

FCC Part 15B Measurement and Test Report

For

Hena Digital Technology (Shenzhen) Co., Ltd

3F, South Tower, Jiuzhou Electric Building, Southern No, 12Rd, High-tech

Industrial Park, Nanshan District, Shenzhen, China

FCC ID: M7C-MID117

Test Rule(s):	<u>FCC Part 15 Subpart B</u>	
Product Description:	<u>MID</u>	
Tested Model:	<u>MID7526CM</u>	
Report No.:	<u>STR13128172I-2</u>	
Tested Date:	<u>2013-12-12 to 2013-12-31</u>	
Issued Date:	<u>2013-12-31</u>	
Tested By:	<u>Lebron Wang/ Engineer</u>	<i>Lebron Wang</i>
Reviewed By:	<u>Lahm Peng / EMC Manager</u>	<i>Lahm peng</i>
Approved & Authorized By:	<u>Jandy so / PSQ Manager</u>	<i>Jandyso</i>
Prepared By:	<p align="center">Shenzhen SEM.Test Technology Co., Ltd. 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C. (518101) Tel.: +86-755-33663308 Fax.: +86-755-33663309 Website: www.semtest.com.cn</p>	

Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by Shenzhen SEM.Test Technology Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Hena Digital Technology (Shenzhen) Co., Ltd
 Address of applicant: 3F, South Tower, Jiuzhou Electric Building, Southern No, 12Rd, High-tech Industrial Park, Nanshan District, Shenzhen, China
 Manufacturer: Hena Digital Technology (Shenzhen) Co., Ltd
 Address of manufacturer: 3F, South Tower, Jiuzhou Electric Building, Southern No, 12Rd, High-tech Industrial Park, Nanshan District, Shenzhen, China

General Description of EUT	
Product Name:	MID
Trade Name:	/
Model No.:	MID7526CM
Adding Model(s):	NID-7010,MID7526HCM,MID7526CE,MID7526HCE,MY7526P, MW-7526, MY75**P, MY75**G, MY75**E, MY75**S, MW75**P, MW75**G, MW75**E, MW75**S, MID75**CM, MID75**CE, MID75**HCM, MID75**HCE(** Can be 01-99)
<p><i>Note: The test data is gathered from a production sample, provided by the manufacturer. The appearance of others models listed in the report is different from main-test model MID7526CM, but the circuit and the electronic construction do not change, declared by the manufacturer.</i></p>	

Technical Characteristics of EUT	
Rated Voltage:	DC 5V
Rated Current:	1.5A
Rated Power:	7.5W
Power Adapter Model:	SDF0500150A1BA
Lowest Internal Frequency:	32.768KHz
Highest Internal Frequency:	1GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Hena Digital Technology (Shenzhen) Co., Ltd in accordance with Part 2, Subpart J, and Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart B, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

1.4 Test Facility

FCC – Registration No.: 934118

Shenzhen SEM.Test Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 934118.

Industry Canada (IC) Registration No.: 11464A

The 3m Semi-anechoic chamber of Shenzhen SEM.Test Technology Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 11464A.

CNAS Registration No.: L4062

Shenzhen SEM.Test Technology Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 1/F, Building A, Hongwei Industrial Park, Liuxian 2nd Road, Bao'an District, Shenzhen, P.R.C (518101).

1.5 EUT Setup and Operation Mode

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Mode List:

Test Mode	Description	Remark
TM1	Charging & Playing	Connect to Adapter and Earphone
TM2	Downloading	Connected to PC
TM3		

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	0.2	Unshielded	Without Core
Earphone Cable	1.0	Unshielded	Without Core
Adapter Cable	1.1	Unshielded	Without Core

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook Computer	Lenovo	20007	EB12648265

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
/	/	/	/

2. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test Item	Result
§ 15.107 (a)	Conducted Emissions	Compliant
§ 15.109 (a)	Radiated Emissions	Compliant

