FCC Part 15B
Measurement and Test Report

For

Shenzhen WeDo Century Industrial Co.,Ltd

3rd Building, 6th, QingNingRoad, QingHu Village. LongHua, ShenZhen,

518109, China

FCC ID: 2AC9AHD5

Test Rule(s):	FCC Part 15 Subpart B
Product Description:	TV BOX
Tested Model:	HD5
Report No.:	STR14098130I-4
Tested Date:	2014-09-17 to 2014-11-20
Issued Date:	2014-11-21
Tested By:	Vigoss Liang / 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 WeDo Century lndustrial Co.,ltd
Address of applicant:	3rd Building, 6th, QingNingRoad, QingHu Village. LongHua, ShenZhen, 518109, China
Manufacturer:	Shenzhen WeDo Century lndustrial Co.,ltd
Address of manufacturer:	3rd Building, 6th, QingNingRoad, QingHu Village. LongHua, ShenZhen, 518109, China

General Description of EUT	
Product Name:	TV BOX
Trade Name:	TVPRO
Model No.:	HD5
Adding Model(s):	AllCamHD5
Rated Voltage:	Adapter DC 5V
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 HD5, but the circuit and the electronic construction do not change, declared by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 5.0V
Rated Current:	2.0A
Rated Power:	10W
Power Adapter Model:	CH0515000C
	Input: AC100-240V~50/60Hz; Output: DC 5V, 2.0A
Lowest Internal Frequency:	32.768 KHz
Highest Internal Frequency:	1.0GHz
Classification of ITE:	Class B

1.2 Test Standards

The following report is prepared on behalf of the Shenzhen WeDo Century lndustrial 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	USB&HDMI	Mouse connected to USB port 1 USB port 2 download video HDMI output
TM2	TF&HDMI&USB	TF download video HDMI output Mouse connected to USB port
TM3	CAMERA&MIC&HDMI&RJ45	Camera on HDMI output Network download

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
OTG/USB Cable	0.15	Shielded	Without Ferrite
USB/DC Cable	1.20	Unshielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
HDMI	2.40	Shielded	Without Ferrite

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Display	DELL	U2410f	50642P246601H(B) ZL
USB Disk	SONY	8GB	/
TF Card	/	1GB	/
Mouse	Lenovo	/	/

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

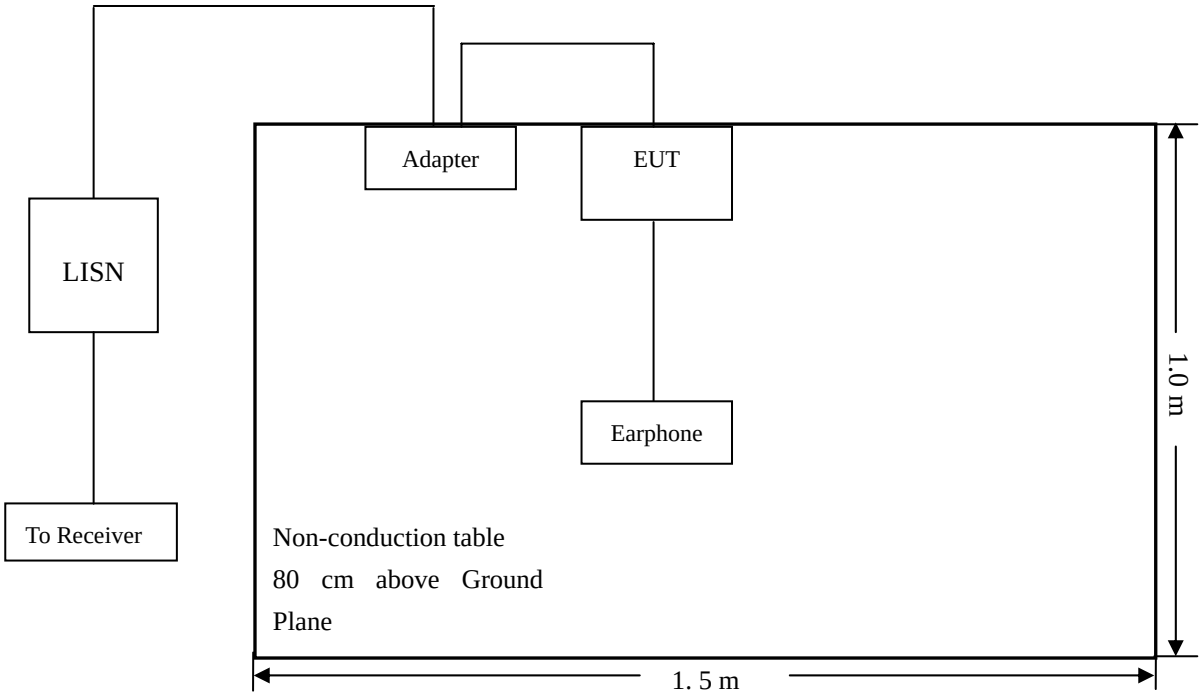
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2014-05-28	2015-05-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2014-05-28	2015-05-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2014-05-28	2015-05-27

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.

Note: Base on the calibrated result, for the impedance characteristic and insertion loss, the effect shall be ignored from the placed multiple outlet power strip between the device and LISN.

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:

-1.14 dB at **0.5500 MHz** in the **Neutral**, **TM1** Mode, **Peak** detector, **0.15-30**MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

