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FEDERAL COMMUNICATIONS COMMISSION

Registration number: 282399

Report No.: GLEMR080300811RFT

Page: 1 of 15

FCC ID: V8TLL-000

TEST REPORT

Application No. : GLEMR080300811RF

Applicant: TRG Group

FCC ID: V8TLL-000

Fundamental Frequency : 315MHz

Equipment Under Test (EUT):

Name: Luggage Locator

Model No.: LL-000 / PLL-000♣

♣

Please refer to section 2 of this report which indicates which item was actually tested and which were electrically identical.

Standards: FCC PART 15, SUBPART C : 2007,Section 15.231(a)

Date of Receipt: 25 March 2008

Date of Test: 18 April and 25 April 2008

Date of Issue: 28 April 2008

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Stephen Guo
Manager

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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2 Test Summary

The customer requested FCC tests for a 315MHz transmitter.			
Test	Test Requirement	Standard Paragraph	Result
Radiated Emission	FCC PART 15 :2007	Section 15.231(b) Section 15.205	PASS
Occupied Bandwidth	FCC PART 15 :2007	Section 15.231(c)	PASS
Dwell Time	FCC PART 15 :2007	Section 15.231(a)	PASS

Remark:

♣Item No.: LL-000 / PLL-000

Only the Item LL-000 was tested, since the electrical circuit design, PCB layout, components used and internal wiring were identical for the above items, only the outer decoration. color and item numbers were different according to the conformation from the applicant (manufacturer).



3 Contents

	Page
1 COVER PAGE	1
2 TEST SUMMARY	2
3 CONTENTS	3
4 GENERAL INFORMATION	4
4.1 CLIENT INFORMATION	4
4.2 DETAILS OF E.U.T.	4
4.3 DESCRIPTION OF SUPPORT UNITS	4
4.4 TEST LOCATION.....	4
4.5 OTHER INFORMATION REQUESTED BY THE CUSTOMER	4
4.6 TEST FACILITY.....	5
5 TEST RESULTS	6
5.1 TEST INSTRUMENTS.....	6
5.2 E.U.T. OPERATION.....	7
5.3 TEST PROCEDURE & MEASUREMENT DATA.....	7
5.3.1 Radiated Emissions.....	7
5.3.2 Occupied Bandwidth.....	12
5.3.3 Dwell Time:	13-14



4 General Information

4.1 Client Information

Applicant Name: TRG Group
Applicant Address: 2047 Westport Center Drive , St,Louis, MO63146, USA

4.2 Details of E.U.T.

Name: Luggage Locator
Model No.: LL-000/PLL-000
Power Supply: 12V DC Alkaline Battery
Power Cord: N/A
Modulation type: pulse modulation

4.3 Description of Support Units

The EUT was tested as an independent unit: a 315MHz radio transmitter with buttons for transferring control information.

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory, No.198
Kezhu Road, Science Town Economic& Technology Development District Guangzhou, China
510663

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No tests were sub-contracted.

4.5 Other Information Requested by the Customer

None.



4.6 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.

- **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 authorized test laboratory for the DoC process.



5 Test Results

5.1 Test Instruments

RE in Chamber/OATS						
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0525	Compact Semi-Anechoic Chamber	ChangZhou ZhongYu	N/A	N/A	N/A	N/A
EMC0522	EMI Test Receiver	Rohde & Schwarz	ESIB26	100249	28-01-2008	28-01-2009
N/A	EMI Test Software	Audix	E3	N/A	N/A	N/A
EMC0514	Coaxial cable	SGS	N/A	N/A	04-12-2007	04-12-2008
EMC0524	Bi-log Type Antenna	Schaffner -Chase	CBL6112B	2966	12-08-2007	12-08-2008
EMC0519	Bilog Type Antenna	Schaffner -Chase	CBL6143	5070	12-08-2007	12-08-2008
EMC0517	Horn Antenna	Rohde & Schwarz	HF906	100095	12-08-2007	12-08-2008
EMC0040	Spectrum Analyzer	Rohde & Schwarz	FSP30	100324	05-12-2007	05-12-2008
EMC0520	0.1-1300 MHz Pre-Amplifier	HP	8447D OPT 010	2944A06252	11-03-2008	11-03-2009
EMC0521	1-26.5 GHz Pre-Amplifier	Agilent	8449B	3008A01649	11-03-2008	11-03-2009
EMC0523	Active Loop Antenna	EMCO	6502	00042963	09-08-2006	09-08-2008
EMC0530	10m Semi- Anechoic Chamber	ETS	N/A	N/A	10-08-2007	10-08-2008

