

FCC Part 15B

Measurement and Test Report

For

Global Takeoff Inc

11175 Cicero Drive, Suit 100 Alpharetta, Georgia, USA

FCC ID: RT9-AS206C

Test Standards: FCC Part 15 Subpart B

Product Description: AS206C HDMI Dongle

Tested Model: AS206C

Report No.: STR12128365E-2

Tested Date: 2012-12-24 to 2013-01-28

Issued Date: 2013-01-29

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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 SEM.Test Compliance Service Co., Ltd

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Global Takeoff Inc
Address of applicant: 11175 Cicero Drive, Suit 100 Alpharetta, Georgia, USA
Manufacturer: Riverstone Electronics Co., Ltd.
Address of manufacturer: RM503, No.2 Building, Chaguang Industrial Zone, Shahe West Zone, Nanshan Dist., Shenzhen

General Description of EUT	
Product Name:	AS206C HDMI Dongle
Trade Name:	YuppTV
Model No.:	AS206C
Note: The test data is gathered from a production sample, provided by the manufacturer.	

Technical Characteristics of EUT	
Rated Voltage:	DC 5.0V
Rated Current:	1.0A
Rated Power:	5W
Highest Internal Frequency:	1.0GHz
Classification of ITE:	B
Support Interface:	USB, HDMI

1.2 Test Standards

The following report is prepared on behalf of the Global Takeoff Inc 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	Playing	Color Bar with 1kHz Audio
TM2	Downloading	Connect to Notebook

EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
USB Cable	1.0	Shielded	Without Ferrite
HDMI Cable	0.3	Shielded	Without Ferrite

Auxiliary Equipment List and Details

Description	Manufacturer	Model	Serial Number
Notebook	SAMSUNG	NP-R20	124V93FP300082V
Monitor	SAMSUNG	B2230H	YDG7HVJZ800050N
Mouse	LENOVO	LS-2200	OL0767991500827

Special Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
Adapter	Trythink	S0500100-3C-U1	/

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.107 (a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

N/A: not applicable

3. §15.107 (a) 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

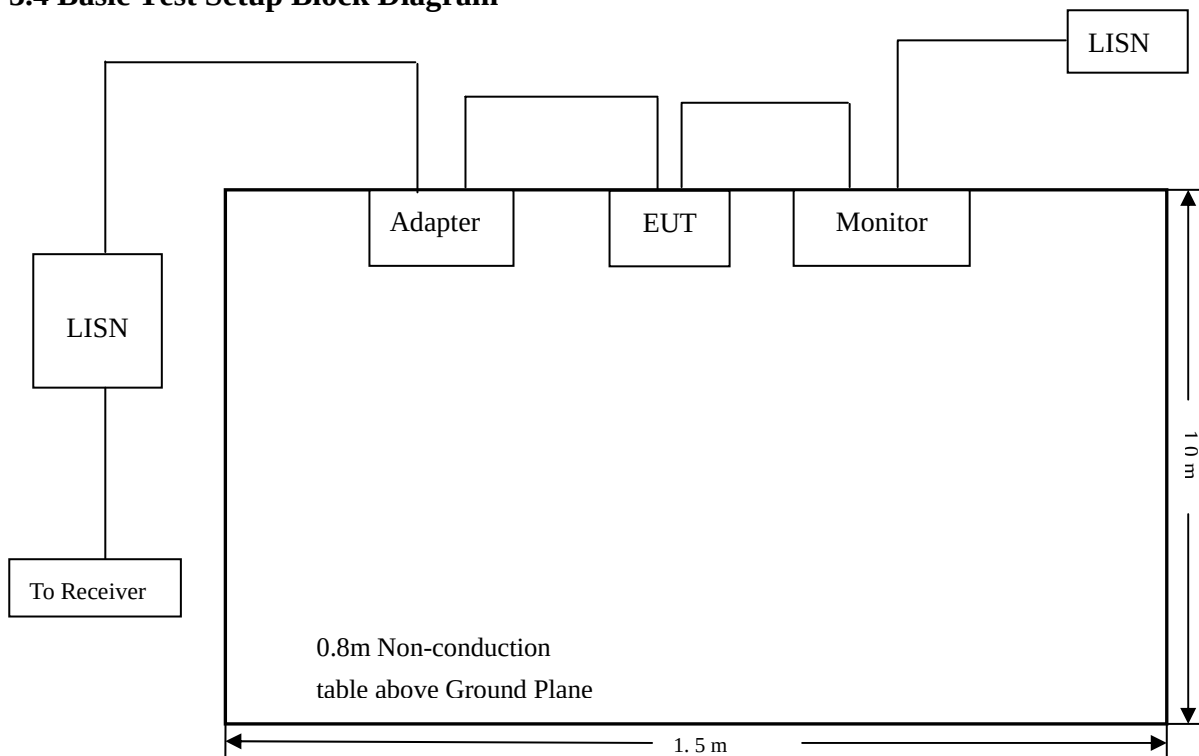
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2012-03-28	2013-03-27
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2012-03-28	2013-03-27
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2012-03-28	2013-03-27

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

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:

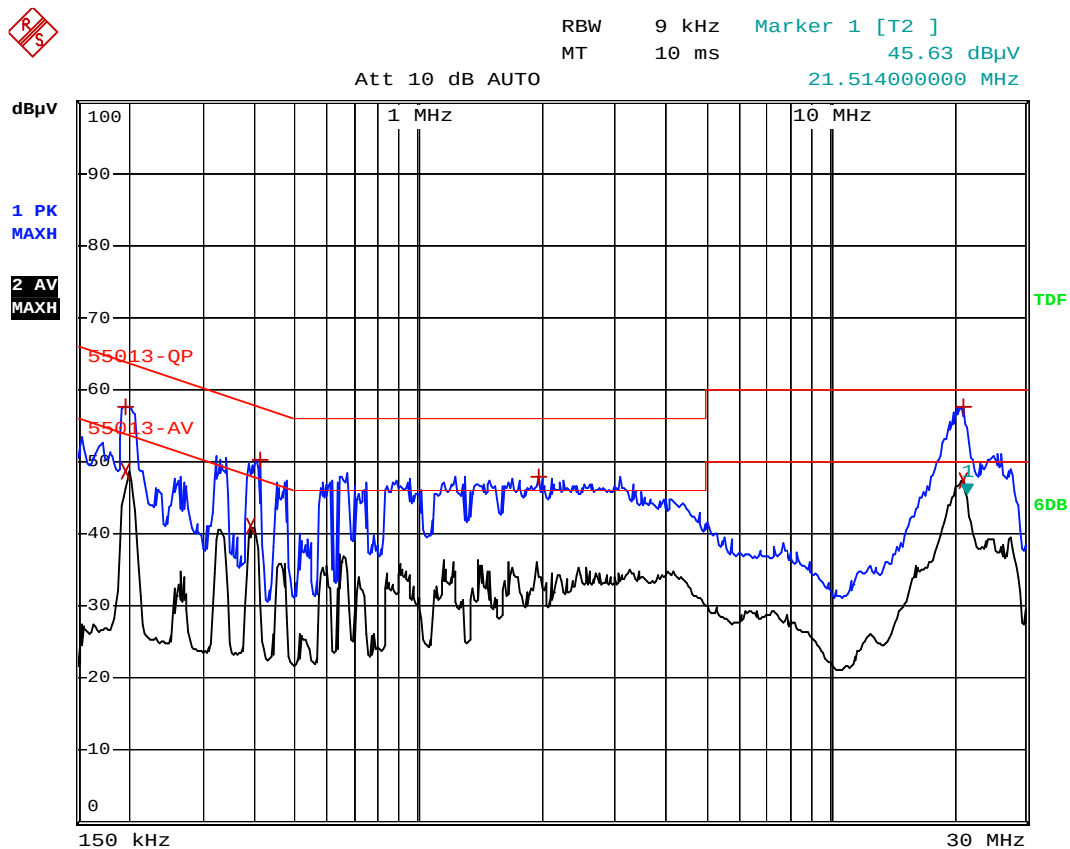
-2.26 dB at **21.226 MHz** in the **Neutral, Peak** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

