

Date: 2002-05-24  
No.: HM107594

## **TEST REPORT**

Page 1 of 15

### **FCC PART 15 SUBPART C CERTIFICATION REPORT FOR LOW POWER TRANSMITTER**

**TEST REPORT No.: HM107594**

Equipment Under Test [EUT]:	TV-Radio
Model Number:	TVR-1
Applicant:	Columbia Telecommunication Group, Inc.
FCC ID :	QEG-HP-010703A

Date: 2002-05-24

# **TEST REPORT**

Page 2 of 15

No.: HM107594

## **CONTENT:**

Cover	Page 1 of 15
Content	Page 2-3 of 15
Conclusion	Page 4 of 15

### **1.0 General Details**

1.1	Test Laboratory	Page 5 of 15
1.2	Applicant Details	Page 5 of 15
	Applicant	
	HKSTC Code Number for Applicant	
	Manufacturer	
1.3	Equipment Under Test [EUT]	Page 6 of 15
	Description of EUT operation	
1.4	Date of Order	Page 6 of 15
1.5	Submitted Sample	Page 6 of 15
1.6	Test Duration	Page 6 of 15
1.7	Country of Origin	Page 6 of 15
1.8	Additional Information of EUT	Page 7 of 15

### **2.0 Technical Details**

2.1	Investigations Requested	Page 8 of 15
2.2	Test Standards and Results Summary	Page 8 of 15

### **3.0 Test Results**

3.1	Emission	Page 9-14 of 15
3.2	Bandwidth Measurement	Page 15 of 15

Date: 2002-05-24

No.: HM107594

## **TEST REPORT**

Page 3 of 15

### **Appendix A**

List of Measurement Equipment

Page 16 of 15

### **Appendix B**

Photographs

Page 17-18 of 15

Date: 2002-05-24

## **TEST REPORT**

Page 4 of 15

No.: HM107594

### **CONCLUSION**

The submitted product was deemed to have COMPLIED after modification by customer 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.

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Verify by

Patrick Wong  
for Chief Executive

Date: 2002-05-24

# **TEST REPORT**

Page 5 of 15

No.: HM107594

## **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

Telephone: 852 2666 1888  
Fax: 852 2664 4353

### **1.2 Applicant Details**

#### **Applicant**

COLUMBIA TELECOMMUNICATION GROUP, INC.  
174 Milbar Blvd., Farmingdale, N.Y. 11735 USA

Telephone: 631 501-5040  
Fax: 631 501-5000

**HKSTC Code Number for Applicant**

**COT009**

#### **Manufacturer**

HUNG PARK TECHNOLOGY LIMITED.  
Flat B11, 5/F., Proficient Industrial Centre,  
6 Wang Kwun Road, Kowloon, Hong Kong

Telephone: 852 2148 6469  
Fax: 852 2148 6481

Date: 2002-05-24

## **TEST REPORT**

Page 6 of 15

No.: HM107594

### **1.3 Equipment Under Test [EUT]**

#### **Description of Sample**

Product: TV-Radio  
Manufacturer: Hung Park Technology Limited.  
Brand Name: Columbia  
Model Number: TVR-1  
Input Voltage: 3Vd.c ("AAA" size battery x 2)

#### **1.3.1 Description of EUT Operation**

The Equipment Under Test (EUT) is an Columbia Telecommunication Group Inc., TV-Radio. The EUT continues to transmit while switch on. It is voice transmission, Modulation by Mic. and tape is frequency modulation.

### **1.4 Date of Order**

2002-04-19

### **1.5 Submitted Sample(s):**

3 Samples per model

### **1.6 Test Duration**

2002-05-22

### **1.7 Country of Origin**

China

Date: 2002-05-24

# **TEST REPORT**

Page 7 of 15

No.: HM107594

## **1.8 Additional Information of EUT**

	Submitted	Not Available
User Manual	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Part List	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Circuit Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Printed Circuit Board [PCB] Layout	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Rating Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Block diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
FCC ID Label	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Date: 2002-05-24

