

APPLICATION FOR CERTIFICATION
On Behalf of

Action Industries (M) SDN BHD

10.2" DIGITAL AUDIO VIDEO PLAYER

Model Number: ODM91003CR; ODM91003ACR; ODM91003BCR

FCC ID: ATI9R3ODM91003

Prepared for : Action Industries (M) SDN BHD
2480, Tingkat Perusahaan Enam, Prai Free Trade Zone,
13600, Perai, Penang, Malaysia.

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
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Report Number : ACS-F10065
Date of Test : Mar.27, 2010
Date of Report : Mar.30, 2010

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TEST REPORT CERTIFICATION

Applicant : Action Industries (M) SDN BHD
 Manufacturer : Action Industries (M) SDN BHD
 EUT Description : 10.2" DIGITAL AUDIO VIDEO PLAYER
 (A) MODEL NO. : ODM91003CR; ODM91003ACR;
 ODM91003BCR
 (B) SERIAL NO. : N/A
 (C) POWER SUPPLY : DC 12V
 (D) TEST VOLTAGE : DC 12V

Test Procedure Used:

FCC Rules and Regulations Part 15 Subpart C 2008

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits for radiated and conducted emissions.

The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of tests. Also, this report shows that EUT is technically compliant with FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

Date of Test : Mar.27, 2010

Prepared by : Edie Huang
 Edie Huang / Assistant

Reviewer : Jamy Yu
 Jamy Yu / Supervisor

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 Audix Technology (Shenzhen) Co., Ltd.
 EMC 部門報告專用章

Stamp only for EMC Dept. Report
 Signature: Ken Lu 4/6/10

Approved & Authorized Signer : Ken Lu
 Ken Lu / Manager

1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

The EUT have been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.10: 2009	N/A
Radiated Emission Test	FCC Part 15: 15.239 ANSI C63.10: 2009	PASS
Bandwidth Test	FCC Part 15: 15.239	PASS
N/A is an abbreviation for Not Applicable.		

2. GENERAL INFORMATION

2.1. Description of Device (EUT)

Description	:	10.2" DIGITAL AUDIO VIDEO PLAYER
Model Number	:	ODM91003CR; ODM91003ACR; ODM91003BCR Note: This device have three model numbers, and the actual device is same.
FCC ID	:	ATI9R3ODM91003
Operating Frequency	:	88.1MHz to 91.1MHz
Applicant	:	Action Industries (M) SDN BHD 2480, Tingkat Perusahaan Enam, Prai Free Trade Zone, 13600, Perai, Penang, Malaysia.
Manufacturer	:	Action Industries (M) SDN BHD 2480, Tingkat Perusahaan Enam, Prai Free Trade Zone, 13600, Perai, Penang, Malaysia.
Date of Test	:	Mar.27, 2010
Date of Receipt	:	Mar.27, 2010
Sample Type	:	Prototype production

2.2. Test Facility

Site Description

- Name of Firm : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block, Shenzhen
Science & Industrial Park, Nantou,
Shenzhen, Guangdong, China
- 3m Anechoic Chamber : Mar.31, 2009 File on Federal
Communication Commission
Registration Number: 90454
- 3m & 10m Anechoic Chamber : Dec. 30, 2009 File on Federal
Communication Commission
Registration Number: 794232
- EMC Lab. : Accredited by DATech, German
Registration Number: DAT-P-091/99-01
Feb. 02, 2009
- Accredited by NVLAP, USA
NVLAP Code: 200372-0
Apr. 01, 2009

2.3. Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Radiation Emission test in 3m chamber	3.82 dB (Polarize: V)
	4.32 dB (Polarize: H)
Uncertainty for Temperature and humidity test	2%
	1°C
Uncertainty for Bandwidth test	1×10^{-9}
Uncertainty for DC power test	0.038 %
Uncertainty for test site temperature and humidity	0.6°C
	3%

3. POWER LINE CONDUCTED EMISSION TEST

According to Paragraph (f) of FCC Part 15C 15.207, Tests to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

4. RADIATED EMISSION TEST

4.1. Test Equipment

The following test equipments are used during the radiated emission Test :

4.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1	3#Chamber	AUDIX	N/A	N/A	Dec.05,09	1 Year
2	EMI Spectrum	Agilent	E4407B	MY41440292	May.08, 09	1 Year
3	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.08, 09	1 Year
4	Amplifier	HP	8447D	2648A04738	May.08, 09	1 Year
5	Bilog Antenna	Schaffner	CBL6111C	2598	Dec.14, 09	1 Year
6	RF Cable	MIYAZAKI	8D-FB	3# Chamber No.1	May.08, 09	1 Year
7	Coaxial Switch	Anritsu	MP59B	M73989	May.08, 09	1 Year