General used equipment						
No:	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
EMC0050-EMC0053	Temperature, & Humidity	ZHENGZHOU BO YANG	WSB	N/A	05-12-2007	05-12-2008
EMC0006	DMM	Fluke	73	70681569	27-09-2007	27-09-2008
EMC0007	DMM	Fluke	73	70671122	27-09-2007	27-09-2008



5.2 E.U.T. Operation

Input voltage: 12V DC Alkaline Battery
Operating Environment:
Temperature: 25.0 °C
Humidity: 56 % RH
Atmospheric Pressure: 1008 mbar
EUT Operation: Test the EUT in transmitting mode.

5.3 Test Procedure & Measurement Data

5.3.1 Radiated Emissions

5.3.1.1 Harmonic and other spurious emissions

Test Requirement: FCC Part15 C 15.231(b)
Test Method: ANSI C63.4 section 8 & 13
Test Date: 18 April 2008
Measurement Distance: 3m (Semi-Anechoic Chamber)
Requirements: the field strength of emissions from intentional radiators operated under this Section shall not exceed the following:

Fundamental Frequency MHz	Field Strength of Fundamental (dBµV/m @ 3m)	Field Strength of Harmonics and Spurious Emissions (dBµV/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
Above 470	81.94	61.94

Detector: Peak for pre-scan
Peak and Average:
30-1000MHz:120kHz resolution bandwidth
1GHz-5GHz: 1MHz resolution bandwidth

** linear interpolations

[Where F is the frequency in MHz, the formulas for calculating the maximum permitted fundamental field strengths are as follows: for the band 130-174 MHz, $\mu\text{V/m}$ at 3 meters = $56.81818(F) - 6136.3636$; for the band 260-470 MHz, $\mu\text{V/m}$ at 3 meters = $41.6667(F) - 7083.3333$. The maximum permitted unwanted emission level is 20 dB below the maximum permitted fundamental level.]

The fundamental frequency of the EUT is 315MHz

The limit for average field strength dBuV/m for the fundamental emission= 75.6 dBuV/m

No fundamental is allowed in the restricted bands.

The limit for average field strength dBuV/m for the spurious emission=55.6 dBuV/m. Spurious in the restricted bands must be less than 55.6 dBuV/m or 15.209, Whichever limit permits a higher field strength.



Test Procedure: The procedure used was ANSI Standard C63.4-2003. The receiver was scanned from 30MHz to 5.0GHz. When an emission was found, the table was rotated 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 – Peramplifier Factor

An initial pre-scan was performed in the 3m chamber using the spectrum analyser in peak detection mode. Peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bilog antenna with 2 orthogonal polarities and Horn antenna.

The following test results were performed on the EUT :

**1. Fundamental emission& Spurious Emissions****(a) Antenna polarization: Horizontal**

Frequency (MHz)	Read Level (dBUV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBUV/m)	Limit Line (dBUV/m)	Over Limit (dB)	Remark
315	78.81	17.52	2.15	24.5	73.98	95.6	-21.62	PEAK
315	66.63	17.52	2.15	24.5	61.80	75.6	-13.80	AVERAG
630	33.96	19.28	3.10	25.77	30.57	75.6	-45.03	PEAK
630	22.64	19.28	3.10	25.77	19.25	55.6	-36.35	AVERAG
945	30.06	21.57	4.00	24.81	30.82	75.6	-44.78	PEAK
945	17.72	21.57	4.00	24.81	18.48	55.6	-37.12	AVERAG
1260	38.24	24.59	3.30	44.00	22.13	75.6	-53.47	PEAK
1260	13.91	24.59	3.30	44.00	-2.20	55.6	-57.80	AVERAG
1575	36.30	25.85	3.77	44.00	21.92	75.6	-53.68	PEAK
1575	13.42	25.85	3.77	44.00	10.96	55.6	-46.56	AVERAG
1890	34.66	27.04	4.10	44.00	21.80	75.6	-53.80	PEAK
1890	12.36	27.04	4.10	44.00	-0.50	55.6	-56.10	AVERAG
2205	36.39	28.05	4.50	44.00	24.94	75.6	-50.66	PEAK
2205	12.88	28.05	4.50	44.00	1.43	55.6	-54.17	AVERAG
2520	35.51	28.87	4.70	44.00	25.08	75.6	-50.52	PEAK
2520	24.50	28.87	4.70	44.00	14.07	55.6	-41.53	AVERAG
2835	35.17	29.74	5.07	44.00	25.98	75.6	-49.62	PEAK
2835	24.22	29.74	5.07	44.00	15.03	55.6	-40.57	AVERAG
3150	36.89	30.49	5.30	44.00	28.68	75.6	-46.92	PEAK
3150	25.26	30.49	5.30	44.00	17.05	55.6	-38.55	AVERAG
3465	34.70	31.18	5.77	44.00	27.65	75.6	-47.95	PEAK
3465	24.07	31.18	5.77	44.00	17.02	55.6	-38.58	AVERAG



