Test Report

Product Name	WIRELESS DOOR CHIME
Model No.	WD-3625T
FCC ID.	K3Q3625T

Applicant	HSIEN LONG CO., LTD
Address	4F,NO 8,ALLEY 11,LANE 327, SEC.2, CHUNG SHAN RD., CHUNG-HO CITY, TAIPEI HSIEN, TAIWAN

Date of Receipt	May 13, 2009
Issued Date	June 10, 2009
Report No.	095262R-RUSP04V01
Report Version	V1.0

Test Report Certification

Issued Date : June 10, 2009
Report No. : 095262R-RFUSP04V01

QuieTek

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Applicant	HSIEN LONG CO., LTD
Address	4F,NO 8,ALLEY 11,LANE 327, SEC.2, CHUNG SHAN RD., CHUNG-HO CITY, TAIPEI HSIEN, TAIWAN
Manufacturer	HSIEN LONG CO., LTD
Model No.	WD-3625T
FCC ID.	K3Q3625T
Rated Voltage	DC 12V(Power by Battery)
Working Voltage	DC 12V(Power by Battery)
Trade Name	
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C: 2008 ANSI C63.4: 2003
Test Result	Complied

Test results relate only to the samples tested.

The test report shall not be reproduced except in full without the written approval of QuieTek Corporation.

This report must not be used to claim product endorsement by NVLAP any agency of the U.S. Government

Documented By : Rita Huang

(Engineering Adm. Specialist / Rita Huang)

NVLAP Lab Code: 200533-0

Tested By : Dino Chen

(Engineer / Dino Chen)

Testing Laboratory 0914

Approved By :

(Manager / Vincent Lin)

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1. General Information

1.1. EUT Description

Product Name	WIRELESS DOOR CHIME
Trade Name	
Model No.	WD-3625T
FCC ID	K3Q3625T
Frequency Range	433.92MHz
Number of Channels	1
Type of Modulation	ASK
Antenna Type	Printed on PCB

Frequency of Each Channel:

Channel	Frequency
Channel 1:	433.92 MHz

Note:

1. The EUT is a WIRELESS DOOR CHIME with a built-in 433.92 MHz transmitter.
2. The EUT will stop the transmission immediately when the test button is pressed and releases. The EUT will stop the transmission within 5 seconds when the test button is pressed and held.
3. These tests are conducted on a sample for the purpose of demonstrating compliance with Part 15 Subpart C Paragraph 15.231.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.

1.2. Operation Description

The EUT is a WIRELESS DOOR CHIME with a built-in 433.92 MHz transmitter.. Applicable for an emergency call for sick and aged, house, hospital, bank or public area .The antenna type is Printed on PCB and the data modulation is ASK.

1.3. Test Mode

QuieTek verified the construction and function in typical operation. All the test modes are performed in normal operation and are defined as:

Pre-Test Mode	
TX	Mode 1: Transmit
Final Test Mode	
TX	Mode 1: Transmit

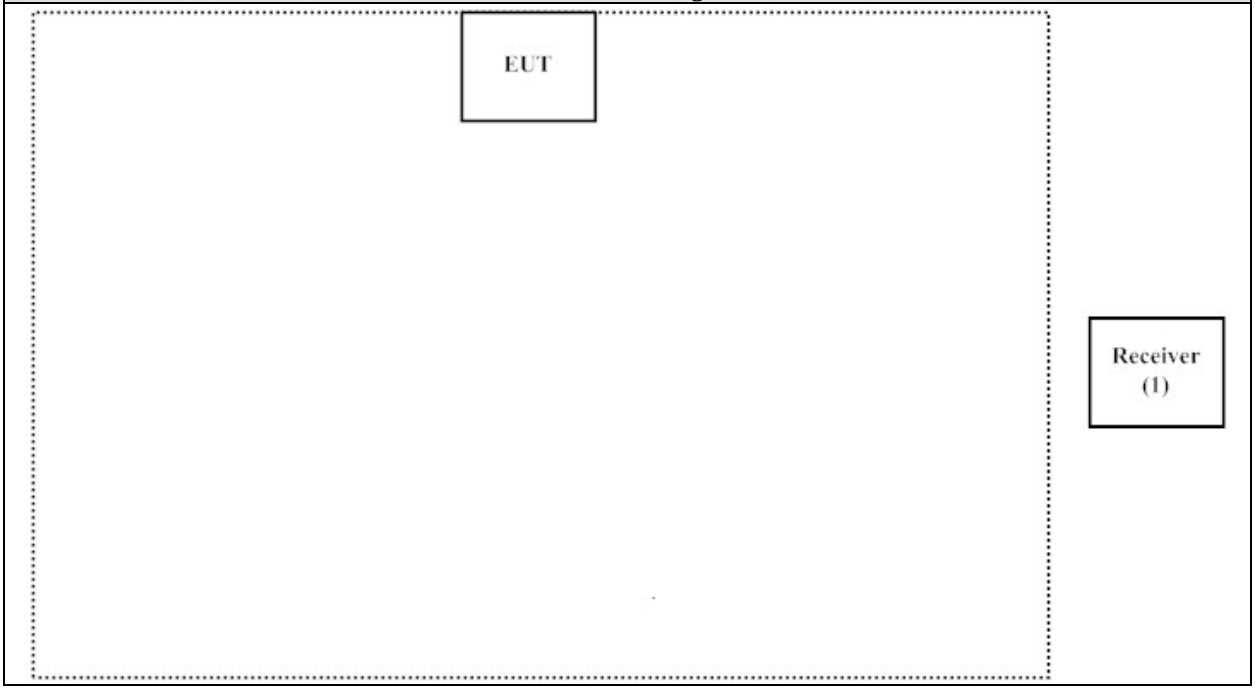
1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

