China

FCC - TEST REPORT

Report Number	:	60.792.19.001.01R01	Date of Issue	:	March 13, 2019
Model	:	HG00783A-TX, HG00783B-TX			
Product Type	:	**Wireless Doorbell**			
Applicant	:	Lidl US LLC			
Address	:	3500 S Clark Street, ARLINGTON VA 22202			
Production Facility	:	PUTIAN DIOR INDUSTRIAL CO., LTD.			
Address	:	LINAN INDUSTRIAL DISTRICT, XIANYOU COUNTY, CHINA.			
Test Result	:	■**Positive** ☐**Negative**			
Total pages including Appendices	:	18			

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TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch issued reports.

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1 Table of Contents

2 Description of Equipment Under Test

Description of the Equipment Under Test

Product:	**Wireless Doorbell**
Model no.:	HG00783A-TX
FCC ID:	2AJ9O-783TX
Rating:	3 VDC (1 x CR2302 battery)
Frequency:	433.92MHz
Antenna gain:	0 dBi
Number of operated channel:	1
Modulation:	OOK(2ASK)

3 Summary of Test Standards

Test Standards
FCC Part 15 Subpart C 10-1-17 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

Emission Tests	
Test Item	Test Site
FCC Part 15 Subpart C	
FCC Title 47 Part 15.205, 15.209 & 15.231(e) Radiated Emission	Site1
FCC Title 47 Part 15.207 Conduct Emission	NIL
FCC Title 47 Part 15.231(c) 20dB Bandwidth	Site 1
FCC Title 47 Part 15.247(e) Transmission Time	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	2019-7-6
Signal Analyzer	Rohde & Schwarz	FSV40	101031	2019-7-6
Loop Antenna	Rohde & Schwarz	HFH2-Z2	100398	2019-7-6
Trilog Super Broadband Test Antenna	Schwarzbeck	VULB 9163	707	2019-6-28
Horn Antenna	Rohde & Schwarz	HF907	102294	2019-6-28
Wideband Horn Antenna	Q-PAR	QWH-SL-18-40-K-SG	12827	2019-7-12
Pre-amplifier	Rohde & Schwarz	SCU 18	102230	2019-7-6
Pre-amplifier	Rohde & Schwarz	SCU 40A	100432	2019-7-6
Signal Generator	Rohde & Schwarz	SMY01	839369/005	2019-7-6
Attenuator	Agilent	8491A	MY39264334	2019-7-6
3m Semi-anechoic chamber	TDK	9X6X6	----	2020-7-7
Test software	Rohde & Schwarz	EMC32	Version 9.15.00	N/A

20dB Bandwidth, Transmission Time – Site 1

DESCRIPTION	MANUFACTURER	MODEL NO.	SERIAL NO.	CAL. DUE DATE
Signal Analyzer	Rohde & Schwarz	FSV40	101030	2019-7-6

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 RF test	2.13dB
Uncertainty for Frequency RF test	0.6×10-7

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 & 15.231(e) Radiated Emission	10-13	☒	☐	☐
FCC Title 47 Part 15.207 Conduct Emission (1)	NIL	☐	☐	☒
FCC Title 47 Part 15.231(c) 20dB Bandwidth	14	☒	☐	☐
FCC Title 47 Part 15.247(e) Transmission Time	15	☒	☐	☐

Remark:
1) Conducted Emission testing is not applicable for battery operating device.

6 General Remarks

Remarks

Client informs that the **HG00783B-TX** have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction with **Wireless Doorbell**, **HG00783A-TX**. The difference lies only on the different color of the different models. (Client's conformation letter shown at appendix A)

All tests were performed on model **HG00783A-TX.**

This submittal(s) (test report) is intended for **FCC ID: 2AJ9O-783TX**, complies with Section 15.205, 15.207, 15.209, 15.231 of the FCC Part 15, Subpart C rules for the DXX grant

The TX range is 433.92MHz.

