FCC Part 15B
Measurement and Test Report

For

Shenzhen Discovery Technology Co., LTD.

5th floor Building 2, Block A, Internet industrial park, Baoyuan road,

Xixiang, Baoan District, Shenzhen, China

FCC ID: 2AACI-D5H-88V

Test Standards:	FCC Part 15 Subpart B
Product Description:	MID
Tested Model:	D5H-88V
Report No.:	STR13058214I-2
Tested Date:	2013-05-13 to 2013-05-25
Issued Date:	2013-05-31
Tested By:	Silin Chen / Engineer
Reviewed By:	Lahm Peng / EMC Manager
Approved & Authorized By:	Jandy so / PSQ Manager

Prepared By:

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant:	Shenzhen Discovery Technology Co., LTD.
Address of applicant:	5th floor Building 2, Block A, Internet industrial park, Baoyuan road, Xixiang, Baoan District, Shenzhen, China
Manufacturer:	Shenzhen Discovery Technology Co., LTD.
Address of manufacturer:	5th floor Building 2, Block A, Internet industrial park, Baoyuan road, Xixiang, Baoan District, Shenzhen, China

General Description of EUT	
Product Name:	MID
Trade Name:	/
Model No.:	D5H-88V
Adding Model(s):	/
Rated Voltage:	DC3.7V Lithium Battery
Power Adapter:	Model: YHSW-050200U
	Input: 100-240V, Output:DC 5V
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Support Standards:	802.11b, 802.11g, 802.11n
Frequency Range:	2412-2462MHz for 11b/g/n(HT20) 2422-2452MHz for 11n(HT40)
RF Output Power (Conducted):	7.81 dBm
Type of Modulation:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Data Rate:	1-11Mbps, 6-54Mbps, up to 150Mbps
Quantity of Channels	11 for for 11b/g/n(HT20), 9 for 11n(HT40)
Channel Separation:	5MHz
Type of Antenna:	Integral Antenna
Antenna Gain:	2 dBi
Lowest Internal Frequency:	32.768kHz
Highest Internal Frequency:	1.5GHz

1.2 Test Standards

The following report is prepared on behalf of the Shenzhen Discovery Technology 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.: 994117**
  SEM.Test Compliance Services 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 994117.

- **Industry Canada (IC) Registration No.: 7673A**
  The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**
  Shenzhen SEM.Test Electronics Service 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 3/F, Jinbao Commerce Building, Xin’an Fanshen 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 and Playing	With video
TM2	Downloading	Connect to PC

Special Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
USB Cable	0.9	Shielded	Without Ferrite
DC Cable	1.5	Unshielded	Without Ferrite

Auxiliary Equipment List and Details			
Description	Manufacturer	Model	Serial Number
Notebook	SAMSUNG	R20	N/A

Auxiliary Cable List and Details			
Cable Description	Length (m)	Shielded/Unshielded	With / Without Ferrite
Earphone Cable	0.9	Unshielded	Without Ferrite

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.