	Product	Manufacturer	Model No.	Serial No.	FCC ID	Power Cord
1	Receiver	HSIEN LONG	WD-3625	N/A	N/A	N/A

1.5. Configuration of tested System

Connection Diagram



1.6. EUT Exercise Software

1	Setup the EUT as shown in section 1.5.
2	Install the battery.
3	Press the test button of the EUT.
4	Verify that the EUT works properly.

1.7. Test Facility

Ambient conditions in the laboratory:

Items	Test Item	Required (IEC 68-1)	Actual
Temperature (°C)	FCC PART 15 C 15.207 Conducted Emission	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.231 Duty Cycle	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.231 Occupied Bandwidth	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000
Temperature (°C)	FCC PART 15 C 15.231 Radiated Emission	15 - 35	22
Humidity (%RH)		25 - 75	55
Barometric pressure (mbar)		860 - 1060	950-1000

The related certificate for our laboratories about the test site and management system can be downloaded from QuieTek Corporation's Web Site : http://tw.quietek.com/modules/myalbum/
The address and introduction of QuieTek Corporation's laboratories can be founded in our Web site : http://www.quietek.com/

Site Description: File on
Federal Communications Commission
FCC Engineering Laboratory
7435 Oakland Mills Road
Columbia, MD 21046
Registration Number: 92195

Accreditation on NVLAP
NVLAP Lab Code: 200533-0

Site Name: Quietek Corporation
Site Address: No. 5-22, Ruei-Shu Valley, Ruei-Ping Tsuen,
Lin-Kou Shiang, Taipei,
Taiwan, R.O.C.
TEL: 886-2-8601-3788 / FAX : 886-2-8601-3789
E-Mail : service@quietek.com

FCC Accreditation Number: TW1014

Testing Laboratory
0914

2. Conducted Emission

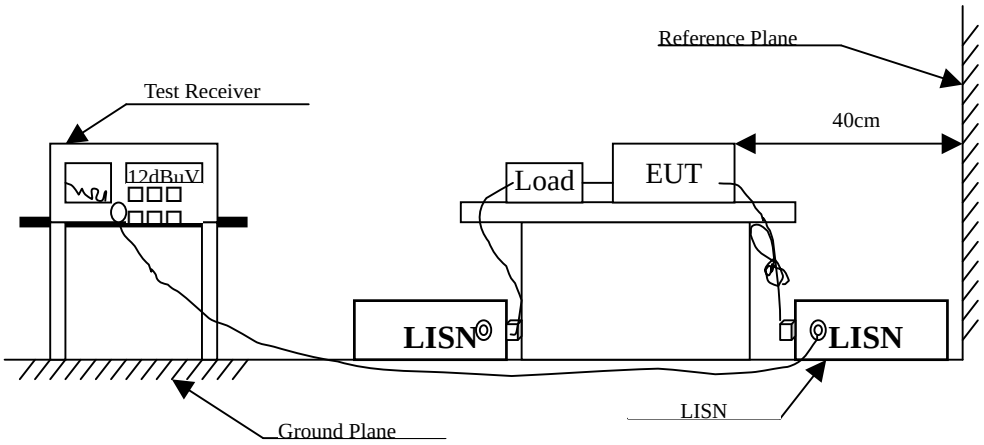
2.1. Test Equipment

The following test equipment are used during the test:

Item	Instrument	Manufacturer	Type No./Serial No	Last Cal.	Remark
1	Test Receiver	R & S	ESCS 30/825442/17	May, 2009	
2	L.I.S.N.	R & S	ESH3-Z5/825016/6	May, 2009	EUT
3	L.I.S.N.	Kyoritsu	KNW-407/8-1420-3	May, 2009	Peripherals
4	Pulse Limiter	R & S	ESH3-Z2	May, 2009	
5	No.1 Shielded Room			N/A	

Note: All instruments are calibrated every one year.

