



MEASUREMENT REPORT

FCC Part 15 Subpart B

FCC ID: 2ALJ3AP32X

Applicant: HAN Networks Co., Ltd.

Product: HAN Access Point

Model No.: AP321, AP321e

Brand Name: HAN NETWORKS; HANNETWORKS

FCC Rule Part(s): FCC Part 15 Subpart B: 2020

Test Procedure(s): ANSI C63.4: 2014

Test Date: October 22 ~ 24, 2019

Reviewed By:

(Sunny Sun)

Approved By:

(Robin Wu)



The test results relate only to the samples tested.

This report is supplemented to MRT Original "1912RSU023-U5" Report, FCC ID: 2AI9TOAW-AP132X updating applicant, product name and model number.

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
1909RSU036-U5	Rev. 01	Initial Report	01-10-2020	Valid

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General Information

Applicant:	HAN Networks Co., Ltd.
Applicant Address:	101-A16, 1 st Floor, Building 3, No.9 compound, Yongfeng Road, Haidian District, Beijing, P.R. China
Manufacturer:	HAN Networks Co., Ltd.
Manufacturer Address:	101-A16, 1 st Floor, Building 3, No.9 compound, Yongfeng Road, Haidian District, Beijing, P.R. China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
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 accredited (MRT Designation No. CN1166) 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 Innovation, Science and Economic Development Canada.

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:	HAN Access Point
Model No.:	AP321, AP321e
Brand Name:	HAN NETWORKS; HANNETWORKS
Wi-Fi Specification:	802.11b/g/n/ac/ax
Bluetooth Specification:	v5.1
Operating Temperature:	0 ~ 50 °C
Power Type:	PoE input or AC adapter input
Operating Environment:	Indoor Use
Accessories	
Adapter 1#:	Configuration: ADP-30HR B Input Power: 100 - 240V ~ 50/60Hz, 1.0A Output Power: 48VDC/0.66A
Adapter 2#:	Configuration: PD-9001 25GR/AC Input Power: 100 - 240V ~ 50/60Hz, 1.5A Output Power: 55VDC/0.63A

Note 1: The difference between models is that EUT use different Wi-Fi antenna and appearance, other hardware and software are the same. This report have been assessed with AP321e.

Note 2: The adapters not market with AP.

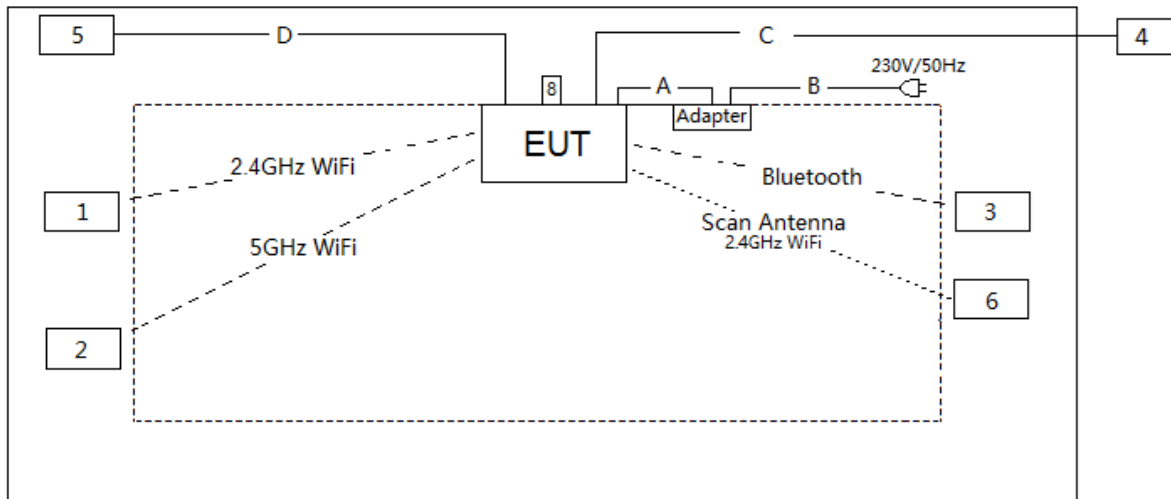
2.2. Test Mode

Test Mode
Mode 1: Power by AC Adapter & Communicate with Notebook by LAN Cable & Communicate with Notebook by Wi-Fi and Bluetooth, USB Copy via command.
Mode 2: Power by PoE Adapter & Communicate with Notebook by LAN Cable & Communicate with Notebook by Wi-Fi and Bluetooth, USB Copy via command.

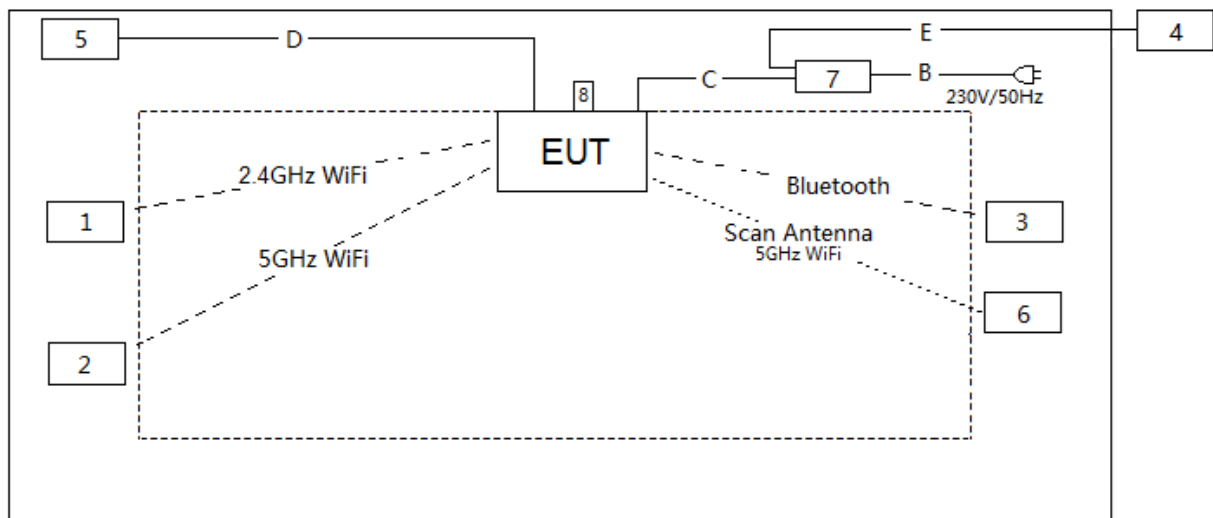
2.3. Configuration of Tested System

The unit was tested per the guidance FCC Part 15 Subpart B: 2020, 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, 1.5m
B	Power Cable	Non-Shielding, 1.5m
C	LAN Cable	Non-Shielding, >10m
D	LAN Cable	Non-Shielding, >10m
E	LAN Cable	Non-Shielding, >10m

