

FCC TEST REPORT
On Behalf of

QWAY MULTIMEDIA TECHNOLOGY (SHENZHEN) CO., LTD.

PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER

Model No.: A710

Prepared for : Qway Multimedia Technology (shenzhen) CO., LTD.
Address : 2502 HAISONG BUILDING A, TERRA 9TH RD., FUTIAN
DISTRICT SHENZHEN CHINA

Prepared by : SHENZHEN LCS CERTIFICATION SERVICES INC.
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FCC ID : W5AA710
Report Number : LCS0901141187F
Date of Test : January 15, 2009 - February 10, 2009
Date of Report : February 10, 2009 - February 12, 2009

TABLE OF CONTENTS

Description	Page
DECLARATION OF CONFORMITY	
1. GENERAL INFORMATION.....	4
1.1. Description of Device (EUT).....	4
1.2. Description of Support Device	5
1.3. Test Facility	5
1.4. Measurement Uncertainty.....	6
2. POWER LINE CONDUCTED MEASUREMENT	7
2.1. Test Equipment.....	7
2.2. Block Diagram of Test Setup	7
2.3. Power Line Conducted Emission Measurement Limits (Class B)	7
2.4. Configuration of EUT on Measurement.....	8
2.5. Operating Condition of EUT	8
2.6. Test Procedure	8
2.7. Power Line Conducted Emission Measurement Results	9
3. RADIATED EMISSION MEASUREMENT	10
3.1. Test Equipment.....	10
3.2. Block Diagram of Test Setup	11
3.3. Radiated Emission Limit (Class B)	12
3.4. EUT Configuration on Measurement	12
3.5. Operating Condition of EUT	12
3.6. Test Procedure	12
3.7. Radiated Emission Noise Measurement Result	13
APPENDIX I (2 Pages)	
APPENDIX II (2 Pages)	

TEST REPORT DESCRIPTION

Applicant : QWAY MULTIMEDIA TECHNOLOGY (SHENZHEN) CO., LTD.
Manufacturer : QWAY MULTIMEDIA TECHNOLOGY (SHENZHEN) CO., LTD.
EUT : PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER

(A) MODEL NO.: A710

(B) SERIAL NO.: N/A

(C) POWER SUPPLY: 100-240V~, 50/60Hz

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B Class B May 2006 & FCC / ANSI C63.4-2000

The device described above is tested by SHENZHEN LCS CERTIFICATION SERVICES INC. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and SHENZHEN LCS CERTIFICATION SERVICES INC. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of SHENZHEN LCS CERTIFICATION SERVICES INC.

Date of Test: January 15, 2009 - February 10, 2009



Prepared by:

(Engineer)



Reviewed by:

(Quality Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER

Model Number : A710

Power Supply : 100-240V~, 50/60Hz

Cable : Unshielded, detachable, Core, 1.0m≤3.0m

Applicant : QWAY MULTIMEDIA TECHNOLOGY (SHENZHEN) CO., LTD.

Address : 2502 HAISONG BUILDING A, TERRA 9TH RD,, FUTIAN DISTRICT SHENZHEN CHINA

Manufacturer : QWAY MULTIMEDIA TECHNOLOGY(SHENZHEN) CO., LTD.

Address : 2502 HAISONG BUILDING A, TERRA 9TH RD,, FUTIAN DISTRICT SHENZHEN CHINA

Date of Sample : January 14, 2009

Date of Test : January 15, 2009 - February 10 , 2009

1.2. Description of Support Device

PC	: Manufacturer: HEWLETT PACKARD M/N: Vectra VL420 MT S/N: CN15100363 CE, FCC: DOC
Monitor	: Manufacturer: HEWLETT PACKARD M/N: D8897 S/N: CN15034038 CE, FCC ID: ARSCM350S
Mouse	: Manufacturer: HEWLETT PACKARD M/N: M-S48a S/N: LZE14823966AW CE, FCC: DOC
Keyboard	: Manufacturer: HEWLETT PACKARD M/N: SK-2502C S/N: C0111141546 CE, FCC: DOC
Printer	: Manufacturer: HEWLETT PACKARD M/N: C89520 S/N: CN25S182N6 CE, FCC: DOC