2.2. Test Setup



2.3. Limits

FCC Part 15 Subpart C Paragraph 15.207 Limits (dBuV)		
Frequency MHz	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks : In the above table, the tighter limit applies at the band edges.

2.4. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2003 on conducted measurement.
Conducted emissions were invested over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

2.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231

2.6. Uncertainty

± 2.26 dB

2.7. Test Result

Owing to the DC operation of EUT, this test item is not performed.

3. Radiated Emission

3.1. Test Equipment

The following test equipment are used during the test:

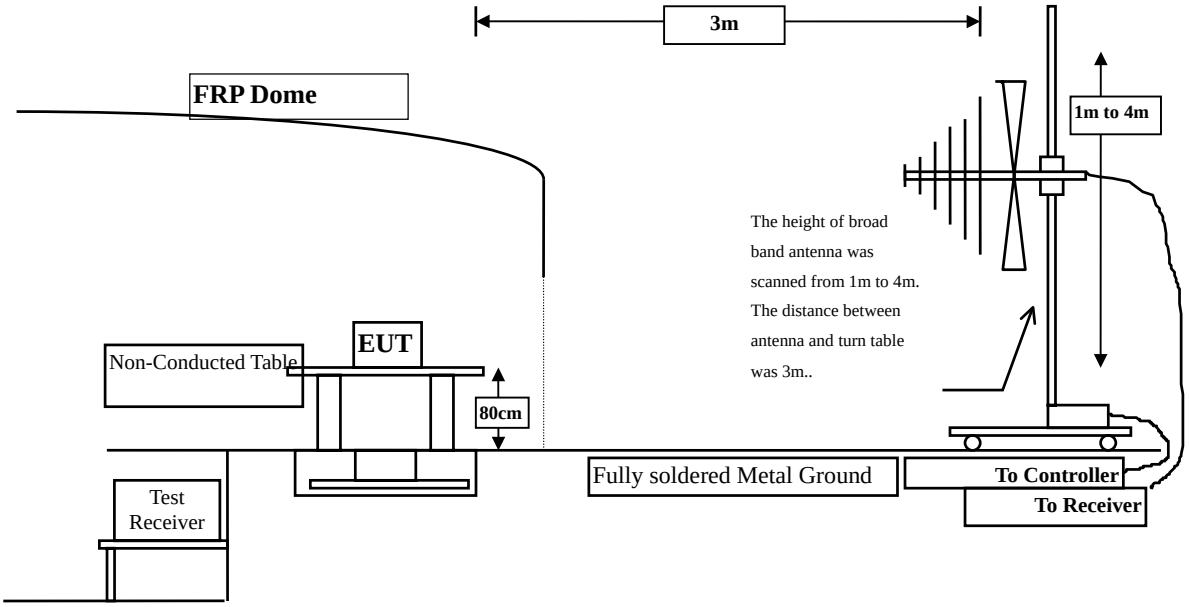
Test Site		Equipment	Manufacturer	Model No./Serial No.	Last Cal.
☒Site # 3	X	Bilog Antenna	Schaffner Chase	CBL6112B/2673	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9120D/D305	Sep., 2008
	X	Horn Antenna	Schwarzbeck	BBHA9170/208	Jul., 2008
	X	Pre-Amplifier	AGILENT	8447D/2944A09549	Sep., 2008
	X	Test Receiver	R & S	ESCS 30/ 825442/018	Sep., 2008
	X	Spectrum Analyzer	Advantest	R3162/91700283	Oct., 2008
	X	Coaxial Cable	QuieTek	QTK-CABLE/ CAB5	Feb., 2009
	X	Controller	QuieTek	QTK-CONTROLLER/ CTRL3	N/A
	X	Coaxial Switch	Anritsu	MP59B/6200265729	N/A

Note: 1. All instruments are calibrated every one year.

