CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

Application No.: LE211447(8)

Applicant : AVC Technology Limited
Units 11-15, 11th Floor, Block A, Focal Ind. Ctr.,
21 Man Lok Street, Hunghom,
Kowloon, Hong Kong.

Sample Description : One (1) submitted sample stated to be :
Model Name : Digital Audio Player
Model No. : DFP 6012 (IN-MP3256)
Rating : 1 x 1.5V AAA size battery/ DC 5V (USB)
No. of sample(s) : One (1) set ***

Date Received : 2004 September 23.

Test Period : 2004 September 23 – 2004 September 30.

Test Requested : FCC Part 15 Certification

Test Method : FCC Rules and Regulations Part 15 – April 2004
ANSI C63.4 – 2001

Test Result : See attached sheet(s) from page 2 to 18.

Conclusion : The submitted sample of the composite device was found to comply with requirement of FCC Part 15 Subpart C for transmitter part and Subpart B for computer peripheral .

For and on behalf of
CMA Testing and Certification Laboratories

Authorized Signature : _____

Danny Chui
EMC Engineer - EL. Division

FCC ID : Q93-F022

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com

CMA Testing and Certification Laboratories
廠商會檢定中心

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

Table of Contents

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

1 General Information

1.1 General Description

The equipment under test (EUT) is a digital audio player controlled by 24.000 MHz crystal. The EUT has transmitter function during audio playback and is controlled by another crystal of 7.6 MHz. The player transmits audio signal in the frequency range of 88.1 MHz – 107.9 MHz.

Below is a list of features:

1. Music player (supports MP3, WMA, WAV file formats) with FM transmit function in frequency range of 88.1 MHz to 107.9 MHz.
2. FM tuner
3. Voice recording
4. USB interface for transferring files to and from a PC through a USB cable

A brief circuit description is saved with filename : OpDes.pdf

1.2 Related Submittal Grants

This is an application of a composite device for certification of a transmitter operating at 88.1 MHz–107.9 MHz and a computer peripheral product under the same FCC ID.

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

1.3 Location of the test site

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2001. An Open Area Testing Site is set up for investigation and located at :

Top of the Roof, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
Hong Kong.

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2001. A double shielded room is located at :

Roof Floor, Yan Hing Centre,
9 – 13 Wong Chuk Yeung Street,
Fo Tan, Shatin,
New Territories,
Hong Kong.

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

1.4 List of measuring equipment

Equipment	Manufacturer	Model No.	Serial No.	Calibration Certification No.
EMI Test Receiver	R&S	ESCS30	100001	S21141
Broadband Antenna	Schaffner	CBL6113B	2718	AC1753
Signal Generator	IFR	2023B	202302/938	Nil
LISN	R&S	ESH3-Z5	100038	S21142
LISN	R&S	ESH3-Z5	100010	20-70405
Pulse Limiter	R&S	ESH3-Z2	100001	20-73194
Biconical Antenna	R&S	HK116	837414/004	4000.7752.02

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

1.5 List of support equipment

1. Intel CPU PIII 800EB / 256 cache / 133MHz
   Model: L103A455-0041 SL4MB

2. Intel Mother Board
   Model: Intel Type: D815EEA

3. IBM Hard-disk
   Model: DTLA-30720, 20.5GB

4. Proview LCD Monitor
   Model: 568
   S/N: FYUJ240040133

5. IBM Mouse
   Model: 12J3618
   S/N: 23-005077

6. Acer Keyboard
   Model:6511-VA

7. Hewlett Packard LaserJet 2100TN
   Model: C4172A
   S/N: SGGS038577

8. PenPower Handwriting System
   Model: PP403N
   S/N: PT9122239

9. USB cable
   (Provided by Applicant)

10. Earphone

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

2 Description of the radiated emission test

2.1 Test Procedure

Radiated emissions measurements are investigated and taken pursuant to the procedures of ANSI C63.4 – 2001.

The equipment under test (EUT) was placed on a non-conductive turntable with dimensions of 1.5m x 1m and 0.8m high above the ground. 3m from the EUT, a broadband antenna mounting on the mast received the signal strength. The turntable was rotated to maximize the emission level. The antenna was then moving along the mast from 1m up to 4m until no more higher value was found. Both horizontal and vertical polarization of the antenna were placed and investigated.

