



STC Test Report

Date : 2008-07-17

Page 1 of 13

No. : HM161676

Applicant (AQA001):

Aquatic AV
1476 Camden Ave, Campbell, CA 95008

Manufacturer:

Aquatic AV
1476 Camden Ave, Campbell, CA 95008

Description of Samples:

Product: iPod Media Player
Brand Name: Aquatic AV
Model Number: AQ-DM-1R
FCC ID: WBQAQPAVRFMPPIR

Date Samples Received:

2008-06-19

Date Tested:

2008-06-25

Investigation Requested:

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2007 and ANSI C63.4:2003 for FCC Certification.

Conclusions:

The submitted product COMPLIED with the requirements of Federal Communications Commission [FCC] Rules and Regulations Part 15. The tests were performed in accordance with the standards described above and on Section 2.2 in this Test Report.

Remarks:

For additional models details, see page 4.

Dr. LEE Kam Chuen,
ElectroMagnetic Compatibility Department
For and on behalf of
The Hong Kong Standards and Testing Centre Ltd.

The Hong Kong Standards and Testing Centre Ltd.

10 Dai Wang Street, Taiipo Industrial Estate, N.T., Hong Kong

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STC Test Report

Date : 2008-07-17

Page 2 of 13

No. : HM161676

CONTENT:

Cover	Page 1 of 13
Content	Page 2 of 13
<u>1.0 General Details</u>	
1.1 Test Laboratory	Page 3 of 13
1.2 Applicant Details Applicant Manufacturer	Page 3 of 13
1.3 Equipment Under Test [EUT] Description of EUT operation	Page 4 of 13
1.4 Date of Order	Page 4 of 13
1.5 Submitted Sample	Page 4 of 13
1.6 Test Duration	Page 4 of 13
1.7 Country of Origin	Page 4 of 13
<u>2.0 Technical Details</u>	
2.1 Investigations Requested	Page 5 of 13
2.2 Test Standards and Results Summary	Page 5 of 13
<u>3.0 Test Results</u>	
3.1 Radiated Emission	Page 6-10 of 13
<u>Appendix A</u>	
List of Measurement Equipment & Ancillary Equipment	Page 11 of 13
<u>Appendix B</u>	
Photographs	Page 12-13 of 13

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STC Test Report

Date : 2008-07-17

Page 3 of 13

No. : HM161676

1.0 General Details

1.1 Test Laboratory

The Hong Kong Standards and Testing Centre Ltd.
EMC Laboratory
10 Dai Wang Street, Taipo Industrial Estate
New Territories, Hong Kong

1.2 Applicant Details Applicant

Aquatic AV
1476 Camden Ave, Campbell, CA 95008

Manufacturer

Aquatic AV
1476 Camden Ave, Campbell, CA 95008

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STC Test Report

Date : 2008-07-17

Page 4 of 13

No. : HM161676

1.3 Equipment Under Test [EUT] Description of Sample

Model Name: iPod Media Player
Manufacturer: Aquatic AV
Brand Name: Aquatic AV
Model Number: AQ-DM-1R
Additional Model Number(s): AQ-DM-2, AQ-DM-2B
Input Voltage: 12Vd.c. ("Lead-acid" battery x 1)

1.3.1 Description of EUT Operation

The Equipment Under Test (EUT) is a Aquatic AV, iPod Media Player. The EUT continues to transmit while switch on, modulation by IC; and type is GFSK modulation.

1.4 Date of Order

2008-06-19

1.5 Submitted Sample(s):

1 Sample

1.6 Test Duration

2008-06-25

1.7 Country of Origin

N/A

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STC Test Report

Date : 2008-07-17

Page 5 of 13

No. : HM161676

2.0 Technical Details

2.1 Investigations Requested

Perform Electromagnetic Interference measurements in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15: 2007 Regulations and ANSI C63.4:2003 for FCC Certification.

