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CNAS L5313



DEKRA

Test Report

FCC Part15 Subpart C

RSS-Gen Issue 4

Product Name : August Smart Door Lock
Model No. : ASL-03
FCC ID : 2AB6UASL3
IC : 12163A-ASL3

Applicant : August Home Inc.

Address : 657 Bryant Street, San Francisco,94107, USA

Date of Receipt : Feb. 21st, 2017

Test Date : Feb. 21st, 2017~ Mar. 27th, 2017

Issued Date : Apr. 13th, 2017

Report No. : 1722089R-RF-US- P06V02

Report Version : V1.1

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : Apr. 13th, 2017
Report No. : 1722089R-RF-US-P06V02



Product Name : August Smart Door Lock
 Applicant : August Home Inc.
 Address : 657 Bryant Street, San Francisco,94107, USA
 Manufacturer : GoerTek Inc
 Address : No.8877 Yingqian Street,High-Tech Industrial Development District,Weifang,Shandong,261031, P.R.China
 Model No. : ASL-03
 FCC ID : 2AB6UASL3
 IC : 12163A-ASL3
 EUT Voltage : DC 6V
 Applicable Standard : FCC CFR Title 47 Part 15 Subpart C
 ANSI C63.4:2014
 ANSI C63.10:2013
 RSS-GEN Issue 4
 Test Result : Complied
 Performed Location : Quietek Corporation - Suzhou EMC Laboratory
 No.99 Hongye Rd., Suzhou Industrial Park, Suzhou, 215006, Jiangsu, China
 TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
 FCC Registration Number: 800392

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Approved By : *Harry Zhao*

 (Engineering Manager: Harry Zhao)

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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1722089R-RF-US-P06V02	V1.0	Initial Issued Report	Mar. 28th, 2017
1722089R-RF-US-P06V02	V1.1	Modified the Applicant's name	Apr. 13th, 2017

1. General Information

1.1. EUT Description

Product Name	August Smart Door Lock
Model No.	ASL-03
EUT Voltage	DC 6V
Z-wave	
Frequency Range	908-916 MHz
Channel Number	3
Type of Modulation	FSK/GFSK
Data Rate	9.6/40/100kbps
Channel Control	Auto

1.2. Antenna information

Model No.	N/A		
Antenna manufacturer	N/A		
Antenna Delivery	<input checked="" type="checkbox"/> 1*TX+1*RX	<input type="checkbox"/> 2*TX+2*RX	<input type="checkbox"/> 3*TX+3*RX
Antenna technology	<input checked="" type="checkbox"/> SISO		
	<input type="checkbox"/> MIMO	<input type="checkbox"/> Basic	
		<input type="checkbox"/> CDD	
		<input type="checkbox"/> Sectorized	
		<input type="checkbox"/> Beam-forming	
Antenna Type	<input type="checkbox"/> External	<input type="checkbox"/> Dipole	
		<input type="checkbox"/> Sectorized	
	<input checked="" type="checkbox"/> Internal	<input type="checkbox"/> PIFA	
		<input checked="" type="checkbox"/> PCB	
		<input type="checkbox"/> Ceramic Chip Antenna	
		<input type="checkbox"/> Metal plate type F antenna	
		Antenna Technology	
<input checked="" type="checkbox"/> SISO	4		

