

FCC PART 15.231



TEST REPORT

For

HUSTLER NOVELTIES,LLC

9400 Penfield Ave, Chatsworth, CA 91311, United States

FCC ID: RQ7TE573

Report Type: Original Report	Product Type: BANG BANG BULLET
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *HUSTLER NOVELTIES, LLC*'s product, model number: *TE-573 (FCC ID: RQ7TE573)* (the "EUT") in this report is a *BANG BANG BULLET*, which was measured approximately: 8.2 cm (L) x 2.5cm (W) x 2.2 cm (H), rated input voltage: DC 12V from battery.

All measurement and test data in this report was gathered from production sample serial number: 130111002 (Assigned by BACL, Dongguan). The EUT was received on 2013-01-17.

Objective

This document is a test report based on the Electromagnetic Interference (EMI) tests performed on the EUT. The EMI measurements were performed according to the measurement procedure described in ANSI C63.4-2009.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.209, 15.35(c) and 15.231 rules.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4 - 2009, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz. All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

SYSTEM TEST CONFIGURATION

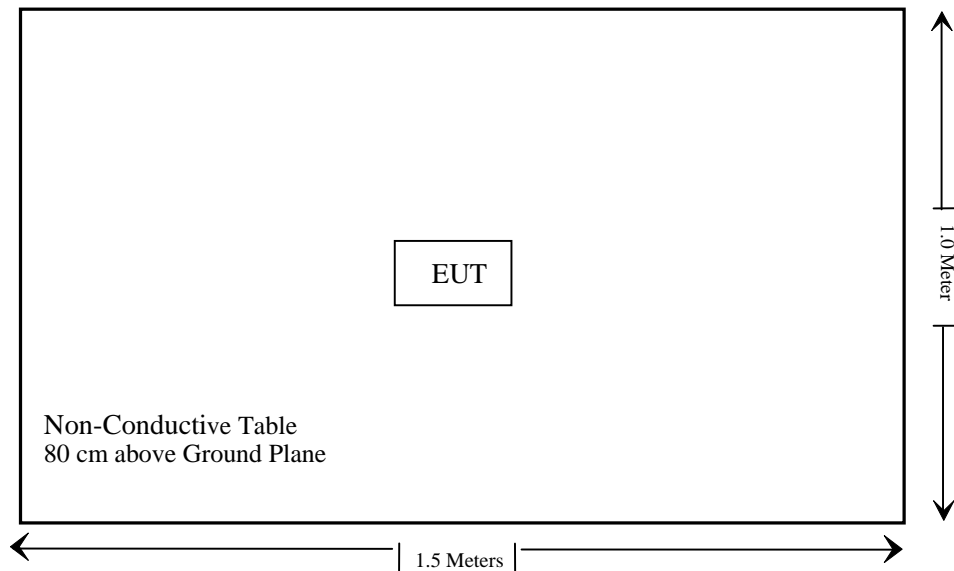
Justification

The system was configured in testing mode which was provided by manufacturer.

Equipment Modifications

No modifications were made to the unit tested.

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§15.203	Antenna Requirement	Compliance
§15.207 (a)	Conducted Emissions	N/A*
§15.205, §15.209, §15.231 (b)	Radiated Emissions	Compliance
§15.231 (c)	20dB Band Width Testing	Compliance
§15.231 (a)(1)	Deactivation Testing	Compliance

Note: N/A * The EUT was powered by battery only.

FCC §15.203 - ANTENNA REQUIREMENT

Applicable Standard

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. 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 provisions of this section.

Result: Compliant.

The EUT has an internal antenna soldered on the PCB, which complied with 15.203. Please refer to the EUT Internal photos.