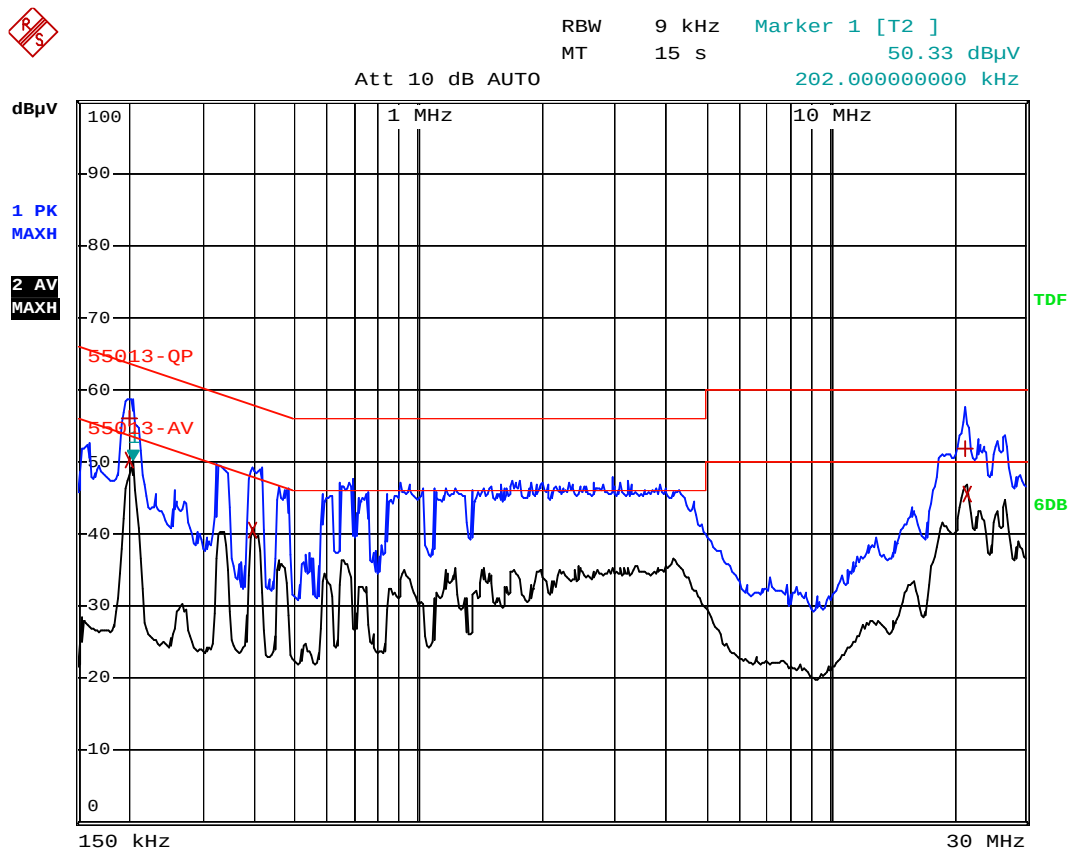
EUT: AS206C HDMI Dongle
Tested Model: AS206C
Operating Condition: Playing
Comment: Connect to Monitor

Test Specification: Neutral



EDIT PEAK LIST (Prescan Results)			
Trace1:	55013-QP		
Trace2:	55013-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	198 kHz	57.52	-6.17
2 Average	198 kHz	48.57	-5.11
2 Average	390 kHz	40.99	-7.06
1 Max Peak	410 kHz	50.31	-7.33
1 Max Peak	1.974 MHz	48.01	-7.98
2 Average	21.114 MHz	47.33	-2.66
1 Max Peak	21.226 MHz	57.73	-2.26

