MEASUREMENT REPORT

FCC Part 15 Subpart B / ICES-003

FCC ID:	FHO-F1720
IC:	10912A-F1720
Applicant:	IKEA of Sweden AB
Application Type:	Certification
Product:	FREKVENS Speaker
Model No.:	F1720
Brand Name:	IKEA
FCC Rule Part(s):	FCC Part 15 Subpart B: 2018 Class B
IC Rule Part(s):	ICES-003 Issue 6
Test Procedure(s):	ANSI C63.4: 2014
Result:	Complies
Test Date:	July 05 ~ March 25, 2019

Reviewed By: (Kevin Guo)

Approved By: (Robin Wu)

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
1809WSU002-U3	Rev. 01	Initial report	05-21-2019	Valid

CONTENTS

§2.1033 General Information

Applicant:	IKEA of Sweden AB
Applicant Address:	SE-343 81, Älmhult, Sweden
Manufacturer:	IKEA of Sweden AB
Manufacturer Address:	SE-343 81, Älmhult, Sweden
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
FCC Registration No.:	893164
IC Registration No.:	11384A-1
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- **MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.**
- **MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.**
- **MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.**
- **MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.**

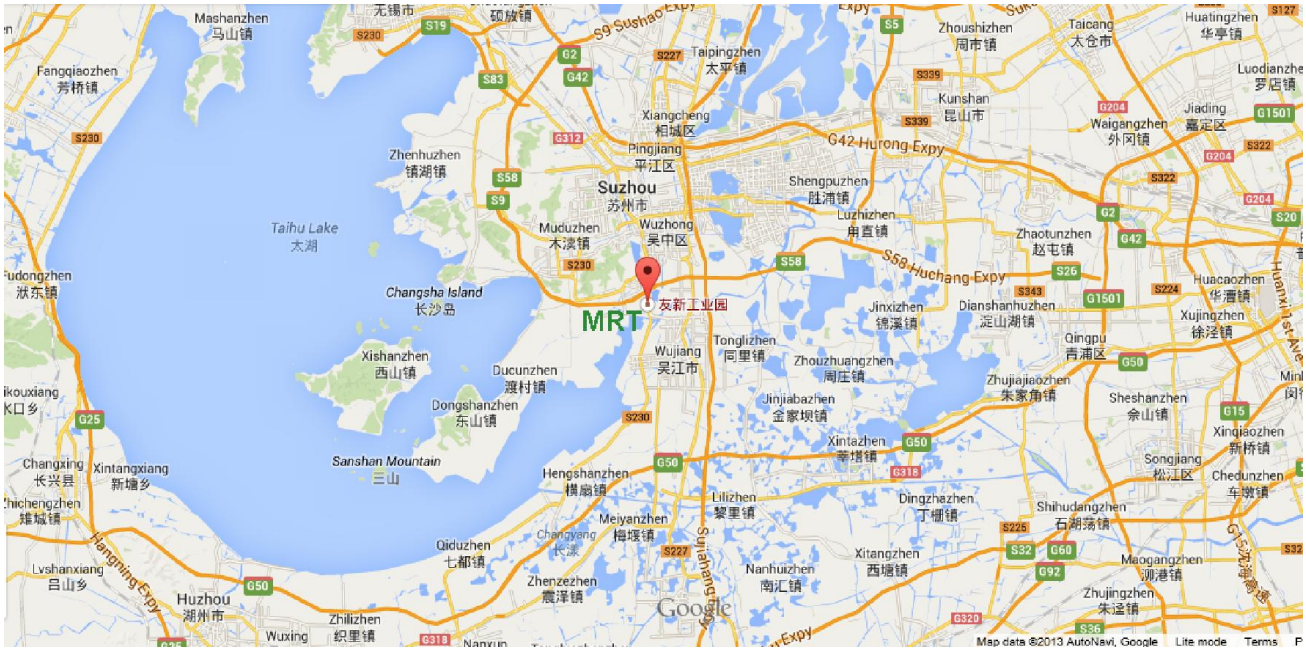
1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.



2. PRODUCT INFORMATION

2.1. Equipment Description

Product Name:	FREKVENS Speaker
Model No.:	F1720
Brand Name:	IKEA
Bluetooth Version:	V4.2 (Only support Bluetooth v3.0+HS)
Working Voltage:	AC120V/60Hz
Accessory	
Battery:	Model: ICBL7.2-18-A1 Capacity: 2600mAh, 7.2V, 18.72WH Input: DC8.4V/2.0A max Output: 7.2V DC/2.0A max

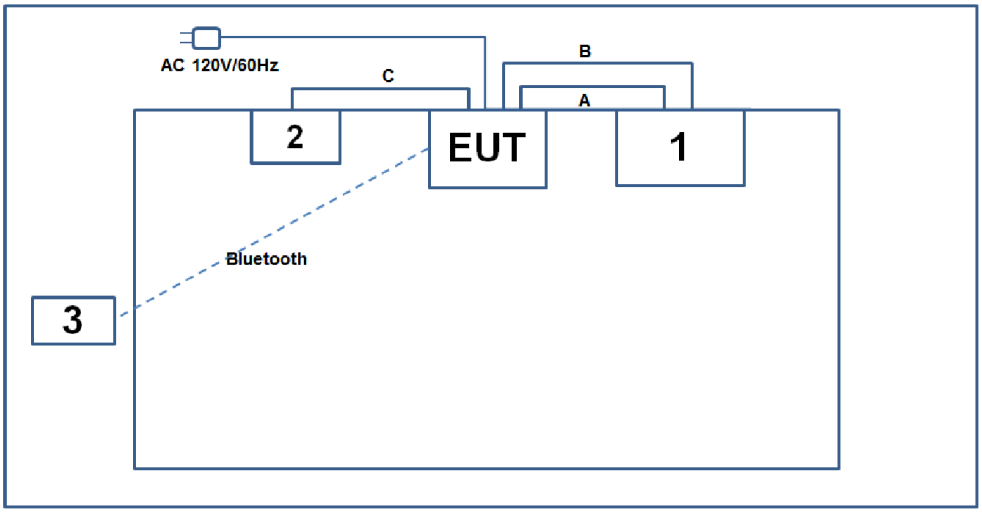
2.2. Test Mode

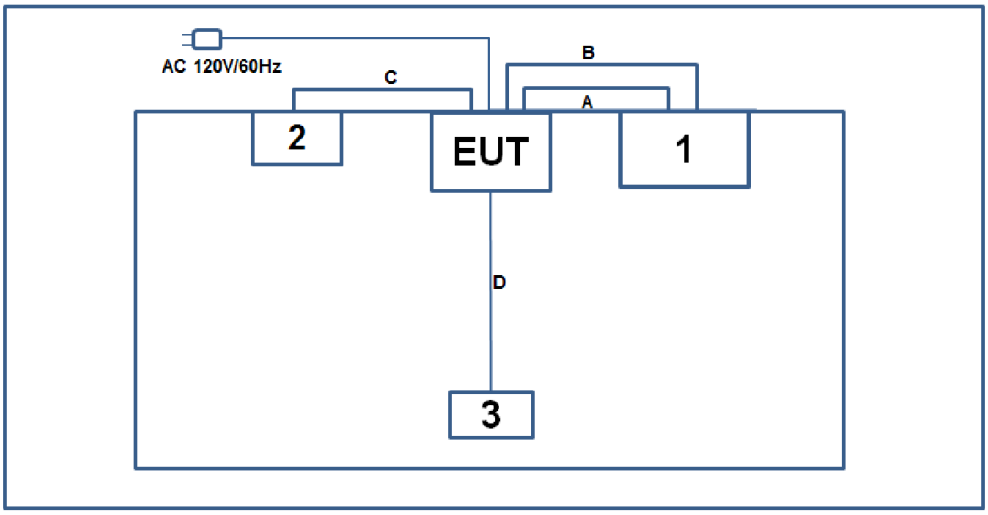
EMI Mode	Mode 1: Power on & Connect to Bluetooth Speaker through Bluetooth and play music
	Mode 2: Power on & Connect to Bluetooth Speaker through Audio cable and play music

2.3. Configuration of Tested System

The **FREKVENS Speaker** was tested per the guidance FCC Part 15 Subpart B: 2018 Class B , ICES-003 Issue 6 and ANSI C63.4: 2014 was used to reference the appropriate EUT setup for radiated spurious emissions testing and AC line conducted testing.

