

APPLICATION FOR VERIFICATION
On Behalf of
Ho Lee Co., LTD.

Dog Trainer

Model No.: GDG4-1, GDG4-JR

FCC ID: Y4TGDG4-3

Prepared for : Ho Lee Co., LTD.
Address : 27th FL., No. 29-3, Sec. 2, Chung Cheng E RD, Tamshui District, New Taipei City, Taiwan.

Prepared by : Shenzhen Accurate Technology Co., Ltd.
Address : 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

Tel: +86-755-26503290
Fax: +86-755-26503396

Report No. : ATE20190958
Date of Test : Dec. 03, 2019
Date of Report : Dec. 05, 2019

TABLE OF CONTENTS

Description	Page
Test Report Declaration	
1. TEST RESULTS SUMMARY	4
2. GENERAL INFORMATION	5
2.1. Product of Device (EUT)	5
2.2. Model difference declaration	5
2.3. Test mode description	5
2.4. Accessory and Auxiliary Equipment	5
2.5. Description of Test Facility	6
2.6. Measurement Uncertainty	6
3. MEASURING DEVICE AND TEST EQUIPMENT	7
3.1. For Radiated Emission Measurement	7
3.2. The Equipment Used to Measure Conducted Disturbance (L.I.S.N)	8
4. POWER LINE CONDUCTED MEASUREMENT	9
4.1. Block Diagram of Test Setup	9
4.2. Power Line Conducted Emission Measurement Limits	9
4.3. Configuration of EUT on Measurement	9
4.4. Operating Condition of EUT	9
4.5. DATA SAMPLE	10
4.6. Measurement Uncertainty	10
4.7. Test Procedure	10
4.8. Power Line Conducted Emission Measurement Results	11
5. RADIATED EMISSION MEASUREMENT	16
5.1. Block Diagram of Test	16
5.2. Radiated Emission Limit (Class B)	18
5.3. Manufacturer	18
5.4. Operating Condition of EUT	18
5.5. DATA SAMPLE	19
5.6. Test Procedure	19
5.7. Radiated Emission Noise Measurement Result	19
6. PHOTOGRAPHS	28
6.1. Photos of Radiated Emission Measurement	28
6.2. Photos of Conducted Emission Measurement	30
6.3. Photographs of the EUT	31

Test Report Declaration

Applicant : Ho Lee Co., LTD.
27th FL., No. 29-3, Sec. 2, Chung Cheng E RD,
Tamshui District, New Taipei City, Taiwan.

Manufacturer : Ho Lee Co., LTD.
27th FL., No. 29-3, Sec. 2, Chung Cheng E RD,
Tamshui District, New Taipei City, Taiwan.

Product : Dog Trainer

Model No. : GDG4-1, GDG4-JR

Trade name : N/A

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart B ANSI C63.4: 2014

The device described above is tested by Shenzhen Accurate Technology Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart B Class B limits both radiated and conducted emissions. The measurement results are contained in this test report and Shenzhen Accurate Technology Co., Ltd. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Shenzhen Accurate Technology Co., Ltd.

Date of Test : Dec. 03, 2019

Date of Report : Dec. 05, 2019

Prepared by :

Tim Zhang

(Tim Zhang, Engineer)

Approved & Authorized Signer :

Sean Liu

(Sean Liu, Manager)

1. TEST RESULTS SUMMARY

Test Items	Test Standard	Test Results
Power Line Conducted Emission	FCC Part 15 Subpart B	Pass
Radiated Emission	FCC Part 15 Subpart B	Pass

2. GENERAL INFORMATION

2.1.Product of Device (EUT)

EUT : Dog Trainer

Model Number : GDG4-1, GDG4-JR

Rating : DC 12V via adapter
DC 9V via battery

Adapter information : MODEL: GQ36-120250-AU
INPUT: 100-240VAC, 50/60Hz 1.0A Max
OUTPUT: DC 12V 2.5A

Receiver Frequency : 315MHz RX

Applicant : Ho Lee Co., Ltd.
Address : 27th FL., No. 29-3, Sec. 2, Chung Cheng E RD,
Tamshui District, New Taipei City, Taiwan

Manufacturer : Ho Lee Co., Ltd.
Address : 27th FL., No. 29-3, Sec. 2, Chung Cheng E RD,
Tamshui District, New Taipei City, Taiwan

Date of sample received : Dec. 01, 2019
Date of Test : Dec. 03, 2019

2.2.Model difference declaration

GDG4-1, GDG4-JR are identical in interior structure, electrical circuits and components, but the product shell size, the battery box size and the battery used are different for the marketing requirement.

2.3.Test mode description

Test mode 1: 315MHz RX(powered by adapter)
Test mode 2: 315MHz RX(powered by battery)

2.4.Accessory and Auxiliary Equipment

N/A

2.5. Description of Test Facility

EMC Lab	:	Recognition of accreditation by Federal Communications Commission (FCC) The Designation Number is CN1189 The Registration Number is 708358 Listed by Innovation, Science and Economic Development Canada (ISED) The Registration Number is 5077A-2 Accredited by China National Accreditation Service for Conformity Assessment (CNAS) The Registration Number is CNAS L3193 Accredited by American Association for Laboratory Accreditation (A2LA) The Certificate Number is 4297.01
Name of Firm	:	Shenzhen Accurate Technology Co., Ltd.
Site Location	:	1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

2.6. Measurement Uncertainty

Conducted Emission Expanded Uncertainty (Mains ports, 9kHz-30MHz)	=	2.72dB, k=2
Radiated emission expanded uncertainty (9kHz-30MHz)	=	2.66dB, k=2
Radiated emission expanded uncertainty (30MHz-1000MHz)	=	4.28dB, k=2
Radiated emission expanded uncertainty (1G-18GHz)	=	4.98dB, k=2
Radiated emission expanded uncertainty (18G-26.5GHz)	=	5.06dB, k=2

3. MEASURING DEVICE AND TEST EQUIPMENT

3.1.For Radiated Emission Measurement

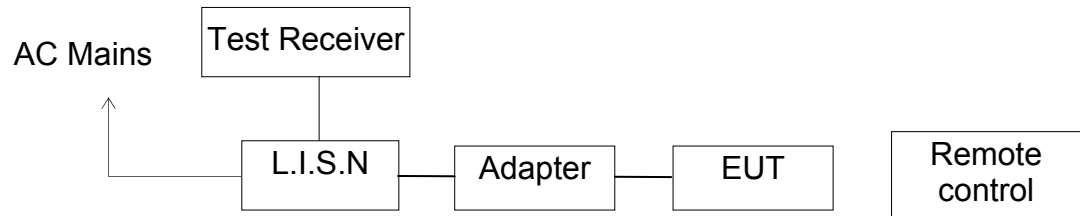
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan.05, 2019	1 Year
2.	Spectrum Analyzer	Rohde&Schwarz	FSV40	101495	Jan.05, 2019	1 Year
3.	Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan.05, 2019	1 Year
4.	Test Receiver	Rohde& Schwarz	ESPI	100396/003	Jan.05, 2019	1 Year
5.	Test Receiver	Rohde& Schwarz	ESPI	101526/003	Jan.05, 2019	1 Year
6.	Test Receiver	Rohde& Schwarz	ESR	101817	Jan.05, 2019	1 Year
7.	Bilog Antenna	Schwarzbeck	VULB9163	9163-194	Jan.05, 2019	1 Year
8.	Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan.05, 2019	1 Year
9.	Log.-Per.Antenna	Schwarzbeck	VUSLP 9111B	9111B-074	Jan.05, 2019	1 Year
10.	Biconical Broad Band Antenna	Schwarzbeck	VHBB 9124+BBA 9106	9124-617	Jan.05, 2019	1 Year
11.	Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan.05, 2019	1 Year
12.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan.05, 2019	1 Year
13.	Horn Antenna	Schwarzbeck	BBHA9120D	9120D-1067	Jan.05, 2019	1 Year
14.	Vertical Active Monopole Antenna	Schwarzbeck	VAMP 9243	9243-370	Jan.05, 2019	1 Year
15.	RF Switching Unit+PreAMP	Compliance Direction	RSU-M2	38322	Jan.05, 2019	1 Year
16.	Pre-Amplifier	Agilent	8447D	294A10619	Jan.05, 2019	1 Year
17.	Pre-Amplifier	Rohde&Schwarz	CBLU11835 40-01	3791	Jan.05, 2019	1 Year
18.	50 Coaxial Switch	Anritsu Corp	MP59B	6200237248	Jan.05, 2019	1 Year
19.	50 Coaxial Switch	Anritsu Corp	MP59B	6200506474	Jan.05, 2019	1 Year
20.	RF Coaxial Cable	Schwarzbeck	N-5m	No.1	Jan.05, 2019	1 Year
21.	RF Coaxial Cable	Schwarzbeck	N-1m	No.6	Jan.05, 2019	1 Year
22.	RF Coaxial Cable	Schwarzbeck	N-1m	No.7	Jan.05, 2019	1 Year
23.	RF Coaxial Cable	SUHNER	N-3m	No.8	Jan.05, 2019	1 Year
24.	RF Coaxial Cable	RESENBERGER	N-3.5m	No.9	Jan.05, 2019	1 Year
25.	RF Coaxial Cable	SUHNER	N-6m	No.10	Jan.05, 2019	1 Year
26.	RF Coaxial Cable	RESENBERGER	N-12m	No.11	Jan.05, 2019	1 Year
27.	RF Coaxial Cable	RESENBERGER	N-0.5m	No.12	Jan.05, 2019	1 Year
28.	RF Coaxial Cable	SUHNER	N-2m	No.13	Jan.05, 2019	1 Year
29.	RF Coaxial Cable	SUHNER	N-0.5m	No.15	Jan.05, 2019	1 Year
30.	RF Coaxial Cable	SUHNER	N-2m	No.16	Jan.05, 2019	1 Year
31.	RF Coaxial Cable	RESENBERGER	N-6m	No.17	Jan.05, 2019	1 Year
Radiated Emission Measurement Software: EZ EMC V1.1.4.2						