Test Specification: Line

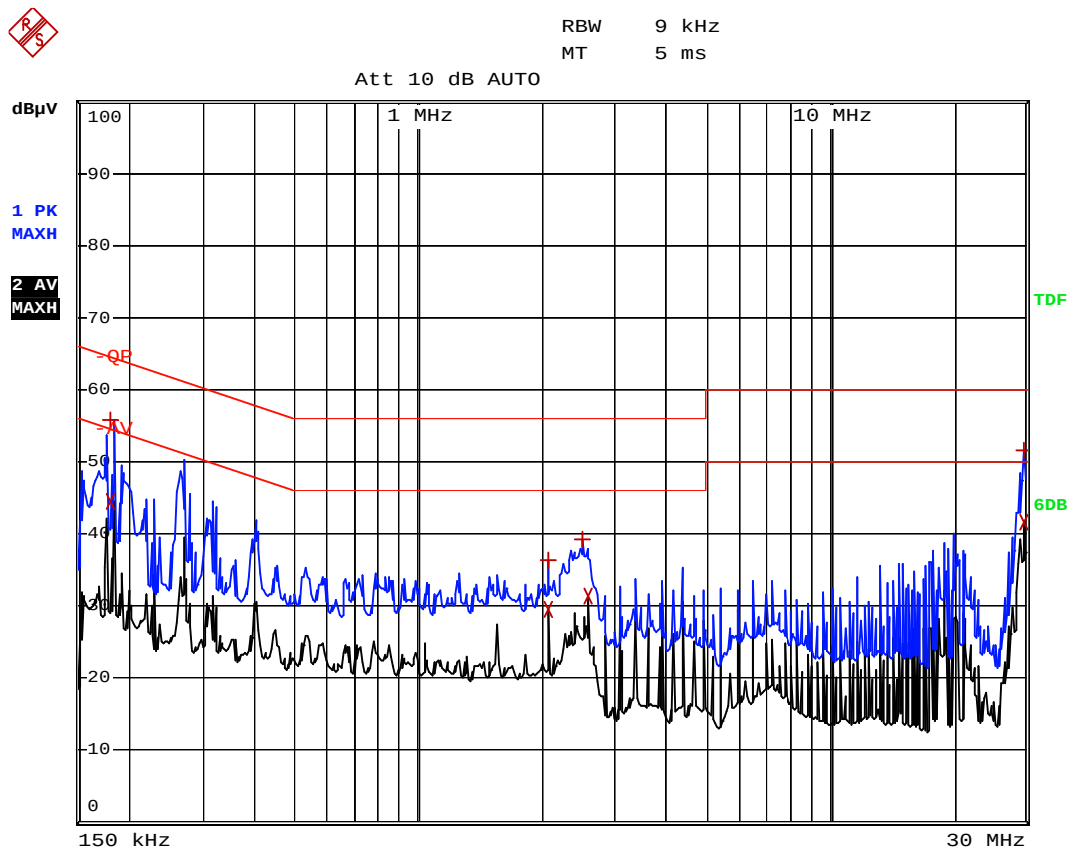


EDIT PEAK LIST (Final Measurement Results)			
Trace1:	55013-QP		
Trace2:	55013-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Quasi Peak	202 kHz	56.06	-7.45
2 Average	202 kHz	50.32	-3.19
2 Average	394 kHz	40.50	-7.47
1 Quasi Peak	21.294 MHz	51.72	-8.27
2 Average	21.606 MHz	45.43	-4.56

Plot of Conducted Emissions Test Data

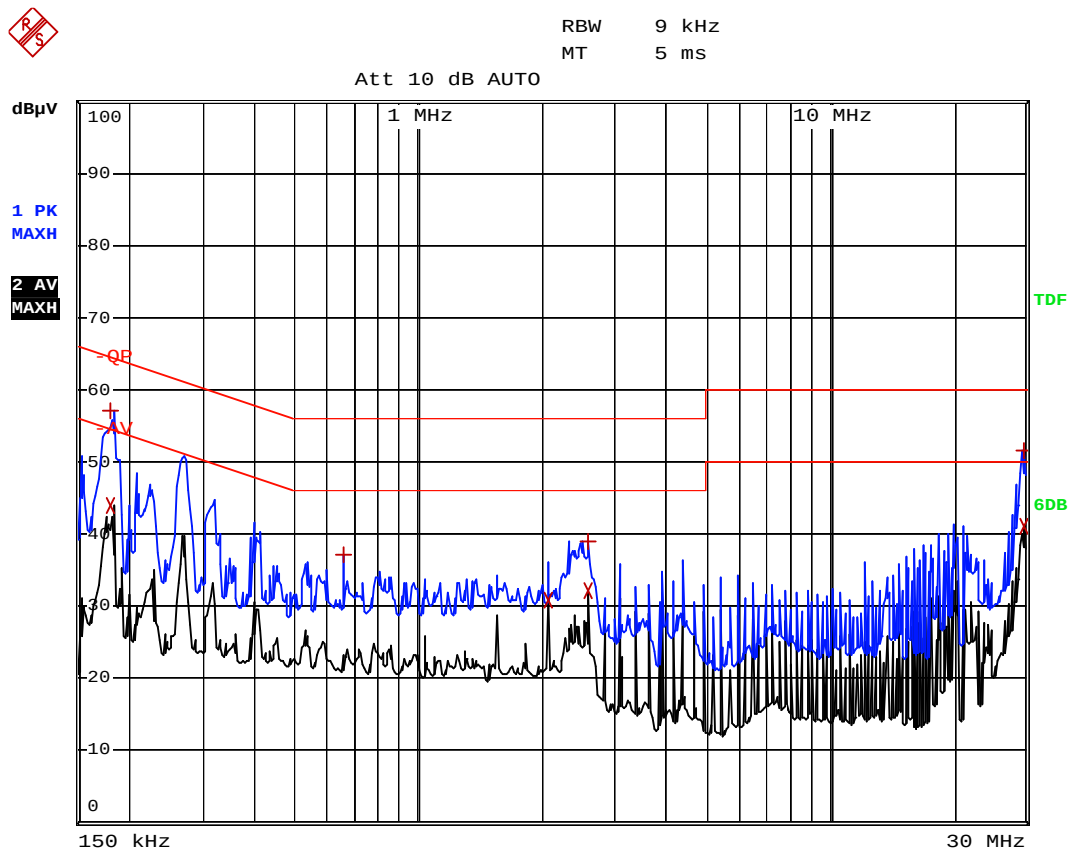
EUT: AS206C HDMI Dongle
Tested Model: AS206C
Operating Condition: Downloading
Comment: Connect to Notebook

Test Specification: Neutral



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBµV	DELTA LIMIT dB
1 Max Peak	182 kHz	55.68	-8.70
2 Average	182 kHz	44.44	-9.95
1 Max Peak	2.078 MHz	36.33	-19.66
2 Average	2.078 MHz	29.55	-16.44
1 Max Peak	2.502 MHz	39.18	-16.81
2 Average	2.598 MHz	31.38	-14.61
1 Max Peak	29.618 MHz	51.58	-8.41
2 Average	29.618 MHz	41.63	-8.36

Test Specification: Line



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	182 kHz	57.07	-7.31
2 Average	182 kHz	44.01	-10.37
1 Max Peak	658 kHz	37.02	-18.97
2 Average	2.078 MHz	30.86	-15.13
1 Max Peak	2.598 MHz	39.00	-16.99
2 Average	2.598 MHz	32.04	-13.95
1 Max Peak	29.626 MHz	51.49	-8.50
2 Average	29.626 MHz	40.97	-9.02

4. §15.109(a)- RADIATED EMISSION

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.