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	Notebook	Lenovo	E430c	MP-4CFX213/10	Non-Shielded, 1.8m
2	iPhone	Apple	ML7E2CH/A	C6KR9BR2GRY	N/A
3	Mobile Phone	OPPO	X9009	N/A	N/A
4	Notebook	ASUS	PRO45V	N/A	Non-Shielded, 1.8m
5	Notebook	Lenovo	E431	PF-10ZRN 13/12	Non-Shielded, 1.8m
6	Mobile Phone	HUAWEI	M836	N/A	N/A
7	PoE Adapter	Microsemi	PD-9001-25GR/AC	N16397264000024A00	Non-Shielded, 1.8m
8	USB Dongle	SanDisk	BL161025264V	N/A	N/A

2.5. 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, 50 Ω /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	2020/04/15
Two-Line V-Network	R&S	ENV 216	MRTSUE06002	1 year	2020/06/13
Two-Line V-Network	R&S	ENV 216	MRTSUE06003	1 year	2020/06/13
Thermohygrometer	Testo	608-H1	MRTSUE06404	1 year	2020/08/08
Shielding Room	MIX-BEP	Chamber-SR2	MRTSUE06215	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	2020/08/01
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2020/09/03
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2020/10/13
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2020/02/24
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2020/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2020/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2020/08/01
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2020/11/13
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2020/10/13
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2020/10/27
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06597	1 year	2020/02/24
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2020/11/15
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2020/12/15
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2020/04/30

Software	Version	Function
EMI Software	V3	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 $k = 2$.

Conducted Emission - SR2	
The maximum measurement uncertainty is evaluated as:	
9kHz~150kHz: 3.84dB	
150kHz~30MHz: 3.46dB	
Radiated Disturbance - AC2	
The maximum measurement uncertainty is evaluated as:	
Horizontal:	30MHz~300MHz: 3.75dB
	300MHz~1GHz: 3.53dB
	1GHz~18GHz: 4.28dB
Vertical:	30MHz~300MHz: 3.86dB
	300MHz~1GHz: 3.53dB
	1GHz~18GHz: 4.33dB
Radiated Disturbance - AC2	
The maximum measurement uncertainty is evaluated as:	
Horizontal:	30MHz~300MHz: 3.75dB
	300MHz~1GHz: 3.53dB
	1GHz~18GHz: 4.28dB
Vertical:	30MHz~300MHz: 3.86dB
	300MHz~1GHz: 3.53dB
	1GHz~18GHz: 4.33dB

6. TEST RESULT

6.1. Summary

Normative References	Test Description	Test Result (Pass/Fail)
15.107	Conducted Emission	Pass
15.109	Radiated Emission	Pass

6.2. Conducted Emission Measurement

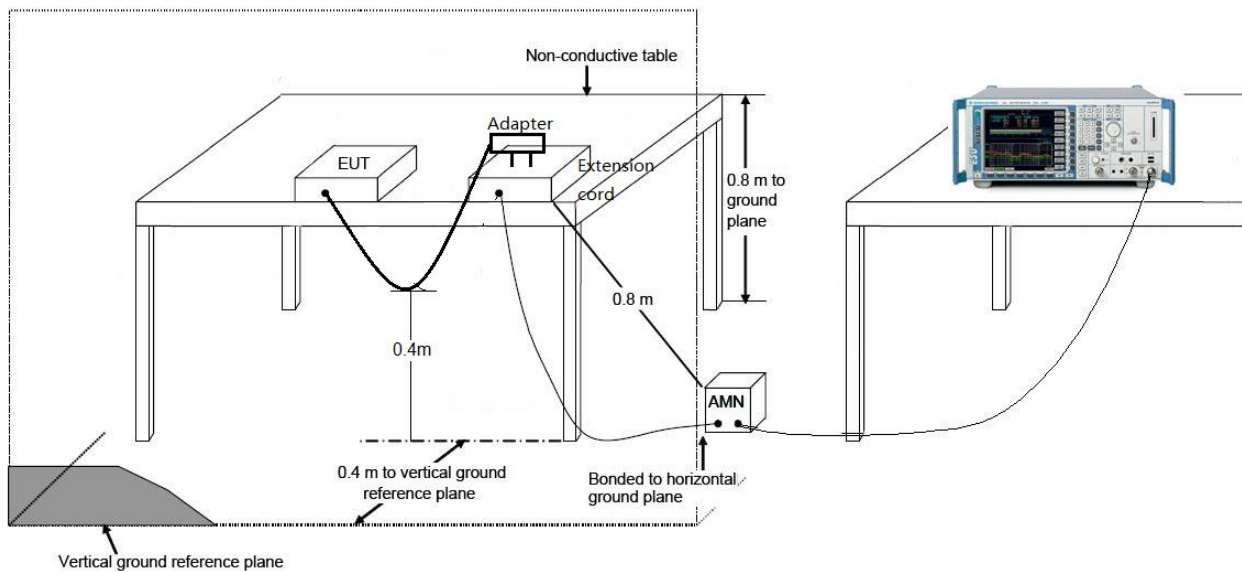
6.2.1. Test Limit

FCC Part 15.107 Limits		
Frequency (MHz)	QP (dBuV)	AV (dBuV)
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.

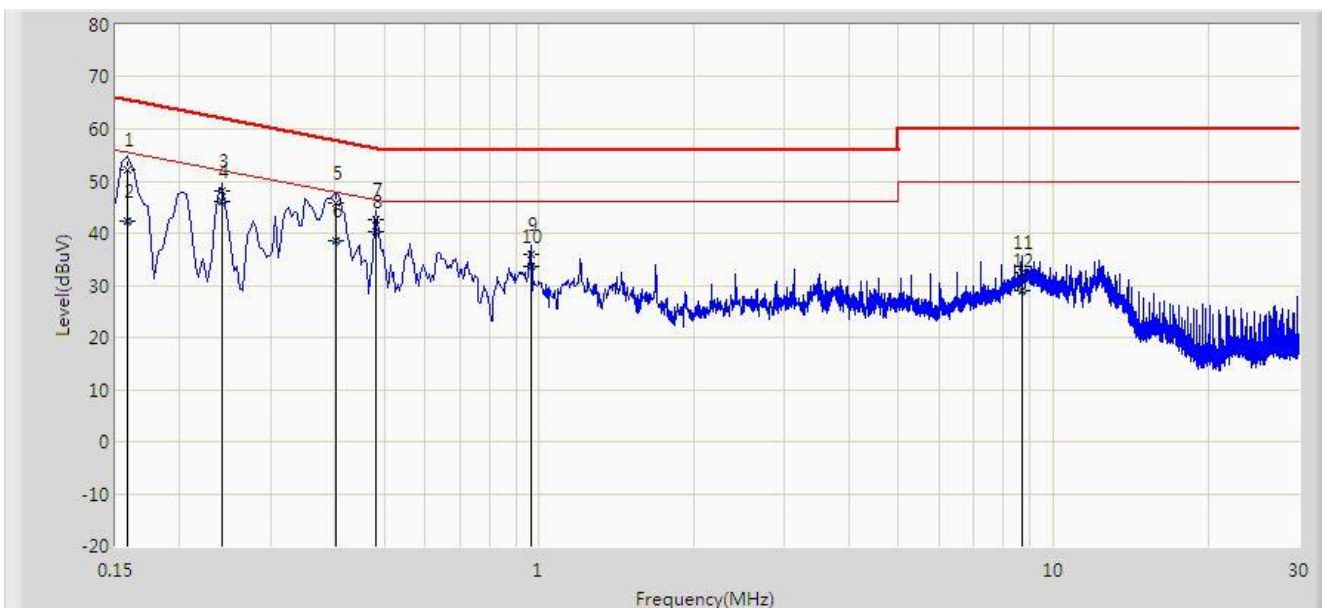
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.2.2. Test Setup