(b) Antenna polarization: Vertical

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Remark
315	74.50	14.90	2.15	24.5	67.05	95.6	-28.55	PEAK
315	62.95	14.90	2.15	24.5	55.50	75.6	-20.10	AVERAG
630	38.69	19.64	3.10	25.77	35.66	75.6	-39.94	PEAK
630	24.51	19.64	3.10	25.77	21.48	55.6	-34.12	AVERAG
945	26.93	22.36	4.00	24.81	28.48	75.6	-47.12	PEAK
945	18.35	22.36	4.00	24.81	19.90	55.6	-35.70	AVERAG
1260	42.65	24.59	3.30	44.00	26.54	75.6	-49.06	PEAK
1260	30.42	24.59	3.30	44.00	14.31	55.6	-41.29	AVERAG
1575	43.15	25.85	3.77	44.00	28.77	75.6	-46.83	PEAK
1575	30.67	25.85	3.77	44.00	16.29	55.6	-39.31	AVERAG
1890	40.25	27.04	4.10	44.00	27.39	75.6	-48.21	PEAK
1890	29.04	27.04	4.10	44.00	16.18	55.6	-39.42	AVERAG
2205	41.91	28.05	4.50	44.00	30.46	75.6	-45.14	PEAK
2205	30.67	28.05	4.50	44.00	19.22	55.6	-36.38	AVERAG
2520	41.25	28.87	4.70	44.00	30.82	75.6	-44.78	PEAK
2520	29.28	28.87	4.70	44.00	18.85	55.6	-36.75	AVERAG
2835	41.65	29.74	5.07	44.00	32.46	75.6	-43.14	PEAK
2835	30.03	29.74	5.07	44.00	20.84	55.6	-34.76	AVERAG
3150	43.41	30.49	5.30	44.00	35.20	75.6	-40.40	PEAK
3150	30.84	30.49	5.30	44.00	22.63	55.6	-32.97	AVERAG
3465	41.13	31.18	5.77	44.00	34.08	75.6	-41.52	PEAK
3465	29.66	31.18	5.77	44.00	22.61	55.6	-32.99	AVERAG

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 Part 15 C Section 15.231 requirements.

**5.3.1.2 Radiated Emissions which fall in the restricted bands**

Test Requirement:	Section 15.231(b) Further, compliance with the provisions of Section 15.205 shall be demonstrated using the measurement instrumentation specified in that section. must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(b)).
Test Method:	Base on ANSI 63.4
Test Date:	18 April 2008
Measurement Distance:	3m (Semi-Anechoic Chamber)
Limit:	40.0 dB μ V/m between 30MHz & 88MHz; 43.5 dB μ V/m between 88MHz & 216MHz; 46.0 dB μ V/m between 216MHz & 960MHz; 54.0 dB μ V/m above 960MHz.
Detector:	Peak for pre-scan: 100kHz resolution bandwidth and 100kHz video bandwidth within 1GHz. 1MHz resolution bandwidth and 1MHz video bandwidth above 1GHz

(a) Antenna polarization: Horizontal

Frequency (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Remark
1575	36.30	25.85	3.77	44.00	21.92	74.00	-52.08	PEAK
1575	13.42	25.85	3.77	44.00	10.96	54.00	-43.04	AVERAG
2205	36.39	28.05	4.50	44.00	24.94	74.00	-49.06	PEAK
2205	12.88	28.05	4.50	44.00	1.43	54.00	-52.57	AVERAG
2835	35.17	29.74	5.07	44.00	25.98	74.00	-48.02	PEAK
2835	24.22	29.74	5.07	44.00	15.03	54.00	-38.97	AVERAG

