	-0.284	AV
5			7834.000	48.961	37.852	-25.039	74.000	11.109	PK
6			7836.000	36.961	25.894	-17.039	54.000	11.068	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre Amplifier Gain (dB)

Site: NS-AC1	Time: 2020/11/17
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Silence Liu
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Walkie Talkie	Power: By Battery
Test Mode 1	

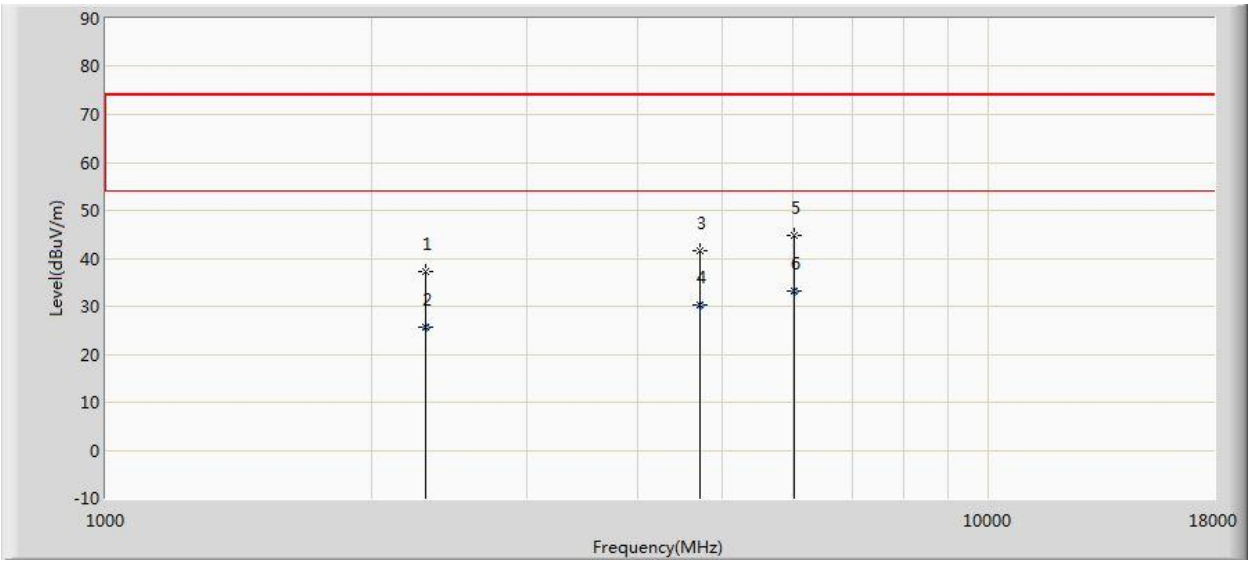


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			3099.500	39.573	41.547	-34.427	74.000	-1.975	PK
2			3101.000	28.191	30.164	-25.809	54.000	-1.972	AV
3			3703.000	50.825	51.113	-23.175	74.000	-0.288	PK
4		*	3705.000	38.258	38.542	-15.742	54.000	-0.284	AV
5			7417.500	46.600	35.779	-27.400	74.000	10.821	PK
6			7419.000	35.060	24.242	-18.940	54.000	10.819	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre Amplifier Gain (dB)

Site: NS-AC1	Time: 2020/11/17
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Silence Liu
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	

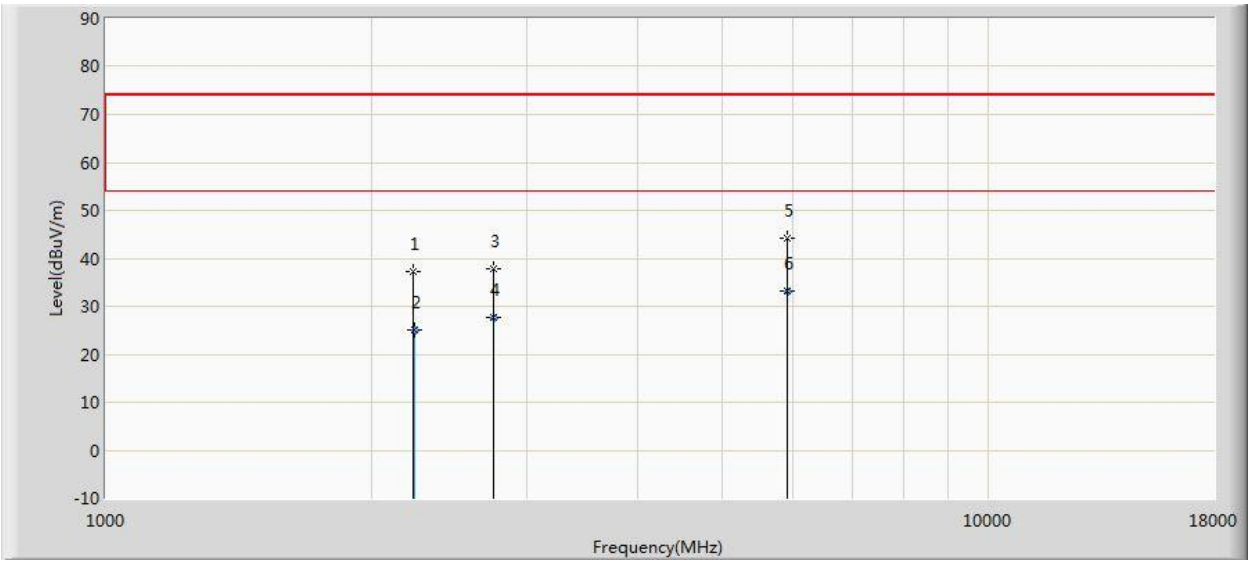


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2300.500	37.370	38.807	-36.630	74.000	-1.437	PK
2			2303.000	25.730	27.180	-28.270	54.000	-1.450	AV
3			4706.000	41.727	38.576	-32.273	74.000	3.151	PK
4			4708.000	30.277	27.152	-23.723	54.000	3.125	AV
5			6015.000	44.812	39.478	-29.188	74.000	5.334	PK
6		*	6018.000	33.128	27.803	-20.872	54.000	5.325	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre Amplifier Gain (dB)

Site: NS-AC1	Time: 2020/11/17
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Silence Liu
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			2232.500	37.102	38.632	-36.898	74.000	-1.530	PK
2			2235.000	25.210	26.735	-28.790	54.000	-1.524	AV
3			2751.000	37.756	39.649	-36.244	74.000	-1.893	PK
4			2753.000	27.567	29.465	-26.433	54.000	-1.898	AV
5			5921.500	44.238	39.148	-29.762	74.000	5.090	PK
6		*	5923.000	33.238	28.141	-20.762	54.000	5.096	AV

Note: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre Amplifier Gain (dB)

6. CONCLUSION

The data collected relate only the item(s) tested and show that this device has been tested to comply with the requirements specified in §15.107 / §15.109 of the FCC Rules.

.

The End

Appendix A - Test Setup Photograph

Refer to “2011RSU065-UT” file.

Appendix B - EUT Photograph

Refer to “2011RSU065-UE” file.