MEASUREMENT REPORT

FCC Part 15B

FCC ID:	2ACVFM-930B
Applicant:	Shenzhen ChangTaiWei Electronic CO., LTD
Application Type:	Certification
Product:	Walkie Talkie
Model No.:	M-930
FCC Rule Part(s):	FCC Part 15 Subpart B: 2021, Class B
Test Procedure(s):	ANSI C63.4: 2014
Result:	Complies
Test Date:	March 19 ~ 22, 2021

Reviewed By: Vincent Yu

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.02

Revision History

Report No.	Version	Description	Issue Date	Note
2102RSU073-U2	Rev. 01	Initial Report	03-23-2021	Valid

CONTENTS

Description Page

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.:	M-930
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-AD1806a050120UU Input: 100-240V ~ 50/60Hz 0.25A Output: 5V⎓1.2A

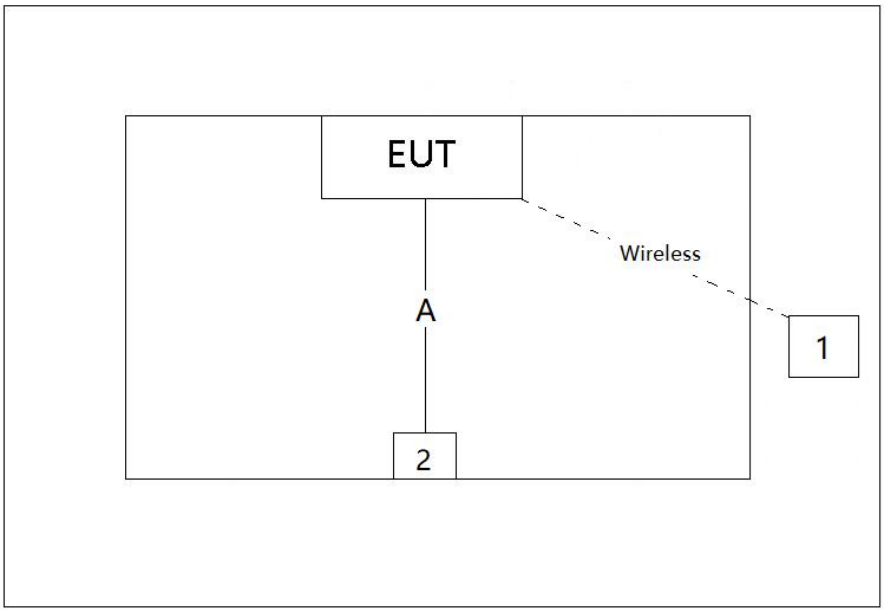
2.2. Test Mode

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

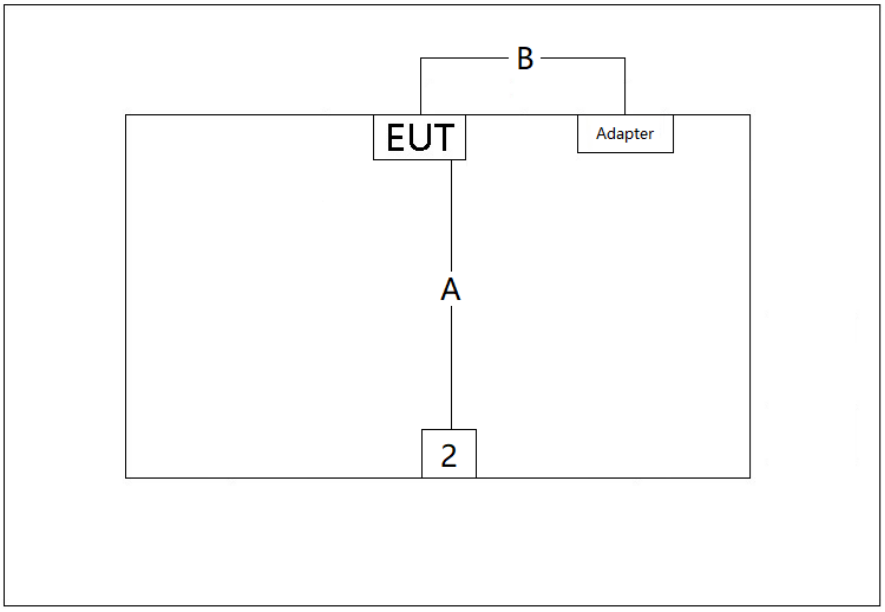
2.3. Configuration of Tested System

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

Product		Manufacturer	Model No.
1	Walkie Talkie	Shenzhen ChangTaiWei Electronic CO., LTD	M-930
2	Headset	Shenzhen ChangTaiWei Electronic CO., LTD	N/A

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 adapter.
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	2021/10/24
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06574	1 year	2021/07/13
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~40GHz: 6.40dB Vertical: 30MHz~300MHz: 5.24dB 300MHz~1GHz: 6.03dB 1GHz~40GHz: 6.40dB