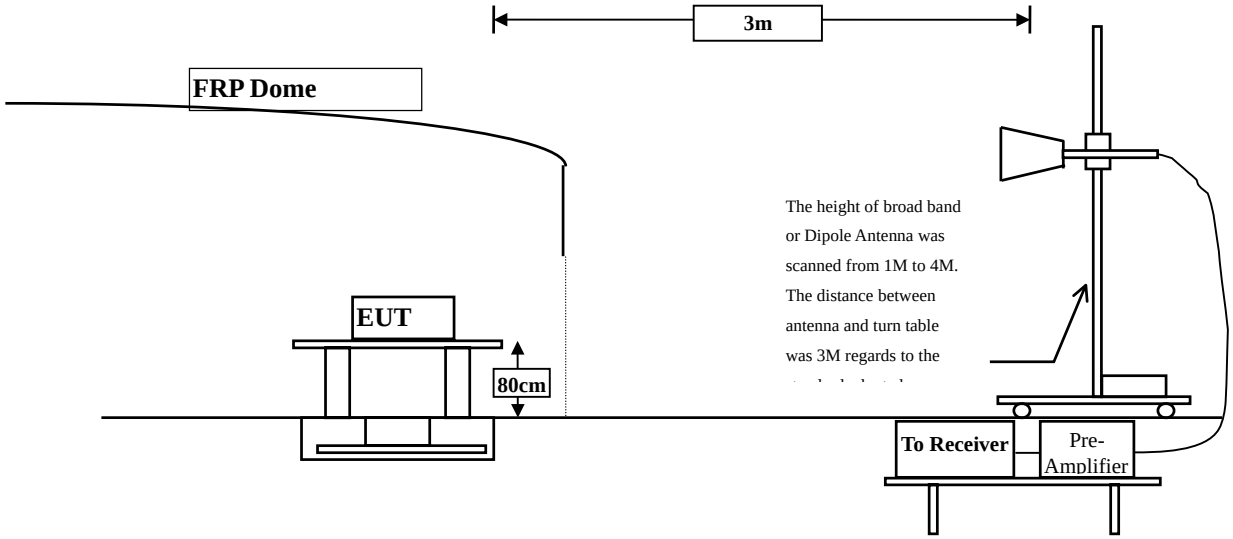
2. The test instruments marked by “X” are used to measure the final test results.

3.2. Test Setup

Radiated Emission Below 1GHz



Radiated Emission Above 1GHz



3.3. Limits

➢ Fundamental and Harmonics Emission Limits

Fundamental Frequency MHz	Field Strength of Harmonics	
	uV/m	uV/m
40.66-40.70	2250	225
70-130	1250	125
130-174	1250-3750	125-375
174-260	3750	375
260-470	3750-12500	375-1250
above 470	12500	1250

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3. The emission limit in this paragraph is based on measurement instrumentation employing an average detector.

➢ Spurious electric field strength limits

FCC Part 15 Subpart C Paragraph 15.209 Limits			
Frequency MHz	uV/m	dBuV/m	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	See Remark[1]	300
0.490-1.705	24000/F(kHz)	See Remark[1]	30
1.705-30	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Remarks : 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the tighter limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

3.4. Test Procedure

The EUT and its simulators are placed on a turn table which is 0.8 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.4:2003 on radiated measurement.

On the field strength of fundamental and harmonics, the limits shown are based on measuring equipment employing a average detector function. As an alternative, compliance with the limits may be based on the use of measurement instrumentation with a CISPR quasi-peak detector.

On the field strength of spurious electric, on any frequency or frequencies below or equal to 1000 MHz, the limits shown are based on measuring equipment employing a quasi-peak detector function and on any frequency or frequencies above 1000 MHz the radiated limits shown are based upon the use of measurement instrumentation employing an average detector function.

When average radiated emission measurement are included emission measurement below 1000 MHz, there also is 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.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz and above 1GHz is 1MHz.

3.5. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231

3.6. Uncertainty

± 3.8 dB below 1GHz

± 3.9 dB above 1GHz

3.7. Test Result

Product	WIRELESS DOOR CHIME		
Test Item	Fundamental Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2009/06/04	Test Site	No.3 OATS

Fundamental Power (Peak)

Channel No.	Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Emission Level (dBuV/m)	Peak Limit (dBuV/m)	Result
01 (Peak)- **Horizontal**	433.800	0.681	80.740	81.421	100.82	Pass
01 (Peak)- **Vertical**	433.800	-7.432	61.130	53.698	100.82	Pass

Note:

1. Emission Level = Reading Level + Probe Factor + Cable loss-PerAMP。

Fundamental Power (Average)

Channel No.	Frequency (MHz)	Peak Measurement (dBuV/m)	Duty Cycle Factor (dB)	Measurement Level (dBuV/m)	Limit (dBuV/m)	Result
01 (Peak)- **Horizontal**	433.8	81.421	-14.199	67.222	80.82	Pass
01 (Peak)- **Vertical**	433.8	53.698	-14.199	39.499	80.82	Pass

Note:

1. AVG Measurement=Peak Measurement + Duty Cycle
2. The Duty Cycle is refer to section 6.
3. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.

