MEASUREMENT REPORT

FCC Part 15B

FCC ID:	2ACVFM-920B
Applicant:	Shenzhen ChangTaiWei Electronic CO., LTD
Application Type:	Certification
Product:	Walkie Talkie
Model No.:	M-920
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 ~ 31, 2021

Reviewed By: Vincent Yu

Approved By: Robin Wu

ACCREDITED
TESTING LABORATORY
CERTIFICATE #3628.02

Revision History

Report No.	Version	Description	Issue Date	Note
2102RSU071-U3	Rev. 01	Initial Report	04-12-2021	Valid

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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-920
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

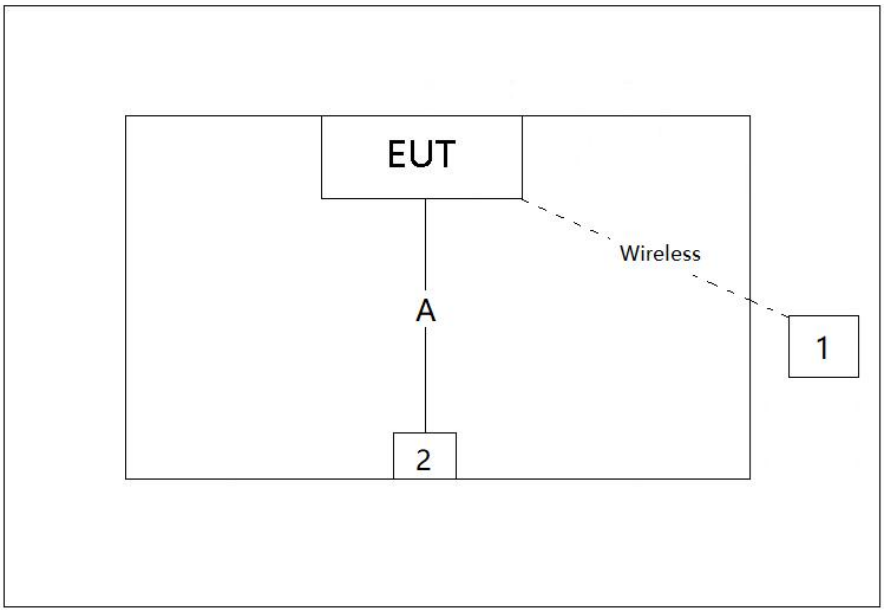
2.2. Test Mode

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

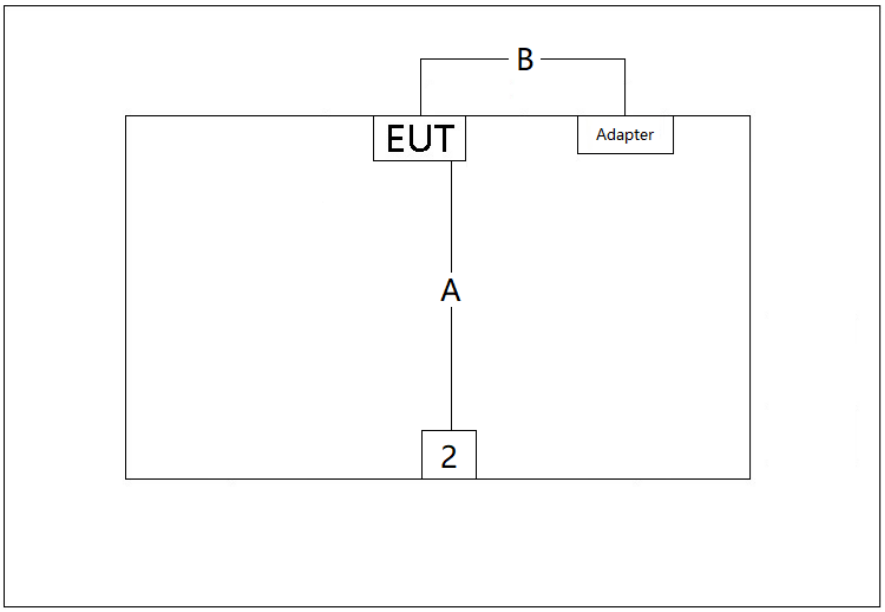
2.3. Configuration of Tested System

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-920
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

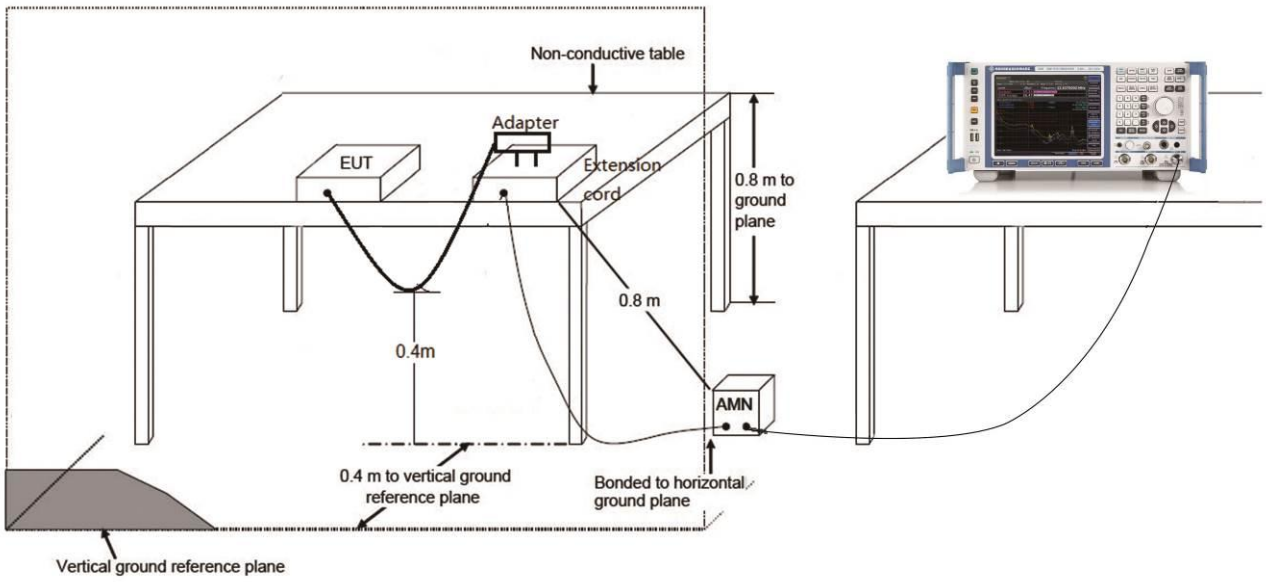
FCC Part Section(s)	Test Description	Test Result
15.107	Conducted Emissions	Pass
15.109	Radiated Emissions	Pass

