

# Variant FCC RF Test Report

APPLICANT : Motorola Inc.  
EQUIPMENT : S10-HD Universal Bluetooth Stereo Headphone  
BRAND NAME : Motorola  
MODEL NAME : S10-HD  
FCC ID : IHDP6LQ1  
STANDARD : FCC Part 15 Subpart C §15.247  
CLASSIFICATION : Digital Spread Spectrum (DSS)

This is a variant report which is only valid combined with the original test report. The product was received on Oct. 11, 2010 and completely tested on Oct. 14, 2010. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures given in ANSI C63.4-2003 and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by:



Anderson Chiu / Deputy Manager



## **SPORTON INTERNATIONAL INC.**

**No. 52, Hwa Ya 1<sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C.**



## **TABLE OF CONTENTS**

<b>REVISION HISTORY .....</b>	<b>3</b>
<b>SUMMARY OF TEST RESULT .....</b>	<b>4</b>
<b>1 GENERAL DESCRIPTION.....</b>	<b>5</b>
1.1 Applicant .....	5
1.2 Manufacturer.....	5
1.3 Feature of Equipment Under Test .....	5
1.4 Testing Site.....	6
1.5 Applied Standards .....	6
<b>2 TEST CONFIGURATION OF EQUIPMENT UNDER TEST.....</b>	<b>7</b>
2.1 Test Mode.....	7
2.2 Connection Diagram of Test System.....	7
<b>3 TEST RESULT .....</b>	<b>8</b>
3.1 AC Conducted Emission Measurement.....	8
3.2 Antenna Requirements .....	12
<b>4 LIST OF MEASURING EQUIPMENT.....</b>	<b>13</b>
<b>5 UNCERTAINTY OF EVALUATION.....</b>	<b>14</b>
<b>APPENDIX A. PHOTOGRAPHS OF EUT</b>	
<b>APPENDIX B. SETUP PHOTOGRAPHS</b>	
<b>APPENDIX C. PRODUCT EQUALITY DECLARATION</b>	
<b>APPENDIX D. ORIGINAL REPORT</b>	

## REVISION HISTORY

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
FR072720-03	Rev. 01	This is a variant report for removing RV6 varistor. The product equality declaration could be referred to appendix C. All the test result was performed on the original report which could be referred to Sporton Report Number FR072720 as appendix D. Only AC Conducted Emission test was verified.	Oct. 15, 2010



## **SUMMARY OF TEST RESULT**

<b>Report Section</b>	<b>FCC Rule</b>	<b>IC Rule</b>	<b>Description</b>	<b>Limit</b>	<b>Result</b>	<b>Remark</b>
3.1	15.207	Gen 7.2.2	AC Conducted Emission	15.207(a)	Pass	Under limit 27.5 dB at 0.15 MHz

# 1 General Description

## 1.1 Applicant

Motorola Inc.

No. 600 N. U.S. Highway 45, Libertyville, IL 60048 USA

## 1.2 Manufacturer

Merry Electronics (Shenzhen) CO., LTD.

No. 50, MeiBao Road, Dalang Street, BaoAn District, Shenzhen City, Guangdong Province, China

## 1.3 Feature of Equipment Under Test

Product Feature & Specification	
Equipment	S10-HD Universal Bluetooth Stereo Headphone
Brand Name	Motorola
Model Name	S10-HD
FCC ID	IHDP6LQ1
Tx/Rx Frequency Range	2400 MHz ~ 2483.5 MHz
Number of Channels	79
Carrier Frequency of Each Channel	2402+n*1 MHz; n=0~78
Channel Spacing	1 MHz
Antenna Type	PIFA Antenna with gain -2.5 dBi
HW Version	BHC715-RF-0707
SW Version	BHC715-Ver. F
Type of Modulation	Bluetooth (1Mbps) : GFSK Bluetooth EDR (2Mbps) : $\pi/4$ -DQPSK Bluetooth EDR (3Mbps) : 8-DPSK
EUT Stage	Production Unit

### Remark:

1. This test report recorded only product characteristics and test results of Digital Spread Spectrum (DSS).
2. The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

## 1.4 Testing Site

Test Site	SPORTON INTERNATIONAL INC.	
Test Site Location	No. 52, Hwa Ya 1 <sup>st</sup> Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978	
Test Site No.	Sporton Site No.	FCC/IC Registration No.
	CO05-HY	TW1022/4086B-1

## 1.5 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC Public Notice DA 00-705
- ANSI C63.4-2003
- IC RSS-210 Issue 7

### Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B (DoC), recorded in a separate test report.