3.2.The Equipment Used to Measure Conducted Disturbance (L.I.S.N)

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Test Receiver	Rohde & Schwarz	ESCS30	100307	Jan.05, 2019	1 Year
2.	Test Receiver	Rohde & Schwarz	ESPI3	100396/003	Jan.05, 2019	1 Year
3.	Test Receiver	Rohde & Schwarz	ESPI3	101526/003	Jan.05, 2019	1 Year
4.	L.I.S.N.	Schwarzbeck	NLSK8126	8126431	Jan.05, 2019	1 Year
5.	L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100305	Jan.05, 2019	1 Year
6.	L.I.S.N.	Rohde & Schwarz	ESH3-Z5	100310	Jan.05, 2019	1 Year
7.	L.I.S.N.	Rohde & Schwarz	ESH3-Z6	100132	Jan.05, 2019	1 Year
8.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100305	Jan.05, 2019	1 Year
9.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100312	Jan.05, 2019	1 Year
10.	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100815	Jan.05, 2019	1 Year
11.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283936	Jan.05, 2019	1 Year
12.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200283933	Jan.05, 2019	1 Year
13.	50Ω Coaxial Switch	Anritsu Corp	MP59B	6200506474	Jan.05, 2019	1 Year
14.	VOLTAGE PROBE	Schwarzbeck	TK9416	N/A	Jan.05, 2019	1 Year
15.	RF CURRENT PROBE	Rohde & Schwarz	EZ-17	100048	Jan.05, 2019	1 Year
16.	8-Wire Impedance Stabilisation Network	Schwarzbeck	CAT5 8158	8158-0035	Jan.05, 2019	1 Year
17.	RF Coaxial Cable	SUHNER	N-2m	No.2	Jan.05, 2019	1 Year
18.	RF Coaxial Cable	SUHNER	N-2m	No.3	Jan.05, 2019	1 Year
19.	RF Coaxial Cable	SUHNER	N-2m	No.14	Jan.05, 2019	1 Year
Conducted Emission Measurement Software: ES-K1 V1.71						

4. POWER LINE CONDUCTED MEASUREMENT

4.1. Block Diagram of Test Setup



(EUT: Dog Trainer)

4.2. Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μV)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 – 56.0 *	56.0 – 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

NOTE1: The lower limit shall apply at the transition frequencies.
NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

4.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

4.4. Operating Condition of EUT

- 4.4.1. Setup the EUT and simulator as shown as Section 4.1.
- 4.4.2. Turn on the power of all equipment.
- 4.4.3. Let the EUT work in test mode and measure it.

4.5.DATA SAMPLE

Frequency (MHz)	Quasi Peak Level (dB μ V)	Average Level (dB μ V)	Transducer value (dB)	QuasiPeak Result (dB μ V)	Average Result (dB μ V)	Quasi Peak Limit (dB μ V)	Average Limit (dB μ V)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	29.4	18.3	11.1	40.5	29.4	56.0	56.0	15.5	16.6	Pass

Transducer value = Insertion loss of LISN + Cable Loss

Result = Quasi-peak Level/Average Level + Transducer value

Limit = Limit stated in standard

Calculation Formula:

Margin = Limit – Reading level value – Transducer value

4.6.Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at ATC is +2.23dB.

4.7.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2014 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

4.8. Power Line Conducted Emission Measurement Results

PASS.

The frequency range from 150kHz to 30MHz is checked.
Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

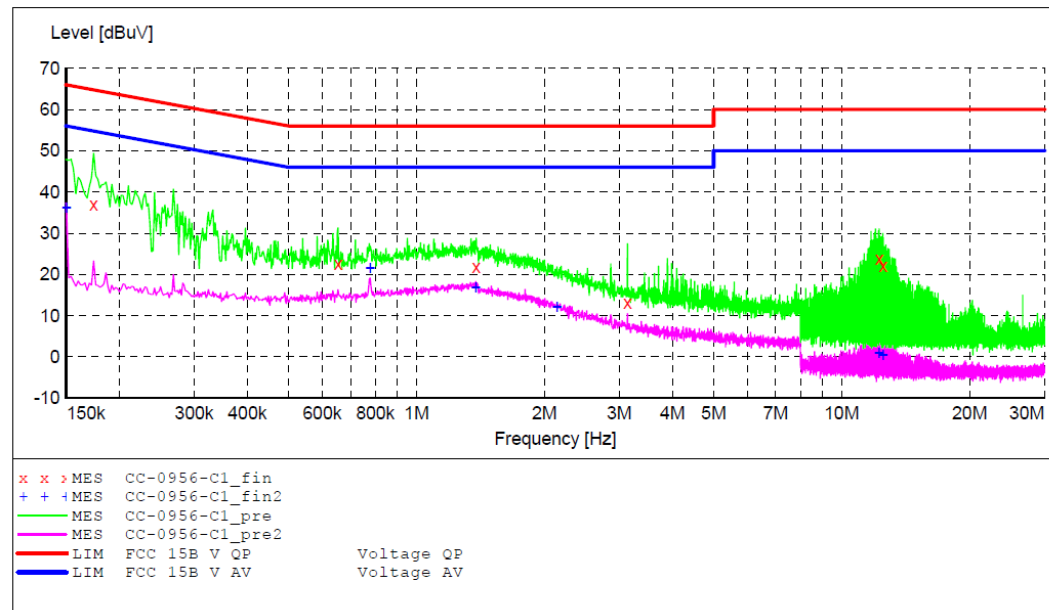
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Dog Trainer M/N:GDG4-1
 Manufacturer: Ho Lee Co.,LTD
 Operating Condition: ON
 Test Site: 2#Shielding Room
 Operator: Frank
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20190958
 Start of Test: 2019-12-3 / 15:00:27

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "CC-0956-C1_fin"

2019-12-3 15:02

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.174000	36.90	10.8	65	27.9	QP	L1	GND
0.654000	22.50	11.1	56	33.5	QP	L1	GND
1.382000	21.70	11.2	56	34.3	QP	L1	GND
3.135000	13.10	11.3	56	42.9	QP	L1	GND
12.260000	23.70	11.6	60	36.3	QP	L1	GND
12.500000	22.00	11.6	60	38.0	QP	L1	GND

MEASUREMENT RESULT: "CC-0956-C1_fin2"

2019-12-3 15:02

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	36.20	10.8	56	19.8	AV	L1	GND
0.778000	21.60	11.1	46	24.4	AV	L1	GND
1.378000	16.80	11.2	46	29.2	AV	L1	GND
2.140000	12.10	11.3	46	33.9	AV	L1	GND
12.225000	0.90	11.6	50	49.1	AV	L1	GND
12.500000	0.40	11.6	50	49.6	AV	L1	GND