FCC §15.205, §15.209, §15.231 (b) - RADIATED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:

30M~200MHz: 5.0 dB

200M~1GHz: 6.2 dB

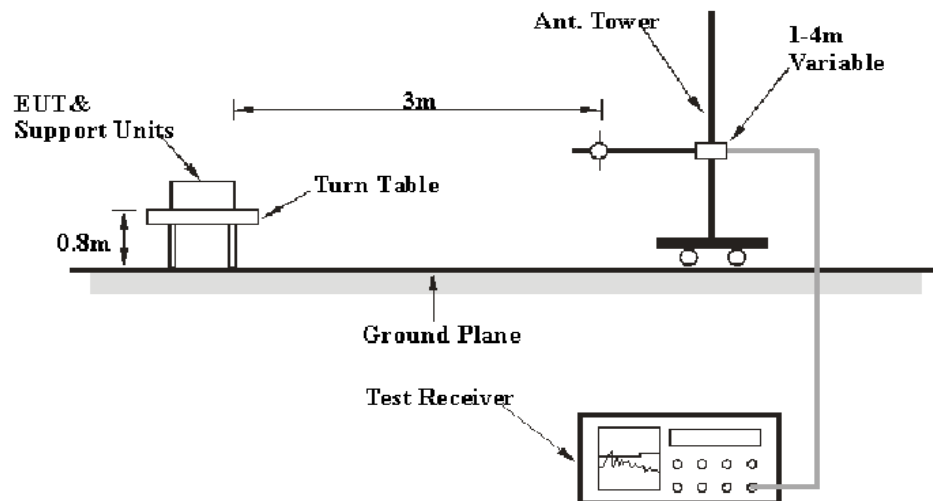
1G~6GHz: 4.45 dB

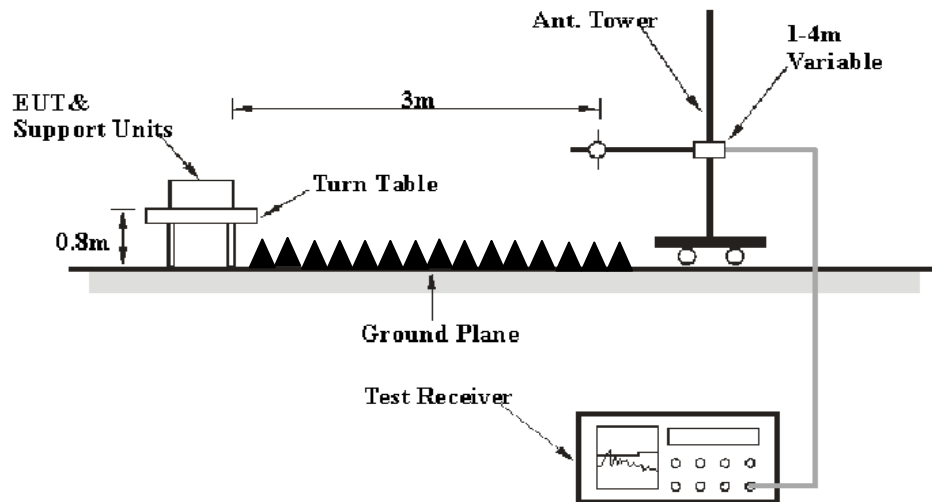
6G~18GHz: 5.23 dB

and the uncertainty will not be taken into consideration for all the test data recorded in the report.

EUT Setup

Below 1 GHz:



Above 1 GHz:

The radiated emission tests were performed in the 3 meters test site, using the setup accordance with the ANSI C63.4 - 2009. The specification used was the FCC 15 § 15.209, 15.205 and 15.231.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 4 GHz.

During the radiated emission test, the test receiver was set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>	<i>Detector</i>
30MHz – 1000 MHz	100 kHz	300 kHz	PK
1000 MHz – 4000 MHz	1 MHz	3 MHz	PK

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2012-05-14	2013-05-13
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2013-09-05
HP	Pre-amplifier	8447E	2434A02181	2012-10-08	2013-10-07
R&S	Spectrum Analyzer	FSEM 30	DE31388	2012-03-15	2013-03-14
ETS-LINDGREN	Horn Antenna	3115	000 527 35	2012-09-06	2014-09-05
PICOSECOND	Amplifier	5828	2708	N/A	N/A