5.2. Conducted Emission Measurement

5.2.1.Test Limit

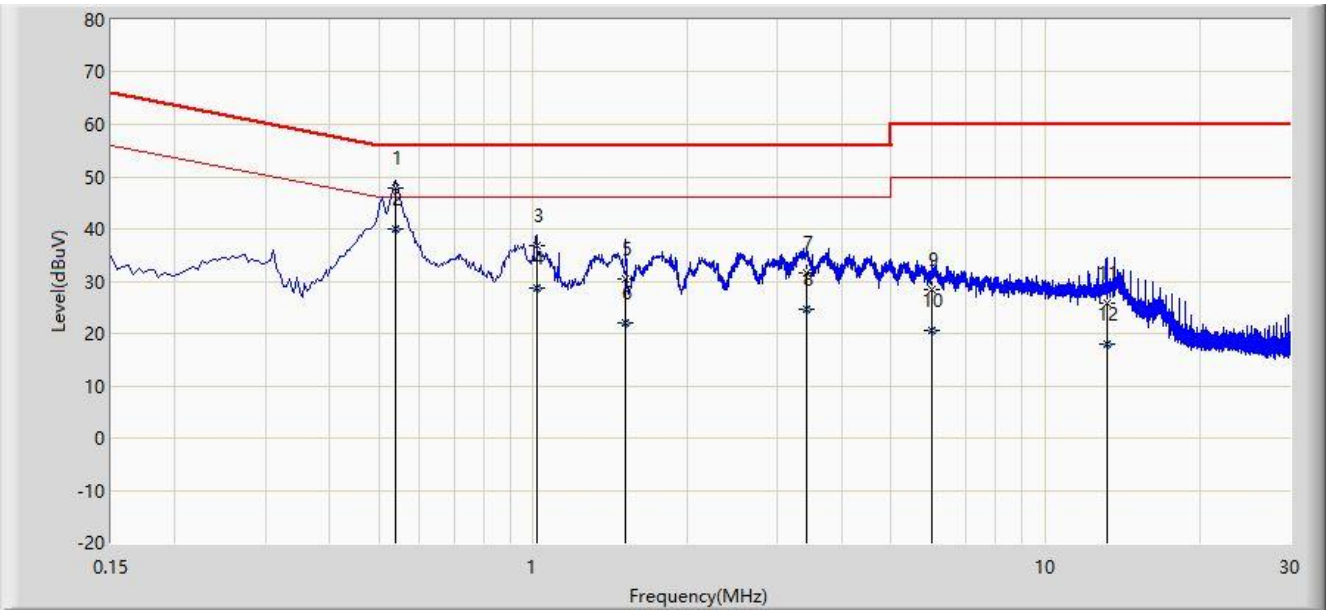
FCC Part 15.107 Limit		
Frequency (MHz)	QP (dBμV)	AV (dBμV)
0.15 ~ 0.50	66 ~ 56	56 ~ 46
0.50 ~ 5.0	56	46
5.0 ~ 30	60	50
Note 1: The lower limit shall apply at the transition frequencies. Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.		

5.2.2.Test Setup



5.2.3.Test Result

Site: NS-SR2	Test Date: 2021/03/19 - 16:52
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	

