



**FCC CFR47 PART 15 SUBPART C
INDUSTRY CANADA RSS-210 ISSUE 7
CERTIFICATION TEST REPORT**

FOR

WIRELESS SECURITY REMOTE KEY FOB

MODEL NUMBER: 2GIG- KEY1-345

FCC ID: WDQ-KEY1345

IC: 7794A- KEY1345

REPORT NUMBER: 09U12479-1, REVISION B

ISSUE DATE: AUGUST 26, 2009

Prepared for

**2GIG TECHNOLOGIES, INC.
200 BROADHOLLOW RD. SUITE 207
MELVILLE, NY 11747**

Prepared by

**COMPLIANCE CERTIFICATION SERVICES
47173 BENICIA STREET
FREMONT, CA 94538 U.S.A.
TEL: (510) 771-1000
FAX: (510) 661-0888**



NVLAP LAB CODE 200065-0

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
---	03/26/09	Initial Issue	T. Chan
A	08/25/09	Revised FCC/IC ID, model number, applicant info	A. Zaffar
B	08/26/09	Revised IC ID and model number	A. Zaffar

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: 2GIG TECHNOLOGIES, INC.
200 BROADHOLLOW RD. SUITE 207
MELVILLE, NY 11747

EUT DESCRIPTION: WIRELESS SECURITY REMOTE KEY FOB

MODEL: 2GIG-KEY1-345

SERIAL NUMBER: 2232 AND 2233

DATE TESTED: MARCH 24 AND 25, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 15 SUBPART C	PASS
INDUSTRY CANADA RSS-210 ISSUE 7	PASS

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:



THU CHAN
EMC MANAGER
COMPLIANCE CERTIFICATION SERVICES

Tested By:



THANH NGUYEN
EMC ENGINEER
COMPLIANCE CERTIFICATION SERVICES

2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4-2003, FCC CFR 47 Part 2 and FCC CFR 47 Part 15, IC RSS-210 and IC RSS-212.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Power Line Conducted Emission	+/- 2.3 dB
Radiated Emission	+/- 3.4 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

Equipment Type	345 MHz Transmitter
Fundamental Frequency	345 MHz
Power Source	3VDC
Transmitting Time	Periodic ≤ 5 seconds
Manufacturer	Secure Wireless, Inc.

5.2. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an internal loop antenna, with -15 dBi gain.

5.3. SOFTWARE AND FIRMWARE

EUT is modified to transmit continuously.

5.4. MODIFICATIONS

No modifications were made during testing.

5.5. WORST-CASE CONFIGURATION AND MODE

The worst-case channel is determined by X, Y, and Z-axis. The highest measured output power was at X-Axis.