6.2.3. Test Result of Conducted Emissions

Site: SR2	Time: 2019/10/24 - 17:05
Limit: FCC_Part15.107_CE	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 1	

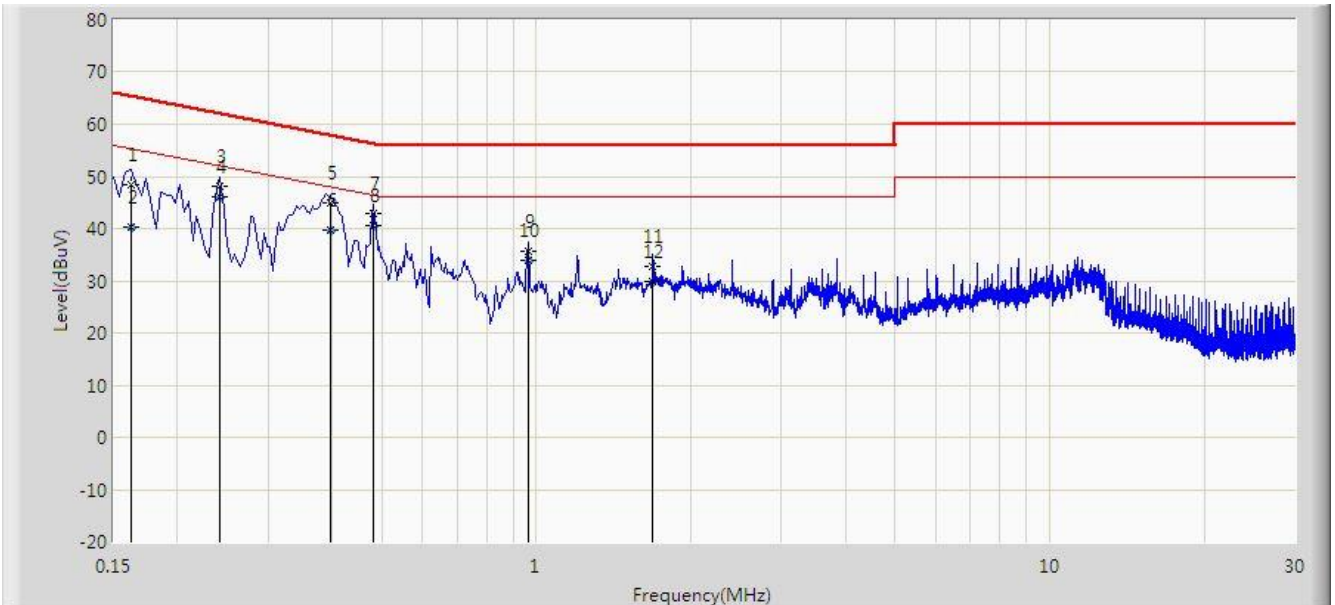


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Margin (dB)	Limit (dBμV)	Factor (dB)	Type
1			0.158	52.313	42.002	-13.256	65.568	10.311	QP
2			0.158	42.328	32.017	-13.241	55.568	10.311	AV
3			0.242	48.228	38.271	-13.799	62.027	9.958	QP
4		*	0.242	46.003	36.045	-6.024	52.027	9.958	AV
5			0.402	45.783	35.696	-12.029	57.812	10.087	QP
6			0.402	38.582	28.495	-9.230	47.812	10.087	AV
7			0.482	42.479	32.327	-13.826	56.305	10.152	QP
8			0.482	40.251	30.100	-6.053	46.305	10.152	AV
9			0.962	35.946	26.018	-20.054	56.000	9.928	QP
10			0.962	33.659	23.731	-12.341	46.000	9.928	AV
11			8.666	32.560	22.381	-27.440	60.000	10.179	QP
12			8.666	28.942	18.764	-21.058	50.000	10.179	AV

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

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

Site: SR2	Time: 2019/10/24 - 17:10
Limit: FCC_Part15.107_CE	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 1	

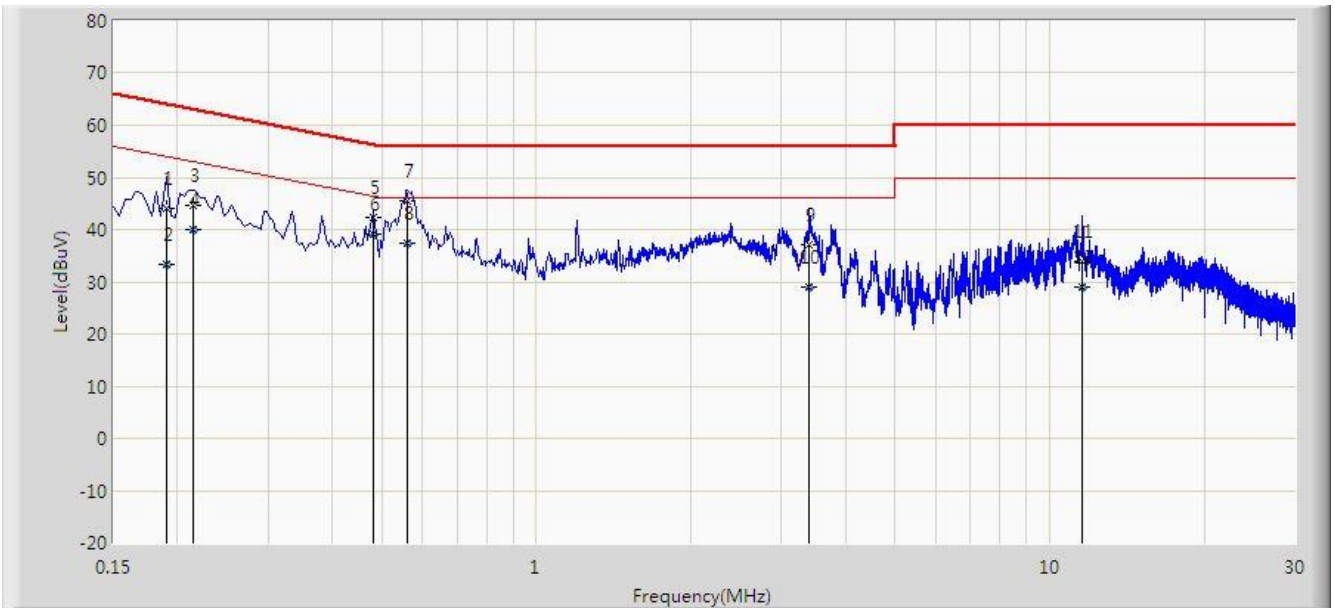


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.162	48.291	38.213	-17.069	65.361	10.078	QP
2			0.162	40.254	30.175	-15.107	55.361	10.078	AV
3			0.242	48.260	38.265	-13.767	62.027	9.995	QP
4			0.242	46.136	36.141	-5.892	52.027	9.995	AV
5			0.398	45.007	34.896	-12.888	57.895	10.111	QP
6			0.398	39.702	29.591	-8.193	47.895	10.111	AV
7			0.482	42.959	32.785	-13.346	56.305	10.173	QP
8		*	0.482	40.464	30.291	-5.841	46.305	10.173	AV
9			0.962	35.725	25.796	-20.275	56.000	9.929	QP
10			0.962	33.836	23.906	-12.164	46.000	9.929	AV
11			1.686	32.627	22.744	-23.373	56.000	9.883	QP
12			1.686	29.865	19.981	-16.135	46.000	9.883	AV