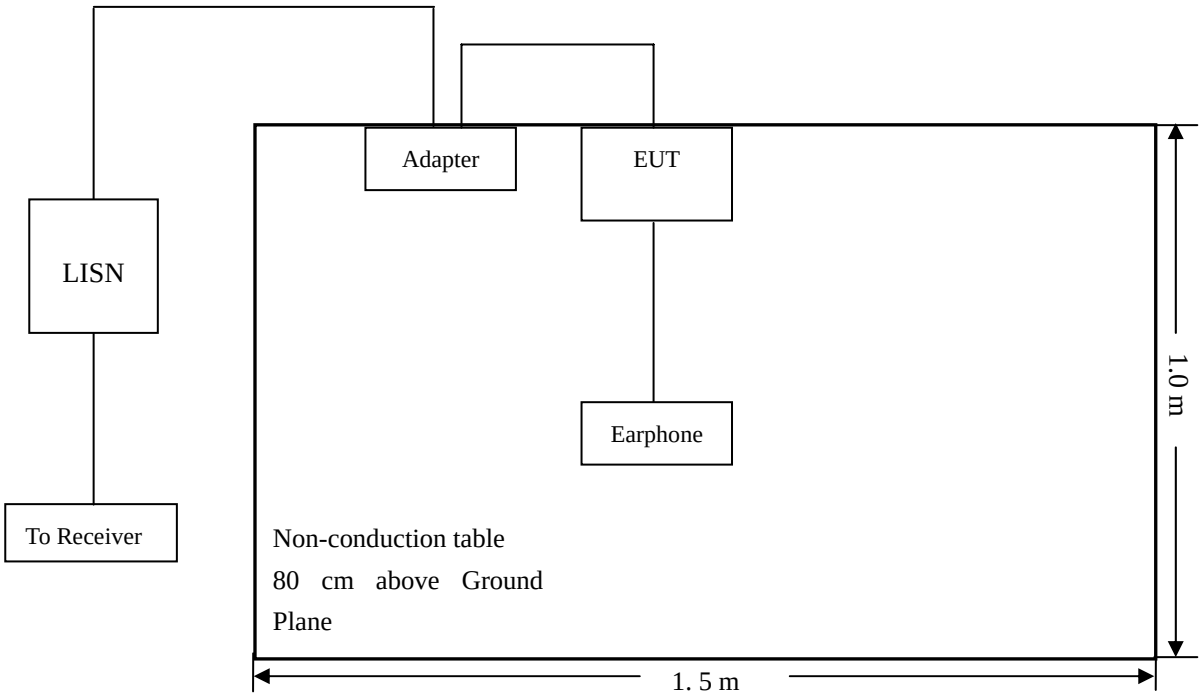
3.2 Test Equipment List and Details

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:

