SGS-CSTC Standards Technical Services Ltd.

1/F., Building No. 1 Building, Agriculture Machinery Materials Co. Wushan Road, Shipai, Tianhe District,Guangzhou, China
Telephone: +86 (0) 20 3848 1001 Fax: +86 (0) 20 3848 1006
kent_hsu@sgs.com

FEDERAL COMMUNICATIONS COMMISSION
Registration number: 282399

FCC TEST REPORT

Application No. : GLEM0040801288RF

Applicant : STL INTERNATIONAL LTD

FCC ID : RF7SI670RX

Fundamental Frequency : 433.880MHz

Equipment under Test (EUT):

Name : TV Everywhere

Model : SI670

Standards : FCC PART 15, SUBPART C : 2002 (Section 15.231)

Date of Receipt : 07 September 2004

Date of Test : 10 September to 12 October 2003

Date of Issue : 19 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 Everywhere
Model: SI670

Power Supply: 120Vac/60Hz, AC/AC Adapter which supplied by the applicant.
Adapter Input: 120 Vac, 60Hz 14W. Output: AC 9V, 600mA.
Romote control part: 3.0V (2 x 'AA' Size Batteries).

Power Cord: 1.8m, 2 wires unshielded cable.

3.3 Description of Support Units

The EUT was tested as an independent unit: a 433MHz radio transmitter.
The whole TV Everywhere including the with :
(1). Tuner/Transmitter. (2.4GHz)
(2). Receiver.(433MHz)
(3). Remote Control; AC Adapters for the tranmitter and the receiver;
Infrared Signal Device; Assorted Cables.

The report is shown the 'Receiver' part, actually it's a 433MHz periodic transmitting unit. The functions is as sending the signal to change the channels and play mode.

Test connected a Playstation as the AV signal input source and a TV as display screen.

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: 200611-0. Effective through December 31, 2004.
- **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-FIMKO**
  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's accreditation, SGS-CSTC is an authorised test laboratory for the DoC process.
  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.
- **Industry Canada (IC)**
  The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 5169.

4 Test Results

4.1 Test Instruments

Test Equipment	Manufacturer	Model	Asset No.	Cal. Due Date
3m Semi- Anechoic Chamber	Frankonia	3m method	EMC0501	15-02-2005
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	15-02-2005
Bilog Type Antenna	Schaffner Chase	CBL6143	EMC0519	17-01-2005
Coaxial cable	SGS-CSTC	10m	EMC0514	04-11-2004
Spectrum Analyzer	ROHDE & SCHWARZ	FSP 30	EMC0521	01-04-2005
Horn Antenna	ROHDE & SCHWARZ	HF906	EMC0517	01-04-2005
Temperature, Humidity & Barometer	Oregon Scientific	BA-888	EMC0003	24-07-2004
Peramplifier	Agilent	8449B	EMC0520	30-06-2005
Coaxial cable	SGS	N/A	EMC0514	01-06-2005
Shielding Room	Frankonia	12 x 4 x 4 m^3	EMC0103	N/A
LISN	Schaffner Chase	MNZ050D11	1421	04-11-2004
EMI Test Receiver	Rohde& Schwarz	ESCS30	100086	09-12-2004
Coaxial Cable	SGS	2m	EMC0107	01-06-2005
TV Generator NTSC	ROHDE & SCHWARZ	SGMF	03-02-2004	02-02-2005

4.2 E.U.T. Operation

Operating Environment:

Temperature: 24.0 °C
Humidity: 50 % RH
Atmospheric Pressure: 1012 mbar

EUT Operation:

Test in transmitting mode. Test with a whole system as the section 3.3 stated.

4.3 Test Procedure & Measurement Data

4.3.1 Radiated Emissions (Fundamental & Harmonics)

Test Requirement: FCC Part15 C
Test Method: ANSI 63.4
Test Date: 20 September 2004
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 –5GHz)