5.6. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

N/A

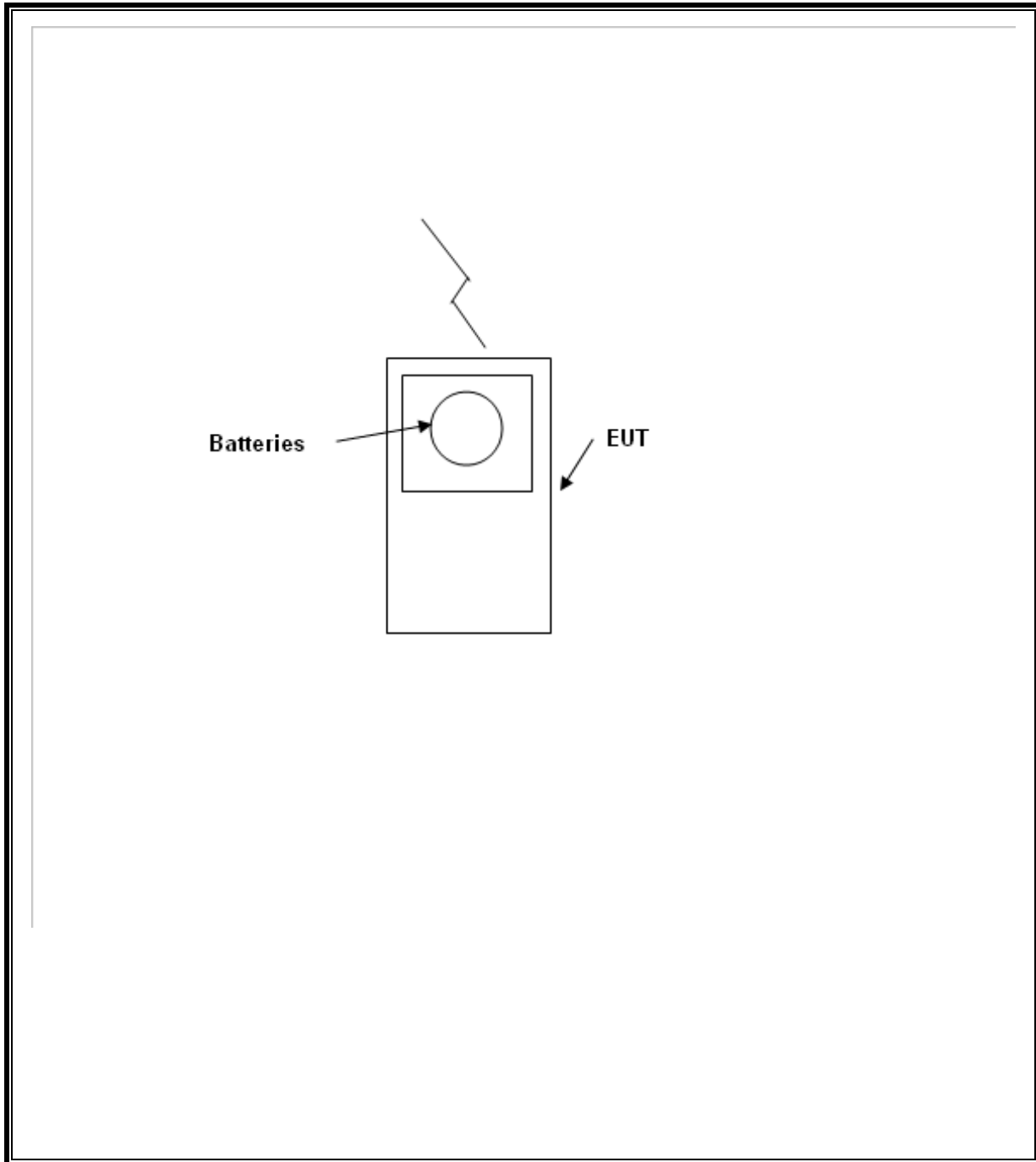
I/O CABLES

N/A

TEST SETUP

The EUT is stand-alone unit and is battery operated.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C00996	4/20/2010
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4407B	C01101	7/27/2010
PreAmp	Sonoma	310N	N02891	3/31/2009
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	2/4/2010
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	1/14/2010
Antenna, Horn, 18 GHz	EMCO	3115	C00945	4/22/2009

7. LIMITS AND RESULTS

7.1. 20dB & 99% BANDWIDTHS

LIMITS

FCC §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.

IC A1.1.3

For the purpose of Section A1.1, the 99% Bandwidth shall be no wider than 0.25% of the center frequency for devices operating between 70-900 MHz. For devices operating above 900 MHz, the emission shall be no wider than 0.5% of the center frequency.

TEST PROCEDURE

ANSI C63.4

The transmitter output is connected to the spectrum analyzer.

20dB Bandwidth: The RBW is set to 100 KHz. The VBW is set to 300 KHz. The sweep time is coupled. Bandwidth is determined at the points 20 dB down from the modulated carrier.

99% Bandwidth: The RBW is set to 1% to 3% of the 99 % bandwidth. The VBW is set to 3 times the RBW. The sweep time is coupled. The spectrum analyzer internal 99% bandwidth function is utilized.

RESULTS

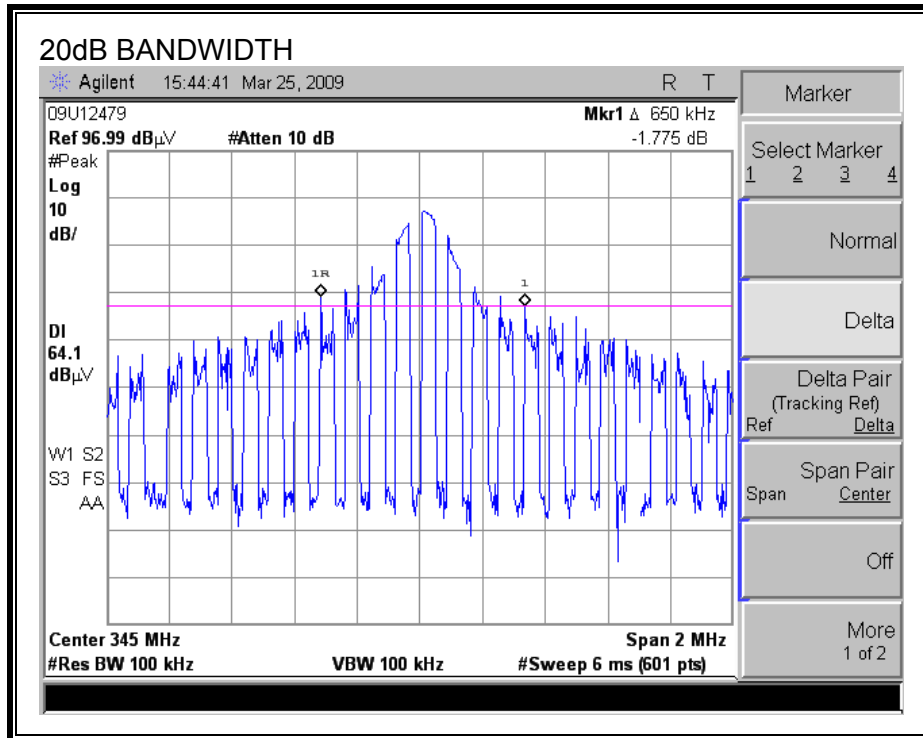
20dB Bandwidth

Frequency (MHz)	20dB Bandwidth (KHz)	Limit (KHz)	Margin (KHz)
345	650	862.5	-212.5