N/A: not applicable

3. Conducted Emissions

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

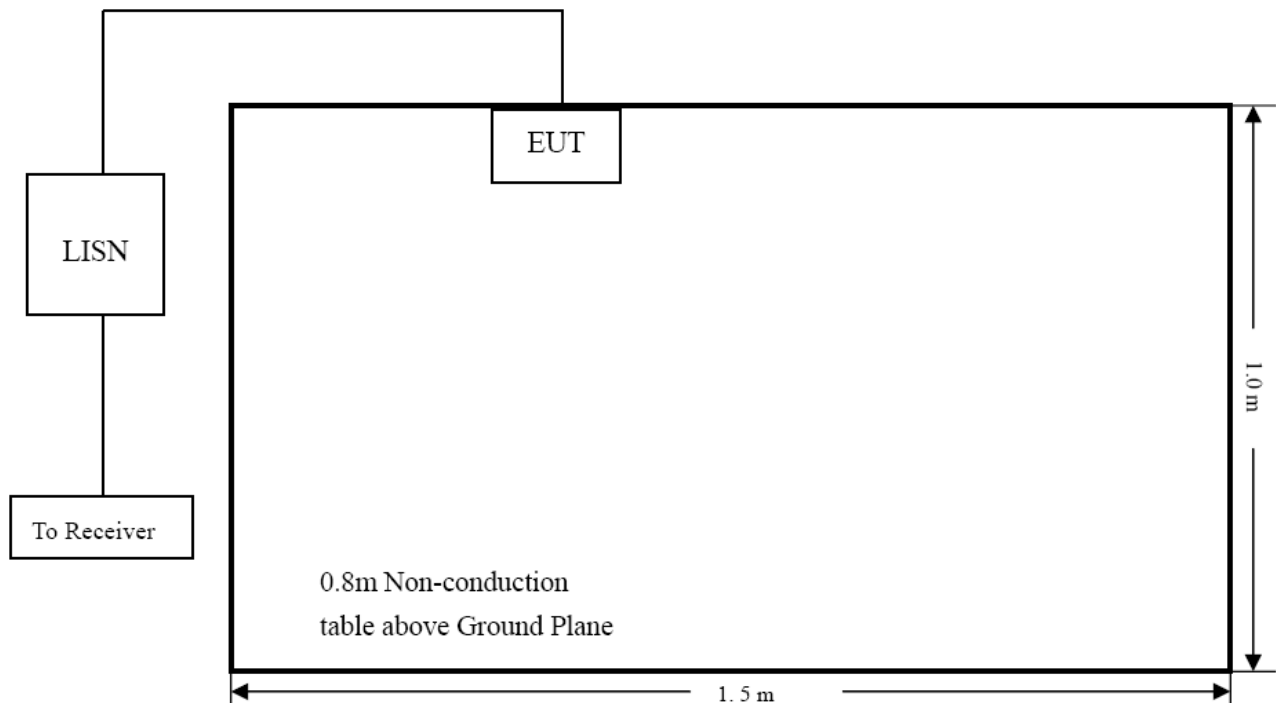
3.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2013-05-07	2014-05-06
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2013-05-07	2014-05-06
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2013-05-07	2014-05-06

3.3 Test Procedure

Test is conducting under the description of ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107(a) Conducted margin for a Class B device, with the *worst* margin reading of:

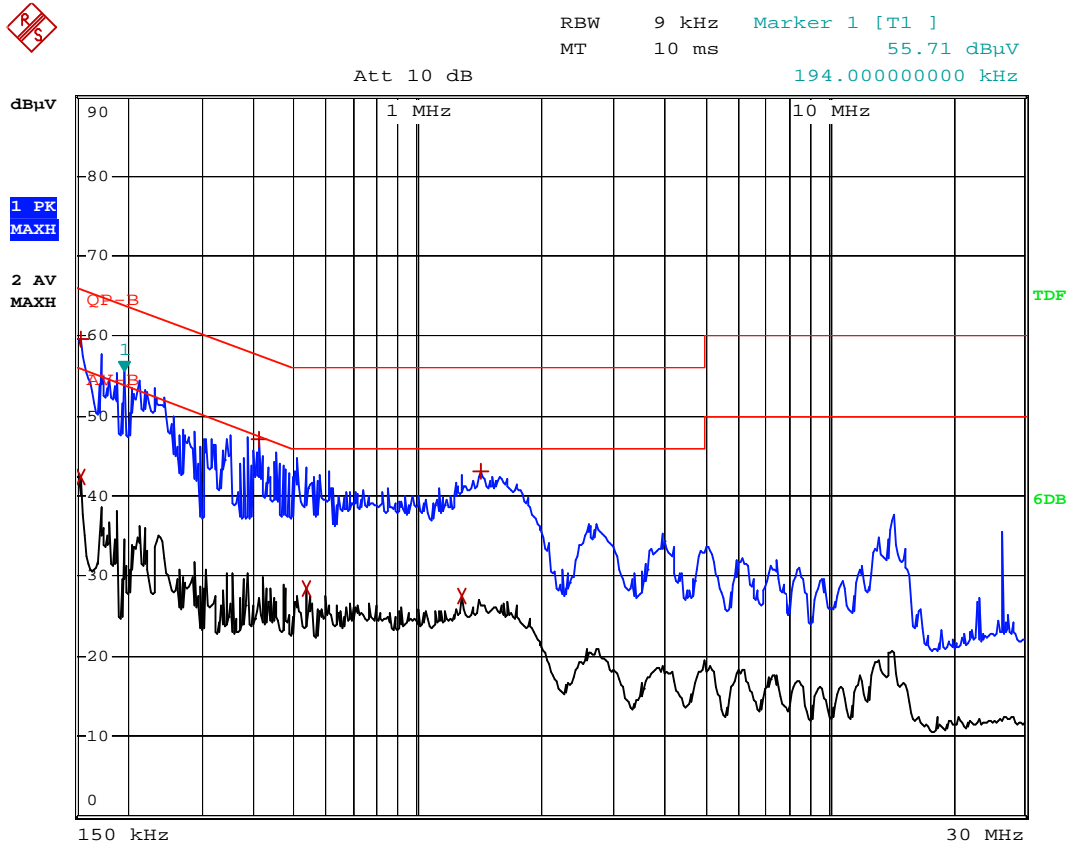
-6.14 dB at 0.154 in the **Neutral, Peak** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

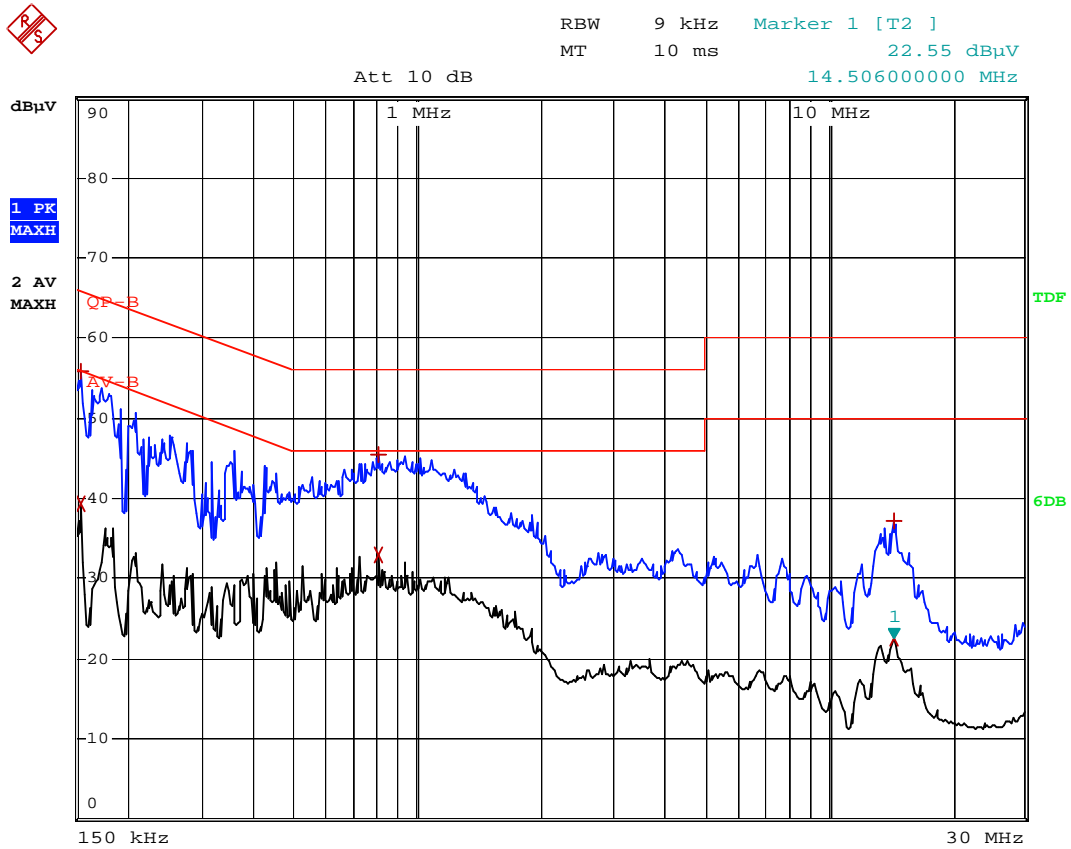
EUT: MID
 Tested Model: MID7526CM
 Operating Condition: Charging & Playing
 Comment: AC 120V/60Hz; Adapter DC 5V/1.5A