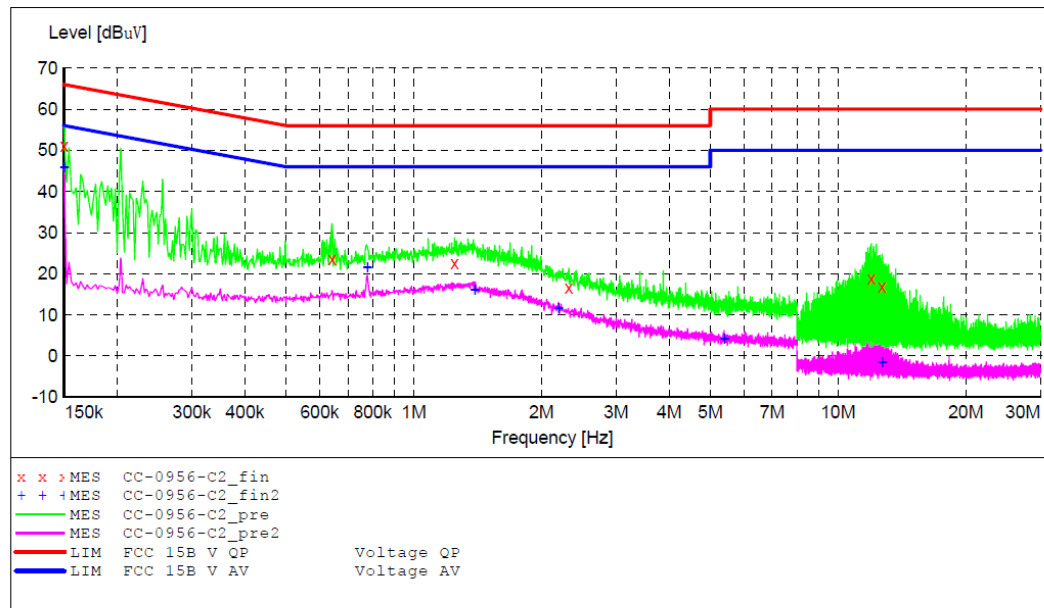
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Dog Trainer M/N:GDG4-1
 Manufacturer: Ho Lee Co., LTD
 Operating Condition: ON
 Test Site: 2#Shielding Room
 Operator: Frank
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20190958
 Start of Test: 2019-12-3 / 15:02:46

SCAN TABLE: "V 150K-30MHz fin"

Short Description: SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "CC-0956-C2_fin"

2019-12-3 15:04

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	51.10	10.8	66	14.9	QP	N	GND
0.642000	23.50	11.0	56	32.5	QP	N	GND
1.248000	22.50	11.2	56	33.5	QP	N	GND
2.320000	16.50	11.3	56	39.5	QP	N	GND
11.985000	18.80	11.6	60	41.2	QP	N	GND
12.715000	16.90	11.6	60	43.1	QP	N	GND

MEASUREMENT RESULT: "CC-0956-C2_fin2"

2019-12-3 15:04

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	45.90	10.8	56	10.1	AV	N	GND
0.778000	21.50	11.1	46	24.5	AV	N	GND
1.392000	16.20	11.2	46	29.8	AV	N	GND
2.195000	11.70	11.3	46	34.3	AV	N	GND
5.395000	4.30	11.5	50	45.7	AV	N	GND
12.715000	-1.40	11.6	50	51.4	AV	N	GND

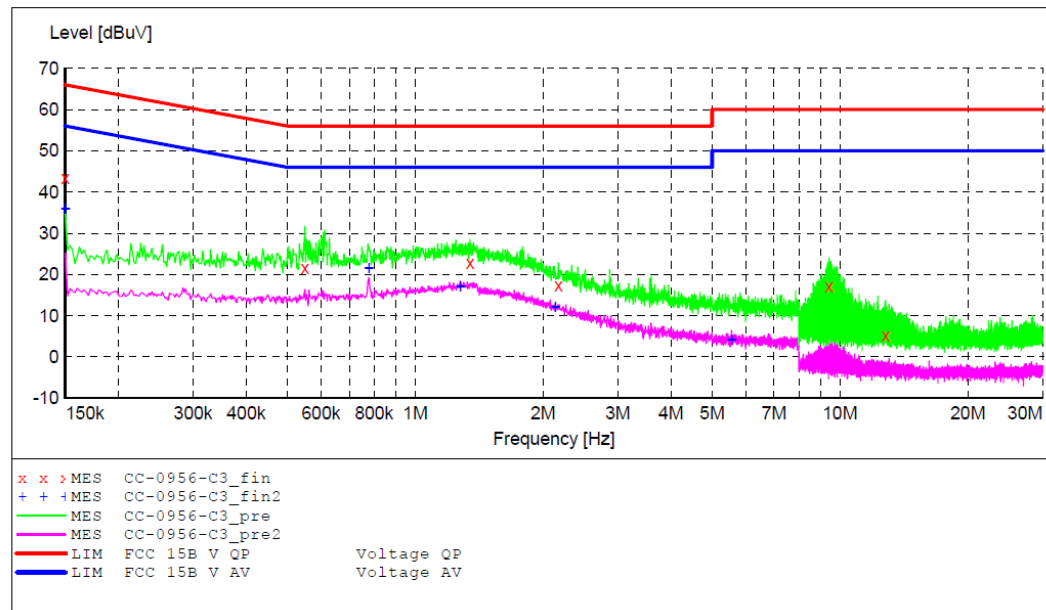
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Dog Trainer M/N:GDG4-1
 Manufacturer: Ho Lee Co.,LTD
 Operating Condition: ON
 Test Site: 2#Shielding Room
 Operator: Frank
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20190958
 Start of Test: 2019-12-3 / 15:05:15

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "CC-0956-C3_fin"

2019-12-3 15:07

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	43.30	10.8	66	22.7	QP	N	GND
0.550000	21.50	11.0	56	34.5	QP	N	GND
1.346000	22.80	11.2	56	33.2	QP	N	GND
2.175000	17.30	11.3	56	38.7	QP	N	GND
9.435000	17.00	11.6	60	43.0	QP	N	GND
12.805000	5.10	11.6	60	54.9	QP	N	GND

MEASUREMENT RESULT: "CC-0956-C3_fin2"

2019-12-3 15:07

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	36.00	10.8	56	20.0	AV	N	GND
0.778000	21.50	11.1	46	24.5	AV	N	GND
1.276000	17.20	11.2	46	28.8	AV	N	GND
2.135000	12.10	11.3	46	33.9	AV	N	GND
5.555000	4.30	11.5	50	45.7	AV	N	GND

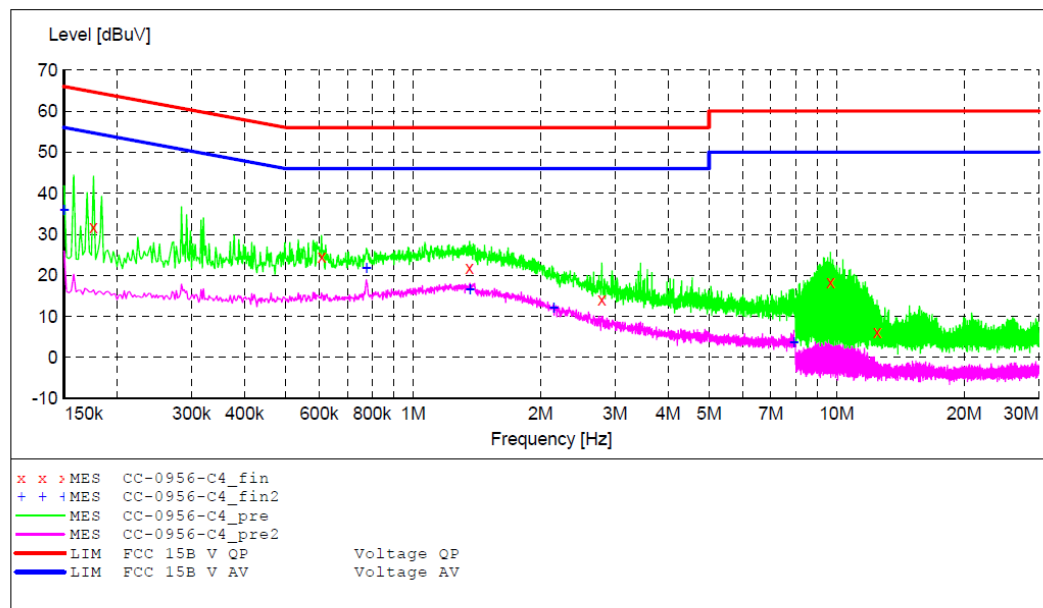
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Dog Trainer M/N:GDG4-1
 Manufacturer: Ho Lee Co.,LTD
 Operating Condition: ON
 Test Site: 2#Shielding Room
 Operator: Frank
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20190958
 Start of Test: 2019-12-3 / 15:07:45