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

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

Site: SR2	Time: 2019/10/24 - 17:16
Limit: FCC_Part15.107_CE	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 2	

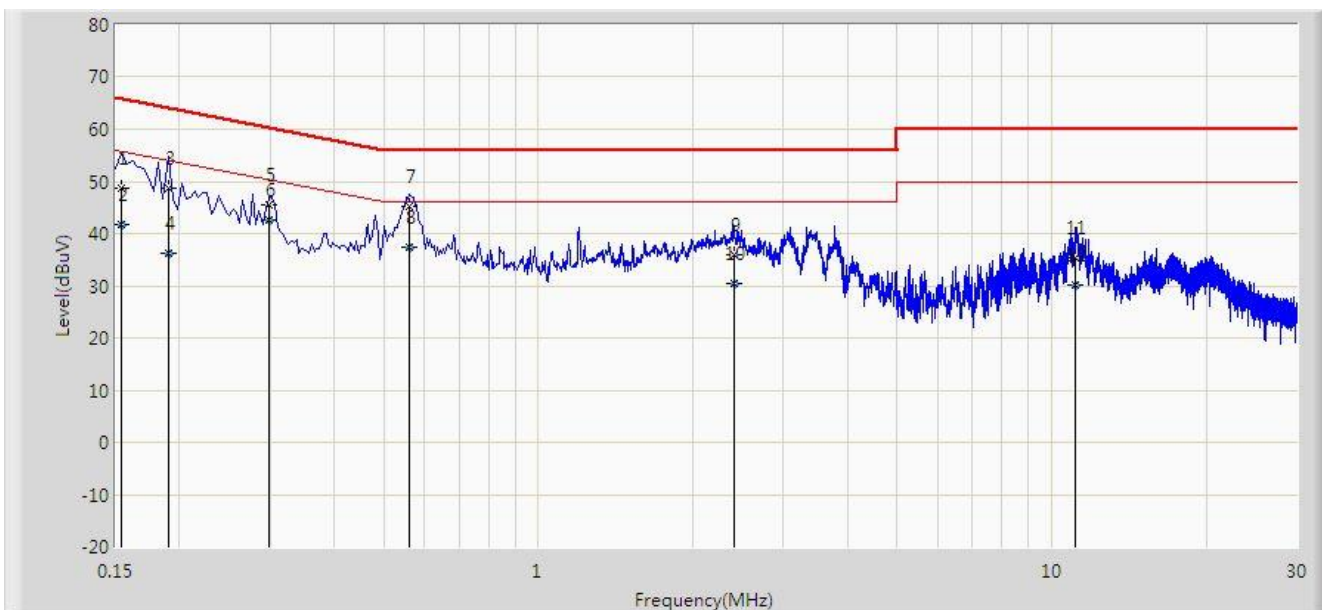


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.190	43.940	33.911	-20.096	64.037	10.029	QP
2			0.190	33.363	23.335	-20.673	54.037	10.029	AV
3			0.214	44.726	34.769	-18.323	63.049	9.957	QP
4			0.214	40.023	30.067	-13.025	53.049	9.957	AV
5			0.482	42.323	32.172	-13.981	56.305	10.152	QP
6		*	0.482	39.079	28.928	-7.225	46.305	10.152	AV
7			0.562	45.480	35.346	-10.520	56.000	10.135	QP
8			0.562	37.386	27.251	-8.614	46.000	10.135	AV
9			3.406	36.968	27.067	-19.032	56.000	9.901	QP
10			3.406	29.121	19.221	-16.879	46.000	9.901	AV
11			11.562	33.930	23.831	-26.070	60.000	10.099	QP
12			11.562	28.856	18.757	-21.144	50.000	10.099	AV

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

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

Site: SR2	Time: 2019/10/24 - 17:22
Limit: FCC_Part15.107_CE	Engineer: Liz Yuan
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: HAN Access Point	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			0.154	48.570	37.854	-17.212	65.781	10.716	QP
2			0.154	41.633	30.917	-14.149	55.781	10.716	AV
3			0.190	48.588	38.561	-15.448	64.037	10.028	QP
4			0.190	36.087	26.059	-17.950	54.037	10.028	AV
5			0.299	45.437	35.400	-14.834	60.271	10.037	QP
6		*	0.299	42.737	32.700	-7.534	50.271	10.037	AV
7			0.562	45.296	35.144	-10.704	56.000	10.152	QP
8			0.562	37.351	27.198	-8.649	46.000	10.152	AV
9			2.402	35.972	26.108	-20.028	56.000	9.864	QP
10			2.402	30.352	20.488	-15.648	46.000	9.864	AV
11			11.106	35.315	25.186	-24.685	60.000	10.129	QP
12			11.106	30.271	20.142	-19.729	50.000	10.129	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)	Field Strength (dB μ V/m)	Measured Distance (Meters)
30 - 88	40	3
88 - 216	43.5	3
216 - 960	46	3
Above 960	54	3

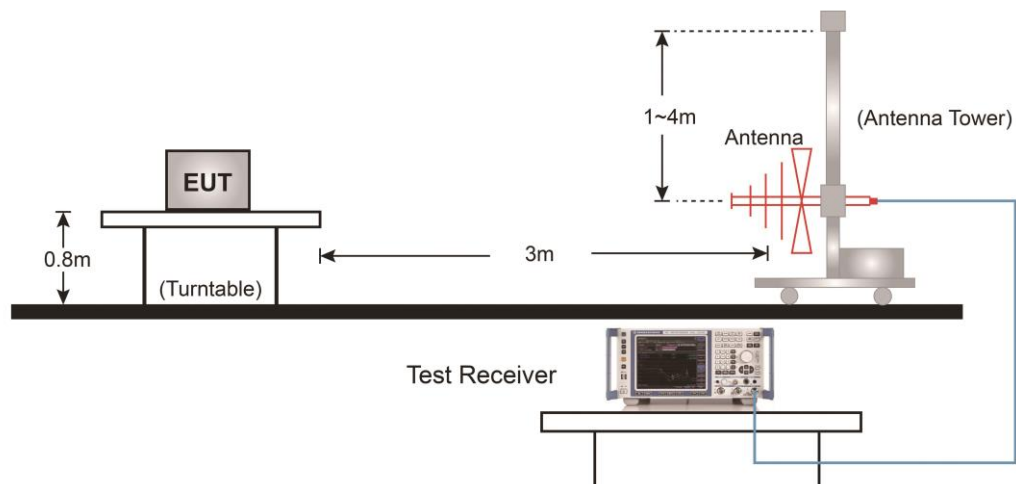
Note 1: The lower limit shall apply at the transition frequency.

