



MEASUREMENT REPORT

FCC Part 15B

FCC ID: 2AG6XHUDONE

APPLICANT: Cognitive AI Technologies Inc.

Application Type: Certification

Product: Head Up Display

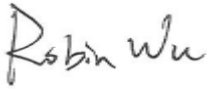
Model No.: HUD One

Brand Name: Carloudy


FCC Rule Part(s): FCC Part 15 Subpart B: 2016

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

Test Date: October 20 ~ December 28, 2015

Reviewed By : 

Manager : (Robin Wu)

Approved By : 

CEO : (Marlin Chen)



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
1510RSU01804	Rev. 01	Initial report	06-16-2016
1510RSU01804	Rev. 02	Added the title of technical staff	06-23-2016

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§2.1033 General Information

Applicant:	Cognitive AI Technologies Inc.
Applicant Address:	233 S. Wacker Drive, 84th Floor, Chicago, IL 60606, USA
Manufacturer:	Cognitive AI Technologies Inc.
Manufacturer Address:	233 S. Wacker Drive, 84th Floor, Chicago, IL 60606, USA
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
MRT FCC Registration No.:	809388
FCC ID:	2AG6XHUDONE
Model No.:	HUD One
Test Device Serial No.:	N/A <input type="checkbox"/> Production <input checked="" type="checkbox"/> Pre-Production <input type="checkbox"/> 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. 809388) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules.
- 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-4179, G-814, C-4664, T-2206) 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 and Radio testing for FCC, Industry Canada, EU and TELEC Rules.



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, Youxin Industrial Park, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on September 30, 2013.



2. PRODUCT INFORMATION

2.1. Product Specification Subjective to this Report

Product Name	Head Up Display
Model No.	HUD One
Brand Name	Carloudy
Wi-Fi Specification	802.11b/g/n (HT20)
Bluetooth Version	v3.0 + HS, v4.0
Components	
Adapter	M/N: HKC0055010-2D INPUT: 100-240V ~ 50/60Hz, 0.2A OUTPUT: 5Vdc, 1.0A

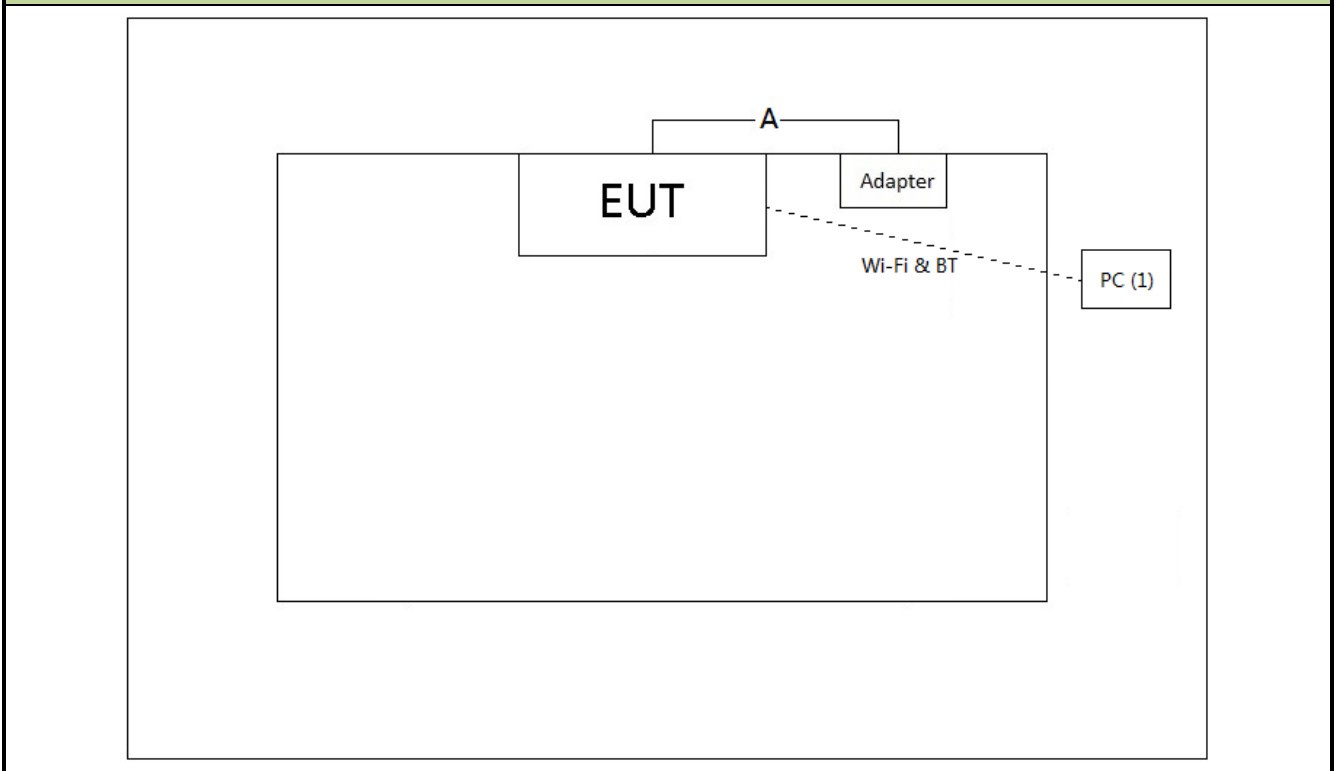
2.2. Test Mode

Mode 1: Charging + Read Book + Communication With Bluetooth & Wi-Fi
Mode 2: USB Copy

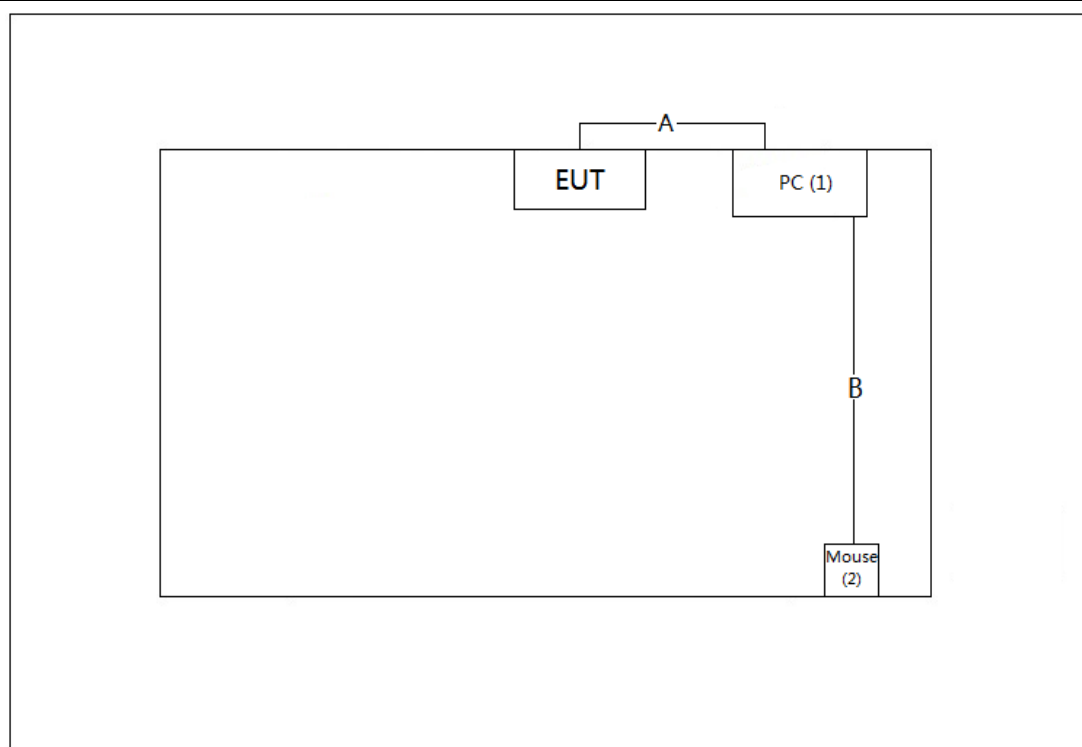
2.3. Test Configuration

The EUT was tested per the guidance FCC Part 15 Subpart B: 2016 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	USB Cable	Shielded, 0.5m
B	USB Cable	Shielded, 1.8m