5. TEST RESULT

5.1. Summary

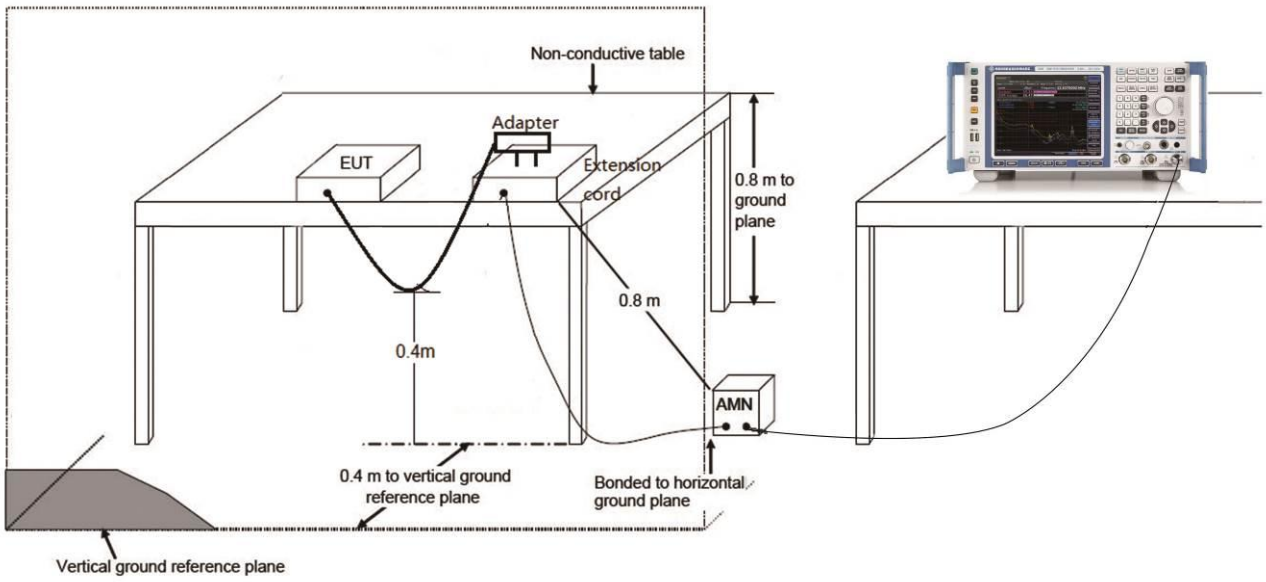
FCC Part Section(s)	Test Description	Test Result
15.107	Conducted Emissions	Pass
15.109	Radiated Emissions	Pass

5.2. Conducted Emission Measurement

5.2.1.Test Limit

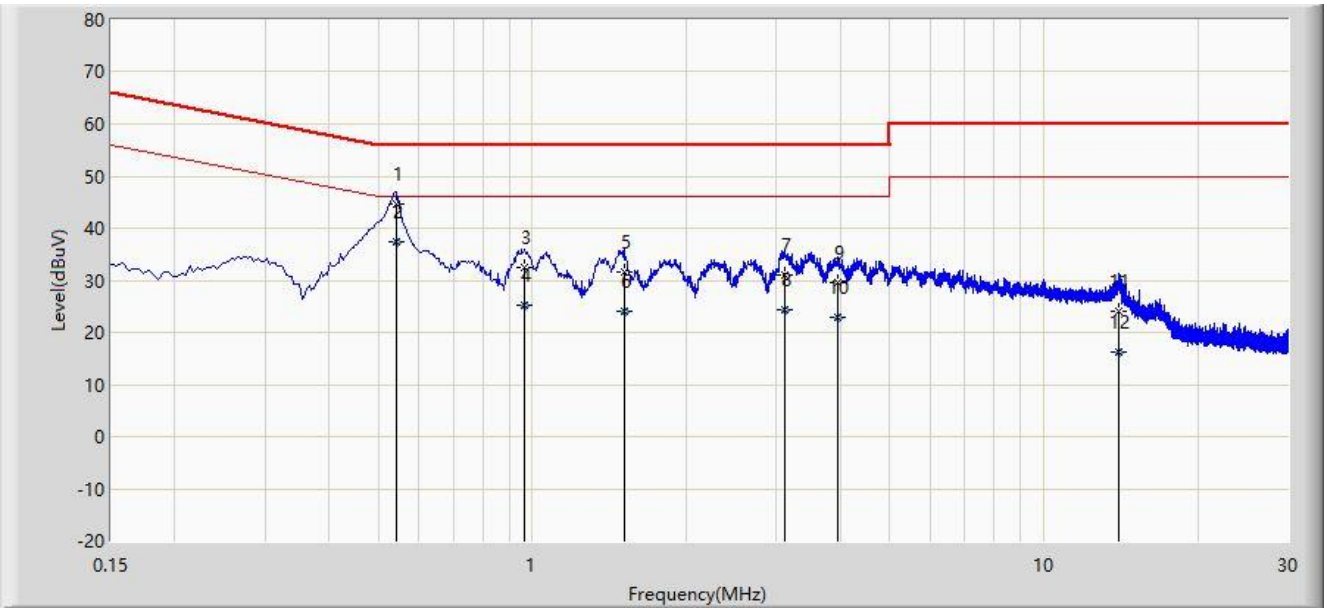
FCC Part 15.107 Limit		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 ~ 0.50	66 ~ 56	56 ~ 46
0.50 ~ 5.0	56	46
5.0 ~ 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

5.2.2.Test Setup



5.2.3.Test Result

Site: NS-SR2	Test Date: 2021/03/19 - 15:57
Limit: FCC_Part15.107_CE_AC Power_Class B	Engineer: Flag Yang
Probe: ENV216_102494_Filter On	Polarity: Line
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	