-3.39 dB at 0.258 MHz in the **Neutral** mode**, Ave** detector, **0.15-30MHz**

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

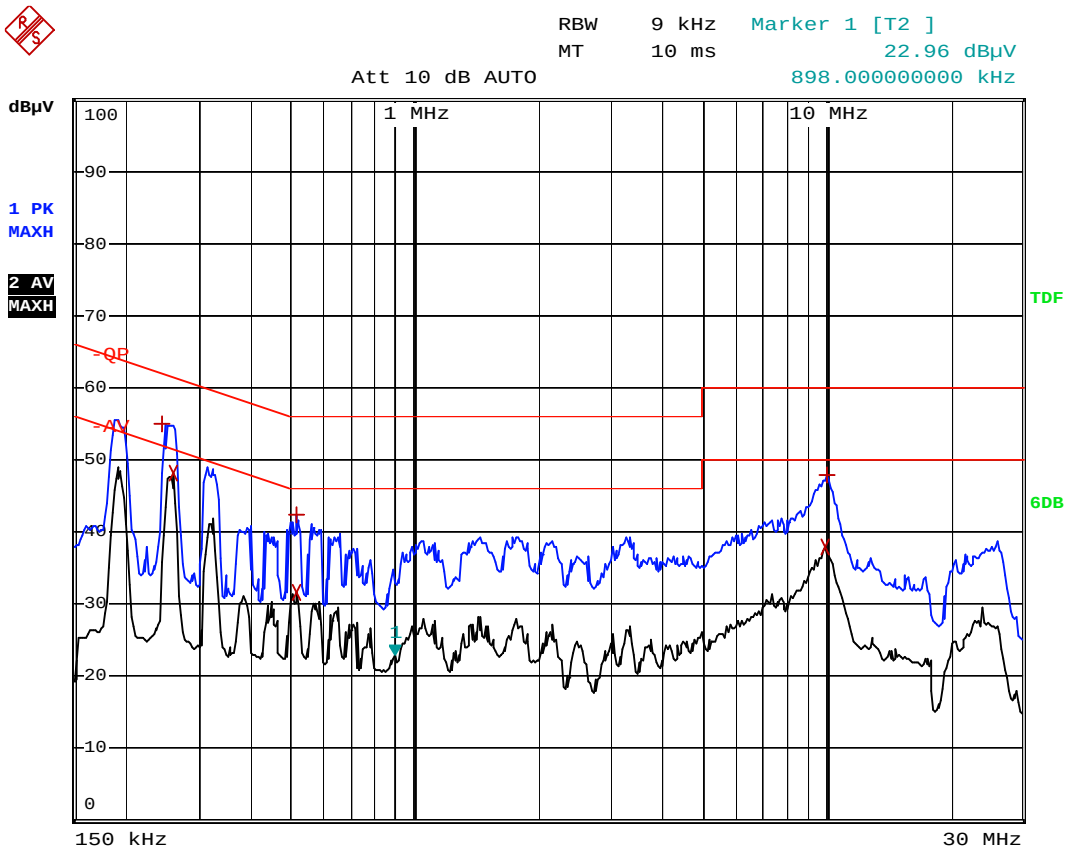
EUT: *MID*

Tested Model: *D5H-88V*

Operating Condiation: *Charging and playing*

Comment: *Input AC 120V/60Hz adapter, Output DC 5V*

Test Specification: *Neutral*

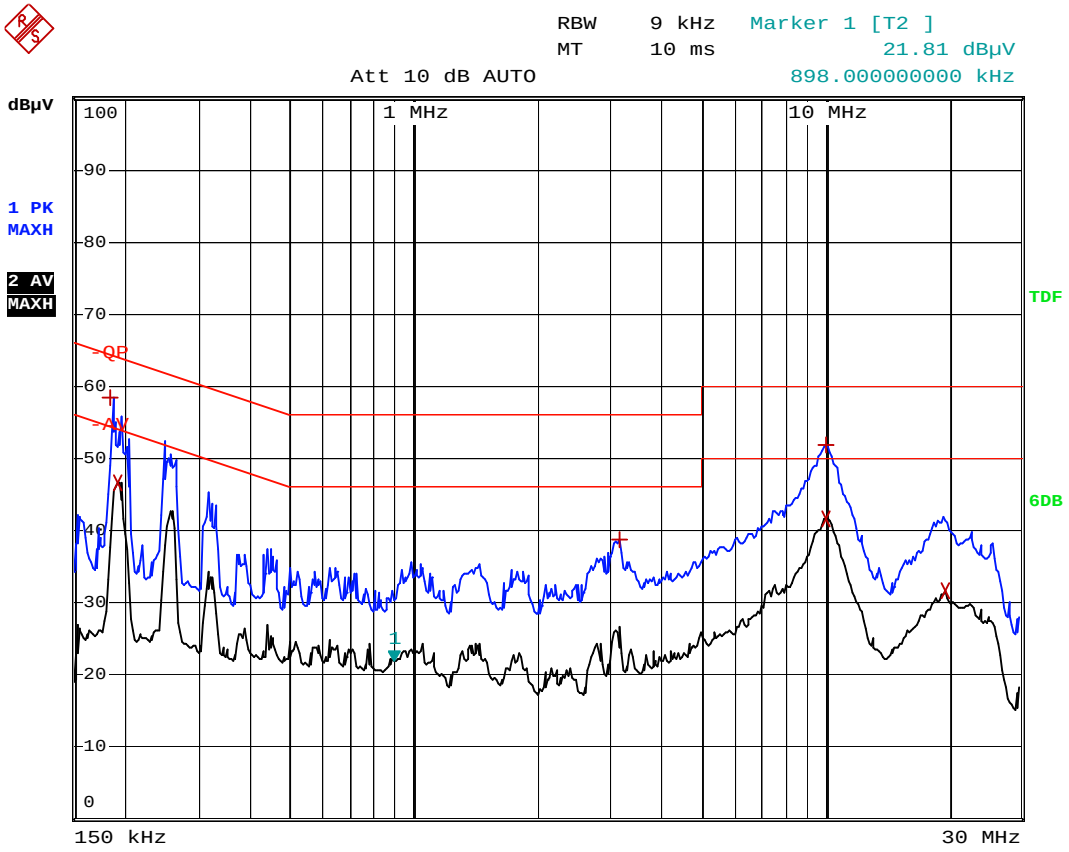


EDIT PEAK LIST (Prescan Results)