Connection Diagram (Mode 1)



Connection Diagram (Mode 2)


Signal Cable Type		Signal Cable Description
A	Power Cable	Non-Shielding, 0.5m
B	Audio Cable	Shielding, 0.6m
C	Audio Cable	Shielding, 0.6m
D	Audio Cable	Shielding, 0.6m

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.	Serial No.	Power Cord
1	FREKVENS Subwoofer	IKEA	F1730	N/A	N/A
2	Speaker	BOSH	Soundlink Mini	N/A	N/A
3	Mobilephone	OPPO	X9009	N/A	N/A

2.5. Test Procedure

1	Setup the EUT and simulators as shown on above.
2	Configure the EUT according to test mode of section 2.2 and testing them one by one.
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. DESCRIPTION OF TEST

3.1. Evaluation Procedure

The measurement procedures described in the American National Standard for Methods of Measurement of Radio-Noise Emission from Low-Voltage Electrical Equipment in the Range of 9kHz to 18GHz (ANSI C63.4-2014) was used in the measurement of the device.

Deviation from measurement procedure…….....None

3.2. AC Line Conducted Emissions

The line-conducted facility is located inside an 8'x4'x4' shielded enclosure. A 1m x 2m wooden table 80cm high is placed 40cm away from the vertical wall and 80cm away from the sidewall of the shielded room. Two 10kHz-30MHz, 50Ω/50uH Line-Impedance Stabilization Networks (LISNs) are bonded to the shielded room floor. Power to the LISNs is filtered by external high-current high-insertion loss power line filters. These filters attenuate ambient signal noise from entering the measurement lines. These filters are also bonded to the shielded enclosure.

The EUT is powered from one LISN and the support equipment is powered from the second LISN. If the EUT is a DC-powered device, power will be derived from the source power supply it normally will be powered from and this supply line(s) will be connected to the second LISN. All interconnecting cables more than 1 meter were shortened to a 1 meter length by non-inductive bundling (serpentine fashion) and draped over the back edge of the test table. All cables were at least 40cm above the horizontal reference ground-plane. Power cables for support equipment were routed down to the second LISN while ensuring that that cables were not draped over the second LISN.

Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The RF output of the LISN was connected to the receiver and exploratory measurements were made to determine the frequencies producing the maximum emission from the EUT. The receiver was scanned from 150 kHz to 30 MHz. The detector function was set to peak mode for exploratory measurements while the bandwidth of the analyzer was set to 9 kHz. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Each emission was also maximized by varying: power lines, the mode of operation or resolution, clock or data exchange speed, scrolling H pattern to the EUT and/or support equipment whichever determined the worst-case emission. Once the worst case emissions have been identified, the one EUT cable configuration/arrangement and mode of operation that produced these emissions are used for final measurements on the same test site.

3.3. Radiated Emissions

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An MF Model 210SS turntable is used for radiated measurement. It is a continuously rotatable, remote controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. An 80cm high PVC support structure is placed on top of the turntable.
For all measurements, the spectrum was scanned through all EUT azimuths and from 1 to 4 meter receive antenna height using a broadband antenna from 30 MHz up to the upper frequency shown in 15.33(b)(1) depending on the highest frequency generated or used in the device or on which the device operates or tunes. For frequencies above 1GHz, linearly polarized double ridge horn antennas were used. For frequencies below 30 MHz, a calibrated loop antenna was used. When exploratory measurements were necessary, they were performed at 1 meter test distance inside the semi-anechoic chamber using broadband antennas, broadband amplifiers, and spectrum analyzers to determine the frequencies and modes producing the maximum emissions. Sufficient time for the EUT, support equipment, and test equipment was allowed in order for them to warm up to their normal operating condition. The test set-up was placed on top of the 0.8 meter high, 1 x 1.5 meter table. The EUT, support equipment, and interconnecting cables were arranged and manipulated to maximize each emission. Appropriate precaution was taken to ensure that all emissions from the EUT were maximized and investigated. The system configuration, mode of operation, if applicable, turntable azimuth, and receive antenna height was noted for each frequency found.
Final measurements were made in the semi-anechoic chamber using calibrated, linearly polarized broadband and horn antennas. The test setup was configured to the setup that produced the worst case emissions. The spectrum analyzer was set to investigate all frequencies required for testing to compare the highest radiated disturbances with respect to the specified limits. The turntable containing the EUT was rotated through 360 degrees and the height of the receive antenna was varied 1 to 4 meters and stopped at the azimuth and height producing the maximum emission. Each emission was maximized by changing the orientation of the EUT through three orthogonal planes and changing the polarity of the receive antenna, whichever produced the worst-case emissions. According to 3dB beam-width of horn antenna, the horn antenna should be always directed to the EUT when rising height.

4. TEST EQUIPMENT CALIBRATION DATE

Conducted Emissions - SR2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR3	MRTSUE06185	1 year	2019/04/20
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2019/06/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2019/06/15
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2019/08/15
Shielding Anechoic Chamber	Mikebang	Chamber-SR2	MRTSUE06214	N/A	N/A

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2019/08/14
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2019/09/14
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2019/11/20
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2019/04/12
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2019/10/20
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2019/12/17
Broadband Coaxial Preamplifier	Agilent	83017A	MRTSUE06076	1 year	2019/11/16
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2019/06/12
Digitial Thermometer & Hygrometer	Testo	608-H1	MRTSUE06403	1 year	2019/08/15
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06213	1 year	2019/05/02

Radiated Emissions - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2019/08/14
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2019/11/09
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2019/10/20
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2019/11/09
Broadband Horn Antenna	Schwarzbeck	BBHA9170	MRTSUE06024	1 year	2019/12/17
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2019/11/16
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2019/06/13
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2019/12/13
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2019/05/02

Software	Version	Function
e3	V 8.3.5	EMI Test Software

5. 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.

AC Conducted Emission Measurement - SR2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 150kHz~30MHz: 3.46dB
Radiated Emission Measurement - AC1
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 4.18dB 1GHz ~ 25GHz: 4.76dB
Radiated Emission Measurement - AC2
Measuring Uncertainty for a Level of Confidence of 95% (U=2Uc(y)): 9kHz ~ 1GHz: 3.86dB 1GHz ~ 25GHz: 4.33dB

6. TEST RESULT

6.1. Summary

Product Name: **FREKVENS Speaker**
FCC ID: **FHO-F1720**
IC: **10912A-F1720**

FCC Part Section(s)	IC Part Section(s)	Test Description	Test Result
15.107	ICES-003 Issue 6	Conducted Emissions	Pass
15.109	ICES-003 Issue 6	Radiated Emissions	Pass

6.2. Conducted Emission Measurement

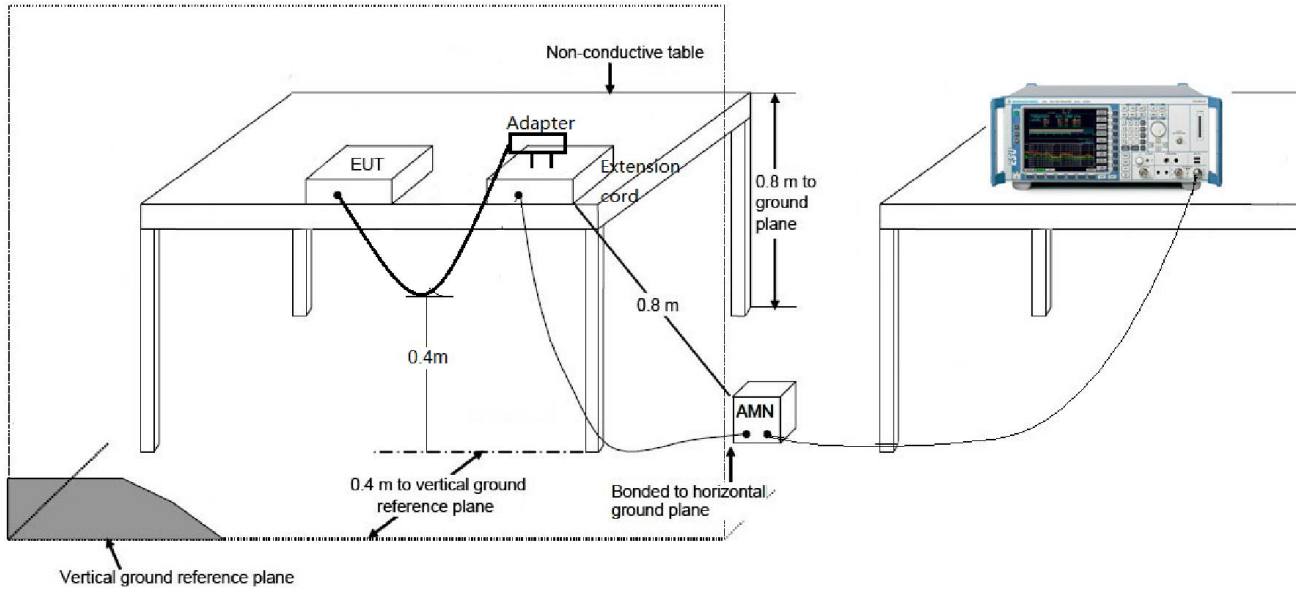
6.2.1.Test Limit

FCC Part 15.107 Limits		
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.