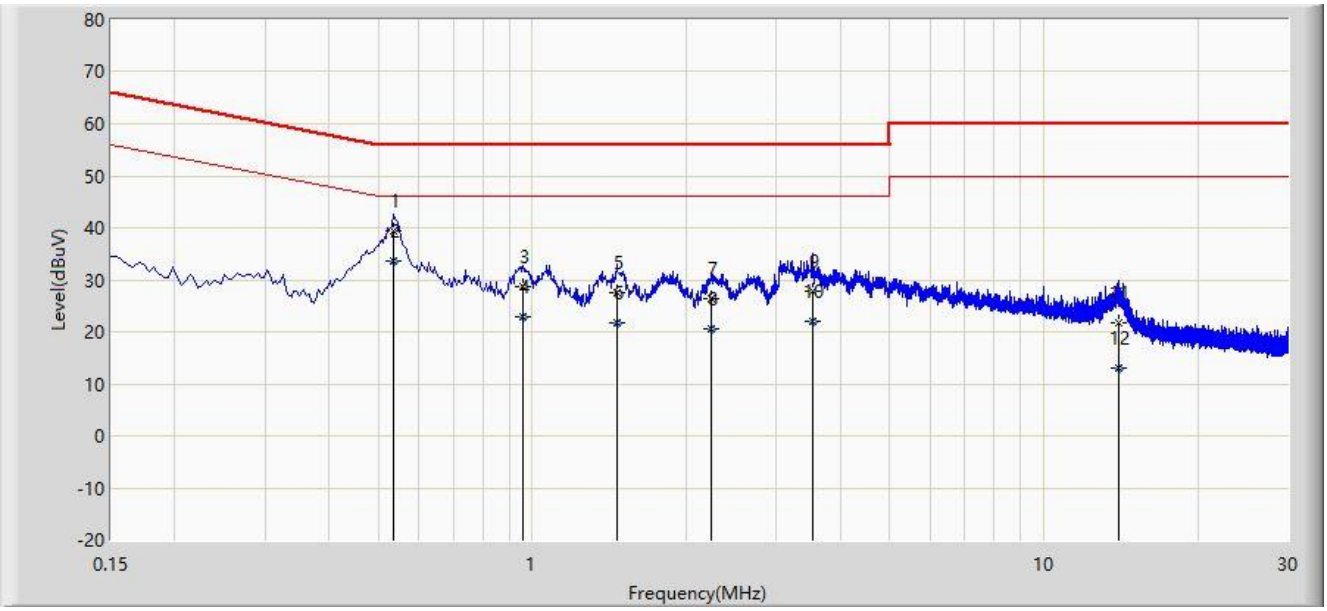


No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1			0.542	44.651	34.678	-11.349	56.000	9.972	QP
2		*	0.542	37.281	27.309	-8.719	46.000	9.972	AV
3			0.966	32.485	22.678	-23.515	56.000	9.807	QP
4			0.966	25.317	15.509	-20.683	46.000	9.807	AV
5			1.510	31.546	21.824	-24.454	56.000	9.722	QP
6			1.510	24.123	14.401	-21.877	46.000	9.722	AV
7			3.122	30.995	21.297	-25.005	56.000	9.699	QP
8			3.122	24.486	14.788	-21.514	46.000	9.699	AV
9			3.954	29.477	19.762	-26.523	56.000	9.715	QP
10			3.954	22.922	13.207	-23.078	46.000	9.715	AV
11			14.030	24.121	14.228	-35.879	60.000	9.894	QP
12			14.030	16.238	6.344	-33.762	50.000	9.894	AV

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

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

Site: NS-SR2	Test Date: 2021/03/19 - 16:05
Limit: FCC_Part15.107_CE_AC Power_Class B	Engineer: Flag Yang
Probe: ENV216_102494_Filter On	Polarity: Neutral
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1			0.534	39.323	29.337	-16.677	56.000	9.987	QP
2		*	0.534	33.668	23.682	-12.332	46.000	9.987	AV
3			0.958	28.580	18.766	-27.420	56.000	9.814	QP
4			0.958	22.880	13.065	-23.120	46.000	9.814	AV
5			1.462	27.402	17.660	-28.598	56.000	9.742	QP
6			1.462	21.601	11.859	-24.399	46.000	9.742	AV
7			2.234	26.270	16.563	-29.730	56.000	9.707	QP
8			2.234	20.513	10.806	-25.487	46.000	9.707	AV
9			3.534	27.786	18.075	-28.214	56.000	9.711	QP
10			3.534	21.914	12.203	-24.086	46.000	9.711	AV
11			14.046	21.764	11.836	-38.236	60.000	9.928	QP
12			14.046	13.052	3.125	-36.948	50.000	9.928	AV

