

## FCC - TEST REPORT

Report Number : **60.790.19.035.01R01** Date of Issue : November 29, 2019Model : **R32345768-001**Product Type : **Door Chime**Applicant : Ademco IncAddress : 1985 Douglas Drive, Golden Valley, MN 55422-3922, USAProduction Facility : Ansen Electronics CompanyAddress : Chen Tung Industrial Zone, Ning Tau Administr. District, QiaoTauZhen, Dongguan, GuangDong, P.R.CTest Result :  **Positive  Negative**Total pages including Appendices : 17

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## 2 Description of Equipment Under Test

### Description of the Equipment Under Test

Product: Door Chime  
Model no.: R32345768-001  
FCC ID: HS9-RDWL915W  
Rating: Mini USB: 5V DC  
Battery: 6V DC (4 x 1.5V LR14 batteries)  
AC power: 8-16V  
Frequency: 916.8MHz  
Antenna gain: 0 dBi  
Number of operated channel: 1  
Modulation Type: FSK

DESCRIPTION	MANUFACTURER	MODEL NO.	REMARK
Adapter	Apple Inc	A1357	1

Remark: 1. The auxiliary equipment/accessories was provided by our TUV SUD lab.

### 3 Summary of Test Standards

#### Test Standards

FCC Part 15 Subpart C 10-1-18 Edition

Federal Communications Commission, PART 15 — Radio Frequency Devices,  
Subpart C — Unintentional Radiators

All the tests were performed using the procedures from ANSI C63.4(2014) and ANSI C63.10 (2013).

## 4 Details about the Test Laboratory

### Site 1

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch  
 Building 12&13 Zhiheng Wisdomland Business Park,  
 Nantou Checkpoint Road 2,  
 Shenzhen 518052, P.R.China  
 FCC Registration Number: 514049  
 ISED test site number: 10320A-1

Emission Tests	
Test Item	Test Site
<b>FCC Part 15 Subpart C</b>	
FCC Title 47 Part 15.205, 15.209 & 15.249 Radiated Spurious Emission	Site 1
FCC Title 47 Part 15.207 Conduct Emission	Site 1
FCC Title 47 Part 15.215 20dB Bandwidth	Site 1
FCC Title 47 Part 15.203 Antenna Requirements	Site 1

## 4.1 Test Equipment Site List

### Radiated emission Test – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 26	101269	2020-6-28
Signal Analyzer	Rohde & Schwarz	FSV40	101031	2020-6-28
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100398	2020-7-7
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2020-7-5
Horn Antenna	Rohde & Schwarz	HF907	102294	2020-6-22
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2020-7-5
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2020-6-28
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2020-6-28
Attenuator	Agilent	8491A	MY39264334	2020-6-28
3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

### Conducted Emission Test – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
EMI Test Receiver	Rohde & Schwarz	ESR 3	101782	2020-6-28
LISN	Rohde & Schwarz	ENV4200	100249	2020-6-28
LISN	Rohde & Schwarz	ENV432	101318	2020-7-19
LISN	Rohde & Schwarz	ENV216	100326	2020-6-28
ISN	Rohde & Schwarz	ENY81	100177	2020-6-28
ISN	Rohde & Schwarz	ENY81-CA6	101664	2020-6-28
High Voltage Probe	Rohde & Schwarz	TK9420(VT94 20)	9420-584	2020-6-24
RF Current Probe	Rohde & Schwarz	EZ-17	100816	2020-7-2
Attenuator	Shanghai Huaxiang	TS2-26-3	080928189	2020-6-28
Test software	Rohde & Schwarz	EMC32	Version9.15.00	N/A

### 20dB Bandwidth – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2020-6-28

## 4.2 Measurement System Uncertainty

### Measurement System Uncertainty Emissions

System Measurement Uncertainty	
Items	Extended Uncertainty
Uncertainty for Radiated Emission in 3m chamber 9kHz-30MHz	4.46dB
Uncertainty for Radiated Emission in 3m chamber 30MHz-1000MHz	Horizontal: 4.91dB; Vertical: 4.89dB;
Uncertainty for Radiated Emission in 3m chamber 1000MHz-25000MHz	Horizontal: 4.80dB; Vertical: 4.79dB;
Uncertainty for Conducted Emission at AC Power Line 150kHz-30MHz	3.21dB
Uncertainty for Conducted RF test	2.13dB
Uncertainty for Frequency RF test	0.6×10 <sup>-7</sup>