Test Specification: Neutral



EDIT PEAK LIST (Prescan Results)			
Trace1:	QP-B		
Trace2:	AV-B		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	154 kHz	59.63	-6.14
2 Average	154 kHz	42.51	-13.26
1 Max Peak	410 kHz	47.14	-10.50
2 Average	534 kHz	28.54	-17.46
2 Average	1.282 MHz	27.61	-18.38
1 Max Peak	1.43 MHz	43.05	-12.94

Test Specification: Line



EDIT PEAK LIST (Prescan Results)			
Trace1:	QP-B		
Trace2:	AV-B		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	154 kHz	55.77	-10.01
2 Average	154 kHz	39.34	-16.43
1 Max Peak	802 kHz	45.40	-10.59
2 Average	802 kHz	32.99	-13.00
1 Max Peak	14.474 MHz	37.17	-22.83
2 Average	14.506 MHz	22.55	-27.45

4. Radiated Emissions

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

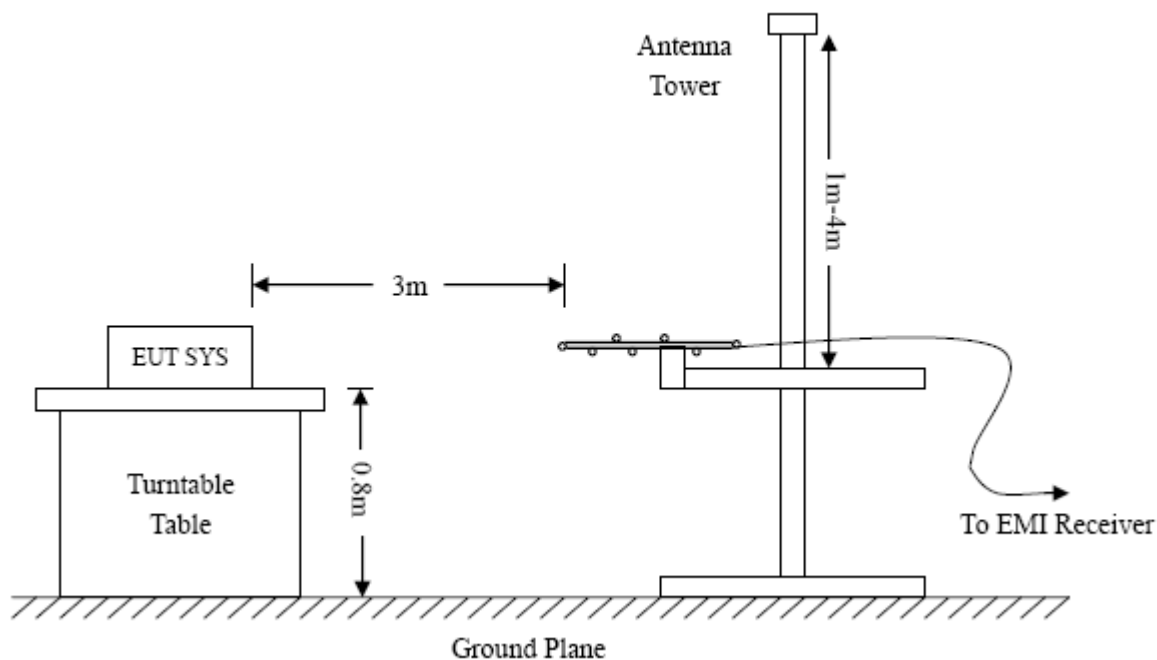
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2013-05-07	2014-05-06
EMI Test Receiver	R&S	ESVB	825471/005	2013-05-07	2014-05-06
Pre-amplifier	Agilent	8447F	3113A06717	2013-05-07	2014-05-06
Pre-amplifier	Compliance Direction	PAP-0118	24002	2013-05-07	2014-05-06
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2013-04-20	2014-04-19
Horn Antenna	ETS	3117	00086197	2013-04-20	2014-04-19
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2013-04-20	2014-04-19

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.