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	USB Mouse	DELL	MS111-T	N/A	N/A

2.5. Test Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	(1), Making EUT working on “Charging + Read Book + Communication With Bluetooth & Wi-Fi” Mode. (2), Making EUT working on “USB Copy” Mode.

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 40GHz (ANSI C63.4-2014) was used in the measurement of the **Head Up Display**

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. Line conducted emissions test results are shown in Section 6.2.

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	ESR7	MRTSUE06001	1 year	2016/11/03
Two-Line V-Network	R&S	ENV216	MRTSUE06002	1 year	2016/11/03
Two-Line V-Network	R&S	ENV216	MRTSUE06003	1 year	2016/11/03
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06182	1 year	2016/12/20

Radiated Emission – AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Agilent	N9010A	MRTSUE06124	1 year	2016/06/23
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2016/11/03
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2017/03/28
TRILOG Antenna	Schwarzbeck	VULB9162	MRTSUE06022	1 year	2016/11/07
Broad-Band Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06023	1 year	2016/11/07
Temperature/Humidity Meter	Yuhuaze	HTC-2	MRTSUE06183	1 year	2016/12/20

Software	Version	Function
e3	V8.3.5	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% ($U=2U_c(y)$):	
150kHz~30MHz: 3.5dB	
Radiated Emission Measurement – AC1	
Measuring Uncertainty for a Level of Confidence of 95% ($U=2U_c(y)$):	
Horizontal: 30MHz~1GHz: 4.07dB	
1GHz~18GHz: 4.16 dB	
Vertical: 30MHz~1GHz: 4.18 dB	
1GHz~18GHz: 4.76 dB	

6. TEST RESULT

6.1. Summary

Company Name: Cognitive AI Technologies Inc.

Test Mode: Mode 1: Charging + Read Book + Communication With Bluetooth & Wi-Fi
Mode 2: USB Copy

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

6.2. Conducted Emission Measurement

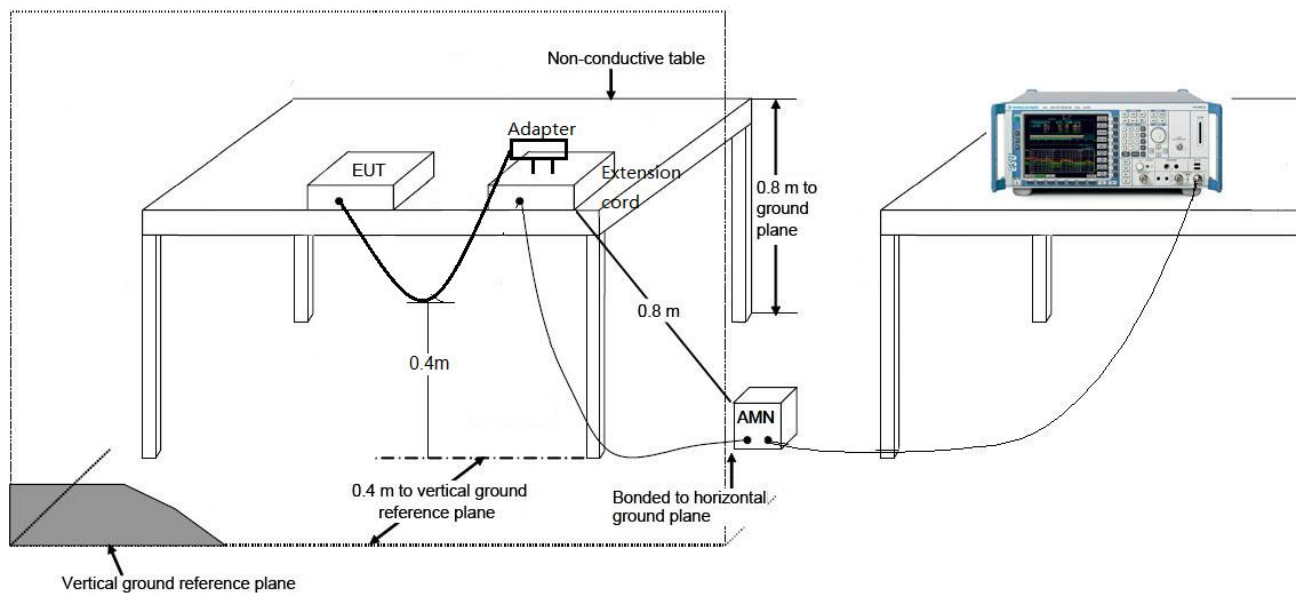
6.2.1. Test Limit

FCC Part 15.107 Limits		
Frequency (MHz)	QP (dB μ V)	AV (dB μ V)
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.

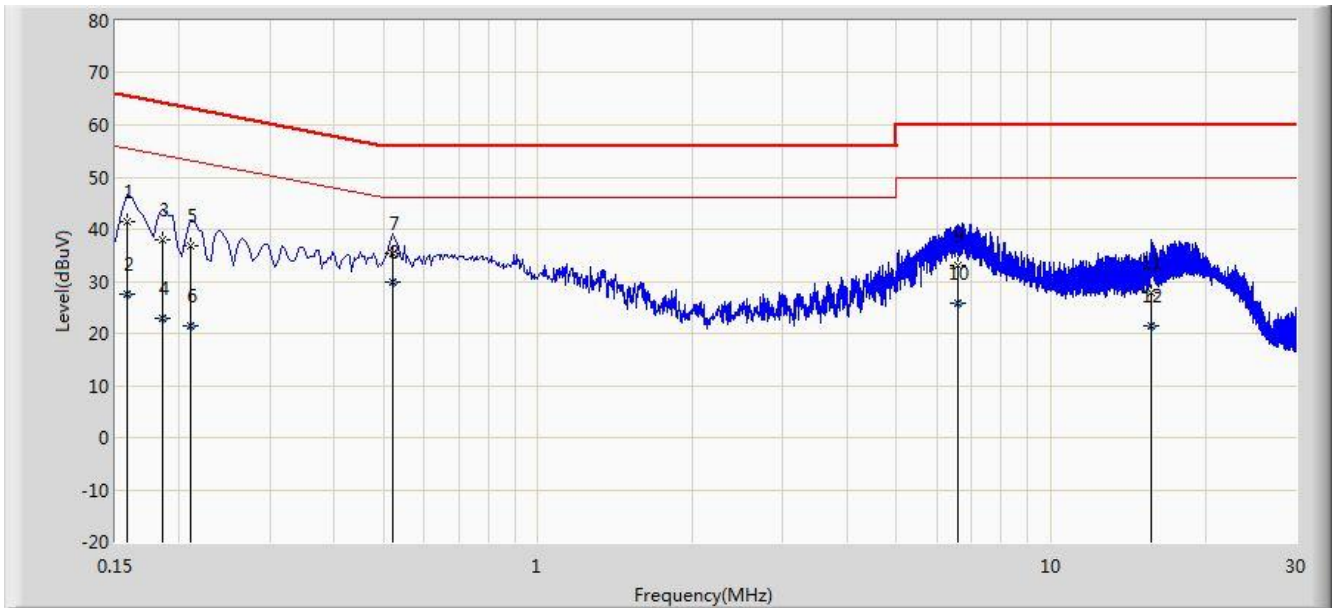
Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.5MHz.