Product	WIRELESS DOOR CHIME		
Test Item	Harmonic Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2009/06/04	Test Site	No.3 OATS

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Peak Limit dBuV/m	Average Limit dBuV/m
Harmonic Radiated Emission						
Horizontal						
Peak						
1301.760	-2.768	45.440	42.672	-39.258	74.000	54.000
1735.680	-3.775	41.440	37.664	-44.266	74.000	54.000
2169.600	-2.469	40.850	38.381	-43.549	81.930	61.930
2603.520	-0.350	41.280	40.930	-41.000	81.930	61.930
3037.440	0.991	44.130	45.121	-36.809	81.930	61.930
3471.360	-0.272	43.560	43.288	-38.642	81.930	61.930
3905.280	0.618	43.810	44.428	-37.502	74.000	54.000
4339.200	2.241	41.250	43.491	-38.439	74.000	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. If the upper frequency at Restricted Band, then the limit value is 74dBuV(Peak)/54dBuV(Average).
3. Measurement Level = Reading Level +Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
5. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz; Span:10MHz。
6. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:10MHz。

Product	WIRELESS DOOR CHIME		
Test Item	Harmonic Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2009/06/04	Test Site	No.3 OATS

Frequency MHz	Correct Factor dB	Reading Level dBuV	Measurement Level dBuV/m	Margin dB	Peak Limit dBuV/m	Average Limit dBuV/m
Harmonic Radiated Emission						
Vertical						
Peak						
1301.480	-3.028	47.880	44.853	-37.077	74.000	54.000
1735.680	-2.553	46.400	43.847	-38.083	74.000	54.000
2169.600	-1.978	43.070	41.092	-40.838	81.930	61.930
2603.520	0.070	42.370	42.440	-39.490	81.930	61.930
3037.400	0.832	42.560	43.392	-38.538	81.930	61.930
3466.360	0.660	43.530	44.191	-37.739	81.930	61.930
3905.280	0.889	43.260	44.150	-37.780	74.000	54.000
4339.200	3.241	42.950	46.191	-35.739	74.000	54.000

Note:

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. If the upper frequency at Restricted Band, then the limit value is 74dBuV(Peak)/54dBuV(Average).
3. Measurement Level = Reading Level +Correct Factor.
4. The average measurement was not performed when the peak measured data under the limit of average detection. If the readings given are average, peak measurement should also be supplied.
5. Receiver setting (Peak Detector) : RBW:1MHz; VBW:3MHz; Span:10MHz。
6. Receiver setting (AVG Detector) : RBW:1MHz; VBW:10Hz; Span:10MHz。

Product	WIRELESS DOOR CHIME		
Test Item	General Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2009/06/04	Test Site	No.3 OATS

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Horizontal					
Quasi-Peak					
344.280	-1.823	22.928	21.105	-24.895	46.000
544.100	4.151	22.050	26.201	-19.799	46.000
602.300	3.558	23.048	26.606	-19.394	46.000
716.760	3.656	22.776	26.433	-19.567	46.000
868.080	5.840	36.797	42.637	-3.363	46.000
982.540	7.507	22.029	29.536	-24.464	54.000

Note:

1. All Reading Levels are quasi-peak values.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

Product	WIRELESS DOOR CHIME		
Test Item	General Radiated Emission		
Test Mode	Mode 1: Transmit		
Date of Test	2009/06/04	Test Site	No.3 OATS

Frequency	Correct Factor	Reading Level	Measurement Level	Margin	Limit
MHz	dB	dBuV	dBuV/m	dB	dBuV/m
Vertical					
Quasi-Peak					
538.280	1.774	21.842	23.616	-22.384	46.000
617.820	0.755	22.502	23.257	-22.743	46.000
683.780	1.888	22.642	24.530	-21.470	46.000
788.540	2.615	22.269	24.884	-21.116	46.000
868.080	-0.540	36.261	35.721	-10.279	46.000
967.020	3.686	21.783	25.469	-28.531	54.000

Note:

1. All Reading Levels are quasi-peak values.
2. “ ” means the worst emission level.
3. Measurement Level = Reading Level + Correct Factor.

4. Transmit time

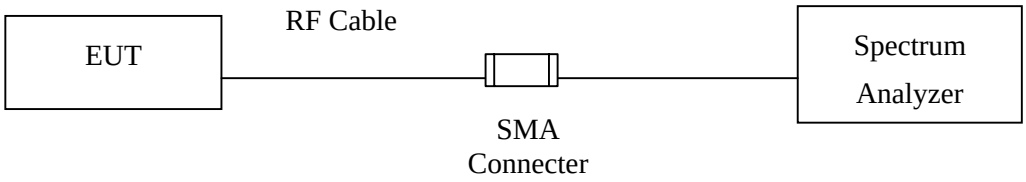
4.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	Agilent	E4407B / US39440758	June., 2009

Note: All instruments are calibrated every one year.