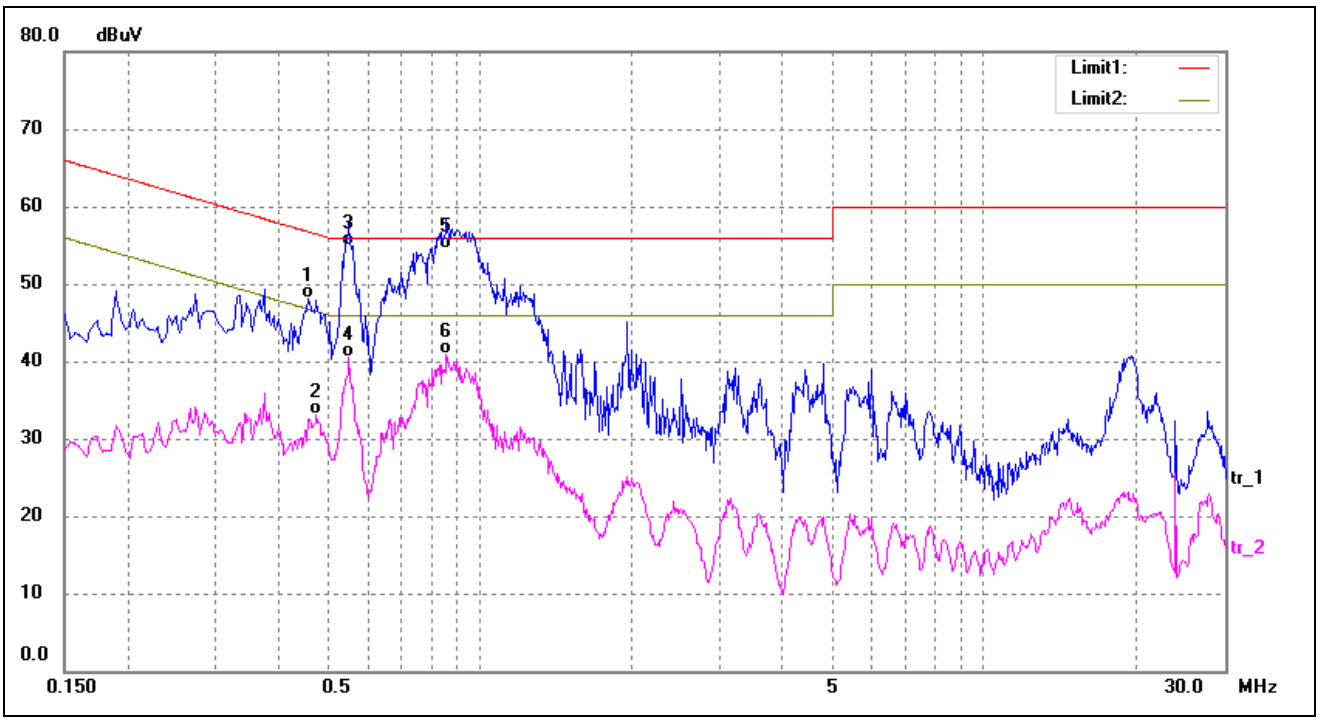
EUT: *TV BOX*

Tested Model: *HD5*

Operating Condition: *TM1*

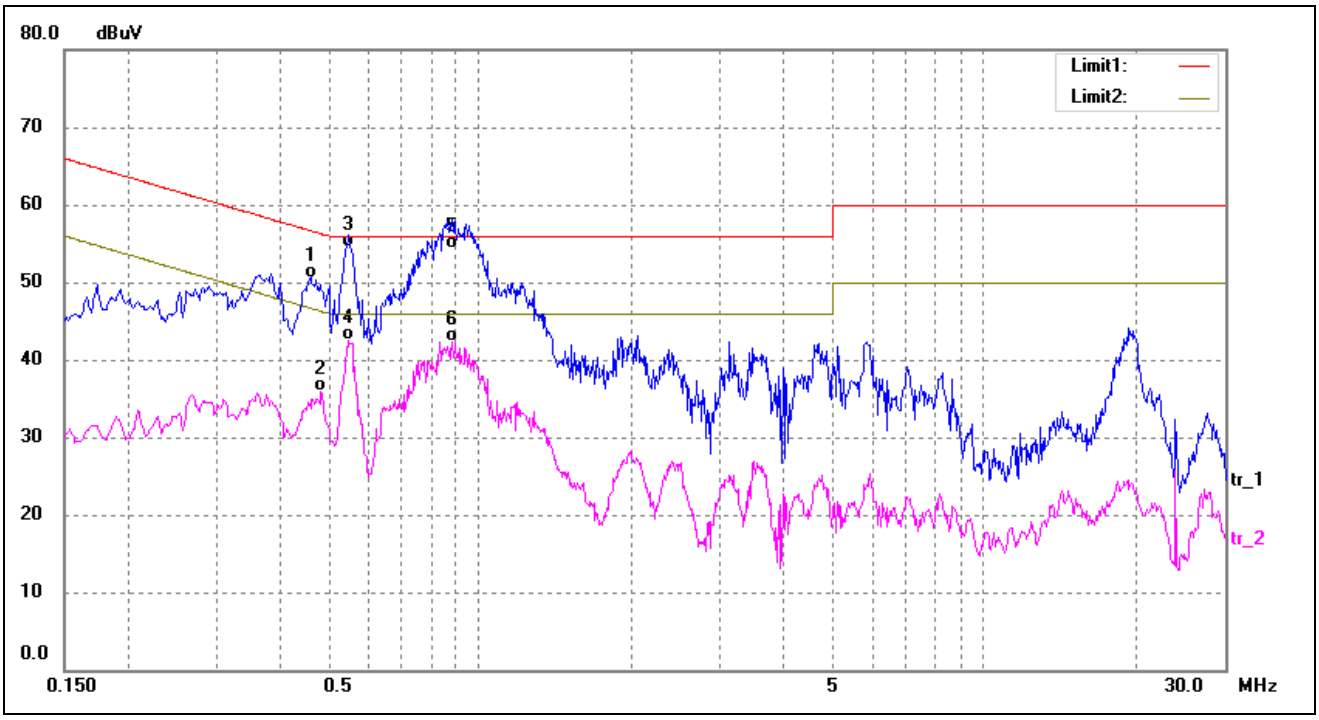
Comment: *AC 120V/60Hz* *Adaptor: DC5V/2.0A*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.4580	38.57	9.50	48.07	56.73	-8.66	QP
2	0.4740	23.62	9.50	33.12	46.44	-13.32	AVG
3	0.5500	45.31	9.55	54.86	56.00	-1.14	QP
4	0.5500	30.93	9.55	40.48	46.00	-5.52	AVG
5	0.8580	44.68	9.86	54.54	56.00	-1.46	QP
6	0.8580	31.02	9.86	40.88	46.00	-5.12	AVG

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.4620	41.10	9.50	50.60	56.66	-6.06	QP
2	0.4860	26.40	9.50	35.90	46.24	-10.34	AVG
3	0.5500	45.02	9.55	54.57	56.00	-1.43	QP
4	0.5500	33.04	9.55	42.59	46.00	-3.41	AVG
5	0.8820	44.35	9.88	54.23	56.00	-1.77	QP
6	0.8820	32.33	9.88	42.21	46.00	-3.79	AVG