6.2.2. Test Setup



6.2.3. Test Result of Conducted Emissions

Site: SR2	Time: 2015/10/28 - 10:43
Limit: FCC_Part15.107_CE_Class B	Engineer: Line Chen
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 1	

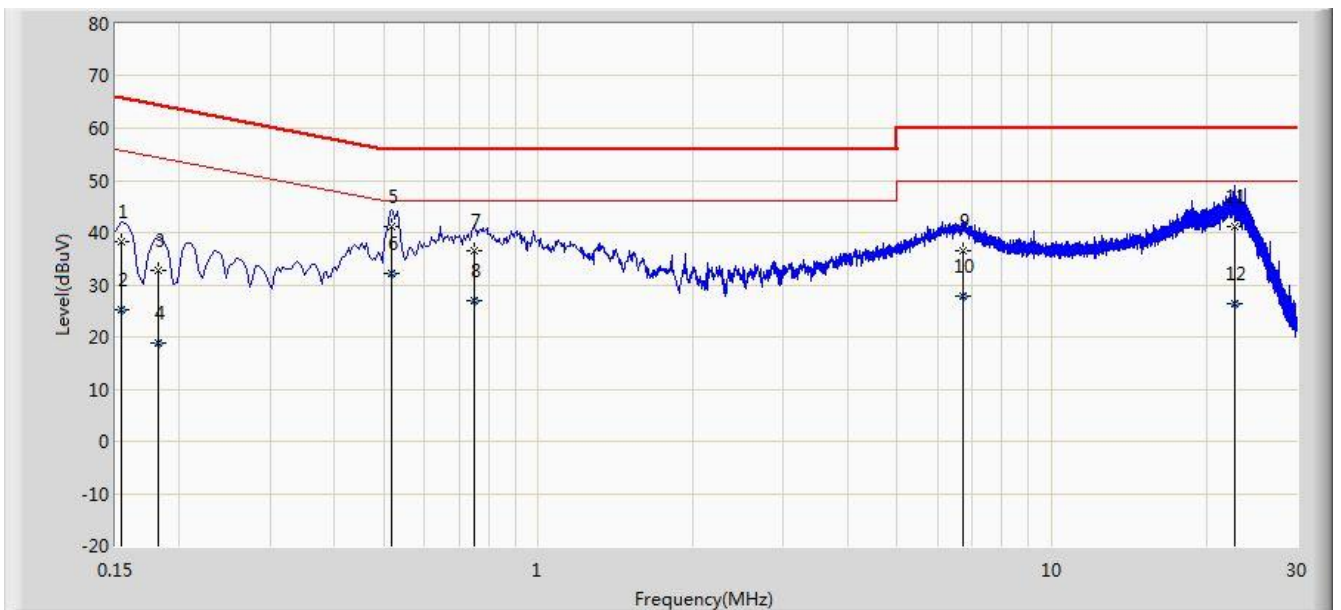


No	Flag	Mark	Frequency (MHz)	Measure Level (dBμV)	Reading Level (dBμV)	Over Limit (dB)	Limit (dBμV)	Factor (dB)	Type
1			0.158	41.590	31.279	-23.979	65.568	10.311	QP
2			0.158	27.473	17.162	-28.096	55.568	10.311	AV
3			0.186	38.022	27.983	-26.192	64.213	10.039	QP
4			0.186	22.939	12.900	-31.275	54.213	10.039	AV
5			0.210	36.945	26.977	-26.260	63.205	9.969	QP
6			0.210	21.543	11.574	-31.662	53.205	9.969	AV
7			0.522	35.423	25.268	-20.577	56.000	10.155	QP
8		*	0.522	29.737	19.582	-16.263	46.000	10.155	AV
9			6.586	33.086	22.940	-26.914	60.000	10.145	QP
10			6.586	25.872	15.726	-24.128	50.000	10.145	AV
11			15.646	27.798	17.736	-32.202	60.000	10.062	QP
12			15.646	21.530	11.469	-28.470	50.000	10.062	AV

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

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

Site: SR2	Time: 2015/10/28 - 10:48
Limit: FCC_Part15.107_CE _ Class B	Engineer: Line Chen
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 1	

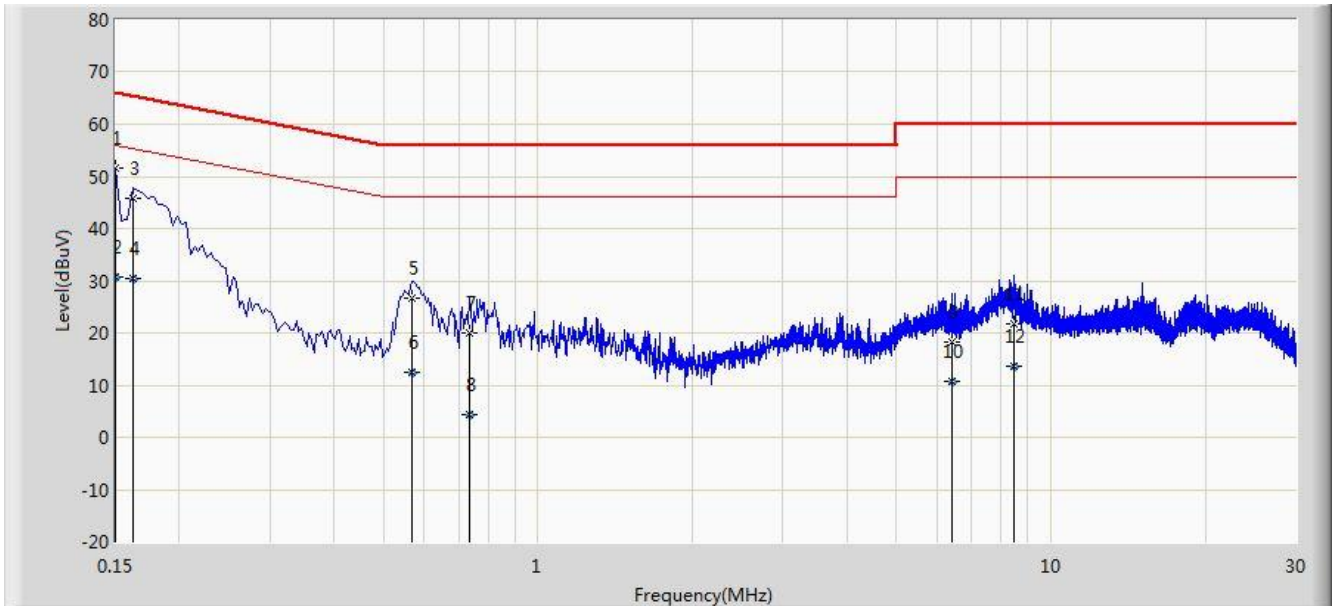


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1			0.154	38.293	27.577	-27.488	65.781	10.716	QP
2			0.154	25.119	14.404	-30.662	55.781	10.716	AV
3			0.182	32.795	22.752	-31.599	64.394	10.042	QP
4			0.182	18.868	8.826	-35.526	54.394	10.042	AV
5			0.518	41.251	31.076	-14.749	56.000	10.175	QP
6		*	0.518	32.070	21.895	-13.930	46.000	10.175	AV
7			0.750	36.458	26.410	-19.542	56.000	10.047	QP
8			0.750	27.012	16.965	-18.988	46.000	10.047	AV
9			6.718	36.528	26.366	-23.472	60.000	10.162	QP
10			6.718	27.840	17.678	-22.160	50.000	10.162	AV
11			22.706	41.221	30.980	-18.779	60.000	10.241	QP
12			22.706	26.332	16.091	-23.668	50.000	10.241	AV