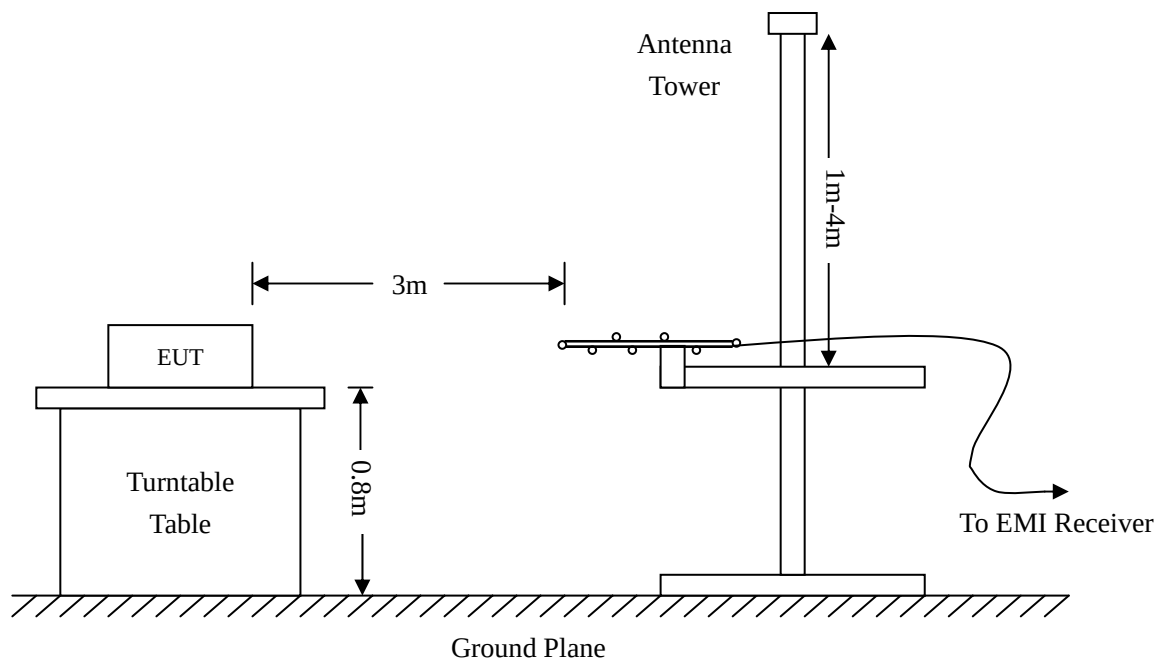
4.2 Test Equipment List and Details

Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2012-03-28	2013-03-27
EMI Test Receiver	R&S	ESVB	825471/005	2012-03-28	2013-03-27
Pre-amplifier	Agilent	8447F	3113A06717	2012-03-28	2013-03-27
Pre-amplifier	Compliance Direction	PAP-0118	24002	2012-03-28	2013-03-27
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2012-02-25	2013-02-24
Horn Antenna	ETS	3117	00086197	2012-02-25	2013-02-24

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

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:

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

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:

-2.72 dB at 724.2611 MHz in the Vertical polarization, Downloading Mode, 30 MHz to 6 GHz, 3Meters