2.2 Test Standards and Results Summary Tables

EMISSION Results Summary					
Test Condition	Test Requirement	Test Method	Class / Severity	Test Result	
				Pass	Fail
Field Strength of Fundamental & Harmonics Emissions	FCC 47CFR 15.249	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Radiated Emissions	FCC 47CFR 15.209	ANSI C63.4:2003	N/A	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: N/A - Not Applicable

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STC Test Report

Date : 2008-07-17

Page 6 of 13

No. : HM161676

3.0 Test Results

3.1 Emission

3.1.1 Radiated Emissions

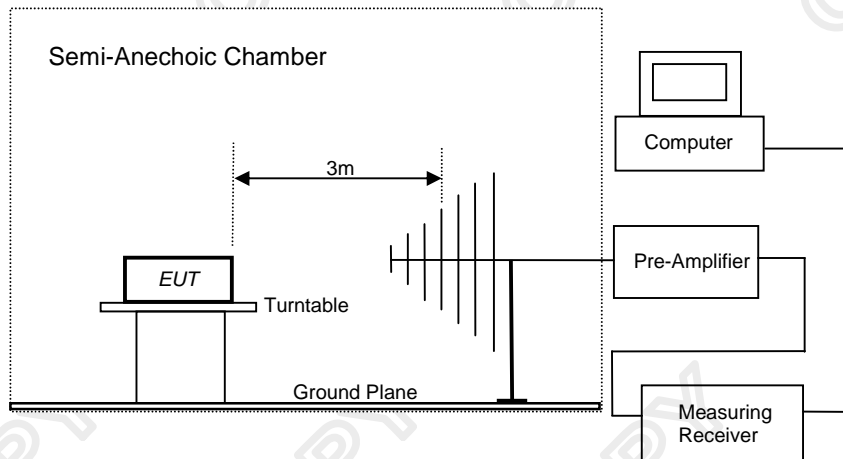
Test Requirement:	FCC 47CFR 15.249
Test Method:	ANSI C63.4:2003
Test Date:	2008-06-25
Mode of Operation:	Tx mode, iPod play mode, FM mode & Rx mode

Test Method:

The sample was placed 0.8m above the ground plane of semi-anechoic Chamber*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages.

* Semi-anechoic chamber located on the G/F of The Hong Kong Standards and Testing Centre Ltd. with a metal ground plane filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 607756.

Test Setup:



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STC Test Report

Date : 2008-07-17

Page 7 of 13

No. : HM161676

Limits for Field Strength of Fundamental & Harmonics Emissions [FCC 47CFR 15.249]:

Frequency Range of Fundamental [MHz]	Field Strength of Fundamental Emission [microvolts/meter]	Field Strength of Harmonics Emission [microvolts/meter]
902-928	50,000 [Average]	500 [Average]
2400-2483.5	50,000 [Average]	500 [Average]

Results of Lowest Tx mode: Pass

Field Strength of Fundamental Emissions Peak Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
2448.6	53.4	29.5	82.9	13,963.7	50,000	Horizontal
* 4897.2	No Emission Detected				500	Vertical
7345.8					500	Vertical
9794.4					500	Vertical
* 12243.0					500	Vertical
14691.6					500	Vertical
17140.2					500	Vertical
* 19588.8					500	Vertical
22037.4					500	Vertical
24486.0					500	Vertical

Field Strength of Fundamental Emissions Average Value						
Frequency MHz	Measured Level @3m dBμV/m	Correction Factor dBμV/m	Field Strength dBμV/m	Field Strength μV/m	Limit @3m μV/m	E-Field Polarity
2448.6	44.8	29.5	74.3	5,188.0	50,000	Horizontal

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz

*: Denotes restricted band of operation.