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

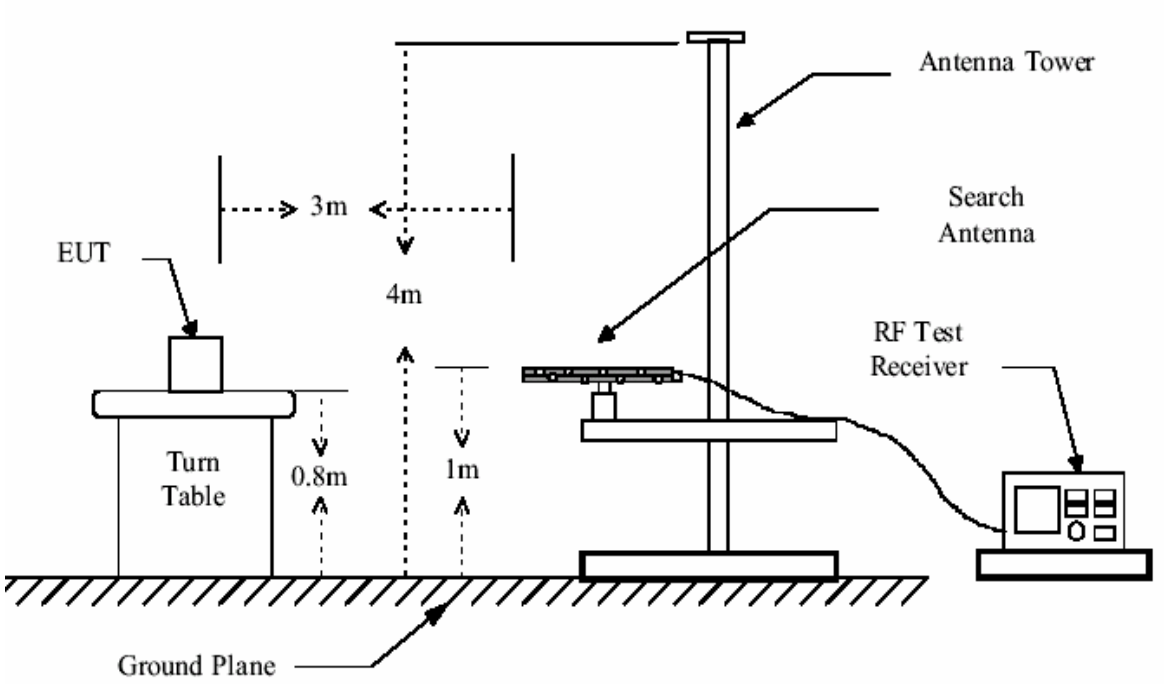
The fundamental frequency of the EUT is 433.880MHz

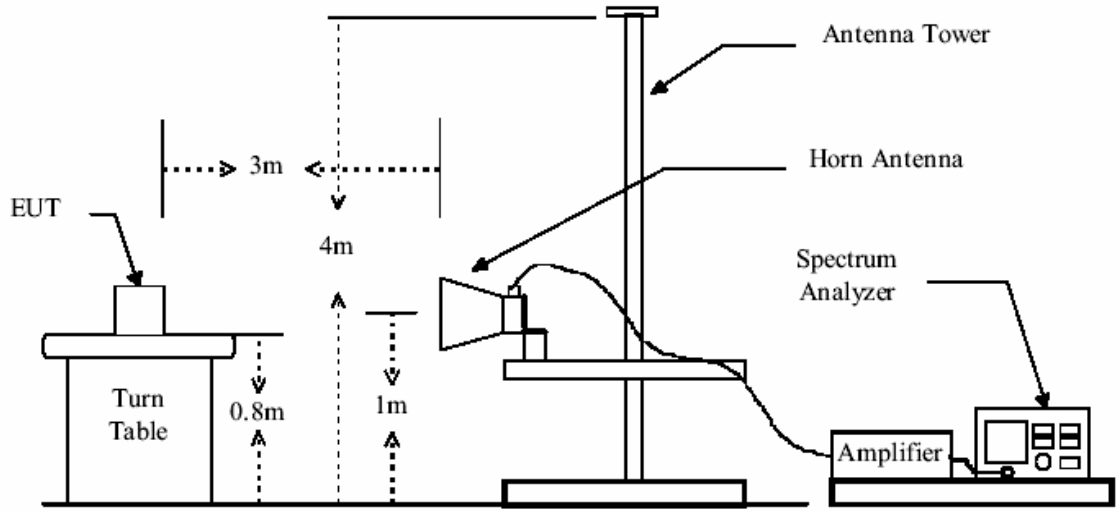
The limit for average field strength dBuv/m for the fundamental frequency= 80.8 dBuv/m.

No fundamental is allowed in the restricted bands.

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

Test Configuration:





Test Procedure: The procedure uesd was ANSI Standard C63.4-2001. 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.