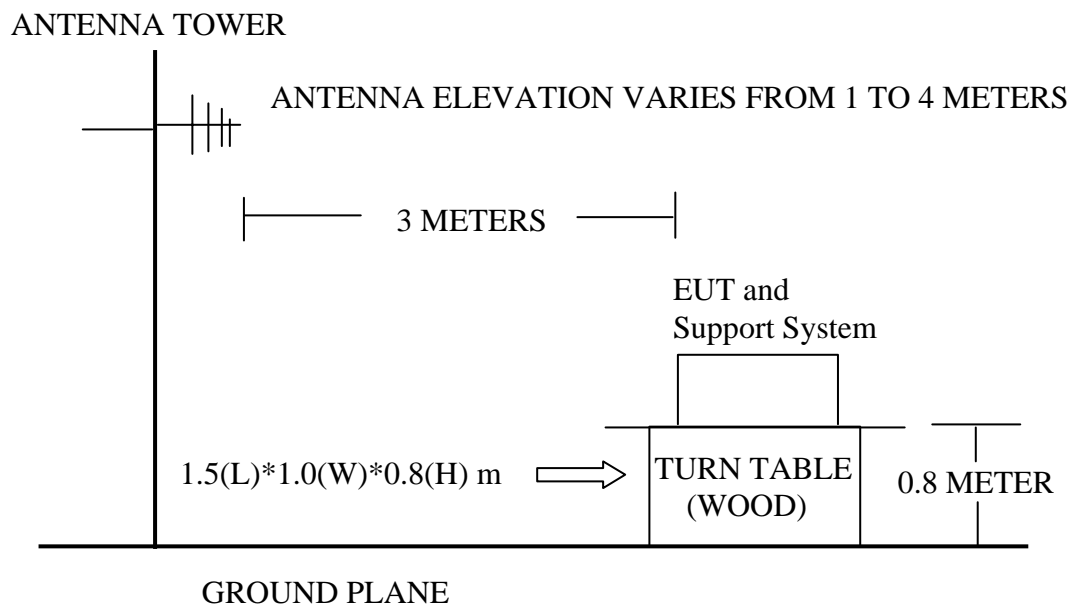
4.2. Block Diagram of Test Setup

4.2.1. Block Diagram of connection between EUT and simulators



(EUT: 10.2" DIGITAL AUDIO VIDEO PLAYER)

4.2.2. Anechoic Chamber Setup Diagram



4.3. Radiated Emission Limit 30~1000MHz

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 108	3	250(Av), 2500(Peak)	48.0(Av), 68.0(Peak)
108 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0

- Remark :
- (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

4.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. 10.2" DIGITAL AUDIO VIDEO PLAYER (EUT)

Model Number : ODM91003CR
Serial Number : N/A

4.5. Operating Condition of EUT

4.5.1. Setup the EUT as shown in Section 4.2..

4.5.2. Let the EUT work in test modes (Tx Mode) and test it.

4.6. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2003 on radiated emission Test.

The bandwidth of the EMI test receiver (R&S ESVS10) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The frequency range from 30MHz to 1000MHz are checked.

The test modes (TX Mode) is tested in Anechoic Chamber and all the scanning waveforms are reported on Section 4.7.

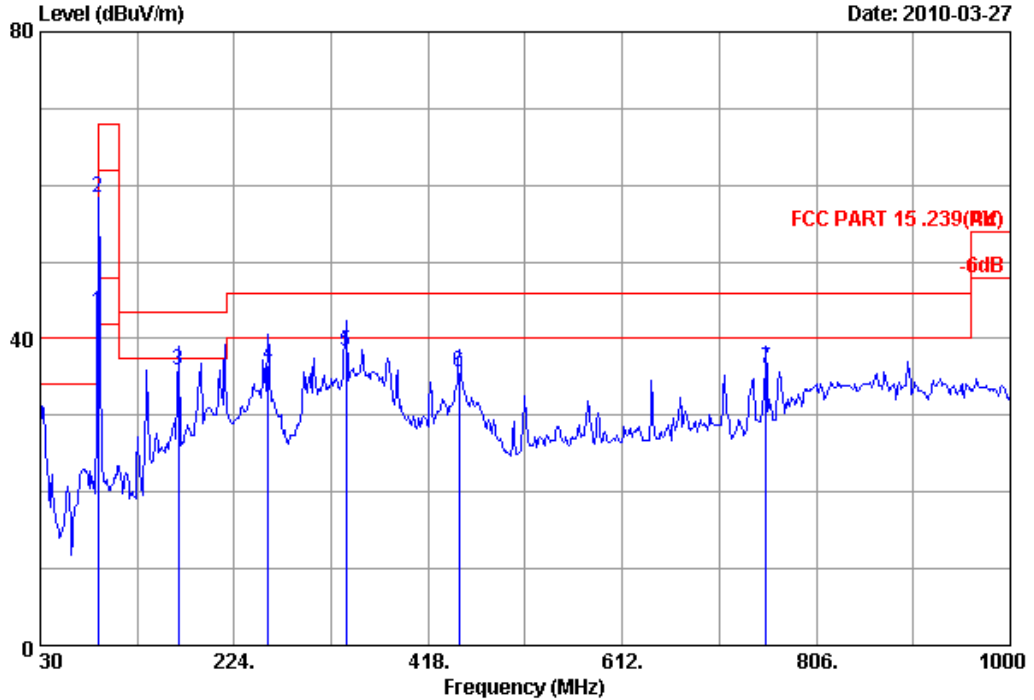
4.7. Radiated Emission Test Results

PASS.