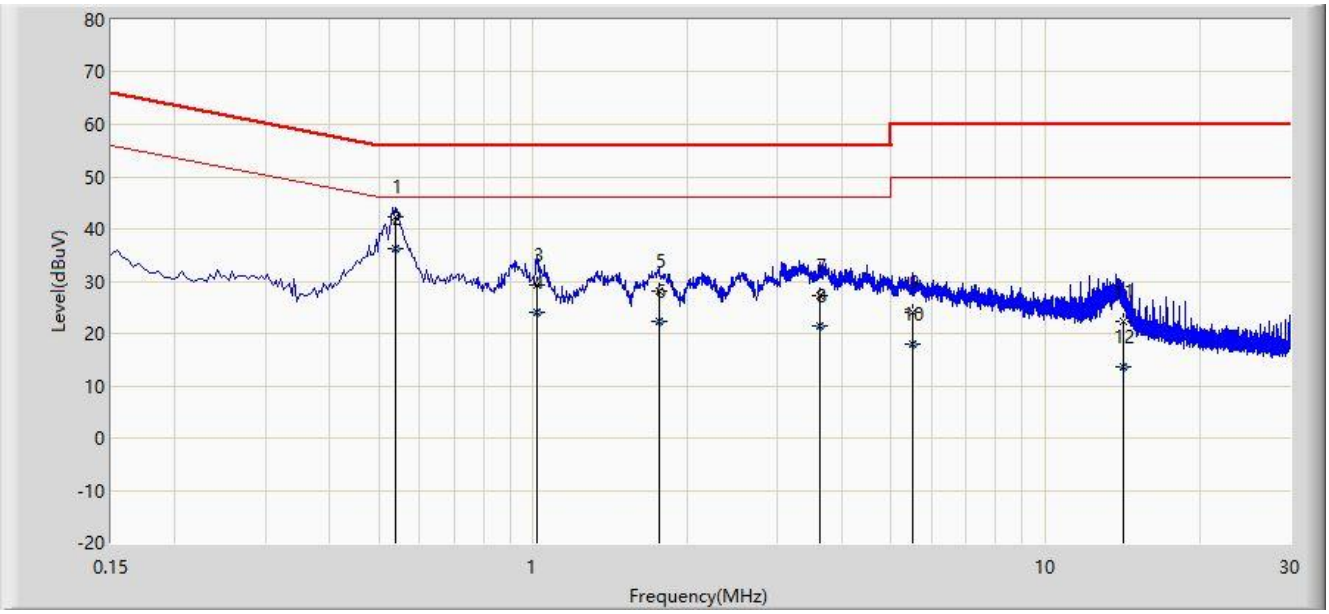


No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV)	Factor (dB)	Type
1			0.538	47.841	37.867	-8.159	56.000	9.974	QP
2		*	0.538	40.055	30.081	-5.945	46.000	9.974	AV
3			1.014	36.758	26.957	-19.242	56.000	9.800	QP
4			1.014	28.598	18.798	-17.402	46.000	9.800	AV
5			1.514	30.551	20.829	-25.449	56.000	9.722	QP
6			1.514	21.985	12.263	-24.015	46.000	9.722	AV
7			3.426	31.465	21.758	-24.535	56.000	9.707	QP
8			3.426	24.557	14.850	-21.443	46.000	9.707	AV
9			6.018	28.360	18.609	-31.640	60.000	9.751	QP
10			6.018	20.656	10.904	-29.344	50.000	9.751	AV
11			13.194	25.752	15.873	-34.248	60.000	9.879	QP
12			13.194	17.856	7.976	-32.144	50.000	9.879	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 - 16:57
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			0.538	42.181	32.197	-13.819	56.000	9.984	QP
2		*	0.538	36.235	26.251	-9.765	46.000	9.984	AV
3			1.014	29.243	19.443	-26.757	56.000	9.800	QP
4			1.014	24.174	14.373	-21.826	46.000	9.800	AV
5			1.762	28.135	18.420	-27.865	56.000	9.714	QP
6			1.762	22.447	12.733	-23.553	46.000	9.714	AV
7			3.622	27.387	17.671	-28.613	56.000	9.716	QP
8			3.622	21.469	11.753	-24.531	46.000	9.716	AV
9			5.490	23.953	14.214	-36.047	60.000	9.739	QP
10			5.490	18.035	8.296	-31.965	50.000	9.739	AV
11			14.206	22.441	12.512	-37.559	60.000	9.929	QP
12			14.206	13.660	3.731	-36.340	50.000	9.929	AV