Plot of Conducted Emissions Test Data

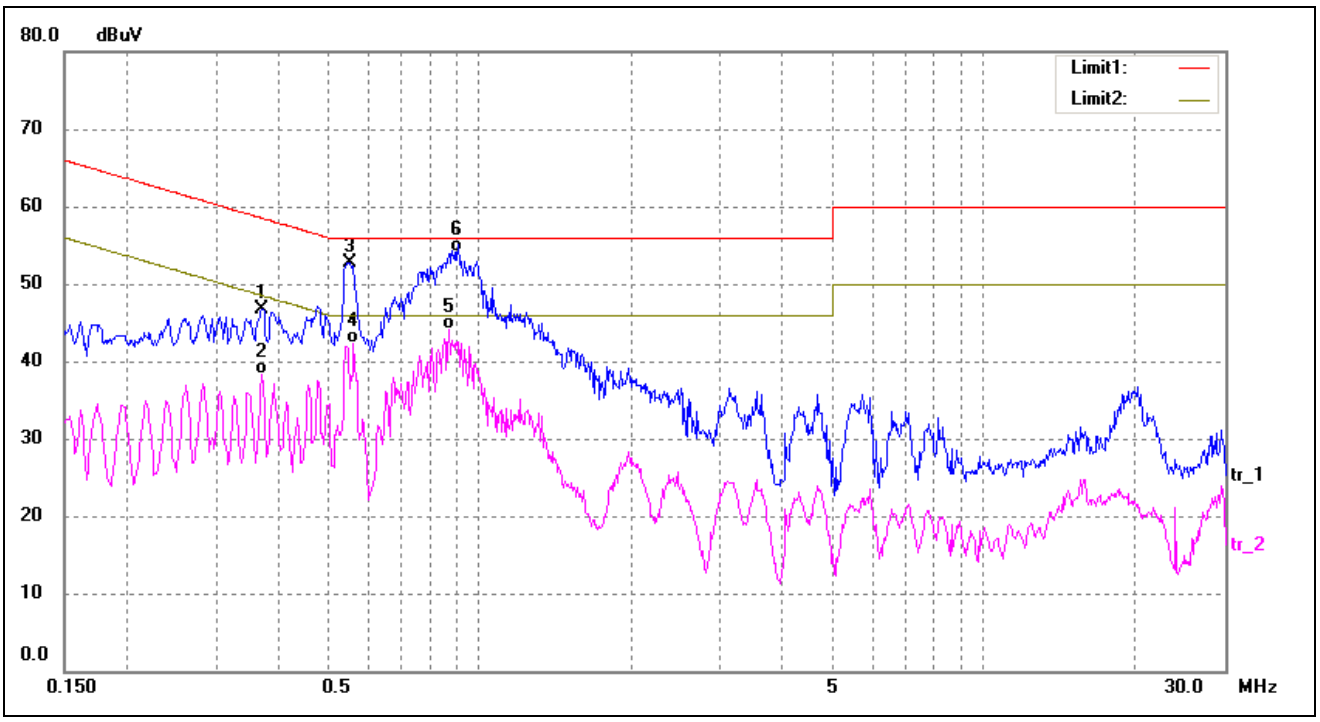
EUT: *TV BOX*

Tested Model: *HD5*

Operating Condition: *TM2*

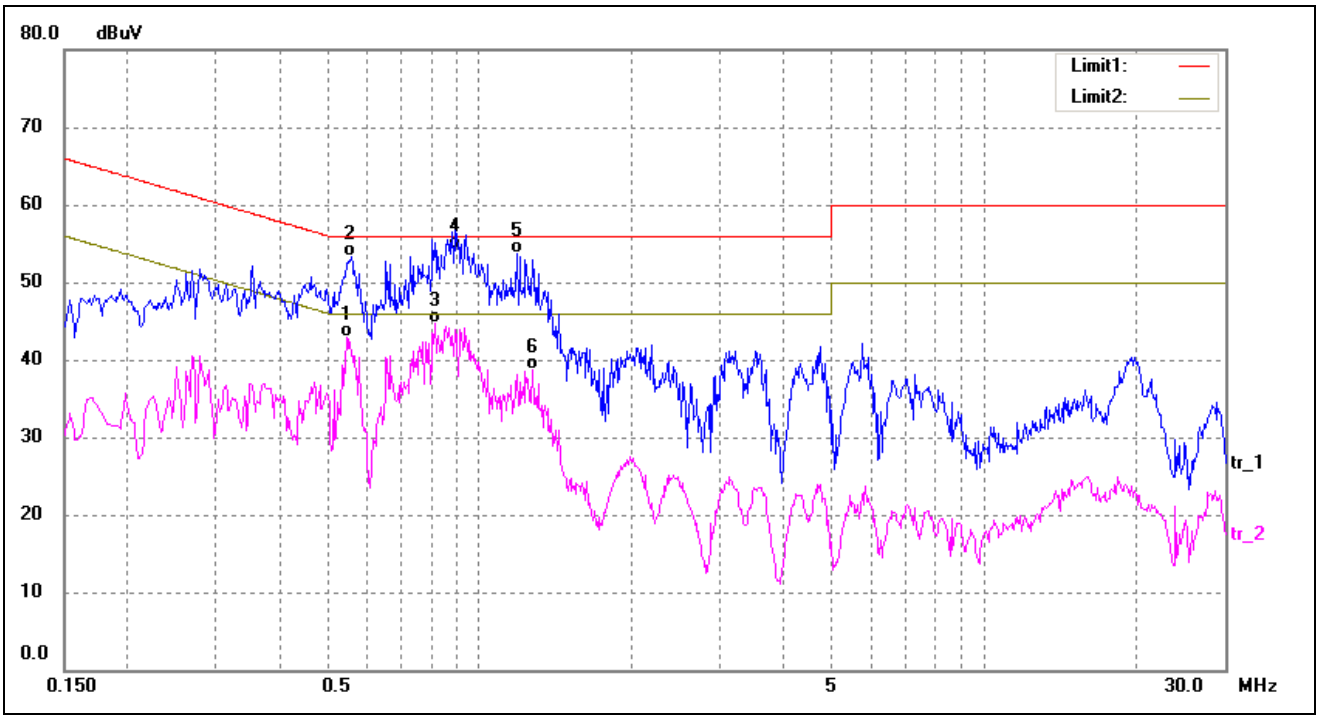
Comment: *AC 120V/60Hz* *Adaptor: DC5V/2.0A*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.3700	37.24	9.50	46.74	58.50	-11.76	peak
2	0.3700	28.74	9.50	38.24	48.50	-10.26	AVG
3	0.5540	43.24	9.55	52.79	56.00	-3.21	peak
4	0.5620	32.73	9.56	42.29	46.00	-3.71	AVG
5	0.8700	34.31	9.87	44.18	46.00	-1.82	AVG
6	0.9060	44.10	9.91	54.01	56.00	-1.99	QP

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5460	33.30	9.55	42.85	46.00	-3.15	AVG
2	0.5580	43.81	9.56	53.37	56.00	-2.63	QP
3	0.8139	34.95	9.81	44.76	46.00	-1.24	AVG
4	0.8900	44.36	9.89	54.25	56.00	-1.75	QP
5	1.1900	43.71	10.00	53.71	56.00	-2.29	QP
6	1.2740	28.76	10.00	38.76	46.00	-7.24	AVG