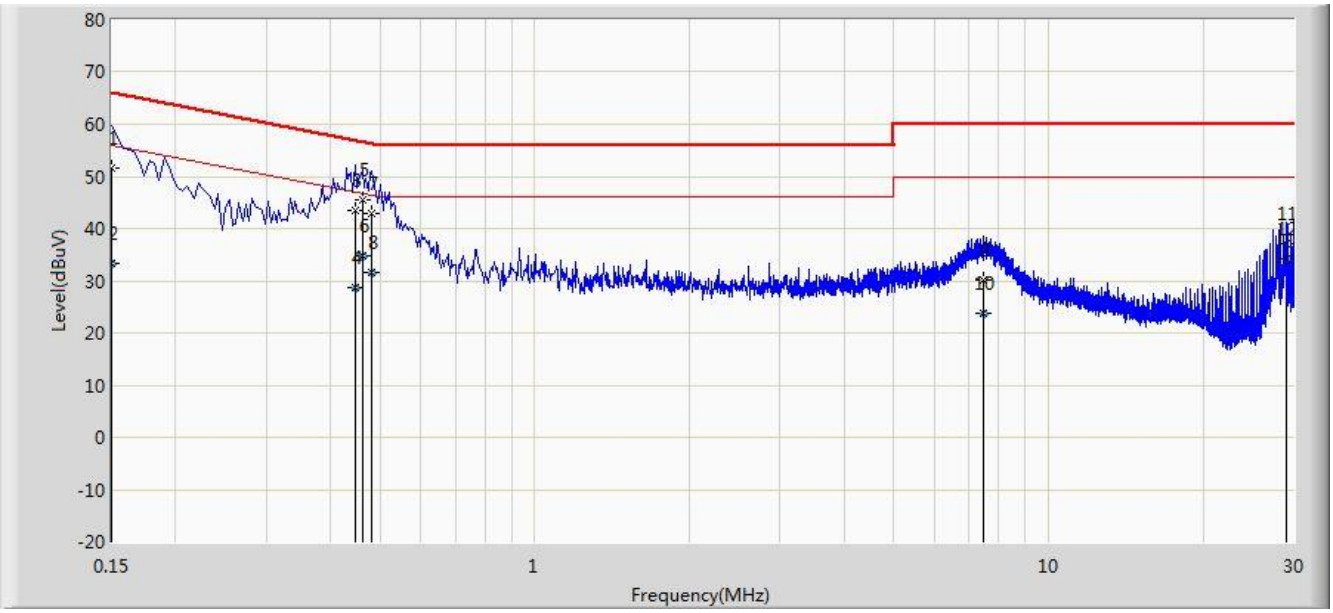
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.2.2.Test Setup



6.2.3.Test Result

Site: SR2	Time: 2019/03/08 - 17:36
Limit: FCC_Part15.107_CE_AC Power_ Class B	Engineer: Lia Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 1	

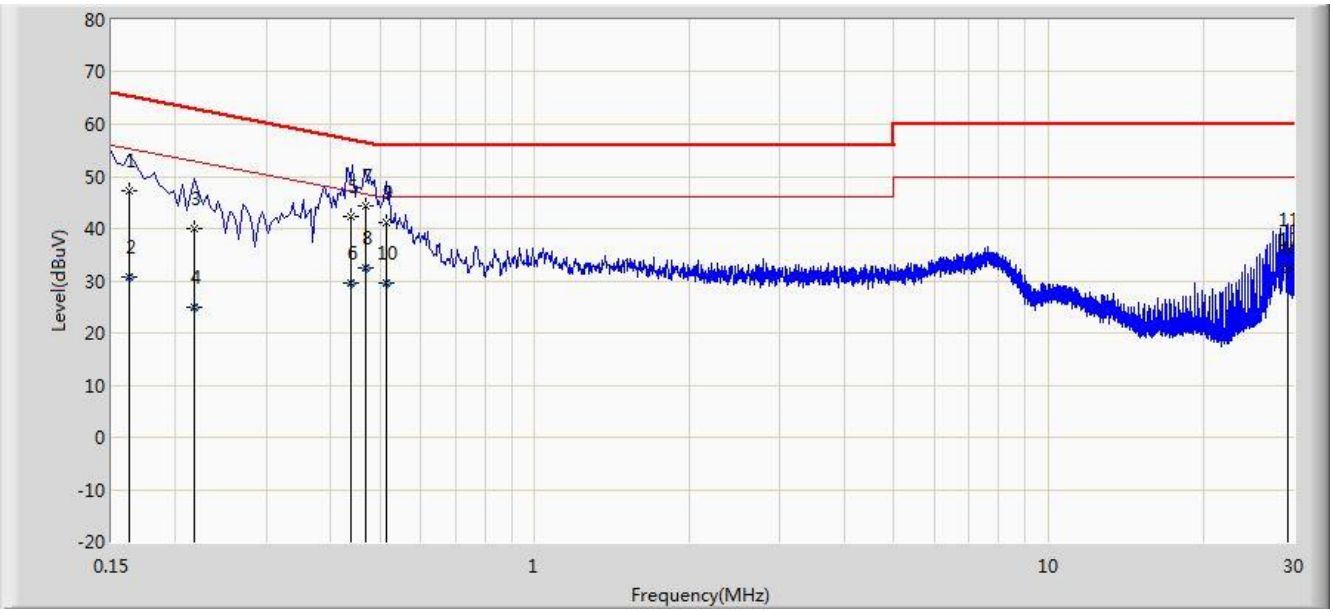


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.150	51.465	40.297	-14.535	66.000	11.168	QP
2			0.150	33.475	22.306	-22.525	56.000	11.168	AV
3			0.446	43.434	33.311	-13.515	56.949	10.123	QP
4			0.446	28.824	18.701	-18.125	46.949	10.123	AV
5		*	0.461	45.635	35.500	-11.040	56.675	10.135	QP
6			0.461	34.735	24.600	-11.940	46.675	10.135	AV
7			0.482	42.952	32.800	-13.353	56.305	10.152	QP
8			0.482	31.552	21.400	-14.753	46.305	10.152	AV
9			7.470	30.084	19.914	-29.916	60.000	10.170	QP
10			7.470	23.635	13.466	-26.365	50.000	10.170	AV
11			28.970	37.041	26.759	-22.959	60.000	10.282	QP
12			28.970	34.160	23.879	-15.840	50.000	10.282	AV

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

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

Site: SR2	Time: 2019/03/08 - 17:45
Limit: FCC_Part15.107_CE_AC Power_ Class B	Engineer: Lia Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 1	