(b) Antenna polarization: Vertical

Frequency (MHz)	Read Level (dB μ V)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamplifier Factor (dB)	Level (dB μ V/m)	Limit Line (dB μ V/m)	Over Limit (dB)	Remark
1575	43.15	25.85	3.77	44.00	28.77	74.00	-45.23	PEAK
1575	30.67	25.85	3.77	44.00	16.29	54.00	-37.71	AVERAG
2205	41.91	28.05	4.50	44.00	30.46	74.00	-43.54	PEAK
2205	30.67	28.05	4.50	44.00	19.22	54.00	-34.78	AVERAG
2835	41.65	29.74	5.07	44.00	32.46	74.00	-41.54	PEAK
2835	30.03	29.74	5.07	44.00	20.84	54.00	-33.16	AVERAG

Remark: No any other emission which fall in restricted bands can be detected and be reported.

The unit does meet the FCC requirements.



SGS-CSTC Standards Technical Services Ltd.

Report No.: GLEMR080300811RFT

Page: 12 of 15

FCC ID: V8TLL-000

5.3.2 Occupied Bandwidth

Test Requirement: FCC Part 15 C Section 15.231(c)
Test Method: ANSI C63.4 section 13 & FCC Part 2.1049
Test Date: 25 April 2008

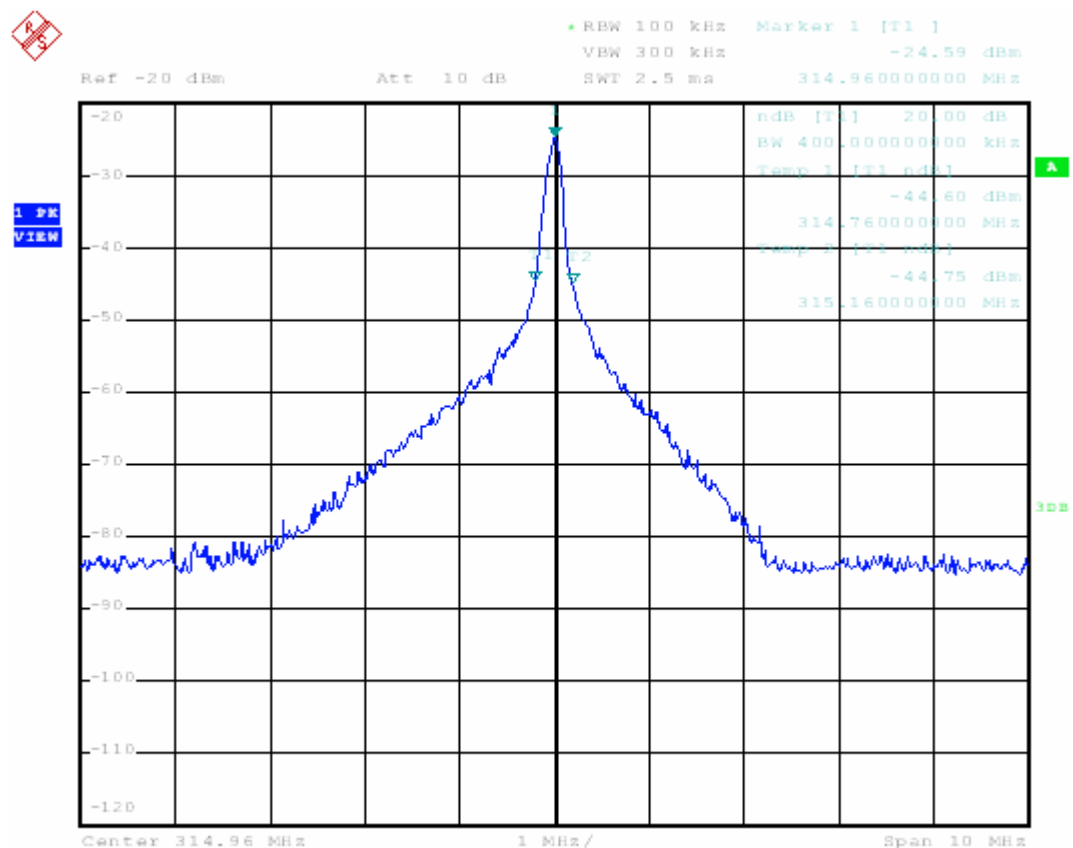
Requirements: 15.231 (c) The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70 MHz and below 900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency. Bandwidth is determined at the points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

The fundamental frequency is 315 MHz, so the limit for 20dB bandwidth is 0.785MHz.