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Data: 4 File: D:\2010 Repot Data\A\Action\ACS10Q481.EM6 (8)



Site no. : 3m chamber Data no. : 4
 Dis. / Ant. : 3m 2009 CBL6111C Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 .239(PK)
 Env. / Ins. : 24*C/56% Engineer : Paul Tian
 EUT : 10.2"Digital Audio Video Player
 Power Rating : DC 12V
 Test Mode : FM 88.1MHz
 M/N:ODM91003CR

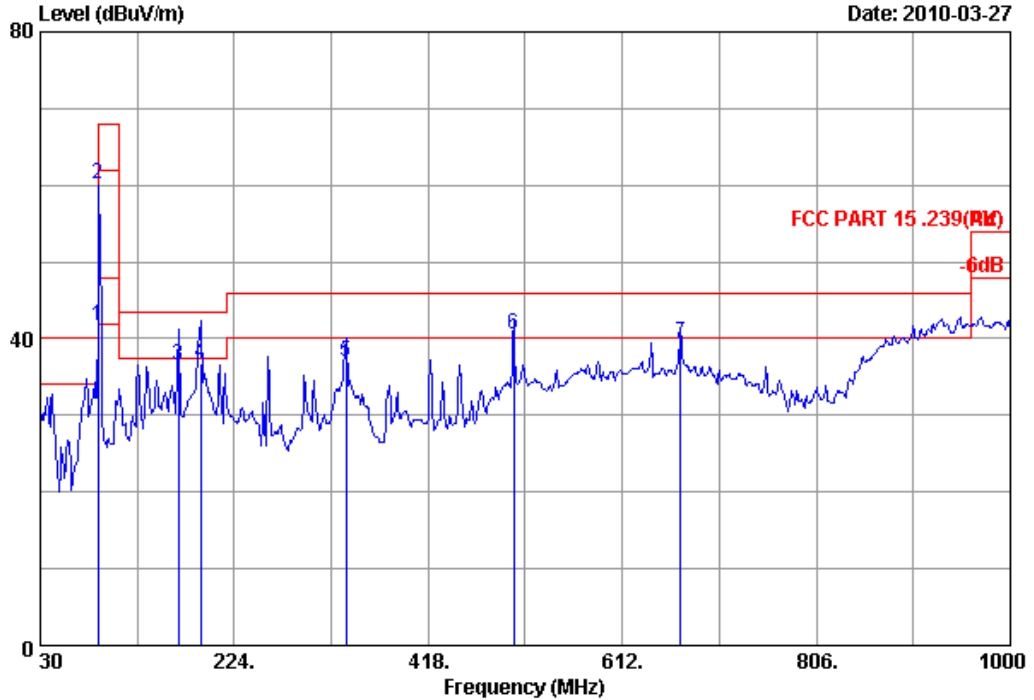
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	88.100	8.82	0.85	33.90	43.57	48.00	4.43	Average
2	88.100	8.82	0.85	75.36	58.29	68.00	9.71	Peak
3	167.740	10.40	1.16	24.33	35.89	43.50	7.61	QP
4	257.950	13.60	1.65	21.34	36.59	46.00	9.41	QP
5	335.550	14.62	1.80	21.87	38.29	46.00	7.71	QP
6	449.040	17.02	2.09	16.53	35.64	46.00	10.36	QP
7	755.560	22.00	2.94	11.05	35.99	46.00	10.01	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 3 File: D:\2010 Reput Data\A\Action\ACS10Q481.EM6 (8)



Site no. : 3m chamber Data no. : 3
Dis. / Ant. : 3m 2009 CBL6111C Ant. pol. : VERTICAL
Limit : FCC PART 15 .239(PK)
Env. / Ins. : 24°C/56% Engineer : Paul Tian
EUT : 10.2"Digital Audio Video Player
Power Rating : DC 12V
Test Mode : FM 88.1MHz
M/N:ODM91003CR