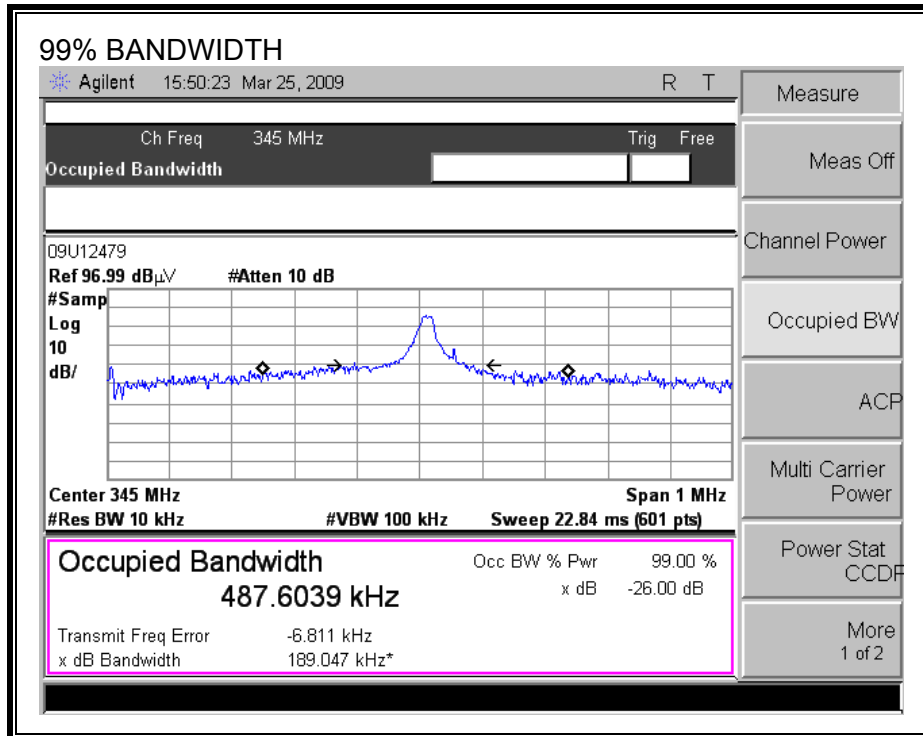
99% Bandwidth

Frequency (MHz)	99% Bandwidth (KHz)	Limit (KHz)	Margin (KHz)
345	487.60	862.5	-374.9

20dB BANDWIDTH



99% BANDWIDTH



7.2. DUTY CYCLE

LIMITS

FCC §15.35 (c)

The measurement field strength shall be determined by averaging over one complete pulse train, including blanking intervals, as long as the pulse train does not exceed 0.1 seconds. As an alternative (provided the transmitter operates for longer than 0.1 seconds) or in cases where the pulse train exceeds 0.1 seconds, the measured field strength shall be determined from the average absolute voltage during a 0.1 second interval during which the field strength is at its maximum value. The exact method of calculating the average field strength shall be submitted with any application for certification or shall be retained in the measurement data file for equipment subject to notification or verification.

TEST PROCEDURE

The transmitter output is connected to a spectrum analyzer or radiated field strength. The RBW is set to 100 kHz and the VBW is set to 100 kHz. The sweep time is coupled and the span is set to 0 Hz. The number of pulses is measured and calculated in a 100 ms scan.

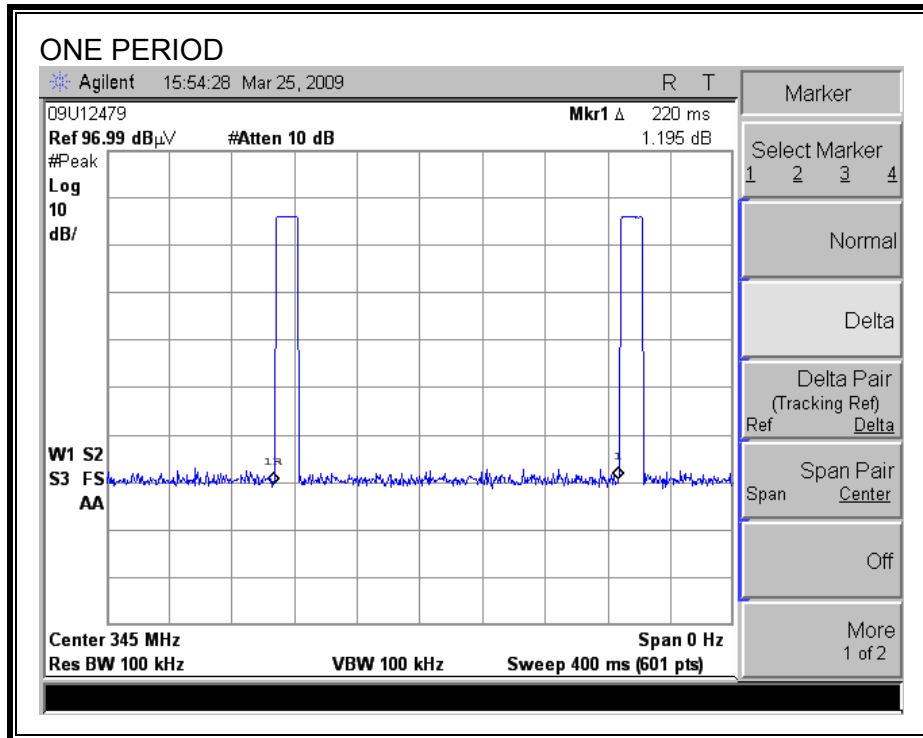
CALCULATION

Average Reading = Peak Reading (dBuV/m) + 20log (Duty Cycle), Where Duty Cycle is (# of long pulses * long pulse width) + (# of short pulses * short pulse width) / 100 or T