4.4 Test Receiver Setup

Frequency :9kHz-30MHz	Frequency :30MHz-1GHz	Frequency :Above 1GHz
RBW=10KHz,	RBW=120KHz,	RBW=1MHz,
VBW =30KHz	VBW=300KHz	VBW=3MHz(Peak), 10Hz(AV)
Sweep time= Auto	Sweep time= Auto	Sweep time= Auto
Trace = max hold	Trace = max hold	Trace = max hold
Detector function = peak	Detector function = peak, QP	Detector function = peak, AV

4.5 Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and the Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for a Class B device. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109(a) Limit}$$

4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

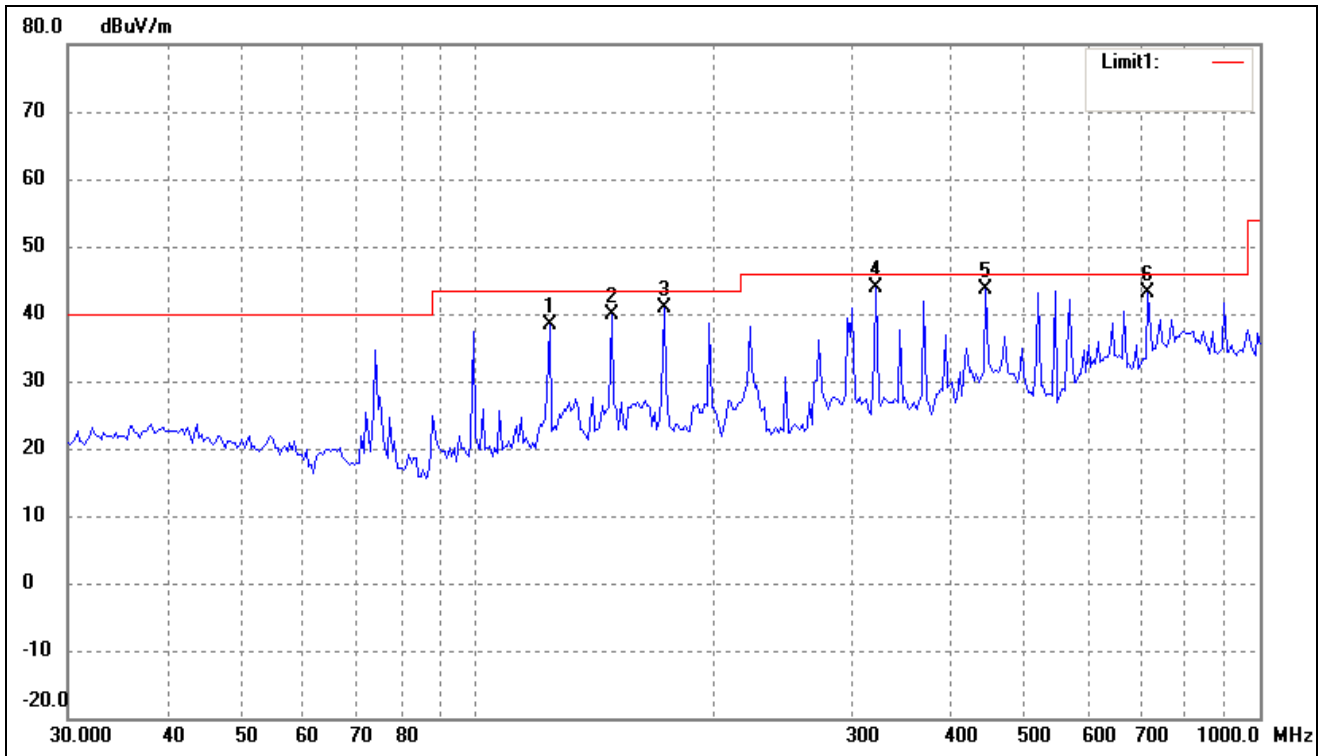
4.7 Summary of Test Results/Plots

According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.07 dB at 323.3204 MHz in the Horizontal polarization, Charging & Playing mode, 9 kHz to 6 GHz, 3Meters