# **TEST REPORT**

Page 8 of 15

No.: HM107594

## **2.0 Technical Details**

### **2.1 Investigations Requested**

Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.4:2000 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	Failed	N/A
Radiated Emissions, 30MHz to 1GHz	FCC 47CFR 15.209	ANSI C63.4:2000	Class B	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Conducted Emissions on AC, 0.45MHz to 30MHz	FCC 47CFR 15.207	ANSI C63.4:2000	Class B	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Note: N/A - Not Applicable

Date: 2002-05-24

# TEST REPORT

Page 9 of 15

No.: HM107594

## 3.0 Test Results

### 3.1 Emission

#### 3.1.1 Radiated Emissions

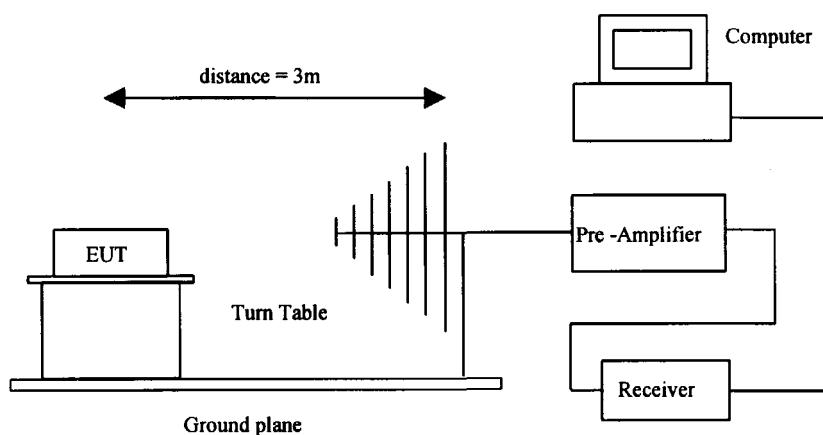
Test Requirement:	FCC 47CFR 15.239 & 15.209
Test Method:	ANSI C63.4:2000
Test Date:	2002-05-22
Mode of Operation:	On mode

#### Test Method:

The sample was placed 0.8m above the ground plane on the OATS \*. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigate all operating modes, rotated about all 3 axis (X, Y & Z) 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.

\*: OATS [Open Area Test Site] located at HKSTC with a metal ground plane on filed with the FCC pursuant to section 2.948 of the FCC rules, with Registration Number: 90657.

#### Test Setup:



Date: 2002-05-24

## **TEST REPORT**

Page 10 of 15

No.: HM107594

### **Limited for Radiated Emissions [FCC 47 CFR 15.209 Class B]:**

Frequency Range [MHz]	Quasi-Peak Limits [ $\mu$ 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:**

<b>Radiated Emissions Quasi-Peak</b>						
Frequency MHz	Level @3m dB $\mu$ V	Correction Factor dB/m	Field Strength dB $\mu$ V/m	Field Strength $\mu$ V/m	Limit @3m $\mu$ V/m	Antenna Polarity
<b>NO EMISSION DETECTED WITHIN 20dB OF THE FCC LIMITS</b>						

### Remarks:

Correction Factor included Antenna Factor and Cable Attenuation.

Calculated measurement uncertainty = 30MHz to 300MHz  $\pm 3.7$ dB  
300MHz to 1GHz +3.0dB / -2.7dB

According to FCC 47CFR15.35, the limit on the radio frequency emissions as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

For effective averaging, the bandwidth of the video filter must be smaller than the resolution bandwidth. The higher the ratio of resolution bandwidth to video bandwidth, the greater the averaging will be. Below setting for HP8572A EMI Receiver.

Resolution Bandwidth = 3MHz  
Video Bandwidth 1Hz

Date: 2002-05-24

# **TEST REPORT**

Page 11 of 15

No.: HM107594

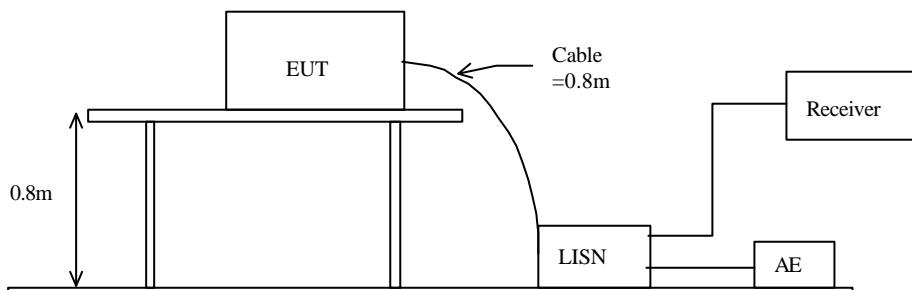
## **3.1.1 Conducted Emissions (0.45MHz to 30MHz)**