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

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

Site: SR2	Time: 2015/10/28 - 10:53
Limit: FCC_Part15.107_CE_Class B	Engineer: Line Chen
Probe: ENV216_101683_Filter On	Polarity: Line
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 2	

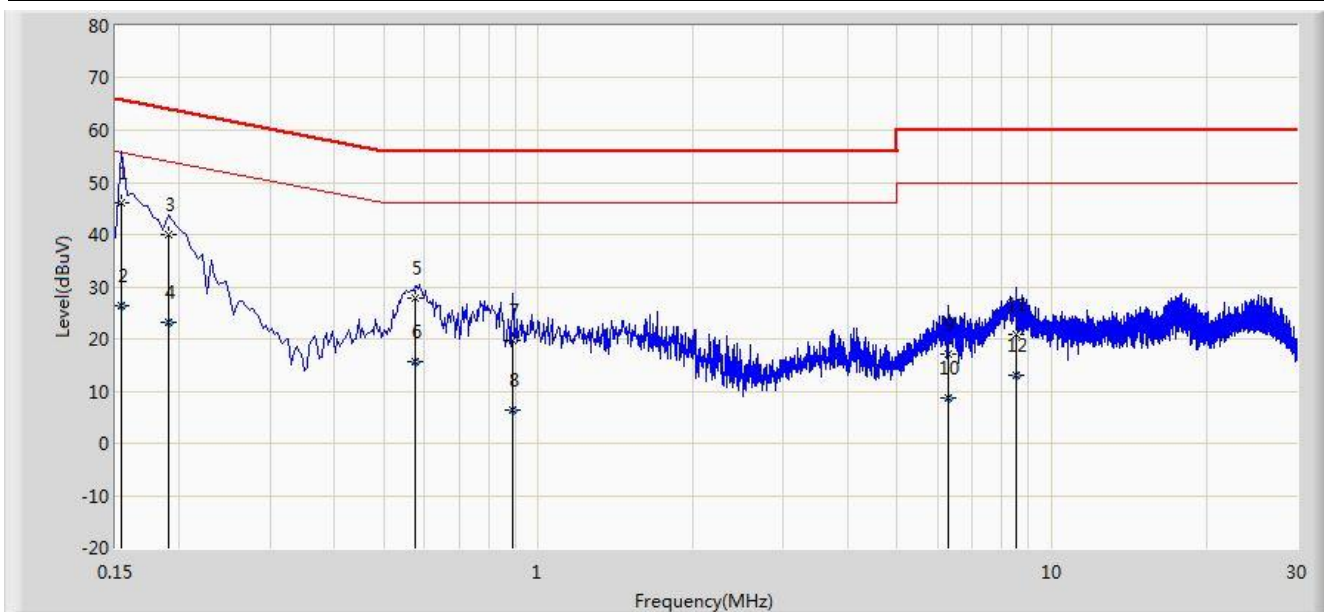


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1		*	0.150	51.673	40.505	-14.327	66.000	11.168	QP
2			0.150	30.844	19.676	-25.156	56.000	11.168	AV
3			0.162	45.882	35.785	-19.479	65.361	10.097	QP
4			0.162	30.550	20.453	-24.811	55.361	10.097	AV
5			0.566	26.613	16.480	-29.387	56.000	10.132	QP
6			0.566	12.438	2.305	-33.562	46.000	10.132	AV
7			0.734	19.989	9.943	-36.011	56.000	10.046	QP
8			0.734	4.390	-5.656	-41.610	46.000	10.046	AV
9			6.414	18.386	8.265	-41.614	60.000	10.121	QP
10			6.414	10.614	0.493	-39.386	50.000	10.121	AV
11			8.494	21.615	11.435	-38.385	60.000	10.180	QP
12			8.494	13.753	3.573	-36.247	50.000	10.180	AV

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

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

Site: SR2	Time: 2015/10/28 - 11:00
Limit: FCC_Part15.107_CE _ Class B	Engineer: Line Chen
Probe: ENV216_101683_Filter On	Polarity: Neutral
EUT: Head Up Display	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		*	0.154	46.022	35.306	-19.760	65.781	10.716	QP
2			0.154	26.395	15.679	-29.387	55.781	10.716	AV
3			0.190	39.950	29.922	-24.086	64.037	10.028	QP
4			0.190	23.091	13.063	-30.946	54.037	10.028	AV
5			0.574	27.724	17.579	-28.276	56.000	10.145	QP
6			0.574	15.528	5.383	-30.472	46.000	10.145	AV
7			0.890	19.769	9.799	-36.231	56.000	9.970	QP
8			0.890	6.315	-3.655	-39.685	46.000	9.970	AV
9			6.290	17.011	6.868	-42.989	60.000	10.143	QP
10			6.290	8.689	-1.453	-41.311	50.000	10.143	AV
11			8.530	20.902	10.701	-39.098	60.000	10.200	QP
12			8.530	13.005	2.804	-36.995	50.000	10.200	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 (dB μ V/m)
30 - 88	3	40
88 - 216	3	43.5
216 - 960	3	46
Above 960	3	54

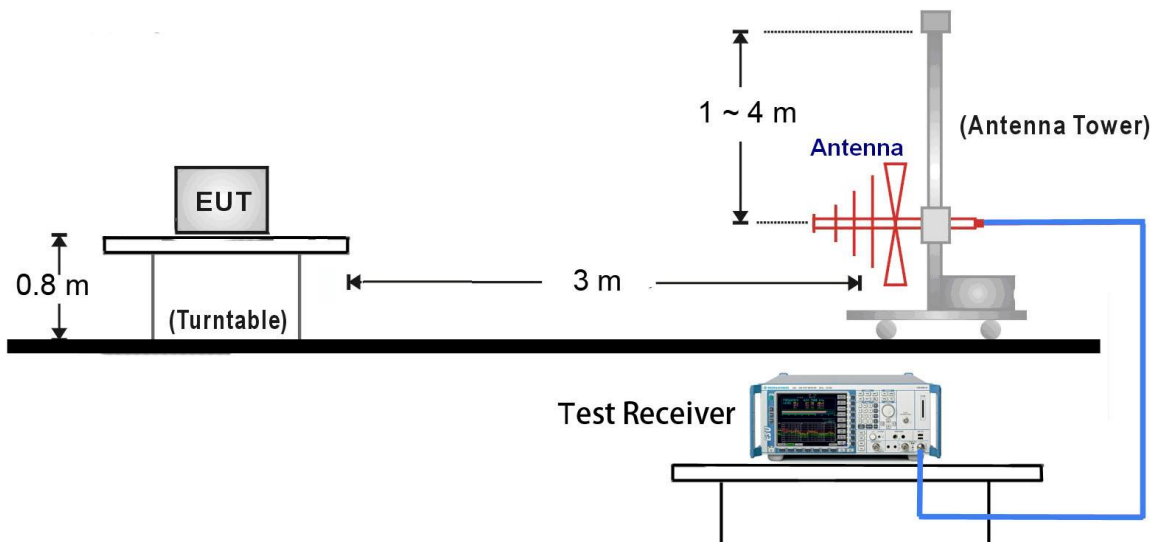
Note 1: The lower limit shall apply at the transition frequency.