SUMMARY:

- All tests according to the regulations cited on page 5 were

■ - Performed

☐ - **Not** Performed

- The Equipment Under Test

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

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

Sample Received Date: January 2, 2019

Testing Start Date: January 10, 2019

Testing End Date: January 22, 2019

Reviewed by:

Hosea CHAN
EMC Project Engineer

Prepared by:

Eric LI
EMC Senior Project Engineer

China

7 Emission Test Results

7.1 Spurious Radiated Emission

EUT: HG00783A-TX
Op Condition: Operated, TX Mode (433.92MHz)
Test Specification: FCC15.205, 15.209 & 15.231(b) Antenna: Horizontal
Comment: 3 VDC
Remark: 9kHz to 5GHz

Test Result
☒ Passed
☐ Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector PK/QP/AV	Corr. (dB)
433.92	78.10	100.83	-22.73	Peak	-23.2
867.84	45.85	80.83	-34.98	Peak	-15.9
1301.76	40.08	74.00	-33.92	Peak	-11.7
2169.60	41.22	80.83	-39.61	Peak	-7.3
2603.52	44.26	80.83	-36.57	Peak	-4.2
3037.44	40.87	80.83	-39.96	Peak	-3.6
4339.20	38.75	80.83	-42.08	Peak	1.2

Duty cycle factor=-11.81
Average value = Peak value + Duty cycle factor

Frequency MHz	PK Result @3m dBµV/m	Duty Cycle Factor dB	AV Result @3m dBµV/m	Limit dBµV/m	Margin dB
433.92	78.10	-11.81	66.29	80.83	-14.54
867.84	45.85	-11.81	34.04	60.83	-26.79
1301.76	40.08	-11.81	28.27	54.00	-25.73
2169.60	41.22	-11.81	29.41	60.83	-31.42
2603.52	44.26	-11.81	32.45	60.83	-28.38
3037.44	40.87	-11.81	29.06	60.83	-31.77
4339.20	38.75	-11.81	26.94	60.83	-33.89

Spurious Radiated Emission

EUT:	HG00783A-TX
Op Condition:	Operated, TX Mode (433.92MHz)
Test Specification:	FCC15.205, 15.209 & 15.231(b) Antenna: Verticall
Comment:	3 VDC
Remark:	9kHz to 5GHz

Test Result
☒ Passed
☐ Not Passed

Frequency MHz	Result dBµV/m	Limit dBµV/m	Margin dB	Detector PK/QP/AV	Corr. (dB)
433.92	64.57	100.83	-36.26	Peak	-23.2
867.84	31.53	80.83	-49.30	Peak	-15.9
2169.60	41.50	80.83	-39.33	Peak	-7.3
2603.52	39.80	80.83	-41.03	Peak	-4.2
3037.44	41.24	80.83	-39.59	Peak	-3.6

Duty cycle factor=-11.81
Average value = Peak value + Duty cycle factor

Frequency MHz	PK Result @3m dBµV/m	Duty Cycle Factor dB	AV Result @3m dBµV/m	Limit dBµV/m	Margin dB
433.92	64.57	-11.81	52.76	80.83	-28.07
867.84	31.53	-11.81	19.72	60.83	-41.11
2169.60	41.50	-11.81	29.69	60.83	-31.14
2603.52	39.80	-11.81	27.99	60.83	-32.84
3037.44	41.24	-11.81	29.43	60.83	-31.4

Spurious Radiated Emission

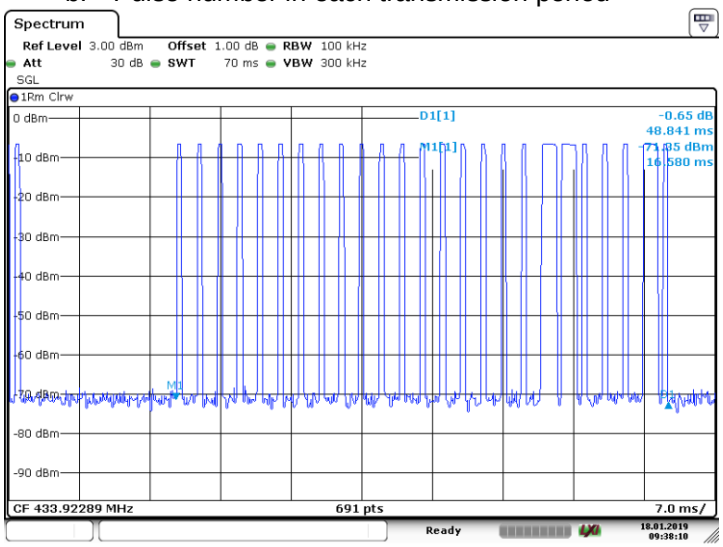
EUT:	HG00783A-TX
Op Condition:	Operated, TX Mode (433.92MHz)
Test Specification:	FCC15.205, 15.209 & 15.231(b)
Comment:	3 VDC
Remark:	Duty Cycle Factor Calculation