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

According to §15.231, Intentional radiators operating under the provisions of this Section shall demonstrate compliance with the limits on the field strength of emissions, based on the average value of the measured emissions. As an alternative, compliance with the limits in the above table may be based on the use of measurement instrumentation with a CISPR quasi-peak detector

Applicable Standard

According to §15.231 (b), the field strength of emissions from intentional radiators operated under this section shall not exceed the following:

Fundamental frequency (MHz)	Field Strength of Fundamental (Microvolts /meter)	Field Strength of spurious emissions ((Microvolts /meter)
40.66-40.70	2,250	225
70-130	1,250	125
130-174	1,250 to 3,370 *	125 to 375 *
174-260	3,750	375
260-470	3,750 to 12, 500*	375 to 1,250*
Above 470	12,500	1,250

*Linear interpolations.

The above field strength limits are specified at a distance of 3-meters the tighter limits apply at the band edges.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 5.8 dB means the emission is 5.8 dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

According to the data in the following table, the EUT complied with the CFR47 §15.205, §15.209, §15.231 (b), with the worst margin reading of:

2.12 dB at 315 MHz in the Horizontal polarization

Test Data**Environmental Conditions**

Temperature:	21.3 ° C
Relative Humidity:	56 %
ATM Pressure:	101.9kPa

The testing was performed by Ares Liu on 2013-01-18.

Test mode: Transmitting

Field Strength(Peak)

Frequency (MHz)	Receiver		Rx Antenna		Cable loss (dB)	Amplifier Gain (dB)	Corrected Amplitude (dBμV/m)	15.231/15.209	
	Reading (dBμV)	Detector (PK/QP/AV)	Polar (H/V)	Factor (dB)				Limit (dBμV/m)	Margin (dB)
Operating Frequency:315 MHz									
315	76.01	PK	H	14.42	2.19	0.00	92.62	95.6	2.98
315	58.62	PK	V	14.42	2.19	0.00	75.23	95.6	20.37
1260	26.78	PK	H	22.98	2.68	0.00	52.44	55.6	3.16
630	27.62	PK	H	20.02	3.06	0.00	50.7	55.6	4.9
945	22.5	PK	V	23.18	3.72	0.00	49.4	55.6	6.2
945	21.00	PK	H	23.18	3.72	0.00	47.9	55.6	7.7
630	24.76	PK	V	20.02	3.06	0.00	47.84	55.6	7.76

Field Strength(Average)

Frequency (MHz)	Peak Measurement @ 3m (dBμV/m)	Polar (H/V)	Duty Cycle Correction Factor (dB)	Average Amp. (dBμV/m)	15.231/15.209	
					Limit (dBμV/m)	Margin (dB)
Operating Frequency:315 MHz						
315	92.62	H	-19.14	73.48	75.6	2.12
315	75.23	V	-19.14	56.09	75.6	19.51
1260	52.44	H	-19.14	33.3	55.6	22.3
630	50.7	H	-19.14	31.56	55.6	24.04
945	49.4	V	-19.14	30.26	55.6	25.34
945	47.9	H	-19.14	28.76	55.6	26.84
630	47.84	V	-19.14	28.7	55.6	26.9

Note:

The test was performance at x,y,z axis, and the z axis was the worst.