1.3. Test Facility

Site Description EMC Lab.	: CNAS-LAB Code: L1225. Date of Registration: August 02, 2007. Valid time is until March 04, 2009 A2LA-Lab Cert. No. 2243.01. Valid time is from Aug 24, 2005 to Sept 30, 2009 FCC-Registration No.: 662850. Renewal date: September 12, 2006 IC-Registration No.: 5377. Renewal date: November 28, 2005 VCCI-Registration No.: R-2484. Date of Registration: December 20, 2006. Valid time is until December 19, 2009
Name of Firm	: Shenzhen Huatongwei International Inspection Co., Ltd.
Site Location	: Huatongwei Building, Keji Rd. 12 S., High-tech Park, Nanshan District, Shenzhen, Guangdong, China

1.4.Measurement Uncertainty

Radiation Uncertainty : $U_r = \pm 4.26\text{dB}$

Conduction Uncertainty : $U_c = \pm 2.66\text{dB}$

2. POWER LINE CONDUCTED MEASUREMENT

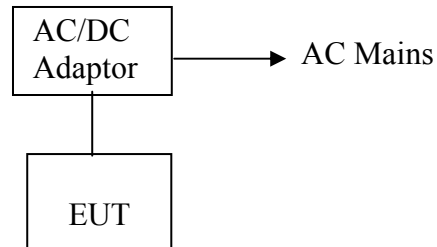
2.1. Test Equipment

The following test equipments are used during the power line conducted measurement:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	8289851018	May 29, 2008	1 Year
2.	L.I.S.N	Rohde & Schwarz	ESH2-Z5	834549/005	May 29, 2008	1 Year
3.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100006	May 29, 2008	1 Year
4.	RF Cable	FUJIKURA	RG-55/U	LISN Cable	May 29, 2008	1 Year

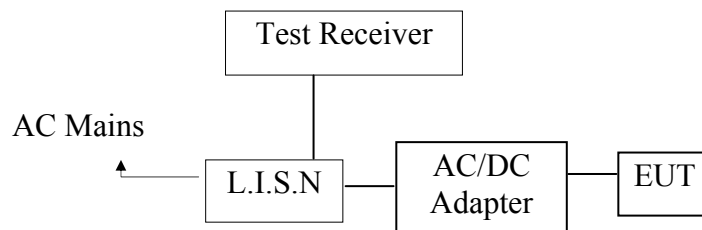
2.2. Block Diagram of Test Setup

2.2.1 Block diagram of connection between the EUT and simulators



(EUT: PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER)

2.2.2 Block diagram of test setup



(EUT: PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER)

2.3. Power Line Conducted Emission Measurement Limits (Class B)

Frequency MHz	Limits dB(μV)	
	Quasi-peak Level	Average Level
0.15 ~ 0.50	66 ~ 56*	56 ~ 46*
0.50 ~ 5.00	56	46
5.00 ~ 30.00	60	50

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The lower limit shall apply at the transition frequencies.

2.4. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

EUT	:	PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER
Model Number	:	A710
Cable	:	Shielded, detachable, $1.0\text{m} \leq 3.0\text{m}$

2.5. Operating Condition of EUT

- 2.5.1. Setup the EUT and simulator as shown as Section 2.2.
- 2.5.2. Turn on the power of all equipment.
- 2.5.3. Let the EUT work in test mode (ON) and measure it.

2.6. Test Procedure

The EUT system is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to FCC/ANSI C63.4-2000 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9KHz.

The frequency range from 150KHz to 30MHz is checked.

The test result is reported on Section 2.7. All the scanning waveforms for Conducted Emission Measurement are attached in Appendix I.

2.7. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150KHz to 30 MHz is investigated.

3. RADIATED EMISSION MEASUREMENT

3.1. Test Equipment

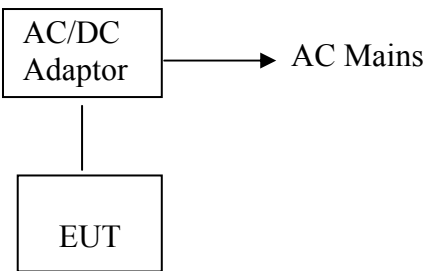
The following test equipments are used during the radiated emission measurement:

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	ANRITSU	MS2661C	6200140915	May 29, 2008	1 Year
2.	Test Receiver	Rohde & Schwarz	ESCS30	828985/018	May 29, 2008	1 Year
3.	Bilog Antenna	Schwarzbeck	VULB9163	142	May 29, 2008	1 Year
4.	50 Coaxial Switch	Anritsu Corp	MP59B	6100237248	May 29, 2008	1 Year
5.	Cable	Schwarzbeck	AK9513(1m)	CR RX2	May 29, 2008	1 Year
6.	Cable	Schwarzbeck	AK9513(10m)	AC RX1	May 29, 2008	1 Year
7.	Cable	Rosenberger	N/A(6m)	CR RX1	May 29, 2008	1 Year
8.	Cable	Rosenberger	N/A(10m)	FP2RX2	May 29, 2008	1 Year
9.	DC Power Filter	MPE	23872C	N/A	May 29, 2008	1 Year
10.	Single Phase Power Line Filter	MPE	23332C	N/A	May 29, 2008	1 Year
11.	3 Phase Power Line Filter	MPE	23333C	N/A	May 29, 2008	1 Year
12.	Signal Generator	HP	8648A	3625U00573	May 29, 2008	1 Year

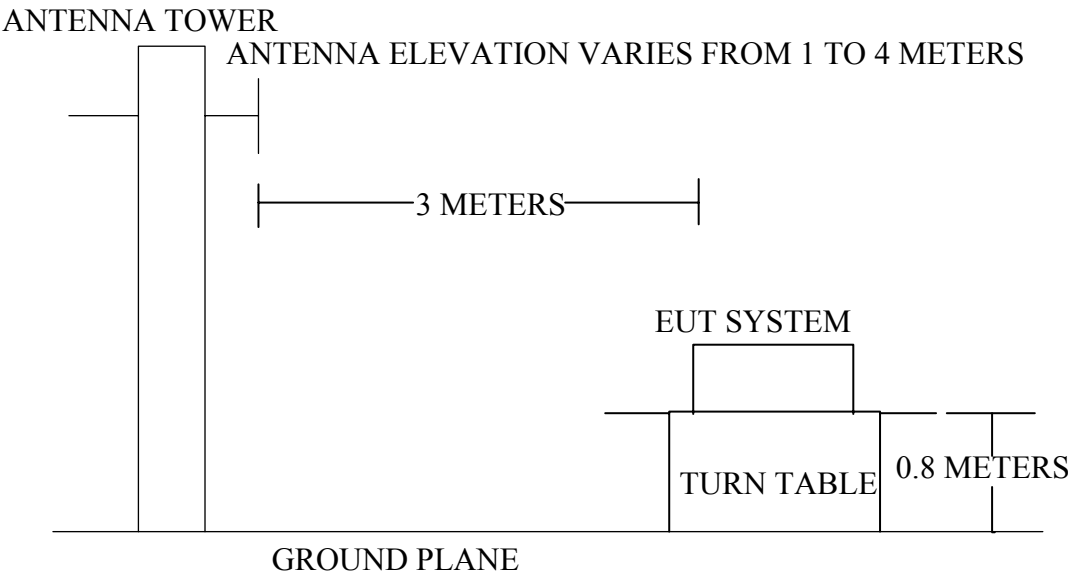
3.2. Block Diagram of Test Setup

3.2.1. Block diagram of connection between the EUT and simulators



(EUT: PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER)

3.2.2. Anechoic Chamber Test Setup Diagram



(EUT: PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER)

3.3. Radiated Emission Limit (Class B)

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

- Remark :
- (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$
 - (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.

3.4. EUT Configuration on Measurement

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

PORTABLE TV (ATSC+NTSC) & MEDIA PLAYER (EUT)

Model Number : A710
Serial Number : N/A

3.5. Operating Condition of EUT

1. Setup the EUT as shown in Section 2.2.
2. Let the EUT work in test mode (ON) and measure it.

3.6. Test Procedure

EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 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 measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to FCC/ANSI C63.4-2000 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESCS30) is set at 120KHz.

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

The test mode (ON) is tested in chamber and all the scanning waveforms are attached in Appendix II.

3.7. Radiated Emission Noise Measurement Result

PASS.

The frequency range from 30MHz to 1000MHz is investigated.

Please reference to the attached data.