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.

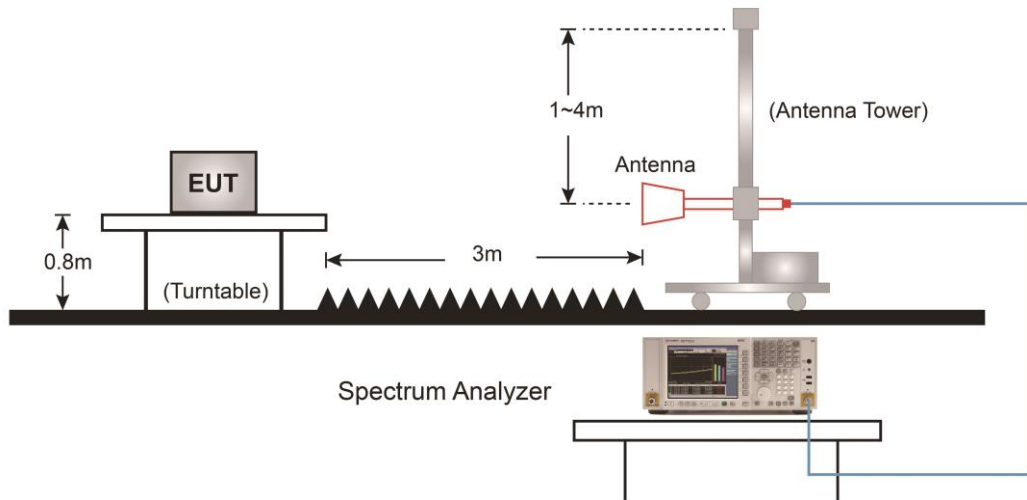
Note 3: E field strength (dB μ V/m) = 20 log E field strength (uV/m)

6.3.2. Test Setup

30MHz ~ 1GHz Test Setup:

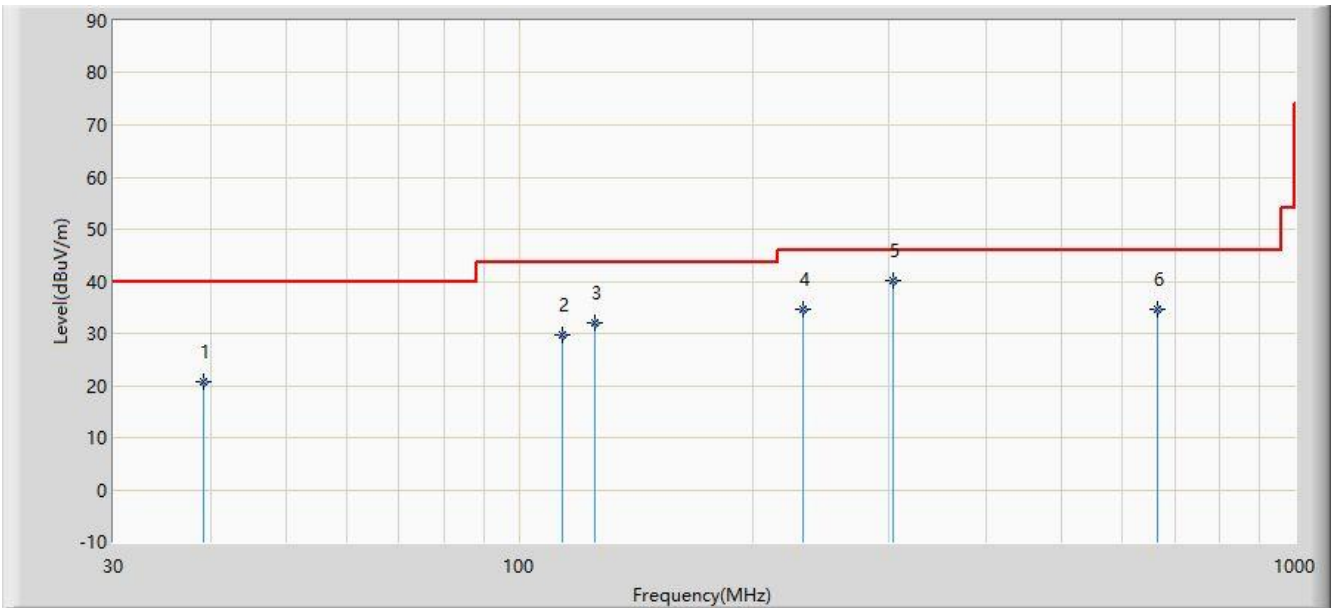


1GHz ~18GHz Test Setup:



6.3.3. Test Result of Radiated Emissions

Site: AC2	Time: 2019/10/22 - 08:50
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Kyrie Xie
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 1	

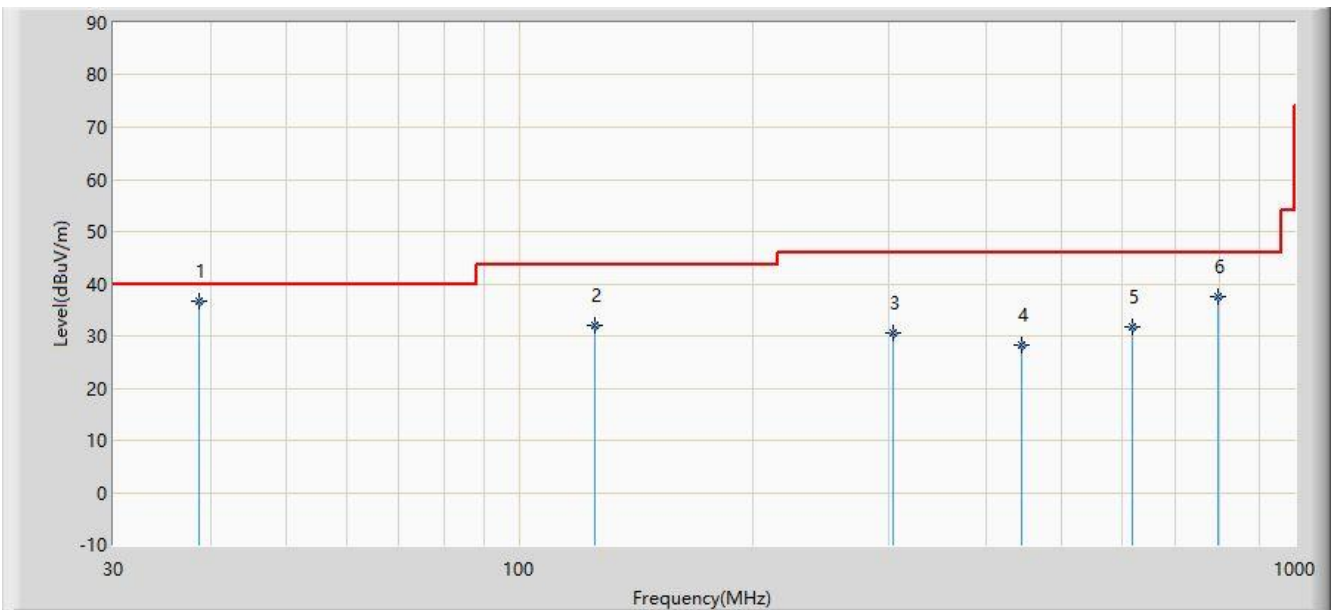


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			39.215	20.856	7.215	-19.144	40.000	13.641	QP
2			113.905	29.663	17.540	-13.837	43.500	12.123	QP
3			125.060	32.137	21.750	-11.363	43.500	10.387	QP
4			232.245	34.684	21.741	-11.316	46.000	12.943	QP
5		*	304.025	40.189	25.780	-5.811	46.000	14.408	QP
6			665.540	34.609	14.065	-11.391	46.000	20.544	QP