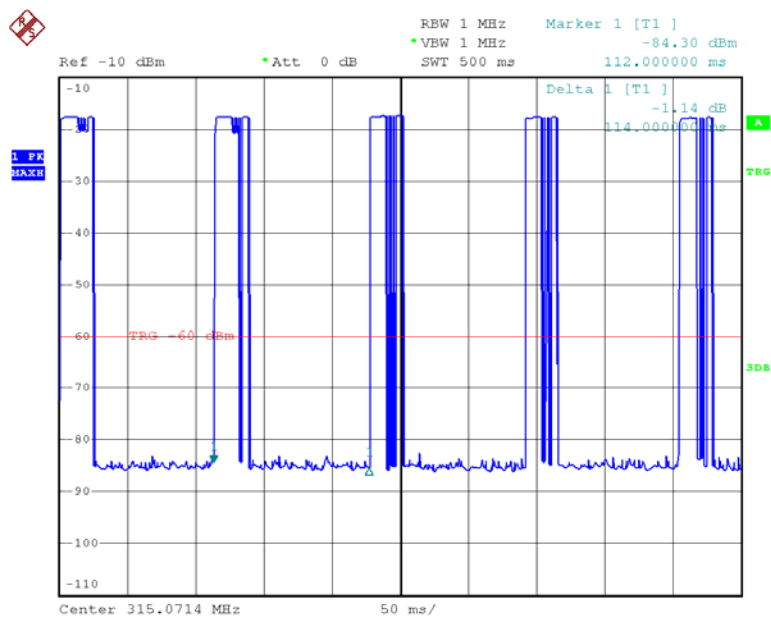
Calculate Average value based on Duty Cycle Correction Factor:

Duty cycle= $T_{ON}/100ms = (16 * 0.69ms)/100 ms = 0.11$

Duty cycle correction factor = $20 * \log(T_{ON}/100ms) = 20 * \log(0.11) = -19.14dB$

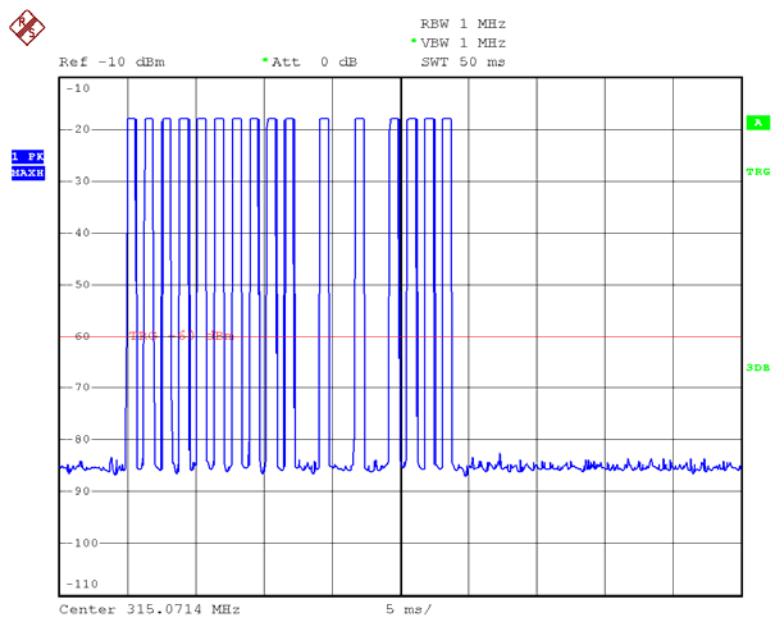
Please refer to following plot.