4.2. Test Setup



4.3. Limits

A manually operated transmitter shall employ a switch that will automatically deactivate the transmitter within not more than 5 seconds of being released.

4.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231

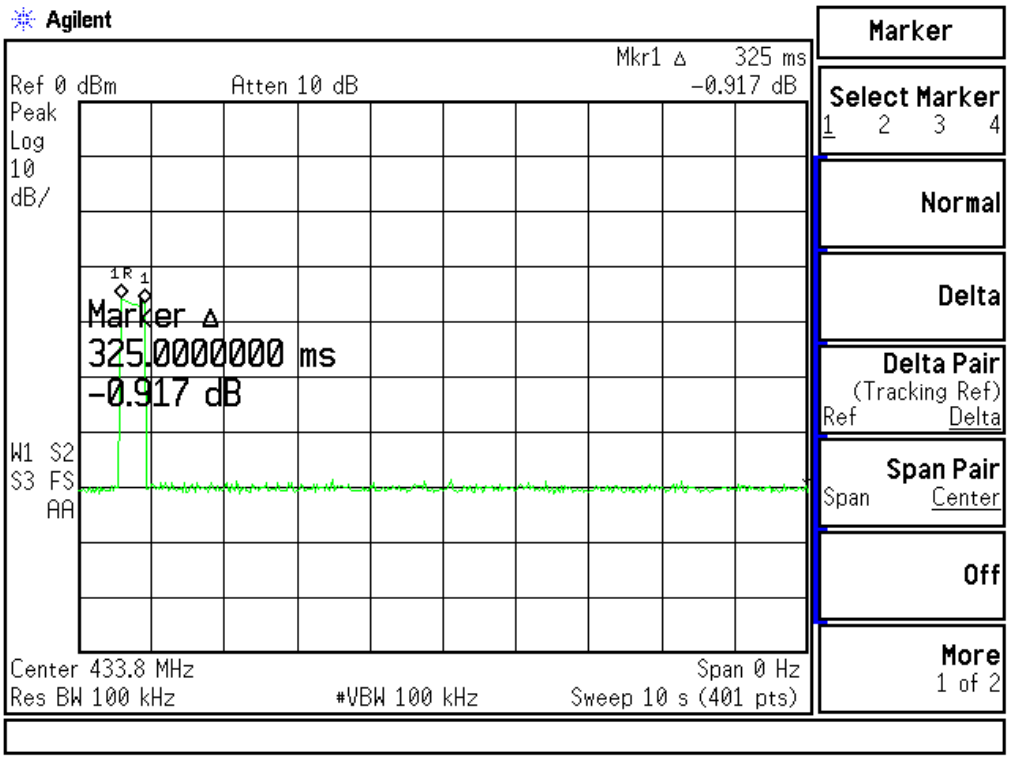
4.5. Uncertainty

± 25ms

4.6. Test Result

Product	WIRELESS DOOR CHIME		
Test Item	Transmit time		
Test Mode	Mode 1: Transmit		
Date of Test	2009/06/04	Test Site	No.3 OATS

Channel No.	Frequency (MHz)	Measurement Value (s)	Limit (s)	Result
1	433.8	0.325	<5s	Pass



5. Occupied Bandwidth

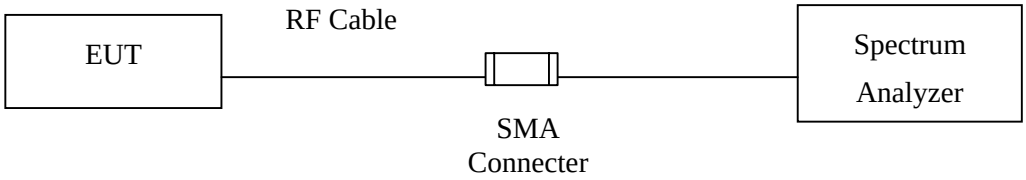
5.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	Agilent	E4407B / US39440758	June., 2009

Note: All instruments are calibrated every one year.

5.2. Test Setup



5.3. Limits

The bandwidth of the emission shall be no wider than 0.25% of the center frequency for devices operating above 70MHz and below 900MHz. For devices operating above 900MHz, 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