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

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

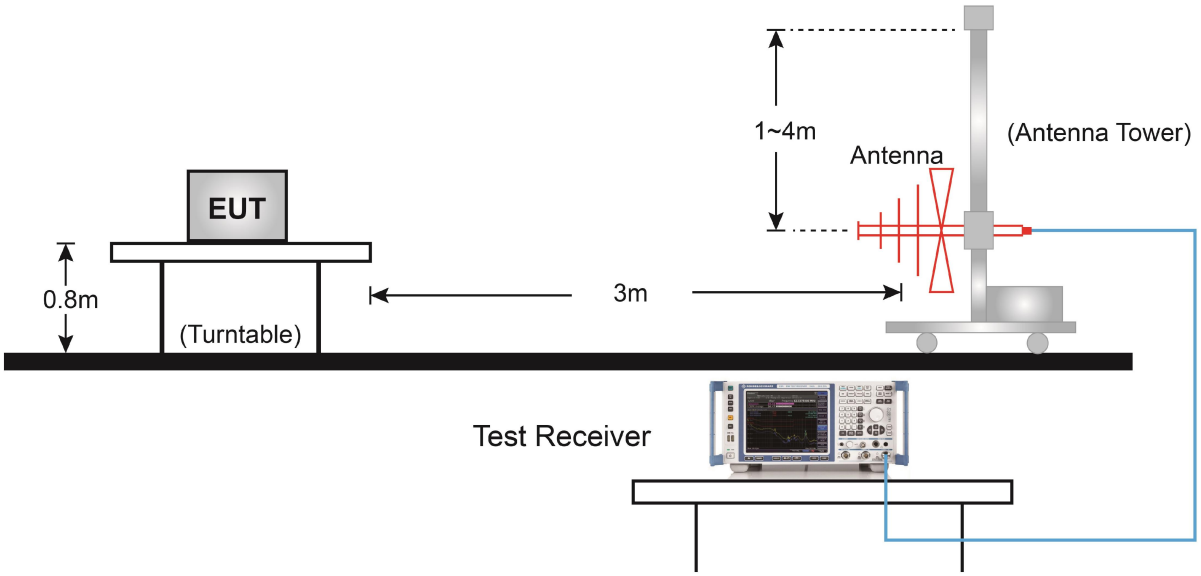
5.3. Radiated Emission Measurement

5.3.1.Test Limit

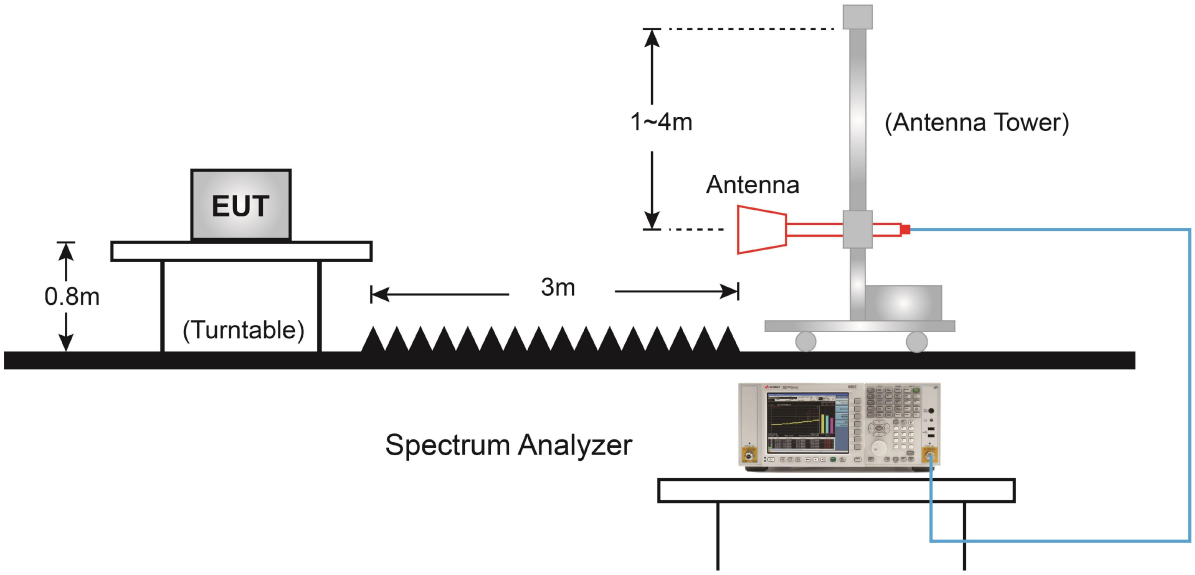
FCC Part 15.109 Limit		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54
Note 1: The lower limit shall apply at the transition frequency. Note 2: Distance refers to the distance in meters between the measuring instrument antenna and the closed point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

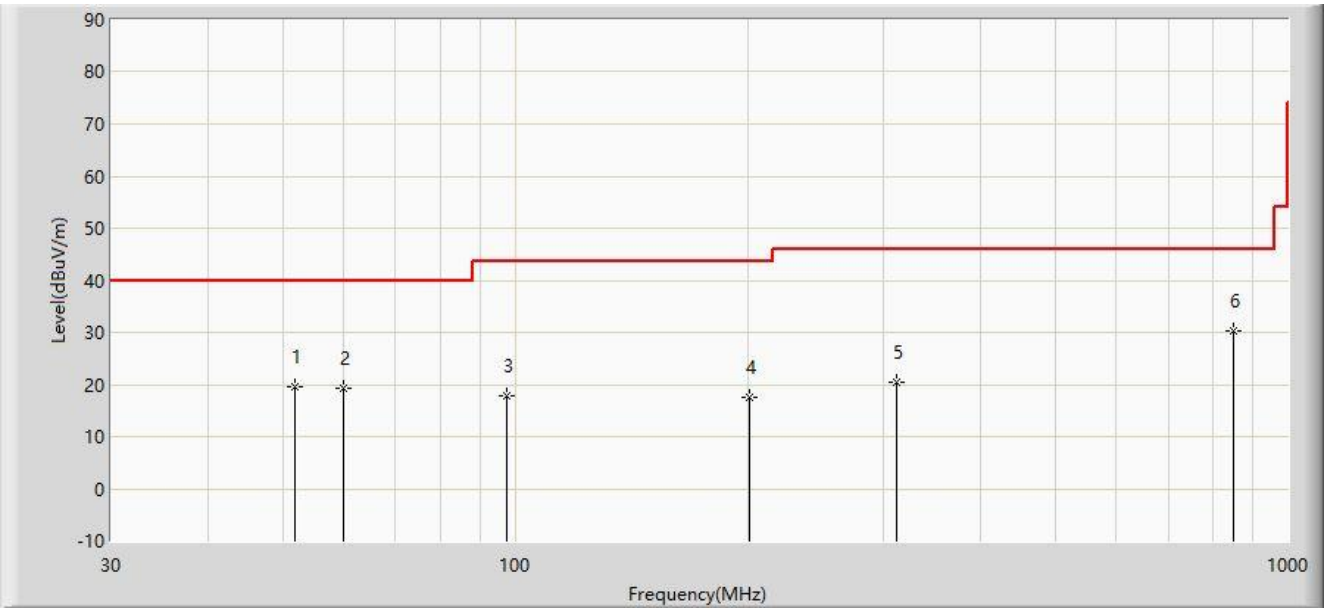


Above 1GHz Test Setup:



5.3.3.Test Result

Site: NS-AC1	Test Date: 2021/03/31
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	