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.

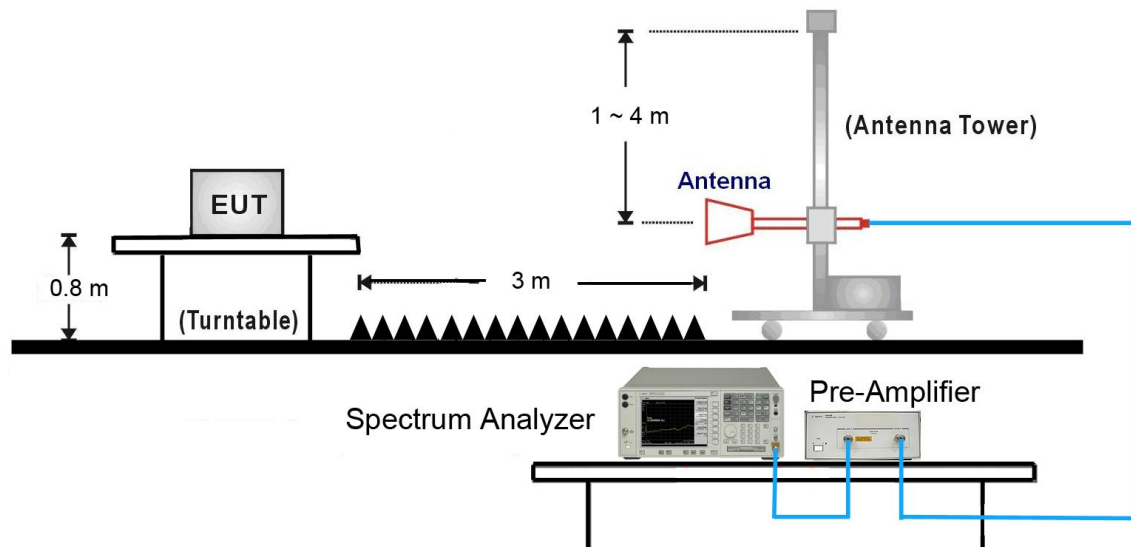
Note 3: E field strength (dB μ V/m) = 20 log E field strength (uV/m)

6.3.2. Test Setup

30MHz ~ 1GHz Test Setup:

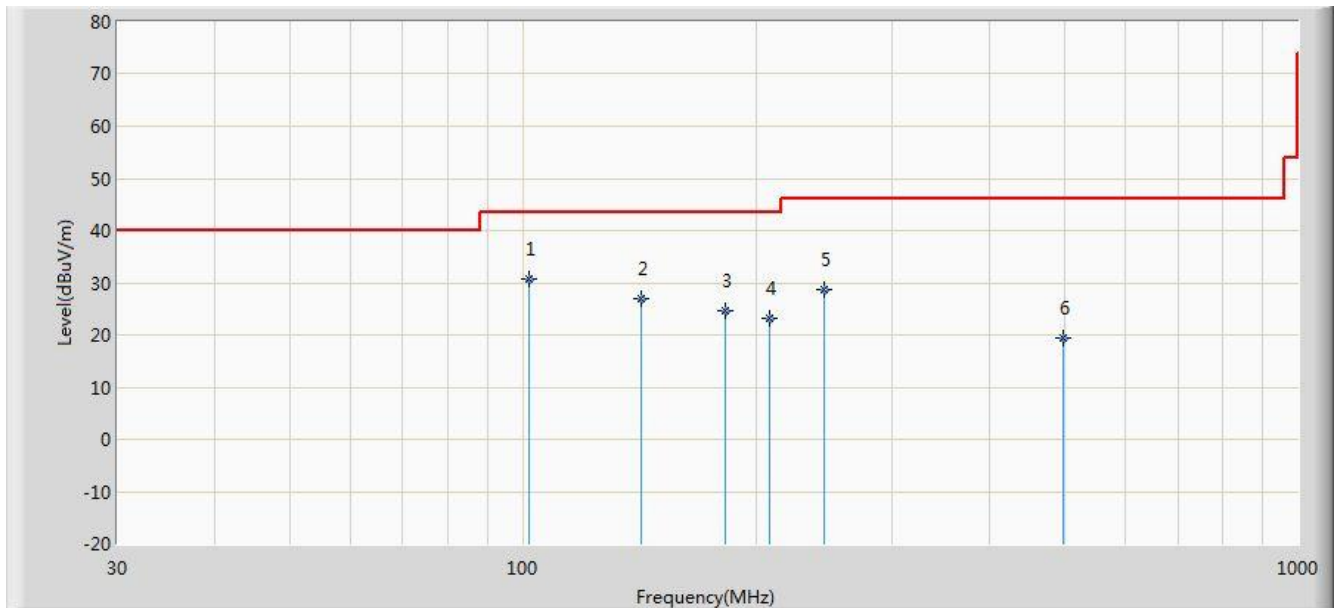


1GHz ~18GHz Test Setup:



6.3.3. Test Result of Radiated Emissions

Site: AC1	Time: 2015/12/25 - 11:06
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Line Chen
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 1	