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

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

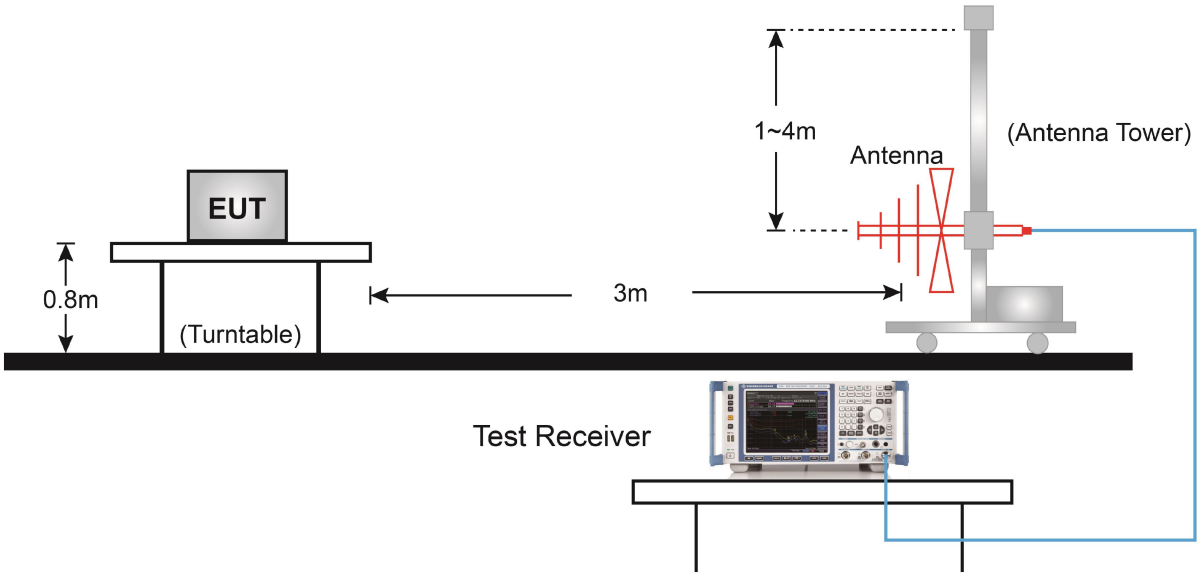
5.3. Radiated Emission Measurement

5.3.1.Test Limit

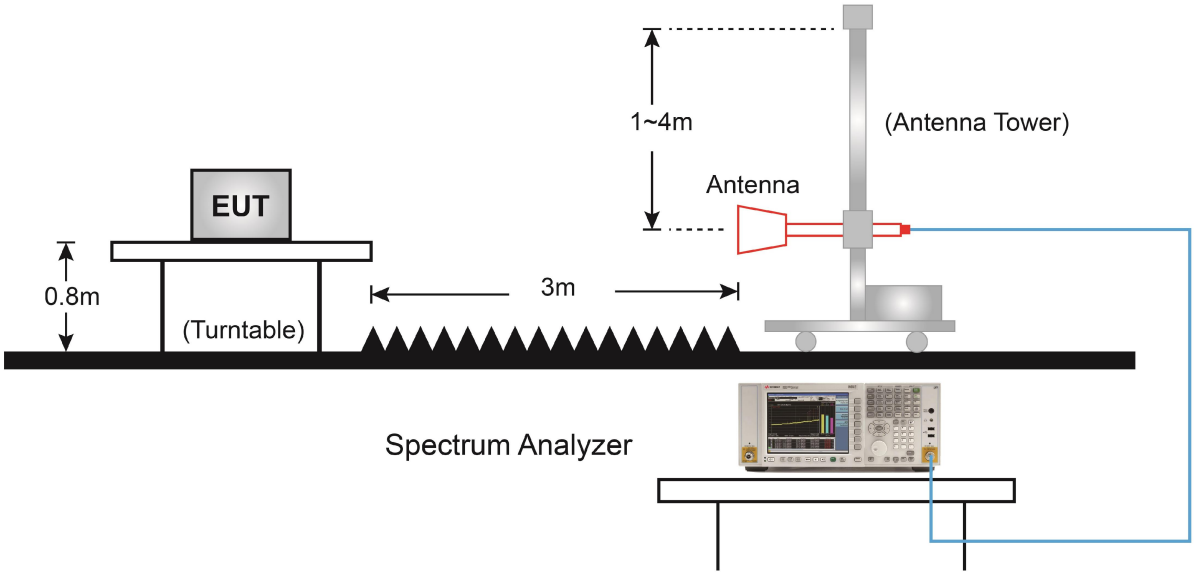
FCC Part 15.109 Limit		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point 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:

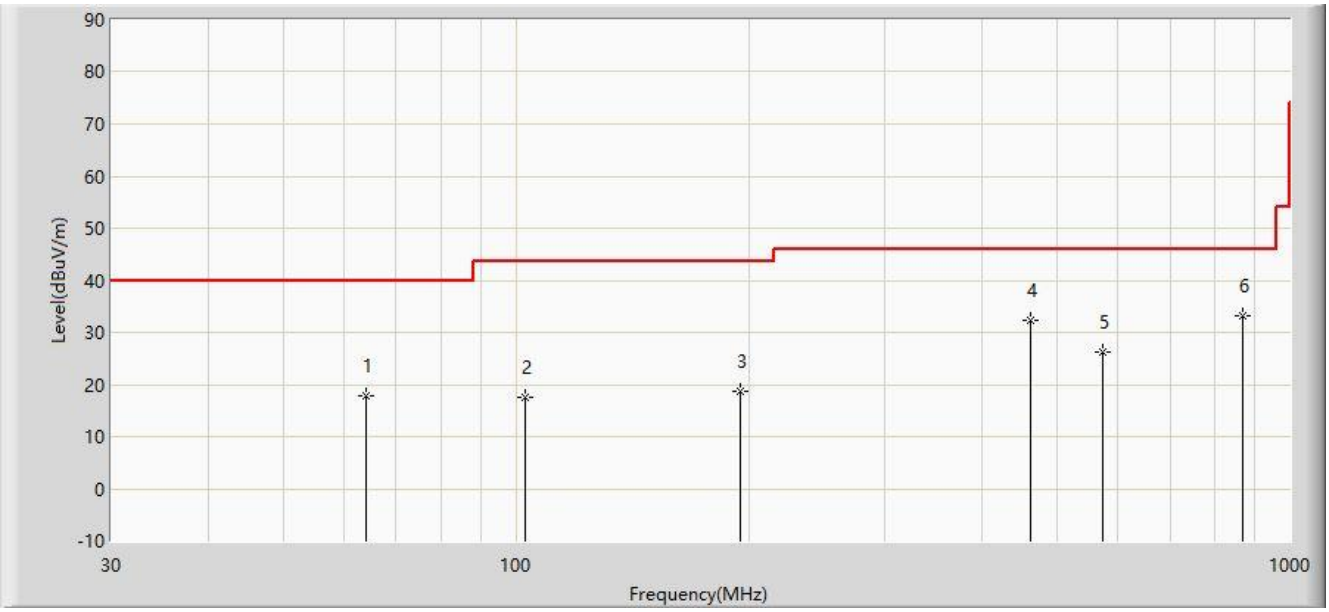


Above 1GHz Test Setup:



5.3.3.Test Result

Site: NS-AC1	Test Date: 2021/03/22
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Flag Yang
Probe: NS-AC1_VULB9162	Polarity: Horizontal
EUT: Walkie Talkie	Power: By Battery
Test Mode 1	