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:
1. Fundamental emission

Test Frequency (MHz)	Peak (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
433.880	77.6	65.5	100.8	23.2	35.3

Test Frequency (MHz)	Avergae (dBuV/m)		Limits (dBuV/m)	Margin (dB)	
	Vertical	Horizontal		Vertical	Horizontal
433.880	68.9	42.6	80.8	11.9	38.2

2. Harmonics Emissions

Test Frequency (MHz)	Vertical (dBuV/m)		Horizontal (dBuV/m)		Limits (dBuV/m)		Margin (dB)			
							Vertical		Horizontal	
	Peak	AV	Peak	AV	Peak	AV	Peak	AV	Peak	AV
867.760	53.6	44.6	52.9	43.7	80.8	60.8	27.2	16.2	27.9	17.1
1301.640	38.8	33.2	36.8	30.5	74.0	54.0	35.2	20.8	37.2	23.5
1735.520	34.9	33.8	36.2	34.0	74.0	54.0	39.1	20.2	37.8	20.0
2169.400	35.0	34.5	36.0	35.2	80.8	60.8	45.8	26.3	44.8	25.6
2603.280	36.0	35.7	36.8	36.2	80.8	60.8	44.8	25.1	44.0	24.6
3037.160	37.5	37.3	37.2	36.8	80.8	60.8	43.3	23.5	43.6	24.0
3471.040	37.8	37.0	37.4	36.5	80.8	60.8	43.0	23.8	43.4	24.3
3904.920	38.5	38.2	38.5	38.0	74.0	54.0	35.5	15.8	35.5	16.0
4338.800	38.2	37.6	37.8	37.5	74.0	54.0	35.8	16.4	36.2	16.5

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.

4.3.2 Radiated Emissions (Other Spurious Emissions)

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 above 960MHz

Detector: Peak for pre-scan , 120kHz resolution bandwidth within 1GHz,
1MHz resolution bandwidth above 1GHz

Quasi-Peak if maximised peak within 6dB of limit

Frequency (MHz)	Antenna Polarization	Emission Level (dBuV/m)	Limit dBuV/m)	Margin (dB)
57.270	Horizontal	28.3	40.0	11.7
72.005	Horizontal	26.5	40.0	13.5
198.833	Horizontal	36.8	43.5	6.7
294.913	Horizontal	30.4	46.0	15.6
368.640	Horizontal	36.1	46.0	9.9
589.823	Horizontal	35.8	46.0	10.2
48.000	Vertical	30.4	40.0	9.6
57.270	Vertical	32.1	40.0	7.9
64.005	Vertical	30.8	40.0	9.2
120.833	Vertical	31.3	43.5	12.2
229.095	Vertical	36.4	46.0	9.6
589.813	Vertical	42.1	46.0	3.9

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

4.3.3 Conducted Emissions, 150KHz to 30MHz

Test Requirement: FCC Part15 Section 15.207
Test Method: ANSI C63.4
Test Date: 12 October 2004
Frequency Range: 150KHz to 30MHz
Class / Severity: Class B
Detector: Peak for pre-scan (9kHz Resolution Bandwidth)

4.3.3.1 E.U.T. Operation

Operating Environment:

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

EUT Operation: Test in on mode.

Quasi-Peak if maximised peak within 6dB of limit

4.3.3.2 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.

Freq. MHz	Line	QP Level dBuV	Limit dBuV	Margin dB	AV Level dBuV	Limit dBuV	Margin dB
0.159	Live	10.6	65.5	54.9	-8.5	55.5	64.0
0.169	Live	10.4	65.0	54.6	-8.1	55.0	63.1
0.439	Live	14.6	57.1	42.5	-7.8	47.1	54.9
25.882	Live	24.0	60.0	36.0	19.8	50.0	30.2
27.886	Live	24.8	60.0	35.2	22.6	50.0	25.4
29.870	Live	20.8	60.0	39.2	20.4	50.0	29.6
0.176	Neutral	10.4	64.7	54.3	-8.4	54.7	63.1
0.470	Neutral	15.5	56.5	41.0	-6.2	46.5	52.7
0.479	Neutral	13.4	56.4	43.0	-7.3	46.4	53.7
25.882	Neutral	22.3	60.0	37.7	20.8	50.0	29.2
27.886	Neutral	23.2	60.0	36.8	21.7	50.0	28.3
29.870	Neutral	21.8	60.0	38.2	20.3	50.0	29.7

