SGS-CSTC Standards Technical Services Ltd.

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FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

FCC TEST REPORT

Application No. : 03.10.1909EF-2

Applicant : STL INTERNATIONAL LTD

FCC ID : RF7SI654RX

Fundamental Frequency : 443.869Hz

Equipment under Test (EUT):

Name : TV Anywhere

Model : SI654

Standards : FCC PART 15, SUBPART C : 2002

Date of Receipt : 10 October 2003

Date of Test : 12 to 15 October 2003

Date of Issue : 25 October 2003

Test Result :	**PASS ***

* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Kent Hsu
Laboratory Manager
SGS-CSTC Co.,Ltd.

2 Contents

3 General Information

3.1 Client Information

Applicant:	STL INTERNATIONAL LTD
Address of Applicant:	TUNG KONG INDUSTRIAL ZONE.LIU MEI VILLAGE,YUEN ZHOU,BOLOU,PRC

3.2 Details of E.U.T.

Product Name:	TV Anywhere
Model:	SI654
Power Supply:	120Vac / 60Hz (for AC/DC Adapter supplied)
	AC/DC Adapter: Input: 120Vac/60Hz; Output: 1.5Vdc, 700mA.
Power Cord:	2.0 m , 2 wires unshielding DC cable

3.3 Description of Support Units

The EUT was tested as an independent unit: a 433MHz radio transmitter and as a receiver for the 2.4G TV transmitter which ID No. is RF7SI654TX in report 03.10.1909EF-1.
Only press the function buttons to select the channel, adjust volume or brightness i.e., the transmitter is on once. Other time, the product is in receiving status.

3.4 Test Location

All tests were performed at:-

SGS-CSTC Standards Technical Services Ltd., Guangzhou Safety & EMC Laboratory, 1/F, Building No. 1, Agriculture Machinery Materials Company Warehouse Ltd., Wushan Road Shipai, Tianhe District, Guangzhou, China. P.C. 510630.

Tel: +86 20 3848 1001

Fax: +86 20 3848 1006

3.5 Other Information Requested by the Customer

None.

3.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **NVLAP – Lab Code: 200611-0**
  SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is recognized under the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 2000611-0. Effective through February 2, 2003.
- **ACA**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our NVLAP accreditation.
- **VCCI**
  The 3m Semi-anechoic chamber and Shielded Room (11.5m x 4m x 4m) of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-1599 and C-1706 respectively.
  Date of Registration: February 28, 2003. Valid until May 30, 2005
- **SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FINKO**
  Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.
- **CNAL – LAB Code: L0141**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAL/AC01:2002 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:1999 General Requirements) for the Competence of Testing Laboratories.
- **FCC – Registration No.: 282399**
  SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 282399, May 31, 2002. With the above and NVLAP, SGS-CSTC is an authorized test laboratory for the DoC process.

4 Test Results

4.1 Test Instruments

Test Equipment	Manufacturer	Model	Asset No.	Cal. Due Date
Temperature, Humidity & Barometer	Oregon Scientific	BA-888	EMC0003	25-07-2003
3m Semi- Anechoic Chamber	Frankonia	N/A	EMC0501	04-11-2003
EMI Test Receiver	ROHDE & SCHWARZ	ESCS30	EMC0506	17-11-2003
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 30	EMC0521	01-04-2004
Bilog Type Antenna	Schaffner Chase	CBL6143	EMC0519	01-12-2003
Horn Antenna	ROHDE & SCHWARZ	HF906	EMC0517	01-04-2004
Peramplifier	Agilent	8449B	EMC0520	30-06-2003
Coaxial cable	SGS	N/A	EMC0514	04-11-2003
Shielding Room	Frankonia	12 x 4 x 4 m^3	EMC0103	N/A
LISN	Schaffner Chase	MNZ050D11	1421	05-11-2003
EMI Test Receiver	Rohde& Schwarz	ESCS30	100086	17-11-2003
Coaxial Cable	SGS	2m	EMC0107	01-06-2004

4.2 E.U.T. Operation

Input voltage: 120Vac / 60Hz (for AC/DC Adapter supplied)

Operating Environment:

Temperature: 24.0 °C
Humidity: 50 % RH
Atmospheric Pressure: 1006 mbar

EUT Operation:

1. Test in transmitting mode.
2. Test in receiving mode.

Remark: Only press the function buttons to select the channel, adjust volume or brightness i.e., the transmitter is on once. Other time, the product is in receiving status.