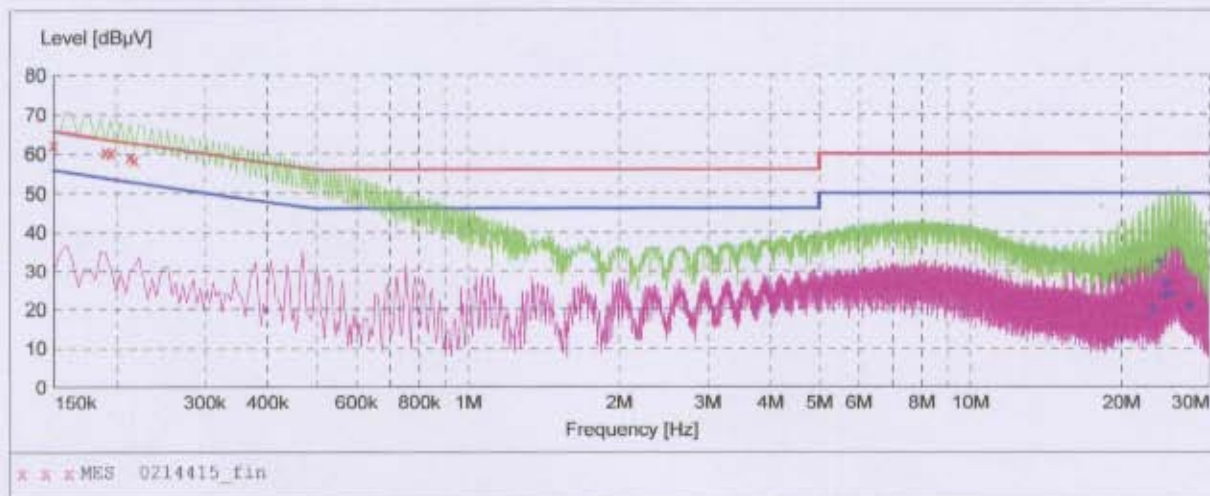
APPENDIX I

Voltage Mains Test FCC PART15 B

EUT: PORTABLE DIGITAL TV M/N:A710
 Manufacturer: QWAY MULTIMEDIA TECHNOLOGY (SHENZHEN) CO., LTD.
 Operating Condition: ON
 Test Site: 3# SHIELDED ROOM
 Operator: GENE
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 2/14/2009 / 7:52:45PM

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "0214415_fin"

2/14/2009 7:55PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	62.50	10.2	66	3.5	QP	N	GND
0.190500	60.60	10.2	64	3.4	QP	N	GND
0.195000	60.50	10.2	64	3.3	QP	N	GND
0.213000	59.40	10.2	63	3.7	QP	N	GND
0.217500	58.70	10.2	63	4.2	QP	N	GND

MEASUREMENT RESULT: "0214415_fin2"

2/14/2009 7:55PM

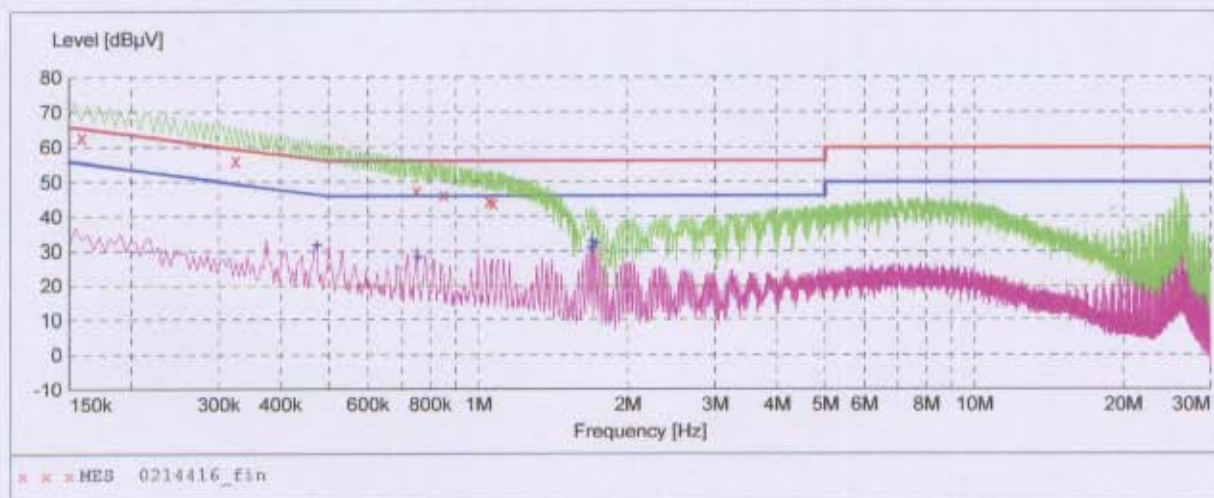
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
23.208000	20.20	11.1	50	29.8	AV	N	GND
23.784000	32.70	11.1	50	17.3	AV	N	GND
24.526500	23.70	11.1	50	26.3	AV	N	GND
24.639000	27.00	11.1	50	23.0	AV	N	GND
25.134000	24.00	11.1	50	26.0	AV	N	GND
27.433500	21.00	11.2	50	29.0	AV	N	GND