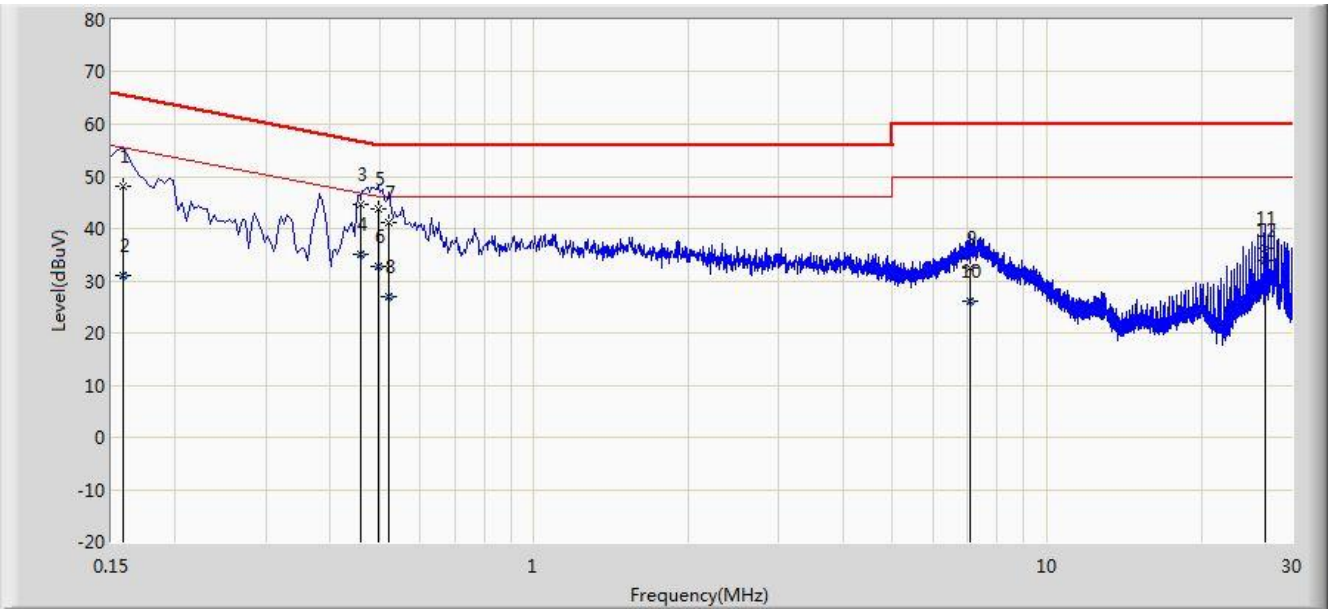


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.162	47.330	37.252	-18.030	65.361	10.078	QP
2			0.162	30.645	20.566	-24.716	55.361	10.078	AV
3			0.218	39.977	29.995	-22.918	62.895	9.981	QP
4			0.218	25.057	15.075	-27.838	52.895	9.981	AV
5			0.439	42.342	32.200	-14.739	57.081	10.142	QP
6			0.439	29.542	19.400	-17.539	47.081	10.142	AV
7		*	0.470	44.422	34.257	-12.092	56.514	10.164	QP
8			0.470	32.568	22.403	-13.946	46.514	10.164	AV
9			0.514	41.229	31.053	-14.771	56.000	10.176	QP
10			0.514	29.446	19.271	-16.554	46.000	10.176	AV
11			29.302	36.022	25.598	-23.978	60.000	10.424	QP
12			29.302	32.121	21.696	-17.879	50.000	10.424	AV

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

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

Site: SR2	Time: 2019/03/08 - 17:52
Limit: FCC_Part15.107_CE_AC Power_ Class B	Engineer: Lia Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 2	

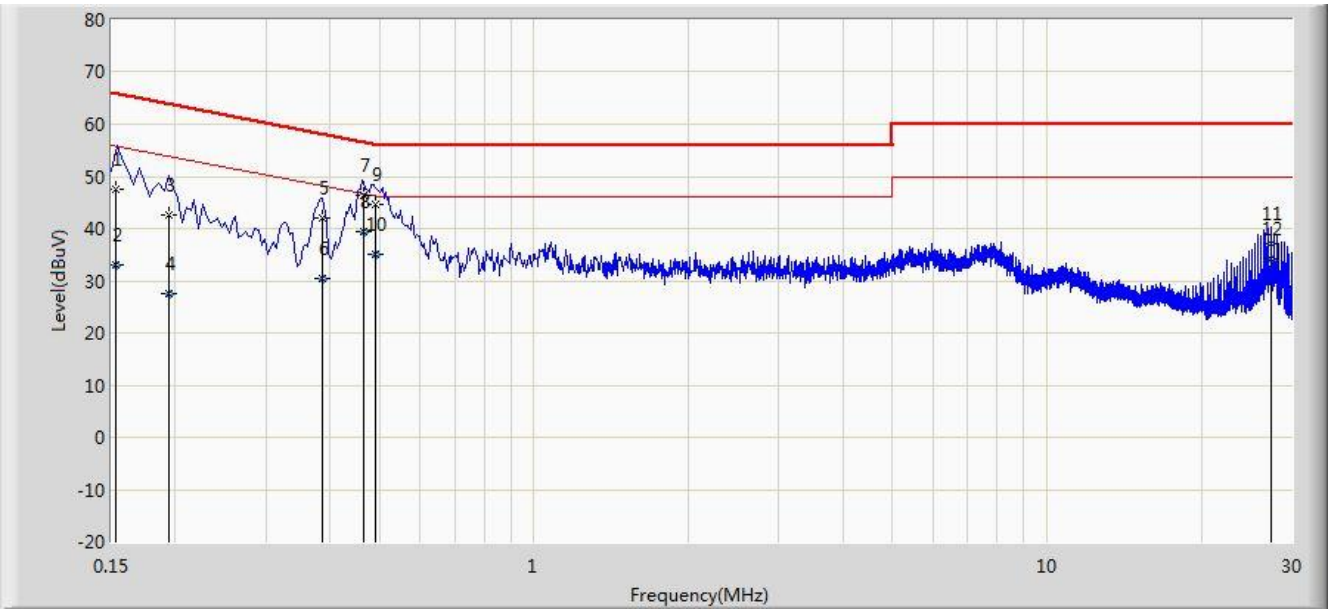


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.158	47.990	37.700	-17.579	65.568	10.290	QP
2			0.158	31.090	20.800	-24.479	55.568	10.290	AV
3			0.458	44.556	34.400	-12.173	56.729	10.156	QP
4		*	0.458	35.056	24.900	-11.673	46.729	10.156	AV
5			0.498	43.831	33.653	-12.202	56.033	10.178	QP
6			0.498	32.798	22.620	-13.235	46.033	10.178	AV
7			0.522	41.101	30.927	-14.899	56.000	10.174	QP
8			0.522	26.903	16.729	-19.097	46.000	10.174	AV
9			7.090	32.405	22.236	-27.595	60.000	10.169	QP
10			7.090	26.121	15.952	-23.879	50.000	10.169	AV
11			26.706	36.277	25.923	-23.723	60.000	10.354	QP
12			26.706	33.833	23.479	-16.167	50.000	10.354	AV

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

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

Site: SR2	Time: 2019/03/08 - 18:00
Limit: FCC_Part15.107_CE_AC Power_ Class B	Engineer: Lia Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.153	47.547	36.700	-18.289	65.836	10.847	QP
2			0.153	33.047	22.200	-22.789	55.836	10.847	AV
3			0.194	42.740	32.723	-21.124	63.864	10.017	QP
4			0.194	27.438	17.421	-26.426	53.864	10.017	AV
5			0.386	41.913	31.839	-16.236	58.149	10.074	QP
6			0.386	30.379	20.305	-17.771	48.149	10.074	AV
7			0.466	46.439	36.300	-10.146	56.585	10.139	QP
8		*	0.466	39.539	29.400	-7.046	46.585	10.139	AV
9			0.490	44.609	34.451	-11.559	56.168	10.158	QP
10			0.490	34.941	24.783	-11.226	46.168	10.158	AV
11			27.362	37.007	26.766	-22.993	60.000	10.241	QP
12			27.362	34.250	24.009	-15.750	50.000	10.241	AV

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

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

6.3. Radiated Emission Measurement

6.3.1.Test Limit

FCC Part 15.109 Limits		
Frequency (MHz)	Distance (m)	Level (dBμV/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