SCAN TABLE: "V 150K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 150.0 kHz 30.0 MHz 4.5 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "CC-0956-C4_fin"

2019-12-3 15:09

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.176000	31.80	10.8	65	32.9	QP	L1	GND
0.608000	24.60	11.0	56	31.4	QP	L1	GND
1.360000	21.90	11.2	56	34.1	QP	L1	GND
2.790000	14.00	11.3	56	42.0	QP	L1	GND
9.670000	18.30	11.6	60	41.7	QP	L1	GND
12.470000	6.10	11.6	60	53.9	QP	L1	GND

MEASUREMENT RESULT: "CC-0956-C4_fin2"

2019-12-3 15:09

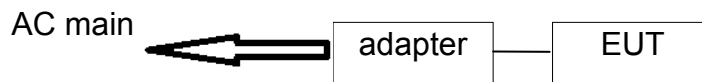
Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.150000	35.90	10.8	56	20.1	AV	L1	GND
0.776000	21.80	11.1	46	24.2	AV	L1	GND
1.362000	16.50	11.2	46	29.5	AV	L1	GND
2.145000	12.10	11.3	46	33.9	AV	L1	GND
7.935000	3.80	11.5	50	46.2	AV	L1	GND

5. RADIATED EMISSION MEASUREMENT

5.1. Block Diagram of Test

5.1.1. Block diagram of connection between the EUT and simulators

Test mode 1:



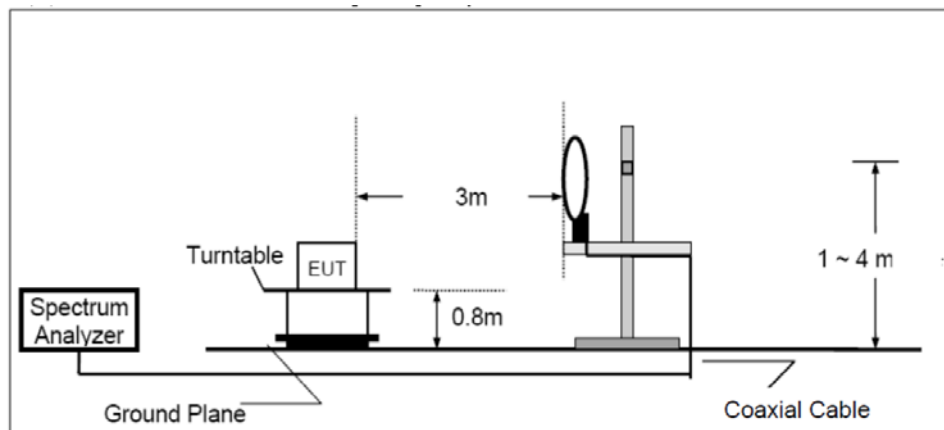
Test mode 2:



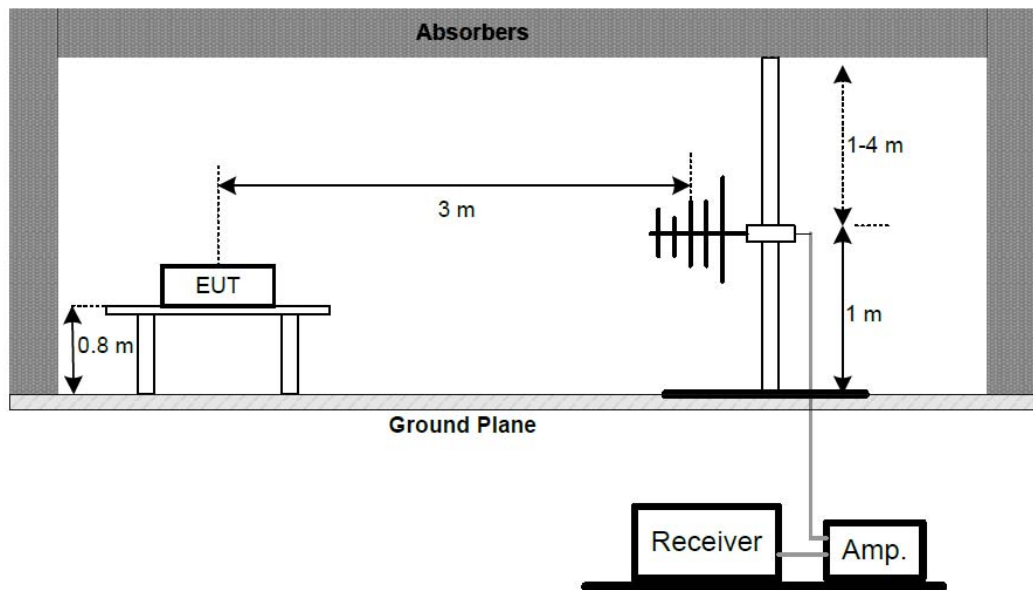
(EUT: Dog Trainer)

5.1.2. Block diagram of test setup (In chamber)

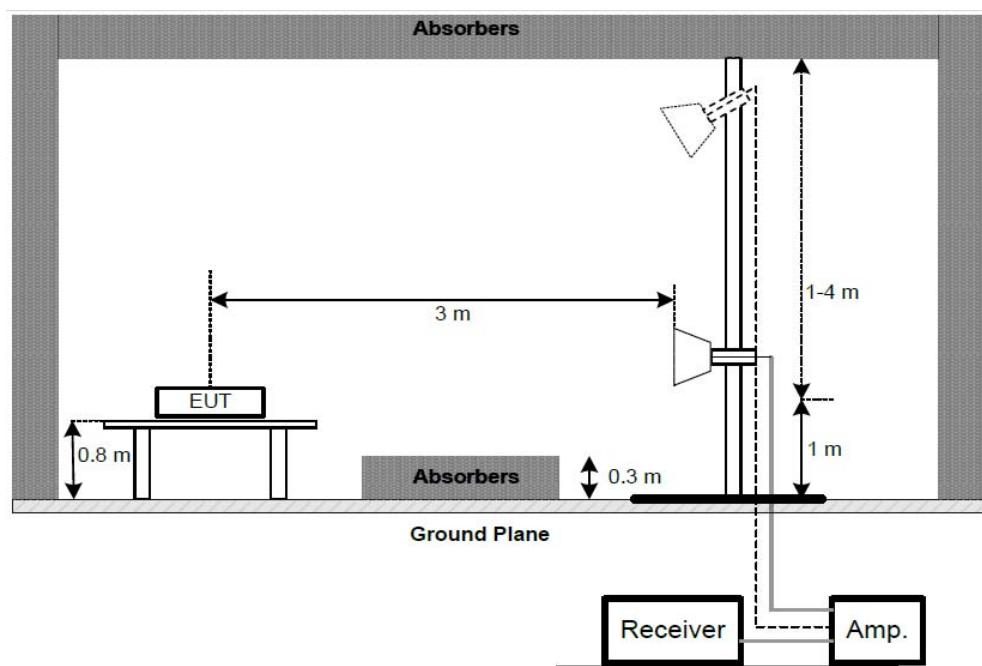
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(B) Radiated Emission Test Set-Up, Frequency below 1GHz



(C) Radiated Emission Test Set-Up, Frequency Above 1GHz



5.2.Radiated Emission Limit (Class B)

All emanations from a class B device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified below:

Frequency MHz	Distance Meters	Field Strengths Limit	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V/m})$
30-88	3	100	40.0
88-216	3	150	43.5
216-960	3	200	46.0
Above 960	3	500	54.0
Remark: (1) Emission level $\text{dB}(\mu\text{V}) = 20 \log \text{Emission level } \mu\text{V/m}$. (2) The smaller limit shall apply at the cross point between two frequency bands. (3) Distance is the distance in meters between the measuring instrument antenna and the closest point of any part of the device or system.			