## 2 Test Configuration of Equipment Under Test

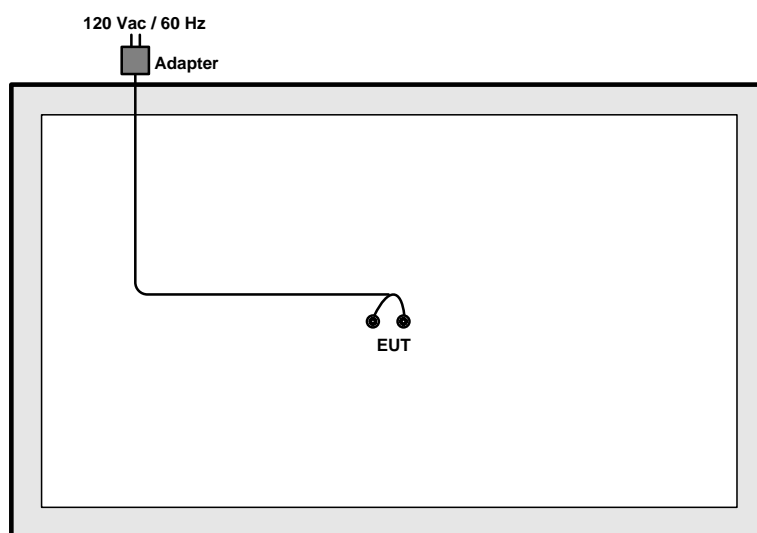
### 2.1 Test Mode

The EUT has been associated with peripherals pursuant to ANSI C63.4-2003 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 kHz to 30 MHz).

The following table is showing the test modes as the worst cases and recorded in this report.

Test Cases	
AC Conducted Emission	Mode 1 :EUT + Adapter 1

### 2.2 Connection Diagram of Test System



### 3 Test Result

#### 3.1 AC Conducted Emission Measurement

##### 3.1.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

Frequency of emission (MHz)	Conducted limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

\*Decreases with the logarithm of the frequency.