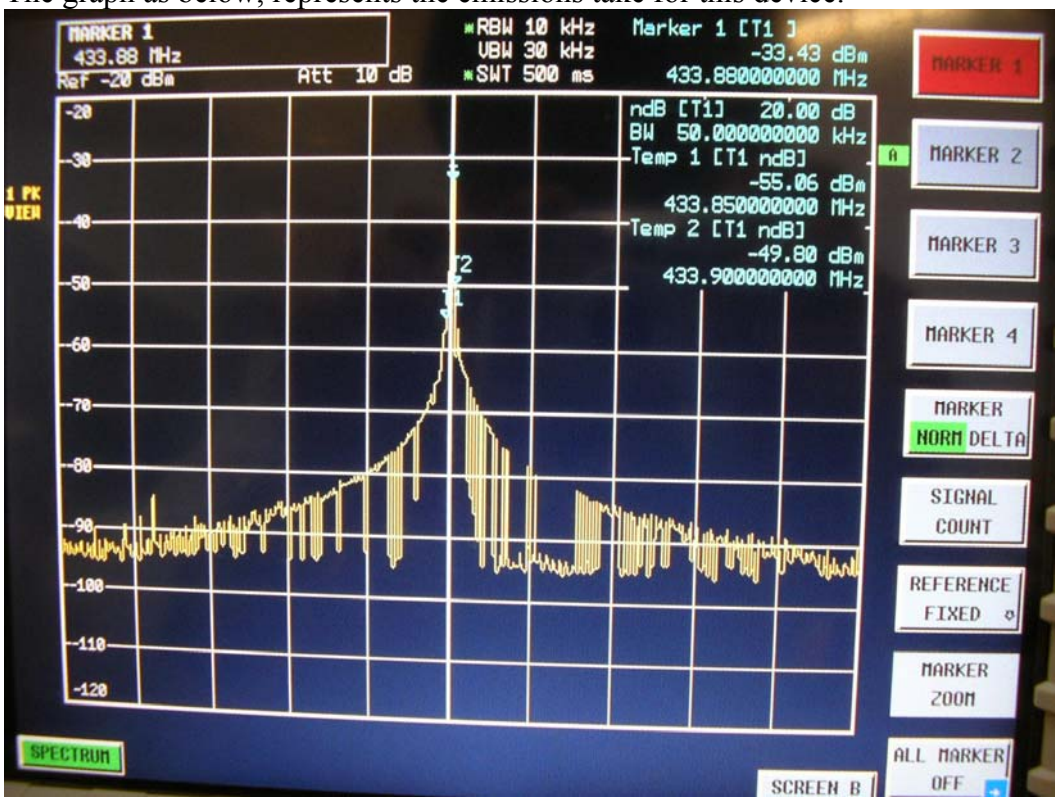
4.3.4 Occupied Bandwidth

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.231.
Test Date: 12 October 2004

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



Bandwidth is determined at the points 20 dB down from the modulated carrier is 50KHz , it's less than the limit: 0.25% of the center frequency = 1.08MHz.

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: 12 October 2004

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.

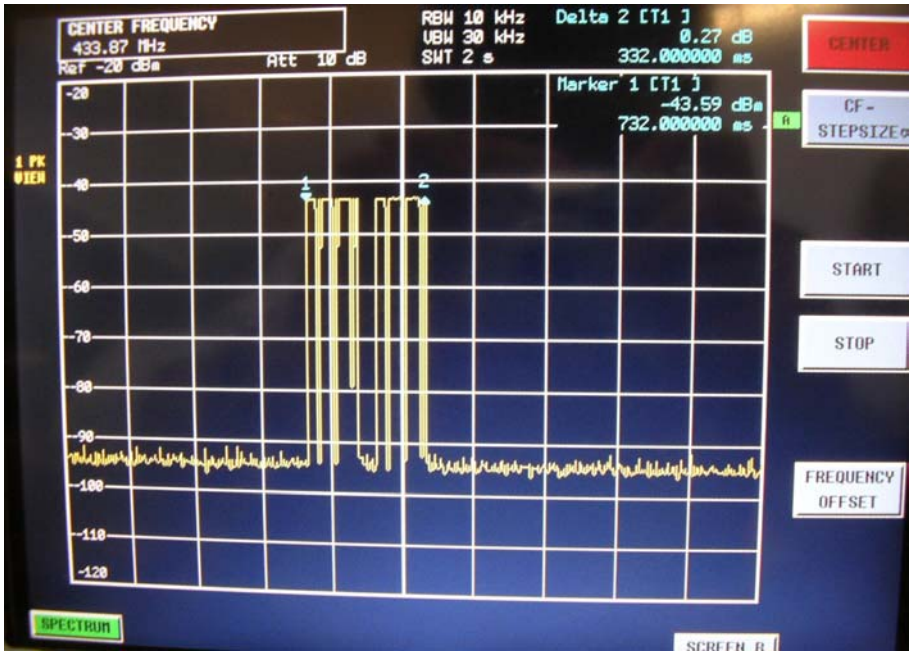
The EUT meets the requirements of this section.

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.