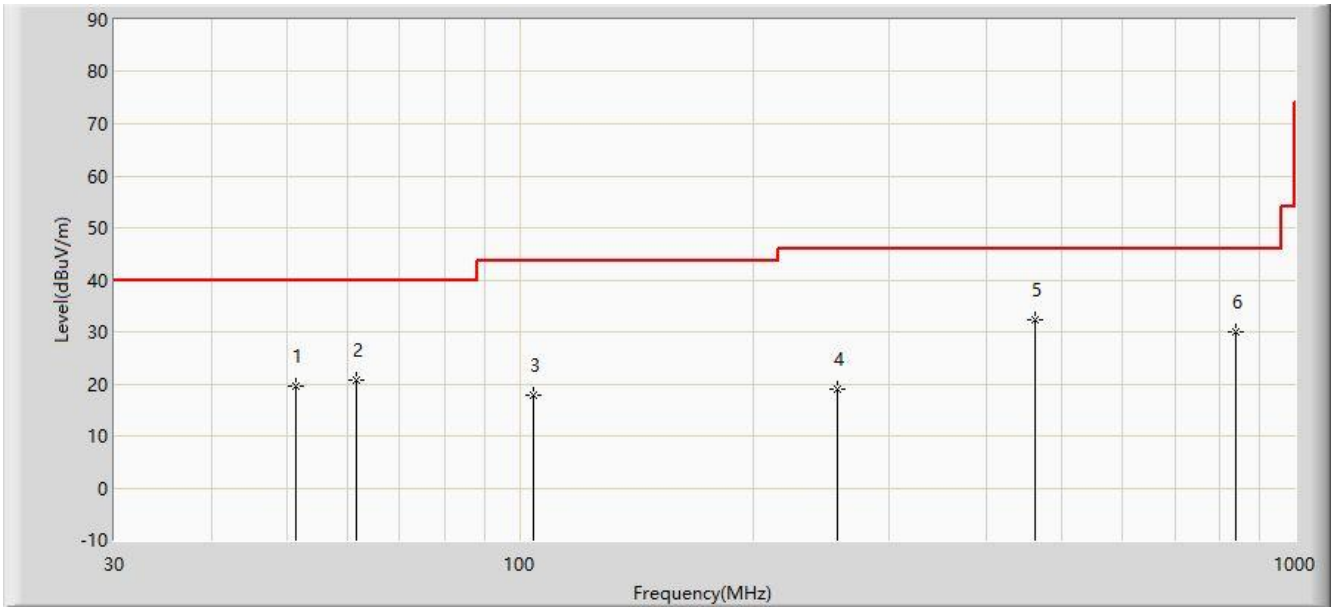
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			63.950	17.970	0.208	-22.030	40.000	17.762	PK
2			102.750	17.674	-0.363	-25.826	43.500	18.037	PK
3			195.385	18.671	1.568	-24.829	43.500	17.103	PK
4			462.620	32.198	10.077	-13.802	46.000	22.121	PK
5			572.715	26.288	2.029	-19.712	46.000	24.259	PK
6		*	868.565	33.087	4.714	-12.913	46.000	28.373	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Site: NS-AC1	Test Date: 2021/03/22
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Flag Yang
Probe: NS-AC1_VULB9162	Polarity: Vertical
EUT: Walkie Talkie	Power: By Battery
Test Mode 1	



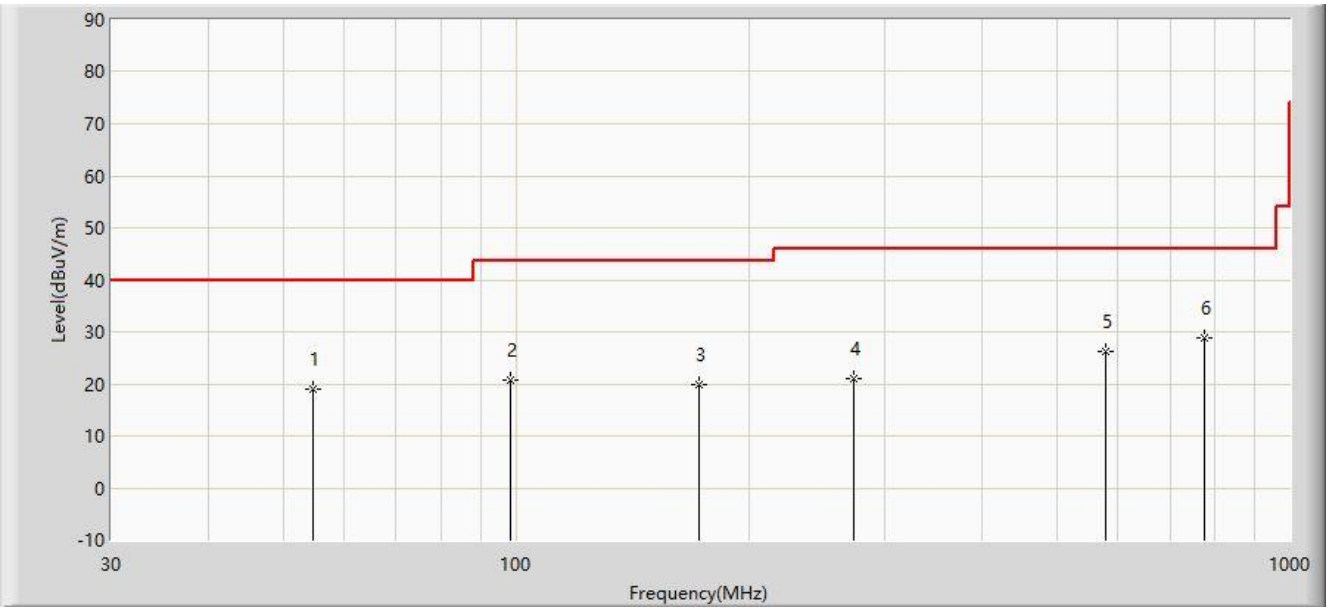
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			51.340	19.708	0.187	-20.292	40.000	19.521	PK
2			61.525	20.624	2.482	-19.376	40.000	18.142	PK
3			104.205	17.948	-0.152	-25.552	43.500	18.101	PK
4			256.495	19.076	0.946	-26.924	46.000	18.130	PK
5		*	462.620	32.308	10.187	-13.692	46.000	22.121	PK
6			837.525	29.888	1.890	-16.112	46.000	27.998	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Site: NS-AC1	Test Date: 2021/03/22
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Flag Yang
Probe: NS-AC1_VULB9162	Polarity: Horizontal
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	