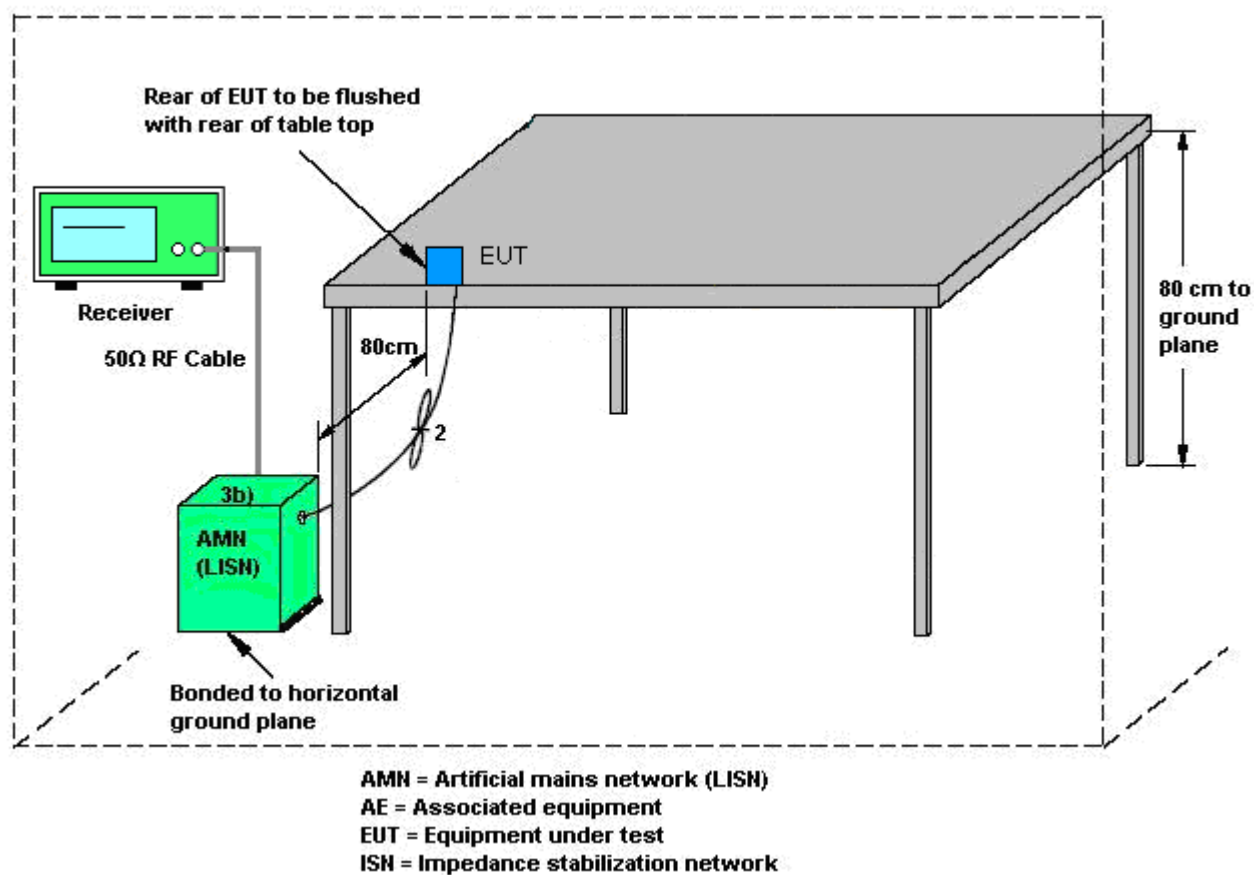
##### 3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

##### 3.1.3 Test Procedures

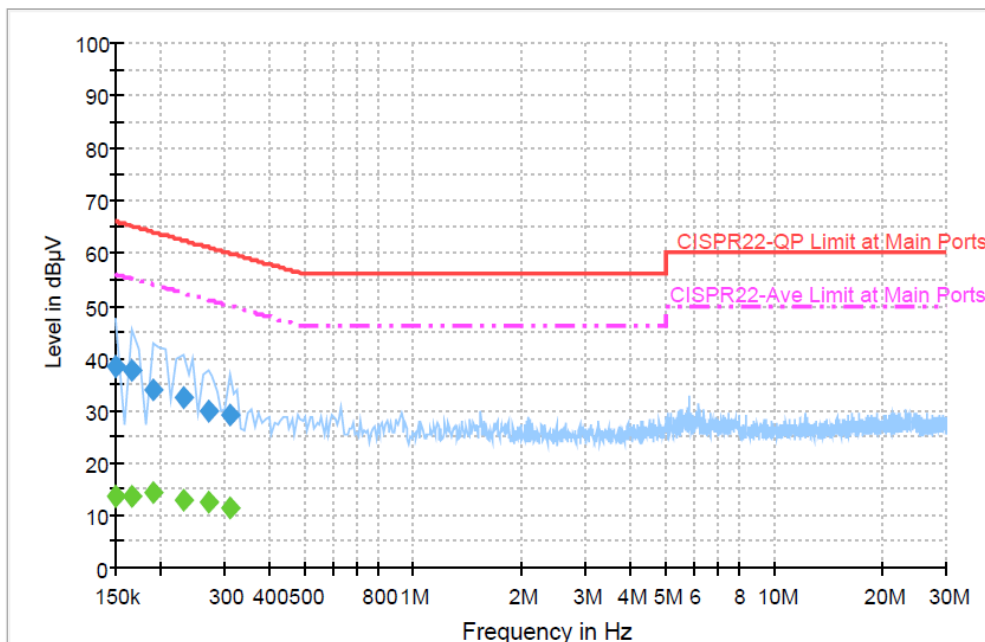
1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
1. Connect EUT to the power mains through a line impedance stabilization network (LISN).
2. All the support units are connecting to the other LISN.
3. The LISN provides 50 ohm coupling impedance for the measuring instrument.
4. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
5. Both sides of AC line were checked for maximum conducted interference.
6. The frequency range from 150 kHz to 30 MHz was searched.
7. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