Trace1: -QP
Trace2: -AV
Trace3: ---

TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	246 kHz	55.06	-6.82
2 Average	258 kHz	48.10	-3.39
1 Max Peak	514 kHz	42.36	-13.63
2 Average	514 kHz	31.55	-14.44
2 Average	10.014 MHz	38.05	-11.94
1 Max Peak	10.09 MHz	47.79	-12.21

Test Specification: *Line*



EDIT PEAK LIST (Prescan Results)

Trace1: -QP
Trace2: -AV
Trace3: ---

TRACE		FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1	Max Peak	186 kHz	58.29	-5.91
2	Average	194 kHz	46.67	-7.18
1	Max Peak	3.166 MHz	38.84	-17.15
2	Average	10.078 MHz	41.71	-8.28
1	Max Peak	10.114 MHz	51.75	-8.24
2	Average	19.642 MHz	31.70	-18.30

4. Radiated Emissions

4.1 Measurement Uncertainty

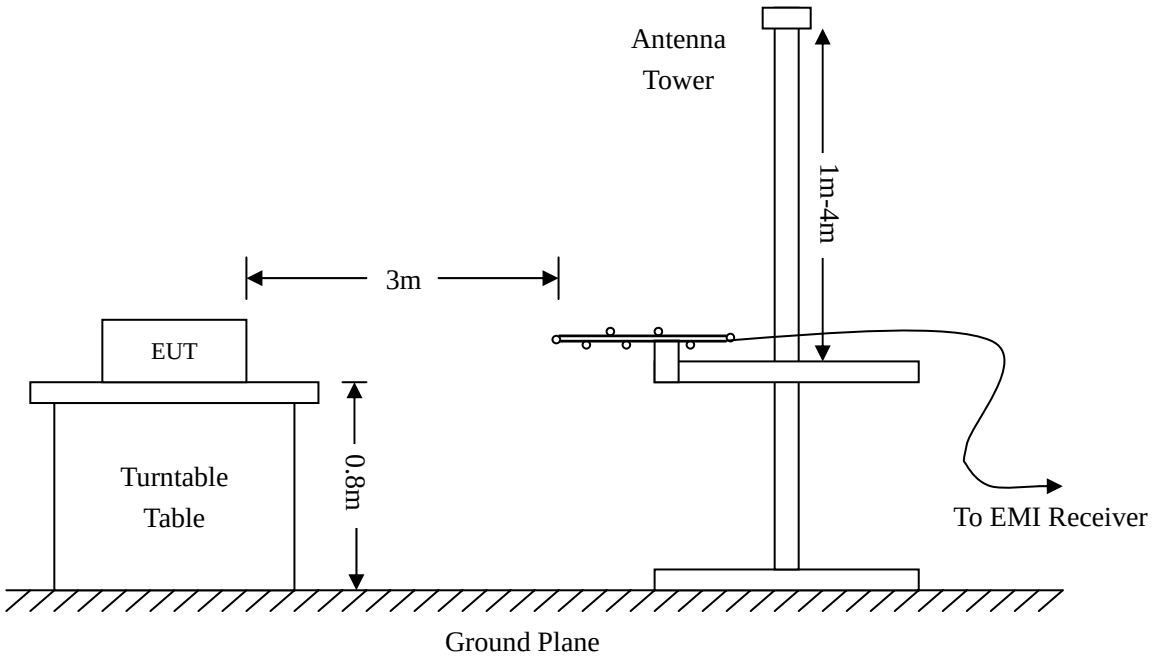
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

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.