## 5 Summary of Test Results

Emission Tests					
FCC Part 15 Subpart C	Test Condition	Pages	Test Result		
			Pass	Fail	N/A
	FCC Title 47 Part 15.205, 15.209 & 15.249 Radiated Emission	12-13	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	FCC Title 47 Part 15.207 Conduct Emission	14-15	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	FCC Title 47 Part 15.215 20dB Bandwidth	16	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
	FCC Title 47 Part 15.203 Antenna Requirement	17	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 6 General Remarks

### Remarks

All tests were performed on model **R32345768-001** with different power source and voltage. Only worst case data were shown on this report.

This submittal(s) (test report) is intended for **FCC ID: HS9-RDWL915W**, complies with Section 15.205, 15.207, 15.209, 15.249 of the FCC Part 15, Subpart C rules.

The TX frequency is 916.8MHz.

### SUMMARY:

- All tests according to the regulations cited on page 8 were

- Performed

- **Not** Performed

- The Equipment Under Test

- **Fulfills** the general approval requirements.

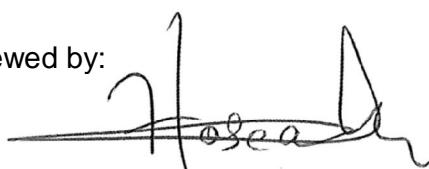
- **Does not** fulfill the general approval requirements.

Sample Received Date: October 25, 2019

Testing Start Date: November 4, 2019

Testing End Date: November 9, 2019

Reviewed by:



Hosea CHAN  
EMC Project Engineer

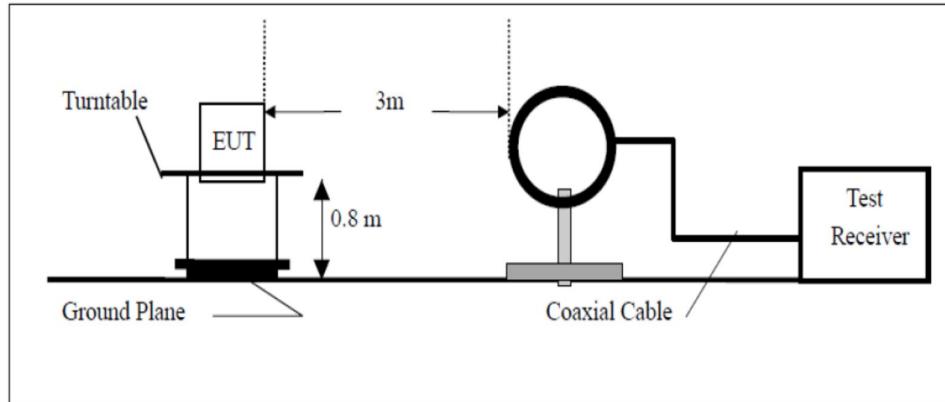
Prepared by:



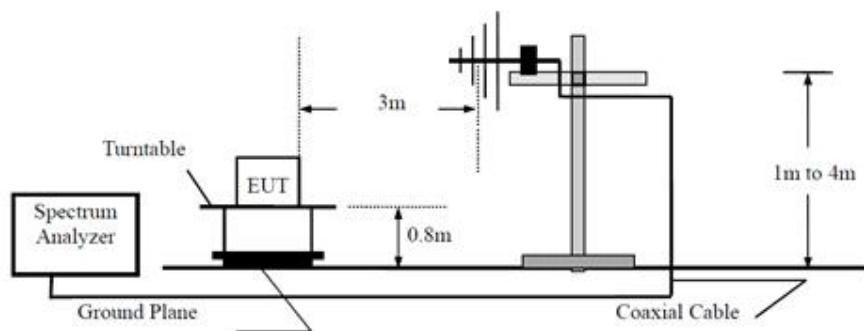
Eric LI  
EMC Senior Project Engineer

## 7 Test Setups

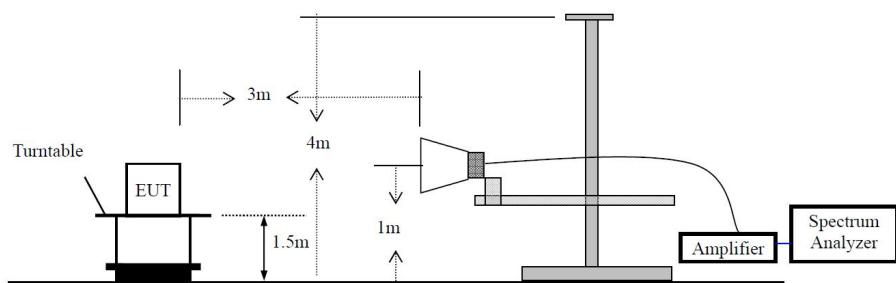
### 7.1 Radiated test setups 9kHz-30MHz



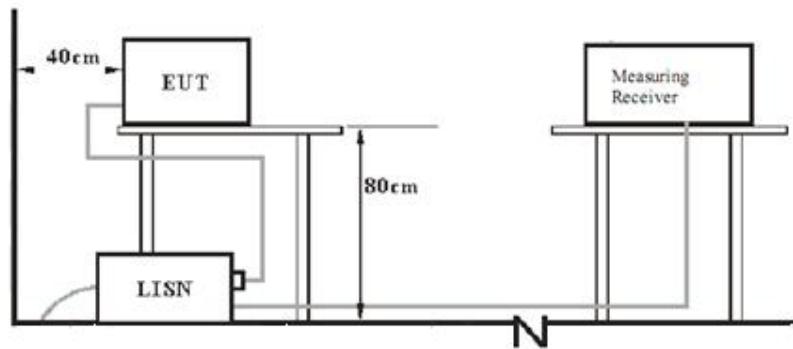
### 7.2 Radiated test setups Below 1GHz



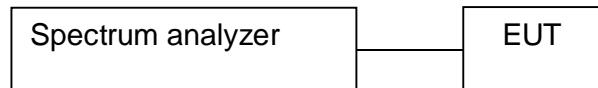
### 7.3 Radiated test setups Above 1GHz



## 7.4 AC Power Line Conducted Emission test setups



## 7.5 Conducted RF test setups



## 8 Emission Test Results

### 8.1 Spurious Radiated Emission

EUT: R32345768-001  
 Op Condition: Operated, TX Mode (916.8MHz)  
 Test Specification: FCC15.205, 15.209 & 15.249(a) Antenna: Horizontal  
 Comment: 6V DC  
 Remark: 9kHz to 10GHz

Test Result  
 Passed  
 Not Passed

Frequency MHz	Result dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Detector PK/QP/AV	Corr. (dB)
157.45	14.42	43.50	-29.08	Peak	-31.3
429.26	24.94	46.00	-21.06	Peak	-23.1
916.80	86.73	114.00	-27.27	Peak	-15.1
916.80	72.26	94.00	-21.74	Average	-15.5
1833.60	45.63	54.00	-8.37	Peak	-9.8
2750.40	38.36	54.00	-15.64	Peak	-5.3
3667.20	43.54	54.00	-10.46	Peak	-0.8
4584.00	41.58	54.00	-12.42	Peak	0.7
5500.80	35.68	54.00	-18.32	Peak	1.6
6417.60	47.59	54.00	-6.41	Peak	3.9
7334.40	37.56	54.00	-16.44	Peak	7.5

Remark: For harmonics and spurious, since the measured peak value not exceeded the Quasi-peak limit, Quasi-peak value no need to be measured.

## Spurious Radiated Emission

EUT: R32345768-001  
 Op Condition: Operated, TX Mode (916.8MHz)  
 Test Specification: FCC15.205, 15.209 & 15.249(a) Antenna: Vertical  
 Comment: 6V DC  
 Remark: 9kHz to 10GHz