1.3. Mode of Operation

Test Modes List
Mode 1: Transmit

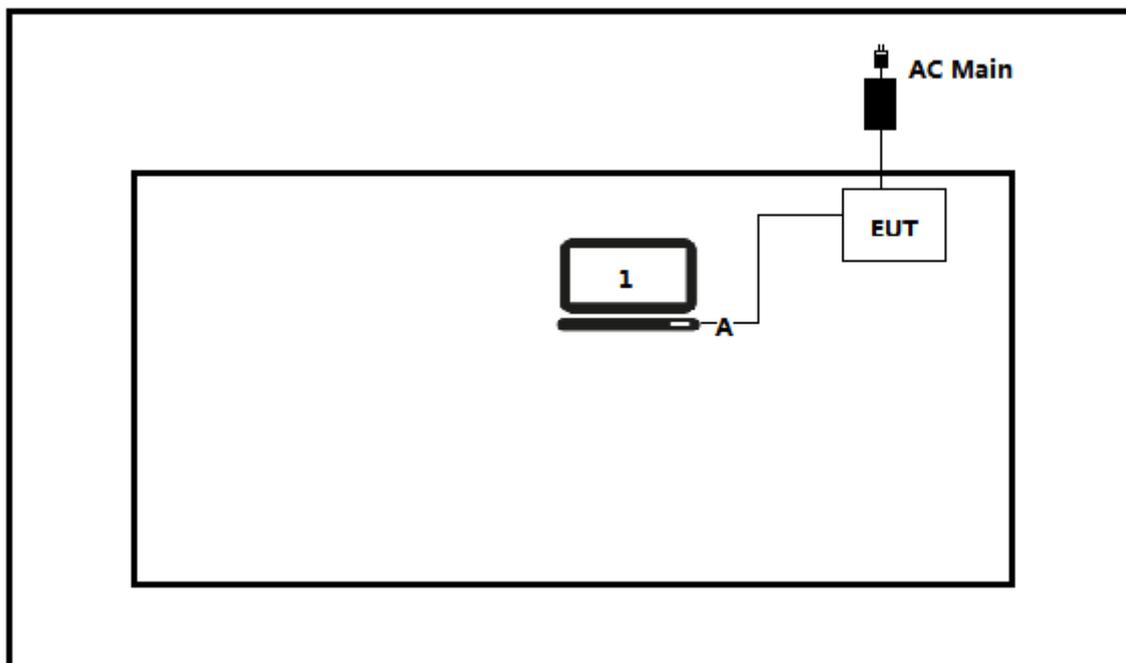
1.4. Tested System Details

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

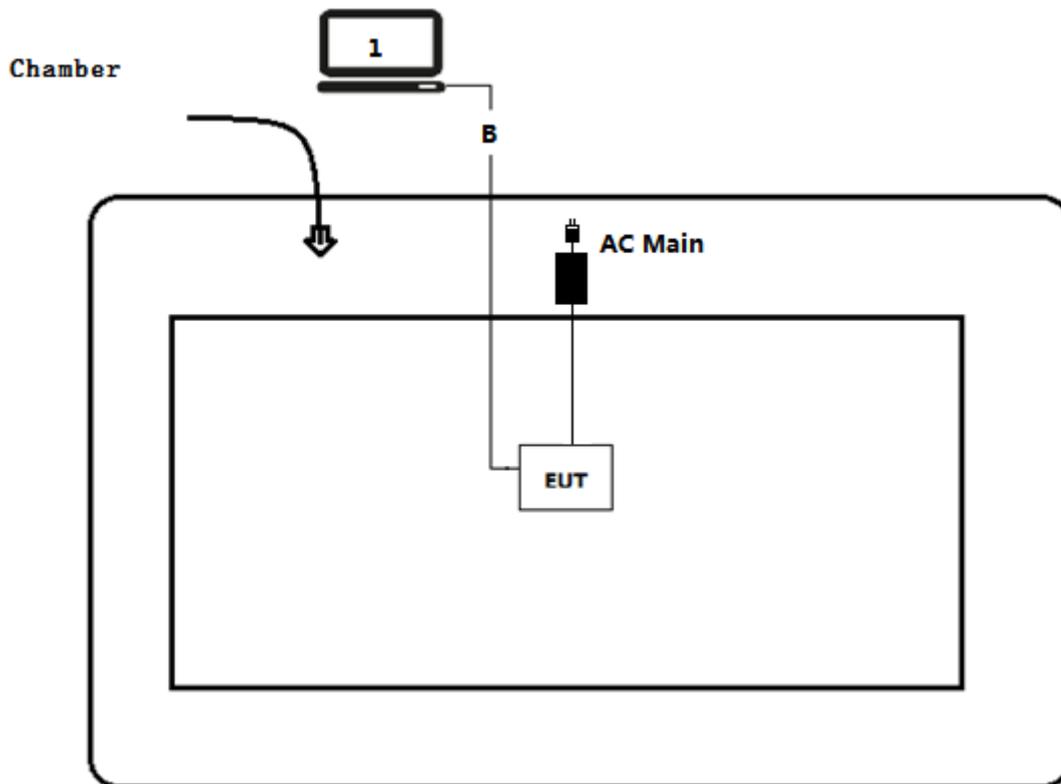
No.	Product	Manufacturer	Model No.	Serial No.	Power Cord
1	N/A	N/A	N/A	N/A	N/A

1.5. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



Signal Cable Type		Signal cable Description
A	Serial-USB Cable	Non-shielded, < 1m
B	Serial-USB Cable	Non-shielded, > 10m

2. Technical Test

2.1. Summary of Test Result

For FCC

Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	FCC 15.207	PASS
20dB&99% Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.215(c)	FCC 15.215	PASS
Radiated Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209 and 15.249	FCC 15.249	PASS
Band-edge Compliance of RF Conducted Emissions	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.249	FCC 15.249	PASS
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	FCC 15.203	PASS

For IC

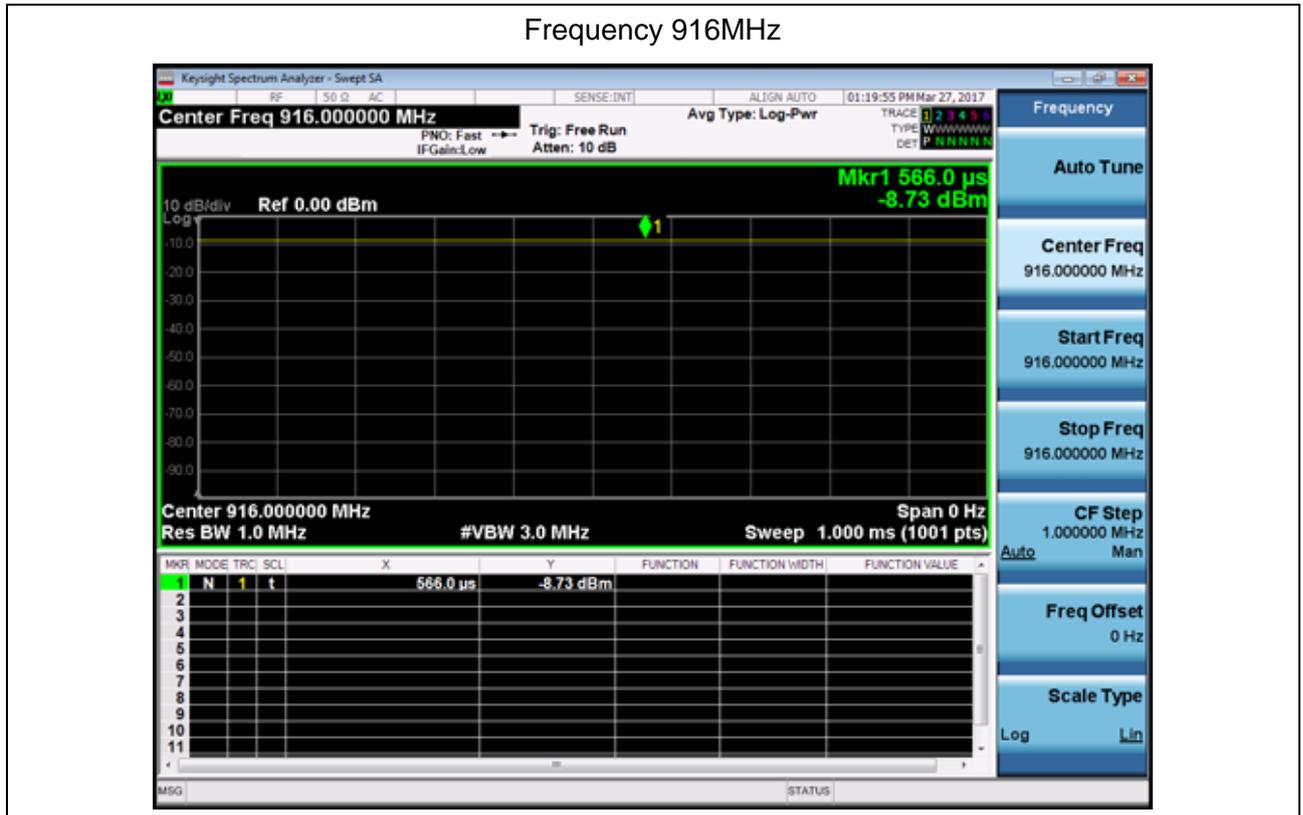
Performed Test Item	Normative References	Limit	Result
AC Power Line Conducted Emission	RSS-Gen Issue 4 November 2014 Section 8.8	RSS Gen	PASS
20dB&99% Bandwidth	RSS-Gen Issue 4 November 2014 Section 6.6	RSS Gen	PASS
Radiated Emission	RSS-210 Issue 9 August 2016 B.10 a)	RSS 210	PASS
Band-edge Compliance of RF Conducted Emissions	RSS-210 Issue 9 August 2016 B.10 b)	RSS 210	PASS
Antenna Requirement	RSS-Gen Issue 4 November 2014 Section 8.3	RSS Gen	PASS

2.2. Test Frequency configuration:

Channel	Frequency	Channel	Frequency	Channel	Frequency
Low	908.4 MHz	Mid	908.42 MHz	High	916MHz

2.3. Duty Cycle

Test Mode	Tx On (ms)	Tx Off (ms)	VBW	Tx On + Tx Off (ms)	Duty Cycle
1	--	--	10Hz	--	100%