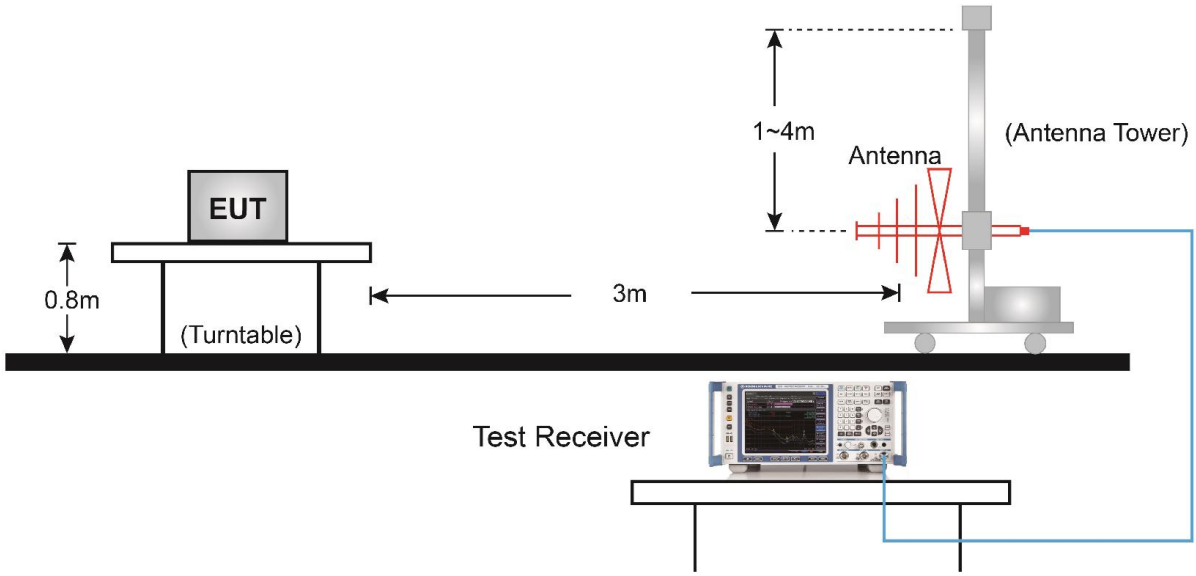
Note 1: The lower limit shall apply at the transition frequency.

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.

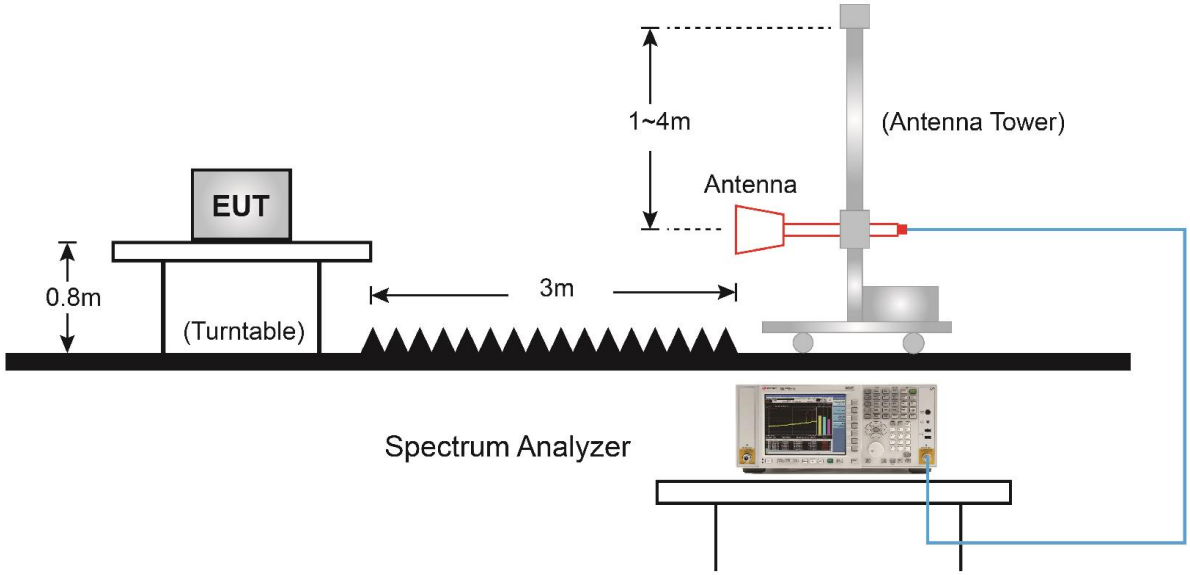
Note 3: E field strength (dBμV/m) = 20 log E field strength (uV/m)

6.3.2.Test Setup

<u>30MHz ~ 1GHz Test Setup:</u>

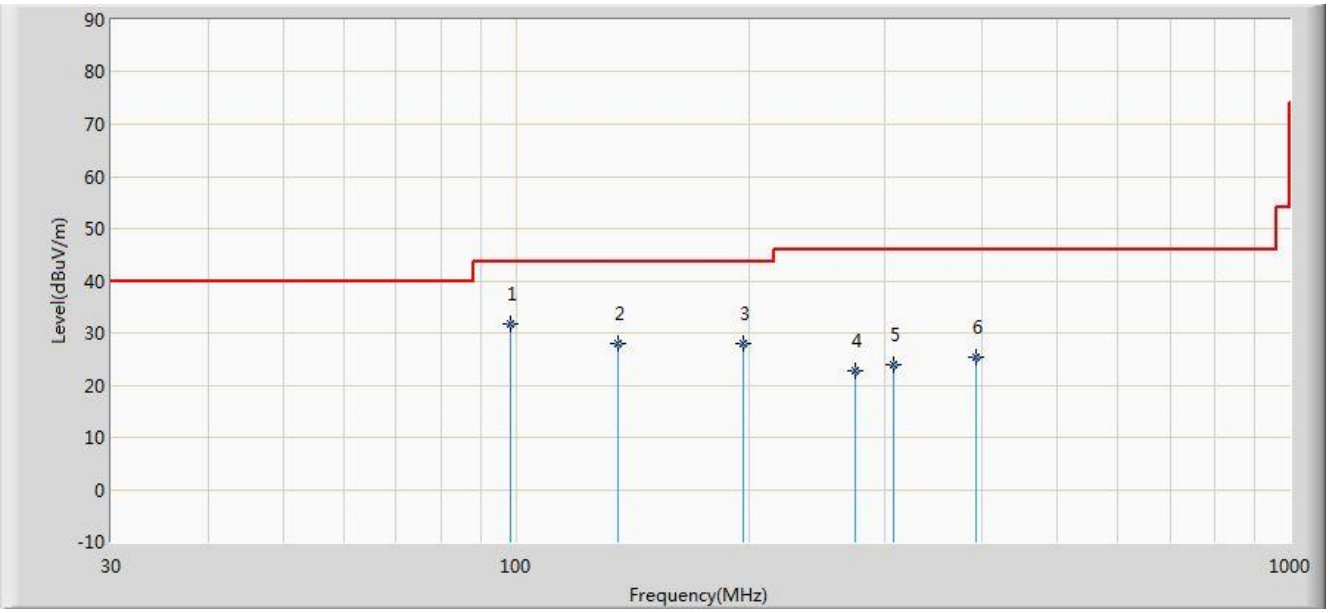


1GHz ~18GHz Test Setup:



6.3.3.Test Result

Site: AC1	Time: 2019/03/14 - 07:30
Limit: FCC_Part15.109_RE(3m)_ Class B	Engineer: David Lv
Probe: VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 1	