Ton+Toff=114ms



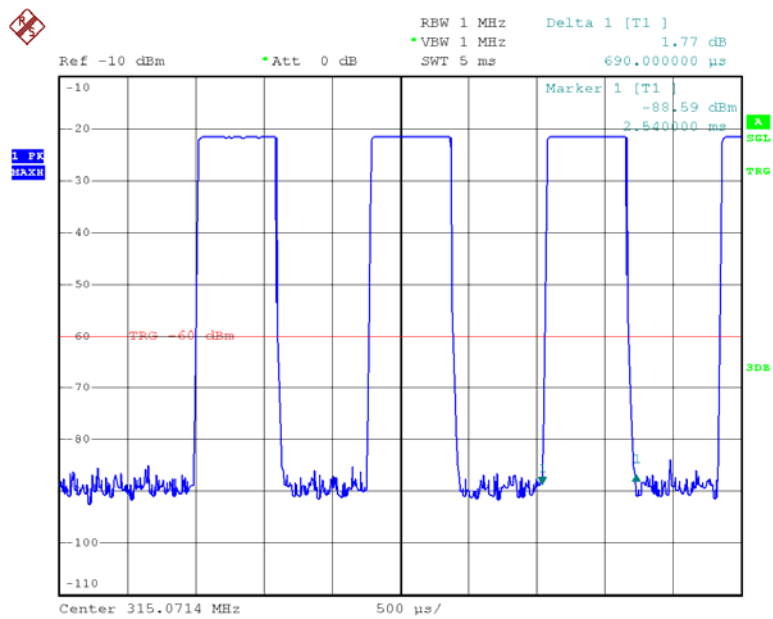
Date: 18.JAN.2013 15:21:13

16*pulse in the on time



Date: 18.JAN.2013 15:22:47

Pulse=0.69ms



Date: 18.JAN.2013 15:23:35

FCC §15.231(c) – 20 dB BANDWIDTH TESTING

Requirement

Per 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. Bandwidth is determined at the points 20 dB down from the modulated carrier.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2012-05-14	2013-05-13
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2013-09-05
HP	Pre-amplifier	8447E	2434A02181	2012-10-08	2013-10-07

Test Procedure

With the EUT's antenna attached, the waveform was received by the test antenna which was connected to the spectrum analyzer, plot the 20 dB bandwidth.

Test Data

Environmental Conditions

Temperature:	21.4° C
Relative Humidity:	41%
ATM Pressure:	102.2kPa

The testing was performed by Ares Liu on 2013-01-18.

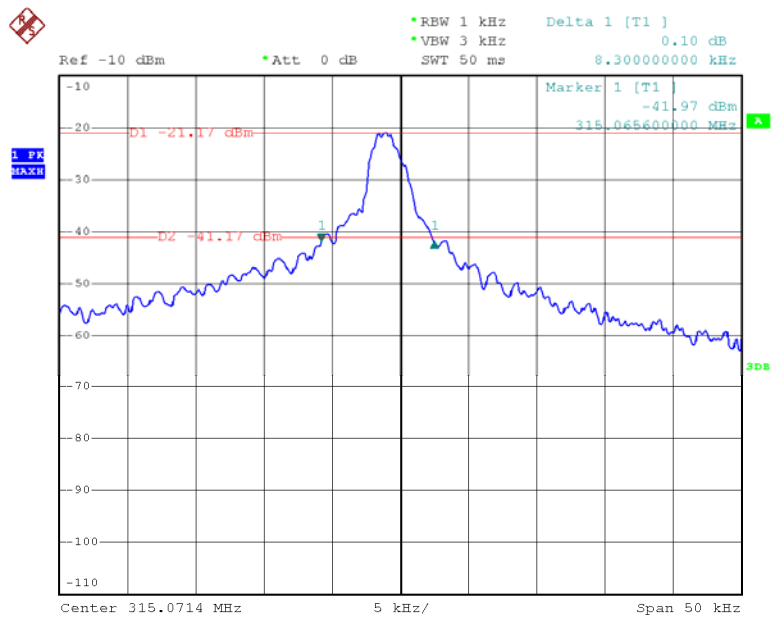
Test Mode: Transmitting

Please refer to following table and plot.

Channel Frequency (MHz)	20 dB Bandwidth (kHz)	Limit (kHz)	Result
315	8.3	787.5	Pass