5.3.Manufacturer

The following equipments are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

5.3.1.Dog Trainer (EUT)

Model Number: GDG4-1

Manufacturer: Ho Lee Co., Ltd.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3.Let the EUT work in test mode and measure it.

5.5.DATA SAMPLE

Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Remark
X.XX	49.83	-22.03	27.80	43.50	-15.70	QP

Frequency(MHz) = Emission frequency in MHz

Reading(dB μ V) = Uncorrected Analyzer/Receiver reading

Factor (dB/m)= Antenna factor + Cable Loss – Amplifier gain

Result(dB μ V/m) = Reading + Factor

Limit (dB μ V/m)= Limit stated in standard

Margin (dB) = Result(dB μ V/m) - Limit (dB μ V/m)

Calculation Formula:

Margin(dB) = Result (dB μ V/m)–Limit(dB μ V/m)

Result(dB μ V/m)= Reading(dB μ V)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

5.6.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4: 2014 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESCS30) is set at 120kHz.

The frequency range from 9kHz to 4000MHz is checked.

5.7.Radiated Emission Noise Measurement Result

PASS.

The radiation emissions from 9kHz-30MHz is not reported, because the test values lower than the limits of 20dB.

The spectral diagrams are attached as below.

Below 1GHz(test mode 1)



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

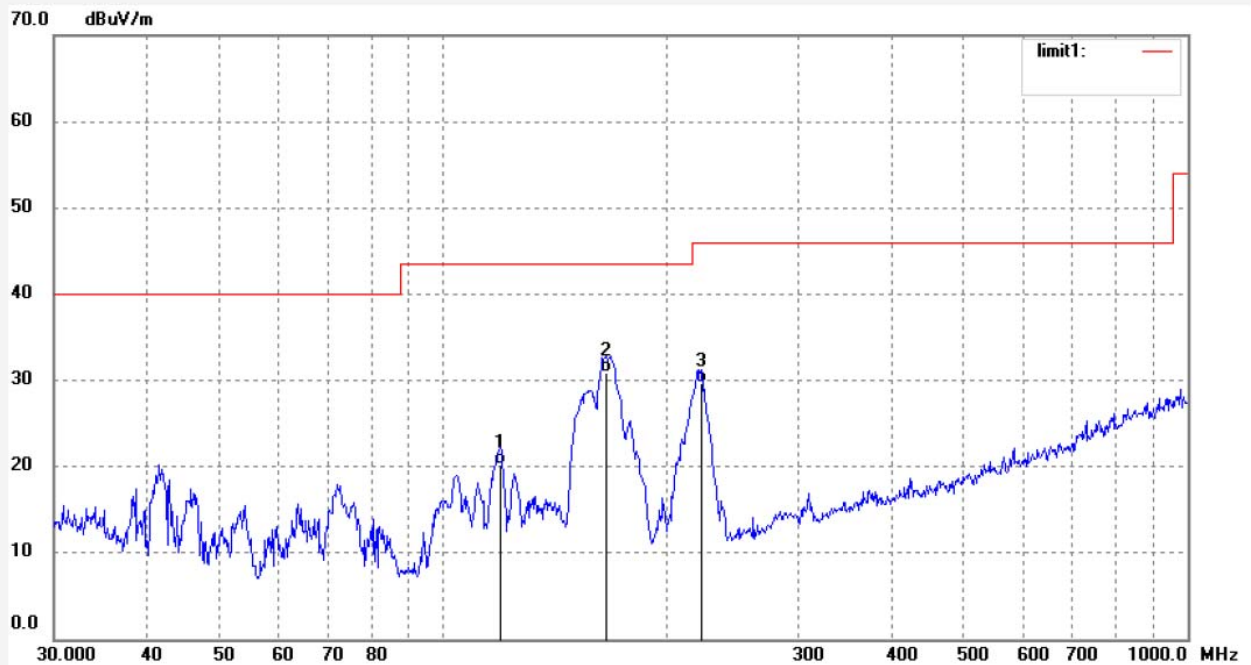
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: FRANK2019 #1696
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Dog Trainer
Mode: RX 315MHz
Model: GDG4-1
Manufacturer: Ho Lee Co., LTD.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2019/12/03
Time: 11:07:51
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20190958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	119.3470	47.67	-27.43	20.24	43.50	-23.26	QP			
2	166.0540	57.38	-26.42	30.96	43.50	-12.54	QP			
3	222.2806	53.62	-23.98	29.64	46.00	-16.36	QP			



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Report No.: ATE20190958

Page 21 of 37

Site: 1# Chamber

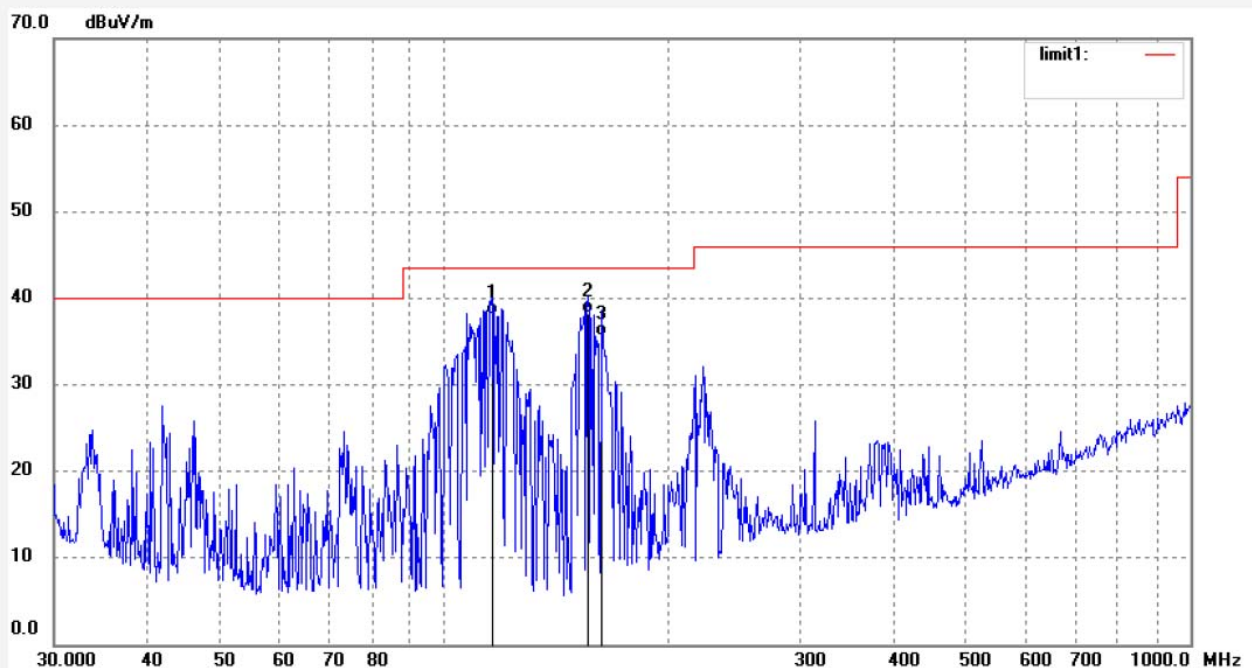
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: FRANK2019 #1697
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Dog Trainer
Mode: RX 315MHz
Model: GDG4-1
Manufacturer: Ho Lee Co., LTD.

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 2019/12/03
Time: 11:09:23
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20190958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	116.0391	65.35	-27.37	37.98	43.50	-5.52	QP			
2	155.8771	65.68	-27.52	38.16	43.50	-5.34	QP			
3	162.5900	62.35	-26.80	35.55	43.50	-7.95	QP			

Shenzhen Accurate Technology Co., Ltd.