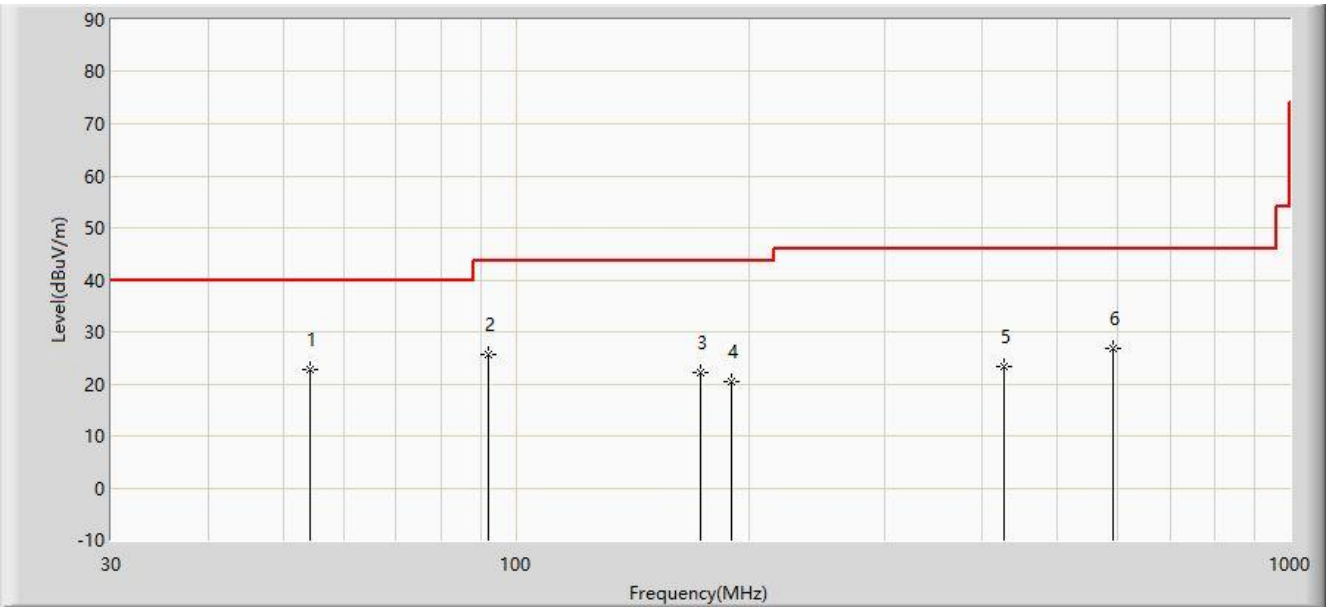
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			54.735	19.042	-0.659	-20.958	40.000	19.701	PK
2			98.385	20.774	3.215	-22.726	43.500	17.559	PK
3			172.105	19.942	4.786	-23.558	43.500	15.156	PK
4			272.985	21.113	2.622	-24.887	46.000	18.491	PK
5			578.535	26.151	1.774	-19.849	46.000	24.376	PK
6		*	775.445	28.962	1.906	-17.038	46.000	27.056	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

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

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Site: NS-AC1	Test Date: 2021/03/22
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Flag Yang
Probe: NS-AC1_VULB9162	Polarity: Vertical
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	



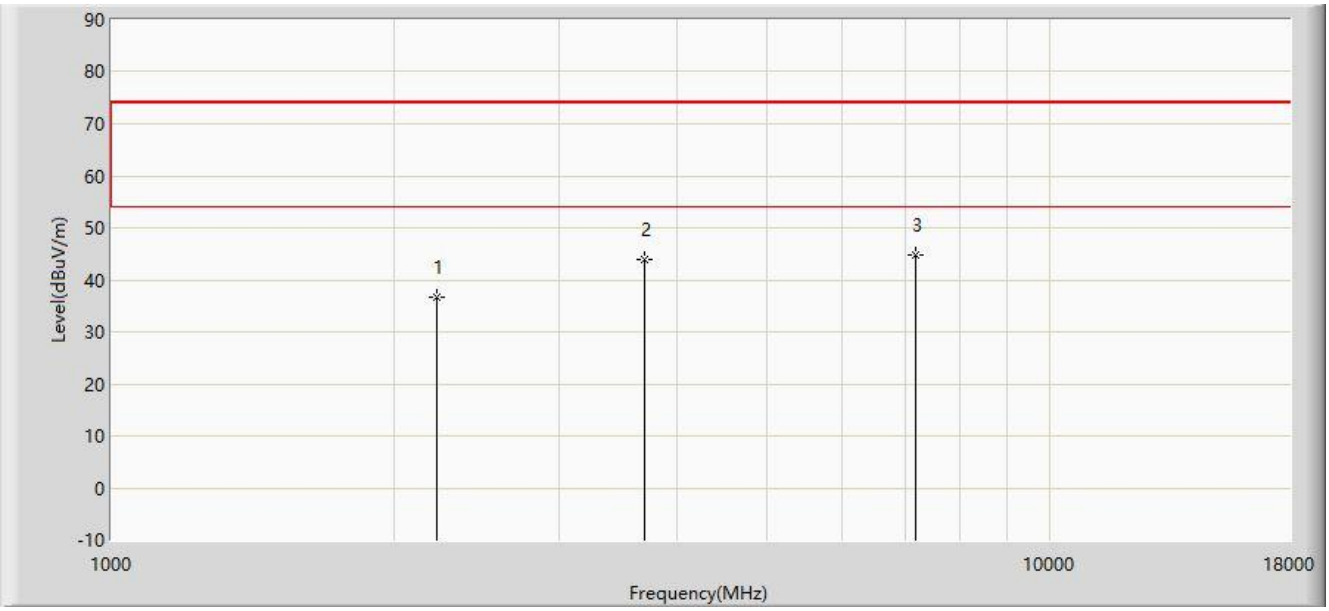
No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV/m)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV/m)	Factor (dB)	Type
1		*	54.250	22.663	2.957	-17.337	40.000	19.706	PK
2			92.080	25.690	9.540	-17.810	43.500	16.150	PK
3			173.075	22.086	6.913	-21.414	43.500	15.174	PK
4			189.565	20.361	3.491	-23.139	43.500	16.871	PK
5			427.700	23.454	1.595	-22.546	46.000	21.859	PK
6			591.630	26.920	2.260	-19.080	46.000	24.660	PK