5.4. Test Specification

According to FCC Part 15 Subpart C Paragraph 15.231

5.5. Uncertainty

± 150Hz

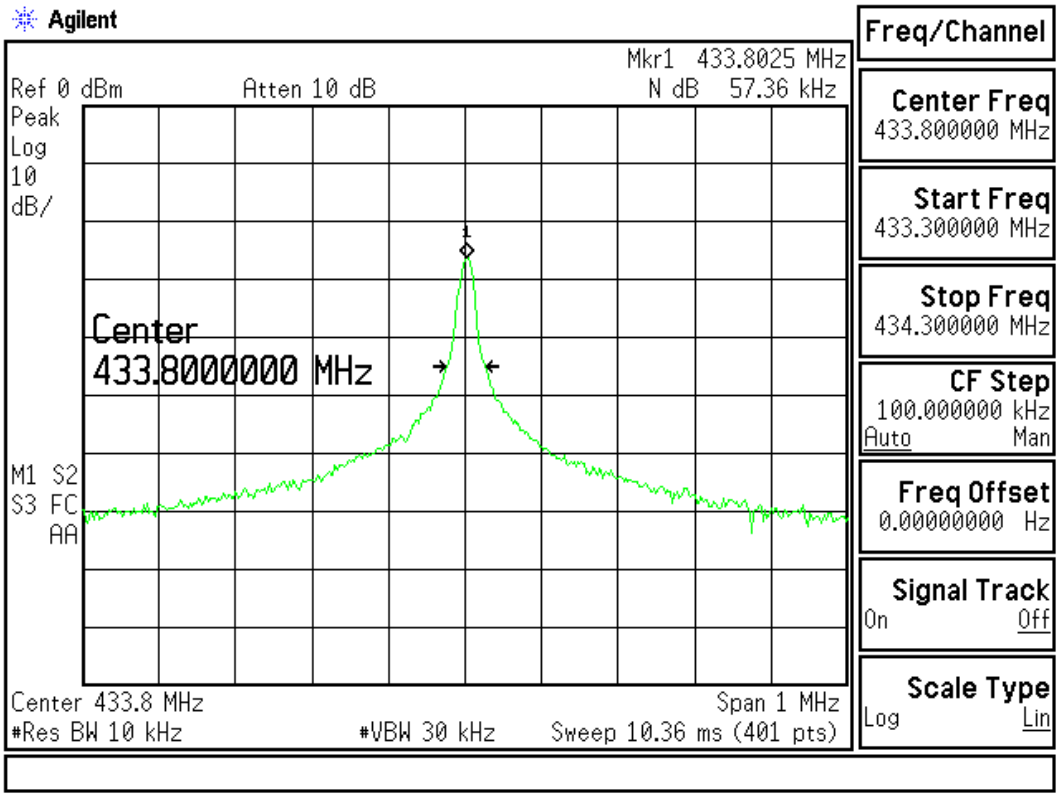
5.6. Test Result

Product	WIRELESS DOOR CHIME		
Test Item	Occupied Bandwidth		
Test Mode	Mode 1: Transmit		
Date of Test	2009/06/04	Test Site	No.3 OATS

Channel No.	Frequency (MHz)	Measurement Value (MHz)	Limit (MHz)	Result
1	433.8	0.05736	1.0848	Pass

Note: Limit = 433.92MHz * 0.25%= 1.0848MHz

Figure Channel 1:



6. Duty Cycle

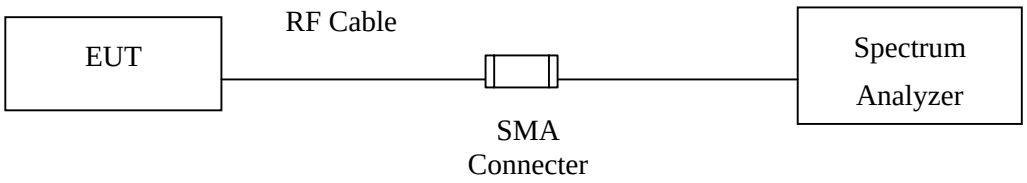
6.1. Test Equipment

The following test equipment are used during the test:

Item	Equipment	Manufacturer	Model No. / Serial No.	Last Cal.
1	Spectrum Analyzer	R&S	FSP40 / 100170	June., 2009

Note: 1. All instruments are calibrated every one year.