Frequency :9kHz-30MHz
RBW=10KHz,
VBW =30KHz
Sweep time= Auto
Detector function = peak

Frequency :30MHz-1GHz
RBW=120KHz
VBW=300KHz
Sweep time= Auto
Detector function = peak

4.4 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:
RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:
RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

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:

Corr. Ampl. = Indicated Reading – Corr. Factor

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

Margin = Corr. Ampl. – 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:

-1.76 dB at **766.0572 MHz** in the **Horizontal** polarization, **Charging and Playing** Mode, **9 kHz** to **15 GHz**, **3Meters**

Plot of Radiated Emissions Test Data

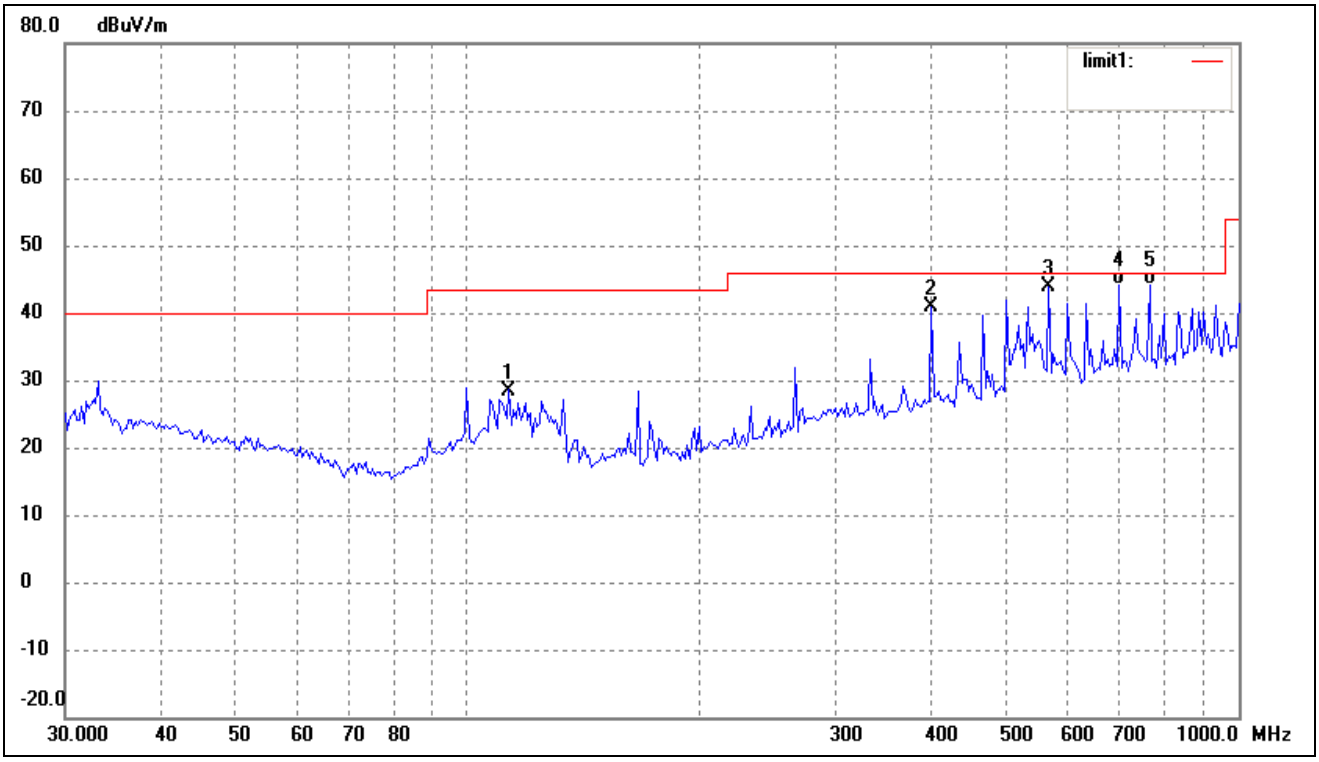
EUT: *MID*

Tested Model: *D5H-88V*

Operating Condition: *Charging and Playing*

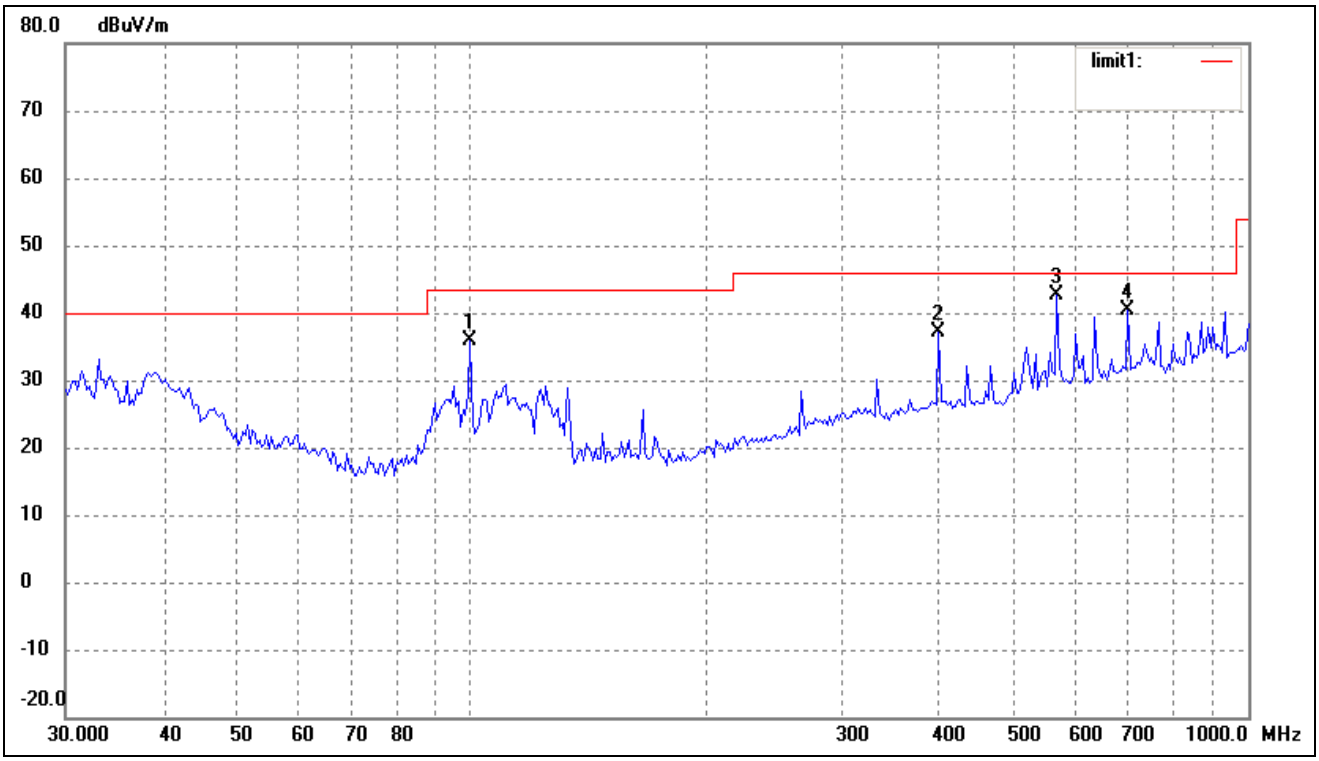
Comment: *Input AC 120V/60Hz adapter, Output DC 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	112.9196	22.94	5.56	28.50	43.50	-15.00	58	150	peak
2	399.0302	29.48	11.50	40.98	46.00	-5.02	326	100	peak
3	566.6223	30.36	13.58	43.94	46.00	-2.06	29	120	peak
4	699.3046	28.50	15.73	44.23	46.00	-1.77	209	100	QP
5	766.0572	27.47	16.77	44.24	46.00	-1.76	359	200	QP