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

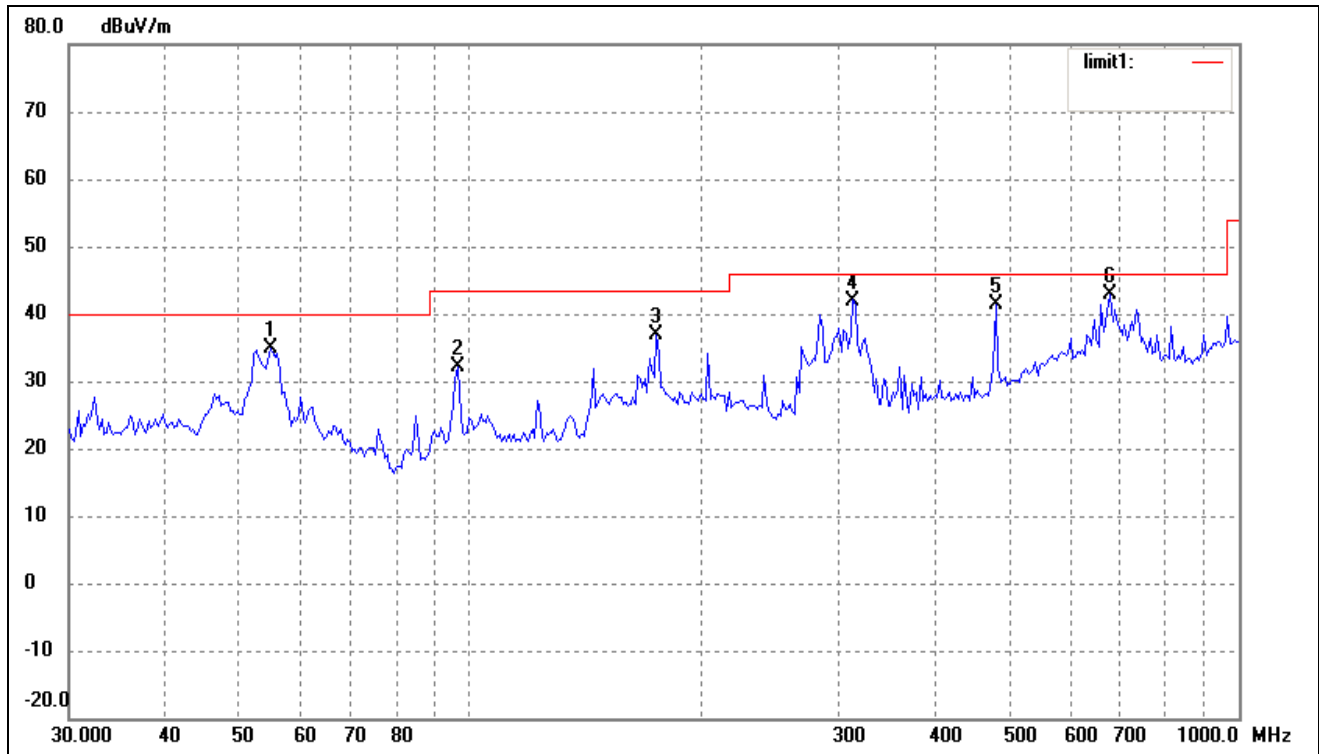
EUT: AS206C HDMI Dongle

Tested Model: AS206C

Operating Condition: Playing

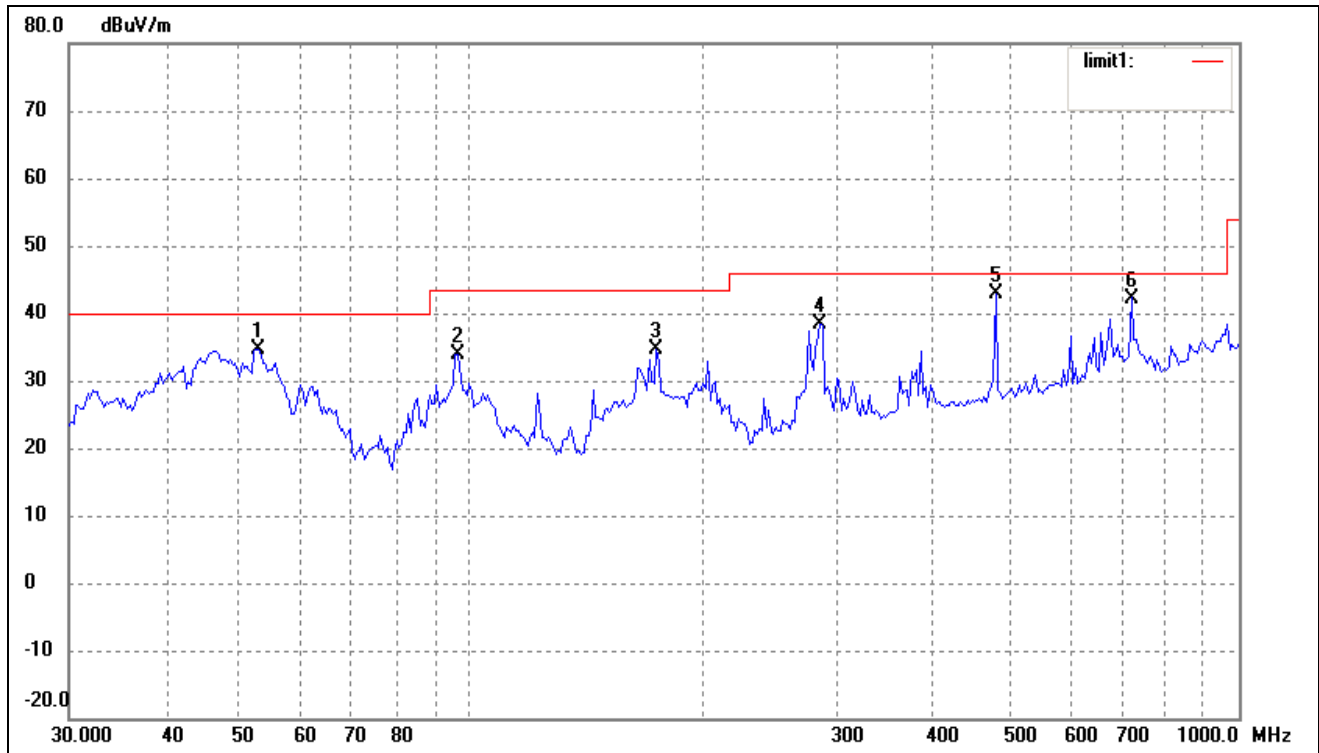
Comment: Connect to Monitor

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	54.8348	28.67	6.17	34.84	40.00	-5.16	58	150	QP
2	96.0986	26.20	5.87	32.07	43.50	-11.43	326	100	QP
3	174.4241	33.11	3.72	36.83	43.50	-6.67	29	120	QP
4	314.3765	31.60	10.40	42.00	46.00	-4.00	209	100	peak
5	482.2155	29.81	11.49	41.30	46.00	-4.70	359	200	peak
6	679.9600	27.27	15.55	42.82	46.00	-3.18	359	200	peak

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	52.9453	28.21	6.34	34.55	40.00	-5.45	51	100	peak
2	96.0986	28.08	5.87	33.95	43.50	-9.55	308	100	peak
3	174.4241	31.00	3.72	34.72	43.50	-8.78	120	100	peak
4	284.9766	28.80	9.47	38.27	46.00	-7.73	359	100	peak
5	482.2155	31.29	11.49	42.78	46.00	-3.22	359	100	peak
6	724.2611	25.32	16.93	42.25	46.00	-3.75	359	100	peak