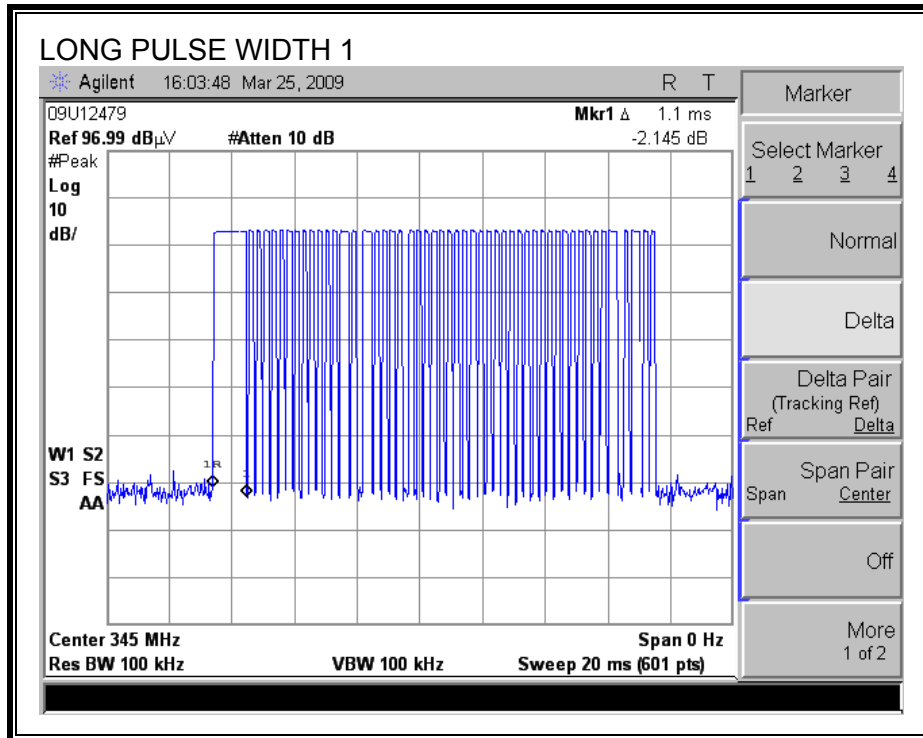
RESULTS

One Period (ms)	Long Pulse Width (ms)	# of Long Pulses	Long Pulse Width (ms)	# of Long Pulses	Short Width (ms)	# of Short Pulses	Duty Cycle	20*Log Duty Cycle (dB)
220	1.1	1	0.567	1	0.14	57	0.096	-20.31