Test Specification: *Vertical*

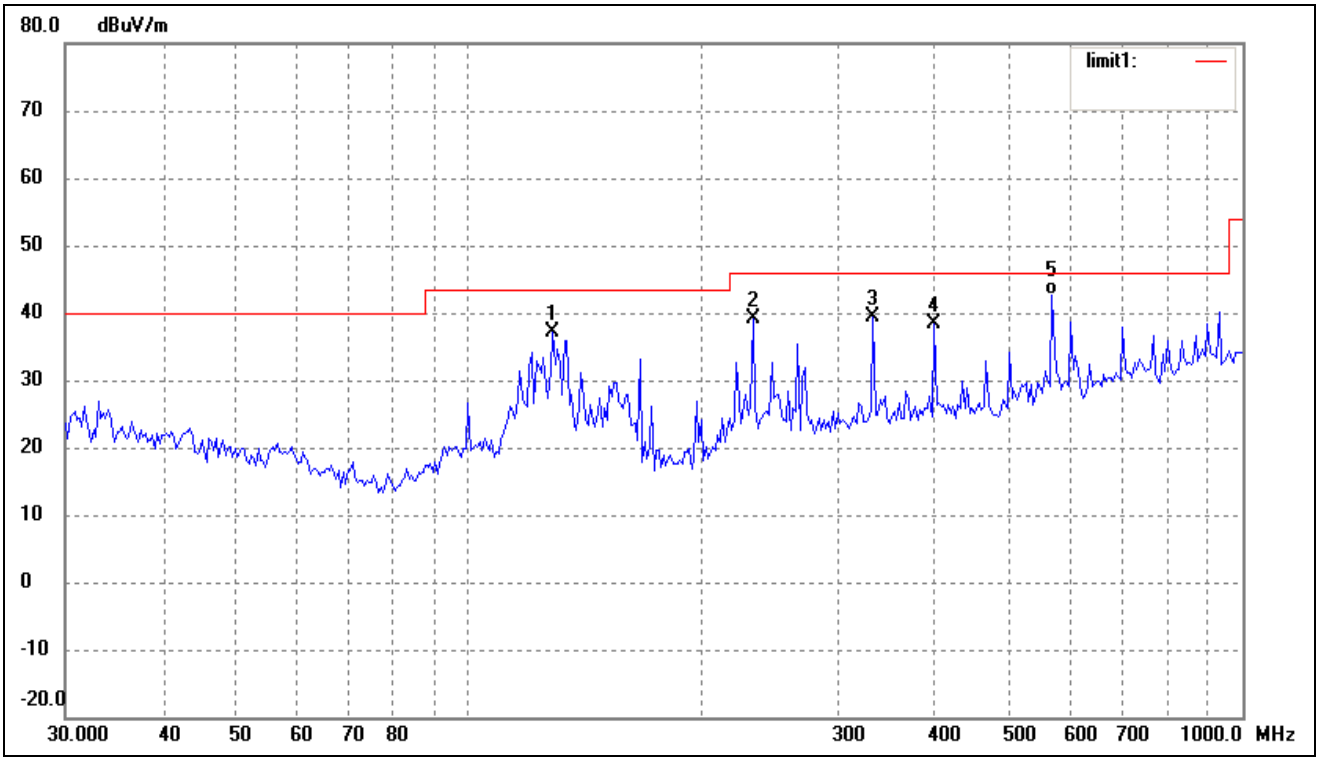


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	99.5281	29.09	6.72	35.81	43.50	-7.69	51	100	peak
2	399.0302	25.61	11.50	37.11	46.00	-8.89	308	100	peak
3	566.6223	28.95	13.58	42.53	46.00	-3.47	120	100	peak
4	699.3046	24.71	15.73	40.44	46.00	-5.56	359	100	peak