Plot of Conducted Emissions Test Data

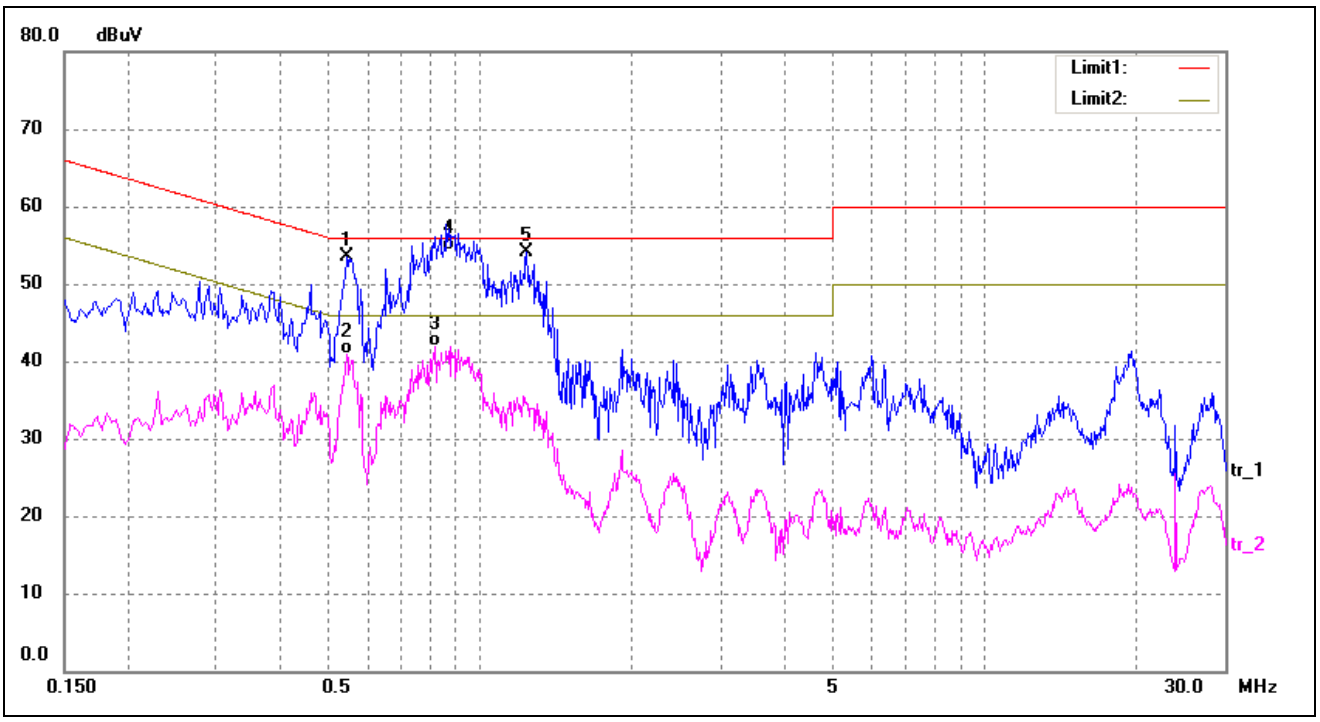
EUT: *TV BOX*

Tested Model: *HD5*

Operating Condition: *TM3*

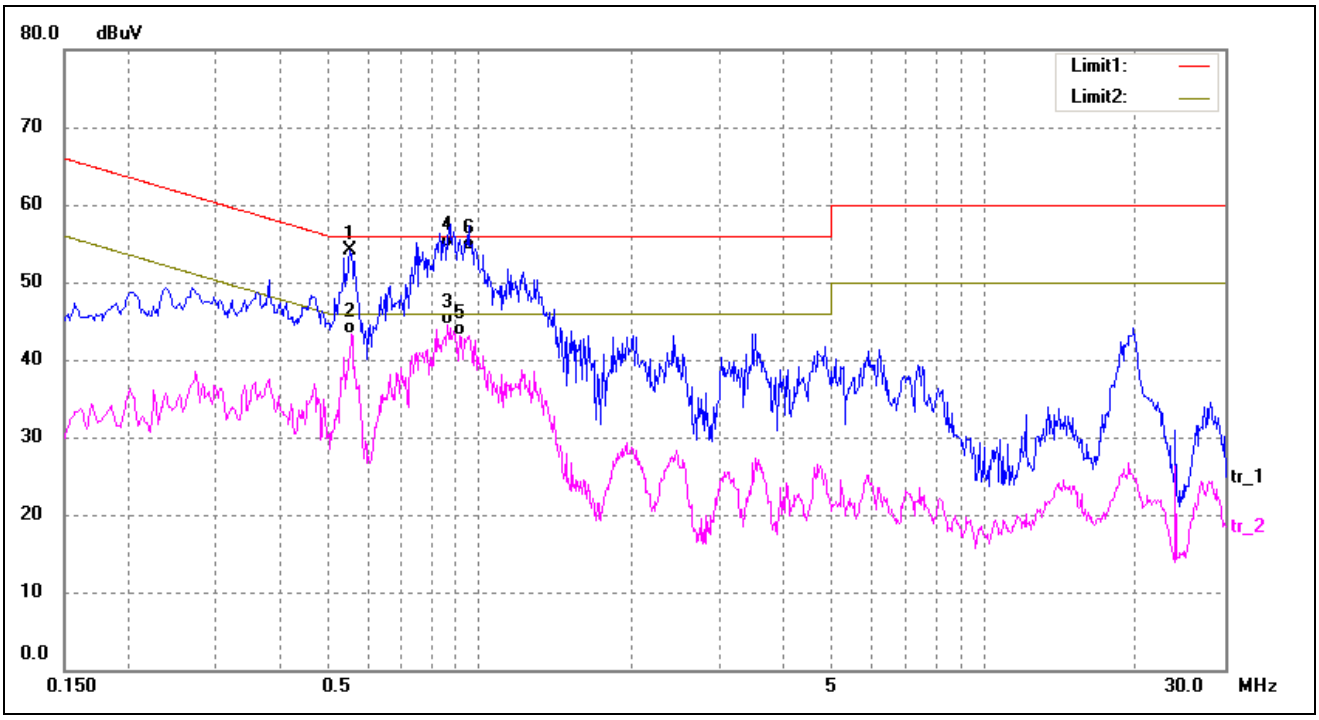
Comment: *AC 120V/60Hz* *Adaptor: DC5V/2.0A*