4.3 Test Procedure & Measurement Data

4.3.1 Radiated Emissions

4.3.1.1 Test in transmitting mode

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.249
Test Date: 12 October 2003
Measurement Distance: 3m (Semi-Anechoic Chamber)
Frequency range 30 MHz – 5.0GHz for transmitting mode.
Test instrumentation resolution bandwidth 120 kHz (30 MHz - 1000 MHz)
1 MHz (1000 MHz – 25GHz)

Receive antenna scan height 1 m - 4 m, polarization Vertical/Horizontal

Requirements:

Fundamental Frequency MHz	Field Strength of Fundamental (dBuV/m @ 3m)	Field Strength of Harmonics and Spurious Emissions (dBuV/m @ 3m)
40.66 to 40.70	67.04	47.04
70 to 130	61.94	41.94
130 to 174	61.94 to 71.48	41.94 to 51.48
174 to 260	71.48	51.48
260 to 470	71.48 to 81.94	51.48 to 61.94
470 and above	81.94	61.94

The fundamental frequency of the EUT is 433.869MHz

The limit for average field strength dBuv/m for the fundamental frequency= 80.8dBuv/m.

No fundamental is allowed in the restricted bands.

The limit for average field strength dBuv/m for the harmonics and spurious frequencies = 60.8dBuv/m. Spurious in the restricted bands must be less than 54.0 dBuv/m or 15.209.

Test Procedure: The procedure uesd was ANSI Standard C63.4-2000. The receive was scanned from 30MHz to 5.0GHz.When an emission was found,the table was roated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier .
The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Peramlifer Factor

The following test results were performed on the EUT on 12 October 2003:
1. Fundamental emission

Test Frequency (MHz)	Peak (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
433.869	75.7	71.8	100.8		

Test Frequency (MHz)	Avergae (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
433.869	65.0	64.1	80.8		

2. Harmonics & Spurious Emissions

Test Frequency (MHz)	Average (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
867.738	53.7	52.1	60.8		

Test Frequency (MHz)	Peak (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
1301.607	52.1	50.6	60.8		
1735.476	33.8	34.0	60.8		
2169.345	34.2	35.0	60.8		
2603.214	35.7	36.2	60.8		
3037.083	37.3	36.8	60.8		
3470.952	37.0	36.5	60.8		
3904.821	38.2	38.0	60.8		
4338.690	37.8	37.2	60.8		

Remark:
According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

4.3.1.2 Test in receiving mode

Test Requirement: FCC Part15 Section 15.209

Test Method: Based on FCC Part15 B

Measurement Distance: 3m

Limit: 40.0 dBμV/m between 30MHz & 88MHz
43.5 dBμV/m between 88MHz & 216MHz
46.0 dBμV/m between 216MHz & 960MHz
54.0 dBμV/m zbove 960MHz

Detector: Peak for pre-scan (120kHz resolution bandwidth)
Quasi-Peak if maximised peak within 6dB of limit

The following quasi-peak measurements were performed on the EUT:

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	Limit dBuV/m)	Margin (dB)
68.375	Vertical	15.4	40.0	
78.562	Vertical	24.9	40.0	
98.875	Vertical	20.4	43.5	
105.750	Vertical	20.8	46.0	
116.750	Vertical	35.7	46.0	
118.562	Vertical	37.9	46.0	
31.425	Horizontal	23.9	43.5	
116.062	Horizontal	29.8	46.0	
119.125	Horizontal	31.2	46.0	
183.450	Horizontal	25.8	46.0	
208.652	Horizontal	23.4	46.0	
568.930	Horizontal	26.8	46.0	

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier .
The basic equation with a sample calculation is as follows:
Final Test Level =Receiver Reading + Antenna Factor + Cable Factor – Peramlifer Factor

TEST RESULTS: The unit does meet the FCC requirements.

4.3.2 Conducted Emissions Mains Terminals, 150kHz to 30MHz

Test Requirement: FCC Part15 Section 15.207

Test Method: ANSI C63.4

Test Date: 13 October 2003

Frequency Range: 150KHz to 30MHz

Class / Severity: Class B

Detector: Peak for pre-scan (9kHz Resolution Bandwidth)

Operating Environment:

Temperature: 24.0 °C Humidity: 52% RH Atmospheric Pressure: 1012 Mbar

EUT Operation: Pre-test in Receiving mode. (TV mode: channel 14) and test in Charging mode (EUT off). Compliance test in receiving mode since on worse case be found.