Plot of Radiated Emissions Test Data

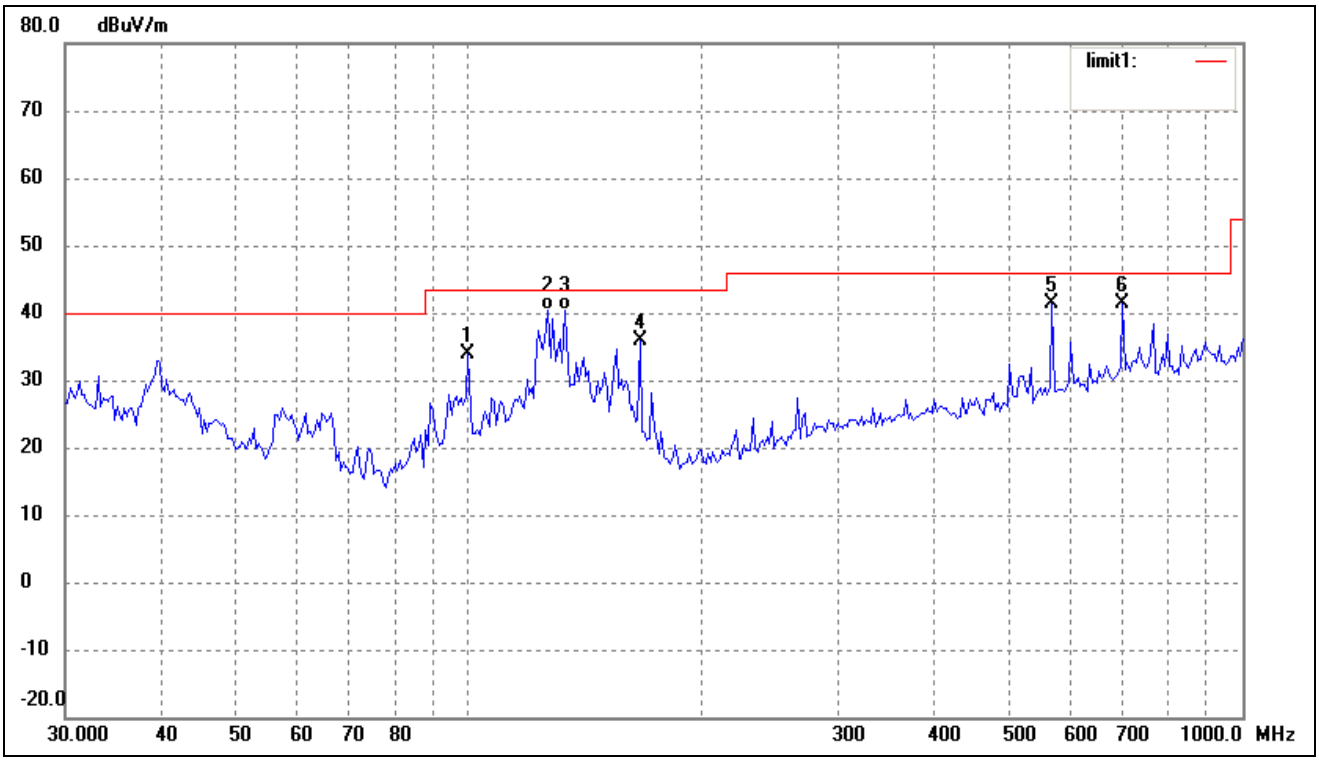
EUT: *MID*
Tested Model: *HS-7DTB14*
Operating Condition: *Downloading*
Comment: *AC 120V/60Hz USB 5V*

Test Specification: *Horizontal*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	128.1130	32.87	4.27	37.14	43.50	-6.36	58	150	peak
2	232.5318	32.43	6.59	39.02	46.00	-6.98	326	100	peak
3	332.5187	29.20	10.24	39.44	46.00	-6.56	29	120	peak
4	399.0302	26.93	11.50	38.43	46.00	-7.57	209	100	peak
5	566.6223	29.14	13.58	42.72	46.00	-3.28	359	200	QP

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	99.5281	27.24	6.72	33.96	43.50	-9.54	51	100	peak
2	126.3286	35.96	4.39	40.35	43.50	-3.15	308	100	QP
3	132.6850	36.45	3.93	40.38	43.50	-3.12	120	100	QP
4	166.0680	32.31	3.68	35.99	43.50	-7.51	359	100	peak
5	566.6223	27.92	13.58	41.50	46.00	-4.50	359	100	peak
6	699.3046	25.67	15.73	41.40	46.00	-4.60	359	100	peak

Note: Testing is carried out with frequency rang 9kHz to 15GHz, which above 9kHz to 30MHz and above 1GHz spurious are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

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