Note: Limit = 0.25% * Center Frequency = 0.25% * 315 MHz = 0.7875 MHz

20 dB Bandwidth



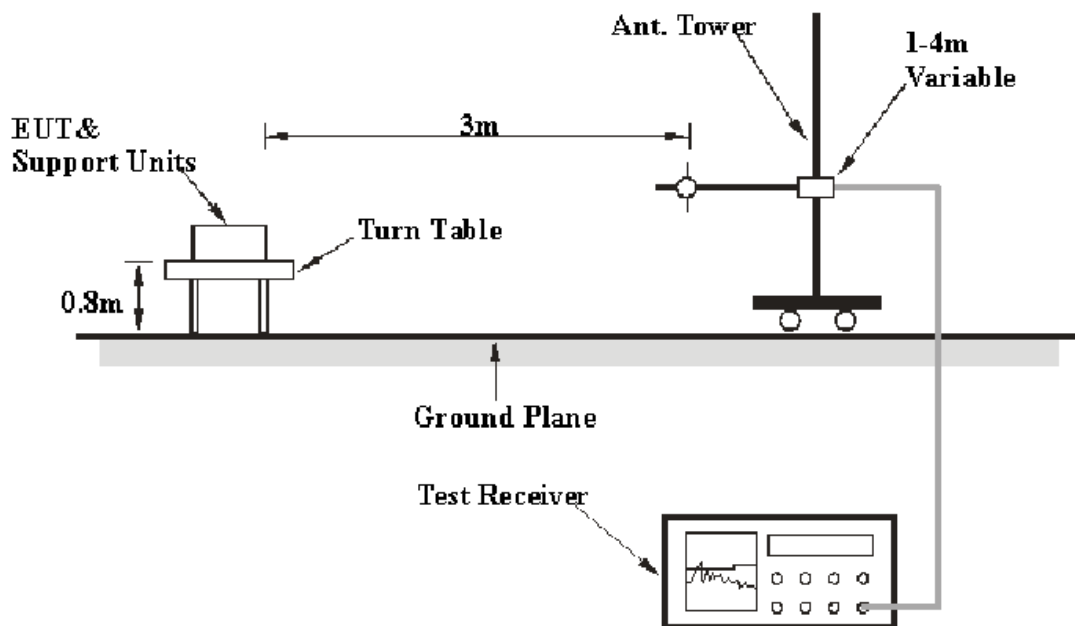
Date: 18.JAN.2013 15:07:26

FCC §15.231(a) - DEACTIVATION TESTING

Applicable Standard

Per 15.231(a) (1), a manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

EUT Setup



The deactivation test was performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4 - 2009. The specification used was the FCC 15.231(a) limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2012-05-14	2013-05-13
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2011-09-06	2013-09-05
HP	Pre-amplifier	8447E	2434A02181	2012-10-08	2013-10-07

Test Data**Environmental Conditions**

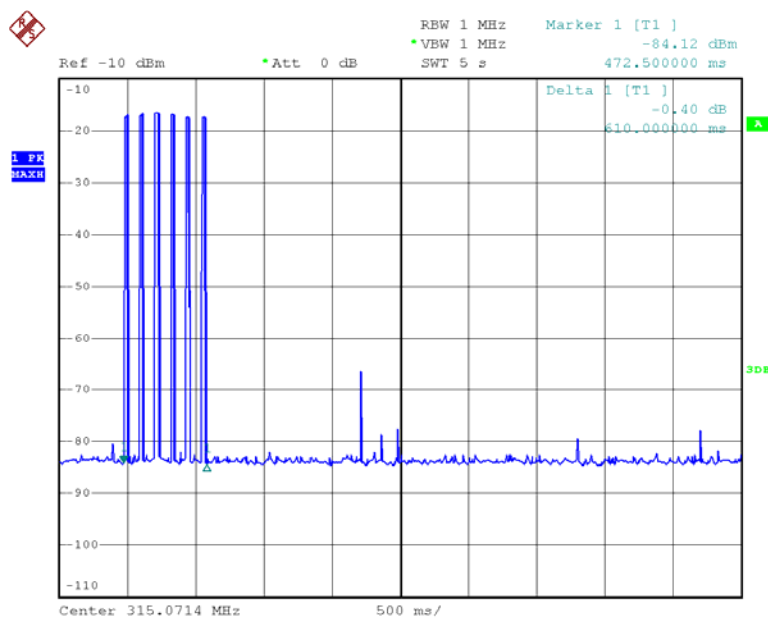
Temperature:	21.3 °C
Relative Humidity:	56 %
ATM Pressure:	101.9kPa

The testing was performed by Ares Liu on 2013-01-18.

Test Mode: Transmitting

Test Result: Compliance. Please refer to following plot.

Deactivate Time (s)	Limit	Result
0.473	<5s	Pass



Date: 18.JAN.2013 15:18:15

*****END OF REPORT*****