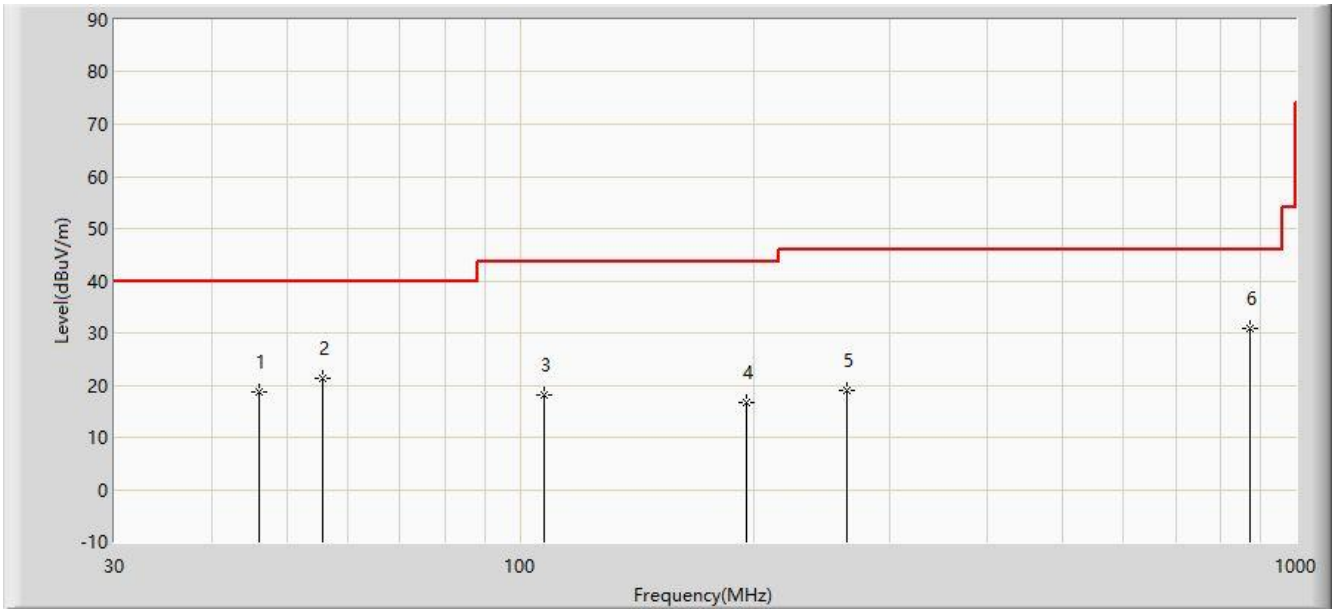
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			51.825	19.540	-0.013	-20.460	40.000	19.554	PK
2			60.070	19.257	0.891	-20.743	40.000	18.366	PK
3			97.415	17.888	0.546	-25.612	43.500	17.343	PK
4			200.720	17.409	-0.076	-26.091	43.500	17.485	PK
5			311.785	20.448	1.113	-25.552	46.000	19.335	PK
6		*	850.620	30.248	2.002	-15.752	46.000	28.246	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: 2021/03/31
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	



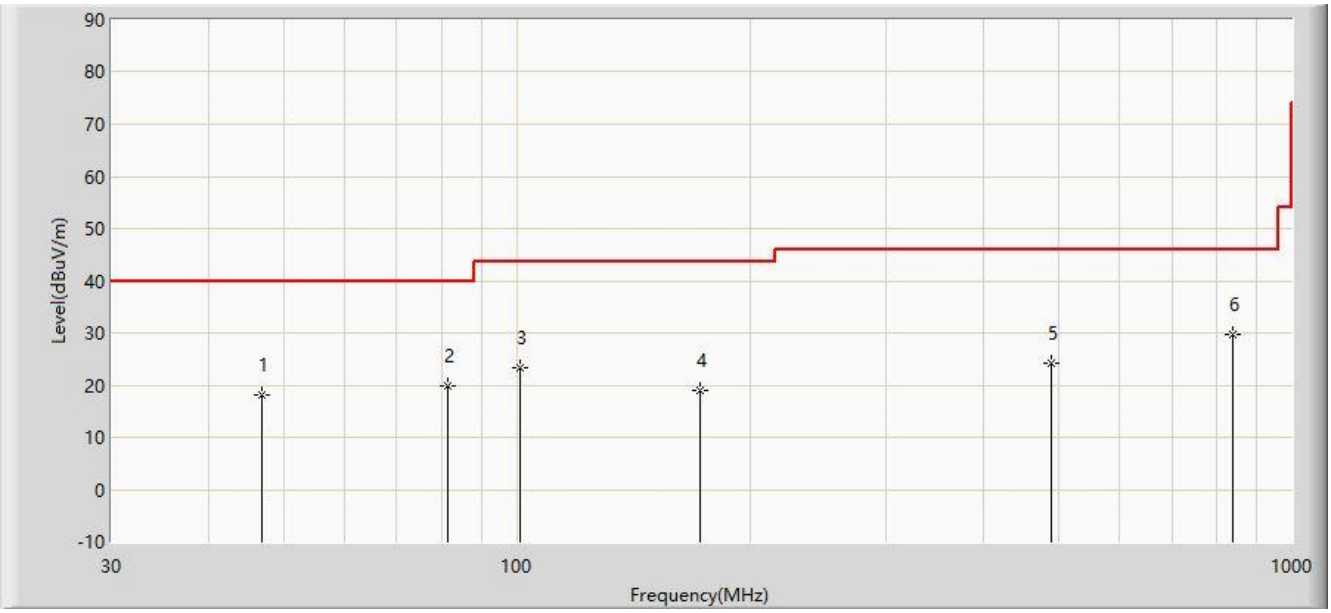
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			46.005	18.624	-0.393	-21.376	40.000	19.017	PK
2			55.705	21.420	1.856	-18.580	40.000	19.564	PK
3			107.600	18.063	-0.027	-25.437	43.500	18.090	PK
4			195.870	16.772	-0.367	-26.728	43.500	17.139	PK
5			264.255	19.052	0.758	-26.948	46.000	18.294	PK
6		*	873.415	30.895	2.486	-15.105	46.000	28.408	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: 2021/03/31
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	