2.4. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

2.5. Measurement Uncertainty

Test Items	Uncertainty
AC Power Line Conducted Emission	$\pm 2.02\text{dB}$
Radiated Emission	Below 1GHz $\pm 3.8\text{ dB}$
	Above 1GHz $\pm 3.9\text{ dB}$
RF Antenna Port Conducted Emission	$\pm 1.27\text{dB}$
Radiated Emission Band Edge	$\pm 3.9\text{dB}$
Occupied Bandwidth	$\pm 1\text{kHz}$
Power Spectral Density	$\pm 1.27\text{dB}$

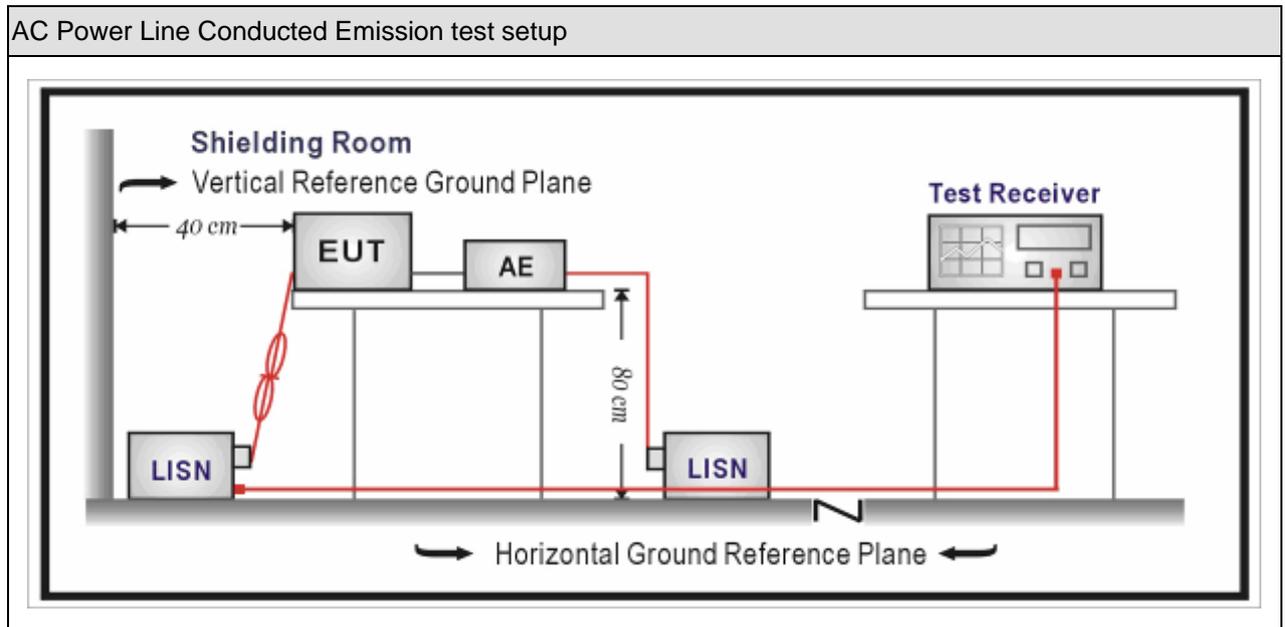
3. AC Power Line Conducted Emission

3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2017.03.05	2018.03.04
Two-Line V-Network	R&S	ENV 216	101189	2016.07.16	2017.07.15
Two-Line V-Network	R&S	ENV 216	101044	2016.09.04	2017.09.03
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2016.09.04	2017.09.03
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2017.01.05	2018.01.04

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup



3.3. Limit

Frequency of Emission (MHz)	Conducted Limit	
	Quasi-peak (dB μ V)	Average (dB μ V)
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Note 1: The lower limit shall apply at the transition frequencies.
 Note 2: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

3.4. Test Procedure

Test Method			
	References Rule	Chapter	Item
<input checked="" type="checkbox"/>	ANSI C63.10-2013	6.2	Standard test method for ac power-line conducted emissions from unlicensed wireless devices
<input checked="" type="checkbox"/>	ANSI C63.4-2014	7	AC power-line conducted emission measurements

3.5. Test Result

EUT is powered by battery, so this test item is not applicable.

4. Emissions in restricted frequency bands

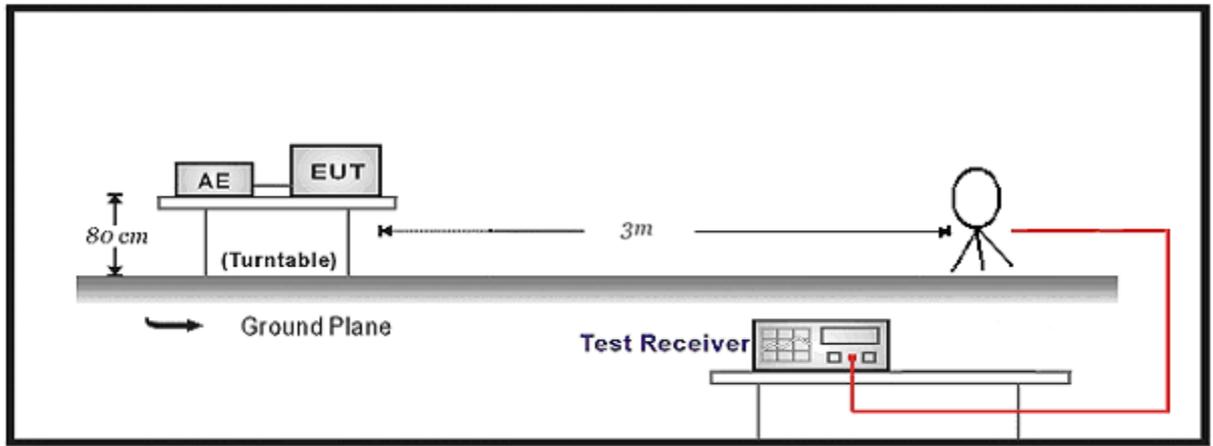
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2017.03.05	2018.03.04
Loop Antenna	R&S	HFH2-Z2	833799/003	2016.11.07	2017.11.06
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2016.08.10	2017.08.09
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2017.02.28	2018.02.27
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2017.01.05	2018.01.04
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