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

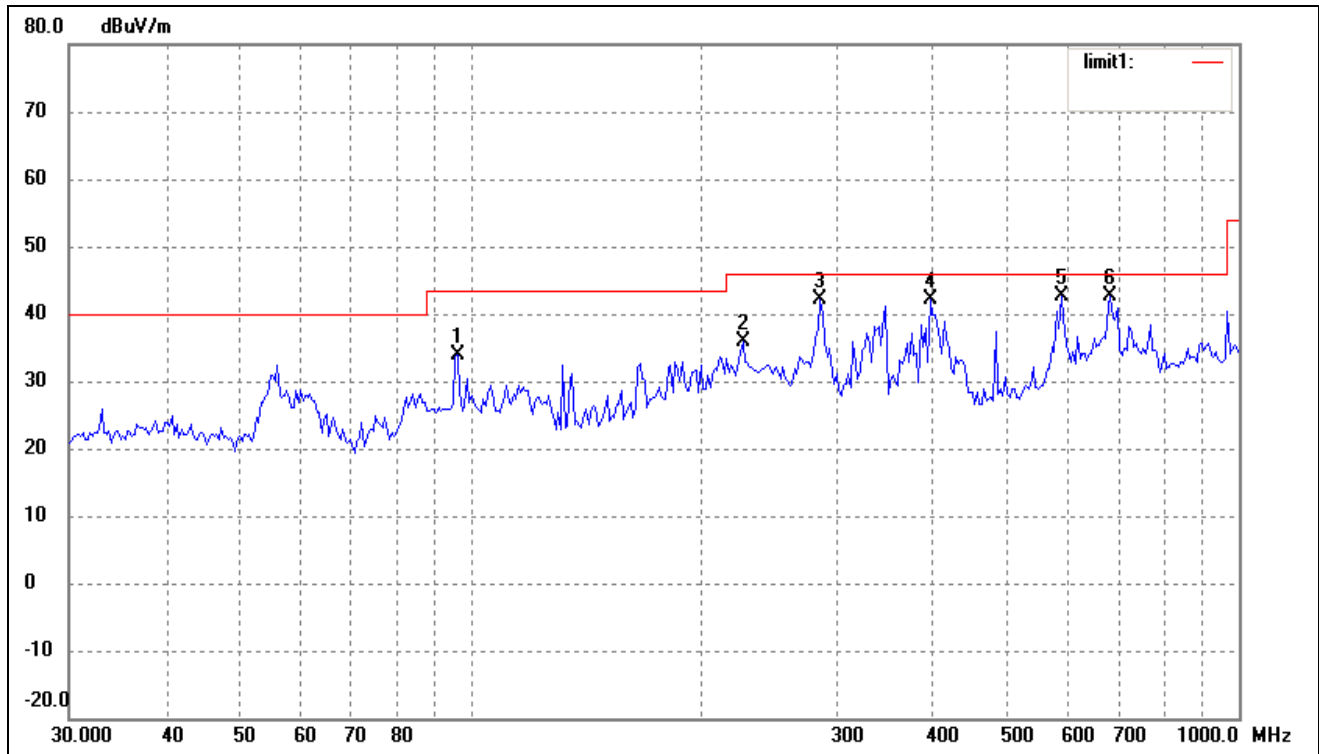
EUT: AS206C HDMI Dongle

Tested Model: AS206C

Operating Condition: Downloading

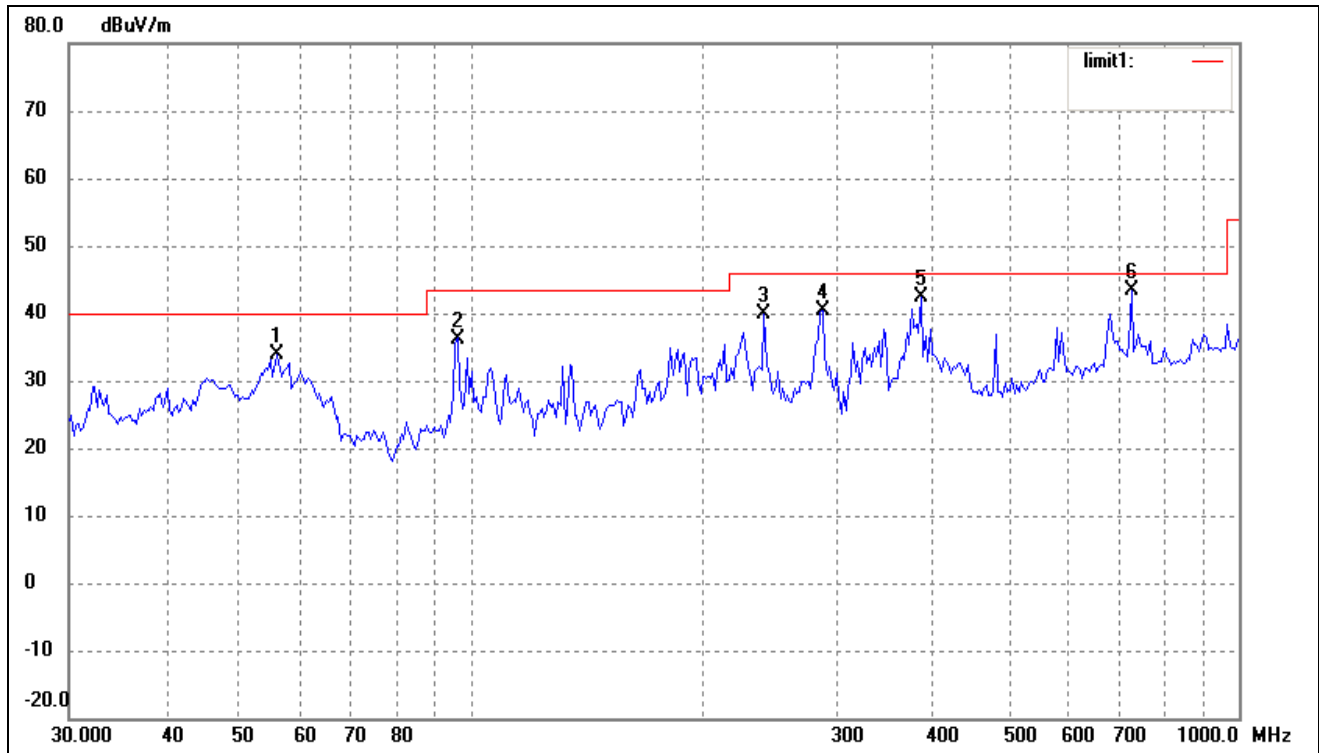
Comment: Connect to Notebook

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	96.0986	28.12	5.87	33.99	43.50	-9.51	58	150	QP
2	226.0994	29.57	6.26	35.83	46.00	-10.17	326	100	QP
3	284.9766	32.78	9.47	42.25	46.00	-3.75	29	120	QP
4	396.2412	30.83	11.37	42.20	46.00	-3.80	209	100	peak
5	586.8437	28.31	14.39	42.70	46.00	-3.30	359	200	peak
6	679.9600	27.00	15.55	42.55	46.00	-3.45	359	200	peak

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	56.0007	27.76	6.06	33.82	40.00	-6.18	51	100	peak
2	96.0986	30.38	5.87	36.25	43.50	-7.25	308	100	peak
3	240.8302	32.75	7.02	39.77	46.00	-6.23	120	100	peak
4	286.9823	30.74	9.57	40.31	46.00	-5.69	359	100	peak
5	385.2805	31.52	10.87	42.39	46.00	-3.61	359	100	peak
6	724.2611	26.35	16.93	43.28	46.00	-2.72	359	100	peak

Plot of Radiated Emissions Test Data (Above 1GHz)