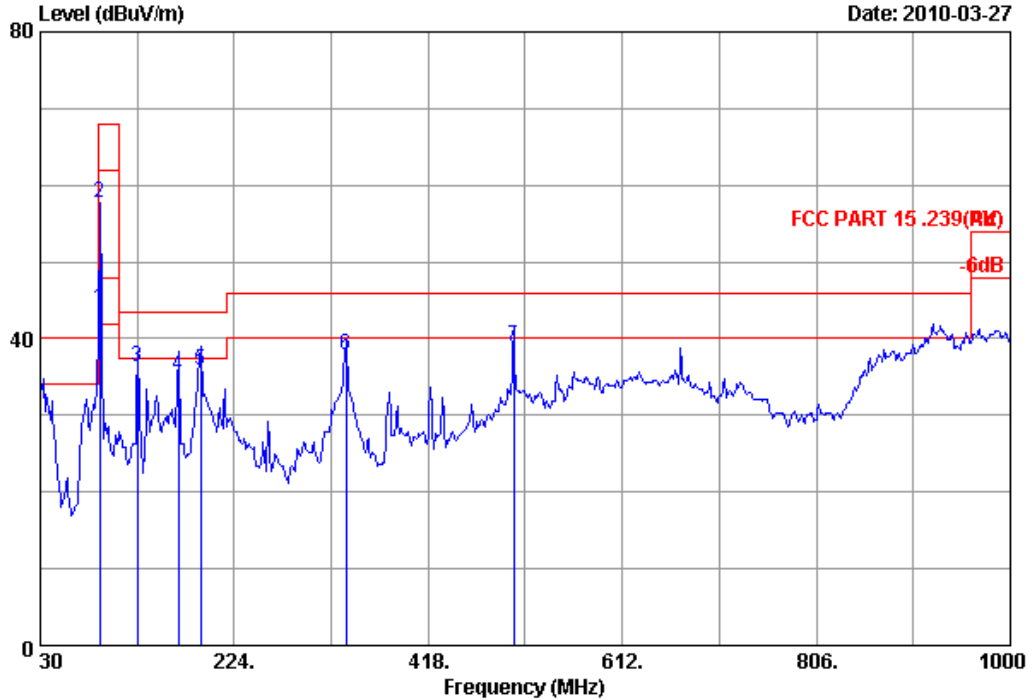
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	88.100	8.82	0.85	32.05	41.72	48.00	6.28	Average
2	88.100	8.82	0.85	50.44	60.11	68.00	7.89	Peak
3	167.740	10.40	1.16	25.00	36.56	43.50	6.94	QP
4	190.000	9.40	1.26	26.00	36.66	43.50	6.84	QP
5	335.550	14.62	1.80	20.67	37.09	46.00	8.91	QP
6	503.360	18.30	2.26	20.04	40.60	46.00	5.40	QP
7	670.200	20.80	2.71	16.03	39.54	46.00	6.46	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



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Data: 6 File: D:\2010 Reput Data\A\Action\ACS10Q481.EM6 (8)



Site no. : 3m chamber Data no. : 6
 Dis. / Ant. : 3m 2009 CBL6111C Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 .239(PK)
 Env. / Ins. : 24*C/56% Engineer : Paul Tian
 EUT : 10.2"Digital Audio Video Player
 Power Rating : DC 12V
 Test Mode : FM 89.5MHz
 M/N:ODM91003CR

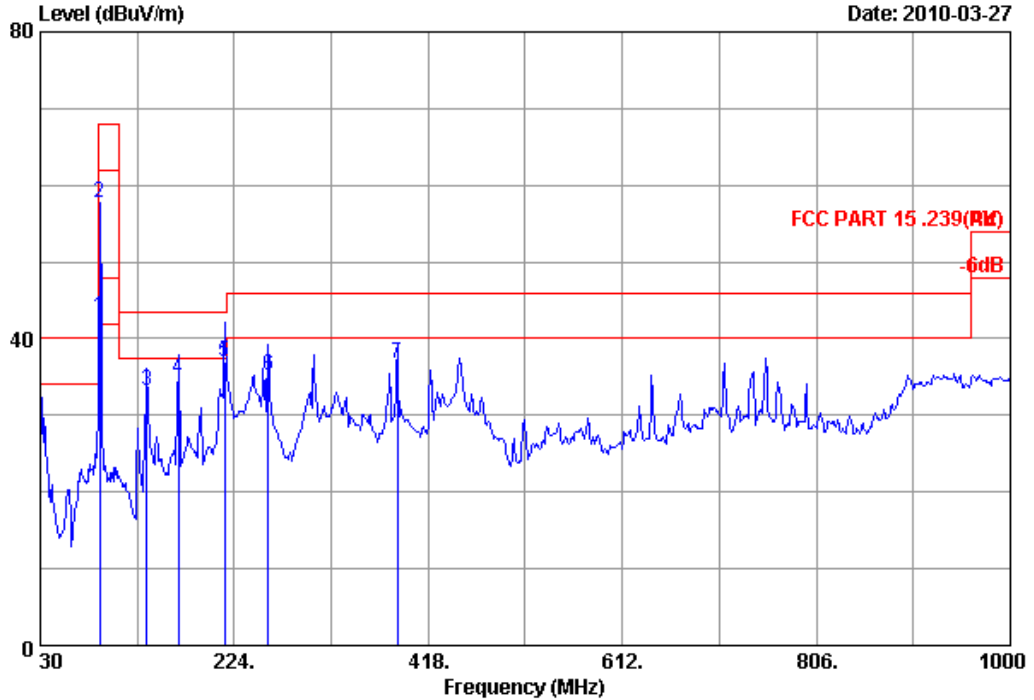
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	89.500	8.96	0.85	34.10	43.91	48.00	4.09	Average
2	89.500	8.96	0.85	47.84	57.65	68.00	10.35	Peak
3	127.000	12.14	1.00	23.24	36.38	43.50	7.12	QP
4	167.740	10.40	1.16	23.74	35.30	43.50	8.20	QP
5	190.050	9.40	1.26	25.31	35.97	43.50	7.53	QP
6	335.550	14.62	1.80	21.35	37.77	46.00	8.23	QP
7	503.360	18.30	2.26	18.38	38.94	46.00	7.06	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 5 File: D:\2010 Repot Data\A>Action\ACS10Q481.EM6 (8)