Voltage Mains Test FCC PART15 B

EUT: PORTABLE DIGITAL TV M/N:A710
Manufacturer: QWAY MULTIMEDIA TECHNOLOGY (SHENZHEN) CO., LTD.
Operating Condition: ON
Test Site: 3# SHIELDED ROOM
Operator: GENE
Test Specification: AC 120V/50Hz
Comment:
Start of Test: 2/14/2009 / 7:55:34PM

SCAN TABLE: "Voltage (9K-30M)FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "0214416_fin"

2/14/2009 7:58PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.159000	62.90	10.2	66	2.6	QP	L1	GND
0.325500	56.20	10.2	60	3.4	QP	L1	GND
0.753000	47.70	10.2	56	8.3	QP	L1	GND
0.852000	46.50	10.2	56	9.5	QP	L1	GND
1.054500	44.60	10.3	56	11.4	QP	L1	GND
1.072500	44.10	10.3	56	11.9	QP	L1	GND

MEASUREMENT RESULT: "0214416_fin2"

2/14/2009 7:58PM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.474000	31.70	10.2	46	14.7	AV	L1	GND
0.757500	28.50	10.2	46	17.5	AV	L1	GND
1.698000	32.90	10.3	46	13.1	AV	L1	GND
1.702500	31.10	10.3	46	14.9	AV	L1	GND
1.729500	32.20	10.3	46	13.8	AV	L1	GND

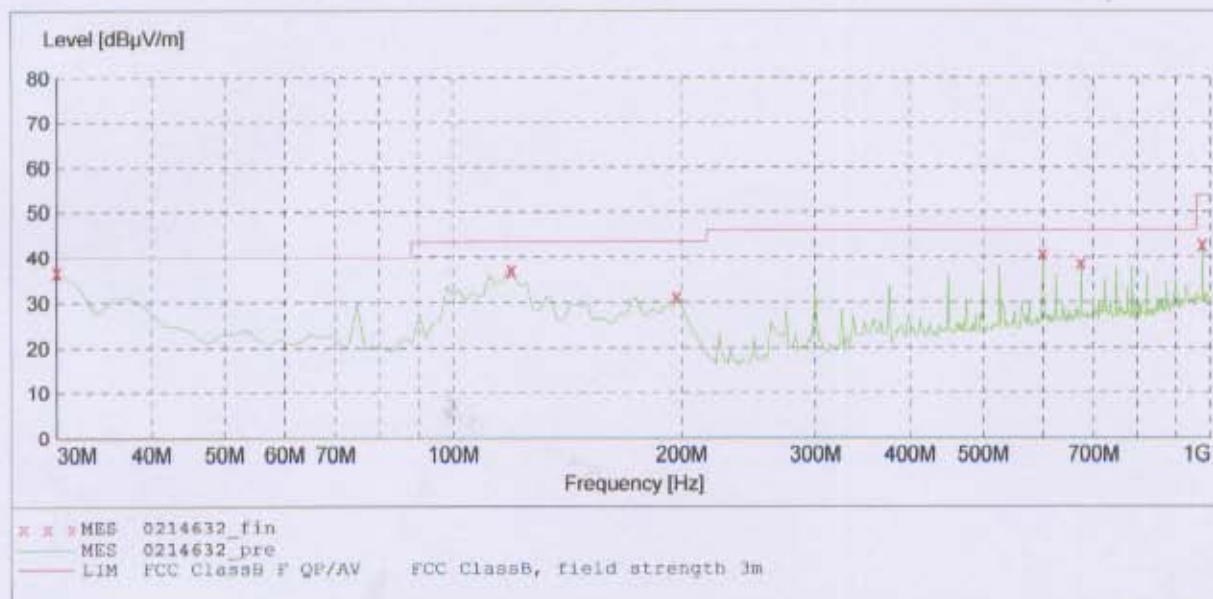
APPENDIX II

RADIATED EMISSION FCC PART15 B

EUT: PORTABLE DIGITAL TV M/N:A710
 Manufacturer: QWAY MULTIMEDIA TECHNOLOGY (SHENZHEN) CO., LTD.
 Operating Condition: ON
 Test Site: 3M CHAMBER
 Operator: SHUAI
 Test Specification: AC 120V/60Hz
 Comment:
 Start of Test: 2/14/2009 / 5:21:19PM