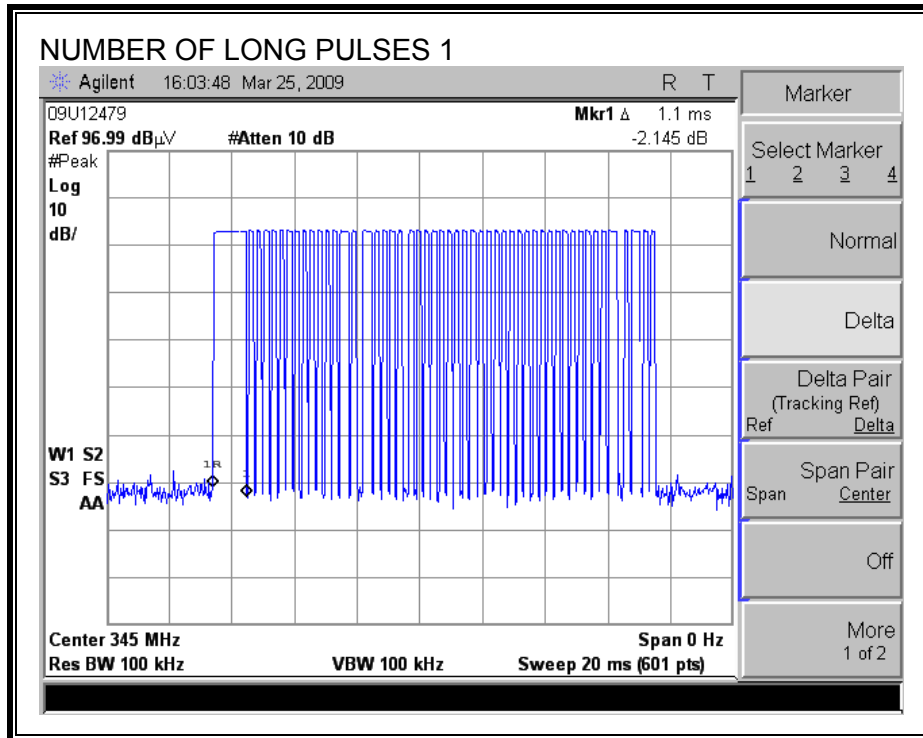
ONE PERIOD



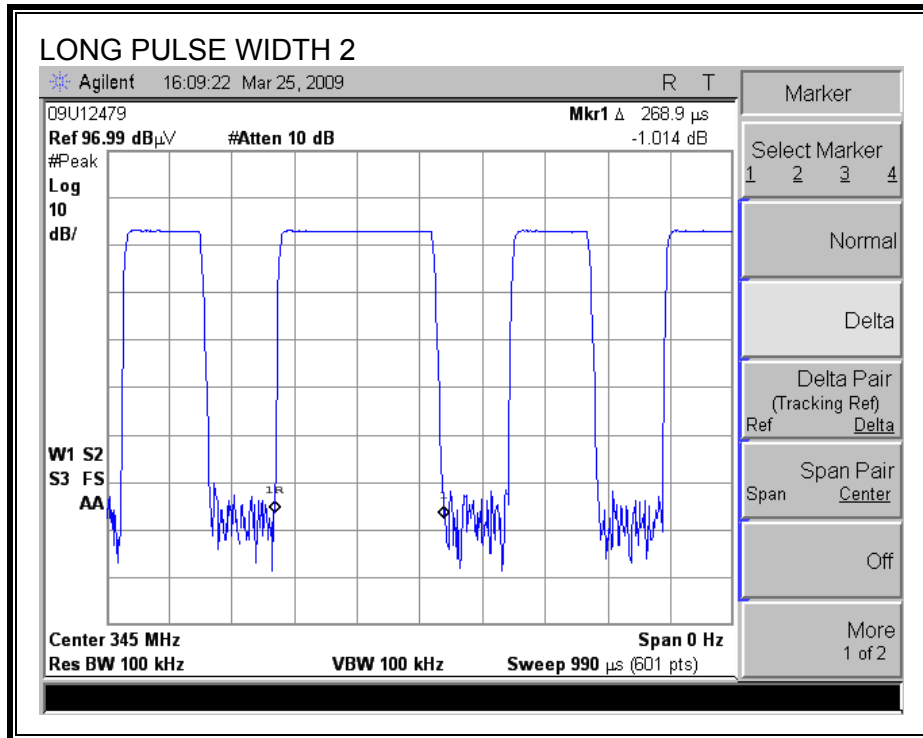
LONG PULSE WIDTH



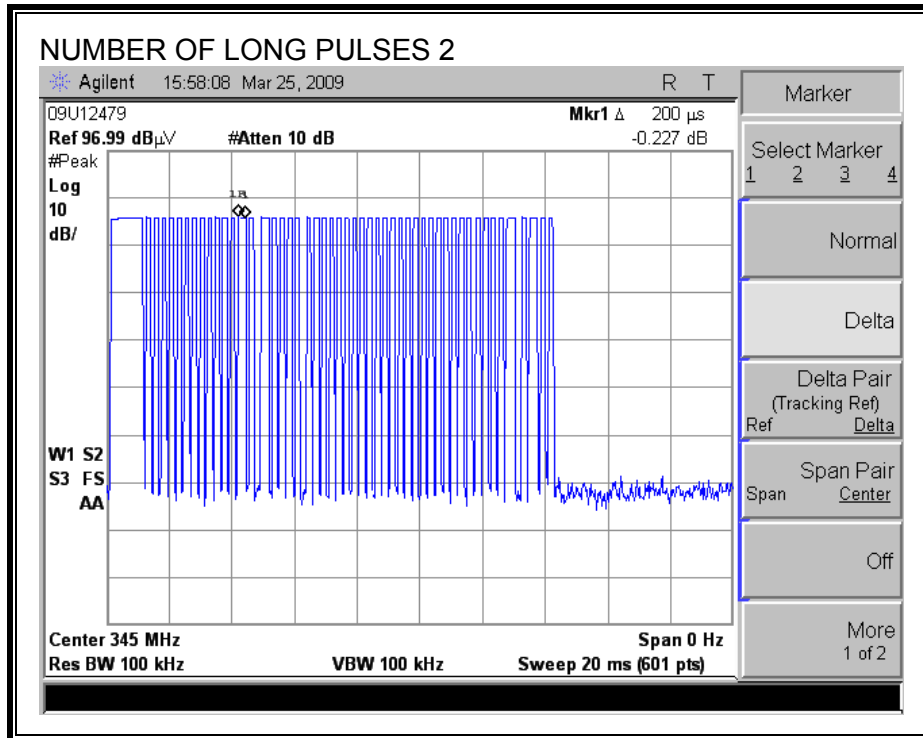
NUMBER OF LONG PULSES



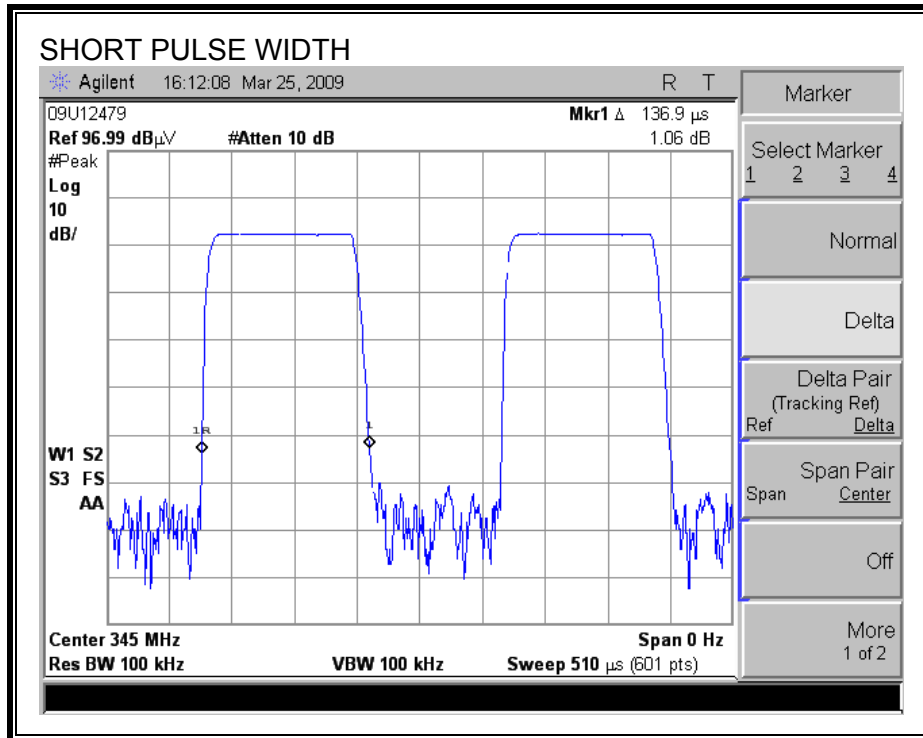
LONG PULSE WIDTH 2



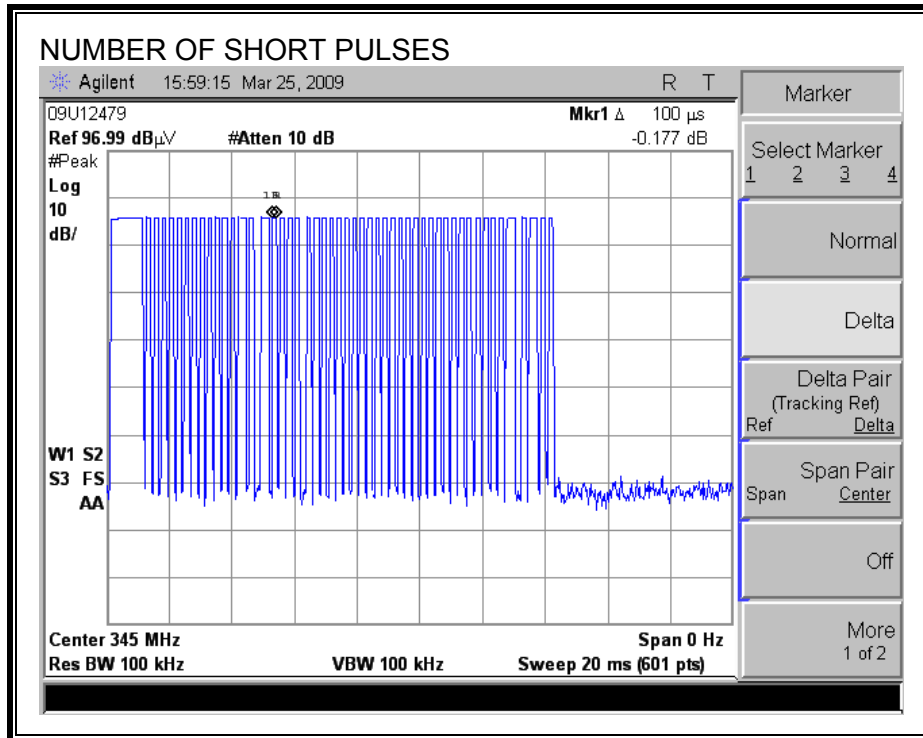
NUMBER OF LONG PULSES 2



SHORT PULSE WIDTH



NUMBER OF SHORT PULSES



7.3. TRANSMISSION TIME

LIMITS

FCC §15.231 (a) (2)

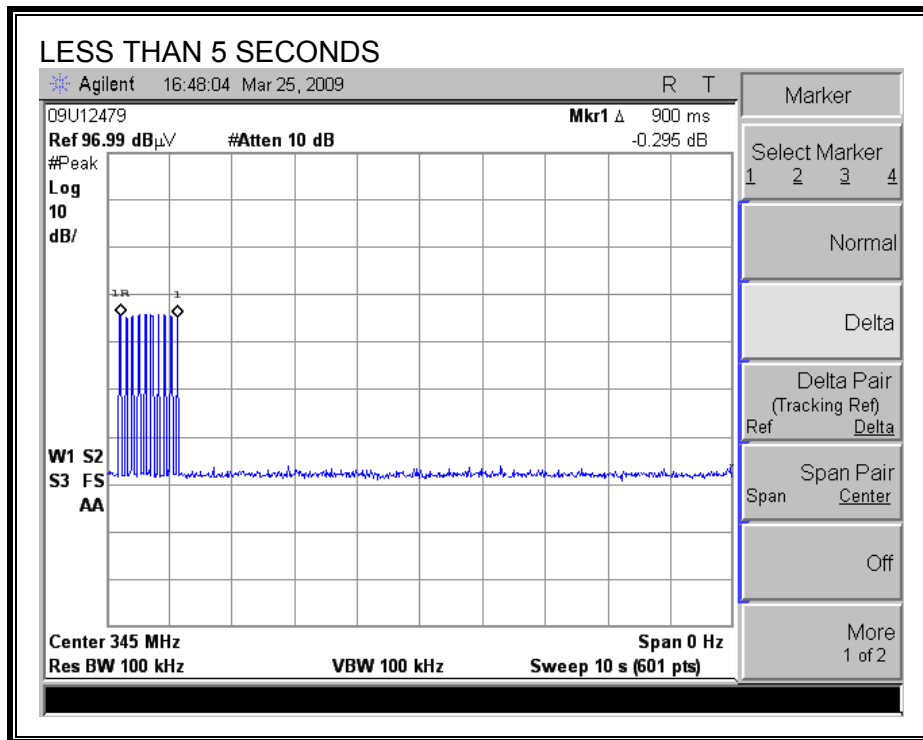
IC A1.1.1 (b)

A transmitter activated automatically shall cease transmission within 5 seconds after activation.

TEST PROCEDURE


The transmitter output is connected to a spectrum analyzer or radiated field strength. The RBW is set to 100 kHz and the VBW is set to 100 kHz. The sweep time is set to 10 seconds and the span is set to 0 Hz.

RESULTS



7.4. RADIATED EMISSION TEST RESULTS

FUNDAMENTAL, HARMONICS AND TX SPURIOUS EMISSION (30 – 1000 MHz)



FCC, VCCI, CISPR, CE, AUSTEL, NZ
 UL, CSA, TUV, BSMI, DHHS, NVLAP

47173 BENICIA STREET, FREMONT, CA 94538
 PHONE: (510) 771-1000 FAX: (501) 661-0888

Project #: 09U12479
Report #: 09U12479 B Chamber
Date & Time: 3/24/2009
Test Engr: Thanh Nguyen

Company: SECURE WIRELESS, INC.
EUT Description: Wireless Security Door Key