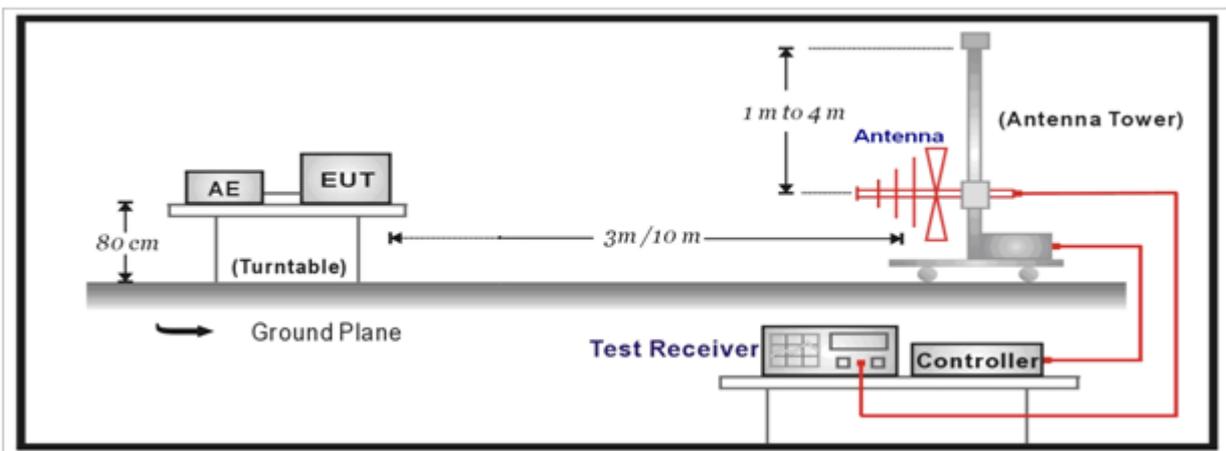
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2017.01.04	2018.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.03	2017.05.02
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.06	2017.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2017.01.22	2018.01.20
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2016.11.25	2017.11.23
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2017.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2017.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2017.03.02	2018.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.10	2017.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2017.01.04	2018.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

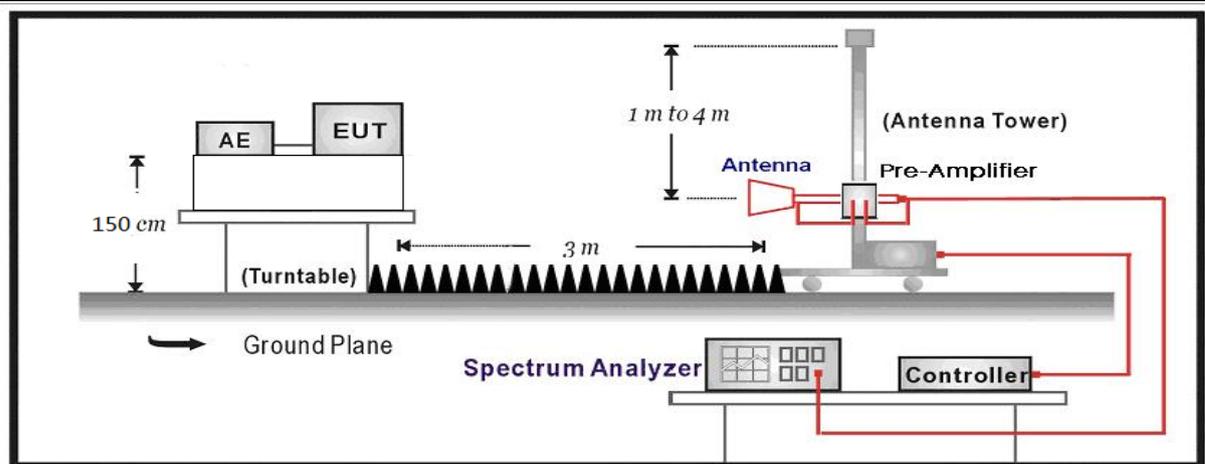
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

For FCC:

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

For IC:

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090-0.110	13.36-13.41	1645.5-1646.5	13.25-13.4
2.1735-2.1905	16.42-16.423	1660-1710	14.47-14.5
3.020-3.026	16.69475-16.69525	1718.8-1722.2	15.35-16.2
4.125-4.128	16.80425-16.80475	2200-2300	17.7-21.4
4.17725-4.17775	25.5-25.67	2310-2390	22.01-23.12
4.20725-4.20775	37.5-38.25	2655-2900	23.6-24.0
5.677-5.683	73-74.6	3260-3267	31.2-31.8
6.215-6.218	74.8-75.2	3332-3339	36.43-36.5
6.26775-6.26825	108-138	3345.8-3358	Above 38.6
6.31175-6.31225	156.52475-156.52525	3500-4400	
8.291-8.294	156.7-156.9	4500-5150	
8.362-8.366	240-285	5350-5460	
8.37625-8.38675	322-335.4	7250-7750	
8.41425-8.41475	399.9-410	8025-8500	
12.29-12.293	608-614	9.0-9.2	
12.51975-12.52025	960-1427	9.3-9.5	
12.57675-12.57725	1435-1626.5	10.6-12.7	

Restricted Band Emissions Limit			
Frequency (MHz)	Field strength (μ V/m)	Field strength (dB μ V/m)	Measurement distance (m)
0.009 - 0.49	2400/F(kHz)	48.5 – 13.8	300 _(Note 1)
0.49 - 1.705	24000/F(kHz)	33.8 - 23	30 _(Note 1)
1.705 - 30	30	29.5	30 _(Note 1)
30 - 88	100	40	3 _(Note 2)
88 - 216	150	43.5	3 _(Note 2)
216 - 960	200	46	3 _(Note 2)
Above 960	500	54	3 _(Note 2)

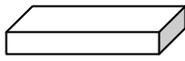
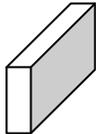
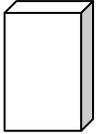
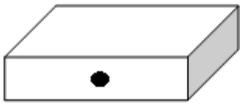
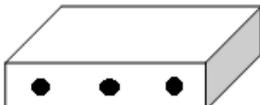
Note 1: At frequencies below 30 MHz, measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field. Pending the development of an appropriate measurement procedure for measurements performed below 30 MHz, when performing measurements at a closer distance than specified, the results shall be extrapolated to the specified distance by either making measurements at a minimum of two distances on at least one radial to determine the proper extrapolation factor or by using the square of an inverse linear distance extrapolation factor (40 dB/decade).

Note 2: At frequencies at or above 30 MHz, measurements may be performed at a distance other than what is specified provided: measurements are not made in the near field except where it can be shown that near field measurements are appropriate due to the characteristics of the device; and it can be demonstrated that the signal levels needed to be measured at the distance employed can be detected by the measurement equipment. Measurements shall not be performed at a distance greater than 30 meters unless it can be further demonstrated that measurements at a distance of 30 meters or less are impractical. When performing measurements at a distance other than that specified, the results shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade (inverse linear-distance for field strength measurements; inverse-linear-distance-squared for power density measurements).