The device was rotated through three orthogonal axes to determine which attitude and configuration produce the highest emission during measurement.

2.2 Test Result

For transmitter mode :

Peak Detector data was measured unless otherwise stated.

* Emissions appearing within the restricted bands shall follow the requirement of section 15.205.

For all other modes :

The emissions meeting the requirement of section 15.109 are based on measurements employing the CISPR qusai-peak detector.

It was found that the EUT meets the FCC requirement..

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart B

Mode : USB (PC connected)

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
72.011	H	27.2	6.3	33.5	40.0	-6.5
96.015	H	18.5	10.0	28.5	43.5	-15.0
144.021	H	9.6	12.4	22.0	43.5	-21.5
192.009	H	13.5	10.5	24.0	43.5	-19.5
216.011	H	19.3	10.1	29.4	46.0	-16.6
240.011	H	19.8	10.1	29.9	46.0	-16.1
264.013	H	4.7	14.2	18.9	46.0	-27.1
288.012	H	9.8	14.2	24.0	46.0	-22.0
360.015	H	8.6	15.6	24.2	46.0	-21.8
408.021	H	8.0	18.7	26.7	46.0	-19.3

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart B

Mode : MP3 play mode

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
72.012	H	7.7	6.3	14.0	40.0	-26.0
108.024	H	4.0	11.8	15.8	43.5	-27.7
144.008	H	4.9	12.4	17.3	43.5	-26.2
192.004	H	7.5	10.5	18.0	43.5	-25.5
216.011	H	14.7	10.1	24.8	46.0	-21.2
239.999	H	11.6	10.1	21.7	46.0	-24.3
264.015	H	2.3	14.2	16.5	46.0	-29.5
288.015	H	9.0	14.2	23.2	46.0	-22.8
360.018	H	8.4	15.6	24.0	46.0	-22.0
432.022	H	4.2	18.7	22.9	46.0	-23.1

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart B

Mode : Voice recording

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
120.001	H	0.6	13.0	13.6	43.5	-29.9
144.008	H	0.7	12.4	13.1	43.5	-30.4
167.999	H	2.0	11.0	13.0	43.5	-30.5
192.009	H	2.5	10.5	13.0	43.5	-30.5
216.011	H	16.3	10.1	26.4	46.0	-19.6
240.000	H	8.1	10.1	18.2	46.0	-27.8
264.013	H	6.3	14.2	20.5	46.0	-25.5
288.014	H	6.9	14.2	21.1	46.0	-24.9
360.018	H	7.8	15.6	23.4	46.0	-22.6
432.022	H	3.2	18.7	21.9	46.0	-24.1

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart B

Mode : FM

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
175.455	H	20.1	10.7	30.8	43.5	-12.7
195.831	H	21.6	10.5	32.1	43.5	-11.4
216.443	H	27.9	10.1	38.0	46.0	-8.0
350.908	H	12.1	15.6	27.7	46.0	-18.3
391.672	H	14.1	15.6	29.7	46.0	-16.3
432.890	H	19.8	18.7	38.5	46.0	-7.5
526.361	H	0.5	20.6	21.1	46.0	-24.9
587.500	H	1.4	20.6	22.0	46.0	-24.0
649.321	H	2.0	22.0	24.0	46.0	-22.0

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart C

Mode : FM transmitter (88.1 MHz)

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
88.100	H	31.1	8.0	39.1	47.9	-8.8
176.200	H	8.2	10.7	18.9	43.5	-24.6
* 264.300	H	6.7	14.2	20.9	46.0	-25.1
352.400	H	8.4	15.6	24.0	46.0	-22.0
440.500	H	7.7	18.7	26.4	46.0	-19.6
528.600	H	7.7	20.6	28.3	46.0	-17.7
616.700	H	7.2	22.0	29.2	46.0	-16.8
704.800	H	6.5	22.8	29.3	46.0	-16.7
792.900	H	7.1	22.8	29.9	46.0	-16.1
881.000	H	6.2	24.2	30.4	46.0	-15.6