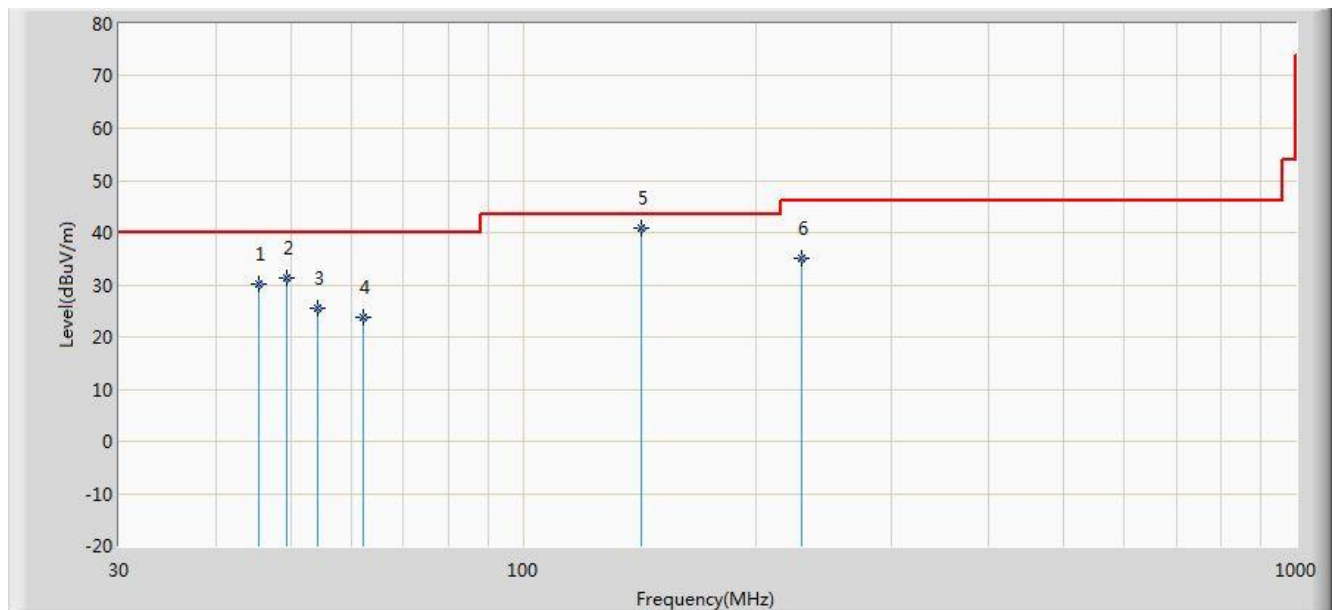


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		*	101.980	30.781	17.640	-12.719	43.500	13.141	100	86	QP
2			142.035	27.101	17.704	-16.399	43.500	9.397	100	132	QP
3			182.775	24.670	13.548	-18.830	43.500	11.123	100	197	QP
4			207.995	23.152	10.785	-20.348	43.500	12.367	100	215	QP
5			245.340	28.596	15.072	-17.404	46.000	13.524	100	256	QP
6			497.055	19.527	1.254	-26.473	46.000	18.273	100	304	QP

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

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

Site: AC1	Time: 2015/12/25 - 11:06
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Line Chen
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 1	

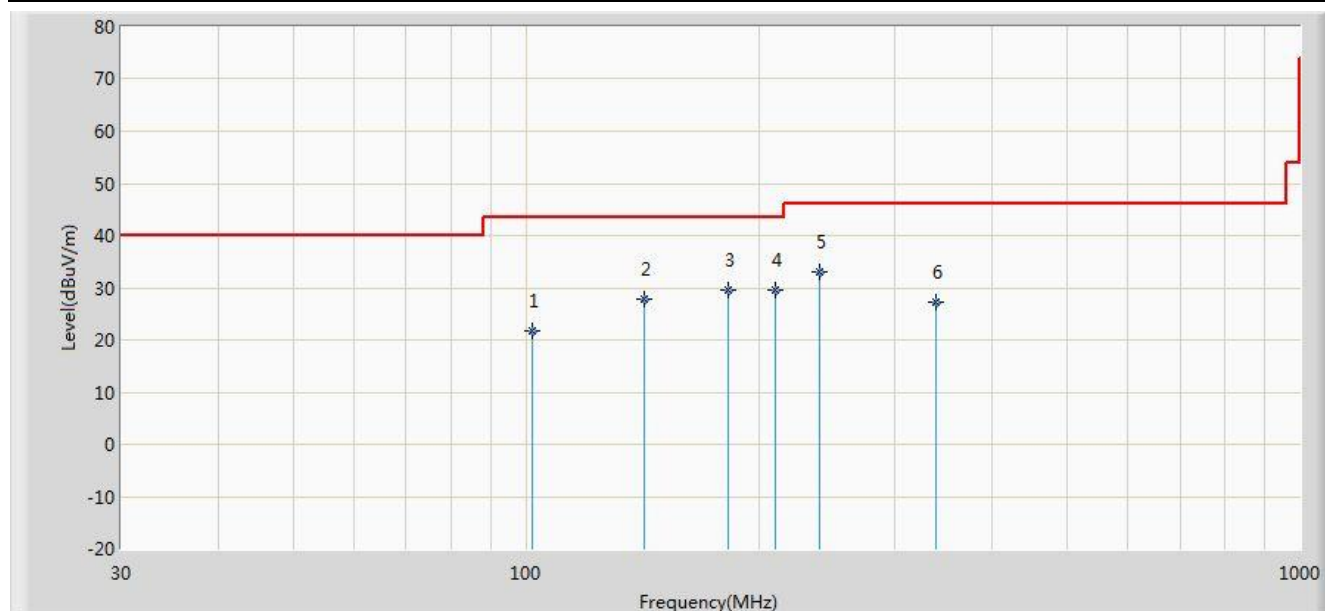


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			45.520	30.228	15.382	-9.772	40.000	14.846	100	89	QP
2			49.401	31.255	16.392	-8.745	40.000	14.863	100	135	QP
3			54.250	25.583	10.854	-14.417	40.000	14.729	100	183	QP
4			62.010	23.863	10.389	-16.137	40.000	13.474	100	213	QP
5		*	142.195	40.847	31.450	-2.653	43.500	9.397	100	275	QP
6			229.335	34.998	21.971	-11.002	46.000	13.027	100	321	QP

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

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

Site: AC1	Time: 2015/12/25 - 11:05
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Line Chen
Probe: VULB9162_0.03-8GHz	Polarity: Horizontal
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 2	

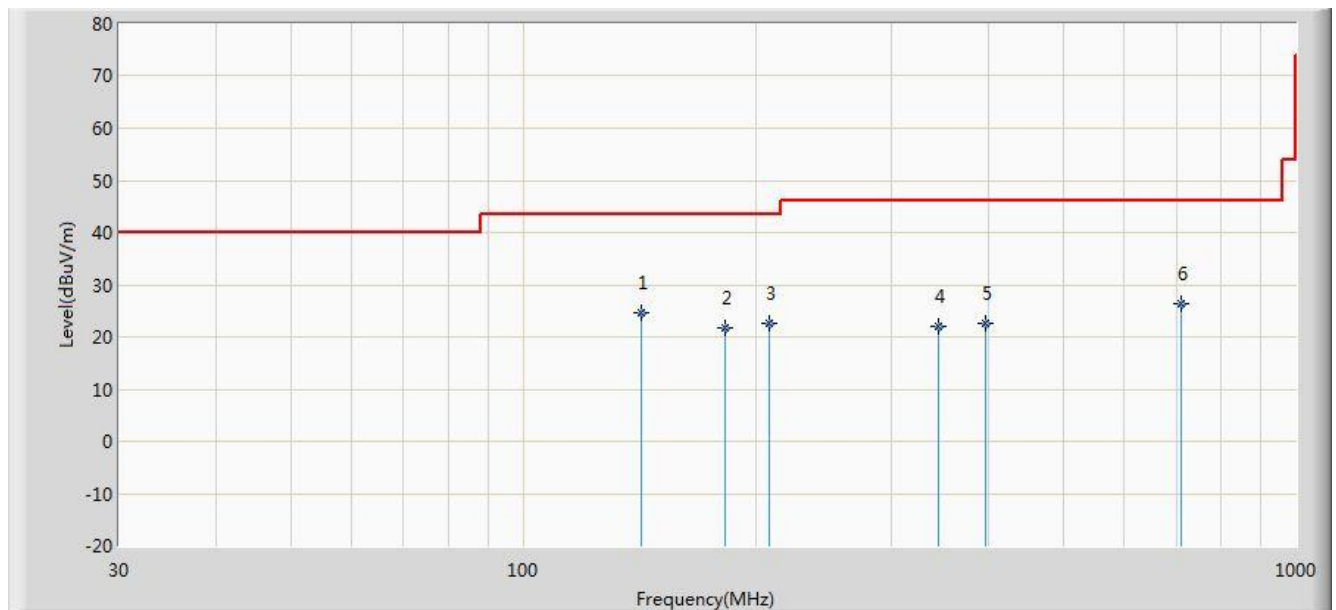


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			101.780	21.786	8.640	-21.714	43.500	13.146	100	86	QP
2			142.035	27.749	18.352	-15.751	43.500	9.397	100	132	QP
3			182.775	29.518	18.396	-13.982	43.500	11.123	100	197	QP
4			210.420	29.631	17.213	-13.869	43.500	12.418	100	215	QP
5		*	240.005	33.021	19.641	-12.979	46.000	13.380	100	256	QP
6			338.945	27.184	11.553	-18.816	46.000	15.630	100	304	QP