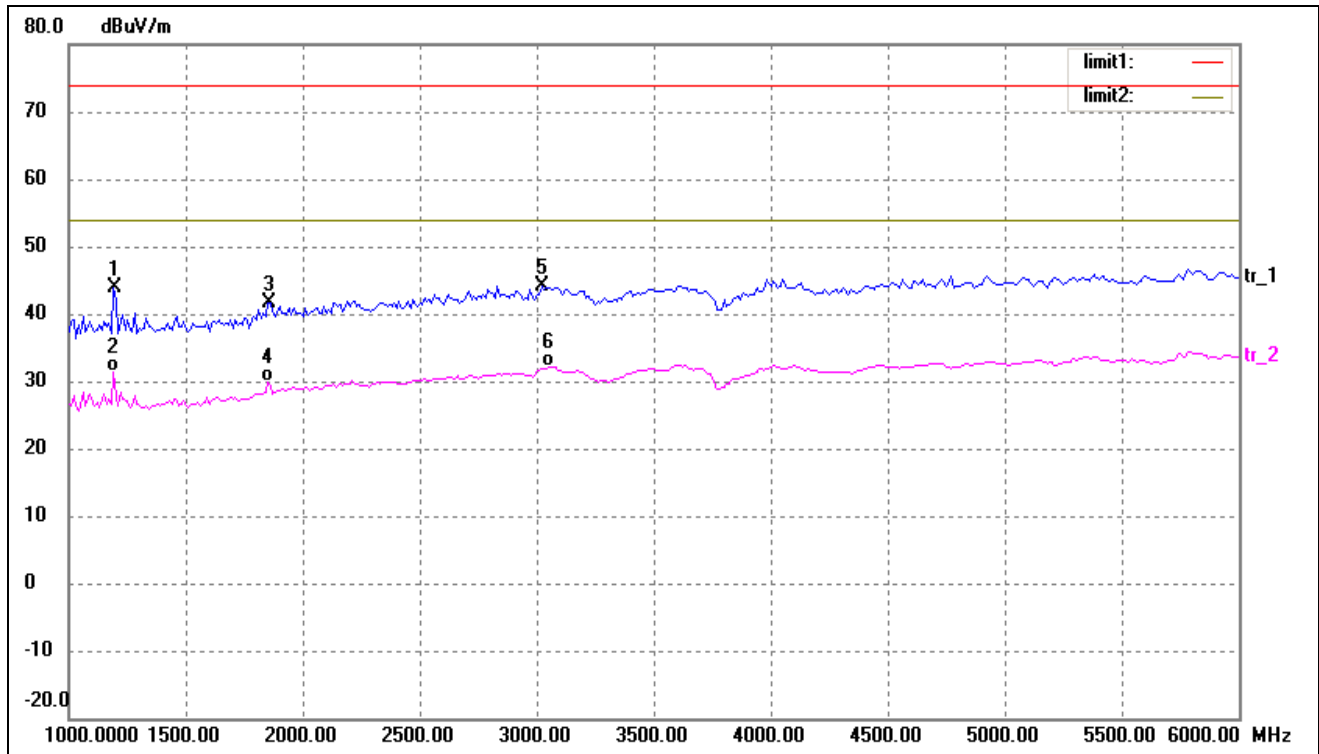
EUT: AS206C HDMI Dongle

Tested Model: AS206C

Operating Condition: Playing

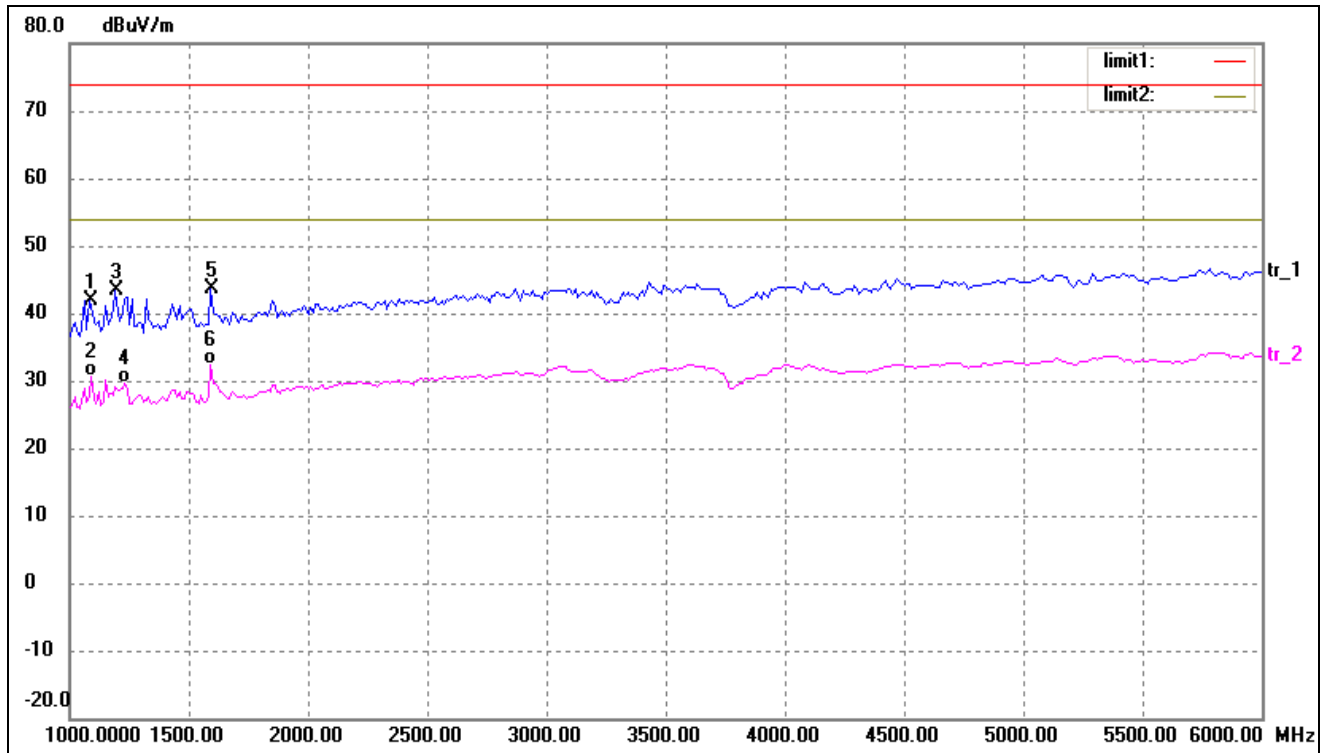
Comment: Connect to Monitor

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	1196.231	55.67	-11.70	43.97	74.00	-30.03	58	150	peak
2	1196.231	43.08	-11.70	31.38	54.00	-22.62	326	100	AVG
3	1858.833	50.79	-9.07	41.72	74.00	-32.28	29	120	peak
4	1858.833	38.85	-9.07	29.78	54.00	-24.22	209	100	AVG
5	3026.199	50.44	-6.22	44.22	74.00	-29.78	359	200	peak
6	3058.908	38.33	-6.20	32.13	54.00	-21.87	359	200	AVG

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	1089.811	53.80	-11.86	41.94	74.00	-32.06	51	100	peak
2	1093.724	42.54	-11.87	30.67	54.00	-23.33	308	100	AVG
3	1196.231	55.04	-11.70	43.34	74.00	-30.66	120	100	peak
4	1239.876	41.22	-11.64	29.58	54.00	-24.42	359	100	AVG
5	1599.100	54.30	-10.65	43.65	74.00	-30.35	359	100	peak
6	1599.100	42.97	-10.65	32.32	54.00	-21.68	359	100	AVG

Plot of Radiated Emissions Test Data(Above 1GHz)