Note 1: Measure Level (dBµV/m) = Reading Level (dBµV) + Factor (dB)

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

Note 2: QP measurement was not performed when peak measure level was lower than the QP limit.

Site: NS-AC1	Test Date: 2021/03/22
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Flag Yang
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Walkie Talkie	Power: By Battery
Test Mode 1	



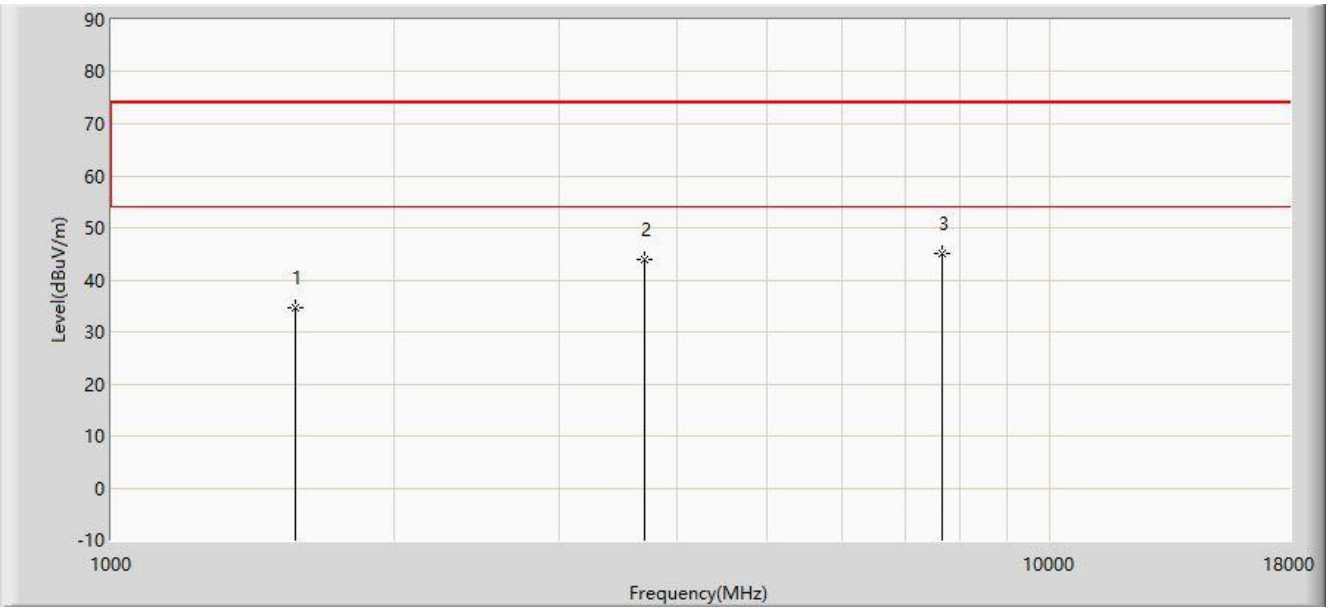
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2224.000	36.582	38.044	-37.418	74.000	-1.462	PK
2			3703.000	43.915	44.047	-30.085	74.000	-0.132	PK
3		*	7188.000	44.697	34.416	-29.303	74.000	10.282	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Note 2: Average measurement was not performed when peak measure level was lower than the average limit.

Site: NS-AC1	Test Date: 2021/03/22
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Flag Yang
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Walkie Talkie	Power: By Battery
Test Mode 1	