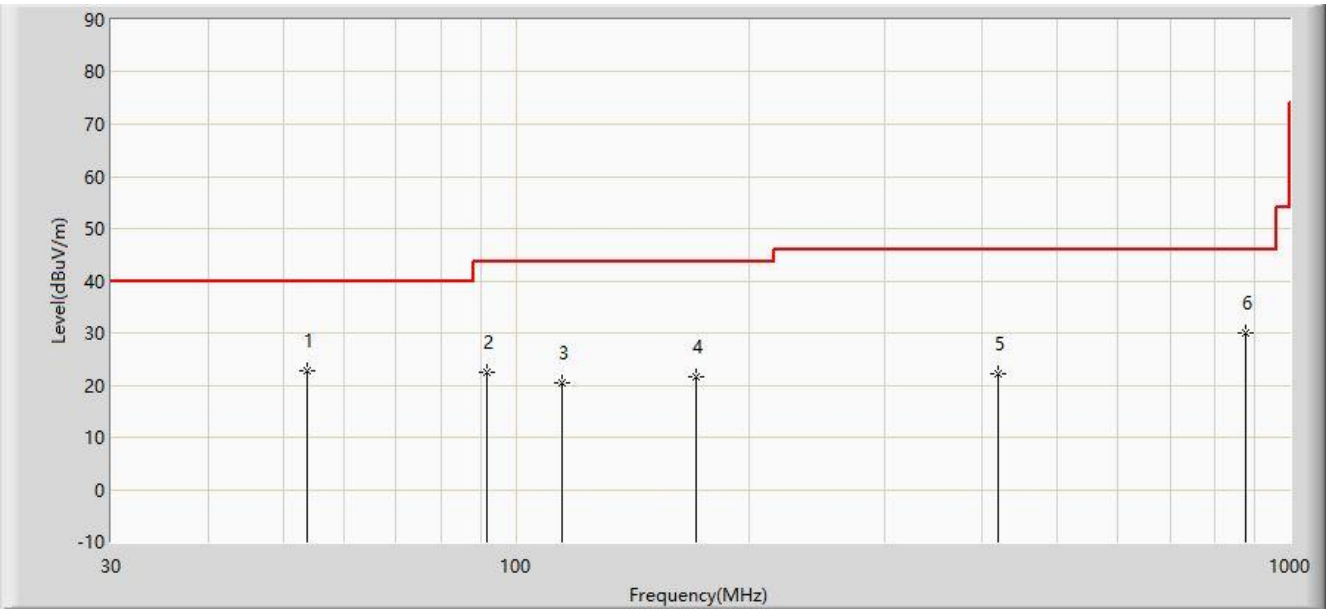
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			46.975	18.067	-1.051	-21.933	40.000	19.118	PK
2			81.410	19.832	5.983	-20.168	40.000	13.849	PK
3			100.810	23.306	5.357	-20.194	43.500	17.949	PK
4			172.590	19.101	3.936	-24.399	43.500	15.165	PK
5			489.780	24.167	1.842	-21.833	46.000	22.325	PK
6		*	838.980	29.628	1.599	-16.372	46.000	28.029	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: 2021/03/31
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	