Test Result  
 Passed  
 Not Passed

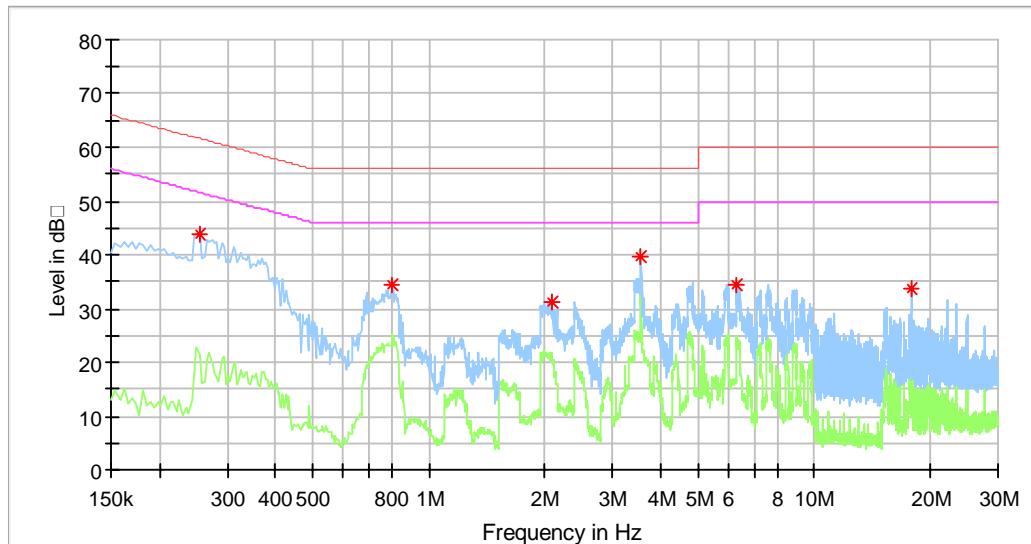
Frequency MHz	Result dB $\mu$ V/m	Limit dB $\mu$ V/m	Margin dB	Detector PK/QP/AV	Corr. (dB)
62.12	25.58	40.00	-14.42	Peak	-26.0
204.65	17.15	43.50	-26.35	Peak	-23.3
916.80	83.21	114.00	-30.79	Peak	-15.5
916.80	71.74	94.00	-22.26	Average	-15.5
1833.60	44.64	54.00	-9.36	Peak	-9.0
2750.40	36.81	54.00	-17.19	Peak	-5.3
3667.20	43.02	54.00	-10.98	Peak	-0.8
4584.00	45.58	54.00	-8.42	Peak	0.7
5500.80	34.28	54.00	-19.72	Peak	1.6
6417.60	50.59	54.00	-3.41	Peak	3.9
7334.40	37.15	54.00	-16.85	Peak	7.5

Remark: For harmonics and spurious, since the measured peak value not exceeded the Quasi-peak limit, Quasi-peak value no need to be measured.

## 8.2 Conducted Emission

EUT: R32345768-001  
 Op Condition: Operated, TX Mode (916.8MHz)  
 Test Specification: FCC15.107  
 Comment: 120V/60Hz AC(adapter), L Line

Test Result  
 Passed  
 Not Passed

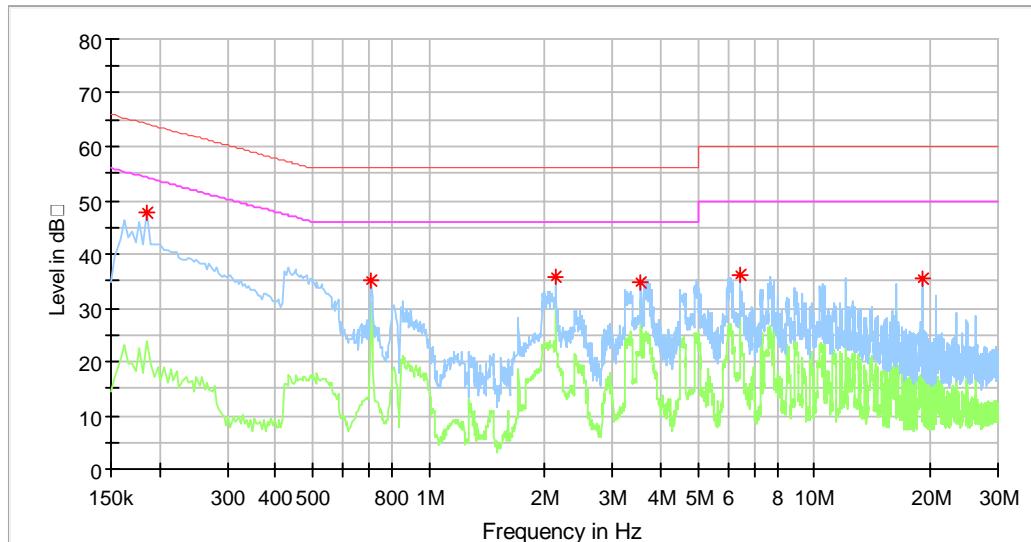


Frequency (MHz)	MaxPeak (dB $\mu$ V)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Corr. (dB)
0.254000	43.81	---	61.63	-17.81	10.3
0.806000	34.27	---	56.00	-21.73	10.3
2.090000	31.30	---	56.00	-24.70	10.4
3.554000	39.75	---	56.00	-16.25	10.4
6.294000	34.47	---	60.00	-25.53	10.5
17.790000	33.77	---	60.00	-26.23	11.0

