China

FCC - TEST REPORT

Report Number	:	60.790.19.035.01R01	Date of Issue	: November 29, 2019
Model	:	R32345768-001		
Product Type	:	**Door Chime**		
Applicant	:	Ademco Inc		
Address	:	1985 Douglas Drive, Golden Valley, MN 55422-3922, USA		
Production Facility	:	Ansen Electronics Company		
Address	:	Chen Tung Industrial Zone, Ning Tau Administr. District, QiaoTauZhen, Dongguan, GuangDong. P.R.C		
Test Result	:	n **Positive** o **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).

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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
FCC Part 15 Subpart C	
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(VT9420)	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	0.6×10-7

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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	☒	☐	☐
FCC Title 47 Part 15.207 Conduct Emission	14-15	☒	☐	☐
FCC Title 47 Part 15.215 20dB Bandwidth	16	☒	☐	☐
FCC Title 47 Part 15.203 Antenna Requirement	17	☒	☐	☐

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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

n - Performed

o - **Not** Performed

- The Equipment Under Test

n - **Fulfills** the general approval requirements.

o - **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:

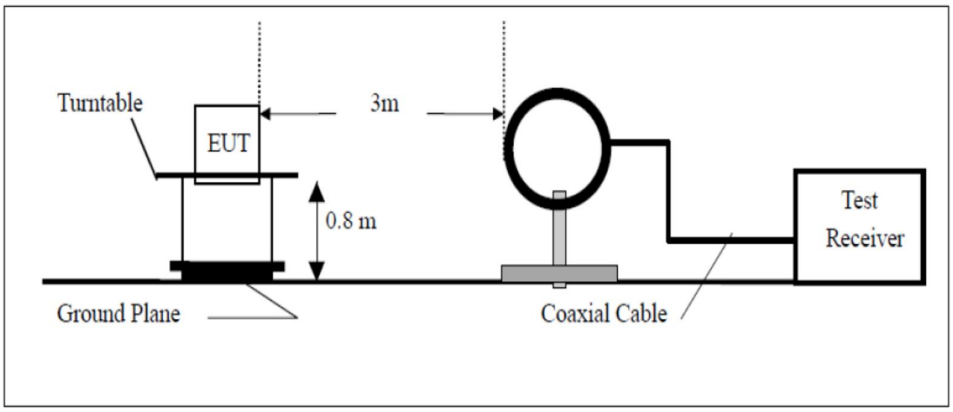
Hosea CHAN
EMC Project Engineer

Prepared by:

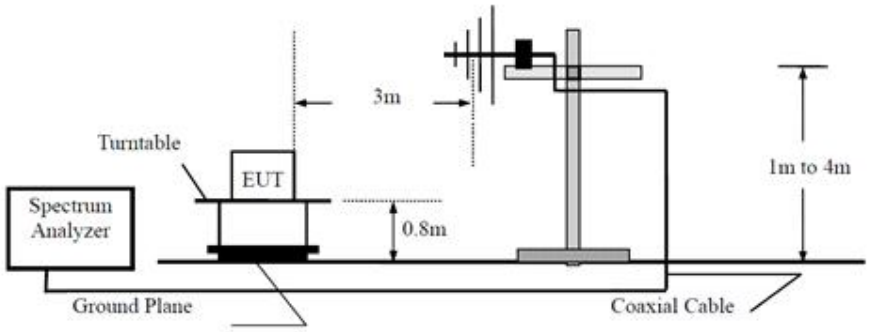
Eric LI
EMC Senior Project Engineer

7 Test Setups

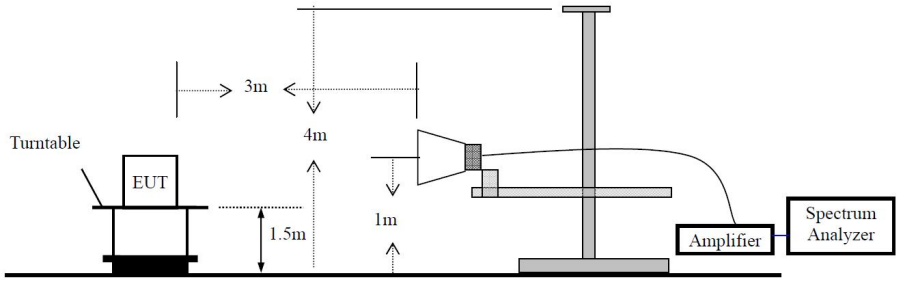
7.1 Radiated test setups 9kHz-30MHz



7.2 Radiated test setups Below 1GHz



7.3 Radiated test setups Above 1GHz



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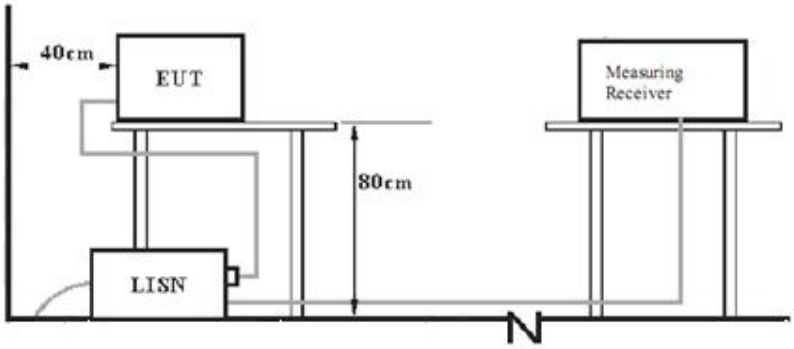
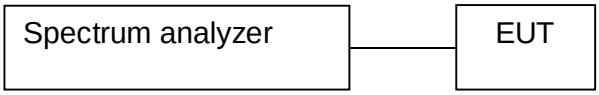
7.4 AC Power Line Conducted Emission test setups



7.5 Conducted RF test setups



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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 dBµV/m	Limit dBµV/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.

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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 dBµV/m	Limit dBµV/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.

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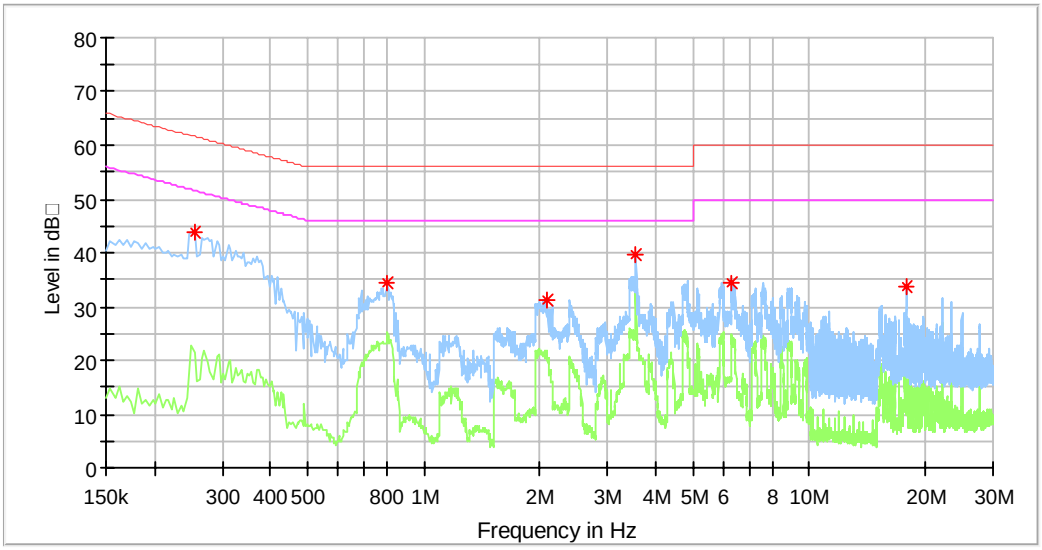
8.2 Conducted Emission

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 (dBµV)	Average (dBµV)	Limit (dBµV)	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