4.3.3 Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

The following Quasi-Peak and Average measurements were performed on the EUT.:

Test in Receiving mode. (TV mode: channel 14)

Freq. MHz	Line	QP Level dBuV	Limit dBuV	Margin dB	AV Level dBuV	Limit dBuV	Margin dB
0.151	Live	35.1	65.9	30.8	18.2	55.9	37.7
0.206	Live	35.0	63.4	28.4	21.5	53.4	31.9
0.646	Live	32.6	60.0	27.4	27.8	50.0	22.2
0.755	Live	33.8	60.0	26.2	31.0	50.0	19.0
3.207	Live	18.6	60.0	41.4	8.2	50.0	41.8
15.440	Live	31.2	66.0	34.8	26.8	56.0	29.2
0.151	Neutral	33.8	65.9	32.1	16.1	55.9	39.8
0.210	Neutral	34.1	63.2	29.1	20.6	53.2	32.6
0.648	Neutral	34.3	60.0	25.7	29.5	50.0	20.5
0.755	Neutral	33.5	60.0	26.5	30.6	50.0	19.4
1.003	Neutral	26.5	60.0	33.5	21.9	50.0	28.1
8.653	Neutral	24.0	66.0	42.0	20.8	56.0	35.2

TEST RESULTS: The unit does meet the FCC requirements.

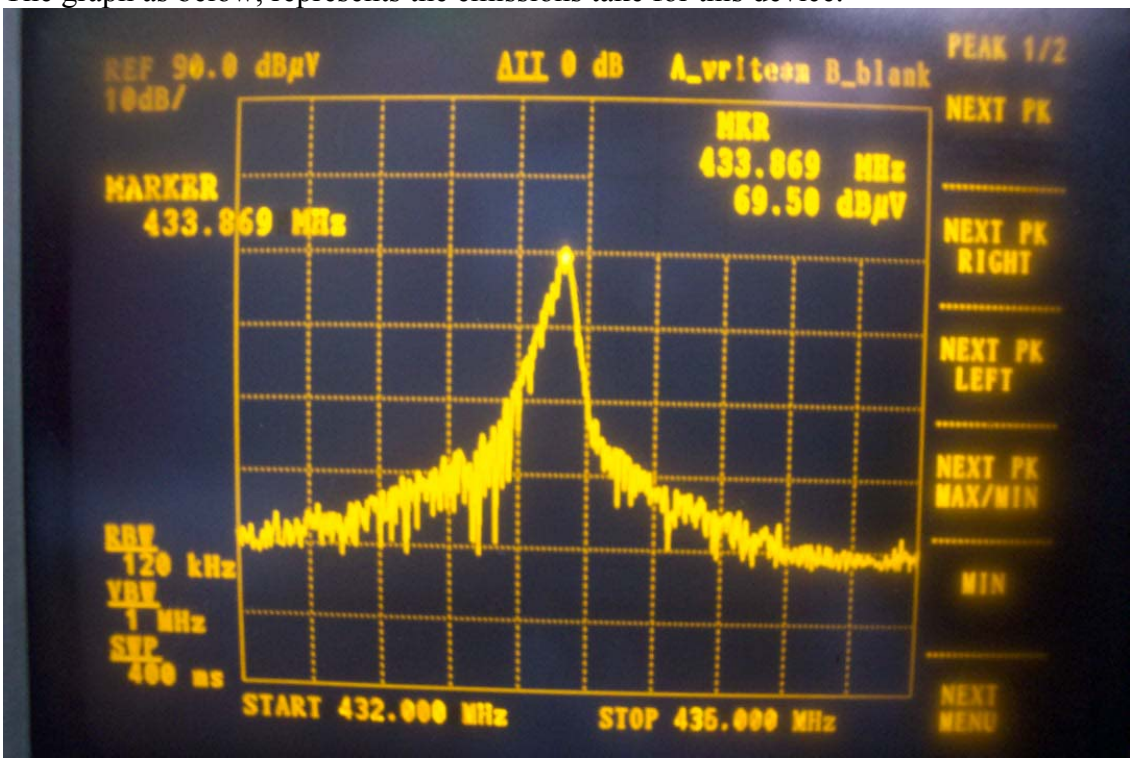
4.3.4 Occupied Bandwidth

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.231:
Test Date: 15 October 2003

Requirements: 15.231 (c3) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Method of measurement: A small sample of the transmitter output was fed into the Spectrum Analyzer and the attached plot was taken. The vertical is set to 10dB per division. The horizontal scale is set to 100KHz per division.

The graph as below, represents the emissions take for this device.