SCAN TABLE: "test Field(30M-1G)OP"

Short Description:			Field Strength(30M-1G)			
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562 new



MEASUREMENT RESULT: "0214632_fin"

2/14/2009 5:24PM

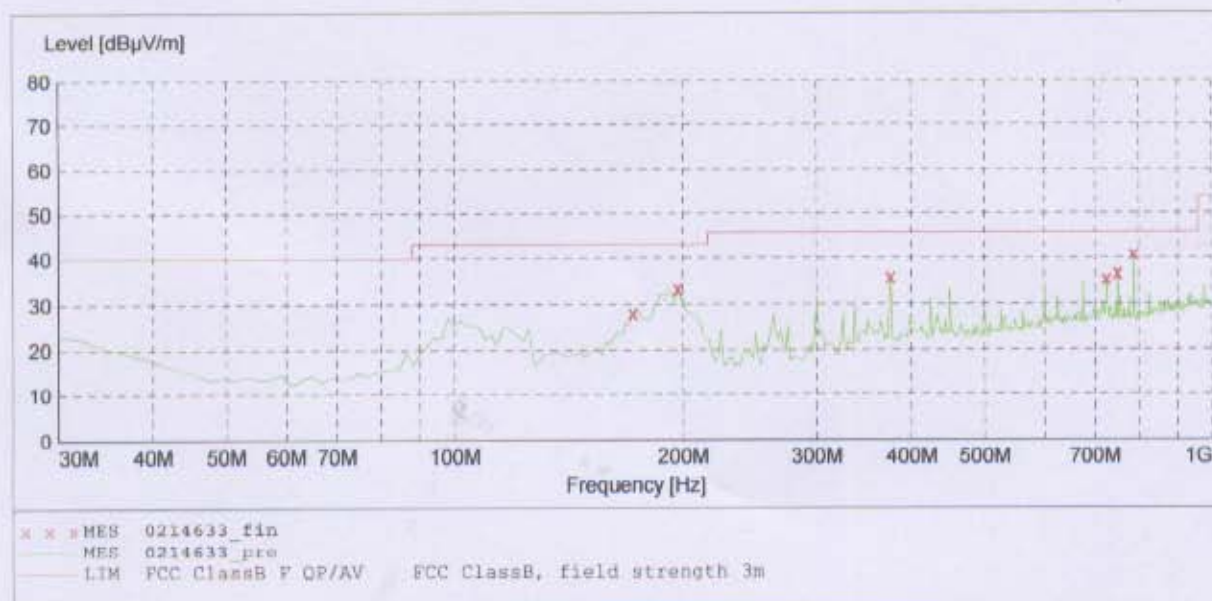
Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	36.90	21.2	40.0	3.1	QP	100.0	307.00	VERTICAL
119.400000	37.10	13.0	43.5	6.4	QP	100.0	357.00	VERTICAL
197.100000	31.40	10.8	43.5	12.1	QP	100.0	130.00	VERTICAL
601.500000	41.00	22.8	46.0	5.0	QP	100.0	307.00	VERTICAL
675.300000	38.60	23.7	46.0	7.4	QP	100.0	105.00	VERTICAL
976.600000	42.90	25.6	54.0	11.1	QP	100.0	3.00	VERTICAL

RADIATED EMISSION FCC PART15 B

EUT: PORTABLE DIGITAL TV M/N:A710
Manufacturer: QWAY MULTIMEDIA TECHNOLOGY (SHENZHEN) CO., LTD.
Operating Condition: ON
Test Site: 3M CHAMBER
Operator: SHUAI
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 2/14/2009 / 5:24:09PM

SCAN TABLE: "test Field(30M-1G)OP"

Short Description:		Field Strength(30M-1G)				
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562 new



MEASUREMENT RESULT: "0214633_fin"

2/14/2009 5:27PM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
171.900000	28.30	11.1	43.5	15.2	QP	100.0	62.00	HORIZONTAL
197.100000	33.60	10.8	43.5	9.9	QP	100.0	62.00	HORIZONTAL
376.000000	36.10	18.8	46.0	9.9	QP	100.0	239.00	HORIZONTAL
725.900000	35.70	23.9	46.0	10.3	QP	100.0	5.00	HORIZONTAL
751.100000	36.90	23.9	46.0	9.1	QP	100.0	341.00	HORIZONTAL
788.100000	41.10	23.7	46.0	4.9	QP	100.0	62.00	HORIZONTAL