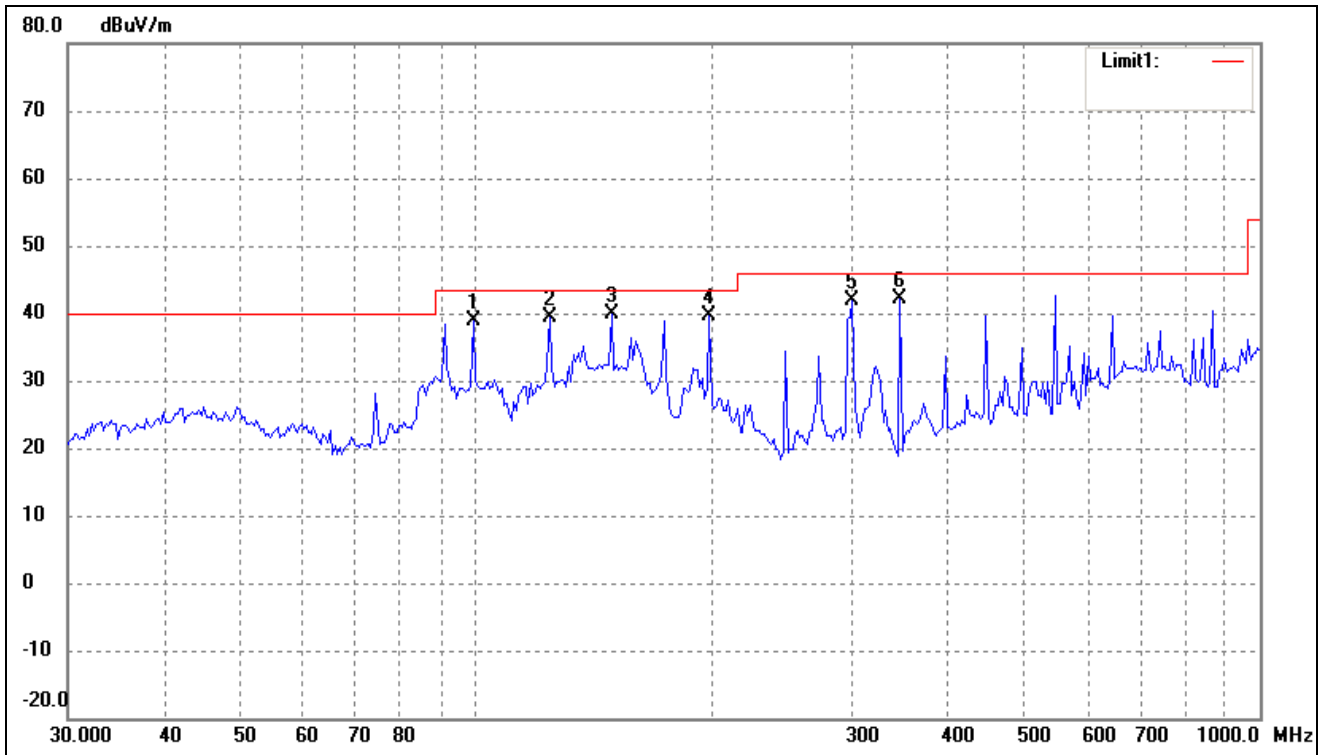
Plot of Radiated Emissions Test Data

EUT: MID
 Tested Model: MID7526CM
 Operating Condition: Charging & Playing
 Comment: AC 120V/60Hz; Adapter DC 5V/1.5A
 Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	123.6984	34.58	3.73	38.31	43.50	-5.19	145	100	peak
2	148.4410	37.33	2.49	39.82	43.50	-3.68	125	100	peak
3	173.2050	38.06	2.70	40.76	43.50	-2.74	165	100	peak
4	323.3204	34.74	9.19	43.93	46.00	-2.07	133	100	peak
5	446.4141	33.43	10.19	43.62	46.00	-2.38	178	100	peak
6	719.1994	28.67	14.35	43.02	46.00	-2.98	195	100	peak