6.2. Test Setup



6.3. Test Specification

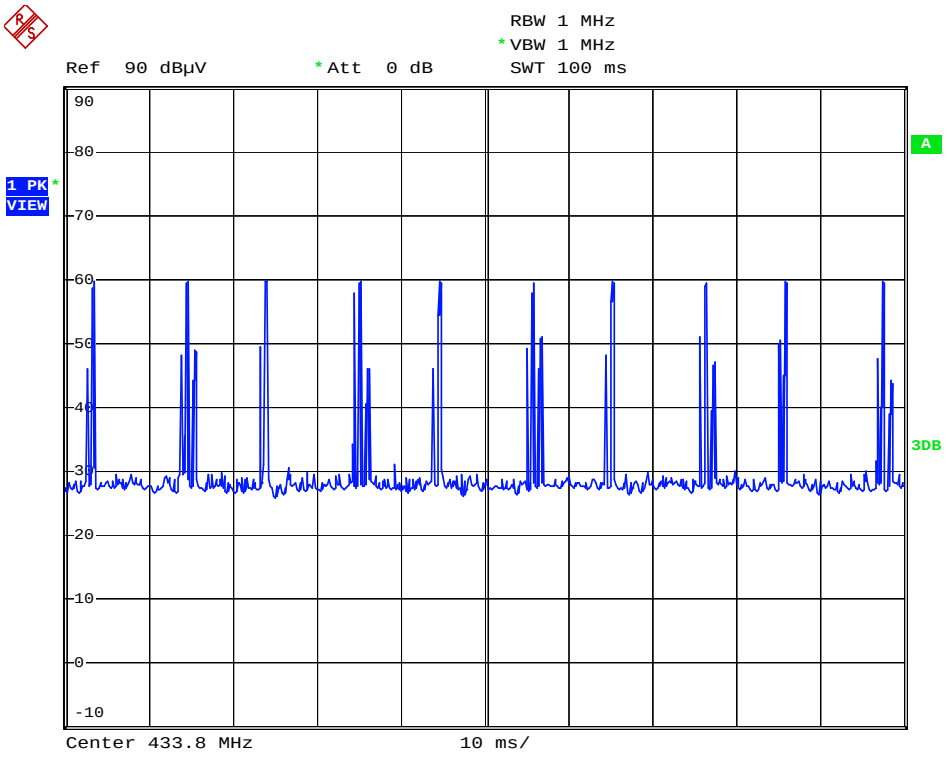
According to FCC Part 15 Subpart C Paragraph 15.231

6.4. Uncertainty

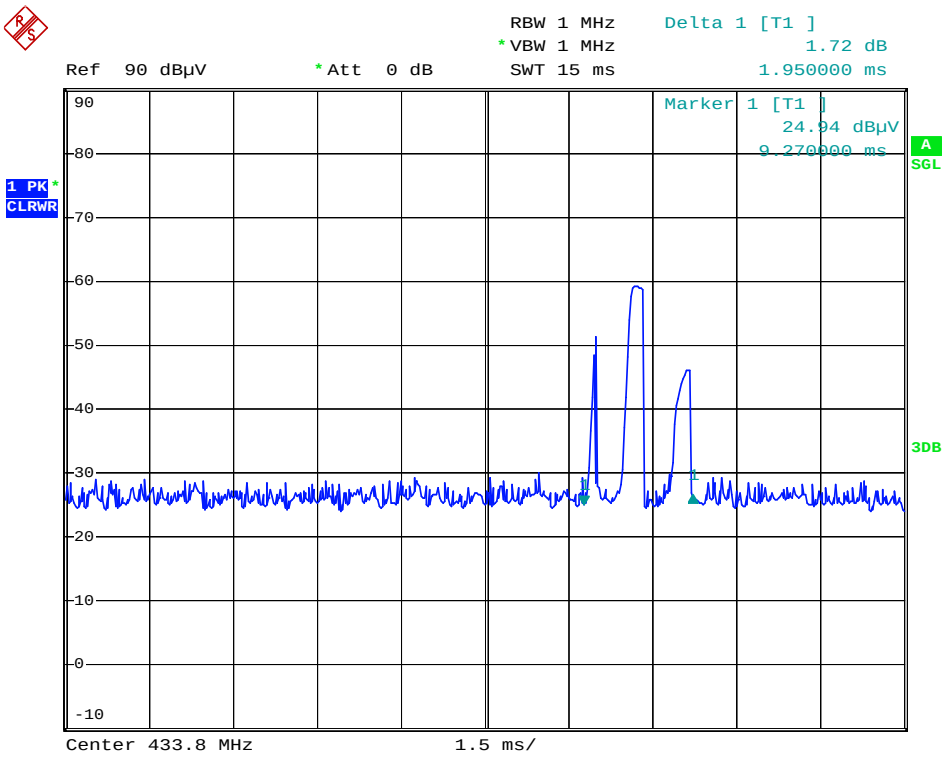
± 25ms

6.5. Test Result

Product	WIRELESS DOOR CHIME		
Test Item	Duty Cycle		
Test Mode	Mode 1: Transmit		
Date of Test	2009/06/04	Test Site	No.3 OATS



Date: 4.JUN.2009 11:13:56



Date: 4.JUN.2009 11:16:41

1 Cycle= 1.95ms*10=19.5 ms

Duty Cycle=19.5msec / 100msec=0.195

Duty Cycle correction factor= 20 LOG 0.195=-14.199

Duty Cycle correction factor	**-14.199**	**dB**

Remark:

1. If Duty Cycle is smaller than -20dB,based on FCC part15 the duty cycle correction factor is -20dB for calculating average emission.