Address: 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen 518057, P. R. China

Tel: +86-755-26503290

Fax: +86-755-26503396

E-mail: webmaster@atc-lab.com

Http://www.atc-lab.com

Below 1GHz(test mode 2)



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg.A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

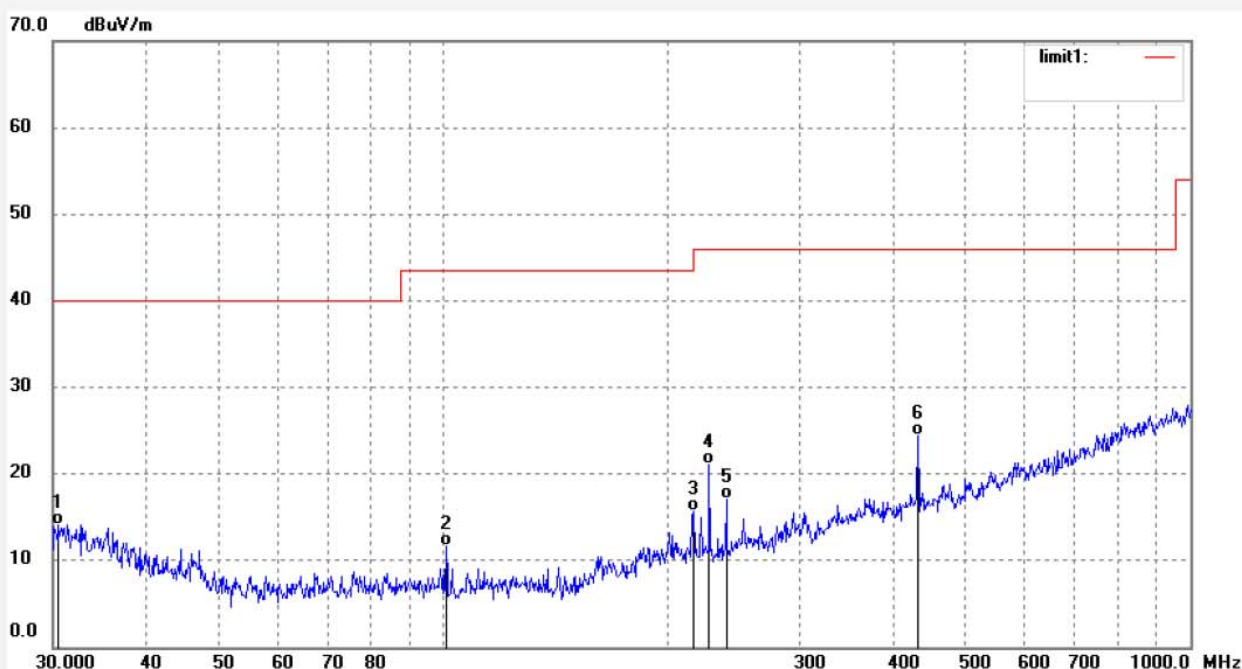
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: FRANK2019 #1207
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Dog Trainer
Mode: RX 315MHz
Model: GDG4-1
Manufacturer: Ho Lee Co., Ltd.

Polarization: Horizontal
Power Source: DC 9V
Date: 19/12/03/
Time: 10/39/11
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20190958

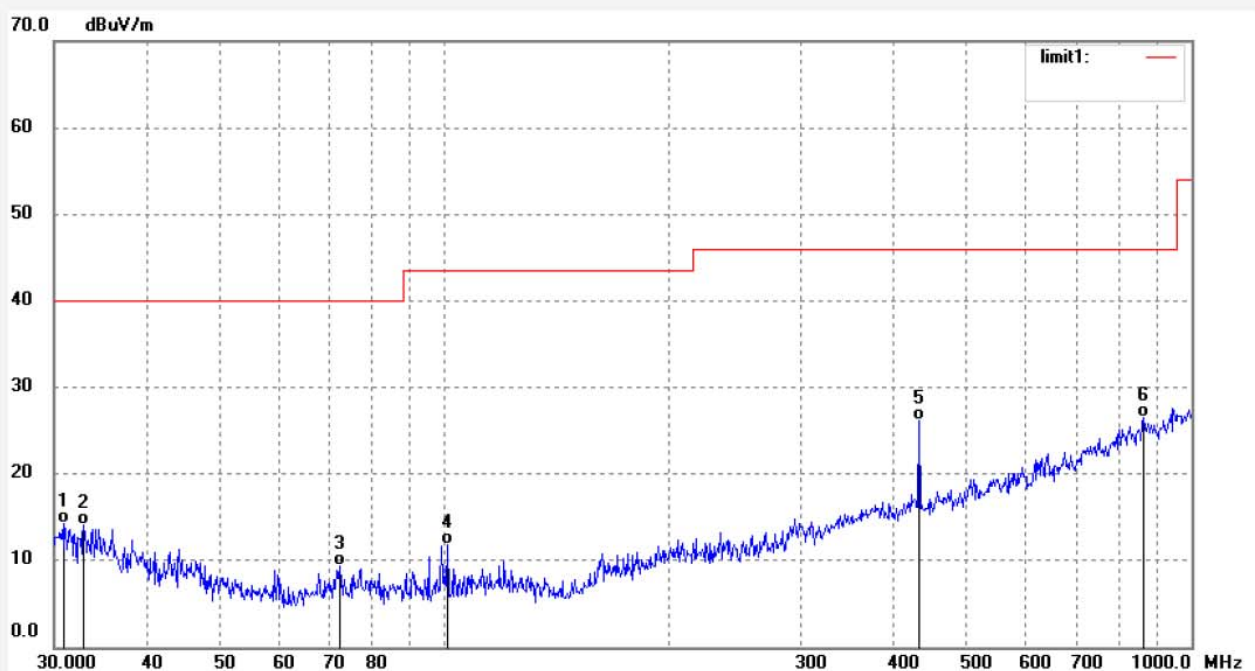


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.5317	34.48	-20.33	14.15	40.00	-25.85	QP			
2	100.8248	39.66	-28.05	11.61	43.50	-31.89	QP			
3	216.1197	39.72	-24.05	15.67	46.00	-30.33	QP			
4	227.0164	45.03	-23.90	21.13	46.00	-24.87	QP			
5	239.3020	40.80	-23.73	17.07	46.00	-28.93	QP			
6	431.8198	42.12	-17.73	24.39	46.00	-21.61	QP			

Job No.: FRANK2019 #1206
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Dog Trainer
Mode: RX 315MHz
Model: GDG4-1
Manufacturer: Ho Lee Co., Ltd.

Polarization: Vertical
Power Source: DC 9V
Date: 19/12/03/
Time: 10/38/23
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20190958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	30.9637	34.69	-20.44	14.25	40.00	-25.75	QP			
2	32.8697	34.95	-20.91	14.04	40.00	-25.96	QP			
3	72.4652	36.94	-27.59	9.35	40.00	-30.65	QP			
4	100.8247	39.93	-28.05	11.88	43.50	-31.62	QP			
5	431.8197	43.92	-17.73	26.19	46.00	-19.81	QP			
6	862.8015	34.25	-7.81	26.44	46.00	-19.56	QP			

Above 1GHz(test mode 1)



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

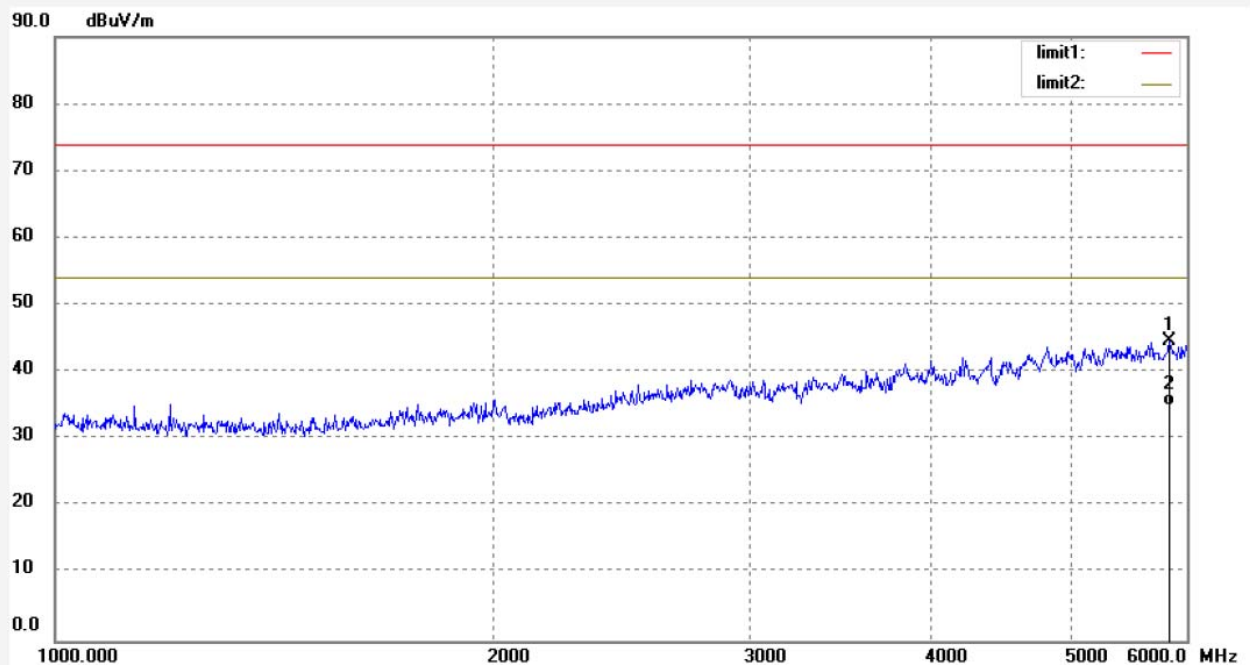
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: FRANK2019 #1707
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Dog Trainer
Mode: RX 315MHz
Model: GDG4-1
Manufacturer: Ho Lee Co., LTD.