Test Result
☒ Passed
☐ Not Passed

a. Transmission period

Date: 18.JAN.2019 09:37:10

b. Pulse number in each transmission period



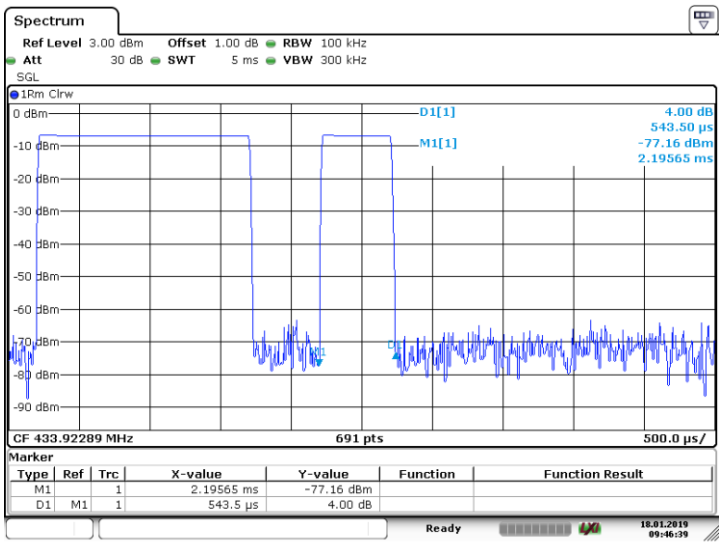
Date: 18.JAN.2019 09:38:10

Spurious Radiated Emission

EUT:	HG00783A-TX
Op Condition:	Operated, TX Mode (433.92MHz)
Test Specification:	FCC15.205, 15.209 & 15.231(b)
Comment:	3 VDC
Remark:	Duty Cycle Factor Calculation