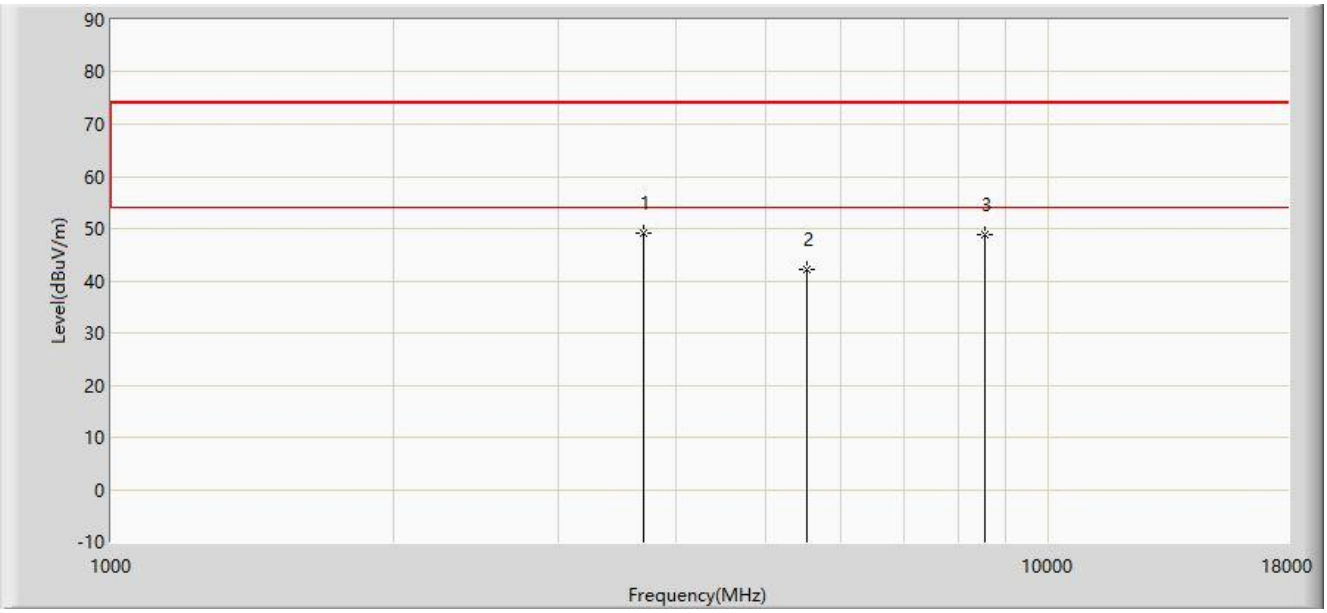
No	Flag	Mark	Frequency (MHz)	Measure Level (dBµV/m)	Reading Level (dBµV)	Margin (dB)	Limit (dBµV/m)	Factor (dB)	Type
1			53.765	22.757	3.080	-17.243	40.000	19.677	PK
2			91.595	22.459	6.419	-21.041	43.500	16.040	PK
3			114.875	20.307	3.675	-23.193	43.500	16.632	PK
4			170.650	21.720	6.597	-21.780	43.500	15.123	PK
5			419.940	22.294	0.494	-23.706	46.000	21.800	PK
6		*	875.840	29.928	1.503	-16.072	46.000	28.425	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: 2021/03/31
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	



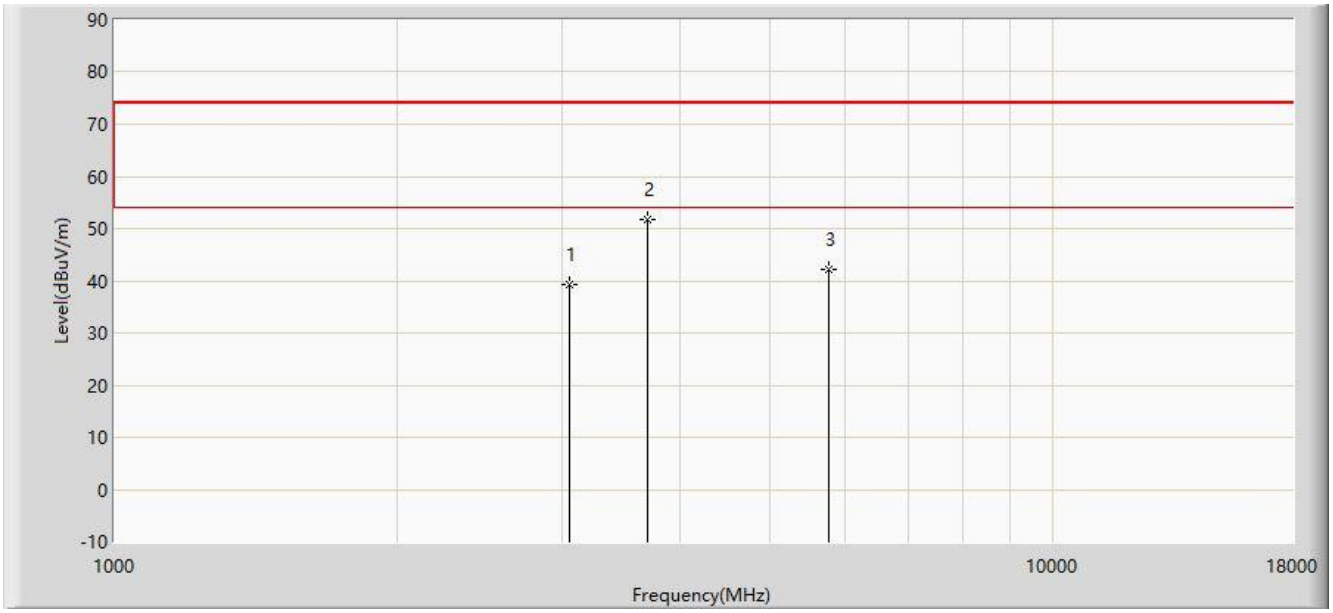
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	3703.000	49.085	49.277	-24.915	74.000	-0.192	PK
2			5530.500	42.235	38.176	-31.765	74.000	4.059	PK
3			8548.000	48.743	36.825	-25.257	74.000	11.918	PK

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: 2021/03/31
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	