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

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

Site: AC2	Time: 2019/10/22 - 08:50
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Kyrie Xie
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 1	

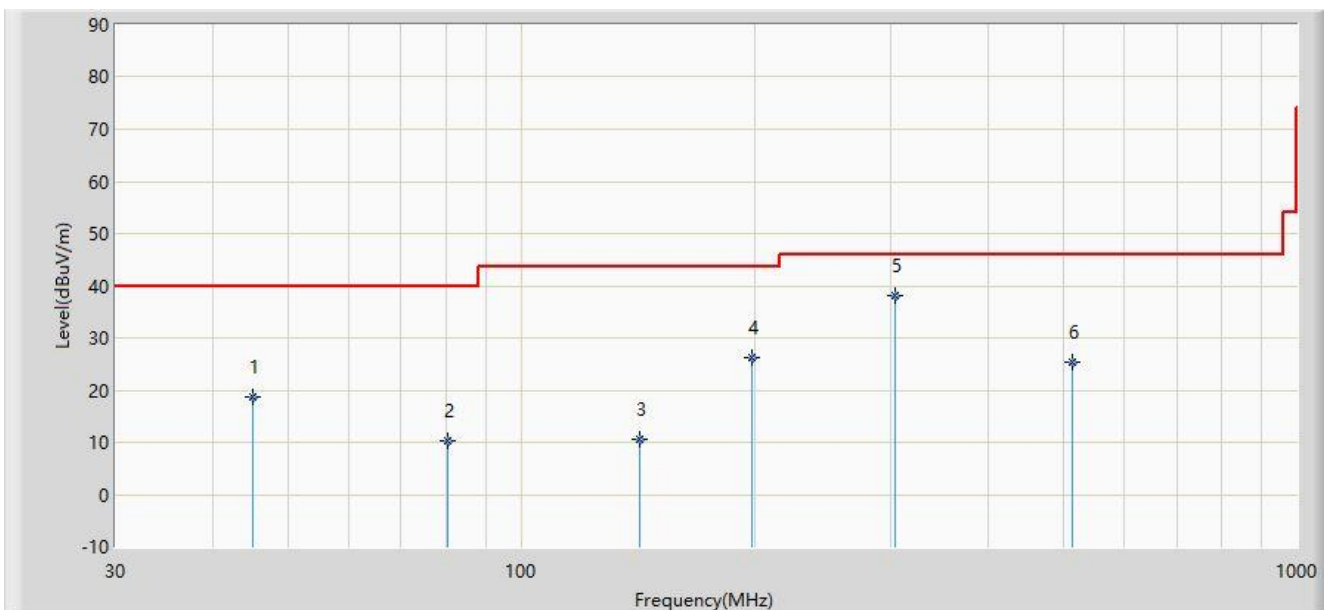


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	38.730	36.737	23.190	-3.263	40.000	13.547	QP
2			125.060	32.137	21.750	-11.363	43.500	10.387	QP
3			304.205	30.611	16.198	-15.389	46.000	14.413	QP
4			443.705	28.241	11.258	-17.759	46.000	16.983	QP
5			618.790	31.656	11.756	-14.344	46.000	19.900	QP
6			796.000	37.658	15.325	-8.342	46.000	22.333	QP

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

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

Site: AC2	Time: 2019/10/22 - 08:50
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Kyrie Xie
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 2	

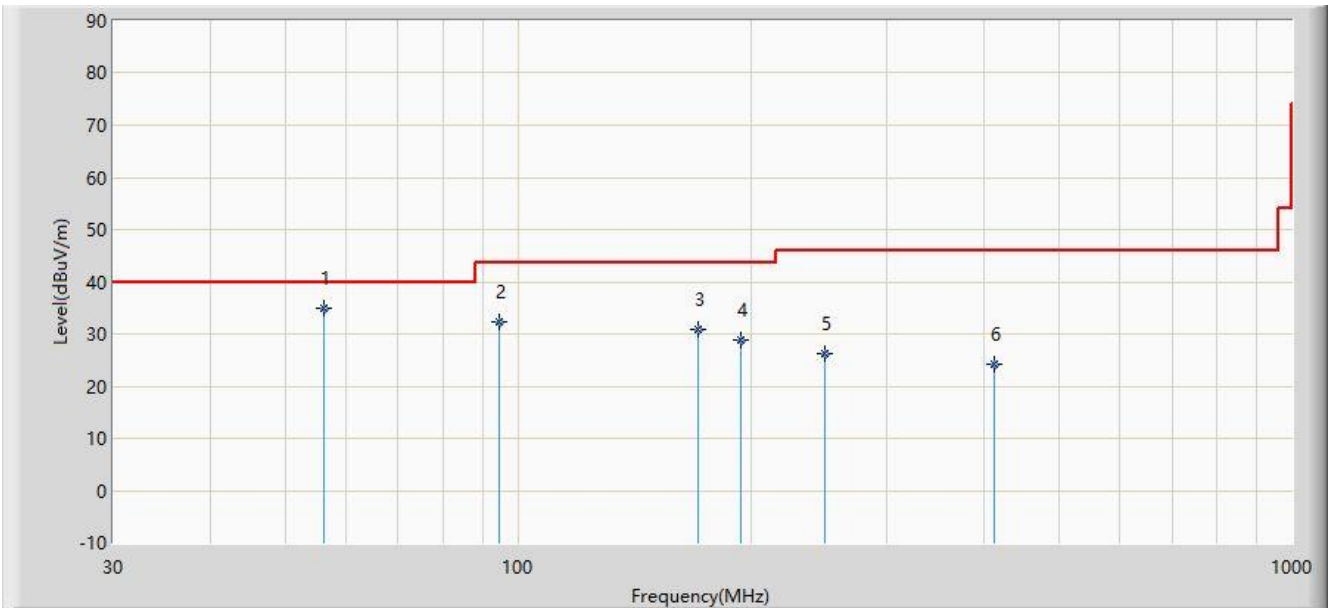


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			45.035	18.745	4.012	-21.255	40.000	14.733	QP
2			80.440	10.425	1.091	-29.575	40.000	9.334	QP
3			142.035	10.719	1.434	-32.781	43.500	9.285	QP
4			198.295	26.112	14.065	-17.388	43.500	12.047	QP
5		*	304.025	38.199	23.790	-7.801	46.000	14.408	QP
6			514.030	25.346	7.198	-20.654	46.000	18.148	QP