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 2019/12/03
Time: 11:30:28
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20190958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	5839.942	41.73	2.91	44.64	74.00	-29.36	peak			
2	5839.942	32.12	2.91	35.03	54.00	-18.97	AVG			

Job No.: FRANK2019 #1706

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Dog Trainer

Mode: RX 315MHz

Model: GDG4-1

Manufacturer: Ho Lee Co., LTD.

Polarization: Vertical

Power Source: AC 120V/60Hz

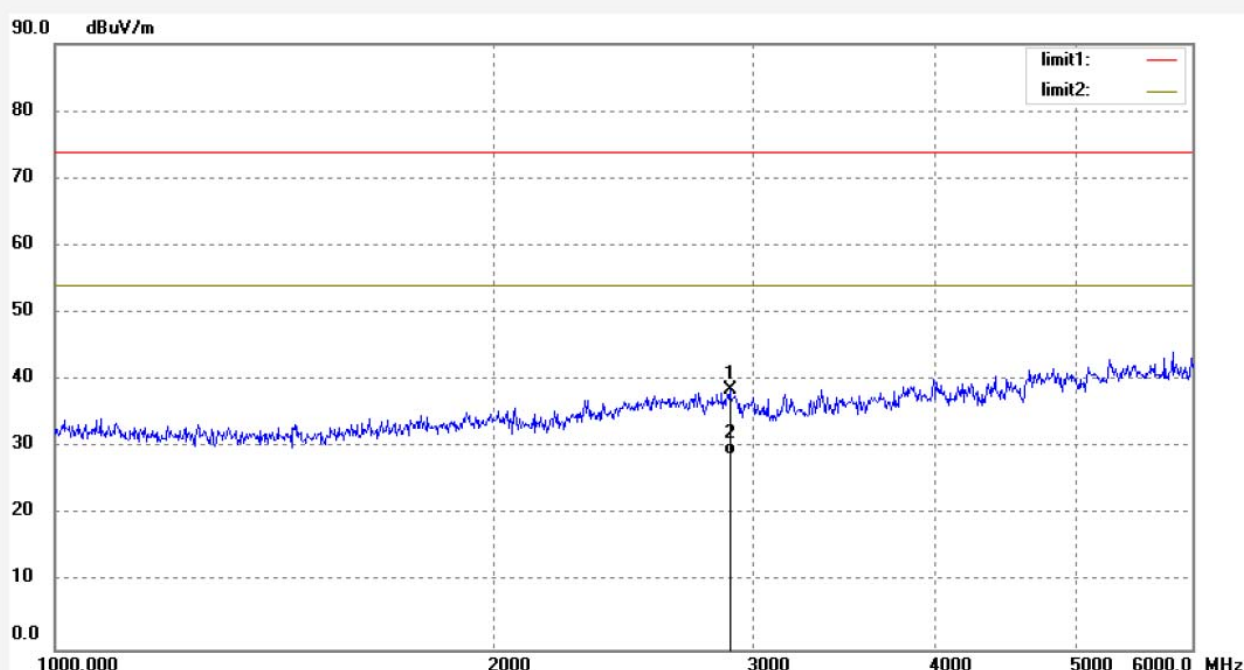
Date: 2019/12/03

Time: 11:29:34

Engineer Signature:

Distance: 3m

Note: Report NO.:ATE20190958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2896.547	42.26	-3.75	38.51	74.00	-35.49	peak			
2	2896.547	32.65	-3.75	28.90	54.00	-25.10	AVG			

Above 1GHz(test mode 2)



ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg.A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber

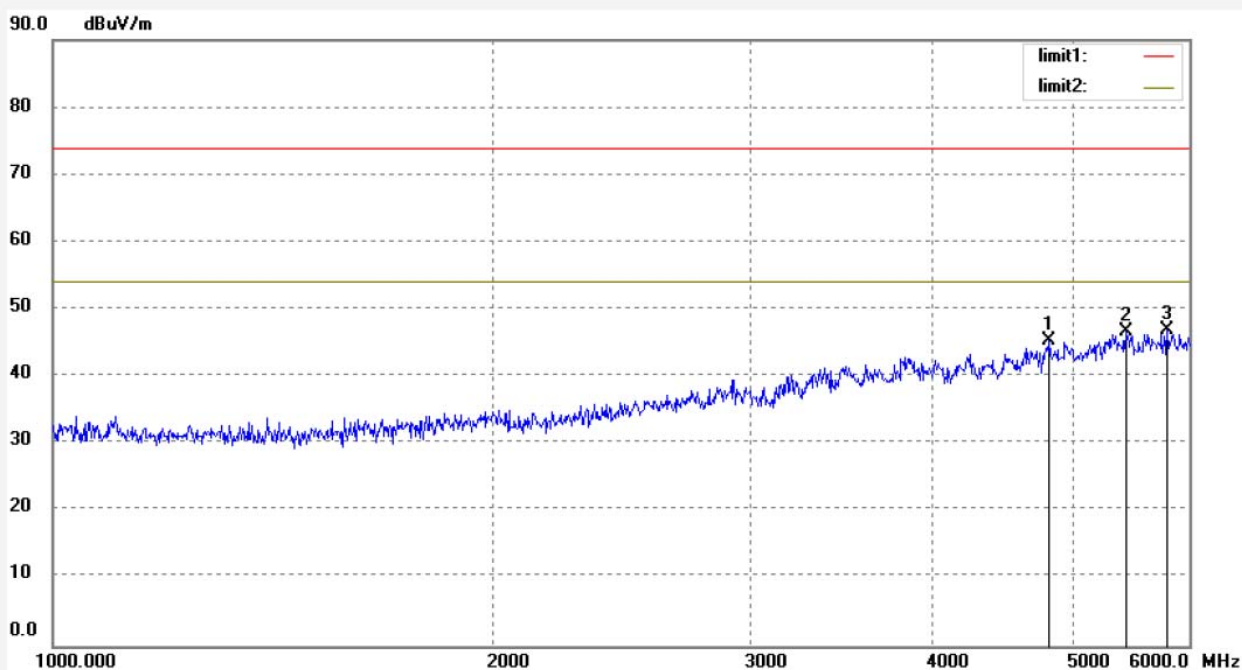
Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: FRANK2019 #1205
Standard: FCC PK
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: Dog Trainer
Mode: RX 315MHz
Model: GDG4-1
Manufacturer: Ho Lee Co., Ltd.

Polarization: Horizontal
Power Source: DC 9V
Date: 19/12/03/
Time: 10/36/21
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20190958



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	4815.526	44.37	1.07	45.44	74.00	-28.56	peak			
2	5433.687	44.28	2.37	46.65	74.00	-27.35	peak			
3	5797.985	44.12	2.86	46.98	74.00	-27.02	peak			

Job No.: FRANK2019 #1204

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: Dog Trainer

Mode: RX 315MHz

Model: GDG4-1

Manufacturer: Ho Lee Co., Ltd.