4.4. Test Procedure

Test Method				
	References	Rule	Chapter	Description
	<input checked="" type="checkbox"/>	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
	<input checked="" type="checkbox"/>	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
	<input checked="" type="checkbox"/>	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.5. EUT test Axis definition

Item	Emissions in restricted frequency bands			
Device Category	<input type="checkbox"/>	Fixed position use		
	<input checked="" type="checkbox"/>	Mobile position use		
Test mode	Mode 1			
Test method	<input checked="" type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input checked="" type="checkbox"/>
	<input type="checkbox"/>	Conducted		
	<input type="checkbox"/>	Chain 1		
				
	<input type="checkbox"/>	Chain 1	Chain 2	
				
	<input type="checkbox"/>	Chain 1	Chain 2	Chain 3
				

4.6. Test Result

Product Name	: August Smart Door Lock	Power	: DC 6V
Test Mode	: Mode 1	Test Site	: AC-5
Test Date	: 2017.03.27		

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Type
908.4	H	62.35	31.91	94.26	114	-19.74	PK
	V	54.34	31.91	86.25	114	-27.75	PK
908.42	H	62.36	31.91	94.27	114	-19.73	PK
	V	54.32	31.91	86.23	114	-27.77	PK
916	H	60.86	31.91	92.77	114	-21.23	PK
	V	52.86	31.91	84.77	114	-29.23	PK

Note: 1. Measure Level = Reading Level + Factor.

2. Factor = Antenna factor + cable loss factor - preamp factor

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Type
908.4	H	56.3	31.91	88.21	94	-5.79	QP
	V	48.2	31.91	80.11	94	-13.89	QP
908.42	H	57.32	31.91	89.23	94	-4.77	QP
	V	50.1	31.91	82.01	94	-11.99	QP
916	H	56.38	31.91	88.29	94	-5.71	QP
	V	48.35	31.91	80.26	94	-13.74	QP

Note: 1. Average Measure Level = Reading Level + Factor.

2. Factor = Antenna factor + cable loss factor - preamp factor

Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Type
908.4	H	51.27	31.91	83.18	94	-10.82	AV
	V	43.37	31.91	75.28	94	-18.72	AV
908.42	H	52.25	31.91	84.16	94	-9.84	AV
	V	44.15	31.91	76.06	94	-17.94	AV
916	H	50.74	31.91	82.65	94	-11.35	AV
	V	42.88	31.91	74.79	94	-19.21	AV

Note: 1. Average Measure Level = Reading Level + Factor.

2. Factor = Antenna factor + cable loss factor - preamp factor

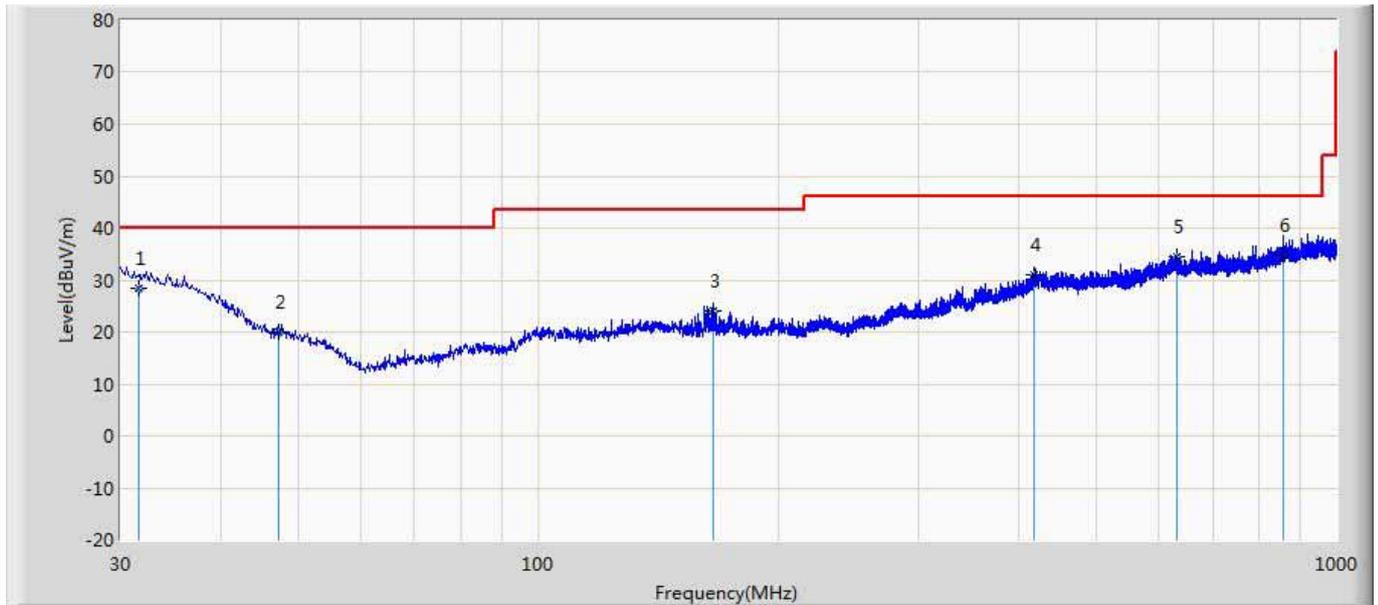
Harmonic Radiated Emission

CH (MHz)	Frequency (MHz)	Antenna	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Type
908.4	2725.5	H	49.3	0.4	49.7	54(Note3)	-4.3	PK
	2725.1	V	48.2	0.4	48.6	54	-5.4	AV
	2725.5	V	55.4	0.4	55.8	74	-18.2	PK
	3633.6	H	39.4	2.2	41.6	54(Note3)	-12.4	PK
	3633.6	V	40.6	2.2	42.8	54(Note3)	-11.2	PK
	4542.0	H	39.7	4.4	44.1	54(Note3)	-9.9	PK
	4542.0	V	43.3	4.4	47.7	54(Note3)	-6.3	PK
908.42	1816.8	H	40.6	-2.5	38.1	54(Note3)	-15.9	PK
	1816.8	V	40.6	-2.5	38.1	54(Note3)	-15.9	PK
	2725.5	H	49.9	0.4	50.3	54(Note3)	-3.7	PK
	2725.5	V	48.3	0.4	48.7	54	-5.3	AV
	2725.5	V	56.8	0.4	57.2	74	-16.8	PK
	3633.7	H	40.4	2.2	42.6	54(Note3)	-11.4	PK
	3633.7	V	41.2	2.2	43.4	54(Note3)	-10.6	PK
916	1832.0	H	42.9	-2.4	40.5	54(Note3)	-13.5	PK
	1832.0	V	41.0	-2.4	38.6	54(Note3)	-15.4	PK
	2751.0	H	51.4	0.5	51.9	54(Note3)	-2.1	PK
	2751.0	V	47.1	0.5	47.6	54(Note3)	-6.4	PK
	3664.0	H	39.2	2.1	41.3	54(Note3)	-12.7	PK
	3664.0	V	39.3	2.1	41.4	54(Note3)	-12.6	PK

Note: 1. Measure Level = Reading Level + Factor.
 Note: 2. The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 6dB below the limits, therefore no data appear in the report.
 Note: 3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.
 Note: 4. The RBW set up, see Clause 6.6.