The results: The unit does meet the FCC requirements.

4.3.5 Calculation Of Duty Cycle:

Test Requirement: FCC Part15 C

Test Method: Based on FCC Part15 C Section 15.231.

Test Date: 13 September 2003

Remark: the production transmitter function: Only press the function buttons to select the channel, adjust volume or brightness i.e., then the transmitter is on once.

Other time, the product is in receiving status.

Requirements:

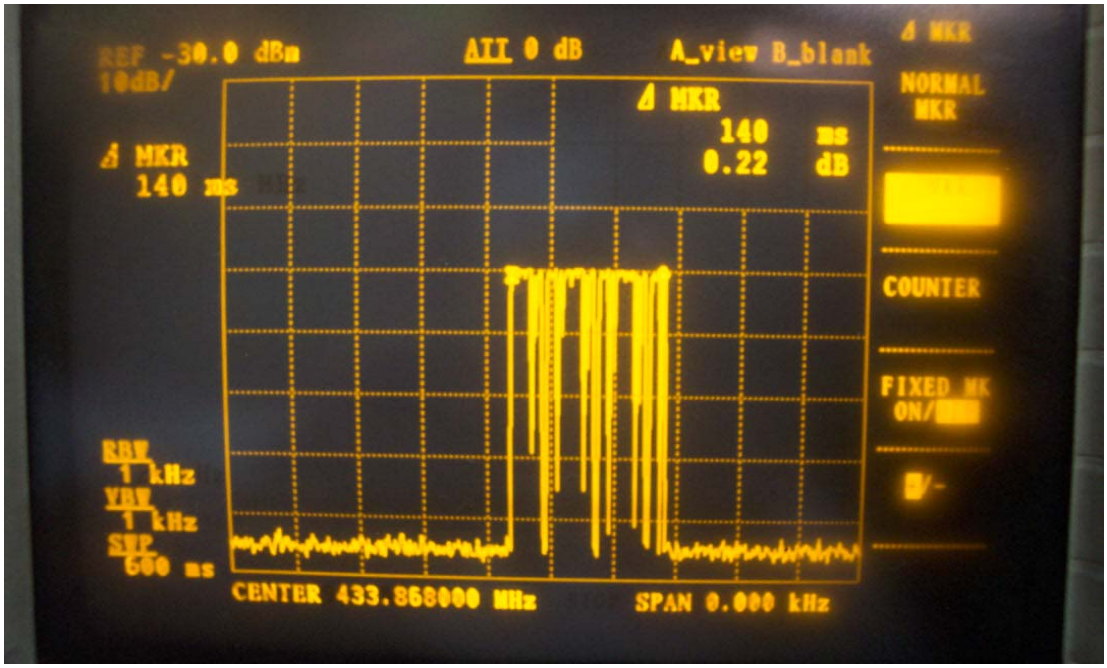
1. Regulation 15.231 (a) The provisions of this Section are restricted to periodic operation within the band 40.66 40.70 MHz and above 70 MHz. Except as shown in paragraph (e) of this Section, the intentional radiator is restricted to the transmission of a control signal such as those used with alarm systems, door openers, remote switches, etc. Radio control of toys is not permitted. Continuous transmissions, such as voice or video, and data transmissions are not permitted. The prohibition against data transmissions does not preclude the use of recognition codes. Those codes are used to identify the sensor that is activated or to identify the particular component as being part of the system.

Result:

The EUT is similar as a remote switch.

The EUT meets the requirements of this section.

2. Regulation 15.231 (a1) A manually operated transmitter shall employ a switch that will automatically deactivate the transmitterwithin not more than 5 seconds of being released.
Result:
Transmitter ceases immediately after being released.
Please refer to the duration of the each tranamission as below:



The EUT meets the requirements of this section.

3. Regulation 15.231 (a2) A transmitter activated automatically shall cease transmission within 5 seconds after activation.
Result:
The EUT does not have automatic transmission.

4. Regulation15.231 (a3) Periodic transmissions at regular predetermined intervals are not permitted. However, polling or supervision transmissions to determine system integrity of transmitters used in security or safety applications are allowed if the periodic rate of transmission does not exceed one transmission of not more than one second duration per hour for each transmitter.
Result:
The EUT does not employ periodic transmission.

5. Regulation 15.231 (a4) Intentional radiators which are employed for radio control purposes during emergencies involving fire, security, and safety of life, when activated to signal an alarm, may operate during the pendency of the alarm condition.
Result:
This section is not applicable to the EUT.