Test Specification: *Neutral*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5460	43.96	9.55	53.51	56.00	-2.49	peak
2	0.5460	31.28	9.55	40.83	46.00	-5.17	AVG
3	0.8140	32.00	9.81	41.81	46.00	-4.19	AVG
4	0.8580	44.39	9.86	54.25	56.00	-1.75	QP
5	1.2420	44.19	10.00	54.19	56.00	-1.81	peak
6	1.8180	43.37	10.00	53.37	56.00	-2.63	peak

Test Specification: *Line*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Detector
	(MHz)	(dBuV)	(dB/m)	(dBuV)	(dBuV)	(dB)	
1	0.5540	44.62	9.55	54.17	56.00	-1.83	peak
2	0.5580	33.74	9.56	43.30	46.00	-2.70	AVG
3	0.8620	34.73	9.86	44.59	46.00	-1.41	AVG
4	0.8740	44.56	9.87	54.43	56.00	-1.57	QP
5	0.9100	33.21	9.91	43.12	46.00	-2.88	AVG
6	0.9500	44.13	9.95	54.08	56.00	-1.92	QP

4. Radiated Emissions

4.1 Measurement Uncertainty

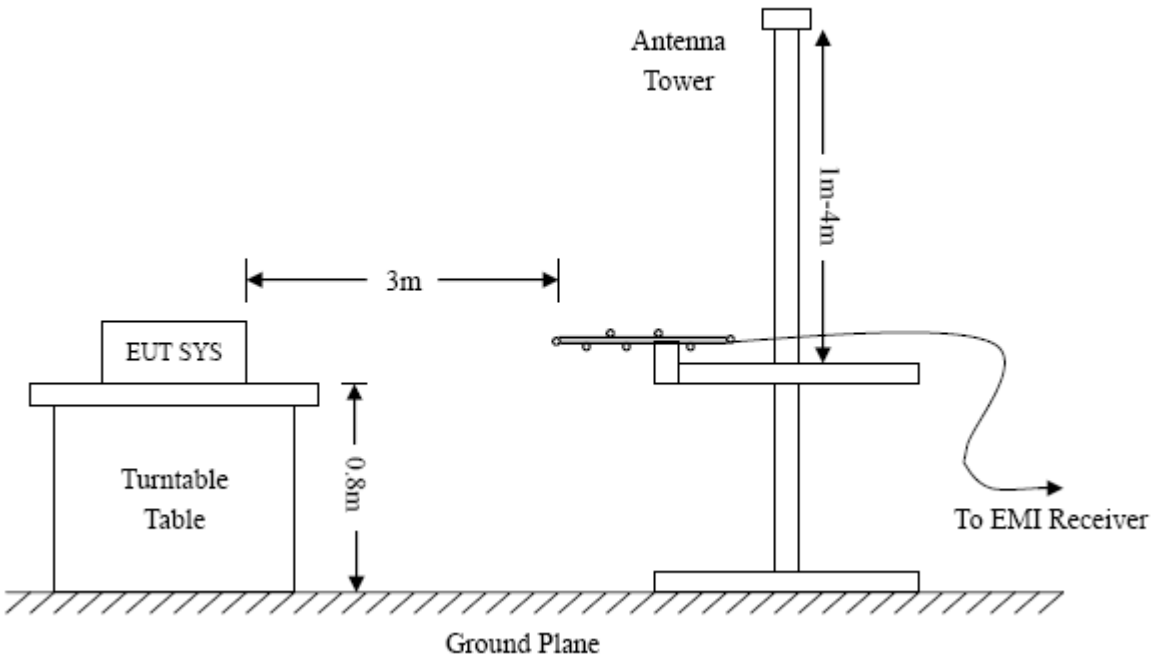
Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2014-05-28	2015-05-27
EMI Test Receiver	R&S	ESVB	825471/005	2014-05-28	2015-05-27
Pre-amplifier	Agilent	8447F	3113A06717	2014-05-28	2015-05-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2014-05-28	2015-05-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2014-05-24	2015-05-23
Horn Antenna	ETS	3117	00086197	2014-05-24	2015-05-23
Loop Antenna	SCHWARZECK	HFRA 5165	9365	2014-05-28	2015-05-27

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:

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

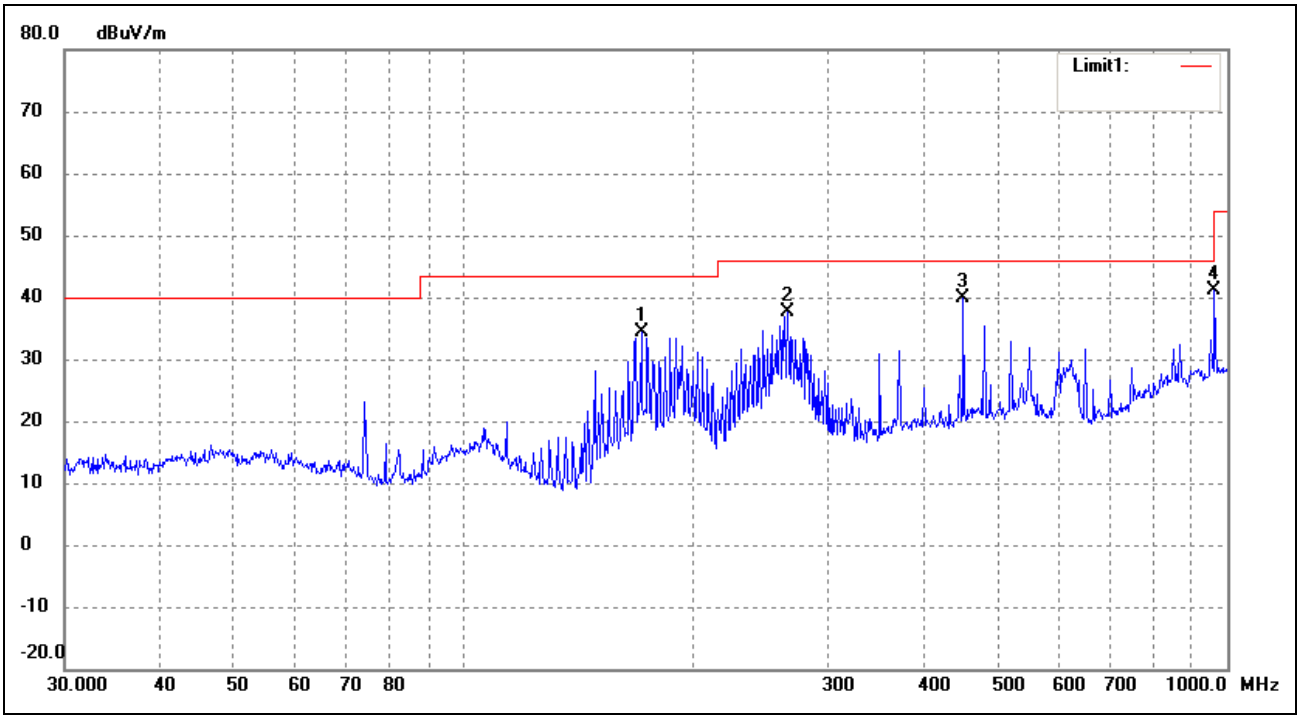
According to the data, the EUT complied with the FCC Part 15.109(a) rule, and had the worst margin of:

-2.95 dB at **893.8567 MHz** in the **Vertical** polarization, **TM2** mode, **9 kHz** to **5 GHz**, **3Meters**

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

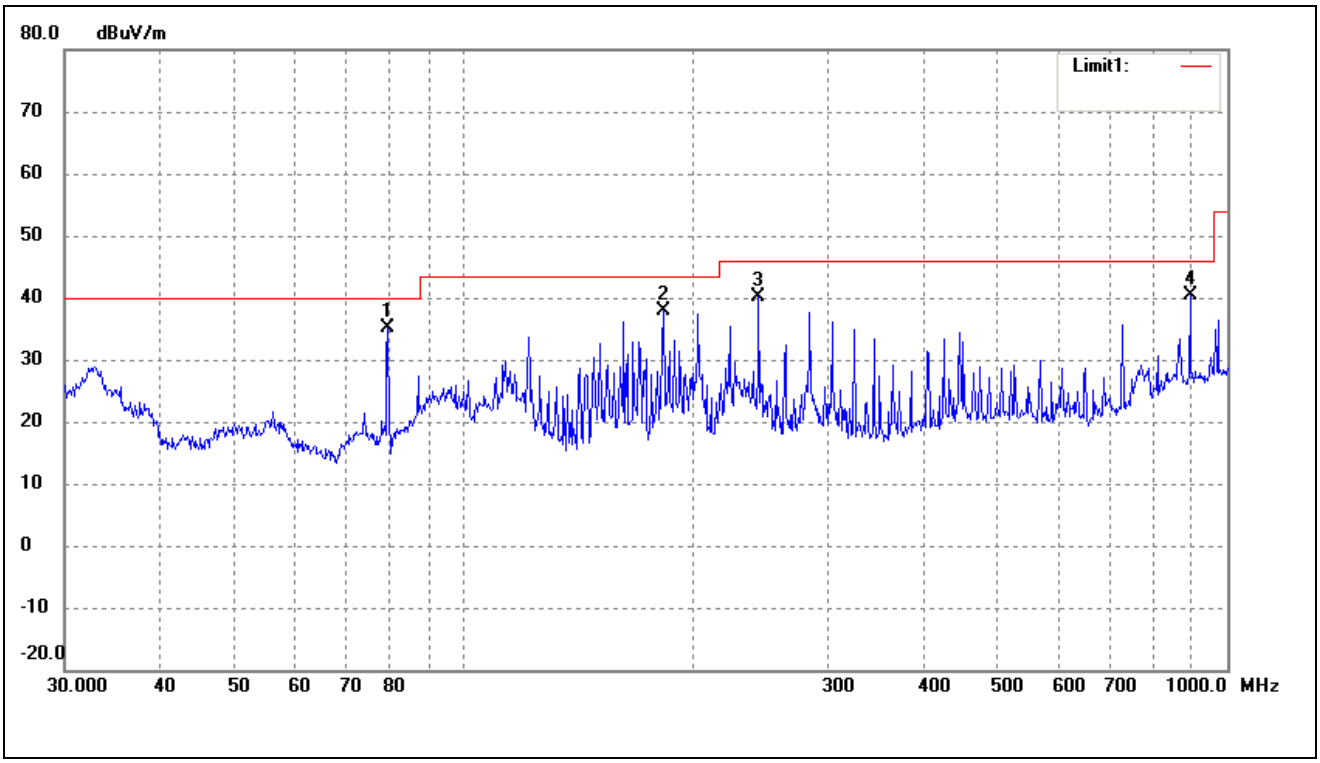
EUT: *TV BOX*
Tested Model: *HD5*
Operating Condition: *TM1*
Comment: *AC120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (•)	Height (cm)	Remark
1	170.7926	46.08	-11.78	34.30	43.50	-9.20	250	100	peak
2	265.6757	44.79	-7.05	37.74	46.00	-8.26	10	100	peak
3	451.1350	42.08	-2.16	39.92	46.00	-6.08	20	100	peak
4	962.1623	34.92	6.12	41.04	54.00	-12.96	0	100	peak