The worst case of Radiated Emission below 1GHz:

Engineer: Kay	
Site: AC3	Time: 2017/03/22
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Horizontal
EUT: August Smart Door Lock	Power: DC 6V
Note: Mode 1	

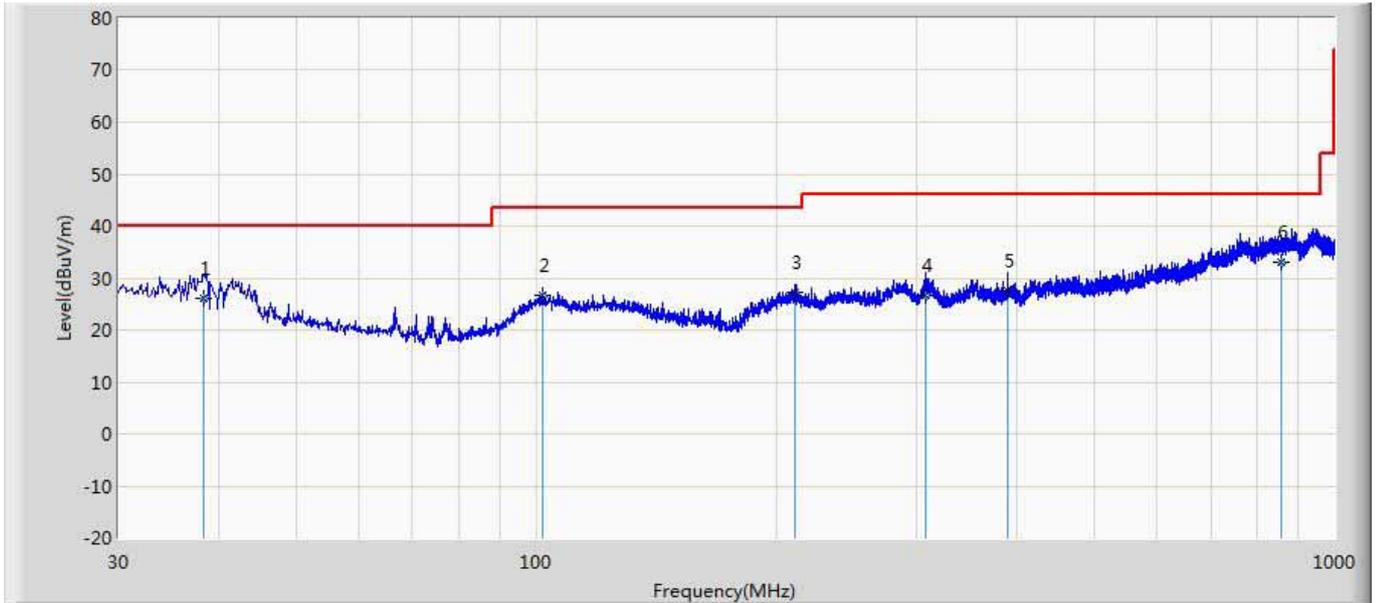


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		31.652	28.532	1.540	-11.468	40.000	20.529	6.463	0.000	200	175	QP
2		47.367	20.080	3.935	-19.920	40.000	9.575	6.570	0.000	100	97	QP
3		166.030	24.122	6.591	-19.378	43.500	10.384	7.147	0.000	200	345	QP
4		418.851	31.151	4.174	-14.849	46.000	19.021	7.957	0.000	200	301	QP
5		630.082	34.490	4.981	-11.510	46.000	21.008	8.501	0.000	100	88	QP
6	*	858.254	34.833	3.426	-11.167	46.000	22.401	9.006	0.000	200	155	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Engineer: Kay	
Site: AC3	Time: 2017/03/22
Limit: FCC_Part15.109_RE(3m)_ClassB	Margin: 0
Probe: AC3_3m (30-1000MHz)	Polarity: Vertical
EUT: August Smart Door Lock	Power: DC 6V
Note: Mode 1	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Probe (dB/m)	Cable (dB)	Amp (dB)	Ant Pos (cm)	Table Pos (deg)	Type
1		38.353	26.064	5.216	-13.936	40.000	14.333	6.515	0.000	100	16	QP
2		101.975	26.591	4.493	-16.909	43.500	15.231	6.867	0.000	200	314	QP
3		211.068	27.154	3.875	-16.346	43.500	15.959	7.321	0.000	100	175	QP
4		307.186	26.641	1.600	-19.359	46.000	17.408	7.633	0.000	100	358	QP
5		389.953	27.676	3.126	-18.324	46.000	16.676	7.874	0.000	100	260	QP
6	*	856.596	32.932	0.077	-13.068	46.000	23.851	9.004	0.000	145	360	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

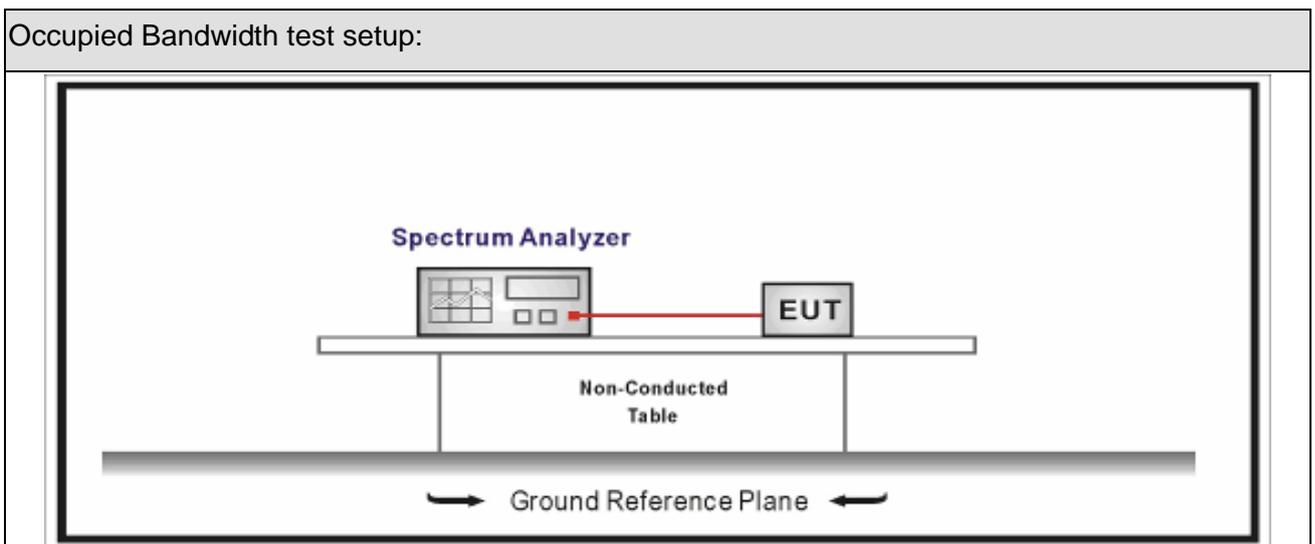
5. Emissions in non-restricted frequency bands