Site no. : 3m chamber Data no. : 5
 Dis. / Ant. : 3m 2009 CBL6111C Ant. pol. : VERTICAL
 Limit : FCC PART 15 .239(PK)
 Env. / Ins. : 24°C/56% Engineer : Paul Tian
 EUT : 10.2"Digital Audio Video Player
 Power Rating : DC 12V
 Test Mode : FM 89.5MHz
 M/N:ODM91003CR

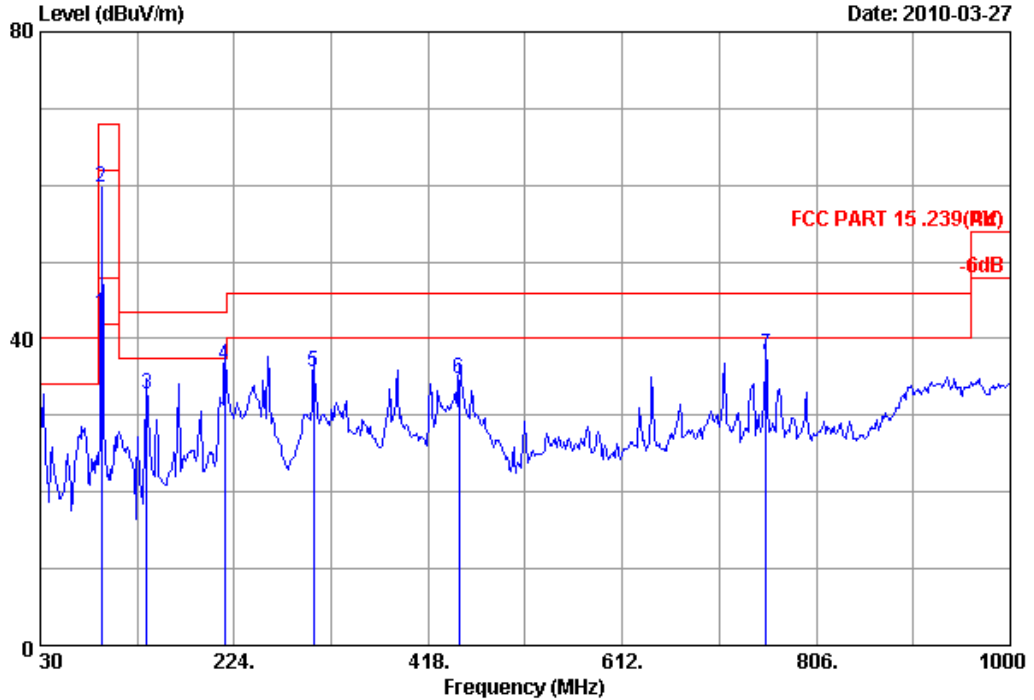
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	89.500	8.96	0.85	32.90	42.71	48.00	5.29	Average
2	89.500	8.96	0.85	47.89	57.70	68.00	10.30	Peak
3	136.700	12.06	1.04	20.05	33.15	43.50	10.35	QP
4	167.740	10.40	1.16	23.31	34.87	43.50	8.63	QP
5	214.300	10.02	1.40	25.62	37.04	43.50	6.46	QP
6	257.950	13.60	1.65	19.88	35.13	46.00	10.87	QP
7	386.960	16.12	1.90	18.78	36.80	46.00	9.20	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 8 File: D:\2010 Reput Data\A>Action\ACS10Q481.EM6 (8)



Site no. : 3m chamber Data no. : 8
 Dis. / Ant. : 3m 2009 CBL6111C Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 .239(PK)
 Env. / Ins. : 24°C/56% Engineer : Paul Tian
 EUT : 10.2"Digital Audio Video Player
 Power Rating : DC 12V
 Test Mode : FM 91.1MHz
 M/N:ODM91003CR