### 3.1.4 Test Setup



### 3.1.5 Test Result of AC Conducted Emission

<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	20~22℃
<b>Test Engineer :</b>	Novic Jiang	<b>Relative Humidity :</b>	42~44%
<b>Test Voltage :</b>	120Vac / 60Hz	<b>Phase :</b>	Line
<b>Function Type :</b>	EUT + Adapter 1		
<b>Remark :</b>	All emissions not reported here are more than 10 dB below the prescribed limit.		



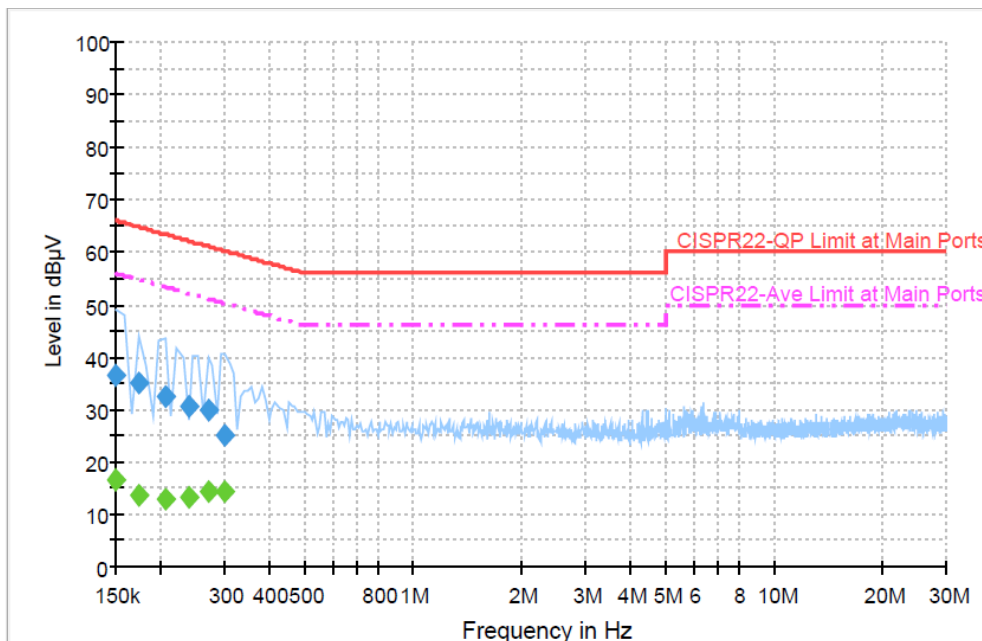
#### Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	38.5	Off	L1	19.4	27.5	66.0
0.166000	37.5	Off	L1	19.3	27.7	65.2
0.190000	34.0	Off	L1	19.4	30.0	64.0
0.230000	32.3	Off	L1	19.4	30.1	62.4
0.270000	30.0	Off	L1	19.3	31.1	61.1
0.310000	29.2	Off	L1	19.3	30.8	60.0

#### Final Result 2

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	13.7	Off	L1	19.4	42.3	56.0
0.166000	13.7	Off	L1	19.3	41.5	55.2
0.190000	14.3	Off	L1	19.4	29.7	54.0
0.230000	13.0	Off	L1	19.4	39.4	52.4
0.270000	12.5	Off	L1	19.3	38.6	51.1
0.310000	11.6	Off	L1	19.3	38.4	50.0

<b>Test Mode :</b>	Mode 1	<b>Temperature :</b>	20~22°C
<b>Test Engineer :</b>	Novic Jiang	<b>Relative Humidity :</b>	42~44%
<b>Test Voltage :</b>	120Vac / 60Hz	<b>Phase :</b>	Neutral
<b>Function Type :</b>	EUT + Adapter 1		
<b>Remark :</b>	All emissions not reported here are more than 10 dB below the prescribed limit.		