Test Requirement:	FCC 47CFR 15.207
Test Method:	ANSI C63.4:2000
Test Date:	2002-05-22
Mode of Operation:	Not Applicable

### **Test Method:**

The test was performed in accordance with ANSI C63.4:2000, with the following: an initial measurement was performed in peak and average detection mode on the live line. Any emissions recorded within 30dB of the relevant limit line were re-measured using quasi-peak and average detection on the live and neutral lines with the worst case recorded in the table of results.

### **Test Setup:**



Date: 2002-05-24

## **TEST REPORT**

Page 12 of 15

No.: HM107594

### **Limit for Conducted Emissions (FCC 47 CFR 15.207):**

Frequency Range [MHz]	Quasi-Peak Limits [ $\mu$ V/m]
0.45-30	250

Limits for Conducted Emissions Test, please refer to limit lines (Quasi-Peak ) in the following diagram labelled as (QP).

### **Results:**

The EUT is operated by a single source of internal battery power [located in the battery compartment], therefore power line conducted emission was deemed unnecessary.

### Remarks:

Calculated measurement uncertainty =  $\pm 2.3$ dB

Date: 2002-05-24

# **TEST REPORT**

Page 13 of 15

No.: HM107594

## **Appendix A**

### **Test Equipment Audit**

#### **Radiated Emission**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL.
EM007	SPECTRUM ANALYZER	HEWLETT PACKARD	HP85660B	3144A21192	07/09/01
EM008	SPECTRUM ANALYZER DISPLAY	HEWLETT PACKARD	HP85662A	3144A20514	07/09/01
EM009	QUASI PEAK ADAPTOR	HEWLETT PACKARD	HP85650A	3303A01702	07/09/01
EM010	RF PRESELECTOR	HEWLETT PACKARD	HP85685A	3221A01410	07/09/01
EM011	ATTENUATOR/SWITCH	HEWLETT PACKARD	HP11713A	2508A10595	07/09/01
EM012	PRE-AMPLIFIER	HEWLETT PACKARD	HP8449B	3008A00262	07/09/01
EM013	CONTROLLER (COMPUTER), COLOR MONITOR, KEYBOARD & MOUSE FLOPPY DRIVE	HEWLETT PACKARD HEWLETT PACKARD HEWLETT PACKARD	HP9000 HP A1097C HP9133L	6226A60314 3151J39517 2623A02468	CM
EM131	PORTABLE SPECTRUM ANALYSER	HEWLETT PACKARD	8595EM	3710A00155	18/12/01
EM017	ANTENNA	ARA INC.	LPB-2513/A	1069	17/02/00
EM020	HORN ANTENNA	EMCO	3115	4032	09/08/00
EM072	SIGNAL GENERATOR	HEWLETT PACKARD	8640B	1948A11892	30/03/98
EM083	HKSTC OPEN AREA TEST SITE	HKSTC	N/A	N/A	16/02/01
EM145	EMI TEST RECEIVER	R & S	ESCS 30	830245/021	21/06/01

#### **Conducted Emission**

EQP NO.	DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	LAST CAL.
EM078	VARIAC	SHANGHAI VOLTAGE	TDGC-3/0.5	N/A	CM
EM081	SMALL SCREENED ROOM	MIKO INST HK	N/A	N/A	04/10/01
EM002	LISN	EMCO	3825-2	9005-1657	22/08/01
EM119	LISN	R & S	ESH3-Z5	0831.5518.52	31/08/00
EM145	EMI TEST RECEIVER	R & S	ESCS 30	830245/021	14/09/01
EM120	EMI TEST RECEIVER	R&S	ESHS10	1004.0401.10	CM
EM127	ISOLATION TRANSFORMER 220 TO 300	WING SUN	N/A	N/A	04/07/01
EM142	PLUSE LIMITER	R & S	ESH3Z2	357.8810.52	TBD

Remarks:

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

Date: 2002-05-24  
No.: HM107594

## **TEST REPORT**

Page 14 of 15

### **Appendix B**

#### **Photographs of EUT**

**Front View of the product**



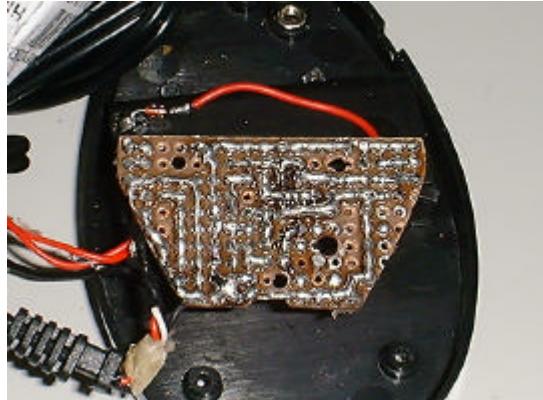
**Rear View of the product**



**Inner Circuit Top View**



**Inner Circuit Bottom View**



Date: 2002-05-24

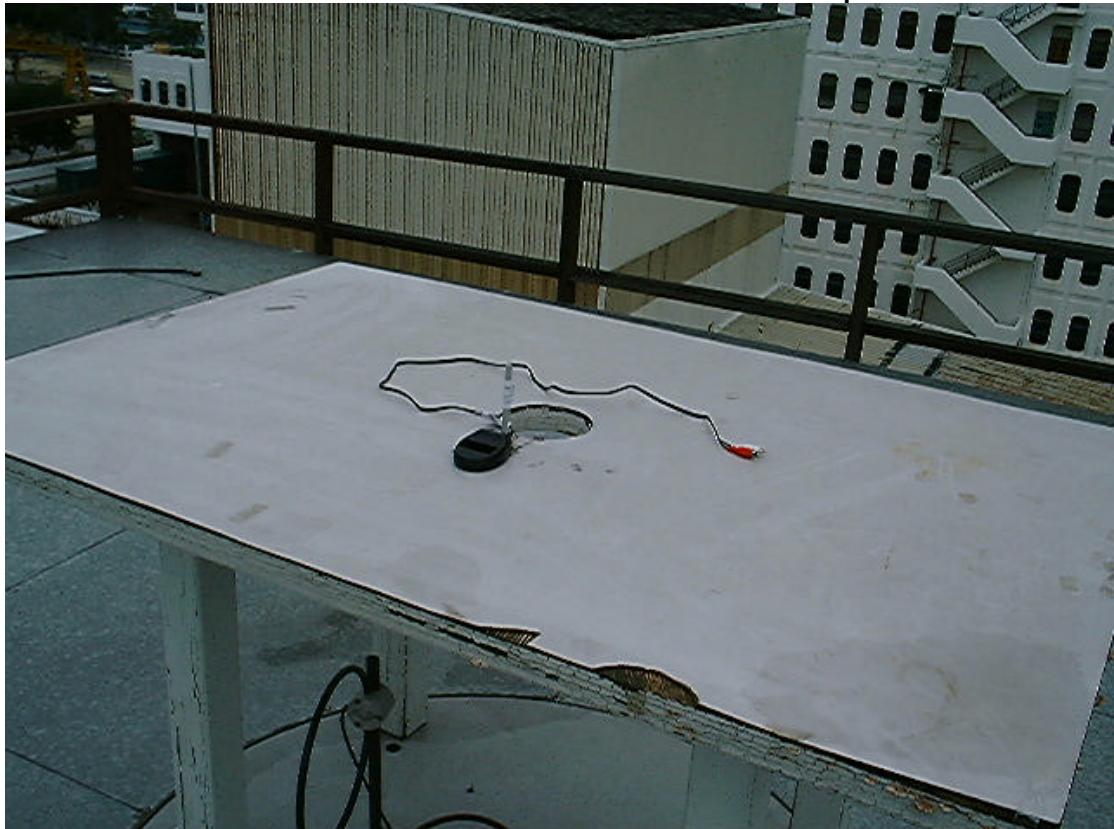
## **TEST REPORT**

Page 15 of 15

No.: HM107594

### **Photographs of EUT**

**Measurement of Radiated Emission Test Set Up**



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