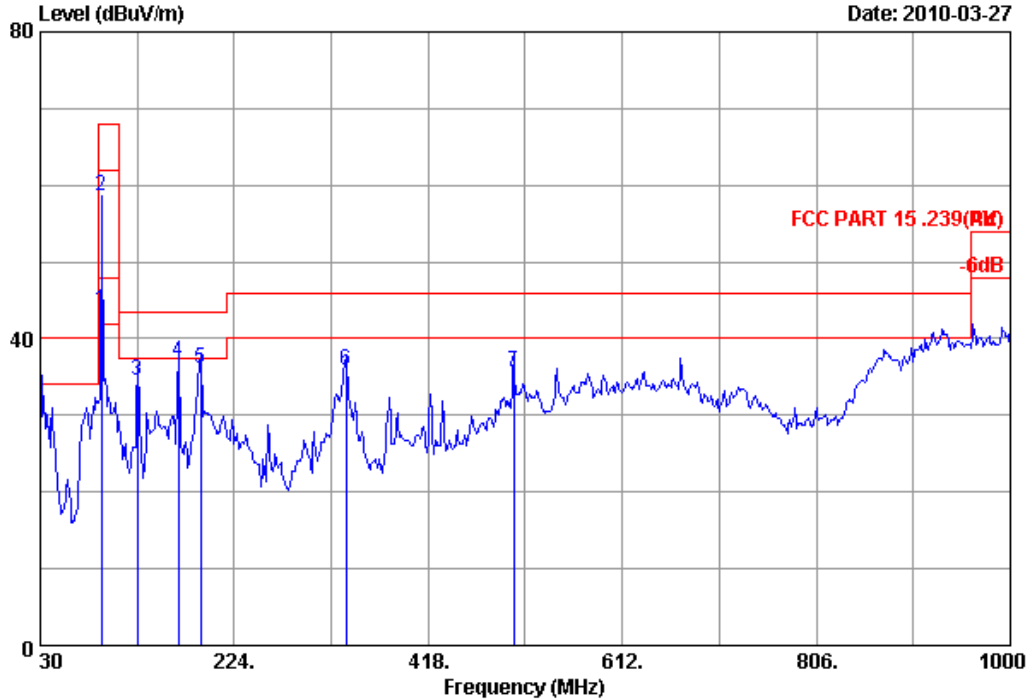
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	91.000	9.22	0.86	33.15	43.23	48.00	4.77	Average
2	91.000	9.22	0.86	49.60	59.68	68.00	8.32	Peak
3	136.700	12.06	1.04	19.65	32.75	43.50	10.75	QP
4	214.300	10.02	1.40	25.12	36.54	43.50	6.96	QP
5	303.540	13.81	1.74	20.21	35.76	46.00	10.24	QP
6	449.040	17.02	2.09	15.57	34.68	46.00	11.32	QP
7	755.560	22.00	2.94	12.86	37.80	46.00	8.20	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.



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Data: 7 File: D:\2010 Reput Data\A\Action\ACS10Q481.EM6 (8)



Site no. : 3m chamber Data no. : 7
 Dis. / Ant. : 3m 2009 CBL6111C Ant. pol. : VERTICAL
 Limit : FCC PART 15 .239(PK)
 Env. / Ins. : 24°C/56% Engineer : Paul Tian
 EUT : 10.2"Digital Audio Video Player
 Power Rating : DC 12V
 Test Mode : FM 91.1MHz
 M/N:ODM91003CR

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	91.100	9.22	0.86	33.67	43.75	48.00	4.25	Average
2	91.100	9.22	0.86	48.57	58.65	68.00	9.35	Peak
3	127.000	12.14	1.00	21.31	34.45	43.50	9.05	QP
4	167.740	10.40	1.16	25.48	37.04	43.50	6.46	QP
5	190.050	9.40	1.26	25.49	36.15	43.50	7.35	QP
6	335.550	14.62	1.80	19.52	35.94	46.00	10.06	QP
7	503.360	18.30	2.26	15.12	35.68	46.00	10.32	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

5. BANDWIDTH TEST

5.1. Test Equipment

The following test equipments are used during the bandwidth test:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E4446A	US44300459	May.08, 09	1 Year
2.	Attenuator	Agilent	8491B	MY39262165	May.08, 09	1 Year
3.	RF Cable	Hubersuhner	SUCOFLEX 102	28618/2	May.08, 09	1Year

5.2. Block Diagram of Test Setup



(EUT: 10.2" DIGITAL AUDIO VIDEO PLAYER)