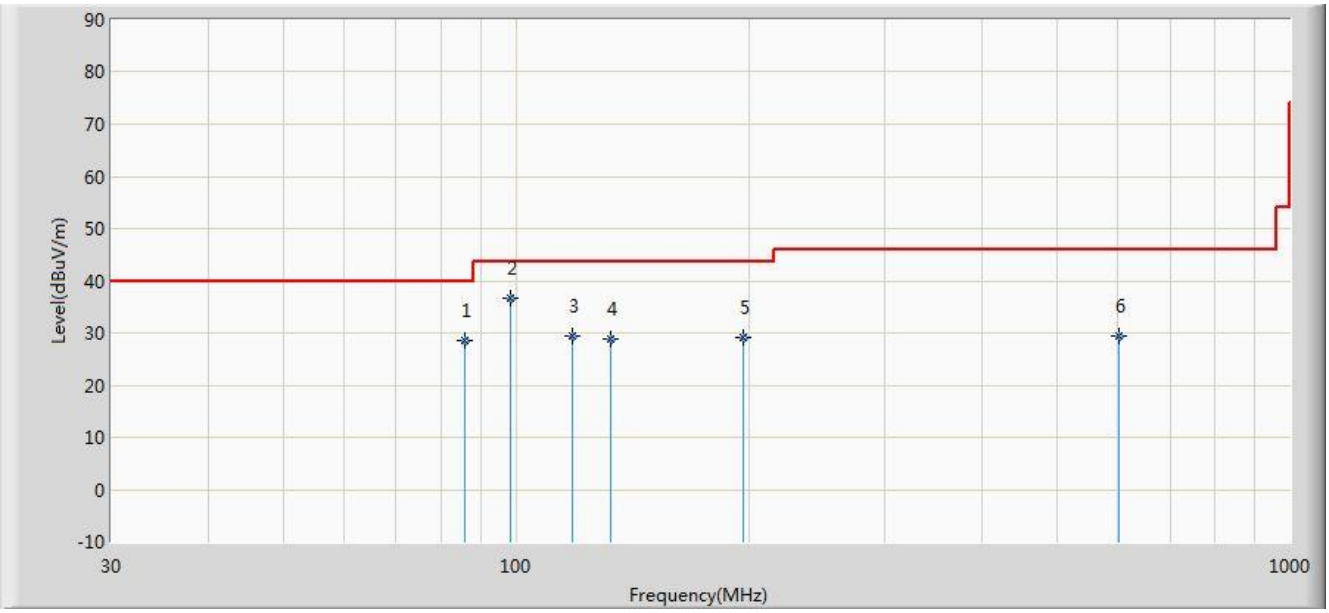


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	98.314	31.742	20.800	-11.758	43.500	10.941	QP
2			135.245	28.093	13.860	-15.407	43.500	14.233	QP
3			196.355	27.990	16.598	-15.510	43.500	11.392	QP
4			274.925	22.646	8.894	-23.354	46.000	13.752	QP
5			307.420	23.871	9.273	-22.129	46.000	14.598	QP
6			393.265	25.364	8.912	-20.636	46.000	16.452	QP

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

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

Site: AC1	Time: 2019/03/14 - 07:30
Limit: FCC_Part15.109_RE(3m)_ Class B	Engineer: David Lv
Probe: VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 1	

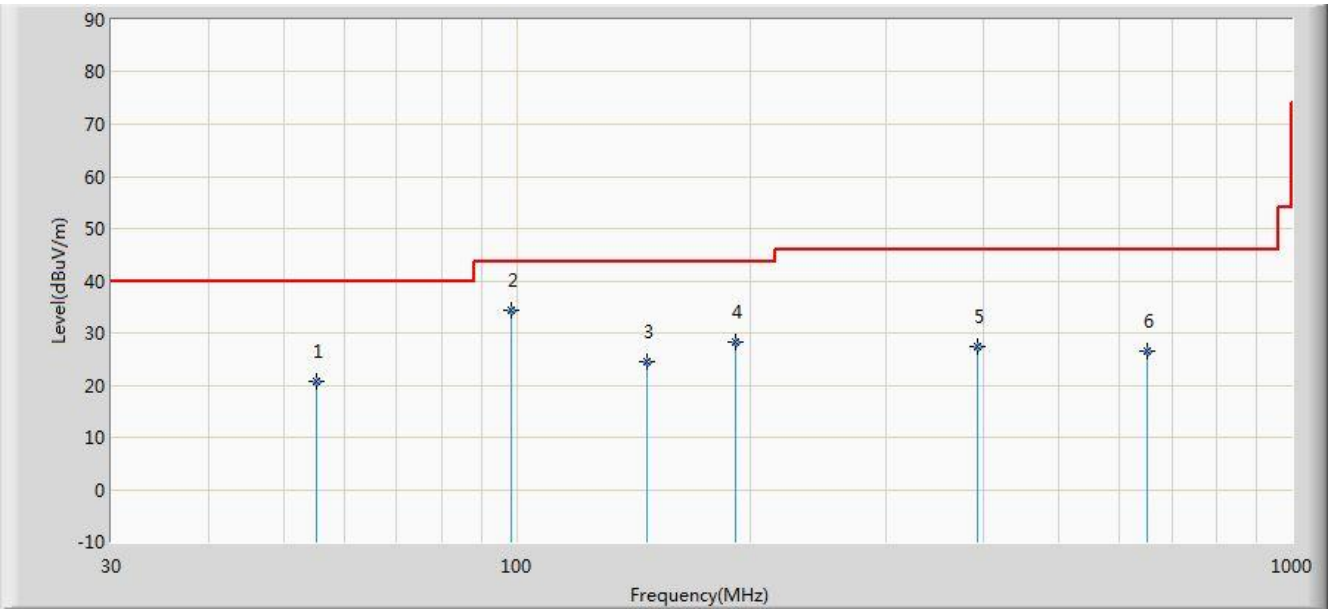


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			85.755	28.575	18.342	-11.425	40.000	10.233	QP
2		*	98.319	36.742	25.800	-6.758	43.500	10.942	QP
3			118.270	29.523	16.480	-13.977	43.500	13.043	QP
4			132.820	28.748	14.700	-14.752	43.500	14.048	QP
5			196.355	29.046	17.654	-14.454	43.500	11.392	QP
6			602.300	29.547	8.915	-16.453	46.000	20.631	QP

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

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

Site: AC1	Time: 2019/03/14 - 07:31
Limit: FCC_Part15.109_RE(3m)_ Class B	Engineer: David Lv
Probe: VULB 9168 _20-2000MHz	Polarity: Horizontal
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 2	

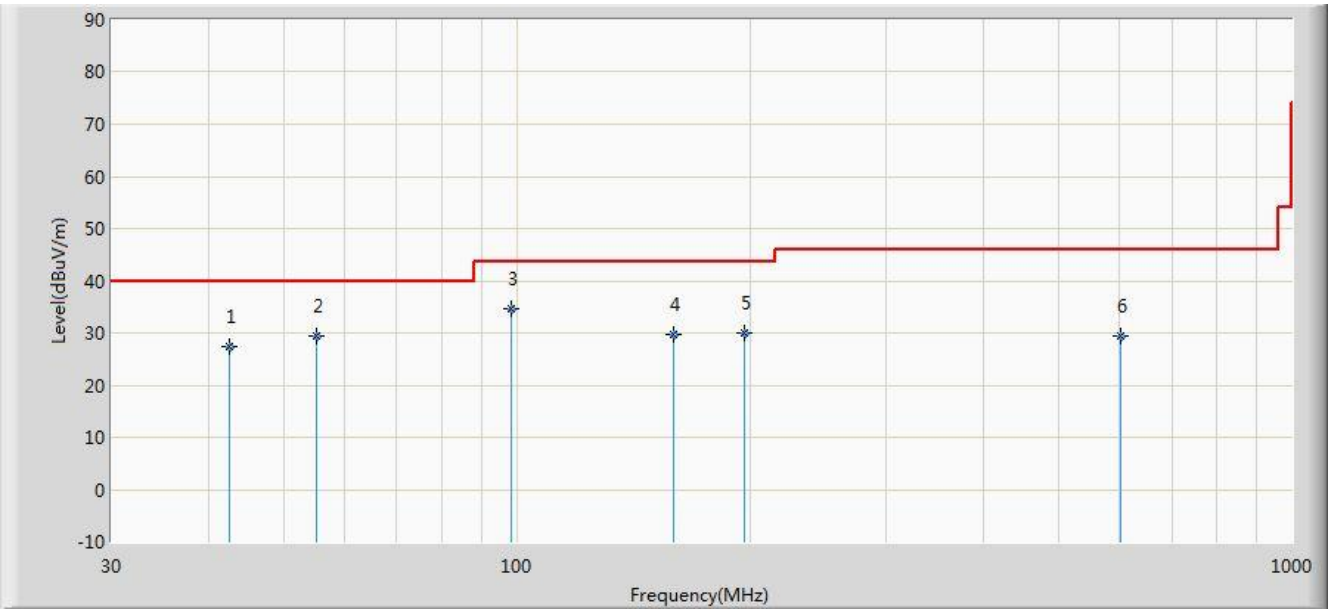


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			55.220	20.783	6.973	-19.217	40.000	13.810	QP
2		*	98.310	34.341	23.400	-9.159	43.500	10.941	QP
3			147.370	24.411	9.309	-19.089	43.500	15.102	QP
4			191.990	28.364	16.740	-15.136	43.500	11.624	QP
5			393.265	27.517	11.065	-18.483	46.000	16.452	QP
6			651.770	26.556	5.077	-19.444	46.000	21.479	QP