Measurements were made using a peak detector. Any emission less than 1000 MHz and falling within the restricted bands of FCC Rules Part 15 Section 15.205 and the limits of FCC Rules Part 15 Section 15.209 were applied.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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STC Test Report

Date : 2008-07-17

Page 8 of 13

No. : HM161676

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Lowest iPod play mode, FM mode & Tx mode: Pass

Radiated Emissions Peak					
Emission Frequency MHz	E-Field Polarity	Level @ 3m $\text{dB}\mu\text{V/m}$	Limit @ 3m $\text{dB}\mu\text{V/m}$	Level @ 3m $\mu\text{V/m}$	Limit @ 3m $\mu\text{V/m}$
98.4	Vertical	32.9	43.5	44.2	150
202.7	Horizontal	35.9	43.5	62.4	150
226.1	Horizontal	32.8	46.0	43.7	200
282.1	Horizontal	33.5	46.0	47.3	200

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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STC Test Report

Date : 2008-07-17

Page 9 of 13

No. : HM161676

Limits for Radiated Emissions [FCC 47 CFR 15.209 Class B]:

Frequency Range [MHz]	Quasi-Peak Limits [$\mu\text{V/m}$]
30-88	100
88-216	150
216-960	200
Above 960	500

The emission limits shown in the above table are based on measurement employing a CISPR quasi-peak detector and above 1000MHz are based on measurements employing an average detector.

Results of Rx mode: Pass

Radiated Emissions Peak					
Emission Frequency MHz	E-Field Polarity	Level @ 3m $\text{dB}\mu\text{V/m}$	Limit @ 3m $\text{dB}\mu\text{V/m}$	Level @ 3m $\mu\text{V/m}$	Limit @ 3m $\mu\text{V/m}$
Emission detected are more than 20dB below the limit.					

Remarks:

No further spurious emissions found between lowest internal frequency and 30MHz

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty : 30MHz to 1GHz 5.2dB
1GHz to 18GHz 5.1dB