5.3. Limit

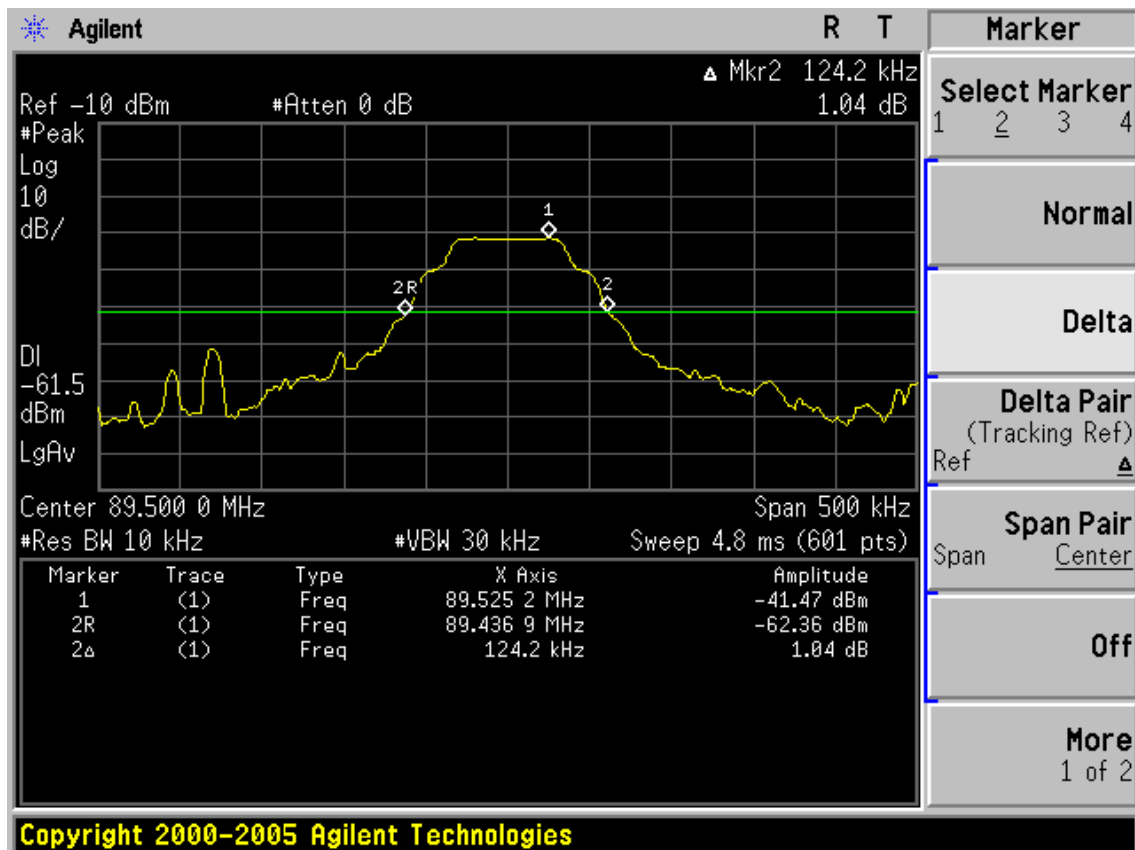
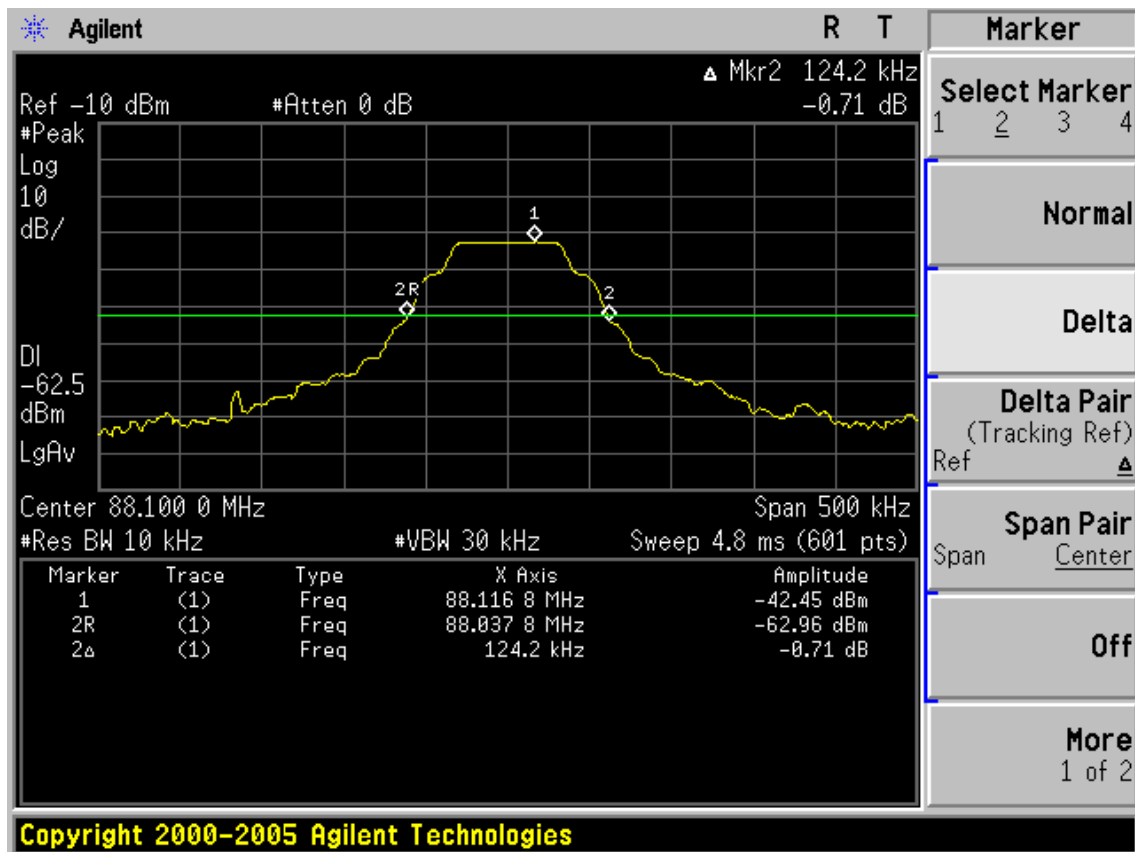
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