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

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

Site: AC1	Time: 2019/03/14 - 07:31
Limit: FCC_Part15.109_RE(3m)_ Class B	Engineer: David Lv
Probe: VULB 9168 _20-2000MHz	Polarity: Vertical
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 2	

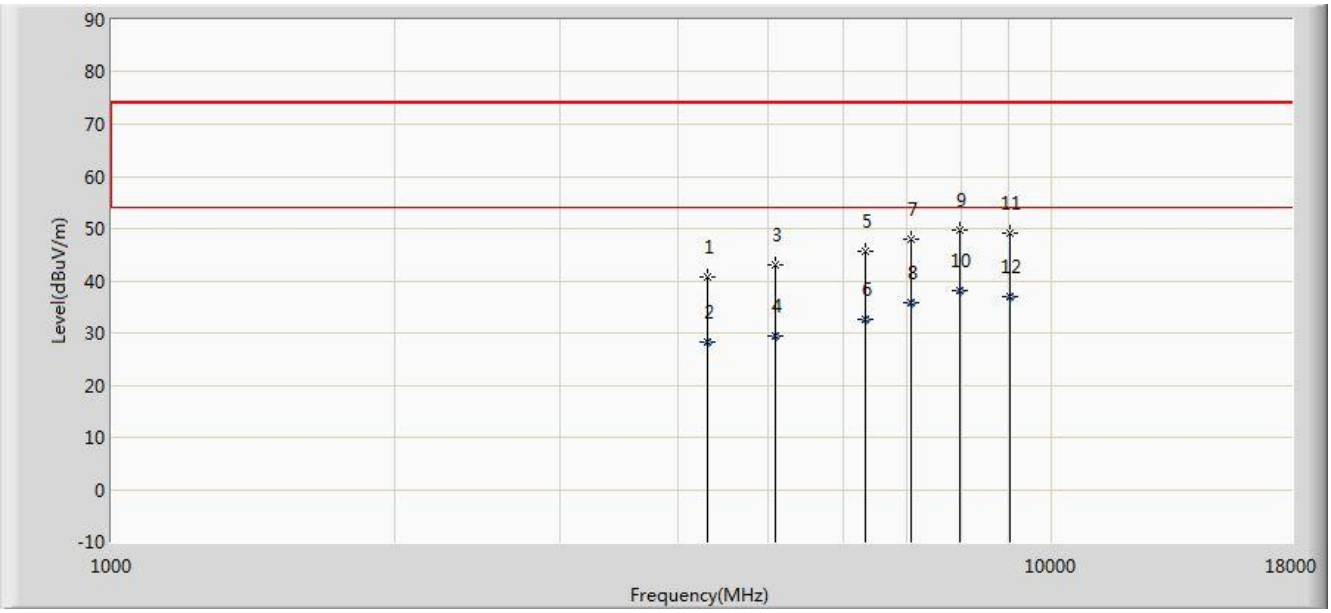


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			42.610	27.253	12.800	-12.747	40.000	14.452	QP
2			55.220	29.538	15.728	-10.462	40.000	13.810	QP
3		*	98.324	34.642	23.700	-8.858	43.500	10.942	QP
4			159.495	29.737	14.457	-13.763	43.500	15.280	QP
5			196.355	29.874	18.482	-13.626	43.500	11.392	QP
6			602.300	29.467	8.835	-16.533	46.000	20.631	QP

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

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

Site: AC1	Time: 2019/03/14 - 07:30
Limit: FCC_Part15.109_RE(3m)_ Class B	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 1	

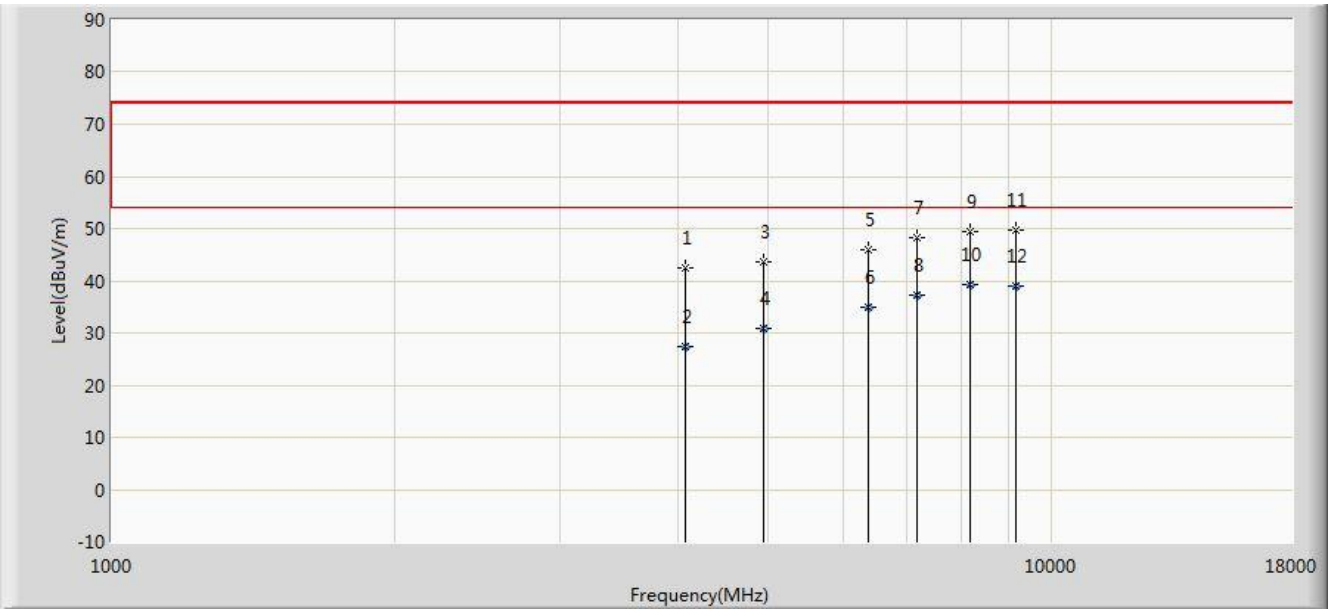


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			4309.708	40.804	36.429	-33.196	74.000	4.374	PK
2			4309.708	28.285	23.910	-25.715	54.000	4.374	AV
3			5080.000	43.104	36.647	-30.896	74.000	6.457	PK
4			5080.000	29.387	22.930	-24.613	54.000	6.457	AV
5			6329.500	45.784	36.817	-28.216	74.000	8.967	PK
6			6329.500	32.477	23.510	-21.523	54.000	8.967	AV
7			7094.500	48.004	36.025	-25.996	74.000	11.979	PK
8			7094.500	35.889	23.910	-18.111	54.000	11.979	AV
9			7978.500	49.799	36.161	-24.201	74.000	13.638	PK
10		*	7978.500	38.148	24.510	-15.852	54.000	13.638	AV
11			9032.500	49.274	35.898	-24.726	74.000	13.377	PK
12			9032.500	36.886	23.510	-17.114	54.000	13.377	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: AC1	Time: 2019/03/14 - 07:30
Limit: FCC_Part15.109_RE(3m)_ Class B	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 1	