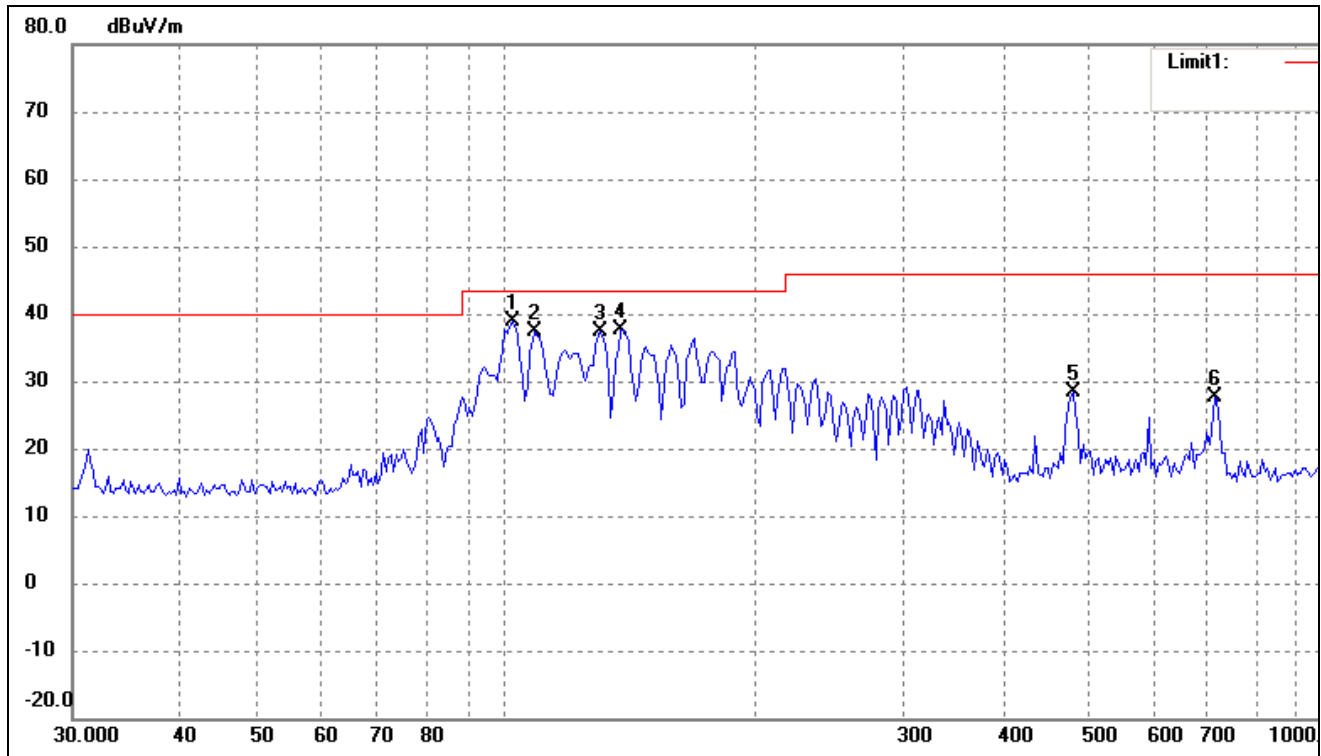
Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	98.8325	32.99	5.84	38.83	43.50	-4.67	125	100	peak
2	123.6984	35.58	3.73	39.31	43.50	-4.19	145	100	peak
3	148.4410	37.36	2.49	39.85	43.50	-3.65	120	100	peak
4	197.8927	36.01	3.58	39.59	43.50	-3.91	102	100	peak
5	301.4223	32.70	9.18	41.88	46.00	-4.12	155	100	peak
6	346.8091	33.23	8.90	42.13	46.00	-3.87	185	100	peak