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

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

Site: AC1	Time: 2015/12/25 - 11:06
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Line Chen
Probe: VULB9162_0.03-8GHz	Polarity: Vertical
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 2	

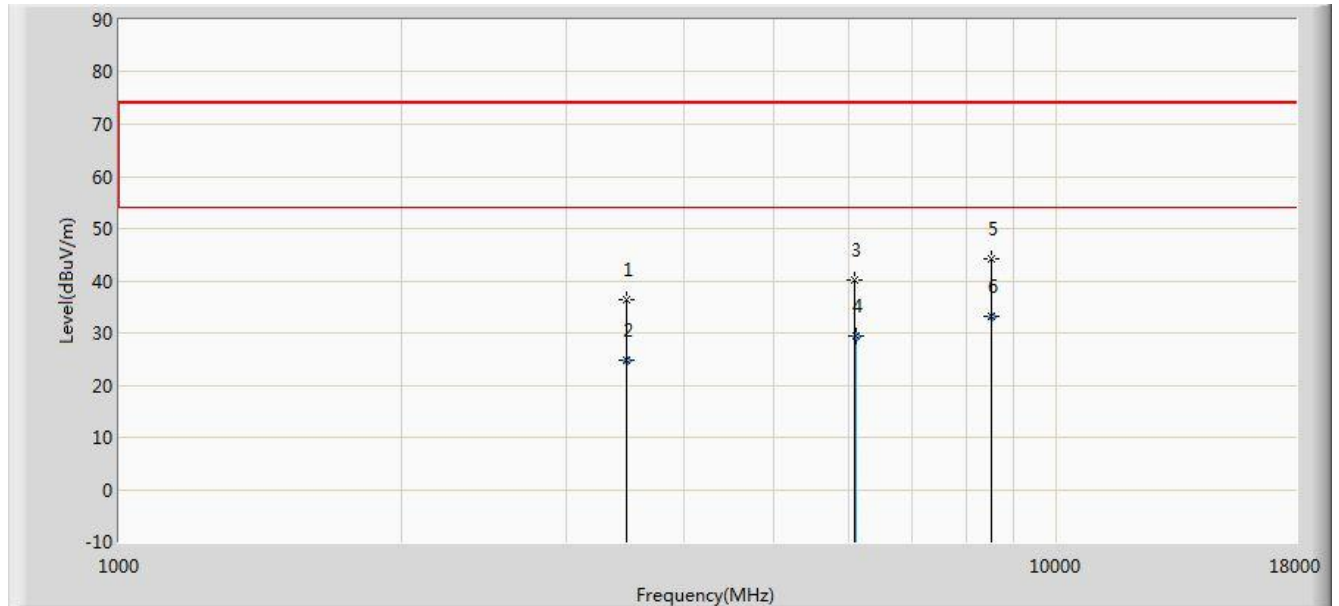


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		*	142.314	24.757	15.360	-18.743	43.500	9.397	100	89	QP
2			182.775	21.793	10.671	-21.707	43.500	11.123	100	135	QP
3			207.995	22.682	10.315	-20.818	43.500	12.367	100	183	QP
4			345.250	22.046	6.287	-23.954	46.000	15.759	100	213	QP
5			396.175	22.631	5.977	-23.369	46.000	16.653	100	275	QP
6			709.970	26.316	4.561	-19.684	46.000	21.755	100	321	QP

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

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

Site: AC1	Time: 2015/12/25 - 11:34
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Line Chen
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 1	

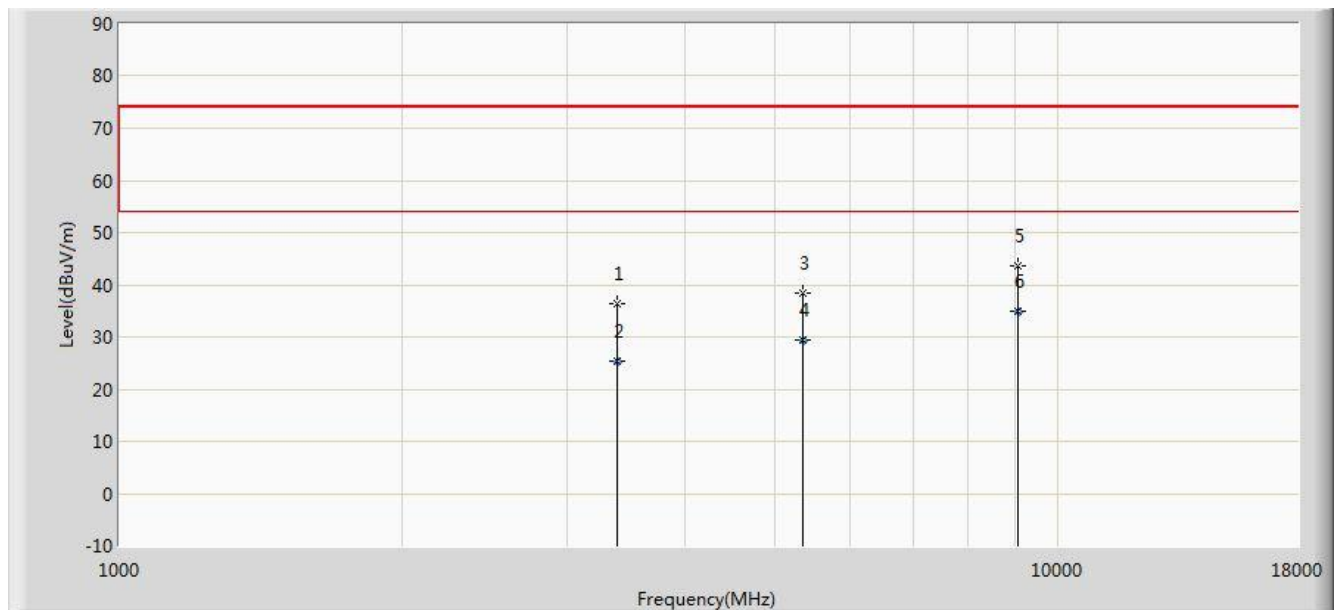


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			3482.000	36.283	37.946	-37.717	74.000	-1.663	100	92	PK
2			3482.125	24.816	26.478	-29.184	54.000	-1.662	100	121	AV
3			6100.000	40.196	35.525	-33.804	74.000	4.671	100	186	PK
4			6100.375	29.535	24.864	-24.465	54.000	4.672	100	223	AV
5			8514.000	44.320	34.978	-29.680	74.000	9.343	100	294	PK
6		*	8514.342	33.291	23.947	-20.709	54.000	9.344	100	315	AV

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

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

Site: AC1	Time: 2015/12/25 - 11:34
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Line Chen
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 1	