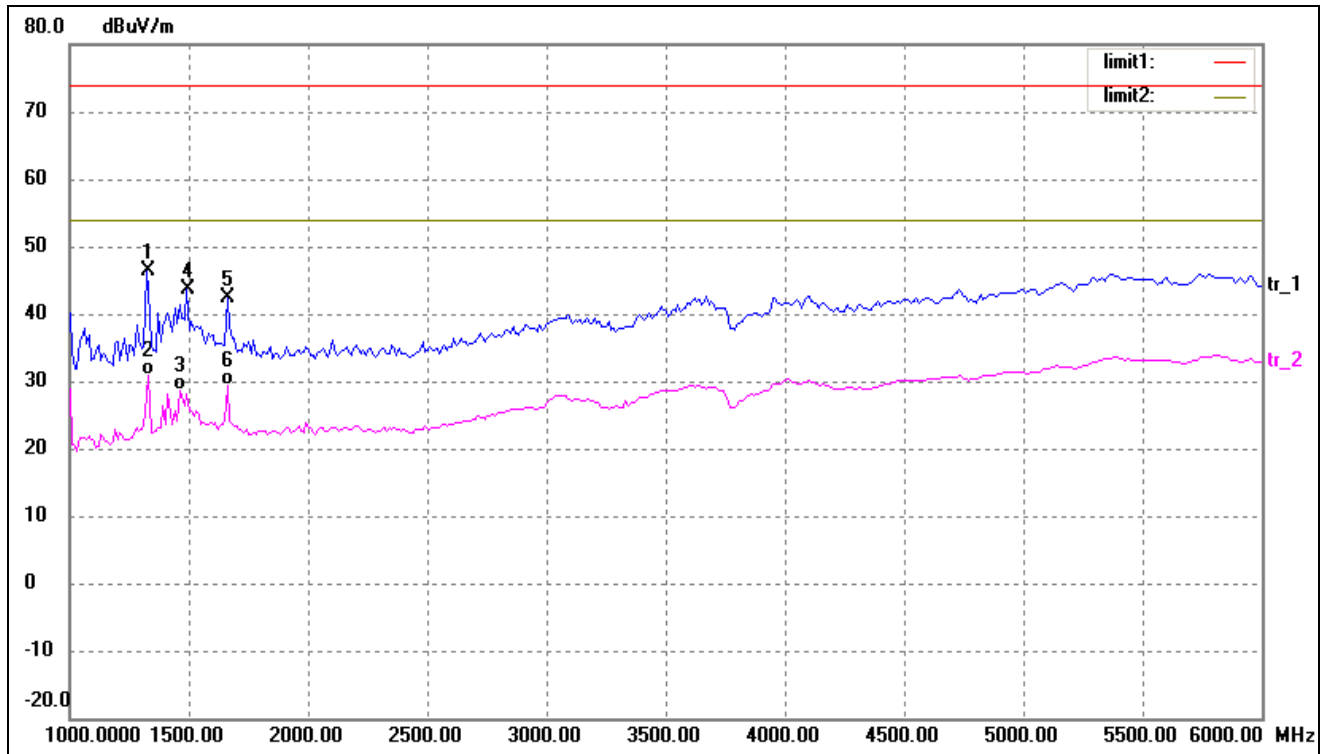
EUT: AS206C HDMI Dongle

Tested Model: AS206C

Operating Condition: Downloading

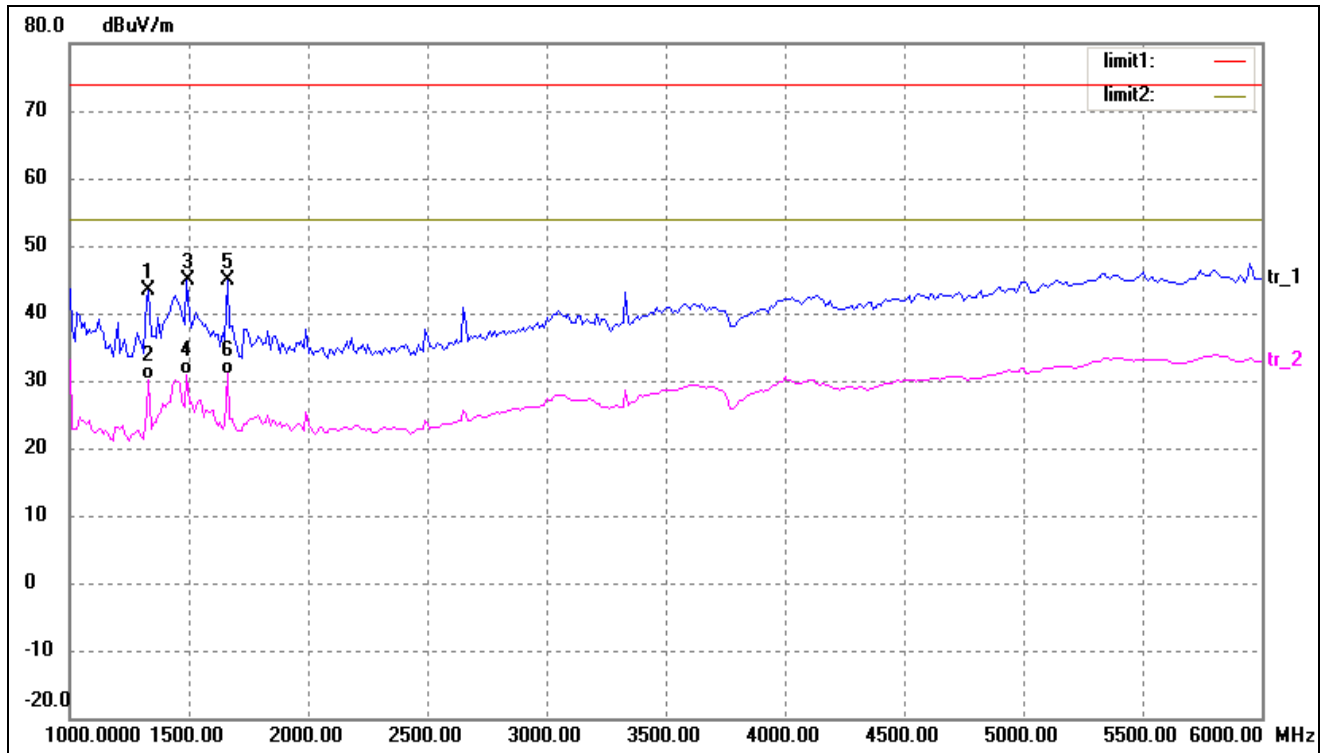
Comment: Connect to Notebook

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	1327.235	61.65	-15.36	46.29	74.00	-27.71	58	150	peak
2	1332.000	46.31	-15.34	30.97	54.00	-23.03	326	100	AVG
3	1467.318	43.28	-14.66	28.62	54.00	-25.38	29	120	AVG
4	1499.209	58.21	-14.50	43.71	74.00	-30.29	209	100	peak
5	1663.393	55.83	-13.56	42.27	74.00	-31.73	359	200	peak
6	1663.393	42.93	-13.56	29.37	54.00	-24.63	359	200	AVG

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	1332.000	58.75	-15.34	43.41	74.00	-30.59	51	100	peak
2	1332.000	45.56	-15.34	30.22	54.00	-23.78	308	100	AVG
3	1493.846	59.48	-14.53	44.95	74.00	-29.05	120	100	peak
4	1499.209	45.28	-14.50	30.78	54.00	-23.22	359	100	AVG
5	1663.393	58.38	-13.56	44.82	74.00	-29.18	359	100	peak
6	1663.393	44.56	-13.56	31.00	54.00	-23.00	359	100	AVG