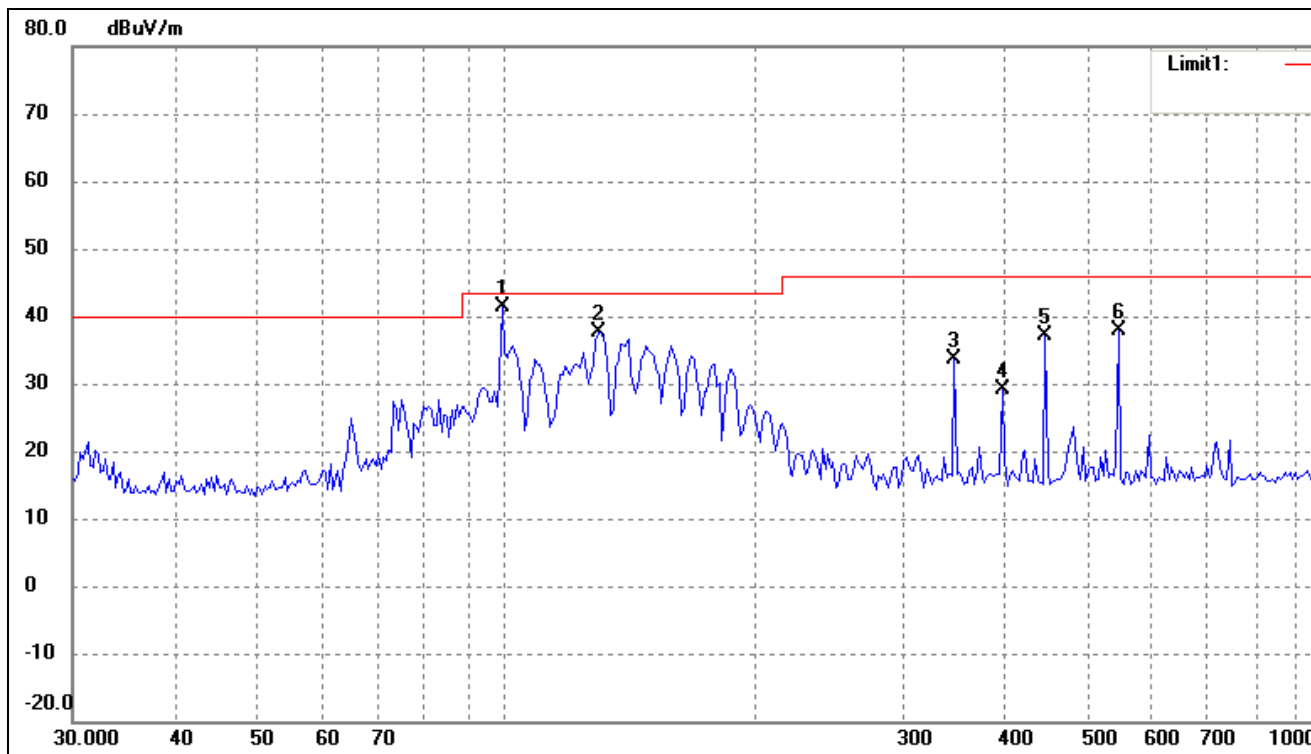
Plot of Radiated Emissions Test Data

EUT: MID
 Tested Model: MID7526CM
 Operating Condition: Downloading
 Comment: USB DC 5V
 Test Specification: Horizontal



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	101.6443	32.96	5.95	38.91	43.50	-4.59	168	100	peak
2	108.2667	32.20	5.26	37.46	43.50	-6.04	152	100	peak
3	129.9226	34.09	3.22	37.31	43.50	-6.19	145	100	peak
4	137.4202	35.06	2.61	37.67	43.50	-5.83	178	100	peak
5	482.2156	18.30	10.19	28.49	46.00	-17.51	185	100	peak
6	714.1734	13.48	14.20	27.68	46.00	-18.32	205	100	peak

Test Specification: Vertical



No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	98.8326	35.47	5.84	41.31	43.50	-2.19	145	100	peak
2	129.0146	34.42	3.29	37.71	43.50	-5.79	125	100	peak
3	346.8092	24.68	8.90	33.58	46.00	-12.42	132	100	peak
4	396.2415	19.11	9.95	29.06	46.00	-16.94	186	100	peak
5	446.4141	26.93	10.19	37.12	46.00	-8.88	195	100	peak
6	547.0977	26.55	11.37	37.92	46.00	-8.08	215	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 6GHz, which above 1GHz is close to the noise base even antenna close up to 1meter distance according the measurement of ANSI C63.4.
 The measurements greater than 20dB below the limit from 9kHz to 30MHz and test data are not provided.

***** END OF REPORT *****