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

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

Site: AC2	Time: 2019/10/22 - 08:50
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Kyrie Xie
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 2	

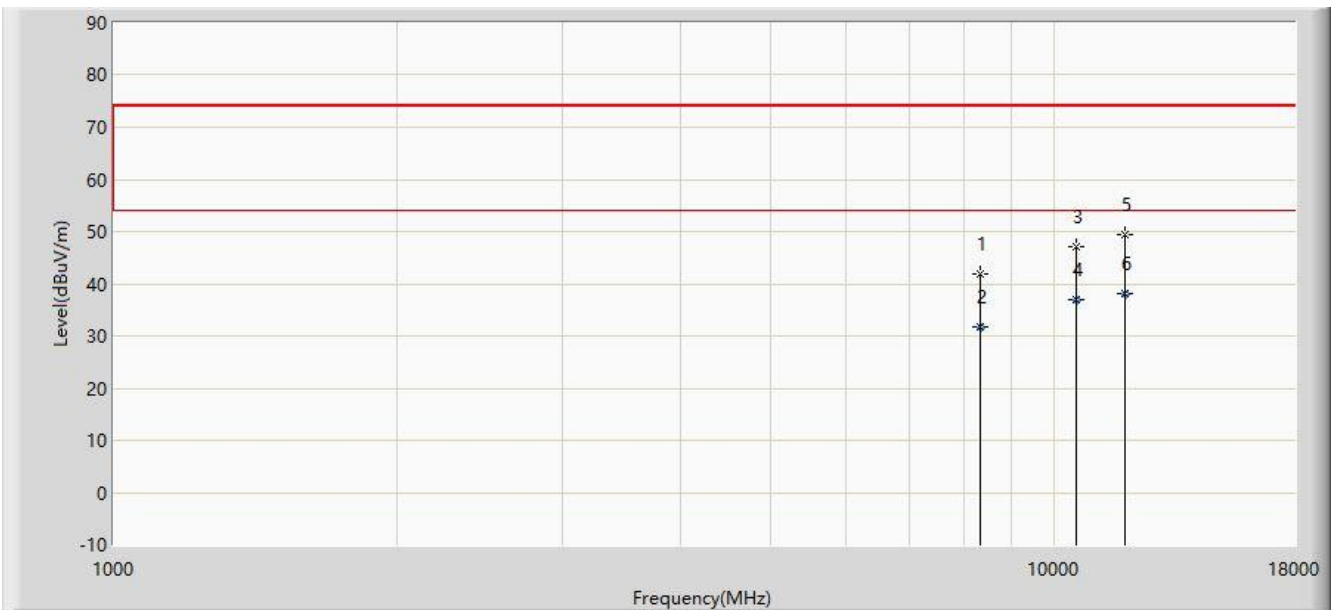


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		*	43.610	35.308	20.850	-4.692	40.000	14.459	QP
2			62.980	19.737	6.632	-20.263	40.000	13.105	QP
3			95.960	18.720	6.386	-24.780	43.500	12.334	QP
4			129.425	20.388	10.412	-23.112	43.500	9.976	QP
5			304.025	32.869	18.460	-13.131	46.000	14.408	QP
6			488.325	25.752	7.959	-20.248	46.000	17.793	QP

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

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

Site: AC2	Time: 2019/10/22 - 08:50
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Kyrie Xie
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 1	

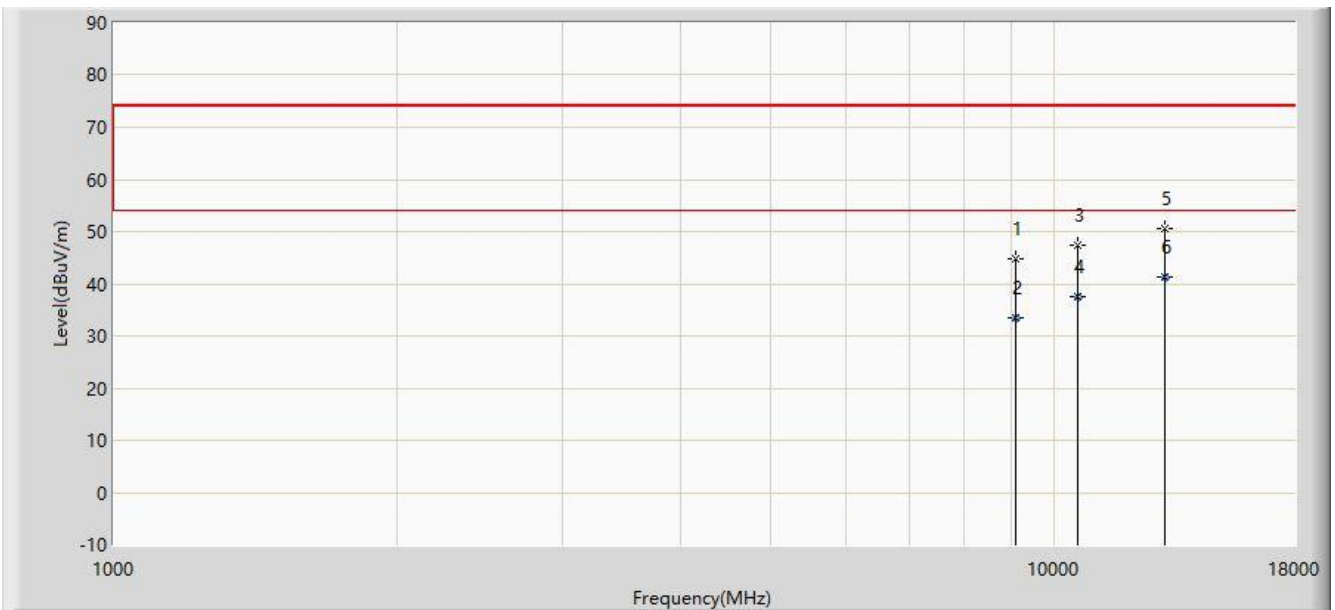


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			8352.500	41.870	30.542	-32.130	74.000	11.328	PK
2			8352.500	31.728	20.400	-22.272	54.000	11.328	AV
3			10528.500	47.175	30.612	-26.825	74.000	16.563	PK
4			10528.500	36.963	20.400	-17.037	54.000	16.563	AV
5			11871.500	49.510	30.172	-24.490	74.000	19.338	PK
6		*	11871.500	38.118	18.780	-15.882	54.000	19.338	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: AC2	Time: 2019/10/22 - 08:50
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Kyrie Xie
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 1	