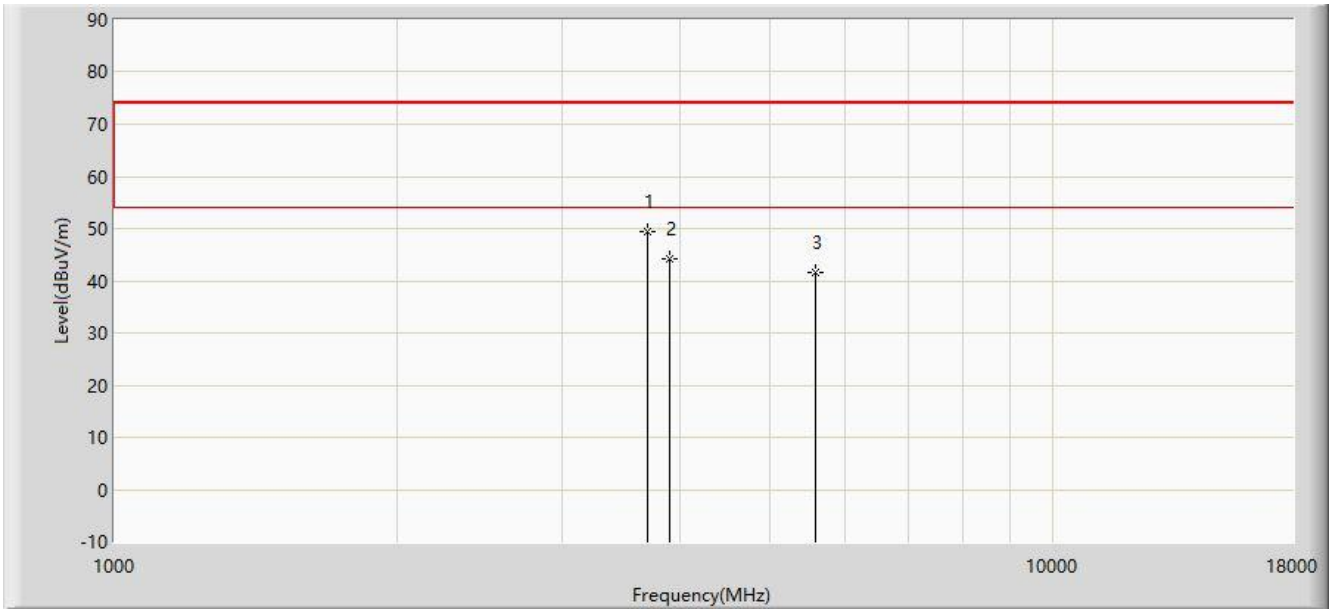
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1			3048.500	39.343	41.360	-34.657	74.000	-2.017	PK
2		*	3703.000	51.780	51.972	-22.220	74.000	-0.192	PK
3			5777.000	42.117	37.553	-31.883	74.000	4.564	PK

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: 2021/03/31
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	



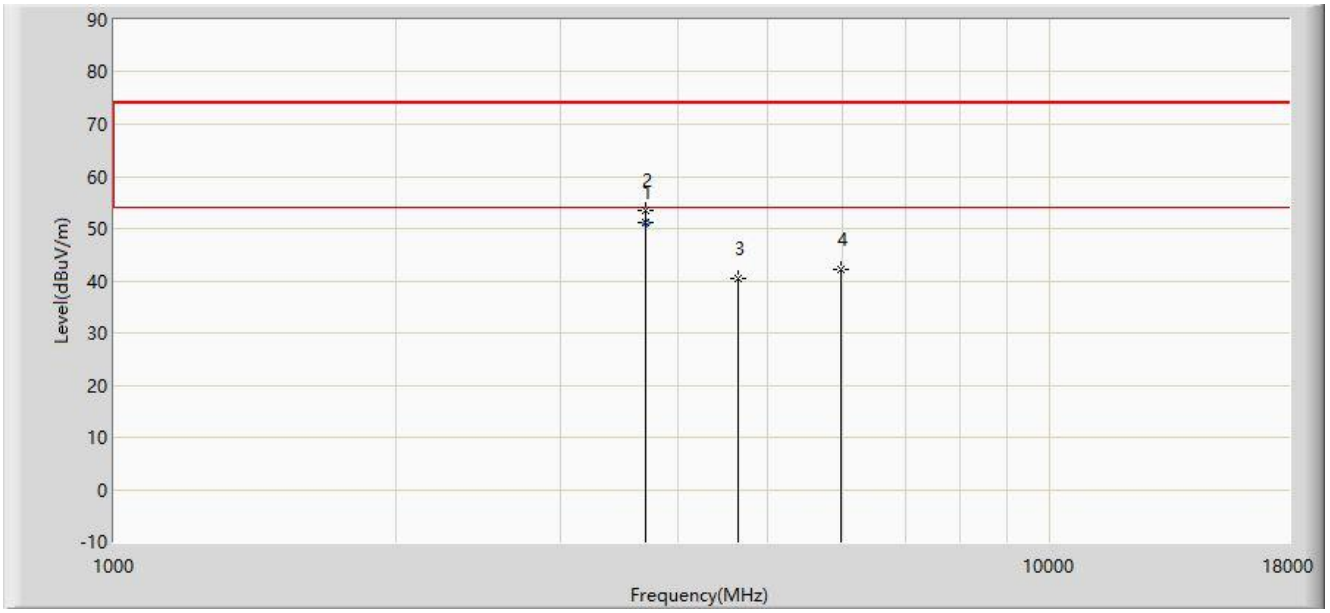
No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV/m)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV/m)	Factor (dB)	Type
1		*	3703.000	49.494	49.686	-24.506	74.000	-0.192	PK
2			3898.500	44.232	44.221	-29.768	74.000	0.011	PK
3			5590.000	41.500	37.276	-32.500	74.000	4.224	PK

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: 2021/03/31
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		*	3699.432	51.286	51.470	-2.714	54.000	-0.184	AV
2			3703.000	53.391	53.583	-20.609	74.000	-0.192	PK
3			4638.000	40.292	37.514	-33.708	74.000	2.777	PK
4			5981.000	42.068	37.119	-31.932	74.000	4.949	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 “2102RSU071-UT” file.

Appendix B - EUT Photograph

Refer to “2102RSU071-UE” file.