Method of measurement: The useful radiated emission from the EUT was detected by the spectrum analyser with peak detector. The vertical Scale is set to 10dB per division. The horizontal scale is set to 1MHz per division.

20dB Bandwidth: 400KHz

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



The results: The unit does meet the FCC Part 15 C Section 15.231 requirements.

5.3.3 Dwell Time:

Test Requirement: FCC Part 15 C Section 15.231(a)

Test Method: FCC Part 15 C Section 15.231(a)

Test Date: 25 April 2008

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:

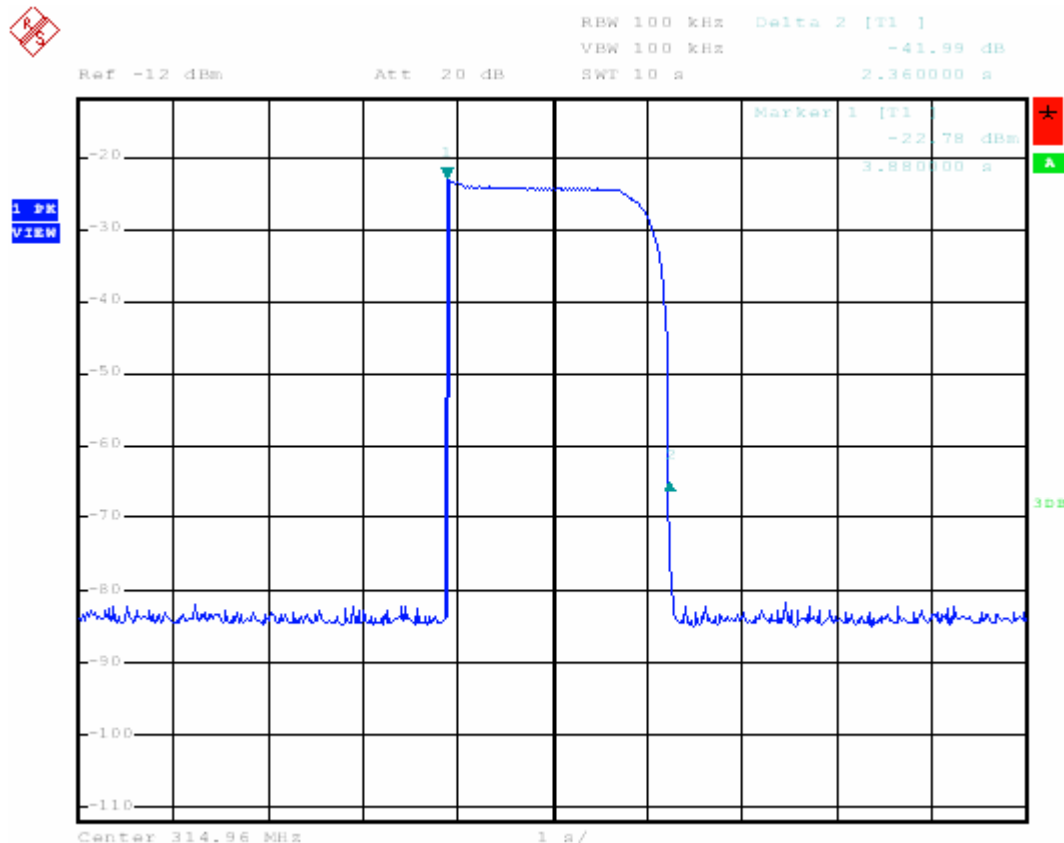
The EUT is a remote switch without audio or video transmitted.

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 transmitter within not more than 5 seconds of being released.

Result: Dwell Time = 2.36s

The graph as below.



The results: 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. Regulation 15.231 (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.

The results: The unit does meet the FCC Part 15 C Section 15.231 requirements.