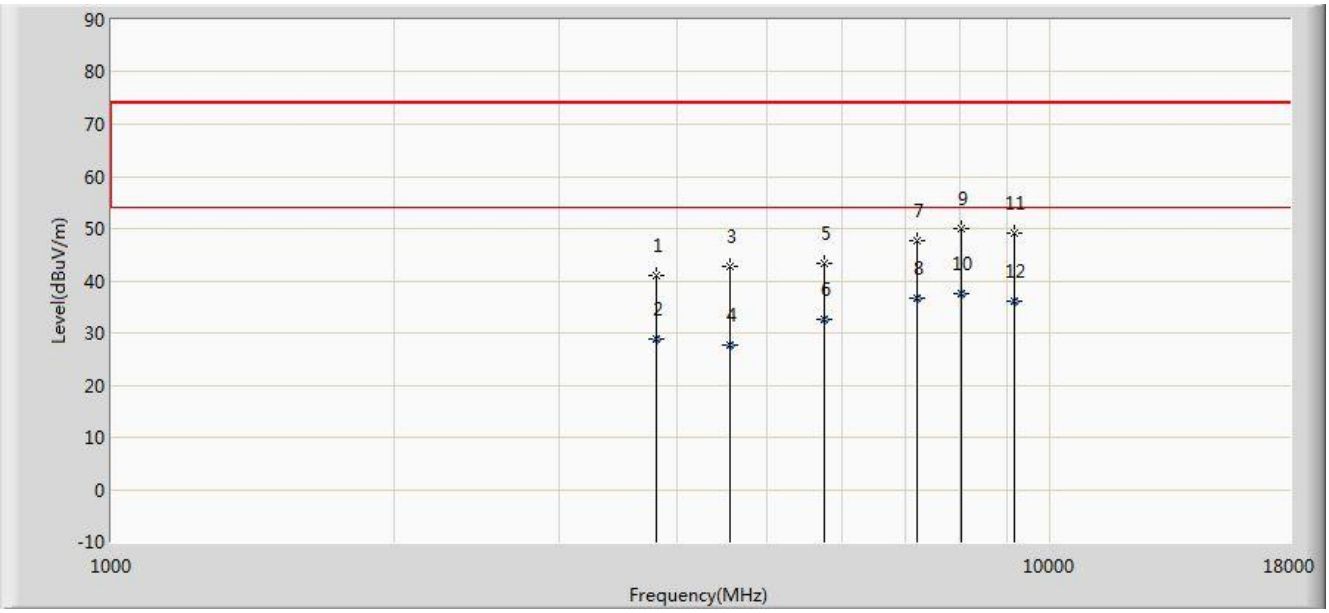


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			4077.000	42.337	38.859	-31.663	74.000	3.478	PK
2			4077.000	27.408	23.930	-26.592	54.000	3.478	AV
3			4944.000	43.667	37.585	-30.333	74.000	6.082	PK
4			4944.000	30.742	24.660	-23.258	54.000	6.082	AV
5			6372.000	46.043	36.908	-27.957	74.000	9.135	PK
6			6372.000	35.065	25.930	-18.935	54.000	9.135	AV
7			7196.500	48.383	35.837	-25.617	74.000	12.546	PK
8			7196.500	37.166	24.620	-16.834	54.000	12.546	AV
9			8191.000	49.319	36.178	-24.681	74.000	13.141	PK
10		*	8191.000	39.291	26.150	-14.709	54.000	13.141	AV
11			9160.000	49.751	35.637	-24.249	74.000	14.114	PK
12			9160.000	39.044	24.930	-14.956	54.000	14.114	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: AC1	Time: 2019/03/14 - 07:31
Limit: FCC_Part15.109_RE(3m)_ Class B	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 2	

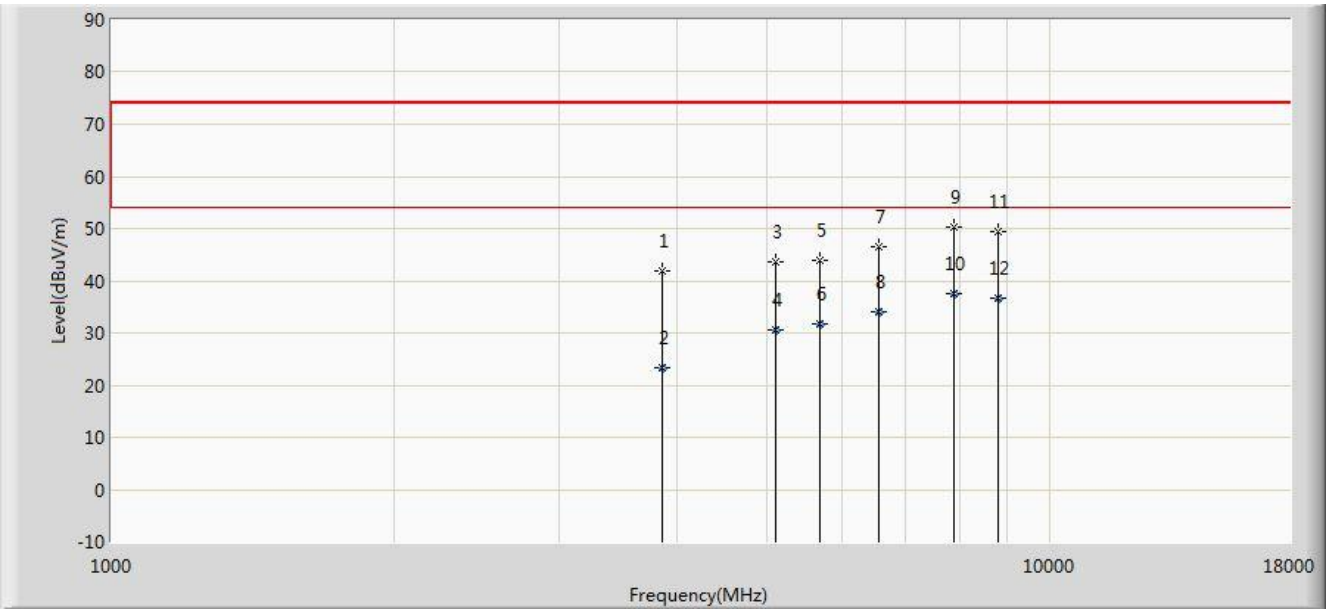


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			3813.500	40.968	38.154	-33.032	74.000	2.814	PK
2			3813.500	28.914	26.100	-25.086	54.000	2.814	AV
3			4561.500	42.612	37.647	-31.388	74.000	4.966	PK
4			4561.500	27.585	22.620	-26.415	54.000	4.966	AV
5			5743.000	43.431	36.028	-30.569	74.000	7.403	PK
6			5743.000	32.493	25.090	-21.507	54.000	7.403	AV
7			7205.000	47.643	35.038	-26.357	74.000	12.605	PK
8			7205.000	36.795	24.190	-17.205	54.000	12.605	AV
9			8038.000	50.133	36.386	-23.867	74.000	13.747	PK
10		*	8038.000	37.657	23.910	-16.343	54.000	13.747	AV
11			9151.500	49.063	35.004	-24.937	74.000	14.059	PK
12			9151.500	35.989	21.930	-18.011	54.000	14.059	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: AC1	Time: 2019/03/14 - 07:31
Limit: FCC_Part15.109_RE(3m)_ Class B	Engineer: David Lv
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: FREKVENS Speaker	Power: AC 120V/60Hz
Test Mode 2	



No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			3856.000	41.824	38.991	-32.176	74.000	2.833	PK
2			3856.000	23.393	20.560	-30.607	54.000	2.833	AV
3			5105.500	43.552	36.934	-30.448	74.000	6.618	PK
4			5105.500	30.698	24.080	-23.302	54.000	6.618	AV
5			5692.000	43.802	36.691	-30.198	74.000	7.111	PK
6			5692.000	31.711	24.600	-22.289	54.000	7.111	AV
7			6559.000	46.582	36.376	-27.418	74.000	10.206	PK
8			6559.000	34.106	23.900	-19.894	54.000	10.206	AV
9			7902.000	50.211	36.829	-23.789	74.000	13.382	PK
10		*	7902.000	37.482	24.100	-16.518	54.000	13.382	AV
11			8803.000	49.491	36.212	-24.509	74.000	13.279	PK
12			8803.000	36.789	23.510	-17.211	54.000	13.279	AV

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

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

7. CONCLUSION

The data collected relate only the item(s) tested and show that the **FREKVENS Speaker** has been tested to comply with the requirements specified in Part 15B of the FCC Rules and ICES-003 Issue 6 of IC Rules.

The End

Appendix A – Test Setup Photograph

Refer to “1809WSU002-UT” file.

Appendix B – EUT Photograph

Refer to “1809WSU002-UE” file.