Test Configuration: EUT only
Type of Test: FCC 15.231
Mode of Operation: Transmitting

M% = ((t1+t2+t3+...)/T) = 9.6%

Av Reading = Pk Reading + 20*log(M%)
20 * log (M%) = -20.35 (Max=-20dB)

Freq. (MHz)	Pk Rdg (dBuV)	Av Rdg (dBuV)	AF (dB)	Clos (dB)	Pre-amp (dB)	Pk Level (dBuV/m)	Av Level (dBuV/m)	Pk Limit FCC_B	Av Limit FCC_B	Pk Margin (dB)	Avg Margin (dB)	Pol (H/V)
319.508MHz Fundamental frequency												
EUT At X Position												
345.00	58.80	38.80	16.37	2.91	0.00	78.09	58.09	97.26	77.26	-19.17	-19.17	3mV
345.00	77.50	57.50	16.37	2.91	0.00	96.79	76.79	97.26	77.26	-0.47	-0.47	3mH
EUT At Y Position												
345.00	64.16	44.16	16.37	2.91	0.00	83.45	63.45	97.26	77.26	-13.81	-13.81	3mH
345.00	74.05	54.05	16.37	2.91	0.00	93.34	73.34	97.26	77.26	-3.92	-3.92	3mV
EUT At Z Position.												
345.00	73.91	53.91	16.37	2.91	0.00	93.19	73.19	97.26	77.26	-4.07	-4.07	3mV
345.00	70.93	50.93	16.37	2.91	0.00	90.22	70.22	97.26	77.26	-7.04	-7.04	3mH
X-Position is the worst case												
690.00	52.19	32.19	22.28	4.40	27.81	51.06	31.06	77.26	57.26	-26.20	-26.20	3mV
690.00	61.44	41.44	22.28	4.40	27.81	60.31	40.31	77.26	57.26	-16.95	-16.95	3mH

Note: No other emissions were detected above system noise floor from 30 MHz to 1000 MHz.