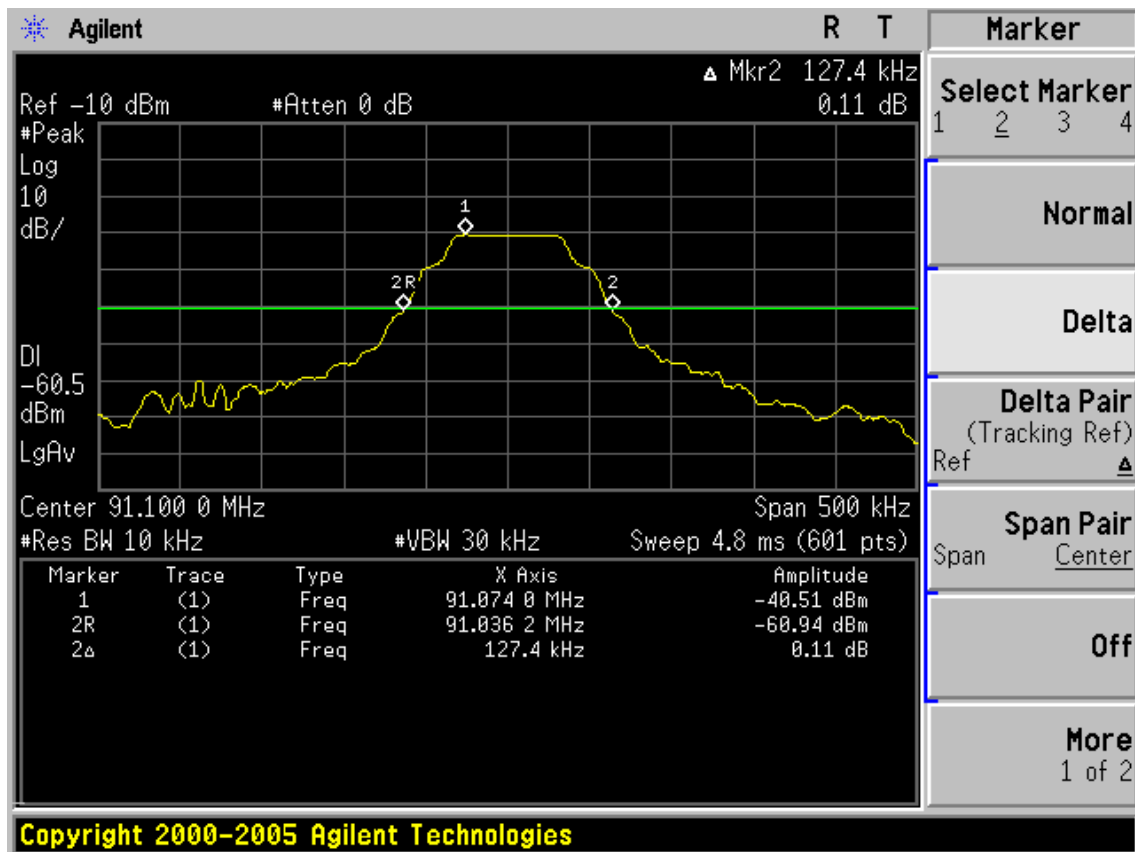
5.4. Test Signal

Jazz music played with EUT's DVD Player

5.5. Test Results

PASS. (The testing data please refer to the following page.)





6. DEVIATION TO TEST SPECIFICATIONS

[NONE]