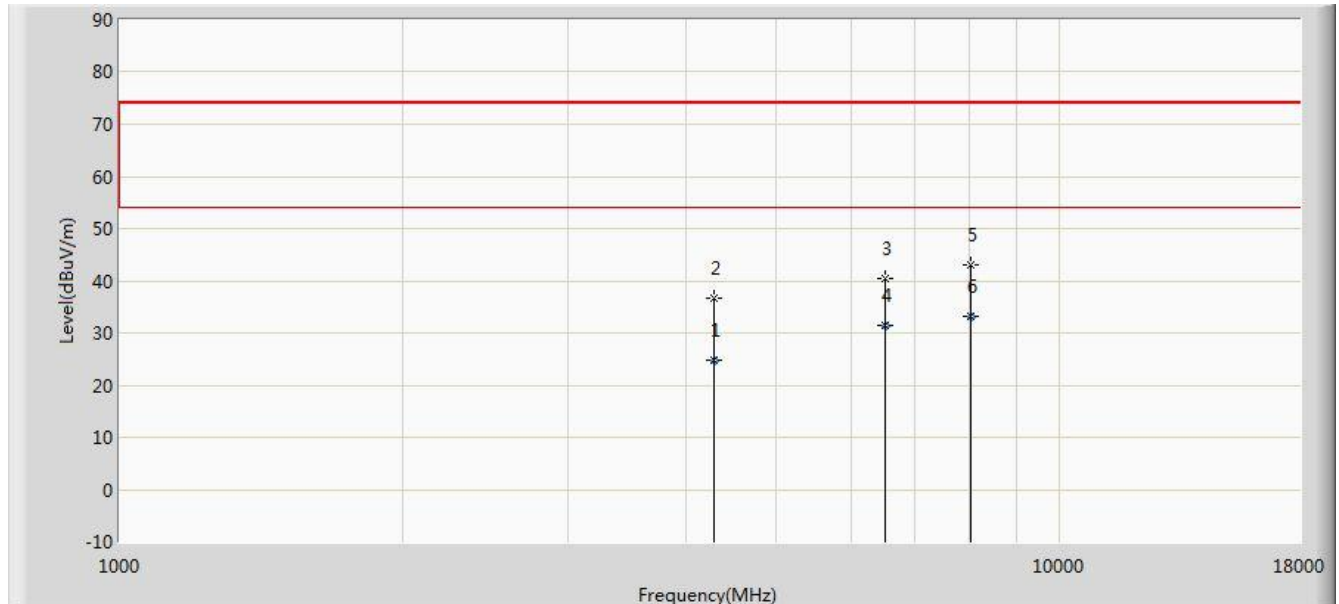


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			3388.500	36.405	38.632	-37.595	74.000	-2.227	100	98	PK
2			3388.985	25.392	27.614	-28.608	54.000	-2.222	100	119	AV
3			5352.000	38.469	36.528	-35.531	74.000	1.941	100	241	PK
4			5352.625	29.339	27.394	-24.661	54.000	1.946	100	272	AV
5			9058.000	43.674	32.962	-30.326	74.000	10.713	100	134	PK
6		*	9058.325	34.898	24.185	-19.102	54.000	10.712	100	52	AV

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

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

Site: AC1	Time: 2015/12/25 - 11:34
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Line Chen
Probe: BBHA9120D_1-18GHz	Polarity: Horizontal
EUT: Head Up Display	Power: AC 120V/60Hz
Test Mode 2	

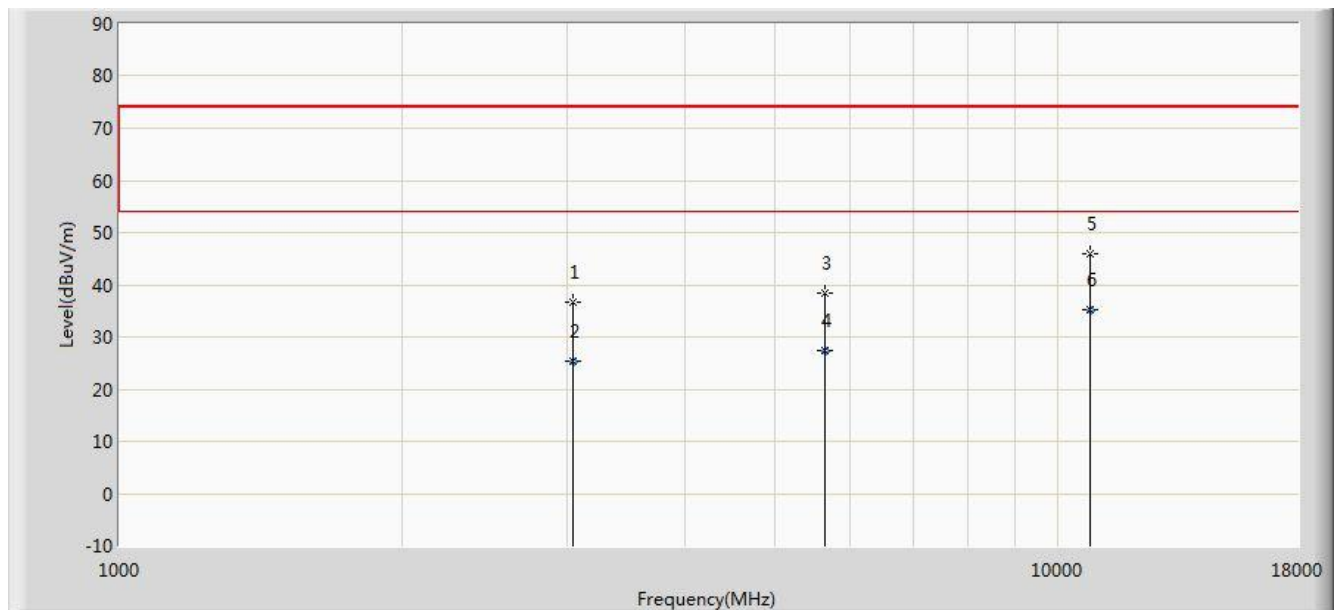


No	Flag	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1			4289.125	24.690	24.315	-29.310	54.000	0.376	100	92	AV
2			4289.500	36.769	36.388	-37.231	74.000	0.381	100	121	PK
3			6516.500	40.346	33.956	-33.654	74.000	6.390	100	186	PK
4			6516.725	31.333	24.940	-22.667	54.000	6.394	100	223	AV
5			8038.000	43.051	32.975	-30.949	74.000	10.077	100	294	PK
6		*	8038.325	33.226	23.150	-20.774	54.000	10.076	100	315	AV

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

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

Site: AC1	Time: 2015/12/25 - 11:34
Limit: FCC_Part15.109_RE(3m)_Class B	Engineer: Line Chen
Probe: BBHA9120D_1-18GHz	Polarity: Vertical
EUT: Head Up Display	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)	Ant Pos (cm)	Table Pos (deg)	Type
1			3040.000	36.807	39.864	-37.193	74.000	-3.057	100	98	PK
2			3040.125	25.283	28.341	-28.717	54.000	-3.058	100	119	AV
3			5649.500	38.367	35.396	-35.633	74.000	2.972	100	241	PK
4			5649.875	27.334	24.370	-26.666	54.000	2.963	100	272	AV
5			10800.500	45.928	31.134	-28.072	74.000	14.795	100	134	PK
6		*	10800.625	35.108	20.314	-18.892	54.000	14.793	100	52	AV

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

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

The End