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STC Test Report

Date : 2008-07-17

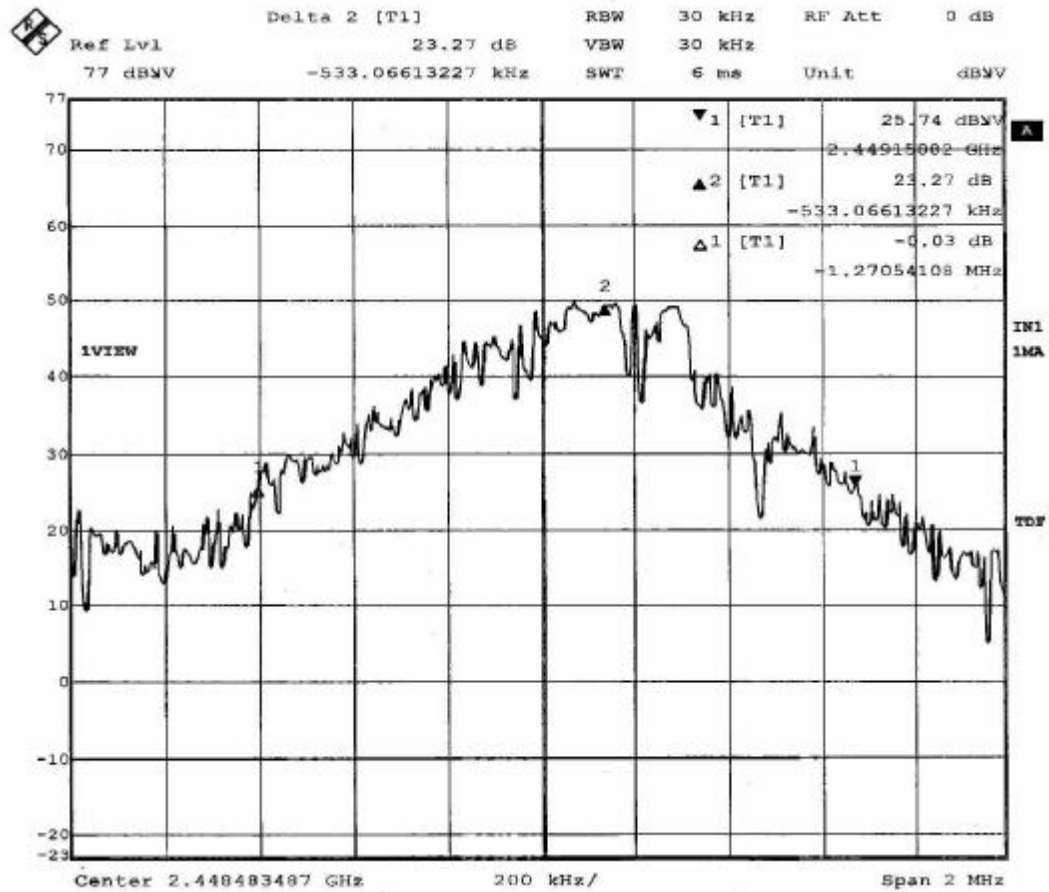
Page 10 of 13

No. : HM161676

Limits for 20dB Bandwidth of Fundamental Emission:

Frequency Range [MHz]	20dB Bandwidth [MHz]
2448.6	1.2

20dB Bandwidth of Fundamental Emission



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STC Test Report

Date : 2008-07-17

Page 11 of 13

No. : HM161676

Appendix A

List of Measurement Equipment

Radiated Emission

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL	DUE CAL
EM215	MULTIDEVICE CONTROLLER	EMCO	2090	00024676	N/A	N/A
EM216	MINI MAST SYSTEM	EMCO	2075	00026842	N/A	N/A
EM217	ELECTRIC POWERED TURNABLE	EMCO	2088	00029144	N/A	N/A
EM218	ANECHOIC CHAMBER	ETS-Linggren	FACT-3	--	2006/05/02	2009/05/02
EM219	BICONILOG ANTENNA	EMCO	3142C	00029071	2006/08/23	2008/08/23
EM229	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB40	100248	2007/07/20	2008/08/20
EM022	LOOP ANTENNA	EMCO	6502	1189-2424	2006/07/26	2008/07/26

Ancillary Equipment

ITEM NO.	DESCRIPTION	MODEL NO.	FCC ID	REMARK
1	iPod nano	A1137	N/A	Serial No.: SU603KHUSZB, Part No.: MA004HK/A
2	12V lead-acid battery	N/A	N/A	N/A
3	Philip Speaker L	N/A	N/A	N/A
4	Philip Speaker R	N/A	N/A	N/A
5	RCA Speaker L	N/A	N/A	N/A
6	RCA Speaker R	N/A	N/A	N/A

Remarks:-

CM Corrective Maintenance
N/A Not Applicable or Not Available
TBD To Be Determined

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STC Test Report

Date : 2008-07-17

Page 12 of 13

No. : HM161676

Appendix B

Photographs of EUT

Front View of the product



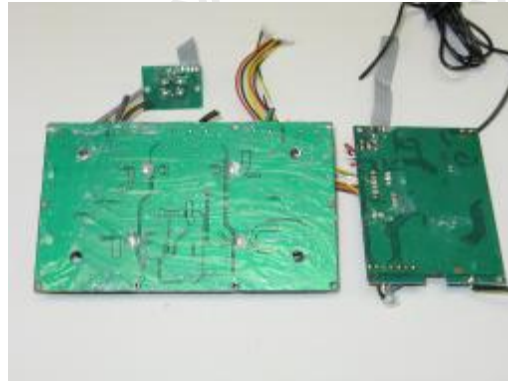
Rear View of the product



Inner Circuit Top View



Inner Circuit Bottom View



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STC Test Report

Date : 2008-07-17

Page 13 of 13

No. : HM161676

Photographs of EUT

Measurement of Radiated Emission Test Set Up



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