**Final Result 1**

Frequency (MHz)	QuasiPeak (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	36.5	Off	N	19.4	29.5	66.0
0.174000	34.9	Off	N	19.3	29.9	64.8
0.206000	32.5	Off	N	19.3	30.9	63.4
0.238000	30.5	Off	N	19.4	31.7	62.2
0.270000	29.8	Off	N	19.3	31.3	61.1
0.302000	25.1	Off	N	19.3	35.1	60.2

**Final Result 2**

Frequency (MHz)	Average (dBμV)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.150000	16.7	Off	N	19.4	39.3	56.0
0.174000	13.5	Off	N	19.3	41.3	54.8
0.206000	12.8	Off	N	19.3	40.6	53.4
0.238000	13.2	Off	N	19.4	39.0	52.2
0.270000	14.5	Off	N	19.3	36.6	51.1
0.302000	14.4	Off	N	19.3	35.8	50.2



## **3.2 Antenna Requirements**

### **3.2.1 Standard Applicable**

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

### **3.2.2 Antenna Connected Construction**

The antennas type used in this product is PIFA Antenna without connector and it is considered to meet antenna requirement.

### **3.2.3 Antenna Gain**

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.

## 4 List of Measuring Equipment

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Calibration Date	Due Date	Remark
EMI Test Receive	R&S	ESCS 30	100356	9KHz – 2.75GHz	Aug. 16, 2010	Aug. 15, 2011	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100081	9kHz~30MHz	Nov. 30, 2009	Nov. 29, 2010	Conduction (CO05-HY)
Two-LISN	R&S	ENV216	11-100080	9kHz~30MHz	Nov. 23, 2009	Nov. 22, 2010	Conduction (CO05-HY)
AC Power Source	APC	APC-1000W	N/A	N/A	N/A	N/A	Conduction (CO05-HY)

## 5 Uncertainty of Evaluation

### Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

Contribution	Uncertainty of $X_i$		$u(X_i)$
	dB	Probability Distribution	
Receiver Reading	0.10	Normal (k=2)	0.05
Cable Loss	0.10	Normal (k=2)	0.05
AMN Insertion Loss	2.50	Rectangular	0.63
Receiver Specification	1.50	Rectangular	0.43
Site Imperfection	1.39	Rectangular	0.80
Mismatch	+0.34 / -0.35	U-Shape	0.24
<b>Combined Standard Uncertainty <math>U_c(y)</math></b>	<b>1.13</b>		
<b>Measuring Uncertainty for a Level of Confidence of 95% (<math>U = 2U_c(y)</math>)</b>	<b>2.26</b>		



## **Appendix A. Photographs of EUT**

Please refer to Sporton report number EP072720-03 as below.

## **Appendix C. Product Equality Declaration**

### **Merry Electronics (Shenzhen) CO., LTD.**

No. 50, MeiBao Road, Dalang Street, BaoAn District, Shenzhen City, Guangdong

Province, China

Tel: +886-2-8913-1329 ; Fax: +886-2-8913-2263

Federal Communications Commission  
Authorization and Evaluation Division  
1435 Oakland Mills Road  
Columbia, MD 21046

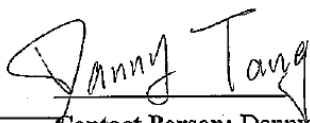
SUBJECT: Class II Permissive Change for FCC ID: IHDP6LQ1

The product, S10-HD Universal Bluetooth Stereo Headphone, has been granted by  
FCC dated 09/09/2010, FCC ID: IHDP6LQ1.

Now we, Merry Electronics (Shenzhen) CO., LTD., would like to modify the  
authorized equipment for below changes:

◆ Remove RV6 varistor

We would like to certify the additional of certified FCC ID: IHDP6LQ1 as a Class II  
Permissive Change in this device.



**Contact Person:** Danny Tang

**Company:** Merry Electronics (Shenzhen) CO., LTD.

**TEL:** +886-2-8913-1329

**FAX:** +886-2-8913-2263

**E-mail:** danny.tang@merry.com.tw



## **Appendix D. Original Report**

Please refer to Sporton report number FR072720 as below.