## Conducted Emission at AC Power Line

EUT: R32345768-001  
 Op Condition: Operated, TX Mode (916.8MHz)  
 Test Specification: FCC15.107  
 Comment: 120V/60Hz AC(adapter), N Line

Test Result  
 Passed  
 Not Passed

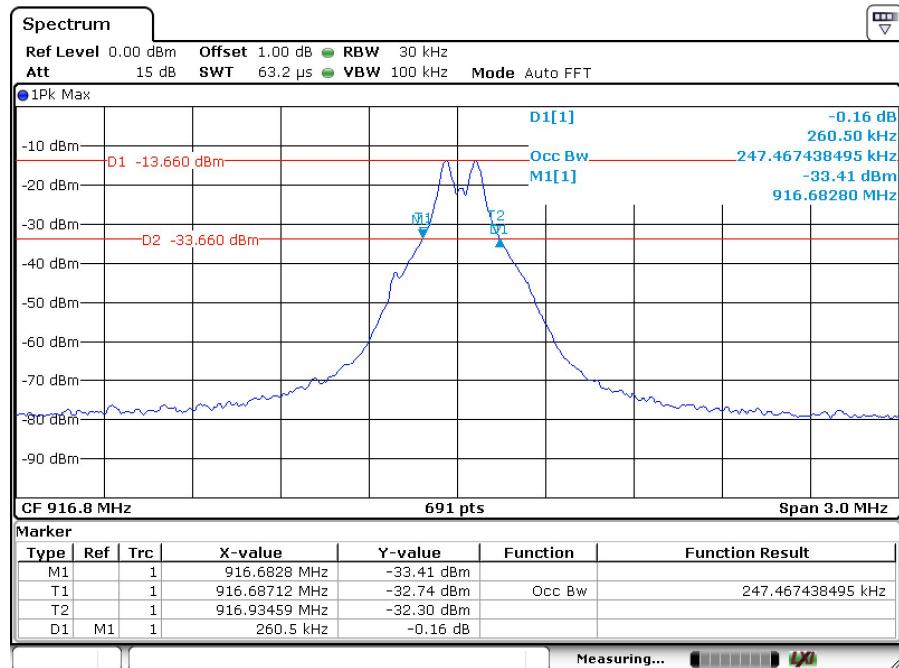


Frequency (MHz)	MaxPeak (dB $\mu$ V)	Average (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Corr. (dB)
0.186000	47.61	---	64.21	-16.60	10.3
0.710000	35.24	---	56.00	-20.76	10.3
2.134000	35.80	---	56.00	-20.20	10.4
3.558000	34.66	---	56.00	-21.34	10.4
6.398000	36.26	---	60.00	-23.74	10.6
19.206000	35.30	---	60.00	-24.70	11.5

## 8.3 20dB Bandwidth

EUT: R32345768-001  
 Op Condition: Operated, TX Mode (916.8MHz)  
 Test Specification: FCC15.15 20dB Bandwidth  
 Comment: 6V DC

Test Result  
 Passed  
 Not Passed



Date: 19.NOV.2019 17:46:21

Bandwidth			Measured Value		
20dB bandwidth			260.5 kHz		
99% OCB			247.5 kHz		

## 8.3 Antenna Requirements

EUT: R32345768-001  
Op Condition: Operated, TX Mode (916.8MHz)  
Test Specification: FCC15.203  
Comment: 6V DC

Test Result  
 Passed  
 Not Passed

### Limit

For intentional device, according to FCC Title 47 Part 15.203, 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.

### Antenna Connector Construction

The antenna used in this product is spring antenna, which is embedded permanently on PCB and no consideration of replacement. The maximum antenna gain is 0dBi.