HARMONICS AND TX SPURIOUS EMISSIONS ABOVE 1GHZ

High Frequency Measurement
 Compliance Certification Services, Fremont 5m Chamber

Company: SECURE WIRELESS
 Project #: 09U12479
 Date: 3/24/2009
 Test Engineer: Thanh Nguyen
 Configuration: EUT StandAlone
 Mode: TX MODE

Test Equipment:

Horn 1-18GHz	Pre-amplifer 1-26GHz	Pre-amplifer 26-40GHz	Horn > 18GHz	Limit
T59; S/N: 3245 @3m	T145 Agilent 3008A0056			FCC 15.209

Hi Frequency Cables

3' cable 22807700	12' cable 22807600	20' cable 22807500	HPF	Reject Filter	Peak Measurements REW=VBW=1MHz Average Measurements Duty Cycle = -20dB
3' cable 22807700	12' cable 22807600	20' cable 22807500			

f	Dist	Read Pk	Read Avg.	AF	CL	Amp	D Corr	Fltr	Peak	Avg	Pk Lim	Avg Lim	Pk Mar	Avg Mar	Notes
GHz	(m)	dBuV	dBuV	dB/m	dB	dB	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	(V/H)
1.035	3.0	50.2	30.2	24.1	2.4	-36.1	0.0	0.0	40.5	20.5	74	54	-33.5	-33.5	V
1.380	3.0	47.6	27.6	25.3	2.8	-35.9	0.0	0.0	39.8	19.8	74	54	-34.2	-34.2	V
1.725	3.0	57.8	37.8	26.6	3.2	-35.6	0.0	0.0	52.0	32.0	74	54	-22.0	-22.0	V
2.070	3.0	59.6	39.6	27.7	3.5	-35.3	0.0	0.0	55.5	35.5	74	54	-18.5	-18.5	V
2.415	3.0	62.6	42.6	28.3	3.9	-35.1	0.0	0.0	59.6	39.6	74	54	-14.4	-14.4	V
2.760	3.0	49.9	29.9	29.3	4.1	-35.2	0.0	0.0	48.1	28.1	74	54	-25.9	-25.9	V
3.105	3.0	56.0	36.0	30.2	4.4	-35.2	0.0	0.0	55.5	35.5	74	54	-18.5	-18.5	V
3.450	3.0	59.9	39.9	31.0	4.7	-35.0	0.0	0.0	60.6	40.6	74	54	-13.4	-13.4	V
1.035	3.0	54.8	34.8	24.1	2.4	-36.1	0.0	0.0	45.2	25.2	74	54	-28.8	-28.8	H
1.380	3.0	50.9	30.9	25.3	2.8	-35.9	0.0	0.0	43.2	23.2	74	54	-30.8	-30.8	H
1.725	3.0	59.9	39.9	26.6	3.2	-35.6	0.0	0.0	54.1	34.1	74	54	-19.9	-19.9	H
2.070	3.0	67.7	47.7	27.7	3.5	-35.3	0.0	0.0	63.6	43.6	74	54	-10.4	-10.4	H
2.415	3.0	60.8	40.8	28.3	3.9	-35.1	0.0	0.0	57.8	37.8	74	54	-16.2	-16.2	H
2.760	3.0	56.6	36.6	29.3	4.1	-35.2	0.0	0.0	54.8	34.8	74	54	-19.2	-19.2	H
3.105	3.0	54.4	34.4	30.2	4.4	-35.2	0.0	0.0	53.9	33.9	74	54	-20.1	-20.1	H
3.450	3.0	56.9	36.9	31.0	4.7	-35.0	0.0	0.0	57.6	37.6	74	54	-16.4	-16.4	H

Rev. 11.10.08

f	Measurement Frequency	Amp	Preamp Gain	Avg Lim	Average Field Strength Limit
Dist	Distance to Antenna	D Corr	Distance Correct to 3 meters	Pk Lim	Peak Field Strength Limit
Read	Analyzer Reading	Avg	Average Field Strength @ 3 m	Avg Mar	Margin vs. Average Limit
AF	Antenna Factor	Peak	Calculated Peak Field Strength	Pk Mar	Margin vs. Peak Limit
CL	Cable Loss	HPF	High Pass Filter		

7.5. RX RADIATED SPURIOUS EMISSION

LIMITS

IC RSS-Gen Issue 2, section 7.2.3.2

All spurious emissions shall comply with the limits shown below:

Limits for radiated disturbance of Class B ITE at measuring distance of 3 m	
Frequency range (MHz)	Quasi-peak limits (dB μ V/m)
30 to 88	40
88 to 216	43.5
216 to 960	46
Above 960 MHz	54

Note: The lower limit shall apply at the transition frequency.

TEST PROCEDURE

The EUT is placed on a non-conducting table 80 cm above the ground plane. The antenna to EUT distance is 3 meters. The EUT is configured in accordance with ANSI C63.4. The EUT is set to receive in a continuous mode.