5.1. Test Equipment

Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2016.04.09	2017.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2016.04.09	2017.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2016.04.10	2017.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

5.2. Test Setup



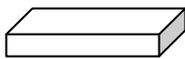
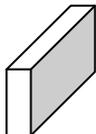
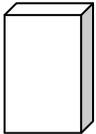
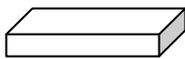
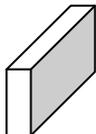
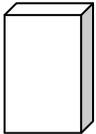
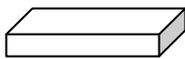
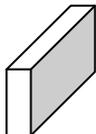
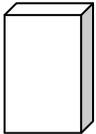
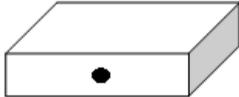
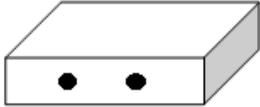
5.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power	50c(Note1)
Note 1: Emissions radiated outside of the specified frequency bands, except for harmonic emissions, shall be attenuated by at least 50 dB below the level of the fundamental emissions or to the general field strength limits listed in RSS-Gen, whichever is less stringent.	

5.4. Test Procedure

Test Method				
	References Rule		Chapter	Description
	<input checked="" type="checkbox"/>	ANSI C63.10	6.7	Antenna-port conducted measurements

5.5. EUT test Axis definition

Item	Emissions in non-restricted frequency bands											
Device Category	<input type="checkbox"/> Fixed position use											
	<input checked="" type="checkbox"/> Mobile position use											
Test mode	Mode 1											
Test method	<input type="checkbox"/> Radiated											
	<table border="1" style="width:100%; text-align:center;"> <tr> <th data-bbox="722 663 968 741">X Axis</th> <th data-bbox="968 663 1235 741">Y Axis</th> <th data-bbox="1235 663 1477 741">Z Axis</th> </tr> <tr> <td data-bbox="722 741 968 913"></td> <td data-bbox="968 741 1235 913"></td> <td data-bbox="1235 741 1477 913"></td> </tr> <tr> <td data-bbox="722 913 968 1043">Worst Axis <input type="checkbox"/></td> <td data-bbox="968 913 1235 1043">Worst Axis <input type="checkbox"/></td> <td data-bbox="1235 913 1477 1043">Worst Axis <input type="checkbox"/></td> </tr> </table>	X Axis	Y Axis	Z Axis				Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>		
		X Axis	Y Axis	Z Axis								
												
	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>									
	<input checked="" type="checkbox"/> Conducted											
	<input checked="" type="checkbox"/> Chain 0											
												
	<input type="checkbox"/> Chain 0	Chain 1										
												
<input type="checkbox"/> Chain 0	Chain 1	Chain 2										
												

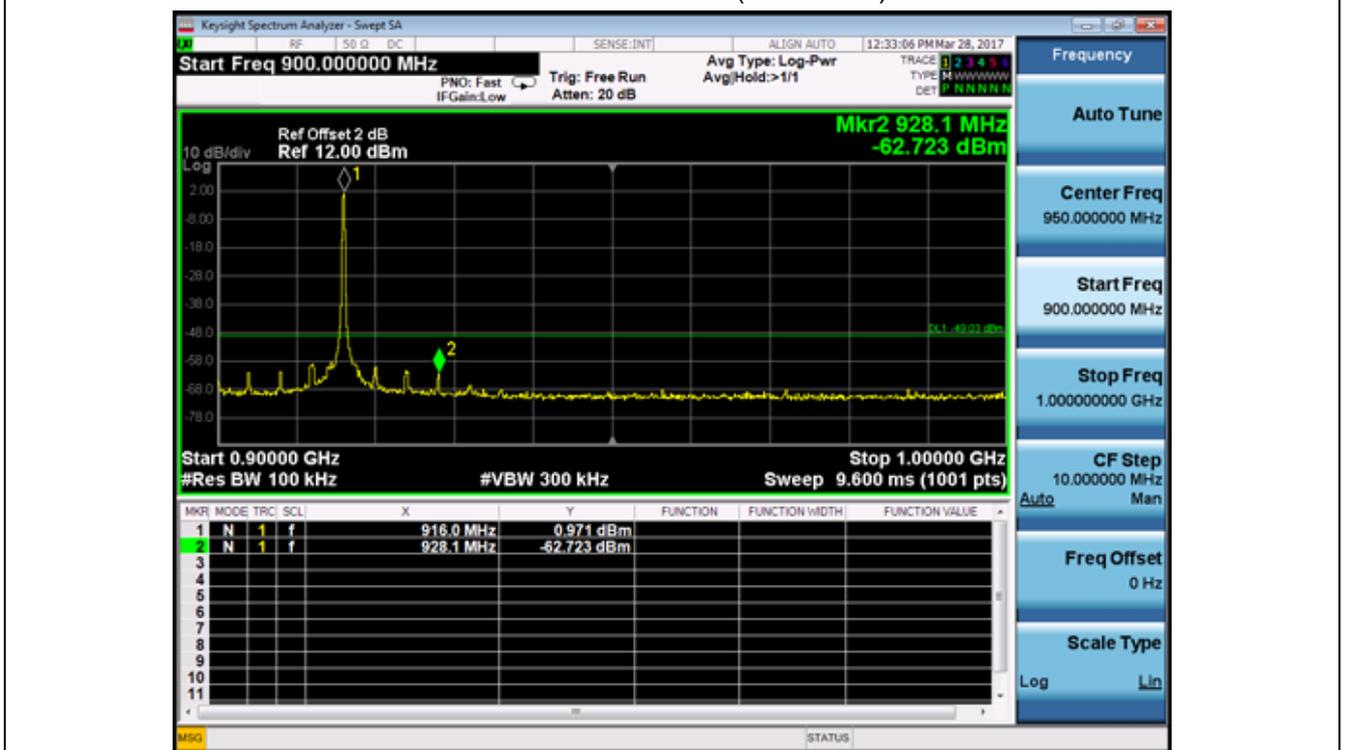
5.6. Test Result

Product Name	: August Smart Door Lock	Power	: DC 6V
Test Mode	: Mode1	Test Site	: TR8
Test Date	: 2017.03.27		

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	Low	908.4	0.250	833.040	-59.803	60.053	>50	Pass
1	High	916.0	0.971	955.021	-62.723	63.694	>50	Pass

Note: The worst case of emissions in non-restricted frequency bands as below:

Mode 1 Low Channel(916.0MHz)