Polarization: Vertical

Power Source: DC 9V

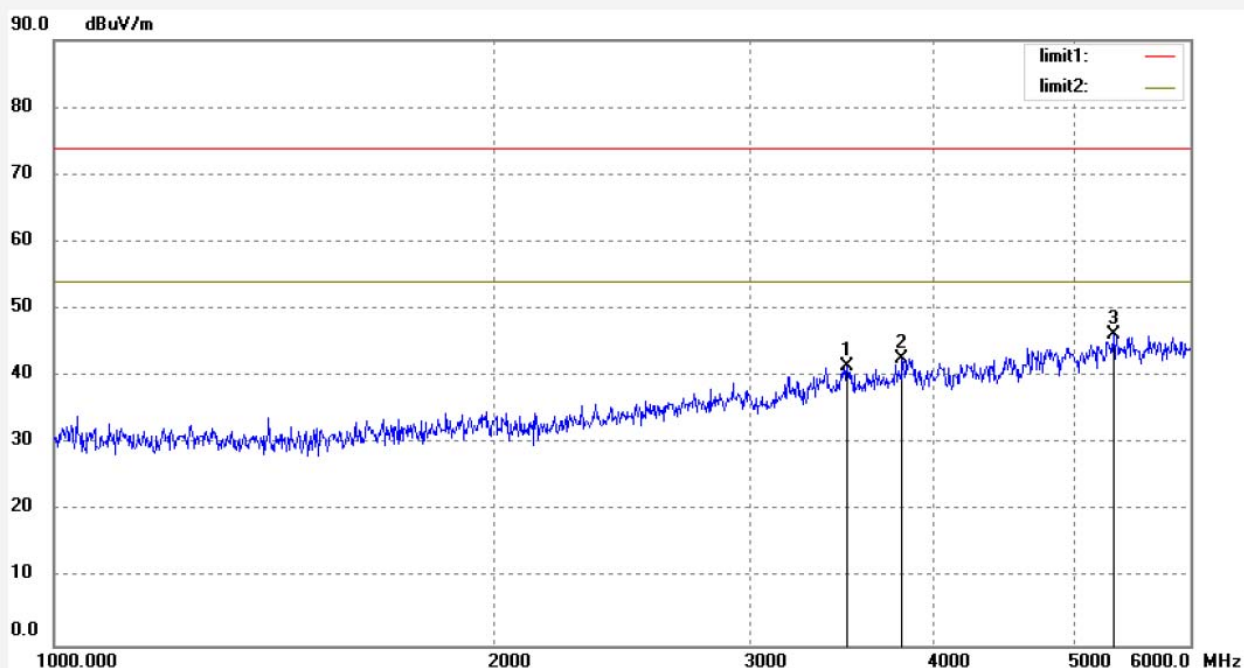
Date: 19/12/03/

Time: 10/36/15

Engineer Signature:

Distance: 3m

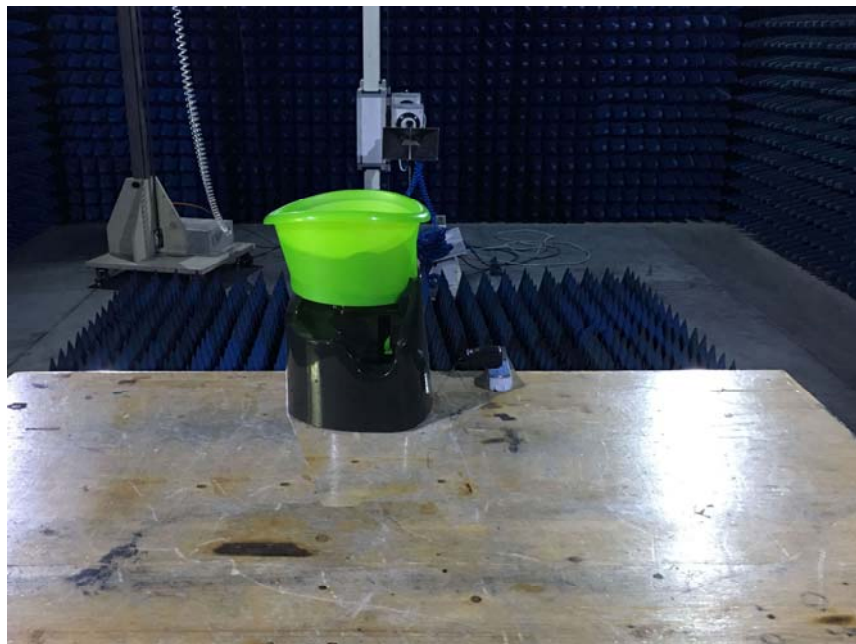
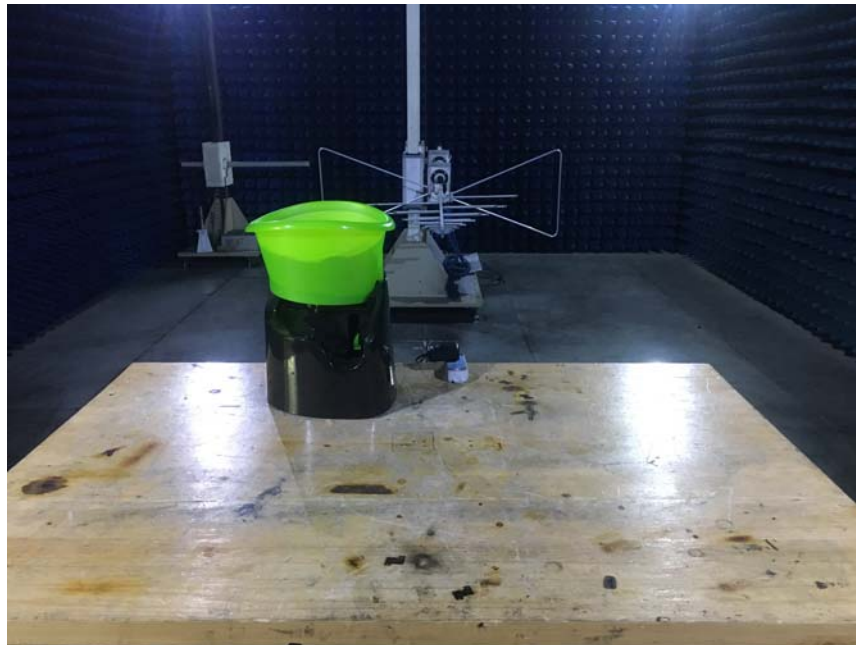
Note: Report NO.:ATE20190958

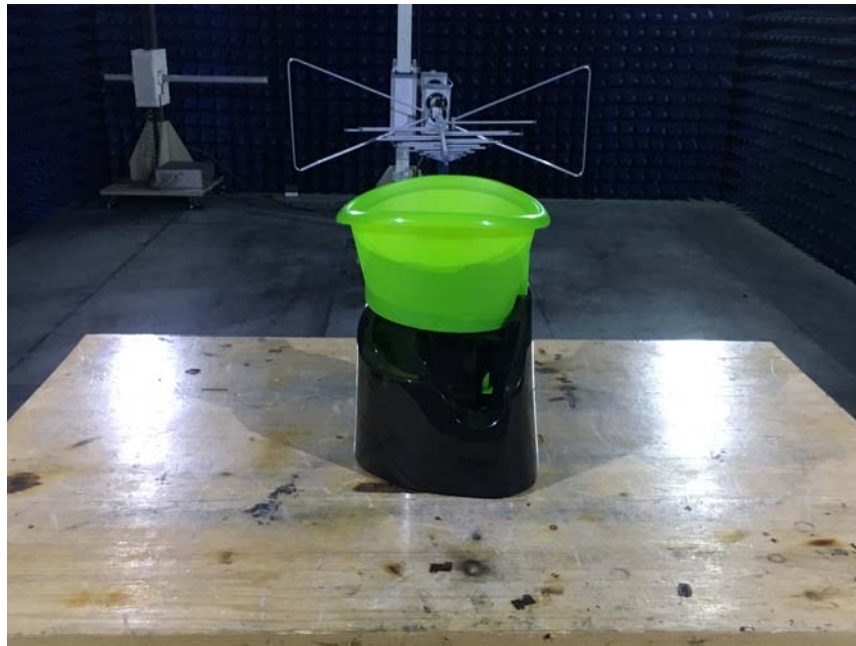


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	3493.790	43.25	-1.77	41.48	74.00	-32.52	peak			
2	3809.548	43.77	-1.16	42.61	74.00	-31.39	peak			
3	5317.413	43.99	2.24	46.23	74.00	-27.77	peak			

6. PHOTOGRAPHS

6.1.Photos of Radiated Emission Measurement





6.2.Photos of Conducted Emission Measurement



6.3. Photographs of the EUT