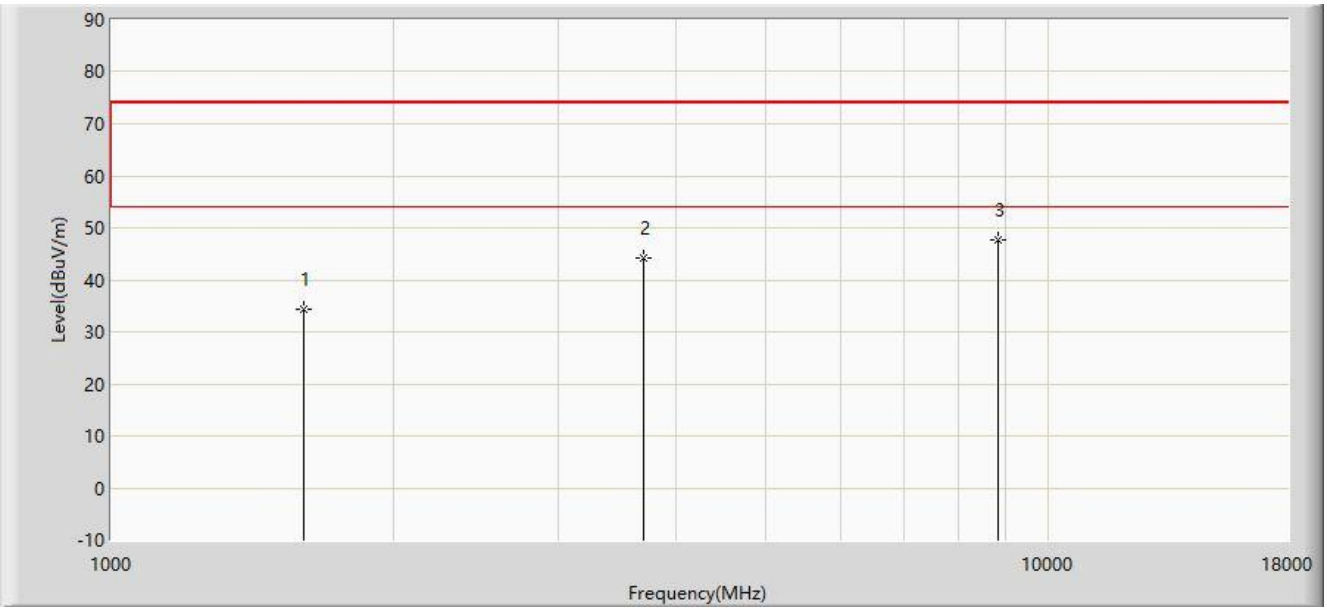
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			1569.500	34.741	39.571	-39.259	74.000	-4.831	PK
2			3703.000	44.008	44.140	-29.992	74.000	-0.132	PK
3		*	7672.500	45.130	34.354	-28.870	74.000	10.776	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Note 2: Average measurement was not performed when peak measure level was lower than the average limit.

Site: NS-AC1	Test Date: 2021/03/22
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Flag Yang
Probe: NS-AC1_BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Walkie Talkie	Power: AC 120V/60Hz
Test Mode 2	



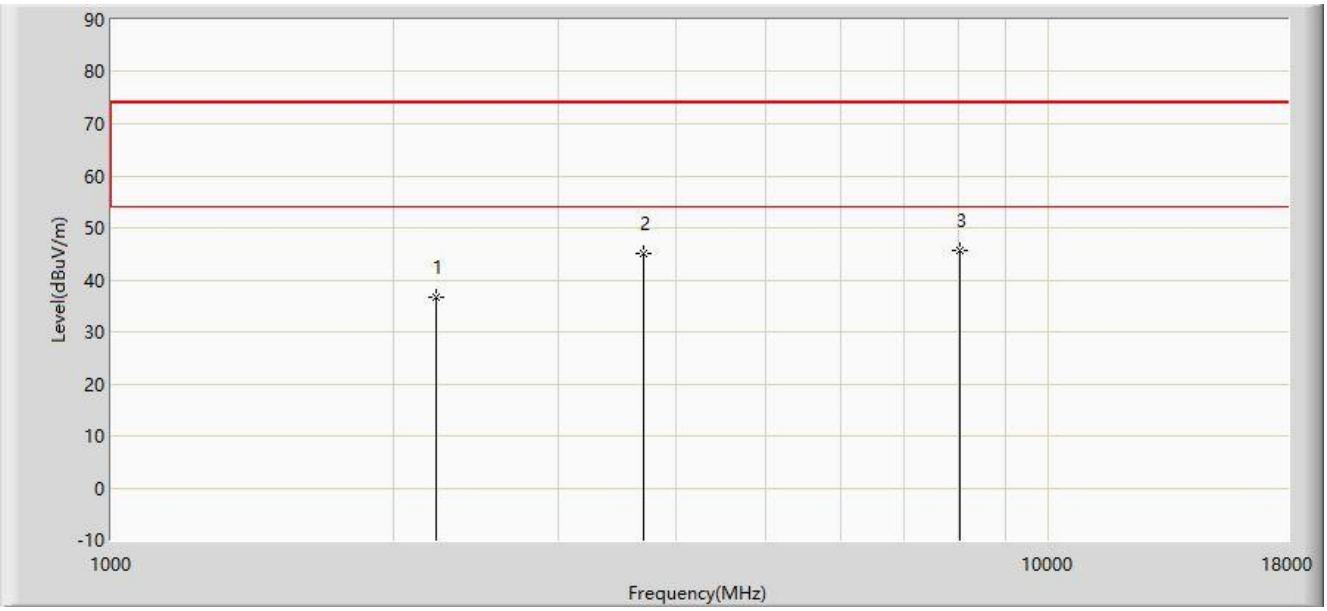
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			1603.500	34.465	39.333	-39.535	74.000	-4.868	PK
2			3703.000	44.238	44.370	-29.762	74.000	-0.132	PK
3		*	8845.500	47.686	35.353	-26.314	74.000	12.334	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Note 2: Average measurement was not performed when peak measure level was lower than the average limit.

Site: NS-AC1	Test Date: 2021/03/22
Limit: FCC_Part 15.109_RE(3m)_Class B	Engineer: Flag Yang
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 (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			2224.000	36.545	38.007	-37.455	74.000	-1.462	PK
2			3703.000	45.180	45.312	-28.820	74.000	-0.132	PK
3		*	8046.500	45.757	34.559	-28.243	74.000	11.198	PK

Note 1: Measure Level (dBμV/m) = Reading Level (dBμV) + Factor (dB)

Factor (dB) = Cable Loss (dB) + Antenna Factor (dB/m) - Pre_Amplifier Gain (dB).

Note 2: Average measurement was not performed when peak measure level was lower than the average limit.

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.

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The End

Appendix A - Test Setup Photograph

Refer to “2102RSU073-UT” file.

Appendix B - EUT Photograph

Refer to “2102RSU073-UE” file.