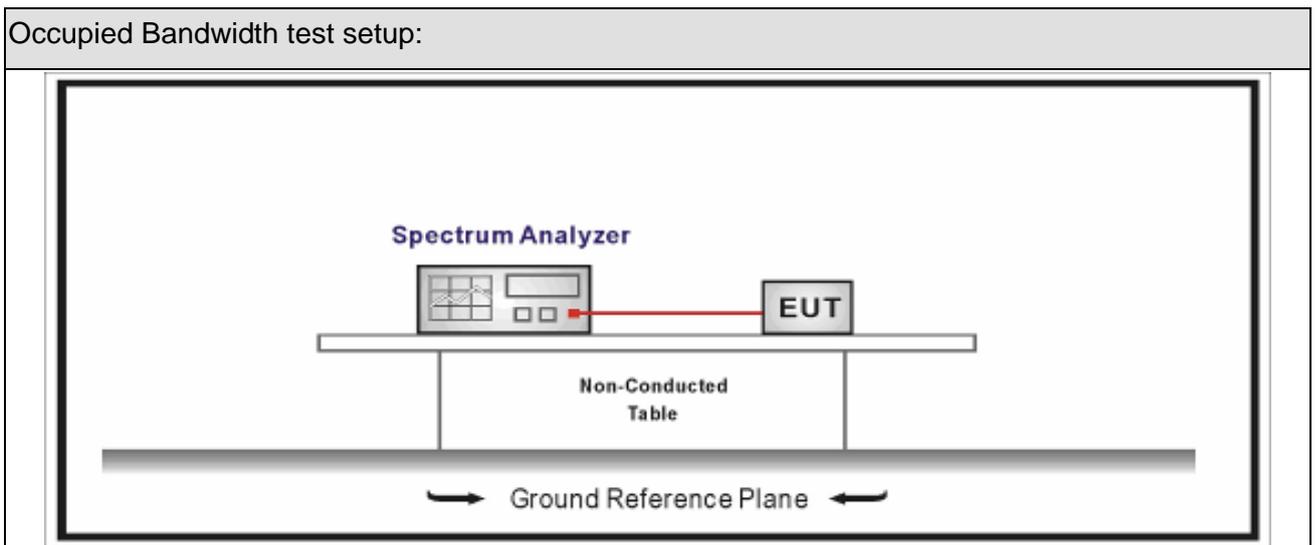
6. Occupied Bandwidth

6.1. Test Equipment

Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2016.04.09	2017.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2016.04.09	2017.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2016.04.10	2017.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

6.2. Test Setup



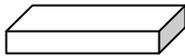
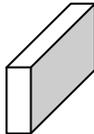
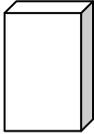
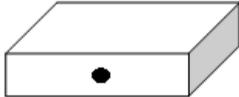
6.3. Limit

Occupied Bandwidth
<p>the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.</p>

6.4. Test Procedure

Test Method			
	Reference Rule	Chapter	Description
<input checked="" type="checkbox"/>	ANSI C63.10	6.9	DTS bandwidth
<input checked="" type="checkbox"/>	ANSI C63.10	6.9.2	Occupied bandwidth—relative measurement procedure
<input checked="" type="checkbox"/>	ANSI C63.10	6.9.3	Occupied bandwidth—power bandwidth (99%) measurement procedure

6.5. EUT test definition

Item	Occupied Bandwidth			
Device Category	<input type="checkbox"/>	Fixed position use		
	<input checked="" type="checkbox"/>	Mobile position use		
Test mode	Mode 1			
Test method	<input type="checkbox"/>	Radiated		
		X Axis	Y Axis	Z Axis
				
		Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>	Worst Axis <input type="checkbox"/>
	<input checked="" type="checkbox"/>	Conducted		
	<input checked="" type="checkbox"/>	Chain 0		
				
	<input type="checkbox"/>	Chain 0	Chain 1	
				
	<input type="checkbox"/>	Chain 0	Chain 1	Chain 2
				

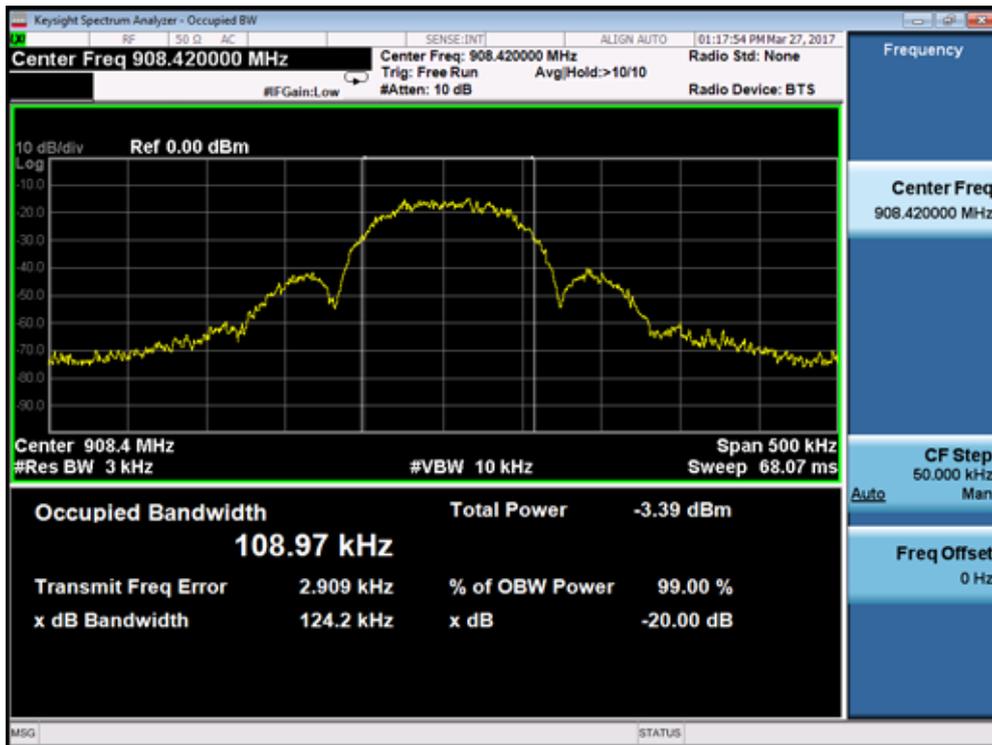
6.6. Test Result

Product Name	: August Smart Door Lock	Power	: DC 6V
Test Mode	: Mode1	Test Site	: TR8
Test Date	: 2017.03.24		

Mode	CH.	Test Freq. (MHz)	99% Occupied Bandwidth (KHz)	20dB Occupied Bandwidth (KHz)	Result
1	Low	908.4	109.47	119.0	Pass
1	Mid	908.42	108.97	124.2	Pass
1	High	916	109.37	120.0	Pass

Note : The worst case of Occupied Bandwidth as below in next page:

Mode 1 Mid Channel (908.42MHz)



7. Antenna Requirement

7.1. Limit

Antenna Requirement Limit
<p>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. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.</p>

7.2. Antenna Connector Construction

Antenna Connector Construction	
<input checked="" type="checkbox"/>	The use of a permanently attached antenna
<input type="checkbox"/>	The antenna use of a unique coupling to the intentional radiator
<input type="checkbox"/>	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document "Internal Photograph" to show the antenna connector.	

_____ The End _____