For measurements below 1 GHz the resolution bandwidth is set to 100 kHz for peak detection measurements or 120 kHz for quasi-peak detection measurements. Peak detection is used unless otherwise noted as quasi-peak.

For measurements above 1 GHz the resolution bandwidth is set to 1 MHz, then the video bandwidth is set to 1 MHz for peak measurements and 10 Hz for average measurements.

The spectrum from 30 MHz to 5th harmonic is investigated with the transmitter set to the middle channel.

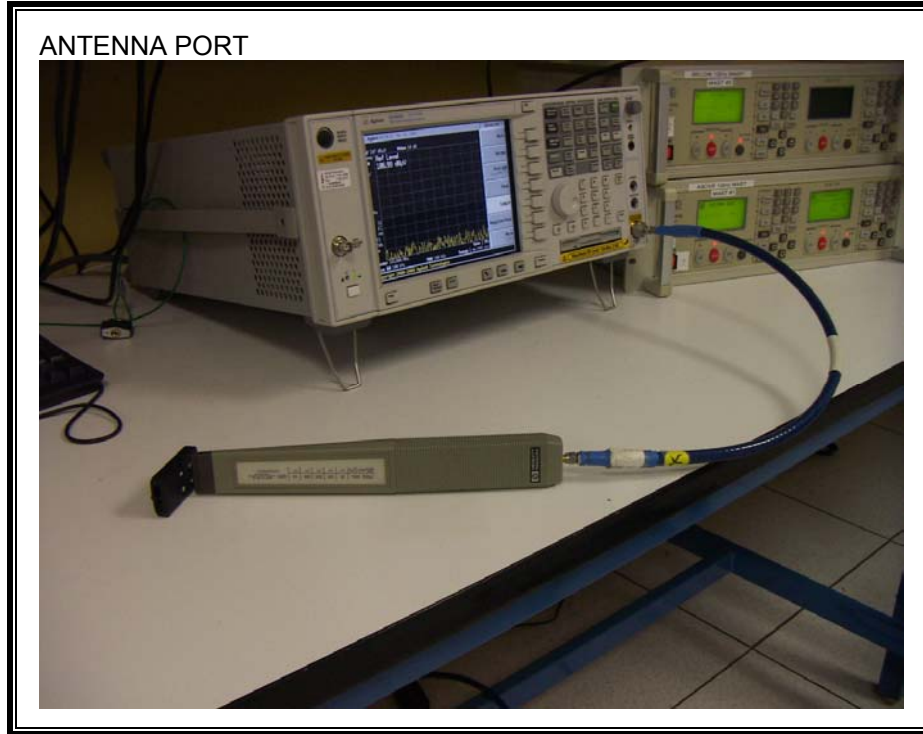
The frequency range of interest is monitored at a fixed antenna height and EUT azimuth. The EUT is rotated through 360 degrees to maximize emissions received. The antenna is scanned from 1 to 4 meters above the ground plane to further maximize the emission. Measurements are made with the antenna polarized in both the vertical and the horizontal positions.

RESULTS

Not applicable, this EUT is transmitter only.

8. SETUP PHOTOS

ANTENNA PORT



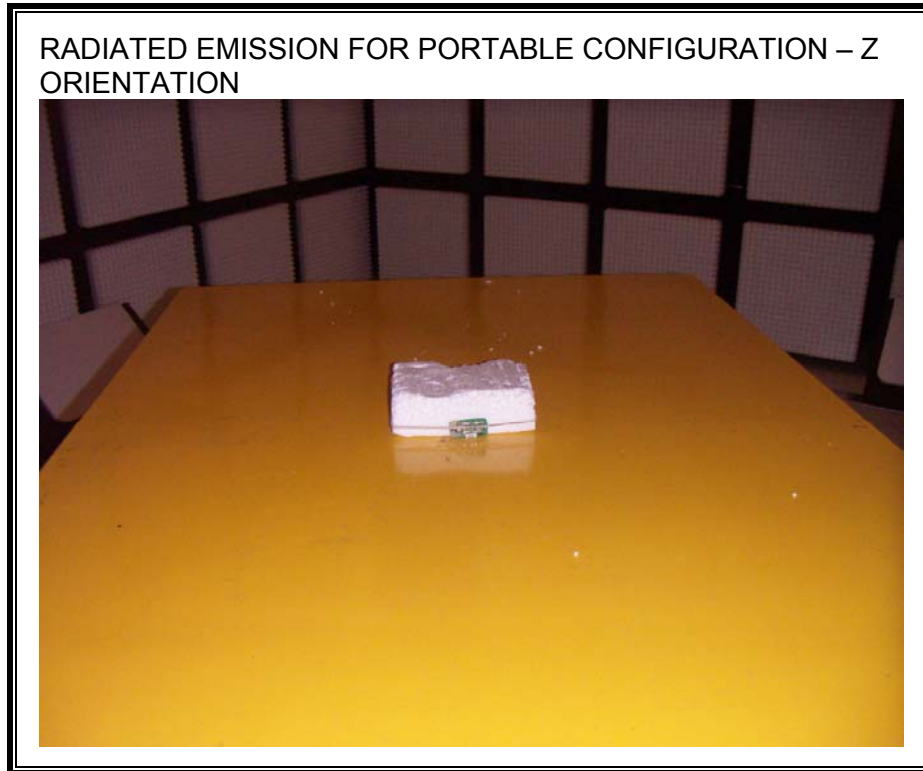
RADIATED EMISSION FOR PORTABLE CONFIGURATION – X ORIENTATION



RADIATED EMISSION FOR PORTABLE CONFIGURATION – Y ORIENTATION



RADIATED EMISSION FOR PORTABLE CONFIGURATION – Z ORIENTATION



END OF REPORT