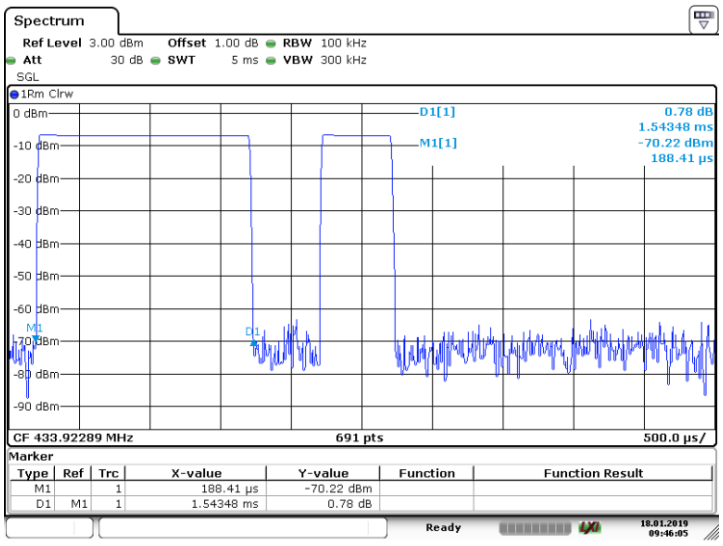
Test Result
☒ Passed
☐ Not Passed

c. Pulse1 width



Date: 18.JAN.2019 09:46:40

d. Pulse2 width



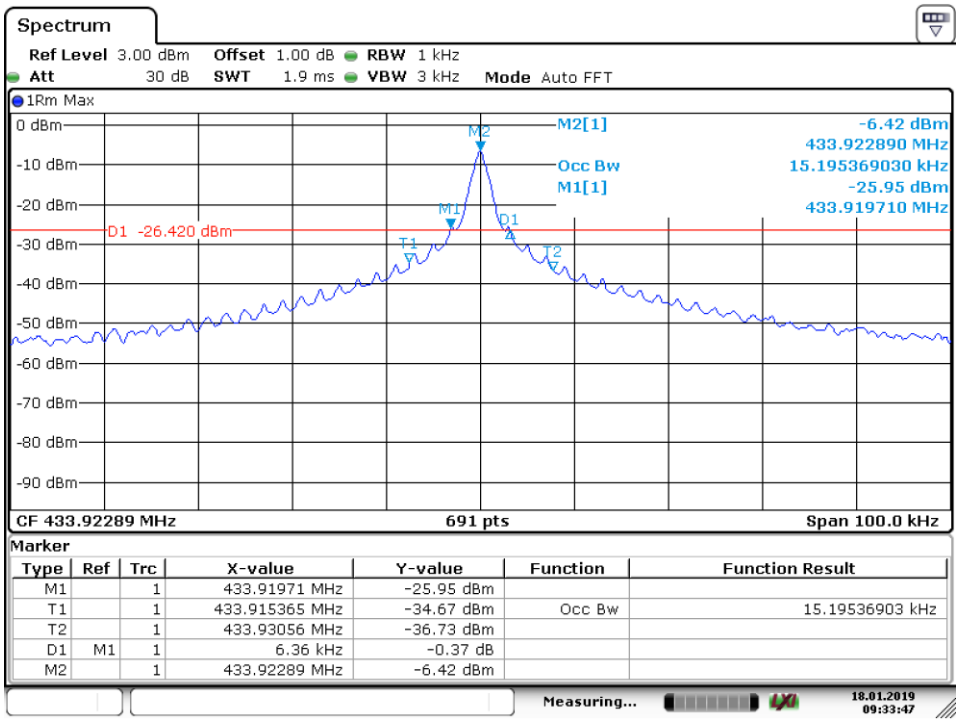
Date: 18.JAN.2019 09:46:06

Calculation:
Tp=64.594ms
Number of pulse1 in 1 period =22, Pulse1 width=0.5435ms
Number of pulse2 in 1 period =3, Pulse2 width=1.54348ms
Ton= Pulse1 width* Number of pulses in 1 period + Pulse2 width* Number of pulses in 1 period
=16.58744 ms
Duty cycle factor= 20*log(Ton/Tp)=-11.81

7.2 20dB Bandwidth

EUT: HG00783A-TX
Op Condition: Operated, TX Mode (433.92MHz)
Test Specification: FCC15.231(c) 20dB Bandwidth
Comment: 3 VDC

Test Result
☒ Passed
☐ Not Passed



Date: 18.JAN.2019 09:33:47

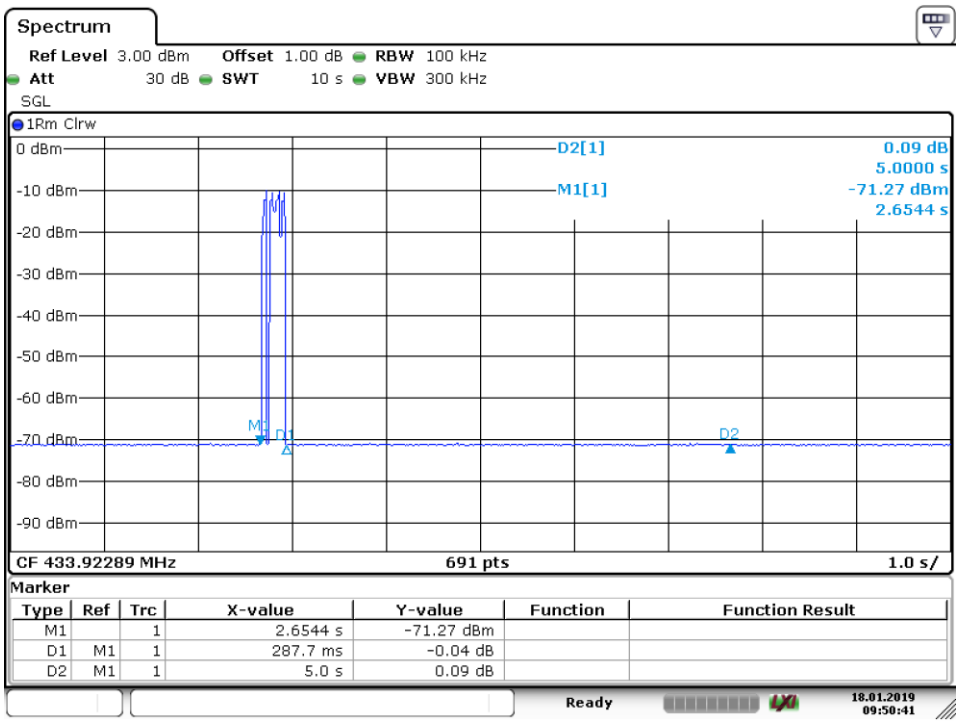
Bandwidth	Measured Value	Limit
20dB bandwidth	6.36 kHz	<= 1084.8 kHz
Limit=0.25%*Center Frequency=0.25%*433.92MHz=1084.8kHz		

7.3 Transmission Time

EUT: HG00783A-TX
Op Condition: Operated, TX Mode (433.92MHz)
Test Specification: FCC15.231(a)
Comment: 3 VDC

Test Result
☒ Passed
☐ Not Passed

Duration of a transmission



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Frequency	Duration of a transmission	Limit
433.92MHz	287.7ms	< 5s