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart C

Mode : FM transmitter (98.0 MHz)

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
98.000	H	30.7	10.0	40.7	47.9	-7.2
196.000	H	7.9	10.5	18.4	43.5	-25.1
294.000	H	7.8	14.2	22.0	46.0	-24.0
392.000	H	9.5	15.6	25.1	46.0	-20.9
490.000	H	8.9	18.7	27.6	46.0	-18.4
588.000	H	8.3	20.6	28.9	46.0	-17.1
686.000	H	7.2	22.0	29.2	46.0	-16.8
784.000	H	7.0	22.8	29.8	46.0	-16.2
882.000	H	6.2	24.2	30.4	46.0	-15.6
* 980.000	H	6.7	25.1	31.8	46.0	-14.2

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

2.3 Radiated Emission Measurement Data

Radiated emission

pursuant to

the requirement of FCC Part 15 subpart C

Mode : FM transmitter (107.9 MHz)

Frequency (MHz)	Polarity (H/V)	Reading at 3m (dBμV/m)	Antenna and Cable factor (dB)	Field Strength (dBμV/m)	Limit at 3m (dBμV/m)	Margin (dB)
107.900	H	25.4	11.8	37.2	47.9	-10.7
215.800	H	10.9	10.1	21.0	43.5	-22.5
* 323.700	H	7.4	15.6	23.0	46.0	-23.0
431.600	H	7.5	18.7	26.2	46.0	-19.8
539.500	H	7.7	20.6	28.3	46.0	-17.7
647.400	H	7.3	22.0	29.3	46.0	-16.7
755.300	H	6.8	22.8	29.6	46.0	-16.4
863.200	H	6.2	24.2	30.4	46.0	-15.6
* 971.100	H	6.5	25.1	31.6	46.0	-14.4
* 1079.000	H	7.1	26.1	33.2	46.0	-12.8

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

3 Description of the Line-conducted Test

3.1 Test Procedure

Conducted emissions measurements are investigated and also taken pursuant to the procedures of ANSI C63.4 – 2001. The EUT was setup as described in the procedures, and both lines were measured.

3.2 Test Result

The PC connected mode had been tested. The EUT connecting with an USB cable and earphone produced the maximum emission. The measurement data was indicated in Appendix.

The result showed that the EUT met the FCC requirement.

3.3 Graph and Table of Conducted Emission Measurement Data

For electronic filing, the document are saved with filename TestRpt2.pdf

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

4 Photograph

4.1 Photographs of the Test Setup for Radiated Emission and Conduction Emission

For electronic filing, the photos are saved with filename TSup1.jpg to TSup2.jpg

4.2 Photographs of the External and Internal Configurations of the EUT

For electronic filing, the photos are saved with filename ExPho1.jpg to ExPho2.jpg and InPho1.jpg to InPho5.jpg.

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

5 Supplementary document

The following document were submitted by applicant, and for electronic filing, the document are saved with the following filenames:

Document	Filename
ID Label/Location	LabelSmp.pdf
Block Diagram	BlkDia.pdf
Schematic Diagram	Schem.pdf
Users Manual	UserMan.pdf
Operational Description	OpDes.pdf

5.1 Bandwidth

The plot on saved in TestRpt3.pdf shows the fundamental emission is confined in the specified band. It also shows that the band edge met the requirement in 15.239.

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com

TEST REPORT

Report No. : AE017966-001 Date : 2004 October 26

6 Appendices

A1.	Photos of the set-up of Radiated Emissions	1 page
A2.	Photos of the set-up of Conducted Emissions	2 pages
A3.	Photos of External Configurations	1 page
A4.	Photos of Internal Configurations	3 pages
A5.	ID Label/Location	1 page
A6.	Bandwidth Plot	2 pages
A7.	Conducted Emission Measurement Data	4 pages
A8.	Block Diagram	1 page
A9.	Schematics Diagram	1 page
A10.	User Manual	17 pages
A11.	Operation Description	1 page

***** End of Report *****

Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St.., Fo Tan, Shatin, Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatcl.com **Web Site:** http://www.cmatcl.com