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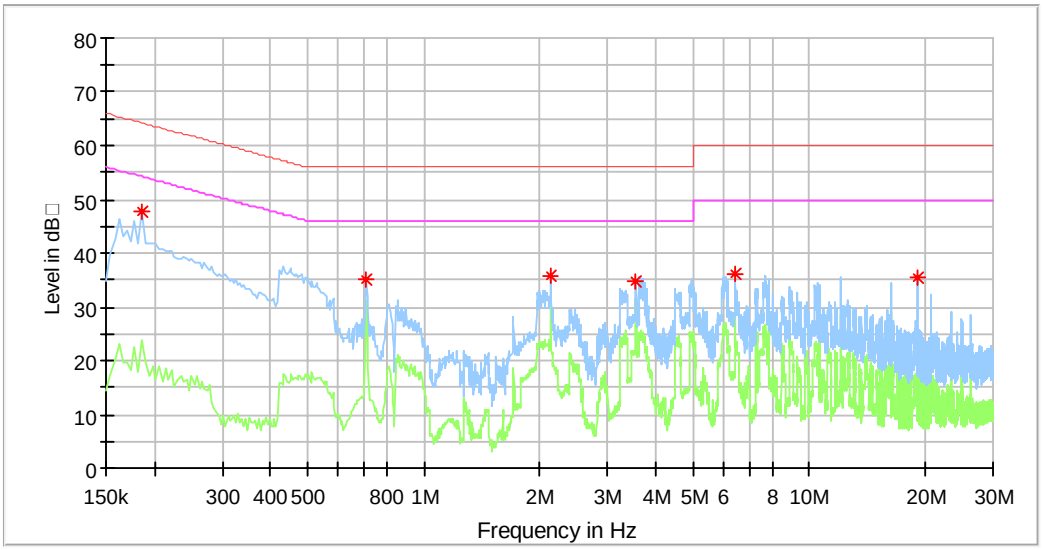
Conducted Emission at AC Power Line

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

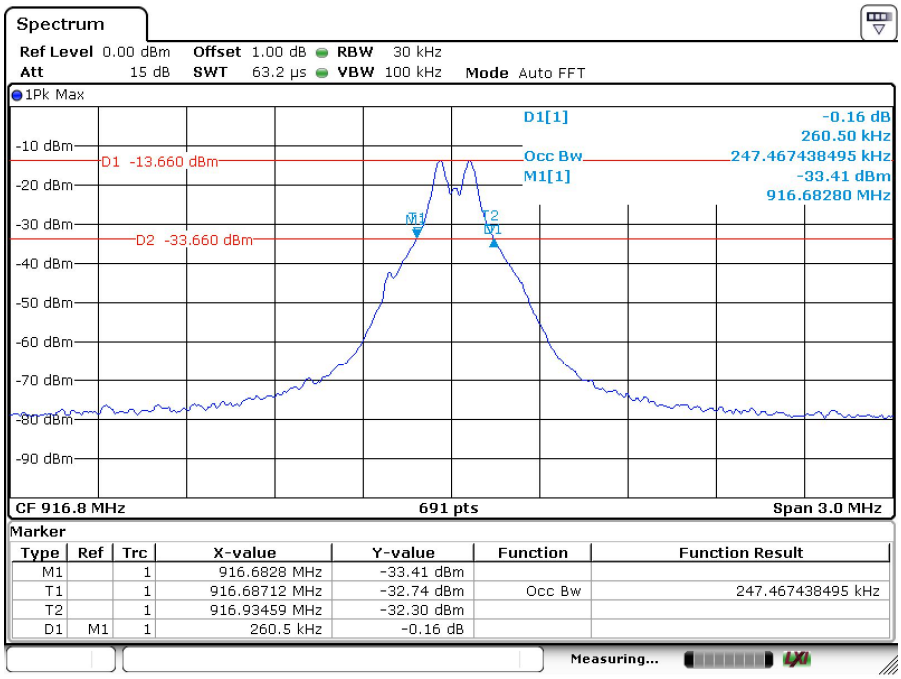


Frequency (MHz)	MaxPeak (dBµV)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Corr. (dB)
0.186000	47.61	---	64.21	-16.60	10.3
0.710000	35.24	---	56.00	-20.76	10.3
2.134000	35.80	---	56.00	-20.20	10.4
3.558000	34.66	---	56.00	-21.34	10.4
6.398000	36.26	---	60.00	-23.74	10.6
19.206000	35.30	---	60.00	-24.70	11.5

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.