8 Appendix A - General Product Information

Radiofrequency radiation exposure evaluation

According to KDB 447498 D01v06 section 4.3.1, For frequencies between 100 MHz to 6GHz and test separation distances ≤ 50 mm, the Numeric threshold is determined as:

Step a)
[(max. power of channel, including tune-up tolerance, mW) / (min. test separation distance, mm)] · [√f(GHz)] ≤ 3.0 for 1-g SAR

>> The fundamental frequency of the EUT is 433.92MHz, the test separation distance is ≤ 5mm & ≤ 20mm.
(Manufacturer specified the separation distance is: 20mm)

Step a.1)
>> Numeric threshold, mW / **5 mm** * √0.43392GHz ≤ 3.0
Numeric threshold ≤ **22.771mW**

Step a.2)
>> Numeric threshold, mW / **20 mm** * √0.43392GHz ≤ 3.0
Numeric threshold ≤ **91.084mW**

>> The power of EUT measured is: -7.12dBm = 0.194mW
Which is smaller than the Numeric threshold.
Therefore, the device is exempt from stand-alone SAR test requirements.

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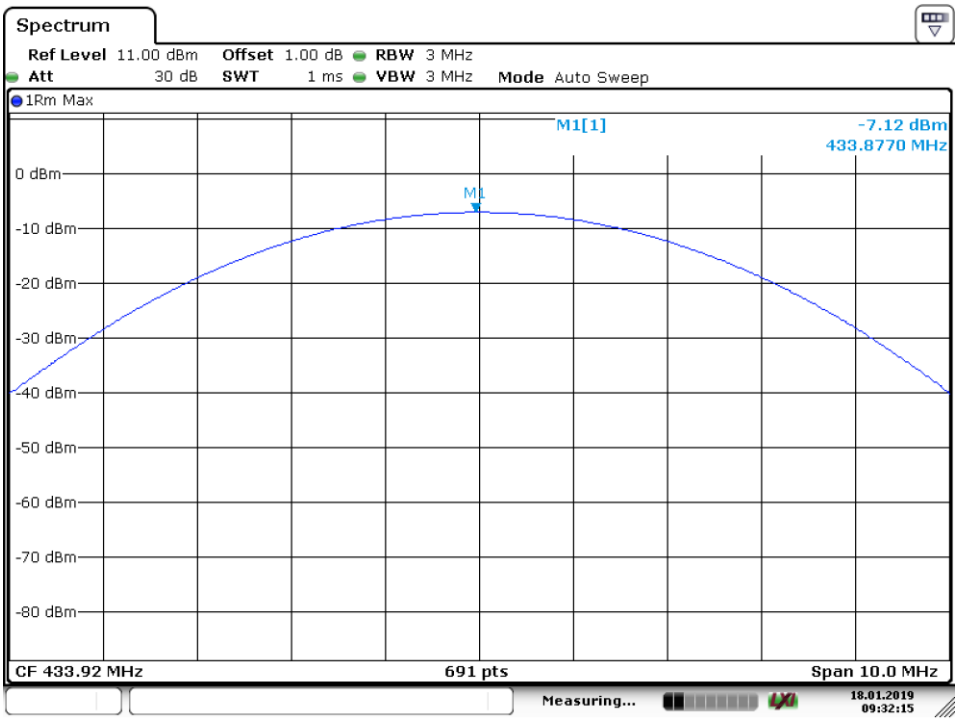
Appendix A - Conducted power

EUT:	HG00783A-TX
Op Condition:	Operated, TX Mode
Comment:	3 VDC
Remark:	NA

Test Result
☒ Passed
☐ Not Passed



Date: 18.JAN.2019 09:32:15

China

Appendix A Declaration letter of model difference

Lidl US, LLC

320257

To: TÜV SÜD HKG Ltd.

Attention: **Mr. Edmond Fung**
From:
Fax No:

Date: March 4, 2019
Total Page (Cover Included): 1

Declaration Letter

Subject: Declaration Letter for Model Number

We:

Officially notify TÜV SÜD HKG Ltd. that the <<Additional Model>> have the same technical construction including circuit diagram, PCB Layout, components and component layout, all electrical construction and mechanical construction, with <<PRODUCT>>, <<Main Test Model>>.
The difference lies only on different color of the different models.

<<Additional Model >>: HG00783B-TX

<<Main Test Model >>: HG00783A-TX

<<Product>>: Wireless Doorbell

Applicant:

3/4/19
(Date)
3/4/19

ELIZABETH SULLIVAN
(Applicant's authorized signature and company Chop)

Pagiel Yoo