Test Specification: *Vertical*

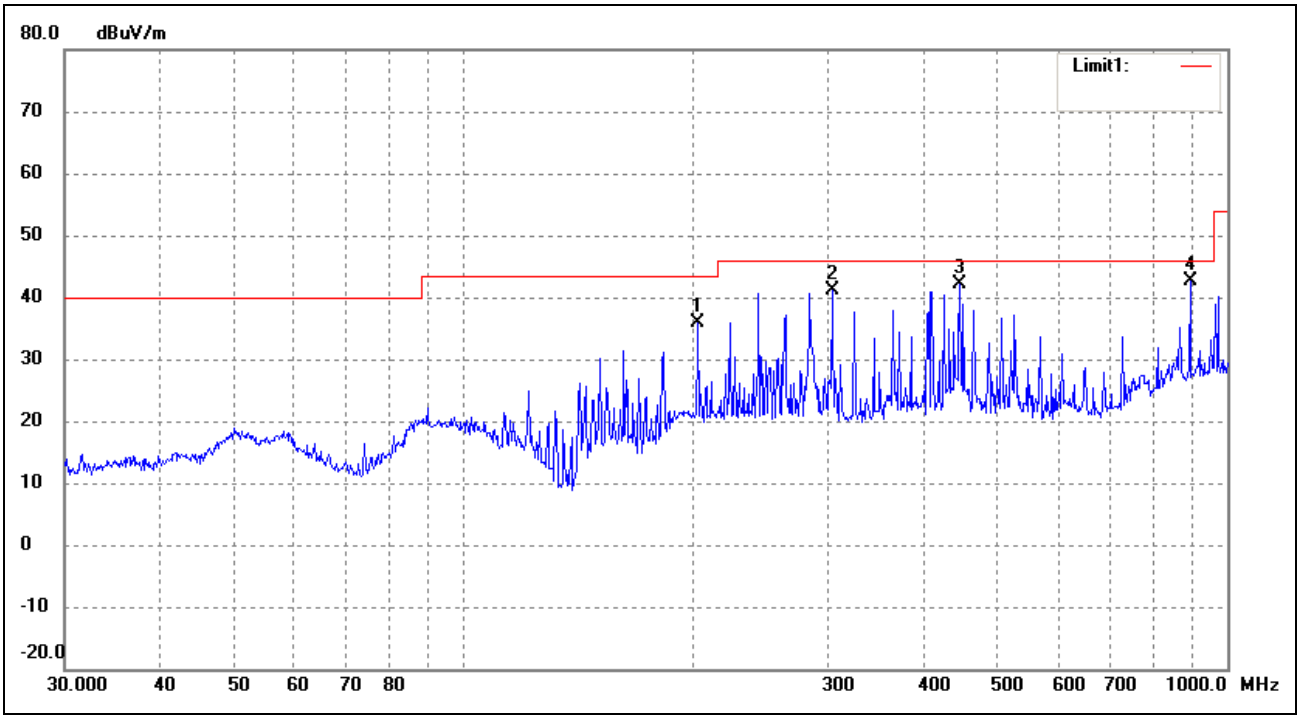


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	79.5208	48.62	-13.52	35.10	40.00	-4.90	100	100	peak
2	182.5592	48.78	-10.87	37.91	43.50	-5.59	270	100	peak
3	243.3771	47.76	-7.68	40.08	46.00	-5.92	360	100	peak
4	893.8567	35.16	5.26	40.42	46.00	-5.58	0	100	peak

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

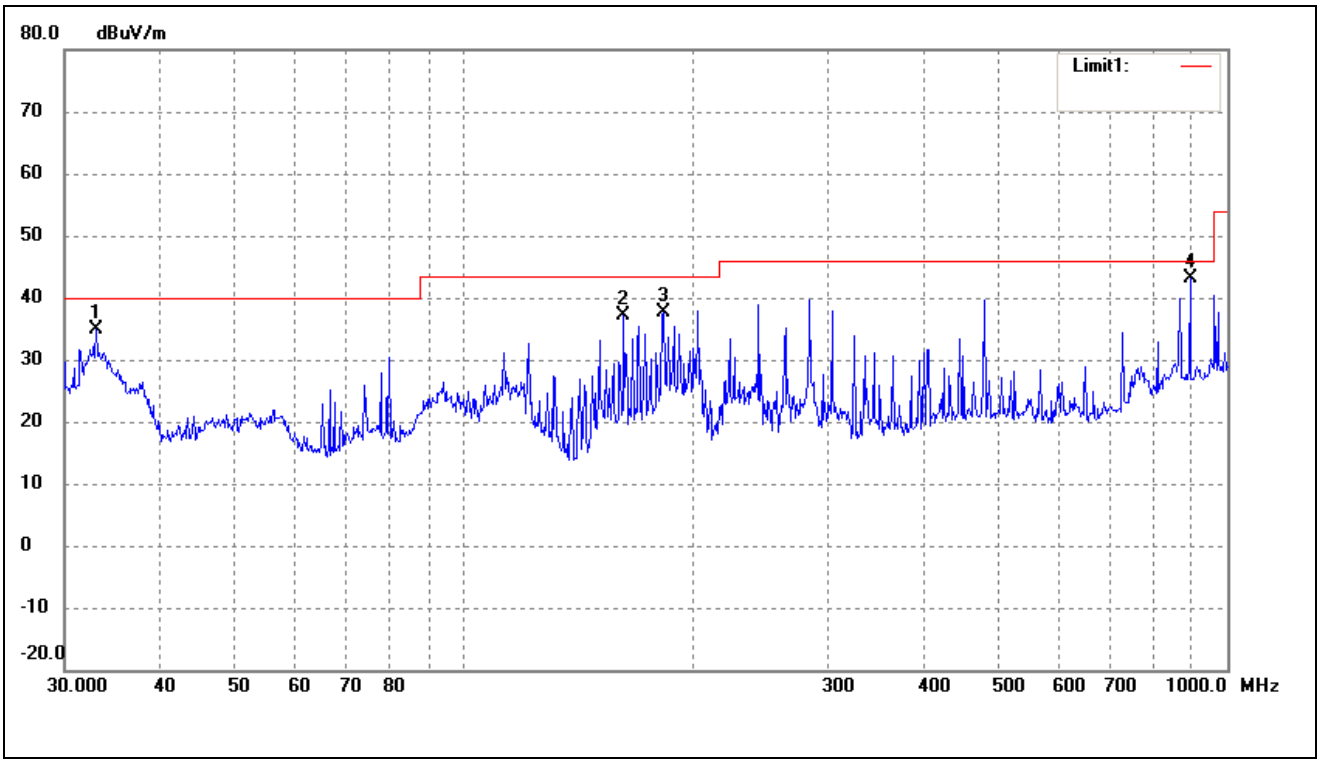
EUT: *TV BOX*
Tested Model: *HD5*
Operating Condition: *TM2*
Comment: *AC120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (•)	Height (cm)	Remark
1	202.8103	44.94	-9.05	35.89	43.50	-7.61	0	100	peak
2	303.5437	47.26	-6.04	41.22	46.00	-4.78	120	100	peak
3	446.4141	44.32	-2.21	42.11	46.00	-3.89	247	100	peak
4	893.8567	37.39	5.20	42.59	46.00	-3.41	350	100	peak