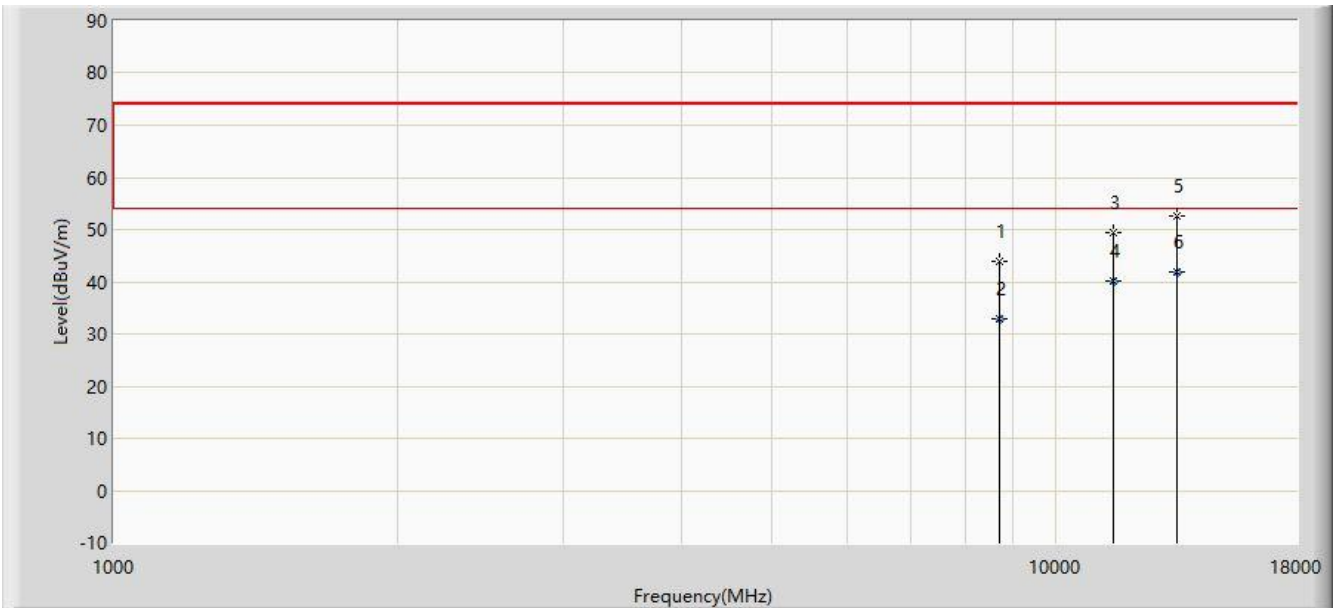


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			9109.000	44.842	31.571	-29.158	74.000	13.271	PK
2			9109.000	33.611	20.340	-20.389	54.000	13.271	AV
3			10579.500	47.365	30.563	-26.635	74.000	16.801	PK
4			10579.500	37.552	20.750	-16.448	54.000	16.801	AV
5			13087.000	50.533	29.638	-23.467	74.000	20.895	PK
6		*	13087.000	41.305	20.410	-12.695	54.000	20.895	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: AC2	Time: 2019/10/22 - 08:50
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Kyrie Xie
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Horizontal
EUT: HAN Access Point	Power: AC 120V/60Hz
Test Mode 2	

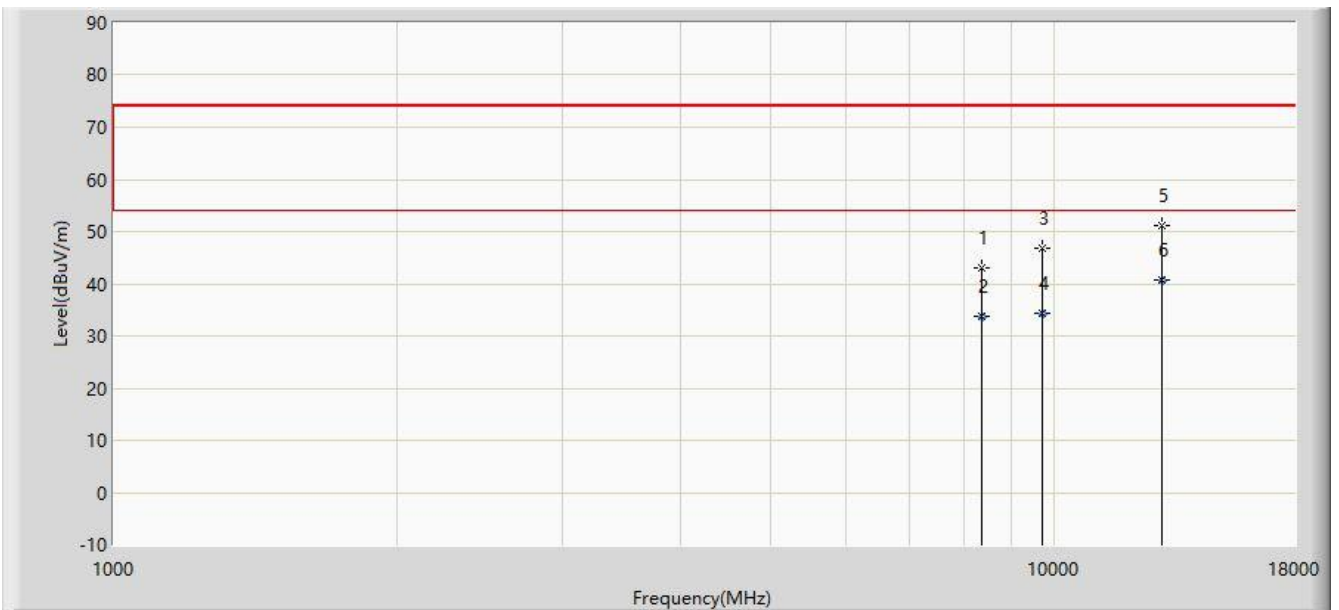


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Margin (dB)	Limit (dBuV/m)	Factor (dB)	Type
1			8709.500	43.800	31.168	-30.200	74.000	12.633	PK
2			8709.500	33.032	20.400	-20.968	54.000	12.633	AV
3			11480.500	49.301	29.588	-24.699	74.000	19.713	PK
4			11480.500	40.053	20.340	-13.947	54.000	19.713	AV
5			13444.000	52.541	29.353	-21.459	74.000	23.188	PK
6		*	13444.000	41.921	18.733	-12.079	54.000	23.188	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: AC2	Time: 2019/10/22 - 08:50
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Kyrie Xie
Probe: AC2_VULB9162_0.03-7GHz	Polarity: Vertical
EUT: HAN Access Point	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			8361.000	43.007	31.624	-30.993	74.000	11.383	PK
2			8361.000	33.723	22.340	-20.277	54.000	11.383	AV
3			9687.000	46.812	33.258	-27.188	74.000	13.554	PK
4			9687.000	34.294	20.740	-19.706	54.000	13.554	AV
5			13002.000	51.210	29.915	-22.790	74.000	21.295	PK
6		*	13002.000	40.863	19.568	-13.137	54.000	21.295	AV

Note: Measure Level (dBuV/m) = Reading Level (dBuV) + 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 unit has been tested to comply with the requirements specified in the FCC Rules.

The End

Appendix A - Test Setup Photograph

Refer to “1909RSU036-UT” file.

Appendix B - EUT Photograph

Refer to “ 1909RSU036-UE” file.