Test Specification: *Vertical*

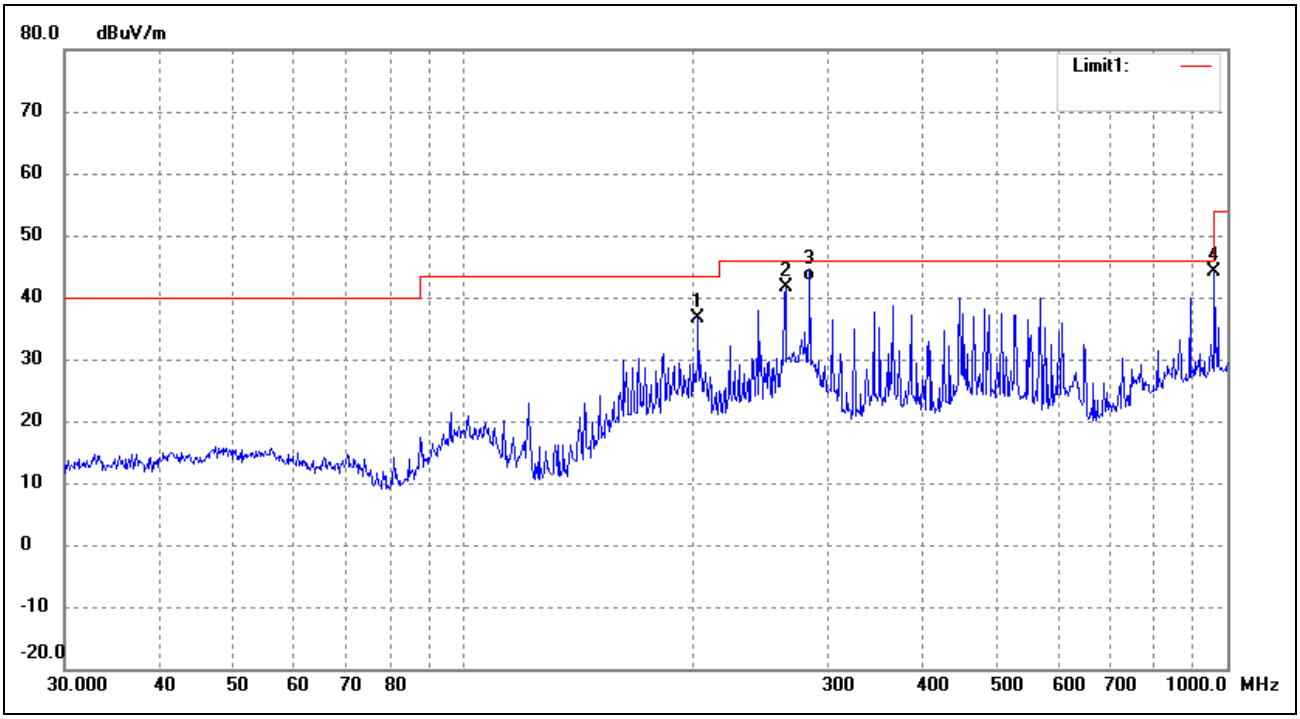


No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	32.9791	45.22	-10.45	34.77	40.00	-5.23	20	100	peak
2	162.0414	49.27	-12.23	37.04	43.50	-6.46	270	100	peak
3	182.5592	48.38	-10.87	37.51	43.50	-5.99	360	100	peak
4	893.8567	37.79	5.26	43.05	46.00	-2.95	360	100	peak

Plot of Radiated Emissions Test Data (30MHz to 1GHz)

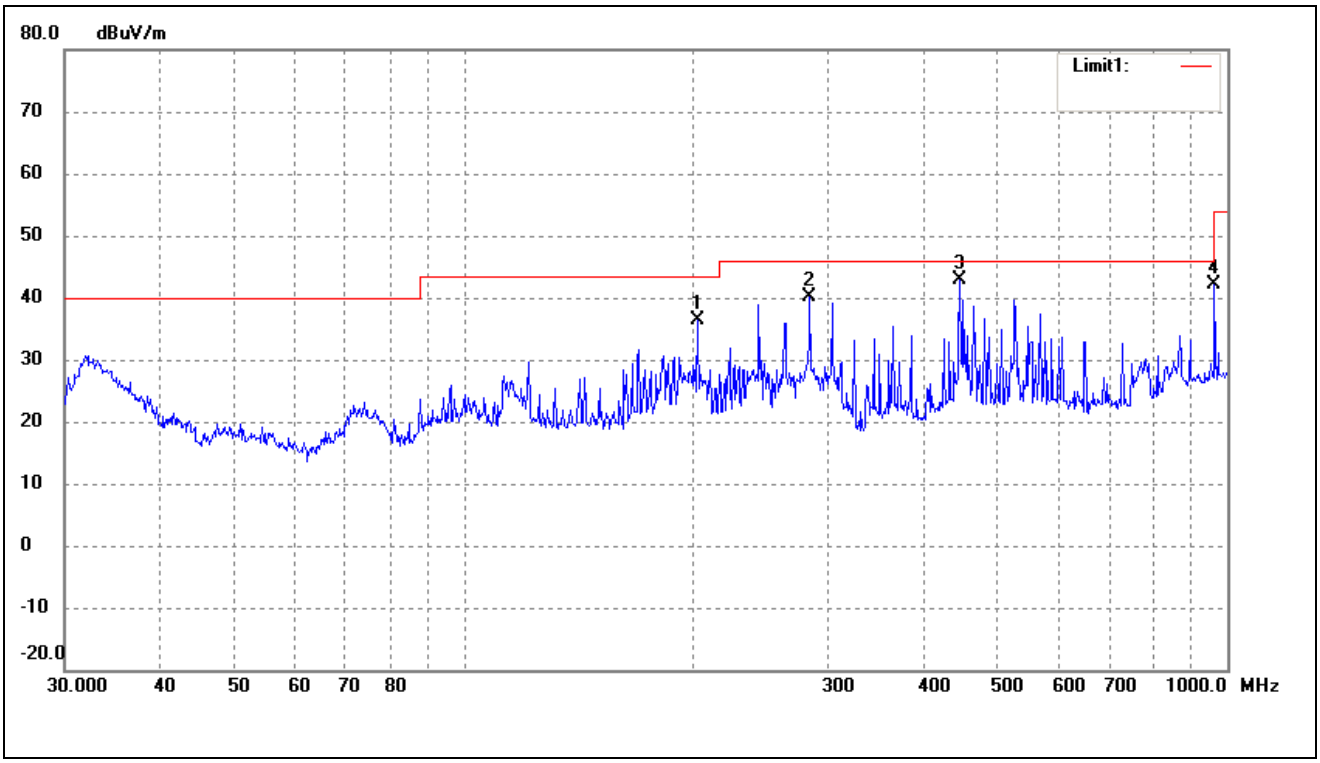
EUT: *TV BOX*
Tested Model: *HD5*
Operating Condition: *TM3*
Comment: *AC120V/60Hz; Adapter DC 5V*

Test Specification: *Horizontal*



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (•)	Height (cm)	Remark
1	202.8103	45.65	-9.05	36.60	43.50	-6.90	259	100	peak
2	263.8190	48.82	-7.09	41.73	46.00	-4.27	100	100	peak
3	283.9791	49.24	-6.59	42.65	46.00	-3.35	220	100	peak
4	962.1622	37.92	6.12	44.04	54.00	-9.96	0	100	peak

Test Specification: *Vertical*



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(•)	(cm)	
1	202.1005	45.39	-9.05	36.34	43.50	-7.16	0	100	peak
2	283.9791	46.76	-6.59	40.17	46.00	-5.83	270	100	peak
3	446.4141	45.10	-2.21	42.89	46.00	-3.11	360	100	peak
4	962.1622	36.10	6.12	42.22	54.00	-11.78	360	100	peak

Note: Testing is carried out with frequency rang 9kHz to the 5GHz, 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 *******